Renesas Electronics America Inc - R5F562TABDFK#V1 Datasheet

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"Embedded - Microcontrollers" refer to small, integrated circuits designed to perform specific tasks within larger systems. These microcontrollers are essentially compact computers on a single chip, containing a processor core, memory, and programmable input/output peripherals. They are called "embedded" because they are embedded within electronic devices to control various functions, rather than serving as standalone computers. Microcontrollers are crucial in modern electronics, providing the intelligence and control needed for a wide range of applications.

Applications of "Embedded - Microcontrollers"

Details	
Product Status	Discontinued at Digi-Key
Core Processor	RX
Core Size	32-Bit Single-Core
Speed	100MHz
Connectivity	CANbus, I²C, LINbus, SCI, SPI
Peripherals	DMA, LVD, POR, PWM, WDT
Number of I/O	37
Program Memory Size	256KB (256K x 8)
Program Memory Type	FLASH
EEPROM Size	-
RAM Size	16K x 8
Voltage - Supply (Vcc/Vdd)	2.7V ~ 3.6V
Data Converters	A/D 8x12b
Oscillator Type	Internal
Operating Temperature	-40°C ~ 85°C (TA)
Mounting Type	Surface Mount
Package / Case	64-LQFP
Supplier Device Package	64-LQFP (14x14)
Purchase URL	https://www.e-xfl.com/product-detail/renesas-electronics-america/r5f562tabdfk-v1

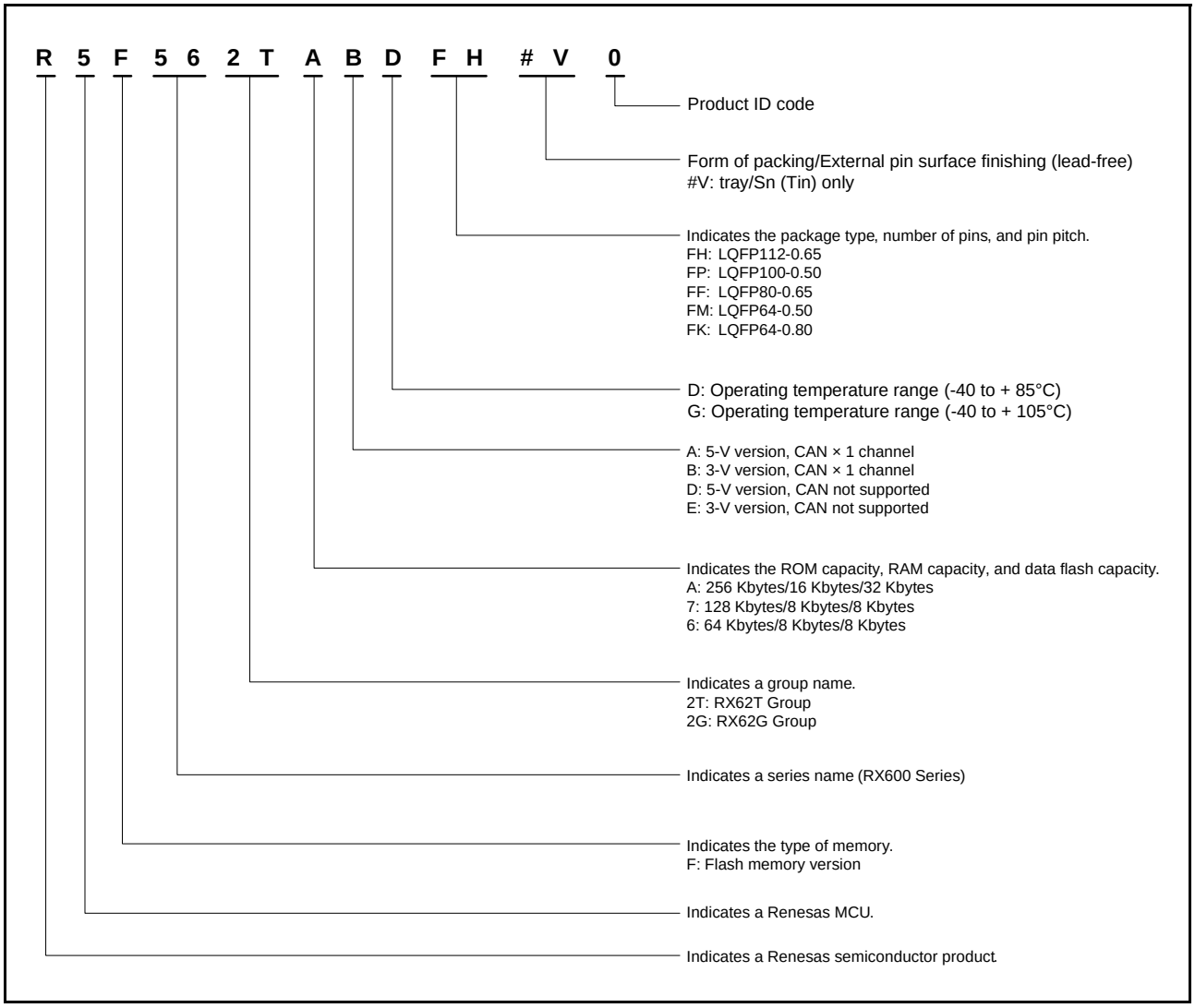
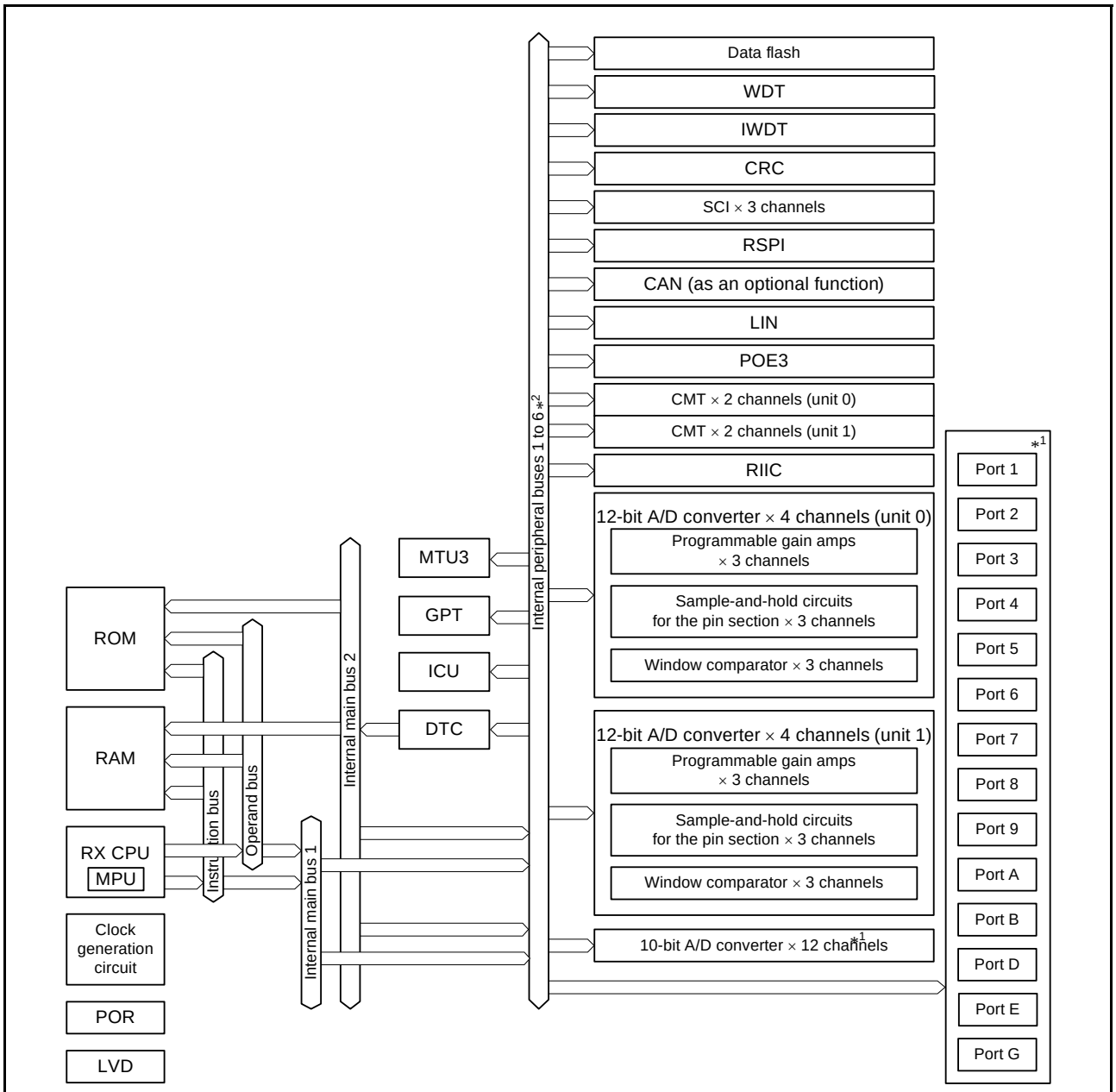


Figure 1.1 How to Read the Product Part No.

1.3 Block Diagram

Figure 1.2 shows a block diagram.



[Legend]

POR:	Power-on reset circuit	CAN:	CAN module
DTC:	Data transfer controller	LIN:	LIN module
MTU3:	Multi-function timer pulse unit 3	RSPI:	Renesas serial peripheral interface
POE3:	Port output enable 3	LVD:	Voltage detection circuit
GPT:	General PWM timer	ICU:	Interrupt controller
CMT:	Compare match timer	WDT:	Watchdog timer
SCI:	Serial communications interface	IWDT:	Independent watchdog timer
RIIC:	I^2C bus interface	CRC:	CRC (cyclic redundancy check) calculator
MPU:	Memory-Protection Unit		

Notes: 1. The installation of the 10-bit A/D converter and ports 1 to G is different depending on the package.
2. For details on the internal peripheral bus configuration, see section 12, Buses in the User's manual: Hardware.

Figure 1.2 Block Diagram

Table 1.8 List of Pins and Pin Functions (64-Pin LQFP) (2 / 2)

Pin No. (64-Pin LQFP)	Power Supply Clock System Control	I/O Port	Analog	Timer	Communi-cation	Interrupt	POE	Debuggi ng
40		P33		MTIOC3A/ MTCLKA-A	SSL3-A			
41		P32		MTIOC3C/ MTCLKB-A	SSL2-A			
42	VCC							
43		P31		MTIOC0A-B/ MTCLKC-A	SSL1-A			
44	VSS							
45		P30		MTIOC0B-B/ MTCLKD-A	SSL0-A			
46		P24			RSPCK-A			
47		P23			CTX-B/ LTX/ MOSI-A			
48		P22			CRX-B/ LRX/ MISO-A			
49		P47	AN103/ CVREFH					
50		P46	AN102					
51		P45	AN101					
52		P44	AN100					
53		P43	AN003/ CVREFL					
54		P42	AN002					
55		P41	AN001					
56		P40	AN000					
57	AVCC0							
58	VREFH0							
59	VREFL0							
60	AVSS0							
61		P11		MTCLKC-B		IRQ1-A		
62		P10		MTCLKD-B		IRQ0-A		
63		PA5	ADTRG1#-A	MTIOC1A	MISO-B			
64		PA4	ADTRG0#-A	MTIOC1B	RSPCK-B			

Table 1.9 Pin Functions (4 / 4)

Classifications	Pin Name	I/O	Description
I/O ports	P10, P11	I/O	2-bit input/output pins.
	P20 to P24	I/O	5-bit input/output pins. The P20/P21 pin is not included in the 64-pin version.
	P30 to P33	I/O	4-bit input/output pins.
	P40 to P47	Input	8-bit input pins.
	P50 to P55	Input	6-bit input pins. Not included in the 80-/64-pin versions.
	P60 to P65	Input	6-bit input pins. The P64/P6 pin is not included in the 80-pin version. Not included in the 64-pin version.
	P70 to P76	I/O	7-bit input/output pins.
	P80 to P82	I/O	3-bit input/output pins. Not included in the 80-/64-pin versions.
	P90 to P96	I/O	7-bit input/output pins. The P90 pin is not included in the 80-pin version. The P90/P95/P96 pin is not included in the 64-pin version.
	PA0 to PA5	I/O	6-bit input/output pins. The PA0/PA1 pin is not included in the 80-/64-pin versions.
	PB0 to PB7	I/O	8-bit input/output pins.
	PD0 to PD7	I/O	8-bit input/output pins. The PD0/PD1/PD2 pin is not included in the 80-/64-pin versions.
	PE0, PE1, PE3 to PE5	I/O	5-bit input/output pins. The PE1/PE5 pin is not included in the 80-pin version. Not included in the 64-pin version.
	PE2	Input	1-bit input pin.
	PG0 to PG5	I/O	6-bit input/output pins. Not included in the 100-/80-/64-pin versions.

Note: • Which pins are and are not incorporated depends on the package.
For details, see the list of pins and pin functions in Table 1.4 to Table 1.8.

Table 4.1 List of I/O Registers (Address Order) (2 / 25)

Address	Module Abbreviation	Register Name	Register Abbreviation	Number of Bits	Access Size	Number of Access Cycles
0008 6526h	MPU	Region invalidation operation register	MPOPI	16	16	1 ICLK
0008 6528h	MPU	Instruction-hit region register	MHITI	32	32	1 ICLK
0008 652Ch	MPU	Data-hit region register	MHITD	32	32	1 ICLK
0008 7010h	ICU	Interrupt request register 016	IR016	8	8	2 ICLK
0008 7015h	ICU	Interrupt request register 021	IR021	8	8	2 ICLK
0008 7017h	ICU	Interrupt request register 023	IR023	8	8	2 ICLK
0008 701Bh	ICU	Interrupt request register 027	IR027	8	8	2 ICLK
0008 701Ch	ICU	Interrupt request register 028	IR028	8	8	2 ICLK
0008 701Dh	ICU	Interrupt request register 029	IR029	8	8	2 ICLK
0008 701Eh	ICU	Interrupt request register 030	IR030	8	8	2 ICLK
0008 701Fh	ICU	Interrupt request register 031	IR031	8	8	2 ICLK
0008 702Ch	ICU	Interrupt request register 044	IR044	8	8	2 ICLK
0008 702Dh	ICU	Interrupt request register 045	IR045	8	8	2 ICLK
0008 702Eh	ICU	Interrupt request register 046	IR046	8	8	2 ICLK
0008 702Fh	ICU	Interrupt request register 047	IR047	8	8	2 ICLK
0008 7038h	ICU	Interrupt request register 056	IR056	8	8	2 ICLK
0008 7039h	ICU	Interrupt request register 057	IR057	8	8	2 ICLK
0008 703Ah	ICU	Interrupt request register 058	IR058	8	8	2 ICLK
0008 703Bh	ICU	Interrupt request register 059	IR059	8	8	2 ICLK
0008 703Ch	ICU	Interrupt request register 060	IR060	8	8	2 ICLK
0008 7040h	ICU	Interrupt request register 064	IR064	8	8	2 ICLK
0008 7041h	ICU	Interrupt request register 065	IR065	8	8	2 ICLK
0008 7042h	ICU	Interrupt request register 066	IR066	8	8	2 ICLK
0008 7043h	ICU	Interrupt request register 067	IR067	8	8	2 ICLK
0008 7044h	ICU	Interrupt request register 068	IR068	8	8	2 ICLK
0008 7045h	ICU	Interrupt request register 069	IR069	8	8	2 ICLK
0008 7046h	ICU	Interrupt request register 070	IR070	8	8	2 ICLK
0008 7047h	ICU	Interrupt request register 071	IR071	8	8	2 ICLK
0008 7060h	ICU	Interrupt request register 096	IR096	8	8	2 ICLK
0008 7062h	ICU	Interrupt request register 098	IR098	8	8	2 ICLK
0008 7066h	ICU	Interrupt request register 102	IR102	8	8	2 ICLK
0008 7067h	ICU	Interrupt request register 103	IR103	8	8	2 ICLK
0008 706Ah	ICU	Interrupt request register 106	IR106	8	8	2 ICLK
0008 7072h	ICU	Interrupt request register 114	IR114	8	8	2 ICLK
0008 7073h	ICU	Interrupt request register 115	IR115	8	8	2 ICLK
0008 7074h	ICU	Interrupt request register 116	IR116	8	8	2 ICLK
0008 7075h	ICU	Interrupt request register 117	IR117	8	8	2 ICLK
0008 7076h	ICU	Interrupt request register 118	IR118	8	8	2 ICLK
0008 7077h	ICU	Interrupt request register 119	IR119	8	8	2 ICLK
0008 7078h	ICU	Interrupt request register 120	IR120	8	8	2 ICLK
0008 7079h	ICU	Interrupt request register 121	IR121	8	8	2 ICLK
0008 707Ah	ICU	Interrupt request register 122	IR122	8	8	2 ICLK
0008 707Bh	ICU	Interrupt request register 123	IR123	8	8	2 ICLK
0008 707Ch	ICU	Interrupt request register 124	IR124	8	8	2 ICLK

Table 4.1 List of I/O Registers (Address Order) (3 / 25)

Address	Module Abbreviation	Register Name	Register Abbreviation	Number of Bits	Access Size	Number of Access Cycles
0008 707Dh	ICU	Interrupt request register 125	IR125	8	8	2 ICLK
0008 707Eh	ICU	Interrupt request register 126	IR126	8	8	2 ICLK
0008 707Fh	ICU	Interrupt request register 127	IR127	8	8	2 ICLK
0008 7080h	ICU	Interrupt request register 128	IR128	8	8	2 ICLK
0008 7081h	ICU	Interrupt request register 129	IR129	8	8	2 ICLK
0008 7082h	ICU	Interrupt request register 130	IR130	8	8	2 ICLK
0008 7083h	ICU	Interrupt request register 131	IR131	8	8	2 ICLK
0008 7084h	ICU	Interrupt request register 132	IR132	8	8	2 ICLK
0008 7085h	ICU	Interrupt request register 133	IR133	8	8	2 ICLK
0008 7086h	ICU	Interrupt request register 134	IR134	8	8	2 ICLK
0008 7087h	ICU	Interrupt request register 135	IR135	8	8	2 ICLK
0008 7088h	ICU	Interrupt request register 136	IR136	8	8	2 ICLK
0008 7089h	ICU	Interrupt request register 137	IR137	8	8	2 ICLK
0008 708Ah	ICU	Interrupt request register 138	IR138	8	8	2 ICLK
0008 708Bh	ICU	Interrupt request register 139	IR139	8	8	2 ICLK
0008 708Ch	ICU	Interrupt request register 140	IR140	8	8	2 ICLK
0008 708Dh	ICU	Interrupt request register 141	IR141	8	8	2 ICLK
0008 708Eh	ICU	Interrupt request register 142	IR142	8	8	2 ICLK
0008 708Fh	ICU	Interrupt request register 143	IR143	8	8	2 ICLK
0008 7090h	ICU	Interrupt request register 144	IR144	8	8	2 ICLK
0008 7091h	ICU	Interrupt request register 145	IR145	8	8	2 ICLK
0008 7092h	ICU	Interrupt request register 146	IR146	8	8	2 ICLK
0008 7095h	ICU	Interrupt request register 149	IR149	8	8	2 ICLK
0008 7096h	ICU	Interrupt request register 150	IR150	8	8	2 ICLK
0008 7097h	ICU	Interrupt request register 151	IR151	8	8	2 ICLK
0008 7098h	ICU	Interrupt request register 152	IR152	8	8	2 ICLK
0008 7099h	ICU	Interrupt request register 153	IR153	8	8	2 ICLK
0008 70AAh	ICU	Interrupt request register 170	IR170	8	8	2 ICLK
0008 70ABh	ICU	Interrupt request register 171	IR171	8	8	2 ICLK
0008 70ACh	ICU	Interrupt request register 172	IR172	8	8	2 ICLK
0008 70ADh	ICU	Interrupt request register 173	IR173	8	8	2 ICLK
0008 70AEh	ICU	Interrupt request register 174	IR174	8	8	2 ICLK
0008 70AFh	ICU	Interrupt request register 175	IR175	8	8	2 ICLK
0008 70B0h	ICU	Interrupt request register 176	IR176	8	8	2 ICLK
0008 70B1h	ICU	Interrupt request register 177	IR177	8	8	2 ICLK
0008 70B2h	ICU	Interrupt request register 178	IR178	8	8	2 ICLK
0008 70B3h	ICU	Interrupt request register 179	IR179	8	8	2 ICLK
0008 70B4h	ICU	Interrupt request register 180	IR180	8	8	2 ICLK
0008 70B5h	ICU	Interrupt request register 181	IR181	8	8	2 ICLK
0008 70B6h	ICU	Interrupt request register 182	IR182	8	8	2 ICLK
0008 70B7h	ICU	Interrupt request register 183	IR183	8	8	2 ICLK
0008 70B8h	ICU	Interrupt request register 184	IR184	8	8	2 ICLK
0008 70BAh	ICU	Interrupt request register 186	IR186	8	8	2 ICLK
0008 70BBh	ICU	Interrupt request register 187	IR187	8	8	2 ICLK

Table 4.1 List of I/O Registers (Address Order) (5 / 25)

Address	Module Abbreviation	Register Name	Register Abbreviation	Number of Bits	Access Size	Number of Access Cycles
0008 7172h	ICU	DTC activation enable register 114	DTCER114	8	8	2 ICLK
0008 7173h	ICU	DTC activation enable register 115	DTCER115	8	8	2 ICLK
0008 7174h	ICU	DTC activation enable register 116	DTCER116	8	8	2 ICLK
0008 7175h	ICU	DTC activation enable register 117	DTCER117	8	8	2 ICLK
0008 7179h	ICU	DTC activation enable register 121	DTCER121	8	8	2 ICLK
0008 717Ah	ICU	DTC activation enable register 122	DTCER122	8	8	2 ICLK
0008 717Dh	ICU	DTC activation enable register 125	DTCER125	8	8	2 ICLK
0008 717Eh	ICU	DTC activation enable register 126	DTCER126	8	8	2 ICLK
0008 7181h	ICU	DTC activation enable register 129	DTCER129	8	8	2 ICLK
0008 7182h	ICU	DTC activation enable register 130	DTCER130	8	8	2 ICLK
0008 7183h	ICU	DTC activation enable register 131	DTCER131	8	8	2 ICLK
0008 7184h	ICU	DTC activation enable register 132	DTCER132	8	8	2 ICLK
0008 7186h	ICU	DTC activation enable register 134	DTCER134	8	8	2 ICLK
0008 7187h	ICU	DTC activation enable register 135	DTCER135	8	8	2 ICLK
0008 7188h	ICU	DTC activation enable register 136	DTCER136	8	8	2 ICLK
0008 7189h	ICU	DTC activation enable register 137	DTCER137	8	8	2 ICLK
0008 718Ah	ICU	DTC activation enable register 138	DTCER138	8	8	2 ICLK
0008 718Bh	ICU	DTC activation enable register 139	DTCER139	8	8	2 ICLK
0008 718Ch	ICU	DTC activation enable register 140	DTCER140	8	8	2 ICLK
0008 718Dh	ICU	DTC activation enable register 141	DTCER141	8	8	2 ICLK
0008 718Eh	ICU	DTC activation enable register 142	DTCER142	8	8	2 ICLK
0008 718Fh	ICU	DTC activation enable register 143	DTCER143	8	8	2 ICLK
0008 7190h	ICU	DTC activation enable register 144	DTCER144	8	8	2 ICLK
0008 7191h	ICU	DTC activation enable register 145	DTCER145	8	8	2 ICLK
0008 7195h	ICU	DTC activation enable register 149	DTCER149	8	8	2 ICLK
0008 7196h	ICU	DTC activation enable register 150	DTCER150	8	8	2 ICLK
0008 7197h	ICU	DTC activation enable register 151	DTCER151	8	8	2 ICLK
0008 7198h	ICU	DTC activation enable register 152	DTCER152	8	8	2 ICLK
0008 7199h	ICU	DTC activation enable register 153	DTCER153	8	8	2 ICLK
0008 71AEh	ICU	DTC activation enable register 174	DTCER174	8	8	2 ICLK
0008 71AFh	ICU	DTC activation enable register 175	DTCER175	8	8	2 ICLK
0008 71B0h	ICU	DTC activation enable register 176	DTCER176	8	8	2 ICLK
0008 71B1h	ICU	DTC activation enable register 177	DTCER177	8	8	2 ICLK
0008 71B2h	ICU	DTC activation enable register 178	DTCER178	8	8	2 ICLK
0008 71B3h	ICU	DTC activation enable register 179	DTCER179	8	8	2 ICLK
0008 71B4h	ICU	DTC activation enable register 180	DTCER180	8	8	2 ICLK
0008 71B5h	ICU	DTC activation enable register 181	DTCER181	8	8	2 ICLK
0008 71B6h	ICU	DTC activation enable register 182	DTCER182	8	8	2 ICLK
0008 71B7h	ICU	DTC activation enable register 183	DTCER183	8	8	2 ICLK
0008 71B8h	ICU	DTC activation enable register 184	DTCER184	8	8	2 ICLK
0008 71BAh	ICU	DTC activation enable register 186	DTCER186	8	8	2 ICLK
0008 71BBh	ICU	DTC activation enable register 187	DTCER187	8	8	2 ICLK
0008 71BCh	ICU	DTC activation enable register 188	DTCER188	8	8	2 ICLK
0008 71BDh	ICU	DTC activation enable register 189	DTCER189	8	8	2 ICLK

Table 4.1 List of I/O Registers (Address Order) (10 / 25)

Address	Module Abbreviation	Register Name	Register Abbreviation	Number of Bits	Access Size	Number of Access Cycles
0008 8250h	SCI2	Serial mode register	SMR*1	8	8	2, 3 PCLK*3
0008 8251h	SCI2	Bit rate register	BRR	8	8	2, 3 PCLK*3
0008 8252h	SCI2	Serial control register	SCR*1	8	8	2, 3 PCLK*3
0008 8253h	SCI2	Transmit data register	TDR	8	8	2, 3 PCLK*3
0008 8254h	SCI2	Serial status register	SSR*1	8	8	2, 3 PCLK*3
0008 8255h	SCI2	Receive data register	RDR	8	8	2, 3 PCLK*3
0008 8256h	SCI2	Smart card mode register	SCMR	8	8	2, 3 PCLK*3
0008 8257h	SCI2	Serial extended mode register	SEMR	8	8	2, 3 PCLK*3
0008 8250h	SMCI2	Serial mode register	SMR*1	8	8	2, 3 PCLK*3
0008 8251h	SMCI2	Bit rate register	BRR	8	8	2, 3 PCLK*3
0008 8252h	SMCI2	Serial control register	SCR*1	8	8	2, 3 PCLK*3
0008 8253h	SMCI2	Transmit data register	TDR	8	8	2, 3 PCLK*3
0008 8254h	SMCI2	Serial status register	SSR*1	8	8	2, 3 PCLK*3
0008 8255h	SMCI2	Receive data register	RDR	8	8	2, 3 PCLK*3
0008 8256h	SMCI2	Smart card mode register	SCMR	8	8	2, 3 PCLK*3
0008 8280h	CRC	CRC control register	CRCCR	8	8	2, 3 PCLK*3
0008 8281h	CRC	CRC data input register	CRCDIR	8	8	2, 3 PCLK*3
0008 8282h	CRC	CRC data output register	CRCDOR	16	16	2, 3 PCLK*3
0008 8300h	RIIC	I2C bus control register 1	ICCR1	8	8	2, 3 PCLK*3
0008 8301h	RIIC	I2C bus control register 2	ICCR2	8	8	2, 3 PCLK*3
0008 8302h	RIIC	I2C bus mode register 1	ICMR1	8	8	2, 3 PCLK*3
0008 8303h	RIIC	I2C bus mode register 2	ICMR2	8	8	2, 3 PCLK*3
0008 8304h	RIIC	I2C bus mode register 3	ICMR3	8	8	2, 3 PCLK*3
0008 8305h	RIIC	I2C bus function enable register	ICFER	8	8	2, 3 PCLK*3
0008 8306h	RIIC	I2C bus status enable register	ICSER	8	8	2, 3 PCLK*3
0008 8307h	RIIC	I2C bus interrupt enable register	ICIER	8	8	2, 3 PCLK*3
0008 8308h	RIIC	I2C bus status register 1	ICSR1	8	8	2, 3 PCLK*3
0008 8309h	RIIC	I2C bus status register 2	ICSR2	8	8	2, 3 PCLK*3
0008 830Ah	RIIC	Slave address register L0	SARL0	8	8	2, 3 PCLK*3
0008 830Ah	RIIC	Internal counter L for timeout	TMOCNTL	8	8	2, 3 PCLK*3
0008 830Bh	RIIC	Slave address register U0	SARU0	8	8	2, 3 PCLK*3
0008 830Bh	RIIC	Internal counter U for timeout	TMOCNTU	8	8	2, 3 PCLK*3
0008 830Bh	RIIC	Slave address register U0	SARU0	8	8	2, 3 PCLK*3
0008 830Ch	RIIC	Slave address register L1	SARL1	8	8	2, 3 PCLK*3
0008 830Dh	RIIC	Slave address register U1	SARU1	8	8	2, 3 PCLK*3
0008 830Eh	RIIC	Slave address register L2	SARL2	8	8	2, 3 PCLK*3
0008 830Fh	RIIC	Slave address register U2	SARU2	8	8	2, 3 PCLK*3
0008 8310h	RIIC	I2C bus bit rate low-level register	ICBRL	8	8	2, 3 PCLK*3
0008 8311h	RIIC	I2C bus bit rate high-level register	ICBRH	8	8	2, 3 PCLK*3
0008 8312h	RIIC	I2C bus transmit data register	ICDRT	8	8	2, 3 PCLK*3
0008 8313h	RIIC	I2C bus receive data register	ICDRR	8	8	2, 3 PCLK*3
0008 8380h	RSPI	RSPI control register	SPCR	8	8	2, 3 PCLK*3
0008 8381h	RSPI	RSPI slave select polarity register	SSLP	8	8	2, 3 PCLK*3
0008 8382h	RSPI	RSPI pin control register	SPPCR	8	8	2, 3 PCLK*3

Table 4.1 List of I/O Registers (Address Order) (11 / 25)

Address	Module Abbreviation	Register Name	Register Abbreviation	Number of Bits	Access Size	Number of Access Cycles
0008 8383h	RSPI	RSPI status register	SPSR	8	8	2, 3 PCLK*3
0008 8384h	RSPI	RSPI data register	SPDR	16, 32	16, 32	2, 3 PCLK*3
0008 8388h	RSPI	RSPI sequence control register	SPSCR	8	8	2, 3 PCLK*3
0008 8389h	RSPI	RSPI sequence status register	SPSSR	8	8	2, 3 PCLK*3
0008 838Ah	RSPI	RSPI bit rate register	SPBR	8	8	2, 3 PCLK*3
0008 838Bh	RSPI	RSPI data control register	SPDCR	8	8	2, 3 PCLK*3
0008 838Ch	RSPI	RSPI clock delay register	SPCKD	8	8	2, 3 PCLK*3
0008 838Dh	RSPI	RSPI slave select negation delay register	SSLND	8	8	2, 3 PCLK*3
0008 838Eh	RSPI	RSPI next-access delay register	SPND	8	8	2, 3 PCLK*3
0008 838Fh	RSPI	RSPI control register 2	SPCR2	8	8	2, 3 PCLK*3
0008 8390h	RSPI	RSPI command register 0	SPCMD0	16	16	2, 3 PCLK*3
0008 8392h	RSPI	RSPI command register 1	SPCMD1	16	16	2, 3 PCLK*3
0008 8394h	RSPI	RSPI command register 2	SPCMD2	16	16	2, 3 PCLK*3
0008 8396h	RSPI	RSPI command register 3	SPCMD3	16	16	2, 3 PCLK*3
0008 8398h	RSPI	RSPI command register 4	SPCMD4	16	16	2, 3 PCLK*3
0008 839Ah	RSPI	RSPI command register 5	SPCMD5	16	16	2, 3 PCLK*3
0008 839Ch	RSPI	RSPI command register 6	SPCMD6	16	16	2, 3 PCLK*3
0008 839Eh	RSPI	RSPI command register 7	SPCMD7	16	16	2, 3 PCLK*3
0008 9000h	S12AD0	A/D control register	ADCSR	8	8	2, 3 PCLK*3
0008 9004h	S12AD0	A/D channel select register	ADANS	16	16	2, 3 PCLK*3
0008 900Ah	S12AD0	A/D programmable gain amplifier register	ADPG	16	16	2, 3 PCLK*3
0008 900Eh	S12AD0	A/D control extended register	ADCER	16	16	2, 3 PCLK*3
0008 9010h	S12AD0	A/D start trigger select register	ADSTRGR	16	16	2, 3 PCLK*3
0008 9012h	S12AD	Comparator operating mode select register 0	ADCMPMD0	16	16	2, 3 PCLK*3
0008 9014h	S12AD	Comparator operating mode select register 1	ADCMPMD1	16	16	2, 3 PCLK*3
0008 9016h	S12AD	Comparator filter mode register 0	ADCMPNR0	16	16	2, 3 PCLK*3
0008 9018h	S12AD	Comparator filter mode register 1	ADCMPNR1	16	16	2, 3 PCLK*3
0008 901Ah	S12AD	Comparator detection flag register	ADCMPFR	8	8	2, 3 PCLK*3
0008 901Ch	S12AD	Comparator interrupt select register	ADCMPSEL	16	16	2, 3 PCLK*3
0008 901Eh	S12AD0	A/D data register Diag	ADRD	16	16	2, 3 PCLK*3
0008 9020h	S12AD0	A/D data register 0A	ADDR0A	16	16	2, 3 PCLK*3
0008 9022h	S12AD0	A/D data register 1	ADDR1	16	16	2, 3 PCLK*3
0008 9024h	S12AD0	A/D data register 2	ADDR2	16	16	2, 3 PCLK*3
0008 9026h	S12AD0	A/D data register 3	ADDR3	16	16	2, 3 PCLK*3
0008 9030h	S12AD0	A/D data register 0B	ADDR0B	16	16	2, 3 PCLK*3
0008 9060h	S12AD0	A/D sampling state register	ADSSTR	8	8	2, 3 PCLK*3
0008 9080h	S12AD1	A/D control register	ADCSR	8	8	2, 3 PCLK*3
0008 9084h	S12AD1	A/D channel select register	ADANS	16	16	2, 3 PCLK*3
0008 908Ah	S12AD1	A/D programmable gain amplifier register	ADPG	16	16	2, 3 PCLK*3
0008 908Eh	S12AD1	A/D control extended register	ADCER	16	16	2, 3 PCLK*3
0008 9090h	S12AD1	A/D start trigger select register	ADSTRGR	16	16	2, 3 PCLK*3
0008 909Eh	S12AD1	A/D data register Diag	ADRD	16	16	2, 3 PCLK*3
0008 90A0h	S12AD1	A/D data register 0A	ADDR0A	16	16	2, 3 PCLK*3
0008 90A2h	S12AD1	A/D data register 1	ADDR1	16	16	2, 3 PCLK*3

Table 4.1 List of I/O Registers (Address Order) (15 / 25)

Address	Module Abbreviation	Register Name	Register Abbreviation	Number of Bits	Access Size	Number of Access Cycles
0009 041Ch	CAN0*2	Mask register 7	MKR7	32	8, 16, 32	2, 3 PCLK*3
0009 0420h	CAN0*2	FIFO received ID compare register 0	FIDCR0	32	8, 16, 32	2, 3 PCLK*3
0009 0424h	CAN0*2	FIFO received ID compare register 1	FIDCR1	32	8, 16, 32	2, 3 PCLK*3
0009 0428h	CAN0*2	Mask invalid register	MKIVLR	32	8, 16, 32	2, 3 PCLK*3
0009 042Ch	CAN0*2	Mailbox interrupt enable register	MIER	32	8, 16, 32	2, 3 PCLK*3
0009 0820h to 0009 083Fh	CAN0*2	Message control registers 0 to 31	MCTL0 to MCTL31	8	8	2, 3 PCLK*3
0009 0840h	CAN0*2	Control register	CTLR	16	8, 16	2, 3 PCLK*3
0009 0842h	CAN0*2	Status register	STR	16	8, 16	2, 3 PCLK*3
0009 0844h	CAN0*2	Bit configuration register	BCR	32	8, 16, 32	2, 3 PCLK*3
0009 0848h	CAN0*2	Receive FIFO control register	RFCR	8	8	2, 3 PCLK*3
0009 0849h	CAN0*2	Receive FIFO pointer control register	RFPCR	8	8	2, 3 PCLK*3
0009 084Ah	CAN0*2	Transmit FIFO control register	TFCR	8	8	2, 3 PCLK*3
0009 084Bh	CAN0*2	Transmit FIFO pointer control register	TFPCR	8	8	2, 3 PCLK*3
0009 084Ch	CAN0*2	Error interrupt enable register	EIER	8	8	2, 3 PCLK*3
0009 084Dh	CAN0*2	Error interrupt factor judge register	EIFR	8	8	2, 3 PCLK*3
0009 084Eh	CAN0*2	Receive error count register	RECR	8	8	2, 3 PCLK*3
0009 084Fh	CAN0*2	Transmit error count register	TECR	8	8	2, 3 PCLK*3
0009 0850h	CAN0*2	Error code store register	ECSR	8	8	2, 3 PCLK*3
0009 0851h	CAN0*2	Channel search support register	CSSR	8	8	2, 3 PCLK*3
0009 0852h	CAN0*2	Mailbox search status register	MSSR	8	8	2, 3 PCLK*3
0009 0853h	CAN0*2	Mailbox search mode register	MSMR	8	8	2, 3 PCLK*3
0009 0854h	CAN0*2	Time stamp register	TSR	16	8, 16	2, 3 PCLK*3
0009 0856h	CAN0*2	Acceptance filter support register	AFSR	16	8, 16	2, 3 PCLK*3
0009 0858h	CAN0*2	Test control register	TCR	8	8	2, 3 PCLK*3
0009 4001h	LIN0	LIN wake-up baud rate select register	LWBR	8	8	2, 3 PCLK*3
0009 4002h	LIN0	LIN baud rate prescaler 0 register	LBRP0	8	8, 16	2, 3 PCLK*3
0009 4003h	LIN0	LIN baud rate prescaler 1 register	LBRP1	8	8, 16	2, 3 PCLK*3
0009 4004h	LIN0	LIN self-test control register	LSTC	8	8	2, 3 PCLK*3
0009 4008h	LIN0	Mode register	L0MD	8	8, 16, 32	2, 3 PCLK*3
0009 4009h	LIN0	Break field setting register	L0BRK	8	8, 16, 32	2, 3 PCLK*3
0009 400Ah	LIN0	Space setting register	L0SPC	8	8, 16, 32	2, 3 PCLK*3
0009 400Bh	LIN0	Wake-up setting register	L0WUP	8	8, 16, 32	2, 3 PCLK*3
0009 400Ch	LIN0	Interrupt enable register	L0IE	8	8, 16	2, 3 PCLK*3
0009 400Dh	LIN0	Error detection enable register	L0EDE	8	8, 16	2, 3 PCLK*3
0009 400Eh	LIN0	Control register	L0C	8	8	2, 3 PCLK*3
0009 4010h	LIN0	Transmission control register	L0TC	8	8, 16, 32	2, 3 PCLK*3
0009 4011h	LIN0	Mode status register	L0MST	8	8, 16, 32	2, 3 PCLK*3
0009 4012h	LIN0	Status register	L0ST	8	8, 16, 32	2, 3 PCLK*3
0009 4013h	LIN0	Error status register	L0EST	8	8, 16, 32	2, 3 PCLK*3
0009 4014h	LIN0	Response field set register	L0RFC	8	8, 16	2, 3 PCLK*3
0009 4015h	LIN0	Buffer register	L0IDB	8	8, 16	2, 3 PCLK*3
0009 4016h	LIN0	Check sum buffer register	L0CBR	8	8	2, 3 PCLK*3
0009 4018h	LIN0	Data 1 buffer register	L0DB1	8	8, 16, 32	2, 3 PCLK*3

Table 4.1 List of I/O Registers (Address Order) (20 / 25)

Address	Module Abbreviation	Register Name	Register Abbreviation	Number of Bits	Access Size	Number of Access Cycles
000C 200Ah	GPT	General PWM timer hardware stop/clear source select register	GTHPSR	16	8, 16, 32	3 to 5 ICLK*4
000C 200Ch	GPT	General PWM timer write-protection register	GTWP	16	8, 16, 32	3 to 5 ICLK*4
000C 200Eh	GPT	General PWM timer sync register	GTSYNC	16	8, 16, 32	3 to 5 ICLK*4
000C 2010h	GPT	General PWM timer external trigger input interrupt register	GTETINT	16	8, 16, 32	3 to 5 ICLK*4
000C 2014h	GPT	General PWM timer buffer operation disable register	GTBDR	16	8, 16, 32	3 to 5 ICLK*4
000C 2018h	GPT	General PWM timer start write protection register	GTSWP	16	16, 32	3 to 5 ICLK*4
000C 2080h	GPT	LOCO count control register	LCCR	16	8, 16, 32	3 to 5 ICLK*4
000C 2082h	GPT	LOCO count status register	LCST	16	8, 16, 32	3 to 5 ICLK*4
000C 2084h	GPT	LOCO count value register	LCNT	16	8, 16, 32	3 to 5 ICLK*4
000C 2086h	GPT	LOCO count result average register	LCNTA	16	8, 16, 32	3 to 5 ICLK*4
000C 2088h	GPT	LOCO count result register 0	LCNT00	16	8, 16, 32	3 to 5 ICLK*4
000C 208Ah	GPT	LOCO count result register 1	LCNT01	16	8, 16, 32	3 to 5 ICLK*4
000C 208Ch	GPT	LOCO count result register 2	LCNT02	16	8, 16, 32	3 to 5 ICLK*4
000C 208Eh	GPT	LOCO count result register 3	LCNT03	16	8, 16, 32	3 to 5 ICLK*4
000C 2090h	GPT	LOCO count result register 4	LCNT04	16	8, 16, 32	3 to 5 ICLK*4
000C 2092h	GPT	LOCO count result register 5	LCNT05	16	8, 16, 32	3 to 5 ICLK*4
000C 2094h	GPT	LOCO count result register 6	LCNT06	16	8, 16, 32	3 to 5 ICLK*4
000C 2096h	GPT	LOCO count result register 7	LCNT07	16	8, 16, 32	3 to 5 ICLK*4
'000C 2098h	GPT	LOCO count result register 8	LCNT08	16	8, 16, 32	3 to 5 ICLK*4
000C 209Ah	GPT	LOCO count result register 9	LCNT09	16	8, 16, 32	3 to 5 ICLK*4
000C 209Ch	GPT	LOCO count result register 10	LCNT10	16	8, 16, 32	3 to 5 ICLK*4
000C 209Eh	GPT	LOCO count result register 11	LCNT11	16	8, 16, 32	3 to 5 ICLK*4
000C 20A0h	GPT	LOCO count result register 12	LCNT12	16	8, 16, 32	3 to 5 ICLK*4
000C 20A2h	GPT	LOCO count result register 13	LCNT13	16	8, 16, 32	3 to 5 ICLK*4
000C 20A4h	GPT	LOCO count result register 14	LCNT14	16	8, 16, 32	3 to 5 ICLK*4
000C 20A6h	GPT	LOCO count result register 15	LCNT15	16	8, 16, 32	3 to 5 ICLK*4
000C 20A8h	GPT	LOCO count upper permissible deviation register	LCNTDU	16	8, 16, 32	3 to 5 ICLK*4
000C 20AAh	GPT	LOCO count lower permissible deviation register	LCNTDL	16	8, 16, 32	3 to 5 ICLK*4
000C 2100h	GPT0	General PWM timer I/O control register	GTIOR	16	8, 16, 32	3 to 5 ICLK*4
000C 2102h	GPT0	General PWM timer interrupt output setting register	GTINTAD	16	8, 16, 32	3 to 5 ICLK*4
000C 2104h	GPT0	General PWM timer control register	GTCR	16	8, 16, 32	3 to 5 ICLK*4
000C 2106h	GPT0	General PWM timer buffer enable register	GTBER	16	8, 16, 32	3 to 5 ICLK*4
000C 2108h	GPT0	General PWM timer count direction register	GTUDC	16	8, 16, 32	3 to 5 ICLK*4
000C 210Ah	GPT0	General PWM timer interrupt and A/D converter start request skipping setting register	GTITC	16	8, 16, 32	3 to 5 ICLK*4
000C 210Ch	GPT0	General PWM timer status register	GTST	16	8, 16, 32	3 to 5 ICLK*4
000C 210Eh	GPT0	General PWM timer counter	GTCNT	16	16	3 to 5 ICLK*4
000C 2110h	GPT0	General PWM timer compare capture register A	GTCCRA	16	16, 32	3 to 5 ICLK*4
000C 2112h	GPT0	General PWM timer compare capture register B	GTCCRB	16	16, 32	3 to 5 ICLK*4
000C 2114h	GPT0	General PWM timer compare capture register C	GTCCRC	16	16, 32	3 to 5 ICLK*4

Table 4.1 List of I/O Registers (Address Order) (21 / 25)

Address	Module Abbreviation	Register Name	Register Abbreviation	Number of Bits	Access Size	Number of Access Cycles
000C 2116h	GPT0	General PWM timer compare capture register D	GTCCRD	16	16, 32	3 to 5 ICLK*4
000C 2118h	GPT0	General PWM timer compare capture register E	GTCCRE	16	16, 32	3 to 5 ICLK*4
000C 211Ah	GPT0	General PWM timer compare capture register F	GTCCRF	16	16, 32	3 to 5 ICLK*4
000C 211Ch	GPT0	General PWM timer cycle setting register	GTPR	16	16, 32	3 to 5 ICLK*4
000C 211Eh	GPT0	General PWM timer cycle setting buffer register	GTPBR	16	16, 32	3 to 5 ICLK*4
000C 2120h	GPT0	General PWM timer cycle setting double-buffer register	GTPDBR	16	16, 32	3 to 5 ICLK*4
000C 2124h	GPT0	A/D converter start request timing register A	GTADTRA	16	16, 32	3 to 5 ICLK*4
000C 2126h	GPT0	A/D converter start request timing buffer register A	GTADTBRA	16	16, 32	3 to 5 ICLK*4
000C 2128h	GPT0	A/D converter start request timing double-buffer register A	GTADTDBRA	16	16, 32	3 to 5 ICLK*4
000C 212Ch	GPT0	A/D converter start request timing register B	GTADTRB	16	16, 32	3 to 5 ICLK*4
000C 212Eh	GPT0	A/D converter start request timing buffer register B	GTADTBRB	16	16, 32	3 to 5 ICLK*4
000C 2130h	GPT0	A/D converter start request timing double-buffer register B	GTADTDBRB	16	16, 32	3 to 5 ICLK*4
000C 2134h	GPT0	General PWM timer output negate control register	GTONCR	16	16, 32	3 to 5 ICLK*4
000C 2136h	GPT0	General PWM timer dead time control register	GTDTCR	16	16, 32	3 to 5 ICLK*4
000C 2138h	GPT0	General PWM timer dead time value register	GTDVU	16	16, 32	3 to 5 ICLK*4
000C 213Ah	GPT0	General PWM timer dead time value register	GTDVD	16	16, 32	3 to 5 ICLK*4
000C 213Ch	GPT0	General PWM timer dead time buffer register	GTDBU	16	16, 32	3 to 5 ICLK*4
000C 213Eh	GPT0	General PWM timer dead time buffer register	GTDBD	16	16, 32	3 to 5 ICLK*4
000C 2140h	GPT0	General PWM timer output protection function status register	GTSOS	16	16, 32	3 to 5 ICLK*4
000C 2142h	GPT0	General PWM timer output protection function temporary release register	GTSOTR	16	16, 32	3 to 5 ICLK*4
000C 2180h	GPT1	General PWM timer I/O control register	GTIOR	16	8, 16, 32	3 to 5 ICLK*4
000C 2182h	GPT1	General PWM timer interrupt output setting register	GTINTAD	16	8, 16, 32	3 to 5 ICLK*4
000C 2184h	GPT1	General PWM timer control register	GTCR	16	8, 16, 32	3 to 5 ICLK*4
000C 2186h	GPT1	General PWM timer buffer enable register	GTBER	16	8, 16, 32	3 to 5 ICLK*4
000C 2188h	GPT1	General PWM timer count direction register	GTUDC	16	8, 16, 32	3 to 5 ICLK*4
000C 218Ah	GPT1	General PWM timer interrupt and A/D converter start request skipping setting register	GTITC	16	8, 16, 32	3 to 5 ICLK*4
000C 218Ch	GPT1	General PWM timer status register	GTST	16	8, 16, 32	3 to 5 ICLK*4
000C 218Eh	GPT1	General PWM timer counter	GTCNT	16	16	3 to 5 ICLK*4
000C 2190h	GPT1	General PWM timer compare capture register A	GTCCRA	16	16, 32	3 to 5 ICLK*4
000C 2192h	GPT1	General PWM timer compare capture register B	GTCCRB	16	16, 32	3 to 5 ICLK*4
000C 2194h	GPT1	General PWM timer compare capture register C	GTCCRC	16	16, 32	3 to 5 ICLK*4
000C 2196h	GPT1	General PWM timer compare capture register D	GTCCRD	16	16, 32	3 to 5 ICLK*4
000C 2198h	GPT1	General PWM timer compare capture register E	GTCCRE	16	16, 32	3 to 5 ICLK*4
000C 219Ah	GPT1	General PWM timer compare capture register F	GTCCRF	16	16, 32	3 to 5 ICLK*4
000C 219Ch	GPT1	General PWM timer cycle setting register	GTPR	16	16, 32	3 to 5 ICLK*4
000C 219Eh	GPT1	General PWM timer cycle setting buffer register	GTPBR	16	16, 32	3 to 5 ICLK*4

Table 4.1 List of I/O Registers (Address Order) (24 / 25)

Address	Module Abbreviation	Register Name	Register Abbreviation	Number of Bits	Access Size	Number of Access Cycles
000C 22B6h	GPT3	General PWM timer dead time control register	GTDTCR	16	16, 32	3 to 5 ICLK*4
000C 22B8h	GPT3	General PWM timer dead time value register	GTDVU	16	16, 32	3 to 5 ICLK*4
000C 22BAh	GPT3	General PWM timer dead time value register	GTDVD	16	16, 32	3 to 5 ICLK*4
000C 22BCh	GPT3	General PWM timer dead time buffer register	GTDBU	16	16, 32	3 to 5 ICLK*4
000C 22BEh	GPT3	General PWM timer dead time buffer register	GTDBD	16	16, 32	3 to 5 ICLK*4
000C 22C0h	GPT3	General PWM timer output protection function status register	GTSOS	16	16, 32	3 to 5 ICLK*4
000C 22C2h	GPT3	General PWM timer output protection temporary release register	GTSOTR	16	16, 32	3 to 5 ICLK*4
000C 2300h	GPT0	PWM output delay control register	GTDLYCR	16	16, 32	3 to 5 ICLK*4
000C 2302h	GPT1	PWM output delay control register	GTDLYCR	16	16, 32	3 to 5 ICLK*4
000C 2304h	GPT2	PWM output delay control register	GTDLYCR	16	16, 32	3 to 5 ICLK*4
000C 2306h	GPT3	PWM output delay control register	GTDLYCR	16	16, 32	3 to 5 ICLK*4
000C 2318h	GPT0	GTIOCA rising output delay register	GTDLYRA	16	16, 32	3 to 5 ICLK*4
000C 231Ah	GPT0	GTIOCB rising output delay register	GTDLYRB	16	16, 32	3 to 5 ICLK*4
000C 231Ch	GPT1	GTIOCA rising output delay register	GTDLYRA	16	16, 32	3 to 5 ICLK*4
000C 231Eh	GPT1	GTIOCB rising output delay register	GTDLYRB	16	16, 32	3 to 5 ICLK*4
000C 2320h	GPT2	GTIOCA rising output delay register	GTDLYRA	16	16, 32	3 to 5 ICLK*4
000C 2322h	GPT2	GTIOCB rising output delay register	GTDLYRB	16	16, 32	3 to 5 ICLK*4
000C 2324h	GPT3	GTIOCA falling output delay register	GTDLYRA	16	16, 32	3 to 5 ICLK*4
000C 2326h	GPT3	GTIOCB falling output delay register	GTDLYRB	16	16, 32	3 to 5 ICLK*4
000C 2328h	GPT0	GTIOCA falling output delay register	GTDLYFA	16	16, 32	3 to 5 ICLK*4
000C 232Ah	GPT0	GTIOCB falling output delay register	GTDLYFB	16	16, 32	3 to 5 ICLK*4
000C 232Ch	GPT1	GTIOCA falling output delay register	GTDLYFA	16	16, 32	3 to 5 ICLK*4
000C 232Eh	GPT1	GTIOCB falling output delay register	GTDLYFB	16	16, 32	3 to 5 ICLK*4
000C 2330h	GPT2	GTIOCA falling output delay register	GTDLYFA	16	16, 32	3 to 5 ICLK*4
000C 2332h	GPT2	GTIOCB falling output delay register	GTDLYFB	16	16, 32	3 to 5 ICLK*4
000C 2334h	GPT3	GTIOCA falling output delay register	GTDLYFA	16	16, 32	3 to 5 ICLK*4
000C 2336h	GPT3	GTIOCB falling output delay register	GTDLYFB	16	16, 32	3 to 5 ICLK*4
007F C402h	FLASH	Flash mode register	FMODR	8	8	2, 3 PCLK*3
007F C410h	FLASH	Flash access status register	FASTAT	8	8	2, 3 PCLK*3
007F C411h	FLASH	Flash access error interrupt enable register	FAEINT	8	8	2, 3 PCLK*3
007F C412h	FLASH	Flash ready interrupt enable register	FRDYIE	8	8	2, 3 PCLK*3
007F C440h	FLASH	Data flash read enable register 0	DFLRE0	16	16	2, 3 PCLK*3
007F C442h	FLASH	Data flash read enable register 1	DFLRE1	16	16	2, 3 PCLK*3
007F C450h	FLASH	Data flash programming/erasure enable register 0	DFLWE0	16	16	2, 3 PCLK*3
007F C452h	FLASH	Data flash programming/erasure enable register 1	DFLWE1	16	16	2, 3 PCLK*3
007F C454h	FLASH	FCU RAM enable register	FCURAME	16	16	2, 3 PCLK*3
007F FFB0h	FLASH	Flash status register 0	FSTATR0	8	8	2, 3 PCLK*3
007F FFB1h	FLASH	Flash status register 1	FSTATR1	8	8	2, 3 PCLK*3
007F FFB2h	FLASH	Flash P/E mode entry register	FENTRYR	16	16	2, 3 PCLK*3
007F FFB4h	FLASH	Flash protect register	FPROTR	16	16	2, 3 PCLK*3
007F FFB6h	FLASH	Flash reset register	FRESETR	16	16	2, 3 PCLK*3

Table 4.2 List of I/O Registers (Bit Order) (2 / 30)

Module Abbreviation	Register Abbreviation	Bit 31/23/15/7	Bit 30/22/14/6	Bit 29/21/13/5	Bit 28/20/12/4	Bit 27/19/11/3	Bit 26/18/10/2	Bit 25/17/9/1	Bit 24/16/8/0
MPU	REPAGE0				REPN[27:0]				
					REPN[27:0]				
					REPN[27:0]				
			REPN[27:0]				UAC[2:0]		V
MPU	RSPAGE1				RSPN[27:0]				
					RSPN[27:0]				
					RSPN[27:0]				
			RSPN[27:0]			—	—	—	—
MPU	REPAGE1				REPN[27:0]				
					REPN[27:0]				
					REPN[27:0]				
			REPN[27:0]				UAC[2:0]		V
MPU	RSPAGE2				RSPN[27:0]				
					RSPN[27:0]				
					RSPN[27:0]				
			RSPN[27:0]			—	—	—	—
MPU	REPAGE2				REPN[27:0]				
					REPN[27:0]				
					REPN[27:0]				
			REPN[27:0]				UAC[2:0]		V
MPU	RSPAGE3				RSPN[27:0]				
					RSPN[27:0]				
					RSPN[27:0]				
			RSPN[27:0]			—	—	—	—
MPU	REPAGE3				REPN[27:0]				
					REPN[27:0]				
					REPN[27:0]				
			REPN[27:0]				UAC[2:0]		V
MPU	RSPAGE4				RSPN[27:0]				
					RSPN[27:0]				
					RSPN[27:0]				
			RSPN[27:0]			—	—	—	—
MPU	REPAGE4				REPN[27:0]				
					REPN[27:0]				
					REPN[27:0]				
			REPN[27:0]				UAC[2:0]		V
MPU	RSPAGE5				RSPN[27:0]				
					RSPN[27:0]				
					RSPN[27:0]				
			RSPN[27:0]			—	—	—	—
MPU	REPAGE5				REPN[27:0]				
					REPN[27:0]				
					REPN[27:0]				
			REPN[27:0]				UAC[2:0]		V
MPU	RSPAGE6				RSPN[27:0]				
					RSPN[27:0]				
					RSPN[27:0]				
			RSPN[27:0]			—	—	—	—
MPU	REPAGE6				REPN[27:0]				
					REPN[27:0]				
					REPN[27:0]				
			REPN[27:0]				UAC[2:0]		V

Table 4.2 List of I/O Registers (Bit Order) (4 / 30)

Module Abbreviation	Register Abbreviation	Bit 31/23/15/7	Bit 30/22/14/6	Bit 29/21/13/5	Bit 28/20/12/4	Bit 27/19/11/3	Bit 26/18/10/2	Bit 25/17/9/1	Bit 24/16/8/0
ICU	IR044	—	—	—	—	—	—	—	IR
ICU	IR045	—	—	—	—	—	—	—	IR
ICU	IR046	—	—	—	—	—	—	—	IR
ICU	IR047	—	—	—	—	—	—	—	IR
ICU	IR056	—	—	—	—	—	—	—	IR
ICU	IR057	—	—	—	—	—	—	—	IR
ICU	IR058	—	—	—	—	—	—	—	IR
ICU	IR059	—	—	—	—	—	—	—	IR
ICU	IR060	—	—	—	—	—	—	—	IR
ICU	IR064	—	—	—	—	—	—	—	IR
ICU	IR065	—	—	—	—	—	—	—	IR
ICU	IR066	—	—	—	—	—	—	—	IR
ICU	IR067	—	—	—	—	—	—	—	IR
ICU	IR068	—	—	—	—	—	—	—	IR
ICU	IR069	—	—	—	—	—	—	—	IR
ICU	IR070	—	—	—	—	—	—	—	IR
ICU	IR071	—	—	—	—	—	—	—	IR
ICU	IR096	—	—	—	—	—	—	—	IR
ICU	IR098	—	—	—	—	—	—	—	IR
ICU	IR102	—	—	—	—	—	—	—	IR
ICU	IR103	—	—	—	—	—	—	—	IR
ICU	IR106	—	—	—	—	—	—	—	IR
ICU	IR114	—	—	—	—	—	—	—	IR
ICU	IR115	—	—	—	—	—	—	—	IR
ICU	IR116	—	—	—	—	—	—	—	IR
ICU	IR117	—	—	—	—	—	—	—	IR
ICU	IR118	—	—	—	—	—	—	—	IR
ICU	IR119	—	—	—	—	—	—	—	IR
ICU	IR120	—	—	—	—	—	—	—	IR
ICU	IR121	—	—	—	—	—	—	—	IR
ICU	IR122	—	—	—	—	—	—	—	IR
ICU	IR123	—	—	—	—	—	—	—	IR
ICU	IR124	—	—	—	—	—	—	—	IR
ICU	IR125	—	—	—	—	—	—	—	IR
ICU	IR126	—	—	—	—	—	—	—	IR
ICU	IR127	—	—	—	—	—	—	—	IR
ICU	IR128	—	—	—	—	—	—	—	IR
ICU	IR129	—	—	—	—	—	—	—	IR
ICU	IR130	—	—	—	—	—	—	—	IR
ICU	IR131	—	—	—	—	—	—	—	IR
ICU	IR132	—	—	—	—	—	—	—	IR
ICU	IR133	—	—	—	—	—	—	—	IR
ICU	IR134	—	—	—	—	—	—	—	IR
ICU	IR135	—	—	—	—	—	—	—	IR
ICU	IR136	—	—	—	—	—	—	—	IR
ICU	IR137	—	—	—	—	—	—	—	IR
ICU	IR138	—	—	—	—	—	—	—	IR
ICU	IR139	—	—	—	—	—	—	—	IR
ICU	IR140	—	—	—	—	—	—	—	IR
ICU	IR141	—	—	—	—	—	—	—	IR
ICU	IR142	—	—	—	—	—	—	—	IR
ICU	IR143	—	—	—	—	—	—	—	IR

Table 4.2 List of I/O Registers (Bit Order) (9 / 30)

Module Abbreviation	Register Abbreviation	Bit 31/23/15/7	Bit 30/22/14/6	Bit 29/21/13/5	Bit 28/20/12/4	Bit 27/19/11/3	Bit 26/18/10/2	Bit 25/17/9/1	Bit 24/16/8/0
ICU	IRQCR0	—	—	—	—	IRQMD[1:0]		—	—
ICU	IRQCR1	—	—	—	—	IRQMD[1:0]		—	—
ICU	IRQCR2	—	—	—	—	IRQMD[1:0]		—	—
ICU	IRQCR3	—	—	—	—	IRQMD[1:0]		—	—
ICU	IRQCR4	—	—	—	—	IRQMD[1:0]		—	—
ICU	IRQCR5	—	—	—	—	IRQMD[1:0]		—	—
ICU	IRQCR6	—	—	—	—	IRQMD[1:0]		—	—
ICU	IRQCR7	—	—	—	—	IRQMD[1:0]		—	—
ICU	NMISR	—	—	—	—	—	OSTST	LVDST	NMIST
ICU	NMIER	—	—	—	—	—	OSTEN	LVDEN	NMIEN
ICU	NMICLR	—	—	—	—	—	OSTCLR	—	NMICLR
ICU	NMICR	—	—	—	—	NMIMD	—	—	—
CMT	CMSTR0	—	—	—	—	—	—	—	—
		—	—	—	—	—	—	STR1	STR0
CMT0	CMCR	—	—	—	—	—	—	—	—
		—	CMIE	—	—	—	—	CKS[1:0]	
CMT0	CMCNT								
CMT0	CMCOR								
CMT1	CMCR	—	—	—	—	—	—	—	—
		—	CMIE	—	—	—	—	CKS[1:0]	
CMT1	CMCNT								
CMT1	CMCOR								
CMT	CMSTR1	—	—	—	—	—	—	—	—
		—	—	—	—	—	—	STR3	STR2
CMT2	CMCR	—	—	—	—	—	—	—	—
		—	CMIE	—	—	—	—	CKS[1:0]	
CMT2	CMCNT								
CMT2	CMCOR								
CMT3	CMCR	—	—	—	—	—	—	—	—
		—	CMIE	—	—	—	—	CKS[1:0]	
CMT3	CMCNT								
CMT3	CMCOR								
WDT	TCSR	—	TMS	TME	—	—		CKS[2:0]	
WDT	WINA								
WDT	TCNT								
WDT	WINB								
WDT	RSTCSR	WOVF	RSTE	—	—	—	—	—	—
IWDT	IWDTCR	—	—	—	—	—	—	—	—
			CKS[3:0]			—	—	TOPS[1:0]	
IWDT	IWDTSR	—	UNDFF			CNTVAL[13:0]			
					CNTVAL[13:0]				
AD0	ADDRA*1	—	—	—	—	—	—		

Table 5.4 Permissible Output Currents

Note: Items for which test conditions are not specifically stated in the table below have the same values under conditions 1 to 3.

Condition 1: VCC = PLLVCC = 2.7 to 3.6 V, VSS = PLLVSS = AVSS0 = AVSS = VREFL0 = 0 V
AVCC0 = AVCC = 3.0 to 3.6 V, VREFH0 = 3.0 V to AVCC0, VREF = 3.0 V to AVCC

Condition 2: VCC = PLLVCC = 2.7 to 3.6 V, VSS = PLLVSS = AVSS0 = AVSS = VREFL0 = 0 V
AVCC0 = AVCC = 4.0 to 5.5 V, VREFH0 = 4.0 V to AVCC0, VREF = 4.0 V to AVCC

Condition 3: VCC = PLLVCC = 4.0 to 5.5 V, VSS = PLLVSS = AVSS0 = AVSS = VREFL0 = 0 V
AVCC0 = AVCC = 4.0 to 5.5 V, VREFH0 = 4.0 V to AVCC0, VREF = 4.0 V to AVCC
Ta = Topr. Ta is the same under conditions 1 to 3.

Item	Symbol	Min.	Typ.	Max.	Unit
Permissible output low current (average value per pin)	I_{OL}	-	-	2.0*1	mA
Permissible output low current (max. value per pin)	I_{OL}	-	-	4.0*1	mA
Permissible output low current (total)	ΣI_{OL}	-	-	110	mA
Permissible output high current (average value per pin)	$-I_{OH}$	-	-	2.0*1	mA
Permissible output high current (max. value per pin)	$-I_{OH}$	-	-	4.0*1	mA
Permissible output high current (total)	$\Sigma -I_{OH}$	-	-	35	mA

Caution: To protect the LSI's reliability, the output current values should not exceed the permissible output current.

Note 1. I_{OL} = 15 mA (max.)/ $-I_{OH}$ = 5 mA (max.) for P71 to P76 and P90 to P95. Note, however, that up to 6 (112-pin or 100-pin LQFP) or 3 (80-pin or 64-pin LQFP) pins can accept over 2.0-mA I_{OL} / $-I_{OH}$ at the same time.

Table 5.5 Permissible Power Consumption (Only for G Version)

Note: Items for which test conditions are not specifically stated in the table below have the same values under conditions 1 to 3.

Condition 1: VCC = PLLVCC = 2.7 to 3.6 V, VSS = PLLVSS = AVSS0 = AVSS = VREFL0 = 0 V
AVCC0 = AVCC = 3.0 to 3.6 V, VREFH0 = 3.0 V to AVCC0, VREF = 3.0 V to AVCC

Condition 2: VCC = PLLVCC = 2.7 to 3.6 V, VSS = PLLVSS = AVSS0 = AVSS = VREFL0 = 0 V
AVCC0 = AVCC = 4.0 to 5.5 V, VREFH0 = 4.0 V to AVCC0, VREF = 4.0 V to AVCC

Condition 3: VCC = PLLVCC = 4.0 to 5.5 V, VSS = PLLVSS = AVSS0 = AVSS = VREFL0 = 0 V
AVCC0 = AVCC = 4.0 to 5.5 V, VREFH0 = 4.0 V to AVCC0, VREF = 4.0 V to AVCC

Ta = Topr. Ta is the same under conditions 1 to 3.

Item	Symbol	Typ.	Max.	Unit	Test Conditions
Total permissible power consumption*1	Pd	—	325	mW	85°C < Ta ≤ 105°C

Note: • Please contact Renesas Electronics sales office for derating of operation under Ta = +85°C to +105°C. Derating is the systematic reduction of load for improved reliability.

Note 1. The total power consmuption of the whole chip including output current.

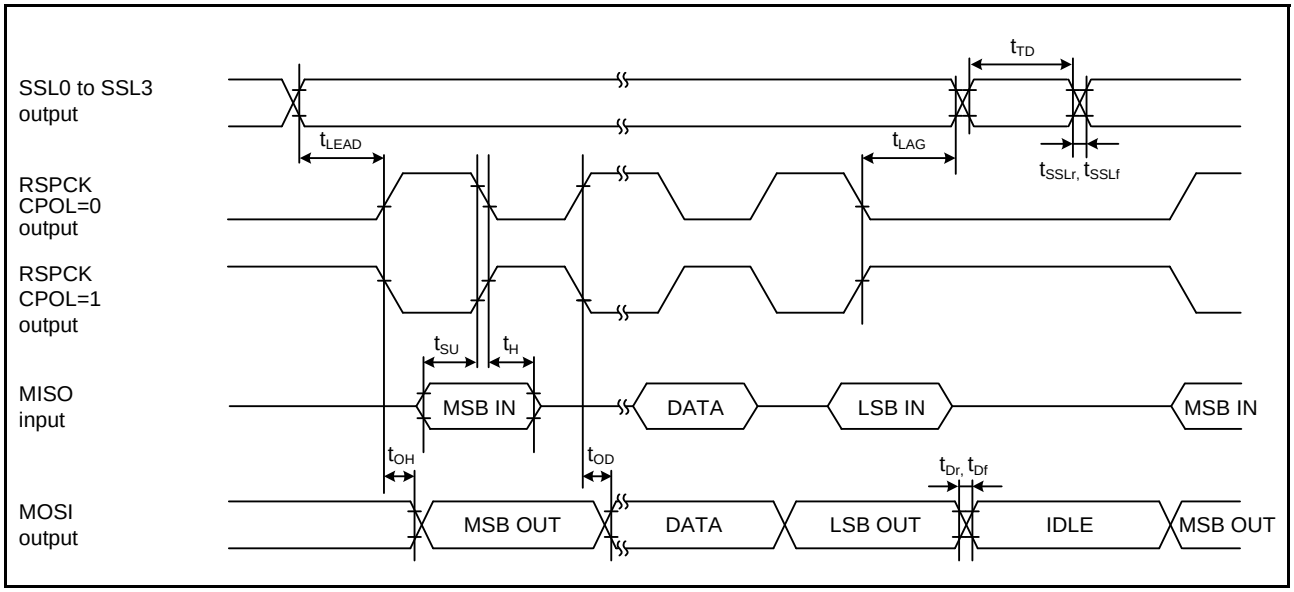


Figure 5.13 RSPI Timing (Master, CPHA = 1)

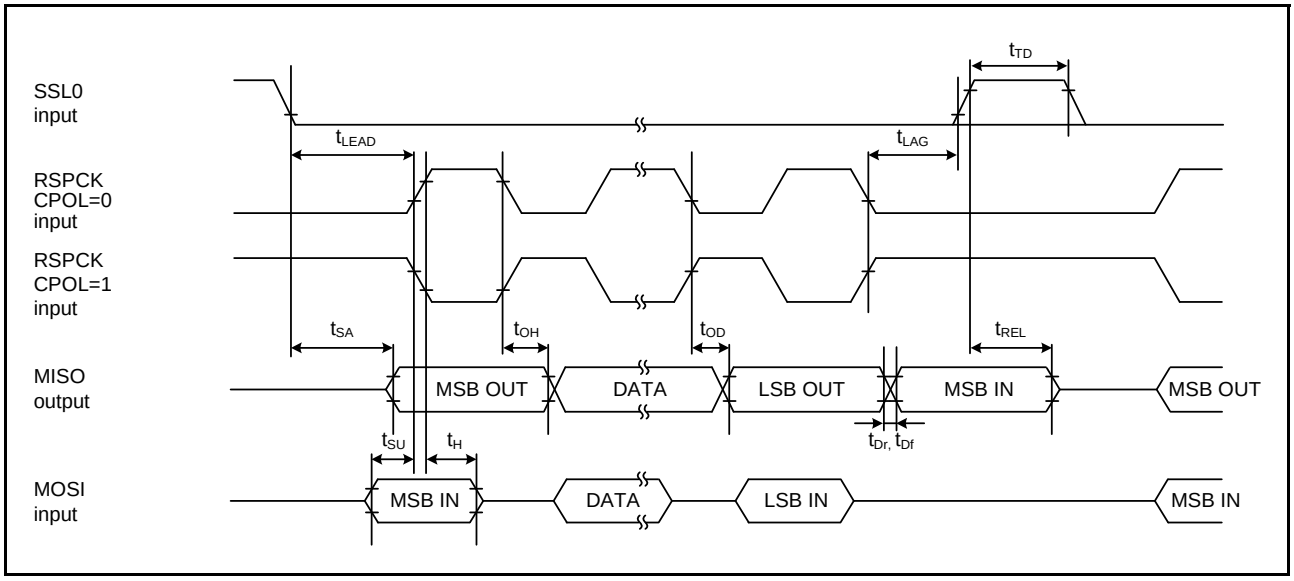


Figure 5.14 RSPI Timing (Slave, CPHA = 0)

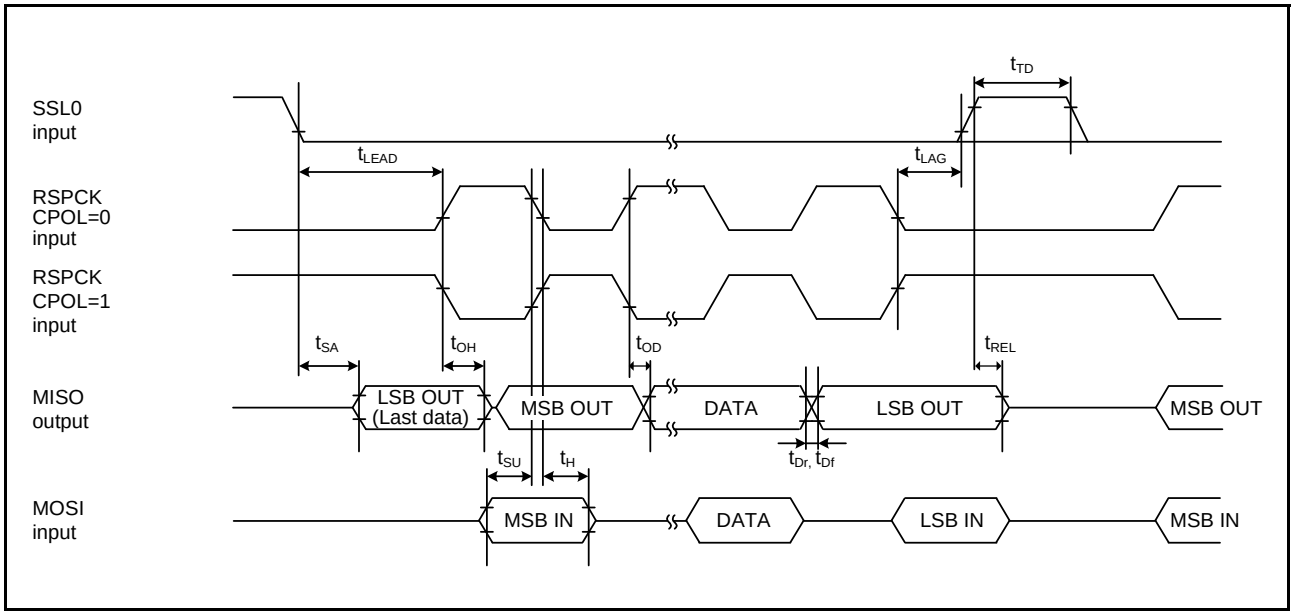


Figure 5.15 RSPI Timing (Slave, CPHA = 1)

REVISION HISTORY — RX62T Group, RX62G Group Datasheet

Rev.	Date	Description	
		Page	Summary
1.00	Apr 20, 2011	—	First edition issued
1.30	May 22, 2013	1	Features, Package lineup, added
			1. Overview
		2	Table 1.1 Outline of Specifications (1/5) Description of CPU, added
		3	Table 1.1 Outline of Specifications (2/5) Description of Programmable I/O ports, changed
		6	Table 1.1 Outline of Specifications (5/5), 64-pin packaged, added
		7	Table 1.2 Functions of RX62T Group Products, 64-pin package, and MTU3/GPT complementary PWM pins added
		8	Table 1.3 List of Products, 64-pin package part number, changed
		9	Figure 1.1 How to Read the Product Part No., 64-pin package part number, changed
		9	Figure 1.1 How to Read the Product Part No., 5-V version, two-motor control supported, added
		10	Figure 1.2 Block Diagram, changed
		14	Figure 1.6 Pin Assignment of the 80-Pin LQFP (Two-motor Control Supported), added
		15	Figure 1.7 Pin Assignment of the 64-Pin LQFP, Figure PLQP0064GA-A, added
		25 to 27	Table 1.7 List of Pins and Pin Functions (80-Pin LQFP: R5F562TxGDFF) , added
		30 to 33	Table 1.9 Pin Functions, changed
			4. I/O Register
		38to 61	Table 4.1 List of I/O Registers (Address Order), MPU, added
		47	Table 4.1 List of I/O Registers (Address Order) TMOCNTL, TMOCNTU register, added
		57	Table 4.1 List of I/O Registers (Address Order), GTSWP register, added
			5. Electrical Characteristics
		62	Table 5.1 Absolute Maximum Ratings, note changed
		64	Table 5.2 DC Characteristics (1) (2/3) Test Conditions of P90 to P95, changed
		66	Table 5.3 DC Characteristics (2), note changed
		67	Table 5.4 Permissible Output Currents, note changed
		72	Table 5.7 Control Signal Timing, notes changed
		73	Table 5.8 Timing of On-Chip Peripheral Modules (1), changed
			Appendix 1.Package Dimensions
		96	Figure E 64-Pin LQFP (PLQP0064GA-A), added
2.00	Jan 10, 2014	1	Features, changed
			1. Overview
		2 to 6	Table 1.1 Outline of Specifications, changed; Note 1, added
		7, 8	Table 1.2 Functions of RX62T Group and RX62G Group Products, changed
		9, 10	Table 1.3 List of Products, changed; Note 1, added
		11	Figure 1.1 How to Read the Product Part No., changed
		15	Figure 1.6 Pin Assignment of the 80-Pin LQFP (Two-Motor Control Supported Version), added
		27 to 29	Table 1.7 List of Pins and Pin Functions (80-Pin LQFP: R5F562TxGDFF), added
			4. I/O Registers
		43 to 67	Table 4.1 List of I/O Registers (Address Order), changed
		68 to 97	Table 4.2 List of I/O Registers (Bit Order), changed
			5. Electrical Characteristics
		—	Conditions in the table, change to Ta = -40 to +105°C from Ta = -40 to +85°C.