Renesas Electronics America Inc - R5F5631PCDFM#V0 Datasheet

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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, USB
Peripherals	DMA, LVD, POR, PWM, WDT
Number of I/O	42
Program Memory Size	512KB (512K x 8)
Program Memory Type	FLASH
EEPROM Size	32K x 8
RAM Size	64K x 8
Voltage - Supply (Vcc/Vdd)	2.7V ~ 3.6V
Data Converters	A/D 12x12b; D/A 1x10b
Oscillator Type	Internal
Operating Temperature	-40°C ~ 85°C (TA)
Mounting Type	Surface Mount
Package / Case	64-LQFP
Supplier Device Package	64-LFQFP (10x10)
Purchase URL	https://www.e-xfl.com/product-detail/renesas-electronics-america/r5f5631pcdfm-v0

1.5 Pin Assignments

Figure 1.5 to Figure 1.12 show the pins assignments. Table 1.5 to Table 1.13 show the list of pins and pin functions. Power pins and I/O ports are shown in the pin assignment diagrams.

	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	
15	PE2	PE3	P70	P65	P67	VSS	VCC	PG7	PA6	PB0	P72	PB4	VSS	VCC	PC1	15
14	PE1	PE0	VSS	PE7	PG3	PA0	PA1	PA2	PA7	VCC	PB1	PB5	P73	P75	P74	14
13	P63	P64	PE4	VCC	PG2	PG4	PG6	PA3	VSS	P71	PB3	PB7	PC0	PC2	P76	13
12	P60	VSS	P62	PE5	PE6	P66	PG5	PA4	PA5	PB2	PB6	P77	PC3	PC4	P80	12
11	PD6	PG1	VCC	P61								P81	P82	PC6	VCC	11
10	P97	PD4	PG0	PD7								PC5	PC7	P83	VSS	10
9	VCC	P96	PD3	PD5								P50	P51	P52	P84	9
8	P94	PD1	PD2	VSS								P53	VCC_ USB	USB1_ DP	USB1_ DM	8
7	VSS	P92	PD0	P95								P54	P55	VSS_ USB	USB0_ DP	7
6	VCC	P91	P90	P93								P56	P57	VCC_ USB	USB0_ DM	6
5	P46	P47	P45	P44	NC							P13	P12	P10	P11	5
4	P42	P41	P43	P00	VSS	BSCANP	PF4	P35	PF3	PF1	P25	P86	P15	P14	P85	4
3	VREFL0	P40	VREFH0	P03	PF5	PJ3	MD/ FINED	RES#	P34	PF2	PF0	P24	P22	P87	P16	3
2	AVCC0	P07	VREFH	P02	EMLE	VCL	XCOUT	VSS	VCC	P32	P30	P26	P23	P17	P20	2
1	AVSS0	P05	VREFL	P01	PJ5	VBATT	XCIN	XTAL	EXTAL	P33	P31	P27	VCC	VSS	P21	1
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	

RX63N Group
RX631 Group
PTLG0177KA-A
(177-pin TFLGA)
(Top perspective view)

Note: This figure indicates the power supply pins and I/O port pins. For the pin configuration, see Table 1.5, List of Pin and Pin Functions (177-Pin TFLGA, 176-Pin LFBGA).

Figure 1.3 Pin Assignment (177-Pin TFLGA)

Table 1.5 List of Pin and Pin Functions (177-Pin TFLGA, 176-Pin LFBGA) (5/5)

Pin Number 177-Pin TFLGA 176-Pin LFBGA	Power Supply Clock System Control	I/O Port	Bus EXDMAC SDRAMC	Timer (MTU, TPU, TMR, PPG, RTC, POE)	Communications (ETHERC, SCIc, SCId, RSPI, RIIC, CAN, IEB, USB, and PDC)	Interrupt	S12AD, AD, DA
P1	VSS						
P2		P17		MTIOC3A/MTIOC3B/ TIOCB0/TCLKD/TMO1/ PO15/POE8#	SCK1/TXD3/SMOSI3/ SSDA3/MISOA/SDA2-DS/ IETXD/USB1_VBUS/ PIXD3	IRQ7	ADTRG#
P3		P87		TIOCA2	PIXD2		
P4		P14		MTIOC3A/MTCLKA/ TIOCB5/TCLKA/TMRI2/ PO15	CTS1#/RTS1#/SS1#/ CTX1/USB0_DPUPE/ USB0_OVRCURA	IRQ4	
P5		P10		MTIC5W/TMRI3		IRQ0	
P6	VCC_USB						
P7	VSS_USB						
P8					USB1_DP		
P9		P52	RD#		RXD2/SMISO2/SSCL2/ SSLB3		
P10		P83	EDACK1	MTIOC4C	ET_CRS/RMII_CRS_DV/ CTS10#/RTS10#/SS10#		
P11		PC6	A22/CS1#	MTIOC3C/MTCLKA/ TIOCA6/TMCI2/PO30	ET_ETXD3/RXD8/ SMISO8/SSCL8/MOSIA	IRQ13	
P12		PC4	A20/CS3#	MTIOC3D/MTCLKC/ TIOCC6/TCLKE/TMCI1/ PO25/POE0#	ET_TX_CLK/SCK5/ CTS8#/RTS8#/SS8#/ SSLA0		
P13		PC2	A18	MTIOC4B/TCLKA/PO21	ET_RX_DV/RXD5/ SMISO5/SSCL5/SSLA3/ IERXD		
P14		P75	CS5#	PO20	ET_ERXD0/RMII_RXD0/ SCK11		
P15	VCC						
R1		P21		MTIOC1B/TIOCA3/ TMCI0/PO1	RXD0/SMISO0/SSCL0/ SCL1/USB0_EXICEN/ PIXD5	IRQ9	
R2		P20		MTIOC1A/TIOCB3/ TMRI0/PO0	TXD0/SMOSI0/SSDA0/ SDA1/USB0_ID/PIXD4	IRQ8	
R3		P16		MTIOC3C/MTIOC3D/ TIOCB1/TCLKC/TMO2/ PO14/RTCOUT	TXD1/RXD3/SMOSI1/ SMISO3/SSDA1/SSCL3/ MOSIA/SCL2-DS/IERXD/ USB0_VBUS/ USB0_VBUSEN/ USB0_OVRCURB	IRQ6	ADTRG0#
R4		P85					
R5		P11		MTIC5V/TMCI3	SCK2	IRQ1	
R6					USB0_DM		
R7					USB0_DP		
R8					USB1_DM		
R9		P84					
R10	VSS						
R11	VCC						
R12		P80	EDREQ0	MTIOC3B/PO26	ET_TX_EN/ RMII_TXD_EN/SCK10		
R13		P76	CS6#	PO22	ET_RX_CLK/REF50CK/ RXD11/SMISO11/SSCL11		
R14		P74	CS4#	PO19	ET_ERXD1/RMII_RXD1/ CTS11#/RTS11#/SS11#		
R15		PC1	A17	MTIOC3A/TCLKD/PO18	ET_ERXD2/SCK5/SSLA2/ SDA3	IRQ12	

Note 1. 176-pin LFBGA does not have E5 pin

Note 2. The BCLK function is multiplexed with the I/O port function for pin P53, so the port function is not available if the external bus is enabled.

Table 1.8 List of Pins and Pin Functions (144-Pin LQFP) (5/5)

Pin No. 144-pin LQFP	Power Supply Clock System Control	I/O Port	Bus EXDMAC SDRAMC	Timers (MTU, TPU, TMR, PPG, RTC, POE)	Communications (ETHERC, SCIc, SCId, RSPI, RIIC, CAN, IEB, USB, and PDC)	Interrupt	S12AD AD DA
125		PD1	D1[A1/D1]	MTIOC4B/TIOCB7/ TCLKG	MOSIC/CTX0	IRQ1	AN009
126		PD0	D0[A0/D0]	TIOCA7		IRQ0	AN008
127		P93	A19		CTS7#/RTS7#/SS7#		AN017
128		P92	A18		RXD7/SMISO7/SSCL7		AN016
129		P91	A17		SCK7		AN015
130	VSS						
131		P90	A16		TXD7/SMOSI7/SSDA7		AN014
132	VCC						
133		P47				IRQ15-DS	AN007
134		P46				IRQ14-DS	AN006
135		P45				IRQ13-DS	AN005
136		P44				IRQ12-DS	AN004
137		P43				IRQ11-DS	AN003
138		P42				IRQ10-DS	AN002
139		P41				IRQ9-DS	AN001
140	VREFL0						
141		P40				IRQ8-DS	AN000
142	VREFH0						
143	AVCC0						
144		P07				IRQ15	ADTRG0#

Note 1. The BCLK function is multiplexed with the I/O port function for pin P53, so the port function is not available if the external bus is enabled.

Note 2. Enabled only for the ROM capacity: 2 Mbytes/1.5 Mbytes

Table 1.10 List of Pins and Pin Functions (100-Pin LQFP) (2/4)

Pin No. 100-pin LQFP	Power Supply Clock System Control	I/O Port	Bus EXDMAC	Timers (MTU, TPU, TMR, PPG, RTC, POE)	Communications (ETHERC, SCIc, SCId, RSPI, RIIC, CAN, IEB, USB)	Interrupt	S12AD AD DA
31		P15		MTIOC0B/MTCLKB/ TIOCB2/TCLKB/TMCI2/ PO13	RXD1/SCK3/SMISO1/ SSCL1/CRX1-DS	IRQ5	
32		P14		MTIOC3A/MTCLKA/ TIOCB5/TCLKA/TMRI2/ PO15	CTS1#/RTS1#/SS1#/ CTX1/USB0_DPUPE/ USB0_OVRCURA	IRQ4	
33		P13		MTIOC0B/TIOCA5/ TMO3/PO13	TXD2/SMOSI2/SSDA2/ SDA0[FM+]	IRQ3	ADTRG#
34		P12		TMCI1	RXD2/SMISO2/SSCL2/ SCL0[FM+]	IRQ2	
35	VCC_USB						
36					USB0_DM		
37					USB0_DP		
38	VSS_USB						
39		P55	WAIT#/ EDREQ0	MTIOC4D/TMO3	CRX1/ET_EXOUT	IRQ10	
40		P54	ALE/EDACK0	MTIOC4B/TMCI1	CTS2#/RTS2#/SS2#/ CTX1/ET_LINKSTA		
41		P53*2	BCLK				
42		P52	RD#		RXD2/SMISO2/SSCL2/ SSLB3		
43		P51	WR1#/BC1#/ WAIT#		SCK2/SSLB2		
44		P50	WR0#/WR#		TXD2/SMOSI2/SSDA2/ SSLB1		
45		PC7	A23/CS0#	MTIOC3A/MTCLKB/ TMO2/PO31	TXD8/SMOSI8/SSDA8/ MISOA/ET_COL	IRQ14	
46		PC6	A22/CS1#	MTIOC3C/MTCLKA/ TMCI2/PO30	RXD8/SMISO8/SSCL8/ MOSIA/ET_ETXD3	IRQ13	
47		PC5	A21/CS2#/ WAIT#	MTIOC3B/MTCLKD/ TMRI2/PO29	SCK8/RSPCKA/ ET_ETXD2		
48		PC4	A20/CS3#	MTIOC3D/MTCLKC/ TMCI1/PO25/POE0#	SCK5/CTS8#/RTS8#/ SS8#/SSLA0/ ET_TX_CLK		
49		PC3	A19	MTIOC4D/TCLKB/ PO24	TXD5/SMOSI5/SSDA5/ IETXD/ET_TX_ER		
50		PC2	A18	MTIOC4B/TCLKA/PO21	RXD5/SMISO5/SSCL5/ SSLA3/IERXD/ ET_RX_DV		
51		PC1	A17	MTIOC3A/TCLKD/ PO18	SCK5/SSLA2/ ET_ERXD2	IRQ12	
52		PC0	A16	MTIOC3C/TCLKC/ PO17	CTS5#/RTS5#/SS5#/ SSLA1/ET_ERXD3	IRQ14	
53		PB7	A15	MTIOC3B/TIOCB5/ PO31	TXD9/SMOSI9/SSDA9/ ET_CRS/ RMII_CRS_DV		
54		PB6	A14	MTIOC3D/TIOCA5/ PO30	RXD9/SMISO9/SSCL9/ ET_ETXD1/RMII_TXD1		
55		PB5	A13	MTIOC2A/MTIOC1B/ TIOCB4/TMRI1/PO29/ POE1#	SCK9/ET_ETXD0/ RMII_TXD0		
56		PB4	A12	TIOCA4/PO28	CTS9#/RTS9#/SS9#/ ET_TX_EN/ RMII_TXD_EN		
57		PB3	A11	MTIOC0A/MTIOC4A/ TIOCD3/TCLKD/TMO0/ PO27/POE3#	SCK6/ET_RX_ER/ RMII_RX_ER		
58		PB2	A10	TIOCC3/TCLKC/PO26	CTS6#/RTS6#/SS6#/ ET_RX_CLK/REF50CK		

Table 1.10 List of Pins and Pin Functions (100-Pin LQFP) (4/4)

Pin No. 100-pin LQFP	Power Supply Clock System Control	I/O Port	Bus EXDMAC	Timers (MTU, TPU, TMR, PPG, RTC, POE)	Communications (ETHERC, SCIc, SCId, RSPI, RIIC, CAN, IEB, USB)	Interrupt	S12AD AD DA
94	VREFL0						
95		P40				IRQ8-DS	AN000
96	VREFH0						
97	AVCC0						
98		P07				IRQ15	ADTRG0#
99	AVSS0						
100		P05				IRQ13	DA1

Note 1. Enabled only for the ROM capacity of 768 Kbytes or more

Note 2. The BCLK function is multiplexed with the I/O port function for pin P53, so the port function is not available if the external bus is enabled.

Table 4.1 List of I/O Registers (Address Order) (9/50)

Address	Module Symbol	Register Name	Register Symbol	Number of Bits	Access Size	Number of Access States		Related Function
						ICLK≥PCLK	ICLK<PCLK	
0008 7128h	ICU	DTC activation enable register 040	DTCER040	8	8	2 ICLK		ICUb
0008 712Ah	ICU	DTC activation enable register 042	DTCER042	8	8	2 ICLK		
0008 712Bh	ICU	DTC activation enable register 043	DTCER043	8	8	2 ICLK		
0008 712Dh	ICU	DTC activation enable register 045	DTCER045	8	8	2 ICLK		
0008 712Eh	ICU	DTC activation enable register 046	DTCER046	8	8	2 ICLK		
0008 7140h	ICU	DTC activation enable register 064	DTCER064	8	8	2 ICLK		
0008 7141h	ICU	DTC activation enable register 065	DTCER065	8	8	2 ICLK		
0008 7142h	ICU	DTC activation enable register 066	DTCER066	8	8	2 ICLK		
0008 7143h	ICU	DTC activation enable register 067	DTCER067	8	8	2 ICLK		
0008 7144h	ICU	DTC activation enable register 068	DTCER068	8	8	2 ICLK		
0008 7145h	ICU	DTC activation enable register 069	DTCER069	8	8	2 ICLK		
0008 7146h	ICU	DTC activation enable register 070	DTCER070	8	8	2 ICLK		
0008 7147h	ICU	DTC activation enable register 071	DTCER071	8	8	2 ICLK		
0008 7148h	ICU	DTC activation enable register 072	DTCER072	8	8	2 ICLK		
0008 7149h	ICU	DTC activation enable register 073	DTCER073	8	8	2 ICLK		
0008 714Ah	ICU	DTC activation enable register 074	DTCER074	8	8	2 ICLK		
0008 714Bh	ICU	DTC activation enable register 075	DTCER075	8	8	2 ICLK		
0008 714Ch	ICU	DTC activation enable register 076	DTCER076	8	8	2 ICLK		
0008 714Dh	ICU	DTC activation enable register 077	DTCER077	8	8	2 ICLK		
0008 714Eh	ICU	DTC activation enable register 078	DTCER078	8	8	2 ICLK		
0008 714Fh	ICU	DTC activation enable register 079	DTCER079	8	8	2 ICLK		
0008 7162h	ICU	DTC activation enable register 098	DTCER098	8	8	2 ICLK		
0008 7166h	ICU	DTC activation enable register 102	DTCER102	8	8	2 ICLK		
0008 717Eh	ICU	DTC activation enable register 126	DTCER126	8	8	2 ICLK		
0008 717Fh	ICU	DTC activation enable register 127	DTCER127	8	8	2 ICLK		
0008 7180h	ICU	DTC activation enable register 128	DTCER128	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 7185h	ICU	DTC activation enable register 133	DTCER133	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 7194h	ICU	DTC activation enable register 148	DTCER148	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 719Ah	ICU	DTC activation enable register 154	DTCER154	8	8	2 ICLK		
0008 719Bh	ICU	DTC activation enable register 155	DTCER155	8	8	2 ICLK		

Table 4.1 List of I/O Registers (Address Order) (10/50)

Address	Module Symbol	Register Name	Register Symbol	Number of Bits	Access Size	Number of Access States		Related Function
						ICLK≥PCLK	ICLK<PCLK	
0008 719Ch	ICU	DTC activation enable register 156	DTCER156	8	8	2 ICLK		ICUb
0008 719Dh	ICU	DTC activation enable register 157	DTCER157	8	8	2 ICLK		
0008 719Eh	ICU	DTC activation enable register 158	DTCER158	8	8	2 ICLK		
0008 719Fh	ICU	DTC activation enable register 159	DTCER159	8	8	2 ICLK		
0008 71A0h	ICU	DTC activation enable register 160	DTCER160	8	8	2 ICLK		
0008 71A1h	ICU	DTC activation enable register 161	DTCER161	8	8	2 ICLK		
0008 71A2h	ICU	DTC activation enable register 162	DTCER162	8	8	2 ICLK		
0008 71A3h	ICU	DTC activation enable register 163	DTCER163	8	8	2 ICLK		
0008 71A4h	ICU	DTC activation enable register 164	DTCER164	8	8	2 ICLK		
0008 71A5h	ICU	DTC activation enable register 165	DTCER165	8	8	2 ICLK		
0008 71AAh	ICU	DTC activation enable register 170	DTCER170	8	8	2 ICLK		
0008 71ABh	ICU	DTC activation enable register 171	DTCER171	8	8	2 ICLK		
0008 71ADh	ICU	DTC activation enable register 173	DTCER173	8	8	2 ICLK		
0008 71AEh	ICU	DTC activation enable register 174	DTCER174	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 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 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 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 71BFh	ICU	DTC activation enable register 191	DTCER191	8	8	2 ICLK		
0008 71C0h	ICU	DTC activation enable register 192	DTCER192	8	8	2 ICLK		
0008 71C3h	ICU	DTC activation enable register 195	DTCER195	8	8	2 ICLK		
0008 71C4h	ICU	DTC activation enable register 196	DTCER196	8	8	2 ICLK		
0008 71C6h	ICU	DTC activation enable register 198	DTCER198	8	8	2 ICLK		
0008 71C7h	ICU	DTC activation enable register 199	DTCER199	8	8	2 ICLK		
0008 71C8h	ICU	DTC activation enable register 200	DTCER200	8	8	2 ICLK		
0008 71C9h	ICU	DTC activation enable register 201	DTCER201	8	8	2 ICLK		
0008 71CAh	ICU	DTC activation enable register 202	DTCER202	8	8	2 ICLK		
0008 71CBh	ICU	DTC activation enable register 203	DTCER203	8	8	2 ICLK		
0008 71CEh	ICU	DTC activation enable register 206	DTCER206	8	8	2 ICLK		
0008 71CFh	ICU	DTC activation enable register 207	DTCER207	8	8	2 ICLK		
0008 71D0h	ICU	DTC activation enable register 208	DTCER208	8	8	2 ICLK		
0008 71D6h	ICU	DTC activation enable register 214	DTCER214	8	8	2 ICLK		
0008 71D7h	ICU	DTC activation enable register 215	DTCER215	8	8	2 ICLK		
0008 71D9h	ICU	DTC activation enable register 217	DTCER217	8	8	2 ICLK		
0008 71DAh	ICU	DTC activation enable register 218	DTCER218	8	8	2 ICLK		
0008 71DCh	ICU	DTC activation enable register 220	DTCER220	8	8	2 ICLK		
0008 71DDh	ICU	DTC activation enable register 221	DTCER221	8	8	2 ICLK		
0008 71DFh	ICU	DTC activation enable register 223	DTCER223	8	8	2 ICLK		
0008 71E0h	ICU	DTC activation enable register 224	DTCER224	8	8	2 ICLK		
0008 71E2h	ICU	DTC activation enable register 226	DTCER226	8	8	2 ICLK		
0008 71E3h	ICU	DTC activation enable register 227	DTCER227	8	8	2 ICLK		
0008 71E5h	ICU	DTC activation enable register 229	DTCER229	8	8	2 ICLK		
0008 71E6h	ICU	DTC activation enable register 230	DTCER230	8	8	2 ICLK		
0008 71E8h	ICU	DTC activation enable register 232	DTCER232	8	8	2 ICLK		
0008 71E9h	ICU	DTC activation enable register 233	DTCER233	8	8	2 ICLK		
0008 71EBh	ICU	DTC activation enable register 235	DTCER235	8	8	2 ICLK		
0008 71ECh	ICU	DTC activation enable register 236	DTCER236	8	8	2 ICLK		

Table 4.1 List of I/O Registers (Address Order) (30/50)

Address	Module Symbol	Register Name	Register Symbol	Number of Bits	Access Size	Number of Access States		Related Function
						ICLK≥PCLK	ICLK<PCLK	
0008 C046h	PORT6	Port input data register	PIDR	8	8	2, 3 PCLKB	2 ICLK	I/O Ports
0008 C047h	PORT7	Port input data register	PIDR	8	8	2, 3 PCLKB	2 ICLK	
0008 C048h	PORT8	Port input data register	PIDR	8	8	2, 3 PCLKB	2 ICLK	
0008 C049h	PORT9	Port input data register	PIDR	8	8	2, 3 PCLKB	2 ICLK	
0008 C04Ah	PORTA	Port input data register	PIDR	8	8	2, 3 PCLKB	2 ICLK	
0008 C04Bh	PORTB	Port input data register	PIDR	8	8	2, 3 PCLKB	2 ICLK	
0008 C04Ch	PORTC	Port input data register	PIDR	8	8	2, 3 PCLKB	2 ICLK	
0008 C04Dh	PORTD	Port input data register	PIDR	8	8	2, 3 PCLKB	2 ICLK	
0008 C04Eh	PORTE	Port input data register	PIDR	8	8	2, 3 PCLKB	2 ICLK	
0008 C04Fh	PORTF	Port input data register	PIDR	8	8	2, 3 PCLKB	2 ICLK	
0008 C050h	PORTG	Port input data register	PIDR	8	8	2, 3 PCLKB	2 ICLK	
0008 C052h	PORTJ	Port input data register	PIDR	8	8	2, 3 PCLKB	2 ICLK	
0008 C060h	PORT0	Port input data register	PMR	8	8	2, 3 PCLKB	2 ICLK	
0008 C061h	PORT1	Port input data register	PMR	8	8	2, 3 PCLKB	2 ICLK	
0008 C062h	PORT2	Port mode register	PMR	8	8	2, 3 PCLKB	2 ICLK	
0008 C063h	PORT3	Port mode register	PMR	8	8	2, 3 PCLKB	2 ICLK	
0008 C064h	PORT4	Port mode register	PMR	8	8	2, 3 PCLKB	2 ICLK	
0008 C065h	PORT5	Port mode register	PMR	8	8	2, 3 PCLKB	2 ICLK	
0008 C066h	PORT6	Port mode register	PMR	8	8	2, 3 PCLKB	2 ICLK	
0008 C067h	PORT7	Port mode register	PMR	8	8	2, 3 PCLKB	2 ICLK	
0008 C068h	PORT8	Port mode register	PMR	8	8	2, 3 PCLKB	2 ICLK	
0008 C069h	PORT9	Port mode register	PMR	8	8	2, 3 PCLKB	2 ICLK	
0008 C06Ah	PORTA	Port mode register	PMR	8	8	2, 3 PCLKB	2 ICLK	
0008 C06Bh	PORTB	Port mode register	PMR	8	8	2, 3 PCLKB	2 ICLK	
0008 C06Ch	PORTC	Port mode register	PMR	8	8	2, 3 PCLKB	2 ICLK	
0008 C06Dh	PORTD	Port mode register	PMR	8	8	2, 3 PCLKB	2 ICLK	
0008 C06Eh	PORTE	Port mode register	PMR	8	8	2, 3 PCLKB	2 ICLK	
0008 C06Fh	PORTF	Port mode register	PMR	8	8	2, 3 PCLKB	2 ICLK	
0008 C070h	PORTG	Port mode register	PMR	8	8	2, 3 PCLKB	2 ICLK	
0008 C072h	PORTJ	Port mode register	PMR	8	8	2, 3 PCLKB	2 ICLK	
0008 C080h	PORT0	Open drain control register 0	ODR0	8	8, 16	2, 3 PCLKB	2 ICLK	
0008 C081h	PORT0	Open drain control register 1	ODR1	8	8, 16	2, 3 PCLKB	2 ICLK	
0008 C082h	PORT1	Open drain control register 0	ODR0	8	8, 16	2, 3 PCLKB	2 ICLK	
0008 C083h	PORT1	Open drain control register 1	ODR1	8	8, 16	2, 3 PCLKB	2 ICLK	
0008 C084h	PORT2	Open drain control register 0	ODR0	8	8, 16	2, 3 PCLKB	2 ICLK	
0008 C085h	PORT2	Open drain control register 1	ODR1	8	8, 16	2, 3 PCLKB	2 ICLK	
0008 C086h	PORT3	Open drain control register 0	ODR0	8	8, 16	2, 3 PCLKB	2 ICLK	
0008 C087h	PORT3	Open drain control register 1	ODR1	8	8, 16	2, 3 PCLKB	2 ICLK	
0008 C088h	PORT4	Open drain control register 0	ODR0	8	8, 16	2, 3 PCLKB	2 ICLK	
0008 C089h	PORT4	Open drain control register 1	ODR1	8	8, 16	2, 3 PCLKB	2 ICLK	
0008 C08Ah	PORT5	Open drain control register 0	ODR0	8	8, 16	2, 3 PCLKB	2 ICLK	
0008 C08Bh	PORT5	Open drain control register 1	ODR1	8	8, 16	2, 3 PCLKB	2 ICLK	
0008 C08Ch	PORT6	Open drain control register 0	ODR0	8	8, 16	2, 3 PCLKB	2 ICLK	
0008 C08Dh	PORT6	Open drain control register 1	ODR1	8	8, 16	2, 3 PCLKB	2 ICLK	
0008 C08Eh	PORT7	Open drain control register 0	ODR0	8	8, 16	2, 3 PCLKB	2 ICLK	
0008 C08Fh	PORT7	Open drain control register 1	ODR1	8	8, 16	2, 3 PCLKB	2 ICLK	
0008 C090h	PORT8	Open drain control register 0	ODR0	8	8, 16	2, 3 PCLKB	2 ICLK	
0008 C091h	PORT8	Open drain control register 1	ODR1	8	8, 16	2, 3 PCLKB	2 ICLK	
0008 C092h	PORT9	Open drain control register 0	ODR0	8	8, 16	2, 3 PCLKB	2 ICLK	
0008 C093h	PORT9	Open drain control register 1	ODR1	8	8, 16	2, 3 PCLKB	2 ICLK	
0008 C094h	PORTA	Open drain control register 0	ODR0	8	8, 16	2, 3 PCLKB	2 ICLK	

Table 4.1 List of I/O Registers (Address Order) (33/50)

Address	Module Symbol	Register Name	Register Symbol	Number of Bits	Access Size	Number of Access States		Related Function
						ICLK≥PCLK	ICLK<PCLK	
0008 C178h	MPC	P70 pin function control register	P70PFS	8	8	2, 3 PCLKB	2 ICLK	MPC
0008 C179h	MPC	P71 pin function control register	P71PFS	8	8	2, 3 PCLKB	2 ICLK	
0008 C17Ah	MPC	P72 pin function control register	P72PFS	8	8	2, 3 PCLKB	2 ICLK	
0008 C17Bh	MPC	P73 pin function control register	P73PFS	8	8	2, 3 PCLKB	2 ICLK	
0008 C17Ch	MPC	P74 pin function control register	P74PFS	8	8	2, 3 PCLKB	2 ICLK	
0008 C17Dh	MPC	P75 pin function control register	P75PFS	8	8	2, 3 PCLKB	2 ICLK	
0008 C17Eh	MPC	P76 pin function control register	P76PFS	8	8	2, 3 PCLKB	2 ICLK	
0008 C17Fh	MPC	P77 pin function control register	P77PFS	8	8	2, 3 PCLKB	2 ICLK	
0008 C180h	MPC	P80 pin function control register	P80PFS	8	8	2, 3 PCLKB	2 ICLK	
0008 C181h	MPC	P81 pin function control register	P81PFS	8	8	2, 3 PCLKB	2 ICLK	
0008 C182h	MPC	P82 pin function control register	P82PFS	8	8	2, 3 PCLKB	2 ICLK	
0008 C183h	MPC	P83 pin function control register	P83PFS	8	8	2, 3 PCLKB	2 ICLK	
0008 C186h	MPC	P86 pin function control register	P86PFS	8	8	2, 3 PCLKB	2 ICLK	
0008 C187h	MPC	P87 pin function control register	P87PFS	8	8	2, 3 PCLKB	2 ICLK	
0008 C188h	MPC	P90 pin function control register	P90PFS	8	8	2, 3 PCLKB	2 ICLK	
0008 C189h	MPC	P91 pin function control register	P91PFS	8	8	2, 3 PCLKB	2 ICLK	
0008 C18Ah	MPC	P92 pin function control register	P92PFS	8	8	2, 3 PCLKB	2 ICLK	
0008 C18Bh	MPC	P93 pin function control register	P93PFS	8	8	2, 3 PCLKB	2 ICLK	
0008 C190h	MPC	PA0 pin function control register	PA0PFS	8	8	2, 3 PCLKB	2 ICLK	
0008 C191h	MPC	PA1 pin function control register	PA1PFS	8	8	2, 3 PCLKB	2 ICLK	
0008 C192h	MPC	PA2 pin function control register	PA2PFS	8	8	2, 3 PCLKB	2 ICLK	
0008 C193h	MPC	PA3 pin function control register	PA3PFS	8	8	2, 3 PCLKB	2 ICLK	
0008 C194h	MPC	PA4 pin function control register	PA4PFS	8	8	2, 3 PCLKB	2 ICLK	
0008 C195h	MPC	PA5 pin function control register	PA5PFS	8	8	2, 3 PCLKB	2 ICLK	
0008 C196h	MPC	PA6 pin function control register	PA6PFS	8	8	2, 3 PCLKB	2 ICLK	
0008 C197h	MPC	PA7 pin function control register	PA7PFS	8	8	2, 3 PCLKB	2 ICLK	
0008 C198h	MPC	PB0 pin function control register	PB0PFS	8	8	2, 3 PCLKB	2 ICLK	
0008 C199h	MPC	PB1 pin function control register	PB1PFS	8	8	2, 3 PCLKB	2 ICLK	
0008 C19Ah	MPC	PB2 pin function control register	PB2PFS	8	8	2, 3 PCLKB	2 ICLK	
0008 C19Bh	MPC	PB3 pin function control register	PB3PFS	8	8	2, 3 PCLKB	2 ICLK	
0008 C19Ch	MPC	PB4 pin function control register	PB4PFS	8	8	2, 3 PCLKB	2 ICLK	
0008 C19Dh	MPC	PB5 pin function control register	PB5PFS	8	8	2, 3 PCLKB	2 ICLK	
0008 C19Eh	MPC	PB6 pin function control register	PB6PFS	8	8	2, 3 PCLKB	2 ICLK	
0008 C19Fh	MPC	PB7 pin function control register	PB7PFS	8	8	2, 3 PCLKB	2 ICLK	
0008 C1A0h	MPC	PC0 pin function control register	PC0PFS	8	8	2, 3 PCLKB	2 ICLK	
0008 C1A1h	MPC	PC1 pin function control register	PC1PFS	8	8	2, 3 PCLKB	2 ICLK	
0008 C1A2h	MPC	PC2 pin function control register	PC2PFS	8	8	2, 3 PCLKB	2 ICLK	
0008 C1A3h	MPC	PC3 pin function control register	PC3PFS	8	8	2, 3 PCLKB	2 ICLK	
0008 C1A4h	MPC	PC4 pin function control register	PC4PFS	8	8	2, 3 PCLKB	2 ICLK	
0008 C1A5h	MPC	PC5 pin function control register	PC5PFS	8	8	2, 3 PCLKB	2 ICLK	
0008 C1A6h	MPC	PC6 pin function control register	PC6PFS	8	8	2, 3 PCLKB	2 ICLK	
0008 C1A7h	MPC	PC7 pin function control register	PC7PFS	8	8	2, 3 PCLKB	2 ICLK	
0008 C1A8h	MPC	PD0 pin function control register	PD0PFS	8	8	2, 3 PCLKB	2 ICLK	
0008 C1A9h	MPC	PD1 pin function control register	PD1PFS	8	8	2, 3 PCLKB	2 ICLK	
0008 C1AAh	MPC	PD2 pin function control register	PD2PFS	8	8	2, 3 PCLKB	2 ICLK	
0008 C1ABh	MPC	PD3 pin function control register	PD3PFS	8	8	2, 3 PCLKB	2 ICLK	
0008 C1ACh	MPC	PD4 pin function control register	PD4PFS	8	8	2, 3 PCLKB	2 ICLK	
0008 C1ADh	MPC	PD5 pin function control register	PD5PFS	8	8	2, 3 PCLKB	2 ICLK	
0008 C1AEh	MPC	PD6 pin function control register	PD6PFS	8	8	2, 3 PCLKB	2 ICLK	
0008 C1AFh	MPC	PD7 pin function control register	PD7PFS	8	8	2, 3 PCLKB	2 ICLK	
0008 C1B0h	MPC	PE0 pin function control register	PE0PFS	8	8	2, 3 PCLKB	2 ICLK	

Table 4.1 List of I/O Registers (Address Order) (40/50)

Address	Module Symbol	Register Name	Register Symbol	Number of Bits	Access Size	Number of Access States		Related Function
						ICLK≥PCLK	ICLK<PCLK	
000A 0054h	USB0	USB request type register	USBREQ	16	16	9 PCLKB or more	Rounded up to the nearest integer greater than 1 + 9/ (frequency ratio of ICLK/ PCLKB)*6	
000A 0056h	USB0	USB request value register	USBVAL	16	16	9 PCLKB or more	Rounded up to the nearest integer greater than 1 + 9/ (frequency ratio of ICLK/ PCLKB)*6	
000A 0058h	USB0	USB request index register	USBINDX	16	16	9 PCLKB or more	Rounded up to the nearest integer greater than 1 + 9/ (frequency ratio of ICLK/ PCLKB)*6	
000A 005Ah	USB0	USB request length register	USBLENG	16	16	9 PCLKB or more	Rounded up to the nearest integer greater than 1 + 9/ (frequency ratio of ICLK/ PCLKB)*6	
000A 005Ch	USB0	DCP configuration register	DCPCFG	16	16	9 PCLKB or more	Rounded up to the nearest integer greater than 1 + 9/ (frequency ratio of ICLK/ PCLKB)*6	
000A 005Eh	USB0	DCP maximum packet size register	DCPMAXP	16	16	9 PCLKB or more	Rounded up to the nearest integer greater than 1 + 9/ (frequency ratio of ICLK/ PCLKB)*6	
000A 0060h	USB0	DCP control register	DCPCTR	16	16	9 PCLKB or more	Rounded up to the nearest integer greater than 1 + 9/ (frequency ratio of ICLK/ PCLKB)*6	
000A 0064h	USB0	Pipe window select register	PIPESEL	16	16	9 PCLKB or more	Rounded up to the nearest integer greater than 1 + 9/ (frequency ratio of ICLK/ PCLKB)*6	USBa
000A 0068h	USB0	Pipe configuration register	PIPECFG	16	16	9 PCLKB or more	Rounded up to the nearest integer greater than 1 + 9/ (frequency ratio of ICLK/ PCLKB)*6	
000A 006Ch	USB0	Pipe maximum packet size register	PIPEMAXP	16	16	9 PCLKB or more	Rounded up to the nearest integer greater than 1 + 9/ (frequency ratio of ICLK/ PCLKB)*6	

Table 4.1 List of I/O Registers (Address Order) (46/50)

Address	Module Symbol	Register Name	Register Symbol	Number of Bits	Access Size	Number of Access States		Related Function
						ICLK≥PCLK	ICLK<PCLK	
000A 0268h	USB1	Pipe configuration register	PIPECFG	16	16	9 PCLKB or more	Rounded up to the nearest integer greater than 1 + 9/ (frequency ratio of ICLK/ PCLKB)*6	
000A 026Ch	USB1	Pipe maximum packet size register	PIPEMAXP	16	16	9 PCLKB or more	Rounded up to the nearest integer greater than 1 + 9/ (frequency ratio of ICLK/ PCLKB)*6	
000A 026Eh	USB1	Pipe cycle control register	PIPEPERI	16	16	9 PCLKB or more	Rounded up to the nearest integer greater than 1 + 9/ (frequency ratio of ICLK/ PCLKB)*6	
000A 0270h	USB1	Pipe 1 control register	PIPE1CTR	16	16	9 PCLKB or more	Rounded up to the nearest integer greater than 1 + 9/ (frequency ratio of ICLK/ PCLKB)*6	USBa
000A 0272h	USB1	Pipe 2 control register	PIPE2CTR	16	16	9 PCLKB or more	Rounded up to the nearest integer greater than 1 + 9/ (frequency ratio of ICLK/ PCLKB)*6	
000A 0274h	USB1	Pipe 3 control register	PIPE3CTR	16	16	9 PCLKB or more	Rounded up to the nearest integer greater than 1 + 9/ (frequency ratio of ICLK/ PCLKB)*6	
000A 0276h	USB1	Pipe 4 control register	PIPE4CTR	16	16	9 PCLKB or more	Rounded up to the nearest integer greater than 1 + 9/ (frequency ratio of ICLK/ PCLKB)*6	
000A 0278h	USB1	Pipe 5 control register	PIPE5CTR	16	16	9 PCLKB or more	Rounded up to the nearest integer greater than 1 + 9/ (frequency ratio of ICLK/ PCLKB)*6	
000A 027Ah	USB1	Pipe 6 control register	PIPE6CTR	16	16	9 PCLKB or more	Rounded up to the nearest integer greater than 1 + 9/ (frequency ratio of ICLK/ PCLKB)*6	
000A 027Ch	USB1	Pipe 7 control register	PIPE7CTR	16	16	9 PCLKB or more	Rounded up to the nearest integer greater than 1 + 9/ (frequency ratio of ICLK/ PCLKB)*6	

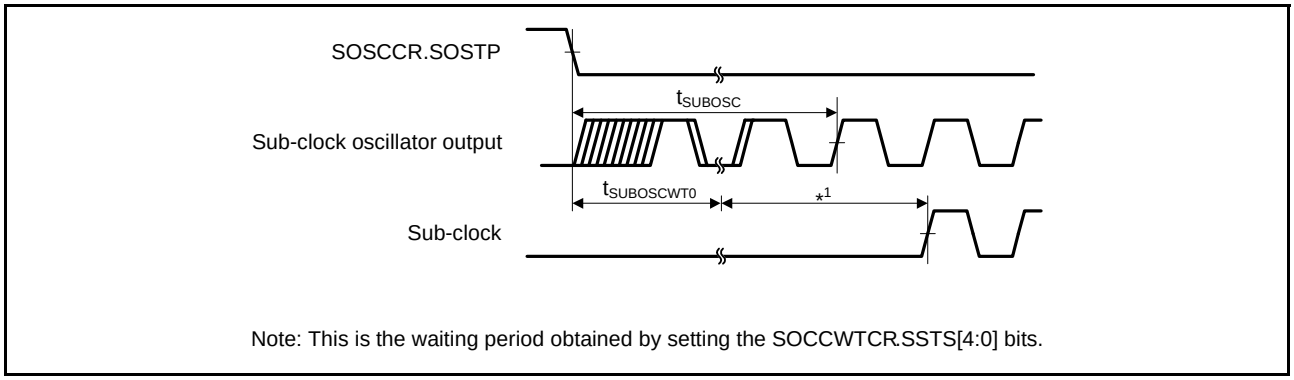


Figure 5.12 Sub-Clock Oscillation Start Timing

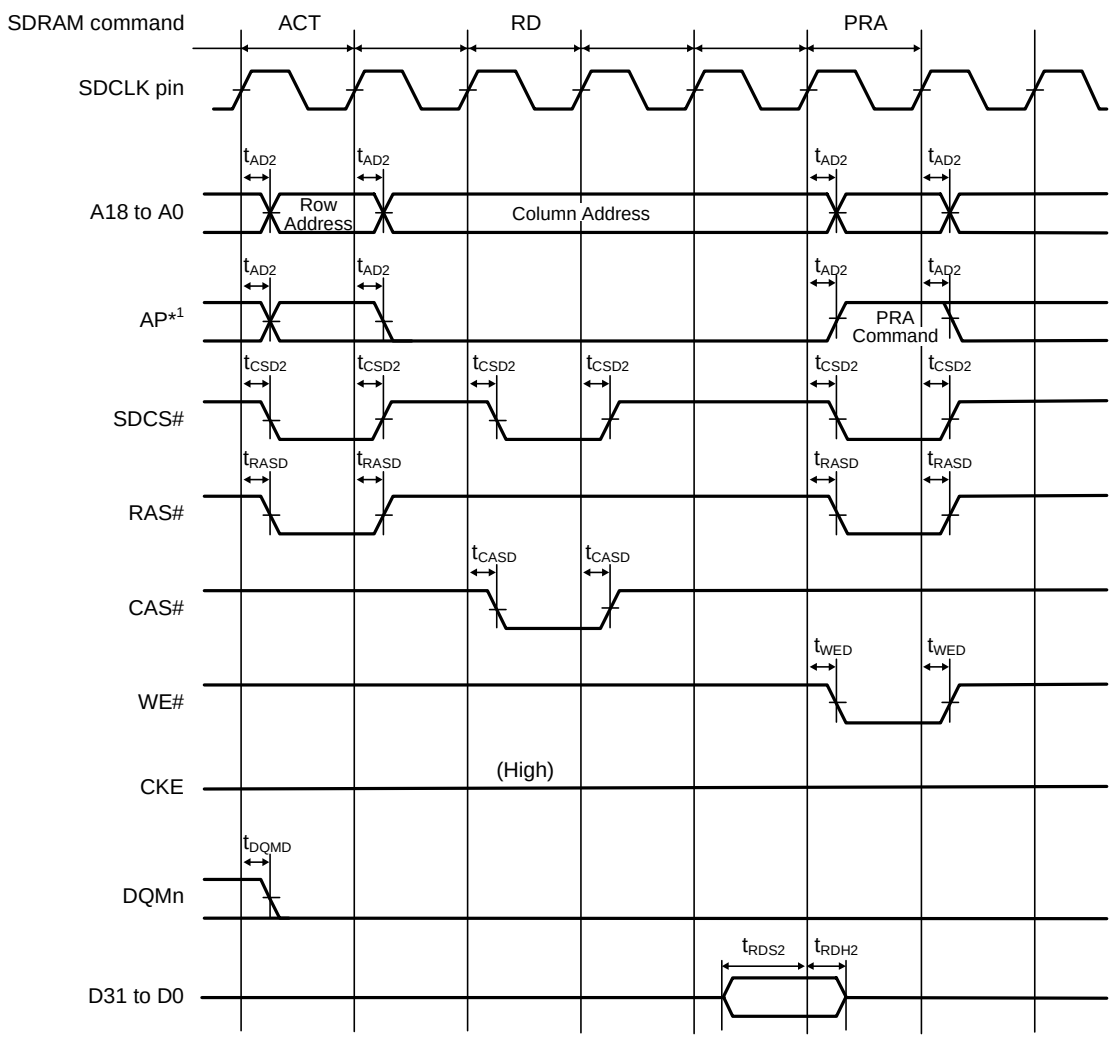
5.3.3 Timing of Recovery from Low Power Consumption Modes

Table 5.14 Timing of Recovery from Low Power Consumption Modes

Conditions: VCC = AVCC0 = VREFH = VCC_USB = V_{BATT} = 2.7 to 3.6 V, VREFH0 = 2.7 V to AVCC0,
VSS = AVSS0 = VREFL/VREFL0 = VSS_USB = 0 V, $T_a = T_{opr}$

Item			Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Recovery time after cancellation of software standby mode	Crystal resonator connected to main clock oscillator	Main clock oscillator operating	t_{SBYMC}	10	—	—	ms	Figure 5.13
		Main clock oscillator and PLL circuit operating	t_{SBYPC}	10	—	—	ms	
	External clock input to main clock oscillator	Main clock oscillator operating	t_{SBYEX}	1	—	—	ms	
		Main clock oscillator and PLL circuit operating	t_{SBYPE}	1	—	—	ms	
	Sub-clock oscillator operating		t_{SBYSC}	2	—	—	s	
	High-speed on-chip oscillator operating		t_{SBYHO}	—	—	2	ms	
	Low-speed on-chip oscillator or IWDT-dedicated on-chip oscillator operating		t_{SBYLO}	—	—	800	µs	
Recovery time after cancellation of deep software standby mode			t_{DSBY}	—	—	1.0	ms	Figure 5.14
Wait time after cancellation of deep software standby mode			t_{DSBYWT}	45	—	46	t_{cyc}	

Note: The wait time varies depending on the state in which each oscillator was when the WAIT instruction was executed. The recovery time when multiple oscillators are operating is the same period as that when the oscillator which requires the longest time of all operating oscillators to recover is operating alone.



Note 1: Address pins for output of the precharge-setting command (Precharge-sel) for SDRAM.

Figure 5.24 SDRAM Space Single Read Bus Timing

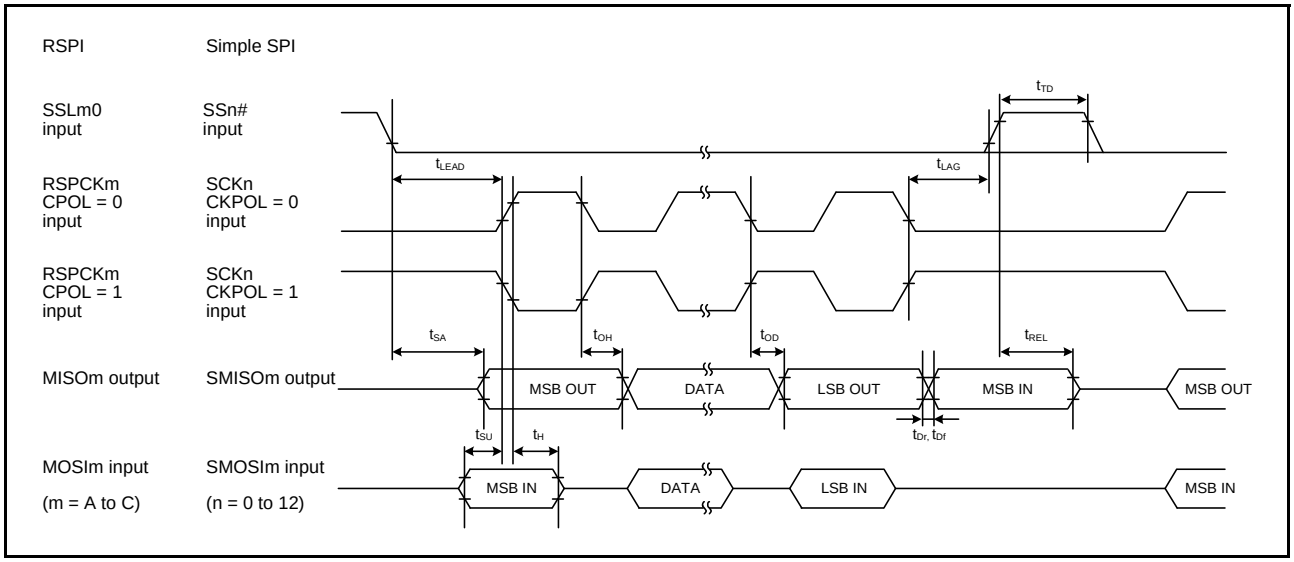


Figure 5.45 RSPI Timing (Slave, CPHA = 0) and Simple SPI Timing (Slave, CKPH = 1)

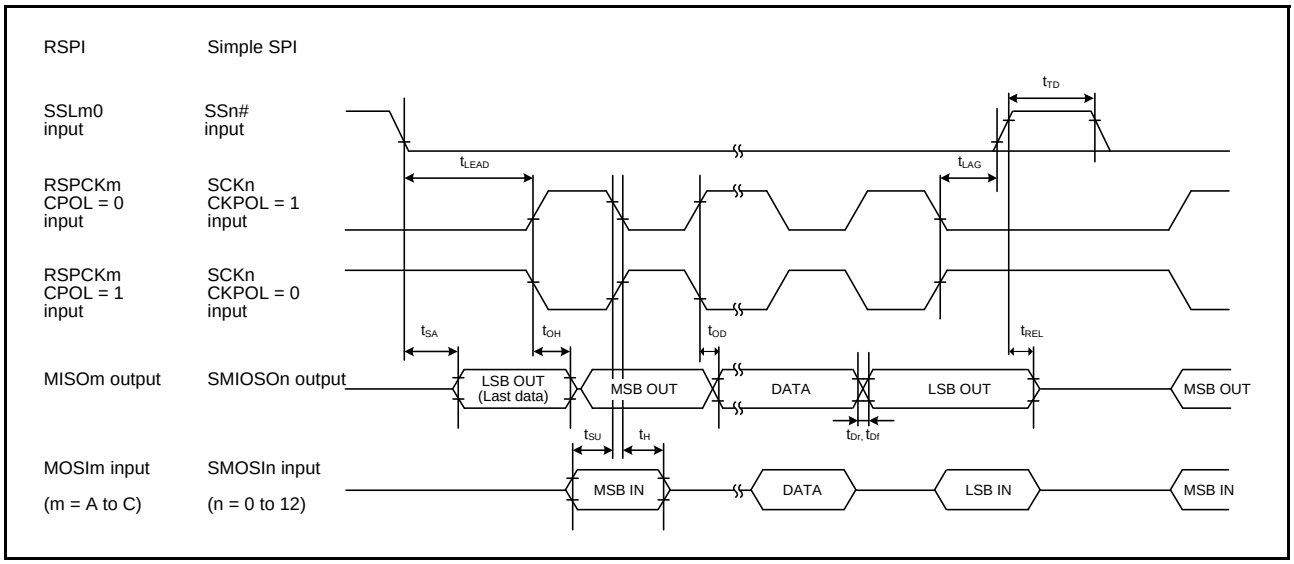


Figure 5.46 RSPI Timing (Slave, CPHA = 1) and Simple SPI Timing (Slave, CKPH = 0)

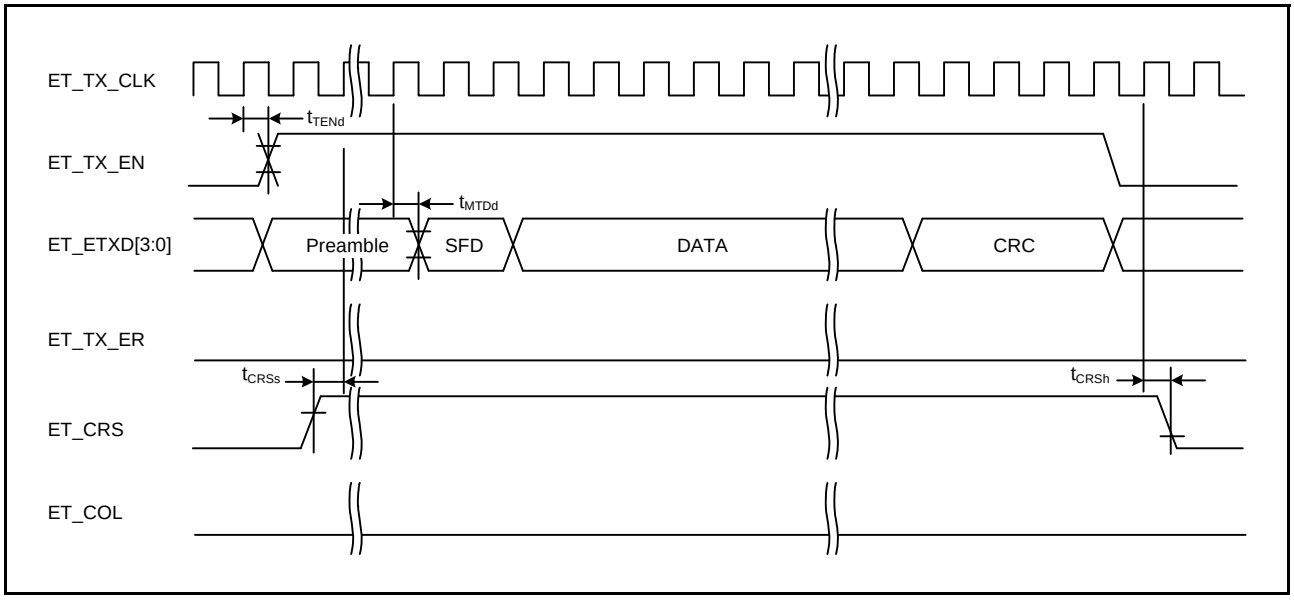


Figure 5.53 MII Transmission Timing (Normal Operation)

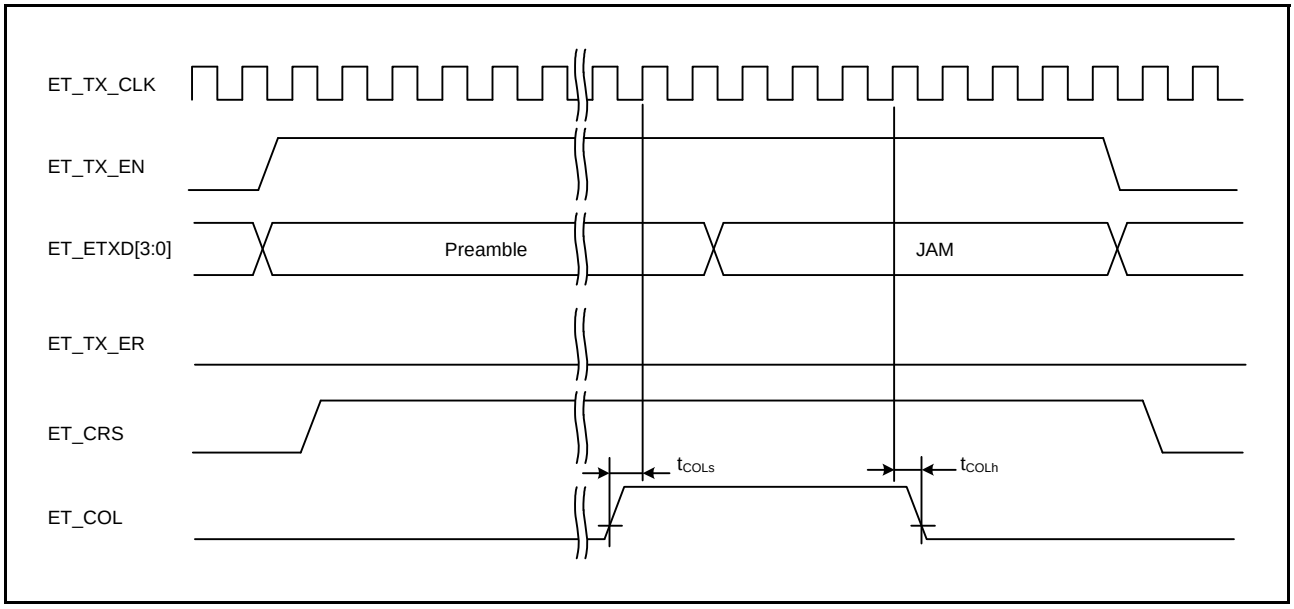


Figure 5.54 MII Transmission Timing (Conflict Occurrence)

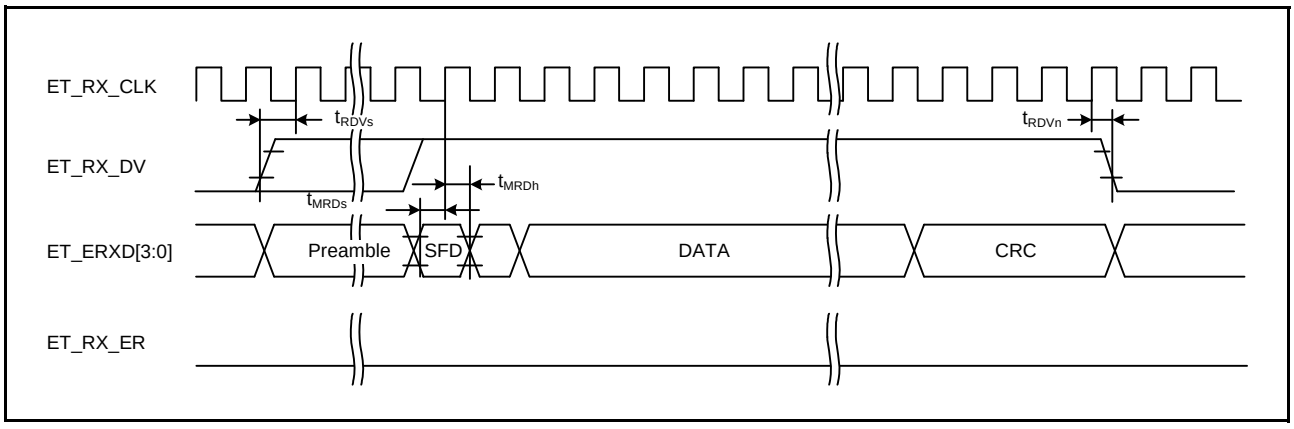


Figure 5.55 MII Reception Timing (Normal Operation)

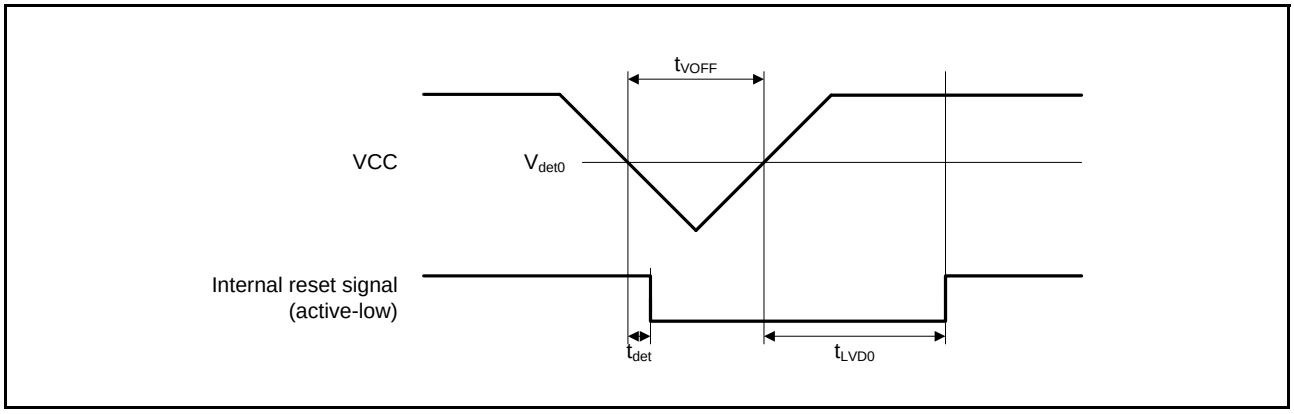


Figure 5.64 Voltage Detection Circuit Timing (V_{det0})

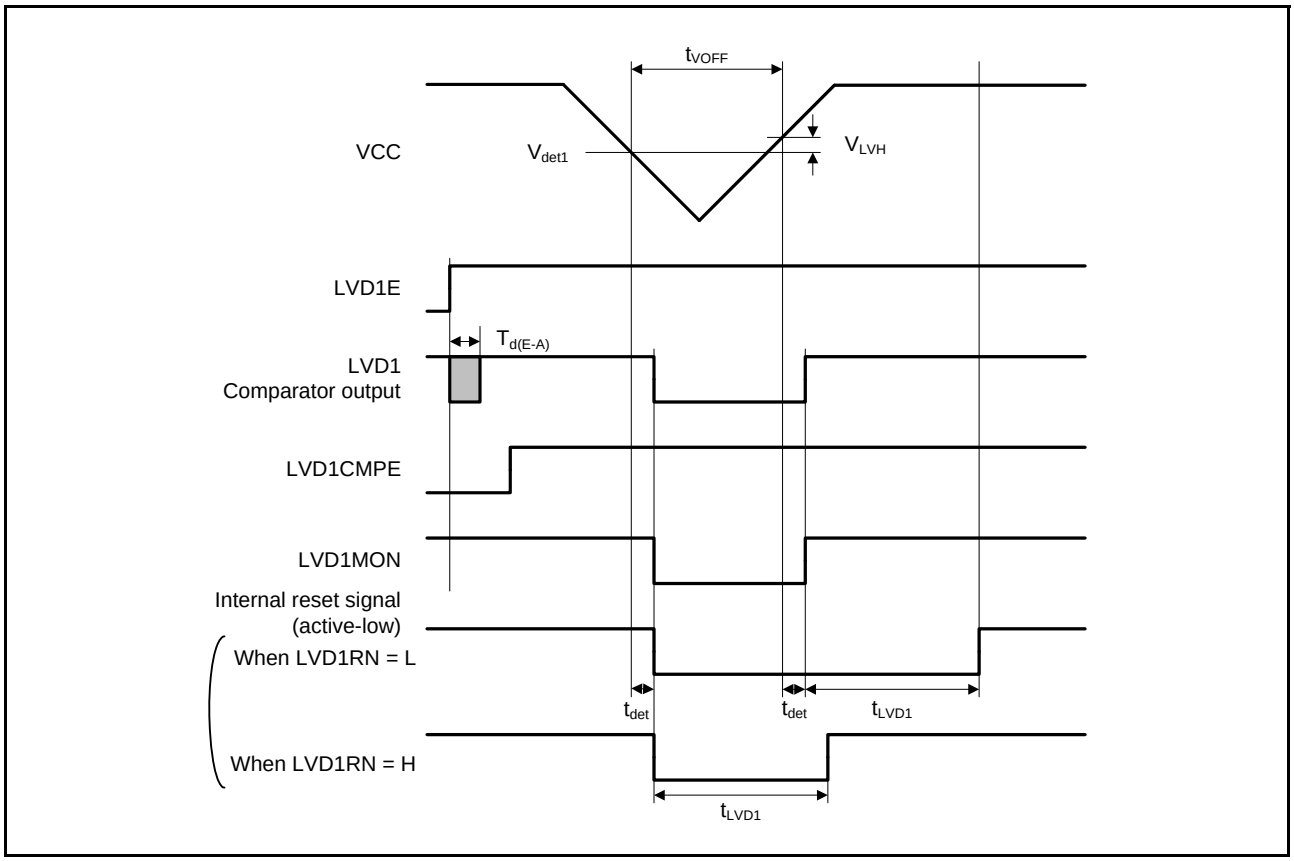


Figure 5.65 Voltage Detection Circuit Timing (V_{det1})

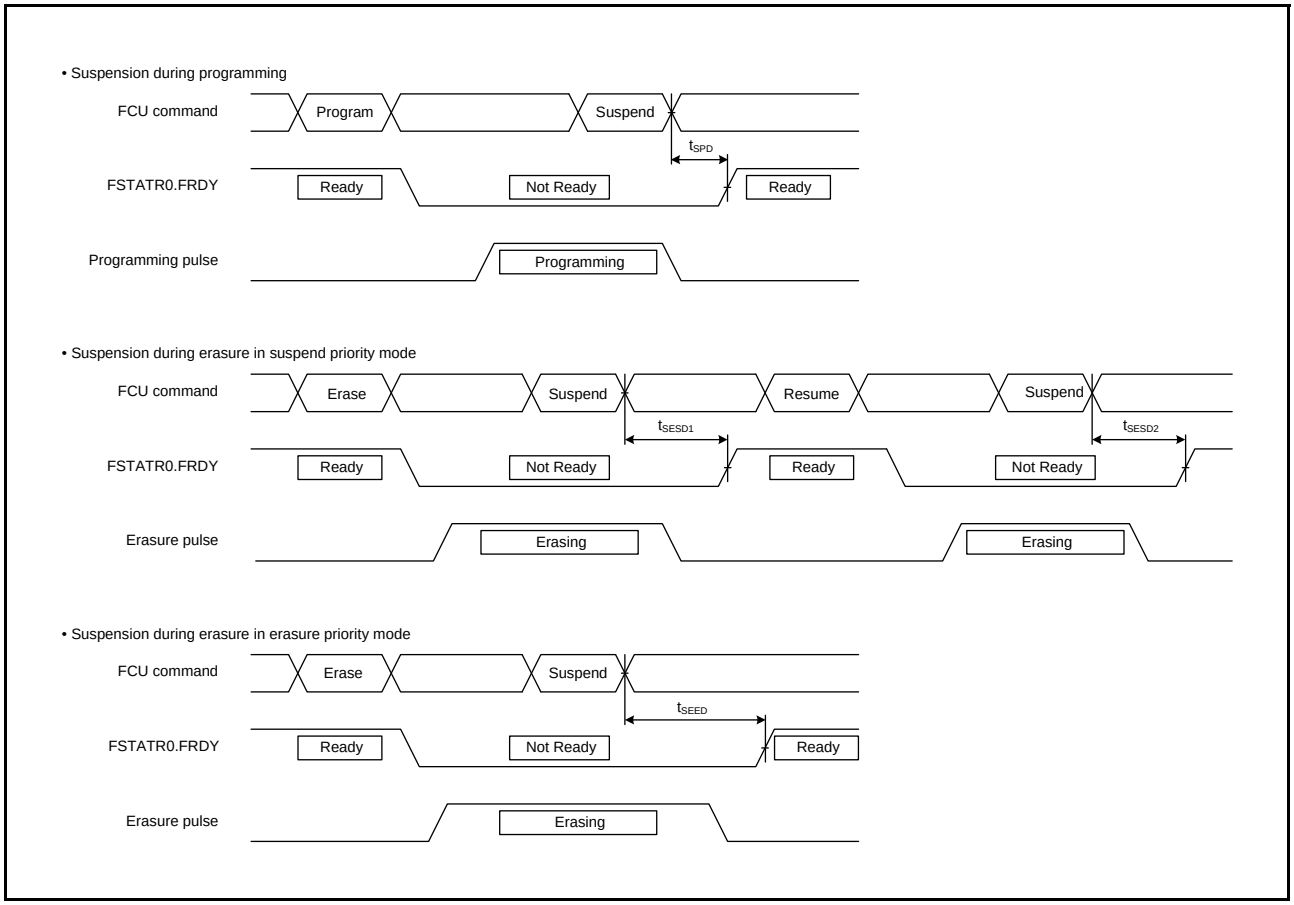
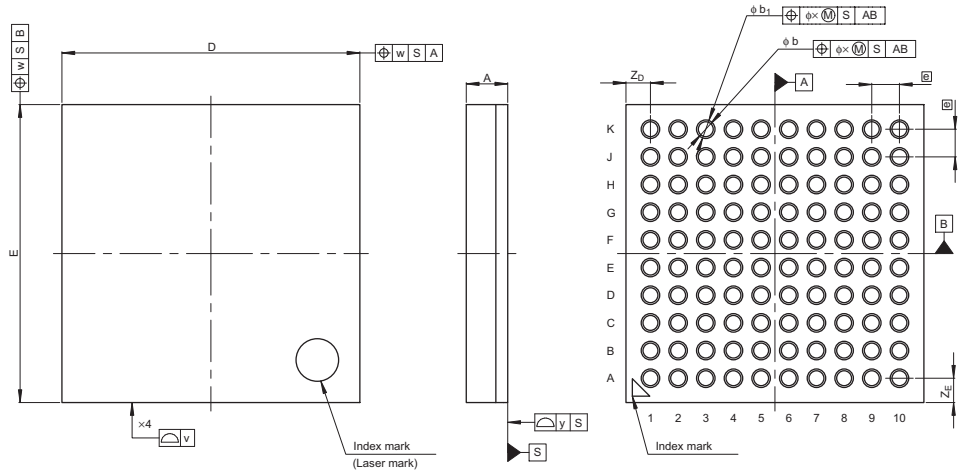


Figure 5.69 Flash Memory Program/Erase Suspend Timing

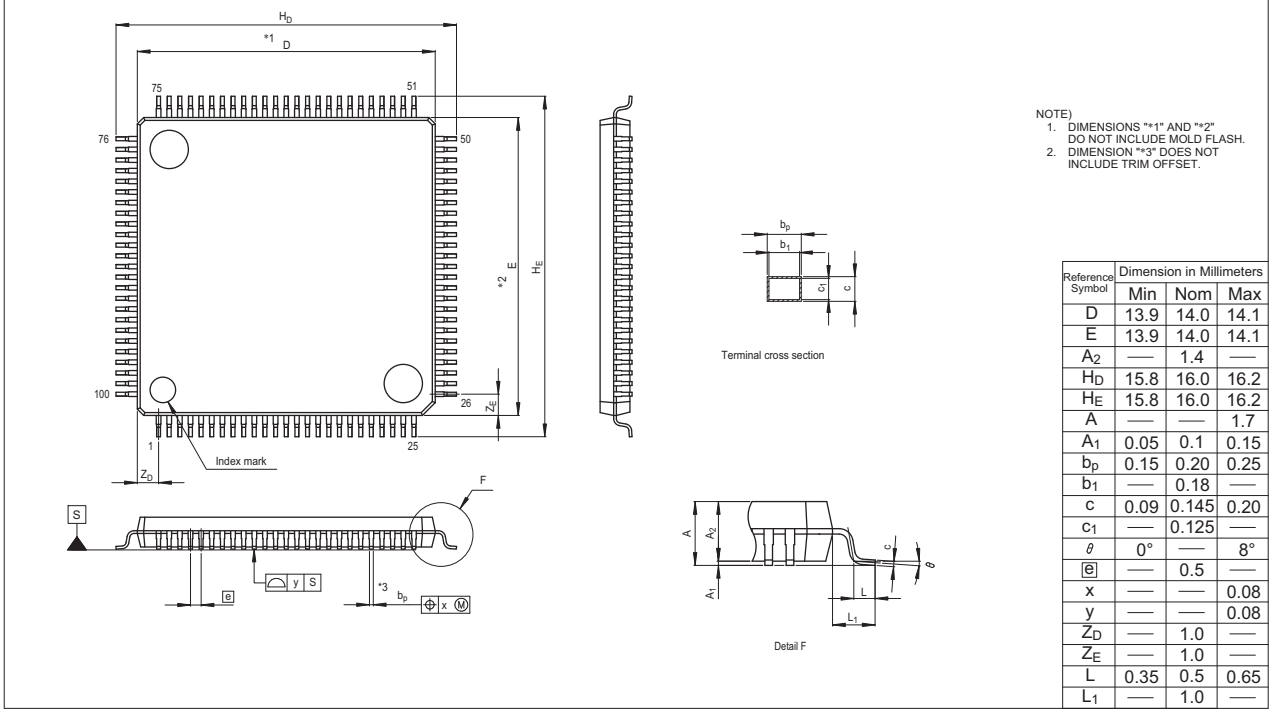
JEITA Package Code	RENESAS Code	Previous Code	MASS[Typ.]
P-TFLGA100-7x7-0.65	PTLG0100JA-A	100F0G	0.1g



Reference Symbol	Dimension in Millimeters		
	Min	Nom	Max
D	—	7.0	—
E	—	7.0	—
v	—	—	0.15
w	—	—	0.20
A	—	—	1.05
e	—	0.65	—
b	0.31	0.35	0.39
b_1	0.385	0.435	0.485
x	—	—	0.08
y	—	—	0.10
Z_D	—	0.575	—
Z_E	—	0.575	—

Figure F 100-pin TFLGA (PTLG0100JA-A)

JEITA Package Code	RENESAS Code	Previous Code	MASS[Typ.]
P-LFQFP100-14x14-0.50	PLQP0100KB-A	100P6Q-A / FP-100U / FP-100UV	0.6g



NOTE)
1. DIMENSIONS "*1" AND "*2" DO NOT INCLUDE MOLD FLASH.
2. DIMENSION "*3" DOES NOT INCLUDE TRIM OFFSET.

Reference Symbol	Dimension in Millimeters		
	Min	Nom	Max
D	13.9	14.0	14.1
E	13.9	14.0	14.1
A_2	—	1.4	—
H_D	15.8	16.0	16.2
H_E	15.8	16.0	16.2
A	—	—	1.7
A_1	0.05	0.1	0.15
b_p	0.15	0.20	0.25
b_1	—	0.18	—
c	0.09	0.145	0.20
c_1	—	0.125	—
θ	0°	—	8°
e	—	0.5	—
x	—	—	0.08
y	—	—	0.08
Z_D	—	1.0	—
Z_E	—	1.0	—
L	0.35	0.5	0.65
L_1	—	1.0	—

Figure G 100-pin LQFP (PLQP0100KB-A)

REVISION HISTORY — RX63N Group, RX631 Group Datasheet

Rev.	Date	Description	
		Page	Summary
0.50	May 13. 2011	—	First Edition issued
0.90	Dec 27. 2011	All	
		—	Package added (177-pin TFLGA, 176-pin LFBGA, 145-pin TFLGA), module name changed
		—	Interrupt Controller (ICUb) module name changed
		1. Overview	
		2 to 6	Table 1.1 Outline of Specifications, Reset, Realtime clock, Temperature sensor, Power supply voltage, changed
		8 to 10	Table 1.3 List of Products, changed
		10	Figure 1.1 How to Read the Product Part No., changed
		12 to 17	Table 1.4 Pin Functions, BSCANP pin added
		18	Figure 1.3 Pin Assignment (176-Pin TFLGA), added
		19	Figure 1.4 Pin Assignment (176-Pin LFBGA), added
		20	Figure 1.5 Pin Assignment (176-Pin LQFP), pin 18 changed
		21	Figure 1.6 Pin Assignment (144-Pin TFLGA), added
		22	Figure 1.7 Pin Assignment (144-Pin LQFP), pin 16 changed
		23	Figure 1.8 Pin Assignment (100-Pin LQFP), pin 7 changed
		24 to 28	Table 1.5 List of Pins and Pin Functions (177-pin TFLGA, 176-pin LFBGA), added
		34 to 38	Table 1.7 List of Pins and Pin Functions (145-Pin TFLGA), added
		4. I/O Registers	
		56 to 99	Table 5.1 List of I/O Registers, changed
		Appendix 2. Package Dimensions	
		100	Figure A. 177-pin TFLGA (PTLG0177KA-A), added
		101	Figure B. 176-pin LFBGA (PLBG0176GA-A), added
		103	Figure D. 145-pin TFLGA (PTLG0145KA-A), added
		105	Figure F. 100-pin TFLGA (PTLG0100KA-A), added
1.00	Jun 06. 2012	1. Overview	
		2 to 6	Table1.1 Outline of Specifications: CPU, ROM, RAM, E2 DataFlash, clock generation circuit, temperature sensor, power supply voltage, changed. Low power consumption, deleted
		8 to 10	Table1.3 List of Products, changed
		11	Figure 1.2 Block Diagram, changed
		12	Table1.4 Pin Functions, description of VCC, changed
		24 to 28	Table 1.5 List of Pin and Pin Functions (177-Pin TFLGA, 176-Pin LFBGA): SDRAMC, added to table header; BCLK in pin number line M8, moved to Power Supply Clock System Control column
		29 to 33	Table 1.6 List of Pin and Pin Functions (176-Pin LQFP): SDRAMC, added to table header; BCLK in pin number line 68, moved to Power Supply Clock System Control column
		34 to 38	Table 1.7 List of Pin and Pin Functions (145-Pin TFLGA): SDRAMC, added to table header; MOSIB, added to pin number line D13; T_ERXD1 in pin number line H12, changed to ET_ERXD1; PO8, added to pin number line J4; BCLK in pin number line K6, moved to Power Supply Clock System Control column
		39 to 43	Table 1.8 List of Pins and Pin Functions (144-Pin LQFP): SDRAMC, added to table header; PO8, added to pin number line 29; BCLK in pin number line 53, moved to Power Supply Clock System Control column; T_ERXD1 in pin number 87, changed to ET_ERXD1; MOSIB, added to pin number line 102
		44 to 47	Table 1.9 List of Pins and Pin Functions (100-Pin LQFP): BCLK in pin number line 41, moved to Power Supply Clock System Control column
		4. I/O Registers	
		57, 58	Table4.1, MPU registers, added
		5. Electrical Characteristics	
		105 to 163	Added