[Released on the web]
RX Family RX Driver Package Ver.1.20

R20TS0444EJ0101
Rev.1.01
Jul. 16, 2019

Outline

RX Family RX Driver Package Ver.1.20 has been released on the web.

This product has been updated from RX family RX Driver Package Ver.1.19 and includes updated modules in its package.

This product is available free of charge.

1. Features

(1) About RX Driver Package

RX Driver Package is a software package for using basic functions such as initializing MCUs, self-programming of flash memory, timer control, UART communications, and A/D conversion, and application functions such as USB and Ethernet.

Package Component

- Board support package (BSP) module
- Device driver modules for FIT peripheral functions
- FIT middleware/interface modules

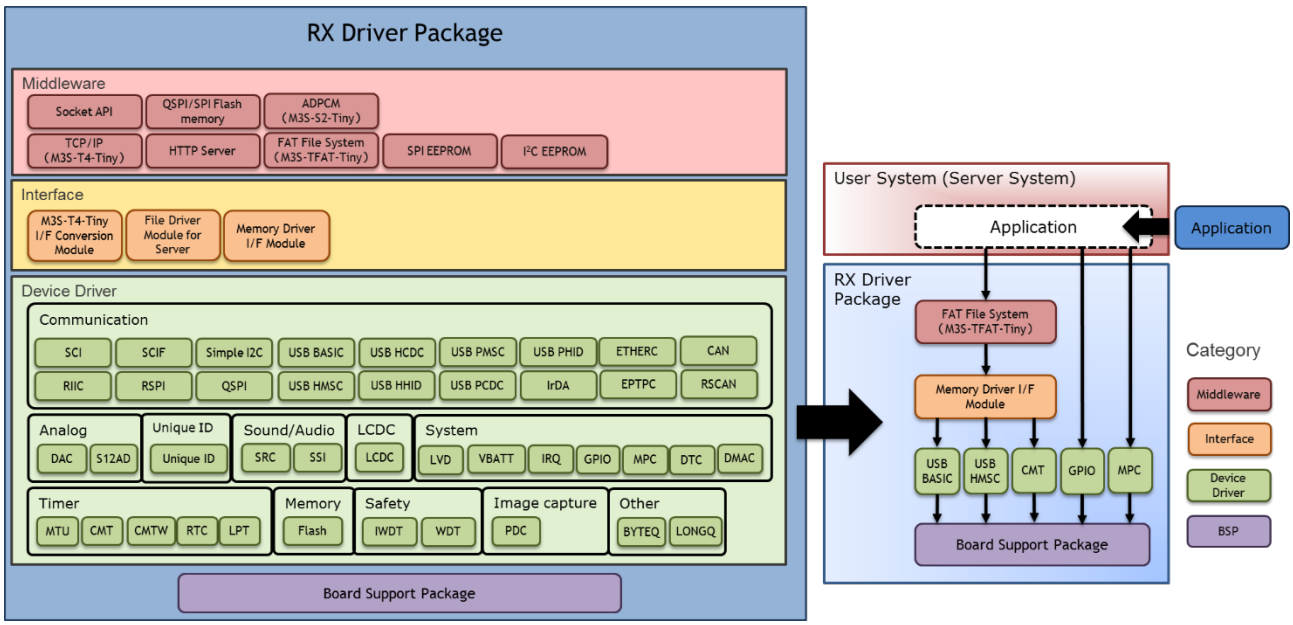

Figure 1. System Structure

(2) Major changes from RX Family RX Driver Package Ver.1.19 to Ver.1.20

1. Some of the FIT modules include support for the following compilers (Note).

・GCC for Renesas RX

・IAR C/C++ Compiler for Renesas RX

Note: The double-precision floating point and arithmetic unit for trigonometric functions are not supported.

2. Periodic update of FIT modules

After the release of RX Driver Package Ver.1.19 (Document number: R01AN4677*), we have updated the FIT modules. To check which FIT modules have been updated, see the update information from Ver.1.19 to Ver.1.20 in Table 1, Table 2 and Table 3.

For the meanings of the terms used in the 'Update from Ver.1.19' column, see the table below.

Term	Meaning
Same	Includes the same module as previous.
Updated	Includes the updated module. For the update contents, see the revision history of documents for each FIT module.
Added	New module

*Only the first 9 digits are listed.

For the meanings of the terms used in the 'GCC/IAR support status' column, see the table below.

Term	Meaning
Supported	Supported.
With restrictions	Supported with restrictions. For details, see the documents for each FIT module.
Not supported	Not supported. Support will be added in later versions.

- Board Support Package (BSP)

Module Name	FIT Module Name	Rev.	Update from Ver. 1.19	GCC/IAR support status
Board Support Package (BSP)	r_bsp	5.20	Updated	Supported(Note)

Note: The double-precision floating point and arithmetic unit for trigonometric functions are not supported.

Table 1. Board Support Package (BSP) Update Information

- Device Drivers

Table 2. Device Driver Update Information (1/3)

Module Name	FIT Module Name	Rev.	Update from Ver. 1.19	GCC/IAR support status
Voltage Detection Circuit (LVD)	r_lvd_rx	3.00	Updated	Supported
Low Power Consumption (LPC)	r_lpc_rx	1.41	Updated	Not Supported
Battery Backup (VBATT)	r_vbatt_rx	1.03	Updated	Supported
Interrupt Controller (IRQ)	r_irq_rx	3.00	Updated	Supported
Data Transfer Controller (DTC)	r_dtc_rx	3.00	Updated	Supported
DMA Controller (DMAC)	r_dmaca_rx	2.00	Updated	Supported
I/O Ports (GPIO)	r_gpio_rx	3.00	Updated	Supported
Multi-Function Pin Controller (MPC)	r_mpc_rx	3.00	Updated	Supported
Compare Match Timer (CMT)	r_cmt_rx	4.00	Updated	Supported

Table 2. Device Driver Update Information (2/3)

Module Name	FIT Module Name	Rev.	Update from Ver. 1.19	GCC/IAR support status
Compare Match Timer W (CMTW)	r_cmtw_rx	2.00	Updated	Supported
Real-Time Clock (RTC)	r_rtc_rx	2.75	Updated	Supported
Low Power Timer (LPT)	r_lpt_rx	1.23	Updated	Not Supported
Independent Watchdog Timer (IWDT)	r_iwdt_rx	3.00	Updated	Supported
Watchdog Timer (WDT)	r_wdt_rx	2.00	Updated	Supported
Serial Communications Interface (SCI: Asynchronous/Clock Synchronous)	r_sci_rx	3.00	Updated	Supported
Serial Communications Interface with FIFO (SCIFA: Asynchronous/Clock Synchronous)	r_scif_rx	1.22	Updated	Not Supported
Serial Communications Interface (SCI: Simple I²C Bus)	r_sci_iic_rx	2.41	Updated	Supported
I²C Bus Interface (RIIC)	r_riic_rx	2.41	Updated	Supported
Serial Peripheral Interface	r_rspi_rx	2.01	Updated	With restrictions
Quad Serial Peripheral Interface (QSPI: Device Driver for Serial Memory Control)	r_qspi_smstr_rx	1.12	Updated	Supported
USB Basic Firmware	r_usb_basic	1.26	Updated	Supported
USB Host Mass Storage Class	r_usb_hmsc	1.26	Updated	Supported
USB Host Communication Device Class	r_usb_hcdc	1.26	Updated	Supported
USB Host Human Interface Device Class	r_usb_hhid	1.26	Updated	Supported
USB Peripheral Mass Storage Class	r_usb_pmsc	1.26	Updated	Supported
USB Peripheral Communications Device Class	r_usb_pcdc	1.26	Updated	Supported
USB Peripheral Human Interface Device Class	r_usb_phid	1.26	Updated	Supported
USB Basic Firmware mini	r_usb_basic_mini	1.11	Updated	Supported
USB Host Mass Storage Class mini	r_usb_hmsc_mini	1.11	Updated	Supported
USB Host Communication Device Class mini	r_usb_hcdc_mini	1.11	Updated	Supported
USB Host Human Interface Device Class mini	r_usb_hhid_mini	1.11	Updated	Supported
USB Peripheral Mass Storage Class mini	r_usb_pmsc_mini	1.11	Updated	Supported
USB Peripheral Communication Device Class mini	r_usb_pcdc_mini	1.11	Updated	Supported
USB Peripheral Human Interface Device Class mini	r_usb_phid_mini	1.11	Updated	Supported
PTP Module for the Ethernet Controller (EPTPC)	r_ptp_rx	1.15	Updated	Supported
EPTPC Light Module	r_ptp_light_rx	1.12	Updated	Supported
Ethernet Controller (ETHERC)	r_ether_rx	1.16	Updated	Supported
CAN Module (CAN)	r_can_rx	3.00	Updated	Supported
CAN Module (RSCAN)	r_rscan_rx	2.00	Updated	Supported
IrDA Interface (IrDA)	r_irda_sci_rx	1.01	Same	Not supported
Parallel Data Capture Unit (PDC)	r_pdc_rx	2.03	Updated	Supported
SD Host Interface (SDHI)	r_sdhi_rx	2.04	Updated	Supported

Table 2. Device Driver Update Information (3/3)

Module Name	FIT Module Name	Rev.	Update from Ver. 1.19	GCC/IAR support status
SD Slave Interface (SDSI)	r_sdsi_rx	2.02	Updated	Supported
MMC Mode MMCIF Driver (MMCIF)	r_mmcif_rx	1.05	Updated	Supported
12-Bit A/D Converter (S12AD)	r_s12ad_rx	4.00	Updated	Supported
D/A Converter (DAC)	r_dac_rx	4.00	Updated	Supported
Flash Memory (On-Chip Flash Memory Programming)	r_flash_rx	4.00	Updated	With restrictions
Sampling Rate Converter (SRC)	r_src_api_rx	1.13	Updated	Supported
Serial Sound Interface (SSI)	r_ssi_api_rx	1.23	Updated	Supported
LCD Controller/Driver (LCDC)	r_lcdc_rx	1.01	Updated	Supported
Graphic LCD Controller (GLCDC)	r_glcdc_rx	1.10	Updated	Supported
Unique ID Read	r_uid_rx	1.11	Updated	Supported
Byte Queue Buffer (Data Management)	r_byteq	1.80	Updated	Supported
Long Queue Buffer (Data Management)	r_longq	1.80	Updated	Supported
Event Link Controller (ELC)	r_elc_rx	1.21	Updated	Not supported
CTSU Module	r_ctsu_qe	1.00	Same	Not supported

- Middleware/interface modules

Table 3. Middleware/Interface Module Update Information

Module Name	FIT Module Name	Rev.	Update from Ver. 1.19	GCC/IAR support status
M3S-T4-Tiny module for embedding	r_t4_rx	2.08	Same	Not supported
Interface Conversion Module for Ethernet Driver and TCP/IP M3S-T4-Tiny for Embedding	r_t4_driver_rx	1.07	Same	Not supported
System Timer Module	r_sys_time_rx	1.00	Same	Not supported
SD Mode SD Memory Card Driver	r_sdc_sdmem_rx	2.03	Same	Not supported
Flash Memory Data Management Module (DATFRX)	r_datfrx_rx	2.01	Added	Not supported
Clock Synchronous Control Module for EEPROM Access	r_eeprom_spi	3.01	Updated	Supported
Clock Synchronous Control Module for Serial Flash Memory Access	r_flash_spi	3.01	Updated	Supported
I^2C Bus Interface (RIIC) Module for EEPROM Access	r_eeprom_riic_rx	1.41	Same	Not supported
Simple I^2C Module for EEPROM Access	r_eeprom_sci_iic_rx	1.31	Same	Not supported
Memory Access Driver Interface Module	r_memdrv_rx	1.01	Updated	Supported
JPEG Decoder Module	r_jpegd_rx	2.06	Same	Not supported
JPEG Encoder Module	r_jpege_rx	1.01	Same	Not supported
M3S-S2-Tiny Module (Sound Recording/Playback System (Original ADPCM Codec))	r_s2_rx	3.04	Same	Not supported
M3S-TFAT-Tiny Module (Open-Source FAT File System)	r_tfat_rx	3.04	Same	Not supported
M3S-TFAT-Tiny Memory Driver Interface Module	r_tfat_driver_rx	1.05	Same	Not supported
Touch Module	r_touch_qe	1.00	Same	Not supported

2. Supported Devices

RX110, RX111, RX113, RX130, RX231/RX230, RX23T, RX24T, and RX24U groups

RX64M, RX65N/RX651, RX66T, RX71M, and RX72T groups

3. Operating Environment

The main operating environment is as follows.

- Integrated development environment: e^2 studio V7.4.0
- Cross tool: C/C++ Compiler Package for RX Family V3.01.00

4. Using the Product

RX Driver Package can help you create an application program easily by using it in combination with Smart Configurator (Note1) or FIT Configurator (Note2).

For details about using the product, refer to the documents for each tool listed in Table 4.

Note1: Supported in e^2 studio, CS+, and IAREW.

Note2: Only devices which are not supported by Smart Configurator are supported in e^2 studio.

Table 4. Product Usage Document

Tool	Document
e^2 studio Smart Configurator	RX Smart Configurator User's Guide: e^2 studio (R20AN0451*)
CS+ Smart Configurator	RX Smart Configurator User's Guide: CS+ (R20AN0470*)
IAREW Smart Configurator	RX Smart Configurator User's Guide: IAREW (R20AN0535*)
e^2 studio FIT Configurator	RX Family Adding Firmware Integration Technology Modules to Projects (R01AN1723*)

*Only the first 9 digits are listed.

5. Appendix

5.1 Introducing RX Driver Package Web Page

You can access the RX Driver Package product page on our website.

See the URL below.
https://www.renesas.com/rdp

Revision History

Rev.	Date	Description	
		Page	Summary
1.00	Jul.16.19	-	First edition issued
1.01	Sep.16.19	2	Added the GCC and IAR compiler support status for the following. ・ Double-precision floating point ・ Arithmetic unit for trigonometric functions

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