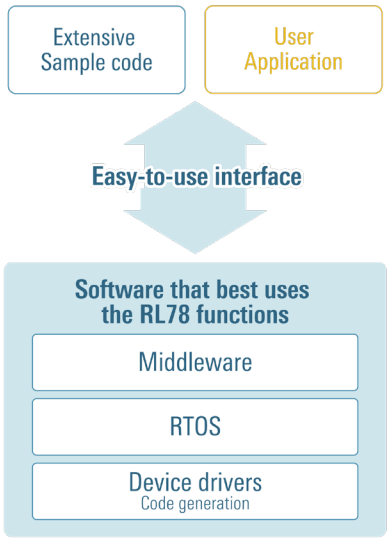
Software to maximize RL78 Family performance

RL78 Family Software

https://www.renesas.com/rl78-software

A rich lineup to support development

For the RL78 Family, we provide various middleware and drivers for applications of the RL78 Family, including audio data, file systems, and drivers for memory.
The concept of common interface design provides flexible compatibility with many product types of the RL78 Family. Bundled sample programs will efficiently reduce the time required before productization.



Lineup of middleware for the RL78 Family

Sound / Voice
ADPCM encoder / decoder

DSP / FFT
Digital filters (FIR and IIR)
FFT library

Security / Cipher
AES library
SHA hash function library
RSA library

File system
Open-source FAT file system (TFAT)

On-chip flash memory
Self-programming libraries

Sensor
Sensor software

USB
USB driver

Drivers for memory
SPI mode multi-media card driver
SPI mode MMC/SD memory card driver
SPI serial flash driver
SPI single-master driver
Renesas SPI serial EEPROM driver
Renesas I²C serial EEPROM driver
I²C single-master driver

Protocol stacks
Sub-GHz/Wi-SUN protocol stack
Bluetooth® Low Energy protocol stack
Software development environment (DALI protocol stack)

Variety of highly professional middleware

Software stack authorized by the Wi-SUN* Alliance
*Wi-SUN is an international wireless communication standard.

Sub-GHz Wireless Communication Solutions for the RL78 Family

Wireless communication using the 920-MHz band covers longer distances, provides excellent circumvention of obstructions, and is relatively unaffected by interference. This communication technology is ideal for connecting devices indoors and outdoors and helping to realize a more energy-efficient and smarter society.

Renesas offers a high-performance IEEE 802.15.4-2020 compliant LSI chip, convenient starter kits, and software stacks certified by the Wi-SUN Alliance to help you easily start developing your application.

Sub-GHz RF driver

The sub-GHz RF driver controls the RF transceiver of the RL78/G1H and provides functionality including transmission and reception in IEEE 802.15.4-2020 frame format, carrier sensing to avoid transmission collisions, and transmission control compliant with ARIB STD-T108, the de facto standard for 920-MHz wireless devices.

Stack compatible with various Wi-SUN profiles

Renesas provides software stacks that support the use of internationally standardized Wi-SUN profiles for a wide variety of indoor and outdoor low-power-wide-area (LPWA) applications in fields such as smart meters, home energy management services (HEMS), building management, and agriculture. Stacks are available to control with the RL78/G1H MCU.

Evaluation board

Evaluation boards* are certified as technically compliant in Japan, CE certified for use in EU countries, and have received Certified Test Bed Unit (CTBU) approval from the Wi-SUN Alliance.

* Evaluation boards are developed, manufactured, and sold by Tessera Technology Inc.
Contact Tessera Technology Inc. for details of these products.

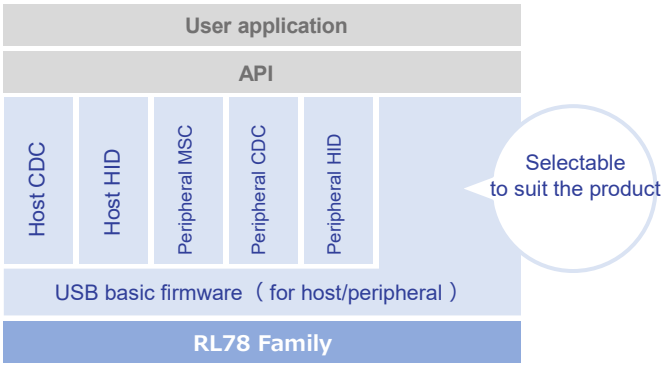
Details www.renesas.com/solutions/proposal/subghz

Details www.renesas.com/en/software-tool/sub-ghzwi-sun-protocol-stack

Easily achieving USB data communication

USB Driver

Three device classes are provided for both USB Host and Peripheral. You can select the one that best suits the product from among the free samples for RL78 Family with a built-in USB module.



Details www.renesas.com/software-tool/usb-drivers

Various self-programming software

Software for flash reprogramming

Renesas provides free flash-reprogramming library software that allows user programs to rewrite programs and data.

- Flash Self Programming Library Type 01 for the RL78 Family
- Data Flash Library Type 04 for RL78 Family
- Renesas Flash Driver RL78 Type 01 for RL78/G2x
- Renesas Flash Driver RL78 Type 02 for RL78/F23,F24

Application examples

Healthcare apparatus, rice cookers, microwave ovens, remote controllers, refrigerators, measuring instruments, etc.

Code Flash Libraries

Details www.renesas.com/flash_libraries/self_prg

Data Flash Libraries

Details www.renesas.com/flash_libraries/data_flash

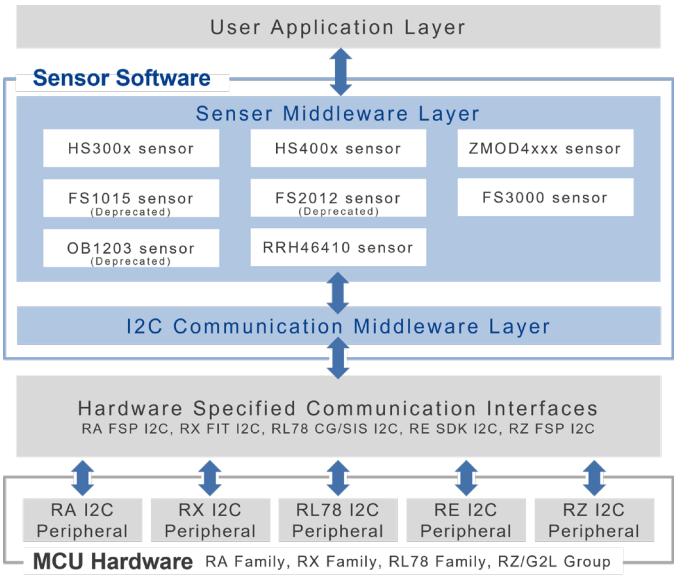
No complicated operations required!
Easy and short-period development of products using sensors

Sensor software

Renesas sensor software uses I²C communication middleware to control the I²C communication interface; the user can develop software without being aware of the hardware and driver specifications of the I²C communication interface.
Furthermore, you do not need to create calculation programs because the sensor middleware performs calculations for measured values by using sensor-specific calculation methods.
The sensor middleware supports both cases of working with a real-time OS or with non-OS software. You do not need to obtain individual libraries; you can develop products that use sensors easily and in short periods.

Sensor software products

- Relative Humidity and Temperature Sensor
- Flow sensors
- Digital gas sensor platforms *www.renesas.com/digital-gas-sensors



Application examples

Quick-Connect IoT	Indoor air quality sensors (IAQ sensors)
Refrigerator odor detectors	Outdoor air quality sensors (OAQ)
Diagnostic equipment	Environmental sensor solutions

Details www.renesas.com/sensor-software

Videos

We provide various tutorial and tip videos related to development environments for the RL78 Family, including getting-started videos for beginners.

www.renesas.com/rl78-how-to-video

FAQ en-support.renesas.com/knowledgeBase

Community community.renesas.com

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