To our customers,

Old Company Name in Catalogs and Other Documents

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Renesas Electronics website: http://www.renesas.com

April 1st, 2010
Renesas Electronics Corporation

Issued by: Renesas Electronics Corporation (http://www.renesas.com)

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RENESAS

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RENESAS

Renesas MPUs & MCUs
Super Low Power MCUs

Super low power consumption and low-voltage operation to keep society moving.

Renesas Super Low Power MCUs meet today's needs for reliable operation 24 hours A day, 365 days a year, as a "low power and easy to use" MCU series.

"Low cost emulators are available", "can use smaller size battery", "low noise", "cost-effective", "favorable future plan" ... etc.

For above reasons Renesas Super Low Power MCUs are chosen more than 200 companies, and its lineup now comprises well-developed 18 products.

• Ideal for battery driven systems

Low-voltage (1.8 V) operation* and worldwide top-class low standby current consumption make these MCUs ideal for applications requiring longer battery life.
*Does not apply to some products.

• Wide range of memory sizes

The many memory options available include products with on-chip single power supply flash memory and products with on-chip mask memory suitable for mass production.

• Well integrated peripheral functions

Available on-chip peripheral functions include asynchronous event counter, power-on reset, low-voltage detection, WDT with on-chip oscillator, one-week realtime clock, $\Delta\Sigma$A/D converter, and comparator.

• Solutions to match your applications

An array of products integrating H8/300L, H8/300H, or H8S/2000 CPUs provide coverage for clock frequencies from 2MHz to 20MHz.

• Enhanced lineup with no LCD driver versions

The lineup of available products includes versions without LCD driver while retaining ultra-low power consumption and low-voltage operation. This lets you choose LCD driver or no LCD driver to match the application.

• Package options to fit the smallest PCB

The following ultra-compact package options are available: 80-pin/7 × 7 mm, 64-pin/8 × 8 mm, and 32-pin/5 × 6 mm.

• Rich tools to support users

A rich array of development tools are available, including C compilers, flash memory programming tools (evaluation versions available free of charge), and low-cost on-chip debugging emulators, as well as application notes that are provided at no charge.

RENESAS
Super Low Power

Industrial and Measurement Equipment

| Utility Meters | Measuring equipment |
| Healthcare equipment | Wireless devices |

Digital Consumer Products

| Digital Cameras | Game machines |
| Portable AV devices | Network terminals |

Sensors and Security Systems

| Home security systems | Emergency equipment |
| | Sensor applications |

Home Appliances

| White goods | Small home appliances |

Our basic lineup of Super Low Power MCUs for white goods, healthcare equipment, industrial equipment, and communications devices.

H8/300L Super Low Power Series

These 8-bit single-chip MCUs are built around the H8/300L CPU core. This is our basic lineup of Super Low Power MCUs and comprises 12 products. They provide excellent ease of use, with low-power modes, low-voltage operation, and pins switchable between LCD port and general purpose I/O port functions.

Super Low Power MCUs with the worldwide top class low standby current consumption and well-integrated on-chip peripheral functions for industrial equipments, measuring equipments, emergency equipments, and sensor applications.

H8/300H Super Low Power Series

These popular 16-bit single-chip MCUs incorporate the H8/300H CPU core and provide low power consumption and low-voltage operation. Advances over the H8/300L Super Low Power Series include new on-chip functions, such as $\Delta\Sigma$A/D converter and comparator functions, and improved subclock operation.

High-performance Super Low Power MCUs for home networking products, power line communications, and communications equipment.

H8S Super Low Power Series

These Super Low Power MCUs are built around the high-performance Renesas 16-bit H8S/2000 CPU core.
This series is developed to meet users requirements such as "large memory capacity", "faster processing speed" and "improved peripheral functions", in addition to the existing features like high-performance and low power.
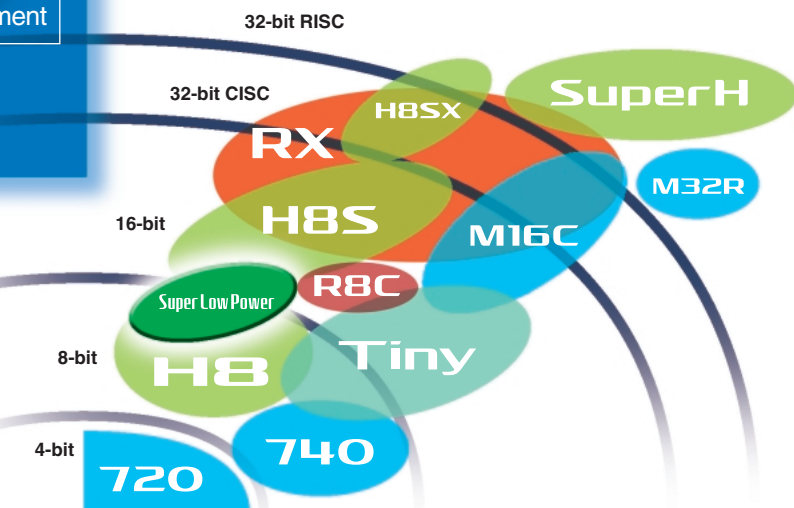
■ Renesas MPUs & MCUs lineup

32-bit RISC

32-bit CISC

SuperH

H8SX

RX

H8S

M16C

M32R

16-bit

R8C

Super Low Power

8-bit

H8

Tiny

4-bit

720

740

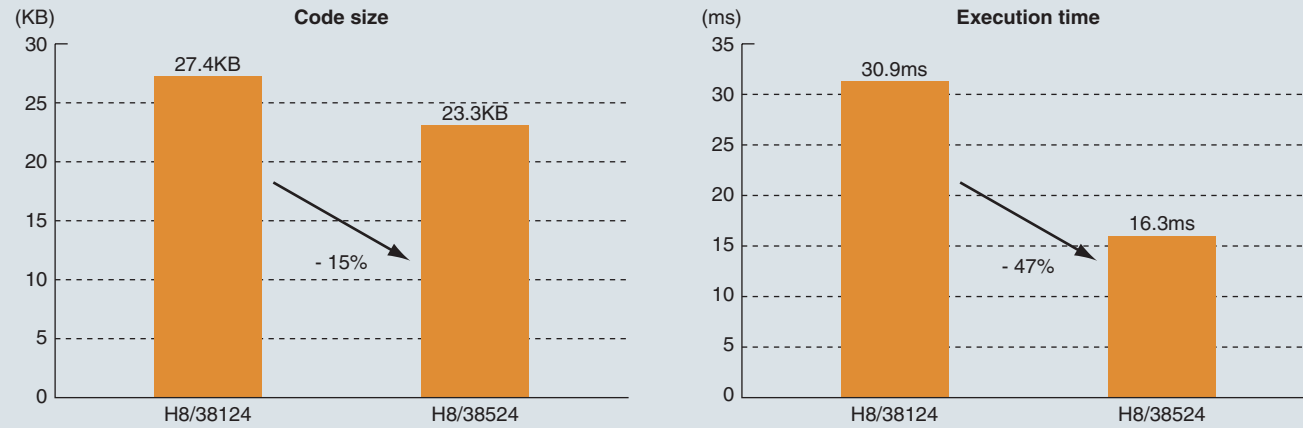Ultra-low power consumption combined with improved performance and more compact packages.
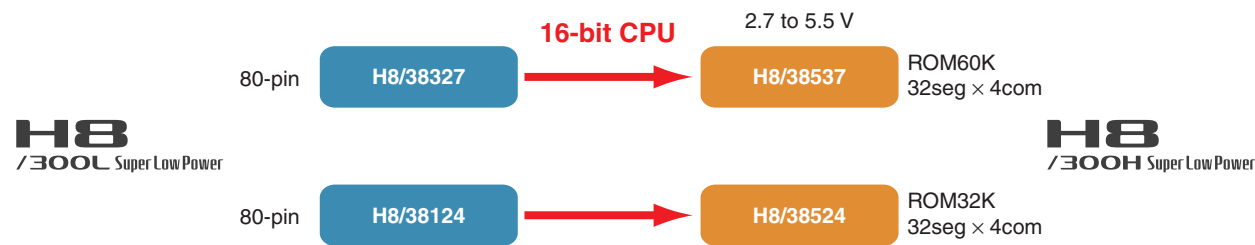
RENESAS
Super Low Power

Enhanced 16-bit lineup (H8/300H CPU)

Renesas Super Low Power MCUs are available in improved 16-bit versions (H8/300H CPU Series). They deliver improved efficiency and can reduce code size by 15% and execution time by 47%.

Code size

(KB)
- 27.4KB (H8/38124)
- 23.3KB (H8/38524)
- 15%

Execution time

(ms)
- 30.9ms (H8/38124)
- 16.3ms (H8/38524)
- 47%

Aside from the CPU, the four new 16-bit/5 V products shown below are fully backward compatible with previous 8-bit/5 V products, providing an easy way to upgrade system performance.

16-bit CPU

2.7 to 5.5 V

80-pin	H8/38327 → H8/38537	ROM60K 32seg × 4com
80-pin	H8/38124 → H8/38524	ROM32K 32seg × 4com

H8 /300L Super Low Power

H8 /300H Super Low Power

More compact packages

In response to requests from developers of battery driven devices and other systems with high mounting densities, Renesas is extending its lineup of products with more compact packages, including 32-pin/5 mm × 6 mm/QFN and 80-pin/7 mm × 7 mm/LGA.

H8/38602R, H8/38606 Group
- 32-pin/5 mm × 6 mm/QFN
- PVQN0032KA-A (TNP-32)

H8/300H CPU	ROM (Flash/Mask)	RAM
Interrupt control circuit	Main/sub oscillator circuit	On-chip oscillator
Address break function	Watchdog timer (independent)	1-week realtime clock
Asynchronous event counter (16-bit timer)		
	Timer B1 (8-bit timer)	Timer W (16-bit timer)
	UART/clock synchronous /IrDA, 1 channel	Synchronous serial communication unit
10-bit A/D converter, 6 channels	Comparator, 2 channels	
Power-on reset		Large-current ports, 15 mA, 3 channels

H8/38076R Group
- 80-pin/7 mm × 7 mm/LGA
- PTLG0085JA-A (TLP-85V)

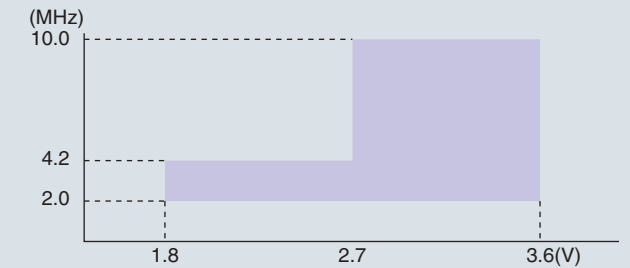| H8/300H CPU	ROM (Flash/Mask)	RAM
Interrupt control circuit (3-level priority control)	Main/sub oscillator circuit	On-chip oscillator (mask)
Address break function	Watchdog timer (independent)	1-week realtime clock
Asynchronous event counter (16-bit timer)	Timer pulse unit (16-bit timer, 2 channels)	Timer F (16-bit timer)
14-bit PWM, 2 channels		
UART/clock synchronous, 1 channel	UART/clock synchronous /IrDA, 1 channel	I²C bus, 1 channel
10-bit A/D converter, 8 channels		LCD, 3 V constant voltage, 32 segment × 4 common
Power-on reset		Large-current ports, 15 mA, 4 channels

Large memory capacity: H8/38099 Group and H8/38799 Group

The H8/300H CPU enables large memory capacities exceeding 60 Kbytes. In addition to the 16-bit CPU, these MCUs support audio output.

Main specifications
- Operating voltage and frequency: See table at right.
- ROM: 128 KB/96 KB
- A/D converter: 10-bit, 8 channels
- Serial ports: UART, 3 channels (of which 1 supports IrDA 1.0)
- Timers: 16-bit, 4 channels; 8-bit, 2 channels; realtime clock
- LCD driver: 40 segment × 4 common (H8/38099 Group)

(MHz)
10.0 / 4.2 / 2.0 — 1.8 / 2.7 / 3.6(V)

H8/38099 Group (with LCD driver)

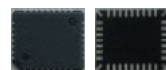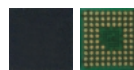| H8/300H CPU	ROM (Flash/Mask)	RAM
Interrupt control circuit (3-level priority control)	Main/sub oscillator circuit	On-chip oscillator
Address break function	Watchdog timer (independent)	1-week realtime clock
Asynchronous event counter (16-bit timer)	Timer pulse unit (16-bit timer × 2)	Timer F (16-bit timer)
14-bit PWM, 4 channels	Timer C (8-bit timer)	Timer G (8-bit timer)
UART/clock synchronous, 2 channels	UART/clock synchronous /IrDA, 1 channel	I²C bus, 1 channel
10-bit A/D converter, 8 channels		LCD, 3 V constant voltage, 40 segment × 4 common
Power-on reset		Large-current ports, 15 mA, 4 channels

H8/38799 Group (general-purpose type)

H8/300H CPU	ROM (Flash/Mask)	RAM
Interrupt control circuit (3-level priority control)	Main/sub oscillator circuit	On-chip oscillator
Address break function	Watchdog timer (independent)	1-week realtime clock
Asynchronous event counter (16-bit timer)	Timer pulse unit (16-bit timer × 2)	Timer F (16-bit timer)
14-bit PWM, 4 channels	Timer C (8-bit timer)	Timer G (8-bit timer)
UART/clock synchronous, 2 channels	UART/clock synchronous /IrDA, 1 channel	I²C bus, 1 channel
10-bit A/D converter, 8 channels		
Power-on reset		Large-current ports, 15 mA, 4 channels

High-precision A/D converter: H8/38086R Group

The H8/38086R Group has an on-chip 14-bit $\Delta\Sigma$A/D converter and is widely used in systems such as measuring devices for many industrial fields.

Main specifications
- Operating voltage and frequency: See table at right.
- ROM/RAM: 48 KB/2 KB
- A/D converters: 14-bit $\Delta\Sigma$, 2 channels; 10-bit, 3 channels
- Serial ports: UART, 2 channels (of which 1 supports IrDA 1.0)
- Timers: 16-bit, 4 channels; realtime clock
- LCD driver: 32 segment × 4 common

(MHz)
10.0 / 4.2 / 2.0 — 1.8 / 2.7 / 3.6(V)

Measurement examples for demo system

Measurement result error (%)

▲ Before correction ▲ After correction

Maximum error of 0.2% (0.5 mV, 2.7 LSB) even in low range. Average error of 0.1% or less.

Measured voltage (V)
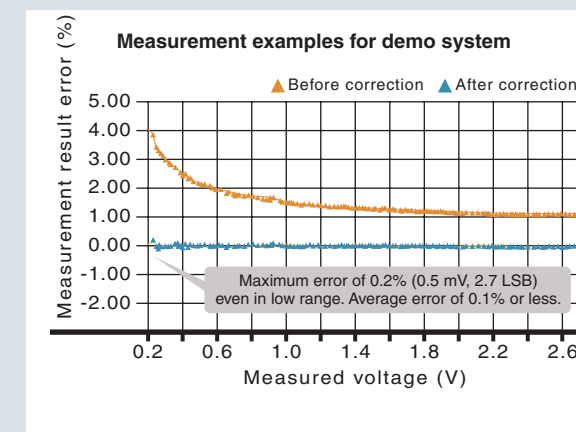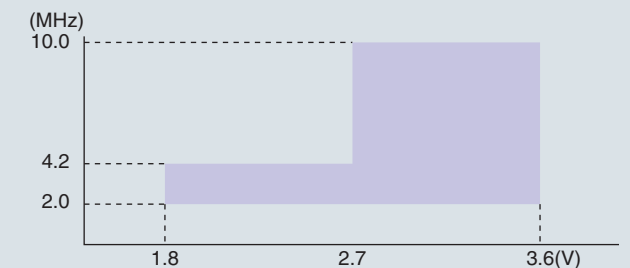
H8/38086 Group

H8/300H CPU	ROM (Flash/Mask)	RAM
Interrupt control circuit (3-level priority control)	Main/sub oscillator circuit	On-chip oscillator (mask)
Address break function	Watchdog timer (independent)	1-week realtime clock
Asynchronous event counter (16-bit timer)	Timer pulse unit (16-bit timer × 2)	Timer F (16-bit timer)
14-bit PWM, 2 channels		
UART/clock synchronous /I²C 1 channel	UART/clock synchronous /IrDA, 1 channel	I²C bus, 1 channel
10-bit A/D converter, 3 channels	14-bit $\Delta\Sigma$A/D converter, 2 channels	LCD, 3 V constant voltage, 32 segment × 4 common
Power-on reset		Large-current ports, 15 mA, 4 channels

RENESAS
Super Low Power

Lineup

Product development of Renesas Super Low Power MCUs involves several complementary concepts, including reduced power consumption, CPU development, multiple memory options, more compact package size, improved A/D converter precision, and wide range of on-chip peripheral functions.

• Built-in LCD driver
H8S Super Low Power , H8/300H Super Low Power
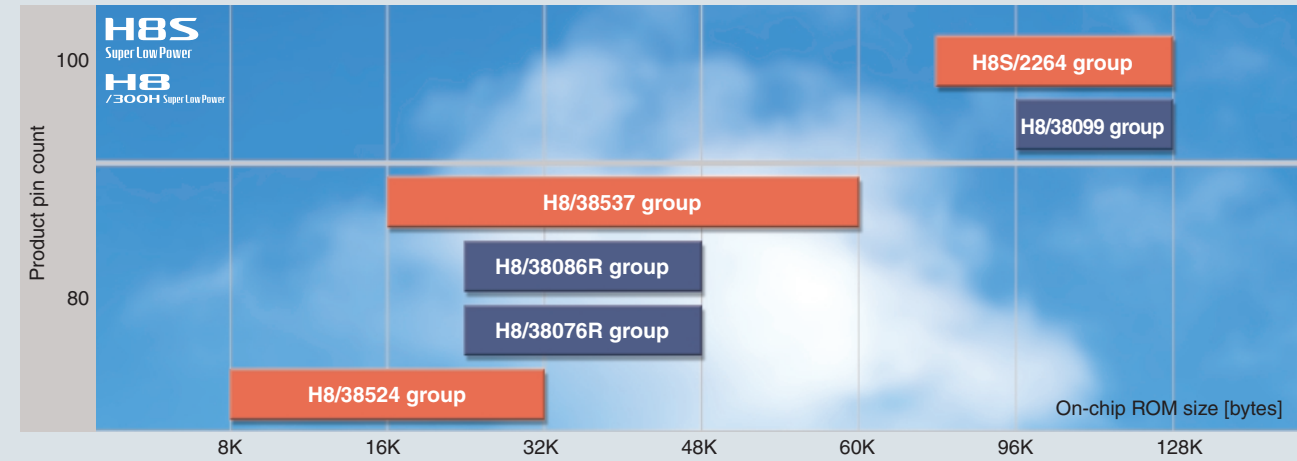
H8/300L Super Low Power

• Lineup with no LCD driver
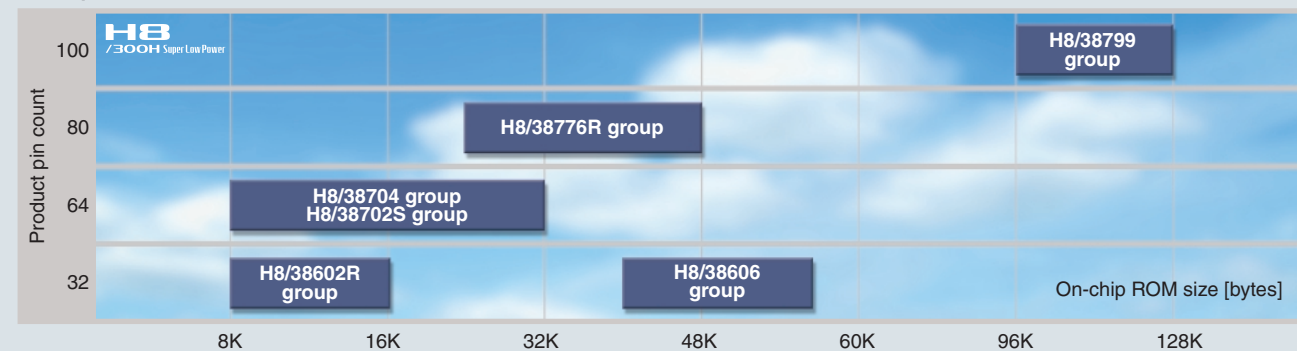
■ : Max. operating voltage 5.5V　　■ : Max. operating voltage 3.6V

Package options

Renesas Super Low Power MCUs are available in packages with pin counts ranging from 100 to 32. For example, the external dimensions of the TNP-32 (including leads) are only 5 mm × 6 mm and less than 1 mm thick. This compact, thin package, combined with the MCUs ultra-low power consumption, is suitable for applications such as smoke detectors, wireless (RF-ID) tags, credit card sized wireless devices and remote controls, sub-MCUs for digital cameras, etc., and security equipment (connected to sensors of various types).
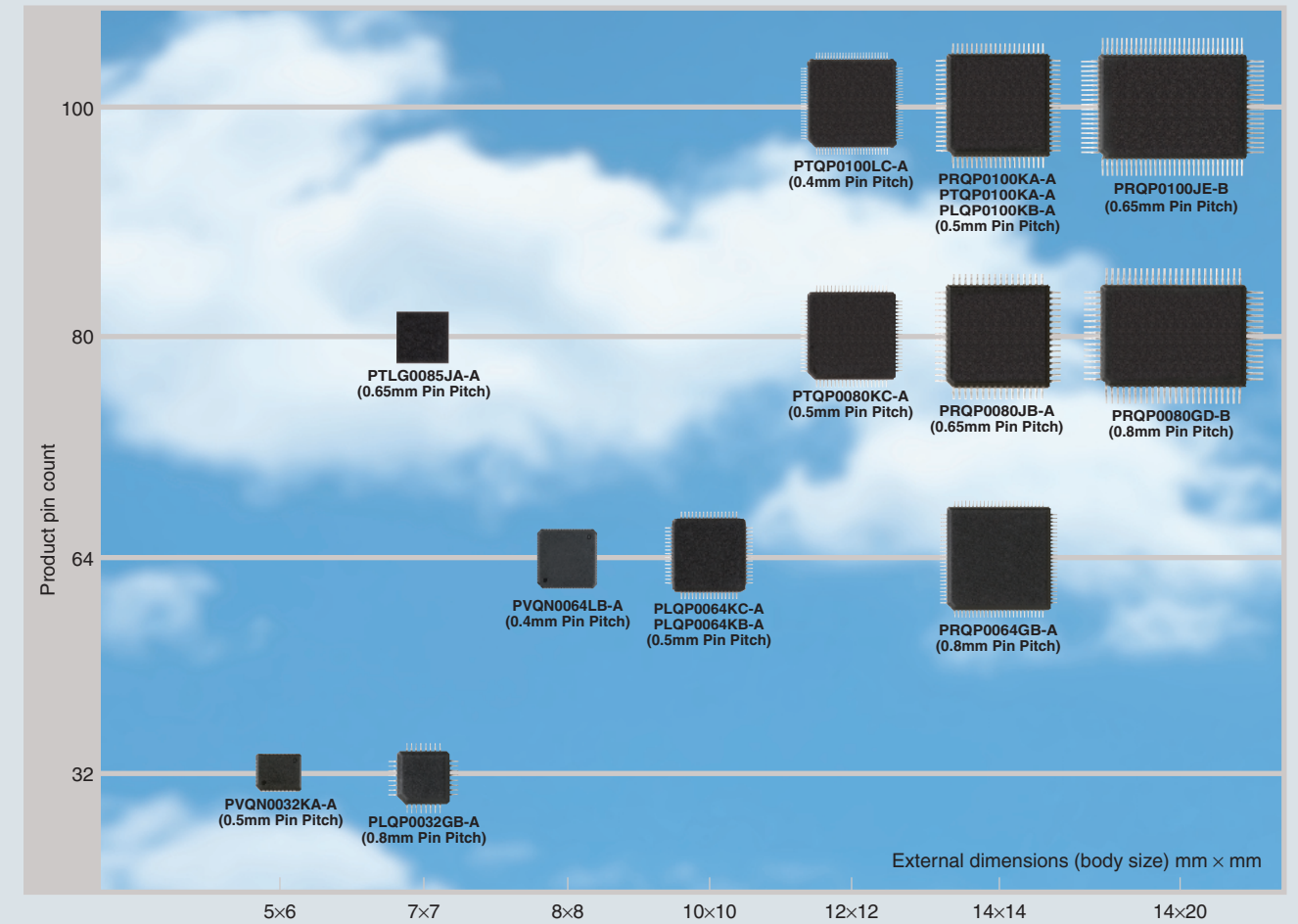
		5×6	7×7	8×8	10×10	12×12	14×14	14×20
32pin	H8/38602R	○	○					
	H8/38606	○						
64pin	H8/38004			○	○		○	
	H8/38002S			○	○		○	
	H8/38104				○		○	
	H8/38704			○	○		○	
80pin	H8/380024R,S		○			○	○	○
	H8/38124					○	○	
	H8/38524					○	○	
	H8/38327S					○	○	
	H8/38327					○	○	
	H8/38427					○	○	
	H8/38076R		○			○	○	
	H8/38776		○			○	○	
	H8/38086R		○			○	○	
100pin	H8/3847S					○	○	○
	H8/38347					○	○	○
	H8/38447					○	○	○
	H8/38099						○	
	H8/38799						○	
	H8S/2264					○	○	

Choose the specifications that best match your design from our extensive — lineup of Renesas Super Low Power MCUs.

RENESAS
Super Low Power

H8/300L Super Low Power Series

Group	Product name	ROM (byte)	RAM (byte)	Memory type	I/O port	8bit	16bit	WDT	PWM (Note1)	SCI1	SCI3	10bit A/D	LCD	External interrupt	POR	LVD	Renesas code	Previous code	Max. internal frequency/ operating voltage	Min. instruction execution time (ns)
H8/38002S	H8/38000S	8K	512	M													PRQP0064GB-A	FP-64A		
	H8/38001S	12K	512	M													PLQP0064KB-A	FP-64K		
	H8/38002S	16K															PVQN0064LB-A	TNP-64B		
H8/38004	H8/38000	8K	512	M	50	1	2		1	—	1	4	25seg × 4com	11	—	—	PRQP0064GB-A	FP-64A	2MHz/ 2.2 to 2.7V	400
	H8/38001	12K	512	M																
	H8/38002	16K		M													PLQP0064KC-A	FP-64E	5.0MHz/ 2.7 to 3.6V	
	H8/38003	24K	1K	M													PVQN0064LB-A	TNP-64B		
	H8/38004	32K		M																
	H8/38002F	16K	1K	F																
	H8/38004F	32K		F																
H8/38104	H8/38100	8K	512	M	49				1*						○	○	PRQP0064GB-A	FP-64A	10MHz/ 2.7 to 5.5V	200
	H8/38101	12K	512	M													PLQP0064KC-A	FP-64E		
	H8/38102	16K		M F																
	H8/38103	24K	1K	M																
	H8/38104	32K		M F																
H8/38024S	H8/38020S	8K	512	M	66				1						—	—	PRQP0080JB-A	FP-80A	2MHz/ 1.8 to 2.7V	400
	H8/38021S	12K		M													PRQP0080GD-B	FP-80B		
	H8/38022S	16K		M													PTQP0080KC-A	TFP-80C	5.0MHz/ 2.7 to 3.6V	
	H8/38023S	24K	1K	M													PTLG0085JA-A	TLP-85V		
	H8/38024S	32K		M																
H8/38024R	H8/38024R	32K	1K	F		3	2			—	1	8	32seg × 4com	13					5.0MHz/2.7 to 3.6V	
H8/38124	H8/38120	8K	512	M	65				1*			10bit × 2ch			○	○	PRQP0080JB-A	FP-80A	10MHz/ 2.7 to 5.5V	200
	H8/38121	12K	512	M													PTQP0080KC-A	TFP-80C		
	H8/38122	16K		M																
	H8/38123	24K	1K	M																
	H8/38124	32K		M F																
H8/3827S	H8/3824S	32K	2K	M											—	—			2MHz/ 1.8 to 2.7V	400
	H8/3825S	40K		M																
	H8/3826S	48K		M															5.0MHz/ 2.7 to 3.6V	
	H8/3827S	60K		M																
H8/38327	H8/38322	16K	1K	M	64	3	2	1			2	8	32seg × 4com	13	—	—	PRQP0080JB-A	FP-80A	8MHz/ 2.7 to 5.5V	250
	H8/38323	24K		M													PTQP0080KC-A	TFP-80C		
	H8/38324	32K		M F				14bit × 1ch												
	H8/38325	40K	2K	M																
	H8/38326	48K		M																
	H8/38327	60K		M F																
H8/38427	H8/38422	16K	1K	M															5MHz/ 2.7 to 4.5V	250
	H8/38423	24K		M																
	H8/38424	32K		M F																
	H8/38425	40K	2K	M															8MHz/ 4.5 to 5.5V	
	H8/38426	48K		M																
	H8/38427	60K		M F																
H8/3847S	H8/3844S	32K	2K	M															2MHz/ 1.8 to 2.7V	400
	H8/3845S	40K		M																
	H8/3846S	48K		M															5.0MHz/ 2.7 to 3.6V	
	H8/3847S	60K		M																
H8/38347	H8/38342	16K	1K	M	84	3	2	1		1	2	12	40seg × 4com	13	—	—	PRQP0100KA-A	FP-100B	8MHz/ 2.7 to 5.5V	250
	H8/38343	24K		M													PTQP0100KA-A	TFP-100B		
	H8/38344	32K		M F				14bit × 1ch									PTQP0100LC-A	TFP-100G		
	H8/38345	40K	2K	M																
	H8/38346	48K		M																
	H8/38347	60K		M F																
H8/38447	H8/38442	16K	1K	M															5MHz/ 2.7 to 4.5V	
	H8/38443	24K		M																
	H8/38444	32K		M F																
	H8/38445	40K	2K	M															8MHz/ 4.5 to 5.5V	
	H8/38446	48K		M																
	H8/38447	60K		M F																

Note1: With internal clock   F: Flash memory version   M: Mask ROM version

H8/300H Super Low Power Series

Group	Product name	ROM (byte)	RAM (byte)	Memory type	I/O port	8bit	16bit	RTC	WDT (Note1)	PWM	SCI3	SCI3 (IrDA*)	I²C (SSU*)	10bit A/D	14bit ADC ΔΣtype	Address break function	3V voltage booster circuit for LCD	External interrupt	POR with LVD	Comparator	Renesas code	Previous code	Max. internal frequency/ operating voltage	Min. instruction execution time (ns)
H8/38602R	H8/38600R	8K	512	M	19	1	2	1	1*	—	—	1*	1ch*	6ch	—	—	—	13	○	2ch	PVQN0032KA-A	TNP-32	4.2MHz/1.8 to 3.6V 10MHz/2.7 to 3.6V	200
	H8/38602R	16K	1K	M F																	PLQP0032GB-A	—		
H8/38606	H8/38606	48K	2K	F																	PVQN0032KA-A	TNP-32		
H8/38702S	H8/38700S	8K	512	M																	PRQP0064GB-A	FP-64A		
	H8/38701S	12K	512	M																	PRQP0064KB-A	FP-64K		
	H8/38702S	16K																			PRQP0064LB-A	TNP-64B		
H8/38704	H8/38702	16K		M	50	1	2	—	1			1	—	4ch	—	—	—	11	—	—	PRQP0064GB-A	FP-64A	2.0MHz/1.8 to 3.6V 5.0MHz/2.7 to 3.6V	400
	H8/38703	24K		M					10bit × 2ch													PRQP0064KC-A	FP-64E		
	H8/38704	32K	1K	M																	PRQP0064LB-A	TNP-64B		
	H8/38702F	16K		F																				
	H8/38704F	32K		F																				
H8/38524	H8/38520	8K	512	M	65				1*			1		8ch	—	—	—		○*	—	PRQP0080JB-A	FP-80A	10MHz/2.7 to 5.5V	200
	H8/38521	12K	512	M					10bit × 2ch													PTQP0080KC-A	TFP-80C		
	H8/38522	16K		M																				
	H8/38523	24K	1K	M																				
	H8/38524	32K		M F																				
H8/38537	H8/38532	16K	1K	M	64	3	2	—	1			2		12ch	—	—	—	13	—	—	PRQP0080JB-A	FP-80A	8MHz/2.7 to 5.5V	250
	H8/38533	24K		M					14bit × 1ch													PTQP0080KC-A	FP-80A		
	H8/38534	32K		M F													32seg × 4com							
	H8/38535	40K	2K	M																				
	H8/38536	48K		M																				
	H8/38537	60K		M F																				
H8/38076R	H8/38073R	24K	1K	M	63									8ch	—		32seg × 4com							
	H8/38074R	32K		M																				
	H8/38075R	40K	2K																					
	H8/38076R	48K		M F																				
H8/38776	H8/38773	24K	1K	M	63	—	4	1	1*			1*	1ch	1ch	—	14	○	—			PRQP0080JB-A	FP-80A	4.2MHz/1.8 to 3.6V	200
	H8/38774	32K		M					14bit × 2ch													PTQP0080KC-A	TFP-80C	10MHz/2.7 to 3.6V	
	H8/38775	40K	2K																			PTLG0085JA-A	TLP-85V		
	H8/38776	48K		M F																				
H8/38086R	H8/38083R	24K	1K	M	61								3ch	2ch		32seg × 4com							
	H8/38084R	32K		M																				
	H8/38085R	40K	2K	M																				
	H8/38086R	48K		M F																				
H8/38099	H8/38098	96K	2K	M	83	2	4	1	1*			3ch (1ch*)	1ch	8ch	—	1ch	40seg × 4com	14	○	—	PLQP0100KB-A	FP-100U	4.2MHz/1.8 to 3.6V	200
	H8/38099	128K	4K	M F					14bit × 4ch														10MHz/2.7 to 3.6V	
H8/38799	H8/38798	96K	2K	M																				
	H8/38799	128K	4K	M F																				

Note1: With internal clock   F: Flash memory version   M: Mask ROM version

H8S Super Low Power Series

Group	Product name	ROM (byte)	RAM (byte)	Memory type	I/O port	8bit	16bit	RTC	WDT (Note1)	PWM	SCI3	SCI3 IrDA	I²C	I²C SSU	10bit ADC	14bit ADC ΔΣtype	Address break function	LCD	3V voltage booster circuit for LCD	External interrupt	POR	Comparator	Renesas code	Previous code	Max. internal frequency/ operating voltage	Min. instruction execution time (ns)
H8S/2264	H8S/2263	64K	2K	M	62	4	4	—	2	—	3	—		1ch (option)	10ch	—	—		40seg × 4com	13	—	—	PRQP0100KA-A	FP-100B	20.5MHz/ 2.7 to 5.5V	48.8
	H8S/2264	128K	4K	M																				PTQP0100KA-A	TFP-100B		
																							PTQP0100LC-A	TFP-100G		

Note1: With internal clock   F: Flash memory version   M: Mask ROM version

*: Please use H8S/2265 of H8S/2268 group in H8S/2200 Series when examining the flash memory version of the H8S/2264 Group.

WDT: Watchdog timer   SCI: Serial communication I/F   RTC: Real time clock   POR: Power-on reset   TPU: Timer pulse unit   LVD: Low voltage detector   SSU: Synchronous serial communication unit (3-wired/4-wired bus)

RENESAS
Super Low Power

Web http://www.renesas.com/tools

- Development environment for getting the most from Renesas microcontrollers
- Powerful alliances with a wide variety of partner vendors
- Renesas backs up customer system development efforts with full support services
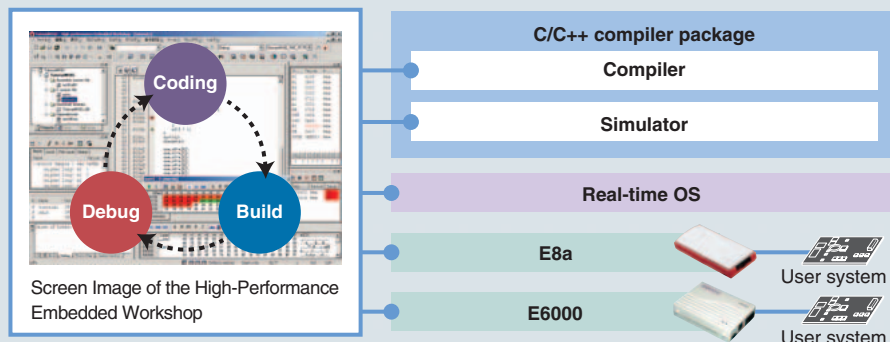
(Diagram labels: C and C++ compilers, Real-time OS, Integrated development environment and CASE tools, Middleware and drivers, Emulators, Platform, Programmers)
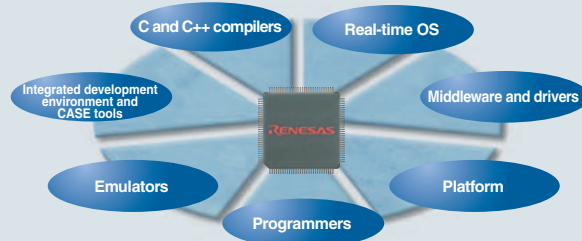
Renesas Integrated Development Environment   http://www.renesas.com/hew

Seamless system development provided by Renesas' High-Performance Embedded Workshop

The Renesas development environment links the tools necessary for application development, including compilers and debuggers (emulator software), and supports the development process, from coding through verification, in a single application.
Since this environment provides consistency across the various tools used provided at each stage in the development process, development proceeds smoothly as though these multiple functions were provided by a single tool.

- An easy to use GUI that is the same for all Renesas microcontrollers
- Software tools and documentation can be upgraded easily over the internet
- Coordination with products (such as CASE tools) from partner companies

(Cycle diagram: Coding → Build → Debug)

Screen Image of the High-Performance Embedded Workshop

C/C++ compiler package
- Compiler
- Simulator

Real-time OS

E8a → User system

E6000 → User system

Renesas also provides a starter kit that can be used immediately

Renesas Starter Kit

Low-cost evaluation and development toolkit
This product provides a user-friendly platform for evaluation of Renesas microcontrollers.

Emulator Lineup   http://www.renesas.com/emulation_debugging

■E8a   http://www.renesas.com/e8a

On-chip debugging emulator that can be used to program the flash memory in Renesas 8-bit to 32-bit microcontrollers

Features
- Covers both on-chip debugging and flash programming in a single device
- Supports evaluation with electrical characteristics that are the same as those in the end product
- USB bus-powered operation obviates the need for a separate emulator power supply
- The emulator can supply 3.3V or 5.0V power to the system under development.
- Compact design: 92 x 42 x15 mm
- Chassis made from environmentally-friendly biodegradable polylactide material
- User system connector specifications and debugger user interface are compatible with those of the E8 (an earlier version) for smooth transition
- Free updates of the included software are provided on the dedicated E8a emulator web site.

■E6000   http://www.renesas.com/e6000

Full-spec emulator that supports a maximum operating frequency of 33 MHz

Features
- Improved C source level debugging, trace, break, and other emulation functions
- Supports real-time emulation at the CPU's maximum operating frequency
- Target programs are downloaded at 250K bytes/second
- Supports USB as the PC interface.
- Support files for newly added devices in each product line and software updates can be downloaded for free from a dedicated web site.

Flash Development Toolkit   http://www.renesas.com/fdt

- Microcontroller flash memory can be programmed by connecting the E8a and using the Flash Development Toolkit

(Diagram: PC + Flash Development Toolkit → USB → E8a (R0E00008AKCE00) → User system)
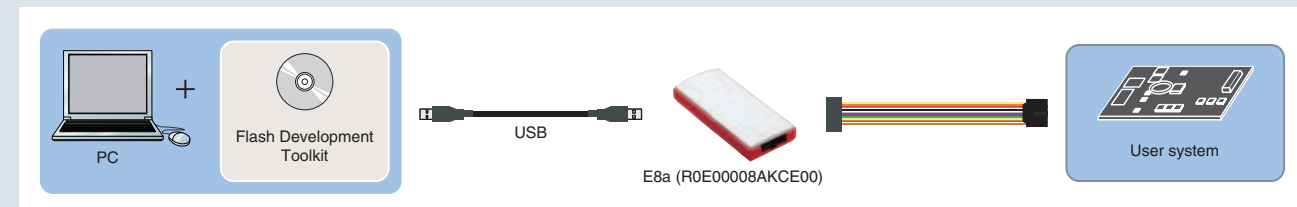
List of Development Tools for H8/300L Super Low Power Series

MCU		Tools for Initial Implementation	Software Tools	Hardware Tools			Programming Tools (Flash Memory Programming Tools and Adapter Boards)
			C/C++ Compiler Package (Bundled with Integrated Development Environment)	Low-Cost Model	High-Functionality Model		
Series	Group	Starter Kit *1		On-Chip Debugging Emulator (Bundled with Emulator Software)	Full-Spec Emulator (Bundled with Emulator Software)	User Cable or User System Interface Boards	
H8/300L Super Low Power	H8/38002S	—	C/C++ Compiler Package for H8SX, H8S, H8 Family *2 (MISRA C compatible *3)	*4	HS38000EPI61H (E6000 with USB I/F) + HS3800EBK61H	HS3802ECH62H (for PLQP0064KB-A [Previous code: FP-64K]) or HS3802ECH61H (for PRQP0064GB-A [Previous code: FP-64A])	—
	H8/38004			E8a(R0E00008AKCE00)*6		HS3802ECH62H (for PLQP0064KC-A [Previous code: FP-64E]) or HS3802ECH61H (for PRQP0064GB-A [Previous code: FP-64A])	Flash Development Toolkit *7 E8a (USB) *6 or HS0008EASF5H (RS-232C) *8
	H8/38104					—	
	H8/38024R			*5	HS38000EPI61H (E6000 with USB I/F) + HS3800EBK61H	HS38024ECH61H (for PRQP0080JB-A [Previous code: FP-80A]) or HS38024ECN61H (for PTQP0080KC-A [Previous code: TFP-80C])	—
	H8/38024S						
	H8/38124			E8a(R0E00008AKCE00)*6	—	—	Flash Development Toolkit *7 E8a(USB) *6 or HS0008EASF5H (RS-232C) *8
	H8/3827S			—	HS38000EPI61H (E6000 with USB I/F) + HS3800EBK61H	HS3864ECH61H (for PRQP0080JB-A [Previous code: FP-80A]) or HS3864ECN62H or HS3864ECF61H (for PRQP0080GD-B [Previous code: FP-80B])	—
	H8/38327			—		—	Flash Development Toolkit *7 E8a (USB) *6 or HS0008EASF5H (RS-232C) *8
	H8/38427	Renesas Starter Kit for H8/38347 (product No. R0K438347S001BE)		E8a (R0E00008AKCE00)*6	HS38000EPI61H (E6000 with USB I/F) + HS388EBK61H	HS3864ECH61H (for PRQP0080JB-A [Previous code: FP-80A]) or HS3864ECN62H (for PTQP0080KC-A [Previous code: TFP-80C])	
	H8/3847S			—		HS3887ECH61H (for PRQP0100KA-A [Previous code: FP-100B]) (for PTQP0100KA-A [Previous code: TFP-100B]) or HS3887ECN61H (for PTQP0100LC-A [Previous code: TFP-100G])	—
	H8/38347			—		—	Flash Development Toolkit *7 E8a (USB) *6 or HS0008EASF5H (RS-232C) *8
	H8/38447			E8a (R0E00008AKCE00)*6	HS38000EPI61H (E6000 with USB I/F) + HS388REBK61H	HS3887ECH61H (for PRQP0100KA-A [Previous code: FP-100B]) (for PTQP0100KA-A [Previous code: TFP-100B]) or HS3887ECN61H (for PTQP0100LC-A [Previous code: TFP-100G])	

*1. Includes CPU board, E8a on-chip debugging emulator, and software (High-performance Embedded Workshop (integrated development environment), C/C++ compiler package evaluation version, E8a emulator software, Flash Development Toolkit evaluation version). Bundled software may not be the latest product or version depending on the shipping date. The latest releases can be downloaded (free of charge) from the Renesas Technology Web site: http://www.renesas.com/download. *2. The C/C++ compiler package includes an integrated development environment (High-performance Embedded Workshop), C/C++ compiler, assembler, optimizing linkage editor, simulator-debugger, and other components. *3. MISRA C rule checking functionality can be added by installing the optional SQMlint MISRA C rule checker (product No. R0C00000SCW01R). *4. Debugging can be performed with the E8a emulator by using the H8/38004F as a debugging chip. *5. Debugging can be performed with the E8a emulator by using the H8/38024F as a debugging chip. *6. The E8a emulator includes software (High-performance Embedded Workshop integrated development environment, E8a emulator software, compiler package evaluation version, Flash Development Toolkit evaluation version). Bundled software may not be the latest product or version depending on the shipping date. The latest releases can be downloaded (free of charge) from the Renesas Technology Web site: http://www.renesas.com/download. *7. Flash Development Toolkit (product No. R0C00000FDW04R) is available in a product version (paid, support provided) and an evaluation version (free of charge, no support provided). *8. No programming software is provided. Such software must be purchased separately.

List of Development Tools for H8/300H Super Low Power Series

MCU		Tools for Initial Implementation	Software Tools	Hardware Tools	Programming Tools (Flash Memory Programming Software and Adapter Boards)
			C/C++ Compiler Package (Bundled with Integrated Development Environment)	On-Chip Debugging Emulator (Bundled with Emulator Software)	
Series	Group	Starter Kit *1			
H8/300H Super Low Power	H8/38799	—	C/C++ Compiler Package for H8SX, H8S, H8 Family *2 (MISRA C compatible *3)	E8a(R0E00008AKCE00) *4	Flash Development Toolkit *6 E8a (USB) *4 or HS0008EASF5H (RS-232C) *7
	H8/38776				
	H8/38704				
	H8/38702S			*5	—
	H8/38606			E8a(R0E00008AKCE00) *4 ★★	
	H8/38602R				Flash Development Toolkit *6
	H8/38537				
	H8/38524			E8a(R0E00008AKCE00) *4	E8a (USB) *4 or HS0008EASF5H (RS-232C) *7
	H8/38099	Renesas Starter Kit for H8/38099 (product No. R0K438099S000BE)			
	H8/38086R				
	H8/38076R				

*1. Includes CPU board, E8a on-chip debugging emulator, and software (High-performance Embedded Workshop (integrated development environment), C/C++ compiler package evaluation version, E8a emulator software, Flash Development Toolkit evaluation version). Bundled software may not be the latest product or version depending on the shipping date. The latest releases can be downloaded (free of charge) from the Renesas Technology Web site: http://www.renesas.com/download. *2. The C/C++ compiler package includes an integrated development environment (High-performance Embedded Workshop), C/C++ compiler, assembler, optimizing linkage editor, simulator-debugger, and other components. *3. MISRA C rule checking functionality can be added by installing the optional SQMlint MISRA C rule checker (product No. R0C00000SCW01R). *4. The E8a emulator includes software (High-performance Embedded Workshop integrated development environment, E8a emulator software, compiler package evaluation version, Flash Development Toolkit evaluation version). Bundled software may not be the latest product or version depending on the shipping date. The latest releases can be downloaded (free of charge) from the Renesas Technology Web site: http://www.renesas.com/download. *5. Debugging can be performed with the E8a emulator by using the 38704F as a debugging chip. *6. Flash Development Toolkit (product No. R0C00000FDW04R) is available in a product version (paid, support provided) and an evaluation version (free of charge, no support provided). *7. No programming software is provided. Such software must be purchased separately.   ★★ Under development

List of Development Tools for H8S/2200 Super Low Power Series

MCU		Software Tools		Hardware Tools		Programming Tools (Flash Memory Programming Software and Adapter Boards)
		Real-time OS (µITRON)	C/C++ Compiler Package (Bundled with Integrated Development Environment)	Full-Spec Emulator (Bundled with Emulator Software)	User Cable	
Series	Group					
H8S/2200 Super Low Power	H8S/2264	HI1000/4 (R0R41600TXW01w) *1	C/C++ Compiler Package for H8SX, H8S, H8 Family *2 (MISRA C compatible *3)	HS2268EPI61H (E6000) + HS6000EIU02H (USB-Adapter)	HS2268ECH61H (for PRQP0100KA-A [Previous code: FP-100B], for PTQP0100KA-A [Previous code: TFP-100B]) or HS2268ECN61H (for PTQP0100LC-A [Previous code: TFP-100G])	—

*1. w = 1: evaluation license, limit 1 host machine, w = 5: evaluation license, limit 5 host machines, w = A: evaluation license, limit 10 host machines, w = K: mass-production license, limit 1,000 target machines, w = U: mass-production license, unlimited number of target machines, w = Z: mass-production license, unlimited number of target machines, kernel source code included. *2. The C/C++ compiler package includes an integrated development environment (High-performance Embedded Workshop), C/C++ compiler, assembler, optimizing linkage editor, simulator-debugger, and other components. *3. MISRA C rule checking functionality can be added by installing the optional SQMlint MISRA C rule checker (product No. R0C00000SCW01R).

Extensive alliance with over 400 partner companies worldwide   http://www.renesas.com/partners

The alliance partner program is a web-based system that provides Renesas microcontroller users with the latest information on a wide range of solutions, including products and services from partner companies, that work with Renesas products.
Over 400 partner companies worldwide provide, for use with Renesas microcontrollers, the tool products of all types and a variety of services required for our customers' product development. Furthermore, Renesas is committed to strengthening and expanding our relationships with our partner companies to provide our customers with optimal solutions.

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