

The CY91520 series is a Cypress 32-bit microcontroller designed for automotive devices. This series contains the FR81S CPU which is compatible with the FR family.

Note: This series is a composition of the end of the above-mentioned each name of articles of presence, According to Presence of sub-clock, CSV initial value and LVD initial value. Please see "Ordering Information" for details.

Features

FR81S CPU Core

- 32-bit RISC, load/store architecture, pipeline 5-stage structure
- Maximum operating frequency: 80 MHz (Source oscillation = 4.0 MHz and 20 multiplied (PLL clock multiplication system))
- General-purpose register : 32 bits × 16 sets
- 16-bit fixed length instructions (basic instruction), 1 instruction per cycle
- Instructions appropriate to embedded applications
 - Memory-to-memory transfer instruction
 - Bit processing instruction
 - Barrel shift order etc.
- High-level language support instructions
- Function entry/exit instructions
- Register content multi-load and store instructions
- Bit search instructions
Logical 1 detection, 0 detection, and change-point detection
- Branch instructions with delay slot
- Overhead reduction during branch process
- Register interlock function
- Easy assembler writing
- The support at the built-in / instruction level of the multiplier
- Signed 32-bit multiplication: 5 cycles
- Signed 16-bit multiplication: 3 cycles
- Interrupt (PC/PS saving)
6 cycles (16 priority levels)
- The Harvard architecture allows simultaneous execution of program and data access.
- Instruction compatibility with the FR Family
- Built-in memory protection function (MPU)
 - Eight protection areas can be specified commonly for instructions and the data.
 - Control access privilege in both privilege mode and user mode.
- Built-in FPU (floating point arithmetic)
 - IEEE754 compliant
 - Floating-point register 32-bit × 16 sets

Peripheral Functions

- Clock generation (equipped with SSCG function)
 - Main oscillation (4 MHz to 16 MHz)
 - Sub oscillation (32 kHz) or none sub oscillation
 - PLL multiplication rate : 1 to 20 times
 - Equipped with a 100 kHz CR oscillator
- Built-in program flash memory capacity
 - CY91F522: 256 +64 KB
 - CY91F523: 384 + 64 KB
 - CY91F524: 512 + 64 KB
 - CY91F525: 768 + 64 KB
 - CY91F526: 1024 + 64 KB
- Flash memory for built-in data (WorkFlash) 64 KB
- Built-in RAM capacity
 - Main RAM
 - CY91F522: 48 KB
 - CY91F523: 48 KB
 - CY91F524: 64 KB
 - CY91F525: 96 KB
 - CY91F526: 128 KB
 - Backup RAM 8 KB
- General-purpose ports:
 - CY91F52xB 44 sets (No sub oscillation), 42 sets (sub oscillation)
 - CY91F52xD 56 sets (No sub oscillation), 54 sets (sub oscillation)
 - CY91F52xF 76 sets (No sub oscillation), 74 sets (sub oscillation)
 - CY91F52xJ 96 sets (No sub oscillation), 94 sets (sub oscillation)
 - CY91F52xK 120 sets (No sub oscillation), 118 sets (sub oscillation)
 - CY91F52xL 152 sets (No sub oscillation), 150 sets (sub oscillation)
 - Included I²C open drain corresponding ports:16 sets
- External bus interface
 - 22-bit address, 16-bit data
- DMA Controller
 - Up to 16 channels can be started simultaneously.
 - 2 transfer factors (Internal peripheral request and software)
- A/D converter (successive approximation type)
 - 12-bit resolution : Max. 48 ch (32 ch + 16 ch)
 - Conversion time : 1.4 μs

- D/A converter (R-2R type)
 - 8-bit resolution : 2 ch
- External interrupt input: 8 channels × 2 units total 16 channels
 - Level ("H" / "L"), or edge detection (rising or falling) enabled
- Multi-function serial communication (built-in transmission/reception FIFO memory) : Max.12 channels
 - 5 V tolerant input: 4 channels ch.6, ch.8, ch.9, ch.11 CMOS hysteresis input < UART (Asynchronous serial interface) >
 - Full-duplex double buffering system, 64-step transmission FIFO memory, 64-step reception FIFO memory
 - Parity or no parity is selectable.
 - Built-in dedicated baud rate generator
 - An external clock can be used as the transfer clock
 - Parity, frame, and overrun error detection functions provided
 - DMA transfer support < CSIO (Synchronous serial interface) >
 - Full-duplex double buffering system, 64-step transmission FIFO memory, 64-step reception FIFO memory
 - SPI supported; master and slave systems supported; 5 to 16, 20, 24, 32-bit data length can be set.
 - Built-in dedicated baud rate generator (Master operation)
 - An external clock can be entered. (Slave operation)
 - Overrun error detection function is provided
 - DMA transfer support
 - Serial chip select SPI function < LIN (Asynchronous Serial Interface for LIN) >
 - Full-duplex double buffering system, 64-step transmission FIFO memory, 64-step reception FIFO memory
 - LIN protocol revision 2.1 supported
 - Master and slave systems supported
 - Framing error and overrun error detection
 - LIN synch break generation and detection; LIN synch delimiter generation
 - Built-in dedicated baud rate generator
 - An external clock can be adjusted by the reload counter
 - DMA transfer support
 - Hard assist function < I²C >
 - 2 channels ch.3 , ch.4 Standard mode/fast mode supported.
 - 6 channels ch.5 to ch.8, ch.10, ch.11 Standard mode supported.
 - Full-duplex double buffering system, 64-step transmission FIFO memory, 64-step reception FIFO memory
 - Standard mode (Max. 100 kbps) / fast mode (Max. 400 kbps) supported
 - DMA transfer supported (for transmission only)
- CAN Controller (CAN) : 3 channels
 - Transfer speed : Up to 1 Mbps
 - 128-transmission/reception message buffering : 1 channel (ch.0), 64-transmission/reception message buffering : 2 channels (ch.1 and ch.2)
- PPG: 16-bit × Max. 48 channels
 - LED drive output 4 channels 11 ch to 14 ch
 - Reload timer : 16-bit × Max.8 channels
 - Free-run timer : 16-bit × 3 channels 32-bit × Max 3 channels
- Input capture :
 - 16-bit × 4 channels (linked to the free-run timer)
 - 32-bit × Max 6 channels (linked to the free-run timer)
- Output compare :
 - 16-bit × 6 channels (linked to the free-run timer)
 - 32-bit × Max 6 channels (linked to the free-run timer)
- Waveform generator : 6 channels
- Up/Down counter
 - 8-/16-bit Up/Down counter × 2 channels
- Real-time clock (RTC) (for day, hours, minutes, seconds)
 - Main or sub oscillation frequency can be selected for the operation clock
- Calibration: Real-time clock (RTC) of the subclock drive
 - The main clock to sub clock ratio can be corrected by setting the real-time clock prescaler
- Clock Supervisor
 - Monitoring abnormality (by damaged quartz, etc.) of suboscillation (32 kHz) (dual clock products) of the outside and main oscillation (4 MHz)
 - When abnormality is detected, it switches to the CR clock.
 - Initial value ON/OFF can be selected by the part number.
- Base timer : Max.2 channels
 - 16-bit timer
 - Any of four PWM/PPG/PWC/reload timer functions can be selected and used
 - As for the PWC function and the reload timer function, a pair of 16-bit timers can be used as one 32-bit timer in the cascade mode
- CRC generation
- Watchdog timer
 - Hardware watchdog
 - Software watchdog (possible to set the valid range for counter clearing)
- NMI (non-maskable interrupt)
- Interrupt controller
- Interrupt request batch read
 - The interrupt existence from two or more peripherals can be read by a series of register.
- I/O relocation
 - Peripheral function pins can be reassigned.
- Low-power consumption mode
 - Sleep / Stop / Watch / Sub RUN mode
 - Stop (power shutdown) / Watch (power shutdown) mode

- Power-on reset
- Low-voltage detection reset (independently monitor the external power supply and the internal power supply)
 - The external power supply can select initial value ON/OFF by the part number.
- Device Package : 176/144/120/100/80/64
- CMOS 90 nm Technology
- Power supplies
 - 5 V Power supply
 - The internal 1.2 V is generated from 5 V with the voltage step-down circuit

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1. Product Lineup

Product Lineup Comparison 64 Pins

| | CY91F522B | CY91F523B | CY91F524B | CY91F525B | CY91F526B |
|--|--|-------------|-------------|-------------|--------------|
| System Clock | On chip PLL Clock multiple method | | | | |
| Minimum instruction execution time | 12.5 ns (80 MHz) | | | | |
| Flash Capacity (Program) | (256+64) KB | (384+64) KB | (512+64) KB | (768+64) KB | (1024+64) KB |
| Flash Capacity (Data) | 64 KB | | | | |
| RAM Capacity | (48+8) KB | | (64+8) KB | (96+8) KB | (128+8) KB |
| External BUS I/F (22 address/16 data/4 cs) | None | | | | |
| DMA Transfer | 16 ch | | | | |
| 16-bit Base Timer | None | | | | |
| Free-run Timer | 16 bit × 3 ch, 32 bit × 1 ch | | | | |
| Input capture | 16 bit × 4 ch, 32 bit × 5 ch | | | | |
| Output Compare | 16 bit × 6 ch, 32 bit × 4 ch | | | | |
| 16-bit Reload Timer | 7 ch | | | | |
| PPG | 16 bit × 21 ch | | | | |
| Up/down Counter | 2 ch | | | | |
| Clock Supervisor | Yes | | | | |
| External Interrupt | 8 ch × 2 units | | | | |
| A/D converter | 12 bit × 13 ch (1 unit), 12 bit × 13 ch (1 unit) | | | | |
| D/A converter (8 bit) | 1 ch | | | | |
| Multi-Function Serial Interface | 8 ch ^{*1} | | | | |
| CAN | 64 msg × 2 ch/128 msg × 1 ch | | | | |
| Hardware Watchdog Timer | Yes | | | | |
| CRC Formation | Yes | | | | |
| Low-voltage detection reset | Yes | | | | |
| Flash Security | Yes | | | | |
| ECC Flash/WorkFlash | Yes | | | | |
| ECC RAM | Yes | | | | |
| Memory Protection Function (MPU) | Yes | | | | |
| Floating point arithmetic (FPU) | Yes | | | | |
| Real Time Clock (RTC) | Yes | | | | |
| General-purpose port (#GPIOs) | 44 ports | | | | |
| SSCG | Yes | | | | |
| Sub clock | Yes | | | | |
| CR oscillator | Yes | | | | |
| OCD (On Chip Debug) | Yes | | | | |
| TPU (Timing Protection Unit) | Yes | | | | |
| Key code register | Yes | | | | |
| Waveform generator | 6 ch | | | | |
| NMI request function | Yes | | | | |
| Operation guaranteed temperature (T _A) | -40 °C to +125 °C | | | | |
| Power supply | 2.7 V to 5.5 V ^{*2} | | | | |
| Package | LQD064 | | | | |

*1: Only channel 5, channel 6 and channel 11 support the I²C (standard mode).

*2: The initial detection voltage of the external low voltage detection is 2.8 V ± 8 % (2.576 V to 3.024 V). This LVD setting and internal LVD cannot be used to reliably generate a reset before voltage dips below minimum guaranteed operation voltage, as these detection levels are below the minimum guaranteed MCU operation voltage. Below the minimum guaranteed MCU operation voltage, MCU operations are not guaranteed with the exception of LVD.

Product Lineup Comparison 80 Pins

| | CY91F522D | CY91F523D | CY91F524D | CY91F525D | CY91F526D |
|---|--|-------------|-------------|-------------|--------------|
| System Clock | On chip PLL Clock multiple method | | | | |
| Minimum instruction execution time | 12.5 ns (80 MHz) | | | | |
| Flash Capacity (Program) | (256+64) KB | (384+64) KB | (512+64) KB | (768+64) KB | (1024+64) KB |
| Flash Capacity (Data) | 64 KB | | | | |
| RAM Capacity | (48+8) KB | (64+8) KB | (96+8) KB | (128+8) KB | |
| External BUS I/F (22 address/16 data/4 cs) | None | | | | |
| DMA Transfer | 16 ch | | | | |
| 16-bit Base Timer | 1 ch | | | | |
| Free-run Timer | 16 bit × 3 ch, 32 bit × 2 ch | | | | |
| Input capture | 16 bit × 4 ch, 32 bit × 5 ch | | | | |
| Output Compare | 16 bit × 6 ch, 32 bit × 4 ch | | | | |
| 16-bit Reload Timer | 7 ch | | | | |
| PPG | 16 bit × 27 ch | | | | |
| Up/down Counter | 2 ch | | | | |
| Clock Supervisor | Yes | | | | |
| External Interrupt | 8 ch × 2 units | | | | |
| A/D converter | 12 bit × 16 ch (1 unit), 12 bit × 16 ch (1 unit) | | | | |
| D/A converter (8 bit) | 1 ch | | | | |
| Multi-Function Serial Interface | 9 ch ^{*1} | | | | |
| CAN | 64 msg × 2 ch/128 msg × 1 ch | | | | |
| Hardware Watchdog Timer | Yes | | | | |
| CRC Formation | Yes | | | | |
| Low-voltage detection reset | Yes | | | | |
| Flash Security | Yes | | | | |
| ECC Flash/WorkFlash | Yes | | | | |
| ECC RAM | Yes | | | | |
| Memory Protection Function (MPU) | Yes | | | | |
| Floating point arithmetic (FPU) | Yes | | | | |
| Real Time Clock (RTC) | Yes | | | | |
| General-purpose port (#GPIOs) | 56 ports | | | | |
| SSCG | Yes | | | | |
| Sub clock | Yes | | | | |
| CR oscillator | Yes | | | | |
| NMI request function | Yes | | | | |
| OCD (On Chip Debug) | Yes | | | | |
| TPU (Timing Protection Unit) | Yes | | | | |
| Key code register | Yes | | | | |
| Waveform generator | 6 ch | | | | |
| Operation guaranteed temperature (T _A) | -40 °C to +125 °C | | | | |
| Power supply | 2.7 V to 5.5 V ^{*2} | | | | |
| Package | LQH080 | | | | |

*1: Only channel 5, channel 6 and channel 11 support the I²C (standard mode).

*2: The initial detection voltage of the external low voltage detection is 2.8 V ± 8 % (2.576 V to 3.024 V). This LVD setting and internal LVD cannot be used to reliably generate a reset before voltage dips below minimum guaranteed operation voltage, as these detection levels are below the minimum guaranteed MCU operation voltage. Below the minimum guaranteed MCU operation voltage, MCU operations are not guaranteed with the exception of LVD.

Product Lineup Comparison 100 Pins

| | CY91F522F | CY91F523F | CY91F524F | CY91F525F | CY91F526F |
|---|--|-------------|-------------|-------------|--------------|
| System Clock | On chip PLL Clock multiple method | | | | |
| Minimum instruction execution time | 12.5 ns (80 MHz) | | | | |
| Flash Capacity (Program) | (256+64) KB | (384+64) KB | (512+64) KB | (768+64) KB | (1024+64) KB |
| Flash Capacity (Data) | 64 KB | | | | |
| RAM Capacity | (48+8) KB | (64+8) KB | (96+8) KB | (128+8) KB | |
| External BUS I/F (22 address/16 data/4 cs) | None | | | | |
| DMA Transfer | 16 ch | | | | |
| 16-bit Base Timer | 1 ch | | | | |
| Free-run Timer | 16 bit x 3 ch, 32 bit x 3 ch | | | | |
| Input capture | 16 bit x 4 ch, 32 bit x 6 ch | | | | |
| Output Compare | 16 bit x 6 ch, 32 bit x 6 ch | | | | |
| 16-bit Reload Timer | 8 ch | | | | |
| PPG | 16 bit x 34 ch | | | | |
| Up/down Counter | 2 ch | | | | |
| Clock Supervisor | Yes | | | | |
| External Interrupt | 8 ch x 2 units | | | | |
| A/D converter | 12 bit x 21 ch (1 unit), 12 bit x 16 ch (1 unit) | | | | |
| D/A converter (8 bit) | 2 ch | | | | |
| Multi-Function Serial Interface | 12 ch ^{*1} | | | | |
| CAN | 64 msg x 2 ch/128 msg x 1 ch | | | | |
| Hardware Watchdog Timer | Yes | | | | |
| CRC Formation | Yes | | | | |
| Low-voltage detection reset | Yes | | | | |
| Flash Security | Yes | | | | |
| ECC Flash/WorkFlash | Yes | | | | |
| ECC RAM | Yes | | | | |
| Memory Protection Function (MPU) | Yes | | | | |
| Floating point arithmetic (FPU) | Yes | | | | |
| Real Time Clock (RTC) | Yes | | | | |
| General-purpose port (#GPIOs) | 76 ports | | | | |
| SSCG | Yes | | | | |
| Sub clock | Yes | | | | |
| CR oscillator | Yes | | | | |
| NMI request function | Yes | | | | |
| OCD (On Chip Debug) | Yes | | | | |
| TPU (Timing Protection Unit) | Yes | | | | |
| Key code register | Yes | | | | |
| Waveform generator | 6 ch | | | | |
| Operation guaranteed temperature (T _A) | -40 °C to +125 °C | | | | |
| Power supply | 2.7 V to 5.5 V ^{*2} | | | | |
| Package | LQ100 | | | | |

*1: Only channel 5, channel 6, channel 7, channel 8 and channel 11 support the I2C (standard mode).

*2: The initial detection voltage of the external low voltage detection is 2.8 V ± 8 % (2.576 V to 3.024 V). This LVD setting and internal LVD cannot be used to reliably generate a reset before voltage dips below minimum guaranteed operation voltage, as these detection levels are below the minimum guaranteed MCU operation voltage. Below the minimum guaranteed MCU operation voltage, MCU operations are not guaranteed with the exception of LVD.

Product Lineup Comparison 120 Pins

| | CY91F522J | CY91F523J | CY91F524J | CY91F525J | CY91F526J |
|--|--|-------------|-------------|-------------|--------------|
| System Clock | On chip PLL Clock multiple method | | | | |
| Minimum instruction execution time | 12.5 ns (80 MHz) | | | | |
| Flash Capacity (Program) | (256+64) KB | (384+64) KB | (512+64) KB | (768+64) KB | (1024+64) KB |
| Flash Capacity (Data) | 64 KB | | | | |
| RAM Capacity | (48+8) KB | (64+8) KB | (96+8) KB | (128+8) KB | |
| External BUS I/F (22 address/16 data/4 cs) | None | | | | |
| DMA Transfer | 16 ch | | | | |
| 16-bit Base Timer | 2 ch | | | | |
| Free-run Timer | 16 bit x 3 ch, 32 bit x 3 ch | | | | |
| Input capture | 16 bit x 4 ch, 32 bit x 6 ch | | | | |
| Output Compare | 16 bit x 6 ch, 32 bit x 6 ch | | | | |
| 16-bit Reload Timer | 8 ch | | | | |
| PPG | 16 bit x 38 ch | | | | |
| Up/down Counter | 2 ch | | | | |
| Clock Supervisor | Yes | | | | |
| External Interrupt | 8 ch x 2 units | | | | |
| A/D converter | 12 bit x 26 ch (1 unit), 12 bit x 16 ch (1 unit) | | | | |
| D/A converter (8 bit) | 2 ch | | | | |
| Multi-Function Serial Interface | 12 ch ^{*1} | | | | |
| CAN | 64 msg x 2 ch/128 msg x 1 ch | | | | |
| Hardware Watchdog Timer | Yes | | | | |
| CRC Formation | Yes | | | | |
| Low-voltage detection reset | Yes | | | | |
| Flash Security | Yes | | | | |
| ECC Flash/WorkFlash | Yes | | | | |
| ECC RAM | Yes | | | | |
| Memory Protection Function (MPU) | Yes | | | | |
| Floating point arithmetic (FPU) | Yes | | | | |
| Real Time Clock (RTC) | Yes | | | | |
| General-purpose port (#GPIOs) | 96 ports | | | | |
| SSCG | Yes | | | | |
| Sub clock | Yes | | | | |
| CR oscillator | Yes | | | | |
| NMI request function | Yes | | | | |
| OCD (On Chip Debug) | Yes | | | | |
| TPU (Timing Protection Unit) | Yes | | | | |
| Key code register | Yes | | | | |
| Waveform generator | 6 ch | | | | |
| Operation guaranteed temperature (T _A) | -40 °C to +125 °C | | | | |
| Power supply | 2.7 V to 5.5 V ^{*2} | | | | |
| Package | LQM120 | | | | |

*1: Only channel 3 and channel 4 support the I²C (fast mode/standard mode).

Only channel 5, channel 6, channel 7, channel 8 and channel 11 support the I²C (standard mode).

*2: The initial detection voltage of the external low voltage detection is 2.8 V ± 8 % (2.576 V to 3.024 V). This LVD setting and internal LVD cannot be used to reliably generate a reset before voltage dips below minimum guaranteed operation voltage, as these detection levels are below the minimum guaranteed MCU operation voltage. Below the minimum guaranteed MCU operation voltage, MCU operations are not guaranteed with the exception of LVD.

Product Lineup Comparison 144 Pins

| | CY91F522K | CY91F523K | CY91F524K | CY91F525K | CY91F526K |
|--|--|-------------|-------------|-------------|--------------|
| System Clock | On chip PLL Clock multiple method | | | | |
| Minimum instruction execution time | 12.5 ns (80 MHz) | | | | |
| Flash Capacity (Program) | (256+64) KB | (384+64) KB | (512+64) KB | (768+64) KB | (1024+64) KB |
| Flash Capacity (Data) | 64 KB | | | | |
| RAM Capacity | (48+8) KB | (64+8) KB | (96+8) KB | (128+8) KB | |
| External BUS I/F (22 address/16 data/4 cs) | Yes | | | | |
| DMA Transfer | 16 ch | | | | |
| 16-bit Base Timer | 2 ch | | | | |
| Free-run Timer | 16 bit x 3 ch, 32 bit x 3 ch | | | | |
| Input capture | 16 bit x 4 ch, 32 bit x 6 ch | | | | |
| Output Compare | 16 bit x 6 ch, 32 bit x 6 ch | | | | |
| 16-bit Reload Timer | 8 ch | | | | |
| PPG | 16 bit x 44 ch | | | | |
| Up/down Counter | 2 ch | | | | |
| Clock Supervisor | Yes | | | | |
| External Interrupt | 8 ch x 2 units | | | | |
| A/D converter | 12 bit x 32 ch (1 unit), 12 bit x 16 ch (1 unit) | | | | |
| D/A converter (8 bit) | 2 ch | | | | |
| Multi-Function Serial Interface | 12 ch ^{*1} | | | | |
| CAN | 64 msg x 2 ch/128 msg x 1 ch | | | | |
| Hardware Watchdog Timer | Yes | | | | |
| CRC Formation | Yes | | | | |
| Low-voltage detection reset | Yes | | | | |
| Flash Security | Yes | | | | |
| ECC Flash/WorkFlash | Yes | | | | |
| ECC RAM | Yes | | | | |
| Memory Protection Function (MPU) | Yes | | | | |
| Floating point arithmetic (FPU) | Yes | | | | |
| Real Time Clock (RTC) | Yes | | | | |
| General-purpose port (#GPIOs) | 120 ports | | | | |
| SSCG | Yes | | | | |
| Sub clock | Yes | | | | |
| CR oscillator | Yes | | | | |
| NMI request function | Yes | | | | |
| OCD (On Chip Debug) | Yes | | | | |
| TPU (Timing Protection Unit) | Yes | | | | |
| Key code register | Yes | | | | |
| Waveform generator | 6 ch | | | | |
| Operation guaranteed temperature (T _A) | -40 °C to +125 °C | | | | |
| Power supply | 2.7 V to 5.5 V ^{*2} | | | | |
| Package | LQS144, LQN144 | | | | |

*1: Only channel 3 and channel 4 support the I²C (fast mode/standard mode).

Only channel 5, channel 6, channel 7, channel 8, channel 10 and channel 11 support the I²C (standard mode).

*2: The initial detection voltage of the external low voltage detection is 2.8 V ± 8 % (2.576 V to 3.024 V). This LVD setting and internal LVD cannot be used to reliably generate a reset before voltage dips below minimum guaranteed operation voltage, as these detection levels are below the minimum guaranteed MCU operation voltage. Below the minimum guaranteed MCU operation voltage, MCU operations are not guaranteed with the exception of LVD.

Product Lineup Comparison 176 Pins

| | CY91F522L | CY91F523L | CY91F524L | CY91F525L | CY91F526L |
|--|--|-------------|-------------|-------------|--------------|
| System Clock | On chip PLL Clock multiple method | | | | |
| Minimum instruction execution time | 12.5 ns (80 MHz) | | | | |
| Flash Capacity (Program) | (256+64) KB | (384+64) KB | (512+64) KB | (768+64) KB | (1024+64) KB |
| Flash Capacity (Data) | 64 KB | | | | |
| RAM Capacity | (48+8) KB | (64+8) KB | (96+8) KB | (128+8) KB | |
| External BUS I/F (22 address/16 data/4 cs) | Yes | | | | |
| DMA Transfer | 16 ch | | | | |
| 16-bit Base Timer | 2 ch | | | | |
| Free-run Timer | 16 bit x 3 ch, 32 bit x 3 ch | | | | |
| Input capture | 16 bit x 4 ch, 32 bit x 6 ch | | | | |
| Output Compare | 16 bit x 6 ch, 32 bit x 6 ch | | | | |
| 16-bit Reload Timer | 8 ch | | | | |
| PPG | 16 bit x 48 ch | | | | |
| Up/down Counter | 2 ch | | | | |
| Clock Supervisor | Yes | | | | |
| External Interrupt | 8 ch x 2 units | | | | |
| A/D converter | 12 bit x 32 ch (1 unit), 12 bit x 16 ch (1 unit) | | | | |
| D/A converter (8 bit) | 2 ch | | | | |
| Multi-Function Serial Interface | 12 ch ^{*1} | | | | |
| CAN | 64 msg x 2 ch/128 msg x 1 ch | | | | |
| Hardware Watchdog Timer | Yes | | | | |
| CRC Formation | Yes | | | | |
| Low-voltage detection reset | Yes | | | | |
| Flash Security | Yes | | | | |
| ECC Flash/WorkFlash | Yes | | | | |
| ECC RAM | Yes | | | | |
| Memory Protection Function (MPU) | Yes | | | | |
| Floating point arithmetic (FPU) | Yes | | | | |
| Real Time Clock (RTC) | Yes | | | | |
| General-purpose port (#GPIOs) | 152 ports | | | | |
| SSCG | Yes | | | | |
| Sub clock | Yes | | | | |
| CR oscillator | Yes | | | | |
| NMI request function | Yes | | | | |
| OCD (On Chip Debug) | Yes | | | | |
| TPU (Timing Protection Unit) | Yes | | | | |
| Key code register | Yes | | | | |
| Waveform generator | 6 ch | | | | |
| Operation guaranteed temperature (T _A) | -40 °C to +125 °C | | | | |
| Power supply | 2.7 V to 5.5 V ^{*2} | | | | |
| Package | LQP176 | | | | |

*1: Only channel 3 and channel 4 support the I²C (fast mode/standard mode).

Only channel 5, channel 6, channel 7, channel 8, channel 10 and channel 11 support the I²C (standard mode).

*2: The initial detection voltage of the external low voltage detection is 2.8 V ± 8 % (2.576 V to 3.024 V). This LVD setting and internal LVD cannot be used to reliably generate a reset before voltage dips below minimum guaranteed operation voltage, as these detection levels are below the minimum guaranteed MCU operation voltage. Below the minimum guaranteed MCU operation voltage, MCU operations are not guaranteed with the exception of LVD.

Table for Clock Supervisor and External Low Voltage Detection Reset Initial Value ON/OFF

| Clock | CSV Initial Value | LVD Initial Value | Function |
|--------|-------------------|-------------------|----------|
| single | ON | ON | S |
| | | OFF | U |
| | OFF | ON | H |
| | | OFF | K |
| Dual | ON | ON | W |
| | | OFF | Y |
| | OFF | ON | J |
| | | OFF | L |

CY91F52X□△○

- ↳ Revision: B, C, D, E
- ↳ Function: See the table for clock supervisor and external low voltage detection reset initial value ON/OFF.
- ↳ PKG Type: B 64 pin
 D 80 pin
 F 100 pin
 J 120 pin
 K 144 pin
 L 176 pin
- ↳ Memory Size: 2 256 KB
 3 384 KB
 4 512 KB
 5 768 KB
 6 1 MB

2. Pin Assignment

CY91F52xB

CY91F522B, CY91F523B, CY91F524B, CY91F525B, CY91F526B



* In a single clock product, pin 56 and pin 57 are the general-purpose ports.

CY91F52xD

CY91F522D, CY91F523D, CY91F524D, CY91F525D, CY91F526D



* In a single clock product, pin 70 and pin 71 are the general-purpose ports.

CY91F52xF

CY91F522F, CY91F523F, CY91F524F, CY91F525F, CY91F526F



* In a single clock product, pin 86 and pin 87 are the general-purpose ports.

CY91F52xJ

CY91F522J, CY91F523J, CY91F524J, CY91F525J, CY91F526J



* In a single clock product, pin 102 and pin 103 are the general-purpose ports.

CY91F52xK
CY91F522K, CY91F523K, CY91F524K, CY91F525K, CY91F526K



* In a single clock product, pin 121 and pin 122 are the general-purpose ports.

CY91F52xL

CY91F522L, CY91F523L, CY91F524L, CY91F525L, CY91F526L



* In a single clock product, pin 149 and pin 150 are the general-purpose ports.

3. Pin Description

| Pin No. | | | | | | Pin Name | Polarity | I/O Circuit types*8 | Function*9 |
|-----------------|-----------------|-----------------|-----------------|-----|-----|-------------------------------|----------|---------------------|---|
| 64 | 80 | 100 | 120 | 144 | 176 | | | | |
| - | - | - | - | 2 | 2 | P015 | - | A | General-purpose I/O port |
| | | | | | | D29 | - | | External bus data bit29 I/O (0) |
| | | | | | | TRG0_0 | - | | PPG trigger 0 input (0) |
| - | - | - | - | 3 | 3 | P016 | - | A | General-purpose I/O port |
| | | | | | | D30 | - | | External bus data bit30 I/O (0) |
| | | | | | | TRG1_0 | - | | PPG trigger 1 input (0) |
| - | - | - | - | - | 4 | P170 | - | A | General-purpose I/O port |
| | | | | | | PPG36_1 | - | | PPG ch.36 output (1) |
| - | - | - | - | 4 | 5 | P017 | - | A | General-purpose I/O port |
| | | | | | | D31 | - | | External bus data bit31 I/O (0) |
| | | | | | | TRG2_0 | - | | PPG trigger 2 input (0) |
| - | - | - | - | - | 6 | P171 | - | A | General-purpose I/O port |
| | | | | | | PPG37_1 | - | | PPG ch.37 output (1) |
| 2 ^{*1} | 2 ^{*1} | 2 ^{*1} | 2 ^{*1} | 5 | 7 | P020 | - | F | General-purpose I/O port |
| | | | | | | ASX ^{*2, *3, *4, *5} | - | | External bus/Address strobe output |
| | | | | | | SIN3_1 | - | | Multi-function serial ch.3 serial data input (1) |
| | | | | | | TRG3_0 | - | | PPG trigger 3 input (0) |
| | | | | | | TIN0_2 | - | | Reload timer ch.0 event input (2) |
| | | | | | | RTO5_1 | - | | Waveform generator ch.5 output pin (1) |
| - | - | - | 3 ^{*1} | 6 | 8 | P021 | - | A | General-purpose I/O port |
| | | | | | | CS0X ^{*5} | - | | External bus chip select 0 output |
| | | | | | | SOT3_1 | - | | Multi-function serial ch.3 serial data output (1) |
| | | | | | | TRG6_1 | - | | PPG trigger 6 input (1) |
| | | | | | | TRG4_0 | - | | PPG trigger 4 input (0) |
| - | - | - | 4 ^{*1} | 7 | 9 | P022 | - | F | General-purpose I/O port |
| | | | | | | CS1X ^{*5} | - | | External bus chip select 1 output |
| | | | | | | SCK3_1 | - | | Multi-function serial ch.3 clock I/O (1) |
| | | | | | | TRG7_1 | - | | PPG trigger 7 input (1) |
| | | | | | | TRG5_0 | - | | PPG trigger 5 input (0) |
| - | - | - | 5 ^{*1} | 8 | 10 | P023 | - | A | General-purpose I/O port |
| | | | | | | RDX ^{*5} | - | | External bus/Read strobe output |
| | | | | | | SCS3_1 | - | | Serial chip select 3 output (1) |
| | | | | | | PPG32_0 | - | | PPG ch.32 output (0) |
| | | | | | | TIN0_0 | - | | Reload timer ch.0 event input (0) |

| Pin No. | | | | | | Pin Name | Polarity | I/O Circuit types*8 | Function*9 |
|---------|-----|-----|------|-----|-----|---------------------|----------|---------------------|---|
| 64 | 80 | 100 | 120 | 144 | 176 | | | | |
| 3** | 3** | 3** | 6** | 9 | 11 | P024 | - | F | General-purpose I/O port |
| | | | | | | WR0X *2, *3, *4, *5 | - | | External bus/Write strobe 0 output |
| | | | | | | SIN4_1 | - | | Multi-function serial ch.4 serial data input (1) |
| | | | | | | PPG24_0 | - | | PPG ch.24 output (0) |
| | | | | | | TIN1_0 | - | | Reload timer ch.1 event input (0) |
| | | | | | | RTO4_1 | - | | Waveform generator ch.4 output pin (1) |
| | | | | | | INT15_0 | - | | INT15 External interrupt input (0) |
| - | - | 4** | 7** | 10 | 12 | P025 | - | A | General-purpose I/O port |
| | | | | | | WR1X *4, *5 | - | | External bus/Write strobe 1 output |
| | | | | | | SOT4_1 | - | | Multi-function serial ch.4 serial data output (1) |
| | | | | | | PPG25_0 | - | | PPG ch.25 output (0) |
| | | | | | | TIN2_0 | - | | Reload timer ch.2 event input (0) |
| - | - | - | - | - | 13 | P172 | - | A | General-purpose I/O port |
| | | | | | | PPG38_1 | - | | PPG ch.38 output (1) |
| - | 4** | 5** | 8** | 11 | 14 | P026 | - | F | General-purpose I/O port |
| | | | | | | A00 *3, *4, *5 | - | | External bus/Address bit0 output (0) |
| | | | | | | SCK4_1 | - | | Multi-function serial ch.4 clock I/O (1) |
| | | | | | | PPG26_0 | - | | PPG ch.26 output (0) |
| | | | | | | TIN3_0 | - | | Reload timer ch.3 event input (0) |
| 4** | 5** | 6** | 9** | 12 | 15 | P027 | - | A | General-purpose I/O port |
| | | | | | | A01 *2, *3, *4, *5 | - | | External bus/Address bit1 output (0) |
| | | | | | | SCS40_1 | - | | Serial chip select 40 I/O (1) |
| | | | | | | PPG27_0 | - | | PPG ch.27 output (0) |
| | | | | | | TOT0_0 | - | | Reload timer ch.0 output (0) |
| | | | | | | RTO3_1 | - | | Waveform generator ch.3 output pin (1) |
| - | - | - | - | - | 16 | P173 | - | A | General-purpose I/O port |
| | | | | | | PPG39_1 | - | | PPG ch.39 output (1) |
| - | - | 7** | 10** | 13 | 17 | P030 | - | A | General-purpose I/O port |
| | | | | | | A02 *4, *5 | - | | External bus/Address bit2 output (0) |
| | | | | | | SCS41_1 | - | | Serial chip select 41 output (1) |
| | | | | | | PPG28_0 | - | | PPG ch.28 output (0) |
| | | | | | | TOT1_0 | - | | Reload timer ch.1 output (0) |
| - | 6** | 8** | 11** | 14 | 18 | P031 | - | A | General-purpose I/O port |
| | | | | | | A03 *3, *4, *5 | - | | External bus/Address bit3 output (0) |
| | | | | | | SCS42_1 | - | | Serial chip select 42 output (1) |
| | | | | | | PPG29_0 | - | | PPG ch.29 output (0) |
| | | | | | | TOT2_0 *3 | - | | Reload timer ch.2 output (0) |

| Pin No. | | | | | | Pin Name | Polarity | I/O Circuit types*8 | Function*9 |
|----------------|-----------------|-----------------|-----------------|-----|-----|------------------------|----------|---------------------|---|
| 64 | 80 | 100 | 120 | 144 | 176 | | | | |
| 5 ¹ | 7 ¹ | 9 ¹ | 12 ¹ | 15 | 19 | P032 | - | A | General-purpose I/O port |
| | | | | | | A04 *2, *3, *4, *5 | - | | External bus/Address bit4 output (0) |
| | | | | | | SCS43_1 | - | | Serial chip select 43 output (1) |
| | | | | | | PPG30_0 | - | | PPG ch.30 output (0) |
| | | | | | | TOT3_0 | - | | Reload timer ch.3 output (0) |
| | | | | | | RTO2_1 | - | | Waveform generator ch.2 output pin (1) |
| 6 ¹ | 8 ¹ | 10 ¹ | 13 ¹ | 16 | 20 | P033 | - | A | General-purpose I/O port |
| | | | | | | A05 *2, *3, *4, *5 | - | | External bus/Address bit5 output (0) |
| | | | | | | PPG31_0 | - | | PPG ch.31 output (0) |
| | | | | | | ICU3_3 | - | | Input capture ch.3 input (3) |
| | | | | | | TIN4_0 | - | | Reload timer ch.4 event input (0) |
| | | | | | | RTO1_1 | - | | Waveform generator ch.1 output pin (1) |
| | | | | | | SCK3_2 | - | | Multi-function serial ch.3 clock I/O (2) |
| 7 ¹ | 9 ¹ | 11 ¹ | 14 ¹ | 17 | 21 | P034 | - | A | General-purpose I/O port |
| | | | | | | A06 *2, *3, *4, *5 | - | | External bus/Address bit6 output (0) |
| | | | | | | OCU11_1 | - | | Output compare ch.11 output (1) |
| | | | | | | ICU2_3 | - | | Input capture ch.2 input (3) |
| | | | | | | TIN5_0 | - | | Reload timer ch.5 event input (0) |
| | | | | | | RTO0_1 | - | | Waveform generator ch.0 output pin (1) |
| | | | | | | SOT3_2 | - | | Multi-function serial ch.3 serial data output (2) |
| - | - | 12 | 15 | 18 | 22 | P150 | - | F | General-purpose I/O port |
| | | | | | | SOT8_0/ SDA8 | - | | Multi-function serial ch.8 serial data output (0)/ I ² C bus serial data I/O |
| | | | | | | OCU10_1 | - | | Output compare ch.10 output (1) |
| | | | | | | TRG6_0 | - | | PPG trigger 6 input (0) |
| | | | | | | ICU1_3 | - | | Input capture ch.1 input (3) |
| | | | | | | TIN6_0 | - | | Reload timer ch.6 event input (0) |
| 8 ¹ | 10 ¹ | 13 | 16 | 19 | 23 | P151 | - | F | General-purpose I/O port |
| | | | | | | SCK8_0/ SCL8 *2, *3 | - | | Multi-function serial ch.8 clock I/O (0)/ I ² C bus serial clock I/O |
| | | | | | | OCU9_1 | - | | Output compare ch.9 output (1) |
| | | | | | | TRG7_0 | - | | PPG trigger 7 input (0) |
| | | | | | | ICU0_3 | - | | Input capture ch.0 input (3) |
| | | | | | | TIN7_0 | - | | Reload timer ch.7 event input (0) |
| | | | | | | ZIN0_2 | - | | U/D counter ch.0 ZIN input (2) |
| | | | | | | DTTI_1 | - | | Waveform generator ch.1 input pin (1) |

| Pin No. | | | | | | Pin Name | Polarity | I/O Circuit types*8 | Function*9 |
|------------------|------------------|------------------|------------------|-----|-----|--------------------------------|----------|---------------------|---|
| 64 | 80 | 100 | 120 | 144 | 176 | | | | |
| 9 ^{**} | 11 ^{**} | 14 ^{**} | 17 ^{**} | 20 | 24 | P035 | - | I | General-purpose I/O port |
| | | | | | | A07 ^{**2, *3, *4, *5} | - | | External bus/Address bit7 output |
| | | | | | | SIN8_0 ^{**2, *3} | - | | Multi-function serial ch.8 serial data input (0) |
| | | | | | | OCU8_1 | - | | Output compare ch.8 output (1) |
| | | | | | | TOT4_0 | - | | Reload timer ch.4 output (0) |
| | | | | | | AIN0_0 | - | | U/D counter ch.0 AIN input (0) |
| | | | | | | INT11_0 | - | | INT11 External interrupt input (0) |
| 10 ^{**} | 12 ^{**} | 15 ^{**} | 18 ^{**} | 21 | 25 | P036 | - | A | General-purpose I/O port |
| | | | | | | A08 ^{**2, *3, *4, *5} | - | | External bus/Address bit8 output (0) |
| | | | | | | SCS8_0 ^{**2, *3} | - | | Serial chip select 8 I/O (0) |
| | | | | | | OCU7_1 | - | | Output compare ch.7 output (1) |
| | | | | | | TOT5_0 | - | | Reload timer ch.5 output (0) |
| | | | | | | BIN0_0 | - | | U/D counter ch.0 BIN input (0) |
| - | - | 16 ^{**} | 19 ^{**} | 22 | 26 | P037 | - | A | General-purpose I/O port |
| | | | | | | A09 ^{**4, *5} | - | | External bus/Address bit9 output (0) |
| | | | | | | OCU6_1 | - | | Output compare ch.6 output (1) |
| | | | | | | TOT6_0 | - | | Reload timer ch.6 output (0) |
| | | | | | | ZIN0_0 | - | | U/D counter ch.0 ZIN input (0) |
| - | - | - | - | - | 27 | P174 | - | A | General-purpose I/O port |
| | | | | | | TRG8_1 | - | | PPG trigger 8 input (1) |
| - | - | - | - | - | 28 | P175 | - | A | General-purpose I/O port |
| | | | | | | TRG9_1 | - | | PPG trigger 9 input (1) |
| 11 ^{**} | 13 ^{**} | 17 ^{**} | 20 ^{**} | 23 | 29 | P040 | - | A | General-purpose I/O port |
| | | | | | | A10 ^{**2, *3, *4, *5} | - | | External bus/Address bit10 output (0) |
| | | | | | | PPG23_1 | - | | PPG ch.23 output (1) |
| | | | | | | TOT7_0 | - | | Reload timer ch.7 output (0) |
| | | | | | | AIN1_0 | - | | U/D counter ch.1 AIN input (0) |
| | | | | | | SIN0_1 | - | | Multi-function serial ch.0 serial data input (1) |
| 12 ^{**} | 14 ^{**} | 18 ^{**} | 21 ^{**} | 24 | 30 | P041 | - | I | General-purpose I/O port |
| | | | | | | A11 ^{**2, *3, *4, *5} | - | | External bus/Address bit11 output (0) |
| | | | | | | SIN9_0 | - | | Multi-function serial ch.9 serial data input (0) |
| | | | | | | ICU9_1 | - | | Input capture ch.9 input (1) |
| | | | | | | BIN1_0 | - | | U/D counter ch.1 BIN input (0) |
| | | | | | | INT12_0 | - | | INT12 External interrupt input (0) |
| 13 ^{**} | 15 ^{**} | 19 ^{**} | 22 ^{**} | 25 | 31 | P042 | - | B | General-purpose I/O port |
| | | | | | | A12 ^{**2, *3, *4, *5} | - | | External bus/Address bit12 output |
| | | | | | | SOT9_0 | - | | Multi-function serial ch.9 serial data output (0) |
| | | | | | | AN47 | - | | ADC analog 47 input |
| | | | | | | ICU8_1 | - | | Input capture ch.8 input (1) |
| | | | | | | TRG0_1 | - | | PPG trigger 0 input (1) |
| | | | | | | ZIN1_0 | - | | U/D counter ch.1 ZIN input (0) |

| Pin No. | | | | | | Pin Name | Polarity | I/O Circuit types*8 | Function*9 |
|------------------|------------------|------------------|------------------|-----|-----|-------------------------------|----------|---------------------|---|
| 64 | 80 | 100 | 120 | 144 | 176 | | | | |
| - | - | 20 ^{*1} | 23 ^{*1} | 26 | 32 | P043 | - | A | General-purpose I/O port |
| | | | | | | A13 ^{*4, *5} | - | | External bus/Address bit13 output (0) |
| | | | | | | ICU7_1 | - | | Input capture ch.7 input (1) |
| | | | | | | TRG1_1 | - | | PPG trigger 1 input (1) |
| - | 16 ^{*1} | 21 ^{*1} | 24 ^{*1} | 27 | 33 | P044 | - | A | General-purpose I/O port |
| | | | | | | A14 ^{*3, *4, *5} | - | | External bus/Address bit14 output (0) |
| | | | | | | SCS9_0 | - | | Serial chip select 9 I/O (0) |
| | | | | | | ICU6_1 | - | | Input capture ch.6 input (1) |
| | | | | | | TRG2_1 | - | | PPG trigger 2 input (1) |
| 14 ^{*1} | 17 ^{*1} | 22 ^{*1} | 25 ^{*1} | 28 | 34 | P045 | - | G | General-purpose I/O port |
| | | | | | | A15 ^{*2, *3, *4, *5} | - | | External bus/Address bit15 output (0) |
| | | | | | | SCK9_0 | - | | Multi-function serial ch.9 clock I/O (0) |
| | | | | | | AN46 | - | | ADC analog 46 input |
| | | | | | | ICU5_1 | - | | Input capture ch.5 input (1) |
| | | | | | | TRG3_1 | - | | PPG trigger 3 input (1) |
| | | | | | | TOT1_2 | - | | Reload timer ch.1 output (2) |
| - | - | - | 26 ^{*1} | 29 | 35 | P046 | - | A | General-purpose I/O port |
| | | | | | | A16 ^{*5} | - | | External bus/Address bit16 output (0) |
| | | | | | | ICU4_1 | - | | Input capture ch.4 input (1) |
| | | | | | | TRG4_1 | - | | PPG trigger 4 input (1) |
| - | - | - | - | - | 36 | P176 | - | A | General-purpose I/O port |
| | | | | | | TRG10_0 | - | | PPG trigger 10 input (0) |
| 15 ^{*1} | 18 ^{*1} | 23 ^{*1} | 27 ^{*1} | 30 | 37 | P047 | - | B | General-purpose I/O port |
| | | | | | | A17 ^{*2, *3, *4, *5} | - | | External bus/Address bit17 output (0) |
| | | | | | | AN45 | - | | ADC analog 45 input |
| | | | | | | TRG8_0 | - | | PPG trigger 8 input (0) |
| | | | | | | TIN3_2 | - | | Reload timer ch.3 event input (2) |
| | | | | | | SOT0_1 | - | | Multi-function serial ch.0 serial data output (1) |
| - | - | - | - | - | 38 | P177 | - | A | General-purpose I/O port |
| | | | | | | TRG11_0 | - | | PPG trigger 11 input (0) |
| - | - | - | 28 ^{*1} | 31 | 39 | P050 | - | A | General-purpose I/O port |
| | | | | | | A18 ^{*5} | - | | External bus/Address bit18 output |
| | | | | | | TRG5_1 | - | | PPG trigger 5 input (1) |
| | | | | | | PPG33_0 | - | | PPG ch.33 output (0) |
| - | - | - | - | 32 | 40 | P051 | - | A | General-purpose I/O port |
| | | | | | | A19 | - | | External bus/Address bit19 output |
| | | | | | | TRG9_0 | - | | PPG trigger 9 input (0) |
| - | - | - | - | 33 | 41 | P052 | - | A | General-purpose I/O port |
| | | | | | | A20 | - | | External bus/Address bit20 output |
| | | | | | | PPG34_0 | - | | PPG ch.34 output (0) |
| | | | | | | INT14_0 | - | | INT14 External interrupt input (0) |

| Pin No. | | | | | | Pin Name | Polarity | I/O Circuit types*8 | Function*9 |
|----------|----------|----------|----------|-----|-----|---------------------|----------|---------------------|---|
| 64 | 80 | 100 | 120 | 144 | 176 | | | | |
| 16 *1 | 19 *1 | 24 *1 | 29 *1 | 34 | 42 | P053 | - | B | General-purpose I/O port |
| | | | | | | A21 *2, *3, *4, *5 | - | | External bus/Address bit21 output |
| | | | | | | AN44 | - | | ADC analog 44 input |
| | | | | | | PPG35_0 | - | | PPG ch.35 output (0) |
| | | | | | | INT14_1 | - | | INT14 External interrupt input (1) |
| | | | | | | SCK0_1 | - | | Multi-function serial ch.0 clock I/O (1) |
| - | - | - | - | 35 | 43 | P054 | - | A | General-purpose I/O port |
| | | | | | | SYSCCLK | - | | External bus/System clock output |
| | | | | | | PPG36_0 | - | | PPG ch.36 output (0) |
| 17 *1 | 22 *1 | 27 *1 | 32 *1 | 38 | 46 | P055 | - | G | General-purpose I/O port |
| | | | | | | CS2X *2, *3, *4, *5 | - | | External bus chip select 2 output |
| | | | | | | SIN10_0 | - | | Multi-function serial ch.10 serial data input (0) |
| | | | | | | AN43 | - | | ADC analog 43 input |
| | | | | | | PPG37_0 | - | | PPG ch.37 output (0) |
| | | | | | | TIN4_1 | - | | Reload timer ch.4 event input (1) |
| - | - | - | - | - | 47 | P180 | - | A | General-purpose I/O port |
| | | | | | | PPG40_0 | - | | PPG ch.40 output (0) |
| - | - | - | - | - | 48 | P181 | - | A | General-purpose I/O port |
| | | | | | | PPG41_0 | - | | PPG ch.41 output (0) |
| - | - | - | 33 *1 | 39 | 49 | P056 | - | A | General-purpose I/O port |
| | | | | | | CS3X *5 | - | | External bus chip select 3 output |
| | | | | | | ICU9_0 | - | | Input capture ch.9 input (0) |
| | | | | | | PPG0_1 | - | | PPG ch.0 output (1) |
| | | | | | | ICU0_1 | - | | Input capture ch.0 input (1) |
| | | | | | | TIN5_1 | - | | Reload timer ch.5 event input (1) |
| | | | | | | DTTI_2 | - | | Waveform generator ch.0-ch.5 input pin (2) |
| 19 *1 | 24 *1 | 29 *1 | 35 *1 | 41 | 51 | P057 | - | G | General-purpose I/O port |
| | | | | | | RDY *2, *3, *4, *5 | - | | External bus/Ready input (0) |
| | | | | | | SCK10_1 | - | | Multi-function serial ch.10 clock I/O (1) |
| | | | | | | AN42 | - | | ADC analog 42 input |
| | | | | | | ICU8_0 | - | | Input capture ch.8 input (0) |
| | | | | | | TRG0_2 | - | | PPG trigger 0 input (2) |
| | | | | | | PPG1_1 | - | | PPG ch.1 output (1) |
| | | | | | | ICU1_1 | - | | Input capture ch.1 input (1) |
| | | | | | | TIN6_1 | - | | Reload timer ch.6 event input (1) |
| - | - | - | - | 44 | 54 | P142 | - | F | General-purpose I/O port |
| | | | | | | SCK10_0/ SCL10 | - | | Multi-function serial ch.10 clock I/O (0)/ I ² C bus serial clock I/O |
| | | | | | | PPG38_0 | - | | PPG ch.38 output (0) |
| | | | | | | TIN7_1 | - | | Reload timer ch.7 event input (1) |

| Pin No. | | | | | | Pin Name | Polarity | I/O Circuit types*8 | Function*9 |
|---------|----|-----|-----|-----|-----|---------------|----------|---------------------|--|
| 64 | 80 | 100 | 120 | 144 | 176 | | | | |
| - | - | - | - | 45 | 55 | P143 | - | F | General-purpose I/O port |
| | | | | | | SOT10_0/SDA10 | - | | Multi-function serial ch.10 serial data output (0)/ I ² C bus serial data I/O |
| | | | | | | PPG39_0 | - | | PPG ch.39 output (0) |
| | | | | | | TOT4_1 | - | | Reload timer ch.4 output (1) |
| - | - | - | - | - | 56 | P182 | - | A | General-purpose I/O port |
| | | | | | | PPG42_0 | - | | PPG ch.42 output (0) |
| - | - | 32 | 38 | 46 | 57 | P060 | - | A | General-purpose I/O port |
| | | | | | | SCS10_0 | - | | Serial chip select 10 I/O (0) |
| | | | | | | PPG2_1 | - | | PPG ch.2 output (1) |
| | | | | | | ICU2_1 | - | | Input capture ch.2 input (1) |
| | | | | | | TOT5_1 | - | | Reload timer ch.5 output (1) |
| | | | | | | INT13_0 | - | | INT13 External interrupt input (0) |
| 22 | 27 | 33 | 39 | 47 | 58 | P061 | - | B | General-purpose I/O port |
| | | | | | | SOT10_1 | - | | Multi-function serial ch.10 serial data output (1) |
| | | | | | | AN41 | - | | ADC analog 41 input |
| | | | | | | ICU6_0 | - | | Input capture ch.6 input (0) |
| | | | | | | PPG3_1 | - | | PPG ch.3 output (1) |
| | | | | | | ICU3_1 | - | | Input capture ch.3 input (1) |
| | | | | | | TOT6_1 | - | | Reload timer ch.6 output (1) |
| | | | | | | INT13_1 | - | | INT13 External interrupt input (1) |
| 23 | 28 | 34 | 40 | 48 | 59 | P062 | - | B | General-purpose I/O port |
| | | | | | | SCS10_1 | - | | Serial chip select 10 I/O (1) |
| | | | | | | SCS40_0 | - | | Serial chip select 40 I/O (0) |
| | | | | | | AN40 | - | | ADC analog 40 input |
| | | | | | | PPG4_1 | - | | PPG ch.4 output (1) |
| | | | | | | FRCK0_0 | - | | Free-run timer 0 clock input (0) |
| | | | | | | TOT7_1 | - | | Reload timer ch.7 output (1) |
| | | | | | | ZIN1_1 | - | | U/D counter ch.1 ZIN input (1) |
| - | 29 | 35 | 41 | 49 | 60 | P063 | - | B | General-purpose I/O port |
| | | | | | | SCS41_0 | - | | Serial chip select 41 output (0) |
| | | | | | | AN39 | - | | ADC analog 39 input |
| | | | | | | PPG5_1 | - | | PPG ch.5 output (1) |
| | | | | | | FRCK1_0 | - | | Free-run timer 1 clock input (0) |
| | | | | | | BIN1_1 | - | | U/D counter ch.1 BIN input (1) |
| - | - | - | - | - | 61 | P183 | - | A | General-purpose I/O port |
| | | | | | | PPG43_0 | - | | PPG ch.43 output (0) |

| Pin No. | | | | | | Pin Name | Polarity | I/O Circuit types*8 | Function*9 |
|---------|----|-----|-----|-----|-----|----------|----------|---------------------|---|
| 64 | 80 | 100 | 120 | 144 | 176 | | | | |
| 24 | 30 | 36 | 42 | 50 | 62 | P064 | - | B | General-purpose I/O port |
| | | | | | | SCS42_0 | - | | Serial chip select 42 output (0) |
| | | | | | | AN38 | - | | ADC analog 38 input |
| | | | | | | FRCK2_0 | - | | Free-run timer 2 clock input (0) |
| | | | | | | AIN1_1 | - | | U/D counter ch.1 AIN input (1) |
| | | | | | | PPG43_1 | - | | PPG ch.43 output (1) |
| - | - | 37 | 43 | 51 | 63 | P065 | - | A | General-purpose I/O port |
| | | | | | | SCS43_0 | - | | Serial chip select 43 output (0) |
| | | | | | | FRCK3_0 | - | | Free-run timer 3 clock input (0) |
| | | | | | | ZIN0_1 | - | | U/D counter ch.0 ZIN input (1) |
| | | | | | | PPG44_1 | - | | PPG ch.44 output (1) |
| - | - | - | - | - | 64 | P184 | - | A | General-purpose I/O port |
| | | | | | | PPG44_0 | - | | PPG ch.44 output (0) |
| - | - | - | - | - | 65 | P185 | - | A | General-purpose I/O port |
| | | | | | | PPG45_0 | - | | PPG ch.45 output (0) |
| 25 | 31 | 38 | 44 | 52 | 66 | P066 | - | B | General-purpose I/O port |
| | | | | | | SOT4_2 | - | | Multi-function serial ch.4 serial data output (2) |
| | | | | | | SCS3_0 | - | | Serial chip select 3 I/O (0) |
| | | | | | | AN37 | - | | ADC analog 37 input |
| | | | | | | FRCK4_0 | - | | Free-run timer 4 clock input (0) |
| | | | | | | BIN0_1 | - | | U/D counter ch.0 BIN input (1) |
| - | 32 | 39 | 45 | 53 | 67 | P067 | - | B | General-purpose I/O port |
| | | | | | | AN36 | - | | ADC analog 36 input |
| | | | | | | FRCK5_0 | - | | Free-run timer 5 clock input (0) |
| | | | | | | AIN0_1 | - | | U/D counter ch.0 AIN input (1) |
| - | - | 40 | 46 | 54 | 68 | P070 | - | A | General-purpose I/O port |
| | | | | | | ICU0_2 | - | | Input capture ch.0 input (2) |
| 26 | 33 | 41 | 47 | 55 | 69 | P071 | - | G | General-purpose I/O port |
| | | | | | | SCK4_2 | - | | Multi-function serial ch.4 clock I/O (2) |
| | | | | | | AN35 | - | | ADC analog 35 input |
| | | | | | | ICU1_2 | - | | Input capture ch.1 input (2) |
| | | | | | | MONCLK | - | | Clock monitor output pin |
| 27 | 34 | 42 | 48 | 56 | 70 | P072 | - | G | General-purpose I/O port |
| | | | | | | SIN4_0 | - | | Multi-function serial ch.4 serial data input (0) |
| | | | | | | AN34 | - | | ADC analog 34 input |
| | | | | | | ICU2_2 | - | | Input capture ch.2 input (2) |
| | | | | | | INT5_0 | - | | INT5 External interrupt input (0) |

| Pin No. | | | | | | Pin Name | Polarity | I/O Circuit types*8 | Function*9 |
|---------|-----------------|-----------------|-----|-----|-----|---------------------------------|----------|---------------------|--|
| 64 | 80 | 100 | 120 | 144 | 176 | | | | |
| - | 35 ₃ | 43 ⁴ | 49 | 57 | 71 | P073 | - | D | General-purpose I/O port |
| | | | | | | SOT4_0/ SDA4 ^{3, 4} | - | | Multi-function serial ch.4 serial data output (0)/I ² C bus serial data I/O |
| | | | | | | AN33 | - | | ADC analog 33 input |
| | | | | | | ICU3_2 | - | | Input capture ch.3 input (2) |
| - | - | - | - | - | 72 | P186 | - | A | General-purpose I/O port |
| | | | | | | PPG46_0 | - | | PPG ch.46 output (0) |
| - | - | - | - | - | 73 | P187 | - | A | General-purpose I/O port |
| | | | | | | PPG47_0 | - | | PPG ch.47 output (0) |
| - | - | - | 50 | 58 | 74 | P074 | - | E | General-purpose I/O port |
| | | | | | | SCK4_0/ SCL4 | - | | Multi-function serial ch.4 clock I/O (0)/ I ² C bus serial clock I/O |
| - | - | - | 51 | 59 | 75 | P075 | - | F | General-purpose I/O port |
| | | | | | | SIN3_0 | - | | Multi-function serial ch.3 serial data input (0) |
| | | | | | | INT4_0 | - | | INT4 External interrupt input (0) |
| - | - | - | 52 | 60 | 76 | P076 | - | E | General-purpose I/O port |
| | | | | | | SOT3_0/ SDA3 | - | | Multi-function serial ch.3 serial data output (0)/I ² C bus serial data I/O |
| - | - | - | 53 | 61 | 77 | P077 | - | E | General-purpose I/O port |
| | | | | | | SCK3_0/ SCL3 | - | | Multi-function serial ch.3 clock I/O (0)/ I ² C bus serial clock I/O |
| - | - | 44 | 54 | 62 | 78 | P152 | - | A | General-purpose I/O port |
| | | | | | | SCS53_0 | - | | Serial chip select 53 output (0) |
| 28 | 36 | 45 | 55 | 63 | 79 | P153 | - | G | General-purpose I/O port |
| | | | | | | SCK5_0/ SCL5 | - | | Multi-function serial ch.5 clock I/O (0)/ I ² C bus serial clock I/O |
| | | | | | | AN32 | - | | ADC analog 32 input |
| | | | | | | FRCK1_1 | - | | Free-run timer 1 clock input (1) |
| | | | | | | INT4_1 | - | | INT4 External interrupt input (1) |
| - | - | - | - | 64 | 80 | P080 | - | A | General-purpose I/O port |
| | | | | | | SCS52_0 | - | | Serial chip select 52 output (0) |
| | | | | | | PPG0_0 | - | | PPG ch.0 output (0) |
| 29 | 37 | 46 | 56 | 65 | 81 | P081 | - | G | General-purpose I/O port |
| | | | | | | SOT5_0/ SDA5 | - | | Multi-function serial ch.5 serial data output (0)/I ² C bus serial data I/O |
| | | | | | | AN0 | - | | ADC analog 0 input |
| | | | | | | PPG1_0 | - | | PPG ch.1 output (0) |
| 30 | 38 | 47 | 57 | 66 | 82 | P082 | - | G | General-purpose I/O port |
| | | | | | | SIN5_0 | - | | Multi-function serial ch.5 serial data input (0) |
| | | | | | | AN1 | - | | ADC analog 1 input |
| | | | | | | PPG2_0 | - | | PPG ch.2 output (0) |

| Pin No. | | | | | | Pin Name | Polarity | I/O Circuit types*8 | Function*9 |
|---------|----|-----|-----|-----|-----|----------|----------|---------------------|-----------------------------------|
| 64 | 80 | 100 | 120 | 144 | 176 | | | | |
| - | - | - | - | 67 | 83 | P083 | - | B | General-purpose I/O port |
| | | | | | | SCS50_0 | - | | Serial chip select 50 I/O (0) |
| | | | | | | AN2 | - | | ADC analog 2 input |
| | | | | | | PPG3_0 | - | | PPG ch.3 output (0) |
| - | - | - | - | 68 | 84 | P084 | - | B | General-purpose I/O port |
| | | | | | | SCS51_0 | - | | Serial chip select 51 output (0) |
| | | | | | | AN3 | - | | ADC analog 3 input |
| | | | | | | PPG4_0 | - | | PPG ch.4 output (0) |
| - | - | - | - | 69 | 85 | P085 | - | A | General-purpose I/O port |
| | | | | | | PPG5_0 | - | | PPG ch.5 output (0) |
| - | - | 48 | 58 | 70 | 86 | P086 | - | C | General-purpose I/O port |
| | | | | | | DAO1 | - | | DAC analog 1 output |
| | | | | | | PPG6_0 | - | | PPG ch.6 output (0) |
| 31 | 39 | 49 | 59 | 71 | 87 | P087 | - | C | General-purpose I/O port |
| | | | | | | DAO0 | - | | DAC analog 0 output |
| | | | | | | PPG7_0 | - | | PPG ch.7 output (0) |
| | | | | | | INT8_0 | - | | INT8 External interrupt input (0) |
| - | - | - | - | - | 90 | P190 | - | A | General-purpose I/O port |
| | | | | | | TIN0_1 | - | | Reload timer ch.0 event input (1) |
| - | - | - | - | - | 91 | P191 | - | A | General-purpose I/O port |
| | | | | | | TIN1_1 | - | | Reload timer ch.1 event input (1) |
| - | - | - | - | 74 | 92 | P090 | - | B | General-purpose I/O port |
| | | | | | | AN4 | - | | ADC analog 4 input |
| | | | | | | ICU0_0 | - | | Input capture ch.0 input (0) |
| | | | | | | TIN2_1 | - | | Reload timer ch.2 event input (1) |
| - | - | - | - | 75 | 93 | P091 | - | B | General-purpose I/O port |
| | | | | | | AN5 | - | | ADC analog 5 input |
| | | | | | | PPG41_1 | - | | PPG ch.41 output (1) |
| | | | | | | ICU1_0 | - | | Input capture ch.1 input (0) |
| | | | | | | TIN3_1 | - | | Reload timer ch.3 event input (1) |
| - | - | - | - | 76 | 94 | P092 | - | B | General-purpose I/O port |
| | | | | | | AN6 | - | | ADC analog 6 input |
| | | | | | | PPG40_1 | - | | PPG ch.40 output (1) |
| | | | | | | ICU2_0 | - | | Input capture ch.2 input (0) |
| | | | | | | TOT0_1 | - | | Reload timer ch.0 output (1) |
| - | - | - | - | - | 95 | P192 | - | A | General-purpose I/O port |
| | | | | | | PPG24_1 | - | | PPG ch.24 output (1) |
| | | | | | | TOT1_1 | - | | Reload timer ch.1 output (1) |

| Pin No. | | | | | | Pin Name | Polarity | I/O Circuit types*8 | Function*9 |
|----------|----------|-----|-----|-----|-----|--------------------|----------|---------------------|---|
| 64 | 80 | 100 | 120 | 144 | 176 | | | | |
| 34 *1 | 42 *1 | 52 | 62 | 77 | 96 | P093 | - | J | General-purpose I/O port |
| | | | | | | TX0_1 | - | | CAN transmission data 0 output (1) |
| | | | | | | SIN11_0 | - | | Multi-function serial ch.11 serial data input (0) |
| | | | | | | AN7 | - | | ADC analog 7 input |
| | | | | | | ICU4_2 | - | | Input capture ch.4 input (2) |
| | | | | | | PPG16_1 | - | | PPG ch.16 output (1) |
| | | | | | | ICU3_0 | - | | Input capture ch.3 input (0) |
| | | | | | | TOT2_1 *2,*3 | - | | Reload timer ch.2 output (1) |
| - | - | - | - | 78 | 97 | P094 | - | B | General-purpose I/O port |
| | | | | | | AN8 | - | | ADC analog 8 input |
| | | | | | | ICU4_0 | - | | Input capture ch.4 input (0) |
| | | | | | | TOT3_1 | - | | Reload timer ch.3 output (1) |
| - | - | 53 | 63 | 79 | 98 | P095 | - | B | General-purpose I/O port |
| | | | | | | TX0(128) | - | | CAN transmission data 0 output |
| | | | | | | SCS11_0 | - | | Serial chip select 11 I/O (0) |
| | | | | | | AN9 | - | | ADC analog 9 input |
| 35 | 43 | 54 | 64 | 80 | 99 | P096 | - | G | General-purpose I/O port |
| | | | | | | RX0(128) | - | | CAN reception data 0 input |
| | | | | | | SOT11_0/ SDA11 | - | | Multi-function serial ch.11 serial data output (0)/I ² C bus serial data I/O |
| | | | | | | AN10 | - | | ADC analog 10 input |
| | | | | | | INT0_0 | - | | INT0 External interrupt input (0) |
| 36 | 44 | 55 | 65 | 81 | 100 | P097 | - | G | General-purpose I/O port |
| | | | | | | SCK11_0/ SCL11 | - | | Multi-function serial ch.11 clock I/O (0)/ I ² C bus serial clock I/O |
| | | | | | | AN11 | - | | ADC analog 11 input |
| | | | | | | ICU5_0 | - | | Input capture ch.5 input (0) |
| | | | | | | PPG17_1 | - | | PPG ch.17 output (1) |
| - | 48 *1 | 59 | 69 | 85 | 104 | P100 | - | G | General-purpose I/O port |
| | | | | | | SCK7_0/ SCL7 *3 | - | | Multi-function serial ch.7 clock I/O (0)/ I ² C bus serial clock I/O |
| | | | | | | AN12 | - | | ADC analog 12 input |
| | | | | | | PPG8_0 | - | | PPG ch.8 output (0) |
| - | - | 60 | 70 | 86 | 105 | P101 | - | G | General-purpose I/O port |
| | | | | | | SOT7_0/ SDA7 | - | | Multi-function serial ch.7 serial data output (0)/I ² C bus serial data I/O |
| | | | | | | AN13 | - | | ADC analog 13 input |
| | | | | | | PPG9_0 | - | | PPG ch.9 output (0) |
| 40 *1 | 49 *1 | 61 | 71 | 87 | 106 | P102 | - | G | General-purpose I/O port |
| | | | | | | SIN7_0 *2,*3 | - | | Multi-function serial ch.7 serial data input (0) |
| | | | | | | AN14 | - | | ADC analog 14 input |
| | | | | | | PPG10_0 | - | | PPG ch.10 output (0) |
| | | | | | | INT10_0 | - | | INT10 External interrupt input (0) |

| Pin No. | | | | | | Pin Name | Polarity | I/O Circuit types*8 | Function*9 |
|----------|----------|-----|-----|-----|-----|----------------|----------|---------------------|---|
| 64 | 80 | 100 | 120 | 144 | 176 | | | | |
| 41 *1 | 50 *1 | 62 | 72 | 88 | 107 | P103 | - | H | General-purpose I/O port |
| | | | | | | SCS73_0 *2, *3 | - | | Serial chip select 73 output (0) |
| | | | | | | AN15 | - | | ADC analog 15 input |
| | | | | | | PPG11_0 | - | | PPG ch.11 output (0) |
| 42 *1 | 51 *1 | 63 | 73 | 89 | 108 | P104 | - | H | General-purpose I/O port |
| | | | | | | SCS72_0 *2, *3 | - | | Serial chip select 72 output (0) |
| | | | | | | AN16 | - | | ADC analog 16 input |
| | | | | | | PPG12_0 | - | | PPG ch.12 output (0) |
| 43 *1 | 52 *1 | 64 | 74 | 90 | 109 | P105 | - | H | General-purpose I/O port |
| | | | | | | SCS71_0 *2, *3 | - | | Serial chip select 71 output (0) |
| | | | | | | AN17 | - | | ADC analog 17 input |
| | | | | | | PPG13_0 | - | | PPG ch.13 output (0) |
| - | - | 65 | 75 | 91 | 110 | P106 | - | H | General-purpose I/O port |
| | | | | | | SCS70_0 | - | | Serial chip select 70 I/O (0) |
| | | | | | | AN18 | - | | ADC analog 18 input |
| | | | | | | PPG14_0 | - | | PPG ch.14 output (0) |
| - | 53 | 66 | 76 | 92 | 111 | P107 | - | B | General-purpose I/O port |
| | | | | | | AN19 | - | | ADC analog 19 input |
| | | | | | | PPG15_0 | - | | PPG ch.15 output (0) |
| - | - | - | - | - | 112 | P193 | - | A | General-purpose I/O port |
| | | | | | | PPG25_1 | - | | PPG ch.25 output (1) |
| - | - | - | 77 | 93 | 113 | P154 | - | B | General-purpose I/O port |
| | | | | | | AN20 | - | | ADC analog 20 input |
| - | - | - | 78 | 94 | 114 | P155 | - | B | General-purpose I/O port |
| | | | | | | AN21 | - | | ADC analog 21 input |
| 44 | 54 | 67 | 79 | 95 | 115 | NMIX | N | M | Non-masking interrupt input |
| 45 | 55 | 68 | 80 | 96 | 116 | P110 | - | B | General-purpose I/O port |
| | | | | | | TX1(64) | - | | CAN transmission data 1 output |
| | | | | | | SCS63_0 | - | | Serial chip select 63 output (0) |
| | | | | | | AN22 | - | | ADC analog 22 input |
| - | - | 69 | 81 | 97 | 117 | P111 | - | G | General-purpose I/O port |
| | | | | | | RX1(64) | - | | CAN reception data 1 input |
| | | | | | | SCS62_0 | - | | Serial chip select 62 output (0) |
| | | | | | | AN23 | - | | ADC analog 23 input |
| | | | | | | INT1_0 | - | | INT1 External interrupt input (0) |
| - | - | - | 82 | 98 | 118 | P112 | - | B | General-purpose I/O port |
| | | | | | | AN24 | - | | ADC analog 24 input |
| | | | | | | PPG16_0 | - | | PPG ch.16 output (0) |
| | | | | | | RTO0_0 | - | | Waveform generator ch. 0 output pin (0) |

| Pin No. | | | | | | Pin Name | Polarity | I/O Circuit types*8 | Function*9 |
|---------|----|-----|-----|-----|-----|-----------------|----------|---------------------|--|
| 64 | 80 | 100 | 120 | 144 | 176 | | | | |
| - | - | - | 83 | 99 | 119 | P113 | - | B | General-purpose I/O port |
| | | | | | | AN25 | - | | ADC analog 25 input |
| | | | | | | PPG17_0 | - | | PPG ch.17 output (0) |
| | | | | | | RTO1_0 | - | | Waveform generator ch. 1 output pin (0) |
| - | - | - | - | - | 120 | P194 | - | A | General-purpose I/O port |
| | | | | | | FRCK5_1 | - | | Free-run timer 5 clock input (1) |
| | | | | | | PPG26_1 | - | | PPG ch.26 output (1) |
| - | - | - | - | - | 121 | P195 | - | A | General-purpose I/O port |
| | | | | | | FRCK4_1 | - | | Free-run timer 4 clock input (1) |
| | | | | | | PPG27_1 | - | | PPG ch.27 output (1) |
| - | 56 | 70 | 84 | 100 | 122 | P114 | - | B | General-purpose I/O port |
| | | | | | | SCS61_0 | - | | Serial chip select 61 output (0) |
| | | | | | | AN26 | - | | ADC analog 26 input |
| | | | | | | PPG18_0 | - | | PPG ch.18 output (0) |
| | | | | | | RTO2_0 | - | | Waveform generator ch.2 output pin (0) |
| 46 | 57 | 71 | 85 | 101 | 123 | P115 | - | G | General-purpose I/O port |
| | | | | | | RX1_1 | - | | CAN reception data 1 input (1) |
| | | | | | | SOT6_0/ SDA6 | - | | Multi-function serial ch.6 serial data output (0)/I ² C bus serial data I/O |
| | | | | | | AN27 | - | | ADC analog 27 input |
| | | | | | | PPG19_0 | - | | PPG ch.19 output (0) |
| | | | | | | RTO3_0 | - | | Waveform generator ch.3 output pin (0) |
| | | | | | | INT1_1 | - | | INT1 External interrupt input (1) |
| 47 | 58 | 72 | 86 | 102 | 124 | P116 | - | G | General-purpose I/O port |
| | | | | | | SCK6_0/ SCL6 | - | | Multi-function serial ch.6 clock I/O (0)/ I ² C bus serial clock I/O |
| | | | | | | AN28 | - | | ADC analog 28 input |
| | | | | | | PPG20_0 | - | | PPG ch.20 output (0) |
| | | | | | | RTO4_0 | - | | Waveform generator ch.4 output pin (0) |
| - | - | 73 | 87 | 103 | 125 | P117 | - | B | General-purpose I/O port |
| | | | | | | SCS60_0 | - | | Serial chip select 60 I/O (0) |
| | | | | | | AN29 | - | | ADC analog 29 input |
| | | | | | | PPG21_0 | - | | PPG ch.21 output (0) |
| | | | | | | RTO5_0 | - | | Waveform generator ch.5 output pin (0) |
| - | - | - | - | - | 126 | P196 | - | A | General-purpose I/O port |
| | | | | | | FRCK3_1 | - | | Free-run timer 3 clock input (1) |
| | | | | | | PPG28_1 | - | | PPG ch.28 output (1) |
| - | - | - | 88 | 104 | 127 | P120 | - | B | General-purpose I/O port |
| | | | | | | AN30 | - | | ADC analog 30 input |
| | | | | | | OCU6_0 | - | | Output compare ch.6 output (0) |
| | | | | | | PPG22_0 | - | | PPG ch.22 output (0) |
| | | | | | | INT9_0 | - | | INT9 External interrupt input (0) |

| Pin No. | | | | | | Pin Name | Polarity | I/O Circuit types*8 | Function*9 |
|---------|----|-----|-----|-----|-----|----------|----------|---------------------|---|
| 64 | 80 | 100 | 120 | 144 | 176 | | | | |
| - | - | - | - | 105 | 128 | P121 | - | A | General-purpose I/O port |
| | | | | | | OCU7_0 | - | | Output compare ch.7 output (0) |
| | | | | | | PPG23_0 | - | | PPG ch.23 output (0) |
| 48 | 59 | 74 | 89 | 106 | 129 | P122 | - | J | General-purpose I/O port |
| | | | | | | SIN6_0 | - | | Multi-function serial ch.6 serial data input (0) |
| | | | | | | AN31 | - | | ADC analog 31 input |
| | | | | | | OCU8_0 | - | | Output compare ch.8 output (0) |
| | | | | | | INT9_1 | - | | INT9 External interrupt input (1) |
| - | - | - | - | - | 130 | P197 | - | A | General-purpose I/O port |
| | | | | | | PPG29_1 | - | | PPG ch.29 output (1) |
| - | - | - | - | 107 | 131 | P123 | - | A | General-purpose I/O port |
| | | | | | | OCU9_0 | - | | Output compare ch.9 output (0) |
| 49 | 62 | 77 | 92 | 110 | 134 | DEBUGIF | - | L | MDI I/O for debugger (OCD) |
| - | - | - | - | - | 135 | P160 | - | A | General-purpose I/O port |
| | | | | | | PPG30_1 | - | | PPG ch.30 output (1) |
| - | - | - | - | - | 136 | P161 | - | A | General-purpose I/O port |
| | | | | | | PPG31_1 | - | | PPG ch.31 output (1) |
| - | - | - | - | 111 | 137 | P124 | - | A | General-purpose I/O port |
| | | | | | | OCU10_0 | - | | Output compare ch.10 output (0) |
| - | - | - | 93 | 112 | 138 | P125 | - | A | General-purpose I/O port |
| | | | | | | OCU11_0 | - | | Output compare ch.11 output (0) |
| 50 | 63 | 78 | 94 | 113 | 139 | P126 | - | F | General-purpose I/O port |
| | | | | | | SIN0_0 | - | | Multi-function serial ch.0 serial data input (0) |
| | | | | | | INT6_0 | - | | INT6 External interrupt input (0) |
| - | 64 | 79 | 95 | 114 | 140 | P127 | - | A | General-purpose I/O port |
| | | | | | | SOT0_0 | - | | Multi-function serial ch.0 serial data output (0) |
| - | - | 80 | 96 | 115 | 141 | P130 | - | F | General-purpose I/O port |
| | | | | | | SCK0_0 | - | | Multi-function serial ch.0 clock I/O (0) |
| - | - | - | - | - | 142 | P162 | - | A | General-purpose I/O port |
| | | | | | | TRG5_2 | - | | PPG trigger 5 input (2) |
| - | - | - | - | - | 143 | P163 | - | A | General-purpose I/O port |
| | | | | | | TRG6_2 | - | | PPG trigger 6 input (2) |
| 51 | 65 | 81 | 97 | 116 | 144 | MD0 | - | K | Mode pin 0 |
| 52 | 66 | 82 | 98 | 117 | 145 | MD1 | - | K | Mode pin 1 |
| 53 | 67 | 83 | 99 | 118 | 146 | X0 | - | N | Main clock oscillation input |
| 54 | 68 | 84 | 100 | 119 | 147 | X1 | - | N | Main clock oscillation output |
| 56 | 70 | 86 | 102 | 121 | 149 | P135 | - | A | General-purpose I/O port |
| | | | | | | DTTI_0 | - | | Waveform generator ch.0-ch.5 input pin (0) |
| | | | | | | X1A | - | | Sub clock oscillation output |
| 57 | 71 | 87 | 103 | 122 | 150 | P136 | - | A | General-purpose I/O port |
| | | | | | | X0A | - | O | Sub clock oscillation input |

| Pin No. | | | | | | Pin Name | Polarity | I/O Circuit types*8 | Function*9 |
|---------|-------|-------|--------|-----|-----|----------------|----------|---------------------|---|
| 64 | 80 | 100 | 120 | 144 | 176 | | | | |
| 58 | 72 | 88 | 104 | 123 | 151 | RSTX | N | M | External reset input |
| - | - | - | - | 124 | 152 | P131 | - | A | General-purpose I/O port |
| | | | | | | ADTG0_0 | - | | A/D converter external trigger input 0 (0) |
| - | - | - | 105 | 125 | 153 | P132 | - | A | General-purpose I/O port |
| | | | | | | SCS1_0 | - | | Serial chip select 1 I/O (0) |
| | | | | | | ADTG1_0 | - | | A/D converter external trigger input 1 (0) |
| - | - | 89 | 106 | 126 | 154 | P133 | - | A | General-purpose I/O port |
| | | | | | | TX2(64) | - | | CAN transmission data 2 output |
| - | - | 90 | 107 | 127 | 155 | P134 | - | F | General-purpose I/O port |
| | | | | | | RX2(64) | - | | CAN reception data 2 input |
| | | | | | | SCS1_1 | - | | Serial chip select 1 I/O (1) |
| | | | | | | ICU7_0 | - | | Input capture ch.7 input (0) |
| | | | | | | INT7_0 | - | | INT7 External interrupt input (0) |
| - | - | 91 | 108 | 128 | 156 | P144 | - | F | General-purpose I/O port |
| | | | | | | SCK1_1 | - | | Multi-function serial ch.1 clock I/O (1) |
| - | - | 94 *1 | 111 *1 | 131 | 159 | P000 | - | F | General-purpose I/O port |
| | | | | | | D16 *4, *5 | - | | External bus data bit16 I/O (0) |
| | | | | | | SIN1_0 | - | | Multi-function serial ch.1 serial data input (0) |
| | | | | | | TIOA0_1 *4 | - | | TIOA output of Base timer ch.0 (1) |
| | | | | | | INT2_0 | - | | INT2 External interrupt input (0) |
| - | 75 *1 | 95 *1 | 112 *1 | 132 | 160 | P001 | - | A | General-purpose I/O port |
| | | | | | | D17 *3, *4, *5 | - | | External bus data bit17 I/O |
| | | | | | | SOT1_0 *3 | - | | Multi-function serial ch.1 serial data output (0) |
| | | | | | | TIOA1_1 | - | | TIOA I/O of Base timer ch.1 (1) |
| - | - | - | 113 *1 | 133 | 161 | P002 | - | F | General-purpose I/O port |
| | | | | | | D18 *5 | - | | External bus data bit18 I/O |
| | | | | | | SCK1_0 | - | | Multi-function serial ch.1 clock I/O (0) |
| | | | | | | TIOB0_1 | - | | TIOB input of Base timer ch.0 (1) |
| - | 76 *1 | 96 *1 | 114 *1 | 134 | 162 | P003 | - | F | General-purpose I/O port |
| | | | | | | D19 *3, *4, *5 | - | | External bus data bit19 I/O |
| | | | | | | SIN2_0 | - | | Multi-function serial ch.2 serial data input (0) |
| | | | | | | TIOB1_1 | - | | TIOB input of Base timer ch.1 (1) |
| | | | | | | INT3_0 | - | | INT3 External interrupt input (0) |
| - | - | - | - | 135 | 163 | P004 | - | A | General-purpose I/O port |
| | | | | | | D20 | - | | External bus data bit20 I/O (0) |
| | | | | | | SOT2_0 | - | | Multi-function serial ch.2 serial data output (0) |
| - | - | - | - | - | 164 | P164 | - | A | General-purpose I/O port |
| | | | | | | PPG32_1 | - | | PPG ch.32 output (1) |

| Pin No. | | | | | | Pin Name | Polarity | I/O Circuit types*8 | Function*9 |
|----------|----------|----------|-----------|-----------|-----------|------------------------|----------|---------------------|---|
| 64 | 80 | 100 | 120 | 144 | 176 | | | | |
| 61 *1 | 77 *1 | 97 *1 | 115 *1 | 136 *1 | 165 *1 | P005 | - | F | General-purpose I/O port |
| | | | | | | D21 *2, *3, *4, *5 | - | | External bus data bit21 I/O (0) |
| | | | | | | SCK2_0 *2 | - | | Multi-function serial ch.2 clock I/O (0) |
| | | | | | | ADTG0_1 | - | | A/D converter external trigger input 0 (1) |
| | | | | | | INT7_1 | - | | INT7 External interrupt input (1) |
| | | | | | | RX2(64) *4, *5, *6, *7 | - | | CAN reception data 2 input |
| - | - | - | - | - | 166 | P165 | - | A | General-purpose I/O port |
| - | - | - | - | - | 166 | PPG33_1 | - | A | PPG ch.33 output (1) |
| 62 *1 | 78 *1 | 98 *1 | 116 *1 | 137 *1 | 167 *1 | P006 | - | A | General-purpose I/O port |
| | | | | | | D22 *2, *3, *4, *5 | - | | External bus data bit22 I/O (0) |
| | | | | | | SCS2_0 *2 | - | | Serial chip select 2 I/O (0) |
| | | | | | | ADTG1_1 | - | | A/D converter external trigger input 1 (1) |
| | | | | | | INT2_1 | - | | INT2 External interrupt input (1) |
| | | | | | | TX2(64) *4, *5, *6, *7 | - | | CAN transmission data 2 output |
| - | - | - | 117 *1 | 138 | 168 | P007 | - | A | General-purpose I/O port |
| - | - | - | 117 *1 | 138 | 168 | D23 *5 | - | A | External bus data bit23 I/O |
| - | - | - | - | - | 169 | P166 | - | A | General-purpose I/O port |
| - | - | - | - | - | 169 | PPG34_1 | - | A | PPG ch.34 output (1) |
| - | - | - | 118 *1 | 139 | 170 | P010 | - | A | General-purpose I/O port |
| - | - | - | 118 *1 | 139 | 170 | D24 *5 | - | A | External bus data bit24 I/O |
| 63 *1 | 79 *1 | 99 *1 | 119 *1 | 140 | 171 | P011 | - | A | General-purpose I/O port |
| | | | | | | WOT | - | | RTC output signal |
| | | | | | | D25 *2, *3, *4, *5 | - | | External bus data bit25 I/O |
| | | | | | | SOT2_1 *2 | - | | Multi-function serial ch.2 serial data output (1) |
| | | | | | | TIOA0_0 *2, *3, *4 | - | | TIOA output of Base timer ch.0 (0) |
| | | | | | | INT3_1 | - | | INT3 External interrupt input (1) |
| - | - | - | - | 141 | 172 | P012 | - | A | General-purpose I/O port |
| - | - | - | - | 141 | 172 | D26 | - | A | External bus data bit26 I/O |
| - | - | - | - | 141 | 172 | TIOB0_0 | - | A | TIOB input of Base timer ch.0 (0) |
| - | - | - | - | - | 173 | P167 | - | A | General-purpose I/O port |
| - | - | - | - | - | 173 | PPG35_1 | - | A | PPG ch.35 output (1) |
| - | - | - | - | 142 | 174 | P013 | - | A | General-purpose I/O port |
| - | - | - | - | 142 | 174 | D27 | - | A | External bus data bit27 I/O |
| - | - | - | - | 142 | 174 | TIOA1_0 | - | A | TIOA I/O of Base timer ch.1 (0) |
| - | - | - | - | 143 | 175 | P014 | - | A | General-purpose I/O port |
| - | - | - | - | 143 | 175 | D28 | - | A | External bus data bit28 I/O |
| - | - | - | - | 143 | 175 | TIOB1_0 | - | A | TIOB input of Base timer ch.1 (0) |
| 18 | 23 | 28 | 34 | 40 | 50 | AVCC1 | - | - | Analog power supply for AD/DA convertor unit1 |
| 39 | 47 | 58 | 68 | 84 | 103 | AVCC0 | - | - | Analog power supply for AD/DA convertor unit0 |

| Pin No. | | | | | | Pin Name | Polarity | I/O Circuit types*8 | Function*9 |
|---------|----|-----|-----|-----|-----|-----------------|----------|---------------------|---|
| 64 | 80 | 100 | 120 | 144 | 176 | | | | |
| 20 | 25 | 30 | 36 | 42 | 52 | AVRH1 | - | - | Upper limit reference voltage for AD convertor unit1 |
| 38 | 46 | 57 | 67 | 83 | 102 | AVRH0 | - | - | Upper limit reference voltage for AD convertor unit0 |
| 21 | 26 | 31 | 37 | 43 | 53 | AVSS1/ AVRL1 | - | - | GND for AD/DA convertor unit1 Lower limit reference voltage for AD convertor unit1 |
| 37 | 45 | 56 | 66 | 82 | 101 | AVSS0/ AVRL0 | - | - | GND for AD/DA convertor unit0 Lower limit reference voltage for AD convertor unit0 |
| 60 | 74 | 93 | 110 | 130 | 158 | C | - | - | External capacity connection output |
| - | 20 | 25 | 30 | 36 | 44 | VCC | - | - | +5.0V power supply |
| 32 | 40 | 50 | 60 | 72 | 88 | | | | |
| - | 61 | 76 | 91 | 109 | 133 | | | | |
| 64 | 80 | 100 | 120 | 144 | 176 | | | | |
| 1 | 1 | 1 | 1 | 1 | 1 | VSS | - | - | GND |
| - | 21 | 26 | 31 | 37 | 45 | | | | |
| 33 | 41 | 51 | 61 | 73 | 89 | | | | |
| - | 60 | 75 | 90 | 108 | 132 | | | | |
| 55 | 69 | 85 | 101 | 120 | 148 | | | | |
| 59 | 73 | 92 | 109 | 129 | 157 | | | | |

*1: There is a restriction of pin functions. See "Pin Name" of this table.

*2: not supported in 64 pin

*3: not supported in 80 pin

*4: not supported in 100 pin

*5: not supported in 120 pin

*6: not supported in 144 pin

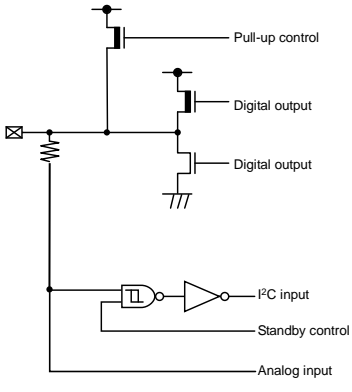
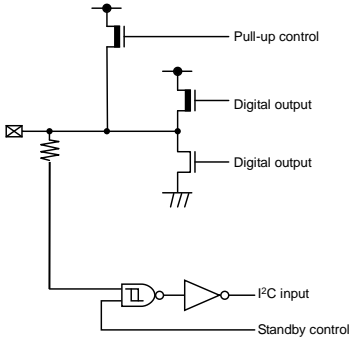
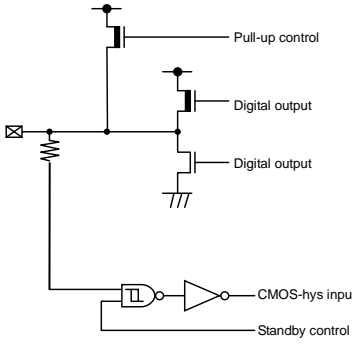
*7: not supported in 176 pin

*8: For the I/O circuit types, see [I/O Circuit Type](#).

*9: For switching, see "I/O Port" in HARDWARE MANUAL.

4. I/O Circuit Type

| Type | Circuit | Remarks |
|------|---------|---|
| A | | <ul style="list-style-type: none"> •General-purpose I/O port •Output 4 mA •Pull-up resistor control 50 kΩ •Automotive input |
| B | | <ul style="list-style-type: none"> •Analog input, General-purpose I/O port •Output 4 mA •Pull-up resistor control 50 kΩ •Automotive input |
| C | | <ul style="list-style-type: none"> •DAC output, General-purpose I/O port •Output 4 mA •Pull-up resistor control 50 kΩ •Automotive input |

| Type | Circuit | Remarks |
|------|---|---|
| D |  | <ul style="list-style-type: none"> •I²C Analog input, General-purpose I/O port •Output 3 mA •Pull-up resistor control 50 kΩ •I²C hysteresis input |
| E |  | <ul style="list-style-type: none"> •I²C, General-purpose I/O port •Output 3 mA •Pull-up resistor control 50 kΩ •I²C hysteresis input |
| F |  | <ul style="list-style-type: none"> •General-purpose I/O port •Output 4 mA •Pull-up resistor control 50 kΩ •CMOS hysteresis input |

| Type | Circuit | Remarks |
|------|---------|---|
| G | | <ul style="list-style-type: none"> •Analog input, General-purpose I/O port •Output 4 mA •Pull-up resistor control 50 kΩ • CMOS hysteresis input |
| H | | <ul style="list-style-type: none"> •Analog input, General-purpose I/O port •Output 12 mA •Pull-up resistor control 50 kΩ •Automotive input |
| I | | <ul style="list-style-type: none"> • General-purpose I/O port (5 V tolerant) • Output 4 mA • CMOS hysteresis input |

| Type | Circuit | Remarks |
|------|---------|---|
| J | | <ul style="list-style-type: none"> • Analog input, General-purpose I/O port (5 V tolerant) • Output 4 mA • CMOS hysteresis input |
| K | | <ul style="list-style-type: none"> • Mode I/O • CMOS hysteresis input |
| L | | <ul style="list-style-type: none"> • Open-drain I/O • Output 25 mA (Nch open-drain) • TTL input |
| M | | <ul style="list-style-type: none"> • CMOS hysteresis input • Pull-up resistor 50 kΩ |
| N | | <ul style="list-style-type: none"> • Main oscillation I/O |

| Type | Circuit | Remarks |
|------|---------|--|
| O | | <ul style="list-style-type: none"> •Sub oscillation I/O |

5. Handling Precautions

Any semiconductor devices have inherently a certain rate of failure. The possibility of failure is greatly affected by the conditions in which they are used (circuit conditions, environmental conditions, etc.). This page describes precautions that must be observed to minimize the chance of failure and to obtain higher reliability from your Cypress semiconductor devices.

1. Precautions for Product Design

This section describes precautions when designing electronic equipment using semiconductor devices.

■ Absolute Maximum Ratings

Semiconductor devices can be permanently damaged by application of stress (voltage, current, temperature, etc.) in excess of certain established limits, called absolute maximum ratings. Do not exceed these ratings.

■ Recommended Operating Conditions

Recommended operating conditions are normal operating ranges for the semiconductor device. All the device's electrical characteristics are warranted when operated within these ranges.

Always use semiconductor devices within the recommended operating conditions. Operation outside these ranges may adversely affect reliability and could result in device failure.

No warranty is made with respect to uses, operating conditions, or combinations not represented on the data sheet. Users considering application outside the listed conditions are advised to contact their sales representative beforehand.

■ Processing and Protection of Pins

These precautions must be followed when handling the pins which connect semiconductor devices to power supply and input/output functions.

(1) Preventing Over-Voltage and Over-Current Conditions

Exposure to voltage or current levels in excess of maximum ratings at any pin is likely to cause deterioration within the device, and in extreme cases leads to permanent damage of the device. Try to prevent such overvoltage or over-current conditions at the design stage.

(2) Protection of Output Pins

Shorting of output pins to supply pins or other output pins, or connection to large capacitance can cause large current flows. Such conditions if present for extended periods of time can damage the device.

Therefore, avoid this type of connection.

(3) Handling of Unused Input Pins

Unconnected input pins with very high impedance levels can adversely affect stability of operation. Such pins should be connected through an appropriate resistance to a power supply pin or ground pin.

■ Latch-up

Semiconductor devices are constructed by the formation of P-type and N-type areas on a substrate. When subjected to abnormally high voltages, internal parasitic PNP junctions (called thyristor structures) may be formed, causing large current levels in excess of several hundred mA to flow continuously at the power supply pin. This condition is called latch-up.

CAUTION: The occurrence of latch-up not only causes loss of reliability in the semiconductor device, but can cause injury or damage from high heat, smoke or flame. To prevent this from happening, do the following:

- (1) Be sure that voltages applied to pins do not exceed the absolute maximum ratings. This should include attention to abnormal noise, surge levels, etc.
- (2) Be sure that abnormal current flows do not occur during the power-on sequence.

■ Observance of Safety Regulations and Standards

Most countries in the world have established standards and regulations regarding safety, protection from electromagnetic interference, etc. Customers are requested to observe applicable regulations and standards in the design of products.

■ Fail-Safe Design

Any semiconductor devices have inherently a certain rate of failure. You must protect against injury, damage or loss from such failures by incorporating safety design measures into your facility and equipment such as redundancy, fire protection, and prevention of over-current levels and other abnormal operating conditions.

■ Precautions Related to Usage of Devices

Cypress semiconductor devices are intended for use in standard applications (computers, office automation and other office equipment, industrial, communications, and measurement equipment, personal or household devices, etc.).

CAUTION: Customers considering the use of our products in special applications where failure or abnormal operation may directly affect human lives or cause physical injury or property damage, or where extremely high levels of reliability are demanded (such as aerospace systems, atomic energy controls, sea floor repeaters, vehicle operating controls, medical devices for life support, etc.) are requested to consult with sales representatives before such use. The company will not be responsible for damages arising from such use without prior approval.

2. Precautions for Package Mounting

Package mounting may be either lead insertion type or surface mount type. In either case, for heat resistance during soldering, you should only mount under Cypress's recommended conditions. For detailed information about mount conditions, contact your sales representative.

■ Lead Insertion Type

Mounting of lead insertion type packages onto printed circuit boards may be done by two methods: direct soldering on the board, or mounting by using a socket.

Direct mounting onto boards normally involves processes for inserting leads into through-holes on the board and using the flow soldering (wave soldering) method of applying liquid solder. In this case, the soldering process usually causes leads to be subjected to thermal stress in excess of the absolute ratings for storage temperature. Mounting processes should conform to Cypress recommended mounting conditions.

If socket mounting is used, differences in surface treatment of the socket contacts and IC lead surfaces can lead to contact deterioration after long periods. For this reason it is recommended that the surface treatment of socket contacts and IC leads be verified before mounting.

■ Surface Mount Type

Surface mount packaging has longer and thinner leads than lead-insertion packaging, and therefore leads are more easily deformed or bent. The use of packages with higher pin counts and narrower pin pitch results in increased susceptibility to open connections caused by deformed pins, or shorting due to solder bridges.

You must use appropriate mounting techniques. Cypress recommends the solder reflow method, and has established a ranking of mounting conditions for each product. Users are advised to mount packages in accordance with Cypress ranking of recommended conditions.

■ Lead-Free Packaging

CAUTION: When ball grid array (BGA) packages with Sn-Ag-Cu balls are mounted using Sn-Pb eutectic soldering, junction strength may be reduced under some conditions of use.

■ Storage of Semiconductor Devices

Because plastic chip packages are formed from plastic resins, exposure to natural environmental conditions will cause

absorption of moisture. During mounting, the application of heat to a package that has absorbed moisture can cause surfaces to peel, reducing moisture resistance and causing packages to crack. To prevent, do the following:

- (1) Avoid exposure to rapid temperature changes, which cause moisture to condense inside the product. Store products in locations where temperature changes are slight.
- (2) Use dry boxes for product storage. Products should be stored below 70 % relative humidity, and at temperatures between 5 °C and 30 °C.
When you open Dry Package that recommends humidity 40 % to 70 % relative humidity.
- (3) When necessary, Cypress packages semiconductor devices in highly moisture-resistant aluminum laminate bags, with a silica gel desiccant. Devices should be sealed in their aluminum laminate bags for storage.
- (4) Avoid storing packages where they are exposed to corrosive gases or high levels of dust.

■ Baking

Packages that have absorbed moisture may be de-moisturized by baking (heat drying). Follow the Cypress recommended conditions for baking.

Condition: 125 °C/24 h

■ Static Electricity

Because semiconductor devices are particularly susceptible to damage by static electricity, you must take the following precautions:

- (1) Maintain relative humidity in the working environment between 40 % and 70 %. Use of an apparatus for ion generation may be needed to remove electricity.
- (2) Electrically ground all conveyors, solder vessels, soldering irons and peripheral equipment.
- (3) Eliminate static body electricity by the use of rings or bracelets connected to ground through high resistance (on the level of 1 MΩ).
Wearing of conductive clothing and shoes, use of conductive floor mats and other measures to minimize shock loads is recommended.
- (4) Ground all fixtures and instruments, or protect with anti-static measures.
- (5) Avoid the use of styrofoam or other highly static-prone materials for storage of completed board assemblies.

3. Precautions for Use Environment

Reliability of semiconductor devices depends on ambient temperature and other conditions as described above.

For reliable performance, do the following:

(1) Humidity

Prolonged use in high humidity can lead to leakage in devices as well as printed circuit boards. If high humidity levels are anticipated, consider anti-humidity processing.

(2) Discharge of Static Electricity

When high-voltage charges exist close to semiconductor devices, discharges can cause abnormal operation. In such cases, use anti-static measures or processing to prevent discharges.

(3) Corrosive Gases, Dust, or Oil

Exposure to corrosive gases or contact with dust or oil may lead to chemical reactions that will adversely affect the device. If you use devices in such conditions, consider ways to prevent such exposure or to protect the devices.

(4) Radiation, Including Cosmic Radiation

Most devices are not designed for environments involving exposure to radiation or cosmic radiation. Users should provide shielding as appropriate.

(5) Smoke, Flame

CAUTION: Plastic molded devices are flammable, and therefore should not be used near combustible substances. If devices begin to smoke or burn, there is danger of the release of toxic gases.

Customers considering the use of Cypress products in other special environmental conditions should consult with sales representatives.

6. Handling Devices

This section explains the latch-up prevention and pin processing.

■ For latch-up prevention

If a voltage higher than VCC or a voltage lower than VSS is applied to an I/O pin, or if a voltage exceeding the ratings is applied between VCC and VSS pins, a latch-up may occur in CMOS IC. If the latch-up occurs, the power supply current increases excessively and device elements may be damaged by heat. Take care to prevent any voltage from exceeding the maximum ratings in device application.

Also, the analog power supply (AVCC, AVRH) and analog input must not be exceeded the digital power supply (VCC) when the power supply to the analog system is turned on or off.

In the correct power-on sequence of the microcontroller, turn on the digital power supply (VCC) and analog power supplies (AVCC, AVRH) simultaneously. Or, turn on the digital power supply (VCC), and then turn on analog power supplies (AVCC, AVRH).

■ Treatment of unused pins

If unused input pins are left open, they may cause a permanent damage to the device due to malfunction or latch-up. Connect at least a 2 kΩ resistor to each of the unused pins for pull-up or pull-down processing.

Also, if I/O pins are not used, they must be set to the output state for releasing or they must be set to the input state and treated in the same way as for the input pins.

■ Power supply pins

The device is designed to ensure that if the device contains multiple VCC or VSS pins, the pins that should be at the same potential are interconnected to prevent latch-up or other malfunctions. Further, connect these pins to an external power supply or ground to reduce unwanted radiation, prevent strobe signals from malfunctioning due to a raised ground level, and fulfill the total output current standard, etc. As shown in figure 1, all Vss power supply pins must be treated in the similar way. If multiple Vcc or Vss systems are connected, the device cannot operate correctly even within the guaranteed operating range.

Figure 1 Power Supply Input Pins



The power supply pins should be connected to VCC and VSS pins of this device at the low impedance from the power supply source.

In the area close to this device, a ceramic capacitor having the capacitance larger than the capacitor of C pin is recommended to use as a bypass capacitor between VCC and VSS pins.

■ Crystal oscillation circuit

An external noise to the X0 or X1 pin may cause a device malfunction. The printed circuit board must be designed to lay out X0 and X1 pins, crystal oscillator (or ceramic resonator), and the bypass capacitor to be grounded to the close position to the device.

The printed circuit board artwork is recommended to surround the X0 and X1 pins by ground circuits.

■ Mode pins (MD1, MD0)

Connect the MD1 and MD0 mode pins to the VCC or VSS pin directly. To prevent an erroneous selection of test mode caused by the noise, reduce the pattern length between each mode pin and VCC or VSS pin on the printed circuit board. Also, use the low-impedance pin connection.

■ During power-on

To prevent a malfunction of the voltage step-down circuit built in the device, the voltage rising must be monotonic during power-on.

■ Notes during PLL clock operation

When the PLL clock is selected and if the oscillator is disconnected or if the input is stopped, this clock may continue to operate at the free running frequency of the self-oscillator circuit built in the PLL clock. This operation is not guaranteed.

■ Treatment of A/D converter power supply pins

Connect the pins to have $AVCC = AVRH = VCC$ and $AVSS/AVRL = VSS$ even if the A/D converter is not used.

■ Notes on using external clock

An external clock is not supported. None of the external direct clock input can be used for both main clock and sub clock.

■ Power-on sequence of A/D converter analog inputs

Be sure to turn on the digital power supply (Vcc) first, and then turn on the A/D converter power supplies (AVcc, AVRH, AVRL) and analog inputs (AN0 to AN47). Also, turn off the A/D converter power supplies and analog inputs first, and then turn off the digital power supply (Vcc). When the AVRH pin voltage is turned on or off, it must not exceed AVCC. Even if a common analog input pin is used as an input port, its input voltage must not exceed AVcc. (However, the analog power supply and digital power supply can be turned on or off simultaneously.)

■ Treatment of C pin

This device contains a voltage step-down circuit. A capacitor must always be connected to the C pin to assure the internal stabilization of the device. For the standard values, see the "Recommended Operating Conditions" of the latest data sheet.

Note: Please see the latest data sheet for a detailed specification of the operation voltage.

■ Function switching of a multiplexed port

To switch between the port function and the multiplexed pin function, use the PFR (port function register). However, if a pin is also used for an external bus, its function is switched by the external bus setting. For details, see "I/O PORTS" in the hardware manual.

■ Low-power consumption mode

To transit to the sleep mode, watch mode, stop mode, watch mode(power-off) or stop mode(power-off), follow the procedure explained in "Activating the sleep mode, watch mode, or stop mode" or "Activating the watch mode (power-off) or stop mode(power-off)" of "POWER CONSUMPTION CONTROL" in the hardware manual.

Take the following notes when using a monitor debugger.

- Do not set a break point for the low-power consumption transition program.
- Do not execute an operation step for the low-power consumption transition program.

■ **Notes When Writing Data in a Register Having the Status Flag**

When writing data in the register that has a status flag (especially, an interrupt request flag) to control function, taking care not to clear its status flag erroneously must be followed.

The program must be written not to clear the flag to the status bit, and then to set the control bits to have the desired value.

Especially, if multiple control bits are used, the bit instruction cannot be used. (The bit instruction can access to a single bit only.) By the Byte, Half-word, or Word access, data is written to the control bits and status flag simultaneously. During this time, take care not to clear other bits (in this case, the bits of status flag) erroneously.

Note: These points can be ignored because the bit instructions are already taken the points into consideration.

7. Block Diagram

CY91F522B, CY91F523B, CY91F524B, CY91F525B, CY91F526B



CY91F522D, CY91F523D, CY91F524D, CY91F525D, CY91F526D



CY91F522F, CY91F523F, CY91F524F, CY91F525F, CY91F526F



CY91F522J, CY91F523J, CY91F524J, CY91F525J, CY91F526J



CY91F522K, CY91F523K, CY91F524K, CY91F525K, CY91F526K



CY91F522L, CY91F523L, CY91F524L, CY91F525L, CY91F526L



8. Memory Map

CY91F522, CY91F523, CY91F524

| CY91F522 | | CY91F523 | | CY91F524 | |
|------------------------|----------------------------------|------------------------|----------------------------------|------------------------|----------------------------------|
| 0000 0000 _H | I/O | 0000 0000 _H | I/O | 0000 0000 _H | I/O |
| 0000 4000 _H | BackUp RAM (8KB) | 0000 4000 _H | BackUp RAM (8KB) | 0000 4000 _H | BackUp RAM (8KB) |
| 0000 6000 _H | | 0000 6000 _H | | 0000 6000 _H | |
| 0001 0000 _H | I/O | 0001 0000 _H | I/O | 0001 0000 _H | I/O |
| 0001 C000 _H | RAM (48KB) | 0001 C000 _H | RAM (48KB) | 0001 0000 _H | RAM (64KB) |
| | Reserved | | Reserved | 0002 0000 _H | Reserved |
| 0007 0000 _H | Flash memory (256+64)KB | 0007 0000 _H | Flash memory (384+64)KB | 0007 0000 _H | Flash memory (512+64)KB |
| 000C 0000 _H | Reserved | 000E 0000 _H | Reserved | | |
| 000F FC00 _H | Interrupt vector Reset vector | 000F FC00 _H | Interrupt vector Reset vector | 000F FC00 _H | Interrupt vector Reset vector |
| 0010 0000 _H | Reserved | 0010 0000 _H | Reserved | 0010 0000 _H | Reserved |
| 0033 0000 _H | WorkFlash (64KB) | 0033 0000 _H | WorkFlash (64KB) | 0033 0000 _H | WorkFlash (64KB) |
| 0034 0000 _H | Reserved | 0034 0000 _H | Reserved | 0034 0000 _H | Reserved |
| | | 0039 0000 _H | | 0039 0000 _H | |
| | | 0039 2000 _H | Reserved | 0039 2000 _H | Reserved |
| 8000 0000 _H | External area | 8000 0000 _H | External area | 8000 0000 _H | External area |
| FFFF FFFF _H | | FFFF FFFF _H | | FFFF FFFF _H | |

CY91F525, CY91F526



9. I/O Map

The following I/O map shows the relationship between memory space and registers for peripheral resources.

Legend of I/O Map

Read/Write attribute (R: Read W: Write)

| Address | Address offset value/ register name | | | | Block |
|---------------------|---|--------------------------------|---|--------------------------------|---------------|
| | +0 | +1 | +2 | +3 | |
| 000090 _H | BT1TMR[R] H 0000000000000000 | | BT1TMCR[R/W]B,H,W 00000000 00000000 | | Base timer 1 |
| 000094 _H | - | BT1STC[R/W] B 00000000 | - | - | |
| 000098 _H | BT1PCSR/BT1PRLL[R /W] H 0000000000000000 | | BT1PDU T/BT1PRLH/BT1DTBF[R/W] H 0000000000000000 | | |
| 00009C _H | BTSEL[R/W] B ---000 0 | - | BTSSSR[W] B,H ----- 11 | | |
| 0000A0 _H | ADERH [R/W]B, H, W 00000000 00000000 | | ADERL [R/W]B, H, W 00000000 00000000 | | A/D converter |
| 0000A4 _H | ADCS1 [R/W] B, H,W 00000000 | ADCS0 [R/W] B, H,W 00000000 | ADCR1 [R] B, H,W -----XX | ADCR0 [R] B, H,W XXXXX XXX | |
| 0000A8 _H | ADCT1 [R/W] B, H,W 00010000 | ADCT0 [R/W] B, H,W 00101100 | ADSCH [R/W] B, H,W ---00000 | ADECH [R/W] B, H,W ---00000 | |

Data access attribute
 B: Byte
 H: Half-word
 W: Word
 (Note)The access by the data access attribute not described is disabled.

Initial register value after reset

The initial register value after reset indicates as follows:

- "1": Initial value "1"
- "0": Initial value "0"
- "X": Initial value undefined
- "-": Reserved bit/Undefined bit
- "*": Initial value "0" or "1" according to the setting

Note: The access to addresses not described is disabled.

| Address | Address offset value / Register name | | | | Block |
|--------------------------|--------------------------------------|--|---|-----------------------------------|--|
| | +0 | +1 | +2 | +3 | |
| 000000H | PDR00 [R/W] B,H,W XXXXXXXX | PDR01 [R/W] B,H,W XXXXXXXX | PDR02 [R/W] B,H,W XXXXXXXX | PDR03 [R/W] B,H,W XXXXXXXX | Port Data Register |
| 000004H | PDR04 [R/W] B,H,W XXXXXXXX | PDR05 [R/W] B,H,W XXXXXXXX | PDR06 [R/W] B,H,W XXXXXXXX | PDR07 [R/W] B,H,W XXXXXXXX | |
| 000008H | PDR08 [R/W] B,H,W XXXXXXXX | PDR09 [R/W] B,H,W XXXXXXXX | PDR10 [R/W] B,H,W XXXXXXXX | PDR11 [R/W] B,H,W XXXXXXXX | |
| 00000CH | PDR12 [R/W] B,H,W XXXXXXXX | PDR13 [R/W] B,H,W -XXXXXXXX | PDR14 [R/W] B,H,W ---XXX-- | PDR15 [R/W] B,H,W --XXXXXX | |
| 000010H | — | — | — | — | |
| 000014H | — | — | — | — | |
| 000018H | PDR16 [R/W] B,H,W XXXXXXXX | PDR17 [R/W] B,H,W XXXXXXXX | PDR18 [R/W] B,H,W XXXXXXXX | PDR19 [R/W] B,H,W XXXXXXXX | |
| 00001CH to 000034H | — | — | — | — | Reserved |
| 000038H | WDTECR0 [R/W] B,H,W ---00000 | — | — | — | Watchdog Timer [S] |
| 00003CH | WDTCR0 [R/W] B,H,W -0--0000 | WDTCPRO [W] B,H,W 00000000 | WDTCR1 [R] B,H,W ---0110 | WDTCPR1 [W] B,H,W 00000000 | |
| 000040H | — | — | — | — | Reserved |
| 000044H | DICR [R/W] B,H,W -----0 | — | — | — | Delayed Interrupt |
| 000048H to 00005CH | — | — | — | — | Reserved |
| 000060H | TMRLRA0 [R/W] H XXXXXXXX XXXXXXXX | | TMR0 [R] H XXXXXXXX XXXXXXXX | | Reload Timer 0 |
| 000064H | TMRLRB0 [R/W] H XXXXXXXX XXXXXXXX | | TMCSR0 [R/W] B,H,W 00000000 0-000000 | | |
| 000068H | TMRLRA7 [R/W] H XXXXXXXX XXXXXXXX | | TMR7 [R] H XXXXXXXX XXXXXXXX | | Reload Timer 7 |
| 00006CH | TMRLRB7 [R/W] H XXXXXXXX XXXXXXXX | | TMCSR7 [R/W] B,H,W 00000000 0-000000 | | |
| 000070H | — | FRS8 [R/W] B,H,W --00--00 --00--00 --00--00 | | | Free-run timer selection register 8 |
| 000074H | — | FRS9 [R/W] B,H,W --00--00 --00--00 --00--00 | | | Free-run timer selection register 9 |
| 000078H | — | — | — | OCLS67 [R/W] B,H,W ----0000 | OCU67 Output level control register |
| 00007CH | — | — | — | OCLS89 [R/W] B,H,W ----0000 | OCU89 Output level control register |
| 000080H | BT0TMR [R] H 00000000 00000000 | | BT0TMCR [R/W] H -000--00 -000-000 | | Base Timer 0 |

| Address | Address offset value / Register name | | | | Block |
|--|--|----------------------------|--|-----------------------------------|--|
| | +0 | +1 | +2 | +3 | |
| 000084 _H | BT0TMR2 [R/W] B -----0 | BT0STC [R/W] B -0-0-0-0 | — | — | |
| 000088 _H | BT0PCSR/BT0PRL [R/W] H 00000000 00000000 | | BT0PDUT/BT0PRLH/BT0DTBF [R/W] H 00000000 00000000 | | |
| 00008C _H | — | — | — | — | Reserved |
| 000090 _H | BT1TMR [R] H 00000000 00000000 | | BT1TMCR [R/W] H -000--00 -000-000 | | Base Timer 1 |
| 000094 _H | BT1TMCR2 [R/W] B -----0 | BT1STC [R/W] B -0-0-0-0 | — | — | |
| 000098 _H | BT1PCSR/BT1PRL [R/W] H 00000000 00000000 | | BT1PDUT/BT1PRLH/BT1DTBF [R/W] H 00000000 00000000 | | |
| 00009C _H | BTSEL01 [R/W] B ---0000 | — | BTSSSR [W] B,H ----- 11 | | Base Timer 0,1 |
| 0000A0 _H to 0000FC _H | — | — | — | — | Reserved |
| 000100 _H | TMRLRA1 [R/W] H XXXXXXXX XXXXXXXX | | TMR1 [R] H XXXXXXXX XXXXXXXX | | Reload Timer 1 |
| 000104 _H | TMRLRB1 [R/W] H XXXXXXXX XXXXXXXX | | TMCSR1 [R/W] B, H,W 00000000 0-000000 | | |
| 000108 _H | TMRLRA2 [R/W] H XXXXXXXX XXXXXXXX | | TMR2 [R] H XXXXXXXX XXXXXXXX | | Reload Timer 2 |
| 00010C _H | TMRLRB2 [R/W] H XXXXXXXX XXXXXXXX | | TMCSR2 [R/W] B,H,W 00000000 0-000000 | | |
| 000110 _H | TMRLRA3 [R/W] H XXXXXXXX XXXXXXXX | | TMR3 [R] H XXXXXXXX XXXXXXXX | | Reload Timer 3 |
| 000114 _H | TMRLRB3 [R/W] H XXXXXXXX XXXXXXXX | | TMCSR3 [R/W] B,H,W 00000000 0-000000 | | |
| 000118 _H | MSCY4 [R] H,W XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX | | | | Input Capture 4,5 Cycle measurement data register 45 |
| 00011C _H | MSCY5 [R] H,W XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX | | | | |
| 000120 _H | OCCP6 [R/W] W 00000000 00000000 00000000 00000000 | | | | Output Compare 6,7 32-bit OCU |
| 000124 _H | OCCP7 [R/W] W 00000000 00000000 00000000 00000000 | | | | |
| 000128 _H | — | — | OCSH67 [R/W] B,H,W ---0--00 | OCSL67 [R/W] B,H,W 0000--00 | |
| 00012C _H | OCCP8 [R/W] W 00000000 00000000 00000000 00000000 | | | | Output Compare 8,9 32-bit OCU |
| 000130 _H | OCCP9 [R/W] W 00000000 00000000 00000000 00000000 | | | | |
| 000134 _H | — | — | OCSH89 [R/W] B,H,W ---0--00 | OCSL89 [R/W] B,H,W 0000--00 | |
| 000138 _H to 0001B4 _H | — | — | — | — | Reserved |

| Address | Address offset value / Register name | | | | Block |
|--|---|-----------------------------------|--|-----------------------------------|---------------------------------|
| | +0 | +1 | +2 | +3 | |
| 0001B8 _H | EPFR64 [R/W] B,H,W ----00- | EPFR65 [R/W] B,H,W 0000-000 | EPFR66 [R/W] B,H,W --000000 | EPFR67 [R/W] B,H,W ----0000 | Extended port function register |
| 0001BC _H | EPFR68 [R/W] B,H,W ---0000 | EPFR69 [R/W] B,H,W ----0000 | EPFR70 [R/W] B,H,W ---00000 | EPFR71 [R/W] B,H,W -0-0-0-0 | |
| 0001C0 _H | EPFR72 [R/W] B,H,W 000000-0 | EPFR73 [R/W] B,H,W 00000000 | EPFR74 [R/W] B,H,W 00000000 | EPFR75 [R/W] B,H,W 00000000 | |
| 0001C4 _H | EPFR76 [R/W] B,H,W 00000000 | EPFR77 [R/W] B,H,W --000000 | EPFR78 [R/W] B,H,W -----00 | EPFR79 [R/W] B,H,W 00000000 | |
| 0001C8 _H | EPFR80 [R/W] B,H,W ---00000 | EPFR81 [R/W] B,H,W 00000000 | EPFR82 [R/W] B,H,W 00000000 | EPFR83 [R/W] B,H,W -0000000 | |
| 0001CC _H | EPFR84 [R/W] B,H,W 00000000 | EPFR85 [R/W] B,H,W --000000 | EPFR86 [R/W] B,H,W ---00000 | EPFR87 [R/W] B,H,W -----00 | |
| 0001D0 _H | EPFR88 [R/W] B,H,W -----0 | — | — | — | |
| 0001D4 _H | — | — | — | — | |
| 0001D8 _H | TMRLRA4 [R/W] H XXXXXXXX XXXXXXXX | | TMR4 [R] H XXXXXXXX XXXXXXXX | | Reload Timer 4 |
| 0001DC _H | TMRLRB4 [R/W] H XXXXXXXX XXXXXXXX | | TMCSR4 [R/W] B, H,W 00000000 0-000000 | | |
| 0001E0 _H to 0001EC _H | — | — | — | — | Reserved |
| 0001F0 _H | TMRLRA5 [R/W] H XXXXXXXX XXXXXXXX | | TMR5 [R] H XXXXXXXX XXXXXXXX | | Reload Timer 5 |
| 0001F4 _H | TMRLRB5 [R/W] H XXXXXXXX XXXXXXXX | | TMCSR5 [R/W] B, H,W 00000000 0-000000 | | |
| 0001F8 _H | TMRLRA6 [R/W] H XXXXXXXX XXXXXXXX | | TMR6 [R] H XXXXXXXX XXXXXXXX | | Reload Timer 6 |
| 0001FC _H | TMRLRB6 [R/W] H XXXXXXXX XXXXXXXX | | TMCSR6 [R/W] B, H,W 00000000 0-000000 | | |
| 000200 _H to 000238 _H | — | — | — | — | Reserved |
| 00023C _H | DACR0 [R/W] B,H,W -----0 | DADR0 [R/W] B,H,W XXXXXXXX | DACR1 [R/W] B,H,W -----0 | DADR1 [R/W] B,H,W XXXXXXXX | DA Converter |
| 000240 _H | CPCLR3 [R/W] W 11111111 11111111 11111111 11111111 | | | | Free-run Timer 3 32-bit FRT |
| 000244 _H | TCDT3 [R/W] W 00000000 00000000 00000000 00000000 | | | | |
| 000248 _H | TCCSH3 [R/W] B,H,W 0-----00 | TCCSL3 [R/W] B,H,W -1-00000 | — | — | |
| 00024C _H | CPCLR4 [R/W] W 11111111 11111111 11111111 11111111 | | | | Free-run Timer 4 32-bit FRT |
| 000250 _H | TCDT4 [R/W] W 00000000 00000000 00000000 00000000 | | | | |
| 000254 _H | TCCSH4 [R/W] B,H,W 0-----00 | TCCSL4 [R/W] B,H,W -1-00000 | — | — | |

| Address | Address offset value / Register name | | | | Block |
|--------------------------|--|----|------------------------------------|----|--|
| | +0 | +1 | +2 | +3 | |
| 000258H to 0002C0H | — | — | — | — | Reserved |
| 0002C4H to 0002FCH | — | — | — | — | Reserved |
| 000300H to 00030CH | — | — | — | — | Reserved |
| 000310H | — | — | MPUCR [R/W] H 000000-0 ----0100 | | MPU [S] (Only CPU core can access this area) |
| 000314H | — | — | — | — | |
| 000318H | — | | | | |
| 00031CH | — | — | — | — | |
| 000320H | DPVAR [R] W XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX | | | | |
| 000324H | — | — | DPVSR [R/W] H ----- 00000--0 | | |
| 000328H | DEAR [R] W XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX | | | | |
| 00032CH | — | — | DESR [R/W] H ----- 00000--0 | | |
| 000330H | PABR0 [R/W] W XXXXXXXX XXXXXXXX XXXXXXXX XXXX0000 | | | | |
| 000334H | — | — | PACR0 [R/W] H 000000-0 00000--0 | | |
| 000338H | PABR1 [R/W] W XXXXXXXX XXXXXXXX XXXXXXXX XXXX0000 | | | | |
| 00033CH | — | — | PACR1 [R/W] H 000000-0 00000--0 | | |
| 000340H | PABR2 [R/W] W XXXXXXXX XXXXXXXX XXXXXXXX XXXX0000 | | | | |
| 000344H | — | — | PACR2 [R/W] H 000000-0 00000--0 | | |
| 000348H | PABR3 [R/W] W XXXXXXXX XXXXXXXX XXXXXXXX XXXX0000 | | | | |
| 00034CH | — | — | PACR3 [R/W] H 000000-0 00000--0 | | |
| 000350H | PABR4 [R/W] W XXXXXXXX XXXXXXXX XXXXXXXX XXXX0000 | | | | |
| 000354H | — | — | PACR4 [R/W] H 000000-0 00000--0 | | |
| 000358H | PABR5 [R/W] W XXXXXXXX XXXXXXXX XXXXXXXX XXXX0000 | | | | |
| 00035CH | — | — | PACR5 [R/W] H 000000-0 00000--0 | | |
| 000360H | PABR6 [R/W] W XXXXXXXX XXXXXXXX XXXXXXXX XXXX0000 | | | | |
| 000364H | — | — | PACR6 [R/W] H 000000-0 00000--0 | | |

| Address | Address offset value / Register name | | | | Block |
|--|--|------------------------------------|------------------------------------|------------------------------------|---|
| | +0 | +1 | +2 | +3 | |
| 000368 _H | PABR7 [R/W] W XXXXXXXX XXXXXXXX XXXXXXXX XXXX0000 | | | | MPU [S] (Only CPU core can access this area) |
| 00036C _H | — | — | PACR7 [R/W] H 000000-0 00000--0 | | |
| 000370 _H to 0003AC _H | — | | | | Reserved [S] |
| 0003B0 _H to 0003FC _H | — | — | — | — | Reserved [S] |
| 000400 _H | ICSEL0 [R/W] B,H,W ----000 | ICSEL1 [R/W] B,H,W ----000 | ICSEL2 [R/W] B,H,W -----0 | ICSEL3 [R/W] B,H,W -----0 | DMA request generation and clear |
| 000404 _H | — | ICSEL5 [R/W] B,H,W ----000 | ICSEL6 [R/W] B,H,W ---0000 | ICSEL7 [R/W] B,H,W ---0000 | |
| 000408 _H | ICSEL8 [R/W] B,H,W -----00 | ICSEL9 [R/W] B,H,W -----00 | ICSEL10 [R/W] B,H,W -----00 | ICSEL11 [R/W] B,H,W -----000 | |
| 00040C _H | — | ICSEL13 [R/W] B,H,W -----00 | ICSEL14 [R/W] B,H,W -----00 | ICSEL15 [R/W] B,H,W -----00 | |
| 000410 _H | ICSEL16 [R/W] B,H,W ---0000 | ICSEL17 [R/W] B,H,W -----00 | ICSEL18 [R/W] B,H,W ---00000 | ICSEL19 [R/W] B,H,W -----000 | |
| 000414 _H | ICSEL20 [R/W] B,H,W -----000 | ICSEL21 [R/W] B,H,W -----00 | ICSEL22 [R/W] B,H,W -----00 | ICSEL23 [R/W] B,H,W -----00 | |
| 000418 _H | IRPR0H [R] B,H,W 00----- | IRPR0L [R] B,H,W 00----- | IRPR1H [R] B,H,W 00----- | IRPR1L [R] B,H,W 00----- | |
| 00041C _H | — | — | IRPR3H [R] B,H,W 000000-- | IRPR3L [R] B,H,W 000000-- | Interrupt Request Batch Reading Register |
| 000420 _H | IRPR4H [R] B,H,W 0000---- | IRPR4L [R] B,H,W 0000---- | IRPR5H [R] B,H,W 0000---- | IRPR5L [R] B,H,W 000----- | |
| 000424 _H | IRPR6H [R] B,H,W --00---- | IRPR6L [R] B,H,W 0000---- | IRPR7H [R] B,H,W -0-00--- | IRPR7L [R] B,H,W -----00 | |
| 000428 _H | IRPR8H [R] B,H,W --0----- | IRPR8L [R] B,H,W -00----- | IRPR9H [R] B,H,W -0----- | IRPR9L [R] B,H,W -0----- | |
| 00042C _H | IRPR10H [R] B,H,W -0----- | IRPR10L [R] B,H,W -0----- | IRPR11H [R] B,H,W 0----- | IRPR11L [R] B,H,W 0----- | |
| 000430 _H | IRPR12H [R] B,H,W --0000-- | IRPR12L [R] B,H,W ---00-- | IRPR13H [R] B,H,W 00----- | IRPR13L [R] B,H,W 00----- | |
| 000434 _H | IRPR14H [R] B,H,W 00000000 | IRPR14L [R] B,H,W 00000000 | IRPR15H [R] B,H,W 000----- | IRPR15L [R] B,H,W 0000000- | |
| 000438 _H | ICSEL24 [R/W] B,H,W -----00 | ICSEL25 [R/W] B,H,W ---00000 | ICSEL26 [R/W] B,H,W -----0 | ICSEL27 [R/W] B,H,W -----0 | DMA request generation and clear |
| 00043C _H | — | — | — | — | Reserved [S] |

| Address | Address offset value / Register name | | | | Block |
|--|--------------------------------------|----------------------------------|--------------------------------------|--------------------------------|---|
| | +0 | +1 | +2 | +3 | |
| 000440 _H | ICR00 [R/W] B,H,W ---11111 | ICR01 [R/W] B,H,W ---11111 | ICR02 [R/W] B,H,W ---11111 | ICR03 [R/W] B,H,W ---11111 | Interrupt Controller [S] |
| 000444 _H | ICR04 [R/W] B,H,W ---11111 | ICR05 [R/W] B,H,W ---11111 | ICR06 [R/W] B,H,W ---11111 | ICR07 [R/W] B,H,W ---11111 | |
| 000448 _H | ICR08 [R/W] B,H,W ---11111 | ICR09 [R/W] B,H,W ---11111 | ICR10 [R/W] B,H,W ---11111 | ICR11 [R/W] B,H,W ---11111 | |
| 00044C _H | ICR12 [R/W] B,H,W ---11111 | ICR13 [R/W] B,H,W ---11111 | ICR14 [R/W] B,H,W ---11111 | ICR15 [R/W] B,H,W ---11111 | |
| 000450 _H | ICR16 [R/W] B,H,W ---11111 | ICR17 [R/W] B,H,W ---11111 | ICR18 [R/W] B,H,W ---11111 | ICR19 [R/W] B,H,W ---11111 | |
| 000454 _H | ICR20 [R/W] B,H,W ---11111 | ICR21 [R/W] B,H,W ---11111 | ICR22 [R/W] B,H,W ---11111 | ICR23 [R/W] B,H,W ---11111 | |
| 000458 _H | ICR24 [R/W] B,H,W ---11111 | ICR25 [R/W] B,H,W ---11111 | ICR26 [R/W] B,H,W ---11111 | ICR27 [R/W] B,H,W ---11111 | |
| 00045C _H | ICR28 [R/W] B,H,W ---11111 | ICR29 [R/W] B,H,W ---11111 | ICR30 [R/W] B,H,W ---11111 | ICR31 [R/W] B,H,W ---11111 | |
| 000460 _H | ICR32 [R/W] B,H,W ---11111 | ICR33 [R/W] B,H,W ---11111 | ICR34 [R/W] B,H,W ---11111 | ICR35 [R/W] B,H,W ---11111 | |
| 000464 _H | ICR36 [R/W] B,H,W ---11111 | ICR37 [R/W] B,H,W ---11111 | ICR38 [R/W] B,H,W ---11111 | ICR39 [R/W] B,H,W ---11111 | |
| 000468 _H | ICR40 [R/W] B,H,W ---11111 | ICR41 [R/W] B,H,W ---11111 | ICR42 [R/W] B,H,W ---11111 | ICR43 [R/W] B,H,W ---11111 | |
| 00046C _H | ICR44 [R/W] B,H,W ---11111 | ICR45 [R/W] B,H,W ---11111 | ICR46 [R/W] B,H,W ---11111 | ICR47 [R/W] B,H,W ---11111 | |
| 000470 _H to 00047C _H | — | — | — | — | |
| 000480 _H | RSTRR [R] B,H,W XXXX--XX | RSTCR [R/W] B,H,W 111----0 | STBCR [R/W] B,H,W * 000---11 | — | Reset Control [S] Power Control [S] *: Writing STBCR by DMA is forbidden |
| 000484 _H | — | — | — | — | Reserved [S] |
| 000488 _H | DIVR0 [R/W] B,H,W 000----- | DIVR1 [R/W] B,H,W 0001---- | DIVR2 [R/W] B,H,W 0011---- | — | Clock Control [S] |
| 00048C _H | — | — | — | — | Reserved [S] |
| 000490 _H | IORR0 [R/W] B,H,W -0000000 | IORR1 [R/W] B,H,W -0000000 | IORR2 [R/W] B,H,W -0000000 | IORR3 [R/W] B,H,W -0000000 | DMA request by peripheral [S] |
| 000494 _H | IORR4 [R/W] B,H,W -0000000 | IORR5 [R/W] B,H,W -0000000 | IORR6 [R/W] B,H,W -0000000 | IORR7 [R/W] B,H,W -0000000 | |
| 000498 _H | IORR8 [R/W] B,H,W -0000000 | IORR9 [R/W] B,H,W -0000000 | IORR10 [R/W] B,H,W -0000000 | IORR11 [R/W] B,H,W -0000000 | |
| 00049C _H | IORR12 [R/W] B,H,W -0000000 | IORR13 [R/W] B,H,W -0000000 | IORR14 [R/W] B,H,W -0000000 | IORR15 [R/W] B,H,W -0000000 | DMA request by peripheral [S] |
| 0004A0 _H | — | — | — | — | Reserved |
| 0004A4 _H | CANPRE [R/W] B,H,W ---00000 | — | — | — | CAN prescaler |
| 0004A8 _H | — | — | CSCFG[R/W]B,H,W ---0---- | CMCFG[R/W]B,H,W 00000000 | Clock monitor control register |
| 0004AC _H | ADERHO[R/W] B,H 11111111 11111111 | | ADERLO[R/W] B,H 11111111 11111111 | | Analog input control register 0 |

| Address | Address offset value / Register name | | | | Block |
|--|---|-------------------------------------|--|-------------------------------------|------------------------------------|
| | +0 | +1 | +2 | +3 | |
| 0004B0 _H | — | | ADERL1 [R/W] B,H 11111111 11111111 | | Analog input control register 1 |
| 0004B4 _H | — | — | — | — | Reserved |
| 0004B8 _H | CUCR0 [R/W] B,H,W ----- 0-00 | | CUTD0 [R/W] B,H,W 10000000 00000000 | | RTC/WDT1 calibration |
| 0004BC _H | CUTR0 [R] B,H,W ----- 00000000 00000000 00000000 | | | | |
| 0004C0 _H | — | — | — | — | |
| 0004C4 _H | CUCR1 [R/W] B,H,W ----- 0-00 | | CUTD1 [R/W] B,H,W 11000011 01010000 | | |
| 0004C8 _H | CUTR1 [R] B,H,W ----- 00000000 00000000 00000000 | | | | |
| 0004CC _H to 00050C _H | — | — | — | — | Reserved |
| 000510 _H | CSELR [R/W] B,H,W 001---00 | CMONR [R] B,H,W 001---00 | MTMCR [R/W] B,H,W 00001111 | STMCR [R/W] B,H,W 0000-111 | Clock Control [S] |
| 000514 _H | PLLCR [R/W] B,H,W ----- 11110000 | | CSTBR [R/W] B,H,W -0000000 | PTMCR [R/W] B,H,W 00----- | |
| 000518 _H | — | — | CPUAR [R/W] B,H,W 0---XXX | — | Reset Control [S] |
| 00051C _H | — | — | — | — | Reserved [S] |
| 000520 _H | CCPSSELR [R/W] B,H,W -----0 | — | — | CCPSDIVR [R/W] B,H,W -000-000 | Clock Control 2 [S] |
| 000524 _H | — | CCPLLFBR [R/W] B,H,W -0000000 | CCSSFBR0 [R/W] B,H,W --000000 | CCSSFBR1 [R/W] B,H,W ---00000 | |
| 000528 _H | — | CCSSCCR0 [R/W] B,H,W ----0000 | CCSSCCR1 [R/W] H,W 000----- | | |
| 00052C _H | — | CCCGRCR0 [R/W] B,H,W 00----00 | CCCGRCR1 [R/W] B,H,W 00000000 | CCCGRCR2 [R/W] B,H,W 00000000 | Clock Control 2 [S] |
| 000530 _H | CCRTSELR [R/W] B,H,W 0-----0 | — | CCPMUCR0 [R/W] B,H,W 0-----00 | CCPMUCR1 [R/W] B,H,W 0--00000 | |
| 000534 _H to 00054C _H | — | — | — | — | Reserved |
| 000550 _H | EIRR0 [R/W] B,H,W XXXXXXXX | ENIR0 [R/W] B,H,W 00000000 | ELVR0 [R/W] B,H,W 00000000 00000000 | | External Interrupt (INT0 to 7) |
| 000554 _H | EIRR1 [R/W] B,H,W XXXXXXXX | ENIR1 [R/W] B,H,W 00000000 | ELVR1 [R/W] B,H,W 00000000 00000000 | | External Interrupt (INT8 to 15) |
| 000558 _H | — | — | — | — | Reserved |

| Address | Address offset value / Register name | | | | Block |
|--------------------------|--|-------------------------------------|-------------------------------------|-----------------------------|--|
| | +0 | +1 | +2 | +3 | |
| 00055CH | — | — | WTDR [R/W] H 00000000 00000000 | | Real Time Clock (RTC) |
| 000560H | — | WTCRH [R/W] B -----00 | WTCRM [R/W] B,H 00000000 | WTCRL [R/W] B,H ----00-0 | |
| 000564H | — | WTBRH [R/W] B --XXXXXX | WTBRM [R/W] B XXXXXXXX | WTBRL [R/W] B XXXXXXXX | |
| 000568H | WTHR [R/W] B,H ---00000 | WTMR [R/W] B,H --000000 | WTSR [R/W] B --000000 | — | |
| 00056CH | — | CSVCR [R/W] B 000111-- | — | — | Clock Supervisor |
| 000570H to 00057CH | — | — | — | — | Reserved |
| 000580H | REGSEL [R/W] B,H,W 0110011- | — | — | — | Regulator Control / Low Voltage Detection |
| 000584H | LVD5R [R/W] B,H,W -----1 | LVD5F [R/W] B,H,W 00000001 | LVD [R/W] B,H,W 01000--0 | — | |
| 000588H to 00058CH | — | — | — | — | Reserved |
| 000590H | PMUSTR [R/W] B,H,W 0-----1X | PMUCTLR [R/W] B,H,W 0-00---- | PWRTMCTL [R/W] B,H,W ----011 | — | PMU |
| 000594H | PMUINTF0 [R/W] B,H,W 00000000 | PMUINTF1 [R/W] B,H,W 00000000 | PMUINTF2 [R/W] B,H,W 0000---- | — | |
| 000598H | — | — | — | — | |
| 00059CH to 0005BCH | — | — | — | — | Reserved |
| 0005C0H to 0005FCH | — | — | — | — | Reserved |
| 000600H | ASR0 [R/W] W 00000000 00000000 ----- 1111-001 | | | | External Bus Interface [S] |
| 000604H | ASR1 [R/W] W XXXXXXXX XXXXXXXX ----- XXXX-XX0 | | | | |
| 000608H | ASR2 [R/W] W XXXXXXXX XXXXXXXX ----- XXXX-XX0 | | | | |
| 00060CH | ASR3 [R/W] W XXXXXXXX XXXXXXXX ----- XXXX-XX0 | | | | |
| 000610H to 00063CH | — | — | — | — | Reserved [S] |

| Address | Address offset value / Register name | | | | Block |
|--|---|----------------------------|-----------------------------------|--------------------------|----------------------------|
| | +0 | +1 | +2 | +3 | |
| 000640H | ACR0 [R/W] W ----- 01--00-- | | | | External Bus Interface [S] |
| 000644H | ACR1 [R/W] W ----- XX--XX-- | | | | |
| 000648H | ACR2 [R/W] W ----- XX--XX-- | | | | |
| 00064CH | ACR3 [R/W] W ----- XX--XX-- | | | | |
| 000650H to 00067CH | — | — | — | — | Reserved [S] |
| 000680H | AWR0 [R/W] W ----1111 00000000 11110000 00000-0- | | | | External Bus Interface [S] |
| 000684H | AWR1 [R/W] W ---XXXX XXXXXXXX XXXXXXXX XXXXX-X- | | | | |
| 000688H | AWR2 [R/W] W ---XXXX XXXXXXXX XXXXXXXX XXXXX-X- | | | | External Bus Interface [S] |
| 00068CH | AWR3 [R/W] W ---XXXX XXXXXXXX XXXXXXXX XXXXX-X- | | | | |
| 000690H to 0006FC _H | — | — | — | — | Reserved [S] |
| 000700H to 00070C _H | — | — | — | — | Reserved |
| 000710H | BPCCRA [R/W] B 00000000 | BPCCRB [R/W] B 00000000 | BPCCRC [R/W] B 00000000 | — | Bus Performance Counter |
| 000714H | BPCTRA [R/W] W 00000000 00000000 00000000 00000000 | | | | |
| 000718H | BPCTRB [R/W] W 00000000 00000000 00000000 00000000 | | | | |
| 00071C _H | BPCTRC [R/W] W 00000000 00000000 00000000 00000000 | | | | |
| 000720H to 0007F8 _H | — | — | — | — | Reserved |
| 0007FC _H | BMODR [R] B, H, W XXXXXXXX | — | — | — | Mode Register |
| 000800H to 00083C _H | — | — | — | — | Reserved [S] |
| 000840H | FCTL _R [R/W] H -0--1000 0--0---- | | — | FSTR [R/W] B -----001 | Flash Memory Register [S] |
| 000844H to 000854H | — | — | — | — | Reserved [S] |
| 000858H | — | — | WREN [R/W] H 00000000 00000000 | | Wild Register [S] |
| 00085C _H to 00087C _H | — | — | — | — | Reserved [S] |

| Address | Address offset value / Register name | | | | Block |
|---------|--------------------------------------|---|----|----|-------------------|
| | +0 | +1 | +2 | +3 | |
| 000880H | | WRAR00 [R/W] W ----- --XXXXXXX XXXXXXXXXXX XXXXXXX-- | | | Wild Register [S] |
| 000884H | | WRDR00 [R/W] W XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX | | | |
| 000888H | | WRAR01 [R/W] W ----- --XXXXXXX XXXXXXXXXXX XXXXXXX-- | | | |
| 00088CH | | WRDR01 [R/W] W XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX | | | |
| 000890H | | WRAR02 [R/W] W ----- --XXXXXXX XXXXXXXXXXX XXXXXXX-- | | | Wild Register [S] |
| 000894H | | WRDR02 [R/W] W XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX | | | |
| 000898H | | WRAR03 [R/W] W ----- --XXXXXXX XXXXXXXXXXX XXXXXXX-- | | | |
| 00089CH | | WRDR03 [R/W] W XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX | | | |
| 0008A0H | | WRAR04 [R/W] W ----- --XXXXXXX XXXXXXXXXXX XXXXXXX-- | | | |
| 0008A4H | | WRDR04 [R/W] W XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX | | | |
| 0008A8H | | WRAR05 [R/W] W ----- --XXXXXXX XXXXXXXXXXX XXXXXXX-- | | | |
| 0008ACH | | WRDR05 [R/W] W XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX | | | |
| 0008B0H | | WRAR06 [R/W] W ----- --XXXXXXX XXXXXXXXXXX XXXXXXX-- | | | |
| 0008B4H | | WRDR06 [R/W] W XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX | | | |
| 0008B8H | | WRAR07 [R/W] W ----- --XXXXXXX XXXXXXXXXXX XXXXXXX-- | | | |
| 0008BCH | | WRDR07 [R/W] W XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX | | | |
| 0008C0H | | WRAR08 [R/W] W ----- --XXXXXXX XXXXXXXXXXX XXXXXXX-- | | | |
| 0008C4H | | WRDR08 [R/W] W XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX | | | |
| 0008C8H | | WRAR09 [R/W] W ----- --XXXXXXX XXXXXXXXXXX XXXXXXX-- | | | |
| 0008CCH | | WRDR09 [R/W] W XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX | | | |
| 0008D0H | | WRAR10 [R/W] W ----- --XXXXXXX XXXXXXXXXXX XXXXXXX-- | | | |
| 0008D4H | | WRDR10 [R/W] W XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX | | | |
| 0008D8H | | WRAR11 [R/W] W ----- --XXXXXXX XXXXXXXXXXX XXXXXXX-- | | | |
| 0008DCH | | WRDR11 [R/W] W XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX | | | |
| 0008E0H | | WRAR12 [R/W] W ----- --XXXXXXX XXXXXXXXXXX XXXXXXX-- | | | |

| Address | Address offset value / Register name | | | | Block |
|--------------------------|---|----|----------------------------------|----|--------------------------|
| | +0 | +1 | +2 | +3 | |
| 0008E4H | WRDR12 [R/W] W XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX | | | | Wild Register [S] |
| 0008E8H | WRAR13 [R/W] W ----- --XXXXXX XXXXXXXX XXXXXX-- | | | | |
| 0008ECH | WRDR13 [R/W] W XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX | | | | |
| 0008F0H | WRAR14 [R/W] W ----- --XXXXXX XXXXXXXX XXXXXX-- | | | | |
| 0008F4H | WRDR14 [R/W] W XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX | | | | Wild Register [S] |
| 0008F8H | WRAR15 [R/W] W ----- --XXXXXX XXXXXXXX XXXXXX-- | | | | |
| 0008FCH | WRDR15 [R/W] W XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX | | | | |
| 000900H | TPUUNLOCK [R/W] W 00000000 00000000 00000000 00000000 | | | | Time Protection Unit [S] |
| 000904H | TPULST [R] B,H,W -----0 | — | TPUVST [R/W] B,H,W ----000 | — | |
| 000908H | TPUCFG [R/W] B,H,W -----0 0-000000 -----0 | | | | |
| 00090CH | TPUTIR [R] B,H,W 00000000 | — | — | — | |
| 000910H | TPUTST [R] B,H,W 00000000 | — | — | — | |
| 000914H | TPUTIE [R/W] B,H,W 00000000 | — | — | — | |
| 000918H | TPUTMID [R] B,H,W 00000000 00000000 00000000 00000000 | | | | |
| 00091CH to 00092CH | — | — | — | — | |
| 000930H | TPUTCN00 [R/W] B,H,W 000000-- 00000000 00000000 00000000 | | | | |
| 000934H | TPUTCN01 [R/W] B,H,W 000000-- 00000000 00000000 00000000 | | | | |
| 000938H | TPUTCN02 [R/W] B,H,W 000000-- 00000000 00000000 00000000 | | | | |
| 00093CH | TPUTCN03 [R/W] B,H,W 000000-- 00000000 00000000 00000000 | | | | |
| 000940H | TPUTCN04 [R/W] B,H,W 000000-- 00000000 00000000 00000000 | | | | |
| 000944H | TPUTCN05 [R/W] B,H,W 000000-- 00000000 00000000 00000000 | | | | |
| 000948H | TPUTCN06 [R/W] B,H,W 000000-- 00000000 00000000 00000000 | | | | |
| 00094CH | TPUTCN07 [R/W] B,H,W 000000-- 00000000 00000000 00000000 | | | | |
| 000950H | TPUTCN10 [R/W] B,H,W ---00000 | — | — | — | |

| Address | Address offset value / Register name | | | | Block |
|--|---|----|-------------------------------------|----|-----------------------------|
| | +0 | +1 | +2 | +3 | |
| 000954 _H | TPUTCN11 [R/W] B,H,W ---00000 | — | — | — | Time Protection Unit [S] |
| 000958 _H | TPUTCN12 [R/W] B,H,W ---00000 | — | — | — | |
| 00095C _H | TPUTCN13 [R/W] B,H,W ---00000 | — | — | — | |
| 000960 _H | TPUTCN14 [R/W] B,H,W ---00000 | — | — | — | |
| 000964 _H | TPUTCN15 [R/W] B,H,W ---00000 | — | — | — | |
| 000968 _H | TPUTCN16 [R/W] B,H,W ---00000 | — | — | — | |
| 00096C _H | TPUTCN17 [R/W] B,H,W ---00000 | — | — | — | |
| 000970 _H | TPUTCC0 [R] B,H,W ----- 00000000 00000000 00000000 | | | | |
| 000974 _H | TPUTCC1 [R] B,H,W ----- 00000000 00000000 00000000 | | | | |
| 000978 _H | TPUTCC2 [R] B,H,W ----- 00000000 00000000 00000000 | | | | |
| 00097C _H | TPUTCC3 [R] B,H,W ----- 00000000 00000000 00000000 | | | | |
| 000980 _H | TPUTCC4 [R] B,H,W ----- 00000000 00000000 00000000 | | | | |
| 000984 _H | TPUTCC5 [R] B,H,W ----- 00000000 00000000 00000000 | | | | |
| 000988 _H | TPUTCC6 [R] B,H,W ----- 00000000 00000000 00000000 | | | | |
| 00098C _H | TPUTCC7 [R] B,H,W ----- 00000000 00000000 00000000 | | | | |
| 000990 _H to 0009FC _H | — | — | — | — | |
| 000A00 _H to 000BEC _H | — | — | — | — | Reserved |
| 000BF0 _H | HSCFR [R/W] B,H,W ----- -----00 00000000 00000000 | | | | OCDU |
| 000BF4 _H | — | — | — | — | |
| 000BF8 _H | — | — | MBR [R/W] B,H,W 00----- XXXXXXXX | | OCDU |
| 000BFC _H | — | — | UER [W] B,H,W ----- -----X | | |

| Address | Address offset value / Register name | | | | Block |
|---------|--|----|------------------------------------|----|--------------------------|
| | +0 | +1 | +2 | +3 | |
| 000C00H | DCCR0 [R/W] W 0----000 --00--00 00000000 0-000000 | | | | DMA Controller [S] |
| 000C04H | DCSR0 [R/W] H 0----- -----000 | | DTCR0 [R/W] H 00000000 00000000 | | |
| 000C08H | DSAR0 [R/W] W XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX | | | | |
| 000C0CH | DDAR0 [R/W] W XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX | | | | |
| 000C10H | DCCR1 [R/W] W 0----000 --00--00 00000000 0-000000 | | | | |
| 000C14H | DCSR1 [R/W] H 0----- -----000 | | DTCR1 [R/W] H 00000000 00000000 | | |
| 000C18H | DSAR1 [R/W] W XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX | | | | |
| 000C1CH | DDAR1 [R/W] W XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX | | | | |
| 000C20H | DCCR2 [R/W] W 0----000 --00--00 00000000 0-000000 | | | | |
| 000C24H | DCSR2 [R/W] H 0----- -----000 | | DTCR2 [R/W] H 00000000 00000000 | | |
| 000C28H | DSAR2 [R/W] W XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX | | | | |
| 000C2CH | DDAR2 [R/W] W XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX | | | | |
| 000C30H | DCCR3 [R/W] W 0----000 --00--00 00000000 0-000000 | | | | |
| 000C34H | DCSR3 [R/W] H 0----- -----000 | | DTCR3 [R/W] H 00000000 00000000 | | |
| 000C38H | DSAR3 [R/W] W XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX | | | | |
| 000C3CH | DDAR3 [R/W] W XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX | | | | |
| 000C40H | DCCR4 [R/W] W 0----000 --00--00 00000000 0-000000 | | | | |
| 000C44H | DCSR4 [R/W] H 0----- -----000 | | DTCR4 [R/W] H 00000000 00000000 | | |
| 000C48H | DSAR4 [R/W] W XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX | | | | |
| 000C4CH | DDAR4 [R/W] W XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX | | | | |
| 000C50H | DCCR5 [R/W] W 0----000 --00--00 00000000 0-000000 | | | | |
| 000C54H | DCSR5 [R/W] H 0----- -----000 | | DTCR5 [R/W] H 00000000 00000000 | | |
| 000C58H | DSAR5 [R/W] W XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX | | | | |
| 000C5CH | DDAR5 [R/W] W XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX | | | | |
| 000C60H | DCCR6 [R/W] W 0----000 --00--00 00000000 0-000000 | | | | |

| Address | Address offset value / Register name | | | | Block |
|---------------------|---|----|-------------------------------------|----|--------------------------|
| | +0 | +1 | +2 | +3 | |
| 000C64 _H | DCSR6 [R/W] H 0----- ----000 | | DTCR6 [R/W] H 00000000 00000000 | | DMA Controller [S] |
| 000C68 _H | DSAR6 [R/W] W XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX | | | | |
| 000C6C _H | DDAR6 [R/W] W XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX | | | | |
| 000C70 _H | DCCR7 [R/W] W 0----000 --00--00 00000000 0-000000 | | | | |
| 000C74 _H | DCSR7 [R/W] H 0----- ----000 | | DTCR7 [R/W] H 00000000 00000000 | | |
| 000C78 _H | DSAR7 [R/W] W XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX | | | | |
| 000C7C _H | DDAR7 [R/W] W XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX | | | | |
| 000C80 _H | DCCR8 [R/W] W 0----000 --00--00 00000000 0-000000 | | | | |
| 000C84 _H | DCSR8 [R/W] H 0----- ----000 | | DTCR8 [R/W] H 00000000 00000000 | | |
| 000C88 _H | DSAR8 [R/W] W XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX | | | | |
| 000C8C _H | DDAR8 [R/W] W XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX | | | | |
| 000C90 _H | DCCR9 [R/W] W 0----000 --00--00 00000000 0-000000 | | | | |
| 000C94 _H | DCSR9 [R/W] H 0----- ----000 | | DTCR9 [R/W] H 00000000 00000000 | | |
| 000C98 _H | DSAR9 [R/W] W XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX | | | | |
| 000C9C _H | DDAR9 [R/W] W XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX | | | | |
| 000CA0 _H | DCCR10 [R/W] W 0----000 --00--00 00000000 0-000000 | | | | |
| 000CA4 _H | DCSR10 [R/W] H 0----- ----000 | | DTCR10 [R/W] H 00000000 00000000 | | |
| 000CA8 _H | DSAR10 [R/W] W XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX | | | | |
| 000CAC _H | DDAR10 [R/W] W XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX | | | | |
| 000CB0 _H | DCCR11 [R/W] W 0----000 --00--00 00000000 0-000000 | | | | |
| 000CB4 _H | DCSR11 [R/W] H 0----- ----000 | | DTCR11 [R/W] H 00000000 00000000 | | |
| 000CB8 _H | DSAR11 [R/W] W XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX | | | | |
| 000CBC _H | DDAR11 [R/W] W XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX | | | | |
| 000CC0 _H | DCCR12 [R/W] W 0----000 --00--00 00000000 0-000000 | | | | |
| 000CC4 _H | DCSR12 [R/W] H 0----- ----000 | | DTCR12 [R/W] H 00000000 00000000 | | |

| Address | Address offset value / Register name | | | | Block |
|--------------------------|---|-------------------------------|-------------------------------------|-------------------------------|----------------------------|
| | +0 | +1 | +2 | +3 | |
| 000CC8H | DSAR12 [R/W] W XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX | | | | DMA Controller [S] |
| 000CCC8H | DDAR12 [R/W] W XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX | | | | |
| 000CD0H | DCCR13 [R/W] W 0----000 --00--00 00000000 0-000000 | | | | |
| 000CD4H | DCSR13 [R/W] H 0----- 000 | | DTCR13 [R/W] H 00000000 00000000 | | |
| 000CD8H | DSAR13 [R/W] W XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX | | | | |
| 000CDC8H | DDAR13 [R/W] W XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX | | | | |
| 000CE0H | DCCR14 [R/W] W 0----000 --00--00 00000000 0-000000 | | | | |
| 000CE4H | DCSR14 [R/W] H 0----- 000 | | DTCR14 [R/W] H 00000000 00000000 | | |
| 000CE8H | DSAR14 [R/W] W XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX | | | | |
| 000CECH | DDAR14 [R/W] W XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX | | | | |
| 000CF0H | DCCR15 [R/W] W 0----000 --00--00 00000000 0-000000 | | | | |
| 000CF4H | DCSR15 [R/W] H 0----- 000 | | DTCR15 [R/W] H 00000000 00000000 | | |
| 000CF8H | DSAR15 [R/W] W XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX | | | | |
| 000CFCH | DDAR15 [R/W] W XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX | | | | |
| 000D00H to 000DF0H | — | — | — | — | Reserved [S] |
| 000DF4H | — | — | DNMIR [R/W] B 0-----0 | DILVR [R/W] B ---1111 | DMA Controller [S] |
| 000DF8H | DMACR[R/W] W 0----- 0----- | | | | |
| 000DFCH | — | — | — | — | Reserved [S] |
| 000E00H | DDR00 [R/W] B,H,W 00000000 | DDR01 [R/W] B,H,W 00000000 | DDR02 [R/W] B,H,W 00000000 | DDR03 [R/W] B,H,W 00000000 | Data Direction Register |
| 000E04H | DDR04 [R/W] B,H,W 00000000 | DDR05 [R/W] B,H,W 00000000 | DDR06 [R/W] B,H,W 00000000 | DDR07 [R/W] B,H,W 00000000 | |
| 000E08H | DDR08 [R/W] B,H,W 00000000 | DDR09 [R/W] B,H,W 00000000 | DDR10 [R/W] B,H,W 00000000 | DDR11 [R/W] B,H,W 00000000 | Data Direction Register |
| 000E0CH | DDR12 [R/W] B,H,W 00000000 | DDR13 [R/W] B,H,W -0000000 | DDR14 [R/W] B,H,W ---000-- | DDR15 [R/W] B,H,W --000000 | |
| 000E10H | — | — | — | — | |
| 000E14H | — | — | — | — | |
| 000E18H | DDR16 [R/W] B,H,W 00000000 | DDR17 [R/W] B,H,W 00000000 | DDR18 [R/W] B,H,W 00000000 | DDR19 [R/W] B,H,W 00000000 | |
| 000E1CH | — | — | — | — | Reserved |

| Address | Address offset value / Register name | | | | Block |
|---------|--------------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|---------------------------------|
| | +0 | +1 | +2 | +3 | |
| 000E20H | PFR00 [R/W] B,H,W 00000000 | PFR01 [R/W] B,H,W 00000000 | PFR02 [R/W] B,H,W 00000000 | PFR03 [R/W] B,H,W 00000000 | Port Function Register |
| 000E24H | PFR04 [R/W] B,H,W 00000000 | PFR05 [R/W] B,H,W 00000000 | PFR06 [R/W] B,H,W 00000000 | PFR07 [R/W] B,H,W 00000000 | |
| 000E28H | PFR08 [R/W] B,H,W 00000000 | PFR09 [R/W] B,H,W 00000000 | PFR10 [R/W] B,H,W 00000000 | PFR11 [R/W] B,H,W 00000000 | |
| 000E2CH | PFR12 [R/W] B,H,W 00000000 | PFR13 [R/W] B,H,W -0000000 | PFR14 [R/W] B,H,W ---000-- | PFR15 [R/W] B,H,W --000000 | |
| 000E30H | — | — | — | — | |
| 000E34H | — | — | — | — | |
| 000E38H | PFR16 [R/W] B,H,W 00000000 | PFR17 [R/W] B,H,W 00000000 | PFR18 [R/W] B,H,W 00000000 | PFR19 [R/W] B,H,W 00000000 | |
| 000E3CH | — | — | — | — | Reserved |
| 000E40H | PDDR00 [R] B,H,W XXXXXXXXXX | PDDR01 [R] B,H,W XXXXXXXXXX | PDDR02 [R] B,H,W XXXXXXXXXX | PDDR03 [R] B,H,W XXXXXXXXXX | Port Direct Read Register |
| 000E44H | PDDR04 [R] B,H,W XXXXXXXXXX | PDDR05 [R] B,H,W XXXXXXXXXX | PDDR06 [R] B,H,W XXXXXXXXXX | PDDR07 [R] B,H,W XXXXXXXXXX | |
| 000E48H | PDDR08 [R] B,H,W XXXXXXXXXX | PDDR09 [R] B,H,W XXXXXXXXXX | PDDR10 [R] B,H,W XXXXXXXXXX | PDDR11 [R] B,H,W XXXXXXXXXX | |
| 000E4CH | PDDR12 [R] B,H,W XXXXXXXXXX | PDDR13 [R] B,H,W -XXXXXXXXX | PDDR14 [R] B,H,W ---XXX-- | PDDR15 [R] B,H,W --XXXXXX | |
| 000E50H | — | — | — | — | |
| 000E54H | — | — | — | — | |
| 000E58H | PDDR16 [R] B,H,W XXXXXXXXXX | PDDR17 [R] B,H,W XXXXXXXXXX | PDDR18 [R] B,H,W XXXXXXXXXX | PDDR19 [R] B,H,W XXXXXXXXXX | |
| 000E5CH | — | — | — | — | Reserved |
| 000E60H | EPFR00 [R/W] B,H,W 00000000 | EPFR01 [R/W] B,H,W -0-0-000 | EPFR02 [R/W] B,H,W ----0000 | EPFR03 [R/W] B,H,W ---000-0 | Extended Port Function Register |
| 000E64H | EPFR04 [R/W] B,H,W ----00-0 | EPFR05 [R/W] B,H,W ----0000 | EPFR06 [R/W] B,H,W ----000- | EPFR07 [R/W] B,H,W ---00000 | |
| 000E68H | EPFR08 [R/W] B,H,W ---00000 | EPFR09 [R/W] B,H,W ----00- | EPFR10 [R/W] B,H,W ----0000 | EPFR11 [R/W] B,H,W ----0000 | |
| 000E6CH | EPFR12 [R/W] B,H,W ----0000 | EPFR13 [R/W] B,H,W -----00 | EPFR14 [R/W] B,H,W -----00 | EPFR15 [R/W] B,H,W -----000 | |
| 000E70H | — | — | — | — | |
| 000E74H | — | — | — | — | |
| 000E78H | — | — | EPFR26 [R/W] B,H,W 00000000 | EPFR27 [R/W] B,H,W ---0---- | |
| 000E7CH | EPFR28 [R/W] B,H,W --000-0- | EPFR29 [R/W] B,H,W 00000000 | — | — | |
| 000E80H | — | EPFR33 [R/W] B,H,W -----00- | EPFR34 [R/W] B,H,W -----00- | EPFR35 [R/W] B,H,W ---00000 | |

| Address | Address offset value / Register name | | | | Block |
|--|--------------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|
| | +0 | +1 | +2 | +3 | |
| 000E84 _H | EPFR36 [R/W] B,H,W ----000- | — | — | — | Extended Port Function Register |
| 000E88 _H | — | — | EPFR42 [R/W] B,H,W -----00 | EPFR43 [R/W] B,H,W 0--0000- | |
| 000E8C _H | EPFR44 [R/W] B,H,W -00---0- | EPFR45 [R/W] B,H,W -0000000 | — | — | |
| 000E90 _H | — | — | — | — | |
| 000E94 _H | — | — | — | — | |
| 000E98 _H | EPFR56 [R/W] B,H,W ----0-0 | EPFR57 [R/W] B,H,W ----00-0 | EPFR58 [R/W] B,H,W ----00-0 | EPFR59 [R/W] B,H,W ----00-0 | |
| 000E9C _H | EPFR60 [R/W] B,H,W ----00-0 | EPFR61 [R/W] B,H,W ----00- | EPFR62 [R/W] B,H,W ----00- | EPFR63 [R/W] B,H,W ---0000- | |
| 000EA0 _H to 000EBC _H | — | — | — | — | Reserved |
| 000EC0 _H | PPER00 [R/W] B,H,W 00000000 | PPER01 [R/W] B,H,W 00000000 | PPER02 [R/W] B,H,W 00000000 | PPER03 [R/W] B,H,W 00000000 | Port Pull-up/down Enable Register |
| 000EC4 _H | PPER04 [R/W] B,H,W 00000000 | PPER05 [R/W] B,H,W 00000000 | PPER06 [R/W] B,H,W 00000000 | PPER07 [R/W] B,H,W 00000000 | |
| 000EC8 _H | PPER08 [R/W] B,H,W 00000000 | PPER09 [R/W] B,H,W 00000000 | PPER10 [R/W] B,H,W 00000000 | PPER11 [R/W] B,H,W 00000000 | |
| 000ECC _H | PPER12 [R/W] B,H,W 00000000 | PPER13 [R/W] B,H,W -0000000 | PPER14 [R/W] B,H,W ---000-- | PPER15 [R/W] B,H,W --000000 | |
| 000ED0 _H | — | — | — | — | |
| 000ED4 _H | — | — | — | — | |
| 000ED8 _H | PPER16 [R/W] B,H,W 00000000 | PPER17 [R/W] B,H,W 00000000 | PPER18 [R/W] B,H,W 00000000 | PPER19 [R/W] B,H,W 00000000 | |
| 000EDC _H to 000F3C _H | — | — | — | — | Reserved |
| 000F40 _H | PORTEN [R/W] B,H,W -----0 | — | — | — | Port Enable Register |
| 000F44 _H | KEYCDR [R/W] H 00000000 00000000 | | — | — | KeyCodeRegister |
| 000F48 _H to 000F64 _H | — | — | — | — | Reserved |

| Address | Address offset value / Register name | | | | Block |
|---------------------------|---|-------------------------------|-------------------------------------|-------------------------------------|--|
| | +0 | +1 | +2 | +3 | |
| 000F68H | MSCY6 [R] H,W XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX | | | | Input Capture 6,7 Cycle measurement data register 67 |
| 000F6CH | MSCY7 [R] H,W XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX | | | | |
| 000F70H | RCRH0 [W] H,W XXXXXXXX | RCRL0 [W] B,H,W XXXXXXXX | UDCRH0 [R] H,W 00000000 | UDCRL0 [R] B,H,W 00000000 | Up/Down Counter 0 |
| 000F74H | CCR0 [R/W] B,H 00000000 -0001000 | | — | CSR0 [R/W] B 00000000 | |
| 000F78H to 000F7CH | — | — | — | — | Reserved |
| 000F80H | RCRH1 [W] H,W XXXXXXXX | RCRL1 [W] B,H,W XXXXXXXX | UDCRH1 [R] H,W 00000000 | UDCRL1 [R] B,H,W 00000000 | Up/Down Counter 1 |
| 000F84H | CCR1 [R/W] B,H 00000000 -0001000 | | — | CSR1 [R/W] B 00000000 | |
| 000F88H | — | — | MSCH45 [R] B,H,W 00000000 | MSCL45 [R/W] B,H,W -----00 | Input Capture 4,5 32-bit ICU Cycle and pulse width measurement control 45 |
| 000F8CH | — | — | MSCH67 [R] B,H,W 00000000 | MSCL67 [R/W] B,H,W -----00 | Input Capture 6,7 32-bit ICU Cycle and pulse width measurement control 67 |
| 000F90H | OCCP10 [R/W] W 00000000 00000000 00000000 00000000 | | | | Output Compare 10,11 32-bit OCU |
| 000F94H | OCCP11 [R/W] W 00000000 00000000 00000000 00000000 | | | | |
| 000F98H | — | — | OCSH1011 [R/W] B,H,W ---0--00 | OCSL1011 [R/W] B,H,W 0000--00 | Output Compare 10,11 32-bit OCU |
| 000F9CH | — | — | — | OCLS1011 [R/W] B,H,W ----0000 | OCU1011 Output level control register |
| 000FA0H | CPCLR5 [R/W] W 11111111 11111111 11111111 11111111 | | | | Free-run Timer 5 32-bit FRT |
| 000FA4H | TCDT5 [R/W] W 00000000 00000000 00000000 00000000 | | | | |
| 000FA8H | TCCSH5 [R/W]B,H,W 0-----00 | TCCSL5 [R/W]B,H,W -1-00000 | — | — | |
| 000FACH to 000FCCCH | — | — | — | — | Reserved |
| 000FD0H | IPCP4 [R] W XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX | | | | Input Capture 4,5 32-bit ICU |
| 000FD4H | IPCP5 [R] W XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX | | | | |
| 000FD8H | — | — | LSYNS1 [R/W] B,H,W 00000000 | ICS45 [R/W] B,H,W 00000000 | |

| Address | Address offset value / Register name | | | | Block |
|--|--|------------------------------|--------------------------------------|-------------------------------|---|
| | +0 | +1 | +2 | +3 | |
| 000FDC _H | IPCP6 [R] W XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX | | | | Input Capture 6,7 32-bit ICU |
| 000FE0 _H | IPCP7 [R] W XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX | | | | |
| 000FE4 _H | — | — | — | ICS67 [R/W] B,H,W 00000000 | |
| 000FE8 _H | IPCP8 [R] W XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX | | | | Input Capture 8,9 32-bit ICU |
| 000FEC _H | IPCP9 [R] W XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX | | | | |
| 000FF0 _H | — | — | — | ICS89 [R/W] B,H,W 00000000 | |
| 000FF4 _H | MSCY8 [R] H,W XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX | | | | Input Capture 8,9 32-bit ICU Cycle measurement data register 89 |
| 000FF8 _H | MSCY9 [R] H,W XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX | | | | |
| 000FFC _H | — | — | MSCH89 [R] B,H,W 00000000 | MSCL89 [R/W] B,H,W -----00 | Cycle and pulse width measurement control 89 |
| 001000 _H | SACR [R/W] B,H,W -----0 | PICD [R/W] B,H,W ----0011 | — | — | Clock Control |
| 001004 _H to 00112C _H | — | — | — | — | Reserved |
| 001130 _H | — | — | — | CRCCR [R/W] B,H,W -0000000 | CRC calculation unit |
| 001134 _H | CRCINIT [R/W] B,H,W 11111111 11111111 11111111 11111111 | | | | |
| 001138 _H | CRCIN [R/W] B,H,W 00000000 00000000 00000000 00000000 | | | | |
| 00113C _H | CRCR [R] B,H,W 11111111 11111111 11111111 11111111 | | | | |
| 001140 _H to 0011FC _H | — | — | — | — | Reserved |
| 001200 _H | TCGS [R/W] B,H,W -----00 | — | — | TCGSE [R/W] B,H,W -----000 | 16-bit Free-run timer synchronous activation |
| 001204 _H | CPCLRB0/CPCLR0 [W] H,W 11111111 11111111 | | TCDT0 [R/W] H,W 00000000 00000000 | | 16-bit Free-run Timer 0 |
| 001208 _H | TCCS0 [R/W] B,H,W 00000000 01000000 ----0000 ----- | | | | |
| 00120C _H | CPCLRB1/CPCLR1 [W] H,W 11111111 11111111 | | TCDT1 [R/W] H,W 00000000 00000000 | | 16-bit Free-run Timer 1 |
| 001210 _H | TCCS1 [R/W] B,H,W 00000000 01000000 ----0000 ----- | | | | |
| 001214 _H | CPCLRB2/CPCLR2 [W] H,W 11111111 11111111 | | TCDT2 [R/W] H,W 00000000 00000000 | | 16-bit Free-run Timer 2 |
| 001218 _H | TCCS2 [R/W] B,H,W 00000000 01000000 ----0000 ----- | | | | |

| Address | Address offset value / Register name | | | | Block |
|--|---|---------------------------------------|---|--------------------------------|---------------------------------|
| | +0 | +1 | +2 | +3 | |
| 00121C _H to 001230 _H | — | — | — | — | Reserved |
| 001234 _H | FRS0 [R/W] B,H,W ----- --00--00 --00--00 --00--00 | | | | 16-bit Free-run timer selection |
| 001238 _H | — | FRS1 [R/W] B,H,W --00--00 --00--00 | | | |
| 00123C _H | FRS2 [R/W] B,H,W --00--00 --00--00 --00--00 --00--00 | | | | |
| 001240 _H | FRS3 [R/W] B,H,W --00--00 --00--00 --00--00 --00--00 | | | | |
| 001244 _H | FRS4 [R/W] B,H,W --00--00 --00--00 --00--00 --00--00 | | | | |
| 001248 _H | — | — | — | — | Reserved |
| 00124C _H | OCCPB0/OCCP0 [R/W] H,W 00000000 00000000 | | OCCPB1/OCCP1 [R/W] H,W 00000000 00000000 | | 16-bit Output compare 0/1 |
| 001250 _H | OCS01 [R/W] B,H,W -110--00 00001100 | | — | OCMOD01 [R/W] B,H,W -----00 | |
| 001254 _H | OCCPB2/OCCP2 [R/W] H,W 00000000 00000000 | | OCCPB3/OCCP3 [R/W] H,W 00000000 00000000 | | 16-bit Output compare 2/3 |
| 001258 _H | OCS23 [R/W] B,H,W -110--00 00001100 | | — | OCMOD23 [R/W] B,H,W -----00 | |
| 00125C _H | OCCPB4/OCCP4 [R/W] H,W 00000000 00000000 | | OCCPB5/OCCP5 [R/W] H,W 00000000 00000000 | | 16-bit Output compare 4/5 |
| 001260 _H | OCS45 [R/W] B,H,W -110--00 00001100 | | — | OCMOD45 [R/W] B,H,W -----00 | |
| 001264 _H to 001278 _H | — | — | — | — | Reserved |
| 00127C _H | IPCP0 [R] H,W 00000000 00000000 | | IPCP1 [R] H,W 00000000 00000000 | | 16-bit Input capture 0/1 |
| 001280 _H | ICS01 [R/W] B,H,W -----00 00000000 | | — | LSYNS [R/W] B,H,W ----0000 | |
| 001284 _H | IPCP2 [R] H,W 00000000 00000000 | | IPCP3 [R] H,W 00000000 00000000 | | 16-bit Input capture 2/3 |
| 001288 _H | ICS23 [R/W] B,H,W -----00 00000000 | | — | — | |
| 00128C _H to 001298 _H | — | — | — | — | Reserved |
| 00129C _H | — | — | — | — | Reserved |

| Address | Address offset value / Register name | | | | Block |
|--|--|------------------------------------|--|------------------------------------|--|
| | +0 | +1 | +2 | +3 | |
| 0012A0 _H | TMRR0 [R/W] H,W 00000000 00000001 | | TMRR1 [R/W] H,W 00000000 00000001 | | Waveform generator 0/1/2 |
| 0012A4 _H | TMRR2 [R/W] H,W 00000000 00000001 | | — | — | |
| 0012A8 _H | DTSCR0 [R/W] B,H,W 00000000 | DTSCR1 [R/W] B,H,W 00000000 | DTSCR2 [R/W] B,H,W 00000000 | — | |
| 0012AC _H | — | DTIRO [R/W] B,H,W 000000-- | — | DTMNS0 [R/W] B,H,W 00---000 | |
| 0012B0 _H | — | SIGCR10 [R/W] B,H,W 00000000 | — | SIGCR20 [R/W] B,H,W 000000-1 | |
| 0012B4 _H | PICS0 [R/W] B,H,W 000000-- ----- | | | | |
| 0012B8 _H to 0012CC _H | — | — | — | — | |
| 0012D0 _H | FRS5 [R/W] B,H,W --00--00 --00--00 --00--00 --00--00 | | | | 16-bit Free-run timer selection A/D activation compare |
| 0012D4 _H | FRS6 [R/W] B,H,W --00--00 --00--00 --00--00 --00--00 | | | | 16-bit Free-run timer selection A/D activation compare |
| 0012D8 _H | FRS7 [R/W] B,H,W --00--00 --00--00 --00--00 --00--00 | | | | |
| 0012DC _H to 0012FC _H | — | — | — | — | Reserved |
| 001300 _H | — | | | | Reserved |
| 001304 _H | ADTSS0[R/W] B,H,W -----0 | — | — | — | 12-bit A/D converter 1/2 unit |
| 001308 _H | ADTSE0[R/W] B,H,W 00000000 00000000 00000000 00000000 | | | | |
| 00130C _H | ADCOMP0/ADCOMPB0[R/W] H,W 00000000 00000000 | | ADCOMP1/ADCOMPB1[R/W] H,W 00000000 00000000 | | |
| 001310 _H | ADCOMP2/ADCOMPB2[R/W] H,W 00000000 00000000 | | ADCOMP3/ADCOMPB3[R/W] H,W 00000000 00000000 | | |
| 001314 _H | ADCOMP4/ADCOMPB4[R/W] H,W 00000000 00000000 | | ADCOMP5/ADCOMPB5[R/W] H,W 00000000 00000000 | | |
| 001318 _H | ADCOMP6/ADCOMPB6[R/W] H,W 00000000 00000000 | | ADCOMP7/ADCOMPB7[R/W] H,W 00000000 00000000 | | |
| 00131C _H | ADCOMP8/ADCOMPB8[R/W] H,W 00000000 00000000 | | ADCOMP9/ADCOMPB9[R/W] H,W 00000000 00000000 | | |
| 001320 _H | ADCOMP10/ADCOMPB10[R/W] H,W 00000000 00000000 | | ADCOMP11/ADCOMPB11[R/W] H,W 00000000 00000000 | | |
| 001324 _H | ADCOMP12/ADCOMPB12[R/W] H,W 00000000 00000000 | | ADCOMP13/ADCOMPB13[R/W] H,W 00000000 00000000 | | |
| 001328 _H | ADCOMP14/ADCOMPB14[R/W] H,W 00000000 00000000 | | ADCOMP15/ADCOMPB15[R/W] H,W 00000000 00000000 | | |

| Address | Address offset value / Register name | | | | Block |
|---------------------|--|----|--|----|-------------------------------|
| | +0 | +1 | +2 | +3 | |
| 00132C _H | ADCOMP16/ADCOMPB16[R/W] H,W 00000000 00000000 | | ADCOMP17/ADCOMPB17[R/W] H,W 00000000 00000000 | | 12-bit A/D converter 1/2 unit |
| 001330 _H | ADCOMP18/ADCOMPB18[R/W] H,W 00000000 00000000 | | ADCOMP19/ADCOMPB19[R/W] H,W 00000000 00000000 | | |
| 001334 _H | ADCOMP20/ADCOMPB20[R/W] H,W 00000000 00000000 | | ADCOMP21/ADCOMPB21[R/W] H,W 00000000 00000000 | | |
| 001338 _H | ADCOMP22/ADCOMPB22[R/W] H,W 00000000 00000000 | | ADCOMP23/ADCOMPB23[R/W] H,W 00000000 00000000 | | |
| 00133C _H | ADCOMP24/ADCOMPB24[R/W] H,W 00000000 00000000 | | ADCOMP25/ADCOMPB25[R/W] H,W 00000000 00000000 | | |
| 001340 _H | ADCOMP26/ADCOMPB26[R/W] H,W 00000000 00000000 | | ADCOMP27/ADCOMPB27[R/W] H,W 00000000 00000000 | | |
| 001344 _H | ADCOMP28/ADCOMPB28[R/W] H,W 00000000 00000000 | | ADCOMP29/ADCOMPB29[R/W] H,W 00000000 00000000 | | |
| 001348 _H | ADCOMP30/ADCOMPB30[R/W] H,W 00000000 00000000 | | ADCOMP31/ADCOMPB31[R/W] H,W 00000000 00000000 | | |
| 00134C _H | ADTCS0[R/W] B,H,W 00000000 0010---- | | ADTCS1[R/W] B,H,W 00000000 0010---- | | |
| 001350 _H | ADTCS2[R/W] B,H,W 00000000 0010---- | | ADTCS3[R/W] B,H,W 00000000 0010---- | | |
| 001354 _H | ADTCS4[R/W] B,H,W 00000000 0010---- | | ADTCS5[R/W] B,H,W 00000000 0010---- | | |
| 001358 _H | ADTCS6[R/W] B,H,W 00000000 0010---- | | ADTCS7[R/W] B,H,W 00000000 0010---- | | |
| 00135C _H | ADTCS8[R/W] B,H,W 00000000 0010---- | | ADTCS9[R/W] B,H,W 00000000 0010---- | | |
| 001360 _H | ADTCS10[R/W] B,H,W 00000000 0010---- | | ADTCS11[R/W] B,H,W 00000000 0010---- | | |
| 001364 _H | ADTCS12[R/W] B,H,W 00000000 0010---- | | ADTCS13[R/W] B,H,W 00000000 0010---- | | |
| 001368 _H | ADTCS14[R/W] B,H,W 00000000 0010---- | | ADTCS15[R/W] B,H,W 00000000 0010---- | | |
| 00136C _H | ADTCS16[R/W] B,H,W 00000000 0010---- | | ADTCS17[R/W] B,H,W 00000000 0010---- | | |
| 001370 _H | ADTCS18[R/W] B,H,W 00000000 0010---- | | ADTCS19[R/W] B,H,W 00000000 0010---- | | |
| 001374 _H | ADTCS20[R/W] B,H,W 00000000 0010---- | | ADTCS21[R/W] B,H,W 00000000 0010---- | | |
| 001378 _H | ADTCS22[R/W] B,H,W 00000000 0010---- | | ADTCS23[R/W] B,H,W 00000000 0010---- | | |
| 00137C _H | ADTCS24[R/W] B,H,W 00000000 0010---- | | ADTCS25[R/W] B,H,W 00000000 0010---- | | |
| 001380 _H | ADTCS26[R/W] B,H,W 00000000 0010---- | | ADTCS27[R/W] B,H,W 00000000 0010---- | | |
| 001384 _H | ADTCS28[R/W] B,H,W 00000000 0010---- | | ADTCS29[R/W] B,H,W 00000000 0010---- | | |
| 001388 _H | ADTCS30[R/W] B,H,W 00000000 0010---- | | ADTCS31[R/W] B,H,W 00000000 0010---- | | |
| 00138C _H | ADTCD0[R] B,H,W 10--0000 00000000 | | ADTCD1[R] B,H,W 10--0000 00000000 | | |

| Address | Address offset value / Register name | | | | Block |
|---------|--|----|--|----|-------------------------------|
| | +0 | +1 | +2 | +3 | |
| 001390H | ADTCD2[R] B,H,W 10--0000 00000000 | | ADTCD3[R] B,H,W 10--0000 00000000 | | 12-bit A/D converter 1/2 unit |
| 001394H | ADTCD4[R] B,H,W 10--0000 00000000 | | ADTCD5[R] B,H,W 10--0000 00000000 | | |
| 001398H | ADTCD6[R] B,H,W 10--0000 00000000 | | ADTCD7[R] B,H,W 10--0000 00000000 | | |
| 00139CH | ADTCD8[R] B,H,W 10--0000 00000000 | | ADTCD9[R] B,H,W 10--0000 00000000 | | |
| 0013A0H | ADTCD10[R] B,H,W 10--0000 00000000 | | ADTCD11[R] B,H,W 10--0000 00000000 | | |
| 0013A4H | ADTCD12[R] B,H,W 10--0000 00000000 | | ADTCD13[R] B,H,W 10--0000 00000000 | | |
| 0013A8H | ADTCD14[R] B,H,W 10--0000 00000000 | | ADTCD15[R] B,H,W 10--0000 00000000 | | |
| 0013ACH | ADTCD16[R] B,H,W 10--0000 00000000 | | ADTCD17[R] B,H,W 10--0000 00000000 | | |
| 0013B0H | ADTCD18[R] B,H,W 10--0000 00000000 | | ADTCD19[R] B,H,W 10--0000 00000000 | | |
| 0013B4H | ADTCD20[R] B,H,W 10--0000 00000000 | | ADTCD21[R] B,H,W 10--0000 00000000 | | |
| 0013B8H | ADTCD22[R] B,H,W 10--0000 00000000 | | ADTCD23[R] B,H,W 10--0000 00000000 | | |
| 0013BCH | ADTCD24[R] B,H,W 10--0000 00000000 | | ADTCD25[R] B,H,W 10--0000 00000000 | | |
| 0013C0H | ADTCD26[R] B,H,W 10--0000 00000000 | | ADTCD27[R] B,H,W 10--0000 00000000 | | |
| 0013C4H | ADTCD28[R] B,H,W 10--0000 00000000 | | ADTCD29[R] B,H,W 10--0000 00000000 | | |
| 0013C8H | ADTCD30[R] B,H,W 10--0000 00000000 | | ADTCD31[R] B,H,W 10--0000 00000000 | | |
| 0013CCH | ADTECS0[R/W] B,H,W -----0 ---00000 | | ADTECS1[R/W] B,H,W -----0 ---00000 | | |
| 0013D0H | ADTECS2[R/W] B,H,W -----0 ---00000 | | ADTECS3[R/W] B,H,W -----0 ---00000 | | |
| 0013D4H | ADTECS4[R/W] B,H,W -----0 ---00000 | | ADTECS5[R/W] B,H,W -----0 ---00000 | | |
| 0013D8H | ADTECS6[R/W] B,H,W -----0 ---00000 | | ADTECS7[R/W] B,H,W -----0 ---00000 | | |
| 0013DCH | ADTECS8[R/W] B,H,W -----0 ---00000 | | ADTECS9[R/W] B,H,W -----0 ---00000 | | |
| 0013E0H | ADTECS10[R/W] B,H,W -----0 ---00000 | | ADTECS11[R/W] B,H,W -----0 ---00000 | | |
| 0013E4H | ADTECS12[R/W] B,H,W -----0 ---00000 | | ADTECS13[R/W] B,H,W -----0 ---00000 | | |
| 0013E8H | ADTECS14[R/W] B,H,W -----0 ---00000 | | ADTECS15[R/W] B,H,W -----0 ---00000 | | |
| 0013ECH | ADTECS16[R/W] B,H,W -----0 ---00000 | | ADTECS17[R/W] B,H,W -----0 ---00000 | | |
| 0013F0H | ADTECS18[R/W] B,H,W -----0 ---00000 | | ADTECS19[R/W] B,H,W -----0 ---00000 | | |

| Address | Address offset value / Register name | | | | Block |
|---------------------|---|------------------------------------|--|------------------------------------|-------------------------------|
| | +0 | +1 | +2 | +3 | |
| 0013F4 _H | ADTECS20[R/W] B,H,W -----0 ---00000 | | ADTECS21[R/W] B,H,W -----0 ---00000 | | 12-bit A/D converter 1/2 unit |
| 0013F8 _H | ADTECS22[R/W] B,H,W -----0 ---00000 | | ADTECS23[R/W] B,H,W -----0 ---00000 | | |
| 0013FC _H | ADTECS24[R/W] B,H,W -----0 ---00000 | | ADTECS25[R/W] B,H,W -----0 ---00000 | | |
| 001400 _H | ADTECS26[R/W] B,H,W -----0 ---00000 | | ADTECS27[R/W] B,H,W -----0 ---00000 | | |
| 001404 _H | ADTECS28[R/W] B,H,W -----0 ---00000 | | ADTECS29[R/W] B,H,W -----0 ---00000 | | |
| 001408 _H | ADTECS30[R/W] B,H,W -----0 ---00000 | | ADTECS31[R/W] B,H,W -----0 ---00000 | | |
| 00140C _H | ADRCUT0[R/W] B,H,W ---0000 00000000 | | ADRCLT0[R/W] B,H,W ---0000 00000000 | | |
| 001410 _H | ADRCUT1[R/W] B,H,W ---0000 00000000 | | ADRCLT1[R/W] B,H,W ---0000 00000000 | | |
| 001414 _H | ADRCUT2[R/W] B,H,W ---0000 00000000 | | ADRCLT2[R/W] B,H,W ---0000 00000000 | | |
| 001418 _H | ADRCUT3[R/W] B,H,W ---0000 00000000 | | ADRCLT3[R/W] B,H,W ---0000 00000000 | | |
| 00141C _H | ADRCCS0[R/W] B,H,W 00000000 | ADRCCS1[R/W] B,H,W 00000000 | ADRCCS2[R/W] B,H,W 00000000 | ADRCCS3[R/W] B,H,W 00000000 | |
| 001420 _H | ADRCCS4[R/W] B,H,W 00000000 | ADRCCS5[R/W] B,H,W 00000000 | ADRCCS6[R/W] B,H,W 00000000 | ADRCCS7[R/W] B,H,W 00000000 | |
| 001424 _H | ADRCCS8[R/W] B,H,W 00000000 | ADRCCS9[R/W] B,H,W 00000000 | ADRCCS10[R/W] B,H,W 00000000 | ADRCCS11[R/W] B,H,W 00000000 | |
| 001428 _H | ADRCCS12[R/W] B,H,W 00000000 | ADRCCS13[R/W] B,H,W 00000000 | ADRCCS14[R/W] B,H,W 00000000 | ADRCCS15[R/W] B,H,W 00000000 | |
| 00142C _H | ADRCCS16[R/W] B,H,W 00000000 | ADRCCS17[R/W] B,H,W 00000000 | ADRCCS18[R/W] B,H,W 00000000 | ADRCCS19[R/W] B,H,W 00000000 | |
| 001430 _H | ADRCCS20[R/W] B,H,W 00000000 | ADRCCS21[R/W] B,H,W 00000000 | ADRCCS22[R/W] B,H,W 00000000 | ADRCCS23[R/W] B,H,W 00000000 | |
| 001434 _H | ADRCCS24[R/W] B,H,W 00000000 | ADRCCS25[R/W] B,H,W 00000000 | ADRCCS26[R/W] B,H,W 00000000 | ADRCCS27[R/W] B,H,W 00000000 | |
| 001438 _H | ADRCCS28[R/W] B,H,W 00000000 | ADRCCS29[R/W] B,H,W 00000000 | ADRCCS30[R/W] B,H,W 00000000 | ADRCCS31[R/W] B,H,W 00000000 | |
| 00143C _H | ADRCOT0[R] B,H,W 00000000 00000000 00000000 00000000 | | | | |
| 001440 _H | ADRCIF0[R,W] B,H,W 00000000 00000000 00000000 00000000 | | | | |
| 001444 _H | ADSCANS0[R/W] B,H,W 000----- | — | — | — | |

| Address | Address offset value / Register name | | | | Block |
|--|---|------------------------------------|--|------------------------------------|-------------------------------|
| | +0 | +1 | +2 | +3 | |
| 001448 _H | ADNCS0[R/W] B,H,W 0-000-00 | ADNCS1[R/W] B,H,W 0-000-00 | ADNCS2[R/W] B,H,W 0-000-00 | ADNCS3[R/W] B,H,W 0-000-00 | 12-bit A/D converter 1/2 unit |
| 00144C _H | ADNCS4[R/W] B,H,W 0-000-00 | ADNCS5[R/W] B,H,W 0-000-00 | ADNCS6[R/W] B,H,W 0-000-00 | ADNCS7[R/W] B,H,W 0-000-00 | |
| 001450 _H | ADNCS8[R/W] B,H,W 0-000-00 | ADNCS9[R/W] B,H,W 0-000-00 | ADNCS10[R/W] B,H,W 0-000-00 | ADNCS11[R/W] B,H,W 0-000-00 | |
| 001454 _H | ADNCS12[R/W] B,H,W 0-000-00 | ADNCS13[R/W] B,H,W 0-000-00 | ADNCS14[R/W] B,H,W 0-000-00 | ADNCS15[R/W] B,H,W 0-000-00 | |
| 001458 _H | ADPRTF0[R] B,H,W 00000000 00000000 00000000 00000000 | | | | |
| 00145C _H | ADEOCF0[R] B,H,W 11111111 11111111 11111111 11111111 | | | | |
| 001460 _H | ADCS0[R] B,H,W 0----- | | ADCH0[R] B,H,W ---00000 | ADMD0[R/W] B,H,W 0---0000 | |
| 001464 _H | ADSTPCS0[R/W] B,H,W 00000000 | ADSTPCS1[R/W] B,H,W 00000000 | ADSTPCS2[R/W] B,H,W 00000000 | ADSTPCS3[R/W] B,H,W 00000000 | |
| 001468 _H | ADSTPCS4[R/W] B,H,W 00000000 | ADSTPCS5[R/W] B,H,W 00000000 | ADSTPCS6[R/W] B,H,W 00000000 | ADSTPCS7[R/W] B,H,W 00000000 | |
| 00146C _H | — | | | | |
| 001470 _H | ADTSS1[R/W] B,H,W -----0 | — | — | — | 12-bit A/D converter 2/2 unit |
| 001474 _H | ADTSE1[R/W] B,H,W ----- 00000000 00000000 | | | | |
| 001478 _H | ADCOMP32/ADCOMPB32[R/W] H,W 00000000 00000000 | | ADCOMP33/ADCOMPB33[R/W] H,W 00000000 00000000 | | |
| 00147C _H | ADCOMP34/ADCOMPB34[R/W] H,W 00000000 00000000 | | ADCOMP35/ADCOMPB35[R/W] H,W 00000000 00000000 | | 12-bit A/D converter 2/2 unit |
| 001480 _H | ADCOMP36/ADCOMPB36[R/W] H,W 00000000 00000000 | | ADCOMP37/ADCOMPB37[R/W] H,W 00000000 00000000 | | |
| 001484 _H | ADCOMP38/ADCOMPB38[R/W] H,W 00000000 00000000 | | ADCOMP39/ADCOMPB39[R/W] H,W 00000000 00000000 | | |
| 001488 _H | ADCOMP40/ADCOMPB40[R/W] H,W 00000000 00000000 | | ADCOMP41/ADCOMPB41[R/W] H,W 00000000 00000000 | | |
| 00148C _H | ADCOMP42/ADCOMPB42[R/W] H,W 00000000 00000000 | | ADCOMP43/ADCOMPB43[R/W] H,W 00000000 00000000 | | |
| 001490 _H | ADCOMP44/ADCOMPB44[R/W] H,W 00000000 00000000 | | ADCOMP45/ADCOMPB45[R/W] H,W 00000000 00000000 | | |
| 001494 _H | ADCOMP46/ADCOMPB46[R/W] H,W 00000000 00000000 | | ADCOMP47/ADCOMPB47[R/W] H,W 00000000 00000000 | | |
| 001498 _H to 0014B4 _H | — | — | — | — | |

| Address | Address offset value / Register name | | | | Block |
|--|---|----|---|----|-------------------------------|
| | +0 | +1 | +2 | +3 | |
| 0014B8 _H | ADTCS32[R/W] B,H,W 00000000 0010---- | | ADTCS33[R/W] B,H,W 00000000 0010---- | | 12-bit A/D converter 2/2 unit |
| 0014BC _H | ADTCS34[R/W] B,H,W 00000000 0010---- | | ADTCS35[R/W] B,H,W 00000000 0010---- | | |
| 0014C0 _H | ADTCS36[R/W] B,H,W 00000000 0010---- | | ADTCS37[R/W] B,H,W 00000000 0010---- | | |
| 0014C4 _H | ADTCS38[R/W] B,H,W 00000000 0010---- | | ADTCS39[R/W] B,H,W 00000000 0010---- | | |
| 0014C8 _H | ADTCS40[R/W] B,H,W 00000000 0010---- | | ADTCS41[R/W] B,H,W 00000000 0010---- | | |
| 0014CC _H | ADTCS42[R/W] B,H,W 00000000 0010---- | | ADTCS43[R/W] B,H,W 00000000 0010---- | | |
| 0014D0 _H | ADTCS44[R/W] B,H,W 00000000 0010---- | | ADTCS45[R/W] B,H,W 00000000 0010---- | | |
| 0014D4 _H | ADTCS46[R/W] B,H,W 00000000 0010---- | | ADTCS47[R/W] B,H,W 00000000 0010---- | | |
| 0014D8 _H to 0014F4 _H | — | — | — | — | Reserved |
| 0014F8 _H | ADTCD32[R] B,H,W 10--0000 00000000 | | ADTCD33[R] B,H,W 10--0000 00000000 | | 12-bit A/D converter 2/2 unit |
| 0014FC _H | ADTCD34[R] B,H,W 10--0000 00000000 | | ADTCD35[R] B,H,W 10--0000 00000000 | | |
| 001500 _H | ADTCD36[R] B,H,W 10--0000 00000000 | | ADTCD37[R] B,H,W 10--0000 00000000 | | 12-bit A/D converter 2/2 unit |
| 001504 _H | ADTCD38[R] B,H,W 10--0000 00000000 | | ADTCD39[R] B,H,W 10--0000 00000000 | | |
| 001508 _H | ADTCD40[R] B,H,W 10--0000 00000000 | | ADTCD41[R] B,H,W 10--0000 00000000 | | |
| 00150C _H | ADTCD42[R] B,H,W 10--0000 00000000 | | ADTCD43[R] B,H,W 10--0000 00000000 | | |
| 001510 _H | ADTCD44[R] B,H,W 10--0000 00000000 | | ADTCD45[R] B,H,W 10--0000 00000000 | | |
| 001514 _H | ADTCD46[R] B,H,W 10--0000 00000000 | | ADTCD47[R] B,H,W 10--0000 00000000 | | |
| 001518 _H to 001534 _H | — | — | — | — | Reserved |

| Address | Address offset value / Register name | | | | Block |
|--|--|------------------------------------|--|------------------------------------|-------------------------------|
| | +0 | +1 | +2 | +3 | |
| 001538 _H | ADTECS32[R/W] B,H,W -----0 ----0000 | | ADTECS33[R/W] B,H,W -----0 ----0000 | | 12-bit A/D converter 2/2 unit |
| 00153C _H | ADTECS34[R/W] B,H,W -----0 ----0000 | | ADTECS35[R/W] B,H,W -----0 ----0000 | | |
| 001540 _H | ADTECS36[R/W] B,H,W -----0 ----0000 | | ADTECS37[R/W] B,H,W -----0 ----0000 | | |
| 001544 _H | ADTECS38[R/W] B,H,W -----0 ----0000 | | ADTECS39[R/W] B,H,W -----0 ----0000 | | |
| 001548 _H | ADTECS40[R/W] B,H,W -----0 ----0000 | | ADTECS41[R/W] B,H,W -----0 ----0000 | | |
| 00154C _H | ADTECS42[R/W] B,H,W -----0 ----0000 | | ADTECS43[R/W] B,H,W -----0 ----0000 | | |
| 001550 _H | ADTECS44[R/W] B,H,W -----0 ----0000 | | ADTECS45[R/W] B,H,W -----0 ----0000 | | |
| 001554 _H | ADTECS46[R/W] B,H,W -----0 ----0000 | | ADTECS47[R/W] B,H,W -----0 ----0000 | | |
| 001558 _H to 001574 _H | — | — | — | — | Reserved |
| 001578 _H | ADRCUT4[R/W] B,H,W ---0000 00000000 | | ADRCLT4[R/W] B,H,W ---0000 00000000 | | 12-bit A/D converter 2/2 unit |
| 00157C _H | ADRCUT5[R/W] B,H,W ---0000 00000000 | | ADRCLT5[R/W] B,H,W ---0000 00000000 | | |
| 001580 _H | ADRCUT6[R/W] B,H,W ---0000 00000000 | | ADRCLT6[R/W] B,H,W ---0000 00000000 | | |
| 001584 _H | ADRCUT7[R/W] B,H,W ---0000 00000000 | | ADRCLT7[R/W] B,H,W ---0000 00000000 | | |
| 001588 _H | ADRCCS32[R/W] B,H,W 00000000 | ADRCCS33[R/W] B,H,W 00000000 | ADRCCS34[R/W] B,H,W 00000000 | ADRCCS35[R/W] B,H,W 00000000 | 12-bit A/D converter 2/2 unit |
| 00158C _H | ADRCCS36[R/W] B,H,W 00000000 | ADRCCS37[R/W] B,H,W 00000000 | ADRCCS38[R/W] B,H,W 00000000 | ADRCCS39[R/W] B,H,W 00000000 | |
| 001590 _H | ADRCCS40[R/W] B,H,W 00000000 | ADRCCS41[R/W] B,H,W 00000000 | ADRCCS42[R/W] B,H,W 00000000 | ADRCCS43[R/W] B,H,W 00000000 | |
| 001594 _H | ADRCCS44[R/W] B,H,W 00000000 | ADRCCS45[R/W] B,H,W 00000000 | ADRCCS46[R/W] B,H,W 00000000 | ADRCCS47[R/W] B,H,W 00000000 | |
| 001598 _H to 0015A4 _H | — | — | — | — | Reserved |
| 0015A8 _H | ADRCOT1 [R] B,H,W ----- ----- 00000000 00000000 | | | | 12-bit A/D converter 2/2 unit |
| 0015AC _H | ADRCIF1 [R,W] B,H,W ----- ----- 00000000 00000000 | | | | |
| 0015B0 _H | ADSCANS1 [R/W] B,H,W 000----- | — | — | — | |

| Address | Address offset value / Register name | | | | Block | |
|--|--|--|--|--|-------------------------------|---|
| | +0 | +1 | +2 | +3 | | |
| 0015B4 _H | ADNCS16 [R/W] B,H,W 0-000-00 | ADNCS17 [R/W] B,H,W 0-000-00 | ADNCS18 [R/W] B,H,W 0-000-00 | ADNCS19 [R/W] B,H,W 0-000-00 | 12-bit A/D converter 2/2 unit | |
| 0015B8 _H | ADNCS20 [R/W] B,H,W 0-000-00 | ADNCS21 [R/W] B,H,W 0-000-00 | ADNCS22 [R/W] B,H,W 0-000-00 | ADNCS23 [R/W] B,H,W 0-000-00 | | |
| 0015BC _H | — | — | — | — | | |
| 0015C0 _H | — | — | — | — | | |
| 0015C4 _H | ADPRTF1 [R] B,H,W ----- 00000000 00000000 | | | | | |
| 0015C8 _H | ADEOCF1 [R] B,H,W ----- 11111111 11111111 | | | | | |
| 0015CC _H | ADCS1 [R] B,H,W 0----- | | ADCH1 [R] B,H,W ---00000 | ADMD1 [R/W] B,H,W 0---0000 | | |
| 0015D0 _H | ADSTPCS8 [R/W] B,H,W 00000000 | ADSTPCS9 [R/W] B,H,W 00000000 | ADSTPCS10 [R/W] B,H,W 00000000 | ADSTPCS11 [R/W] B,H,W 00000000 | | |
| 0015D4 _H to 00174C _H | — | — | — | — | | Reserved |
| 001750 _H | SCR0/(IBCR0)[R/W] B,H,W 0--00000 | SMR0[R/W] B,H,W 000-00-0 | SSR0[R/W] B,H,W 0-000011 | ESCR0/(IBSR0)[R/W]] B,H,W 00000000 | | Multi-UART0 *1: Byte access is possible only for access to lower 8 bits. *2: Reserved because I ² C mode is not set immediately after reset. *3: Reserved because CSIO mode is not set immediately after reset. *4: Reserved because LIN2.1 mode is not set immediately after reset. |
| 001754 _H | —/(RDR10/(TDR10))[R/W] B,H,W ----- *3 | | RDR00/(TDR00)[R/W] B,H,W -----0 00000000 *1 | | | |
| 001758 _H | SACSR0[R/W] B,H,W 0----000 00000000 | | STMR0[R] B,H,W 00000000 00000000 | | | |
| 00175C _H | STMCR0[R/W] B,H,W 00000000 00000000 | | —/(SCSCR0/SFUR0)[R/W] B,H,W ----- *3 *4 | | | |
| 001760 _H | —/(SCSTR30)/ (LAMSR0) [R/W] B,H,W ----- *3 | —/(SCSTR20)/ (LAMCR0) [R/W] B,H,W ----- *3 | —/(SCSTR10) /(SFLR10) [R/W] B,H,W ----- *3 | —/(SCSTR00)/ (SFLR00) [R/W] B,H,W ----- *3 | | |
| 001764 _H | — | —/(SCSFR20) [R/W] B,H,W ----- *3 | —/(SCSFR10) [R/W] B,H,W ----- *3 | —/(SCSFR00) [R/W] B,H,W ----- *3 | | |
| 001768 _H | —/(TBYTE30)/ (LAMESR0) [R/W] B,H,W ----- *3 | —/(TBYTE20) /(LAMERT0) [R/W] B,H,W ----- *3 | —/(TBYTE10)/ (LAMIER0) [R/W] B,H,W ----- *3 | TBYTE00/(LAMRID0) / (LAMTID0) [R/W] B,H,W 00000000 | | |
| 00176C _H | BGR0[R/W] H, W 00000000 00000000 | | —/(ISMK0) [R/W] B,H,W ----- *2 | —/(ISBA0) [R/W] B,H,W ----- *2 | | |
| 001770 _H | FCR10[R/W] B,H,W ---00100 | FCR00[R/W] B,H,W -0000000 | FBYTE0[R/W] B,H,W 00000000 00000000 | | | |
| 001774 _H | FTICR0[R/W] B,H,W 00000000 00000000 | | — | — | | |

| Address | Address offset value / Register name | | | | Block |
|---------------------|--|--|--|--|--|
| | +0 | +1 | +2 | +3 | |
| 001778 _H | SCR1/(IBCR1) [R/W] B,H,W 0--00000 | SMR1[R/W] B,H,W 000-00-0 | SSR1[R/W] B,H,W 0-000011 | ESCR1/(IBSR1)[R/W]] B,H,W 00000000 | Multi-UART1 |
| 00177C _H | —/(RDR11/(TDR11))[R/W] B,H,W ----- *3 | | RDR01/(TDR01)[R/W] B,H,W -----0 00000000 *1 | | |
| 001780 _H | SACSR1[R/W] B,H,W 0----000 00000000 | | STMCR1[R] B,H,W 00000000 00000000 | | Multi-UART1 |
| 001784 _H | STMCR1[R/W] B,H,W 00000000 00000000 | | —/(SCSCR1/SFUR1)[R/W] B,H,W ----- *3 *4 | | |
| 001788 _H | —/(SCSTR31)/ (LAMSR1) [R/W] B,H,W ----- *3 | —/(SCSTR21)/ (LAMCR1) [R/W] B,H,W ----- *3 | —/(SCSTR11)/ (SFLR11) [R/W] B,H,W ----- *3 | —/(SCSTR01)/ (SFLR01) [R/W] B,H,W ----- *3 | *1: Byte access is possible only for access to lower 8 bits. *2: Reserved because I ² C mode is not set immediately after reset. |
| 00178C _H | — | —/(SCSFR21)[R/W] B,H,W ----- *3 | —/(SCSFR11) [R/W] B,H,W ----- *3 | —/(SCSFR01) [R/W] B,H,W ----- *3 | |
| 001790 _H | —/(TBYTE31)/ (LAMESR1) [R/W] B,H,W ----- *3 | —/(TBYTE21)/ (LAMERT1) [R/W] B,H,W ----- *3 | —/(TBYTE11)/ (LAMIER1) [R/W] B,H,W ----- *3 | TBYTE01/(LAMRID1) / (LAMTID1) [R/W] B,H,W 00000000 | *3: Reserved because CSIO mode is not set immediately after reset. |
| 001794 _H | BGR1[R/W] H,W 00000000 00000000 | | —/(ISMK1)[R/W] B,H,W ----- *2 | —/(ISBA1)[R/W] B,H,W ----- *2 | |
| 001798 _H | FCR11[R/W] B,H,W ---00100 | FCR01[R/W] B,H,W -0000000 | FBYTE1[R/W] B,H,W 00000000 00000000 | | *4: Reserved because LIN2.1 mode is not set immediately after reset. |
| 00179C _H | FTICR1[R/W] B,H,W 00000000 00000000 | | — | — | |

| Address | Address offset value / Register name | | | | Block |
|---------|--|--|--|--|---|
| | +0 | +1 | +2 | +3 | |
| 0017A0H | SCR2/(IBCR2)[R/W] B,H,W 0--00000 | SMR2[R/W] B,H,W 000-00-0 | SSR2[R/W] B,H,W 0-000011 | ESCR2/(IBSR2)[R/W]] B,H,W 00000000 | Multi-UART2 *1: Byte access is possible only for access to lower 8 bits. *2: Reserved because I ² C mode is not set immediately after reset. *3: Reserved because CSIO mode is not set immediately after reset. *4: Reserved because LIN2.1 mode is not set immediately after reset. |
| 0017A4H | —/(RDR12/(TDR12))[R/W] B,H,W ----- *3 | | RDR02/(TDR02)[R/W] B,H,W -----0 00000000 *1 | | |
| 0017A8H | SACSR2[R/W] B,H,W 0----000 00000000 | | STMR2[R] B,H,W 00000000 00000000 | | |
| 0017ACH | STMCR2[R/W] B,H,W 00000000 00000000 | | —/(SCSCR2/SFUR2)[R/W] B,H,W ----- *3 *4 | | |
| 0017B0H | —/(SCSTR32)/ (LAMSR2) [R/W] B,H,W ----- *3 | —/(SCSTR22)/ (LAMCR2) [R/W] B,H,W ----- *3 | —/(SCSTR12)/ (SFLR12) [R/W] B,H,W ----- *3 | —/(SCSTR02)/ (SFLR02) [R/W] B,H,W ----- *3 | |
| 0017B4H | — | —/(SCSFR22) [R/W] B,H,W ----- *3 | —/(SCSFR12) [R/W] B,H,W ----- *3 | —/(SCSFR02) [R/W] B,H,W ----- *3 | |
| 0017B8H | —/(TBYTE32)/ (LAMESR2) [R/W] B,H,W ----- *3 | —/(TBYTE22)/ (LAMERT2) [R/W] B,H,W ----- *3 | —/(TBYTE12)/ (LAMIER2) [R/W] B,H,W ----- *3 | TBYTE02/(LAMRID2) / (LAMTID2) [R/W] B,H,W 00000000 | |
| 0017BCH | BGR2[R/W] H, W 00000000 00000000 | | —/(ISMK2)[R/W] B,H,W ----- *2 | —/(ISBA2)[R/W] B,H,W ----- *2 | |
| 0017C0H | FCR12[R/W] B,H,W ---00100 | FCR02[R/W] B,H,W -0000000 | FBYTE2[R/W] B,H,W 00000000 00000000 | | |
| 0017C4H | FTICR2[R/W] B,H,W 00000000 00000000 | | — | — | |

| Address | Address offset value / Register name | | | | Block |
|---------------------|--|--|--|--|---|
| | +0 | +1 | +2 | +3 | |
| 0017C8 _H | SCR3/(IBCR3) [R/W] B,H,W 0--00000 | SMR3[R/W] B,H,W 000-00-0 | SSR3[R/W] B,H,W 0-000011 | ESCR3/(IBSR3)[R/W]] B,H,W 00000000 | Multi-UART3 *1: Byte access is possible only for access to lower 8 bits. *2: Reserved because I ² C mode is not set immediately after reset. *3: Reserved because CSIO mode is not set immediately after reset. *4: Reserved because LIN2.1 mode is not set immediately after reset. |
| 0017CC _H | —/(RDR13/(TDR13))[R/W] B,H,W ----- *3 | | RDR03/(TDR03)[R/W] B,H,W -----0 00000000 *1 | | |
| 0017D0 _H | SACSR3[R/W] B,H,W 0----000 00000000 | | STMR3[R] B,H,W 00000000 00000000 | | |
| 0017D4 _H | STMCR3[R/W] B,H,W 00000000 00000000 | | —/(SCSCR3/SFUR3)[R/W] B,H,W ----- *3 *4 | | |
| 0017D8 _H | —/(SCSTR33)/ (LAMSR3) [R/W] B,H,W ----- *3 | —/(SCSTR23)/ (LAMCR3) [R/W] B,H,W ----- *3 | —/(SCSTR13)/ (SFLR13) [R/W] B,H,W ----- *3 | —/(SCSTR03)/ (SFLR03) [R/W] B,H,W ----- *3 | |
| 0017DC _H | — | —/(SCSFR23) [R/W] B,H,W ----- *3 | —/(SCSFR13) [R/W] B,H,W ----- *3 | —/(SCSFR03) [R/W] B,H,W ----- *3 | |
| 0017E0 _H | —/(TBYTE33)/ (LAMESR3) [R/W] B,H,W ----- *3 | —/(TBYTE23)/ (LAMERT3) [R/W] B,H,W ----- *3 | —/(TBYTE13)/ (LAMIER3) [R/W] B,H,W ----- *3 | TBYTE03/(LAMRID3) / (LAMTID3) [R/W] B,H,W 00000000 | |
| 0017E4 _H | BGR3[R/W] H, W 00000000 00000000 | | —/(ISMK3)[R/W] B,H,W ----- *2 | —/(ISBA3)[R/W] B,H,W ----- *2 | |
| 0017E8 _H | FCR13[R/W] B,H,W ---00100 | FCR03[R/W] B,H,W -0000000 | FBYTE3[R/W] B,H,W 00000000 00000000 | | |
| 0017EC _H | FTICR3[R/W] B,H,W 00000000 00000000 | | — | — | |
| 0017F0 _H | SCR4/(IBCR4) [R/W] B,H,W 0--00000 | SMR4[R/W] B,H,W 000-00-0 | SSR4[R/W] B,H,W 0-000011 | ESCR4/(IBSR4)[R/W]] B,H,W 00000000 | Multi-UART4 *1: Byte access is possible only for access to lower 8 bits. *2: Reserved because I ² C mode is not set immediately after reset. |
| 0017F4 _H | —/(RDR14/(TDR14))[R/W] B,H,W ----- *3 | | RDR04/(TDR04)[R/W] B,H,W -----0 00000000 *1 | | |
| 0017F8 _H | SACSR4[R/W] B,H,W 0----000 00000000 | | STMR4[R] B,H,W 00000000 00000000 | | |
| 0017FC _H | STMCR4[R/W] B,H,W 00000000 00000000 | | —/(SCSCR4/SFUR4)[R/W] B,H,W ----- *3 *4 | | |
| 001800 _H | —/(SCSTR34)/ (LAMSR4) [R/W] B,H,W ----- *3 | —/(SCSTR24)/ (LAMCR4) [R/W] B,H,W ----- *3 | —/(SCSTR14)/ (SFLR14) [R/W] B,H,W ----- *3 | —/(SCSTR04)/ (SFLR04) [R/W] B,H,W ----- *3 | |

| Address | Address offset value / Register name | | | | Block |
|---------------------|--|--|--|--|---|
| | +0 | +1 | +2 | +3 | |
| 001804 _H | — | —/(SCSFR24) [R/W] B,H,W ----- *3 | —/(SCSFR14) [R/W] B,H,W ----- *3 | —/(SCSFR04) [R/W] B,H,W ----- *3 | Multi-UART4 *3: Reserved because CSIO mode is not set immediately after reset. *4: Reserved because LIN2.1 mode is not set immediately after reset. |
| 001808 _H | —/(TBYTE34)/ (LAMESR4) [R/W] B,H,W ----- *3 | —/(TBYTE24)/ (LAMERT4) [R/W] B,H,W ----- *3 | —/(TBYTE14)/ (LAMIER4) [R/W] B,H,W ----- *3 | TBYTE04/(LAMRID4) / (LAMTID4) [R/W] B,H,W 00000000 | |
| 00180C _H | BGR4[R/W] H, W 00000000 00000000 | | —/(ISMK4)[R/W] B,H,W ----- *2 | —/(ISBA4)[R/W] B,H,W ----- *2 | |
| 001810 _H | FCR14[R/W] B,H,W ---00100 | FCR04[R/W] B,H,W -0000000 | FBYTE4[R/W] B,H,W 00000000 00000000 | | |
| 001814 _H | FTICR4[R/W] B,H,W 00000000 00000000 | | — | — | |
| 001818 _H | SCR5/(IBCR5) [R/W] B,H,W 0--00000 | SMR5[R/W] B,H,W 000-00-0 | SSR5[R/W] B,H,W 0-000011 | ESCR5/(IBSR5)[R/W]] B,H,W 00000000 | Multi-UART5 *1: Byte access is possible only for access to lower 8 bits. *2: Reserved because I ² C mode is not set immediately after reset. *3: Reserved because CSIO mode is not set immediately after reset. *4: Reserved because LIN2.1 mode is not set immediately after reset. |
| 00181C _H | —/(RDR15/(TDR15))[R/W] B,H,W ----- *3 | | RDR05/(TDR05)[R/W] B,H,W -----0 00000000 *1 | | |
| 001820 _H | SACSR5[R/W] B,H,W 0---000 00000000 | | STMR5[R] B,H,W 00000000 00000000 | | |
| 001824 _H | STMCR5[R/W] B,H,W 00000000 00000000 | | —/(SCSCR5/SFUR5)[R/W] B,H,W ----- *3 *4 | | |
| 001828 _H | —/(SCSTR35)/ (LAMSR5) [R/W] B,H,W ----- *3 | —/(SCSTR25)/ (LAMCR5) [R/W] B,H,W ----- *3 | —/(SCSTR15)/ (SFLR15) [R/W] B,H,W ----- *3 | —/(SCSTR05)/ (SFLR05) [R/W] B,H,W ----- *3 | |
| 00182C _H | — | —/(SCSFR25) [R/W] B,H,W ----- *3 | —/(SCSFR15) [R/W] B,H,W ----- *3 | —/(SCSFR05) [R/W] B,H,W ----- *3 | |
| 001830 _H | —/(TBYTE35)/ (LAMESR5) [R/W] B,H,W ----- *3 | —/(TBYTE25)/ (LAMERT5) [R/W] B,H,W ----- *3 | —/(TBYTE15)/ (LAMIER5) [R/W] B,H,W ----- *3 | TBYTE05/(LAMRID5) / (LAMTID5) [R/W] B,H,W 00000000 | |
| 001834 _H | BGR5[R/W] H, W 00000000 00000000 | | —/(ISMK5)[R/W] B,H,W ----- *2 | —/(ISBA5)[R/W] B,H,W ----- *2 | |
| 001838 _H | FCR15[R/W] B,H,W ---00100 | FCR05[R/W] B,H,W -0000000 | FBYTE5[R/W] B,H,W 00000000 00000000 | | |
| 00183C _H | FTICR5[R/W] B,H,W 00000000 00000000 | | — | — | |
| 001840 _H | SCR6/(IBCR6) [R/W] B,H,W 0--00000 | SMR6[R/W] B,H,W 000-00-0 | SSR6[R/W] B,H,W 0-000011 | ESCR6/(IBSR6)[R/W]] B,H,W 00000000 | Multi-UART6 |

| Address | Address offset value / Register name | | | | Block | |
|---------------------|--|--|--|--|--|--|
| | +0 | +1 | +2 | +3 | | |
| 001844 _H | —/(RDR16/(TDR16))[R/W] B,H,W ----- *3 | | RDR06/(TDR06)[R/W] B,H,W -----0 00000000 *1 | | Multi-UART6 | |
| 001848 _H | SACSR6[R/W] B,H,W 0----000 00000000 | | STMR6[R] B,H,W 00000000 00000000 | | | |
| 00184C _H | STMCR6[R/W] B,H,W 00000000 00000000 | | —/(SCSCR6/SFUR6)[R/W] B,H,W ----- *3 *4 | | | |
| 001850 _H | —/(SCSTR36)/ (LAMSR6) [R/W] B,H,W ----- *3 | —/(SCSTR26)/ (LAMCR6) [R/W] B,H,W ----- *3 | —/(SCSTR16)/ (SFLR16) [R/W] B,H,W ----- *3 | —/(SCSTR06)/ (SFLR06) [R/W] B,H,W ----- *3 | | *1: Byte access is possible only for access to lower 8 bits. |
| 001854 _H | — | —/(SCSFR26) [R/W] B,H,W ----- *3 | —/(SCSFR16) [R/W] B,H,W ----- *3 | —/(SCSFR06) [R/W] B,H,W ----- *3 | | *2: Reserved because I2C mode is not set immediately after reset. |
| 001858 _H | —/(TBYTE36)/ (LAMESR6) [R/W] B,H,W ----- *3 | —/(TBYTE26)/ (LAMERT6) [R/W] B,H,W ----- *3 | —/(TBYTE16)/ (LAMIER6) [R/W] B,H,W ----- *3 | TBYTE06/(LAMRID6) / (LAMTID6) [R/W] B,H,W 00000000 | | *3: Reserved because CSIO mode is not set immediately after reset. |
| 00185C _H | BGR6[R/W] H, W 00000000 00000000 | | —/(ISMK6)[R/W] B,H,W ----- *2 | —/(ISBA6)[R/W] B,H,W ----- *2 | | *4: Reserved because LIN2.1 mode is not set immediately after reset. |
| 001860 _H | FCR16[R/W] B,H,W ---00100 | FCR06[R/W] B,H,W -0000000 | FBYTE6[R/W] B,H,W 00000000 00000000 | | | |
| 001864 _H | FTICR6[R/W] B,H,W 00000000 00000000 | | — | — | | |
| 001868 _H | SCR7/(IBCR7) [R/W] B,H,W 0--00000 | SMR7[R/W] B,H,W 000-00-0 | SSR7[R/W] B,H,W 0-000011 | ESCR7/(IBSR7)[R/W]] B,H,W 00000000 | | Multi-UART7 |
| 00186C _H | —/(RDR17/(TDR17))[R/W] B,H,W ----- *3 | | RDR07/(TDR07)[R/W] B,H,W -----0 00000000 *1 | | *1: Byte access is possible only for access to lower 8 bits. | |
| 001870 _H | SACSR7[R/W] B,H,W 0----000 00000000 | | STMR7[R] B,H,W 00000000 00000000 | | *2: Reserved because I2C mode is not set immediately after reset. | |
| 001874 _H | STMCR7[R/W] B,H,W 00000000 00000000 | | —/(SCSCR7/SFUR7)[R/W] B,H,W ----- *3 *4 | | | |
| 001878 _H | —/(SCSTR37)/ (LAMSR7) [R/W] B,H,W ----- *3 | —/(SCSTR27)/ (LAMCR7) [R/W] B,H,W ----- *3 | —/(SCSTR17)/ (SFLR17) [R/W] B,H,W ----- *3 | —/(SCSTR07)/ (SFLR07) [R/W] B,H,W ----- *3 | Multi-UART7 | |
| 00187C _H | — | —/(SCSFR27) [R/W] B,H,W ----- *3 | —/(SCSFR17) [R/W] B,H,W ----- *3 | —/(SCSFR07) [R/W] B,H,W ----- *3 | *3: Reserved because CSIO mode is not set immediately after reset. | |
| 001880 _H | —/(TBYTE37)/ (LAMESR7) [R/W] B,H,W ----- *3 | —/(TBYTE27)/ (LAMERT7) [R/W] B,H,W ----- *3 | —/(TBYTE17)/ (LAMIER7) [R/W] B,H,W ----- *3 | TBYTE07/(LAMRID7) / (LAMTID7) [R/W] B,H,W 00000000 | *4: Reserved because LIN2.1 mode is not set immediately after reset. | |

| Address | Address offset value / Register name | | | | Block |
|---------------------|--|--|--|--|---|
| | +0 | +1 | +2 | +3 | |
| 001884 _H | BGR7[R/W] H, W 00000000 00000000 | | — /(ISMK7)[R/W] B,H,W ----- *2 | — /(ISBA7)[R/W] B,H,W ----- *2 | Multi-UART7 |
| 001888 _H | FCR17[R/W] B,H,W ---00100 | FCR07[R/W] B,H,W -0000000 | FBYTE7[R/W] B,H,W 00000000 00000000 | | |
| 00188C _H | FTICR7[R/W] B,H,W 00000000 00000000 | | — | — | |
| 001890 _H | SCR8/(IBCR8) [R/W] B,H,W 0--00000 | SMR8[R/W] B,H,W 000-00-0 | SSR8[R/W] B,H,W 0-000011 | ESCR8/(IBSR8)[R/W]] B,H,W 00000000 | Multi-UART8 *1: Byte access is possible only for access to lower 8 bits. *2: Reserved because I ² C mode is not set immediately after reset. *3: Reserved because CSIO mode is not set immediately after reset. *4: Reserved because LIN2.1 mode is not set immediately after reset. |
| 001894 _H | — /(RDR18/(TDR18))[R/W] B,H,W ----- *3 | | RDR08/(TDR08)[R/W] B,H,W -----0 00000000 *1 | | |
| 001898 _H | SACSR8[R/W] B,H,W 0---000 00000000 | | STMR8[R] B,H,W 00000000 00000000 | | |
| 00189C _H | STMCR8[R/W] B,H,W 00000000 00000000 | | — /(SCSCR8/SFUR8)[R/W] B,H,W ----- *3 *4 | | |
| 0018A0 _H | — /(SCSTR38)/ (LAMSR8) [R/W] B,H,W ----- *3 | — /(SCSTR28)/ (LAMCR8) [R/W] B,H,W ----- *3 | — /(SCSTR18)/ (SFLR18) [R/W] B,H,W ----- *3 | — /(SCSTR08)/ (SFLR08) [R/W] B,H,W ----- *3 | |
| 0018A4 _H | — | — /(SCSFR28) [R/W] B,H,W ----- *3 | — /(SCSFR18) [R/W] B,H,W ----- *3 | — /(SCSFR08) [R/W] B,H,W ----- *3 | |
| 0018A8 _H | —/(TBYTE38)/ (LAMESR8) [R/W] B,H,W ----- *3 | —/(TBYTE28)/ (LAMERT8) [R/W] B,H,W ----- *3 | —/(TBYTE18)/ (LAMIER8) [R/W] B,H,W ----- *3 | TBYTE08/(LAMRID8) / (LAMTID8) [R/W] B,H,W 00000000 | |
| 0018AC _H | BGR8[R/W] H,W 00000000 00000000 | | — /(ISMK8)[R/W] B,H,W ----- *2 | — /(ISBA8)[R/W] B,H,W ----- *2 | |
| 0018B0 _H | FCR18[R/W] B,H,W ---00100 | FCR08[R/W] B,H,W -0000000 | FBYTE8[R/W] B,H,W 00000000 00000000 | | Multi-UART8 |
| 0018B4 _H | FTICR8[R/W] B,H,W 00000000 00000000 | | — | — | |

| Address | Address offset value / Register name | | | | Block |
|---------------------|--|--|--|--|---|
| | +0 | +1 | +2 | +3 | |
| 0018B8 _H | SCR9/(IBCR9) [R/W] B,H,W 0--00000 | SMR9[R/W] B,H,W 000-00-0 | SSR9[R/W] B,H,W 0-000011 | ESCR9/(IBSR9)[R/W]] B,H,W 00000000 | Multi-UART9 *1: Byte access is possible only for access to lower 8 bits. *2: Reserved because I ² C mode is not set immediately after reset. *3: Reserved because CSIO mode is not set immediately after reset. *4: Reserved because LIN2.1 mode is not set immediately after reset. |
| 0018BC _H | —/(RDR19/(TDR19))[R/W] B,H,W ----- *3 | | RDR09/(TDR09)[R/W] B,H,W -----0 00000000 *1 | | |
| 0018C0 _H | SACSR9[R/W] B,H,W 0----000 00000000 | | STMR9[R] B,H,W 00000000 00000000 | | |
| 0018C4 _H | STMCR9[R/W] B,H,W 00000000 00000000 | | —/(SCSCR9/SFUR9)[R/W] B,H,W ----- *3 *4 | | |
| 0018C8 _H | —/(SCSTR39)/ (LAMSR9) [R/W] B,H,W ----- *3 | —/(SCSTR29)/ (LAMCR9) [R/W] B,H,W ----- *3 | —/(SCSTR19)/ (SFLR19) [R/W] B,H,W ----- *3 | —/(SCSTR09)/ (SFLR09) [R/W] B,H,W ----- *3 | |
| 0018CC _H | — | —/(SCSFR29) [R/W] B,H,W ----- *3 | —/(SCSFR19) [R/W] B,H,W ----- *3 | —/(SCSFR09) [R/W] B,H,W ----- *3 | |
| 0018D0 _H | —/(TBYTE39)/ (LAMESR9) [R/W] B,H,W ----- *3 | —/(TBYTE29)/ (LAMERT9) [R/W] B,H,W ----- *3 | —/(TBYTE19)/ (LAMIER9) [R/W] B,H,W ----- *3 | TBYTE09/(LAMRID9) / (LAMTID9) [R/W] B,H,W 00000000 | |
| 0018D4 _H | BGR9[R/W] H, W 00000000 00000000 | | —/(ISMK9)[R/W] B,H,W ----- *2 | —/(ISBA9)[R/W] B,H,W ----- *2 | |
| 0018D8 _H | FCR19[R/W] B,H,W ---00100 | FCR09[R/W] B,H,W -0000000 | FBYTE9[R/W] B,H,W 00000000 00000000 | | |
| 0018DC _H | FTICR9[R/W] B,H,W 00000000 00000000 | | — | — | |
| 0018E0 _H | SCR10/(IBCR10) [R/W] B,H,W 0--00000 | SMR10[R/W] B,H,W 000-00-0 | SSR10[R/W] B,H,W 0-000011 | ESCR10/(IBSR10) [R/W] B,H,W 00000000 | |
| 0018E4 _H | —/(RDR110/(TDR110))[R/W] B,H,W ----- *3 | | RDR010/(TDR010)[R/W] B,H,W -----0 00000000 *1 | | |
| 0018E8 _H | SACSR10[R/W] B,H,W 0----000 00000000 | | STMR10[R] B,H,W 00000000 00000000 | | |
| 0018EC _H | STMCR10[R/W] B,H,W 00000000 00000000 | | —/(SCSCR10/SFUR10)[R/W] B,H,W ----- *3 *4 | | |

| Address | Address offset value / Register name | | | | Block |
|--------------------------|--|--|--|---|--|
| | +0 | +1 | +2 | +3 | |
| 0018F0H | —/(SCSTR310)/ (LAMSR10) [R/W] B,H,W ----- *3 | —/(SCSTR210)/ (LAMCR10) [R/W] B,H,W ----- *3 | —/(SCSTR110)/ (SFLR110)[R/W] B,H,W ----- *3 | —/(SCSTR010)/ (SFLR010)[R/W] B,H,W ----- *3 | Multi-UART10 *3: Reserved because CSIO mode is not set immediately after reset. *4: Reserved because LIN2.1 mode is not set immediately after reset. |
| 0018F4H | — | —/(SCSFR210) [R/W] B,H,W ----- *3 | —/(SCSFR110) [R/W] B,H,W ----- *3 | —/(SCSFR010) [R/W] B,H,W ----- *3 | |
| 0018F8H | —/(TBYTE310)/ (LAMESR10) [R/W] B,H,W ----- *3 | —/(TBYTE210)/ (LAMERT10) [R/W] B,H,W ----- *3 | —/(TBYTE110)/ (LAMIER10) [R/W] B,H,W ----- *3 | TBYTE010/(LAMRID10)/(LAMTID10) [R/W] B,H,W 00000000 | |
| 0018FCH | BGR10[R/W] H, W 00000000 00000000 | | —/(ISMK10)[R/W] B,H,W ----- *2 | —/(ISBA10)[R/W] B,H,W ----- *2 | |
| 001900H | FCR110[R/W] B,H,W ---00100 | FCR010[R/W] B,H,W -0000000 | FBYTE10[R/W] B,H,W 00000000 00000000 | | |
| 001904H | FTICR10[R/W] B,H,W 00000000 00000000 | | — | — | |
| 001908H | SCR11/(IBCR11) [R/W] B,H,W 0--00000 | SMR11[R/W] B,H,W 000-00-0 | SSR11[R/W] B,H,W 0-000011 | ESCR11/(IBSR11) [R/W] B,H,W 00000000 | Multi-UART11 *1: Byte access is possible only for access to lower 8 bits. *2: Reserved because I ² C mode is not set immediately after reset. *3: Reserved because CSIO mode is not set immediately after reset. *4: Reserved because LIN2.1 mode is not set immediately after reset. |
| 00190CH | —/(RDR111/(TDR111))[R/W] B,H,W ----- *3 | | RDR011/(TDR011)[R/W] B,H,W -----0 00000000 *1 | | |
| 001910H | SACSR11[R/W] B,H,W 0---000 00000000 | | STMR11[R] B,H,W 00000000 00000000 | | |
| 001914H | STMCR11[R/W] B,H,W 00000000 00000000 | | —/(SCSCR11/SFUR11)[R/W] B,H,W ----- *3 *4 | | |
| 001918H | —/(SCSTR311)/ (LAMSR11) [R/W] B,H,W ----- *3 | —/(SCSTR211)/ (LAMCR11) [R/W] B,H,W ----- *3 | —/(SCSTR111)/ (SFLR111)[R/W] B,H,W ----- *3 | —/(SCSTR011)/ (SFLR011)[R/W] B,H,W ----- *3 | |
| 00191CH | — | —/(SCSFR211) [R/W] B,H,W ----- *3 | —/(SCSFR111) [R/W] B,H,W ----- *3 | —/(SCSFR011) [R/W] B,H,W ----- *3 | |
| 001920H | —/(TBYTE311)/ (LAMESR11) [R/W] B,H,W ----- *3 | —/(TBYTE211)/ (LAMERT11) [R/W] B,H,W ----- *3 | —/(TBYTE111)/ (LAMIER11) [R/W] B,H,W ----- *3 | TBYTE011/(LAMRID11)/(LAMTID11) [R/W] B,H,W 00000000 | |
| 001924H | BGR11[R/W] H, W 00000000 00000000 | | —/(ISMK11)[R/W] B,H,W ----- *2 | —/(ISBA11)[R/W] B,H,W ----- *2 | |
| 001928H | FCR111[R/W] B,H,W ---00100 | FCR011[R/W] B,H,W -0000000 | FBYTE11[R/W] B,H,W 00000000 00000000 | | Multi-UART11 |
| 00192CH | FTICR11[R/W] B,H,W 00000000 00000000 | | — | — | |
| 001930H to 0019D8H | — | — | — | — | Reserved |

| Address | Address offset value / Register name | | | | Block |
|--|---|----------------------------------|---|----------------------------------|-----------------------------|
| | +0 | +1 | +2 | +3 | |
| 0019DC _H | — | GATEC0 [R/W] B,H,W -----00 | — | GATEC2 [R/W] B,H,W -----00 | PPG GATE control |
| 0019E0 _H | — | GATEC4 [R/W] B,H,W -----00 | — | — | |
| 0019E4 _H | — | — | — | — | Reserved |
| 0019E8 _H | GTRS0 [R/W] B,H,W -0000000 -0000000 | | GTRS1 [R/W] B,H,W -0000000 -0000000 | | PPG controller |
| 0019EC _H | GTRS2 [R/W] B,H,W -0000000 -0000000 | | GTRS3 [R/W] B,H,W -0000000 -0000000 | | |
| 0019F0 _H | GTRS4 [R/W] B,H,W -0000000 -0000000 | | GTRS5 [R/W] B,H,W -0000000 -0000000 | | |
| 0019F4 _H | GTRS6 [R/W] B,H,W -0000000 -0000000 | | GTRS7 [R/W] B,H,W -0000000 -0000000 | | |
| 0019F8 _H | GTRS8 [R/W] B,H,W -0000000 -0000000 | | GTRS9 [R/W] B,H,W -0000000 -0000000 | | PPG controller |
| 0019FC _H | GTRS10 [R/W] B,H,W -0000000 -0000000 | | GTRS11 [R/W] B,H,W -0000000 -0000000 | | |
| 001A00 _H | GTRS12 [R/W] B,H,W -0000000 -0000000 | | GTRS13 [R/W] B,H,W -0000000 -0000000 | | |
| 001A04 _H | GTRS14 [R/W] B,H,W -0000000 -0000000 | | GTRS15 [R/W] B,H,W -0000000 -0000000 | | |
| 001A08 _H | GTRS16 [R/W] B,H,W -0000000 -0000000 | | GTRS17 [R/W] B,H,W -0000000 -0000000 | | |
| 001A0C _H | GTRS18 [R/W] B,H,W -0000000 -0000000 | | GTRS19 [R/W] B,H,W -0000000 -0000000 | | |
| 001A10 _H | GTRS20 [R/W] B,H,W -0000000 -0000000 | | GTRS21 [R/W] B,H,W -0000000 -0000000 | | |
| 001A14 _H | GTRS22 [R/W] B,H,W -0000000 -0000000 | | GTRS23 [R/W] B,H,W -0000000 -0000000 | | |
| 001A18 _H to 001A2C _H | — | — | — | — | Reserved |
| 001A30 _H | — | — | — | — | Reserved |
| 001A34 _H | — | — | — | — | |
| 001A38 _H | GTREN0 [R/W] H,W 00000000 00000000 | | GTREN1 [R/W] H,W 00000000 00000000 | | PPG controller |
| 001A3C _H | GTREN2 [R/W] H,W 00000000 00000000 | | — | — | |
| 001A40 _H | PCN0 [R/W] B,H,W 00000000 000000-0 | | PCSR0 [W] H,W XXXXXXXX XXXXXXXXX | | PPG0 * for communication |
| 001A44 _H | PDUT0 [W] H,W XXXXXXXX XXXXXXXXX | | PTMR0 [R] H,W 11111111 11111111 | | |
| 001A48 _H | PCN200 [R/W] B,H,W --000000 -----110 | | PSDR0 [R/W] H,W 00000000 00000000 | | |
| 001A4C _H | PTPC0 [R/W] H,W 00000000 00000000 | | PCMDWD0 [R/W] B,H,W ----- ----0000 | | |
| 001A50 _H | PHCSR0 [W] H,W XXXXXXXX XXXXXXXXX | | PLCSR0 [W] H,W XXXXXXXX XXXXXXXXX | | |

| Address | Address offset value / Register name | | | | Block |
|---------------------|--|----|---------------------------------------|----|-----------------------------|
| | +0 | +1 | +2 | +3 | |
| 001A54H | PHDUT0 [W] H,W XXXXXXXX XXXXXXXX | | PLDUT0 [W] H,W XXXXXXXX XXXXXXXX | | PPG0 * for communication |
| 001A58H | PCMDDT0 [R/W] H,W 00000000 00000000 | | — | — | |
| 001A5CH | PCN1 [R/W] B,H,W 00000000 000000-0 | | PCSR1 [W] H,W XXXXXXXX XXXXXXXX | | PPG1 * for communication |
| 001A60H | PDUT1 [W] H,W XXXXXXXX XXXXXXXX | | PTMR1 [R] H,W 11111111 11111111 | | |
| 001A64H | PCN201 [R/W] B,H,W --000000 ----110 | | PSDR1 [R/W] H,W 00000000 00000000 | | PPG1 * for communication |
| 001A68H | PTPC1 [R/W] H,W 00000000 00000000 | | PCMDWD1 [R/W] B,H,W ----- ----0000 | | |
| 001A6CH | PHCSR1 [W] H,W XXXXXXXX XXXXXXXX | | PLCSR1 [W] H,W XXXXXXXX XXXXXXXX | | |
| 001A70H | PHDUT1 [W] H,W XXXXXXXX XXXXXXXX | | PLDUT1 [W] H,W XXXXXXXX XXXXXXXX | | |
| 001A74H | PCMDDT1 [R/W] H,W 00000000 00000000 | | — | — | |
| 001A78H | PCN2 [R/W] B,H,W 00000000 000000-0 | | PCSR2 [W] H,W XXXXXXXX XXXXXXXX | | |
| 001A7CH | PDUT2 [W] H,W XXXXXXXX XXXXXXXX | | PTMR2 [R] H,W 11111111 11111111 | | PPG2 * for communication |
| 001A80H | PCN202 [R/W] B,H,W --000000 ----110 | | PSDR2 [R/W] H,W 00000000 00000000 | | PPG2 * for communication |
| 001A84H | PTPC2 [R/W] H,W 00000000 00000000 | | PCMDWD2 [R/W] B,H,W ----- ----0000 | | |
| 001A88H | PHCSR2 [W] H,W XXXXXXXX XXXXXXXX | | PLCSR2 [W] H,W XXXXXXXX XXXXXXXX | | |
| 001A8CH | PHDUT2 [W] H,W XXXXXXXX XXXXXXXX | | PLDUT2 [W] H,W XXXXXXXX XXXXXXXX | | |
| 001A90H | PCMDDT2 [R/W] H,W 00000000 00000000 | | — | — | |
| 001A94H | PCN3 [R/W] B,H,W 00000000 000000-0 | | PCSR3 [W] H,W XXXXXXXX XXXXXXXX | | |
| 001A98H | PDUT3 [W] H,W XXXXXXXX XXXXXXXX | | PTMR3 [R] H,W 11111111 11111111 | | PPG3 * for communication |
| 001A9CH | PCN203 [R/W] B,H,W --000000 ----110 | | PSDR3 [R/W] H,W 00000000 00000000 | | |
| 001AA0H | PTPC3 [R/W] H,W 00000000 00000000 | | PCMDWD3 [R/W] B,H,W ----- ----0000 | | |
| 001AA4H | PHCSR3 [W] H,W XXXXXXXX XXXXXXXX | | PLCSR3 [W] H,W XXXXXXXX XXXXXXXX | | |
| 001AA8H | PHDUT3 [W] H,W XXXXXXXX XXXXXXXX | | PLDUT3 [W] H,W XXXXXXXX XXXXXXXX | | |
| 001AAC _H | PCMDDT3 [R/W] H,W 00000000 00000000 | | — | — | |
| 001AB0H | PCN4 [R/W] B,H,W 00000000 000000-0 | | PCSR4 [W] H,W XXXXXXXX XXXXXXXX | | PPG4 |
| 001AB4H | PDUT4 [W] H,W XXXXXXXX XXXXXXXX | | PTMR4 [R] H,W 11111111 11111111 | | |

| Address | Address offset value / Register name | | | | Block |
|---------------------|---|----|--------------------------------------|----|-------|
| | +0 | +1 | +2 | +3 | |
| 001AB8 _H | PCN204 [R/W] B,H,W --000000 -----110 | | PSDR4 [R/W] H,W 00000000 00000000 | | PPG4 |
| 001ABC _H | PTPC4 [R/W] H,W 00000000 00000000 | | — | — | |
| 001AC0 _H | PCN5 [R/W] B,H,W 00000000 000000-0 | | PCSR5 [W] H,W XXXXXXXX XXXXXXXXX | | PPG5 |
| 001AC4 _H | PDUT5 [W] H,W XXXXXXXX XXXXXXXXX | | PTMR5 [R] H,W 11111111 11111111 | | |
| 001AC8 _H | PCN205 [R/W] B,H,W --000000 -----110 | | PSDR5 [R/W] H,W 00000000 00000000 | | |
| 001ACC _H | PTPC5 [R/W] H,W 00000000 00000000 | | — | — | PPG6 |
| 001AD0 _H | PCN6 [R/W] B,H,W 00000000 000000-0 | | PCSR6 [W] H,W XXXXXXXX XXXXXXXXX | | |
| 001AD4 _H | PDUT6 [W] H,W XXXXXXXX XXXXXXXXX | | PTMR6 [R] H,W 11111111 11111111 | | |
| 001AD8 _H | PCN206 [R/W] B,H,W --000000 -----110 | | PSDR6 [R/W] H,W 00000000 00000000 | | |
| 001ADC _H | PTPC6 [R/W] H,W 00000000 00000000 | | — | — | PPG7 |
| 001AE0 _H | PCN7 [R/W] B,H,W 00000000 000000-0 | | PCSR7 [W] H,W XXXXXXXX XXXXXXXXX | | |
| 001AE4 _H | PDUT7 [W] H,W XXXXXXXX XXXXXXXXX | | PTMR7 [R] H,W 11111111 11111111 | | |
| 001AE8 _H | PCN207 [R/W] B,H,W --000000 -----110 | | PSDR7 [R/W] H,W 00000000 00000000 | | |
| 001AEC _H | PTPC7 [R/W] H,W 00000000 00000000 | | — | — | PPG8 |
| 001AF0 _H | PCN8 [R/W] B,H,W 00000000 000000-0 | | PCSR8 [W] H,W XXXXXXXX XXXXXXXXX | | |
| 001AF4 _H | PDUT8 [W] H,W XXXXXXXX XXXXXXXXX | | PTMR8 [R] H,W 11111111 11111111 | | |
| 001AF8 _H | PCN208 [R/W] B,H,W --000000 -----110 | | PSDR8 [R/W] H,W 00000000 00000000 | | |
| 001AFC _H | PTPC8 [R/W] H,W 00000000 00000000 | | — | — | PPG9 |
| 001B00 _H | PCN9 [R/W] B,H,W 00000000 000000-0 | | PCSR9 [W] H,W XXXXXXXX XXXXXXXXX | | |
| 001B04 _H | PDUT9 [W] H,W XXXXXXXX XXXXXXXXX | | PTMR9 [R] H,W 11111111 11111111 | | |
| 001B08 _H | PCN209 [R/W] B,H,W --000000 -----110 | | PSDR9 [R/W] H,W 00000000 00000000 | | |
| 001B0C _H | PTPC9 [R/W] H,W 00000000 00000000 | | — | — | PPG10 |
| 001B10 _H | PCN10 [R/W] B,H,W 00000000 000000-0 | | PCSR10 [W] H,W XXXXXXXX XXXXXXXXX | | |
| 001B14 _H | PDUT10 [W] H,W XXXXXXXX XXXXXXXXX | | PTMR10 [R] H,W 11111111 11111111 | | |

| Address | Address offset value / Register name | | | | Block |
|---------------------|---|----|---------------------------------------|----|-------|
| | +0 | +1 | +2 | +3 | |
| 001B18 _H | PCN210 [R/W] B,H,W --000000 -----110 | | PSDR10 [R/W] H,W 00000000 00000000 | | PPG10 |
| 001B1C _H | PTPC10 [R/W] H,W 00000000 00000000 | | — | — | |
| 001B20 _H | PCN11 [R/W] B,H,W 00000000 000000-0 | | PCSR11 [W] H,W XXXXXXXX XXXXXXXXX | | PPG11 |
| 001B24 _H | PDUT11 [W] H,W XXXXXXXX XXXXXXXXX | | PTMR11 [R] H,W 11111111 11111111 | | PPG11 |
| 001B28 _H | PCN211 [R/W] B,H,W --000000 -----110 | | PSDR11 [R/W] H,W 00000000 00000000 | | |
| 001B2C _H | PTPC11 [R/W] H,W 00000000 00000000 | | — | — | |
| 001B30 _H | PCN12 [R/W] B,H,W 00000000 000000-0 | | PCSR12 [W] H,W XXXXXXXX XXXXXXXXX | | PPG12 |
| 001B34 _H | PDUT12 [W] H,W XXXXXXXX XXXXXXXXX | | PTMR12 [R] H,W 11111111 11111111 | | |
| 001B38 _H | PCN212 [R/W] B,H,W --000000 -----110 | | PSDR12 [R/W] H,W 00000000 00000000 | | |
| 001B3C _H | PTPC12 [R/W] H,W 00000000 00000000 | | — | — | |
| 001B40 _H | PCN13 [R/W] B,H,W 00000000 000000-0 | | PCSR13 [W] H,W XXXXXXXX XXXXXXXXX | | PPG13 |
| 001B44 _H | PDUT13 [W] H,W XXXXXXXX XXXXXXXXX | | PTMR13 [R] H,W 11111111 11111111 | | |
| 001B48 _H | PCN213 [R/W] B,H,W --000000 -----110 | | PSDR13 [R/W] H,W 00000000 00000000 | | |
| 001B4C _H | PTPC13 [R/W] H,W 00000000 00000000 | | — | — | |
| 001B50 _H | PCN14 [R/W] B,H,W 00000000 000000-0 | | PCSR14 [W] H,W XXXXXXXX XXXXXXXXX | | PPG14 |
| 001B54 _H | PDUT14 [W] H,W XXXXXXXX XXXXXXXXX | | PTMR14 [R] H,W 11111111 11111111 | | |
| 001B58 _H | PCN214 [R/W] B,H,W --000000 -----110 | | PSDR14 [R/W] H,W 00000000 00000000 | | |
| 001B5C _H | PTPC14 [R/W] H,W 00000000 00000000 | | — | — | |
| 001B60 _H | PCN15 [R/W] B,H,W 00000000 000000-0 | | PCSR15 [W] H,W XXXXXXXX XXXXXXXXX | | PPG15 |
| 001B64 _H | PDUT15 [W] H,W XXXXXXXX XXXXXXXXX | | PTMR15 [R] H,W 11111111 11111111 | | |
| 001B68 _H | PCN215 [R/W] B,H,W --000000 -----110 | | PSDR15 [R/W] H,W 00000000 00000000 | | |
| 001B6C _H | PTPC15 [R/W] H,W 00000000 00000000 | | — | — | |
| 001B70 _H | PCN16 [R/W] B,H,W 00000000 000000-0 | | PCSR16 [W] H,W XXXXXXXX XXXXXXXXX | | PPG16 |
| 001B74 _H | PDUT16 [W] H,W XXXXXXXX XXXXXXXXX | | PTMR16 [R] H,W 11111111 11111111 | | |

| Address | Address offset value / Register name | | | | Block |
|---------------------|---|----|---------------------------------------|----|-------|
| | +0 | +1 | +2 | +3 | |
| 001B78H | PCN216 [R/W] B,H,W --000000 -----110 | | PSDR16 [R/W] H,W 00000000 00000000 | | PPG16 |
| 001B7CH | PTPC16 [R/W] H,W 00000000 00000000 | | — | — | |
| 001B80H | PCN17 [R/W] B,H,W 00000000 000000-0 | | PCSR17 [W] H,W XXXXXXXX XXXXXXXXX | | PPG17 |
| 001B84H | PDUT17 [W] H,W XXXXXXXX XXXXXXXXX | | PTMR17 [R] H,W 11111111 11111111 | | |
| 001B88H | PCN217 [R/W] B,H,W --000000 -----110 | | PSDR17 [R/W] H,W 00000000 00000000 | | |
| 001B8CH | PTPC17 [R/W] H,W 00000000 00000000 | | — | — | PPG18 |
| 001B90H | PCN18 [R/W] B,H,W 00000000 000000-0 | | PCSR18 [W] H,W XXXXXXXX XXXXXXXXX | | |
| 001B94H | PDUT18 [W] H,W XXXXXXXX XXXXXXXXX | | PTMR18 [R] H,W 11111111 11111111 | | |
| 001B98H | PCN218 [R/W] B,H,W --000000 -----110 | | PSDR18 [R/W] H,W 00000000 00000000 | | |
| 001B9CH | PTPC18 [R/W] H,W 00000000 00000000 | | — | — | PPG19 |
| 001BA0H | PCN19 [R/W] B,H,W 00000000 000000-0 | | PCSR19 [W] H,W XXXXXXXX XXXXXXXXX | | |
| 001BA4H | PDUT19 [W] H,W XXXXXXXX XXXXXXXXX | | PTMR19 [R] H,W 11111111 11111111 | | |
| 001BA8H | PCN219 [R/W] B,H,W --000000 -----110 | | PSDR19 [R/W] H,W 00000000 00000000 | | |
| 001BACH | PTPC19 [R/W] H,W 00000000 00000000 | | — | — | PPG20 |
| 001BB0H | PCN20 [R/W] B,H,W 00000000 000000-0 | | PCSR20 [W] H,W XXXXXXXX XXXXXXXXX | | |
| 001BB4H | PDUT20 [W] H,W XXXXXXXX XXXXXXXXX | | PTMR20 [R] H,W 11111111 11111111 | | |
| 001BB8H | PCN220 [R/W] B,H,W --000000 -----110 | | PSDR20 [R/W] H,W 00000000 00000000 | | |
| 001BBC _H | PTPC20 [R/W] H,W 00000000 00000000 | | — | — | PPG21 |
| 001BC0H | PCN21 [R/W] B,H,W 00000000 000000-0 | | PCSR21 [W] H,W XXXXXXXX XXXXXXXXX | | |
| 001BC4H | PDUT21 [W] H,W XXXXXXXX XXXXXXXXX | | PTMR21 [R] H,W 11111111 11111111 | | |
| 001BC8H | PCN221 [R/W] B,H,W --000000 -----110 | | PSDR21 [R/W] H,W 00000000 00000000 | | |
| 001BCC _H | PTPC21 [R/W] H,W 00000000 00000000 | | — | — | PPG21 |

| Address | Address offset value / Register name | | | | Block |
|---------------------|---|----|---------------------------------------|----|-------|
| | +0 | +1 | +2 | +3 | |
| 001BD0 _H | PCN22 [R/W] B,H,W 00000000 000000-0 | | PCSR22 [W] H,W XXXXXXXX XXXXXXXX | | PPG22 |
| 001BD4 _H | PDUT22 [W] H,W XXXXXXXX XXXXXXXX | | PTMR22 [R] H,W 11111111 11111111 | | |
| 001BD8 _H | PCN222 [R/W] B,H,W --000000 -----110 | | PSDR22 [R/W] H,W 00000000 00000000 | | |
| 001BDC _H | PTPC22 [R/W] H,W 00000000 00000000 | | — | — | |
| 001BE0 _H | PCN23 [R/W] B,H,W 00000000 000000-0 | | PCSR23 [W] H,W XXXXXXXX XXXXXXXX | | PPG23 |
| 001BE4 _H | PDUT23 [W] H,W XXXXXXXX XXXXXXXX | | PTMR23 [R] H,W 11111111 11111111 | | |
| 001BE8 _H | PCN223 [R/W] B,H,W --000000 -----110 | | PSDR23 [R/W] H,W 00000000 00000000 | | |
| 001BEC _H | PTPC23 [R/W] H,W 00000000 00000000 | | — | — | |
| 001BF0 _H | PCN24 [R/W] B,H,W 00000000 000000-0 | | PCSR24 [W] H,W XXXXXXXX XXXXXXXX | | PPG24 |
| 001BF4 _H | PDUT24 [W] H,W XXXXXXXX XXXXXXXX | | PTMR24 [R] H,W 11111111 11111111 | | |
| 001BF8 _H | PCN224 [R/W] B,H,W --000000 -----110 | | PSDR24 [R/W] H,W 00000000 00000000 | | |
| 001BFC _H | PTPC24 [R/W] H,W 00000000 00000000 | | — | — | |
| 001C00 _H | PCN25 [R/W] B,H,W 00000000 000000-0 | | PCSR25 [W] H,W XXXXXXXX XXXXXXXX | | PPG25 |
| 001C04 _H | PDUT25 [W] H,W XXXXXXXX XXXXXXXX | | PTMR25 [R] H,W 11111111 11111111 | | |
| 001C08 _H | PCN225 [R/W] B,H,W --000000 -----110 | | PSDR25 [R/W] H,W 00000000 00000000 | | |
| 001C0C _H | PTPC25 [R/W] H,W 00000000 00000000 | | — | — | |
| 001C10 _H | PCN26 [R/W] B,H,W 00000000 000000-0 | | PCSR26 [W] H,W XXXXXXXX XXXXXXXX | | PPG26 |
| 001C14 _H | PDUT26 [W] H,W XXXXXXXX XXXXXXXX | | PTMR26 [R] H,W 11111111 11111111 | | |
| 001C18 _H | PCN226 [R/W] B,H,W --000000 -----110 | | PSDR26 [R/W] H,W 00000000 00000000 | | |
| 001C1C _H | PTPC26 [R/W] H,W 00000000 00000000 | | — | — | |
| 001C20 _H | PCN27 [R/W] B,H,W 00000000 000000-0 | | PCSR27 [W] H,W XXXXXXXX XXXXXXXX | | PPG27 |
| 001C24 _H | PDUT27 [W] H,W XXXXXXXX XXXXXXXX | | PTMR27 [R] H,W 11111111 11111111 | | PPG27 |
| 001C28 _H | PCN227 [R/W] B,H,W --000000 -----110 | | PSDR27 [R/W] H,W 00000000 00000000 | | |
| 001C2C _H | PTPC27 [R/W] H,W 00000000 00000000 | | — | — | PPG27 |

| Address | Address offset value / Register name | | | | Block |
|---------------------|---|----|---------------------------------------|----|-------|
| | +0 | +1 | +2 | +3 | |
| 001C30 _H | PCN28 [R/W] B,H,W 00000000 000000-0 | | PCSR28 [W] H,W XXXXXXXX XXXXXXXX | | PPG28 |
| 001C34 _H | PDUT28 [W] H,W XXXXXXXX XXXXXXXX | | PTMR28 [R] H,W 11111111 11111111 | | |
| 001C38 _H | PCN228 [R/W] B,H,W --000000 -----110 | | PSDR28 [R/W] H,W 00000000 00000000 | | |
| 001C3C _H | PTPC28 [R/W] H,W 00000000 00000000 | | — | — | |
| 001C40 _H | PCN29 [R/W] B,H,W 00000000 000000-0 | | PCSR29 [W] H,W XXXXXXXX XXXXXXXX | | PPG29 |
| 001C44 _H | PDUT29 [W] H,W XXXXXXXX XXXXXXXX | | PTMR29 [R] H,W 11111111 11111111 | | |
| 001C48 _H | PCN229 [R/W] B,H,W --000000 -----110 | | PSDR29 [R/W] H,W 00000000 00000000 | | |
| 001C4C _H | PTPC29 [R/W] H,W 00000000 00000000 | | — | — | |
| 001C50 _H | PCN30 [R/W] B,H,W 00000000 000000-0 | | PCSR30 [W] H,W XXXXXXXX XXXXXXXX | | PPG30 |
| 001C54 _H | PDUT30 [W] H,W XXXXXXXX XXXXXXXX | | PTMR30 [R] H,W 11111111 11111111 | | |
| 001C58 _H | PCN230 [R/W] B,H,W --000000 -----110 | | PSDR30 [R/W] H,W 00000000 00000000 | | |
| 001C5C _H | PTPC30 [R/W] H,W 00000000 00000000 | | — | — | |
| 001C60 _H | PCN31 [R/W] B,H,W 00000000 000000-0 | | PCSR31 [W] H,W XXXXXXXX XXXXXXXX | | PPG31 |
| 001C64 _H | PDUT31 [W] H,W XXXXXXXX XXXXXXXX | | PTMR31 [R] H,W 11111111 11111111 | | |
| 001C68 _H | PCN231 [R/W] B,H,W --000000 -----110 | | PSDR31 [R/W] H,W 00000000 00000000 | | |
| 001C6C _H | PTPC31 [R/W] H,W 00000000 00000000 | | — | — | |
| 001C70 _H | PCN32 [R/W] B,H,W 00000000 000000-0 | | PCSR32 [W] H,W XXXXXXXX XXXXXXXX | | PPG32 |
| 001C74 _H | PDUT32 [W] H,W XXXXXXXX XXXXXXXX | | PTMR32 [R] H,W 11111111 11111111 | | |
| 001C78 _H | PCN232 [R/W] B,H,W --000000 -----110 | | PSDR32 [R/W] H,W 00000000 00000000 | | PPG32 |
| 001C7C _H | PTPC32 [R/W] H,W 00000000 00000000 | | — | — | |
| 001C80 _H | PCN33 [R/W] B,H,W 00000000 000000-0 | | PCSR33 [W] H,W XXXXXXXX XXXXXXXX | | PPG33 |
| 001C84 _H | PDUT33 [W] H,W XXXXXXXX XXXXXXXX | | PTMR33 [R] H,W 11111111 11111111 | | |
| 001C88 _H | PCN233 [R/W] B,H,W --000000 -----110 | | PSDR33 [R/W] H,W 00000000 00000000 | | PPG33 |
| 001C8C _H | PTPC33 [R/W] H,W 00000000 00000000 | | — | — | |

| Address | Address offset value / Register name | | | | Block |
|---------------------|---|----|---------------------------------------|----|-------|
| | +0 | +1 | +2 | +3 | |
| 001C90 _H | PCN34 [R/W] B,H,W 00000000 000000-0 | | PCSR34 [W] H,W XXXXXXXX XXXXXXXX | | PPG34 |
| 001C94 _H | PDUT34 [W] H,W XXXXXXXX XXXXXXXX | | PTMR34 [R] H,W 11111111 11111111 | | |
| 001C98 _H | PCN234 [R/W] B,H,W --000000 -----110 | | PSDR34 [R/W] H,W 00000000 00000000 | | |
| 001C9C _H | PTPC34 [R/W] H,W 00000000 00000000 | | — | — | |
| 001CA0 _H | PCN35 [R/W] B,H,W 00000000 000000-0 | | PCSR35 [W] H,W XXXXXXXX XXXXXXXX | | PPG35 |
| 001CA4 _H | PDUT35 [W] H,W XXXXXXXX XXXXXXXX | | PTMR35 [R] H,W 11111111 11111111 | | |
| 001CA8 _H | PCN235 [R/W] B,H,W --000000 -----110 | | PSDR35 [R/W] H,W 00000000 00000000 | | |
| 001CAC _H | PTPC35 [R/W] H,W 00000000 00000000 | | — | — | |
| 001CB0 _H | PCN36 [R/W] B,H,W 00000000 000000-0 | | PCSR36 [W] H,W XXXXXXXX XXXXXXXX | | PPG36 |
| 001CB4 _H | PDUT36 [W] H,W XXXXXXXX XXXXXXXX | | PTMR36 [R] H,W 11111111 11111111 | | |
| 001CB8 _H | PCN236 [R/W] B,H,W --000000 -----110 | | PSDR36 [R/W] H,W 00000000 00000000 | | |
| 001CBC _H | PTPC36 [R/W] H,W 00000000 00000000 | | — | — | |
| 001CC0 _H | PCN37 [R/W] B,H,W 00000000 000000-0 | | PCSR37 [W] H,W XXXXXXXX XXXXXXXX | | PPG37 |
| 001CC4 _H | PDUT37 [W] H,W XXXXXXXX XXXXXXXX | | PTMR37 [R] H,W 11111111 11111111 | | |
| 001CC8 _H | PCN237 [R/W] B,H,W --000000 -----110 | | PSDR37 [R/W] H,W 00000000 00000000 | | |
| 001CCC _H | PTPC37 [R/W] H,W 00000000 00000000 | | — | — | |
| 001CD0 _H | PCN38 [R/W] B,H,W 00000000 000000-0 | | PCSR38 [W] H,W XXXXXXXX XXXXXXXX | | PPG38 |
| 001CD4 _H | PDUT38 [W] H,W XXXXXXXX XXXXXXXX | | PTMR38 [R] H,W 11111111 11111111 | | |
| 001CD8 _H | PCN238 [R/W] B,H,W --000000 -----110 | | PSDR38 [R/W] H,W 00000000 00000000 | | |
| 001CDC _H | PTPC38 [R/W] H,W 00000000 00000000 | | — | — | |
| 001CE0 _H | PCN39 [R/W] B,H,W 00000000 000000-0 | | PCSR39 [W] H,W XXXXXXXX XXXXXXXX | | PPG39 |
| 001CE4 _H | PDUT39 [W] H,W XXXXXXXX XXXXXXXX | | PTMR39 [R] H,W 11111111 11111111 | | PPG39 |
| 001CE8 _H | PCN239 [R/W] B,H,W --000000 -----110 | | PSDR39 [R/W] H,W 00000000 00000000 | | |
| 001CEC _H | PTPC39 [R/W] H,W 00000000 00000000 | | — | — | |

| Address | Address offset value / Register name | | | | Block |
|---------------------|---|----|---------------------------------------|----|-------|
| | +0 | +1 | +2 | +3 | |
| 001CF0 _H | PCN40 [R/W] B,H,W 00000000 000000-0 | | PCSR40 [W] H,W XXXXXXXX XXXXXXXX | | PPG40 |
| 001CF4 _H | PDUT40 [W] H,W XXXXXXXX XXXXXXXX | | PTMR40 [R] H,W 11111111 11111111 | | |
| 001CF8 _H | PCN240 [R/W] B,H,W --000000 -----110 | | PSDR40 [R/W] H,W 00000000 00000000 | | |
| 001CFC _H | PTPC40 [R/W] H,W 00000000 00000000 | | — | — | |
| 001D00 _H | PCN41 [R/W] B,H,W 00000000 000000-0 | | PCSR41 [W] H,W XXXXXXXX XXXXXXXX | | PPG41 |
| 001D04 _H | PDUT41 [W] H,W XXXXXXXX XXXXXXXX | | PTMR41 [R] H,W 11111111 11111111 | | |
| 001D08 _H | PCN241 [R/W] B,H,W --000000 -----110 | | PSDR41 [R/W] H,W 00000000 00000000 | | |
| 001D0C _H | PTPC41 [R/W] H,W 00000000 00000000 | | — | — | |
| 001D10 _H | PCN42 [R/W] B,H,W 00000000 000000-0 | | PCSR42 [W] H,W XXXXXXXX XXXXXXXX | | PPG42 |
| 001D14 _H | PDUT42 [W] H,W XXXXXXXX XXXXXXXX | | PTMR42 [R] H,W 11111111 11111111 | | |
| 001D18 _H | PCN242 [R/W] B,H,W --000000 -----110 | | PSDR42 [R/W] H,W 00000000 00000000 | | |
| 001D1C _H | PTPC42 [R/W] H,W 00000000 00000000 | | — | — | |
| 001D20 _H | PCN43 [R/W] B,H,W 00000000 000000-0 | | PCSR43 [W] H,W XXXXXXXX XXXXXXXX | | PPG43 |
| 001D24 _H | PDUT43 [W] H,W XXXXXXXX XXXXXXXX | | PTMR43 [R] H,W 11111111 11111111 | | |
| 001D28 _H | PCN243 [R/W] B,H,W --000000 -----110 | | PSDR43 [R/W] H,W 00000000 00000000 | | |
| 001D2C _H | PTPC43 [R/W] H,W 00000000 00000000 | | — | — | |
| 001D30 _H | PCN44 [R/W] B,H,W 00000000 000000-0 | | PCSR44 [W] H,W XXXXXXXX XXXXXXXX | | PPG44 |
| 001D34 _H | PDUT44 [W] H,W XXXXXXXX XXXXXXXX | | PTMR44 [R] H,W 11111111 11111111 | | |
| 001D38 _H | PCN244 [R/W] B,H,W --000000 -----110 | | PSDR44 [R/W] H,W 00000000 00000000 | | |
| 001D3C _H | PTPC44 [R/W] H,W 00000000 00000000 | | — | — | |
| 001D40 _H | PCN45 [R/W] B,H,W 00000000 000000-0 | | PCSR45 [W] H,W XXXXXXXX XXXXXXXX | | PPG45 |
| 001D44 _H | PDUT45 [W] H,W XXXXXXXX XXXXXXXX | | PTMR45 [R] H,W 11111111 11111111 | | |
| 001D48 _H | PCN245 [R/W] B,H,W --000000 -----110 | | PSDR45 [R/W] H,W 00000000 00000000 | | |
| 001D4C _H | PTPC45 [R/W] H,W 00000000 00000000 | | — | — | |

| Address | Address offset value / Register name | | | | Block |
|--|---|----|---|----|------------------|
| | +0 | +1 | +2 | +3 | |
| 001D50 _H | PCN46 [R/W] B,H,W 00000000 000000-0 | | PCSR46 [W] H,W XXXXXXXX XXXXXXXX | | PPG46 |
| 001D54 _H | PDUT46 [W] H,W XXXXXXXX XXXXXXXX | | PTMR46 [R] H,W 11111111 11111111 | | |
| 001D58 _H | PCN246 [R/W] B,H,W --000000 ----110 | | PSDR46 [R/W] H,W 00000000 00000000 | | |
| 001D5C _H | PTPC46 [R/W] H,W 00000000 00000000 | | — | — | |
| 001D60 _H | PCN47 [R/W] B,H,W 00000000 000000-0 | | PCSR47 [W] H,W XXXXXXXX XXXXXXXX | | PPG47 |
| 001D64 _H | PDUT47 [W] H,W XXXXXXXX XXXXXXXX | | PTMR47 [R] H,W 11111111 11111111 | | |
| 001D68 _H | PCN247 [R/W] B,H,W --000000 ----110 | | PSDR47 [R/W] H,W 00000000 00000000 | | |
| 001D6C _H | PTPC47 [R/W] H,W 00000000 00000000 | | — | — | |
| 001D70 _H to 001FFC _H | — | — | — | — | Reserved |
| 002000 _H | CTRLR0 [R/W] B,H,W ----- 000-0001 | | STATR0 [R/W] B,H,W ----- 00000000 | | CAN0 (128msb) |
| 002004 _H | ERRCNT0 [R] B,H,W 00000000 00000000 | | BTR0 [R/W] B,H,W -0100011 00000001 | | |
| 002008 _H | INTR0 [R] B,H,W 00000000 00000000 | | TESTR0 [R/W] B,H,W ----- X00000-- | | |
| 00200C _H | BRPER0 [R/W] B,H,W ----- ----0000 | | — | — | |
| 002010 _H | IF1CREQ0 [R/W] B,H,W 0----- 00000001 | | IF1CMSK0 [R/W] B,H,W ----- 00000000 | | |
| 002014 _H | IF1MSK20 [R/W] B,H,W 11-11111 11111111 | | IF1MSK10 [R/W] B,H,W 11111111 11111111 | | |
| 002018 _H | IF1ARB20 [R/W] B,H,W 00000000 00000000 | | IF1ARB10 [R/W] B,H,W 00000000 00000000 | | |
| 00201C _H | IF1MCTR0 [R/W] B,H,W 00000000 0---0000 | | — | — | |
| 002020 _H | IF1DTA10 [R/W] B,H,W 00000000 00000000 | | IF1DTA20 [R/W] B,H,W 00000000 00000000 | | |
| 002024 _H | IF1DTB10 [R/W] B,H,W 00000000 00000000 | | IF1DTB20 [R/W] B,H,W 00000000 00000000 | | |
| 002028 _H | — | — | — | — | |
| 00202C _H | — | — | — | — | |
| 002030 _H , 002034 _H | Reserved(IF1 data mirror) | | | | |
| 002038 _H | — | — | — | — | |
| 00203C _H | — | — | — | — | |
| 002040 _H | IF2CREQ0 [R/W] B,H,W 0----- 00000001 | | IF2CMSK0 [R/W] B,H,W ----- 00000000 | | |
| 002044 _H | IF2MSK20 [R/W] B,H,W 11-11111 11111111 | | IF2MSK10 [R/W] B,H,W 11111111 11111111 | | |
| 002048 _H | IF2ARB20 [R/W] B,H,W 00000000 00000000 | | IF2ARB10 [R/W] B,H,W 00000000 00000000 | | |

| Address | Address offset value / Register name | | | | Block |
|--|---|----|---|----|------------------|
| | +0 | +1 | +2 | +3 | |
| 00204C _H | IF2MCTR0 [R/W] B,H,W 00000000 0---0000 | | — | — | CAN0 (128msb) |
| 002050 _H | IF2DTA10 [R/W] B,H,W 00000000 00000000 | | IF2DTA20 [R/W] B,H,W 00000000 00000000 | | |
| 002054 _H | IF2DTB10 [R/W] B,H,W 00000000 00000000 | | IF2DTB20 [R/W] B,H,W 00000000 00000000 | | |
| 002058 _H | — | — | — | — | |
| 00205C _H | — | — | — | — | |
| 002060 _H , 002064 _H | Reserved(IF2 data mirror) | | | | |
| 002068 _H to 00207C _H | — | | | | |
| 002080 _H | TREQR20 [R] B,H,W 00000000 00000000 | | TREQR10 [R] B,H,W 00000000 00000000 | | |
| 002084 _H | TREQR40 [R] B,H,W 00000000 00000000 | | TREQR30 [R] B,H,W 00000000 00000000 | | |
| 002088 _H | TREQR60 [R] B,H,W 00000000 00000000 | | TREQR50 [R] B,H,W 00000000 00000000 | | |
| 00208C _H | TREQR80 [R] B,H,W 00000000 00000000 | | TREQR70 [R] B,H,W 00000000 00000000 | | |
| 002090 _H | NEWDT20 [R] B,H,W 00000000 00000000 | | NEWDT10 [R] B,H,W 00000000 00000000 | | |
| 002094 _H | NEWDT40 [R] B,H,W 00000000 00000000 | | NEWDT30 [R] B,H,W 00000000 00000000 | | |
| 002098 _H | NEWDT60 [R] B,H,W 00000000 00000000 | | NEWDT50 [R] B,H,W 00000000 00000000 | | |
| 00209C _H | NEWDT80 [R] B,H,W 00000000 00000000 | | NEWDT70 [R] B,H,W 00000000 00000000 | | |
| 0020A0 _H | INTPND20 [R] B,H,W 00000000 00000000 | | INTPND10 [R] B,H,W 00000000 00000000 | | |
| 0020A4 _H | INTPND40 [R] B,H,W 00000000 00000000 | | INTPND30 [R] B,H,W 00000000 00000000 | | |
| 0020A8 _H | INTPND60 [R] B,H,W 00000000 00000000 | | INTPND50 [R] B,H,W 00000000 00000000 | | |
| 0020AC _H | INTPND80 [R] B,H,W 00000000 00000000 | | INTPND70 [R] B,H,W 00000000 00000000 | | |
| 0020B0 _H | MSGVAL20 [R] B,H,W 00000000 00000000 | | MSGVAL10 [R] B,H,W 00000000 00000000 | | |
| 0020B4 _H | MSGVAL40 [R] B,H,W 00000000 00000000 | | MSGVAL30 [R] B,H,W 00000000 00000000 | | |
| 0020B8 _H | MSGVAL60 [R] B,H,W 00000000 00000000 | | MSGVAL50 [R] B,H,W 00000000 00000000 | | |
| 0020BC _H | MSGVAL80 [R] B,H,W 00000000 00000000 | | MSGVAL70 [R] B,H,W 00000000 00000000 | | |
| 0020C0 _H to 0020FC _H | — | | | | CAN0 (128msb) |

| Address | Address offset value / Register name | | | | Block |
|--|---|----|---|----|-----------------|
| | +0 | +1 | +2 | +3 | |
| 002100 _H | CTRLR1 [R/W] B,H,W ----- 000-0001 | | STATR1 [R/W] B,H,W ----- 00000000 | | CAN1 (64msb) |
| 002104 _H | ERRCNT1 [R] B,H,W 00000000 00000000 | | BTR1 [R/W] B,H,W -0100011 00000001 | | |
| 002108 _H | INTR1 [R] B,H,W 00000000 00000000 | | TESTR1 [R/W] B,H,W ----- X00000-- | | |
| 00210C _H | BRPER1 [R/W] B,H,W ----- ----0000 | | — | — | |
| 002110 _H | IF1CREQ1 [R/W] B,H,W 0----- 00000001 | | IF1CMSK1 [R/W] B,H,W ----- 00000000 | | |
| 002114 _H | IF1MSK21 [R/W] B,H,W 11-11111 11111111 | | IF1MSK11 [R/W] B,H,W 11111111 11111111 | | |
| 002118 _H | IF1ARB21 [R/W] B,H,W 00000000 00000000 | | IF1ARB11 [R/W] B,H,W 00000000 00000000 | | |
| 00211C _H | IF1MCTR1 [R/W] B,H,W 00000000 0---0000 | | — | — | |
| 002120 _H | IF1DTA11 [R/W] B,H,W 00000000 00000000 | | IF1DTA21 [R/W] B,H,W 00000000 00000000 | | |
| 002124 _H | IF1DTB11 [R/W] B,H,W 00000000 00000000 | | IF1DTB21 [R/W] B,H,W 00000000 00000000 | | |
| 002128 _H | — | — | — | — | |
| 00212C _H | — | — | — | — | |
| 002130 _H , 002134 _H | Reserved (IF1 data mirror) | | | | |
| 002138 _H | — | — | — | — | |
| 00213C _H | — | — | — | — | |
| 002140 _H | IF2CREQ1 [R/W] B,H,W 0----- 00000001 | | IF2CMSK1 [R/W] B,H,W ----- 00000000 | | |
| 002144 _H | IF2MSK21 [R/W] B,H,W 11-11111 11111111 | | IF2MSK11 [R/W] B,H,W 11111111 11111111 | | |
| 002148 _H | IF2ARB21 [R/W] B,H,W 00000000 00000000 | | IF2ARB11 [R/W] B,H,W 00000000 00000000 | | |
| 00214C _H | IF2MCTR1 [R/W] B,H,W 00000000 0---0000 | | — | — | |
| 002150 _H | IF2DTA11 [R/W] B,H,W 00000000 00000000 | | IF2DTA21 [R/W] B,H,W 00000000 00000000 | | |
| 002154 _H | IF2DTB11 [R/W] B,H,W 00000000 00000000 | | IF2DTB21 [R/W] B,H,W 00000000 00000000 | | |
| 002158 _H | — | — | — | — | |
| 00215C _H | — | — | — | — | |
| 002160 _H , 002164 _H | Reserved (IF2 data mirror) | | | | |
| 002168 _H to 00217C _H | — | | | | |
| 002180 _H | TREQR21 [R] B,H,W 00000000 00000000 | | TREQR11 [R] B,H,W 00000000 00000000 | | |
| 002184 _H | TREQR41 [R] B,H,W 00000000 00000000 | | TREQR31 [R] B,H,W 00000000 00000000 | | |
| 002188 _H | — | — | — | — | |
| 00218C _H | — | — | — | — | |

| Address | Address offset value / Register name | | | | Block |
|--|---|----|---|----|-----------------|
| | +0 | +1 | +2 | +3 | |
| 002190 _H | NEWDT21 [R] B,H,W 00000000 00000000 | | NEWDT11 [R] B,H,W 00000000 00000000 | | CAN1 (64msb) |
| 002194 _H | NEWDT41 [R] B,H,W 00000000 00000000 | | NEWDT31 [R] B,H,W 00000000 00000000 | | |
| 002198 _H | — | — | — | — | |
| 00219C _H | — | — | — | — | |
| 0021A0 _H | INTPND21 [R] B,H,W 00000000 00000000 | | INTPND11 [R] B,H,W 00000000 00000000 | | |
| 0021A4 _H | INTPND41 [R] B,H,W 00000000 00000000 | | INTPND31 [R] B,H,W 00000000 00000000 | | |
| 0021A8 _H | — | — | — | — | |
| 0021AC _H | — | — | — | — | |
| 0021B0 _H | MSGVAL21 [R] B,H,W 00000000 00000000 | | MSGVAL11 [R] B,H,W 00000000 00000000 | | |
| 0021B4 _H | MSGVAL41 [R] B,H,W 00000000 00000000 | | MSGVAL31 [R] B,H,W 00000000 00000000 | | |
| 0021B8 _H | — | — | — | — | |
| 0021BC _H | — | — | — | — | |
| 0021C0 _H to 0021FC _H | — | | | | |
| 002200 _H | CTRLR2 [R/W] B,H,W ----- 000-0001 | | STATR2 [R/W] B,H,W ----- 00000000 | | |
| 002204 _H | ERRCNT2 [R] B,H,W 00000000 00000000 | | BTR2 [R/W] B,H,W -0100011 00000001 | | |
| 002208 _H | INTR2 [R] B,H,W 00000000 00000000 | | TESTR2 [R/W] B,H,W ----- X00000-- | | |
| 00220C _H | BRPER2 [R/W] B,H,W ----- ----0000 | | — | | |
| 002210 _H | IF1CREQ2 [R/W] B,H,W 0----- 00000001 | | IF1CMSK2 [R/W] B,H,W ----- 00000000 | | |
| 002214 _H | IF1MSK22 [R/W] B,H,W 11-11111 11111111 | | IF1MSK12 [R/W] B,H,W 11111111 11111111 | | |
| 002218 _H | IF1ARB22 [R/W] B,H,W 00000000 00000000 | | IF1ARB12 [R/W] B,H,W 00000000 00000000 | | |
| 00221C _H | IF1MCTR2 [R/W] B,H,W 00000000 0---0000 | | — | | |
| 002220 _H | IF1DTA12 [R/W] B,H,W 00000000 00000000 | | IF1DTA22 [R/W] B,H,W 00000000 00000000 | | |
| 002224 _H | IF1DTB12 [R/W] B,H,W 00000000 00000000 | | IF1DTB22 [R/W] B,H,W 00000000 00000000 | | |
| 002228 _H | — | — | — | — | |
| 00222C _H | — | — | — | — | |
| 002230 _H , 002234 _H | Reserved (IF1 data mirror) | | | | |
| 002238 _H | — | — | — | — | |
| 00223C _H | — | — | — | — | |
| 002240 _H | IF2CREQ2 [R/W] B,H,W 0----- 00000001 | | IF2CMSK2 [R/W] B,H,W ----- 00000000 | | |

| Address | Address offset value / Register name | | | | Block |
|--|---|----|---|----------------------------------|-------------------|
| | +0 | +1 | +2 | +3 | |
| 002244 _H | IF2MSK22 [R/W] B,H,W 11-11111 11111111 | | IF2MSK12 [R/W] B,H,W 11111111 11111111 | | CAN2 (64msb) |
| 002248 _H | IF2ARB22 [R/W] B,H,W 00000000 00000000 | | IF2ARB12 [R/W] B,H,W 00000000 00000000 | | |
| 00224C _H | IF2MCTR2 [R/W] B,H,W 00000000 0---0000 | | — | | |
| 002250 _H | IF2DTA12 [R/W] B,H,W 00000000 00000000 | | IF2DTA22 [R/W] B,H,W 00000000 00000000 | | |
| 002254 _H | IF2DTB12 [R/W] B,H,W 00000000 00000000 | | IF2DTB22 [R/W] B,H,W 00000000 00000000 | | |
| 002258 _H | — | — | — | — | |
| 00225C _H | — | — | — | — | |
| 002260 _H , 002264 _H | Reserved (IF2 data mirror) | | | | |
| 002268 _H to 00227C _H | — | | | | |
| 002280 _H | TREQR22 [R] B,H,W 00000000 00000000 | | TREQR12 [R] B,H,W 00000000 00000000 | | |
| 002284 _H | TREQR42 [R] B,H,W 00000000 00000000 | | TREQR32 [R] B,H,W 00000000 00000000 | | |
| 002288 _H | — | — | — | — | |
| 00228C _H | — | — | — | — | |
| 002290 _H | NEWDT22 [R] B,H,W 00000000 00000000 | | NEWDT12 [R] B,H,W 00000000 00000000 | | |
| 002294 _H | NEWDT42 [R] B,H,W 00000000 00000000 | | NEWDT32 [R] B,H,W 00000000 00000000 | | |
| 002298 _H | — | — | — | — | |
| 00229C _H | — | — | — | — | |
| 0022A0 _H | INTPND22 [R] B,H,W 00000000 00000000 | | INTPND12 [R] B,H,W 00000000 00000000 | | |
| 0022A4 _H | INTPND42 [R] B,H,W 00000000 00000000 | | INTPND32 [R] B,H,W 00000000 00000000 | | |
| 0022A8 _H | — | — | — | — | |
| 0022AC _H | — | — | — | — | |
| 0022B0 _H | MSGVAL22 [R] B,H,W 00000000 00000000 | | MSGVAL12 [R] B,H,W 00000000 00000000 | | |
| 0022B4 _H | MSGVAL42 [R] B,H,W 00000000 00000000 | | MSGVAL32 [R] B,H,W 00000000 00000000 | | |
| 0022B8 _H | — | — | — | — | |
| 0022BC _H | — | — | — | — | |
| 0022C0 _H to 0022FC _H | — | | | | |
| 002300 _H | DFCTLR [R/W] B,H,W -0----- | | — | DFSTR [R/W] B,H,W -----001 | WorkFlash |
| 002304 _H | — | — | — | — | |
| 002308 _H | FLIFCTLR [R/W] B,H,W ---0--00 | — | FLIFFER1 [R/W] B,H,W ----- | FLIFFER2 [R/W] B,H,W ----- | Flash / WorkFlash |

| Address | Address offset value / Register name | | | | Block |
|--|---|--|---|------------------------------------|------------------------------|
| | +0 | +1 | +2 | +3 | |
| 00230C _H to 0023FC _H | — | | | | Reserved |
| 002400 _H | SEEARX [R] B,H,W -0000000 00000000 | | DEEARX [R] B,H,W -0000000 00000000 | | XBS RAM ECC control |
| 002404 _H | EEC SRX [R/W] B,H,W ----00-- | — | EFEARX [R/W] B,H,W -0000000 00000000 | | |
| 002408 _H | — | EFECRX [R/W] B,H,W -----0 00000000 00000000 | | | |
| 00240C _H to 0024FC _H | — | | | | Reserved |
| 003000 _H | SEEARA [R] B,H,W -----000 00000000 | | DEEARA [R] B,H,W -----000 00000000 | | Backup RAM ECC control |
| 003004 _H | EEC SRA [R/W] B,H,W ----00-- | — | EFEARA [R/W] B,H,W -----000 00000000 | | |
| 003008 _H | — | EFECRA [R/W] B,H,W -----0 00000000 00000000 | | | |
| 00300C _H | TEAR0X[R] B,H,W 000----- -0000000 00000000 | | | | RAM/ diagnosis XBS RAM |
| 003010 _H | TEAR1X[R] B,H,W 000----- -0000000 00000000 | | | | |
| 003014 _H | TEAR2X[R] B,H,W 000----- -0000000 00000000 | | | | |
| 003018 _H | TAEARX [R/W] B,H,W -1111111 11111111 | | TASARX [R/W] B,H,W -0000000 00000000 | | |
| 00301C _H | TFECRX [R/W] B,H,W ----0000 | TICRX [R/W] B,H,W ----0000 | TTCRX [R/W] B,H,W -----00 00001100 | | |
| 003020 _H | TSRCRX [W] B,H,W 0----- | — | — | TKCCR [R/W] B,H,W 00-----00 | |
| 003024 _H to 00302C _H | — | | | | Reserved |
| 003030 _H | TEAR0A[R] B,H,W 000----- -000 00000000 | | | | RAM/ diagnosis Backup RAM |
| 003034 _H | TEAR1A[R] B,H,W 000----- -000 00000000 | | | | |
| 003038 _H | TEAR2A[R] B,H,W 000----- -000 00000000 | | | | |
| 00303C _H | TAEARA[R/W] B,H,W ----111 11111111 | | TASARA[R/W] B,H,W -----000 00000000 | | |
| 003040 _H | TFECRA [R/W] B,H,W ----0000 | TICRA [R/W] B,H,W ----0000 | TTCRA [R/W] B,H,W -----00 00001100 | | RAM/ diagnosis Backup RAM |
| 003044 _H | TSRCRA [R/W] B,H,W 0----- | — | — | TKCCRA [R/W] B,H,W 00-----00 | |

| Address | Address offset value / Register name | | | | Block |
|--|---|----|---|----|-----------------|
| | +0 | +1 | +2 | +3 | |
| 003048 _H to 0030FC _H | — | | | | Reserved |
| 003100 _H | BUSDIGSR0[R/W] H,W 00000000 0-----00 | | BUSDIGSR1[R/W] H,W 00000000 0-----00 | | BUS diagnosis |
| 003104 _H | BUSDIGSR2[R/W] H,W 00000000 0-----00 | | BUSTSTR0[R/W] H,W 00--0000 00000000 | | |
| 003108 _H | BUSADR0 [R] W 00000000 00000000 00000000 00000000 | | | | |
| 00310C _H | BUSADR1 [R] W 00000000 00000000 00000000 00000000 | | | | |
| 003110 _H | BUSADR2 [R] W 00000000 00000000 00000000 00000000 | | | | |
| 003114 _H | — | — | BUSDIGSR3[R/W] H,W 00000000 0-----00 | | |
| 003118 _H | BUSDIGSR4[R/W] H,W 00000000 0-----00 | | BUSTSTR1[R/W] H,W 00--000- 00000000 | | |
| 00311C _H | — | — | — | — | |
| 003120 _H | BUSADR3 [R] W 00000000 00000000 00000000 00000000 | | | | |
| 003124 _H | BUSADR4 [R] W 00000000 00000000 00000000 00000000 | | | | |
| 003128 _H to 003FFC _H | — | | | | Reserved |
| 004000 _H to 005FFC _H | Backup-RAM | | | | Backup RAM area |
| 006000 _H to 00EFFC _H | — | — | — | — | Reserved |
| 00F000 _H to 00FEFC _H | — | — | — | — | Reserved [S] |
| 00FF00 _H | DSUCR [R/W] B,H,W -----0 | | — | — | OCDU [S] |
| 00FF04 _H to 00FF0C _H | — | | | | Reserved [S] |
| 00FF10 _H | PCSR [R/W] B,H,W XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX | | | | OCDU [S] |
| 00FF14 _H | PSSR [R/W] B,H,W XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX | | | | OCDU [S] |
| 00FF18 _H to 00FFF4 _H | — | | | | Reserved [S] |
| 00FFF8 _H | EDIR1 [R] B,H,W XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX | | | | OCDU [S] |
| 00FFFC _H | EDIR0 [R] B,H,W XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX | | | | |

[S]: It is a system register. The illegal instruction exception (data access error) is generated in these registers in the user mode when reading and writing to it.

10. Interrupt Vector Table

This list shows the assignments of interrupt factors and interrupt vectors/interrupt control registers.

Interrupt Vector 64 Pins

| Interrupt Factor | Interrupt Number | | Interrupt Level | Offset | Default Address for TBR | RN |
|---|------------------|--------------|-------------------------------|------------------|-------------------------|------------------|
| | Decimal | Hexa Decimal | | | | |
| Reset | 0 | 0 | - | 3FC _H | 000FFFFC _H | - |
| System reserved | 1 | 1 | - | 3F8 _H | 000FFFF8 _H | - |
| System reserved | 2 | 2 | - | 3F4 _H | 000FFFF4 _H | - |
| System reserved | 3 | 3 | - | 3F0 _H | 000FFFF0 _H | - |
| System reserved | 4 | 4 | - | 3EC _H | 000FFFE _C | - |
| FPU exception | 5 | 5 | - | 3E8 _H | 000FFFE8 _H | - |
| Exception of instruction access protection violation | 6 | 6 | - | 3E4 _H | 000FFFE4 _H | - |
| Exception of data access protection violation | 7 | 7 | - | 3E0 _H | 000FFFE0 _H | - |
| Data access error interrupt | 8 | 8 | - | 3DC _H | 000FFFD _C | - |
| INTE instruction | 9 | 9 | - | 3D8 _H | 000FFFD8 _H | - |
| Instruction break | 10 | 0A | - | 3D4 _H | 000FFFD4 _H | - |
| System reserved | 11 | 0B | - | 3D0 _H | 000FFFD0 _H | - |
| System reserved | 12 | 0C | - | 3CC _H | 000FFFC _C | - |
| System reserved | 13 | 0D | - | 3C8 _H | 000FFFC8 _H | - |
| Exception of invalid instruction | 14 | 0E | - | 3C4 _H | 000FFFC4 _H | - |
| NMI request | 15 | 0F | 15 (F _H) Fixed | 3C0 _H | 000FFFC0 _H | - |
| Error generation during internal bus diagnosis | | | | | | |
| XBS RAM double-bit error generation | | | | | | |
| Backup RAM double-bit error generation | | | | | | |
| TPU violation | | | | | | |
| External interrupt 0-7 | 16 | 10 | ICR00 | 3BC _H | 000FFFB _C | 0 |
| External interrupt 8-15 | 17 | 11 | ICR01 | 3B8 _H | 000FFFB8 _H | 1* ⁷ |
| External low-voltage detection interrupt | | | | | | |
| Reload timer 0/1/4/5 | 18 | 12 | ICR02 | 3B4 _H | 000FFFB4 _H | 2* ² |
| Reload timer 3/6/7 | 19 | 13 | ICR03 | 3B0 _H | 000FFFB0 _H | 3* ² |
| Multi-function serial interface ch.0 (reception completed) | 20 | 14 | ICR04 | 3AC _H | 000FFFA _C | 4* ¹ |
| Multi-function serial interface ch.0 (status) | | | | | | |
| Multi-function serial interface ch.0 (transmission completed) | 21 | 15 | ICR05 | 3A8 _H | 000FFFA8 _H | 5* ¹ |
| - | 22 | 16 | ICR06 | 3A4 _H | 000FFFA4 _H | -* ⁶ |
| - | 23 | 17 | ICR07 | 3A0 _H | 000FFFA0 _H | -* ⁶ |
| - | 24 | 18 | ICR08 | 39C _H | 000FFF9 _C | -* ⁶ |
| - | 25 | 19 | ICR09 | 398 _H | 000FFF98 _H | -* ⁶ |
| Multi-function serial interface ch.3 (reception completed) | 26 | 1A | ICR10 | 394 _H | 000FFF94 _H | 10* ¹ |
| Multi-function serial interface ch.3 (status) | | | | | | |
| Multi-function serial interface ch.3 (transmission completed) | 27 | 1B | ICR11 | 390 _H | 000FFF90 _H | 11 |

| Interrupt Factor | Interrupt Number | | Interrupt Level | Offset | Default Address for TBR | RN |
|---|------------------|--------------|-----------------|------------------|-------------------------|------------------|
| | Decimal | Hexa Decimal | | | | |
| Multi-function serial interface ch.4 (reception completed) | 28 | 1C | ICR12 | 38C _H | 000FFF8C _H | 12* ¹ |
| Multi-function serial interface ch.4 (status) | | | | | | |
| Multi-function serial interface ch.4 (transmission completed) | 29 | 1D | ICR13 | 388 _H | 000FFF88 _H | 13 |
| Multi-function serial interface ch.5 (reception completed) | 30 | 1E | ICR14 | 384 _H | 000FFF84 _H | 14* ¹ |
| Multi-function serial interface ch.5 (status) | | | | | | |
| Multi-function serial interface ch.5 (transmission completed) | 31 | 1F | ICR15 | 380 _H | 000FFF80 _H | 15 |
| Multi-function serial interface ch.6 (reception completed) | 32 | 20 | ICR16 | 37C _H | 000FFF7C _H | 16* ¹ |
| Multi-function serial interface ch.6 (status) | | | | | | |
| Multi-function serial interface ch.6 (transmission completed) | 33 | 21 | ICR17 | 378 _H | 000FFF78 _H | 17 |
| CAN0 | 34 | 22 | ICR18 | 374 _H | 000FFF74 _H | - |
| CAN1 | 35 | 23 | ICR19 | 370 _H | 000FFF70 _H | - |
| RAM diagnosis end | | | | | | |
| RAM initialization completion | | | | | | |
| Error generation during RAM diagnosis | | | | | | |
| Backup RAM diagnosis end | | | | | | |
| Backup RAM initialization completion | | | | | | |
| Error generation during Backup RAM diagnosis | | | | | | |
| CAN2 | 36 | 24 | ICR20 | 36C _H | 000FFF6C _H | - |
| Up/down counter 0 | | | | | | |
| Up/down counter 1 | | | | | | |
| Real time clock | 37 | 25 | ICR21 | 368 _H | 000FFF68 _H | - |
| - | 38 | 26 | ICR22 | 364 _H | 000FFF64 _H | -* ⁶ |
| 16-bit Free-run timer 0 (0 detection) / (compare clear) | 39 | 27 | ICR23 | 360 _H | 000FFF60 _H | 23 |
| PPG 1/10/11/20/30/31 | 40 | 28 | ICR24 | 35C _H | 000FFF5C _H | 24* ³ |
| 16-bit Free-run timer 1 (0 detection) / (compare clear) | | | | | | |
| PPG 2/3/12/13/23/43 | 41 | 29 | ICR25 | 358 _H | 000FFF58 _H | 25* ³ |
| 16-bit Free-run timer 2 (0 detection) / (compare clear) | | | | | | |
| PPG 4/24/35 | 42 | 2A | ICR26 | 354 _H | 000FFF54 _H | 26* ³ |
| PPG 7/16/17/27/37 | 43 | 2B | ICR27 | 350 _H | 000FFF50 _H | 27* ³ |
| PPG 19 | 44 | 2C | ICR28 | 34C _H | 000FFF4C _H | 28* ³ |
| 16-bit ICU 0 (fetching) / 16-bit ICU 1 (fetching) | 45 | 2D | ICR29 | 348 _H | 000FFF48 _H | 29 |
| Main timer | 46 | 2E | ICR30 | 344 _H | 000FFF44 _H | 30 |
| Sub timer | | | | | | |
| PLL timer | | | | | | |
| 16-bit ICU 2 (fetching) /16-bit ICU 3 (fetching) | | | | | | |

| Interrupt Factor | Interrupt Number | | Interrupt Level | Offset | Default Address for TBR | RN |
|--|------------------|--------------|-----------------|------------------|-------------------------|----------------|
| | Decimal | Hexa Decimal | | | | |
| Clock calibration unit (sub oscillation) | 47 | 2F | ICR31 | 340 _H | 000FFF40 _H | 31*1,*4 |
| Multi-function serial interface ch.9 (reception completed) | | | | | | |
| Multi-function serial interface ch.9 (status) | | | | | | |
| A/D converter 0/1/7/10/11/14/15/16/17/22/27/28/31 | 48 | 30 | ICR32 | 33C _H | 000FFF3C _H | 32 |
| Clock calibration unit (CR oscillation) | 49 | 31 | ICR33 | 338 _H | 000FFF38 _H | 33 |
| Multi-function serial interface ch.9 (transmission completed) | | | | | | |
| 16-bit OCU 0 (match) / 16-bit OCU 1 (match) | | | | | | |
| 32-bit Free-run timer 4 | 50 | 32 | ICR34 | 334 _H | 000FFF34 _H | 34*5 |
| 16-bit OCU 2 (match) / 16-bit OCU 3 (match) | | | | | | |
| 16-bit OCU 4 (match) / 16-bit OCU 5 (match) | | | | | | |
| 32-bit ICU6 (fetching/measurement) | 51 | 33 | ICR35 | 330 _H | 000FFF30 _H | 35 |
| Multi-function serial interface ch.10 (reception completed) | | | | | | |
| Multi-function serial interface ch.10 (status) | | | | | | |
| Multi-function serial interface ch.10 (transmission completed) | 52 | 34 | ICR36 | 32C _H | 000FFF2C _H | 36*1 |
| 32-bit ICU8 (fetching/measurement) | 53 | 35 | ICR37 | 328 _H | 000FFF28 _H | 37 |
| Multi-function serial interface ch.11 (reception completed) | | | | | | |
| Multi-function serial interface ch.11 (status) | | | | | | |
| 32-bit ICU9 (fetching/measurement) | 54 | 36 | ICR38 | 324 _H | 000FFF24 _H | 38*1 |
| WG dead timer underflow 0 / 1/ 2 | | | | | | |
| WG dead timer reload 0 / 1/ 2 | | | | | | |
| WG DTTI 0 | 55 | 37 | ICR39 | 320 _H | 000FFF20 _H | 39 |
| 32-bit ICU4 (fetching/measurement) | | | | | | |
| Multi-function serial interface ch.11 (transmission completed) | | | | | | |
| 32-bit ICU5 (fetching/measurement) | 56 | 38 | ICR40 | 31C _H | 000FFF1C _H | 40 |
| A/D converter 32/34/35/37/38/40/41/42/43/44/45/46/47 | | | | | | |
| 32-bit OCU7/11 (match) | | | | | | |
| 32-bit OCU8/9 (match) | 57 | 39 | ICR41 | 318 _H | 000FFF18 _H | 41 |
| - | 58 | 3A | ICR42 | 314 _H | 000FFF14 _H | 42 |
| - | 59 | 3B | ICR43 | 310 _H | 000FFF10 _H | 43 |
| - | 60 | 3C | ICR44 | 30C _H | 000FFF0C _H | - ⁶ |
| - | 61 | 3D | ICR45 | 308 _H | 000FFF08 _H | - |
| DMAC0/1/2/3/4/5/6/7/8/9/10/11/12/13/14/15 | 62 | 3E | ICR46 | 304 _H | 000FFF04 _H | - |
| Delay interrupt | 63 | 3F | ICR47 | 300 _H | 000FFF00 _H | - |
| System reserved (Used for REALOS™*8) | 64 | 40 | - | 2FC _H | 000FFEFC _H | - |
| System reserved (Used for REALOS) | 65 | 41 | - | 2F8 _H | 000FFEFC _H | - |

| Interrupt Factor | Interrupt Number | | Interrupt Level | Offset | Default Address for TBR | RN |
|-------------------------------|------------------|---------------|-----------------|-------------------|-----------------------------|----|
| | Decimal | Hexa Decimal | | | | |
| Used with the INT instruction | 66 255 | 42 FF | - | 2F4H 000H | 000FFEF4H 000FFC00H | - |

Note: It does not support a DMA transfer request caused by an interrupt generated from a peripheral to which no RN (Resource Number) is assigned.

- *1: It does not support a DMA transfer by the status of the multi-function serial interface and I²C reception.
- *2: Reload timer ch.4 to ch.7 do not support a DMA transfer by the interrupt.
- *3: PPG ch.24 to ch.47 do not support a DMA transfer by the interrupt.
- *4: The clock calibration unit does not support a DMA transfer by the interrupt.
- *5: 32-bit Free-run timer ch.3, ch.4 and ch.5 do not support a DMA transfer by the interrupt.
- *6: There is no resource corresponding to the interrupt level.
- *7: It does not support a DMA transfer by the external low-voltage detection interrupt.
- *8: REALOS is a trademark of Cypress.

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| Interrupt Factor | Interrupt Number | | Interrupt Level | Offset | Default Address for TBR | RN |
|---|------------------|--------------|------------------|--------|-------------------------|------|
| | Decimal | Hexa Decimal | | | | |
| Reset | 0 | 0 | - | 3FCH | 000FFFFCH | - |
| System reserved | 1 | 1 | - | 3F8H | 000FFFF8H | - |
| System reserved | 2 | 2 | - | 3F4H | 000FFFF4H | - |
| System reserved | 3 | 3 | - | 3F0H | 000FFFF0H | - |
| System reserved | 4 | 4 | - | 3ECH | 000FFFECH | - |
| FPU exception | 5 | 5 | - | 3E8H | 000FFFE8H | - |
| Exception of instruction access protection violation | 6 | 6 | - | 3E4H | 000FFFE4H | - |
| Exception of data access protection violation | 7 | 7 | - | 3E0H | 000FFFE0H | - |
| Data access error interrupt | 8 | 8 | - | 3DCH | 000FFFDCH | - |
| INTE instruction | 9 | 9 | - | 3D8H | 000FFFD8H | - |
| Instruction break | 10 | 0A | - | 3D4H | 000FFFD4H | - |
| System reserved | 11 | 0B | - | 3D0H | 000FFFD0H | - |
| System reserved | 12 | 0C | - | 3CCH | 000FFFCCH | - |
| System reserved | 13 | 0D | - | 3C8H | 000FFFC8H | - |
| Exception of invalid instruction | 14 | 0E | - | 3C4H | 000FFFC4H | - |
| NMI request | 15 | 0F | 15 (FH) Fixed | 3C0H | 000FFFC0H | - |
| Error generation during internal bus diagnosis | | | | | | |
| XBS RAM double-bit error generation | | | | | | |
| Backup RAM double-bit error generation | | | | | | |
| TPU violation | | | | | | |
| External interrupt 0-7 | 16 | 10 | ICR00 | 3BCH | 000FFFBCH | 0 |
| External interrupt 8-15 | 17 | 11 | ICR01 | 3B8H | 000FFFB8H | 1*7 |
| External low-voltage detection interrupt | | | | | | |
| Reload timer 0/1/4/5 | 18 | 12 | ICR02 | 3B4H | 000FFFB4H | 2*2 |
| Reload timer 3/6/7 | 19 | 13 | ICR03 | 3B0H | 000FFFB0H | 3*2 |
| Multi-function serial interface ch.0 (reception completed) | 20 | 14 | ICR04 | 3ACH | 000FFFAC _H | 4*1 |
| Multi-function serial interface ch.0 (status) | | | | | | |
| Multi-function serial interface ch.0 (transmission completed) | 21 | 15 | ICR05 | 3A8H | 000FFFA8H | 5*1 |
| - | 22 | 16 | ICR06 | 3A4H | 000FFFA4H | -*6 |
| - | 23 | 17 | ICR07 | 3A0H | 000FFFA0H | -*6 |
| Multi-function serial interface ch.2 (reception completed) | 24 | 18 | ICR08 | 39CH | 000FFF9C _H | 8*1 |
| Multi-function serial interface ch.2 (status) | | | | | | |
| Multi-function serial interface ch.2 (transmission completed) | 25 | 19 | ICR09 | 398H | 000FFF98H | 9*1 |
| Multi-function serial interface ch.3 (reception completed) | 26 | 1A | ICR10 | 394H | 000FFF94 _H | 10*1 |
| Multi-function serial interface ch.3 (status) | | | | | | |
| Multi-function serial interface ch.3 (transmission completed) | 27 | 1B | ICR11 | 390H | 000FFF90 _H | 11 |

| Interrupt Factor | Interrupt Number | | Interrupt Level | Offset | Default Address for TBR | RN |
|---|------------------|--------------|-----------------|------------------------------|-----------------------------------|------------------|
| | Decimal | Hexa Decimal | | | | |
| Multi-function serial interface ch.4 (reception completed) | 28 | 1C | ICR12 | 38 _H | 000FFF8 _C | 12* ¹ |
| Multi-function serial interface ch.4 (status) | | | | | | |
| Multi-function serial interface ch.4 (transmission completed) | 29 | 1D | ICR13 | 38 _H | 000FFF8 _H | 13 |
| Multi-function serial interface ch.5 (reception completed) | 30 | 1E | ICR14 | 38 ₄ _H | 000FFF8 ₄ _H | 14* ¹ |
| Multi-function serial interface ch.5 (status) | | | | | | |
| Multi-function serial interface ch.5 (transmission completed) | 31 | 1F | ICR15 | 38 ₀ _H | 000FFF8 ₀ _H | 15 |
| Multi-function serial interface ch.6 (reception completed) | 32 | 20 | ICR16 | 37 _C _H | 000FFF7 _C _H | 16* ¹ |
| Multi-function serial interface ch.6 (status) | | | | | | |
| Multi-function serial interface ch.6 (transmission completed) | 33 | 21 | ICR17 | 37 ₈ _H | 000FFF7 ₈ _H | 17 |
| CAN0 | 34 | 22 | ICR18 | 37 ₄ _H | 000FFF7 ₄ _H | - |
| CAN1 | 35 | 23 | ICR19 | 37 ₀ _H | 000FFF7 ₀ _H | - |
| RAM diagnosis end | | | | | | |
| RAM initialization completion | | | | | | |
| Error generation during RAM diagnosis | | | | | | |
| Backup RAM diagnosis end | | | | | | |
| Backup RAM initialization completion | | | | | | |
| Error generation during Backup RAM diagnosis | | | | | | |
| CAN2 | 36 | 24 | ICR20 | 36 _C _H | 000FFF6 _C _H | - |
| Up/down counter 0 | | | | | | |
| Up/down counter 1 | | | | | | |
| Real time clock | 37 | 25 | ICR21 | 36 ₈ _H | 000FFF6 ₈ _H | - |
| - | 38 | 26 | ICR22 | 36 ₄ _H | 000FFF6 ₄ _H | -* ⁶ |
| 16-bit Free-run timer 0 (0 detection) / (compare clear) | 39 | 27 | ICR23 | 36 ₀ _H | 000FFF6 ₀ _H | 23 |
| PPG 1/10/11/20/30/31 | 40 | 28 | ICR24 | 35 _C _H | 000FFF5 _C _H | 24* ³ |
| 16-bit Free-run timer 1 (0 detection) / (compare clear) | | | | | | |
| PPG 2/3/12/13/23/43 | 41 | 29 | ICR25 | 35 ₈ _H | 000FFF5 ₈ _H | 25* ³ |
| 16-bit Free-run timer 2 (0 detection) / (compare clear) | | | | | | |
| PPG 4/5/15/24/35 | 42 | 2A | ICR26 | 35 ₄ _H | 000FFF5 ₄ _H | 26* ³ |
| PPG 7/16/17/26/27/37 | 43 | 2B | ICR27 | 35 ₀ _H | 000FFF5 ₀ _H | 27* ³ |
| PPG 8/18/19/29 | 44 | 2C | ICR28 | 34 _C _H | 000FFF4 _C _H | 28* ³ |
| 16-bit ICU 0 (fetching) / 16-bit ICU 1 (fetching) | 45 | 2D | ICR29 | 34 ₈ _H | 000FFF4 ₈ _H | 29 |
| Main timer | 46 | 2E | ICR30 | 34 ₄ _H | 000FFF4 ₄ _H | 30 |
| Sub timer | | | | | | |
| PLL timer | | | | | | |
| 16-bit ICU 2 (fetching) / 16-bit ICU 3 (fetching) | | | | | | |

| Interrupt Factor | Interrupt Number | | Interrupt Level | Offset | Default Address for TBR | RN |
|--|------------------|--------------|-----------------|------------------|-------------------------|---------|
| | Decimal | Hexa Decimal | | | | |
| Clock calibration unit (sub oscillation) | 47 | 2F | ICR31 | 340 _H | 000FFF40 _H | 31*1,*4 |
| Multi-function serial interface ch.9 (reception completed) | | | | | | |
| Multi-function serial interface ch.9 (status) | | | | | | |
| A/D converter 0/1/7/10/11/12/14/15/16/17/19/22/26/27/28/31 | 48 | 30 | ICR32 | 33C _H | 000FFF3C _H | 32 |
| Clock calibration unit (CR oscillation) | 49 | 31 | ICR33 | 338 _H | 000FFF38 _H | 33 |
| Multi-function serial interface ch.9 (transmission completed) | | | | | | |
| 16-bit OCU 0 (match) / 16-bit OCU 1 (match) | | | | | | |
| 32-bit Free-run timer 4 | 50 | 32 | ICR34 | 334 _H | 000FFF34 _H | 34*5 |
| 16-bit OCU 2 (match) / 16-bit OCU 3 (match) | | | | | | |
| 32-bit Free-run timer 5 | 51 | 33 | ICR35 | 330 _H | 000FFF30 _H | 35*5 |
| 16-bit OCU 4 (match) / 16-bit OCU 5 (match) | | | | | | |
| 32-bit ICU6 (fetching/measurement) | 52 | 34 | ICR36 | 32C _H | 000FFF2C _H | 36*1 |
| Multi-function serial interface ch.10 (reception completed) | | | | | | |
| Multi-function serial interface ch.10 (status) | | | | | | |
| Multi-function serial interface ch.10 (transmission completed) | 53 | 35 | ICR37 | 328 _H | 000FFF28 _H | 37 |
| 32-bit ICU8 (fetching/measurement) | | | | | | |
| Multi-function serial interface ch.11 (reception completed) | 54 | 36 | ICR38 | 324 _H | 000FFF24 _H | 38*1 |
| Multi-function serial interface ch.11 (status) | | | | | | |
| 32-bit ICU9 (fetching/measurement) | | | | | | |
| WG dead timer underflow 0 / 1/ 2 | 55 | 37 | ICR39 | 320 _H | 000FFF20 _H | 39 |
| WG dead timer reload 0 / 1/ 2 | | | | | | |
| WG DTTI 0 | | | | | | |
| 32-bit ICU4 (fetching/measurement) | 56 | 38 | ICR40 | 31C _H | 000FFF1C _H | 40 |
| Multi-function serial interface ch.11 (transmission completed) | | | | | | |
| 32-bit ICU5 (fetching/measurement) | 57 | 39 | ICR41 | 318 _H | 000FFF18 _H | 41 |
| A/D converter 32/33/34/35/36/37/38/39/40/41/42/43/44/45/46/47 | | | | | | |
| 32-bit OCU7/11 (match) | | | | | | |
| 32-bit OCU8/9 (match) | 58 | 3A | ICR42 | 314 _H | 000FFF14 _H | 42 |
| - | 59 | 3B | ICR43 | 310 _H | 000FFF10 _H | 43 |
| - | 60 | 3C | ICR44 | 30C _H | 000FFF0C _H | -*6 |
| Base timer 1 IRQ0 | 61 | 3D | ICR45 | 308 _H | 000FFF08 _H | 45 |
| Base timer 1 IRQ1 | | | | | | |
| - | | | | | | |
| DMAC 0/1/2/3/4/5/6/7/8/9/10/11/12/13/14/15 | 62 | 3E | ICR46 | 304 _H | 000FFF04 _H | - |
| Delay interrupt | 63 | 3F | ICR47 | 300 _H | 000FFF00 _H | - |

| Interrupt Factor | Interrupt Number | | Interrupt Level | Offset | Default Address for TBR | RN |
|--------------------------------------|------------------|--------------|-----------------|----------------------|---------------------------|----|
| | Decimal | Hexa Decimal | | | | |
| System reserved (Used for REALOS) | 64 | 40 | - | 2FC _H | 000FFEFC _H | - |
| System reserved (Used for REALOS) | 65 | 41 | - | 2F8 _H | 000FFE8 _H | - |
| Used with the INT instruction | 66 | 42 | - | 2F4 _H | 000FEF4 _H | - |
| | 255 | FF | | 000 _H | 000FFC00 _H | |

Note: It does not support a DMA transfer request caused by an interrupt generated from a peripheral to which no RN (Resource Number) is assigned.

- *1: It does not support a DMA transfer by the status of the multi-function serial interface and I²C reception.
- *2: Reload timer ch.4 to ch.7 do not support a DMA transfer by the interrupt.
- *3: PPG ch.24 to ch.47 do not support a DMA transfer by the interrupt.
- *4: The clock calibration unit does not support a DMA transfer by the interrupt.
- *5: 32-bit Free-run timer ch.3, ch.4 and ch.5 do not support a DMA transfer by the interrupt.
- *6: There is no resource corresponding to the interrupt level.
- *7: It does not support a DMA transfer by the external low-voltage detection interrupt.

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| Interrupt Factor | Interrupt number | | Interrupt Level | Offset | Default Address for TBR | RN |
|---|------------------|--------------|-------------------------------|------------------|-------------------------|------|
| | Decimal | Hexa Decimal | | | | |
| Reset | 0 | 0 | - | 3FC _H | 000FFFFC _H | - |
| System reserved | 1 | 1 | - | 3F8 _H | 000FFFF8 _H | - |
| System reserved | 2 | 2 | - | 3F4 _H | 000FFFF4 _H | - |
| System reserved | 3 | 3 | - | 3F0 _H | 000FFFF0 _H | - |
| System reserved | 4 | 4 | - | 3EC _H | 000FFFE4 _H | - |
| FPU exception | 5 | 5 | - | 3E8 _H | 000FFFE8 _H | - |
| Exception of instruction access protection violation | 6 | 6 | - | 3E4 _H | 000FFFE4 _H | - |
| Exception of data access protection violation | 7 | 7 | - | 3E0 _H | 000FFFE0 _H | - |
| Data access error interrupt | 8 | 8 | - | 3DC _H | 000FFFD4 _H | - |
| INTE instruction | 9 | 9 | - | 3D8 _H | 000FFFD8 _H | - |
| Instruction break | 10 | 0A | - | 3D4 _H | 000FFFD4 _H | - |
| System reserved | 11 | 0B | - | 3D0 _H | 000FFFD0 _H | - |
| System reserved | 12 | 0C | - | 3CC _H | 000FFFC4 _H | - |
| System reserved | 13 | 0D | - | 3C8 _H | 000FFFC8 _H | - |
| Exception of invalid instruction | 14 | 0E | - | 3C4 _H | 000FFFC4 _H | - |
| NMI request | 15 | 0F | 15 (F _H) Fixed | 3C0 _H | 000FFFC0 _H | - |
| Error generation during internal bus diagnosis | | | | | | |
| XBS RAM double-bit error generation | | | | | | |
| Backup RAM double-bit error generation | | | | | | |
| TPU violation | | | | | | |
| External interrupt 0-7 | 16 | 10 | ICR00 | 3BC _H | 000FFFB4 _H | 0 |
| External interrupt 8-15 | 17 | 11 | ICR01 | 3B8 _H | 000FFFB8 _H | 1*7 |
| External low-voltage detection interrupt | | | | | | |
| Reload timer 0/1/4/5 | 18 | 12 | ICR02 | 3B4 _H | 000FFFB4 _H | 2*2 |
| Reload timer 2/3/6/7 | 19 | 13 | ICR03 | 3B0 _H | 000FFFB0 _H | 3*2 |
| Multi-function serial interface ch.0 (reception completed) | 20 | 14 | ICR04 | 3AC _H | 000FFFA4 _H | 4*1 |
| Multi-function serial interface ch.0 (status) | | | | | | |
| Multi-function serial interface ch.0 (transmission completed) | 21 | 15 | ICR05 | 3A8 _H | 000FFFA8 _H | 5*1 |
| Multi-function serial interface ch.1 (reception completed) | 22 | 16 | ICR06 | 3A4 _H | 000FFFA4 _H | 6*1 |
| Multi-function serial interface ch.1 (status) | | | | | | |
| Multi-function serial interface ch.1 (transmission completed) | 23 | 17 | ICR07 | 3A0 _H | 000FFFA0 _H | 7*1 |
| Multi-function serial interface ch.2 (reception completed) | 24 | 18 | ICR08 | 39C _H | 000FFF9C _H | 8*1 |
| Multi-function serial interface ch.2 (status) | | | | | | |
| Multi-function serial interface ch.2 (transmission completed) | 25 | 19 | ICR09 | 398 _H | 000FFF98 _H | 9*1 |
| Multi-function serial interface ch.3 (reception completed) | 26 | 1A | ICR10 | 394 _H | 000FFF94 _H | 10*1 |
| Multi-function serial interface ch.3 (status) | | | | | | |

| Interrupt Factor | Interrupt number | | Interrupt Level | Offset | Default Address for TBR | RN |
|---|------------------|--------------|-----------------|------------------|-------------------------|------------------|
| | Decimal | Hexa Decimal | | | | |
| Multi-function serial interface ch.3 (transmission completed) | 27 | 1B | ICR11 | 390 _H | 000FFF90 _H | 11 |
| Multi-function serial interface ch.4 (reception completed) | 28 | 1C | ICR12 | 38C _H | 000FFF8C _H | 12* ¹ |
| Multi-function serial interface ch.4 (status) | | | | | | |
| Multi-function serial interface ch.4 (transmission completed) | 29 | 1D | ICR13 | 388 _H | 000FFF88 _H | 13 |
| Multi-function serial interface ch.5 (reception completed) | 30 | 1E | ICR14 | 384 _H | 000FFF84 _H | 14* ¹ |
| Multi-function serial interface ch.5 (status) | | | | | | |
| Multi-function serial interface ch.5 (transmission completed) | 31 | 1F | ICR15 | 380 _H | 000FFF80 _H | 15 |
| Multi-function serial interface ch.6 (reception completed) | 32 | 20 | ICR16 | 37C _H | 000FFF7C _H | 16* ¹ |
| Multi-function serial interface ch.6 (status) | | | | | | |
| Multi-function serial interface ch.6 (transmission completed) | 33 | 21 | ICR17 | 378 _H | 000FFF78 _H | 17 |
| CAN0 | 34 | 22 | ICR18 | 374 _H | 000FFF74 _H | - |
| CAN1 | 35 | 23 | ICR19 | 370 _H | 000FFF70 _H | - |
| RAM diagnosis end | | | | | | |
| RAM initialization completion | | | | | | |
| Error generation during RAM diagnosis | | | | | | |
| Backup RAM diagnosis end | | | | | | |
| Backup RAM initialization completion | | | | | | |
| Error generation during Backup RAM diagnosis | | | | | | |
| CAN2 | 36 | 24 | ICR20 | 36C _H | 000FFF6C _H | - |
| Up/down counter 0 | | | | | | |
| Up/down counter 1 | | | | | | |
| Real time clock | 37 | 25 | ICR21 | 368 _H | 000FFF68 _H | - |
| Multi-function serial interface ch.7 (reception completed) | 38 | 26 | ICR22 | 364 _H | 000FFF64 _H | 22* ¹ |
| Multi-function serial interface ch.7 (status) | | | | | | |
| 16-bit Free-running timer 0 (0 detection) / (compare clear) | 39 | 27 | ICR23 | 360 _H | 000FFF60 _H | 23 |
| Multi-function serial interface ch.7 (transmission completed) | | | | | | |
| PPG 1/10/11/20/21/30/31 | 40 | 28 | ICR24 | 35C _H | 000FFF5C _H | 24* ³ |
| 16-bit Free-run timer 1 (0 detection) / (compare clear) | | | | | | |
| PPG 2/3/12/13/23/32/43 | 41 | 29 | ICR25 | 358 _H | 000FFF58 _H | 25* ³ |
| 16-bit Free-run timer 2 (0 detection) / (compare clear) | | | | | | |
| PPG 4/5/14/15/24/25/35/44 | 42 | 2A | ICR26 | 354 _H | 000FFF54 _H | 26* ³ |
| PPG 6/7/16/17/26/27/37 | 43 | 2B | ICR27 | 350 _H | 000FFF50 _H | 27* ³ |
| PPG 8/9/18/19/28/29 | 44 | 2C | ICR28 | 34C _H | 000FFF4C _H | 28* ³ |

| Interrupt Factor | Interrupt number | | Interrupt Level | Offset | Default Address for TBR | RN |
|--|------------------|--------------|-----------------|------------------|-------------------------|-------------|
| | Decimal | Hexa Decimal | | | | |
| Multi-function serial interface ch.8 (reception completed) | 45 | 2D | ICR29 | 348 _H | 000FFF48 _H | 29*1 |
| Multi-function serial interface ch.8 (status) | | | | | | |
| 16-bit ICU 0 (fetching) / 16-bit ICU 1 (fetching) | | | | | | |
| Main timer | 46 | 2E | ICR30 | 344 _H | 000FFF44 _H | 30 |
| Sub timer | | | | | | |
| PLL timer | | | | | | |
| Multi-function serial interface ch.8 (transmission completed) | | | | | | |
| 16-bit ICU 2 (fetching) / 16-bit ICU 3 (fetching) | 47 | 2F | ICR31 | 340 _H | 000FFF40 _H | 31*1, *4 |
| Clock calibration unit (sub oscillation) | | | | | | |
| Multi-function serial interface ch.9 (reception completed) | | | | | | |
| Multi-function serial interface ch.9 (status) | 48 | 30 | ICR32 | 33C _H | 000FFF3C _H | 32 |
| A/D converter 0/1/7/9/10/11/12/13/14/15/16 17/18/19/22/23/26/27/28/29/31 | | | | | | |
| Clock calibration unit (CR oscillation) | | | | | | |
| Multi-function serial interface ch.9 (transmission completed) | 49 | 31 | ICR33 | 338 _H | 000FFF38 _H | 33 |
| 16-bit OCU 0 (match) / 16-bit OCU 1 (match) | | | | | | |
| 32-bit Free-run timer 4 | 50 | 32 | ICR34 | 334 _H | 000FFF34 _H | 34*5 |
| 16-bit OCU 2 (match) / 16-bit OCU 3 (match) | | | | | | |
| 32-bit Free-run timer 3/5 | 51 | 33 | ICR35 | 330 _H | 000FFF30 _H | 35*5 |
| 16-bit OCU 4 (match) / 16-bit OCU 5 (match) | | | | | | |
| 32-bit ICU6 (fetching/measurement) | 52 | 34 | ICR36 | 32C _H | 000FFF2C _H | 36*1 |
| Multi-function serial interface ch.10 (reception completed) | | | | | | |
| Multi-function serial interface ch.10 (status) | | | | | | |
| 32-bit ICU7 (fetching/measurement) | 53 | 35 | ICR37 | 328 _H | 000FFF28 _H | 37 |
| Multi-function serial interface ch.10 (transmission completed) | | | | | | |
| 32-bit ICU8 (fetching/measurement) | 54 | 36 | ICR38 | 324 _H | 000FFF24 _H | 38*1 |
| Multi-function serial interface ch.11 (reception completed) | | | | | | |
| Multi-function serial interface ch.11 (status) | | | | | | |
| 32-bit ICU9 (fetching/measurement) | 55 | 37 | ICR39 | 320 _H | 000FFF20 _H | 39 |
| WG dead timer underflow 0/1/2 | | | | | | |
| WG dead timer reload 0/1/2 | | | | | | |
| WG DTTI 0 | 56 | 38 | ICR40 | 31C _H | 000FFF1C _H | 40 |
| 32-bit ICU4 (fetching/measurement) | | | | | | |
| Multi-function serial interface ch.11 (transmission completed) | | | | | | |

| Interrupt Factor | Interrupt number | | Interrupt Level | Offset | Default Address for TBR | RN |
|--|------------------|--------------|-----------------|----------------------|---------------------------|----|
| | Decimal | Hexa Decimal | | | | |
| 32-bit ICU5 (fetching/measurement) | 57 | 39 | ICR41 | 318 _H | 000FFF18 _H | 41 |
| A/D converter 32/33/34/35/36/37/38/39/40/41/42/43/44/45/46/47 | | | | | | |
| 32-bit OCU 6/7/10/11 (match) | 58 | 3A | ICR42 | 314 _H | 000FFF14 _H | 42 |
| 32-bit OCU 8/9 (match) | 59 | 3B | ICR43 | 310 _H | 000FFF10 _H | 43 |
| - | 60 | 3C | ICR44 | 30C _H | 000FFF0C _H | 44 |
| - | | | | | | |
| Base timer 1 IRQ0 | 61 | 3D | ICR45 | 308 _H | 000FFF08 _H | 45 |
| Base timer 1 IRQ1 | | | | | | |
| - | | | | | | |
| - | | | | | | |
| DMAC 0/1/2/3/4/5/6/7/8/9/10/11/12/13/14/15 | 62 | 3E | ICR46 | 304 _H | 000FFF04 _H | - |
| Delay interrupt | 63 | 3F | ICR47 | 300 _H | 000FFF00 _H | - |
| System reserved (Used for REALOS) | 64 | 40 | - | 2FC _H | 000FFEFC _H | - |
| System reserved (Used for REALOS) | 65 | 41 | - | 2F8 _H | 000FFE8 _H | - |
| Used with the INT instruction | 66 | 42 | - | 2F4 _H | 000FFE4 _H | - |
| | 255 | FF | | 000 _H | 000FFC00 _H | |

Note: It does not support a DMA transfer request caused by an interrupt generated from a peripheral to which no RN (Resource Number) is assigned.

- *1: It does not support a DMA transfer by the status of the multi-function serial interface and I²C reception.
- *2: Reload timer ch.4 to ch.7 do not support a DMA transfer by the interrupt.
- *3: PPG ch.24 to ch.47 do not support a DMA transfer by the interrupt.
- *4: The clock calibration unit does not support a DMA transfer by the interrupt.
- *5: 32-bit Free-run timer ch.3, ch.4 and ch.5 do not support a DMA transfer by the interrupt.
- *6: There is no resource corresponding to the interrupt level.
- *7: It does not support a DMA transfer by the external low-voltage detection interrupt.

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| Interrupt Factor | Interrupt Number | | Interrupt Level | Offset | Default Address for TBR | RN |
|---|------------------|--------------|-------------------------------|------------------|-------------------------|------|
| | Decimal | Hexa Decimal | | | | |
| Reset | 0 | 0 | - | 3FC _H | 000FFFFC _H | - |
| System reserved | 1 | 1 | - | 3F8 _H | 000FFFF8 _H | - |
| System reserved | 2 | 2 | - | 3F4 _H | 000FFFF4 _H | - |
| System reserved | 3 | 3 | - | 3F0 _H | 000FFFF0 _H | - |
| System reserved | 4 | 4 | - | 3EC _H | 000FFFE _C | - |
| FPU exception | 5 | 5 | - | 3E8 _H | 000FFFE8 _H | - |
| Exception of instruction access protection violation | 6 | 6 | - | 3E4 _H | 000FFFE4 _H | - |
| Exception of data access protection violation | 7 | 7 | - | 3E0 _H | 000FFFE0 _H | - |
| Data access error interrupt | 8 | 8 | - | 3DC _H | 000FFFD _C | - |
| INTE instruction | 9 | 9 | - | 3D8 _H | 000FFFD8 _H | - |
| Instruction break | 10 | 0A | - | 3D4 _H | 000FFFD4 _H | - |
| System reserved | 11 | 0B | - | 3D0 _H | 000FFFD0 _H | - |
| System reserved | 12 | 0C | - | 3CC _H | 000FFFC _C | - |
| System reserved | 13 | 0D | - | 3C8 _H | 000FFFC8 _H | - |
| Exception of invalid instruction | 14 | 0E | - | 3C4 _H | 000FFFC4 _H | - |
| NMI request | 15 | 0F | 15 (F _H) Fixed | 3C0 _H | 000FFFC0 _H | - |
| Error generation during internal bus diagnosis | | | | | | |
| XBS RAM double-bit error generation | | | | | | |
| Backup RAM double-bit error generation | | | | | | |
| TPU violation | | | | | | |
| External interrupt 0-7 | 16 | 10 | ICR00 | 3BC _H | 000FFFB _C | 0 |
| External interrupt 8-15 | 17 | 11 | ICR01 | 3B8 _H | 000FFFB8 _H | 1*7 |
| External low-voltage detection interrupt | | | | | | |
| Reload timer 0/1/4/5 | 18 | 12 | ICR02 | 3B4 _H | 000FFFB4 _H | 2*2 |
| Reload timer 2/3/6/7 | 19 | 13 | ICR03 | 3B0 _H | 000FFFB0 _H | 3*2 |
| Multi-function serial interface ch.0 (reception completed) | 20 | 14 | ICR04 | 3AC _H | 000FFFA _C | 4*1 |
| Multi-function serial interface ch.0 (status) | | | | | | |
| Multi-function serial interface ch.0 (transmission completed) | 21 | 15 | ICR05 | 3A8 _H | 000FFFA8 _H | 5*1 |
| Multi-function serial interface ch.1 (reception completed) | 22 | 16 | ICR06 | 3A4 _H | 000FFFA4 _H | 6*1 |
| Multi-function serial interface ch.1 (status) | | | | | | |
| Multi-function serial interface ch.1 (transmission completed) | 23 | 17 | ICR07 | 3A0 _H | 000FFFA0 _H | 7*1 |
| Multi-function serial interface ch.2 (reception completed) | 24 | 18 | ICR08 | 39C _H | 000FFF9 _C | 8*1 |
| Multi-function serial interface ch.2 (status) | | | | | | |
| Multi-function serial interface ch.2 (transmission completed) | 25 | 19 | ICR09 | 398 _H | 000FFF98 _H | 9*1 |
| Multi-function serial interface ch.3 (reception completed) | 26 | 1A | ICR10 | 394 _H | 000FFF94 _H | 10*1 |
| Multi-function serial interface ch.3 (status) | | | | | | |

| Interrupt Factor | Interrupt Number | | Interrupt Level | Offset | Default Address for TBR | RN |
|---|------------------|--------------|-----------------|------------------|-------------------------|------------------|
| | Decimal | Hexa Decimal | | | | |
| Multi-function serial interface ch.3 (transmission completed) | 27 | 1B | ICR11 | 390 _H | 000FFF90 _H | 11 |
| Multi-function serial interface ch.4 (reception completed) | 28 | 1C | ICR12 | 38C _H | 000FFF8C _H | 12* ¹ |
| Multi-function serial interface ch.4 (status) | | | | | | |
| Multi-function serial interface ch.4 (transmission completed) | 29 | 1D | ICR13 | 388 _H | 000FFF88 _H | 13 |
| Multi-function serial interface ch.5 (reception completed) | 30 | 1E | ICR14 | 384 _H | 000FFF84 _H | 14* ¹ |
| Multi-function serial interface ch.5 (status) | | | | | | |
| Multi-function serial interface ch.5 (transmission completed) | 31 | 1F | ICR15 | 380 _H | 000FFF80 _H | 15 |
| Multi-function serial interface ch.6 (reception completed) | 32 | 20 | ICR16 | 37C _H | 000FFF7C _H | 16* ¹ |
| Multi-function serial interface ch.6 (status) | | | | | | |
| Multi-function serial interface ch.6 (transmission completed) | 33 | 21 | ICR17 | 378 _H | 000FFF78 _H | 17 |
| CAN0 | 34 | 22 | ICR18 | 374 _H | 000FFF74 _H | - |
| CAN1 | 35 | 23 | ICR19 | 370 _H | 000FFF70 _H | - |
| RAM diagnosis end | | | | | | |
| RAM initialization completion | | | | | | |
| Error generation during RAM diagnosis | | | | | | |
| Backup RAM diagnosis end | | | | | | |
| Backup RAM initialization completion | | | | | | |
| Error generation during Backup RAM diagnosis | | | | | | |
| CAN2 | 36 | 24 | ICR20 | 36C _H | 000FFF6C _H | - |
| Up/down counter 0 | | | | | | |
| Up/down counter 1 | | | | | | |
| Real time clock | 37 | 25 | ICR21 | 368 _H | 000FFF68 _H | - |
| Multi-function serial interface ch.7 (reception completed) | 38 | 26 | ICR22 | 364 _H | 000FFF64 _H | 22* ¹ |
| Multi-function serial interface ch.7 (status) | | | | | | |
| 16-bit Free-run timer 0 (0 detection) / (compare clear) | 39 | 27 | ICR23 | 360 _H | 000FFF60 _H | 23 |
| Multi-function serial interface ch.7 (transmission completed) | | | | | | |
| PPG 0/1/10/11/20/21/30/31 | 40 | 28 | ICR24 | 35C _H | 000FFF5C _H | 24* ³ |
| 16-bit Free-run timer 1 (0 detection) / (compare clear) | | | | | | |
| PPG 2/3/12/13/22/23/32/33/43 | 41 | 29 | ICR25 | 358 _H | 000FFF58 _H | 25* ³ |
| 16-bit Free-run timer 2 (0 detection) / (compare clear) | | | | | | |
| PPG 4/5/14/15/24/25/35/44 | 42 | 2A | ICR26 | 354 _H | 000FFF54 _H | 26* ³ |
| PPG 6/7/16/17/26/27/37 | 43 | 2B | ICR27 | 350 _H | 000FFF50 _H | 27* ³ |
| PPG 8/9/18/19/28/29 | 44 | 2C | ICR28 | 34C _H | 000FFF4C _H | 28* ³ |

| Interrupt Factor | Interrupt Number | | Interrupt Level | Offset | Default Address for TBR | RN |
|---|------------------|--------------|-----------------|------------------|-------------------------|-----------------------------------|
| | Decimal | Hexa Decimal | | | | |
| Multi-function serial interface ch.8 (reception completed) | 45 | 2D | ICR29 | 348 _H | 000FFF48 _H | 29* ¹ |
| Multi-function serial interface ch.8 (status) | | | | | | |
| 16-bit ICU 0 (fetching) / 16-bit ICU 1 (fetching) | | | | | | |
| Main timer | 46 | 2E | ICR30 | 344 _H | 000FFF44 _H | 30 |
| Sub timer | | | | | | |
| PLL timer | | | | | | |
| Multi-function serial interface ch.8 (transmission completed) | | | | | | |
| 16-bit ICU 2 (fetching) /16-bit ICU 3 (fetching) | 47 | 2F | ICR31 | 340 _H | 000FFF40 _H | 31* ¹ , * ⁴ |
| Clock calibration unit (sub oscillation) | | | | | | |
| Multi-function serial interface ch.9 (reception completed) | | | | | | |
| Multi-function serial interface ch.9 (status) | 48 | 30 | ICR32 | 33C _H | 000FFF3C _H | 32 |
| A/D converter 0/1/7/9/10/11/12/13/14/15/16/17/18/19/20/21/22/23/24/25/26/27/28/29/30/31 | | | | | | |
| Clock calibration unit (CR oscillation) | | | | | | |
| Multi-function serial interface ch.9 (transmission completed) | 49 | 31 | ICR33 | 338 _H | 000FFF38 _H | 33 |
| 16-bit OCU 0 (match) / 16-bit OCU 1 (match) | | | | | | |
| 32-bit Free-run timer 4 | 50 | 32 | ICR34 | 334 _H | 000FFF34 _H | 34* ⁵ |
| 16-bit OCU 2 (match) / 16-bit OCU 3 (match) | | | | | | |
| 32-bit Free-run timer 3/5 | 51 | 33 | ICR35 | 330 _H | 000FFF30 _H | 35* ⁵ |
| 16-bit OCU 4 (match) / 16-bit OCU 5 (match) | | | | | | |
| 32-bit ICU6 (fetching/measurement) | 52 | 34 | ICR36 | 32C _H | 000FFF2C _H | 36* ¹ |
| Multi-function serial interface ch.10 (reception completed) | | | | | | |
| Multi-function serial interface ch.10 (status) | | | | | | |
| 32-bit ICU7 (fetching/measurement) | 53 | 35 | ICR37 | 328 _H | 000FFF28 _H | 37 |
| Multi-function serial interface ch.10 (transmission completed) | | | | | | |
| 32-bit ICU8 (fetching/measurement) | | | | | | |
| Multi-function serial interface ch.11 (reception completed) | 54 | 36 | ICR38 | 324 _H | 000FFF24 _H | 38* ¹ |
| Multi-function serial interface ch.11 (status) | | | | | | |
| 32-bit ICU9 (fetching/measurement) | 55 | 37 | ICR39 | 320 _H | 000FFF20 _H | 39 |
| WG dead timer underflow 0/1/2 | | | | | | |
| WG dead timer reload 0/1/2 | | | | | | |
| WG DTTI 0 | 56 | 38 | ICR40 | 31C _H | 000FFF1C _H | 40 |
| 32-bit ICU4 (fetching/measurement) | | | | | | |
| Multi-function serial interface ch.11 (transmission completed) | | | | | | |

| Interrupt Factor | Interrupt Number | | Interrupt Level | Offset | Default Address for TBR | RN |
|--|------------------|--------------|-----------------|------------------|-------------------------|----|
| | Decimal | Hexa Decimal | | | | |
| 32-bit ICU5 (fetching/measurement) | 57 | 39 | ICR41 | 318 _H | 000FFF18 _H | 41 |
| A/D converter 32/33/34/35/36/37/38/39/40/41/42/43/44/45/46/47 | | | | | | |
| 32-bit OCU 6/7/10/11 (match) | 58 | 3A | ICR42 | 314 _H | 000FFF14 _H | 42 |
| 32-bit OCU 8/9 (match) | 59 | 3B | ICR43 | 310 _H | 000FFF10 _H | 43 |
| - | 60 | 3C | ICR44 | 30C _H | 000FFF0C _H | 44 |
| - | | | | | | |
| Base timer 1 IRQ0 | 61 | 3D | ICR45 | 308 _H | 000FFF08 _H | 45 |
| Base timer 1 IRQ1 | | | | | | |
| - | 62 | 3E | ICR46 | 304 _H | 000FFF04 _H | - |
| - | | | | | | |
| DMAC0/1/2/3/4/5/6/7/8/9/10/11/12/13/14/15 | 62 | 3E | ICR46 | 304 _H | 000FFF04 _H | - |
| Delay interrupt | 63 | 3F | ICR47 | 300 _H | 000FFF00 _H | - |
| System reserved (Used for REALOS) | 64 | 40 | - | 2FC _H | 000FFEFC _H | - |
| System reserved (Used for REALOS) | 65 | 41 | - | 2F8 _H | 000FEF8 _H | - |
| Used with the INT instruction | 66 | 42 | - | 2F4 _H | 000FEF4 _H | - |
| | | | - | | | - |
| | 255 | FF | | 000 _H | 000FFC00 _H | |

Note: It does not support a DMA transfer request caused by an interrupt generated from a peripheral to which no RN (Resource Number) is assigned.

- *1: It does not support a DMA transfer by the status of the multi-function serial interface and I²C reception.
- *2: Reload timer ch.4 to ch.7 do not support a DMA transfer by the interrupt.
- *3: PPG ch.24 to ch.47 do not support a DMA transfer by the interrupt.
- *4: The clock calibration unit does not support a DMA transfer by the interrupt.
- *5: 32-bit Free-run timer ch.3, ch.4 and ch.5 do not support a DMA transfer by the interrupt.
- *6: There is no resource corresponding to the interrupt level.
- *7: It does not support a DMA transfer by the external low-voltage detection interrupt.

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| Interrupt Factor | Interrupt Number | | Interrupt Level | Offset | Default Address for TBR | RN |
|---|------------------|--------------|-------------------------------|------------------|-------------------------|------------------|
| | Decimal | Hexa Decimal | | | | |
| Reset | 0 | 0 | - | 3FC _H | 000FFFFC _H | - |
| System reserved | 1 | 1 | - | 3F8 _H | 000FFF8 _H | - |
| System reserved | 2 | 2 | - | 3F4 _H | 000FFF4 _H | - |
| System reserved | 3 | 3 | - | 3F0 _H | 000FFF0 _H | - |
| System reserved | 4 | 4 | - | 3EC _H | 000FFFE _C | - |
| FPU exception | 5 | 5 | - | 3E8 _H | 000FFE8 _H | - |
| Exception of instruction access protection violation | 6 | 6 | - | 3E4 _H | 000FFE4 _H | - |
| Exception of data access protection violation | 7 | 7 | - | 3E0 _H | 000FFE0 _H | - |
| Data access error interrupt | 8 | 8 | - | 3DC _H | 000FFDC _H | - |
| INTE instruction | 9 | 9 | - | 3D8 _H | 000FFD8 _H | - |
| Instruction break | 10 | 0A | - | 3D4 _H | 000FFD4 _H | - |
| System reserved | 11 | 0B | - | 3D0 _H | 000FFD0 _H | - |
| System reserved | 12 | 0C | - | 3CC _H | 000FFCC _H | - |
| System reserved | 13 | 0D | - | 3C8 _H | 000FFC8 _H | - |
| Exception of invalid instruction | 14 | 0E | - | 3C4 _H | 000FFC4 _H | - |
| NMI request | 15 | 0F | 15 (F _H) Fixed | 3C0 _H | 000FFC0 _H | - |
| Error generation during internal bus diagnosis | | | | | | |
| XBS RAM double-bit error generation | | | | | | |
| Backup RAM double-bit error generation | | | | | | |
| TPU violation | | | | | | |
| External interrupt 0-7 | 16 | 10 | ICR00 | 3BC _H | 000FFBC _H | 0 |
| External interrupt 8-15 | 17 | 11 | ICR01 | 3B8 _H | 000FFB8 _H | 1* ⁷ |
| External low-voltage detection interrupt | | | | | | |
| Reload timer 0/1/4/5 | 18 | 12 | ICR02 | 3B4 _H | 000FFB4 _H | 2* ² |
| Reload timer 2/3/6/7 | 19 | 13 | ICR03 | 3B0 _H | 000FFB0 _H | 3* ² |
| Multi-function serial interface ch.0 (reception completed) | 20 | 14 | ICR04 | 3AC _H | 000FFAC _H | 4* ¹ |
| Multi-function serial interface ch.0 (status) | | | | | | |
| Multi-function serial interface ch.0 (transmission completed) | 21 | 15 | ICR05 | 3A8 _H | 000FFA8 _H | 5* ¹ |
| Multi-function serial interface ch.1 (reception completed) | 22 | 16 | ICR06 | 3A4 _H | 000FFA4 _H | 6* ¹ |
| Multi-function serial interface ch.1 (status) | | | | | | |
| Multi-function serial interface ch.1 (transmission completed) | 23 | 17 | ICR07 | 3A0 _H | 000FFA0 _H | 7* ¹ |
| Multi-function serial interface ch.2 (reception completed) | 24 | 18 | ICR08 | 39C _H | 000FF9C _H | 8* ¹ |
| Multi-function serial interface ch.2 (status) | | | | | | |
| Multi-function serial interface ch.2 (transmission completed) | 25 | 19 | ICR09 | 398 _H | 000FF98 _H | 9* ¹ |
| Multi-function serial interface ch.3 (reception completed) | 26 | 1A | ICR10 | 394 _H | 000FF94 _H | 10* ¹ |
| Multi-function serial interface ch.3 (status) | | | | | | |

| Interrupt Factor | Interrupt Number | | Interrupt Level | Offset | Default Address for TBR | RN |
|---|------------------|--------------|-----------------|------------------|-------------------------|------------------|
| | Decimal | Hexa Decimal | | | | |
| Multi-function serial interface ch.3 (transmission completed) | 27 | 1B | ICR11 | 390 _H | 000FFF90 _H | 11 |
| Multi-function serial interface ch.4 (reception completed) | 28 | 1C | ICR12 | 38C _H | 000FFF8C _H | 12* ¹ |
| Multi-function serial interface ch.4 (status) | | | | | | |
| Multi-function serial interface ch.4 (transmission completed) | 29 | 1D | ICR13 | 388 _H | 000FFF88 _H | 13 |
| Multi-function serial interface ch.5 (reception completed) | 30 | 1E | ICR14 | 384 _H | 000FFF84 _H | 14* ¹ |
| Multi-function serial interface ch.5 (status) | | | | | | |
| Multi-function serial interface ch.5 (transmission completed) | 31 | 1F | ICR15 | 380 _H | 000FFF80 _H | 15 |
| Multi-function serial interface ch.6 (reception completed) | 32 | 20 | ICR16 | 37C _H | 000FFF7C _H | 16* ¹ |
| Multi-function serial interface ch.6 (status) | | | | | | |
| Multi-function serial interface ch.6 (transmission completed) | 33 | 21 | ICR17 | 378 _H | 000FFF78 _H | 17 |
| CAN0 | 34 | 22 | ICR18 | 374 _H | 000FFF74 _H | - |
| CAN1 | 35 | 23 | ICR19 | 370 _H | 000FFF70 _H | - |
| RAM diagnosis end | | | | | | |
| RAM initialization completion | | | | | | |
| Error generation during RAM diagnosis | | | | | | |
| Backup RAM diagnosis end | | | | | | |
| Backup RAM initialization completion | | | | | | |
| Error generation during Backup RAM diagnosis | | | | | | |
| CAN2 | 36 | 24 | ICR20 | 36C _H | 000FFF6C _H | - |
| Up/down counter 0 | | | | | | |
| Up/down counter 1 | | | | | | |
| Real time clock | 37 | 25 | ICR21 | 368 _H | 000FFF68 _H | - |
| Multi-function serial interface ch.7 (reception completed) | 38 | 26 | ICR22 | 364 _H | 000FFF64 _H | 22* ¹ |
| Multi-function serial interface ch.7 (status) | | | | | | |
| 16-bit Free-run timer 0 (0 detection) / (compare clear) | 39 | 27 | ICR23 | 360 _H | 000FFF60 _H | 23 |
| Multi-function serial interface ch.7 (transmission completed) | | | | | | |
| PPG 0/1/10/11/20/21/30/31/40/41 | 40 | 28 | ICR24 | 35C _H | 000FFF5C _H | 24* ³ |
| 16-bit Free-run timer 1 (0 detection) / (compare clear) | | | | | | |
| PPG 2/3/12/13/22/23/32/33/43 | 41 | 29 | ICR25 | 358 _H | 000FFF58 _H | 25* ³ |
| 16-bit Free-run timer 2 (0 detection) / (compare clear) | | | | | | |
| PPG 4/5/14/15/24/25/34/35/44 | 42 | 2A | ICR26 | 354 _H | 000FFF54 _H | 26* ³ |
| PPG 6/7/16/17/26/27/36/37 | 43 | 2B | ICR27 | 350 _H | 000FFF50 _H | 27* ³ |
| PPG 8/9/18/19/28/29/38/39 | 44 | 2C | ICR28 | 34C _H | 000FFF4C _H | 28* ³ |

| Interrupt Factor | Interrupt Number | | Interrupt Level | Offset | Default Address for TBR | RN |
|---|------------------|--------------|-----------------|------------------|-------------------------|-----------------------------------|
| | Decimal | Hexa Decimal | | | | |
| Multi-function serial interface ch.8 (reception completed) | 45 | 2D | ICR29 | 348 _H | 000FFF48 _H | 29* ¹ |
| Multi-function serial interface ch.8 (status) | | | | | | |
| 16-bit ICU 0 (fetching) / 16-bit ICU 1 (fetching) | | | | | | |
| Main timer | 46 | 2E | ICR30 | 344 _H | 000FFF44 _H | 30 |
| Sub timer | | | | | | |
| PLL timer | | | | | | |
| Multi-function serial interface ch.8 (transmission completed) | | | | | | |
| 16-bit ICU 2 (fetching) /16-bit ICU 3 (fetching) | 47 | 2F | ICR31 | 340 _H | 000FFF40 _H | 31* ¹ , * ⁴ |
| Clock calibration unit (sub oscillation) | | | | | | |
| Multi-function serial interface ch.9 (reception completed) | | | | | | |
| Multi-function serial interface ch.9 (status) | 48 | 30 | ICR32 | 33C _H | 000FFF3C _H | 32 |
| A/D converter 0/1/2/3/4/5/6/7/8/9/10/11/12/13/14/15/16 17/18/19/20/21/22/23/24/25/26/27/28/29/30/31 | | | | | | |
| Clock calibration unit (CR oscillation) | | | | | | |
| Multi-function serial interface ch.9 (transmission completed) | 49 | 31 | ICR33 | 338 _H | 000FFF38 _H | 33 |
| 16-bit OCU 0 (match) / 16-bit OCU 1 (match) | | | | | | |
| 32-bit Free-run timer 4 | | | | | | |
| 16-bit OCU 2 (match) / 16-bit OCU 3 (match) | 50 | 32 | ICR34 | 334 _H | 000FFF34 _H | 34* ⁵ |
| 32-bit Free-run timer 3/5 | | | | | | |
| 16-bit OCU 4 (match) / 16-bit OCU 5 (match) | | | | | | |
| 32-bit ICU 6 (fetching/measurement) | 51 | 33 | ICR35 | 330 _H | 000FFF30 _H | 35* ⁵ |
| Multi-function serial interface ch.10 (reception completed) | | | | | | |
| Multi-function serial interface ch.10 (status) | | | | | | |
| 32-bit ICU7 (fetching/measurement) | 52 | 34 | ICR36 | 32C _H | 000FFF2C _H | 36* ¹ |
| Multi-function serial interface ch.10 (reception completed) | | | | | | |
| Multi-function serial interface ch.10 (status) | | | | | | |
| 32-bit ICU7 (fetching/measurement) | 53 | 35 | ICR37 | 328 _H | 000FFF28 _H | 37 |
| Multi-function serial interface ch.10 (transmission completed) | | | | | | |
| 32-bit ICU8 (fetching/measurement) | | | | | | |
| Multi-function serial interface ch.11 (reception completed) | 54 | 36 | ICR38 | 324 _H | 000FFF24 _H | 38* ¹ |
| Multi-function serial interface ch.11 (status) | | | | | | |
| 32-bit ICU9 (fetching/measurement) | | | | | | |
| WG dead timer underflow 0 / 1/ 2 | 55 | 37 | ICR39 | 320 _H | 000FFF20 _H | 39 |
| WG dead timer reload 0 / 1/ 2 | | | | | | |
| WG DTTI 0 | | | | | | |
| 32-bit ICU4 (fetching/measurement) | 56 | 38 | ICR40 | 31C _H | 000FFF1C _H | 40 |
| Multi-function serial interface ch.11 (transmission completed) | | | | | | |

| Interrupt Factor | Interrupt Number | | Interrupt Level | Offset | Default Address for TBR | RN |
|--|------------------|--------------|-----------------|----------------------|---------------------------|----|
| | Decimal | Hexa Decimal | | | | |
| 32-bit ICU5 (fetching/measurement) | 57 | 39 | ICR41 | 318 _H | 000FFF18 _H | 41 |
| A/D converter 32/33/34/35/36/37/38/39/40/41/42/43/44/45/46/47 | | | | | | |
| 32-bit OCU 6/7/10/11 (match) | 58 | 3A | ICR42 | 314 _H | 000FFF14 _H | 42 |
| 32-bit OCU8/9 (match) | 59 | 3B | ICR43 | 310 _H | 000FFF10 _H | 43 |
| Base timer 0 IRQ0 | 60 | 3C | ICR44 | 30C _H | 000FFF0C _H | 44 |
| Base timer 0 IRQ1 | | | | | | |
| Base timer 1 IRQ0 | 61 | 3D | ICR45 | 308 _H | 000FFF08 _H | 45 |
| Base timer 1 IRQ1 | | | | | | |
| - | | | | | | |
| - | | | | | | |
| DMAC 0/1/2/3/4/5/6/7/8/9/10/11/12/13/14/15 | 62 | 3E | ICR46 | 304 _H | 000FFF04 _H | - |
| Delay interrupt | 63 | 3F | ICR47 | 300 _H | 000FFF00 _H | - |
| System reserved (Used for REALOS) | 64 | 40 | - | 2FC _H | 000FFEFC _H | - |
| System reserved (Used for REALOS) | 65 | 41 | - | 2F8 _H | 000FFE8 _H | - |
| Used with the INT instruction | 66 | 42 | - | 2F4 _H | 000FEF4 _H | - |
| | 255 | FF | | 000 _H | 000FFC00 _H | |

Note: It does not support a DMA transfer request caused by an interrupt generated from a peripheral to which no RN (Resource Number) is assigned.

- *1: It does not support a DMA transfer by the status of the multi-function serial interface and I²C reception.
- *2: Reload timer ch.4 to ch.7 do not support a DMA transfer by the interrupt.
- *3: PPG ch.24 to ch.47 do not support a DMA transfer by the interrupt.
- *4: The clock calibration unit does not support a DMA transfer by the interrupt.
- *5: 32-bit Free-run timer ch.3, ch.4 and ch.5 do not support a DMA transfer by the interrupt.
- *6: There is no resource corresponding to the interrupt level.
- *7: It does not support a DMA transfer by the external low-voltage detection interrupt.

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| Interrupt Factor | Interrupt Number | | Interrupt Level | Offset | Default Address for TBR | RN |
|---|------------------|--------------|-------------------------------|------------------|-------------------------|------|
| | Decimal | Hexa Decimal | | | | |
| Reset | 0 | 0 | - | 3FC _H | 000FFFFC _H | - |
| System reserved | 1 | 1 | - | 3F8 _H | 000FFFF8 _H | - |
| System reserved | 2 | 2 | - | 3F4 _H | 000FFFF4 _H | - |
| System reserved | 3 | 3 | - | 3F0 _H | 000FFFF0 _H | - |
| System reserved | 4 | 4 | - | 3EC _H | 000FFFE _C | - |
| FPU exception | 5 | 5 | - | 3E8 _H | 000FFFE8 _H | - |
| Exception of instruction access protection violation | 6 | 6 | - | 3E4 _H | 000FFFE4 _H | - |
| Exception of data access protection violation | 7 | 7 | - | 3E0 _H | 000FFFE0 _H | - |
| Data access error interrupt | 8 | 8 | - | 3DC _H | 000FFFD _C | - |
| INTE instruction | 9 | 9 | - | 3D8 _H | 000FFFD8 _H | - |
| Instruction break | 10 | 0A | - | 3D4 _H | 000FFFD4 _H | - |
| System reserved | 11 | 0B | - | 3D0 _H | 000FFFD0 _H | - |
| System reserved | 12 | 0C | - | 3CC _H | 000FFFC _C | - |
| System reserved | 13 | 0D | - | 3C8 _H | 000FFFC8 _H | - |
| Exception of invalid instruction | 14 | 0E | - | 3C4 _H | 000FFFC4 _H | - |
| NMI request | 15 | 0F | 15 (F _H) Fixed | 3C0 _H | 000FFFC0 _H | - |
| Error generation during internal bus diagnosis | | | | | | |
| XBS RAM double-bit error generation | | | | | | |
| Backup RAM double-bit error generation | | | | | | |
| TPU violation | | | | | | |
| External interrupt 0-7 | 16 | 10 | ICR00 | 3BC _H | 000FFFB _C | 0 |
| External interrupt 8-15 | 17 | 11 | ICR01 | 3B8 _H | 000FFFB8 _H | 1*7 |
| External low-voltage detection interrupt | | | | | | |
| Reload timer 0/1/4/5 | 18 | 12 | ICR02 | 3B4 _H | 000FFFB4 _H | 2*2 |
| Reload timer 2/3/6/7 | 19 | 13 | ICR03 | 3B0 _H | 000FFFB0 _H | 3*2 |
| Multi-function serial interface ch.0 (reception completed) | 20 | 14 | ICR04 | 3AC _H | 000FFFA _C | 4*1 |
| Multi-function serial interface ch.0 (status) | | | | | | |
| Multi-function serial interface ch.0 (transmission completed) | 21 | 15 | ICR05 | 3A8 _H | 000FFFA8 _H | 5*1 |
| Multi-function serial interface ch.1 (reception completed) | 22 | 16 | ICR06 | 3A4 _H | 000FFFA4 _H | 6*1 |
| Multi-function serial interface ch.1 (status) | | | | | | |
| Multi-function serial interface ch.1 (transmission completed) | 23 | 17 | ICR07 | 3A0 _H | 000FFFA0 _H | 7*1 |
| Multi-function serial interface ch.2 (reception completed) | 24 | 18 | ICR08 | 39C _H | 000FFF9 _C | 8*1 |
| Multi-function serial interface ch.2 (status) | | | | | | |
| Multi-function serial interface ch.2 (transmission completed) | 25 | 19 | ICR09 | 398 _H | 000FFF98 _H | 9*1 |
| Multi-function serial interface ch.3 (reception completed) | 26 | 1A | ICR10 | 394 _H | 000FFF94 _H | 10*1 |
| Multi-function serial interface ch.3 (status) | | | | | | |

| Interrupt Factor | Interrupt Number | | Interrupt Level | Offset | Default Address for TBR | RN |
|---|------------------|--------------|-----------------|------------------|-------------------------|------------------|
| | Decimal | Hexa Decimal | | | | |
| Multi-function serial interface ch.3 (transmission completed) | 27 | 1B | ICR11 | 390 _H | 000FFF90 _H | 11 |
| Multi-function serial interface ch.4 (reception completed) | 28 | 1C | ICR12 | 38C _H | 000FFF8C _H | 12* ¹ |
| Multi-function serial interface ch.4 (status) | | | | | | |
| Multi-function serial interface ch.4 (transmission completed) | 29 | 1D | ICR13 | 388 _H | 000FFF88 _H | 13 |
| Multi-function serial interface ch.5 (reception completed) | 30 | 1E | ICR14 | 384 _H | 000FFF84 _H | 14* ¹ |
| Multi-function serial interface ch.5 (status) | | | | | | |
| Multi-function serial interface ch.5 (transmission completed) | 31 | 1F | ICR15 | 380 _H | 000FFF80 _H | 15 |
| Multi-function serial interface ch.6 (reception completed) | 32 | 20 | ICR16 | 37C _H | 000FFF7C _H | 16* ¹ |
| Multi-function serial interface ch.6 (status) | | | | | | |
| Multi-function serial interface ch.6 (transmission completed) | 33 | 21 | ICR17 | 378 _H | 000FFF78 _H | 17 |
| CAN0 | 34 | 22 | ICR18 | 374 _H | 000FFF74 _H | - |
| CAN1 | 35 | 23 | ICR19 | 370 _H | 000FFF70 _H | - |
| RAM diagnosis end | | | | | | |
| RAM initialization completion | | | | | | |
| Error generation during RAM diagnosis | | | | | | |
| Backup RAM diagnosis end | | | | | | |
| Backup RAM initialization completion | | | | | | |
| Error generation during Backup RAM diagnosis | | | | | | |
| CAN2 | 36 | 24 | ICR20 | 36C _H | 000FFF6C _H | - |
| Up/down counter 0 | | | | | | |
| Up/down counter 1 | | | | | | |
| Real time clock | 37 | 25 | ICR21 | 368 _H | 000FFF68 _H | - |
| Multi-function serial interface ch.7 (reception completed) | 38 | 26 | ICR22 | 364 _H | 000FFF64 _H | 22* ¹ |
| Multi-function serial interface ch.7 (status) | | | | | | |
| 16-bit Free-run timer 0 (0 detection) / (compare clear) | 39 | 27 | ICR23 | 360 _H | 000FFF60 _H | 23 |
| Multi-function serial interface ch.7 (transmission completed) | | | | | | |
| PPG 0/1/10/11/20/21/30/31/40/41 | 40 | 28 | ICR24 | 35C _H | 000FFF5C _H | 24* ³ |
| 16-bit Free-run timer 1 (0 detection) / (compare clear) | | | | | | |
| PPG 2/3/12/13/22/23/32/33/43 | 41 | 29 | ICR25 | 358 _H | 000FFF58 _H | 25* ³ |
| 16-bit Free-run timer 2 (0 detection) / (compare clear) | | | | | | |
| PPG 4/5/14/15/24/25/34/35/44/45 | 42 | 2A | ICR26 | 354 _H | 000FFF54 _H | 26* ³ |
| PPG 6/7/16/17/26/27/36/37/46/47 | 43 | 2B | ICR27 | 350 _H | 000FFF50 _H | 27* ³ |
| PPG 8/9/18/19/28/29/38/39 | 44 | 2C | ICR28 | 34C _H | 000FFF4C _H | 28* ³ |

| Interrupt Factor | Interrupt Number | | Interrupt Level | Offset | Default Address for TBR | RN |
|---|------------------|--------------|-----------------|------------------|-------------------------|----------------------|
| | Decimal | Hexa Decimal | | | | |
| Multi-function serial interface ch.8 (reception completed) | 45 | 2D | ICR29 | 348 _H | 000FFF48 _H | 29* ¹ |
| Multi-function serial interface ch.8 (status) | | | | | | |
| 16-bit ICU 0 (fetching) / 16-bit ICU 1 (fetching) | | | | | | |
| Main timer | 46 | 2E | ICR30 | 344 _H | 000FFF44 _H | 30 |
| Sub timer | | | | | | |
| PLL timer | | | | | | |
| Multi-function serial interface ch.8 (transmission completed) | | | | | | |
| 16-bit ICU 2 (fetching) / 16-bit ICU 3 (fetching) | 47 | 2F | ICR31 | 340 _H | 000FFF40 _H | 31* ^{1, *4} |
| Clock calibration unit (sub oscillation) | | | | | | |
| Multi-function serial interface ch.9 (reception completed) | | | | | | |
| Multi-function serial interface ch.9 (status) | 48 | 30 | ICR32 | 33C _H | 000FFF3C _H | 32 |
| A/D converter 0/1/2/3/4/5/6/7/8/9/10/11/12/13/14/15/16 17/18/19/20/21/22/23/24/25/26/27/28/29/30/31 | | | | | | |
| Clock calibration unit (CR oscillation) | | | | | | |
| Multi-function serial interface ch.9 (transmission completed) | 49 | 31 | ICR33 | 338 _H | 000FFF38 _H | 33 |
| 16-bit OCU 0 (match) / 16-bit OCU 1 (match) | | | | | | |
| 32-bit Free-run timer 4 | 50 | 32 | ICR34 | 334 _H | 000FFF34 _H | 34* ⁵ |
| 16-bit OCU 2 (match) / 16-bit OCU 3 (match) | | | | | | |
| 32-bit Free-run timer 3/5 | 51 | 33 | ICR35 | 330 _H | 000FFF30 _H | 35* ⁵ |
| 16-bit OCU 4 (match) / 16-bit OCU 5 (match) | | | | | | |
| 32-bit ICU6 (fetching/measurement) | 52 | 34 | ICR36 | 32C _H | 000FFF2C _H | 36* ¹ |
| Multi-function serial interface ch.10 (reception completed) | | | | | | |
| Multi-function serial interface ch.10 (status) | | | | | | |
| 32-bit ICU7 (fetching/measurement) | 53 | 35 | ICR37 | 328 _H | 000FFF28 _H | 37 |
| Multi-function serial interface ch.10 (transmission completed) | | | | | | |
| 32-bit ICU8 (fetching/measurement) | 54 | 36 | ICR38 | 324 _H | 000FFF24 _H | 38* ¹ |
| Multi-function serial interface ch.11 (reception completed) | | | | | | |
| Multi-function serial interface ch.11 (status) | | | | | | |
| 32-bit ICU9 (fetching/measurement) | 55 | 37 | ICR39 | 320 _H | 000FFF20 _H | 39 |
| WG dead timer underflow 0/1/2 | | | | | | |
| WG dead timer reload 0/1/2 | | | | | | |
| WG DTTI 0 | 56 | 38 | ICR40 | 31C _H | 000FFF1C _H | 40 |
| 32-bit ICU4 (fetching/measurement) | | | | | | |
| Multi-function serial interface ch.11 (transmission completed) | | | | | | |

| Interrupt Factor | Interrupt Number | | Interrupt Level | Offset | Default Address for TBR | RN |
|--|------------------|--------------|-----------------|----------------------|---------------------------|----|
| | Decimal | Hexa Decimal | | | | |
| 32-bit ICU5 (fetching/measurement) | 57 | 39 | ICR41 | 318 _H | 000FFF18 _H | 41 |
| A/D converter 32/33/34/35/36/37/38/39/40/41/42/43/44/45/46/47 | | | | | | |
| 32-bit OCU 6/7/10/11 (match) | 58 | 3A | ICR42 | 314 _H | 000FFF14 _H | 42 |
| 32-bit OCU 8/9 (match) | 59 | 3B | ICR43 | 310 _H | 000FFF10 _H | 43 |
| Base timer 0 IRQ0 | 60 | 3C | ICR44 | 30C _H | 000FFF0C _H | 44 |
| Base timer 0 IRQ1 | | | | | | |
| Base timer 1 IRQ0 | 61 | 3D | ICR45 | 308 _H | 000FFF08 _H | 45 |
| Base timer 1 IRQ1 | | | | | | |
| - | | | | | | |
| - | | | | | | |
| DMAC 0/1/2/3/4/5/6/7/8/9/10/11/12/13/14/15 | 62 | 3E | ICR46 | 304 _H | 000FFF04 _H | - |
| Delay interrupt | 63 | 3F | ICR47 | 300 _H | 000FFF00 _H | - |
| System reserved (Used for REALOS) | 64 | 40 | - | 2FC _H | 000FFEFC _H | - |
| System reserved (Used for REALOS) | 65 | 41 | - | 2F8 _H | 000FFEFC _H | - |
| Used with the INT instruction | 66 | 42 | - | 2F4 _H | 000FFEFC _H | - |
| | 255 | FF | | 000 _H | 000FFC00 _H | |

Note: It does not support a DMA transfer request caused by an interrupt generated from a peripheral to which no RN (Resource Number) is assigned.

- *1: It does not support a DMA transfer by the status of the multi-function serial interface and I²C reception.
- *2: Reload timer ch.4 to ch.7 do not support a DMA transfer by the interrupt.
- *3: PPG ch.24 to ch.47 do not support a DMA transfer by the interrupt.
- *4: The clock calibration unit does not support a DMA transfer by the interrupt.
- *5: 32-bit Free-run timer ch.3, ch.4 and ch.5 do not support a DMA transfer by the interrupt.
- *6: There is no resource corresponding to the interrupt level.
- *7: It does not support a DMA transfer by the external low-voltage detection interrupt.

11. Electrical Characteristics

Absolute Maximum Ratings

| Parameter | Symbol | Rating | | Unit | Remarks | |
|-------------------------------------|--|--------------|--------------|------------------|------------------------------------|----|
| | | Min | Max | | | |
| Power supply voltage *1,*2 | V_{CC} | $V_{SS}-0.3$ | $V_{SS}+6.0$ | V | | |
| Analog power supply voltage *1,*2 | AV_{CC} | $V_{SS}-0.3$ | $V_{SS}+6.0$ | V | $AV_{RH} \leq AV_{CC} \leq V_{CC}$ | |
| Analog reference voltage *1 | AV_{RH} | $V_{SS}-0.3$ | $V_{SS}+6.0$ | V | $AV_{RH} \leq AV_{CC}$ | |
| Input voltage *1 | V_I | $V_{SS}-0.3$ | $V_{CC}+0.3$ | V | | |
| Analog pin input voltage *1 | V_{IA5} | $V_{SS}-0.3$ | $V_{CC}+0.3$ | V | | |
| Output voltage *1 | V_O | $V_{SS}-0.3$ | $V_{CC}+0.3$ | V | | |
| Maximum clamp current | I_{CLAMP} | - | 4.0 | mA | *6 | |
| Total maximum clamp current | $\sum I_{CLAMP} $ | - | 20 | mA | *6 | |
| "L" level maximum output current *3 | I_{OL1} | - | 15 | mA | | |
| | I_{OL2} | - | 30 | mA | | |
| "L" level average output current *4 | I_{OLAV1} | - | 4 | mA | *9 | |
| | I_{OLAV2} | - | 12 | mA | *10 | |
| "L" level total output current *5 | $\sum I_{OL1}$ | - | 100 | mA | | |
| | $\sum I_{OL2}$ | - | 120 | mA | | |
| "H" level maximum output current*3 | I_{OH1} | - | -15 | mA | | |
| | I_{OH2} | - | -30 | mA | | |
| "H" level average output current*4 | I_{OHAV1} | - | -4 | mA | *9 | |
| | I_{OHAV2} | - | -12 | mA | *10 | |
| "H" level total output current *5 | $\sum I_{OH1}$ | - | -100 | mA | | |
| | $\sum I_{OH2}$ | - | -120 | mA | | |
| Power consumption | $T_A: -40\text{ }^\circ\text{C to }+105\text{ }^\circ\text{C}$ | P_D | - | 882 | mW | *8 |
| | $T_A: -40\text{ }^\circ\text{C to }+125\text{ }^\circ\text{C}$ | | - | 675 | mW | *8 |
| Operating temperature | T_A | -40 | +105 | $^\circ\text{C}$ | | |
| | | -40 | +125 | $^\circ\text{C}$ | | *7 |
| Storage temperature | T_{stg} | -55 | +150 | $^\circ\text{C}$ | | |

*1: These parameters are based on the condition that $V_{SS} = AV_{SS} = 0.0\text{ V}$

*2: Caution must be taken that AV_{CC} , AV_{RH} do not exceed V_{CC} upon power-on and under other circumstances.

*3: The maximum output current is defined as the value of the peak current flowing through any one of the corresponding pins.

*4: The average output current is defined as the value of the average current flowing through any one of the corresponding pins for a 10 ms period. The average value is the operation current \times the operation ratio.

*5: The total output current is defined as the maximum current value flowing through all of corresponding pins.

*6: · Corresponding pins: all general-purpose ports except P035, 041, 093, 122.

· Use within recommended operating conditions.

· Use at DC voltage (current).

· The + B signal should always be applied by connecting a limiting resistor between the + B signal and the microcontroller.

· The value of the limiting resistor should be set so that the current input to the microcontroller pin does not exceed rated values at any time regardless of instantaneously or constantly when the + B signal is input.

· Note that when the microcontroller drive current is low, such as in the low power consumption modes, the + B input potential can increase the potential at the V_{CC} pin via a protective diode, possibly affecting other devices.

· Note that if the + B signal is input when the microcontroller is off (not fixed at 0 V), since the power is supplied through the pin, the microcontroller may operate incompletely.

· Note that if the +B signal is input at power-on, since the power is supplied through the pin, the power-on reset may not function in the power supply voltage.

· Do not leave + B input pins open.

*7: When it is used under this condition, contact your sales representative.

*8: It is a standard when four-layer substrate is used.

*9: Corresponding pins: General-purpose ports other than those of P103, P104, P105 and P106.

*10: Corresponding pins: General-purpose ports of P103, P104, P105 and P106.

Sample Recommended Circuit



<WARNING>

Semiconductor devices may be permanently damaged by application of stress (including, without limitation, voltage, current or temperature) in excess of absolute maximum ratings. Do not exceed any of these ratings.

Recommended Operating Conditions

(V_{SS} = AV_{SS} = 0.0 V)

| Parameter | Symbol | Value | | Unit | Remarks |
|-----------------------------------|---------------------------------------|---------------------------------|------|------|--|
| | | Min | Max | | |
| Power supply voltage | V _{CC} , AV _{CC} | 4.5 | 5.5 | V | Recommended operation guarantee range (When 5.0 V is used) |
| | | 3.0 | 3.6 | V | Recommended operation guarantee range (When 3.3 V is used) |
| | | 2.7 | 5.5 | V | Operation guarantee range ^{*1} |
| Smoothing capacitor ^{*2} | C _S | 4.7 (tolerance within ±50 %) | | μF | Use a ceramic capacitor or a capacitor that has the similar frequency characteristics. Use a capacitor with a capacitance greater than C _S as the smoothing capacitor on the VCC pin. |
| Operating temperature | T _A | -40 | +105 | °C | |
| | | -40 | +125 | °C | *3 |

*1: When it is used outside recommended operation guarantee range (range of the operation guarantee), contact your sales representative.

The initial detection voltage of the external low voltage detection is 2.8 V ± 8 % (2.576 V to 3.024 V). This LVD setting and internal LVD cannot be used to reliably generate a reset before voltage dips below minimum guaranteed operation voltage, as these detection levels are below the minimum guaranteed MCU operation voltage. Below the

minimum guaranteed MCU operation voltage, MCU operations are not guaranteed with the exception of LVD.

*2: See the following diagram for details on the connection of smoothing capacitor C_s .

*3: When it is used under this condition, contact your sales representative.

· C Pin Connection Diagram



<WARNING>

The recommended operating conditions are required in order to ensure the normal operation of the semiconductor device. All of the device's electrical characteristics are warranted when the device is operated under these conditions. Any use of semiconductor devices will be under their recommended operating condition. Operation under any conditions other than these conditions may adversely affect reliability of device and could result in device failure. No warranty is made with respect to any use, operating conditions or combinations not represented on this data sheet. If you are considering application under any conditions other than listed herein, please contact sales representatives beforehand.

DC Characteristics

 (T_A: -40 °C to +105 °C, V_{CC} = AV_{CC} = 5.0 V ± 10 %/3.3 V ± 0.3 V, V_{SS} = AV_{SS} = 0.0 V)

| Parameter | Symbol | Pin Name | Conditions | Value | | | Unit | Remarks |
|--|-------------------------------|--|--|--|------|------|---------------------------|---|
| | | | | Min | Typ | Max | | |
| Power supply current | I _{CC5} | VCC | Operating frequency F _{CP} = 80 MHz, F _{CPP} = 40 MHz, at normal operation | - | 60 | 80 | mA | |
| | | | Operating frequency F _{CP} = 80 MHz, F _{CPP} = 40 MHz, at Flash write | - | 70 | 90 | mA | |
| | | | Operating frequency F _{CP} = 80 MHz, F _{CPP} = 40 MHz, at Flash erase | - | 70 | 90 | mA | |
| | | | Operating frequency F _{CP} = 64 MHz, F _{CPP} = 32 MHz, at normal operation | - | 54 | 71 | mA | |
| | | | Operating frequency F _{CP} = 64 MHz, F _{CPP} = 32 MHz, at Flash write | - | 64 | 81 | mA | |
| | | | Operating frequency F _{CP} = 64 MHz, F _{CPP} = 32 MHz, at Flash erase | - | 64 | 81 | mA | |
| | | | Operating frequency F _{CP} = 48 MHz, F _{CPP} = 24 MHz, at normal operation | - | 46 | 62 | mA | |
| | | | Operating frequency F _{CP} = 48 MHz, F _{CPP} = 24 MHz, at Flash write | - | 56 | 72 | mA | |
| | | | Operating frequency F _{CP} = 48 MHz, F _{CPP} = 24 MHz, at Flash erase | - | 56 | 72 | mA | |
| | | | I _{CCS5} | Operating frequency F _{CP} = 80 MHz, F _{CPP} = 40 MHz, at CPU sleep mode | - | 45 | 61 | mA |
| | I _{CCBS5} | Operating frequency F _{CP} = 80 MHz, F _{CPP} = 40 MHz, at bus sleep mode | - | 23 | 51 | mA | | |
| | I _{CC_T5} | Watch mode | When using crystal 4 MHz T _A = +25 °C* | - | 1500 | 2610 | μA | |
| | | | When using built-in CR clock 50 kHz T _A = +25 °C* | - | 450 | 2000 | | |
| | | | When using sub clock 32 kHz T _A = +25 °C* | - | 460 | 2000 | | |
| | I _{CC_H5} | Stop mode | T _A = +25 °C* | - | 450 | 2000 | μA | |
| | I _{CC_T52} | Watch mode (power off) | When using crystal 4 MHz T _A = +25 °C* | - | 1100 | 1300 | μA | LVD/ RTC operation, Backup RAM 8 KB retention |
| | | | When using built-in CR clock 50 kHz, T _A = +25 °C* | - | 77 | 267 | | |
| When using sub clock 32 kHz T _A = +25 °C* | | | - | 100 | 285 | | | |
| I _{CC_H52} | Stop mode (power off) | T _A = +25 °C* | - | 74 | 265 | μA | Backup RAM 8 KB retention | |

(T_A: -40 °C to +125 °C, V_{CC} = AV_{CC} = 5.0 V ± 10 %/3.3 V ± 0.3 V, V_{SS} = AV_{SS} = 0.0 V)

| Parameter | Symbol | Pin Name | Conditions | Value | | | Unit | Remarks |
|--|-------------------------------|--------------------------|--|-------|--|------|---------------------------|--|
| | | | | Min | Typ | Max | | |
| Power supply current | I _{CC5} | VCC | Operating frequency F _{CP} = 80 MHz, F _{CPP} = 40 MHz, at normal operation | - | 60 | 102 | mA | |
| | | | Operating frequency F _{CP} = 80 MHz, F _{CPP} = 40 MHz, at Flash write | - | 70 | 115 | mA | |
| | | | Operating frequency F _{CP} = 80 MHz, F _{CPP} = 40 MHz, at Flash erase | - | 70 | 115 | mA | |
| | | | Operating frequency F _{CP} = 64 MHz, F _{CPP} = 32 MHz, at normal operation | - | 54 | 92 | mA | |
| | | | Operating frequency F _{CP} = 64 MHz, F _{CPP} = 32 MHz, at Flash write | - | 64 | 105 | mA | |
| | | | Operating frequency F _{CP} = 64 MHz, F _{CPP} = 32 MHz, at Flash erase | - | 64 | 105 | mA | |
| | | | Operating frequency F _{CP} = 48 MHz, F _{CPP} = 24 MHz, at normal operation | - | 46 | 82 | mA | |
| | | | Operating frequency F _{CP} = 48 MHz, F _{CPP} = 24 MHz, at Flash write | - | 56 | 95 | mA | |
| | | | Operating frequency F _{CP} = 48 MHz, F _{CPP} = 24 MHz, at Flash erase | - | 56 | 95 | mA | |
| | | | I _{CCS5} | | Operating frequency F _{CP} = 80 MHz, F _{CPP} = 40 MHz, at CPU sleep mode | - | 45 | 82 |
| | I _{CCBS5} | | Operating frequency F _{CP} = 80 MHz, F _{CPP} = 40 MHz, at bus sleep mode | - | 23 | 72 | mA | |
| | I _{CC_T5} | Watch mode | When using crystal 4 MHz T _A = +25 °C* | - | 1500 | 2610 | μA | |
| | | | When using built-in CR clock 50 kHz T _A = +25 °C* | - | 450 | 2000 | | |
| | | | When using sub clock 32 kHz T _A = +25 °C* | - | 460 | 2000 | | |
| | I _{CC_H5} | Stop mode | T _A = +25 °C* | - | 450 | 2000 | μA | |
| | I _{CC_T52} | Watch mode (power off) | When using crystal 4 MHz T _A = +25 °C* | - | 1100 | 1300 | μA | LVD/RTC operation, Backup RAM 8 KB retention |
| | | | When using built-in CR clock 50 kHz, T _A = +25 °C* | - | 77 | 267 | | |
| When using sub clock 32 kHz T _A = +25 °C* | | | - | 100 | 285 | | | |
| I _{CC_H52} | Stop mode (power off) | T _A = +25 °C* | - | 74 | 265 | μA | Backup RAM 8 KB retention | |

(TA: -40 °C to +125 °C, V_{CC} = AV_{CC} = 5.0 V ± 10 %/V_{CC} = AV_{CC} = 3.3 V ± 0.3 V, V_{SS} = AV_{SS} = 0.0 V)

| Parameter | Symbol | Pin Name | Conditions | Value | | | Unit | Remarks | |
|--------------------------|------------------|--|--|-------------------------|-----------------|-----------------|------|---------|-----------------------------|
| | | | | Min | Typ | Max | | | |
| Input leak current | I _{IL} | All input pins | V _{CC} = AV _{CC} = 5.5 V V _{SS} < V _I < V _{CC} | -5 | - | 5 | μA | | |
| Input capacitance 1 | C _{IN1} | Other than V _{CC} , V _{SS} , AV _{CC} , AV _{SS} , C | - | - | 5 | 15 | pF | | |
| Pull-up resistance | R _{UP1} | RSTX, NMIX | V _{CC} = 5.0 V ± 10 % | 25 | - | 100 | kΩ | | |
| | | | V _{CC} = 3.3 V ± 0.3 V | 45 | - | 140 | | | |
| | R _{UP2} | P073,074 076,077 | V _{CC} = 5.0 V ± 10 % | 25 | - | 60 | kΩ | | |
| | | | V _{CC} = 3.3 V ± 0.3 V | 33 | - | 90 | | | |
| | R _{UP3} | Port pin other than P035, 041,073,074, 076,077,093, 122 | V _{CC} = 5.0 V ± 10 % | 25 | - | 100 | kΩ | | |
| | | | V _{CC} = 3.3 V ± 0.3 V | 45 | - | 140 | | | |
| “H” level output voltage | V _{OH1} | Normal output pin | V _{CC} = 4.5 V I _{OH} = -4.0 mA | V _{CC} -0.5 | - | V _{CC} | V | | |
| | | | V _{CC} = 3.0 V I _{OH} = -2.0 mA | | | | | | |
| | V _{OH2} | P073,074,076, 077 | V _{CC} = 4.5 V I _{OH} = -3.0 mA | V _{CC} -0.5 | - | V _{CC} | V | | I ² C pin output |
| V _{OH3} | P103 to 106 | V _{CC} = 4.5 V I _{OH} = -12.0 mA | V _{CC} -0.5 | - | V _{CC} | V | | | |
| | | V _{CC} = 3.0 V I _{OH} = -8.0 mA | | | | | | | |
| “L” level output voltage | V _{OL1} | Normal output pin | V _{CC} = 4.5 V I _{OL} = 4.0 mA | 0 | - | 0.4 | V | | |
| | | | V _{CC} = 3.0 V I _{OL} = 2.0 mA | | | | | | |
| | V _{OL2} | P073,074,076, 077 | V _{CC} = 4.5 V I _{OL} = 3.0 mA | 0 | - | 0.4 | V | | I ² C pin output |
| | V _{OL3} | P103 to 106 | V _{CC} = 4.5 V I _{OL} = 12.0 mA | 0 | - | 0.4 | V | | |
| | | | V _{CC} = 3.0 V I _{OL} = 8.0 mA | | | | | | |

| Parameter | Symbol | Pin Name | Conditions | Value | | | Unit | Remarks |
|-------------------------|------------------|---|-----------------------------|----------------------|-----|----------------------|------|---------|
| | | | | Min | Typ | Max | | |
| “H” level input voltage | V _{IH1} | P000,002,003, 005,020,022, 024,026,150, 151,035,041, 045,055,057, 071-077,081, 082,093,096, 097,100-102, 111,115,116, 122,126,130, 134,142,143, 144,153 | CMOS hysteresis input level | 0.7× V _{CC} | - | V _{CC} | V | |
| | V _{IH3} | Port other than V _{IH1} | Automotive input level | 0.8× V _{CC} | - | V _{CC} | V | |
| | V _{IH5} | RSTX,NMIX,MD0,MD1 | CMOS hysteresis input level | 0.8× V _{CC} | - | V _{CC} | V | |
| | V _{IHT} | DEBUGIF | TTL input level | 2 | - | V _{CC} | V | |
| “L” level input voltage | V _{IL1} | P000,002,003, 005,020,022, 024,026,150, 151,035,041, 045,055,057, 071-077,081, 082,093,096, 097,100-102, 111,115,116, 122,126,130, 134,142,143, 144,153 | CMOS hysteresis input level | V _{SS} | - | 0.3× V _{CC} | V | |
| | V _{IL3} | Port other than V _{IH1} | Automotive input level | V _{SS} | - | 0.5× V _{CC} | V | |
| | V _{IL5} | RSTX,NMIX,MD0,MD1 | CMOS hysteresis input level | V _{SS} | - | 0.2× V _{CC} | V | |
| | V _{ILT} | DEBUGIF | TTL input level | V _{SS} | - | 0.8 | V | |

*: It is a standard in BRAMSC (Backup RAM sleep control bit) = 1 (Enter the state of the sleep at the standby mode) condition.

AC Characteristics

(1) Main Clock Timing

(TA: -40 °C to +125 °C, VCC = AVCC = 5.0 V ± 10 %/VCC = AVCC = 3.3 V ± 0.3 V, VSS = AVSS = 0.0 V)

| Parameter | Symbol | Pin Name | Conditions | Value | | | Unit | Remarks |
|---------------------------------------|------------------|----------|------------|-------|-----|------|------|---|
| | | | | Min | Typ | Max | | |
| Source oscillation clock frequency | F _C | X0, X1 | | - | 4 | 16 | MHz | |
| Source oscillation clock cycle time | t _{CYL} | X0, X1 | | 62.5 | 250 | - | ns | |
| Internal operating clock frequency*1 | F _{CP} | - | - | 2 | - | 80 | MHz | CPU clock |
| | F _{CPP} | | | 1 | | 40 | | Peripheral bus clock |
| | F _{CPT} | | | 1 | | 40 | | External bus clock (When V _{CC} = 5.0 V is used)*2 |
| | | | | 1 | | 32 | | External bus clock (When V _{CC} = 3.3 V is used) |
| Internal operating clock cycle time*1 | t _{CP} | - | - | 12.5 | - | 500 | ns | CPU clock |
| | t _{CPP} | | | 25 | | 1000 | | Peripheral bus clock |
| | t _{CPT} | | | 25 | | 1000 | | External bus clock (When V _{CC} = 5.0 V is used) |
| | | | | 31.25 | | 1000 | | External bus clock (When V _{CC} = 3.3 V is used) |
| CAN PLL jitter (during lock) | t _{PJ} | - | - | -10 | - | 10 | ns | F _{CP} = 80 MHz (4 MHz □ Multiplied by 20) |
| Built-in CR oscillation frequency | F _{CCR} | - | - | 50 | 100 | 150 | kHz | |

*1: The maximum / minimum value is defined when using the main clock and PLL clock.

*2: Please use it with external load capacity 12 pF or less for VCC = 3.3 V ± 0.3 V (40 MHz operation).



• CAN PLL jitter
Deviation time from the ideal clock is assured per cycle out of 20, 000 cycles.



(1-2) Sub clock timing

(T_A: -40 °C to +125 °C, V_{CC} = AV_{CC} = 5.0 V ± 10 %/V_{CC} = AV_{CC} = 3.3 V ± 0.3 V, V_{SS} = AV_{SS} = 0.0 V)

| Parameter | Symbol | Pin Name | Conditions | Value | | | Unit | Remarks |
|-------------------------------------|-------------------|----------|------------|-------|--------|-----|------|---------|
| | | | | Min | Typ | Max | | |
| Source oscillation clock frequency | F _{CL} | X0A, X1A | - | - | 32.768 | - | kHz | |
| Source oscillation clock cycle time | t _{LCYL} | X0A, X1A | | - | 30.52 | - | μs | |

· X0A,X1A clock timing



• Guaranteed operation range

Internal operation clock frequency vs. Power supply voltage



Note: The power supply voltage, which is the low-voltage detection setting voltage or lower, is in the reset state.

Oscillation clock frequency vs. Internal operation clock frequency

| | | Internal operation clock frequency | | | | | | | |
|-----------------------------|-------|------------------------------------|-----------------|-----------------|-----------------|-----------------|-----|------------------|------------------|
| | | Main Clock | PLL clock | | | | | | |
| | | | Multiplied by 1 | Multiplied by 2 | Multiplied by 3 | Multiplied by 4 | ... | Multiplied by 19 | Multiplied by 20 |
| Oscillation clock frequency | 4 MHz | 2 MHz | 4 MHz | 8 MHz | 12 MHz | 16 MHz | ... | 76 MHz | 80 MHz |

• Example of oscillation circuit



Note: As to the product with its clock supervisor's initial value is "ON", when the oscillator is unable to start within 20 ms from the stop state the clock supervisor will detect the oscillation stop. As a result, the CPU moves to the fail safe operation.
 Design your print circuit board so that the oscillator can start oscillation within 20 ms. Moreover, it is recommended to be designed after the match evaluation of the circuit is requested to the departure pendulum maker when the oscillation circuit is composed.

AC characteristics are specified by the following measurement reference voltage values.



(2) Reset Input

(TA: -40 °C to +125 °C, V_{CC} = AV_{CC} = 5.0 V ± 10 %/V_{CC} = AV_{CC} = 3.3 V ± 0.3 V, V_{SS} = AV_{SS} = 0.0 V)

| Parameter | Symbol | Pin Name | Conditions | Value | | Unit | Remarks |
|-------------------------------|-------------------|----------|------------|--------------------------------------|-----|------|---|
| | | | | Min | Max | | |
| Reset input time | t _{RSTL} | RSTX | - | 10 | - | μs | When normal operation |
| | | | | Oscillation time of oscillator* +100 | - | μs | At Stop mode At Power-on* ² |
| | | | | 100 | - | μs | At Watch mode |
| Width for reset input removal | | | | 1 | - | μs | |

*1: The oscillation time of the oscillator is the time it takes for the amplitude of the oscillations to reach 90 %. For crystal oscillators, this time is between several ms and several tens of ms, for ceramic oscillators the time is between several hundred μs and several ms, and for an external clock, the time is 0 ms.

*2: In case of using CY91F52xxxD or CY91F52xxxE and corresponding to note in (3) Power-on Conditions of next subsection, assert RSTX with power-on.



(3) Power-on Conditions

(3-1) [CY9152xxxB/CY9152xxxC/CY9152xxxD]

(TA: -40 °C to +125 °C, V_{SS} = 0.0 V)

| Parameter | Symbol | Pin Name | Conditions | Value | | | Unit | Remarks |
|----------------------------------|------------------|-----------------|---------------------------------------|-------|-----|-------|-------|---------|
| | | | | Min | Typ | Max | | |
| Level detection voltage | - | V _{CC} | - | 2.024 | 2.2 | 2.376 | V | |
| Level detection hysteresis width | - | V _{CC} | - | - | 100 | - | mV | |
| Level detection time | - | - | - | - | - | 30 | μs | *1 |
| Power off time | t _{OFF} | V _{CC} | - | 50 | - | - | ms | *2 |
| Power ramp rate | dV/dt | V _{CC} | V _{CC} : 0.2 V to 2.376 V | - | - | 4 | mV/μs | *3 |
| C pin voltage at Power-on | - | C | - | - | - | 60 | mV | *4 |

*1: This spec is at 4 mV/μs of power ramp rate. If the power ramp rate is faster than 4mV/μs, there is the possibility to generate or release after the power supply voltage has exceeded the detection voltage range.

*2: V_{CC} must be held below 0.2 V for a minimum period of t_{OFF}.

*3: Power-on can detect by satisfying power ramp rate when power off time is not satisfied.

*4: C-pin voltage is below 60 mV when V_{CC} is turned on again.

Note:

When using CY91F52xxxB/C, either *2 or *3 or *4 must be satisfied. When neither *2 nor *3 nor *4 can be satisfied, use CY91F52xxxD and assert external reset (RSTX) at power-up and at any brownout event.



(3-2) [CY9152xxxE]
 (TA: -40 °C to +125 °C, VSS = 0.0 V)

| Parameter | Symbol | Pin Name | Conditions | Value | | | Unit | Remarks |
|---|-------------------|-----------------|---|-------|-----|-------|-------|---------|
| | | | | Min | Typ | Max | | |
| Level detection voltage | – | V _{CC} | – | 2.024 | 2.2 | 2.376 | V | |
| Level detection hysteresis width | – | V _{CC} | – | – | 100 | – | mV | |
| Level detection time | – | – | – | – | – | 30 | μs | *1 |
| Power off time | t _{OFF1} | V _{CC} | V _{CC} ≤ 0.2 V | 50 | – | – | ms | *2 |
| | t _{OFF2} | V _{CC} | V _{CC} ≤ 1.3 V | 100 | – | – | μs | *4 |
| Power ramp rate | dV/dt | V _{CC} | V _{CC} : 0.2 V to 2.376 V (t _{OFF1} < 50 ms) | – | – | 50 | mV/μs | *3 |
| | dV/dt | V _{CC} | V _{CC} : 1.3 V to 2.376 V (t _{OFF2} ≥ 100 μs) | – | – | 1000 | mV/μs | *4 |
| C pin voltage at Power-on | – | C | – | – | – | 60 | mV | *5 |
| Maximum ramp rate guaranteed to not generate power-on reset | dV/dt | V _{CC} | V _{CC} : Between 2.4 V and 4.5 V | – | – | 50 | mV/μs | *6 |

- *1: The specified level detection time applies only for power ramp rate of 1000 mV/μs or less.
- *2: V_{CC} must be held below 0.2 V for a minimum period of t_{OFF1}.
- *3: Power-on can detect by satisfying power ramp rate when t_{OFF1} is not satisfied.
- *4: V_{CC} must be held below 1.3 V for a minimum period of t_{OFF2}.
 Power ramp rate must be 1000 mV/μs or less from 1.3 V to 2.376 V.
 Power-on can detect by satisfying power ramp rate and power off time.
- *5: C-pin voltage is below 60 mV when V_{CC} is turned on again.
- *6: This specification is specified the power supply fluctuation after power on detection. When V_{CC} voltage is between 2.4 V and 4.5 V, the power supply fluctuation is below 50 mV/us, the detection of power-on is suppressed. The power-on does not detect in any power fluctuation between 4.5 V and 5.5 V.

Note: When using CY91F52xxxE, either *2 or *3 or *4 or *5 must be satisfied. When neither *2 nor *3 nor *4 nor *5 can be satisfied, assert external reset (RSTX) at power-up and at any brownout event.



- Maximum ramp rate guaranteed to not generate power-on reset



(4) Multi-function Serial
(4-1) CSIO timing
(4-1-1) Bit setting: SMR: MD2 = 0, SMR: MD1 = 1, SMR : MD0 = 0, SMR: SCINV = 0, SCR:SPI = 0
(TA: -40 °C to +125 °C, V_{CC} = AV_{CC} = 5.0 V ± 10 %/V_{CC} = AV_{CC} = 3.3 V±0.3 V, V_{SS} = AV_{SS} = 0.0 V)

| Parameter | Symbol | Pin Name | Conditions | Value | | Unit | Remarks |
|------------------------------|--------------------|---|------------|-----------------------|-----|------|---|
| | | | | Min | Max | | |
| Serial clock cycle time | t _{SCYC} | SCK0 to SCK11 | - | 4t _{CPP} | - | ns | Internal shift clock mode output pin : C _L = 50 pF |
| SCK ↓ → SOT delay time | t _{SLOVI} | SCK0 to SCK2, SCK5 to SCK11 SOT0 to SOT2, SOT5 to SOT11 | - | -30 | 30 | ns | |
| | | SCK3 , SCK4 SOT3 , SOT4 | - | -300 | 300 | ns | |
| Valid SIN → SCK ↑ setup time | t _{IVSHI} | SCK0 to SCK2, SCK5 to SCK11 SIN0 to SIN2, SIN5 to SIN11 | - | 34 | - | ns | |
| | | SCK3 , SCK4 SIN3 , SIN4 | - | 300 | - | ns | |
| SCK ↑ → Valid SIN hold time | t _{SHIXI} | SCK0 to SCK11 SIN0 to SIN11 | - | 0 | - | ns | |
| Serial clock "H" pulse width | t _{SHSL} | SCK0 to SCK11 | - | t _{CPP} +10 | - | ns | External shift clock mode output pin: C _L = 50 pF |
| Serial clock "L" pulse width | t _{SLSH} | | | 2t _{CPP} -10 | - | ns | |
| SCK ↓ → SOT delay time | t _{SLOVE} | SCK0 to SCK2, SCK5 to SCK11 SOT0 to SOT2, SOT5 to SOT11 | - | - | 33 | ns | |
| | | SCK3 , SCK4 SOT3 , SOT4 | - | - | 300 | ns | |
| Valid SIN → SCK ↑ setup time | t _{IVSHE} | SCK0 to SCK11 SIN0 to SIN11 | - | 10 | - | ns | |
| SCK ↑ → Valid SIN hold time | t _{SHIXE} | | | 20 | - | ns | |
| SCK fall time | t _F | SCK0 to SCK11 | - | - | 5 | ns | |
| SCK rise time | t _R | SCK0 to SCK11 | - | - | 5 | ns | |

Notes:

AC characteristic in CLK synchronized mode.

 C_L is the load capacitance applied to pins during testing.

The maximum baud rate is limited by internal operation clock used and other parameters. Please use ch.3 and ch.4 with maximum baud rate 400 kbps or less.

See Hardware Manual for details.



(4-1-2) Bit setting: SMR: MD2 = 0, SMR: MD1 = 1, SMR : MD0 = 0, SMR: SCINV = 1, SCR:SPI = 0

(TA: -40 °C to +125 °C, V_{CC} = AV_{CC} = 5.0 V ± 10 %/V_{CC} = AV_{CC} = 3.3 V ± 0.3 V, V_{SS} = AV_{SS} = 0.0 V)

| Parameter | Symbol | Pin Name | Conditions | Value | | Unit | Remarks |
|------------------------------|--------------------|---|------------|----------------------|-----|------|---|
| | | | | Min | Max | | |
| Serial clock cycle time | t _{SCYC} | SCK0 to SCK11 | - | 4t _{CPP} | - | ns | Internal shift clock mode output pin : C _L = 50 pF |
| SCK ↑ → SOT delay time | t _{SHOVI} | SCK0 to SCK2, SCK5 to SCK11 SOT0 to SOT2, SOT5 to SOT11 | - | -30 | 30 | ns | |
| | | SCK3 , SCK4 SOT3 , SOT4 | - | -300 | 300 | ns | |
| Valid SIN → SCK ↓ setup time | t _{IVSLI} | SCK0 to SCK2, SCK5 to SCK11 SIN0 to SIN2, SIN5 to SIN11 | - | 34 | - | ns | |
| | | SCK3 , SCK4 SIN3, SIN4 | - | 300 | - | ns | |
| SCK ↓ → Valid SIN hold time | t _{SLIXI} | SCK0 to SCK11 SIN0 to SIN11 | - | 0 | - | ns | |
| Serial clock "H" pulse width | t _{SHSL} | SCK0 to SCK11 | - | t _{CPP+10} | - | ns | External shift clock mode output pin: C _L = 50 pF |
| Serial clock "L" pulse width | t _{SLSH} | | | 2t _{CPP-10} | - | ns | |
| SCK ↑ → SOT delay time | t _{SHOVE} | SCK0 to SCK2, SCK5 to SCK11 SOT0 to SOT2, SOT5 to SOT11 | - | - | 33 | ns | |
| | | SCK3 , SCK4 SOT3 , SOT4 | - | - | 300 | ns | |
| Valid SIN → SCK ↓ setup time | t _{IVSLE} | SCK0 to SCK11 SIN0 to SIN11 | - | 10 | - | ns | |
| SCK ↓ → Valid SIN hold time | t _{SLIXE} | | | 20 | - | ns | |
| SCK fall time | t _F | SCK0 to SCK11 | - | - | 5 | ns | |
| SCK rise time | t _R | SCK0 to SCK11 | - | - | 5 | ns | |

Notes:

AC characteristic in CLK synchronized mode.

C_L is the load capacitance applied to pins during testing.

The maximum baud rate is limited by internal operation clock used and other parameters. Please use ch.3 and ch.4 with maximum baud rate 400 kbps or less.

See Hardware Manual for details.



(4-1-3) Bit setting: SMR : MD2 = 0, SMR:MD1 = 1, SMR : MD0 = 0, SMR:SCINV = 0, SCR:SPI = 1
 (TA: -40 °C to +125 °C, V_{CC} = AV_{CC} = 5.0 V ± 10 %/V_{CC} = AV_{CC} = 3.3 V ± 0.3 V, V_{SS} = AV_{SS} = 0.0V)

| Parameter | Symbol | Pin Name | Conditions | Value | | Unit | Remarks |
|---------------------------------|--------------------|--|------------|--------------------------|-----|------|--|
| | | | | Min | Max | | |
| Serial clock cycle time | t _{SCYC} | SCK0 to SCK11 | | 4t _{CPP} | - | ns | Internal shift clock mode output pin : C _L = 50 pF |
| SCK ↑ → SOT delay time | t _{SHOVI} | SCK0 to SCK2, SCK5 to SCK11 SOT0 to SOT2, SOT5 to SOT11 | | -30 | 30 | ns | |
| | | SCK3 , SCK4 SOT3 , SOT4 | | -300 | 300 | ns | |
| Valid SIN → SCK ↓ setup time | t _{IVSLI} | SCK0 to SCK2, SCK5 to SCK11 SIN0 to SIN2, SIN5 to SIN11 | - | 34 | - | ns | |
| | | SCK3 , SCK4 SIN3 , SIN4 | | 300 | - | ns | |
| SCK ↓ → Valid SIN hold time | t _{SLIXI} | SCK0 to SCK11 SIN0 to SIN11 | | 0 | - | ns | |
| SOT → SCK ↓ delay time | t _{SOVLI} | SCK0 to SCK11 SOT0 to SOT11 | | 2t _{CPP} -30 | - | ns | |
| Serial clock "H" pulse width | t _{SHSL} | SCK0 to SCK11 | | t _{CPP+} 10 | - | ns | External shift clock mode output pin: C _L = 50 pF |
| Serial clock "L" pulse width | t _{SLSH} | | | 2t _{CPP} -10 | - | ns | |
| SCK ↑ → SOT delay time | t _{SHOVE} | SCK0 to SCK2, SCK5 to SCK11 SOT0 to SOT2, SOT5 to SOT11 | | - | 33 | ns | |
| | | SCK3 , SCK4 SOT3 , SOT4 | | - | 300 | ns | |
| Valid SIN → SCK ↓ setup time | t _{IVSHE} | SCK0 to SCK11 SIN0 to SIN11 | | 10 | - | ns | |
| SCK ↓ → Valid SIN hold time | t _{SLIXE} | | | 20 | - | ns | |
| SCK fall time | t _F | SCK0 to SCK11 | | - | 5 | ns | |
| SCK rise time | t _R | SCK0 to SCK11 | | - | 5 | ns | |

Notes:

AC characteristic in CLK synchronized mode.

C_L is the load capacitance applied to pins during testing.

The maximum baud rate is limited by internal operation clock used and other parameters. Please use ch.3 and ch.4 with maximum baud rate 400 kbps or less.

See Hardware Manual for details.



(4-1-4) Bit setting: SMR : MD2 = 0, SMR:MD1 = 1, SMR : MD0 = 0, SMR:SCINV = 1, SCR:SPI = 1
(TA: -40 °C to +125 °C, V_{CC} = A V_{CC} = 5.0 V ± 10 %/V_{CC} = AV_{CC} = 3.3 V ±0.3 V, V_{SS} = AV_{SS} = 0.0V)

| Parameter | Symbol | Pin Name | Conditions | Value | | Unit | Remarks |
|---------------------------------|--------------------|--|------------|-----------------------|-----|------|--|
| | | | | Min | Max | | |
| Serial clock cycle time | t _{SCYC} | SCK0 to SCK11 | - | 4t _{CPP} | - | ns | Internal shift clock mode output pin : C _L = 50 pF |
| SCK↓→ SOT delay time | t _{SLOVI} | SCK0 to SCK2, SCK5 to SCK11 SOT0 to SOT2, SOT5 to SOT11 | - | -30 | 30 | ns | |
| | | SCK3 , SCK4 SOT3 , SOT4 | - | -300 | 300 | ns | |
| Valid SIN → SCK↑setup time | t _{IVSHI} | SCK0 to SCK2, SCK5 to SCK11 SIN0 to SIN2, SIN5 to SIN11 | - | 34 | - | ns | |
| | | SCK3 , SCK4 SIN3 , SIN4 | - | 300 | - | ns | |
| SCK↑→ Valid SIN hold time | t _{SHIXI} | SCK0 to SCK11 SIN0 to SIN11 | - | 0 | - | ns | |
| SOT→SCK↑ delay time | t _{SOVHI} | SCK0 to SCK11 SOT0 to SOT11 | - | 2t _{CPP} -30 | - | ns | |
| Serial clock "H" pulse width | t _{SHSL} | SCK0 to SCK11 | - | t _{CPP} +10 | - | ns | External shift clock mode output pin: C _L = 50 pF |
| Serial clock "L" pulse width | t _{SLSH} | | - | 2t _{CPP} -10 | - | ns | |
| SCK↓→ SOT delay time | t _{SLOVE} | SCK0 to SCK2, SCK5 to SCK11 SOT0 to SOT2, SOT5 to SOT11 | - | - | 33 | ns | |
| | | SCK3 , SCK4 SOT3 , SOT4 | - | - | 300 | ns | |
| Valid SIN → SCK↑setup time | t _{IVSHE} | SCK0 to SCK11 SIN0 to SIN11 | - | 10 | - | ns | |
| SCK↑→ Valid SIN hold time | t _{SHIXE} | | - | 20 | - | ns | |
| SCK fall time | t _F | SCK0 to SCK11 | - | - | 5 | ns | |
| SCK rise time | t _R | SCK0 to SCK11 | - | - | 5 | ns | |

Notes:

AC characteristic in CLK synchronized mode.

C_L is the load capacitance applied to pins during testing.

The maximum baud rate is limited by internal operation clock used and other parameters. Please use ch.3 and ch.4 with maximum baud rate 400 kbps or less.

See Hardware Manual for details.



(4-1-5) Bit setting: SMR:MD2 = 0, SMR:MD1 = 1, SMR:MD0 = 0,

When Serial chip select is used : SCSCR:CSEN = 1,

Serial clock output mark level "H" : SMR,SCSFR:SCINV = 0,

Serial chip select Inactive level "H" : SCSCR,SCSFR:CSLVL = 1

(TA:-40 °C to +125 °C, V_{CC} = AV_{CC} = 5.0 V ± 10 %/V_{CC} = AV_{CC} = 3.3 V±0.3 V, V_{SS} = AV_{SS} = 0.0V)

| Parameter | Symbol | Pin Name | Conditions | Value | | Unit | Remarks |
|-------------------------|-------------------|---|------------|------------------------------|------------------------------|------|--|
| | | | | Min | Max | | |
| SCS↓→SCK↓ setup time | t _{cssi} | SCK1, SCK2, SCK5 to SCK11 SCS1 , SCS2, SCS50 to SCS53, SCS60 to SCS63, SCS70 to SCS73, SCS8 to SCS11 | - | t _{cssu} -50 *1 | t _{cssu} +0 *1 | ns | Internal shift clock mode output pin : C _L = 50 pF |
| | | SCK3 , SCK4 SCS3 , SCS40 to SCS43 | | t _{cssu} -50 *1 | t _{cssu} +300 *1 | ns | |
| SCK↑→SCS↑ hold time | t _{csHI} | SCK1 , SCK2, SCK5 to SCK11 SCS1 , SCS2, SCS50 to SCS53, SCS60 to SCS63, SCS70 to SCS73, SCS8 to SCS11 | | t _{csHD} -10 *2 | t _{csHD} +50 *2 | ns | |
| | | SCK3 , SCK4 SCS3 , SCS40 to SCS43 | | t _{csHD} -300 *2 | t _{csHD} +50 *2 | ns | |
| SCS deselect time | t _{csDI} | SCS1 to SCS3, SCS40 to SCS43, SCS50 to SCS53, SCS60 to SCS63, SCS70 to SCS73, SCS8 to SCS11 | | t _{csDS} -50 *3 | t _{csDS} +50 *3 | ns | |

| Parameter | Symbol | Pin Name | Conditions | Value | | Unit | Remarks |
|--|-------------------|---|------------|------------------------|-----------------------|------|--|
| | | | | Min | Max | | |
| SCS \downarrow →SCK \downarrow setup time | t _{CSSE} | SCK1 to SCK11 SCS1 to SCS3, SCS40 to SCS43, SCS50 to SCS53, | - | 3t _{CPP} +30 | - | ns | External shift clock mode output pin: C _L = 50 pF |
| SCK \uparrow →SCS \uparrow hold time | t _{CSHE} | SCS60 to SCS63, SCS70 to SCS73, SCS8 to SCS11 | | +0 | - | ns | |
| SCS deselect time | t _{CSDE} | SCS1 to SCS3, SCS40 to SCS43, SCS50 to SCS53, SCS60 to SCS63, SCS70 to SCS73, SCS8 to SCS11 | | 3t _{CPP} +30 | - | ns | |
| SCS \downarrow →SOT delay time | t _{DSE} | SCS1 , SCS2, SCS50 to SCS53, SCS60 to SCS63, SCS70 to SCS73, SCS8 to SCS11 SOT1 , SOT2 , SOT5 to SOT11 | | - | 40 | ns | |
| | | SCS3, SCS40 to SCS43 SOT3 , SOT4 | - | 300 | ns | | |
| SCS \uparrow →SOT delay time | t _{DEE} | SCS1 to SCS3, SCS40 to SCS43, SCS50 to SCS53, SCS60 to SCS63, SCS70 to SCS73, SCS8 to SCS11 SOT1 to SOT11 | - | +0 | - | ns | External shift clock mode output pin: C _L = 50 pF |
| SCK \downarrow →SCS \downarrow clock switch time | t _{SCC} | SCK1 , SCK2, SCK5 to SCK11 SCS1 , SCS2, SCS50 to SCS53, SCS60 to SCS63, SCS70 to SCS73, SCS8 to SCS11 | - | 3t _{CPP} -10 | 3t _{CPP} +50 | ns | Internal shift clock mode Round operation output pin: C _L = 50 pF |
| | | SCK3 , SCK4 SCS3 , SCS40 to SCS43 | | 3t _{CPP} -300 | 3t _{CPP} +50 | ns | |

*1: t_{CSSU} = SCSTR:CSSU7-0xSerial chip select timing operating clock

*2: t_{CSHD} = SCSTR:CSHD7-0xSerial chip select timing operating clock

*3: t_{CSDS} = SCSTR:CSDS15-0xSerial chip select timing operating clock

Regardless of the deselect time setting, once after the serial chip select pin becomes inactive, it will take at least five peripheral bus clock cycles to be active again

Please see the hardware manual for details of above-mentioned *1, *2, and *3.





(4-1-6) Bit setting: SMR:MD2 = 0, SMR:MD1 = 1, SMR:MD0 = 0,

When Serial chip select is used : SCSCR:CSEN = 1,

Serial clock output mark level "L" : SMR,SCSFR:SCINV = 1,

Serial chip select Inactive level "H" : SCSCR,SCSFR:CSLVL = 1

(TA:-40 °C to +125 °C, V_{CC} = AV_{CC} = 5.0 V ± 10 %/V_{CC} = AV_{CC} = 3.3 V ± 0.3 V, V_{SS} = AV_{SS} = 0.0V)

| Parameter | Symbol | Pin Name | Conditions | Value | | Unit | Remarks |
|-------------------------|-------------------|---|------------|------------------------------|------------------------------|------|--|
| | | | | Min | Max | | |
| SCS↓→SCK↑ setup time | t _{CSSI} | SCK1 , SCK2, SCK5 to SCK11 SCS1 , SCS2, SCS50 to SCS53, SCS60 to SCS63, SCS70 to SCS73, SCS8 to SCS11 | - | t _{CSSU} -50 *1 | t _{CSSU} +0 *1 | ns | Internal shift clock mode output pin : C _L = 50 pF |
| | | SCK3 , SCK4 SCS3 , SCS40 to SCS43 | | t _{CSSU} -50 *1 | t _{CSSU} +300 *1 | ns | |
| SCK↓→SCS↑ hold time | t _{CSHI} | SCK1 , SCK2, SCK5 to SCK11 SCS1 , SCS2, SCS50 to SCS53, SCS60 to SCS63, SCS70 to SCS73, SCS8 to SCS11 | | t _{CSHD} -10 *2 | t _{CSHD} +50 *2 | ns | |
| | | SCK3 , SCK4 SCS3 , SCS40 to SCS43 | | t _{CSHD} -300 *2 | t _{CSHD} +50 *2 | ns | |
| SCS deselect time | t _{CSDI} | SCS1 to SCS3, SCS40 to SCS43, SCS50 to SCS53, SCS60 to SCS63, SCS70 to SCS73, SCS8 to SCS11 | | t _{CSDS} -50 *3 | t _{CSDS} +50 *3 | ns | |

| Parameter | Symbol | Pin Name | Conditions | Value | | Unit | Remarks |
|-----------------------------------|-------------------|---|------------|------------------------|-----------------------|------|---|
| | | | | Min | Max | | |
| SCS↓→SCK↑ setup time | t _{CSSE} | SCK1 to SCK11 SCS1 to SCS3, SCS40 to SCS43, SCS50 to SCS53, | - | 3t _{CPP} +30 | - | ns | External shift clock mode output pin: C _L = 50 pF |
| SCK↓→SCS↑ hold time | t _{CSHE} | SCS60 to SCS63, SCS70 to SCS73, SCS8 to SCS11 | | +0 | - | ns | |
| SCS deselect time | t _{CSDE} | SCS1 to SCS3, SCS40 to SCS43, SCS50 to SCS53, SCS60 to SCS63, SCS70 to SCS73, SCS8 to SCS11 | | 3t _{CPP} +30 | - | ns | |
| SCS↓→SOT delay time | t _{DSE} | SCS1 , SCS2, SCS50 to SCS53, SCS60 to SCS63, SCS70 to SCS73, SCS8 to SCS11 SOT1 , SOT2, SOT5 to SOT11 | | - | 40 | ns | |
| | | SCS3, SCS40 to SCS43 SOT3 , SOT4 | - | 300 | ns | | |
| SCS↑→SOT delay time | t _{DEE} | SCS1 to SCS3, SCS40 to SCS43, SCS50 to SCS53, SCS60 to SCS63, SCS70 to SCS73, SCS8 to SCS11 SOT1 to SOT11 | - | +0 | - | ns | External shift clock mode output pin: C _L = 50 pF |
| SCK↑→SCS↓ clock switch time | t _{SCC} | SCK1 , SCK2, SCK5 to SCK11 SCS1 , SCS2, SCS50 to SCS53, SCS60 to SCS63, SCS70 to SCS73, SCS8 to SCS11 | - | 3t _{CPP} -10 | 3t _{CPP} +50 | ns | Internal shift clock mode Round operation output pin: C _L = 50 pF |
| | | SCK3 , SCK4 SCS3 , SCS40 to SCS43 | | 3t _{CPP} -300 | 3t _{CPP} +50 | ns | |

*1: t_{CSSU} = SCSTR:CSSU7-0 × Serial chip select timing operating clock

*2: t_{CSHD} = SCSTR:CSHD7-0 × Serial chip select timing operating clock

*3: t_{CSDS} = SCSTR:CSDS15-0 × Serial chip select timing operating clock

Regardless of the deselect time setting, once after the serial chip select pin becomes inactive, it will take at least five peripheral bus clock cycles to be active again

Please see the hardware manual for details of above-mentioned *1,*2, and *3





(4-1-7) Bit setting: SMR:MD2 = 0, SMR:MD1 = 1, SMR:MD0 = 0,
 When Serial chip select is used : SCSCR:CSEN = 1,
 Serial clock output mark level "H" : SMR,SCSFR:SCINV = 0,
 Serial chip select Inactive level "L" : SCSCR,SCSFR:CSLVL = 0

(TA: -40 °C to +125 °C, V_{CC} = AV_{CC} = 5.0 V ± 10 %/V_{CC} = AV_{CC} = 3.3V±0.3V, V_{SS} = AV_{SS} = 0.0V)

| Parameter | Symbol | Pin Name | Conditions | Value | | Unit | Remarks |
|-------------------------|-------------------|--|------------------------------|-----------------------------|---------------------------------|------|--|
| | | | | Min | Max | | |
| SCS↑→SCK↓ setup time | t _{CSSI} | SCK1 , SCK2, SCK5 to SCK11 SCS1 , SCS2, SCS50 to SCS53, SCS60 to SCS63, SCS70 to SCS73, SCS8 to SCS11 | - | t _{CSSU} -50 *1 | t _{CSSU} +0 *1 | ns | Internal shift clock mode output pin : C _L = 50 pF |
| | | SCK3 , SCK4 SCS3 , SCS40 to SCS43 | | t _{CSSU} -50 *1 | t _{CSSU} +300 *1 | ns | |
| SCK↑→SCS↓ hold time | t _{CSHI} | SCK1 to SCK2, SCK5 to SCK11 SCS1 , SCS2, SCS50 to SCS53, SCS60 to SCS63, SCS70 to SCS73, SCS8 to SCS11 | | t _{CSHD} -10 *2 | t _{CSHD} +50 *2 | ns | |
| | | SCK3 , SCK4 SCS3 , SCS40 to SCS43 | t _{CSHD} -300 *2 | t _{CSHD} +50 *2 | ns | | |
| SCS deselect time | t _{CSDI} | SCS1 to SCS3, SCS40 to SCS43, SCS50 to SCS53, SCS60 to SCS63, SCS70 to SCS73, SCS8 to SCS11 | t _{CSDS} -50 *3 | t _{CSDS} +50 *3 | ns | | |

| Parameter | Symbol | Pin Name | Conditions | Value | | Unit | Remarks |
|--|-------------------|--|------------|----------------------------|---------------------------|------|--|
| | | | | Min | Max | | |
| SCS \uparrow →SCK \downarrow setup time | t _{CSSE} | SCK1 to SCK11 SCS1 to SCS3, SCS40 to SCS43, SCS50 to SCS53, SCS60 to SCS63, SCS70 to SCS73, SCS8 to SCS11 | - | 3t _{CPP} +3 0 | - | ns | External shift clock mode output pin: C _L = 50 pF |
| SCK \uparrow →SCS \downarrow hold time | t _{CSHE} | SCS1 to SCS3, SCS40 to SCS43, SCS50 to SCS53, SCS60 to SCS63, SCS70 to SCS73, SCS8 to SCS11 | - | +0 | - | ns | |
| SCS deselect time | t _{CSDE} | SCS1 to SCS3, SCS40 to SCS43, SCS50 to SCS53, SCS60 to SCS63, SCS70 to SCS73, SCS8 to SCS11 | - | 3t _{CPP} +3 0 | - | ns | |
| SCS \uparrow →SOT delay time | t _{DSE} | SCS1 , SCS2, SCS50 to SCS53, SCS60 to SCS63, SCS70 to SCS73, SCS8 to SCS11 SOT1 , SOT2, SOT5 to SOT11 | - | - | 40 | ns | |
| | | SCS3 , SCS40 to SCS43 SOT3 , SOT4 | - | - | 300 | ns | |
| SCS \downarrow →SOT delay time | t _{DEE} | SCS1 to ~SCS3, SCS40 to SCS43, SCS50 to SCS53, SCS60 to SCS63, SCS70 to SCS73, SCS8 to SCS11 SOT1 to SOT11 | - | +0 | - | ns | External shift clock mode output pin: C _L = 50 pF |
| SCK \downarrow →SCS \uparrow clock switch time | t _{SCC} | SCK1 , SCK2, SCK5 to SCK11 SCS1 , SCS2, SCS50 to SCS53, SCS60 to SCS63, SCS70 to SCS73, SCS8 to SCS11 | - | 3t _{CPP} -10 | 3t _{CPP} +5 0 | ns | Internal shift clock mode Round operation output pin: C _L = 50 pF |
| | | SCK3 , SCK4 SCS3 , SCS40 to SCS43 | - | 3t _{CPP} -30 0 | 3t _{CPP} +5 0 | ns | |

*1: t_{CS_{SU}} = SCSTR:CSSU7-0 × Serial chip select timing operating clock

*2: t_{CS_{HD}} = SCSTR:CSD7-0 × Serial chip select timing operating clock

*3: t_{CS_{DS}} = SCSTR:CSDS15-0 × Serial chip select timing operating clock

Regardless of the deselect time setting, once after the serial chip select pin becomes inactive, it will take at least five peripheral bus clock cycles to be active again

Please see the hardware manual for details of above-mentioned *1,*2, and *3.





(4-1-8) Bit setting: SMR:MD2 = 0, SMR:MD1 = 1, SMR:MD0 = 0,

When Serial chip select is used: SCSCR:CSEN = 1,

Serial clock output mark level "L" : SMR,SCSFR:SCINV = 1,

Serial chip select Inactive level "L" : SCSCR,SCSFR:CSLVL = 0

(TA: -40 °C to +125 °C, V_{CC} = AV_{CC} = 5.0 V ± 10 %/V_{CC} = AV_{CC} = 3.3 V ± 0.3 V, V_{SS} = AV_{SS} = 0.0 V)

| Parameter | Symbol | Pin Name | Conditions | Value | | Unit | Remarks |
|-------------------------|------------------|---|-----------------------------|----------------------------|-----------------------------|------|--|
| | | | | Min | Max | | |
| SCS↑→SCK↑ setup time | t _{CSU} | SCK1 , SCK2, SCK5 to SCK11 SCS1 , SCS2, SCS50 to SCS53, SCS60 to SCS63, SCS70 to SCS73, SCS8 to SCS11 | - | t _{CSU} -50 *1 | t _{CSU} +0 *1 | ns | Internal shift clock mode output pin : C _L = 50 pF |
| | | SCK3 , SCK4 SCS3 , SCS40 to SCS43 | | t _{CSU} -50 *1 | t _{CSU} +300 *1 | ns | |
| SCK↓→SCS↓ hold time | t _{CSH} | SCK1 , SCK2, SCK5 to SCK11 SCS1 , SCS2, SCS50 to SCS53, SCS60 to SCS63, SCS70 to SCS73, SCS8 to SCS11 | | t _{CSH} -10 *2 | t _{CSH} +50 *2 | ns | |
| | | SCK3 , SCK4 SCS3 , SCS40 to SCS43 | t _{CSH} -300 *2 | t _{CSH} +50 *2 | ns | | |
| SCS deselect time | t _{CSU} | SCS1 to SCS3, SCS40 to SCS43, SCS50 to SCS53, SCS60 to SCS63, SCS70 to SCS73, SCS8 to SCS11 | t _{CSU} -50 *3 | t _{CSU} +50 *3 | ns | | |

| Parameter | Symbol | Pin Name | Conditions | Value | | Unit | Remarks |
|--|-------------------|---|------------|------------------------|-----------------------|------|--|
| | | | | Min | Max | | |
| SCS \uparrow →SCK \uparrow setup time | t _{CSSE} | SCK1 to SCK11 SCS1 to SCS3, SCS40 to SCS43, SCS50 to SCS53, SCS60 to SCS63, SCS70 to SCS73, SCS8 to SCS11 | - | 3t _{CPP} +30 | - | ns | External shift clock mode output pin: C _L = 50 pF |
| SCK \downarrow →SCS \downarrow hold time | t _{CSHE} | SCK1 to SCK11 SCS1 to SCS3, SCS40 to SCS43, SCS50 to SCS53, SCS60 to SCS63, SCS70 to SCS73, SCS8 to SCS11 | - | +0 | - | ns | |
| SCS deselect time | t _{CSDE} | SCS1 to SCS3, SCS40 to SCS43, SCS50 to SCS53, SCS60 to SCS63, SCS70 to SCS73, SCS8 to SCS11 | - | 3t _{CPP} +30 | - | ns | |
| SCS \uparrow →SOT delay time | t _{DSE} | SCK1 , SCK2, SCS50~SCS53, SCS60~SCS63, SCS70~SCS73, SCS8~SCS11 SOT1 , SOT2, SOT5~SOT11 | - | - | 40 | ns | |
| | | SCS3 , SCS40~SCS43 SOT3 ,SOT4 | - | - | 300 | ns | |
| SCS \downarrow →SOT delay time | t _{DEE} | SCS1 to SCS3, SCS40 to SCS43, SCS50 to SCS53, SCS60 to SCS63, SCS70 to SCS73, SCS8 to SCS11 SOT1 to SOT11 | - | +0 | - | ns | External shift clock mode output pin: C _L = 50 pF |
| SCK \uparrow →SCS \uparrow clock switch time | t _{SCC} | SCK1 , SCK2, SCK5 to SCK11 SCS1 , SCS2, SCS50 to SCS53, SCS60 to SCS63, SCS70 to SCS73, SCS8 to SCS11 | - | 3t _{CPP} -10 | 3t _{CPP} +50 | ns | Internal shift clock mode Round operation output pin: C _L = 50 pF |
| | | SCK3 , SCK4 SCS3 , SCS40 to SCS43 | - | 3t _{CPP} -300 | 3t _{CPP} +50 | | |

*1: t_{CSSU} = SCSTR:CSSU7-0 × Serial chip select timing operating clock

*2: t_{CSHD} = SCSTR:CSHD7-0 × Serial chip select timing operating clock

*3: t_{CSDS} = SCSTR:CSDS15-0 × Serial chip select timing operating clock

Regardless of the deselect time setting, once after the serial chip select pin becomes inactive, it will take at least five peripheral bus clock cycles to be active again

Please see the hardware manual for details of above-mentioned *1,*2, and *3.





(4-2) UART (Asynchronous serial interface) timing

Bit setting: SMR : MD2 = 0, SMR:MD1 = 0, SMR : MD0 = 0

Bit setting: SMR : MD2 = 0, SMR:MD1 = 0, SMR : MD0 = 1

When external clock is selected (BGR:EXT = 1)

(T_A: -40 °C to +125°C, V_{CC} = AV_{CC} = 5.0 V ± 10 %/V_{CC} = AV_{CC} = 3.3 V ± 0.3 V, V_{SS} = AV_{SS} = 0.0V)

| Parameter | Symbol | Pin Name | Conditions | Value | | Unit | Remarks |
|------------------------------|-------------------|---------------|------------|---------------------|-----|------|---------------------------------------|
| | | | | Min | Max | | |
| Serial clock "L" pulse width | t _{SLSH} | SCK0 to SCK11 | - | t _{CPP+10} | - | ns | output pin: C _L = 50 pF |
| Serial clock "H" pulse width | t _{SHSL} | | | t _{CPP+10} | - | ns | |
| SCK fall time | t _F | | | - | 5 | ns | |
| SCK rise time | t _R | | | - | 5 | ns | |



(4-3) LIN Interface (v2.1)(Asynchronous Serial Interface for LIN (v2.1)) timing

Bit setting: SMR : MD2 = 0, SMR:MD1 = 1, SMR : MD0 = 1

(TA:-40°C to +125°C, V_{CC} = AV_{CC} = 5.0 V±10 %/V_{CC} = AV_{CC} = 3.3 V ± 0.3 V, V_{SS} = AV_{SS} = 0.0 V)

| Parameter | Symbol | Pin Name | Conditions | Value | | Unit | Remarks |
|------------------------------|-------------------|---------------|------------|----------------------|-----|------|---------------------------------------|
| | | | | Min | Max | | |
| Serial clock "L" pulse width | t _{SLSH} | SCK0 to SCK11 | - | t _{CPP} +10 | - | ns | output pin: C _L = 50 pF |
| Serial clock "H" pulse width | t _{SHSL} | | | t _{CPP} +10 | - | ns | |
| SCK fall time | t _F | | | - | 5 | ns | |
| SCK rise time | t _R | | | - | 5 | ns | |



(4-4) I²C timing

 (TA: -40 °C to +125 °C, V_{CC} = AV_{CC} = 5.0 V ± 10 %/V_{CC} = AV_{CC} = 3.3 V ± 0.3 V, V_{SS} = AV_{SS} = 0.0 V)

| Parameter | Symbol | Pin Name | Conditions | Standard Mode | | Fast Mode* ³ | | Unit | Remarks |
|--|--------------------|--|---|----------------------------------|--------------------|----------------------------------|-------------------|------|---------|
| | | | | Min | Max | Min | Max | | |
| SCL clock frequency | f _{SCL} | SCK3 to SCK11 | C _L = 50 pF R = (V _P /I _{OL}) * ¹ | 0 | 100 | 0 | 400 | kHz | |
| Repeat "start" condition hold time SDA ↓ → SCL ↓ | t _{HDSTA} | SOT3 to SOT11, (SDA) SCK3 to SCK11, (SCL) | | 4.0 | – | 0.6 | – | μs | |
| Period of "L" for SCL clock | t _{LOW} | SCK3 to SCK11, (SCL) | | 4.7 | – | 1.3 | – | μs | |
| Period of "H" for SCL clock | t _{HIGH} | SCK3 to SCK11, (SCL) | | 4.0 | – | 0.6 | – | μs | |
| Repeat "start" condition setup time SCL ↑ → SDA ↓ | t _{SUSTA} | SCK3 to SCK11, (SCL) | | 4.7 | – | 0.6 | – | μs | |
| Data hold time SCL ↓ → SDA ↓ ↑ | t _{HDDAT} | SOT3 to SOT11, (SDA) SCK3 to SCK11, (SCL) | | 0 | 3.45* ² | 0 | 0.9* ³ | μs | |
| Data setup time SDA ↓ ↑ → SCL ↑ | t _{SUDAT} | SOT3 to SOT11, (SDA) SCK3 to SCK11, (SCL) | | 250 | – | 100 | – | ns | |
| "Stop" condition setup time SCL ↑ → SDA ↑ | t _{SUSTO} | SOT3 to SOT11, (SDA) SCK3 to SCK11, (SCL) | | 4.0 | – | 0.6 | – | μs | |
| Bus-free time between "stop" condition and "start" condition | t _{BUF} | – | | 4.7 | – | 1.3 | – | μs | |
| Noise filter | t _{SP} | – | – | 2t _{CPP} * ⁴ | – | 2t _{CPP} * ⁴ | – | ns | |

Notes: Only ch.3 and ch.4 are standard mode/fast mode correspondence. In ch.5-ch.8, ch.10, and ch.11, only a standard mode is correspondences.

*1: R and C_L represent the pull-up resistance and load capacitance of the SCL and SDA output lines, respectively.

V_p shows that the power-supply voltage of the pull-up resistor and I_{OL} shows the V_{OL} guarantee current.

*2: The maximum t_{HDDAT} only has to be met if the device does not extend the "L" width (t_{LOW}) of the SCL signal.

*3: A fast mode I²C bus device can be used on a standard mode I²C bus system as long as the device satisfies the requirement of

" $t_{SUDAT} \geq 250 \text{ ns}$ ".

*4: t_{CPP} is the peripheral clock cycle time. Adjust the clock of the bus in the surrounding to 8 MHz or more when use I²C.



(5) Timer input timing

(TA: -40 °C to +125 °C, VCC = AVCC = 5.0 V ± 10 %/VCC = AVCC = 3.3 V ± 0.3 V, VSS = AVSS = 0.0 V)

| Parameter | Symbol | Pin Name | Conditions | Value | | Unit | Remarks |
|-------------------|----------------------------|--|------------|------------|-----|------|---------|
| | | | | Min | Max | | |
| Input pulse width | t_{TIWH} , t_{TIWL} | TIN0 to TIN7 ICU0 to ICU9 FRCK0 to FRCK5 TIOA0, TIOA1, TIOB0, TIOB1, AIN0, AIN1, BIN0, BIN1, ZIN0, ZIN1 | - | $4t_{CPP}$ | - | ns | |



(6) Trigger input timing

(TA: -40 °C to +125 °C, VCC = AVCC = 5.0 V ± 10 %/VCC = AVCC = 3.3 V ± 0.3 V, VSS = AVSS = 0.0 V)

| Parameter | Symbol | Pin Name | Conditions | Value | | Unit | Remarks |
|-------------------|----------------------------|--|------------|------------|-----|------|--------------|
| | | | | Min | Max | | |
| Input pulse width | t_{TRGH} , t_{TRGL} | INT0 to INT15, ADTG, RX0, RX1, RX2 | - | $5t_{CPP}$ | - | ns | |
| | | | | 1 | - | μs | At stop mode |



(7) NMI input timing

(TA: -40 °C to +125 °C, VCC = AVCC = 5.0 V ± 10 %/VCC = AVCC = 3.3 V ± 0.3 V, VSS = AVSS = 0.0 V)

| Parameter | Symbol | Pin Name | Conditions | Value | | Unit | Remarks |
|-------------------|-------------------|----------|------------|-------------------|-----|------|---------|
| | | | | Min | Max | | |
| Input pulse width | t _{NMIL} | NMIX | - | 4t _{CPP} | - | ns | |



(8) Low voltage detection (External low-voltage detection)

(TA: -40 °C to +125 °C, VSS = AVSS = 0.0 V)

| Parameter | Symbol | Pin Name | Conditions | Value | | | Unit | Remarks |
|---------------------------------|------------------|----------|------------|-------|----------------|-----|------|--|
| | | | | Min | Typ | Max | | |
| Power supply voltage range | V _{DP5} | | - | 2.7 | - | 5.5 | V | |
| Detection voltage*3 | V _{DL} | VCC | *1 | -8% | LVD5F_SEL[3:0] | +8% | V | LVD5F_SEL[3:0] are programmable. Refer to the hardware manual. |
| Hysteresis width | V _{HYS} | | - | - | 0.1 | - | V | When power-supply voltage rises |
| Low voltage detection time | T _d | - | - | - | - | 30 | µs | |
| Power supply voltage regulation | - | VCC | - | -2 | - | 2 | V/ms | *2 |

*1: If the fluctuation of the power supply is faster than the low voltage detection time, there is a possibility to generate or release after the power supply voltage has exceeded the detection voltage range.

*2: Please suppress the change of the power supply within the range of the power-supply voltage regulation to do a low voltage detection by detecting voltage (V_{DL}).

*3: The initial detection voltage of the external low voltage detection is 2.8 V ± 8 % (2.576 V to 3.024 V).

This LVD setting cannot be used to reliably generate a reset before voltage dips below minimum guaranteed MCU operation voltage, as this detection level is below the minimum guaranteed MCU operation voltage (2.7 V).

Below the minimum guaranteed MCU operation voltage, MCU operations are not guaranteed with the exception of LVD.

(9) Low voltage detection (Internal low-voltage detection)

(TA: -40 °C to +125 °C, VSS = AVSS = 0.0 V)

| Parameter | Symbol | Pin Name | Conditions | Value | | | Unit | Remarks |
|---------------------------------|-------------------|----------|------------|-------|-----|-----|------|---------------------------------|
| | | | | Min | Typ | Max | | |
| Power supply voltage range | V _{RDP5} | - | - | 0.6 | - | 1.4 | V | |
| Detection voltage ^{*2} | V _{RDL} | - | *1 | 0.8 | 0.9 | 1.0 | V | When power-supply voltage falls |
| Hysteresis width | V _{RHYS} | - | - | - | 0.1 | - | V | When power-supply voltage rises |
| Low voltage detection time | - | - | - | - | - | 30 | µs | |

*1: If the fluctuation of the power supply is faster than the low voltage detection time, there is a possibility to generate or release after the power supply voltage has exceeded the detection voltage range.

*2: The detection voltage of the internal low voltage detection is 0.9 V ± 0.1 V.

This LVD cannot be used to reliably generate a reset before voltage dips below minimum guaranteed MCU operation voltage, as this detection level is below the minimum guaranteed MCU operation voltage.

Below the minimum guaranteed MCU operation voltage, MCU operations are not guaranteed with the exception of LVD.

(10) External bus I/F (synchronous mode) timing

(TA: -40 °C to +105 °C, VCC = AVCC = 5.0 V ± 10 %/VCC = AVCC = 3.3 V ± 0.3 V, VSS = AVSS = 0.0 V)

(external load capacitance 50 pF)

| Parameter | Symbol | Pin Name | Value | | Unit | Remarks |
|--------------------------|--|---------------------------|------------------------------|-----|------|--|
| | | | Min | Max | | |
| Cycle time | t _{CYC} | SYSCLK | 25 | - | ns | V _{CC} = 5.0 V ± 10 % ^{*1} |
| | | | 31.25 | | | V _{CC} = 3.3 V ± 0.3 V |
| ASX delay time | t _{CHASL} , t _{CHASH} | SYSCLK ASX | 0.5 | 18 | ns | |
| CS0X to CS3X delay time | t _{CHCSL} , t _{CHCSH} | SYSCLK CS0X to CS3X | 0.5 | 18 | ns | |
| A00 to A21 delay time | t _{CHAV} , t _{CHAX} | SYSCLK A00 to A21 | 0.5 | 18 | ns | |
| RDX delay time | t _{CHRL} , t _{CHRH} | SYSCLK RDX | 0.5 | 18 | ns | |
| RDX minimum pulse | t _{RLRH} | RDX | t _{CYC} × 2 - 20 | - | ns | RWT = 1, set RWT to 1 or more. ^{*2} |
| Data setup → RDX↑time | t _{DSRH} | RDX D16 to D31 | 18+t _{CYC} | - | ns | Same as above |
| RDX↑→ data hold | t _{RHDH} | | 0 | - | ns | |

| Parameter | Symbol | Pin Name | Value | | Unit | Remarks |
|-----------------------------|--|------------------------|-----------------------|-----|------|---|
| | | | Min | Max | | |
| WRnX delay time | t _{CHWL} , t _{CHWH} | SYCLK WR0X, WR1X | 0.5 | 18 | ns | |
| WRnX minimum pulse | t _{WLWH} | WR0X, WR1X | t _{CYC} - 10 | - | ns | WWT = 0 *2 |
| SYCLK↑→ data output time | t _{CHDV} | SYCLK D16 to D31 | 0.5 | 18 | ns | |
| SYCLK↑→ data hold time | t _{CHDX} | | - | 18 | ns | Set WRCS to 1 or more. |
| SYCLK↑→ address output time | t _{CHMAV} | SYCLK D16 to D31 | 0.5 | 18 | ns | |
| SYCLK↑→ address hold time | t _{CHMAX} | | - | 18 | ns | In multiplex mode, set as follows: <input type="checkbox"/> Set CSWR and CSRD to 2 or more. <input type="checkbox"/> ASCY must satisfy the following conditions because of setting ADCY > ASCY and protocol violation prevention. ADCY + 1 ≤ ACS + CSRD ADCY + 1 ≤ ACS + CSWR ASCY + 1 ≤ ACS + CSRD ASCY + 1 ≤ ACS + CSWR See Hardware Manual for details. |

*1: Please use it with external load capacity 12 pF or less for VCC = 3.3 V ± 0.3 V (40 MHz operation).

*2: If the bus is expanded by automatic wait insertion or RDY input, add time (t_{CYC} × the number of expanded cycles) to the rated value.

External bus I/F (synchronous mode, read operation, and multiplex mode) timing



External bus I/F (synchronous mode, read operation, and split mode) timing



External bus I/F (synchronous mode, write operation, and multiplex mode) timing



External bus I/F (synchronous mode, write operation, and split mode) timing



(11) External bus I/F (asynchronous mode) timing

(TA: -40 °C to +105 °C, VCC = AVCC = 5.0 V ± 10 %/VCC = AVCC = 3.3 V ± 0.3 V, VSS = AVSS = 0.0 V)

(external load capacitance 50pF)

| Parameter | Symbol | Pin Name | Value | | Unit | Remarks |
|-----------------------------|---------|-------------------------------|--------------|-------------|------|---|
| | | | Min | Max | | |
| Cycle time | tcyc | SYSCLK | 25 | - | ns | VCC = 5.0 V ± 10 % ^{*1} |
| | | | 31.25 | | | VCC = 3.3 V ± 0.3 V |
| Address setup → RDX↑time | tASRH | RDX A00 to A21 | 2×tcyc - 12 | 2×tcyc + 12 | ns | RWT = 1, set RWT to 1 or more. ^{*2} |
| RDX↑→ Address hold | tRHAH | | tcyc - 12 | tcyc + 12 | ns | Set RDCS to 1 or more. |
| Data setup→ RDX↑time | tDSRH | RDX D16 to D31 | 18 + tcyc | - | ns | RWT = 1, set RWT to 1 or more. |
| RDX↑→ Data hold | tRHDH | | 0 | - | ns | |
| Address setup→ WRnX↑time | tASWH | WR0X to WR1X A00 to A21 | tcyc - 12 | tcyc + 12 | ns | WWT = 0 ^{*2} |
| WRnX↑→ Address hold | tWHAH | | tcyc - 12 | tcyc + 12 | ns | Set WRCS to 1 or more. |
| Data setup→ WRnX↑time | tDSWH | WR0X to WR1X D16 to D31 | tcyc - 16 | tcyc + 16 | ns | WWT = 0 ^{*2} |
| WRnX↑→ Data hold | tWHDH | | tcyc - 16 | tcyc + 16 | ns | Set WRCS to 1 or more. |
| Address setup → ASX↑time | tMASASH | ASX D16 to D31 | tcyc-16 | tcyc+ 16 | ns | ASCY = 0 |
| ASX↑→Address hold | tMASHAH | | tcyc-16 | tcyc + 16 | ns | In multiplex mode, set as follows: <input type="checkbox"/> Set CSWR and CSRD to 2 or more. <input type="checkbox"/> ASCY must satisfy the following conditions because of setting ADCY > ASCY and protocol violation prevention. ADCY + 1 ≤ ACS + CSRD ADCY + 1 ≤ ACS + CSWR ASCY + 1 ≤ ACS + CSRD ASCY + 1 ≤ ACS + CSWR See Hardware Manual for details. |

^{*1}: Please use it with external load capacity 12 pF or less for VCC = 3.3 V ± 0.3 V (40 MHz operation).

^{*2}: If the bus is expanded by automatic wait insertion or RDY input, add time (tcyc × the number of expanded cycles) to the rated value.

External bus I/F (asynchronous mode, read operation, and multiplex mode) Timing



External bus I/F (asynchronous mode, read operation, and split mode) Timing



External bus I/F (asynchronous mode, write operation, and multiplex mode) Timing



External bus I/F (Asynchronous mode, write operation, and split mode) Timing



(12) External bus I/F (ready) Timing

(T_A: -40 °C to +105 °C, V_{CC} = AV_{CC} = 5.0 V ± 10 %/V_{CC} = AV_{CC} = 3.3 V ± 0.3 V, V_{SS} = AV_{SS} = 0.0 V)

(external load capacitance 50 pF)

| Parameter | Symbol | Pin Name | Value | | Unit | Remarks |
|--------------------------|-------------------|-------------|-------|-----|------|---|
| | | | Min | Max | | |
| Cycle time | t _{cyC} | SYSCLK | 50 | - | ns | If using RDY, set SYSCLK to 20 MHz or less. |
| RDY setup time → SYSCLK↑ | t _{RDYS} | SYSCLK, RDY | 28 | - | ns | |
| SYSCLK↑→ RDY hold time | t _{RDYH} | SYSCLK, RDY | 0 | - | ns | |



A/D Converter
(1) 12-bit A/D Converter Electrical Characteristics

(TA: -40 °C to +125 °C, VCC = AVCC = 5.0 V ± 10 %/VCC = AVCC = 3.3 V ± 0.3 V, VSS = AVSS = 0.0 V)

| Parameter | Symbol | Pin Name | Value | | | Unit | Remarks |
|-------------------------------|------------------|-------------|--------------|------|--------------|------|--|
| | | | Min | Typ | Max | | |
| Resolution | - | - | - | - | 12 | bit | |
| Total error | - | - | - | - | ±12 | LSB | |
| Linearity error | - | - | - | - | ± 4.0 | LSB | |
| Differential linearity error | - | - | - | - | ± 1.9 | LSB | |
| Zero transition voltage | V _{OT} | AN0 to AN47 | AVRL-11.5LSB | - | AVRL+12.5LSB | V | 1LSB = (V _{FST} -V _{OT})/4094 |
| Full-scale transition voltage | V _{FST} | AN0 to AN47 | AVRH-13.5LSB | - | AVRH+10.5LSB | V | |
| Sampling time | t _{SMP} | - | 0.7 | - | - | µs | *1 |
| Compare time | t _{CMP} | - | 0.7 | - | - | µs | *1 |
| A/D conversion time | t _{CNV} | - | 1.4 | - | - | µs | *1 |
| Analog port input current | I _{AIN} | AN0 to AN47 | -1.0 | - | +1.0 | µA | V _{AVSS} ≤ V _{AIN} ≤ V _{AVCC} |
| Analog input voltage | V _{AIN} | AN0 to AN47 | AVRL | - | AVRH | V | |
| Reference voltage | AVRH | AVRH | 3.0 | - | 5.5 | V | |
| | AVRL | AVSS/AVRL | - | 0.0 | - | V | |
| Power supply current | I _A | AVCC*3 | - | 0.47 | 0.63 | mA | Per unit T _A : +105 °C |
| | | | - | 0.47 | 0.7 | mA | Per unit T _A : +125 °C |
| | I _{AH} | AVRH | - | - | 2.5 | µA | *2 |
| | I _{RH} | | - | 1 | 1.96 | mA | Per unit |
| Variation between channels | - | AN0 to AN47 | - | - | 4 | LSB | |
| | | | - | - | 4 | LSB | |

*1: Time for each channel.

 *2: Power supply current (V_{CC} = AV_{CC} = 5.0 V) is specified if A/D converter is not operating and CPU is stopped.

*3: The power supply current described only current value on A/D converter.

 The total AV_{CC} current value must be calculated the power supply current for A/D converter and D/A converter.

(Note) Please use the clock of 0.5 MHz-20 MHz for the output clock of A/D converter to guarantee accuracy.

(2) Definition of A/D Converter Terms

- Resolution : Analog variation that is recognized by an A/D converter.
- Linearity error : Deviation of the actual conversion characteristics from a straight line that connects the zero transition point ("0000 0000 0000" ← → "0000 0000 0001") to the full-scale transition point ("1111 1111 1110" ← → "1111 1111 1111").
- Differential linearity error : Deviation of the input voltage from the ideal value that is required to change the output code by LSB.



(3) Notes on Using A/D Converter

<About the output impedance of the analog input of external circuit>

When the external impedance is too high, the sampling period for analog voltages may not be sufficient. In this case, it is recommended to connect the capacitor (approx. 0.1 μ F) to the analog input pin.

• Analog input circuit model



| | R | C | |
|------------|----------------------|---------------|--|
| 12-bit A/D | 1.9 k Ω (Max) | 8.30 pF (Max) | (4.5 V \leq AV _{CC} \leq 5.5 V) |
| | 4.3 k Ω (Max) | 8.30 pF (Max) | (3.0 V \leq AV _{CC} \leq 3.6 V) |

Note: Listed values must be considered as reference values.

Flash Memory
(1) Electrical Characteristics

| Parameter | Value | | | Unit | Remarks |
|---|---|-----|------|------|---|
| | Min | Typ | Max | | |
| Sector erase time | – | 200 | 800 | ms | 8 Kbytes sector* ¹ , excluding internal preprogramming time |
| | – | 300 | 1100 | ms | 8 Kbytes sector* ¹ , including internal preprogramming time |
| | – | 400 | 2000 | ms | 64 Kbytes sector* ¹ , excluding internal preprogramming time |
| | – | 700 | 3700 | ms | 64 Kbytes sector* ¹ , including internal preprogramming time |
| 8-bit writing time | – | 9 | 288 | μs | Exclusive of overhead time at system level* ¹ |
| 16-bit writing time | – | 12 | 384 | μs | Exclusive of overhead time at system level* ¹ |
| ECC writing time | – | 9 | 288 | μs | Exclusive of overhead time at system level* ¹ |
| Erase cycle* ² / Data retain time | 1,000 cycles/ 20 years, 10,000 cycles/ 10 years, 100,000 cycles/ 5 years | – | – | – | Average T _A = +85 °C* ³ |

*1: The guaranteed value for erasure up to 100,000 cycles.

*2: Number of erase cycles for each sector.

*3: This value comes from the technology qualification (using Arrhenius equation to translate high temperature measurements into normalized value at + 85 °C).

(2) Notes

While the Flash memory is written or erased, shutdown of the external power (V_{CC}) is prohibited.

In the application system where V_{CC} might be shut down while writing or erasing, be sure to turn the power off by using an external voltage detection function.

To put it concretely, after the external power supply voltage falls below the detection voltage (V_{DL}), hold V_{CC} at 2.7 V or more within the duration calculated by the following expression:

$$T_d^*[\mu\text{s}] + (\text{period of PCLK}[\mu\text{s}] \times 257) + 50[\mu\text{s}]$$

*: See “4.AC Characteristics (8) Low-voltage detection (External low-voltage detection)”

D/A Converter

 (T_A: -40 °C to +125 °C, V_{CC} = AV_{CC} = 5.0 V ± 10 %/V_{CC} = AV_{CC} = 3.3 V ± 0.3 V, V_{SS} = AV_{SS} = 0.0 V)

| Parameter | Symbol | Pin Name | Condition | Value | | | Unit | Remarks |
|------------------------------------|----------------|----------|-----------|-------|------|-------|------|--------------------------------|
| | | | | Min | Typ | Max | | |
| Resolution | - | - | - | - | - | 8 | bit | |
| Differential linearity error | - | - | - | - | - | ± 3.0 | LSB | |
| Conversion time | - | - | - | 0.47 | 0.58 | 0.69 | µs | C _L = 20 |
| | | | - | 2.37 | 2.90 | 3.43 | µs | C _L = 100 |
| Output impedance | R _o | DA0, DA1 | - | 3.1 | 3.8 | 4.5 | kΩ | |
| Power supply current ^{*1} | IA | AVCC | - | - | 475 | 580 | µA | Each channel |
| | IAH | AVCC | - | - | - | 7.5 | µA | When powerdown Each channel |

*1: The power supply current described only current value on D/A converter.

The total AV_{CC} current value must be calculated the power supply current for D/A converter and A/D converter.

12. Example Characteristics

This characteristic is an actual value of the arbitrary sample. It is not the guaranteed value.

CY91F526



CY91F526



CY91F526



13. Ordering Information CY91F52xxxB*1

| Part Number | Sub Clock | CSV Initial Value | LVD Initial Value | Package*2 |
|----------------|-----------|-------------------|-------------------|---------------------------|
| CY91F526LWBPMC | Yes | ON | ON | LQP · 176 pin, Plastic |
| CY91F526LYBPMC | | | OFF | |
| CY91F526LJBPMC | | OFF | ON | |
| CY91F526LLBPMC | | | OFF | |
| CY91F525LWBPMC | | ON | ON | |
| CY91F525LYBPMC | | | OFF | |
| CY91F525LJBPMC | | OFF | ON | |
| CY91F525LLBPMC | | | OFF | |
| CY91F524LWBPMC | | ON | ON | |
| CY91F524LYBPMC | | | OFF | |
| CY91F524LJBPMC | | OFF | ON | |
| CY91F524LLBPMC | | | OFF | |
| CY91F523LWBPMC | | ON | ON | |
| CY91F523LYBPMC | | | OFF | |
| CY91F523LJBPMC | | OFF | ON | |
| CY91F523LLBPMC | | | OFF | |
| CY91F522LWBPMC | | ON | ON | |
| CY91F522LYBPMC | | | OFF | |
| CY91F522LJBPMC | | OFF | ON | |
| CY91F522LLBPMC | | | OFF | |
| CY91F526LSBPMC | None | ON | ON | |
| CY91F526LUBPMC | | | OFF | |
| CY91F526LHBPMC | | OFF | ON | |
| CY91F526LKBPMC | | | OFF | |
| CY91F525LSBPMC | | ON | ON | |
| CY91F525LUBPMC | | | OFF | |
| CY91F525LHBPMC | | OFF | ON | |
| CY91F525LKBPMC | | | OFF | |
| CY91F524LSBPMC | | ON | ON | |
| CY91F524LUBPMC | | | OFF | |
| CY91F524LHBPMC | | OFF | ON | |
| CY91F524LKBPMC | | | OFF | |
| CY91F523LSBPMC | | ON | ON | |
| CY91F523LUBPMC | | | OFF | |
| CY91F523LHBPMC | | OFF | ON | |
| CY91F523LKBPMC | | | OFF | |
| CY91F522LSBPMC | | ON | ON | |
| CY91F522LUBPMC | | | OFF | |
| CY91F522LHBPMC | | OFF | ON | |
| CY91F522LKBPMC | | | OFF | |

| Part Number | Sub Clock | CSV Initial Value | LVD Initial Value | Package*2 |
|----------------|-----------|-------------------|-------------------|--|
| CY91F526KWBPMC | Yes | ON | ON | LQS · 144 pin, (Lead pitch 0.5 mm) Plastic |
| CY91F526KYBPMC | | OFF | OFF | |
| CY91F526KJBPMC | | OFF | ON | |
| CY91F526KLBPMC | | OFF | OFF | |
| CY91F525KWBPMC | | ON | ON | |
| CY91F525KYBPMC | | OFF | OFF | |
| CY91F525KJBPMC | | OFF | ON | |
| CY91F525KLBPMC | | OFF | OFF | |
| CY91F524KWBPMC | | ON | ON | |
| CY91F524KYBPMC | | OFF | OFF | |
| CY91F524KJBPMC | | OFF | ON | |
| CY91F524KLBPMC | | OFF | OFF | |
| CY91F523KWBPMC | | ON | ON | |
| CY91F523KYBPMC | | OFF | OFF | |
| CY91F523KJBPMC | | OFF | ON | |
| CY91F523KLBPMC | | OFF | OFF | |
| CY91F522KWBPMC | | ON | ON | |
| CY91F522KYBPMC | | OFF | OFF | |
| CY91F522KJBPMC | | OFF | ON | |
| CY91F522KLBPMC | | OFF | OFF | |
| CY91F526KSBPMC | None | ON | ON | |
| CY91F526KUBPMC | | OFF | OFF | |
| CY91F526KHBPMC | | OFF | ON | |
| CY91F526KKBPMC | | OFF | OFF | |
| CY91F525KSBPMC | | ON | ON | |
| CY91F525KUBPMC | | OFF | OFF | |
| CY91F525KHBPMC | | OFF | ON | |
| CY91F525KKBPMC | | OFF | OFF | |
| CY91F524KSBPMC | | ON | ON | |
| CY91F524KUBPMC | | OFF | OFF | |
| CY91F524KHBPMC | | OFF | ON | |
| CY91F524KKBPMC | | OFF | OFF | |
| CY91F523KSBPMC | | ON | ON | |
| CY91F523KUBPMC | | OFF | OFF | |
| CY91F523KHBPMC | | OFF | ON | |
| CY91F523KKBPMC | | OFF | OFF | |
| CY91F522KSBPMC | | ON | ON | |
| CY91F522KUBPMC | | OFF | OFF | |
| CY91F522KHBPMC | | OFF | ON | |
| CY91F522KKBPMC | | OFF | OFF | |

| Part Number | Sub Clock | CSV Initial Value | LVD Initial Value | Package*2 |
|-----------------|-----------|-------------------|-------------------|--|
| CY91F526KWBPMP1 | Yes | ON | ON | LQN • 144 pin, (Lead pitch 0.4 mm) Plastic |
| CY91F526KYBPMP1 | | | OFF | |
| CY91F526KJBPM1 | | OFF | ON | |
| CY91F526KLBPM1 | | | OFF | |
| CY91F525KWBPMP1 | | ON | ON | |
| CY91F525KYBPMP1 | | | OFF | |
| CY91F525KJBPM1 | | OFF | ON | |
| CY91F525KLBPM1 | | | OFF | |
| CY91F524KWBPMP1 | | ON | ON | |
| CY91F524KYBPMP1 | | | OFF | |
| CY91F524KJBPM1 | | OFF | ON | |
| CY91F524KLBPM1 | | | OFF | |
| CY91F523KWBPMP1 | | ON | ON | |
| CY91F523KYBPMP1 | | | OFF | |
| CY91F523KJBPM1 | | OFF | ON | |
| CY91F523KLBPM1 | | | OFF | |
| CY91F522KWBPMP1 | | ON | ON | |
| CY91F522KYBPMP1 | | | OFF | |
| CY91F522KJBPM1 | | OFF | ON | |
| CY91F522KLBPM1 | | | OFF | |
| CY91F526KSBPM1 | None | ON | ON | |
| CY91F526KUBPM1 | | | OFF | |
| CY91F526KHBPM1 | | OFF | ON | |
| CY91F526KKBPM1 | | | OFF | |
| CY91F525KSBPM1 | | ON | ON | |
| CY91F525KUBPM1 | | | OFF | |
| CY91F525KHBPM1 | | OFF | ON | |
| CY91F525KKBPM1 | | | OFF | |
| CY91F524KSBPM1 | | ON | ON | |
| CY91F524KUBPM1 | | | OFF | |
| CY91F524KHBPM1 | | OFF | ON | |
| CY91F524KKBPM1 | | | OFF | |
| CY91F523KSBPM1 | | ON | ON | |
| CY91F523KUBPM1 | | | OFF | |
| CY91F523KHBPM1 | | OFF | ON | |
| CY91F523KKBPM1 | | | OFF | |
| CY91F522KSBPM1 | | ON | ON | |
| CY91F522KUBPM1 | | | OFF | |
| CY91F522KHBPM1 | | OFF | ON | |
| CY91F522KKBPM1 | | | OFF | |

| Part Number | Sub Clock | CSV Initial Value | LVD Initial Value | Package*2 |
|----------------|-----------|-------------------|-------------------|---------------------------|
| CY91F526JWBPMC | Yes | ON | ON | LQM • 120 pin, Plastic |
| CY91F526JYBPMC | | OFF | OFF | |
| CY91F526JJBPMC | | OFF | ON | |
| CY91F526JLBPMC | | OFF | OFF | |
| CY91F525JWBPMC | | ON | ON | |
| CY91F525JYBPMC | | OFF | OFF | |
| CY91F525JJBPMC | | OFF | ON | |
| CY91F525JLBPMC | | OFF | OFF | |
| CY91F524JWBPMC | | ON | ON | |
| CY91F524JYBPMC | | OFF | OFF | |
| CY91F524JJBPMC | | OFF | ON | |
| CY91F524JLBPMC | | OFF | OFF | |
| CY91F523JWBPMC | | ON | ON | |
| CY91F523JYBPMC | | OFF | OFF | |
| CY91F523JJBPMC | | OFF | ON | |
| CY91F523JLBPMC | | OFF | OFF | |
| CY91F522JWBPMC | | ON | ON | |
| CY91F522JYBPMC | | OFF | OFF | |
| CY91F522JJBPMC | | OFF | ON | |
| CY91F522JLBPMC | | OFF | OFF | |
| CY91F526JSBPMC | None | ON | ON | |
| CY91F526JUBPMC | | OFF | OFF | |
| CY91F526JHBPMC | | OFF | ON | |
| CY91F526JKBPMC | | OFF | OFF | |
| CY91F525JSBPMC | | ON | ON | |
| CY91F525JUBPMC | | OFF | OFF | |
| CY91F525JHBPMC | | OFF | ON | |
| CY91F525JKBPMC | | OFF | OFF | |
| CY91F524JSBPMC | | ON | ON | |
| CY91F524JUBPMC | | OFF | OFF | |
| CY91F524JHBPMC | | OFF | ON | |
| CY91F524JKBPMC | | OFF | OFF | |
| CY91F523JSBPMC | | ON | ON | |
| CY91F523JUBPMC | | OFF | OFF | |
| CY91F523JHBPMC | | OFF | ON | |
| CY91F523JKBPMC | | OFF | OFF | |
| CY91F522JSBPMC | | ON | ON | |
| CY91F522JUBPMC | | OFF | OFF | |
| CY91F522JHBPMC | | OFF | ON | |
| CY91F522JKBPMC | | OFF | OFF | |

| Part Number | Sub Clock | CSV Initial Value | LVD Initial Value | Package*2 |
|----------------|-----------|-------------------|-------------------|---------------------------|
| CY91F526FWBPMC | Yes | ON | ON | LQI • 100 pin, Plastic |
| CY91F526FYBPMC | | OFF | OFF | |
| CY91F526FJBPMC | | OFF | ON | |
| CY91F526FLBPMC | | OFF | OFF | |
| CY91F525FWBPMC | | ON | ON | |
| CY91F525FYBPMC | | OFF | OFF | |
| CY91F525FJBPMC | | OFF | ON | |
| CY91F525FLBPMC | | OFF | OFF | |
| CY91F524FWBPMC | | ON | ON | |
| CY91F524FYBPMC | | OFF | OFF | |
| CY91F524FJBPMC | | OFF | ON | |
| CY91F524FLBPMC | | OFF | OFF | |
| CY91F523FWBPMC | | ON | ON | |
| CY91F523FYBPMC | | OFF | OFF | |
| CY91F523FJBPMC | | OFF | ON | |
| CY91F523FLBPMC | | OFF | OFF | |
| CY91F522FWBPMC | | ON | ON | |
| CY91F522FYBPMC | | OFF | OFF | |
| CY91F522FJBPMC | | OFF | ON | |
| CY91F522FLBPMC | | OFF | OFF | |
| CY91F526FSBPMC | None | ON | ON | |
| CY91F526FUBPMC | | OFF | OFF | |
| CY91F526FHBPMC | | OFF | ON | |
| CY91F526FKBPMC | | OFF | OFF | |
| CY91F525FSBPMC | | ON | ON | |
| CY91F525FUBPMC | | OFF | OFF | |
| CY91F525FHBPMC | | OFF | ON | |
| CY91F525FKBPMC | | OFF | OFF | |
| CY91F524FSBPMC | | ON | ON | |
| CY91F524FUBPMC | | OFF | OFF | |
| CY91F524FHBPMC | | OFF | ON | |
| CY91F524FKBPMC | | OFF | OFF | |
| CY91F523FSBPMC | | ON | ON | |
| CY91F523FUBPMC | | OFF | OFF | |
| CY91F523FHBPMC | | OFF | ON | |
| CY91F523FKBPMC | | OFF | OFF | |
| CY91F522FSBPMC | | ON | ON | |
| CY91F522FUBPMC | | OFF | OFF | |
| CY91F522FHBPMC | | OFF | ON | |
| CY91F522FKBPMC | | OFF | OFF | |

| Part Number | Sub Clock | CSV Initial Value | LVD Initial Value | Package*2 |
|----------------|-----------|-------------------|-------------------|--------------------------|
| CY91F526DWBPMC | Yes | ON | ON | LQH · 80 pin, Plastic |
| CY91F526DYBPMC | | OFF | OFF | |
| CY91F526DJBPMC | | OFF | ON | |
| CY91F526DLBPMC | | OFF | OFF | |
| CY91F525DWBPMC | | ON | ON | |
| CY91F525DYBPMC | | OFF | OFF | |
| CY91F525DJBPMC | | OFF | ON | |
| CY91F525DLBPMC | | OFF | OFF | |
| CY91F524DWBPMC | | ON | ON | |
| CY91F524DYBPMC | | OFF | OFF | |
| CY91F524DJBPMC | | OFF | ON | |
| CY91F524DLBPMC | | OFF | OFF | |
| CY91F523DWBPMC | | ON | ON | |
| CY91F523DYBPMC | | OFF | OFF | |
| CY91F523DJBPMC | | OFF | ON | |
| CY91F523DLBPMC | | OFF | OFF | |
| CY91F522DWBPMC | | ON | ON | |
| CY91F522DYBPMC | | OFF | OFF | |
| CY91F522DJBPMC | | OFF | ON | |
| CY91F522DLBPMC | | OFF | OFF | |
| CY91F526DSBPMC | None | ON | ON | |
| CY91F526DUBPMC | | OFF | OFF | |
| CY91F526DHBPMC | | OFF | ON | |
| CY91F526DKBPMC | | OFF | OFF | |
| CY91F525DSBPMC | | ON | ON | |
| CY91F525DUBPMC | | OFF | OFF | |
| CY91F525DHBPMC | | OFF | ON | |
| CY91F525DKBPMC | | OFF | OFF | |
| CY91F524DSBPMC | | ON | ON | |
| CY91F524DUBPMC | | OFF | OFF | |
| CY91F524DHBPMC | | OFF | ON | |
| CY91F524DKBPMC | | OFF | OFF | |
| CY91F523DSBPMC | | ON | ON | |
| CY91F523DUBPMC | | OFF | OFF | |
| CY91F523DHBPMC | | OFF | ON | |
| CY91F523DKBPMC | | OFF | OFF | |
| CY91F522DSBPMC | | ON | ON | |
| CY91F522DUBPMC | | OFF | OFF | |
| CY91F522DHBPMC | | OFF | ON | |
| CY91F522DKBPMC | | OFF | OFF | |

| Part Number | Sub Clock | CSV Initial Value | LVD Initial Value | Package*2 |
|-----------------|-----------|-------------------|-------------------|--------------------------|
| CY91F526BWBPMC1 | Yes | ON | ON | LQD • 64 pin, Plastic |
| CY91F526BYBPMC1 | | OFF | OFF | |
| CY91F526BJBPMC1 | | OFF | ON | |
| CY91F526BLBPMC1 | | OFF | OFF | |
| CY91F525BWBPMC1 | | ON | ON | |
| CY91F525BYBPMC1 | | OFF | OFF | |
| CY91F525BJBPMC1 | | OFF | ON | |
| CY91F525BLBPMC1 | | OFF | OFF | |
| CY91F524BWBPMC1 | | ON | ON | |
| CY91F524BYBPMC1 | | OFF | OFF | |
| CY91F524BJBPMC1 | | OFF | ON | |
| CY91F524BLBPMC1 | | OFF | OFF | |
| CY91F523BWBPMC1 | | ON | ON | |
| CY91F523BYBPMC1 | | OFF | OFF | |
| CY91F523BJBPMC1 | | OFF | ON | |
| CY91F523BLBPMC1 | | OFF | OFF | |
| CY91F522BWBPMC1 | | ON | ON | |
| CY91F522BYBPMC1 | | OFF | OFF | |
| CY91F522BJBPMC1 | | OFF | ON | |
| CY91F522BLBPMC1 | | OFF | OFF | |
| CY91F526BSBPMC1 | None | ON | ON | |
| CY91F526BUBPMC1 | | OFF | OFF | |
| CY91F526BHBPMC1 | | OFF | ON | |
| CY91F526KBPMC1 | | OFF | OFF | |
| CY91F525BSBPMC1 | | ON | ON | |
| CY91F525BUBPMC1 | | OFF | OFF | |
| CY91F525BHBPMC1 | | OFF | ON | |
| CY91F525KBPMC1 | | OFF | OFF | |
| CY91F524BSBPMC1 | | ON | ON | |
| CY91F524BUBPMC1 | | OFF | OFF | |
| CY91F524BHBPMC1 | | OFF | ON | |
| CY91F524KBPMC1 | | OFF | OFF | |
| CY91F523BSBPMC1 | | ON | ON | |
| CY91F523BUBPMC1 | | OFF | OFF | |
| CY91F523BHBPMC1 | | OFF | ON | |
| CY91F523KBPMC1 | | OFF | OFF | |
| CY91F522BSBPMC1 | | ON | ON | |
| CY91F522BUBPMC1 | | OFF | OFF | |
| CY91F522BHBPMC1 | | OFF | ON | |
| CY91F522KBPMC1 | | OFF | OFF | |

*1: It is only supported for customers who have already adopted it now. We do not recommend adopting new products.

*2: For details of the package, see [Package Dimensions](#).

14. Ordering Information CY91F52xxxC*1

| Part Number | Sub Clock | CSV Initial Value | LVD Initial Value | Package ² |
|----------------|-----------|-------------------|-------------------|---------------------------|
| CY91F526LWCPMC | Yes | ON | ON | LQP · 176 pin, Plastic |
| CY91F526LYCPMC | | | OFF | |
| CY91F526LJCPMC | | OFF | ON | |
| CY91F526LLCPMC | | | OFF | |
| CY91F525LWCPMC | | ON | ON | |
| CY91F525LYCPMC | | | OFF | |
| CY91F525LJCPMC | | OFF | ON | |
| CY91F525LLCPMC | | | OFF | |
| CY91F524LWCPMC | | ON | ON | |
| CY91F524LYCPMC | | | OFF | |
| CY91F524LJCPMC | | OFF | ON | |
| CY91F524LLCPMC | | | OFF | |
| CY91F523LWCPMC | | ON | ON | |
| CY91F523LYCPMC | | | OFF | |
| CY91F523LJCPMC | | OFF | ON | |
| CY91F523LLCPMC | | | OFF | |
| CY91F522LWCPMC | | ON | ON | |
| CY91F522LYCPMC | | | OFF | |
| CY91F522LJCPMC | | OFF | ON | |
| CY91F522LLCPMC | | | OFF | |
| CY91F526LSCPMC | None | ON | ON | |
| CY91F526LUCPMC | | | OFF | |
| CY91F526LHCPMC | | OFF | ON | |
| CY91F526LKCPMC | | | OFF | |
| CY91F525LSCPMC | | ON | ON | |
| CY91F525LUCPMC | | | OFF | |
| CY91F525LHCPMC | | OFF | ON | |
| CY91F525LKCPMC | | | OFF | |
| CY91F524LSCPMC | | ON | ON | |
| CY91F524LUCPMC | | | OFF | |
| CY91F524LHCPMC | | OFF | ON | |
| CY91F524LKCPMC | | | OFF | |
| CY91F523LSCPMC | | ON | ON | |
| CY91F523LUCPMC | | | OFF | |
| CY91F523LHCPMC | | OFF | ON | |
| CY91F523LKCPMC | | | OFF | |
| CY91F522LSCPMC | | ON | ON | |
| CY91F522LUCPMC | | | OFF | |
| CY91F522LHCPMC | | OFF | ON | |
| CY91F522LKCPMC | | | OFF | |

| Part Number | Sub Clock | CSV Initial Value | LVD Initial Value | Package ² |
|----------------|-----------|-------------------|-------------------|--|
| CY91F526KWCPMC | Yes | ON | ON | LQS · 144 pin, (Lead pitch 0.5 mm) Plastic |
| CY91F526KYCPMC | | OFF | OFF | |
| CY91F526KJCPMC | | OFF | ON | |
| CY91F526KLCPMC | | OFF | OFF | |
| CY91F525KWCPMC | | ON | ON | |
| CY91F525KYCPMC | | OFF | OFF | |
| CY91F525KJCPMC | | OFF | ON | |
| CY91F525KLCPMC | | OFF | OFF | |
| CY91F524KWCPMC | | ON | ON | |
| CY91F524KYCPMC | | OFF | OFF | |
| CY91F524KJCPMC | | OFF | ON | |
| CY91F524KLCPMC | | OFF | OFF | |
| CY91F523KWCPMC | | ON | ON | |
| CY91F523KYCPMC | | OFF | OFF | |
| CY91F523KJCPMC | | OFF | ON | |
| CY91F523KLCPMC | | OFF | OFF | |
| CY91F522KWCPMC | | ON | ON | |
| CY91F522KYCPMC | | OFF | OFF | |
| CY91F522KJCPMC | | OFF | ON | |
| CY91F522KLCPMC | | OFF | OFF | |
| CY91F526KSPPMC | None | ON | ON | |
| CY91F526KUCPMC | | OFF | OFF | |
| CY91F526KHCPMC | | OFF | ON | |
| CY91F526KKCPMC | | OFF | OFF | |
| CY91F525KSPPMC | | ON | ON | |
| CY91F525KUCPMC | | OFF | OFF | |
| CY91F525KHCPMC | | OFF | ON | |
| CY91F525KKCPMC | | OFF | OFF | |
| CY91F524KSPPMC | | ON | ON | |
| CY91F524KUCPMC | | OFF | OFF | |
| CY91F524KHCPMC | | OFF | ON | |
| CY91F524KKCPMC | | OFF | OFF | |
| CY91F523KSPPMC | | ON | ON | |
| CY91F523KUCPMC | | OFF | OFF | |
| CY91F523KHCPMC | | OFF | ON | |
| CY91F523KKCPMC | | OFF | OFF | |
| CY91F522KSPPMC | | ON | ON | |
| CY91F522KUCPMC | | OFF | OFF | |
| CY91F522KHCPMC | | OFF | ON | |
| CY91F522KKCPMC | | OFF | OFF | |

| Part Number | Sub Clock | CSV Initial Value | LVD Initial Value | Package ² |
|-----------------|-----------|-------------------|-------------------|--|
| CY91F526KWCPMC1 | Yes | ON | ON | LQN • 144 pin, (Lead pitch 0.4 mm) Plastic |
| CY91F526KYCPMC1 | | | OFF | |
| CY91F526KJCPMC1 | | OFF | ON | |
| CY91F526KLCPMC1 | | | OFF | |
| CY91F525KWCPMC1 | | ON | ON | |
| CY91F525KYCPMC1 | | | OFF | |
| CY91F525KJCPMC1 | | OFF | ON | |
| CY91F525KLCPMC1 | | | OFF | |
| CY91F524KWCPMC1 | | ON | ON | |
| CY91F524KYCPMC1 | | | OFF | |
| CY91F524KJCPMC1 | | OFF | ON | |
| CY91F524KLCPMC1 | | | OFF | |
| CY91F523KWCPMC1 | | ON | ON | |
| CY91F523KYCPMC1 | | | OFF | |
| CY91F523KJCPMC1 | | OFF | ON | |
| CY91F523KLCPMC1 | | | OFF | |
| CY91F522KWCPMC1 | | ON | ON | |
| CY91F522KYCPMC1 | | | OFF | |
| CY91F522KJCPMC1 | | OFF | ON | |
| CY91F522KLCPMC1 | | | OFF | |
| CY91F526KSCPMC1 | None | ON | ON | |
| CY91F526KUCPMC1 | | | OFF | |
| CY91F526KHCPMC1 | | OFF | ON | |
| CY91F526KKCPMC1 | | | OFF | |
| CY91F525KSCPMC1 | | ON | ON | |
| CY91F525KUCPMC1 | | | OFF | |
| CY91F525KHCPMC1 | | OFF | ON | |
| CY91F525KKCPMC1 | | | OFF | |
| CY91F524KSCPMC1 | | ON | ON | |
| CY91F524KUCPMC1 | | | OFF | |
| CY91F524KHCPMC1 | | OFF | ON | |
| CY91F524KKCPMC1 | | | OFF | |
| CY91F523KSCPMC1 | | ON | ON | |
| CY91F523KUCPMC1 | | | OFF | |
| CY91F523KHCPMC1 | | OFF | ON | |
| CY91F523KKCPMC1 | | | OFF | |
| CY91F522KSCPMC1 | | ON | ON | |
| CY91F522KUCPMC1 | | | OFF | |
| CY91F522KHCPMC1 | | OFF | ON | |
| CY91F522KKCPMC1 | | | OFF | |

| Part Number | Sub Clock | CSV Initial Value | LVD Initial Value | Package ² |
|------------------|-----------|-------------------|-------------------|---------------------------|
| CY91F526JWCPCMC | Yes | ON | ON | LQM • 120 pin, Plastic |
| CY91F526JYCPCMC | | OFF | OFF | |
| CY91F526JJPCPCMC | | OFF | ON | |
| CY91F526JLPCPCMC | | OFF | OFF | |
| CY91F525JWCPCMC | | ON | ON | |
| CY91F525JYCPCMC | | OFF | OFF | |
| CY91F525JJPCPCMC | | OFF | ON | |
| CY91F525JLPCPCMC | | OFF | OFF | |
| CY91F524JWCPCMC | | ON | ON | |
| CY91F524JYCPCMC | | OFF | OFF | |
| CY91F524JJPCPCMC | | OFF | ON | |
| CY91F524JLPCPCMC | | OFF | OFF | |
| CY91F523JWCPCMC | | ON | ON | |
| CY91F523JYCPCMC | | OFF | OFF | |
| CY91F523JJPCPCMC | | OFF | ON | |
| CY91F523JLPCPCMC | | OFF | OFF | |
| CY91F522JWCPCMC | | ON | ON | |
| CY91F522JYCPCMC | | OFF | OFF | |
| CY91F522JJPCPCMC | | OFF | ON | |
| CY91F522JLPCPCMC | | OFF | OFF | |
| CY91F526JSCPCMC | None | ON | ON | |
| CY91F526JUCPCMC | | OFF | OFF | |
| CY91F526JHPCPCMC | | OFF | ON | |
| CY91F526JKPCPCMC | | OFF | OFF | |
| CY91F525JSCPCMC | | ON | ON | |
| CY91F525JUCPCMC | | OFF | OFF | |
| CY91F525JHPCPCMC | | OFF | ON | |
| CY91F525JKPCPCMC | | OFF | OFF | |
| CY91F524JSCPCMC | | ON | ON | |
| CY91F524JUCPCMC | | OFF | OFF | |
| CY91F524JHPCPCMC | | OFF | ON | |
| CY91F524JKPCPCMC | | OFF | OFF | |
| CY91F523JSCPCMC | | ON | ON | |
| CY91F523JUCPCMC | | OFF | OFF | |
| CY91F523JHPCPCMC | | OFF | ON | |
| CY91F523JKPCPCMC | | OFF | OFF | |
| CY91F522JSCPCMC | | ON | ON | |
| CY91F522JUCPCMC | | OFF | OFF | |
| CY91F522JHPCPCMC | | OFF | ON | |
| CY91F522JKPCPCMC | | OFF | OFF | |

| Part Number | Sub Clock | CSV Initial Value | LVD Initial Value | Package ² |
|----------------|-----------|-------------------|-------------------|---------------------------|
| CY91F526FWCPMC | Yes | ON | ON | LQI • 100 pin, Plastic |
| CY91F526FYCPMC | | | OFF | |
| CY91F526FJCPMC | | OFF | ON | |
| CY91F526FLCPMC | | | OFF | |
| CY91F525FWCPMC | | ON | ON | |
| CY91F525FYCPMC | | | OFF | |
| CY91F525FJCPMC | | OFF | ON | |
| CY91F525FLCPMC | | | OFF | |
| CY91F524FWCPMC | | ON | ON | |
| CY91F524FYCPMC | | | OFF | |
| CY91F524FJCPMC | | OFF | ON | |
| CY91F524FLCPMC | | | OFF | |
| CY91F523FWCPMC | | ON | ON | |
| CY91F523FYCPMC | | | OFF | |
| CY91F523FJCPMC | | OFF | ON | |
| CY91F523FLCPMC | | | OFF | |
| CY91F522FWCPMC | | ON | ON | |
| CY91F522FYCPMC | | | OFF | |
| CY91F522FJCPMC | | OFF | ON | |
| CY91F522FLCPMC | | | OFF | |
| CY91F526FSCPMC | None | ON | ON | |
| CY91F526FUCPMC | | | OFF | |
| CY91F526FHCPMC | | OFF | ON | |
| CY91F526FKCPMC | | | OFF | |
| CY91F525FSCPMC | | ON | ON | |
| CY91F525FUCPMC | | | OFF | |
| CY91F525FHCPMC | | OFF | ON | |
| CY91F525FKCPMC | | | OFF | |
| CY91F524FSCPMC | | ON | ON | |
| CY91F524FUCPMC | | | OFF | |
| CY91F524FHCPMC | | OFF | ON | |
| CY91F524FKCPMC | | | OFF | |
| CY91F523FSCPMC | | ON | ON | |
| CY91F523FUCPMC | | | OFF | |
| CY91F523FHCPMC | | OFF | ON | |
| CY91F523FKCPMC | | | OFF | |
| CY91F522FSCPMC | | ON | ON | |
| CY91F522FUCPMC | | | OFF | |
| CY91F522FHCPMC | | OFF | ON | |
| CY91F522FKCPMC | | | OFF | |

| Part Number | Sub Clock | CSV Initial Value | LVD Initial Value | Package ² |
|----------------|-----------|-------------------|-------------------|--------------------------|
| CY91F526DWCPMC | Yes | ON | ON | LQH • 80 pin, Plastic |
| CY91F526DYCPMC | | OFF | OFF | |
| CY91F526DJCPMC | | OFF | ON | |
| CY91F526DLCPMC | | OFF | OFF | |
| CY91F525DWCPMC | | ON | ON | |
| CY91F525DYCPMC | | OFF | OFF | |
| CY91F525DJCPMC | | OFF | ON | |
| CY91F525DLCPMC | | OFF | OFF | |
| CY91F524DWCPMC | | ON | ON | |
| CY91F524DYCPMC | | OFF | OFF | |
| CY91F524DJCPMC | | OFF | ON | |
| CY91F524DLCPMC | | OFF | OFF | |
| CY91F523DWCPMC | | ON | ON | |
| CY91F523DYCPMC | | OFF | OFF | |
| CY91F523DJCPMC | | OFF | ON | |
| CY91F523DLCPMC | | OFF | OFF | |
| CY91F522DWCPMC | | ON | ON | |
| CY91F522DYCPMC | | OFF | OFF | |
| CY91F522DJCPMC | | OFF | ON | |
| CY91F522DLCPMC | | OFF | OFF | |
| CY91F526DSCPMC | None | ON | ON | |
| CY91F526DUCPMC | | OFF | OFF | |
| CY91F526DHCPMC | | OFF | ON | |
| CY91F526DKCPMC | | OFF | OFF | |
| CY91F525DSCPMC | | ON | ON | |
| CY91F525DUCPMC | | OFF | OFF | |
| CY91F525DHCPMC | | OFF | ON | |
| CY91F525DKCPMC | | OFF | OFF | |
| CY91F524DSCPMC | | ON | ON | |
| CY91F524DUCPMC | | OFF | OFF | |
| CY91F524DHCPMC | | OFF | ON | |
| CY91F524DKCPMC | | OFF | OFF | |
| CY91F523DSCPMC | | ON | ON | |
| CY91F523DUCPMC | | OFF | OFF | |
| CY91F523DHCPMC | | OFF | ON | |
| CY91F523DKCPMC | | OFF | OFF | |
| CY91F522DSCPMC | | ON | ON | |
| CY91F522DUCPMC | | OFF | OFF | |
| CY91F522DHCPMC | | OFF | ON | |
| CY91F522DKCPMC | | OFF | OFF | |

| Part Number | Sub Clock | CSV Initial Value | LVD Initial Value | Package ^{*2} |
|-----------------|-----------|-------------------|-------------------|--------------------------|
| CY91F526BWCPMC1 | Yes | ON | ON | LQD • 64 pin, Plastic |
| CY91F526BYCPMC1 | | | OFF | |
| CY91F526BJCPMC1 | | OFF | ON | |
| CY91F526BLCPMC1 | | | OFF | |
| CY91F525BWCPMC1 | | ON | ON | |
| CY91F525BYCPMC1 | | | OFF | |
| CY91F525BJCPMC1 | | OFF | ON | |
| CY91F525BLCPMC1 | | | OFF | |
| CY91F524BWCPMC1 | | ON | ON | |
| CY91F524BYCPMC1 | | | OFF | |
| CY91F524BJCPMC1 | | OFF | ON | |
| CY91F524BLCPMC1 | | | OFF | |
| CY91F523BWCPMC1 | | ON | ON | |
| CY91F523BYCPMC1 | | | OFF | |
| CY91F523BJCPMC1 | | OFF | ON | |
| CY91F523BLCPMC1 | | | OFF | |
| CY91F522BWCPMC1 | | ON | ON | |
| CY91F522BYCPMC1 | | | OFF | |
| CY91F522BJCPMC1 | | OFF | ON | |
| CY91F522BLCPMC1 | | | OFF | |
| CY91F526BSCPMC1 | None | ON | ON | |
| CY91F526BUCPMC1 | | | OFF | |
| CY91F526BHCPMC1 | | OFF | ON | |
| CY91F526BKCPMC1 | | | OFF | |
| CY91F525BSCPMC1 | | ON | ON | |
| CY91F525BUCPMC1 | | | OFF | |
| CY91F525BHCPMC1 | | OFF | ON | |
| CY91F525BKCPMC1 | | | OFF | |
| CY91F524BSCPMC1 | | ON | ON | |
| CY91F524BUCPMC1 | | | OFF | |
| CY91F524BHCPMC1 | | OFF | ON | |
| CY91F524BKCPMC1 | | | OFF | |
| CY91F523BSCPMC1 | | ON | ON | |
| CY91F523BUCPMC1 | | | OFF | |
| CY91F523BHCPMC1 | | OFF | ON | |
| CY91F523BKCPMC1 | | | OFF | |
| CY91F522BSCPMC1 | | ON | ON | |
| CY91F522BUCPMC1 | | | OFF | |
| CY91F522BHCPMC1 | | OFF | ON | |
| CY91F522BKCPMC1 | | | OFF | |

*1: It is only supported for customers who have already adopted it now. We do not recommend adopting new products.

*2: For details of the package, see [Package Dimensions](#).

15. Ordering Information CY91F52xxxD

| Part Number | Sub Clock | CSV Initial Value | LVD Initial Value | Package* |
|----------------|-----------|-------------------|-------------------|--|
| CY91F526LWDPMC | Yes | ON | ON | LQP • 176 pin, Plastic |
| CY91F526LJDPMC | | OFF | ON | |
| CY91F525LWDPMC | | ON | ON | |
| CY91F525LJDPMC | | OFF | ON | |
| CY91F524LWDPMC | | ON | ON | |
| CY91F524LJDPMC | | OFF | ON | |
| CY91F523LWDPMC | | ON | ON | |
| CY91F523LJDPMC | | OFF | ON | |
| CY91F522LWDPMC | | ON | ON | |
| CY91F522LJDPMC | | OFF | ON | |
| CY91F526LSDPMC | None | ON | ON | |
| CY91F526LHDPMC | | OFF | ON | |
| CY91F525LSDPMC | | ON | ON | |
| CY91F525LHDPMC | | OFF | ON | |
| CY91F524LSDPMC | | ON | ON | |
| CY91F524LHDPMC | | OFF | ON | |
| CY91F523LSDPMC | | ON | ON | |
| CY91F523LHDPMC | | OFF | ON | |
| CY91F522LSDPMC | ON | ON | | |
| CY91F522LHDPMC | OFF | ON | | |
| CY91F526KWDPMC | Yes | ON | ON | LQS • 144 pin, (Lead pitch 0.5 mm) Plastic |
| CY91F526KJDPMC | | OFF | ON | |
| CY91F525KWDPMC | | ON | ON | |
| CY91F525KJDPMC | | OFF | ON | |
| CY91F524KWDPMC | | ON | ON | |
| CY91F524KJDPMC | | OFF | ON | |
| CY91F523KWDPMC | | ON | ON | |
| CY91F523KJDPMC | | OFF | ON | |
| CY91F522KWDPMC | | ON | ON | |
| CY91F522KJDPMC | | OFF | ON | |
| CY91F526KSDPMC | None | ON | ON | |
| CY91F526KHDPMC | | OFF | ON | |
| CY91F525KSDPMC | | ON | ON | |
| CY91F525KHDPMC | | OFF | ON | |
| CY91F524KSDPMC | | ON | ON | |
| CY91F524KHDPMC | | OFF | ON | |
| CY91F523KSDPMC | | ON | ON | |
| CY91F523KHDPMC | | OFF | ON | |
| CY91F522KSDPMC | ON | ON | | |
| CY91F522KHDPMC | OFF | ON | | |

| Part Number | Sub Clock | CSV Initial Value | LVD Initial Value | Package* |
|-----------------|-----------|-------------------|-------------------|--|
| CY91F526KWDPMC1 | Yes | ON | ON | LQN • 144 pin, (Lead pitch 0.4 mm) Plastic |
| CY91F526KJDPMC1 | | OFF | ON | |
| CY91F525KWDPMC1 | | ON | ON | |
| CY91F525KJDPMC1 | | OFF | ON | |
| CY91F524KWDPMC1 | | ON | ON | |
| CY91F524KJDPMC1 | | OFF | ON | |
| CY91F523KWDPMC1 | | ON | ON | |
| CY91F523KJDPMC1 | | OFF | ON | |
| CY91F522KWDPMC1 | | ON | ON | |
| CY91F522KJDPMC1 | | OFF | ON | |
| CY91F526KSDPMC1 | | None | ON | |
| CY91F526KHDPMC1 | OFF | | ON | |
| CY91F525KSDPMC1 | ON | | ON | |
| CY91F525KHDPMC1 | OFF | | ON | |
| CY91F524KSDPMC1 | ON | | ON | |
| CY91F524KHDPMC1 | OFF | | ON | |
| CY91F523KSDPMC1 | ON | | ON | |
| CY91F523KHDPMC1 | OFF | | ON | |
| CY91F522KSDPMC1 | ON | | ON | |
| CY91F522KHDPMC1 | OFF | | ON | |
| CY91F526JWDPMC | Yes | | ON | |
| CY91F526JJDPMC | | OFF | ON | |
| CY91F525JWDPMC | | ON | ON | |
| CY91F525JJDPMC | | OFF | ON | |
| CY91F524JWDPMC | | ON | ON | |
| CY91F524JJDPMC | | OFF | ON | |
| CY91F523JWDPMC | | ON | ON | |
| CY91F523JJDPMC | | OFF | ON | |
| CY91F522JWDPMC | | ON | ON | |
| CY91F522JJDPMC | | OFF | ON | |
| CY91F526JSDPMC | | None | ON | ON |
| CY91F526JHDPMC | OFF | | ON | |
| CY91F525JSDPMC | ON | | ON | |
| CY91F525JHDPMC | OFF | | ON | |
| CY91F524JSDPMC | ON | | ON | |
| CY91F524JHDPMC | OFF | | ON | |
| CY91F523JSDPMC | ON | | ON | |
| CY91F523JHDPMC | OFF | | ON | |
| CY91F522JSDPMC | ON | | ON | |
| CY91F522JHDPMC | OFF | | ON | |

| Part Number | Sub Clock | CSV Initial Value | LVD Initial Value | Package* |
|-----------------|-----------|-------------------|-------------------|---------------------------|
| CY91F526FWDCPMC | Yes | ON | ON | LQI • 100 pin, Plastic |
| CY91F526FJDCPMC | | OFF | ON | |
| CY91F525FWDCPMC | | ON | ON | |
| CY91F525FJDCPMC | | OFF | ON | |
| CY91F524FWDCPMC | | ON | ON | |
| CY91F524FJDCPMC | | OFF | ON | |
| CY91F523FWDCPMC | | ON | ON | |
| CY91F523FJDCPMC | | OFF | ON | |
| CY91F522FWDCPMC | | ON | ON | |
| CY91F522FJDCPMC | | OFF | ON | |
| CY91F526FSDPMC | None | ON | ON | |
| CY91F526FHDCPMC | | OFF | ON | |
| CY91F525FSDPMC | | ON | ON | |
| CY91F525FHDCPMC | | OFF | ON | |
| CY91F524FSDPMC | | ON | ON | |
| CY91F524FHDCPMC | | OFF | ON | |
| CY91F523FSDPMC | | ON | ON | |
| CY91F523FHDCPMC | | OFF | ON | |
| CY91F522FSDPMC | | ON | ON | |
| CY91F522FHDCPMC | | OFF | ON | |
| CY91F526DWDPMC | Yes | ON | ON | LQH • 80 pin, Plastic |
| CY91F526DJDCPMC | | OFF | ON | |
| CY91F525DWDPMC | | ON | ON | |
| CY91F525DJDCPMC | | OFF | ON | |
| CY91F524DWDPMC | | ON | ON | |
| CY91F524DJDCPMC | | OFF | ON | |
| CY91F523DWDPMC | | ON | ON | |
| CY91F523DJDCPMC | | OFF | ON | |
| CY91F522DWDPMC | | ON | ON | |
| CY91F522DJDCPMC | | OFF | ON | |
| CY91F526DSDPMC | None | ON | ON | |
| CY91F526DHDCPMC | | OFF | ON | |
| CY91F525DSDPMC | | ON | ON | |
| CY91F525DHDCPMC | | OFF | ON | |
| CY91F524DSDPMC | | ON | ON | |
| CY91F524DHDCPMC | | OFF | ON | |
| CY91F523DSDPMC | | ON | ON | |
| CY91F523DHDCPMC | | OFF | ON | |
| CY91F522DSDPMC | | ON | ON | |
| CY91F522DHDCPMC | | OFF | ON | |

| Part Number | Sub Clock | CSV Initial Value | LVD Initial Value | Package* |
|-----------------|-----------|-------------------|-------------------|--------------------------|
| CY91F526BWDPMC1 | Yes | ON | ON | LQD • 64 pin, Plastic |
| CY91F526BJDPMC1 | | OFF | ON | |
| CY91F525BWDPMC1 | | ON | ON | |
| CY91F525BJDPMC1 | | OFF | ON | |
| CY91F524BWDPMC1 | | ON | ON | |
| CY91F524BJDPMC1 | | OFF | ON | |
| CY91F523BWDPMC1 | | ON | ON | |
| CY91F523BJDPMC1 | | OFF | ON | |
| CY91F522BWDPMC1 | | ON | ON | |
| CY91F522BJDPMC1 | | OFF | ON | |
| CY91F526BSDPMC1 | None | ON | ON | |
| CY91F526BHDPMC1 | | OFF | ON | |
| CY91F525BSDPMC1 | | ON | ON | |
| CY91F525BHDPMC1 | | OFF | ON | |
| CY91F524BSDPMC1 | | ON | ON | |
| CY91F524BHDPMC1 | | OFF | ON | |
| CY91F523BSDPMC1 | | ON | ON | |
| CY91F523BHDPMC1 | | OFF | ON | |
| CY91F522BSDPMC1 | | ON | ON | |
| CY91F522BHDPMC1 | | OFF | ON | |

*: For details of the package, see [Package Dimensions](#).

16. Ordering Information CY91F52xxxE

| Part Number | Sub Clock | CSV Initial Value | LVD Initial Value | Package* |
|----------------|-----------|-------------------|-------------------|--|
| CY91F526LWEPMC | Yes | ON | ON | LQP • 176 pin, Plastic |
| CY91F526LJEPMC | | OFF | ON | |
| CY91F525LWEPMC | | ON | ON | |
| CY91F525LJEPMC | | OFF | ON | |
| CY91F524LWEPMC | | ON | ON | |
| CY91F524LJEPMC | | OFF | ON | |
| CY91F523LWEPMC | | ON | ON | |
| CY91F523LJEPMC | | OFF | ON | |
| CY91F522LWEPMC | | ON | ON | |
| CY91F522LJEPMC | | OFF | ON | |
| CY91F526LSEPMC | None | ON | ON | |
| CY91F526LHEPMC | | OFF | ON | |
| CY91F526LKEPMC | | OFF | OFF | |
| CY91F525LSEPMC | | ON | ON | |
| CY91F525LHEPMC | | OFF | ON | |
| CY91F524LSEPMC | | ON | ON | |
| CY91F524LHEPMC | | OFF | ON | |
| CY91F523LSEPMC | | ON | ON | |
| CY91F523LHEPMC | | OFF | ON | |
| CY91F522LSEPMC | | ON | ON | |
| CY91F522LHEPMC | OFF | ON | | |
| CY91F526KWEPMC | Yes | ON | ON | LQS • 144 pin, (Lead pitch 0.5 mm) Plastic |
| CY91F526KJEPMC | | OFF | ON | |
| CY91F525KWEPMC | | ON | ON | |
| CY91F525KJEPMC | | OFF | ON | |
| CY91F524KWEPMC | | ON | ON | |
| CY91F524KJEPMC | | OFF | ON | |
| CY91F523KWEPMC | | ON | ON | |
| CY91F523KJEPMC | | OFF | ON | |
| CY91F522KWEPMC | | ON | ON | |
| CY91F522KJEPMC | | OFF | ON | |
| CY91F526KSEPMC | None | ON | ON | |
| CY91F526KHEPMC | | OFF | ON | |
| CY91F525KSEPMC | | ON | ON | |
| CY91F525KHEPMC | | OFF | ON | |
| CY91F524KSEPMC | | ON | ON | |
| CY91F524KHEPMC | | OFF | ON | |
| CY91F523KSEPMC | | ON | ON | |
| CY91F523KHEPMC | | OFF | ON | |
| CY91F522KSEPMC | | ON | ON | |
| CY91F522KHEPMC | | OFF | ON | |

| Part Number | Sub Clock | CSV Initial Value | LVD Initial Value | Package* |
|-----------------|-----------|-------------------|-------------------|--|
| CY91F526KWEPMC1 | Yes | ON | ON | LQN • 144 pin, (LeaE pitch 0.4 mm) Plastic |
| CY91F526KJEPMC1 | | OFF | ON | |
| CY91F525KWEPMC1 | | ON | ON | |
| CY91F525KJEPMC1 | | OFF | ON | |
| CY91F524KWEPMC1 | | ON | ON | |
| CY91F524KJEPMC1 | | OFF | ON | |
| CY91F523KWEPMC1 | | ON | ON | |
| CY91F523KJEPMC1 | | OFF | ON | |
| CY91F522KWEPMC1 | | ON | ON | |
| CY91F522KJEPMC1 | | OFF | ON | |
| CY91F526KSEPMC1 | None | ON | ON | |
| CY91F526KHEPMC1 | | OFF | ON | |
| CY91F525KSEPMC1 | | ON | ON | |
| CY91F525KHEPMC1 | | OFF | ON | |
| CY91F524KSEPMC1 | | ON | ON | |
| CY91F524KHEPMC1 | | OFF | ON | |
| CY91F523KSEPMC1 | | ON | ON | |
| CY91F523KHEPMC1 | | OFF | ON | |
| CY91F522KSEPMC1 | | ON | ON | |
| CY91F522KHEPMC1 | | OFF | ON | |
| CY91F526JWEPMC | Yes | ON | ON | LQM • 120 pin, Plastic |
| CY91F526JJEPMC | | OFF | ON | |
| CY91F525JWEPMC | | ON | ON | |
| CY91F525JJEPMC | | OFF | ON | |
| CY91F524JWEPMC | | ON | ON | |
| CY91F524JJEPMC | | OFF | ON | |
| CY91F523JWEPMC | | ON | ON | |
| CY91F523JJEPMC | | OFF | ON | |
| CY91F522JWEPMC | | ON | ON | |
| CY91F522JJEPMC | | OFF | ON | |
| CY91F526JSEPMC | None | ON | ON | |
| CY91F526JHEPMC | | OFF | ON | |
| CY91F525JSEPMC | | ON | ON | |
| CY91F525JHEPMC | | OFF | ON | |
| CY91F524JSEPMC | | ON | ON | |
| CY91F524JHEPMC | | OFF | ON | |
| CY91F523JSEPMC | | ON | ON | |
| CY91F523JHEPMC | | OFF | ON | |
| CY91F522JSEPMC | | ON | ON | |
| CY91F522JHEPMC | | OFF | ON | |

| Part Number | Sub Clock | CSV Initial Value | LVD Initial Value | Package* |
|----------------|-----------|-------------------|-------------------|---------------------------|
| CY91F526FWEPMC | Yes | ON | ON | LQI • 100 pin, Plastic |
| CY91F526FJEPMC | | OFF | ON | |
| CY91F525FWEPMC | | ON | ON | |
| CY91F525FJEPMC | | OFF | ON | |
| CY91F524FWEPMC | | ON | ON | |
| CY91F524FJEPMC | | OFF | ON | |
| CY91F523FWEPMC | | ON | ON | |
| CY91F523FJEPMC | | OFF | ON | |
| CY91F522FWEPMC | | ON | ON | |
| CY91F522FJEPMC | | OFF | ON | |
| CY91F526FSEPMC | None | ON | ON | |
| CY91F526FHEPMC | | OFF | ON | |
| CY91F525FSEPMC | | ON | ON | |
| CY91F525FHEPMC | | OFF | ON | |
| CY91F524FSEPMC | | ON | ON | |
| CY91F524FHEPMC | | OFF | ON | |
| CY91F523FSEPMC | | ON | ON | |
| CY91F523FHEPMC | | OFF | ON | |
| CY91F522FSEPMC | | ON | ON | |
| CY91F522FHEPMC | | OFF | ON | |
| CY91F526DWEPMC | Yes | ON | ON | LQH • 80 pin, Plastic |
| CY91F526DJEPMC | | OFF | ON | |
| CY91F525DWEPMC | | ON | ON | |
| CY91F525DJEPMC | | OFF | ON | |
| CY91F524DWEPMC | | ON | ON | |
| CY91F524DJEPMC | | OFF | ON | |
| CY91F523DWEPMC | | ON | ON | |
| CY91F523DJEPMC | | OFF | ON | |
| CY91F522DWEPMC | | ON | ON | |
| CY91F522DJEPMC | | OFF | ON | |
| CY91F526DSEPMC | None | ON | ON | |
| CY91F526DHEPMC | | OFF | ON | |
| CY91F525DSEPMC | | ON | ON | |
| CY91F525DHEPMC | | OFF | ON | |
| CY91F524DSEPMC | | ON | ON | |
| CY91F524DHEPMC | | OFF | ON | |
| CY91F523DSEPMC | | ON | ON | |
| CY91F523DHEPMC | | OFF | ON | |
| CY91F522DSEPMC | | ON | ON | |
| CY91F522DHEPMC | | OFF | ON | |

| Part Number | Sub Clock | CSV Initial Value | LVD Initial Value | Package* |
|-----------------|-----------|-------------------|-------------------|--------------------------|
| CY91F526BWEPMC1 | Yes | ON | ON | LQD • 64 pin, Plastic |
| CY91F526BJEPMC1 | | OFF | ON | |
| CY91F525BWEPMC1 | | ON | ON | |
| CY91F525BJEPMC1 | | OFF | ON | |
| CY91F524BWEPMC1 | | ON | ON | |
| CY91F524BJEPMC1 | | OFF | ON | |
| CY91F523BWEPMC1 | | ON | ON | |
| CY91F523BJEPMC1 | | OFF | ON | |
| CY91F522BWEPMC1 | | ON | ON | |
| CY91F522BJEPMC1 | | OFF | ON | |
| CY91F526BSEPMC1 | None | ON | ON | |
| CY91F526BHEPMC1 | | OFF | ON | |
| CY91F525BSEPMC1 | | ON | ON | |
| CY91F525BHEPMC1 | | OFF | ON | |
| CY91F524BSEPMC1 | | ON | ON | |
| CY91F524BHEPMC1 | | OFF | ON | |
| CY91F523BSEPMC1 | | ON | ON | |
| CY91F523BHEPMC1 | | OFF | ON | |
| CY91F522BSEPMC1 | | ON | ON | |
| CY91F522BHEPMC1 | | OFF | ON | |

*: For details of the package, see [Package Dimensions](#).

17. Package Dimensions

| Package Type | Package Code |
|--------------|--------------|
| LQFP 64pin | LQD064 |



| Package Type | Package Code |
|--------------|--------------|
| LQFP 80pin | LQH080 |



| Package Type | Package Code |
|--------------|--------------|
| LQFP 100pin | LQI100 |



| Package Type | Package Code |
|--------------|--------------|
| LQFP 120pin | LQM120 |



| Package Type | Package Code |
|--------------|--------------|
| LQFP 144pin | LQS144 |



| Package Type | Package Code |
|--------------|--------------|
| LQFP 144pin | LQN144 |



| SYMBOL | DIMENSIONS | | |
|----------|------------|------|-------|
| | MIN. | NOM. | MAX. |
| A | — | — | 1.70 |
| A1 | 0.05 | — | 0.15 |
| b | 0.145 | 0.18 | 0.215 |
| c | 0.115 | — | 0.195 |
| D | 18.00 BSC | | |
| D1 | 16.00 BSC | | |
| e | 0.40 BSC | | |
| E | 18.00 BSC | | |
| E1 | 16.00 BSC | | |
| L | 0.45 | 0.60 | 0.75 |
| L1 | 0.30 | 0.50 | 0.70 |
| θ | 0° | — | 8° |

NOTES

- CONTROLLING DIMENSIONS ARE IN MILLIMETERS (mm)
- DATUM PLANE H IS LOCATED AT THE BOTTOM OF THE MOLD PARTING LINE COINCIDENT WITH WHERE THE LEAD EXITS THE BODY.
- DATUMS A-B AND D TO BE DETERMINED AT DATUM PLANE H.
- TO BE DETERMINED AT SEATING PLANE C.
- DIMENSIONS D1 AND E1 DO NOT INCLUDE MOLD PROTRUSION. ALLOWABLE PROTRUSION IS 0.25mm PRE SIDE. DIMENSIONS D1 AND E1 INCLUDE MOLD MISMATCH AND ARE DETERMINED AT DATUM PLANE H.
- DETAILS OF PIN 1 IDENTIFIER ARE OPTIONAL BUT MUST BE LOCATED WITHIN THE ZONE INDICATED.
- REGARDLESS OF THE RELATIVE SIZE OF THE UPPER AND LOWER BODY SECTIONS, DIMENSIONS D1 AND E1 ARE DETERMINED AT THE LARGEST FEATURE OF THE BODY EXCLUSIVE OF MOLD FLASH AND GATE BURRS, BUT INCLUDING ANY MISMATCH BETWEEN THE UPPER AND LOWER SECTIONS OF THE MOLDER BODY.
- DIMENSION b DOES NOT INCLUDE DAMBER PROTRUSION. THE DAMBER PROTRUSION (S) SHALL NOT CAUSE THE LEAD WIDTH TO EXCEED b MAXIMUM BY MORE THAN 0.08mm. DAMBAR CANNOT BE LOCATED ON THE LOWER RADIUS OR THE LEAD FOOT.
- THESE DIMENSIONS APPLY TO THE FLAT SECTION OF THE LEAD BETWEEN 0.10mm AND 0.25mm FROM THE LEAD TIP.
- A1 IS DEFINED AS THE DISTANCE FROM THE SEATING PLANE TO THE LOWEST POINT OF THE PACKAGE BODY.

002-14045 **

PACKAGE OUTLINE, 144 LEAD LQFP
16.0X16.0X1.7 MM LQN144 REV**

| Package Type | Package Code |
|--------------|--------------|
| LQFP 176pin | LQP176 |



18. Errata

This section describes the errata for the CY91520 Series. Details include errata trigger conditions, scope of impact, available workarounds, and silicon revision applicability. Contact your local Cypress Sales Representative if you have questions.

Part Numbers Affected

| Part Number |
|---------------------|
| CY91F522B/D/F/J/K/L |
| CY91F523B/D/F/J/K/L |
| CY91F524B/D/F/J/K/L |
| CY91F525B/D/F/J/K/L |
| CY91F526B/D/F/J/K/L |

CY91F522/3/4/5/6 Qualification Status

Product Status: Production

Errata Summary

The following table defines the errata applicability to available CY91520 Series devices.

| Items | Part Number | Silicon Revision | Fix Status |
|---|---|------------------|--|
| [1]. Power-on Conditions is not enough in the Datasheet Specification | CY91F522B/D/F/J/K/L CY91F523B/D/F/J/K/L CY91F524B/D/F/J/K/L | B, C | Will be fixed in production silicon version D, E |
| [2]. Limitation for Watch mode (power off) | CY91F525B/D/F/J/K/L CY91F526B/D/F/J/K/L | B, C, D, E | - |

1. Power-on Conditions is not enough in the Datasheet Specification

■ Problem Definition

If the Power-On-Reset and Internal Low Voltage Detection are not generated, some port functions will not be available.

■ Parameters Affected

t_{OFF} for Power off time on Power-on Conditions

VCC Power ramp rate on Power-on Conditions

■ Trigger Condition

When the power supply voltage to the MCU has been turned off but has not reached 0 V when the power supply voltage is turned on again, MCU does not generate an internal power-on-reset signal (Power-On reset or Internal LVD reset). Then, some port functions will not be available.

If below condition (1) or (2) or (3) is satisfied, Power-On Reset (Initialization-Reset signal) is generated and no problem occurs.

- (1) The VCC voltage is less than 200 mV for 50 ms or longer (t_{OFF})
- (2) VCC Power ramp rate less than 4 mV/ μ s (dV/dt) until a voltage level for a safe Power-On detection is reached
- (3) C-pin voltage is below 60 mV when VCC is turned on again

■ Scope of Impact

For the affected parts, when the Power-On Reset and Internal Low Voltage Detection are not generated, the MCU may set invalid package and sub clock option information. Therefore, the MCU may operate with an invalid pin configuration.

■ Workaround

For the affected parts, it is necessary to satisfy at least one of the Power-On Reset requirements for any Power-On event as given below:

- (1) The VCC voltage is less than 200 mV for 50 ms or longer (t_{OFF})
- (2) VCC Power ramp rate is less than 4 mV/ μ s (dV/dt) until a voltage level for a safe Power-On detection is reached
- (3) C-pin voltage is below 60 mV when VCC is turned on again

If the customer system does not satisfy the condition above-mentioned, Cypress will release new version D, so Cypress recommends the version D for CY91F52x. The new version prevents the limitation when an external reset signal is asserted at pin RSTX anytime the supply voltage (VCC) is turned on.

■ Fix Status

Will be fixed in production silicon version D, E

2. Limitation for Watch mode (power off)

■ Problem Definition

If the below all trigger conditions (1) to (3) are satisfied, the below registers will be initialized after MCU recovers from watch mode (power off).

■ Trigger Conditions

- (1) Using the watch mode (power off)
- (2) Interrupt levels that are used as sources for recovering from the watch mode (power off) are '16' to '30', or using NMIX pin as source for recovering from the watch mode (power off)
- (3) The sources for recovering from the watch mode (power off) are generated between PCLK 1 cycle and PMUCLK 3 cycles (*), after CPU state changes to the watch mode (power off)
(*): In case of PCLK = 0.5 MHz and PMUCLK = 32 kHz, it is approx. 2 μ s to 100 μ s

■ Scope of Impact

If the all trigger conditions (1) to (3) are satisfied, the below registers will be initialized after MCU recovers from watch mode (power off).

WTCRH, WTCRM, WTCRL
CSELR.SCEN
CMONR.SCRDY
CCRTSELR.CST
CCRTSELR.CSC

■ Workaround

It is necessary to satisfy the below both conditions of (1) and (2).

- (1) Interrupt levels that are used as sources for recovering from the watch mode (power off) are '31', before CPU state changes to the watch mode (power off)
- (2) Don't use NMIX pin as source for recovering from the watch mode (power off)

■ Fix Status

Will not be planned

19. Major Changes

Spanion Publication Number: MB91F526L_DS705-00011

| Page | Section | Change Results |
|--------------|--|--|
| Revision 1.0 | | |
| - | - | Initial release |
| Revision 2.0 | | |
| 3 | ■FEATURES | Corrected the following description. 5V tolerant input: 4 channels ch.6, ch.8, ch.9, ch.11 Automotive input ↓ 5V tolerant input: 4 channels ch.6, ch.8, ch.9, ch.11 CMOS hysteresis input |
| 33 to 36 | ■I/O CIRCUIT TYPE | Corrected the following description to "Type F, G, I, J, K, M". Schmitt input → CMOS hysteresis input Corrected the following description to "Type D, E". I ² C Schmitt input → I ² C hysteresis input |
| 44 to 49 | ■BLOCK DIAGRAM | Corrected the following description. ●MB91F522B, MB91F523B, MB91F524B, MB91F525B, MB91F526B ●MB91F522D, MB91F523D, MB91F524D, MB91F525D, MB91F526D ●MB91F522F, MB91F523F, MB91F524F, MB91F525F, MB91F526F ●MB91F522J, MB91F523J, MB91F524J, MB91F525J, MB91F526J ●MB91F522K, MB91F523K, MB91F524K, MB91F525K, MB91F526K ●MB91F522L, MB91F523L, MB91F524L, MB91F525L, MB91F526L |
| 138 | ■ELECTRICAL CHARACTERISTICS 2. Recommended operating conditions | Added the following description. *1 : When it is used outside recommended operation guarantee range (range of the operation guarantee),contact your sales representative. Moreover, minimum value with an effective external low-voltage detection reset becomes a voltage until generating low-voltage detection reset |
| 139,140 | ■ELECTRICAL CHARACTERISTICS 3.DC characteristics | Corrected the value of "ICCT5 When using sub clock 32kHz TA=+25°C". Max 1420μA → Max 2000μA |
| 139 | ■ELECTRICAL CHARACTERISTICS 3.DC characteristics | Corrected the value of "Power supply voltage range". (TA:-40°C to +105°C,V _{cc} =AV _{cc} =2.7V to 5.5V,V _{SS} =AV _{SS} =0.0V) ↓ (TA:-40°C to +105°C,V _{cc} =AV _{cc} =5.0V±10%/3.3V±0.3V,V _{SS} =AV _{SS} =0.0V) |
| 140,141 | ■ELECTRICAL CHARACTERISTICS 3.DC characteristics | Corrected the value of "Power supply voltage range". (TA:-40°C to +125°C,V _{cc} =AV _{cc} =2.7V to 5.5V,V _{SS} =AV _{SS} =0.0V) ↓ (TA:-40°C to +125°C,V _{cc} =AV _{cc} =5.0V±10%/3.3V±0.3V,V _{SS} =AV _{SS} =0.0V) |
| 141 | ■ELECTRICAL CHARACTERISTICS 3.DC characteristics | Corrected the value of " Pull-up resistance R _{UP1} ". V _{cc} =3.3V±0.3V Min 49 Max 140 →Min 45 Max 140 |
| 141 | ■ELECTRICAL CHARACTERISTICS 3.DC characteristics | Corrected the following description. Pull-up resistance R _{UP2} Port pin other than P035,041,093,122 → P073,074,076,077 |
| 141 | ■ELECTRICAL CHARACTERISTICS 3.DC characteristics | Corrected the value of " Pull-up resistance R _{UP2} ". V _{CC} =5.0V±10% Min 25 Max 100 →Min 25 Max 60 V _{CC} =3.3V±0.3V Min 49 Max 140 →Min 33 Max 90 |
| 141 | ■ELECTRICAL CHARACTERISTICS 3.DC characteristics | Added the value of " Pull-up resistance R _{UP3} ". Pin name : Port pin other than P035,041,073,074,076,077,093,122 V _{CC} =5.0V±10% Min 25 Max 100 V _{CC} =3.3V±0.3V Min 45 Max 140 |

| Page | Section | Change Results |
|---------------------|--|---|
| 150,152, 154,156 | <p>■ELECTRICAL CHARACTERISTICS</p> <p>4. AC characteristics</p> <p>(4) Multi-function Serial</p> <p>(4-1) CSIO timing</p> <p>(4-1-1),(4-1-2),(4-1-3),(4-1-4)</p> | <p>(4-1-1),(4-1-4)SCK_↓⇒SOT delay time t_{SLOVI}</p> <p>(4-1-2),(4-1-3)SCK_↑⇒SOT delay time t_{SHOVI}</p> <p>Corrected the following description.</p> <p>Pin name: SCK0 to SCK11</p> <p>SOT0 to SOT11</p> <p>Value: Min -30 Max 30</p> <p>↓</p> <p>Pin name: SCK0 to SCK2,SCK5 to SCK11</p> <p>SOT0 to SOT2,SOT5 to SOT11</p> <p>Value: Min -30 Max 30</p> <p>Pin name: SCK3,SCK4</p> <p>SOT3,SOT4</p> <p>Value: Min -300 Max 300</p> |
| 150,152, 154,156 | <p>■ELECTRICAL CHARACTERISTICS</p> <p>4. AC characteristics</p> <p>(4) Multi-function Serial</p> <p>(4-1) CSIO timing</p> <p>(4-1-1),(4-1-2),(4-1-3),(4-1-4)</p> | <p>(4-1-1),(4-1-4)Valid SIN⇒SCK_↑ setup time t_{VSHI}</p> <p>(4-1-2),(4-1-3)Valid SIN⇒SCK_↓ setup time t_{VSLI}</p> <p>Corrected the following description.</p> <p>Pin name: SCK0 to SCK11 SIN0 to SIN11</p> <p>Value: Min 34 Max -</p> <p>↓</p> <p>Pin name: SCK0 to SCK2,SCK5 to SCK11 SIN0 to SIN2,SIN5 to SIN11</p> <p>Value: Min 34 Max -</p> <p>Pin name: SCK3,SCK4,SIN3,SIN4</p> <p>Value: Min 300 Max -</p> |
| 150,152, 154,156 | <p>■ELECTRICAL CHARACTERISTICS</p> <p>4. AC characteristics</p> <p>(4) Multi-function Serial</p> <p>(4-1) CSIO timing</p> <p>(4-1-1),(4-1-2),(4-1-3),(4-1-4)</p> | <p>(4-1-1),(4-1-4)SCK_↓⇒SOT delay time t_{SLOVE}</p> <p>(4-1-2),(4-1-3)SCK_↑⇒SOT delay time t_{SHOVE}</p> <p>Corrected the following description.</p> <p>Pin name: SCK0 to SCK11</p> <p>SOT0 to SOT11</p> <p>Value: Min - Max 33</p> <p>↓</p> <p>Pin name: SCK0 to SCK2,SCK5 to SCK11</p> <p>SOT0 to SOT2,SOT5 to SOT11</p> <p>Value: Min - Max 33</p> <p>Pin name: SCK3,SCK4 SOT3,SOT4</p> <p>Value: Min - Max 300</p> |
| 150,152, 154,156 | <p>■ELECTRICAL CHARACTERISTICS</p> <p>4. AC characteristics</p> <p>(4) Multi-function Serial</p> <p>(4-1) CSIO timing</p> <p>(4-1-1),(4-1-2),(4-1-3),(4-1-4)</p> | <p>(4-1-1),(4-1-2),(4-1-3),(4-1-4)SCK fall time t_F</p> <p>Corrected the following description.</p> <p>Pin name: SCK0 to SCK2,SCK5 to SCK11</p> <p>Value: Min - Max 5</p> <p>Pin name: SCK3,SCK4</p> <p>Value: Min - Max 250</p> <p>↓</p> <p>Pin name: SCK0 to SCK11</p> <p>Value: Min - Max 5</p> |

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|---------------------|--|--|
| 158,161, 164,167 | <p>■ELECTRICAL CHARACTERISTICS 4. AC characteristics (4) Multi-function Serial (4-1) CSIO timing (4-1-5),(4-1-6),(4-1-7),(4-1-8)</p> | <p>(4-1-5)SCS_↓⇒SCK_↓ setup time t_{CSSt} (4-1-6)SCS_↓⇒SCK_↑ setup time t_{CSSt} (4-1-7)SCS_↑⇒SCK_↓ setup time t_{CSSt} (4-1-8)SCS_↑⇒SCK_↑ setup time t_{CSSt} Corrected the following description. Pin name: SCK1 to SCK11 SCS1 to SCS3,SCS40 to SCS43,SCS50 to SCS53,SCS60 to SCS63,SCS70 to SCS73,SCS8 to SCS11 Value: Min t_{CSSt}+0 Max t_{CSSt}+50 ↓ Pin name: SCK1,SCK2,SCK5 to SCK11 SCS1,SCS2,SCS50 to SCS53,SCS60 to SCS63,SCS70 to SCS73,SCS8 to SCS11 Value: Min t_{CSSt}-50 Max t_{CSSt}+0 Pin name: SCK3,SCK4 SCS3,SCS40 to SCS43 Value: Min t_{CSSt}-50 Max t_{CSSt}+300</p> |
| 158,161, 164,167 | <p>■ELECTRICAL CHARACTERISTICS 4. AC characteristics (4) Multi-function Serial (4-1) CSIO timing (4-1-5),(4-1-6),(4-1-7),(4-1-8)</p> | <p>(4-1-5)SCK_↑⇒SCS_↑hold time t_{CSHt} (4-1-6)SCK_↓⇒SCS_↑hold time t_{CSHt} (4-1-7)SCK_↑⇒SCS_↓hold time t_{CSHt} (4-1-8)SCK_↓⇒SCS_↓hold time t_{CSHt} Corrected the following description. Pin name: SCK1 to SCK11 SCS1 to SCS3,SCS40 to SCS43,SCS50 to SCS53,SCS60 to SCS63,SCS70 to SCS73,SCS8 to SCS11 Value: Min t_{CSHt}-50 Max t_{CSHt}+0 ↓ Pin name: SCK1,SCK2,SCK5 to SCK11 SCS1,SCS2,SCS50 to SCS53,SCS60 to SCS63,SCS70 to SCS73,SCS8 to SCS11 Value: Min t_{CSHt}-10 Max t_{CSHt}+50 Pin name: SCK3,SCK4 SCS3,SCS40 to SCS43 Value: Min t_{CSHt}-300 Max t_{CSHt}+50</p> |
| 158,161, 164,167 | <p>■ELECTRICAL CHARACTERISTICS 4. AC characteristics (4) Multi-function Serial (4-1) CSIO timing (4-1-5),(4-1-6),(4-1-7),(4-1-8)</p> | <p>(4-1-5),(4-1-6)SCS_↓⇒SOT delay time t_{DSE} (4-1-7),(4-1-8)SCS_↑⇒SOT delay time t_{DSE} Corrected the following description. Pin name: SCS1 to SCS3,SCS40 to SCS43,SCS50 to SCS53,SCS60 to SCS63,SCS70 to SCS73,SCS8 to SCS11 SOT1 to SOT11 Value: Min - Max 40 ↓ Pin name: SCS1,SCS2,SCS50 to SCS53,SCS60 to SCS63,SCS70 to SCS73, SCS8 to SCS11 SOT1,SOT2,SOT5 to SOT11 Value: Min - Max 40 Pin name: SCS3,SCS40 to SCS43 SOT3,SOT4 Value: Min - Max 300</p> |

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| 159,162, 165,168 | <p>■ELECTRICAL CHARACTERISTICS</p> <p>4. AC characteristics</p> <p>(4) Multi-function Serial</p> <p>(4-1) CSIO timing</p> <p>(4-1-5),(4-1-6),(4-1-7),(4-1-8)</p> | <p>(4-1-5)SCK↓⇒SCS↓ clock switch time t_{SCC}</p> <p>(4-1-6)SCK↑⇒SCS↓ clock switch time t_{SCC}</p> <p>(4-1-7)SCK↓⇒SCS↑ clock switch time t_{SCC}</p> <p>(4-1-8)SCK↑⇒SCS↑ clock switch time t_{SCC}</p> <p>Corrected the following description.</p> <p>Pin name: SCK1 to SCK11</p> <p>SCS1 to SCS3,SCS40 to SCS43,SCS50 to SCS53,SCS60 to SCS63,SCS70 to SCS73,SCS8 to SCS11</p> <p>Value: Min $3t_{C_{PP}+0}$ Max $3t_{C_{PP}+50}$</p> <p>↓</p> <p>Pin name: SCK1,SCK2,SCK5 to SCK11</p> <p>SCS1,SCS2,SCS50 to SCS53,SCS60 to SCS63,SCS70 to SCS73,SCS8 to SCS11</p> <p>Value: Min $3t_{C_{PP}-10}$ Max $3t_{C_{PP}+50}$</p> <p>Pin name: SCK3,SCK4 SCS3,SCS40 to SCS43</p> <p>Value: Min $3t_{C_{PP}-300}$ Max $3t_{C_{PP}+50}$</p> |
| 159,162, 165,168 | <p>■ELECTRICAL CHARACTERISTICS</p> <p>4. AC characteristics</p> <p>(4) Multi-function Serial</p> <p>(4-1) CSIO timing</p> <p>(4-1-5),(4-1-6),(4-1-7),(4-1-8)</p> | <p>Added the following description.</p> <p>Regardless of the deselect time setting, once after the serial chip select pin becomes inactive, it will take at least five peripheral bus clock cycles to be active again</p> |
| 184 | <p>■ELECTRICAL CHARACTERISTICS</p> <p>5.A/D Converter</p> <p>(1) 12-bit A/D Converter</p> <p>Electrical Characteristics</p> | <p>Added the value of "Total error".</p> <p>Total error value Min – Typ – Max ± 12 LSB</p> |
| 184 | <p>■ELECTRICAL CHARACTERISTICS</p> <p>5.A/D Converter</p> <p>(1) 12-bit A/D Converter</p> <p>Electrical Characteristics</p> | <p>Corrected the value of "Zero transition voltage".</p> <p>Min $AV_{RL}+0.5LSB-20mV$ Max $AV_{RL}+0.5LSB+20mV$</p> <p>↓</p> <p>Min $AV_{RL}-11.5LSB$ Max $AV_{RL}+12.5LSB$</p> |
| 184 | <p>■ELECTRICAL CHARACTERISTICS</p> <p>5.A/D Converter</p> <p>(1) 12-bit A/D Converter</p> <p>Electrical Characteristics</p> | <p>Corrected the value of "Full-scale transition voltage".</p> <p>Min $AV_{RH}-1.5LSB-20mV$ Max $AV_{RH}-1.5LSB+20mV$</p> <p>↓</p> <p>Min $AV_{RH}-13.5LSB$ Max $AV_{RH}+10.5LSB$</p> |
| 184 | <p>■ELECTRICAL CHARACTERISTICS</p> <p>5.A/D Converter</p> <p>(1) 12-bit A/D Converter</p> <p>Electrical Characteristics</p> | <p>Added the following description.</p> <p>Parameter : Power supply current $I_A AV_{CC}^*3$</p> <p>*3: The power supply current described only current value on A/D converter. The total AV_{CC} current value must be calculated the power supply current for A/D converter and D/A converter.</p> |
| 188 | <p>■ELECTRICAL CHARACTERISTICS</p> <p>7.D/A Converter</p> | <p>Added the following description.</p> <p>Parameter : Power supply current *1</p> <p>*1: The power supply current described only current value on D/A converter.The total AV_{CC} current value must be calculated the power supply current for D/A converter and A/D converter.</p> |
| 187 | <p>■ELECTRICAL CHARACTERISTICS</p> <p>6.Flash memory</p> | <p>Parameter: Erase cycle*2/Data retain time</p> <p>Deleted the following description.</p> <p>Remarks :</p> <p>"Temperature at writing/erasing $T_j < +105^{\circ}C$"</p> |

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| 188 | ■ELECTRICAL CHARACTERISTICS 7.D/A Converter | Corrected the following description. Parameter : Power supply current Symbol IA Pin name AV _{CC} Symbol IAH Pin name AV _{CC} ↓ Symbol IA Pin name AV _{CC} Symbol IAH Pin name AV _{CC} |
| 190 | ■EXAMPLE CHARACTERISTICS | Corrected the following description. Watch mode |
| 192 | ■ORDERING INFORMATION | Corrected the following description. ■ORDERING INFORMATION ↓ ■ORDERING INFORMATION MB91F52xxxB* ¹ Package ↓ Package* ² |
| 198 | ■ORDERING INFORMATION | Added the following description. * ¹ : It is only supported for customers who have already adopted it now. We do not recommend adopting new products. |
| 198 | ■ORDERING INFORMATION | Corrected the following description. For details of the package, see "■ PACKAGE DIMENSIONS ". ↓ * ² : For details of the package, see "■ PACKAGE DIMENSIONS ". |
| 199 to 205 | ■ORDERING INFORMATION | Added the following description. ■ORDERING INFORMATION MB91F52xxxC |
| - | - | Company name and layout design change |

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|------------------------------------|-----------------|---|------------------------------------|------|---|--|------------------------------------|--------|
| Cypress Document Number: 002-04662 | | | | | | | | |
| Rev *B | | | | | | | | |
| 1 | ■Features | <p>Corrected the following description.</p> <ul style="list-style-type: none"> · Clock generation (equipped with SSCG function) <ul style="list-style-type: none"> · Main oscillation (4MHz to 16MHz) · Sub oscillation (32kHz to 100kHz) or none sub oscillation · PLL multiplication rate : 1 to 20 times <p>↓</p> <ul style="list-style-type: none"> · Clock generation (equipped with SSCG function) <ul style="list-style-type: none"> · Main oscillation (4MHz to 16MHz) · Sub oscillation (32kHz) or no sub oscillation · PLL multiplication rate : 1 to 20 times · Equipped with a 100kHz CR oscillator | | | | | | |
| 2 | ■Features | <p>Corrected the following description.</p> <ul style="list-style-type: none"> · Base timer : Max. 2 channels <ul style="list-style-type: none"> · 16-bit timer · Any of four PWM/PPG/PWC/reload timer functions can be selected and used · A 32-bit timer can be used in 2 channels of cascade mode <p>↓</p> <ul style="list-style-type: none"> · Base timer : Max. 2 channels <ul style="list-style-type: none"> · 16-bit timer · Any of four PWM/PPG/PWC/reload timer functions can be selected and used · As for the PWC function and the reload timer function, a pair of 16-bit timers can be used as one 32-bit timer in the cascaded mode | | | | | | |
| 6 | ■Product Lineup | <p>Corrected the following description for Product lineup comparison(64 pin).</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; padding: 2px;">Multi-Function Serial Interface</td> <td style="width: 50%; text-align: center; padding: 2px;">8ch</td> </tr> <tr> <td colspan="2" style="text-align: center; padding: 2px;">↓</td> </tr> <tr> <td style="padding: 2px;">Multi-Function Serial Interface</td> <td style="text-align: center; padding: 2px;">8ch*1</td> </tr> </table> | Multi-Function Serial Interface | 8ch | ↓ | | Multi-Function Serial Interface | 8ch*1 |
| Multi-Function Serial Interface | 8ch | | | | | | | |
| ↓ | | | | | | | | |
| Multi-Function Serial Interface | 8ch*1 | | | | | | | |
| 6 | ■Product Lineup | <p>Added the following sentences under Product lineup comparison(64 pin) *1: Only channel 5, channel 6 and channel 11 support the I²C (standard mode).</p> | | | | | | |
| 7 | ■Product Lineup | <p>Corrected the following description for Product lineup comparison(80 pin).</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; padding: 2px;">Multi-Function Serial Interface</td> <td style="width: 50%; text-align: center; padding: 2px;">9ch</td> </tr> <tr> <td colspan="2" style="text-align: center; padding: 2px;">↓</td> </tr> <tr> <td style="padding: 2px;">Multi-Function Serial Interface</td> <td style="text-align: center; padding: 2px;">9ch*1</td> </tr> </table> | Multi-Function Serial Interface | 9ch | ↓ | | Multi-Function Serial Interface | 9ch*1 |
| Multi-Function Serial Interface | 9ch | | | | | | | |
| ↓ | | | | | | | | |
| Multi-Function Serial Interface | 9ch*1 | | | | | | | |
| 7 | ■Product Lineup | <p>Added the following sentences under Product lineup comparison(80 pin) *1: Only channel 5, channel 6 and channel 11 support the I²C (standard mode).</p> | | | | | | |
| 8 | ■Product Lineup | <p>Corrected the following description for Product lineup comparison(100 pin).</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; padding: 2px;">Multi-Function Serial Interface</td> <td style="width: 50%; text-align: center; padding: 2px;">12ch</td> </tr> <tr> <td colspan="2" style="text-align: center; padding: 2px;">↓</td> </tr> <tr> <td style="padding: 2px;">Multi-Function Serial Interface</td> <td style="text-align: center; padding: 2px;">12ch*1</td> </tr> </table> | Multi-Function Serial Interface | 12ch | ↓ | | Multi-Function Serial Interface | 12ch*1 |
| Multi-Function Serial Interface | 12ch | | | | | | | |
| ↓ | | | | | | | | |
| Multi-Function Serial Interface | 12ch*1 | | | | | | | |
| 8 | ■Product Lineup | <p>Added the following sentences under Product lineup comparison(100 pin) *1: Only channel 5, channel 6, channel 7, channel 8 and channel 11 support the I²C (standard mode).</p> | | | | | | |

| Page | Section | Change Results | | | | | | |
|---------------------------------|-----------------|--|---------------------------------|------|---|--|---------------------------------|--------|
| 9 | ■Product Lineup | <p>Corrected the following description for Product lineup comparison(120 pin).</p> <table border="1"> <tr> <td>Multi-Function Serial Interface</td> <td>12ch</td> </tr> <tr> <td style="text-align: center;">↓</td> <td></td> </tr> <tr> <td>Multi-Function Serial Interface</td> <td>12ch*1</td> </tr> </table> | Multi-Function Serial Interface | 12ch | ↓ | | Multi-Function Serial Interface | 12ch*1 |
| Multi-Function Serial Interface | 12ch | | | | | | | |
| ↓ | | | | | | | | |
| Multi-Function Serial Interface | 12ch*1 | | | | | | | |
| 9 | ■Product Lineup | <p>Added the following sentences under Product lineup comparison(120 pin) *1: Only channel 3 and channel 4 support the I²C (high-speed mode/standard mode). Only channel 5, channel 6, channel 7, channel 8 and channel 11 support the I²C (standard mode).</p> | | | | | | |
| 10 | ■Product Lineup | <p>Corrected the following description for Product lineup comparison(144 pin).</p> <table border="1"> <tr> <td>Multi-Function Serial Interface</td> <td>12ch</td> </tr> <tr> <td style="text-align: center;">↓</td> <td></td> </tr> <tr> <td>Multi-Function Serial Interface</td> <td>12ch*1</td> </tr> </table> | Multi-Function Serial Interface | 12ch | ↓ | | Multi-Function Serial Interface | 12ch*1 |
| Multi-Function Serial Interface | 12ch | | | | | | | |
| ↓ | | | | | | | | |
| Multi-Function Serial Interface | 12ch*1 | | | | | | | |
| 10 | ■Product Lineup | <p>Added the following sentences under Product lineup comparison(144 pin) *1: Only channel 3 and channel 4 support the I²C (high-speed mode/standard mode). Only channel 5, channel 6, channel 7, channel 8, channel 10 and channel 11 support the I²C (standard mode).</p> | | | | | | |
| 11 | ■Product Lineup | <p>Corrected the following description for Product lineup comparison(176 pin).</p> <table border="1"> <tr> <td>Multi-Function Serial Interface</td> <td>12ch</td> </tr> <tr> <td style="text-align: center;">↓</td> <td></td> </tr> <tr> <td>Multi-Function Serial Interface</td> <td>12ch*1</td> </tr> </table> | Multi-Function Serial Interface | 12ch | ↓ | | Multi-Function Serial Interface | 12ch*1 |
| Multi-Function Serial Interface | 12ch | | | | | | | |
| ↓ | | | | | | | | |
| Multi-Function Serial Interface | 12ch*1 | | | | | | | |
| 11 | ■Product Lineup | <p>Added the following sentences under Product lineup comparison(176 pin) *1: Only channel 3 and channel 4 support the I²C (high-speed mode/standard mode). Only channel 5, channel 6, channel 7, channel 8, channel 10 and channel 11 support the I²C (standard mode).</p> | | | | | | |

| Page | Section | Change Results | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|--|--|-----|---|----------------------------------|---|---|---|------------------------------------|---|------------------------------------|---|--|---|--|---|--|---|--|---|----------------------------------|----|-----------------------------------|----|-----------------------------------|----|---------------------------------------|----|---------------------------------------|----|--------------------------------|----|----------------------------------|----|-----|---|----------------------------------|---|---|---|------------------------------------|---|------------------------------------|---|--|---|--|---|--|---|-----------------------------------|---|---------------------------|----|-----------------------------------|----|-----------------------------------|----|---------------------------------------|----|---------------------------------------|----|--------------------------------|----|----------------------------------|----|
| 13 | <ul style="list-style-type: none"> ■ Pin Assignment MB91F52xB | <p>Signals indicated by the shading below deleted in Figure. - Left side</p> <table border="1"> <tr><td>VSS</td><td>1</td></tr> <tr><td>P020/SIN3_1/TRG3_0/TIN0_2/RTOS_1</td><td>2</td></tr> <tr><td>P024/SIN4_1/PPG24_0/TIN1_0/RT04_1/INT15_0</td><td>3</td></tr> <tr><td>P027/SCS40_1/PPG27_0/TOT0_0/RT03_1</td><td>4</td></tr> <tr><td>P032/SCS43_1/PPG30_0/TOT3_0/RT02_1</td><td>5</td></tr> <tr><td>P033/PPG31_0/ICU3_3/TIN4_0/RT01_1/SCK3_2</td><td>6</td></tr> <tr><td>P034/OCU11_1/ICU2_3/TIN5_0/RT00_1/SOT3_2</td><td>7</td></tr> <tr><td>P151/SCK8_0/SCL8/OCU9_1/TRG7_0/ICU0_3/TIN7_0/ZIN0_2/DTT1_1</td><td>8</td></tr> <tr><td>P035/SIN8_0/OCU8_1/TOT4_0/AIN0_0/INT11_0</td><td>9</td></tr> <tr><td>P036/SCS8_0/OCU7_1/TOT5_0/BIN0_0</td><td>10</td></tr> <tr><td>P040/PPG23_1/TOT7_0/AIN1_0/SIN0_1</td><td>11</td></tr> <tr><td>P041/SIN9_0/ICU9_1/BIN1_0/INT12_0</td><td>12</td></tr> <tr><td>P042/SOT9_0/AN47/ICU8_1/TRG0_1/ZIN1_0</td><td>13</td></tr> <tr><td>P045/SCK9_0/AN46/ICU5_1/TRG3_1/TOT1_2</td><td>14</td></tr> <tr><td>P047/AN45/TRG8_0/TIN3_2/SOT0_1</td><td>15</td></tr> <tr><td>P053/AN44/PPG35_0/INT14_1/SCK0_1</td><td>16</td></tr> </table> <p>↓</p> <table border="1"> <tr><td>VSS</td><td>1</td></tr> <tr><td>P020/SIN3_1/TRG3_0/TIN0_2/RTOS_1</td><td>2</td></tr> <tr><td>P024/SIN4_1/PPG24_0/TIN1_0/RT04_1/INT15_0</td><td>3</td></tr> <tr><td>P027/SCS40_1/PPG27_0/TOT0_0/RT03_1</td><td>4</td></tr> <tr><td>P032/SCS43_1/PPG30_0/TOT3_0/RT02_1</td><td>5</td></tr> <tr><td>P033/PPG31_0/ICU3_3/TIN4_0/RT01_1/SCK3_2</td><td>6</td></tr> <tr><td>P034/OCU11_1/ICU2_3/TIN5_0/RT00_1/SOT3_2</td><td>7</td></tr> <tr><td>P151/OCU9_1/TRG7_0/ICU0_3/TIN7_0/ZIN0_2/DTT1_1</td><td>8</td></tr> <tr><td>P035/OCU8_1/TOT4_0/AIN0_0/INT11_0</td><td>9</td></tr> <tr><td>P036/OCU7_1/TOT5_0/BIN0_0</td><td>10</td></tr> <tr><td>P040/PPG23_1/TOT7_0/AIN1_0/SIN0_1</td><td>11</td></tr> <tr><td>P041/SIN9_0/ICU9_1/BIN1_0/INT12_0</td><td>12</td></tr> <tr><td>P042/SOT9_0/AN47/ICU8_1/TRG0_1/ZIN1_0</td><td>13</td></tr> <tr><td>P045/SCK9_0/AN46/ICU5_1/TRG3_1/TOT1_2</td><td>14</td></tr> <tr><td>P047/AN45/TRG8_0/TIN3_2/SOT0_1</td><td>15</td></tr> <tr><td>P053/AN44/PPG35_0/INT14_1/SCK0_1</td><td>16</td></tr> </table> | VSS | 1 | P020/SIN3_1/TRG3_0/TIN0_2/RTOS_1 | 2 | P024/SIN4_1/PPG24_0/TIN1_0/RT04_1/INT15_0 | 3 | P027/SCS40_1/PPG27_0/TOT0_0/RT03_1 | 4 | P032/SCS43_1/PPG30_0/TOT3_0/RT02_1 | 5 | P033/PPG31_0/ICU3_3/TIN4_0/RT01_1/SCK3_2 | 6 | P034/OCU11_1/ICU2_3/TIN5_0/RT00_1/SOT3_2 | 7 | P151/SCK8_0/SCL8/OCU9_1/TRG7_0/ICU0_3/TIN7_0/ZIN0_2/DTT1_1 | 8 | P035/SIN8_0/OCU8_1/TOT4_0/AIN0_0/INT11_0 | 9 | P036/SCS8_0/OCU7_1/TOT5_0/BIN0_0 | 10 | P040/PPG23_1/TOT7_0/AIN1_0/SIN0_1 | 11 | P041/SIN9_0/ICU9_1/BIN1_0/INT12_0 | 12 | P042/SOT9_0/AN47/ICU8_1/TRG0_1/ZIN1_0 | 13 | P045/SCK9_0/AN46/ICU5_1/TRG3_1/TOT1_2 | 14 | P047/AN45/TRG8_0/TIN3_2/SOT0_1 | 15 | P053/AN44/PPG35_0/INT14_1/SCK0_1 | 16 | VSS | 1 | P020/SIN3_1/TRG3_0/TIN0_2/RTOS_1 | 2 | P024/SIN4_1/PPG24_0/TIN1_0/RT04_1/INT15_0 | 3 | P027/SCS40_1/PPG27_0/TOT0_0/RT03_1 | 4 | P032/SCS43_1/PPG30_0/TOT3_0/RT02_1 | 5 | P033/PPG31_0/ICU3_3/TIN4_0/RT01_1/SCK3_2 | 6 | P034/OCU11_1/ICU2_3/TIN5_0/RT00_1/SOT3_2 | 7 | P151/OCU9_1/TRG7_0/ICU0_3/TIN7_0/ZIN0_2/DTT1_1 | 8 | P035/OCU8_1/TOT4_0/AIN0_0/INT11_0 | 9 | P036/OCU7_1/TOT5_0/BIN0_0 | 10 | P040/PPG23_1/TOT7_0/AIN1_0/SIN0_1 | 11 | P041/SIN9_0/ICU9_1/BIN1_0/INT12_0 | 12 | P042/SOT9_0/AN47/ICU8_1/TRG0_1/ZIN1_0 | 13 | P045/SCK9_0/AN46/ICU5_1/TRG3_1/TOT1_2 | 14 | P047/AN45/TRG8_0/TIN3_2/SOT0_1 | 15 | P053/AN44/PPG35_0/INT14_1/SCK0_1 | 16 |
| VSS | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| P020/SIN3_1/TRG3_0/TIN0_2/RTOS_1 | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| P024/SIN4_1/PPG24_0/TIN1_0/RT04_1/INT15_0 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| P027/SCS40_1/PPG27_0/TOT0_0/RT03_1 | 4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| P032/SCS43_1/PPG30_0/TOT3_0/RT02_1 | 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| P033/PPG31_0/ICU3_3/TIN4_0/RT01_1/SCK3_2 | 6 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| P034/OCU11_1/ICU2_3/TIN5_0/RT00_1/SOT3_2 | 7 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| P151/SCK8_0/SCL8/OCU9_1/TRG7_0/ICU0_3/TIN7_0/ZIN0_2/DTT1_1 | 8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| P035/SIN8_0/OCU8_1/TOT4_0/AIN0_0/INT11_0 | 9 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| P036/SCS8_0/OCU7_1/TOT5_0/BIN0_0 | 10 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| P040/PPG23_1/TOT7_0/AIN1_0/SIN0_1 | 11 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| P041/SIN9_0/ICU9_1/BIN1_0/INT12_0 | 12 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| P042/SOT9_0/AN47/ICU8_1/TRG0_1/ZIN1_0 | 13 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| P045/SCK9_0/AN46/ICU5_1/TRG3_1/TOT1_2 | 14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| P047/AN45/TRG8_0/TIN3_2/SOT0_1 | 15 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| P053/AN44/PPG35_0/INT14_1/SCK0_1 | 16 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| VSS | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| P020/SIN3_1/TRG3_0/TIN0_2/RTOS_1 | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| P024/SIN4_1/PPG24_0/TIN1_0/RT04_1/INT15_0 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| P027/SCS40_1/PPG27_0/TOT0_0/RT03_1 | 4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| P032/SCS43_1/PPG30_0/TOT3_0/RT02_1 | 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| P033/PPG31_0/ICU3_3/TIN4_0/RT01_1/SCK3_2 | 6 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| P034/OCU11_1/ICU2_3/TIN5_0/RT00_1/SOT3_2 | 7 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| P151/OCU9_1/TRG7_0/ICU0_3/TIN7_0/ZIN0_2/DTT1_1 | 8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| P035/OCU8_1/TOT4_0/AIN0_0/INT11_0 | 9 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| P036/OCU7_1/TOT5_0/BIN0_0 | 10 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| P040/PPG23_1/TOT7_0/AIN1_0/SIN0_1 | 11 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| P041/SIN9_0/ICU9_1/BIN1_0/INT12_0 | 12 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| P042/SOT9_0/AN47/ICU8_1/TRG0_1/ZIN1_0 | 13 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| P045/SCK9_0/AN46/ICU5_1/TRG3_1/TOT1_2 | 14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| P047/AN45/TRG8_0/TIN3_2/SOT0_1 | 15 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| P053/AN44/PPG35_0/INT14_1/SCK0_1 | 16 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| Page | Section | Change Results |
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| 13 | <p>■ Pin Assignment MB91F52xB</p> | <p>- Right side</p> <pre> 48 P122/SIN6_0/AN31/OCU8_0/INT9_1 47 P116/SCK6_0/SCL6/AN28/PPG20_0/RTO4_0 46 P115/RX1_1/SOT6_0/SDA6/AN27/PPG19_0/RTO3_0/INT1_1 45 P110/TX1(64)/SCS63_0/AN22 44 NMIX 43 P105/SCS71_0/AN17/PPG13_0 42 P104/SCS72_0/AN16/PPG12_0 41 P103/SCS73_0/AN15/PPG11_0 40 P102/SIN7_0/AN14/PPG10_0/INT10_0 39 AVCC0 38 AVRH0 37 AVSS0/AVRL0 36 P097/SCK11_0/SCL11/AN11/ICU5_0/PPG17_1 35 P096/RX0(128)/SOT11_0/SDA11/AN10/INT0_0 34 P093/TX0_1/SIN11_0/AN7/ICU4_2/PPG16_1/ICU3_0/TOT1_1 33 VSS </pre> <p>↓</p> <pre> 48 P122/SIN6_0/AN31/OCU8_0/INT9_1 47 P116/SCK6_0/SCL6/AN28/PPG20_0/RTO4_0 46 P115/RX1_1/SOT6_0/SDA6/AN27/PPG19_0/RTO3_0/INT1_1 45 P110/TX1(64)/SCS63_0/AN22 44 NMIX 43 P105/AN17/PPG13_0 42 P104/AN16/PPG12_0 41 P103/AN15/PPG11_0 40 P102/AN14/PPG10_0/INT10_0 39 AVCC0 38 AVRH0 37 AVSS0/AVRL0 36 P097/SCK11_0/SCL11/AN11/ICU5_0/PPG17_1 35 P096/RX0(128)/SOT11_0/SDA11/AN10/INT0_0 34 P093/TX0_1/SIN11_0/AN7/ICU4_2/PPG16_1/ICU3_0 33 VSS </pre> |

| Page | Section | Change Results |
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| 13 | ■ Pin Assignment MB91F52xB | <p>- Top</p> <p style="text-align: center;">↓</p> |
| 13 | ■ Pin Assignment MB91F52xB | <p>The following note added on the bottom left of Figure. * In a single clock product, pin 56 and pin 57 are the general-purpose ports.</p> |

| Page | Section | Change Results |
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| 14 | <p>■ Pin Assignment MB91F52xD</p> | <p>Signals indicated by the shading below deleted in Figure. - Left side</p> <p style="text-align: right;">VSS 1</p> <p>P020/SIN3_1/TRG3_0/TIN0_2/RT05_1 2</p> <p>P024/SIN4_1/PPG24_0/TIN1_0/RT04_1/INT15_0 3</p> <p>P026/SCK4_1/PPG26_0/TIN3_0 4</p> <p>P027/SCS40_1/PPG27_0/TOT0_0/RT03_1 5</p> <p>P031/SCS42_1/PPG29_0/TOT2_0 6</p> <p>P032/SCS43_1/PPG30_0/TOT3_0/RT02_1 7</p> <p>P033/PPG31_0/ICU3_3/TIN4_0/RT01_1/SCK3_2 8</p> <p>P034/OCU11_1/ICU2_3/TIN5_0/RT00_1/SOT3_2 9</p> <p>P151/SCK8_0/SCL8_0/OCU9_1/TRG7_0/ICU0_3/TIN7_0/ZIN0_2/DITTL_1 10</p> <p>P035/SIN8_0/OCU8_1/TOT4_0/AIN0_0/INT11_0 11</p> <p>P036/SCS8_0/OCU7_1/TOT5_0/BIN0_0 12</p> <p>P040/PPG23_1/TOT7_0/AIN1_0/SIN0_1 13</p> <p>P041/SIN9_0/ICU9_1/BIN1_0/INT12_0 14</p> <p>P042/SOT9_0/AN47/ICU8_1/TRG0_1/ZIN1_0 15</p> <p>P044/SCS9_0/ICU6_1/TRG2_1 16</p> <p>P045/SCK9_0/AN46/ICU5_1/TRG3_1/TOT1_2 17</p> <p>P047/AN45/TRG8_0/TIN3_2/SOT0_1 18</p> <p>P053/AN44/PPG35_0/INT14_1/SCK0_1 19</p> <p style="text-align: right;">VCC 20</p> <p style="text-align: center;">↓</p> <p style="text-align: right;">VSS 1</p> <p>P020/SIN3_1/TRG3_0/TIN0_2/RT05_1 2</p> <p>P024/SIN4_1/PPG24_0/TIN1_0/RT04_1/INT15_0 3</p> <p>P026/SCK4_1/PPG26_0/TIN3_0 4</p> <p>P027/SCS40_1/PPG27_0/TOT0_0/RT03_1 5</p> <p>P031/SCS42_1/PPG29_0 6</p> <p>P032/SCS43_1/PPG30_0/TOT3_0/RT02_1 7</p> <p>P033/PPG31_0/ICU3_3/TIN4_0/RT01_1/SCK3_2 8</p> <p>P034/OCU11_1/ICU2_3/TIN5_0/RT00_1/SOT3_2 9</p> <p>P151/OCU9_1/TRG7_0/ICU0_3/TIN7_0/ZIN0_2/DITTL_1 10</p> <p>P035/OCU8_1/TOT4_0/AIN0_0/INT11_0 11</p> <p>P036/OCU7_1/TOT5_0/BIN0_0 12</p> <p>P040/PPG23_1/TOT7_0/AIN1_0/SIN0_1 13</p> <p>P041/SIN9_0/ICU9_1/BIN1_0/INT12_0 14</p> <p>P042/SOT9_0/AN47/ICU8_1/TRG0_1/ZIN1_0 15</p> <p>P044/SCS9_0/ICU6_1/TRG2_1 16</p> <p>P045/SCK9_0/AN46/ICU5_1/TRG3_1/TOT1_2 17</p> <p>P047/AN45/TRG8_0/TIN3_2/SOT0_1 18</p> <p>P053/AN44/PPG35_0/INT14_1/SCK0_1 19</p> <p style="text-align: right;">VCC 20</p> |

| Page | Section | Change Results | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------|--|--|----|-----|----|------------------------|----|-----------------------|----|---------------------------|----|------------------------------------|----|-----------------------------|----|-------------------------------|----|-------------------------------|----|-------------------------|----|--------------------------------------|----|--|----|--|----|--|----|--|----|-------------|----|-------|----|---|----|-------|----|---------------------------------|----|-----|
| 14 | <p>■ Pin Assignment MB91F52xD</p> | <p>- Bottom</p> <table border="1"> <tr><td>40</td><td>VCC</td></tr> <tr><td>39</td><td>P067DA00.PPG7_0.INT8_0</td></tr> <tr><td>38</td><td>P062SIN5_0.AN1.PPG2_0</td></tr> <tr><td>37</td><td>P061SOT5_0SDA5.AN0.PPG1_0</td></tr> <tr><td>36</td><td>P153SCK5_0SCL5.AN32.FRCK1_L.INT4_1</td></tr> <tr><td>35</td><td>P073SOT14_0SDA4.AN33.ICU3_2</td></tr> <tr><td>34</td><td>P072SIN4_0.AN34.ICU2_2.INT5_0</td></tr> <tr><td>33</td><td>P071SCK4_2.AN33.ICU1_2.MONCLK</td></tr> <tr><td>32</td><td>P067.AN36.FRCK5_0.AN0_1</td></tr> <tr><td>31</td><td>P066SOT4_2SCK3_0.AN37.FRCK4_0.BIN0_1</td></tr> <tr><td>30</td><td>P064SCK42_0.AN38.FRCK2_0.AN1_1.PPG43_1</td></tr> <tr><td>29</td><td>P063SCK41_0.AN39.PPG5_1.FRCK1_0.BIN1_1</td></tr> <tr><td>28</td><td>P062SCK10_1SCK40_0.AN40.PPG4_1.FRCK0_0.TOT7_L.ZIN1_1</td></tr> <tr><td>27</td><td>P061SOT10_1.AN41.ICU6_0.PPG3_1.ICU3_1.TOT6_L.INT13_1</td></tr> <tr><td>26</td><td>AVSS1A.VRL1</td></tr> <tr><td>25</td><td>AVRH1</td></tr> <tr><td>24</td><td>P057SCK10_1.AN42.ICU8_0.TRG0_2.PPG1_1.ICU1_1.TIN6_1</td></tr> <tr><td>23</td><td>AVCCI</td></tr> <tr><td>22</td><td>P055SIN10_0.AN43.PPG37_0.TIN4_1</td></tr> <tr><td>21</td><td>VSS</td></tr> </table> | 40 | VCC | 39 | P067DA00.PPG7_0.INT8_0 | 38 | P062SIN5_0.AN1.PPG2_0 | 37 | P061SOT5_0SDA5.AN0.PPG1_0 | 36 | P153SCK5_0SCL5.AN32.FRCK1_L.INT4_1 | 35 | P073SOT14_0SDA4.AN33.ICU3_2 | 34 | P072SIN4_0.AN34.ICU2_2.INT5_0 | 33 | P071SCK4_2.AN33.ICU1_2.MONCLK | 32 | P067.AN36.FRCK5_0.AN0_1 | 31 | P066SOT4_2SCK3_0.AN37.FRCK4_0.BIN0_1 | 30 | P064SCK42_0.AN38.FRCK2_0.AN1_1.PPG43_1 | 29 | P063SCK41_0.AN39.PPG5_1.FRCK1_0.BIN1_1 | 28 | P062SCK10_1SCK40_0.AN40.PPG4_1.FRCK0_0.TOT7_L.ZIN1_1 | 27 | P061SOT10_1.AN41.ICU6_0.PPG3_1.ICU3_1.TOT6_L.INT13_1 | 26 | AVSS1A.VRL1 | 25 | AVRH1 | 24 | P057SCK10_1.AN42.ICU8_0.TRG0_2.PPG1_1.ICU1_1.TIN6_1 | 23 | AVCCI | 22 | P055SIN10_0.AN43.PPG37_0.TIN4_1 | 21 | VSS |
| 40 | VCC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 39 | P067DA00.PPG7_0.INT8_0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 38 | P062SIN5_0.AN1.PPG2_0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 37 | P061SOT5_0SDA5.AN0.PPG1_0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 36 | P153SCK5_0SCL5.AN32.FRCK1_L.INT4_1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 35 | P073SOT14_0SDA4.AN33.ICU3_2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 34 | P072SIN4_0.AN34.ICU2_2.INT5_0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 33 | P071SCK4_2.AN33.ICU1_2.MONCLK | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 32 | P067.AN36.FRCK5_0.AN0_1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 31 | P066SOT4_2SCK3_0.AN37.FRCK4_0.BIN0_1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 30 | P064SCK42_0.AN38.FRCK2_0.AN1_1.PPG43_1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 29 | P063SCK41_0.AN39.PPG5_1.FRCK1_0.BIN1_1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 28 | P062SCK10_1SCK40_0.AN40.PPG4_1.FRCK0_0.TOT7_L.ZIN1_1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 27 | P061SOT10_1.AN41.ICU6_0.PPG3_1.ICU3_1.TOT6_L.INT13_1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 26 | AVSS1A.VRL1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 25 | AVRH1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 24 | P057SCK10_1.AN42.ICU8_0.TRG0_2.PPG1_1.ICU1_1.TIN6_1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 23 | AVCCI | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 22 | P055SIN10_0.AN43.PPG37_0.TIN4_1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 21 | VSS | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| Page | Section | Change Results |
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| 14 | ■ Pin Assignment MB91F52xD | <p>- Right side</p>  <pre> 60 VSS 59 P122/SIN6_0/AN31/OCU8_0/INT9_1 58 P116/SCK6_0/SCL6/AN28/PPG20_0/RT04_0 57 P115/RX1_1/SOT6_0/SDA6/AN27/PPG19_0/RT03_0/INT1_1 56 P114/SCS61_0/AN26/PPG18_0/RT02_0 55 P110/TX1(64)/SCS63_0/AN22 54 NMIX 53 P107/AN19/PPG15_0 52 P105/SCS71_0/AN17/PPG13_0 51 P104/SCS72_0/AN16/PPG12_0 50 P103/SCS73_0/AN15/PPG11_0 49 P102/SIN7_0/AN14/PPG10_0/INT10_0 48 P100/SCK7_0/SCL7/AN12/PPG8_0 47 AVCC0 46 AVRH0 45 AVSS0/AVRL0 44 P097/SCK11_0/SCL11/AN11/ICU5_0/PPG17_1 43 P096/RX0(128)/SOT11_0/SDA11/AN10/INT0_0 42 P093/TX0_1/SIN11_0/AN7/ICU4_2/PPG16_1/ICU3_0/TOT2_1 41 VSS </pre> <p>↓</p> <pre> 60 VSS 59 P122/SIN6_0/AN31/OCU8_0/INT9_1 58 P116/SCK6_0/SCL6/AN28/PPG20_0/RT04_0 57 P115/RX1_1/SOT6_0/SDA6/AN27/PPG19_0/RT03_0/INT1_1 56 P114/SCS61_0/AN26/PPG18_0/RT02_0 55 P110/TX1(64)/SCS63_0/AN22 54 NMIX 53 P107/AN19/PPG15_0 52 P105/AN17/PPG13_0 51 P104/AN16/PPG12_0 50 P103/AN15/PPG11_0 49 P102/AN14/PPG10_0/INT10_0 48 P100/AN12/PPG8_0 47 AVCC0 46 AVRH0 45 AVSS0/AVRL0 44 P097/SCK11_0/SCL11/AN11/ICU5_0/PPG17_1 43 P096/RX0(128)/SOT11_0/SDA11/AN10/INT0_0 42 P093/TX0_1/SIN11_0/AN7/ICU4_2/PPG16_1/ICU3_0 41 VSS </pre> |

| Page | Section | Change Results |
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| 14 | <p>■ Pin Assignment MB91F52xD</p> | <p>- Top</p> <p style="text-align: center;">↓</p> |
| 14 | <p>■ Pin Assignment MB91F52xD</p> | <p>The following note added on the bottom left of Figure. * In a single clock product, pin 71 and pin 72 are the general-purpose ports.</p> |

| Page | Section | Change Results | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------|--|--|----|-----|----|-------------------------|----|------------------|----|------------------------|----|-----------------------------|----|--------------------------------------|----|--------------|----|------------------------------|----|--------------------------------|----|--------------------------------|----|-------------|----|--------------------------|----|--|----|-------------------------------------|----|--|----|---|----|--|----|---|----|---|----|-------------|----|-------|----|--|----|-------|----|----------------------------------|----|-----|----|-----|----|-------------------------|----|------------------|----|------------------------|----|-----------------------------|----|--------------------------------------|----|--------------|----|------------------|----|--------------------------------|----|--------------------------------|----|-------------|----|--------------------------|----|--|----|-------------------------------------|----|--|----|---|----|--|----|---|----|---|----|-------------|----|-------|----|--|----|-------|----|----------------------------------|----|-----|
| 15 | <p>■ Pin Assignment MB91F52xF</p> | <p>Signals indicated by the shading below deleted in Figure.</p> <p>(Error) - Bottom</p> <table border="1" data-bbox="609 451 1315 1008"> <tr><td>50</td><td>VCC</td></tr> <tr><td>49</td><td>P087/DA00/PPG7_0/INT8_0</td></tr> <tr><td>48</td><td>P086/DA01/PPG6_0</td></tr> <tr><td>47</td><td>P082/SIN5_0/ANI/PPG2_0</td></tr> <tr><td>46</td><td>P081/SOT5_0/SDA5/AN0/PPG1_0</td></tr> <tr><td>45</td><td>P153/SCK5_0/SCL5/AN32/FRCK1_1/INT4_1</td></tr> <tr><td>44</td><td>P152/SCS53_0</td></tr> <tr><td>43</td><td>P073/SOT4_0/SDA4/AN33/ICU3_2</td></tr> <tr><td>42</td><td>P072/SIN4_0/AN34/ICU2_2/INT5_0</td></tr> <tr><td>41</td><td>P071/SCK4_2/AN35/ICU1_2/MONCLK</td></tr> <tr><td>40</td><td>P070/ICU0_2</td></tr> <tr><td>39</td><td>P067/AN36/FRCK5_0/AIN0_1</td></tr> <tr><td>38</td><td>P066/SOT4_2/SCS3_0/AN37/FRCK4_0/BIN0_1</td></tr> <tr><td>37</td><td>P065/SCS43_0/FRCK3_0/ZIN0_1/PPG44_1</td></tr> <tr><td>36</td><td>P064/SCS42_0/AN38/FRCK2_0/AIN1_1/PPG43_1</td></tr> <tr><td>35</td><td>P063/SCS41_0/AN39/PPG5_1/FRCK1_0/BIN1_1</td></tr> <tr><td>34</td><td>P062/SCS10_1/SCS40_0/AN40/PPG4_1/FRCK0_0/TOT7_1/ZIN1_1</td></tr> <tr><td>33</td><td>P061/SOT10_1/AN41/ICU6_0/PPG3_1/ICU3_1/TOT6_1/INT13_1</td></tr> <tr><td>32</td><td>P060/SCS10_0/PPG2_1/ICU2_1/TOT5_1/INT13_0</td></tr> <tr><td>31</td><td>AVSSI/AVR1I</td></tr> <tr><td>30</td><td>AVRHI</td></tr> <tr><td>29</td><td>P057/SCK10_1/AN42/ICU8_0/TRG0_2/PPG1_1/ICU1_1/INT6_1</td></tr> <tr><td>28</td><td>AVCCI</td></tr> <tr><td>27</td><td>P055/SIN10_0/AN43/PPG37_0/TIN4_1</td></tr> <tr><td>26</td><td>VSS</td></tr> </table> <table border="1" data-bbox="609 1008 1315 1554"> <tr><td>50</td><td>VCC</td></tr> <tr><td>49</td><td>P087/DA00/PPG7_0/INT8_0</td></tr> <tr><td>48</td><td>P086/DA01/PPG6_0</td></tr> <tr><td>47</td><td>P082/SIN5_0/ANI/PPG2_0</td></tr> <tr><td>46</td><td>P081/SOT5_0/SDA5/AN0/PPG1_0</td></tr> <tr><td>45</td><td>P153/SCK5_0/SCL5/AN32/FRCK1_1/INT4_1</td></tr> <tr><td>44</td><td>P152/SCS53_0</td></tr> <tr><td>43</td><td>P073/AN33/ICU3_2</td></tr> <tr><td>42</td><td>P072/SIN4_0/AN34/ICU2_2/INT5_0</td></tr> <tr><td>41</td><td>P071/SCK4_2/AN35/ICU1_2/MONCLK</td></tr> <tr><td>40</td><td>P070/ICU0_2</td></tr> <tr><td>39</td><td>P067/AN36/FRCK5_0/AIN0_1</td></tr> <tr><td>38</td><td>P066/SOT4_2/SCS3_0/AN37/FRCK4_0/BIN0_1</td></tr> <tr><td>37</td><td>P065/SCS43_0/FRCK3_0/ZIN0_1/PPG44_1</td></tr> <tr><td>36</td><td>P064/SCS42_0/AN38/FRCK2_0/AIN1_1/PPG43_1</td></tr> <tr><td>35</td><td>P063/SCS41_0/AN39/PPG5_1/FRCK1_0/BIN1_1</td></tr> <tr><td>34</td><td>P062/SCS10_1/SCS40_0/AN40/PPG4_1/FRCK0_0/TOT7_1/ZIN1_1</td></tr> <tr><td>33</td><td>P061/SOT10_1/AN41/ICU6_0/PPG3_1/ICU3_1/TOT6_1/INT13_1</td></tr> <tr><td>32</td><td>P060/SCS10_0/PPG2_1/ICU2_1/TOT5_1/INT13_0</td></tr> <tr><td>31</td><td>AVSSI/AVR1I</td></tr> <tr><td>30</td><td>AVRHI</td></tr> <tr><td>29</td><td>P057/SCK10_1/AN42/ICU8_0/TRG0_2/PPG1_1/ICU1_1/INT6_1</td></tr> <tr><td>28</td><td>AVCCI</td></tr> <tr><td>27</td><td>P055/SIN10_0/AN43/PPG37_0/TIN4_1</td></tr> <tr><td>26</td><td>VSS</td></tr> </table> | 50 | VCC | 49 | P087/DA00/PPG7_0/INT8_0 | 48 | P086/DA01/PPG6_0 | 47 | P082/SIN5_0/ANI/PPG2_0 | 46 | P081/SOT5_0/SDA5/AN0/PPG1_0 | 45 | P153/SCK5_0/SCL5/AN32/FRCK1_1/INT4_1 | 44 | P152/SCS53_0 | 43 | P073/SOT4_0/SDA4/AN33/ICU3_2 | 42 | P072/SIN4_0/AN34/ICU2_2/INT5_0 | 41 | P071/SCK4_2/AN35/ICU1_2/MONCLK | 40 | P070/ICU0_2 | 39 | P067/AN36/FRCK5_0/AIN0_1 | 38 | P066/SOT4_2/SCS3_0/AN37/FRCK4_0/BIN0_1 | 37 | P065/SCS43_0/FRCK3_0/ZIN0_1/PPG44_1 | 36 | P064/SCS42_0/AN38/FRCK2_0/AIN1_1/PPG43_1 | 35 | P063/SCS41_0/AN39/PPG5_1/FRCK1_0/BIN1_1 | 34 | P062/SCS10_1/SCS40_0/AN40/PPG4_1/FRCK0_0/TOT7_1/ZIN1_1 | 33 | P061/SOT10_1/AN41/ICU6_0/PPG3_1/ICU3_1/TOT6_1/INT13_1 | 32 | P060/SCS10_0/PPG2_1/ICU2_1/TOT5_1/INT13_0 | 31 | AVSSI/AVR1I | 30 | AVRHI | 29 | P057/SCK10_1/AN42/ICU8_0/TRG0_2/PPG1_1/ICU1_1/INT6_1 | 28 | AVCCI | 27 | P055/SIN10_0/AN43/PPG37_0/TIN4_1 | 26 | VSS | 50 | VCC | 49 | P087/DA00/PPG7_0/INT8_0 | 48 | P086/DA01/PPG6_0 | 47 | P082/SIN5_0/ANI/PPG2_0 | 46 | P081/SOT5_0/SDA5/AN0/PPG1_0 | 45 | P153/SCK5_0/SCL5/AN32/FRCK1_1/INT4_1 | 44 | P152/SCS53_0 | 43 | P073/AN33/ICU3_2 | 42 | P072/SIN4_0/AN34/ICU2_2/INT5_0 | 41 | P071/SCK4_2/AN35/ICU1_2/MONCLK | 40 | P070/ICU0_2 | 39 | P067/AN36/FRCK5_0/AIN0_1 | 38 | P066/SOT4_2/SCS3_0/AN37/FRCK4_0/BIN0_1 | 37 | P065/SCS43_0/FRCK3_0/ZIN0_1/PPG44_1 | 36 | P064/SCS42_0/AN38/FRCK2_0/AIN1_1/PPG43_1 | 35 | P063/SCS41_0/AN39/PPG5_1/FRCK1_0/BIN1_1 | 34 | P062/SCS10_1/SCS40_0/AN40/PPG4_1/FRCK0_0/TOT7_1/ZIN1_1 | 33 | P061/SOT10_1/AN41/ICU6_0/PPG3_1/ICU3_1/TOT6_1/INT13_1 | 32 | P060/SCS10_0/PPG2_1/ICU2_1/TOT5_1/INT13_0 | 31 | AVSSI/AVR1I | 30 | AVRHI | 29 | P057/SCK10_1/AN42/ICU8_0/TRG0_2/PPG1_1/ICU1_1/INT6_1 | 28 | AVCCI | 27 | P055/SIN10_0/AN43/PPG37_0/TIN4_1 | 26 | VSS |
| 50 | VCC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 49 | P087/DA00/PPG7_0/INT8_0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 48 | P086/DA01/PPG6_0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 47 | P082/SIN5_0/ANI/PPG2_0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 46 | P081/SOT5_0/SDA5/AN0/PPG1_0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 45 | P153/SCK5_0/SCL5/AN32/FRCK1_1/INT4_1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 44 | P152/SCS53_0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 43 | P073/SOT4_0/SDA4/AN33/ICU3_2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 42 | P072/SIN4_0/AN34/ICU2_2/INT5_0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 41 | P071/SCK4_2/AN35/ICU1_2/MONCLK | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 40 | P070/ICU0_2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 39 | P067/AN36/FRCK5_0/AIN0_1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 38 | P066/SOT4_2/SCS3_0/AN37/FRCK4_0/BIN0_1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 37 | P065/SCS43_0/FRCK3_0/ZIN0_1/PPG44_1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 36 | P064/SCS42_0/AN38/FRCK2_0/AIN1_1/PPG43_1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 35 | P063/SCS41_0/AN39/PPG5_1/FRCK1_0/BIN1_1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 34 | P062/SCS10_1/SCS40_0/AN40/PPG4_1/FRCK0_0/TOT7_1/ZIN1_1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 33 | P061/SOT10_1/AN41/ICU6_0/PPG3_1/ICU3_1/TOT6_1/INT13_1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 32 | P060/SCS10_0/PPG2_1/ICU2_1/TOT5_1/INT13_0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 31 | AVSSI/AVR1I | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 30 | AVRHI | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 29 | P057/SCK10_1/AN42/ICU8_0/TRG0_2/PPG1_1/ICU1_1/INT6_1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 28 | AVCCI | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 27 | P055/SIN10_0/AN43/PPG37_0/TIN4_1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 26 | VSS | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 50 | VCC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 49 | P087/DA00/PPG7_0/INT8_0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 48 | P086/DA01/PPG6_0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 47 | P082/SIN5_0/ANI/PPG2_0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 46 | P081/SOT5_0/SDA5/AN0/PPG1_0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 45 | P153/SCK5_0/SCL5/AN32/FRCK1_1/INT4_1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 44 | P152/SCS53_0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 43 | P073/AN33/ICU3_2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 42 | P072/SIN4_0/AN34/ICU2_2/INT5_0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 41 | P071/SCK4_2/AN35/ICU1_2/MONCLK | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 40 | P070/ICU0_2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 39 | P067/AN36/FRCK5_0/AIN0_1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 38 | P066/SOT4_2/SCS3_0/AN37/FRCK4_0/BIN0_1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 37 | P065/SCS43_0/FRCK3_0/ZIN0_1/PPG44_1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 36 | P064/SCS42_0/AN38/FRCK2_0/AIN1_1/PPG43_1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 35 | P063/SCS41_0/AN39/PPG5_1/FRCK1_0/BIN1_1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 34 | P062/SCS10_1/SCS40_0/AN40/PPG4_1/FRCK0_0/TOT7_1/ZIN1_1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 33 | P061/SOT10_1/AN41/ICU6_0/PPG3_1/ICU3_1/TOT6_1/INT13_1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 32 | P060/SCS10_0/PPG2_1/ICU2_1/TOT5_1/INT13_0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 31 | AVSSI/AVR1I | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 30 | AVRHI | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 29 | P057/SCK10_1/AN42/ICU8_0/TRG0_2/PPG1_1/ICU1_1/INT6_1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 28 | AVCCI | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 27 | P055/SIN10_0/AN43/PPG37_0/TIN4_1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 26 | VSS | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| Page | Section | Change Results | | | | | | |
|---------------------|----------------------------|--|---------------------|------------|---|--|---------------------|------------|
| 15 | ■ Pin Assignment MB91F52xF | <p>- Top</p> | | | | | | |
| 15 | ■ Pin Assignment MB91F52xF | The following note added on the bottom left of Figure. * In a single clock product, pin 86 and pin 87 are the general-purpose ports. | | | | | | |
| 16 | ■ Pin Assignment MB91F52xJ | The following note added on the bottom left of Figure. * In a single clock product, pin 102 and pin 103 are the general-purpose ports. | | | | | | |
| 17 | ■ Pin Assignment MB91F52xK | The following note added on the bottom left of Figure. * In a single clock product, pin 121 and pin 122 are the general-purpose ports. | | | | | | |
| 18 | ■ Pin Assignment MB91F52xL | The following note added on the bottom left of Figure. * In a single clock product, pin 149 and pin 150 are the general-purpose ports. | | | | | | |
| 19 to 35 | ■ PIN Description | <p>A List of "Pin Description" modified.</p> <table border="1"> <tr> <td>I/O Circuit types*1</td> <td>Function*2</td> </tr> <tr> <td colspan="2" style="text-align: center;">↓</td> </tr> <tr> <td>I/O Circuit types*8</td> <td>Function*9</td> </tr> </table> | I/O Circuit types*1 | Function*2 | ↓ | | I/O Circuit types*8 | Function*9 |
| I/O Circuit types*1 | Function*2 | | | | | | | |
| ↓ | | | | | | | | |
| I/O Circuit types*8 | Function*9 | | | | | | | |

| Page | Section | Change Results | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| 19 | ■PIN Description | <p>A List of "Pin Description" modified.</p> <p>(Error)</p> <table border="1"> <thead> <tr> <th colspan="6">Pin no.</th> <th rowspan="2">Pin Name</th> </tr> <tr> <th>64</th> <th>80</th> <th>100</th> <th>120</th> <th>144</th> <th>176</th> </tr> </thead> <tbody> <tr> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>2</td> <td>2</td> <td>P015</td> </tr> <tr> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>D29</td> </tr> <tr> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>TRG0_0</td> </tr> <tr> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>3</td> <td>3</td> <td>P016</td> </tr> <tr> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>D30</td> </tr> <tr> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>TRG1_0</td> </tr> <tr> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>4</td> <td>P170</td> </tr> <tr> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>PPG36_1</td> </tr> <tr> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>4</td> <td>5</td> <td>P017</td> </tr> <tr> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>D31</td> </tr> <tr> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>TRG2_0</td> </tr> <tr> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>6</td> <td>P171</td> </tr> <tr> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>PPG37_1</td> </tr> <tr> <td>2</td> <td>2</td> <td>2</td> <td>2</td> <td>5</td> <td>7</td> <td>P020</td> </tr> <tr> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>ASX</td> </tr> <tr> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>SIN3_1</td> </tr> <tr> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>TRG3_0</td> </tr> <tr> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>TIN0_2</td> </tr> <tr> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>RTO5_1</td> </tr> <tr> <td>-</td> <td>-</td> <td>-</td> <td>3</td> <td>6</td> <td>8</td> <td>P021</td> </tr> <tr> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>CS0X</td> </tr> <tr> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>SOT3_1</td> </tr> <tr> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>TRG6_1</td> </tr> <tr> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>TRG4_0</td> </tr> <tr> <td>-</td> <td>-</td> <td>-</td> <td>4</td> <td>7</td> <td>9</td> <td>P022</td> </tr> <tr> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>CS1X</td> </tr> <tr> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>SCK3_1</td> </tr> <tr> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>TRG7_1</td> </tr> <tr> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>TRG5_0</td> </tr> <tr> <td>-</td> <td>-</td> <td>-</td> <td>5</td> <td>8</td> <td>10</td> <td>P023</td> </tr> <tr> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>RDX</td> </tr> <tr> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>SCS3_1</td> </tr> <tr> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>PPG32_0</td> </tr> <tr> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>TIN0_0</td> </tr> <tr> <td>3</td> <td>3</td> <td>3</td> <td>6</td> <td>9</td> <td>11</td> <td>P024</td> </tr> <tr> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>WROX</td> </tr> <tr> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>SIN4_1</td> </tr> <tr> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>PPG24_0</td> </tr> <tr> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>TIN1_0</td> </tr> <tr> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>RTO4_1</td> </tr> <tr> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>INT15_0</td> </tr> </tbody> </table> | Pin no. | | | | | | Pin Name | 64 | 80 | 100 | 120 | 144 | 176 | - | - | - | - | 2 | 2 | P015 | - | - | - | - | - | - | D29 | - | - | - | - | - | - | TRG0_0 | - | - | - | - | 3 | 3 | P016 | - | - | - | - | - | - | D30 | - | - | - | - | - | - | TRG1_0 | - | - | - | - | - | 4 | P170 | - | - | - | - | - | - | PPG36_1 | - | - | - | - | 4 | 5 | P017 | - | - | - | - | - | - | D31 | - | - | - | - | - | - | TRG2_0 | - | - | - | - | - | 6 | P171 | - | - | - | - | - | - | PPG37_1 | 2 | 2 | 2 | 2 | 5 | 7 | P020 | - | - | - | - | - | - | ASX | - | - | - | - | - | - | SIN3_1 | - | - | - | - | - | - | TRG3_0 | - | - | - | - | - | - | TIN0_2 | - | - | - | - | - | - | RTO5_1 | - | - | - | 3 | 6 | 8 | P021 | - | - | - | - | - | - | CS0X | - | - | - | - | - | - | SOT3_1 | - | - | - | - | - | - | TRG6_1 | - | - | - | - | - | - | TRG4_0 | - | - | - | 4 | 7 | 9 | P022 | - | - | - | - | - | - | CS1X | - | - | - | - | - | - | SCK3_1 | - | - | - | - | - | - | TRG7_1 | - | - | - | - | - | - | TRG5_0 | - | - | - | 5 | 8 | 10 | P023 | - | - | - | - | - | - | RDX | - | - | - | - 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| | | Pin no. | | | | | | Pin Name | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 64 | 80 | 100 | 120 | 144 | 176 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | - | - | - | - | 2 | 2 | P015 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | - | - | - | - | - | - | D29 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | - | - | - | - | - | - | TRG0_0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | - | - | - | - | 3 | 3 | P016 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | - | - | - | - | - | - | D30 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | - | - | - | - | - | - | TRG1_0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | - | - | - | - | - | 4 | P170 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | - | - | - | - | - | - | PPG36_1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | - | - | - | - | 4 | 5 | P017 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | - | - | - | - | - | - | D31 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | - | - | - | - | - | - | TRG2_0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | - | - | - | - | - | 6 | P171 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| | | - | - | - | - | - | - | SIN3_1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | - | - | - | - | - | - | TRG3_0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| | | - | - | - | - | - | - | SOT3_1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| - | - | - | - | - | - | CS1X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| - | - | - | - | - | - | SCK3_1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| - | - | - | - | - | - | TIN0_0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | 3 | 3 | 6 | 9 | 11 | P024 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| - | - | - | - | - | - | WROX | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| - | - | - | - | - | - | SIN4_1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| - | - | - | - | - | - | PPG24_0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| - | - | - | - | - | - | TIN1_0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| - | - | - | - | - | - | RTO4_1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| - | - | - | - | - | - | INT15_0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| Page | Section | Change Results | | | | | | | | | |
|-----------------|------------------|--------------------------|-----------------|-----------------|-----------------|--------------------------------|-----|-------------------------------|--|--|--|
| 19 | ■PIN Description | (Continued) (Correct) | | | | | | | | | |
| | | Pin no. | | | | | | Pin Name | | | |
| | | 64 | 80 | 100 | 120 | 144 | 176 | P015 | | | |
| | | - | - | - | - | 2 | 2 | D29 | | | |
| | | | | | | | | TRG0_0 | | | |
| | | - | - | - | - | 3 | 3 | P016 | | | |
| | | | | | | | | D30 | | | |
| | | | | | | | | TRG1_0 | | | |
| | | - | - | - | - | - | 4 | P170 | | | |
| | | | | | | | | PPG36_1 | | | |
| | | - | - | - | - | 4 | 5 | P017 | | | |
| | | | | | | | | D31 | | | |
| | | | | | | | | TRG2_0 | | | |
| | | - | - | - | - | - | 6 | P171 | | | |
| | | | | | | | | PPG37_1 | | | |
| | | 2 ^{*1} | 2 ^{*1} | 2 ^{*1} | 2 ^{*1} | 5 | 7 | P020 | | | |
| | | | | | | | | ASX ^{*2, *3, *4, *5} | | | |
| | | | | | | | | SIN3_1 | | | |
| | | | | | | | | TRG3_0 | | | |
| | | | | | | | | TIN0_2 | | | |
| | | | | | | | | RTO5_1 | | | |
| | | - | - | - | 3 ^{*1} | 6 | 8 | P021 | | | |
| | | | | | | | | CS0X ^{*5} | | | |
| | | | | | | | | SOT3_1 | | | |
| | | | | | | | | TRG6_1 | | | |
| | | | | | | | | TRG4_0 | | | |
| | | - | - | - | 4 ^{*1} | 7 | 9 | P022 | | | |
| | | | | | | | | CS1X ^{*5} | | | |
| | | | | | | SCK3_1 | | | | | |
| | | | | | | TRG7_1 | | | | | |
| | | | | | | TRG5_0 | | | | | |
| - | - | - | 5 ^{*1} | 8 | 10 | P023 | | | | | |
| | | | | | | RDX ^{*5} | | | | | |
| | | | | | | SCS3_1 | | | | | |
| | | | | | | PPG32_0 | | | | | |
| | | | | | | TIN0_0 | | | | | |
| 3 ^{*1} | 3 ^{*1} | 3 ^{*1} | 6 ^{*1} | 9 | 11 | P024 | | | | | |
| | | | | | | WR0X ^{*2, *3, *4, *5} | | | | | |
| | | | | | | SIN4_1 | | | | | |
| | | | | | | PPG24_0 | | | | | |
| | | | | | | TIN1_0 | | | | | |
| | | | | | | RTO4_1 | | | | | |
| | | | | | | INT15_0 | | | | | |

| Page | Section | Change Results | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------|------------------|---|---------|-----|-----|---------|-----|----------|----------|----|----|-----|-----|-----|-----|---|---|---|---|----|----|------|--|--|--|--|--|--|------|--|--|--|--|--|--|--------|--|--|--|--|--|--|---------|--|--|--|--|--|--|--------|---|---|---|---|---|----|------|--|--|--|--|--|--|---------|--|--|--|--|--|--|------|--|--|--|--|--|--|-----|---|---|---|---|----|----|--------|--|--|--|--|--|--|---------|--|--|--|--|--|--|--------|--|--|--|--|--|--|------|--|--|--|--|--|--|-----|---|---|---|---|----|----|---------|--|--|--|--|--|--|---------|--|--|--|--|--|--|--------|--|--|--|--|--|--|--------|---|---|---|---|---|----|------|--|--|--|--|--|--|---------|--|--|--|--|--|--|------|--|--|--|--|--|--|-----|---|---|---|----|----|----|---------|--|--|--|--|--|--|---------|--|--|--|--|--|--|--------|--|--|--|--|--|--|------|--|--|--|--|--|--|-----|---|---|---|----|----|----|---------|--|--|--|--|--|--|---------|--|--|--|--|--|--|--------|--|--|--|--|--|--|------|--|--|--|--|--|--|-----|---|---|---|----|----|----|---------|--|--|--|--|--|--|---------|--|--|--|--|--|--|--------|--|--|--|--|--|--|--------|--|--|--|--|--|--|------|--|--|--|--|--|--|-----|---|---|----|----|----|----|---------|--|--|--|--|--|--|--------|--|--|--|--|--|--|--------|--|--|--|--|--|--|--------|--|--|--|--|--|--|--------|
| 20 | ■PIN Description | <p>A List of "Pin Description" modified.</p> <p>(Error)</p> <table border="1"> <thead> <tr> <th colspan="6">Pin no.</th> <th rowspan="2">Pin Name</th> </tr> <tr> <th>64</th> <th>80</th> <th>100</th> <th>120</th> <th>144</th> <th>176</th> </tr> </thead> <tbody> <tr> <td>-</td> <td>-</td> <td>4</td> <td>7</td> <td>10</td> <td>12</td> <td>P025</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>WR1X</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>SOT4_1</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>PPG25_0</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>TIN2_0</td> </tr> <tr> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>13</td> <td>P172</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>PPG38_1</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>P026</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>A00</td> </tr> <tr> <td>-</td> <td>4</td> <td>5</td> <td>8</td> <td>11</td> <td>14</td> <td>SCK4_1</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>PPG26_0</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>TIN3_0</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>P027</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>A01</td> </tr> <tr> <td>4</td> <td>5</td> <td>6</td> <td>9</td> <td>12</td> <td>15</td> <td>SCS40_1</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>PPG27_0</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>TOT0_0</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>RTO3_1</td> </tr> <tr> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>16</td> <td>P173</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>PPG39_1</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>P030</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>A02</td> </tr> <tr> <td>-</td> <td>-</td> <td>7</td> <td>10</td> <td>13</td> <td>17</td> <td>SCS41_1</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>PPG28_0</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>TOT1_0</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>P031</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>A03</td> </tr> <tr> <td>-</td> <td>6</td> <td>8</td> <td>11</td> <td>14</td> <td>18</td> <td>SCS42_1</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>PPG29_0</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>TOT2_0</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>P032</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>A04</td> </tr> <tr> <td>5</td> <td>7</td> <td>9</td> <td>12</td> <td>15</td> <td>19</td> <td>SCS43_1</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>PPG30_0</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>TOT3_0</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>RTO2_1</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>P033</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>A05</td> </tr> <tr> <td>6</td> <td>8</td> <td>10</td> <td>13</td> <td>16</td> <td>20</td> <td>PPG31_0</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>ICU3_3</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>TIN4_0</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>RTO1_1</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>SCK3_2</td> </tr> </tbody> </table> | Pin no. | | | | | | Pin Name | 64 | 80 | 100 | 120 | 144 | 176 | - | - | 4 | 7 | 10 | 12 | P025 | | | | | | | WR1X | | | | | | | SOT4_1 | | | | | | | PPG25_0 | | | | | | | TIN2_0 | - | - | - | - | - | 13 | P172 | | | | | | | PPG38_1 | | | | | | | P026 | | | | | | | A00 | - | 4 | 5 | 8 | 11 | 14 | SCK4_1 | | | | | | | PPG26_0 | | | | | | | TIN3_0 | | | | | | | P027 | | | | | | | A01 | 4 | 5 | 6 | 9 | 12 | 15 | SCS40_1 | | | | | | | PPG27_0 | | | | | | | TOT0_0 | | | | | | | RTO3_1 | - | - | - | - | - | 16 | P173 | | | | | | | PPG39_1 | | | | | | | P030 | | | | | | | A02 | - | - | 7 | 10 | 13 | 17 | SCS41_1 | | | | | | | PPG28_0 | | | | | | | TOT1_0 | | | | | | | P031 | | | | | | | A03 | - | 6 | 8 | 11 | 14 | 18 | SCS42_1 | | | | | | | PPG29_0 | | | | | | | TOT2_0 | | | | | | | P032 | | | | | | | A04 | 5 | 7 | 9 | 12 | 15 | 19 | SCS43_1 | | | | | | | PPG30_0 | | | | | | | TOT3_0 | | | | | | | RTO2_1 | | | | | | | P033 | | | | | | | A05 | 6 | 8 | 10 | 13 | 16 | 20 | PPG31_0 | | | | | | | ICU3_3 | | | | | | | TIN4_0 | | | | | | | RTO1_1 | | | | | | | SCK3_2 |
| | | Pin no. | | | | | | Pin Name | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 64 | 80 | 100 | 120 | 144 | 176 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | - | - | 4 | 7 | 10 | 12 | P025 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| | | | | | | | | SOT4_1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | PPG25_0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | TIN2_0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | - | - | - | - | - | 13 | P172 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | PPG38_1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | P026 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| | | - | 4 | 5 | 8 | 11 | 14 | SCK4_1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | PPG26_0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | TIN3_0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | P027 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| | | 4 | 5 | 6 | 9 | 12 | 15 | SCS40_1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | PPG27_0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | TOT0_0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | RTO3_1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | - | - | - | - | - | 16 | P173 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | PPG39_1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| | | - | - | 7 | 10 | 13 | 17 | SCS41_1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | PPG28_0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | TOT1_0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | P031 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | A03 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| - | 6 | 8 | 11 | 14 | 18 | SCS42_1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | PPG29_0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | TOT2_0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | P032 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | A04 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | 7 | 9 | 12 | 15 | 19 | SCS43_1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | PPG30_0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | TOT3_0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | RTO2_1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | P033 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | A05 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | 8 | 10 | 13 | 16 | 20 | PPG31_0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | ICU3_3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | TIN4_0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | RTO1_1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | SCK3_2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| Page | Section | Change Results | | | | | | | | | | |
|------|------------------|--------------------------|-----------------|------------------|------------------|-----|-----|----------|-------------------------------|---------|---------|----------------------|
| 20 | ■PIN Description | (Continued) (Correct) | | | | | | | | | | |
| | | Pin no. | | | | | | Pin Name | | | | |
| | | 64 | 80 | 100 | 120 | 144 | 176 | | | | | |
| | | - | - | 4 ^{*1} | 7 ^{*1} | 10 | 12 | P025 | WR1X ^{*4, *5} | SOT4_1 | PPG25_0 | TIN2_0 |
| | | - | - | - | - | - | 13 | P172 | PPG38_1 | | | |
| | | - | 4 ^{*1} | 5 ^{*1} | 8 ^{*1} | 11 | 14 | P026 | A00 ^{*3, *4, *5} | SCK4_1 | PPG26_0 | TIN3_0 |
| | | 4 ^{*1} | 5 ^{*1} | 6 ^{*1} | 9 ^{*1} | 12 | 15 | P027 | A01 ^{*2, *3, *4, *5} | SCS40_1 | PPG27_0 | TOT0_0 |
| | | - | - | - | - | - | 16 | P173 | PPG39_1 | | | |
| | | - | - | 7 ^{*1} | 10 ^{*1} | 13 | 17 | P030 | A02 ^{*4, *5} | SCS41_1 | PPG28_0 | TOT1_0 |
| | | - | 6 ^{*1} | 8 ^{*1} | 11 ^{*1} | 14 | 18 | P031 | A03 ^{*3, *4, *5} | SCS42_1 | PPG29_0 | TOT2_0 ^{*3} |
| | | 5 ^{*1} | 7 ^{*1} | 9 ^{*1} | 12 ^{*1} | 15 | 19 | P032 | A04 ^{*2, *3, *4, *5} | SCS43_1 | PPG30_0 | TOT3_0 |
| | | 6 ^{*1} | 8 ^{*1} | 10 ^{*1} | 13 ^{*1} | 16 | 20 | P033 | A05 ^{*2, *3, *4, *5} | PPG31_0 | ICU3_3 | TIN4_0 |
| | | | | | | | | RTO1_1 | | | | |
| | | | | | | | | SCK3_2 | | | | |

| Page | Section | Change Results | | | | | | |
|--------|------------------|---------------------------------------|----|-----|-----|--------|-----|-----------------|
| 21, 22 | ■PIN Description | A List of "Pin Description" modified. | | | | | | |
| | | (Error) | | | | | | |
| | | Pin no. | | | | | | Pin Name |
| | | 64 | 80 | 100 | 120 | 144 | 176 | P034 |
| | | | | | | | | A06 |
| | | 7 | 9 | 11 | 14 | 17 | 21 | OCU11_1 |
| | | | | | | | | ICU2_3 |
| | | | | | | | | TIN5_0 |
| | | | | | | | | RTO0_1 |
| | | | | | | | | SOT3_2 |
| | | | | | | | | P151 |
| | | | | | | | | SCK8_0/ SCL8 |
| | | 8 | 10 | 13 | 16 | 19 | 23 | OCU9_1 |
| | | | | | | | | TRG7_0 |
| | | | | | | | | ICU0_3 |
| | | | | | | | | TIN7_0 |
| | | | | | | | | ZIN0_2 |
| | | | | | | | | DTTI_1 |
| | | | | | | | | P035 |
| | | | | | | | | A07 |
| | | 9 | 11 | 14 | 17 | 20 | 24 | SIN8_0 |
| | | | | | | | | OCU8_1 |
| | | | | | | | | TOT4_0 |
| | | | | | | | | AIN0_0 |
| | | | | | | | | INT11_0 |
| | | | | | | | | P036 |
| | | | | | | | | A08 |
| | | 10 | 12 | 15 | 18 | 21 | 25 | SCS8_0 |
| | | | | | | OCU7_1 | | |
| | | | | | | TOT5_0 | | |
| | | | | | | BIN0_0 | | |
| | | | | | | P037 | | |
| | | | | | | A09 | | |
| - | - | 16 | 19 | 22 | 26 | OCU6_1 | | |
| | | | | | | TOT6_0 | | |
| | | | | | | ZIN0_0 | | |
| | | | | | | P174 | | |
| - | - | - | - | - | 27 | TRG8_1 | | |

| Page | Section | Change Results | | | | | | | |
|--------|------------------|--------------------------|------------------|------------------|------------------|-----------------------|-----|-----------------------------------|--|
| 21, 22 | ■PIN Description | (Continued) (Correct) | | | | | | | |
| | | Pin no. | | | | | | Pin Name | |
| | | 64 | 80 | 100 | 120 | 144 | 176 | P034 | |
| | | | | | | | | A06 ^{*2, *3, *4, *5} | |
| | | 7 ^{*1} | 9 ^{*1} | 11 ^{*1} | 14 ^{*1} | 17 | 21 | OCU11_1 | |
| | | | | | | | | ICU2_3 | |
| | | | | | | | | TIN5_0 | |
| | | | | | | | | RTO0_1 | |
| | | | | | | | | SOT3_2 | |
| | | | | | | | | | |
| | | 8 ^{*1} | 10 ^{*1} | 13 | 16 | 19 | 23 | P151 | |
| | | | | | | | | SCK8_0/ SCL8 ^{*2, *3} | |
| | | | | | | | | OCU9_1 | |
| | | | | | | | | TRG7_0 | |
| | | | | | | | | ICU0_3 | |
| | | | | | | | | TIN7_0 | |
| | | | | | | | | ZIN0_2 | |
| | | | | | | | | DTTI_1 | |
| | | 9 ^{*1} | 11 ^{*1} | 14 ^{*1} | 17 ^{*1} | 20 | 24 | P035 | |
| | | | | | | | | A07 ^{*2, *3, *4, *5} | |
| | | | | | | | | SIN8_0 ^{*2, *3} | |
| | | | | | | | | OCU8_1 | |
| | | | | | | | | TOT4_0 | |
| | | | | | | | | AIN0_0 | |
| | | | | | | | | INT11_0 | |
| | | 10 ^{*1} | 12 ^{*1} | 15 ^{*1} | 18 ^{*1} | 21 | 25 | P036 | |
| | | | | | | | | A08 ^{*2, *3, *4, *5} | |
| | | | | | | | | SCS8_0 ^{*2, *3} | |
| | | | | | | OCU7_1 | | | |
| | | | | | | TOT5_0 | | | |
| | | | | | | BIN0_0 | | | |
| - | - | 16 ^{*1} | 19 ^{*1} | 22 | 26 | P037 | | | |
| | | | | | | A09 ^{*4, *5} | | | |
| | | | | | | OCU6_1 | | | |
| | | | | | | TOT6_0 | | | |
| | | | | | | ZIN0_0 | | | |
| - | - | - | - | - | 27 | P174 | | | |
| | | | | | | TRG8_1 | | | |

| Page | Section | Change Results | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--------|------------------|--|---------|-----|-----|-----|-----|--|----------|----|----|-----|-----|--|-----|----|----|----|----|---|----|----------------|----|----|----|---------------------------------|----|----|--|----|----|---|----|----|----|--|----|----|----|----|----|----|---|---|---|----|----|----|----|---------------------------------|---|----|----|----|----|----|---|----|----|----|----|----|----|---|---|---|---|----|----|----|---------------------------------|---|---|---|---|---|----|-----------------|
| 22, 23 | ■PIN Description | A List of "Pin Description" modified. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | <p>(Error)</p> <table border="1"> <thead> <tr> <th colspan="6">Pin no.</th> <th rowspan="2">Pin Name</th> </tr> <tr> <th>64</th> <th>80</th> <th>100</th> <th>120</th> <th>144</th> <th>176</th> </tr> </thead> <tbody> <tr> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>28</td> <td>P175 TRG9_1</td> </tr> <tr> <td rowspan="5">11</td> <td rowspan="5">13</td> <td rowspan="5">17</td> <td rowspan="5">20</td> <td rowspan="5">23</td> <td rowspan="5">29</td> <td>P040 A10 PPG23_1 TOT7_0 AIN1_0 SIN0_1</td> </tr> <tr> <td rowspan="5">12</td> <td rowspan="5">14</td> <td rowspan="5">18</td> <td rowspan="5">21</td> <td rowspan="5">24</td> <td rowspan="5">30</td> <td>P041 A11 SIN9_0 ICU9_1 BIN1_0 INT12_0</td> </tr> <tr> <td rowspan="5">13</td> <td rowspan="5">15</td> <td rowspan="5">19</td> <td rowspan="5">22</td> <td rowspan="5">25</td> <td rowspan="5">31</td> <td>P042 A12 SOT9_0 AN47 ICU8_1 TRG0_1 ZIN1_0</td> </tr> <tr> <td rowspan="3">-</td> <td rowspan="3">-</td> <td rowspan="3">20</td> <td rowspan="3">23</td> <td rowspan="3">26</td> <td rowspan="3">32</td> <td>P043 A13 ICU7_1 TRG1_1</td> </tr> <tr> <td rowspan="4">-</td> <td rowspan="4">16</td> <td rowspan="4">21</td> <td rowspan="4">24</td> <td rowspan="4">27</td> <td rowspan="4">33</td> <td>P044 A14 SCS9_0 ICU6_1 TRG2_1</td> </tr> <tr> <td rowspan="5">14</td> <td rowspan="5">17</td> <td rowspan="5">22</td> <td rowspan="5">25</td> <td rowspan="5">28</td> <td rowspan="5">34</td> <td>P045 A15 SCK9_0 AN46 ICU5_1 TRG3_1 TOT1_2</td> </tr> <tr> <td rowspan="3">-</td> <td rowspan="3">-</td> <td rowspan="3">-</td> <td rowspan="3">26</td> <td rowspan="3">29</td> <td rowspan="3">35</td> <td>P046 A16 ICU4_1 TRG4_1</td> </tr> <tr> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>36</td> <td>P176 TRG10_0</td> </tr> </tbody> </table> | Pin no. | | | | | | Pin Name | 64 | 80 | 100 | 120 | 144 | 176 | - | - | - | - | - | 28 | P175 TRG9_1 | 11 | 13 | 17 | 20 | 23 | 29 | P040 A10 PPG23_1 TOT7_0 AIN1_0 SIN0_1 | 12 | 14 | 18 | 21 | 24 | 30 | P041 A11 SIN9_0 ICU9_1 BIN1_0 INT12_0 | 13 | 15 | 19 | 22 | 25 | 31 | P042 A12 SOT9_0 AN47 ICU8_1 TRG0_1 ZIN1_0 | - | - | 20 | 23 | 26 | 32 | P043 A13 ICU7_1 TRG1_1 | - | 16 | 21 | 24 | 27 | 33 | P044 A14 SCS9_0 ICU6_1 TRG2_1 | 14 | 17 | 22 | 25 | 28 | 34 | P045 A15 SCK9_0 AN46 ICU5_1 TRG3_1 TOT1_2 | - | - | - | 26 | 29 | 35 | P046 A16 ICU4_1 TRG4_1 | - | - | - | - | - | 36 | P176 TRG10_0 |
| | | Pin no. | | | | | | Pin Name | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 64 | 80 | 100 | 120 | 144 | 176 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | - | - | - | - | - | 28 | P175 TRG9_1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 11 | 13 | 17 | 20 | 23 | 29 | P040 A10 PPG23_1 TOT7_0 AIN1_0 SIN0_1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | 12 | 14 | 18 | 21 | 24 | 30 | P041 A11 SIN9_0 ICU9_1 BIN1_0 INT12_0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | 13 | 15 | 19 | 22 | 25 | 31 | P042 A12 SOT9_0 AN47 ICU8_1 TRG0_1 ZIN1_0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | - | - | 20 | 23 | 26 | 32 | P043 A13 ICU7_1 TRG1_1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | - | 16 | 21 | 24 | 27 | 33 | P044 A14 SCS9_0 ICU6_1 TRG2_1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 14 | 17 | 22 | 25 | 28 | 34 | | | | | | | | | | | | | | | | | | | | | | | | | P045 A15 SCK9_0 AN46 ICU5_1 TRG3_1 TOT1_2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | - | - | - | 26 | 29 | 35 | | | | | | | P046 A16 ICU4_1 TRG4_1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | - | - | - | - | - | 36 | P176 TRG10_0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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|------------------|------------------|--------------------------|------------------|------------------|------------------|-------------------------------|----------|-------------------------------|
| 22, 23 | ■PIN Description | (Continued) (Correct) | | | | | | |
| | | Pin no. | | | | | Pin Name | |
| | | 64 | 80 | 100 | 120 | 144 | 176 | P175 |
| | | - | - | - | - | - | 28 | TRG9_1 |
| | | 11 ^{*1} | 13 ^{*1} | 17 ^{*1} | 20 ^{*1} | 23 | 29 | P040 |
| | | | | | | | | A10 ^{*2, *3, *4, *5} |
| | | | | | | | | PPG23_1 |
| | | | | | | | | TOT7_0 |
| | | | | | | | | AIN1_0 |
| | | | | | | | | SIN0_1 |
| | | 12 ^{*1} | 14 ^{*1} | 18 ^{*1} | 21 ^{*1} | 24 | 30 | P041 |
| | | | | | | | | A11 ^{*2, *3, *4, *5} |
| | | | | | | | | SIN9_0 |
| | | | | | | | | ICU9_1 |
| | | | | | | | | BIN1_0 |
| | | 13 ^{*1} | 15 ^{*1} | 19 ^{*1} | 22 ^{*1} | 25 | 31 | P042 |
| | | | | | | | | A12 ^{*2, *3, *4, *5} |
| | | | | | | | | SOT9_0 |
| | | | | | | | | AN47 |
| | | | | | | | | ICU8_1 |
| | | | | | | | | TRG0_1 |
| | | | | | | | | ZIN1_0 |
| | | - | - | 20 ^{*1} | 23 ^{*1} | 26 | 32 | P043 |
| | | | | | | | | A13 ^{*4, *5} |
| | | | | | | | | ICU7_1 |
| | | | | | | | | TRG1_1 |
| | | - | 16 ^{*1} | 21 ^{*1} | 24 ^{*1} | 27 | 33 | P044 |
| | | | | | | | | A14 ^{*3, *4, *5} |
| SCS9_0 | | | | | | | | |
| ICU6_1 | | | | | | | | |
| 14 ^{*1} | 17 ^{*1} | 22 ^{*1} | 25 ^{*1} | 28 | 34 | TRG2_1 | | |
| | | | | | | P045 | | |
| | | | | | | A15 ^{*2, *3, *4, *5} | | |
| | | | | | | SCK9_0 | | |
| | | | | | | AN46 | | |
| | | | | | | ICU5_1 | | |
| - | - | - | 26 ^{*1} | 29 | 35 | TRG3_1 | | |
| | | | | | | TOT1_2 | | |
| | | | | | | P046 | | |
| | | | | | | A16 ^{*5} | | |
| - | - | - | - | - | 36 | ICU4_1 | | |
| | | | | | | TRG4_1 | | |
| | | | | | | P176 | | |
| TRG10_0 | | | | | | | | |

| Page | Section | Change Results | | | | | | |
|--------|------------------|---------------------------------------|----|-----|-----|-----|-----|--|
| 23, 24 | ■PIN Description | A List of "Pin Description" modified. | | | | | | |
| | | (Error) | | | | | | |
| | | Pin no. | | | | | | Pin Name |
| | | 64 | 80 | 100 | 120 | 144 | 176 | |
| | | 15 | 18 | 23 | 27 | 30 | 37 | P047 A17 AN45 TRG8_0 TIN3_2 SOT0_1 |
| | | - | - | - | - | - | 38 | P177 TRG11_0 |
| | | - | - | - | 28 | 31 | 39 | P050 A18 TRG5_1 PPG33_0 |
| | | - | - | - | - | 32 | 40 | P051 A19 TRG9_0 |
| | | - | - | - | - | 33 | 41 | P052 A20 PPG34_0 INT14_0 |
| | | 16 | 19 | 24 | 29 | 34 | 42 | P053 A21 AN44 PPG35_0 INT14_1 SCK0_1 |
| | | - | - | - | - | 35 | 43 | P054 SYSCLK PPG36_0 |
| | | 17 | 22 | 27 | 32 | 38 | 46 | P055 CS2X SIN10_0 AN43 PPG37_0 TIN4_1 |
| | | - | - | - | 33 | 39 | 49 | P056 CS3X ICU9_0 PPG0_1 ICU0_1 TIN5_1 DTTI_2 |

| Page | Section | Change Results | | | | | | | |
|--------|------------------|--------------------------|------------------|------------------|------------------|-----|-----|--|--|
| 23, 24 | ■PIN Description | (Continued) (Correct) | | | | | | | |
| | | Pin no. | | | | | | Pin Name | |
| | | 64 | 80 | 100 | 120 | 144 | 176 | | |
| | | 15 ^{*1} | 18 ^{*1} | 23 ^{*1} | 27 ^{*1} | 30 | 37 | P047 A17 ^{*2, *3, *4, *5} AN45 TRG8_0 TIN3_2 SOT0_1 | |
| | | - | - | - | - | - | 38 | P177 TRG11_0 | |
| | | - | - | - | 28 ^{*1} | 31 | 39 | P050 A18 ^{*5} TRG5_1 PPG33_0 | |
| | | - | - | - | - | 32 | 40 | P051 A19 TRG9_0 | |
| | | - | - | - | - | 33 | 41 | P052 A20 PPG34_0 INT14_0 | |
| | | 16 ^{*1} | 19 ^{*1} | 24 ^{*1} | 29 ^{*1} | 34 | 42 | P053 A21 ^{*2, *3, *4, *5} AN44 PPG35_0 INT14_1 SCK0_1 | |
| | | - | - | - | - | 35 | 43 | P054 SYSCLK PPG36_0 | |
| | | 17 ^{*1} | 22 ^{*1} | 27 ^{*1} | 32 ^{*1} | 38 | 46 | P055 CS2X ^{*2, *3, *4, *5} SIN10_0 AN43 PPG37_0 TIN4_1 | |
| | | - | - | - | 33 ^{*1} | 39 | 49 | P056 CS3X ^{*5} ICU9_0 PPG0_1 ICU0_1 TIN5_1 DTTI_2 | |

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|--|------------------|--|------------|--|--------------------------|--|--|-------------------------|-------------------------|--------------------------------------|------------|--|--------------------------|---------------------------------------|--|-------------------------|-------------------------|--------------------------------------|
| 24 | ■PIN Description | <p>A List of "Pin Description" modified.</p> <p>(Error)</p> <table border="1" data-bbox="605 422 1146 758"> <tr> <td>Function*2</td> </tr> <tr> <td> </td> </tr> <tr> <td>General-purpose I/O port</td> </tr> <tr> <td>External Bus chip select 2 output pin(0)</td> </tr> <tr> <td>Multi-function serial ch.10 serial data input pin(0)</td> </tr> <tr> <td>ADC analog 43 input pin</td> </tr> <tr> <td>PPG ch.37 output pin(0)</td> </tr> <tr> <td>Reload timer ch.4 event input pin(1)</td> </tr> </table> <p>(Correct)</p> <table border="1" data-bbox="605 823 1146 1159"> <tr> <td>Function*9</td> </tr> <tr> <td> </td> </tr> <tr> <td>General-purpose I/O port</td> </tr> <tr> <td>External Bus chip select 2 output pin</td> </tr> <tr> <td>Multi-function serial ch.10 serial data input pin(0)</td> </tr> <tr> <td>ADC analog 43 input pin</td> </tr> <tr> <td>PPG ch.37 output pin(0)</td> </tr> <tr> <td>Reload timer ch.4 event input pin(1)</td> </tr> </table> | Function*2 | | General-purpose I/O port | External Bus chip select 2 output pin(0) | Multi-function serial ch.10 serial data input pin(0) | ADC analog 43 input pin | PPG ch.37 output pin(0) | Reload timer ch.4 event input pin(1) | Function*9 | | General-purpose I/O port | External Bus chip select 2 output pin | Multi-function serial ch.10 serial data input pin(0) | ADC analog 43 input pin | PPG ch.37 output pin(0) | Reload timer ch.4 event input pin(1) |
| Function*2 | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | |
| General-purpose I/O port | | | | | | | | | | | | | | | | | | |
| External Bus chip select 2 output pin(0) | | | | | | | | | | | | | | | | | | |
| Multi-function serial ch.10 serial data input pin(0) | | | | | | | | | | | | | | | | | | |
| ADC analog 43 input pin | | | | | | | | | | | | | | | | | | |
| PPG ch.37 output pin(0) | | | | | | | | | | | | | | | | | | |
| Reload timer ch.4 event input pin(1) | | | | | | | | | | | | | | | | | | |
| Function*9 | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | |
| General-purpose I/O port | | | | | | | | | | | | | | | | | | |
| External Bus chip select 2 output pin | | | | | | | | | | | | | | | | | | |
| Multi-function serial ch.10 serial data input pin(0) | | | | | | | | | | | | | | | | | | |
| ADC analog 43 input pin | | | | | | | | | | | | | | | | | | |
| PPG ch.37 output pin(0) | | | | | | | | | | | | | | | | | | |
| Reload timer ch.4 event input pin(1) | | | | | | | | | | | | | | | | | | |

| Page | Section | Change Results | | | | | | | | | | | | | | | | |
|--|------------------|--|------------|--------------------------|--|---------------------------------|------------------------|---------------------------------|--------------------------------------|--|------------|--------------------------|---------------------------------------|---------------------------------|------------------------|---------------------------------|--------------------------------------|--|
| 24 | ■PIN Description | <p>A List of "Pin Description" modified.</p> <p>(Error)</p> <table border="1" data-bbox="605 422 1146 762"> <tr> <td>Function*2</td> </tr> <tr> <td>General-purpose I/O port</td> </tr> <tr> <td>External Bus chip select 3 output pin(0)</td> </tr> <tr> <td>Input capture ch.9 input pin(0)</td> </tr> <tr> <td>PPG ch.0 output pin(1)</td> </tr> <tr> <td>Input capture ch.0 input pin(1)</td> </tr> <tr> <td>Reload timer ch.5 event input pin(1)</td> </tr> <tr> <td>Waveform generator ch.0 to ch.5 input pin(2)</td> </tr> </table> <p>(Correct)</p> <table border="1" data-bbox="605 825 1146 1165"> <tr> <td>Function*9</td> </tr> <tr> <td>General-purpose I/O port</td> </tr> <tr> <td>External Bus chip select 3 output pin</td> </tr> <tr> <td>Input capture ch.9 input pin(0)</td> </tr> <tr> <td>PPG ch.0 output pin(1)</td> </tr> <tr> <td>Input capture ch.0 input pin(1)</td> </tr> <tr> <td>Reload timer ch.5 event input pin(1)</td> </tr> <tr> <td>Waveform generator ch.0 to ch.5 input pin(2)</td> </tr> </table> | Function*2 | General-purpose I/O port | External Bus chip select 3 output pin(0) | Input capture ch.9 input pin(0) | PPG ch.0 output pin(1) | Input capture ch.0 input pin(1) | Reload timer ch.5 event input pin(1) | Waveform generator ch.0 to ch.5 input pin(2) | Function*9 | General-purpose I/O port | External Bus chip select 3 output pin | Input capture ch.9 input pin(0) | PPG ch.0 output pin(1) | Input capture ch.0 input pin(1) | Reload timer ch.5 event input pin(1) | Waveform generator ch.0 to ch.5 input pin(2) |
| Function*2 | | | | | | | | | | | | | | | | | | |
| General-purpose I/O port | | | | | | | | | | | | | | | | | | |
| External Bus chip select 3 output pin(0) | | | | | | | | | | | | | | | | | | |
| Input capture ch.9 input pin(0) | | | | | | | | | | | | | | | | | | |
| PPG ch.0 output pin(1) | | | | | | | | | | | | | | | | | | |
| Input capture ch.0 input pin(1) | | | | | | | | | | | | | | | | | | |
| Reload timer ch.5 event input pin(1) | | | | | | | | | | | | | | | | | | |
| Waveform generator ch.0 to ch.5 input pin(2) | | | | | | | | | | | | | | | | | | |
| Function*9 | | | | | | | | | | | | | | | | | | |
| General-purpose I/O port | | | | | | | | | | | | | | | | | | |
| External Bus chip select 3 output pin | | | | | | | | | | | | | | | | | | |
| Input capture ch.9 input pin(0) | | | | | | | | | | | | | | | | | | |
| PPG ch.0 output pin(1) | | | | | | | | | | | | | | | | | | |
| Input capture ch.0 input pin(1) | | | | | | | | | | | | | | | | | | |
| Reload timer ch.5 event input pin(1) | | | | | | | | | | | | | | | | | | |
| Waveform generator ch.0 to ch.5 input pin(2) | | | | | | | | | | | | | | | | | | |

| Page | Section | Change Results | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------------------|------------------|---|------------------|-----|-----|-----------------------------------|--|--|----------|----|----|-----|-----|-----|-----|--|----|----|----|----|----|----|------|--|--|--|--|--|--|-----------------|--|--|--|--|--|--|---------|--|--|--|--|--|--|--------|---------|--|--|--|--|--|----------|----|----|-----|-----|-----|-----|--------|---|------------------|------------------|----|----|----|--------|--|--|--|--|--|--|-----------------------------------|--|--|--|--|--|--|--------|---------|--|--|--|--|--|----------|----|----|-----|-----|-----|-----|--|------------------|------------------|------------------|------------------|----|----|------|--|--|--|--|--|--|-------------------------------|--|--|--|--|--|--|---------|--|--|--|--|--|--|------|--|--|--|--|--|--|--------|--|--|--|--|--|--|--------|--|--|--|--|--|--|--------|--|--|--|--|--|--|--------|--|--|--|--|--|--|--------|
| 25 | ■PIN Description | <p>A List of "Pin Description" modified.</p> <p>(Error)</p> <table border="1"> <thead> <tr> <th colspan="6">Pin no.</th> <th>Pin Name</th> </tr> <tr> <th>64</th> <th>80</th> <th>100</th> <th>120</th> <th>144</th> <th>176</th> <th></th> </tr> </thead> <tbody> <tr> <td>19</td> <td>24</td> <td>29</td> <td>35</td> <td>41</td> <td>51</td> <td>P057</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>RDY</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>SCK10_1</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>AN42</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>ICU8_0</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>TRG0_2</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>PPG1_1</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>ICU1_1</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>TIN6_1</td> </tr> </tbody> </table> <p>(Correct)</p> <table border="1"> <thead> <tr> <th colspan="6">Pin no.</th> <th>Pin Name</th> </tr> <tr> <th>64</th> <th>80</th> <th>100</th> <th>120</th> <th>144</th> <th>176</th> <th></th> </tr> </thead> <tbody> <tr> <td>19^{*1}</td> <td>24^{*1}</td> <td>29^{*1}</td> <td>35^{*1}</td> <td>41</td> <td>51</td> <td>P057</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>RDY^{*2, *3, *4, *5}</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>SCK10_1</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>AN42</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>ICU8_0</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>TRG0_2</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>PPG1_1</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>ICU1_1</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>TIN6_1</td> </tr> </tbody> </table> | Pin no. | | | | | | Pin Name | 64 | 80 | 100 | 120 | 144 | 176 | | 19 | 24 | 29 | 35 | 41 | 51 | P057 | | | | | | | RDY | | | | | | | SCK10_1 | | | | | | | AN42 | | | | | | | ICU8_0 | | | | | | | TRG0_2 | | | | | | | PPG1_1 | | | | | | | ICU1_1 | | | | | | | TIN6_1 | Pin no. | | | | | | Pin Name | 64 | 80 | 100 | 120 | 144 | 176 | | 19 ^{*1} | 24 ^{*1} | 29 ^{*1} | 35 ^{*1} | 41 | 51 | P057 | | | | | | | RDY ^{*2, *3, *4, *5} | | | | | | | SCK10_1 | | | | | | | AN42 | | | | | | | ICU8_0 | | | | | | | TRG0_2 | | | | | | | PPG1_1 | | | | | | | ICU1_1 | | | | | | | TIN6_1 |
| Pin no. | | | | | | Pin Name | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| Pin no. | | | | | | Pin Name | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| 19 ^{*1} | 24 ^{*1} | 29 ^{*1} | 35 ^{*1} | 41 | 51 | P057 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | RDY ^{*2, *3, *4, *5} | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| | | | | | | TIN6_1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 27 | ■PIN Description | <p>A List of "Pin Description" modified.</p> <p>(Error)</p> <table border="1"> <thead> <tr> <th colspan="6">Pin no.</th> <th>Pin Name</th> </tr> <tr> <th>64</th> <th>80</th> <th>100</th> <th>120</th> <th>144</th> <th>176</th> <th></th> </tr> </thead> <tbody> <tr> <td>-</td> <td>35</td> <td>43</td> <td>49</td> <td>57</td> <td>71</td> <td>P073</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>SOT4_0/ SDA4</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>AN33</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>ICU3_2</td> </tr> </tbody> </table> <p>(Correct)</p> <table border="1"> <thead> <tr> <th colspan="6">Pin no.</th> <th>Pin Name</th> </tr> <tr> <th>64</th> <th>80</th> <th>100</th> <th>120</th> <th>144</th> <th>176</th> <th></th> </tr> </thead> <tbody> <tr> <td>-</td> <td>35^{*3}</td> <td>43^{*4}</td> <td>49</td> <td>57</td> <td>71</td> <td>P073</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>SOT4_0/ SDA4^{*3, *4}</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>AN33</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>ICU3_2</td> </tr> </tbody> </table> | Pin no. | | | | | | Pin Name | 64 | 80 | 100 | 120 | 144 | 176 | | - | 35 | 43 | 49 | 57 | 71 | P073 | | | | | | | SOT4_0/ SDA4 | | | | | | | AN33 | | | | | | | ICU3_2 | Pin no. | | | | | | Pin Name | 64 | 80 | 100 | 120 | 144 | 176 | | - | 35 ^{*3} | 43 ^{*4} | 49 | 57 | 71 | P073 | | | | | | | SOT4_0/ SDA4 ^{*3, *4} | | | | | | | AN33 | | | | | | | ICU3_2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| - | 35 ^{*3} | 43 ^{*4} | 49 | 57 | 71 | P073 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | SOT4_0/ SDA4 ^{*3, *4} | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | AN33 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | ICU3_2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| Page | Section | Change Results | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------------------|------------------|--|---------|-----|-----|--------------------------|--|--|----------|----|----|-----|-----|-----|-----|--|----|----|----|----|----|----|------|--|--|--|--|--|--|-------|--|--|--|--|--|--|---------|--|--|--|--|--|--|-----|--|--|--|--|--|--|--------|--|--|--|--|--|--|---------|--|--|--|--|--|--|--------|--|--|--|--|--|--|--------|---------|--|--|--|--|--|----------|----|----|-----|-----|-----|-----|--|------------------|------------------|----|----|----|----|------|--|--|--|--|--|--|-------|--|--|--|--|--|--|---------|--|--|--|--|--|--|-----|--|--|--|--|--|--|--------|--|--|--|--|--|--|---------|--|--|--|--|--|--|--------|--|--|--|--|--|--|--------------------------|
| 29 | ■PIN Description | <p>A List of "Pin Description" modified.</p> <p>(Error)</p> <table border="1" data-bbox="604 422 1240 766"> <thead> <tr> <th colspan="6">Pin no.</th> <th>Pin Name</th> </tr> <tr> <th>64</th> <th>80</th> <th>100</th> <th>120</th> <th>144</th> <th>176</th> <th></th> </tr> </thead> <tbody> <tr> <td>34</td> <td>42</td> <td>52</td> <td>62</td> <td>77</td> <td>96</td> <td>P093</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>TX0_1</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>SIN11_0</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>AN7</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>ICU4_2</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>PPG16_1</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>ICU3_0</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>TOT2_1</td> </tr> </tbody> </table> <p>(Correct)</p> <table border="1" data-bbox="604 831 1240 1178"> <thead> <tr> <th colspan="6">Pin no.</th> <th>Pin Name</th> </tr> <tr> <th>64</th> <th>80</th> <th>100</th> <th>120</th> <th>144</th> <th>176</th> <th></th> </tr> </thead> <tbody> <tr> <td>34^{*1}</td> <td>42^{*1}</td> <td>52</td> <td>62</td> <td>77</td> <td>96</td> <td>P093</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>TX0_1</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>SIN11_0</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>AN7</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>ICU4_2</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>PPG16_1</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>ICU3_0</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>TOT2_1^{*2, *3}</td> </tr> </tbody> </table> | Pin no. | | | | | | Pin Name | 64 | 80 | 100 | 120 | 144 | 176 | | 34 | 42 | 52 | 62 | 77 | 96 | P093 | | | | | | | TX0_1 | | | | | | | SIN11_0 | | | | | | | AN7 | | | | | | | ICU4_2 | | | | | | | PPG16_1 | | | | | | | ICU3_0 | | | | | | | TOT2_1 | Pin no. | | | | | | Pin Name | 64 | 80 | 100 | 120 | 144 | 176 | | 34 ^{*1} | 42 ^{*1} | 52 | 62 | 77 | 96 | P093 | | | | | | | TX0_1 | | | | | | | SIN11_0 | | | | | | | AN7 | | | | | | | ICU4_2 | | | | | | | PPG16_1 | | | | | | | ICU3_0 | | | | | | | TOT2_1 ^{*2, *3} |
| Pin no. | | | | | | Pin Name | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 64 | 80 | 100 | 120 | 144 | 176 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 34 | 42 | 52 | 62 | 77 | 96 | P093 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | TX0_1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | SIN11_0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | AN7 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | ICU4_2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | PPG16_1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | ICU3_0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | TOT2_1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Pin no. | | | | | | Pin Name | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 64 | 80 | 100 | 120 | 144 | 176 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 34 ^{*1} | 42 ^{*1} | 52 | 62 | 77 | 96 | P093 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | TX0_1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | SIN11_0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | AN7 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | ICU4_2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | PPG16_1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | ICU3_0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | TOT2_1 ^{*2, *3} | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| Page | Section | Change Results | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------------------|------------------|---|---------|-----|-----|--|--|----------|----------|----|----|-----|-----|-----|-----|---|----|----|----|----|-----|---|----|----|----|----|----|-----|--|----|----|----|----|----|-----|------------------------------------|----|----|----|----|----|-----|------------------------------------|----|----|----|----|----|-----|------------------------------------|---------|--|--|--|--|--|----------|----|----|-----|-----|-----|-----|---|------------------|----|----|----|-----|---|------------------|------------------|----|----|----|-----|--|------------------|------------------|----|----|----|-----|--|------------------|------------------|----|----|----|-----|--|------------------|------------------|----|----|----|-----|--|
| 30 | ■PIN Description | <p>A List of "Pin Description" modified.</p> <p>(Error)</p> <table border="1" data-bbox="605 422 1240 1136"> <thead> <tr> <th colspan="6">Pin no.</th> <th rowspan="2">Pin Name</th> </tr> <tr> <th>64</th> <th>80</th> <th>100</th> <th>120</th> <th>144</th> <th>176</th> </tr> </thead> <tbody> <tr> <td>-</td> <td>48</td> <td>59</td> <td>69</td> <td>85</td> <td>104</td> <td>P100 SCK7_0/ SCL7 AN12 PPG8_0</td> </tr> <tr> <td>40</td> <td>49</td> <td>61</td> <td>71</td> <td>87</td> <td>106</td> <td>P102 SIN7_0 AN14 PPG10_0 INT10_0</td> </tr> <tr> <td>41</td> <td>50</td> <td>62</td> <td>72</td> <td>88</td> <td>107</td> <td>P103 SCS73_0 AN15 PPG11_0</td> </tr> <tr> <td>42</td> <td>51</td> <td>63</td> <td>73</td> <td>89</td> <td>108</td> <td>P104 SCS72_0 AN16 PPG12_0</td> </tr> <tr> <td>43</td> <td>52</td> <td>64</td> <td>74</td> <td>90</td> <td>109</td> <td>P105 SCS71_0 AN17 PPG13_0</td> </tr> </tbody> </table> <p>(Correct)</p> <table border="1" data-bbox="605 1199 1240 1923"> <thead> <tr> <th colspan="6">Pin no.</th> <th rowspan="2">Pin Name</th> </tr> <tr> <th>64</th> <th>80</th> <th>100</th> <th>120</th> <th>144</th> <th>176</th> </tr> </thead> <tbody> <tr> <td>-</td> <td>48^{*1}</td> <td>59</td> <td>69</td> <td>85</td> <td>104</td> <td>P100 SCK7_0/ SCL7^{*3} AN12 PPG8_0</td> </tr> <tr> <td>40^{*1}</td> <td>49^{*1}</td> <td>61</td> <td>71</td> <td>87</td> <td>106</td> <td>P102 SIN7_0^{*2, *3} AN14 PPG10_0 INT10_0</td> </tr> <tr> <td>41^{*1}</td> <td>50^{*1}</td> <td>62</td> <td>72</td> <td>88</td> <td>107</td> <td>P103 SCS73_0^{*2, *3} AN15 PPG11_0</td> </tr> <tr> <td>42^{*1}</td> <td>51^{*1}</td> <td>63</td> <td>73</td> <td>89</td> <td>108</td> <td>P104 SCS72_0^{*2, *3} AN16 PPG12_0</td> </tr> <tr> <td>43^{*1}</td> <td>52^{*1}</td> <td>64</td> <td>74</td> <td>90</td> <td>109</td> <td>P105 SCS71_0^{*2, *3} AN17 PPG13_0</td> </tr> </tbody> </table> | Pin no. | | | | | | Pin Name | 64 | 80 | 100 | 120 | 144 | 176 | - | 48 | 59 | 69 | 85 | 104 | P100 SCK7_0/ SCL7 AN12 PPG8_0 | 40 | 49 | 61 | 71 | 87 | 106 | P102 SIN7_0 AN14 PPG10_0 INT10_0 | 41 | 50 | 62 | 72 | 88 | 107 | P103 SCS73_0 AN15 PPG11_0 | 42 | 51 | 63 | 73 | 89 | 108 | P104 SCS72_0 AN16 PPG12_0 | 43 | 52 | 64 | 74 | 90 | 109 | P105 SCS71_0 AN17 PPG13_0 | Pin no. | | | | | | Pin Name | 64 | 80 | 100 | 120 | 144 | 176 | - | 48 ^{*1} | 59 | 69 | 85 | 104 | P100 SCK7_0/ SCL7 ^{*3} AN12 PPG8_0 | 40 ^{*1} | 49 ^{*1} | 61 | 71 | 87 | 106 | P102 SIN7_0 ^{*2, *3} AN14 PPG10_0 INT10_0 | 41 ^{*1} | 50 ^{*1} | 62 | 72 | 88 | 107 | P103 SCS73_0 ^{*2, *3} AN15 PPG11_0 | 42 ^{*1} | 51 ^{*1} | 63 | 73 | 89 | 108 | P104 SCS72_0 ^{*2, *3} AN16 PPG12_0 | 43 ^{*1} | 52 ^{*1} | 64 | 74 | 90 | 109 | P105 SCS71_0 ^{*2, *3} AN17 PPG13_0 |
| | | Pin no. | | | | | | Pin Name | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 64 | 80 | 100 | 120 | 144 | 176 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| - | 48 | 59 | 69 | 85 | 104 | P100 SCK7_0/ SCL7 AN12 PPG8_0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 40 | 49 | 61 | 71 | 87 | 106 | P102 SIN7_0 AN14 PPG10_0 INT10_0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 41 | 50 | 62 | 72 | 88 | 107 | P103 SCS73_0 AN15 PPG11_0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 42 | 51 | 63 | 73 | 89 | 108 | P104 SCS72_0 AN16 PPG12_0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 43 | 52 | 64 | 74 | 90 | 109 | P105 SCS71_0 AN17 PPG13_0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Pin no. | | | | | | Pin Name | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 64 | 80 | 100 | 120 | 144 | 176 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| - | 48 ^{*1} | 59 | 69 | 85 | 104 | P100 SCK7_0/ SCL7 ^{*3} AN12 PPG8_0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 40 ^{*1} | 49 ^{*1} | 61 | 71 | 87 | 106 | P102 SIN7_0 ^{*2, *3} AN14 PPG10_0 INT10_0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 41 ^{*1} | 50 ^{*1} | 62 | 72 | 88 | 107 | P103 SCS73_0 ^{*2, *3} AN15 PPG11_0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 42 ^{*1} | 51 ^{*1} | 63 | 73 | 89 | 108 | P104 SCS72_0 ^{*2, *3} AN16 PPG12_0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 43 ^{*1} | 52 ^{*1} | 64 | 74 | 90 | 109 | P105 SCS71_0 ^{*2, *3} AN17 PPG13_0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| Page | Section | Change Results | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---------|------------------|--|-------------------|-----|-----|---------------------------|--|--|----------|----|----|-----|-----|-----|-----|---|---|----|-----|-----|-----|------|--|--|--|--|--|--|-----|--|--|--|--|--|--|--------|--|--|--|--|--|--|---------|--|--|--|--|--|--|--------|---|----|----|-----|-----|-----|------|--|--|--|--|--|--|-----|--|--|--|--|--|--|--------|--|--|--|--|--|--|---------|---------|--|--|--|--|--|----------|----|----|-----|-----|-----|-----|---|---|------------------|-------------------|-----|-----|------|--|--|--|--|--|--|-----------------------|--|--|--|--|--|--|--------|--|--|--|--|--|--|-----------------------|--|--|--|--|--|--|--------|---|------------------|------------------|-------------------|-----|-----|------|--|--|--|--|--|--|---------------------------|--|--|--|--|--|--|----------------------|--|--|--|--|--|--|---------|
| 33 | ■PIN Description | <p>A List of "Pin Description" modified.</p> <p>(Error)</p> <table border="1" data-bbox="604 422 1240 798"> <thead> <tr> <th colspan="6">Pin no.</th> <th rowspan="2">Pin Name</th> </tr> <tr> <th>64</th> <th>80</th> <th>100</th> <th>120</th> <th>144</th> <th>176</th> </tr> </thead> <tbody> <tr> <td>-</td> <td>-</td> <td>94</td> <td>111</td> <td>131</td> <td>159</td> <td>P000</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>D16</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>SIN1_0</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>TIOA0_1</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>INT2_0</td> </tr> <tr> <td>-</td> <td>75</td> <td>95</td> <td>112</td> <td>132</td> <td>160</td> <td>P001</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>D17</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>SOT1_0</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>TIOA1_1</td> </tr> </tbody> </table> <p>(Correct)</p> <table border="1" data-bbox="604 863 1240 1239"> <thead> <tr> <th colspan="6">Pin no.</th> <th rowspan="2">Pin Name</th> </tr> <tr> <th>64</th> <th>80</th> <th>100</th> <th>120</th> <th>144</th> <th>176</th> </tr> </thead> <tbody> <tr> <td>-</td> <td>-</td> <td>94^{*1}</td> <td>111^{*1}</td> <td>131</td> <td>159</td> <td>P000</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>D16^{*4, *5}</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>SIN1_0</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>TIOA0_1^{*4}</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>INT2_0</td> </tr> <tr> <td>-</td> <td>75^{*1}</td> <td>95^{*1}</td> <td>112^{*1}</td> <td>132</td> <td>160</td> <td>P001</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>D17^{*3, *4, *5}</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>SOT1_0^{*3}</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>TIOA1_1</td> </tr> </tbody> </table> | Pin no. | | | | | | Pin Name | 64 | 80 | 100 | 120 | 144 | 176 | - | - | 94 | 111 | 131 | 159 | P000 | | | | | | | D16 | | | | | | | SIN1_0 | | | | | | | TIOA0_1 | | | | | | | INT2_0 | - | 75 | 95 | 112 | 132 | 160 | P001 | | | | | | | D17 | | | | | | | SOT1_0 | | | | | | | TIOA1_1 | Pin no. | | | | | | Pin Name | 64 | 80 | 100 | 120 | 144 | 176 | - | - | 94 ^{*1} | 111 ^{*1} | 131 | 159 | P000 | | | | | | | D16 ^{*4, *5} | | | | | | | SIN1_0 | | | | | | | TIOA0_1 ^{*4} | | | | | | | INT2_0 | - | 75 ^{*1} | 95 ^{*1} | 112 ^{*1} | 132 | 160 | P001 | | | | | | | D17 ^{*3, *4, *5} | | | | | | | SOT1_0 ^{*3} | | | | | | | TIOA1_1 |
| Pin no. | | | | | | Pin Name | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 64 | 80 | 100 | 120 | 144 | 176 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| - | - | 94 | 111 | 131 | 159 | P000 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | D16 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | SIN1_0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | TIOA0_1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | INT2_0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| - | 75 | 95 | 112 | 132 | 160 | P001 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | D17 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | SOT1_0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | TIOA1_1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Pin no. | | | | | | Pin Name | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 64 | 80 | 100 | 120 | 144 | 176 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| - | - | 94 ^{*1} | 111 ^{*1} | 131 | 159 | P000 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | D16 ^{*4, *5} | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | SIN1_0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | TIOA0_1 ^{*4} | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | INT2_0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| - | 75 ^{*1} | 95 ^{*1} | 112 ^{*1} | 132 | 160 | P001 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | D17 ^{*3, *4, *5} | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | SOT1_0 ^{*3} | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | TIOA1_1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| Page | Section | Change Results | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--------|------------------|---|---------|-----|-----|-----------|-----|-----------|----------|----|----|-----|-----|-----|-----|--|---|---|---|-----|-----|-----|------|---|---|---|-----|-----|-----|-----|---|---|---|-----|-----|-----|--------|---|---|---|-----|-----|-----|---------|---|----|----|-----|-----|-----|------|---|----|----|-----|-----|-----|-----|---|----|----|-----|-----|-----|--------|---|----|----|-----|-----|-----|---------|---|----|----|-----|-----|-----|--------|---|---|---|---|-----|-----|------|---|---|---|---|-----|-----|-----|---|---|---|---|-----|-----|--------|---|---|---|---|---|-----|------|---|---|---|---|---|-----|---------|----|----|----|-----|-----|-----|------|----|----|----|-----|-----|-----|-----|----|----|----|-----|-----|-----|--------|----|----|----|-----|-----|-----|---------|----|----|----|-----|-----|-----|--------|----|----|----|-----|-----|-----|-----------|---|---|---|---|---|-----|------|---|---|---|---|---|-----|---------|----|----|----|-----|-----|-----|------|----|----|----|-----|-----|-----|-----|----|----|----|-----|-----|-----|--------|----|----|----|-----|-----|-----|---------|----|----|----|-----|-----|-----|--------|----|----|----|-----|-----|-----|-----------|---|---|---|-----|-----|-----|------|---|---|---|-----|-----|-----|-----|---|---|---|---|---|-----|------|---|---|---|---|---|-----|---------|---|---|---|-----|-----|-----|------|---|---|---|-----|-----|-----|-----|----|----|----|-----|-----|-----|------|----|----|----|-----|-----|-----|-----|----|----|----|-----|-----|-----|-----|----|----|----|-----|-----|-----|--------|----|----|----|-----|-----|-----|---------|----|----|----|-----|-----|-----|--------|
| 34, 35 | ■PIN Description | <p>A List of "Pin Description" modified.</p> <p>(Error)</p> <table border="1"> <thead> <tr> <th colspan="6">Pin no.</th> <th>Pin Name</th> </tr> <tr> <th>64</th> <th>80</th> <th>100</th> <th>120</th> <th>144</th> <th>176</th> <th></th> </tr> </thead> <tbody> <tr> <td>-</td> <td>-</td> <td>-</td> <td>113</td> <td>133</td> <td>161</td> <td>P002</td> </tr> <tr> <td>-</td> <td>-</td> <td>-</td> <td>113</td> <td>133</td> <td>161</td> <td>D18</td> </tr> <tr> <td>-</td> <td>-</td> <td>-</td> <td>113</td> <td>133</td> <td>161</td> <td>SCK1_0</td> </tr> <tr> <td>-</td> <td>-</td> <td>-</td> <td>113</td> <td>133</td> <td>161</td> <td>TIOB0_1</td> </tr> <tr> <td>-</td> <td>76</td> <td>96</td> <td>114</td> <td>134</td> <td>162</td> <td>P003</td> </tr> <tr> <td>-</td> <td>76</td> <td>96</td> <td>114</td> <td>134</td> <td>162</td> <td>D19</td> </tr> <tr> <td>-</td> <td>76</td> <td>96</td> <td>114</td> <td>134</td> <td>162</td> <td>SIN2_0</td> </tr> <tr> <td>-</td> <td>76</td> <td>96</td> <td>114</td> <td>134</td> <td>162</td> <td>TIOB1_1</td> </tr> <tr> <td>-</td> <td>76</td> <td>96</td> <td>114</td> <td>134</td> <td>162</td> <td>INT3_0</td> </tr> <tr> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>135</td> <td>163</td> <td>P004</td> </tr> <tr> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>135</td> <td>163</td> <td>D20</td> </tr> <tr> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>135</td> <td>163</td> <td>SOT2_0</td> </tr> <tr> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>164</td> <td>P164</td> </tr> <tr> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>164</td> <td>PPG32_1</td> </tr> <tr> <td>61</td> <td>77</td> <td>97</td> <td>115</td> <td>136</td> <td>165</td> <td>P005</td> </tr> <tr> <td>61</td> <td>77</td> <td>97</td> <td>115</td> <td>136</td> <td>165</td> <td>D21</td> </tr> <tr> <td>61</td> <td>77</td> <td>97</td> <td>115</td> <td>136</td> <td>165</td> <td>SCK2_0</td> </tr> <tr> <td>61</td> <td>77</td> <td>97</td> <td>115</td> <td>136</td> <td>165</td> <td>ADTG0_1</td> </tr> <tr> <td>61</td> <td>77</td> <td>97</td> <td>115</td> <td>136</td> <td>165</td> <td>INT7_1</td> </tr> <tr> <td>61</td> <td>77</td> <td>97</td> <td>115</td> <td>136</td> <td>165</td> <td>(RX2(64))</td> </tr> <tr> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>166</td> <td>P165</td> </tr> <tr> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>166</td> <td>PPG33_1</td> </tr> <tr> <td>62</td> <td>78</td> <td>98</td> <td>116</td> <td>137</td> <td>167</td> <td>P006</td> </tr> <tr> <td>62</td> <td>78</td> <td>98</td> <td>116</td> <td>137</td> <td>167</td> <td>D22</td> </tr> <tr> <td>62</td> <td>78</td> <td>98</td> <td>116</td> <td>137</td> <td>167</td> <td>SCS2_0</td> </tr> <tr> <td>62</td> <td>78</td> <td>98</td> <td>116</td> <td>137</td> <td>167</td> <td>ADTG1_1</td> </tr> <tr> <td>62</td> <td>78</td> <td>98</td> <td>116</td> <td>137</td> <td>167</td> <td>INT2_1</td> </tr> <tr> <td>62</td> <td>78</td> <td>98</td> <td>116</td> <td>137</td> <td>167</td> <td>(TX2(64))</td> </tr> <tr> <td>-</td> <td>-</td> <td>-</td> <td>117</td> <td>138</td> <td>168</td> <td>P007</td> </tr> <tr> <td>-</td> <td>-</td> <td>-</td> <td>117</td> <td>138</td> <td>168</td> <td>D23</td> </tr> <tr> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>169</td> <td>P166</td> </tr> <tr> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>169</td> <td>PPG34_1</td> </tr> <tr> <td>-</td> <td>-</td> <td>-</td> <td>118</td> <td>139</td> <td>170</td> <td>P010</td> </tr> <tr> <td>-</td> <td>-</td> <td>-</td> <td>118</td> <td>139</td> <td>170</td> <td>D24</td> </tr> <tr> <td>63</td> <td>79</td> <td>99</td> <td>119</td> <td>140</td> <td>171</td> <td>P011</td> </tr> <tr> <td>63</td> <td>79</td> <td>99</td> <td>119</td> <td>140</td> <td>171</td> <td>WOT</td> </tr> <tr> <td>63</td> <td>79</td> <td>99</td> <td>119</td> <td>140</td> <td>171</td> <td>D25</td> </tr> <tr> <td>63</td> <td>79</td> <td>99</td> <td>119</td> <td>140</td> <td>171</td> <td>SOT2_1</td> </tr> <tr> <td>63</td> <td>79</td> <td>99</td> <td>119</td> <td>140</td> <td>171</td> <td>TIOA0_0</td> </tr> <tr> <td>63</td> <td>79</td> <td>99</td> <td>119</td> <td>140</td> <td>171</td> <td>INT3_1</td> </tr> </tbody> </table> | Pin no. | | | | | | Pin Name | 64 | 80 | 100 | 120 | 144 | 176 | | - | - | - | 113 | 133 | 161 | P002 | - | - | - | 113 | 133 | 161 | D18 | - | - | - | 113 | 133 | 161 | SCK1_0 | - | - | - | 113 | 133 | 161 | TIOB0_1 | - | 76 | 96 | 114 | 134 | 162 | P003 | - | 76 | 96 | 114 | 134 | 162 | D19 | - | 76 | 96 | 114 | 134 | 162 | SIN2_0 | - | 76 | 96 | 114 | 134 | 162 | TIOB1_1 | - | 76 | 96 | 114 | 134 | 162 | INT3_0 | - | - | - | - | 135 | 163 | P004 | - | - | - | - | 135 | 163 | D20 | - | - | - | - | 135 | 163 | SOT2_0 | - | - | - | - | - | 164 | P164 | - | - | - | - | - | 164 | PPG32_1 | 61 | 77 | 97 | 115 | 136 | 165 | P005 | 61 | 77 | 97 | 115 | 136 | 165 | D21 | 61 | 77 | 97 | 115 | 136 | 165 | SCK2_0 | 61 | 77 | 97 | 115 | 136 | 165 | ADTG0_1 | 61 | 77 | 97 | 115 | 136 | 165 | INT7_1 | 61 | 77 | 97 | 115 | 136 | 165 | (RX2(64)) | - | - | - | - | - | 166 | P165 | - | - | - | - | - | 166 | PPG33_1 | 62 | 78 | 98 | 116 | 137 | 167 | P006 | 62 | 78 | 98 | 116 | 137 | 167 | D22 | 62 | 78 | 98 | 116 | 137 | 167 | SCS2_0 | 62 | 78 | 98 | 116 | 137 | 167 | ADTG1_1 | 62 | 78 | 98 | 116 | 137 | 167 | INT2_1 | 62 | 78 | 98 | 116 | 137 | 167 | (TX2(64)) | - | - | - | 117 | 138 | 168 | P007 | - | - | - | 117 | 138 | 168 | D23 | - | - | - | - | - | 169 | P166 | - | - | - | - | - | 169 | PPG34_1 | - | - | - | 118 | 139 | 170 | P010 | - | - | - | 118 | 139 | 170 | D24 | 63 | 79 | 99 | 119 | 140 | 171 | P011 | 63 | 79 | 99 | 119 | 140 | 171 | WOT | 63 | 79 | 99 | 119 | 140 | 171 | D25 | 63 | 79 | 99 | 119 | 140 | 171 | SOT2_1 | 63 | 79 | 99 | 119 | 140 | 171 | TIOA0_0 | 63 | 79 | 99 | 119 | 140 | 171 | INT3_1 |
| | | Pin no. | | | | | | Pin Name | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 64 | 80 | 100 | 120 | 144 | 176 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | - | - | - | 113 | 133 | 161 | P002 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | - | - | - | 113 | 133 | 161 | D18 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | - | - | - | 113 | 133 | 161 | SCK1_0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | - | - | - | 113 | 133 | 161 | TIOB0_1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | - | 76 | 96 | 114 | 134 | 162 | P003 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | - | 76 | 96 | 114 | 134 | 162 | D19 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | - | 76 | 96 | 114 | 134 | 162 | SIN2_0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | - | 76 | 96 | 114 | 134 | 162 | TIOB1_1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | - | 76 | 96 | 114 | 134 | 162 | INT3_0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | - | - | - | - | 135 | 163 | P004 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | - | - | - | - | 135 | 163 | D20 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| - | - | - | 118 | 139 | 170 | D24 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 63 | 79 | 99 | 119 | 140 | 171 | P011 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 63 | 79 | 99 | 119 | 140 | 171 | WOT | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 63 | 79 | 99 | 119 | 140 | 171 | D25 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 63 | 79 | 99 | 119 | 140 | 171 | SOT2_1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 63 | 79 | 99 | 119 | 140 | 171 | TIOA0_0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 63 | 79 | 99 | 119 | 140 | 171 | INT3_1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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|--------|------------------|--------------------------|------------------|------------------|-------------------|-------------------|-------------------|---|--|--|--|
| 34, 35 | ■PIN Description | (Continued) (Correct) | | | | | | | | | |
| | | Pin no. | | | | | | Pin Name | | | |
| | | 64 | 80 | 100 | 120 | 144 | 176 | | | | |
| | | - | - | - | 113 ^{*1} | 133 | 161 | P002 D18 ^{*5} SCK1_0 TIOB0_1 | | | |
| | | - | 76 ^{*1} | 96 ^{*1} | 114 ^{*1} | 134 | 162 | P003 D19 ^{*3, *4, *5} SIN2_0 TIOB1_1 INT3_0 | | | |
| | | - | - | - | - | 135 | 163 | P004 D20 SOT2_0 | | | |
| | | - | - | - | - | - | 164 | P164 PPG32_1 | | | |
| | | 61 ^{*1} | 77 ^{*1} | 97 ^{*1} | 115 ^{*1} | 136 ^{*1} | 165 ^{*1} | P005 D21 ^{*2, *3, *4, *5} SCK2_0 ^{*2} ADTG0_1 INT7_1 RX2(64) ^{*4, *5, *6, *7} | | | |
| | | - | - | - | - | - | 166 | P165 PPG33_1 | | | |
| | | 62 ^{*1} | 78 ^{*1} | 98 ^{*1} | 116 ^{*1} | 137 ^{*1} | 167 ^{*1} | P006 D22 ^{*2, *3, *4, *5} SCS2_0 ^{*2} ADTG1_1 INT2_1 TX2(64) ^{*4, *5, *6, *7} | | | |
| | | - | - | - | 117 ^{*1} | 138 | 168 | P007 D23 ^{*5} | | | |
| | | - | - | - | - | - | 169 | P166 PPG34_1 | | | |
| | | - | - | - | 118 ^{*1} | 139 | 170 | P010 D24 ^{*5} | | | |
| | | 63 ^{*1} | 79 ^{*1} | 99 ^{*1} | 119 ^{*1} | 140 | 171 | P011 WOT D25 ^{*2, *3, *4, *5} SOT2_1 ^{*2} TIOA0_0 ^{*2, *3, *4} INT3_1 | | | |

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| 34 | ■PIN Description | <p>A List of "Pin Description" modified.</p> <p>(Error)</p> <table border="1" data-bbox="605 422 1146 1020"> <tr> <td style="text-align: center;">Function*2</td> </tr> <tr> <td> </td> </tr> <tr> <td>General-purpose I/O port</td> </tr> <tr> <td>External bus data bit21 I/O (0)</td> </tr> <tr> <td>Multi-function serial ch.2 clock I/O (0)</td> </tr> <tr> <td>A/D converter external trigger input 0 (1)</td> </tr> <tr> <td>INT7 External interrupt input (1)</td> </tr> <tr> <td>(CAN reception data 2 input MB91F52xB ,MB91F52xD only)</td> </tr> <tr> <td> </td> </tr> <tr> <td>General-purpose I/O port</td> </tr> <tr> <td>External bus data bit22 I/O (0)</td> </tr> <tr> <td>Serial chip select 2 I/O (0)</td> </tr> <tr> <td>A/D converter external trigger input 1 (1)</td> </tr> <tr> <td>INT2 External interrupt input (1)</td> </tr> <tr> <td>(CAN transmission data 2 output MB91F52xB ,MB91F52xD only)</td> </tr> </table> <p>(Correct)</p> <table border="1" data-bbox="605 1087 1146 1623"> <tr> <td style="text-align: center;">Function*9</td> </tr> <tr> <td> </td> </tr> <tr> <td>General-purpose I/O port</td> </tr> <tr> <td>External bus data bit21 I/O (0)</td> </tr> <tr> <td>Multi-function serial ch.2 clock I/O (0)</td> </tr> <tr> <td>A/D converter external trigger input 0 (1)</td> </tr> <tr> <td>INT7 External interrupt input (1)</td> </tr> <tr> <td>CAN reception data 2 input</td> </tr> <tr> <td> </td> </tr> <tr> <td>General-purpose I/O port</td> </tr> <tr> <td>External bus data bit22 I/O (0)</td> </tr> <tr> <td>Serial chip select 2 I/O (0)</td> </tr> <tr> <td>A/D converter external trigger input 1 (1)</td> </tr> <tr> <td>INT2 External interrupt input (1)</td> </tr> <tr> <td>CAN transmission data 2 output</td> </tr> </table> | Function*2 | | General-purpose I/O port | External bus data bit21 I/O (0) | Multi-function serial ch.2 clock I/O (0) | A/D converter external trigger input 0 (1) | INT7 External interrupt input (1) | (CAN reception data 2 input MB91F52xB ,MB91F52xD only) | | General-purpose I/O port | External bus data bit22 I/O (0) | Serial chip select 2 I/O (0) | A/D converter external trigger input 1 (1) | INT2 External interrupt input (1) | (CAN transmission data 2 output MB91F52xB ,MB91F52xD only) | Function*9 | | General-purpose I/O port | External bus data bit21 I/O (0) | Multi-function serial ch.2 clock I/O (0) | A/D converter external trigger input 0 (1) | INT7 External interrupt input (1) | CAN reception data 2 input | | General-purpose I/O port | External bus data bit22 I/O (0) | Serial chip select 2 I/O (0) | A/D converter external trigger input 1 (1) | INT2 External interrupt input (1) | CAN transmission data 2 output |
| Function*2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| General-purpose I/O port | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| External bus data bit21 I/O (0) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Multi-function serial ch.2 clock I/O (0) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| A/D converter external trigger input 0 (1) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| INT7 External interrupt input (1) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| (CAN reception data 2 input MB91F52xB ,MB91F52xD only) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| General-purpose I/O port | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| External bus data bit22 I/O (0) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Serial chip select 2 I/O (0) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| A/D converter external trigger input 1 (1) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| INT2 External interrupt input (1) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| (CAN transmission data 2 output MB91F52xB ,MB91F52xD only) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Function*9 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| General-purpose I/O port | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| External bus data bit21 I/O (0) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Multi-function serial ch.2 clock I/O (0) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| A/D converter external trigger input 0 (1) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| INT7 External interrupt input (1) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CAN reception data 2 input | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| General-purpose I/O port | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| External bus data bit22 I/O (0) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Serial chip select 2 I/O (0) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| A/D converter external trigger input 1 (1) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| INT2 External interrupt input (1) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CAN transmission data 2 output | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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| 36 | ■PIN Description | <p>The following sentences modified under the Table of Pin description.</p> <p>(Error) *1: For the I/O circuit types, see "■I/O CIRCUIT TYPE". *2: For switching, see "I/O Port" in HARDWARE MANUAL.</p> <p>(Correct) *1: There is a restriction of pin functions. See "Pin Name" of this table. *2: not supported in 64pin *3: not supported in 80pin *4: not supported in 100pin *5: not supported in 120pin *6: not supported in 144pin *7: not supported in 176pin *8: For the I/O circuit types, see "■I/O CIRCUIT TYPE". *9: For switching, see "I/O Port" in HARDWARE MANUAL.</p> |
| 39 | ■I/O Circuit Type | <p>Remarks for Type I in "I/O Circuit Types" modified as follows:</p> <p>(Error) - 3V pad power supply (5V tolerant), General-purpose I/O port - Output 4mA - CMOS hysteresis input</p> <p>(Correct) - General-purpose I/O port (5V tolerant) - Output 4mA - CMOS hysteresis input</p> |
| 40 | ■I/O Circuit Type | <p>Remarks for Type J in "I/O Circuit Types" modified as follows:</p> <p>(Error) - 3V pad power supply (5V tolerant), Analog input, General-purpose I/O port - Output 4mA - CMOS hysteresis input</p> <p>(Correct) - Analog input, General-purpose I/O port (5V tolerant) - Output 4mA - CMOS hysteresis input</p> |

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| 40 | ■ I/O Circuit Type | <p>Remarks for Type L in "I/O Circuit Types" modified as follows:</p> <p>(Error)</p> <ul style="list-style-type: none"> - Open-drain I/O - Output 25mA (NOD) - TTL input <p>(Correct)</p> <ul style="list-style-type: none"> - Open-drain I/O - Output 25mA (Nch open-drain) - TTL input | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 40 | ■ I/O Circuit Type | <p>Remarks for Type M in "I/O Circuit Types" modified as follows:</p> <p>(Error)</p> <ul style="list-style-type: none"> - CMOS hysteresis input - Pull-up resistor 50kΩ (5V cont) <p>(Correct)</p> <ul style="list-style-type: none"> - CMOS hysteresis input - Pull-up resistor 50kΩ | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 121 | ■ Interrupt Vector Table | <p>The following sentence deleted from Interrupt vector 64pins.</p> <p>*5: It does not support the DMA transfer by the interrupt because of the RAM ECC bit error.</p> | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 124 | ■ Interrupt Vector Table | <p>The interrupt factor in Interrupt vector 80pin modified as follows:</p> <p>(Error)</p> <table border="1"> <tr> <td>Base timer 1 IRQ0</td> <td rowspan="4">61</td> <td rowspan="4">3D</td> <td rowspan="4">ICR 45</td> <td rowspan="4">308_H</td> <td>000F</td> <td rowspan="4">45^{*5}</td> </tr> <tr> <td>Base timer 1 IRQ1</td> <td>FF08</td> </tr> <tr> <td>-</td> <td>H</td> </tr> <tr> <td>-</td> <td></td> </tr> </table> <p>(Correct)</p> <table border="1"> <tr> <td>Base timer 1 IRQ0</td> <td rowspan="4">61</td> <td rowspan="4">3D</td> <td rowspan="4">ICR 45</td> <td rowspan="4">308_H</td> <td>000F</td> <td rowspan="4">45</td> </tr> <tr> <td>Base timer 1 IRQ1</td> <td>FF08</td> </tr> <tr> <td>-</td> <td>H</td> </tr> <tr> <td>-</td> <td></td> </tr> </table> | Base timer 1 IRQ0 | 61 | 3D | ICR 45 | 308 _H | 000F | 45 ^{*5} | Base timer 1 IRQ1 | FF08 | - | H | - | | Base timer 1 IRQ0 | 61 | 3D | ICR 45 | 308 _H | 000F | 45 | Base timer 1 IRQ1 | FF08 | - | H | - | |
| Base timer 1 IRQ0 | 61 | 3D | ICR 45 | | | | | 308 _H | | 000F | 45 ^{*5} | | | | | | | | | | | | | | | | | |
| Base timer 1 IRQ1 | | | | | | | | | | FF08 | | | | | | | | | | | | | | | | | | |
| - | | | | | | | | | | H | | | | | | | | | | | | | | | | | | |
| - | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Base timer 1 IRQ0 | 61 | 3D | ICR 45 | 308 _H | 000F | 45 | | | | | | | | | | | | | | | | | | | | | | |
| Base timer 1 IRQ1 | | | | | FF08 | | | | | | | | | | | | | | | | | | | | | | | |
| - | | | | | H | | | | | | | | | | | | | | | | | | | | | | | |
| - | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 125 | ■ Interrupt Vector Table | <p>The following sentence deleted from Interrupt vector 80pins.</p> <p>(Error)</p> <p>*5: It does not support the DMA transfer by the interrupt because of the RAM ECC bit error.</p> | | | | | | | | | | | | | | | | | | | | | | | | | | |

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| 129 | ■Interrupt Vector Table | <p>The interrupt factor in Interrupt vector 100pin modified as follows:</p> <p>(Error)</p> <table border="1"> <tr> <td>Base timer 0 IRQ0</td> <td rowspan="2">60</td> <td rowspan="2">3 C</td> <td rowspan="2">ICR 44</td> <td rowspan="2">30C_H</td> <td rowspan="2">000F FF0C H</td> <td rowspan="2">44</td> </tr> <tr> <td>Base timer 0 IRQ1</td> </tr> </table> <p>(Correct)</p> <table border="1"> <tr> <td>-</td> <td rowspan="2">60</td> <td rowspan="2">3 C</td> <td rowspan="2">ICR 44</td> <td rowspan="2">30C_H</td> <td rowspan="2">000F FF0C H</td> <td rowspan="2">44</td> </tr> <tr> <td>-</td> </tr> </table> | Base timer 0 IRQ0 | 60 | 3 C | ICR 44 | 30C _H | 000F FF0C H | 44 | Base timer 0 IRQ1 | - | 60 | 3 C | ICR 44 | 30C _H | 000F FF0C H | 44 | - | | | | |
| Base timer 0 IRQ0 | 60 | 3 C | ICR 44 | | | | | | | 30C _H | 000F FF0C H | | | | | | | 44 | | | | |
| Base timer 0 IRQ1 | | | | | | | | | | | | | | | | | | | | | | |
| - | 60 | 3 C | ICR 44 | 30C _H | 000F FF0C H | 44 | | | | | | | | | | | | | | | | |
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| 129 | ■Interrupt Vector Table | <p>The interrupt factor in Interrupt vector 100pin modified as follows:</p> <p>(Error)</p> <table border="1"> <tr> <td>Base timer 1 IRQ0</td> <td rowspan="4">61</td> <td rowspan="4">3D</td> <td rowspan="4">ICR 45</td> <td rowspan="4">308_H</td> <td rowspan="4">000F FF08_H</td> <td rowspan="4">45 *5</td> </tr> <tr> <td>Base timer 1 IRQ1</td> </tr> <tr> <td>-</td> </tr> <tr> <td>-</td> </tr> </table> <p>(Correct)</p> <table border="1"> <tr> <td>Base timer 1 IRQ0</td> <td rowspan="4">61</td> <td rowspan="4">3D</td> <td rowspan="4">ICR 45</td> <td rowspan="4">308_H</td> <td rowspan="4">000F FF08 H</td> <td rowspan="4">45</td> </tr> <tr> <td>Base timer 1 IRQ1</td> </tr> <tr> <td>-</td> </tr> <tr> <td>-</td> </tr> </table> | Base timer 1 IRQ0 | 61 | 3D | ICR 45 | 308 _H | 000F FF08 _H | 45 *5 | Base timer 1 IRQ1 | - | - | Base timer 1 IRQ0 | 61 | 3D | ICR 45 | 308 _H | 000F FF08 H | 45 | Base timer 1 IRQ1 | - | - |
| Base timer 1 IRQ0 | 61 | 3D | ICR 45 | | | | | | | 308 _H | 000F FF08 _H | 45 *5 | | | | | | | | | | |
| Base timer 1 IRQ1 | | | | | | | | | | | | | | | | | | | | | | |
| - | | | | | | | | | | | | | | | | | | | | | | |
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| Base timer 1 IRQ0 | 61 | 3D | ICR 45 | 308 _H | 000F FF08 H | 45 | | | | | | | | | | | | | | | | |
| Base timer 1 IRQ1 | | | | | | | | | | | | | | | | | | | | | | |
| - | | | | | | | | | | | | | | | | | | | | | | |
| - | | | | | | | | | | | | | | | | | | | | | | |
| 129 | ■Interrupt Vector Table | <p>The following sentence deleted from Interrupt vector 100pins.</p> <p>(Error)</p> <p>*5: It does not support the DMA transfer by the interrupt because of the RAM ECC bit error.</p> | | | | | | | | | | | | | | | | | | | | |

| Page | Section | Change Results | | | | | | | | | | | | | | | | | | | | |
|---|-------------------------|--|---------------------------------|------------------|---------------------------|------------------|------------------|---------------------------|------------------|---|------------------------------|------------------|-------------------|--------|------------------|---------------------------|------------------|---|----|-------------------|---|---|
| 131 | ■Interrupt Vector Table | <p>"42" is deleted as shown below from the interrupt factor in Interrupt vector 120pin.</p> <p>(Error)</p> <table border="1"> <tr> <td>PPG2/3/12/13/22 /23/32/33/42/43</td> <td rowspan="2">41</td> <td rowspan="2">29</td> <td rowspan="2">ICR 25</td> <td rowspan="2">358_H</td> <td rowspan="2">000F FF58_H</td> <td rowspan="2">25^{*3}</td> </tr> <tr> <td>16-bit free-run timer 2 (0 detection) / (compare clear)</td> </tr> </table> <p>(Correct)</p> <table border="1"> <tr> <td>PPG2/3/12/13/22 /23/32/33/43</td> <td rowspan="2">41</td> <td rowspan="2">29</td> <td rowspan="2">ICR 25</td> <td rowspan="2">358_H</td> <td rowspan="2">000F FF58_H</td> <td rowspan="2">25^{*3}</td> </tr> <tr> <td>16-bit free-run timer 2 (0 detection) / (compare clear)</td> </tr> </table> | PPG2/3/12/13/22 /23/32/33/42/43 | 41 | 29 | ICR 25 | 358 _H | 000F FF58 _H | 25 ^{*3} | 16-bit free-run timer 2 (0 detection) / (compare clear) | PPG2/3/12/13/22 /23/32/33/43 | 41 | 29 | ICR 25 | 358 _H | 000F FF58 _H | 25 ^{*3} | 16-bit free-run timer 2 (0 detection) / (compare clear) | | | | |
| PPG2/3/12/13/22 /23/32/33/42/43 | 41 | 29 | ICR 25 | | | | | | | 358 _H | 000F FF58 _H | | | | | | | 25 ^{*3} | | | | |
| 16-bit free-run timer 2 (0 detection) / (compare clear) | | | | | | | | | | | | | | | | | | | | | | |
| PPG2/3/12/13/22 /23/32/33/43 | 41 | 29 | ICR 25 | 358 _H | 000F FF58 _H | 25 ^{*3} | | | | | | | | | | | | | | | | |
| 16-bit free-run timer 2 (0 detection) / (compare clear) | | | | | | | | | | | | | | | | | | | | | | |
| 133 | ■Interrupt Vector Table | <p>The interrupt factor in Interrupt vector 120pin modified as follows:</p> <p>(Error)</p> <table border="1"> <tr> <td>Base timer 1 IRQ0</td> <td rowspan="4">61</td> <td rowspan="4">3D</td> <td rowspan="4">ICR 45</td> <td rowspan="4">308_H</td> <td rowspan="4">000F FF08_H</td> <td rowspan="4">45^{*5}</td> </tr> <tr> <td>Base timer 1 IRQ1</td> </tr> <tr> <td>-</td> </tr> <tr> <td>-</td> </tr> </table> <p>(Correct)</p> <table border="1"> <tr> <td>Base timer 1 IRQ0</td> <td rowspan="4">61</td> <td rowspan="4">3D</td> <td rowspan="4">ICR 45</td> <td rowspan="4">308_H</td> <td rowspan="4">000F FF08_H</td> <td rowspan="4">45</td> </tr> <tr> <td>Base timer 1 IRQ1</td> </tr> <tr> <td>-</td> </tr> <tr> <td>-</td> </tr> </table> | Base timer 1 IRQ0 | 61 | 3D | ICR 45 | 308 _H | 000F FF08 _H | 45 ^{*5} | Base timer 1 IRQ1 | - | - | Base timer 1 IRQ0 | 61 | 3D | ICR 45 | 308 _H | 000F FF08 _H | 45 | Base timer 1 IRQ1 | - | - |
| Base timer 1 IRQ0 | 61 | 3D | ICR 45 | | | | | | | 308 _H | 000F FF08 _H | 45 ^{*5} | | | | | | | | | | |
| Base timer 1 IRQ1 | | | | | | | | | | | | | | | | | | | | | | |
| - | | | | | | | | | | | | | | | | | | | | | | |
| - | | | | | | | | | | | | | | | | | | | | | | |
| Base timer 1 IRQ0 | 61 | 3D | ICR 45 | 308 _H | 000F FF08 _H | 45 | | | | | | | | | | | | | | | | |
| Base timer 1 IRQ1 | | | | | | | | | | | | | | | | | | | | | | |
| - | | | | | | | | | | | | | | | | | | | | | | |
| - | | | | | | | | | | | | | | | | | | | | | | |
| 133 | ■Interrupt Vector Table | <p>The following sentence deleted from Interrupt vector 120pins.</p> <p>(Error)</p> <p>*5: It does not support the DMA transfer by the interrupt because of the RAM ECC bit error.</p> | | | | | | | | | | | | | | | | | | | | |

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|---|-------------------------|--|--------------------------------|------------------|---------------------------|------------------|------------------|---------------------------|------------------|---|-----------------------------|------------------|-------------------|--------|------------------|---------------------------|------------------|---|----|-------------------|---|---|
| 135 | ■Interrupt Vector Table | <p>"42" is deleted as shown below from the interrupt factor in Interrupt vector 144pin.</p> <p>(Error)</p> <table border="1"> <tr> <td>PPG2/3/12/13/22/23/32/33/42/43</td> <td rowspan="2">41</td> <td rowspan="2">29</td> <td rowspan="2">ICR 25</td> <td rowspan="2">358_H</td> <td rowspan="2">000F FF58_H</td> <td rowspan="2">25*₃</td> </tr> <tr> <td>16-bit free-run timer 2 (0 detection) / (compare clear)</td> </tr> </table> <p>(Correct)</p> <table border="1"> <tr> <td>PPG2/3/12/13/22/23/32/33/43</td> <td rowspan="2">41</td> <td rowspan="2">29</td> <td rowspan="2">ICR 25</td> <td rowspan="2">358_H</td> <td rowspan="2">000F FF58_H</td> <td rowspan="2">25*₃</td> </tr> <tr> <td>16-bit free-run timer 2 (0 detection) / (compare clear)</td> </tr> </table> | PPG2/3/12/13/22/23/32/33/42/43 | 41 | 29 | ICR 25 | 358 _H | 000F FF58 _H | 25* ₃ | 16-bit free-run timer 2 (0 detection) / (compare clear) | PPG2/3/12/13/22/23/32/33/43 | 41 | 29 | ICR 25 | 358 _H | 000F FF58 _H | 25* ₃ | 16-bit free-run timer 2 (0 detection) / (compare clear) | | | | |
| PPG2/3/12/13/22/23/32/33/42/43 | 41 | 29 | ICR 25 | | | | | | | 358 _H | 000F FF58 _H | | | | | | | 25* ₃ | | | | |
| 16-bit free-run timer 2 (0 detection) / (compare clear) | | | | | | | | | | | | | | | | | | | | | | |
| PPG2/3/12/13/22/23/32/33/43 | 41 | 29 | ICR 25 | 358 _H | 000F FF58 _H | 25* ₃ | | | | | | | | | | | | | | | | |
| 16-bit free-run timer 2 (0 detection) / (compare clear) | | | | | | | | | | | | | | | | | | | | | | |
| 137 | ■Interrupt Vector Table | <p>The interrupt factor in Interrupt vector 144pin modified as follows:</p> <p>(Error)</p> <table border="1"> <tr> <td>Base timer 1 IRQ0</td> <td rowspan="4">61</td> <td rowspan="4">3D</td> <td rowspan="4">ICR 45</td> <td rowspan="4">308_H</td> <td rowspan="4">000F FF08_H</td> <td rowspan="4">45*₅</td> </tr> <tr> <td>Base timer 1 IRQ1</td> </tr> <tr> <td>-</td> </tr> <tr> <td>-</td> </tr> </table> <p>(Correct)</p> <table border="1"> <tr> <td>Base timer 1 IRQ0</td> <td rowspan="4">61</td> <td rowspan="4">3D</td> <td rowspan="4">ICR 45</td> <td rowspan="4">308_H</td> <td rowspan="4">000F FF08_H</td> <td rowspan="4">45</td> </tr> <tr> <td>Base timer 1 IRQ1</td> </tr> <tr> <td>-</td> </tr> <tr> <td>-</td> </tr> </table> | Base timer 1 IRQ0 | 61 | 3D | ICR 45 | 308 _H | 000F FF08 _H | 45* ₅ | Base timer 1 IRQ1 | - | - | Base timer 1 IRQ0 | 61 | 3D | ICR 45 | 308 _H | 000F FF08 _H | 45 | Base timer 1 IRQ1 | - | - |
| Base timer 1 IRQ0 | 61 | 3D | ICR 45 | | | | | | | 308 _H | 000F FF08 _H | 45* ₅ | | | | | | | | | | |
| Base timer 1 IRQ1 | | | | | | | | | | | | | | | | | | | | | | |
| - | | | | | | | | | | | | | | | | | | | | | | |
| - | | | | | | | | | | | | | | | | | | | | | | |
| Base timer 1 IRQ0 | 61 | 3D | ICR 45 | 308 _H | 000F FF08 _H | 45 | | | | | | | | | | | | | | | | |
| Base timer 1 IRQ1 | | | | | | | | | | | | | | | | | | | | | | |
| - | | | | | | | | | | | | | | | | | | | | | | |
| - | | | | | | | | | | | | | | | | | | | | | | |
| 137 | ■Interrupt Vector Table | <p>The following sentence deleted from Interrupt vector 144pins.</p> <p>(Error)</p> <p>*5: It does not support the DMA transfer by the interrupt because of the RAM ECC bit error.</p> | | | | | | | | | | | | | | | | | | | | |

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|--|--|--|----------------------|------------|-------------------|-----------|----------|-------------------|----------|----------------------|--|----------|---|---|----|--|--------|---|----------------------|--|--------|-----------|----------|-------------------|----|----------------------|---|-----|-----------|------------|--------|--|------|---------|-----|-----|--|--------|---|---|----|----|--------|---|----|-----|--|--------|---|----|----|----|--------|---|-----|-----|
| 141 | ■Interrupt Vector Table | <p>The interrupt factor in Interrupt vector 176pin modified as follows:</p> <p>(Error)</p> <table border="1"> <tr> <td>Base timer 1 IRQ0</td> <td rowspan="3">61</td> <td rowspan="3">3D</td> <td rowspan="3">ICR 45</td> <td rowspan="3">308 H</td> <td rowspan="3">000F FF08 H</td> <td rowspan="3">45 *5</td> </tr> <tr> <td>Base timer 1 IRQ1</td> </tr> <tr> <td>-</td> </tr> <tr> <td>-</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table> <p>(Correct)</p> <table border="1"> <tr> <td>Base timer 1 IRQ0</td> <td rowspan="3">61</td> <td rowspan="3">3D</td> <td rowspan="3">ICR 45</td> <td rowspan="3">308 H</td> <td rowspan="3">000F FF08 H</td> <td rowspan="3">45</td> </tr> <tr> <td>Base timer 1 IRQ1</td> </tr> <tr> <td>-</td> </tr> <tr> <td>-</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table> | Base timer 1 IRQ0 | 61 | 3D | ICR 45 | 308 H | 000F FF08 H | 45 *5 | Base timer 1 IRQ1 | - | - | | | | | | | Base timer 1 IRQ0 | 61 | 3D | ICR 45 | 308 H | 000F FF08 H | 45 | Base timer 1 IRQ1 | - | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Base timer 1 IRQ0 | 61 | 3D | ICR 45 | | | | | | | 308 H | 000F FF08 H | 45 *5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Base timer 1 IRQ1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Base timer 1 IRQ0 | 61 | 3D | ICR 45 | 308 H | 000F FF08 H | 45 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Base timer 1 IRQ1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 141 | ■Interrupt Vector Table | <p>The following sentence deleted from Interrupt vector 176pins.</p> <p>(Error)</p> <p>*5: It does not support the DMA transfer by the interrupt because of the RAM ECC bit error.</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 142 | ■Electrical Characteristics 1. Absolute Maximum Ratings | <p>The remarks of "L" level average output current" and "H" level average output current" modified as follows.</p> <p>(Error)</p> <table border="1"> <thead> <tr> <th rowspan="2">Parameter</th> <th rowspan="2">Sym bol</th> <th colspan="2">Rating</th> <th rowspan="2">Unit</th> <th rowspan="2">Remarks</th> </tr> <tr> <th>Min</th> <th>Max</th> </tr> </thead> <tbody> <tr> <td rowspan="2">"L" level average output current *4</td> <td>IOLAV1</td> <td>-</td> <td>4</td> <td rowspan="2">mA</td> <td rowspan="2"></td> </tr> <tr> <td>IOLAV2</td> <td>-</td> <td>12</td> </tr> <tr> <td rowspan="2">"H" level average output current *4</td> <td>IOHAV1</td> <td>-</td> <td>-4</td> <td rowspan="2">mA</td> <td rowspan="2"></td> </tr> <tr> <td>IOHAV2</td> <td>-</td> <td>-12</td> </tr> </tbody> </table> <p>(Correct)</p> <table border="1"> <thead> <tr> <th rowspan="2">Parameter</th> <th rowspan="2">Sym bol</th> <th colspan="2">Rating</th> <th rowspan="2">Unit</th> <th rowspan="2">Remarks</th> </tr> <tr> <th>Min</th> <th>Max</th> </tr> </thead> <tbody> <tr> <td rowspan="2">"L" level average output current *4</td> <td>IOLAV1</td> <td>-</td> <td>4</td> <td rowspan="2">mA</td> <td>*9</td> </tr> <tr> <td>IOLAV2</td> <td>-</td> <td>12</td> <td>*10</td> </tr> <tr> <td rowspan="2">"H" level average output current *4</td> <td>IOHAV1</td> <td>-</td> <td>-4</td> <td rowspan="2">mA</td> <td>*9</td> </tr> <tr> <td>IOHAV2</td> <td>-</td> <td>-12</td> <td>*10</td> </tr> </tbody> </table> | Parameter | Sym bol | Rating | | Unit | Remarks | Min | Max | "L" level average output current *4 | IOLAV1 | - | 4 | mA | | IOLAV2 | - | 12 | "H" level average output current *4 | IOHAV1 | - | -4 | mA | | IOHAV2 | - | -12 | Parameter | Sym bol | Rating | | Unit | Remarks | Min | Max | "L" level average output current *4 | IOLAV1 | - | 4 | mA | *9 | IOLAV2 | - | 12 | *10 | "H" level average output current *4 | IOHAV1 | - | -4 | mA | *9 | IOHAV2 | - | -12 | *10 |
| Parameter | Sym bol | Rating | | | Unit | Remarks | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | Min | Max | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| "L" level average output current *4 | IOLAV1 | - | 4 | mA | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | IOLAV2 | - | 12 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| "H" level average output current *4 | IOHAV1 | - | -4 | mA | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | IOHAV2 | - | -12 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Parameter | Sym bol | Rating | | Unit | Remarks | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | Min | Max | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| "L" level average output current *4 | IOLAV1 | - | 4 | mA | *9 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | IOLAV2 | - | 12 | | *10 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| "H" level average output current *4 | IOHAV1 | - | -4 | mA | *9 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | IOHAV2 | - | -12 | | *10 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 143 | ■Electrical Characteristics 1. Absolute Maximum Ratings | <p>The following note added.</p> <p>(Correct)</p> <p>*9: Corresponding pins: General-purpose ports other than those of P103, P104, P105 and P106.</p> <p>*10: Corresponding pins: General-purpose ports of P103, P104, P105 and P106.</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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| 155 | <ul style="list-style-type: none"> ■Electrical Characteristics AC Characteristics (2) Reset Input | Added the At power-on ^{*2} condition to the remarks in Reset input time. |
| 156 | <ul style="list-style-type: none"> ■Electrical Characteristics AC Characteristics (3) Power-on Conditions | <p>Deleted the Slope detection undetected specification.</p> <p>Added the Power ramp rate and C pin voltage at Power-on.</p> <p>*1, *2: Changed the sentence.</p> <p>Added *3, *4, Note, Figure at the Power off time, Power ramp rate, C pin voltage at Power-on.</p> |
| 6 to 11, 203 to 216 | <ul style="list-style-type: none"> ■Product lineup ■Ordering information | Package description modified to JEDEC description. |
| 47 | <ul style="list-style-type: none"> ■During Power-on | <p>The following sentence modified as fdeleted from Interrupt (Error)</p> <p>To prevent a malfunction of the voltage step-down circuit built in the device, set the voltage rising time to have 50µs or longer (between 0.2V and 2.7V) during power-on.</p> <p>(Correct)</p> <p>To prevent a malfunction of the voltage step-down circuit built in the device, the voltage rising must be monotonic increasing during power-on.</p> <p>Power-on prohibits that the voltage goes up and down and voltage rising stops temporarily.</p> |
| 49, 50 | <ul style="list-style-type: none"> ■Block Diagram | <p>The following Block diagram modified as follows:</p> <ul style="list-style-type: none"> ●MB91F522B, MB91F523B, MB91F524B, MB91F525B, MB91F526B ●MB91F522D, MB91F523D, MB91F524D, MB91F525D, MB91F526D <p>(Error)</p> <p>CAN (2ch).</p> <p>(Correct)</p> <p>CAN (3ch)</p> |
| 217 to 220 | <ul style="list-style-type: none"> ■Ordering Information | <p>Added the following description.</p> <ul style="list-style-type: none"> ■ORDERING INFORMATION MB91F52xxxD |
| 221 to 227 | <ul style="list-style-type: none"> ■Package Dimensions | Package Dimensions modified to JEDEC description. |

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|--------------|----------------------------------|--|--------------|----------------|--------------|-------------------|
| Rev *C | | | | | | |
| 2 | Features Peripheral Functions | <p>The following sentence modified in I2C as following:</p> <p>(Error) < I2C > 2 channels ch.3 , ch.4 Standard mode/high-speed mode supported.</p> <p>Standard mode (Max. 100kbps) / high-speed mode (Max. 400kbps) supported</p> <p>(Correct) < I2C > 2 channels ch.3 , ch.4 Standard mode/fast mode supported.</p> <p>Standard mode (Max. 100kbps) / fast mode (Max. 400kbps) supported</p> | | | | |
| 5,6,7,8,9,10 | 1. Product Lineup | <p>The following *2 added as follows:</p> <p>(Error)</p> <table border="1" data-bbox="602 835 1255 871"> <tr> <td>Power supply</td> <td>2.7 V to 5.5 V</td> </tr> </table> <p>(Correct)</p> <table border="1" data-bbox="602 919 1255 955"> <tr> <td>Power supply</td> <td>2.7 V to 5.5 V *2</td> </tr> </table> | Power supply | 2.7 V to 5.5 V | Power supply | 2.7 V to 5.5 V *2 |
| Power supply | 2.7 V to 5.5 V | | | | | |
| Power supply | 2.7 V to 5.5 V *2 | | | | | |
| 5,6,7,8,9,10 | 1. Product Lineup | <p>The following sentence added as follows:</p> <p>(Correct) *2: Detection voltage of the external low voltage detection reset (initial) is 2.8V±8% (2.576V to 3.024V). This detection voltage (2.576V) is below the minimum operation guarantee voltage (2.7V). Between this detection voltage and the minimum operation guarantee voltage, MCU functions are not guaranteed except for the low voltage detector. Note that although the detection level is below the minimum operation guarantee voltage, the LVD reset factor flag is set as the voltage drops below the detection level.</p> | | | | |
| 8, 9, 10, | 1. Product Lineup | <p>The following sentence modified in the bottom of Product lineup comparison table as following:</p> <p>(Error) *1: Only channel 3 and channel 4 support the I2C (high-speed mode/standard mode).</p> <p>(Correct) *1: Only channel 3 and channel 4 support the I2C (fast mode/standard mode).</p> | | | | |
| 11 | 1. Product Lineup | Added silicon version E | | | | |

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|-------------------|--|---|-------------------|--|------|---------|-----|-----|--|--|--|--|-------------|--|------|---------|-----|-----|--|--|--|--|
| 46 | ■During Power-on | <p>The following sentence modified as following:</p> <p>(Error) To prevent a malfunction of the voltage step-down circuit built in the device, the voltage rising must be monotonic increasing during power-on. Power-on prohibits that the voltage goes up and down and voltage rising stops temporarily.</p> <p>(Correct) To prevent a malfunction of the voltage step-down circuit built in the device, the voltage rising must be monotonic during power-on.</p> | | | | | | | | | | | | | | | | | | | | |
| 142,143 | 11. Electrical Characteristics Recommended operating conditions | <p>The following sentence modified as following:</p> <p>(Error) *1: When it is used outside recommended operation guarantee range (range of the operation guarantee), contact your sales representative. Moreover, minimum value with an effective external low-voltage detection reset becomes a voltage until generating low-voltage detection reset.</p> <p>(Correct) *1: When it is used outside recommended operation guarantee range (range of the operation guarantee), contact your sales representative. Detection voltage of the external low voltage detection reset (initial) is 2.8V±8% (2.576V to 3.024V). This detection voltage (2.576V) is below the minimum operation guarantee voltage (2.7V). Between this detection voltage and the minimum operation guarantee voltage, MCU functions are not guaranteed except for the low voltage detector. Note that although the detection level is below the minimum operation guarantee voltage, the LVD reset factor flag is set as the voltage drops below the detection level.</p> | | | | | | | | | | | | | | | | | | | | |
| 156, 157 | 11. Electrical Characteristics AC Characteristics | Added (3-2) Power-on Conditions for MB91F52xxxE | | | | | | | | | | | | | | | | | | | | |
| 184 | 11. Electrical Characteristics AC Characteristics (4-4) I2C timing | <p>The following sentence modified as following:</p> <p>(Error)</p> <table border="1" data-bbox="654 1425 1175 1514"> <thead> <tr> <th colspan="2">High-speed mode*3</th> <th rowspan="2">Unit</th> <th rowspan="2">Remarks</th> </tr> <tr> <th>Min</th> <th>Max</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <p>Notes: Only ch.3 and ch.4 are standard mode/high-speed mode correspondence.</p> <p>*3: A high-speed mode I²C bus device can be used</p> <p>(Correct)</p> <table border="1" data-bbox="654 1734 1175 1793"> <thead> <tr> <th colspan="2">Fast mode*3</th> <th rowspan="2">Unit</th> <th rowspan="2">Remarks</th> </tr> <tr> <th>Min</th> <th>Max</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <p>Notes: Only ch.3 and ch.4 are standard mode/fast mode correspondence.</p> <p>*3: A fast mode I²C bus device can be used</p> | High-speed mode*3 | | Unit | Remarks | Min | Max | | | | | Fast mode*3 | | Unit | Remarks | Min | Max | | | | |
| High-speed mode*3 | | Unit | Remarks | | | | | | | | | | | | | | | | | | | |
| Min | Max | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | |
| Fast mode*3 | | Unit | Remarks | | | | | | | | | | | | | | | | | | | |
| Min | Max | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | |

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|------------|--|--|-------|--|--|------|---------|-----|-----|-----|-----|---|-----|---|--|-----|-----|-----|---|--|-------|--|--|------|---------|-----|-----|-----|-----|---|-----|---|--|-----|----------------|-----|---|--|
| 187 | 11. Electrical Characteristics (8) Low voltage detection (External low-voltage detection) | <p>The following sentence modified in the Detection voltage as following:</p> <p>(Error)</p> <table border="1"> <thead> <tr> <th colspan="3">Value</th> <th rowspan="2">Unit</th> <th rowspan="2">Remarks</th> </tr> <tr> <th>Min</th> <th>Typ</th> <th>Max</th> </tr> </thead> <tbody> <tr> <td>2.7</td> <td>-</td> <td>5.5</td> <td>V</td> <td></td> </tr> <tr> <td>-8%</td> <td>2.8</td> <td>+8%</td> <td>V</td> <td>When power-supply voltage falls and detection level is set initially</td> </tr> </tbody> </table> <p>(Correct)</p> <table border="1"> <thead> <tr> <th colspan="3">Value</th> <th rowspan="2">Unit</th> <th rowspan="2">Remarks</th> </tr> <tr> <th>Min</th> <th>Typ</th> <th>Max</th> </tr> </thead> <tbody> <tr> <td>2.7</td> <td>-</td> <td>5.5</td> <td>V</td> <td></td> </tr> <tr> <td>-8%</td> <td>LVD5F_SEL[3:0]</td> <td>+8%</td> <td>V</td> <td>LVD5F_SEL[3:0] are programmable. Refer to the hardware manual.</td> </tr> </tbody> </table> | Value | | | Unit | Remarks | Min | Typ | Max | 2.7 | - | 5.5 | V | | -8% | 2.8 | +8% | V | When power-supply voltage falls and detection level is set initially | Value | | | Unit | Remarks | Min | Typ | Max | 2.7 | - | 5.5 | V | | -8% | LVD5F_SEL[3:0] | +8% | V | LVD5F_SEL[3:0] are programmable. Refer to the hardware manual. |
| Value | | | Unit | Remarks | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Min | Typ | Max | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2.7 | - | 5.5 | V | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| -8% | 2.8 | +8% | V | When power-supply voltage falls and detection level is set initially | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Value | | | Unit | Remarks | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Min | Typ | Max | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2.7 | - | 5.5 | V | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| -8% | LVD5F_SEL[3:0] | +8% | V | LVD5F_SEL[3:0] are programmable. Refer to the hardware manual. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 188 | 11. Electrical Characteristics (9) Low voltage detection (RAM retention low-voltage detection) | <p>The following sentence modified as following:</p> <p>(Error)</p> <p>(9) Low voltage detection (Internal low-voltage detection)</p> <p>(Correct)</p> <p>(9) Low voltage detection (RAM retention low-voltage detection)</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 220 to 223 | 16. Ordering Information | <p>Added the following description.</p> <p>■ORDERING INFORMATION MB91F52xxxE</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Rev *D | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Features | <p>The following sentence should be modified as follows:</p> <p>(Error)</p> <p>Conversion time : 1μs</p> <p>(Correct)</p> <p>Conversion time : 1.4μs</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| Page | Section | Change Results |
|--------------|---|--|
| 5,6,7,8,9,10 | 1. Product Lineup | <p>The following sentence should be modified as follows:</p> <p>(Error) *2: Detection voltage of the external low voltage detection reset (initial) is 2.8V±8% (2.576V to 3.024V). This detection voltage (2.576V) is below the minimum operation guarantee voltage (2.7V). Between this detection voltage and the minimum operation guarantee voltage, MCU functions are not guaranteed except for the low voltage detector. Note that although the detection level is below the minimum operation guarantee voltage, the LVD reset factor flag is set as the voltage drops below the detection level.</p> <p>(Correct) *2: The initial detection voltage of the external low voltage detection is 2.8V±8% (2.576V to 3.024V). This LVD setting and internal LVD cannot be used to reliably generate a reset before voltage dips below minimum guaranteed operation voltage, as these detection levels are below the minimum guaranteed MCU operation voltage. Below the minimum guaranteed MCU operation voltage, MCU operations are not guaranteed with the exception of LVD.</p> |
| 142,143 | 11. Electrical Characteristics Recommended operating conditions | <p>The following sentence should be modified as follows:</p> <p>(Error) *1: When it is used outside recommended operation guarantee range (range of the operation guarantee), contact your sales representative. Detection voltage of the external low voltage detection reset (initial) is 2.8V±8% (2.576V to 3.024V). This detection voltage (2.576V) is below the minimum operation guarantee voltage (2.7V). Between this detection voltage and the minimum operation guarantee voltage, MCU functions are not guaranteed except for the low voltage detector. Note that although the detection level is below the minimum operation guarantee voltage, the LVD reset factor flag is set as the voltage drops below the detection level.</p> <p>(Correct) *1: When it is used outside recommended operation guarantee range (range of the operation guarantee), contact your sales representative. The initial detection voltage of the external low voltage detection is 2.8V±8% (2.576V to 3.024V). This LVD setting and internal LVD cannot be used to reliably generate a reset before voltage dips below minimum guaranteed operation voltage, as these detection levels are below the minimum guaranteed MCU operation voltage. Below the minimum guaranteed MCU operation voltage, MCU operations are not guaranteed with the exception of LVD.</p> |
| 146 | 11. Electrical Characteristics DC Characteristics | <p>Pin name of RUP3 should be modified as follows:</p> <p>(Error) Port pin other than P035,041,093,122</p> <p>(Correct) Port pin other than P035,041,073,074,076,077,093,122</p> |

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|----------------|---|--|-------------------|---------------------------|-------------------|-------------------|----------|----------------|------|----|----|---------------------------|----------------|-----|----|----------------|-----|-----|
| 187 | 11. Electrical Characteristics (8) Low voltage detection (External low-voltage detection) | <p>Note of Detection voltage should be added as follows:</p> <p>(Correct) Detection voltage ^{*3}</p> <p>*3: The initial detection voltage of the external low voltage detection is 2.8V±8% (2.576V to 3.024V). This LVD setting cannot be used to reliably generate a reset before voltage dips below minimum guaranteed MCU operation voltage, as this detection level is below the minimum guaranteed MCU operation voltage (2.7V). Below the minimum guaranteed MCU operation voltage, MCU operations are not guaranteed with the exception of LVD.</p> | | | | | | | | | | | | | | | | |
| 188 | 11. Electrical Characteristics (9) Low voltage detection (Internal low-voltage detection) | <p>The following sentence modified as following:</p> <p>(Error) (9) Low voltage detection (RAM retention low-voltage detection)</p> <p>(Correct) (9) Low voltage detection (Internal low-voltage detection)</p> | | | | | | | | | | | | | | | | |
| | | <p>The following symbol should be modified as follows:</p> <p>(Error) *</p> <p>(Correct) ^{*1}</p> | | | | | | | | | | | | | | | | |
| | | <p>Note of Detection voltage should be added as follows:</p> <p>(Correct) Detection voltage ^{*2}</p> <p>*2: The detection voltage of the internal low voltage detection is 0.9V±0.1V. This LVD cannot be used to reliably generate a reset before voltage dips below minimum guaranteed MCU operation voltage, as this detection level is below the minimum guaranteed MCU operation voltage. Below the minimum guaranteed MCU operation voltage, MCU operations are not guaranteed with the exception of LVD.</p> | | | | | | | | | | | | | | | | |
| 233 to 235 | 18. Errata | Limitation for Watch mode (power off) should be added in Errata. | | | | | | | | | | | | | | | | |
| Rev *F | | | | | | | | | | | | | | | | | | |
| 222 | 16. Ordering Information MB91F52xxxE | <p>The shading part added as below.</p> <table border="1"> <thead> <tr> <th>Part number</th> <th>Sub clock</th> <th>CSV Initial value</th> <th>LVD Initial value</th> <th>Package*</th> </tr> </thead> <tbody> <tr> <td>MB91F526LSEPMC</td> <td rowspan="3">None</td> <td>ON</td> <td>ON</td> <td rowspan="3">LQP · 176 pin, Plastic</td> </tr> <tr> <td>MB91F526LHEPMC</td> <td>OFF</td> <td>ON</td> </tr> <tr> <td>MB91F526LKEPMC</td> <td>OFF</td> <td>OFF</td> </tr> </tbody> </table> | Part number | Sub clock | CSV Initial value | LVD Initial value | Package* | MB91F526LSEPMC | None | ON | ON | LQP · 176 pin, Plastic | MB91F526LHEPMC | OFF | ON | MB91F526LKEPMC | OFF | OFF |
| Part number | Sub clock | CSV Initial value | LVD Initial value | Package* | | | | | | | | | | | | | | |
| MB91F526LSEPMC | None | ON | ON | LQP · 176 pin, Plastic | | | | | | | | | | | | | | |
| MB91F526LHEPMC | | OFF | ON | | | | | | | | | | | | | | | |
| MB91F526LKEPMC | | OFF | OFF | | | | | | | | | | | | | | | |

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|--------------------------------|--|---|----|----|----|--------------------------------|-------------------------|--------------------------------------|
| Rev *G | | | | | | | | |
| - | Marketing Part Numbers changed from an MB prefix to a CY prefix. | | | | | | | |
| Rev *H | | | | | | | | |
| 13 | 2. Pin Assignment | <p>The shading part added for LQH080 as below.</p> <table border="1" data-bbox="605 472 748 951"> <tr> <td>34</td> <td>35</td> <td>36</td> </tr> <tr> <td>P072/SIN4_0/AN34/ICU2_2/INT5_0</td> <td>P073/SOT4_0/AN33/ICU3_2</td> <td>P153/SCK5_0/SCU5/AN32/FRCK1_1/INT4_1</td> </tr> </table> | 34 | 35 | 36 | P072/SIN4_0/AN34/ICU2_2/INT5_0 | P073/SOT4_0/AN33/ICU3_2 | P153/SCK5_0/SCU5/AN32/FRCK1_1/INT4_1 |
| 34 | 35 | 36 | | | | | | |
| P072/SIN4_0/AN34/ICU2_2/INT5_0 | P073/SOT4_0/AN33/ICU3_2 | P153/SCK5_0/SCU5/AN32/FRCK1_1/INT4_1 | | | | | | |
| 14 | 2. Pin Assignment | <p>The shading part added for LQI100 as below.</p> <table border="1" data-bbox="605 1003 737 1444"> <tr> <td>42</td> <td>43</td> <td>44</td> </tr> <tr> <td>P072/SIN4_0/AN34/ICU2_2/INT5_0</td> <td>P073/SOT4_0/AN33/ICU3_2</td> <td>P152/SCSS3_0</td> </tr> </table> | 42 | 43 | 44 | P072/SIN4_0/AN34/ICU2_2/INT5_0 | P073/SOT4_0/AN33/ICU3_2 | P152/SCSS3_0 |
| 42 | 43 | 44 | | | | | | |
| P072/SIN4_0/AN34/ICU2_2/INT5_0 | P073/SOT4_0/AN33/ICU3_2 | P152/SCSS3_0 | | | | | | |
| 217 | 16. Ordering Information CY91F52xxxE | <p>The shading part modified as below.</p> <p>Error) LQE • 64 pin, Plastic</p> <p>Correct) LQD • 64 pin, Plastic</p> | | | | | | |

Document History

Document Title: CY91520 Series 32-bit FR81S Microcontroller

Document Number: 002-04662

| Revision | ECN | Orig. of Change | Submission Date | Description of Change |
|----------|-----|-----------------|-----------------|--|
| | - | - | - | Initial release |
| ** | - | - | 2/20/2014 | <p>Features: Corrected the following description. 5V tolerant input: 4 channels ch.6, ch.8, ch.9, ch.11 Automotive input ↓ 5V tolerant input: 4 channels ch.6, ch.8, ch.9, ch.11 CMOS hysteresis input</p> <p>I/O CIRCUIT TYPE: Corrected the following description to "Type F, G, I, J, K, M". Schmitt input → CMOS hysteresis input Corrected the following description to "Type D, E". I²C Schmitt input → I²C hysteresis input</p> <p>Block Diagram Corrected the following description. <ul style="list-style-type: none"> • MB91F522B, MB91F523B, MB91F524B, MB91F525B, MB91F526B • MB91F522D, MB91F523D, MB91F524D, MB91F525D, MB91F526D • MB91F522F, MB91F523F, MB91F524F, MB91F525F, MB91F526F • MB91F522J, MB91F523J, MB91F524J, MB91F525J, MB91F526J • MB91F522K, MB91F523K, MB91F524K, MB91F525K, MB91F526K • MB91F522L, MB91F523L, MB91F524L, MB91F525L, MB91F526L </p> <p>Electrical Characteristics 2. Recommended operating conditions: *1 : When it is used outside recommended operation guarantee range (range of the operation guarantee), contact your sales representative. Moreover, minimum value with an effective external low-voltage detection reset becomes a voltage until generating low-voltage detection reset</p> <p>Electrical Characteristics 3. DC characteristics Corrected the value of "ICCT5 When using sub clock 32kHz TA=+25°C". Max 1420μA → Max 2000μA Corrected the value of "Power supply voltage range". (TA:-40°C to +105°C, Vcc=AVcc=2.7V to 5.5V, VSS=AVSS=0.0V) ↓ (TA:-40°C to +105°C, Vcc=AVcc=5.0V±10%/3.3V±0.3V, VSS=AVSS=0.0V) Corrected the value of "Power supply voltage range". (TA:-40°C to +125°C, Vcc=AVcc=2.7V to 5.5V, VSS=AVSS=0.0V) ↓ (TA:-40°C to +125°C, Vcc=AVcc=5.0V±10%/3.3V±0.3V, VSS=AVSS=0.0V) Corrected the value of " Pull-up resistance R_{UP1}". Vcc=3.3V±0.3V Min 49 Max 140 → Min 45 Max 140 Corrected the following description. Pull-up resistance R_{UP2} Port pin other than P035,041,093,122 → P073,074,076,077 Corrected the value of " Pull-up resistance R_{UP2}".</p> |

| Revision | ECN | Orig. of Change | Submission Date | Description of Change |
|----------|-----|-----------------|-----------------|--|
| | | | | <p>VCC=5.0V±10% Min 25 Max 100 →Min 25 Max 60 VCC=3.3V±0.3V Min 49 Max 140 →Min 33 Max 90</p> <p>Added the value of " Pull-up resistance R_{UP3}". Pin name : Port pin other than P035,041,073,074,076,077,093,122 VCC=5.0V±10% Min 25 Max 100 VCC=3.3V±0.3V Min 45 Max 140</p> <p>Electrical Characteristics 4. AC characteristics (4) Multi-function Serial (4-1) CSIO timing (4-1-1),(4-1-2),(4-1-3),(4-1-4) (4-1-1),(4-1-4)SCK↓⇒SOT delay time t_{SLOVI} (4-1-2),(4-1-3)SCK↑⇒SOT delay time t_{SHOVI}</p> <p>Corrected the following description. Pin name: SCK0 to SCK11 SOT0 to SOT11 Value: Min -30 Max 30 ↓ Pin name: SCK0 to SCK2,SCK5 to SCK11 SOT0 to SOT2,SOT5 to SOT11 Value: Min -30 Max 30 Pin name: SCK3,SCK4 SOT3,SOT4 Value: Min -300 Max 300 (4-1-1),(4-1-4)Valid SIN⇒SCK↑ setup time t_{VSHI} (4-1-2),(4-1-3)Valid SIN⇒SCK↓ setup time t_{VSLI}</p> <p>Corrected the following description. Pin name: SCK0 to SCK11 SIN0 to SIN11 Value: Min 34 Max - ↓ Pin name: SCK0 to SCK2,SCK5 to SCK11 SIN0 to SIN2,SIN5 to SIN11 Value: Min 34 Max - Pin name: SCK3,SCK4,SIN3,SIN4 Value: Min 300 Max - (4-1-1),(4-1-4)SCK↓⇒SOT delay time t_{SLOVE} (4-1-2),(4-1-3)SCK↑⇒SOT delay time t_{SHOVE}</p> <p>Corrected the following description. Pin name: SCK0 to SCK11 SOT0 to SOT11 Value: Min - Max 33 ↓ Pin name: SCK0 to SCK2,SCK5 to SCK11 SOT0 to SOT2,SOT5 to SOT11 Value: Min - Max 33 Pin name: SCK3,SCK4 SOT3,SOT4 Value: Min - Max 300 (4-1-1),(4-1-2),(4-1-3),(4-1-4)SCK fall time t_f Corrected the following description. Pin name: SCK0 to SCK2,SCK5 to SCK11 Value: Min - Max 5 Pin name: SCK3,SCK4 Value: Min - Max 250 ↓ Pin name: SCK0 to SCK11</p> |

| Revision | ECN | Orig. of Change | Submission Date | Description of Change |
|----------|-----|-----------------|-----------------|--|
| | | | | <p>Value: Min - Max 5</p> <p>(4-1-5)SCS↓⇒SCK↓ setup time t_{CSSI}</p> <p>(4-1-6)SCS↓⇒SCK↑ setup time t_{CSSI}</p> <p>(4-1-7)SCS↑⇒SCK↓ setup time t_{CSSI}</p> <p>(4-1-8)SCS↑⇒SCK↑ setup time t_{CSSI}</p> <p>Corrected the following description.</p> <p>Pin name: SCK1 to SCK11</p> <p>SCS1 to SCS3,SCS40 to SCS43,SCS50 to SCS53,SCS60 to SCS63,SCS70 to SCS73,SCS8 to SCS11</p> <p>Value: Min $t_{CSSU}+0$ Max $t_{CSSU}+50$</p> <p>↓</p> <p>Pin name: SCK1,SCK2,SCK5 to SCK11</p> <p>SCS1,SCS2,SCS50 to SCS53,SCS60 to SCS63,SCS70 to SCS73,SCS8 to SCS11</p> <p>Value: Min $t_{CSSU}-50$ Max $t_{CSSU}+0$</p> <p>Pin name: SCK3,SCK4 SCS3,SCS40 to SCS43</p> <p>Value: Min $t_{CSSU}-50$ Max $t_{CSSU}+300$</p> <p>(4-1-5)SCK↑⇒SCS↑hold time t_{CSHI}</p> <p>(4-1-6)SCK↓⇒SCS↑hold time t_{CSHI}</p> <p>(4-1-7)SCK↑⇒SCS↓hold time t_{CSHI}</p> <p>(4-1-8)SCK↓⇒SCS↓hold time t_{CSHI}</p> <p>Corrected the following description.</p> <p>Pin name: SCK1 to SCK11</p> <p>SCS1 to SCS3,SCS40 to SCS43,SCS50 to SCS53,SCS60 to SCS63,SCS70 to SCS73,SCS8 to SCS11</p> <p>Value: Min $t_{CSHD}-50$ Max $t_{CSHD}+0$</p> <p>↓</p> <p>Pin name: SCK1,SCK2,SCK5 to SCK11</p> <p>SCS1,SCS2,SCS50 to SCS53,SCS60 to SCS63,SCS70 to SCS73,SCS8 to SCS11</p> <p>Value: Min $t_{CSHD}-10$ Max $t_{CSHD}+50$</p> <p>Pin name: SCK3,SCK4 SCS3,SCS40 to SCS43</p> <p>Value: Min $t_{CSHD}-300$ Max $t_{CSHD}+50$</p> <p>(4-1-5),(4-1-6)SCS↓⇒SOT delay time t_{DSE}</p> <p>(4-1-7),(4-1-8)SCS↑⇒SOT delay time t_{DSE}</p> <p>Corrected the following description.</p> <p>Pin name: SCS1 to SCS3,SCS40 to SCS43,SCS50 to SCS53,SCS60 to SCS63,SCS70 to SCS73,SCS8 to SCS11</p> <p>SOT1 to SOT11</p> <p>Value: Min - Max 40</p> <p>↓</p> <p>Pin name: SCS1,SCS2,SCS50 to SCS53,SCS60 to SCS63,SCS70 to SCS73,SCS8 to SCS11</p> <p>SOT1,SOT2,SOT5 to SOT11</p> <p>Value: Min - Max 40</p> <p>Pin name: SCS3,SCS40 to SCS43</p> <p>SOT3,SOT4</p> <p>Value: Min - Max 300</p> <p>(4-1-5)SCK↓⇒SCS↓ clock switch time t_{SCC}</p> <p>(4-1-6)SCK↑⇒SCS↓ clock switch time t_{SCC}</p> <p>(4-1-7)SCK↓⇒SCS↑ clock switch time t_{SCC}</p> <p>(4-1-8)SCK↑⇒SCS↑ clock switch time t_{SCC}</p> <p>Corrected the following description.</p> <p>Pin name: SCK1 to SCK11</p> <p>SCS1 to SCS3,SCS40 to SCS43,SCS50 to SCS53,SCS60 to SCS63,SCS70 to SCS73,SCS8 to SCS11</p> |

| Revision | ECN | Orig. of Change | Submission Date | Description of Change |
|----------|-----|-----------------|-----------------|---|
| | | | | <p>Value: Min $3t_{CPP}+0$ Max $3t_{CPP}+50$ ↓ Pin name: SCK1,SCK2,SCK5 to SCK11 SCS1,SCS2,SCS50 to SCS53,SCS60 to SCS63,SCS70 to SCS73,SCS8 to SCS11 Value: Min $3t_{CPP}-10$ Max $3t_{CPP}+50$ Pin name: SCK3,SCK4 SCS3,SCS40 to SCS43 Value: Min $3t_{CPP}-300$ Max $3t_{CPP}+50$ Added the following description. Regardless of the deselect time setting, once after the serial chip select pin becomes inactive, it will take at least five peripheral bus clock cycles to be active again</p> <p>Electrical Characteristics 5.A/D Converter (1) 12-bit A/D Converter Electrical Characteristics: Added the value of "Total error". Total error value Min – Typ – Max ± 12 LSB Corrected the value of "Zero transition voltage". Min AVRL+0.5LSB-20mV Max AVRL+0.5LSB+20mV ↓ Min AVRL-11.5LSB Max AVRL+12.5LSB Corrected the value of "Full-scale transition voltage". Min AVRH-1.5LSB-20mV Max AVRH-1.5LSB+20mV ↓ Min AVRH-13.5LSB Max AVRH+10.5LSB Added the following description. Parameter : Power supply current $I_A AVCC^*3$ *3: The power supply current described only current value on A/D converter. The total AVcc current value must be calculated the power supply current for A/D converter and D/A converter.</p> <p>Electrical Characteristics 7.D/A Converter: Added the following description. Parameter : Power supply current *1 *1: The power supply current described only current value on D/A converter.The total Avcc current value must be calculated the power supply current for D/A converter and A/D converter.</p> <p>Electrical Characteristics 6.Flash memory: Parameter: Erase cycle*2/Data retain time Deleted the following description. Remarks : "Temperature at writing/erasing $T_j < +105^{\circ}C$"</p> <p>Electrical Characteristics 7.D/A Converter: Corrected the following description. Parameter : Power supply current Symbol IA Pin name AV_{CC} Symbol IAH Pin name AV_{CC} ↓ Symbol IA Pin name AV_{CC}</p> |

| Revision | ECN | Orig. of Change | Submission Date | Description of Change |
|----------|---------|-----------------|-----------------|--|
| | | | | <p>Symbol IAH Pin name AVCC</p> <p>Example Characteristics Corrected the following description. Watch mode</p> <p>Ordering Information Corrected the following description.</p> <ul style="list-style-type: none"> ORDERING INFORMATION <ul style="list-style-type: none"> ↓ ORDERING INFORMATION MB91F52xxxB^{*1} <p>Package <ul style="list-style-type: none"> ↓ Package^{*2} <p>Added the following description. *1: It is only supported for customers who have already adopted it now. We do not recommend adopting new products.</p> <p>Corrected the following description. For details of the package, see "■ PACKAGE DIMENSIONS".</p> <ul style="list-style-type: none"> ↓ *2: For details of the package, see "■ PACKAGE DIMENSIONS". <p>Added the following description.</p> <ul style="list-style-type: none"> ORDERING INFORMATION MB91F52xxxC <p>Company name and layout design change</p> </p> |
| *A | 4999456 | JHMU | 11/13/2015 | <p>Updated to Cypress template.</p> <p>Added the following note to the remarks of "'L' level average output current" and "'H' level average output current" in "Absolute Maximum Ratings" of "ELECTRICAL CHARACTERISTICS".</p> <p>*9: Corresponding pins: General-purpose ports other than those of P103, P104, P105 and P106.</p> <p>*10: Corresponding pins: General-purpose ports of P103, P104, P105 and P106.</p> <p>Added Errata section.</p> |
| *B | 5112138 | KUME | 01/28/2016 | <p>Fixed some clerical errors.</p> <p>For details, please see the chapter 18. Major Changes.</p> |
| *C | 5196285 | KUME | 04/28/2016 | <p>For details, please see the chapter 19. Major Changes.</p> |
| *D | 5318862 | KUME | 06/23/2016 | <p>For details, please see the chapter 19. Major Changes.</p> |
| *E | 5711679 | AESATMP7 | 04/25/2017 | <p>Updated Cypress Logo and Copyright.</p> |
| *F | 5984090 | KUME | 12/05/2017 | <p>For details, please see the chapter 19. Major Changes.</p> |
| *G | 5990912 | KUME | 12/12/2017 | <p>Marketing Part Numbers changed from an MB prefix to a CY prefix.</p> |
| *H | 6216567 | KUME | 06/25/2018 | <p>Fixed LQD064 package for Ordering Information CY91F52xxxE.</p> <p>For details, please see the chapter 19. Major Changes.</p> |

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