RX Family

List of Firmware Integration Technology modules included with RX Driver Package

Introduction

This application note indicates Firmware Integration Technology (FIT) module version included with RX Driver Package (RDP).

Target Device

RX Family MCU corresponding to FIT module.

Contents

1. Overview

Indicates FIT module version included with RDP.

2. List of FIT modules included with RX Driver Package

List of FIT modules included with RDP in the table below.

Table 2.1 List of device driver included with RDP

FIT Module	Document Number	RDP																						
		1.10	1.11	1.12	1.13	1.14	1.15	1.16	1.17	1.18	1.19	1.20	1.22	1.23	1.24	1.25	1.26	1.27	1.28	1.30	1.31	1.32	1.33	1.34
BSP	R01AN1685	3.31	3.40	3.50	3.60	3.71	3.71	3.91	3.91	3.91	4.01	5.20	5.20	5.40	5.50	5.52	5.52	5.61	5.63	5.66	6.11	6.21	7.00	7.10
LVD	R01AN3152	1.50	2.10	2.20	2.30	2.31	2.31	2.40	2.41	2.41	2.50	3.00	3.20	3.20	3.30	3.40	3.50	3.60	3.60	3.60	3.70	3.80	3.90	4.00
LPC	R01AN2769	-	-	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.41	1.41	2.00	2.00	2.00	2.00	2.01	2.01	2.01	2.02	2.03	2.03	2.03
VBATT	R01AN2796	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.02	1.03	1.04	1.04	1.04	1.04	1.04	1.05	1.05	1.05	2.00	2.00	2.10	2.10
IRQ	R01AN1668	1.90	2.00	2.10	2.20	2.21	2.21	2.30	2.31	2.31	2.40	3.00	3.20	3.20	3.30	3.40	3.50	3.60	3.60	3.60	3.70	3.80	3.90	4.00
DTC	R01AN1819	2.04	2.05	2.07	2.08	2.08	2.08	2.09	2.09	2.09	2.20	3.00	3.20	3.21	3.30	3.40	3.50	3.60	3.60	3.60	3.70	3.80	3.90	4.00
DMAC	R01AN2063	1.03	1.04	1.04	1.05	1.05	1.05	1.06	1.06	1.06	1.20	2.00	2.20	2.20	2.20	2.30	2.40	2.50	2.50	2.50	2.60	2.60	2.70	2.80
GPIO	R01AN1721	2.00	2.10	2.20	2.30	2.31	2.31	2.40	2.41	2.41	2.50	3.00	3.20	3.20	3.30	3.40	3.50	3.60	3.70	3.90	4.00	4.10	4.20	4.40
MPC	R01AN1724	2.00	2.10	2.20	2.30	2.31	2.31	2.40	2.41	2.41	2.50	3.00	3.20	3.20	3.30	3.40	3.50	3.60	3.60	3.80	3.90	3.90	4.10	4.30
CMT	R01AN1856	2.90	3.00	3.10	3.20	3.21	3.21	3.30	3.31	3.31	3.40	4.00	4.20	4.20	4.31	4.31	4.40	4.70	4.70	4.70	4.80	4.90	5.00	5.10
CMTW	R01AN2199	1.10	1.20	1.20	1.30	1.31	1.31	1.31	1.32	1.32	1.40	2.00	2.10	2.10	2.10	2.20	2.20	2.30	2.30	2.30	2.40	2.40	2.50	2.50
RTC	R01AN1817	2.41	2.50	2.50	2.71	2.72	2.72	2.72	2.73	2.73	2.74	2.75	2.77	2.77	2.77	2.78	2.78	2.79	2.80	2.80	2.81	2.82	2.82	2.82
LPT	R01AN2571	1.00	1.10	1.11	1.20	1.21	1.21	1.21	1.22	1.22	1.22	1.23	1.23	1.23	1.23	1.23	1.23	2.00	2.01	2.01	2.01	3.00	3.00	3.01
IWDT	R01AN1820	1.51	1.60	1.70	1.80	1.81	1.81	1.90	1.91	1.91	2.00	3.00	3.20	3.20	3.30	3.40	3.50	3.60	3.60	3.60	3.70	3.80	3.90	4.00
WDT	R01AN3200	-	1.00	1.00	1.10	1.20	1.20	1.30	1.31	1.31	1.40	2.00	2.20	2.20	2.20	2.30	2.30	2.40	2.40	2.40	2.50	2.50	2.60	2.70
SCI	R01AN1815	1.70	1.80	1.90	2.00	2.01	2.01	2.10	2.11	2.11	2.20	3.00	3.20	3.20	3.30	3.40	3.50	3.70	3.70	3.70	3.80	3.90	4.10	4.30
RSCI	R01AN5759	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.00	1.00	2.00	2.00
SCIFA	R01AN2222	1.10	1.10	1.10	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.22	1.22	1.22	1.22	2.00	2.00	2.00	2.01	2.01	2.01	2.01	2.01	2.01
SCI-IIC	R01AN1691	1.90	2.00	2.00	2.20	2.20	2.20	2.20	2.31	2.31	2.40	2.41	2.43	2.43	2.45	2.45	2.46	2.46	2.47	2.47	2.48	2.49	2.49	2.49
RIIC	R01AN1692	-	2.00	2.00	2.20	2.20	2.20	2.20	2.31	2.31	2.40	2.41	2.43	2.43	2.45	2.45	2.46	2.46	2.47	2.47	2.48	2.49	2.49	2.49
RIICHS	R01AN5552	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.00	1.00	1.00	1.00
RSPI	R01AN1827	-	1.50	1.60	1.70	1.70	1.70	1.80	1.80	1.80	2.00	2.01	2.03	2.03	2.04	2.04	2.05	3.00	3.00	3.00	3.01	3.02	3.03	3.03
RSPIA	R01AN5684	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.00	1.00	1.10	1.10
QSPI	R01AN1940	1.08	1.09	1.09	1.10	1.10	1.10	1.10	1.10	1.10	1.11	1.12	1.13	1.13	1.13	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.15	1.15
QSPIX	R01AN5685	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.00	1.00	1.20	1.20
USB Basic	R01AN2025	1.11	1.20	1.20	1.22	1.23	1.23	1.23	1.23	1.23	1.25	1.26	1.27	1.27	1.27	1.30	1.30	1.30	1.30	1.30	1.31	1.31	1.31	1.31
USB Basic Mini	R01AN2166	1.02	1.02	1.02	1.02	1.02	1.02	1.10	1.10	1.10	1.10	1.11	1.12	1.12	1.12	1.12	1.12	1.20	1.20	1.20	1.20	1.20	1.20	1.20
USB HMSC	R01AN2026	1.11	1.20	1.20	1.22	1.23	1.23	1.23	1.23	1.23	1.25	1.26	1.27	1.27	1.27	1.30	1.30	1.30	1.30	1.30	1.31	1.31	1.31	1.31
USB HMSC Mini	R01AN2169	1.02	1.02	1.02	1.02	1.02	1.02	1.10	1.10	1.10	1.10	1.11	1.12	1.12	1.12	1.12	1.12	1.20	1.20	1.20	1.20	1.20	1.20	1.20
USB HCDC	R01AN2027	1.11	1.20	1.20	1.22	1.23	1.23	1.23	1.23	1.23	1.25	1.26	1.27	1.27	1.27	1.30	1.30	1.30	1.30	1.30	1.31	1.31	1.31	1.31
USB HCDC Mini	R01AN2167	1.02	1.02	1.02	1.02	1.02	1.02	1.10	1.10	1.10	1.10	1.11	1.12	1.12	1.12	1.12	1.12	1.20	1.20	1.20	1.20	1.20	1.20	1.20
USB HHID	R01AN2028	1.11	1.20	1.20	1.22	1.23	1.23	1.23	1.23	1.23	1.25	1.26	1.27	1.27	1.27	1.30	1.30	1.30	1.30	1.30	1.31	1.31	1.31	1.31
USB HHID Mini	R01AN2168	1.02	1.02	1.02	1.02	1.02	1.02	1.10	1.10	1.10	1.10	1.11	1.12	1.12	1.12	1.12	1.12	1.20	1.20	1.20	1.20	1.20	1.20	1.20
USB PMSC	R01AN2029	1.11	1.20	1.20	1.22	1.23	1.23	1.23	1.23	1.23	1.25	1.26	1.27	1.27	1.27	1.30	1.30	1.30	1.30	1.30	1.31	1.31	1.31	1.31
USB PMSC Mini	R01AN2172	1.02	1.02	1.02	1.02	1.02	1.02	1.10	1.10	1.10	1.10	1.11	1.12	1.12	1.12	1.12	1.12	1.20	1.20	1.20	1.20	1.20	1.20	1.20
USB PCDC	R01AN2030	1.11	1.20	1.20	1.22	1.23	1.23	1.23	1.23	1.23	1.25	1.26	1.27	1.27	1.27	1.30	1.30	1.30	1.30	1.30	1.31	1.31	1.31	1.31
USB PCDC Mini	R01AN2170	1.02	1.02	1.02	1.02	1.02	1.02	1.10	1.10	1.10	1.10	1.11	1.12	1.12	1.12	1.12	1.12	1.20	1.20	1.20	1.20	1.20	1.20	1.20
USB PHID	R01AN2663	1.11	1.20	1.20	1.22	1.23	1.23	1.23	1.23	1.23	1.25	1.26	1.27	1.27	1.27	1.30	1.30	1.30	1.30	1.30	1.31	1.31	1.31	1.31
USB PHID Mini	R01AN2171	1.02	1.02	1.02	1.02	1.02	1.02	1.10	1.10	1.10	1.10	1.11	1.12	1.12	1.12	1.12	1.12	1.20	1.20	1.20	1.20	1.20	1.20	1.20
EPTPC	R01AN1943	1.11	1.11	1.12	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.15	1.16	1.16	1.16	1.16	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17
EPTPC Light	R01AN3035	1.10	1.10	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.12	1.13	1.13	1.13	1.13	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14
ETHERC	R01AN2009	1.10	1.11	1.12	1.13	1.14	1.14	1.14	1.14	1.14	1.14	1.16	1.17	1.17	1.17	1.20	1.20	1.21	1.21	1.21	1.21	1.21	1.22	1.22
CAN	R01AN2472	2.02	2.10	2.10	2.12	2.12	2.12	2.13	2.14	2.14	2.15	3.00	3.10	3.11	3.11	3.20	3.20	4.00	4.10	5.00	5.10	5.10	5.20	5.21
RSCAN	R01AN2805	1.00	1.00	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.21	2.00	2.10	2.20	2.20	2.20	2.21	2.31	2.31	2.31	2.31	2.31	2.32	2.40
IrDA	R01AN2175	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
PDC	R01AN3167	1.03	2.00	2.00	2.01	2.01	2.01	2.01	2.01	2.01	2.02	2.03	2.04	2.04	2.04	2.05	2.05	2.05	2.05	2.05	2.05	2.05	2.06	2.06
SDHI	R01AN3852	-	-	-	2.00	2.01	2.01	2.01	2.02	2.02	2.03	2.04	2.05	2.05	2.05	2.06	2.06	2.06	2.06	2.06	2.07	2.07	2.07	2.07
SDSI	R01AN3238	-	-	-	2.00	2.00	2.00	2.00	2.00	2.00	2.01	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.02
MMCIF	R01AN4234	-	-	-	-	-	-	-	-	-	1.04	1.05	1.06	1.06	1.06	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
DSMIF	R01AN4707	-	-	-	-	-	-	-	-	-	-	-	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
S12AD	R01AN1666	2.11	2.11	2.20	2.30	2.30	2.30	3.00	3.01	3.01	3.10	4.00	4.20	4.20	4.30	4.50	4.50	4.60	4.61	4.70	4.80	4.90	4.91	4.93
DAC	R01AN1818	2.80	2.91	3.00	3.10	3.11	3.11	3.20	3.21	3.21	3.30	4.00	4.20	4.20	4.30	4.40	4.40	4.50	4.50	4.50	4.50	4.60	4.60	4.70
Flash	R01AN2184	1.63	1.70	2.10	3.20	3.30	3.30	3.40	3.41	3.42	3.50	4.00	4.20	4.40	4.40	4.50	4.50	4.60	4.60	4.60	4.70	4.80	4.81	4.81
SRC	R01AN2090	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.12	1.13	1.13	1.13	1.13	1.13	1.13	1.14	1.14	1.14	1.14	1.14	1.14	1.14
SSI	R01AN2150	1.20	1.20	1.20	1.21	1.21	1.21	1.21	1.21	1.21	1.22	1.23	1.24	1.24	1.24	2.01	2.01	2.02	2.02	2.02	2.03	2.03	2.03	2.03
TSIP	R20AN0548	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.09	1.11	1.11	1.12	1.12	1.14	1.15
LCDC	R01AN1980	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.01	1.01	1.01	1.01	1.01	1.01	1.02	1.02	1.02	1.02	1.02	1.02	1.02
GLCDC	R01AN3609	-	-	-	1.00	1.00	1.00	1.00	1.00	1.00	1.01	1.10	1.20	1.20	1.20	1.30	1.30	1.40	1.40	1.50	1.50	1.50	1.50	1.50
Unique ID	R01AN2191	1.00	1.00	1.00	1.00	1.10	1.10	1.10	1.10	1.10	1.10	1.11	1.12	1.12	1.13	1.13	1.13	1.14	1.14	1.14	1.14	1.14	1.14	1.14
BYTEQ	R01AN1683	1.60	1.60	1.60	1.60	1.60	1.60	1.70	1.71	1.71	1.71	1.80	1.80	1.80	1.80	1.80	1.80	1.81	1.82	1.82	1.90	1.90	2.00	2.00
LONGQ	R01AN1889	1.60	1.60	1.60	1.60	1.60	1.60	1.70	1.71	1.71	1.71	1.80	1.80	1.80	1.80	1.80	1.80	1.81	1.82	1.82	1.82	1.83	1.90	1.90

FIT Module	Document Number	RDP																						
		1.10	1.11	1.12	1.13	1.14	1.15	1.16	1.17	1.18	1.19	1.20	1.22	1.23	1.24	1.25	1.26	1.27	1.28	1.30	1.31	1.32	1.33	1.34
QE CTSU	R01AN4469	-	-	-	-	-	-	-	1.00	1.00	1.00	1.00	1.00	1.00	1.10	1.10	1.11	1.11	1.11	1.11	2.00	2.00	2.01	2.10
ELC	R01AN3066	-	1.10	1.10	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.21	1.21	1.21	1.21	1.21	1.21	2.00	2.00	2.00	2.00	2.01	2.01	2.01
DRW2D	R01AN5373	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.10	1.10	1.10	1.11	1.11	1.11	1.11

Table 2.2 List of middleware included with RDP

FIT Module	Document number	RDP																						
		1.10	1.11	1.12	1.13	1.14	1.15	1.16	1.17	1.18	1.19	1.20	1.22	1.23	1.24	1.25	1.26	1.27	1.29	1.30	1.31	1.32	1.33	1.34
TCP/IP for Embedded system M3S-T4-Tiny Module	R20AN0051	2.05	2.05	2.06	2.06	2.07	2.07	2.07	2.08	2.08	2.08	2.08	2.09	2.09	2.09	2.09	2.09	2.09	2.09	2.10	2.10	2.10	2.10	2.10
Interface conversion module for Ethernet Driver and Embedded system M3S-T4-Tiny	R20AN0311	1.04	1.05	1.06	1.06	1.06	1.06	1.06	1.07	1.07	1.07	1.07	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.09	1.09	1.09	1.09	1.09
Embedded TCP/IP M3S-T4-Tiny Socket API Module	R20AN0296	1.30	1.31	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
System Timer Module	R20AN0431	-	-	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
SX-ULPGN-2000 Wi-Fi Module Control Module	R01AN4664	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.13	1.14
BLE Module (BLE)	R01AN4860	-	-	-	-	-	-	-	-	-	-	-	-	1.01	1.01	1.10	1.10	2.00	2.10	2.11	2.20	2.20	2.30	2.30
RYZ012 Bluetooth Low Energy Module	R01AN6290	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.01
QE Utility Module (Profiles)	R01AN4907	-	-	-	-	-	-	-	-	-	-	-	-	0.90	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.10	1.10
Mesh Module (Mesh)	R01AN4930	-	-	-	-	-	-	-	-	-	-	-	-	1.00	1.01	1.01	1.01	1.10	1.10	1.10	1.10	1.10	1.20	1.20
RYZ014A Cellular Module	R01AN6324	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.04
SD memory card driver module	R01AN4233	-	-	-	-	-	-	2.02	2.03	2.03	2.03	2.03	2.03	2.03	2.03	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
Flash Memory Data Management Module	R20AN0507	-	-	-	-	-	-	-	-	-	-	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01	2.01
Clock Synchronous Control Module for Serial Flash Memory Access	R01AN2662	2.33	2.33	2.33	2.34	2.34	2.34	2.34	2.34	2.34	3.00	3.01	3.01	3.01	3.01	3.01	3.01	3.01	3.01	3.02	3.02	3.02	3.03	3.03
Clock Synchronous Control Module for EEPROM Access	R01AN2325	2.33	2.33	2.33	2.34	2.34	2.34	2.34	2.34	2.34	3.00	3.01	3.01	3.01	3.01	3.01	3.01	3.01	3.01	3.02	3.02	3.02	3.02	3.02
Memory Access Driver Interface Module	R01AN4548	-	-	-	-	-	-	-	-	-	1.00	1.01	1.01	1.01	1.02	1.02	1.02	1.03	1.03	1.03	1.03	1.03	1.04	1.04
JPEG Decoder Module	R20AN0104	-	-	2.06	2.06	2.06	2.06	2.06	2.06	2.06	2.06	2.06	2.06	2.06	2.06	2.06	2.06	2.06	2.06	2.06	2.06	2.06	2.06	2.06
JPEG Encoder Module	R20AN0263	-	-	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Sound Playback/Compression System (Original ADPCM Codec) [M3S-S2-Tiny] Module	R20AN0037	3.03	3.04	3.04	3.04	3.04	3.04	3.04	3.04	3.04	3.04	3.04	3.04	3.04	3.04	3.04	3.04	3.04	3.04	3.04	3.04	3.04	3.04	3.04
Open Source FAT File System [M3S-TFAT-Tiny] Module	R20AN0038	3.02	3.03	3.03	3.03	3.03	3.03	3.03	3.04	3.04	3.04	3.04	3.04	3.04	3.04	3.04	4.00	4.01	4.01	4.02	4.02	4.02	4.02	4.02
M3S-TFAT-Tiny Memory Driver Interface Module	R20AN0335	1.02	1.03	1.03	1.03	1.03	1.03	1.04	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	2.00	2.10	2.10	2.20	2.20	2.20	2.20	2.20
Firmware Update Module	R01AN5824	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.01	1.01	1.01	1.02	1.03
Sensor Communication Middleware Control Module	R01AN5895	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.00	1.00	1.00	1.20	1.21
HS300x Sensor Control Module	R01AN5893	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.00	1.00	1.10	1.11	1.22
FS2012 Sensor Control Module	R01AN6045	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.00	1.01	1.02
ZMOD4410 and ZMOD4510 Sensor Control Module	R01AN6046	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.00	1.10	1.20
QE Touch Module	R01AN4470	-	-	-	-	-	-	-	1.00	1.00	1.00	1.00	1.00	1.00	1.10	1.10	1.11	1.11	1.11	1.11	2.00	2.00	2.01	2.10
Aeropoint module	R01AN5793	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.00	1.00	1.00	1.00	1.00
emWin v.6.14 module	R01AN5533	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.10	1.10	1.30	1.30	1.30	-	-
emWin v.6.22 module	R01AN5983	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	1.00	1.00

Revision History

Rev.	Date	Description	
		Page	Summary
1.00	Aug. 31. 2021	—	First edition issued
1.01	Apr. 13. 2022	3-4	Table 1.2 Deleted v1.21 and added V1.33 and V1.34. Modified content.
		5-6	Table 2.2 Deleted v1.21 and added V1.33 and V1.34. Modified content.

General Precautions in the Handling of Microprocessing Unit and Microcontroller Unit Products

The following usage notes are applicable to all Microprocessing unit and Microcontroller unit products from Renesas. For detailed usage notes on the products covered by this document, refer to the relevant sections of the document as well as any technical updates that have been issued for the products.

1. Precaution against Electrostatic Discharge (ESD)
   A strong electrical field, when exposed to a CMOS device, can cause destruction of the gate oxide and ultimately degrade the device operation. Steps must be taken to stop the generation of static electricity as much as possible, and quickly dissipate it when it occurs. Environmental control must be adequate. When it is dry, a humidifier should be used. This is recommended to avoid using insulators that can easily build up static electricity. Semiconductor devices must be stored and transported in an anti-static container, static shielding bag or conductive material. All test and measurement tools including work benches and floors must be grounded. The operator must also be grounded using a wrist strap. Semiconductor devices must not be touched with bare hands. Similar precautions must be taken for printed circuit boards with mounted semiconductor devices.
2. Processing at power-on
   The state of the product is undefined at the time when power is supplied. The states of internal circuits in the LSI are indeterminate and the states of register settings and pins are undefined at the time when power is supplied. In a finished product where the reset signal is applied to the external reset pin, the states of pins are not guaranteed from the time when power is supplied until the reset process is completed. In a similar way, the states of pins in a product that is reset by an on-chip power-on reset function are not guaranteed from the time when power is supplied until the power reaches the level at which resetting is specified.
3. Input of signal during power-off state
   Do not input signals or an I/O pull-up power supply while the device is powered off. The current injection that results from input of such a signal or I/O pull-up power supply may cause malfunction and the abnormal current that passes in the device at this time may cause degradation of internal elements. Follow the guideline for input signal during power-off state as described in your product documentation.
4. Handling of unused pins
   Handle unused pins in accordance with the directions given under handling of unused pins in the manual. The input pins of CMOS products are generally in the high-impedance state. In operation with an unused pin in the open-circuit state, extra electromagnetic noise is induced in the vicinity of the LSI, an associated shoot-through current flows internally, and malfunctions occur due to the false recognition of the pin state as an input signal become possible.
5. Clock signals
   After applying a reset, only release the reset line after the operating clock signal becomes stable. When switching the clock signal during program execution, wait until the target clock signal is stabilized. When the clock signal is generated with an external resonator or from an external oscillator during a reset, ensure that the reset line is only released after full stabilization of the clock signal. Additionally, when switching to a clock signal produced with an external resonator or by an external oscillator while program execution is in progress, wait until the target clock signal is stable.
6. Voltage application waveform at input pin
   Waveform distortion due to input noise or a reflected wave may cause malfunction. If the input of the CMOS device stays in the area between V_{IL} (Max.) and V_{IH} (Min.) due to noise, for example, the device may malfunction. Take care to prevent chattering noise from entering the device when the input level is fixed, and also in the transition period when the input level passes through the area between V_{IL} (Max.) and V_{IH} (Min.).
7. Prohibition of access to reserved addresses
   Access to reserved addresses is prohibited. The reserved addresses are provided for possible future expansion of functions. Do not access these addresses as the correct operation of the LSI is not guaranteed.
8. Differences between products
   Before changing from one product to another, for example to a product with a different part number, confirm that the change will not lead to problems. The characteristics of a microprocessing unit or microcontroller unit products in the same group but having a different part number might differ in terms of internal memory capacity, layout pattern, and other factors, which can affect the ranges of electrical characteristics, such as characteristic values, operating margins, immunity to noise, and amount of radiated noise. When changing to a product with a different part number, implement a system-evaluation test for the given product.

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