The Core Difference in Your Design

RX600 Microcontrollers

Renesas Electronics
www.renesas.eu

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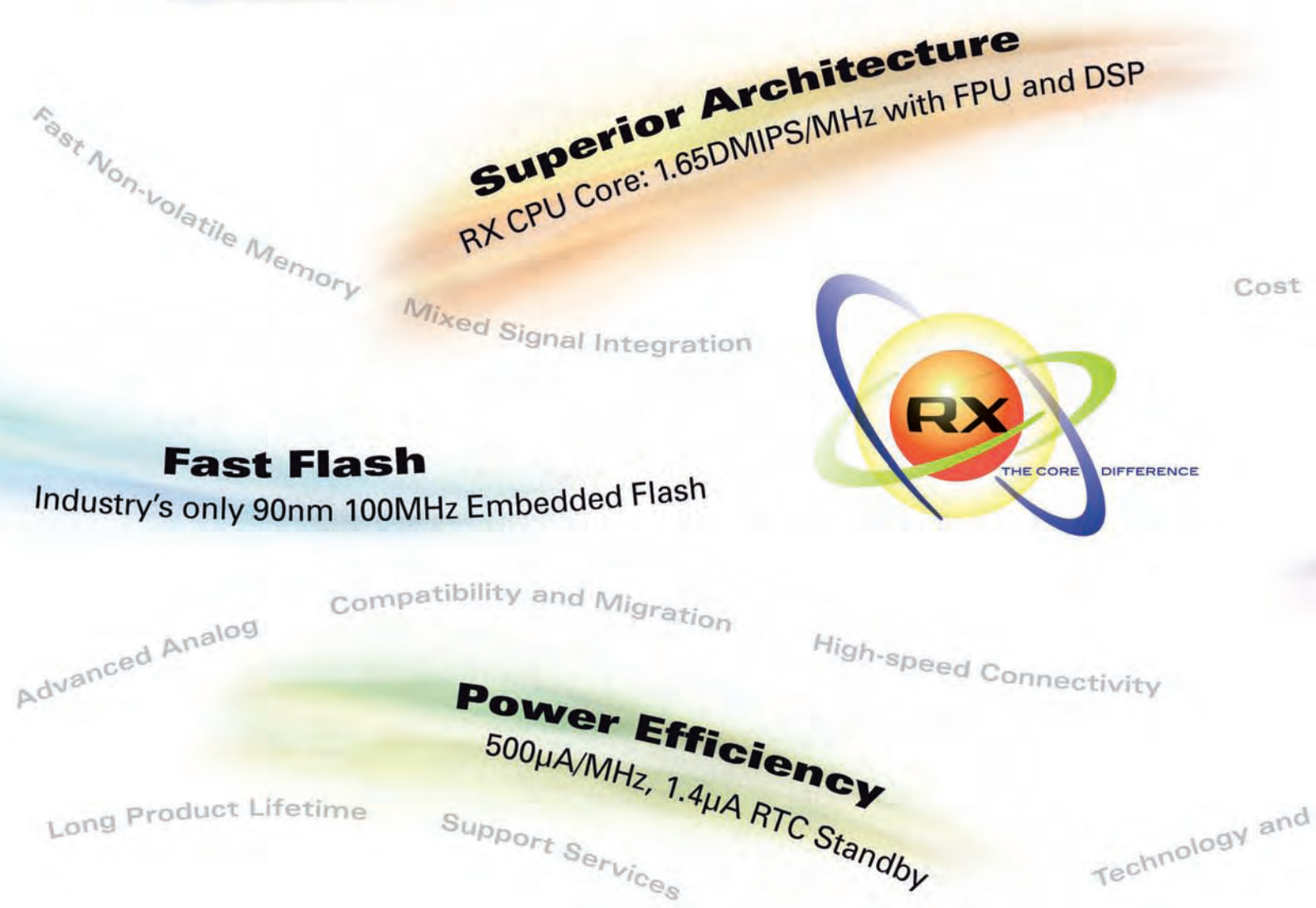
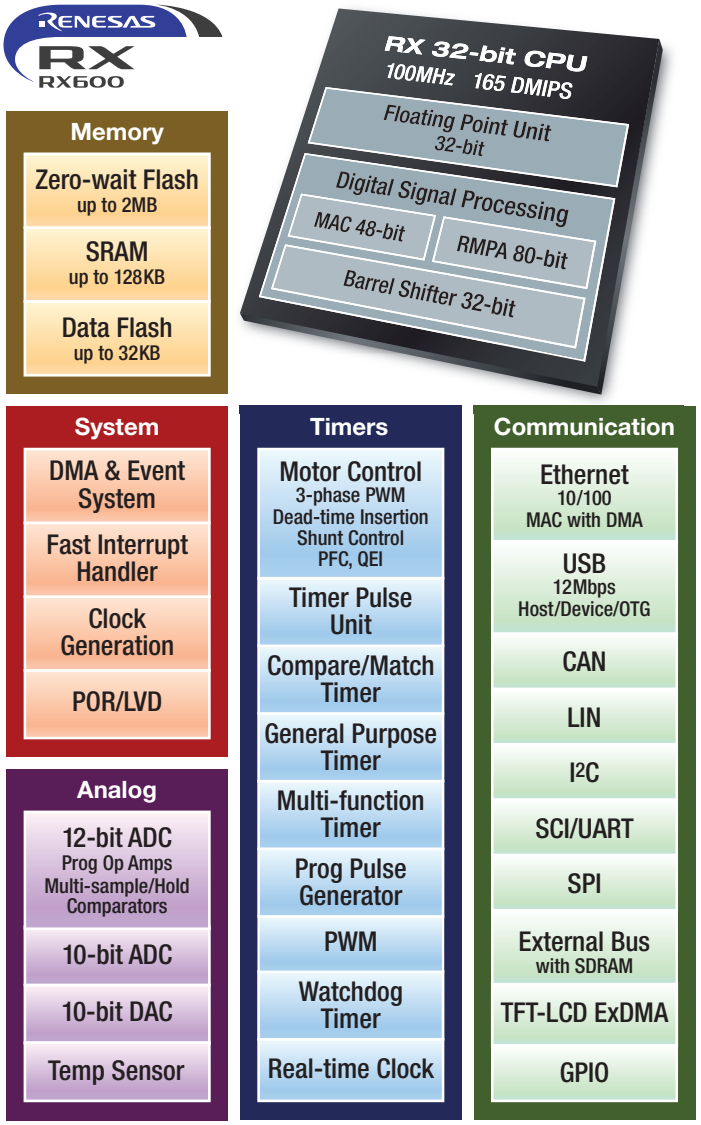
Performance without Sacrifice

The RX architecture is future oriented and feature rich. It's driven by a Renesas technology roadmap that focuses on the global environment and anticipates the enormous gains in sophistication that microcontroller-based products are expected to achieve in the next 10 to 20 years. Thus, the RX family of microcontrollers (MCUs) delivers superior performance in terms of core processing performance, code efficiency, and power consumption. An extensive portfolio of on-chip mixed-signal peripherals is available, and fast 90 nm Flash memory is embedded. That Flash unleashes full CPU performance, feeding instructions to the 32-bit RX CPU with no delays – no waits, no stalls – maintaining the MCU's peak performance of 165 DMIPS. Memory acceleration isn't required, and the result is just pure, predictable performance.

Today designers are confronted with many critical design and implementation issues. RX MCUs are designed to solve these issues and help them create new innovative end-products faster and more easily than in the past.





> RX MCUs leverage Renesas' mature 90 nm embedded Flash process, which is currently the fastest in the industry with a 10 ns maximum read access time and is designed for optimized power consumption all the way up to full 100 MHz operation.

> Design solutions in the RX600 series are scalable. Over 75 products are available now and about 300 products are expected by the end of 2011, offering Flash memory from 32 KB to 2 MB and packages with 48 to 177 pins.

> The companion low-voltage RX200 series will be available in Spring, 2011. These more economical MCUs operate down to lower voltages (as low as 1.62 V), consume less power, and come in smaller packages and memory sizes. The RX200 and RX600 share the same CPU core and integrate many of the same peripherals for easy migration between the two series.

> ***Renesas is the number one MCU supplier worldwide[1], with a 30% market share.***

> RX MCUs come with comprehensive system development support, including a vast range of easy-to-use boards, tools, software, middleware, and RTOSs from Renesas and third-party suppliers, comprising a rich ecosystem of products for accelerating progress in design cycles and shrinking time to market.

Superior Architecture

> **RX CPU Core with FPU and DSP: 165 DMIPS at 100 MHz, 2.25 CoreMark™/MHz[2]**

> **Enhanced Harvard architecture and 5-stage pipeline**

> **More than six internal busses**

> **Multiple Direct Memory Access control**

> **Rapid interrupt response**

Fast Flash

> **Industry's only 90 nm 100 MHz embedded Flash**

> **CPU receives instructions with no delays**

> **Mature and reliable silicon process**

Power Efficiency

> **500 µA/MHz, with all peripherals active**

> **1.4 µA RTC Deep Standby (RX631/63N)**

> **1 mW per DMIPS**

> **Extends battery life in portable applications**

Code Efficiency

> **Up to 28% code size savings[3] compared to popular 32-bit RISC MCUs on the market**

> **Variable-length CISC instructions**

> **FPU, DSP and bit manipulation instructions**

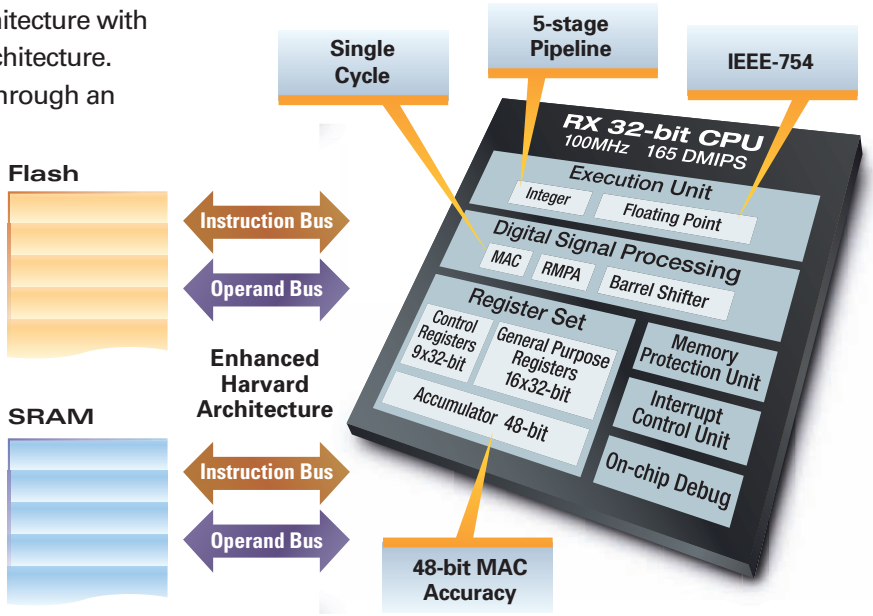
Footnotes:
1: Source: Gartner 2009 Worldwide Semiconductor Market Share Database, March 2010 results
2: Source: www.coremark.org as of Jan. 2011
3: Source: Renesas internal testing

Advanced Design and Integration

RX600 Key Benefits

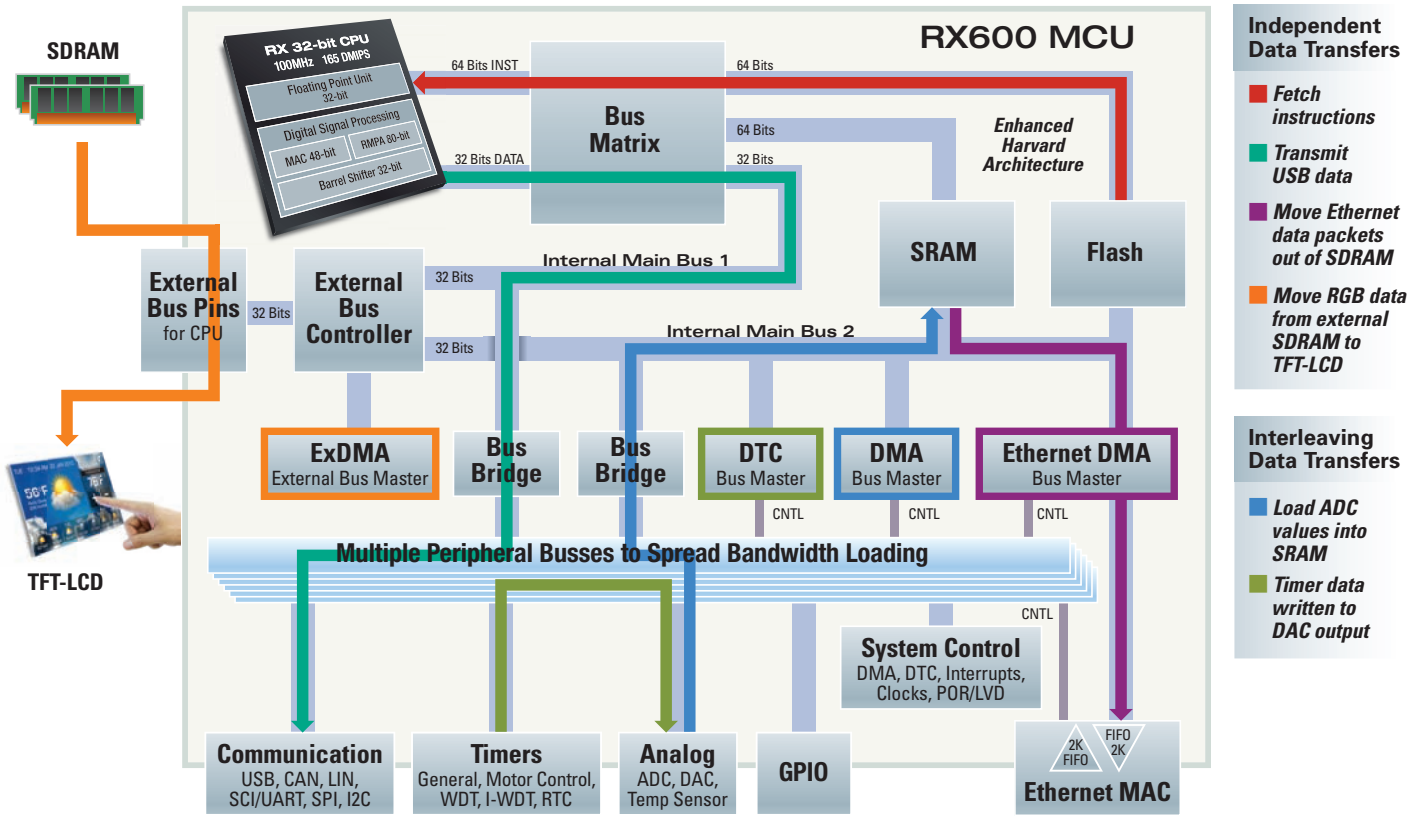
The RX Core marries the speed of a RISC architecture with the flexibility and code efficiency of a CISC architecture. The CPU interacts with the Flash and SRAM through an enhanced Harvard design. The RX Core leverages the industry's fastest Flash memory, delivering 1.65 DMIPS/MHz and 2.25 CoreMark/MHz without wait states.

Tightly coupled to the RX Core are the FPU, MAC, and RMPA (Repeat Multiply Accumulate), which are efficiently driven by DSP and floating point instructions to meet the growing demand of DSC (Digital Signal Controller) type applications.



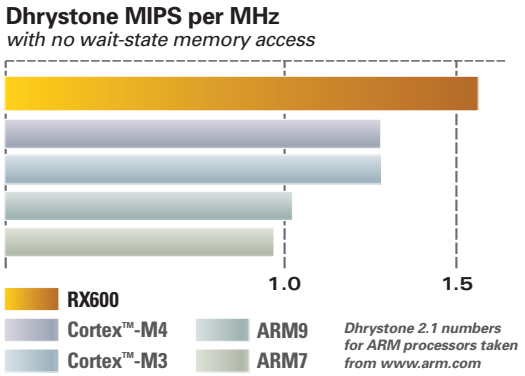
Simultaneous Data Transfers

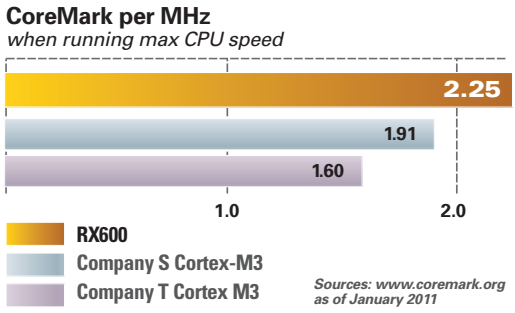
The RX Core uses a large number of parallel busses to handle simultaneous movement of data between the CPU core, Flash, SRAM, and peripherals. Six different peripheral busses enable a flexible distribution of slow and fast peripherals for optimized throughput. An external bus with an independent DMA can move data directly from one external device to another external device, such as a graphic frame buffer to a TFT-LCD panel.



Performance

The RX Core delivers 1.65 DMIPS per MHz, achieving 165 DMIPS when running at 100 MHz.

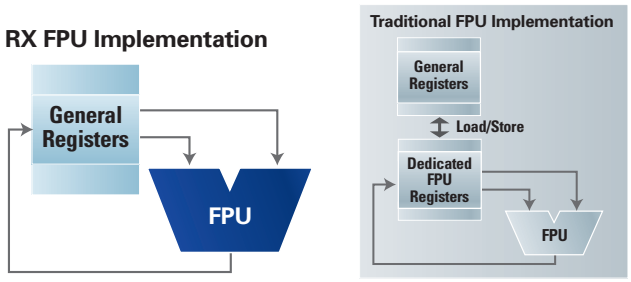




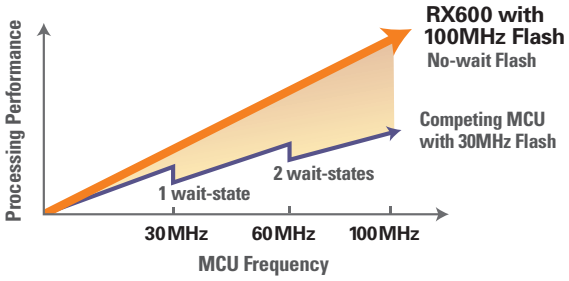
Superior FPU Implementation

The RX FPU implementation allows direct access to general registers, resulting in faster execution and smaller code size.

- RX eliminates the overhead of load/store operations
- Results in higher performance and smaller code size



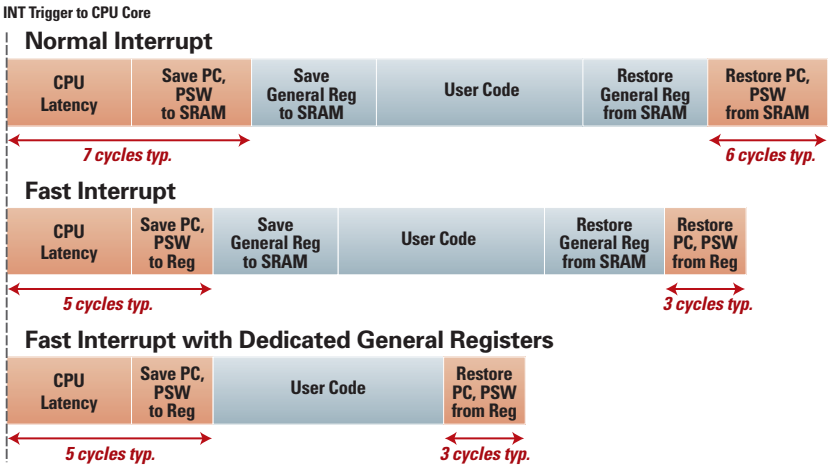
Industry's only 100 MHz On-chip Flash



Efficient Interrupt Handling

There are flexible options to achieve minimum latency for various scenarios:

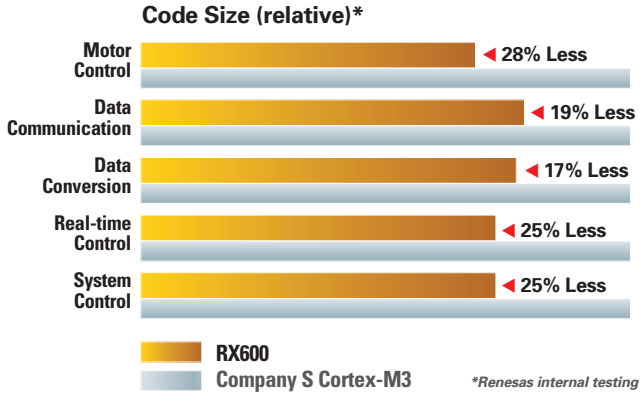
- Normal interrupt responds in as few as seven CPU clock cycles from the event until the firmware serves the interrupt.
- Fast interrupt mode can be assigned dynamically to any interrupt source, responding in just five CPU clocks, using dedicated registers to save and restore the CPU state.
- All interrupt service routines can be shortened by dedicating up to four RX CPU general registers for use only by interrupts, eliminating the need to push and pop the registers to and from the stack.



Substantial Code Size Reduction

The RX CISC CPU architecture has inherent advantages over RISC CPUs in terms of code size, with RX's variable length instructions ranging from 8 bits to 64 bits, allowing the compiler to select just the right instruction to do the job.

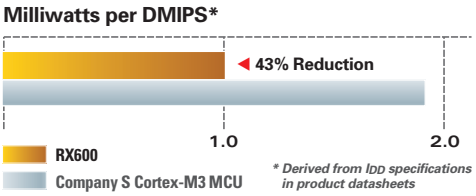
- Many RISC MCUs have only two instruction lengths, 16 bits and 32 bits, so the compiler must make compromises.
- RX CPU supports 10 addressing modes, which optimize manipulation and movement of data.
- Compiled RX code has been measured as much as 28% smaller than the same code compiled on a popular RISC MCU.



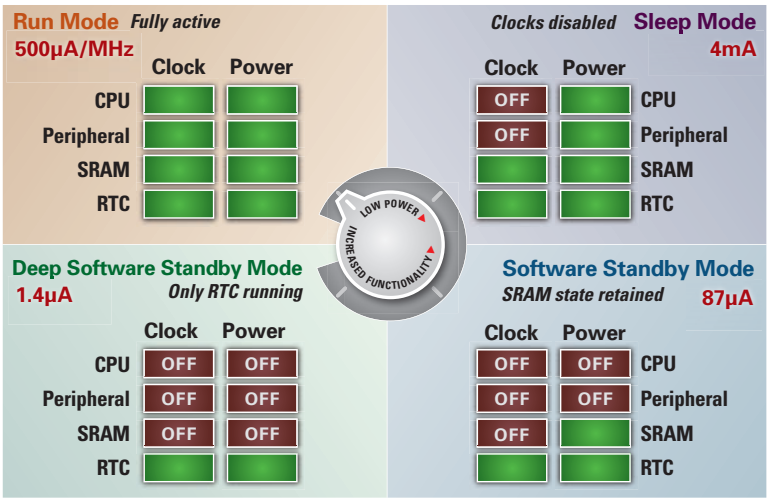
Highly Effective Power Management

Strike an optimized balance of performance and power consumption with many low-power modes of operation enabled by these design techniques:

- Flexible system clocking and gating for each peripheral
- Selective power domain gating for unused sections of the device
- Low-power, high-voltage threshold transistors minimize leakage



> Compared to a Cortex-M3 based MCU, an RX600 chip enables up to a 43% power reduction – consuming only 1 mW per DMIPS

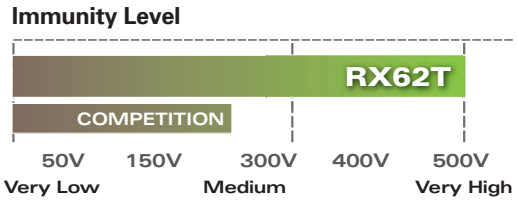


> The RX Series has four power modes to manage precious battery energy consumption without compromising performance

EMC Advantages – Built-in to Eliminate Add-Ons

Outstanding EMC performance of RX600 MCUs reduces system-integration problems, lowers development costs, and shortens design cycles. BOM costs drop, too, because external components can be eliminated

- Strong electromagnetic immunity boosts system reliability
- Careful VCC and VSS layout
- Noise filters on input signals
- Advanced chip layout techniques



LANGER EMV-Technik

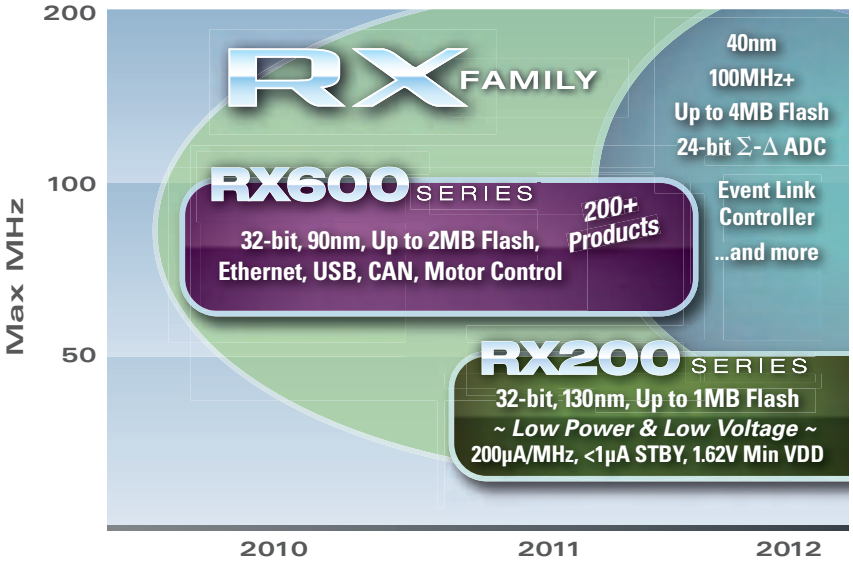
"Langer EMV and Renesas Electronics today announced that the RX600 microcontroller (MCU) family is the most robust MCU Langer EMV has ever tested against environmental noise"

Renesas press release, October 21, 2010

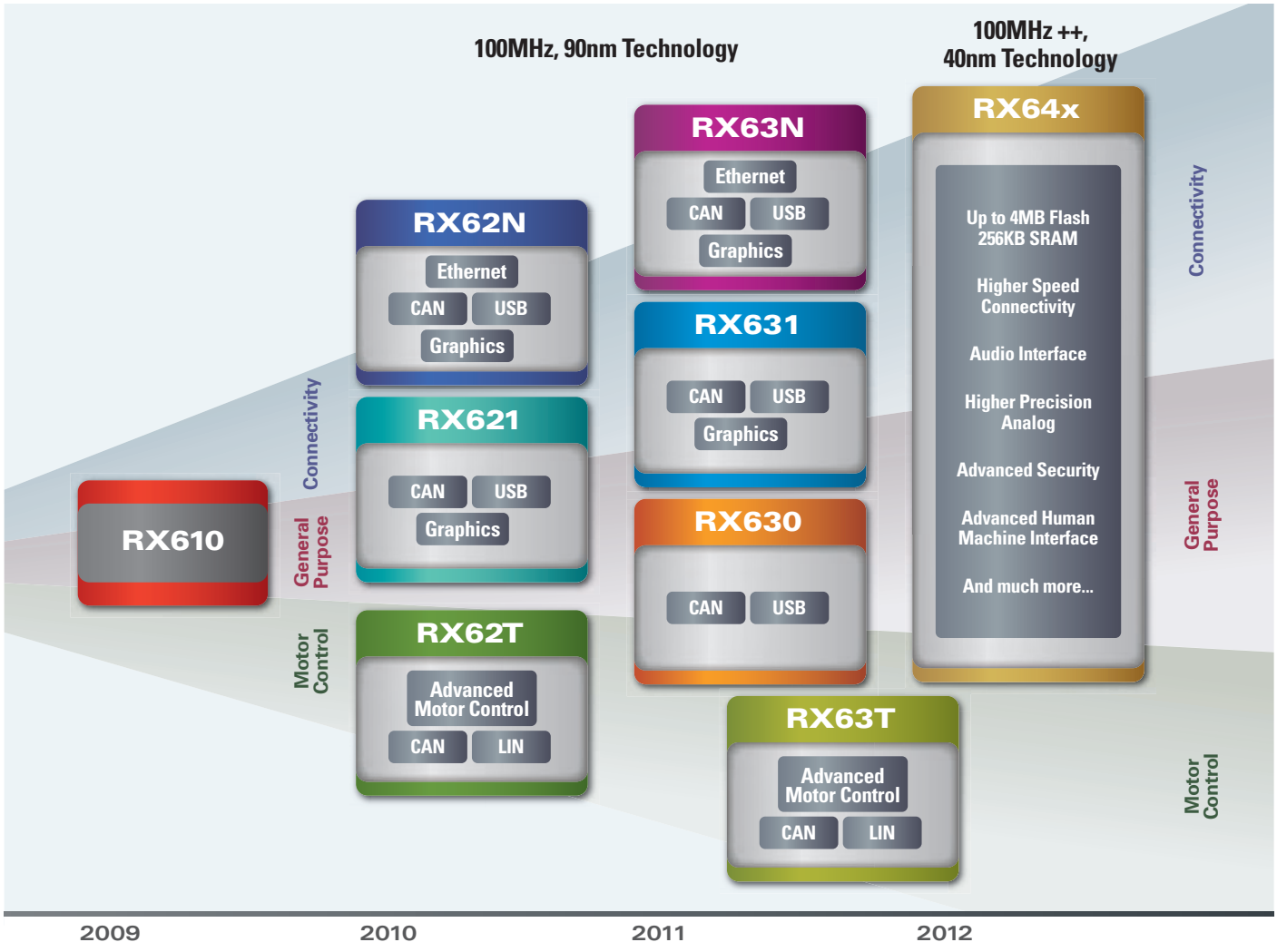
RX Family Product Portfolio

The RX family currently consists of two extensive product series. MCUs in the RX600 series are optimized for applications requiring high-performance, high-efficiency processors. Devices in the RX200 series being introduced in 2011 will expand the range of compatible system-design choices, adding smaller, lower power devices with fewer pins.

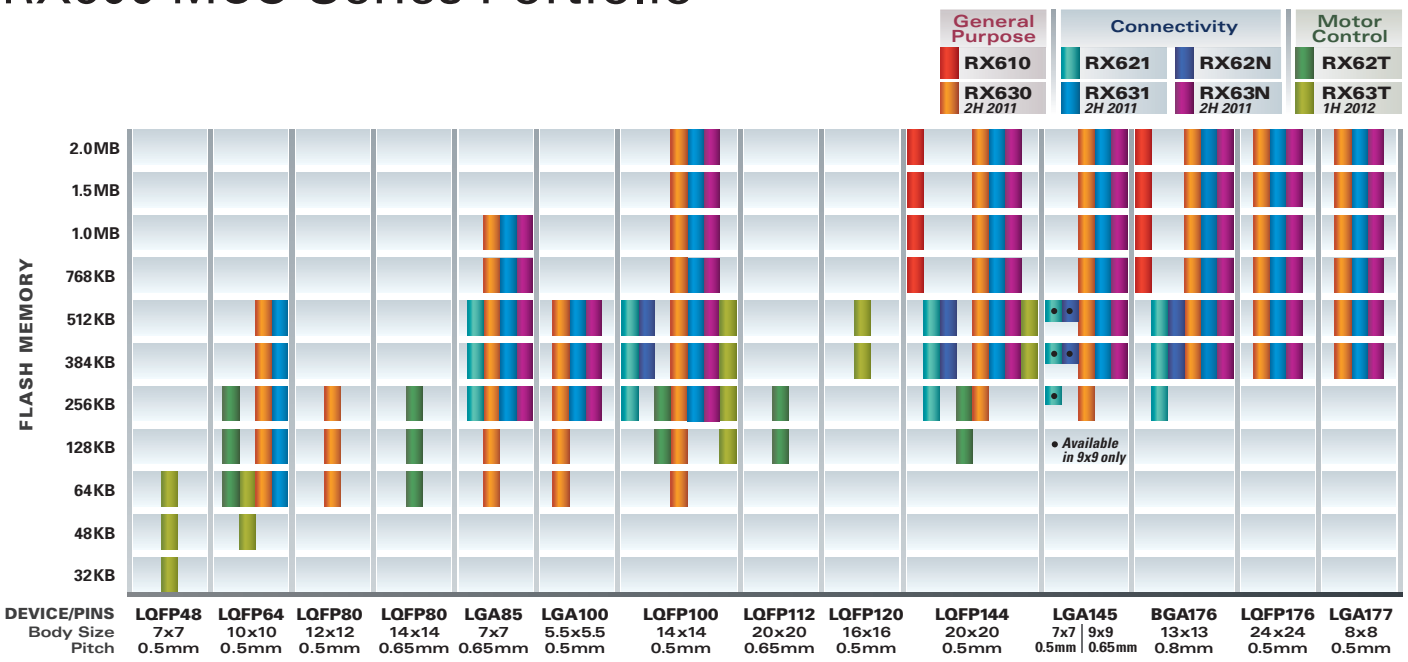
Migration from existing Renesas architectures to RX solutions is easy.
And, of course, moving designs among RX family members is very easy, since RX600 and RX200 MCUs share the same CPU architecture and peripherals. This gives system engineers valuable design flexibility and provides substantial head starts on reusing software assets. New products for niche markets can be created quickly and efficiently, as can upgraded or simplified versions of existing products for addressing changes in customer preferences.



RX600 MCU Series Roadmap



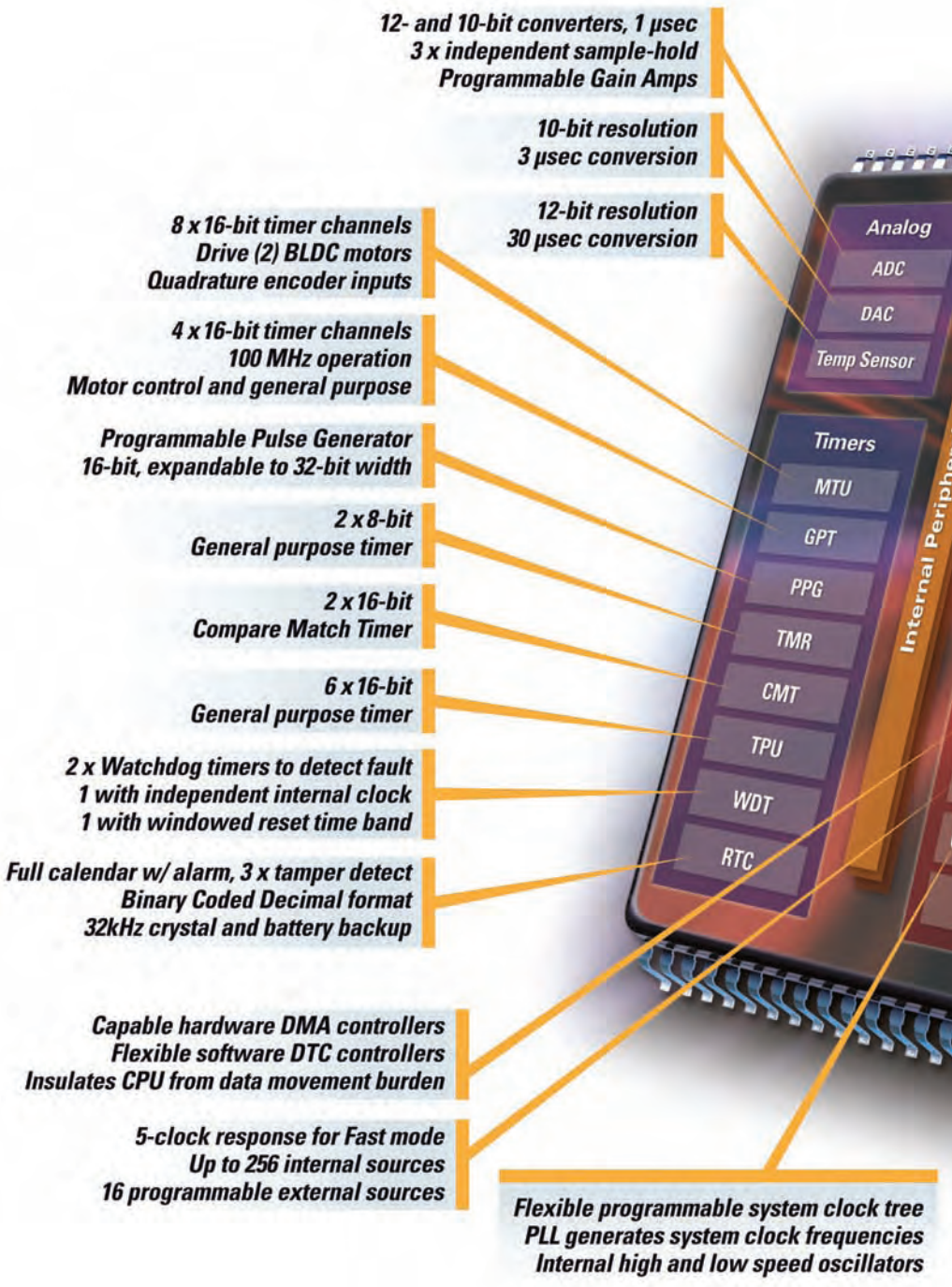
RX600 MCU Series Portfolio



Comprehensive On-chip Peripherals

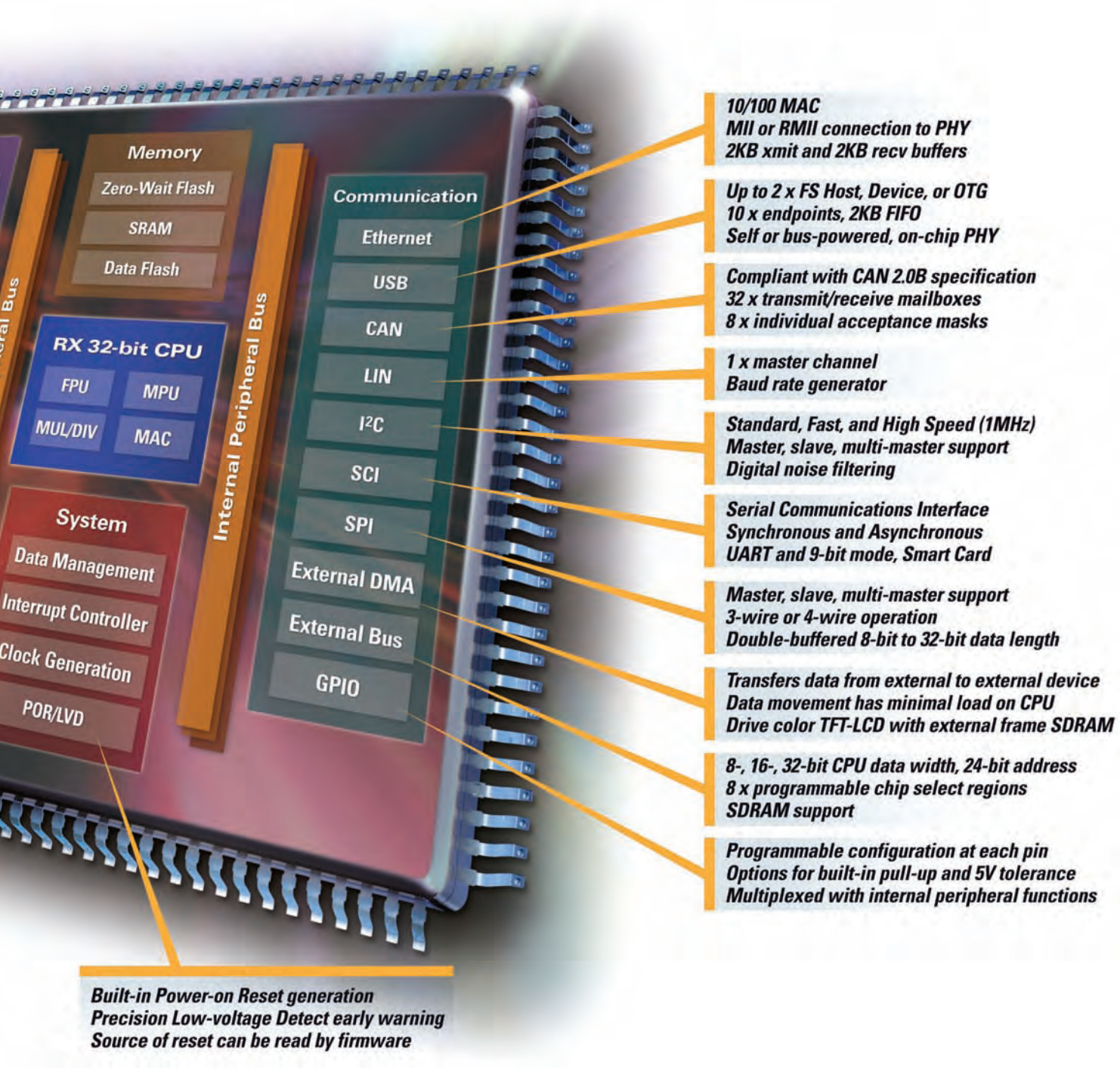
To save cost, simplify system designs, reduce total system power consumption, and enable the implementation of value-added features, a wide range of on-chip peripheral functions is clustered around the powerful CPU core of RX MCUs. Broadly categorized into analog, timer, communication and system functions, these numerous peripherals are proven designs delivering impressive performance. The many different types of RX MCUs offer diverse sets of functions, so chip capabilities and cost can be matched to application needs. The devices in the RX621/62N and RX62T product groups exemplify this diversity and optimization.

- RX621/62N MCUs provide extensive communication peripherals with options for Ethernet, CAN, and up to two USB-FS 2.0 channels, each operating as USB Host, USB Device, or USB OTG (On the Go). Additionally, they offer up to six SCI, two SPI, and two I²C serial channels. Among their other peripherals are analog interfaces; timers; RTC and POR/LVD functions; and more.
- RX62T MCUs provide improved motor/inverter control timers and enhanced analog peripherals for implementing very precise motor control and positioning applications. The MTU3 and GPT timer peripherals enable one MCU to control three motors simultaneously. An FPU and improved analog functions make these MCUs ideal for use with three-shunt or single-shunt vector-type motor control methods.



		Advanced Peripherals							Basic Peripheral Set																				
		Connectivity				Advanced Motor			Memory			Analog				Timers								Communication					
	Group	Ethernet 10/100 MAC	USB 2.0 Host/Device/OTG	CAN 2.0B	Graphics ExDMA	Advanced ADC 12-bit	MTU3	GPT	Flash (max)	SRAM (max)	Data Flash	ADC 10-bit	DAC 10-bit	ADC 12-bit	Temp Sensor	MTU2	TPU	PPG	TMR	CMT	WDT	I-WDT	RTC	I2C	SCI	ExBus	SPI	LIN
Connectivity	RX621	–	1	1	1	–	–	–	512KB	96KB	32KB	–	2	12	–	12	–	8	4	4	1	1	1	2	6	8/16/32	2	–
	RX631	–	2	3	1	–	–	–	1MB	128KB	32KB	8	2	21	1	6	12	8	4	4	1	1	1	4	13	8/16/32	3	–
	RX62N	1	2	1	1	–	–	–	512KB	96KB	32KB	–	2	8	–	12	–	8	4	4	1	1	1	2	6	8/16/32	2	–
	RX63N	1	2	3	1	–	–	–	1MB	128KB	32KB	8	2	21	1	6	12	8	4	4	1	1	1	4	13	8/16/32	3	–
General Purpose	RX610	–	–	–	–	–	–	–	2MB	128KB	32KB	16	2	–	–	–	12	8	4	4	1	–	–	2	7	8/16	–	–
	RX630	–	1*	3	–	–	–	–	2MB	128KB	32KB	8	2	21	1	6	12	8	4	4	1	1	1	4	13	8/16	3	–
Motor Control	RX62T	–	–	1	–	8	8	4	256KB	16KB	8KB	12	–	–	–	–	–	–	–	4	1	1	–	1	3	–	1	1

** USB device only*



RX600 MCU Series Devices

RX62T

R5F562T6DDFM	80	4.0-5.5	64	8	8	–	–	–	3	1	1	1	–	–	–	14	–	2	8	–	–	6	Y	37	LQFP64
R5F562T6EDFM	100	2.7-5.5						1																	
R5F562T6ADFM	80	4.0-5.5	64	8	8	–	–	–	3	1	1	1	–	–	–	14	–	2	8	–	–	6	Y	37	
R5F562T6BDFM	100	2.7-5.5						1																	
R5F562T7DDFM	80	4.0-5.5	128	8	8	–	–	–	3	1	1	1	–	–	–	14	–	2	8	–	–	6	Y	37	
R5F562T7EDFM	100	2.7-5.5						1																	
R5F562T7ADFM	80	4.0-5.5	128	8	8	–	–	–	3	1	1	1	–	–	–	14	–	2	8	–	–	6	Y	37	
R5F562T7BDFM	100	2.7-5.5						1																	
R5F562TADDFM	80	4.0-5.5	256	16	32	–	–	–	3	1	1	1	–	–	–	14	–	2	8	–	–	6	Y	37	
R5F562TAEDFM	100	2.7-5.5						1																	
R5F562TAADFM	80	4.0-5.5	256	16	32	–	–	–	3	1	1	1	–	–	–	14	–	2	8	–	–	6	Y	37	
R5F562TABDFM	100	2.7-5.5						1																	
R5F562T6EDFF	100	2.7-5.8	64	8	8	–	–	1	3	1	1	1	–	–	–	14	–	2	8	12	–	6	Y	44	LQF80
R5F562T7EDFF		2.7-5.7	128	8																					
R5F562TAEDFF		2.7-5.6	256	16																					
R5F562T6DFFF	100	4.0-5.8	64	8	8	–	–	1	3	1	1	1	–	–	–	14	–	2	8	12	–	6	Y	44	
R5F562T7DDFF		4.0-5.7	128	8																					
R5F562TADDFF		4.0-5.6	256	16																					
R5F562T6BDFF	100	2.7-5.6	64	8	8	–	–	1	3	1	1	1	–	–	–	14	–	2	8	12	–	6	Y	44	
R5F562TABDFF		2.7-5.5	256	16																					
R5F562T6ADFF	100	4.0-5.6	64	8	8	–	–	1	3	1	1	1	–	–	–	14	–	2	8	12	–	6	Y	44	
R5F562T7ADFF		4.0-5.5	128	8																					
R5F562TAADFF		4.0-5.5	256	16																					
R5F562T7DDFP	100	4.0-5.5	128	8	8	–	–	–	3	1	1	1	–	–	–	14	–	2	8	12	–	6	Y	55	LQFP100
R5F562T7EDFP		2.7-5.5						1																	
R5F562T7ADFP		4.0-5.5						–																	
R5F562T7BDFP		2.7-5.5						1																	
R5F562TADDFP	100	4.0-5.5	256	16	32	–	–	–	3	1	1	1	–	–	–	14	–	2	8	12	–	6	Y	55	
R5F562TAEDFP		2.7-5.5						1																	
R5F562TAADFP		4.0-5.5						–																	
R5F562TABDFP		2.7-5.5						1																	
R5F562T7EDFH	100	2.7-5.5	128	8	8	–	–	1	3	1	1	1	–	–	–	14	–	2	8	12	–	6	Y	61	LQF112
R5F562TAEDFH			256	16																					
R5F562T7DDFH	100	4.0-5.5	256	16	8	–	–	1	3	1	1	1	–	–	–	14	–	2	8	12	–	6	Y	61	
R5F562T7BDFH			128	8																					
R5F562TADDFH	100	2.7-5.5	128	8	8	–	–	–	3	1	1	1	–	–	–	14	–	2	8	12	–	6	Y	61	
R5F562TABDFH			256	16				1																	
R5F562T7ADFH	100	4.0-5.5	128	8	8	–	–	1	3	1	1	1	–	–	–	14	–	2	8	12	–	6	Y	61	
R5F562TAADFH			256	16	8																				

R5F562N7ADFP	100	2.7-3.6	384	64	8	Y	1	–	6	2	1	–	Y	–	4	16	Y	2	8 or 8		1	–	Y	74	LQFP100
R5F562N7BDFP					32			1																	
R5F562N8ADFP	100	2.7-3.6	512	96	32	Y	1	–	6	2	1	–	Y	–	4	16	Y	2	8 or 8		1	–	Y	74	
R5F562N8BDFP								1			2										2				

Device	Group	RX610								RX621												RX62N											
	Part Number	R5F56104VDFP	R5F56106VDFP	R5F56107VDFP	R5F56108VDFP	R5F56104WDBG	R5F56106WDBG	R5F56107WDBG	R5F56108WDBG	R5F56216BDLD	R5F56217BDLD	R5F56218BDLD	R5F56216BDFP	R5F56217BDFP	R5F56218BDFP	R5F56216BDFB	R5F56217BDFB	R5F56218BDFB	R5F56216BDLE	R5F56217BDLE	R5F56218BDLE	R5F56216BDBG	R5F56217BDBG	R5F56218BDBG	R5F562N7ADFB	R5F562N7BDFB	R5F562N8ADFB	R5F562N8BDFB	R5F562N7ADLE	R5F562N7BDLE	R5F562N8ADLE	R5F562N8BDLE	R5F562N7ADBG	R5F562N7BDBG	R5F562N8ADBG	R5F562N8BDBG
Operation	Max CPU Speed (MHz)	100				100				100			100			100			100			100			100										
	Volt Range (V)	3.0-3.6				3.0-3.6				2.7-3.6			2.7-3.6			2.7-3.6			2.7-3.6			2.7-3.6			2.7-3.6										
Memory	Flash (KB)	768	1024	1536	2048	768	1024	1536	2048	256	384	512	256	384	512	256	384	512	256	384	512	256	384	512	384		512		384		512		384		512	
	SRAM (KB)	128				128				64	64	96	64	64	96	64	64	96	64	64	96	64	64	96	64		96		64		96		64		96	
	Data Flash (KB)	32				32				32			32			32			32			32			32										
Serial Interface	Ethernet MAC	–				–				–			–			–			–			–			Y										
	USB Host Dev OTG	–				–				1			1			1			1			2			1		2		1		2		2		2	
	CAN	–				–				1			1			1			1			1			–	1		1		1		1		1	
	SCI	7				7				6			6			6			6			6			6										
	SPI	7				7				2			2			2			2			2			2										
	I2C	2				2				2			2			2			2			2			2										
	LIN	–				–				–			–			–			–			–			–										
Parallel Interface	Ext Data Bus	Y				Y				Y			Y			SDRAM			SDRAM			SDRAM			SDRAM										
	TFT-LCD	–				–				–			–			Y			Y			Y			Y										
Timer	8-bit	4				4				4			4			4			4			4			4										
	16-bit	22				22				16			16			16			16			16			16										
	RTC	–				–				Y			Y			Y			Y			Y			Y										
	WDG	1				1				2			2			2			2			2			2										
Analog	12-bit ADC	–				–				8 or 8			8 or 8			8 or 8			8 or 8			8 or 8			8 or 8										
	10-bit ADC	16				16																													
	10-bit DAC	2				2				2			2			2			2			2			2										
	Prog Op Amp	–				–				–			–			–			–			–			–										
	POR LVD	–				–				Y			Y			Y			Y			Y			Y										
	GPIO	117				140				60			74			105			105			128			105		105		105		105		128		128	
	Package	LQFP144				BGA176				LGA85			LQFP100			LQFP144			LGA145			BGA176			LQFP144				LGA145				BGA176			

Design Potential and Versatility of the RX

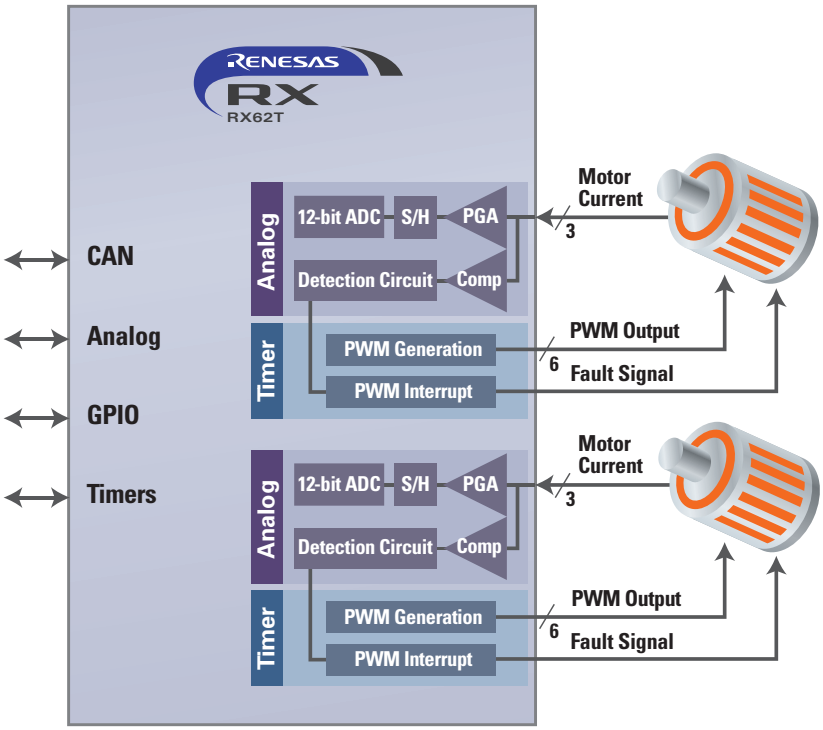
System design versatility, application capability, and economic sensibility are built into the many microcontrollers in the RX family. Driven by a technology roadmap that anticipates more sophisticated applications in the next decade that demand cost effectiveness, RX devices offer abundant core performance and extensive peripheral functions.

RX62T for Motor Control

High-performance CPU and FPU capability, and advanced analog and timer peripherals, make the RX62T an ideal solution for inverter and motor control applications. Renesas can help you develop your motor control solution with kits and firmware that support many kinds of motor control, including ultra-quiet, energy-efficient, and high-precision three-phase sensorless vector control.

In the home appliance example shown here, the RX62T is driving two three-phase motors simultaneously using its advanced PWM timers. These timers are well suited for Brushless DC three-phase motors by having complimentary PWM outputs with automatic dead-time insertion, an emergency "Shut-down" (stop) input, and quadrature encoder inputs for speed and direction feedback.

The RX62T's advanced analog subsystem with multiple sample-hold circuits enables sampling of three simultaneous current measurements. It also offers programmable operational amplifiers and integrated window comparators to eliminate external components. The 12-bit ADCs have a fast 1µsec conversion time, can be triggered by the PWM timers, and provide self-diagnostic capability.



Advanced Analog

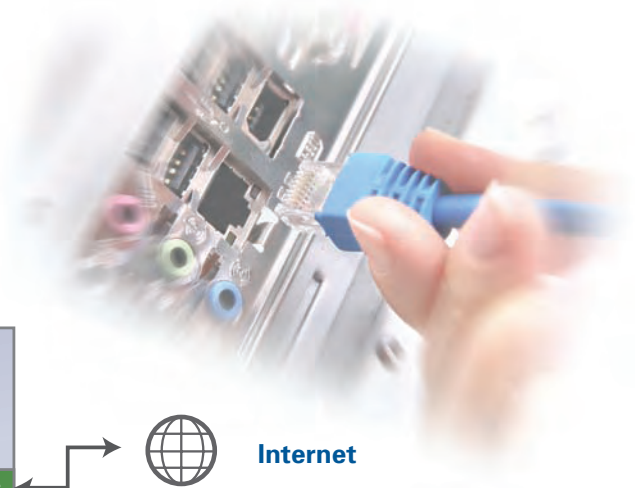
- Two 12-bit ADC units, each with 4 input channels, 1 µsec conversion time and self-diagnostic capability
- Each 12-bit ADC unit has
  - 3 x independent sample-hold circuits
  - 3 x programmable op amps
  - 3 x analog window comparators
  - 3 trigger sources (PWM timers, external and software)

Advanced Timers

- 100 MHz, 16-bit Multifunction Timer unit (MTU3)
- 100 MHz, 16-bit General Purpose Timer unit (GPT)
- Complimentary PWM and Reset-Synchronous outputs
- Dead-time insertion
- Quadrature encoder inputs
- Emergency motor "Shut-down" (stop) input

RX for Connectivity

RX MCUs provide built-in hardware for implementing efficient communications with external peripherals, systems, test equipment and networks such as the Internet. The Ethernet, USB and CAN connectivity modules are well-proven, reliable designs.



Ethernet MAC

- 10/100 Mbps
- 2KB TX FIFO
- 2KB RX FIFO
- MII, RMII connection to PHY
- Wake on LAN

USB

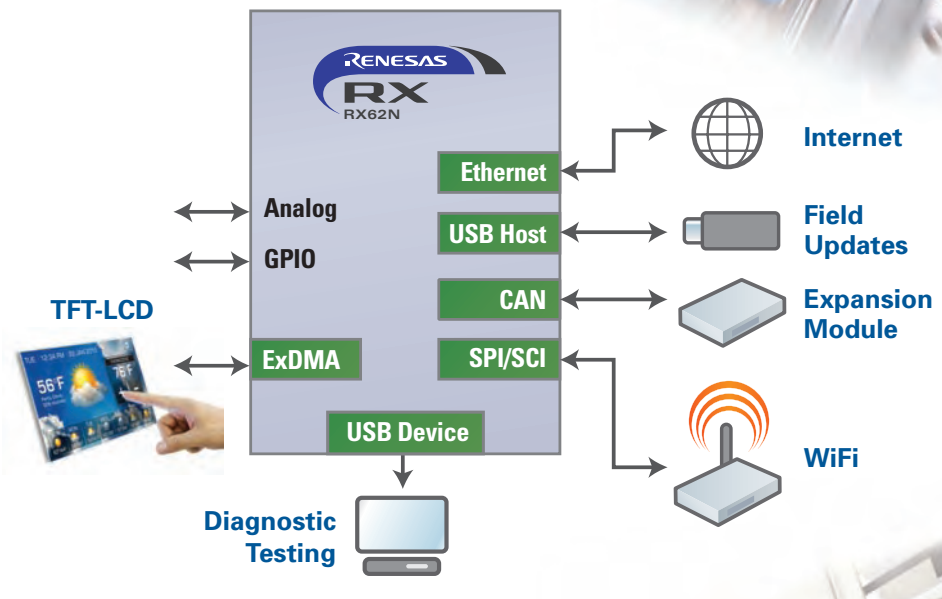
- Host/Device/OTG
- 12 Mbps
- Up to 2 ports
- 10 Endpoints
- 2 KB FIFO

CAN

- ISO11898-1
- 1 Mbps
- 32 Mailboxes

SPI/SCI

- Up to 18 MHz (SPI Master)
- Flexible configurations

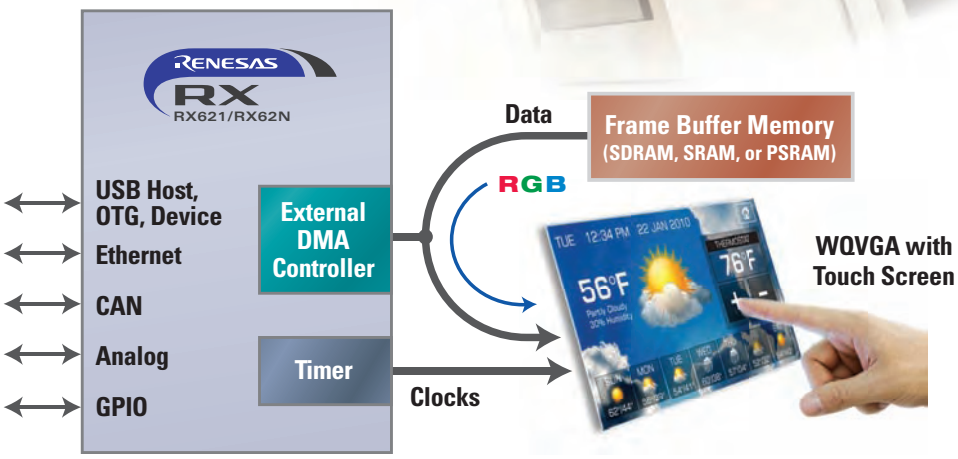


RX for TFT-LCD Applications

The external DMA controller integrated into RX devices can drive a TFT-LCD panel directly, greatly reducing the load on the MCU's CPU; thus, maximizing the performance of application software

External DMA Controller

- Directly drive a TFT-LCD panel
- RGB pixel data moves directly from frame buffer to the TFT-LCD and never enters the RX MCU
- RX CPU is loaded only 5%, while refreshing at 60 Hz
- Plenty of CPU bandwidth remains to run the application, communication channels, and create moderate animation on the TFT-LCD



Get up and running with the RX Ecosystem

Renesas makes it easy to launch new system designs. And our comprehensive range of hardware and software tools – including very low cost and free products – helps swiftly advance the product development process from concept stage to final RX-based design.

System Development Kits

> The Renesas Starter Kit (RSK) facilitates in-depth MCU experimentation and allows system design development

> Renesas RX62N Demo Kit (RDK) aids familiarization with and evaluations of RX solutions

Renesas RX Starter Kit (RSK)

> This complete RX600-based hardware/software platform for in-depth application design includes the E1 Debugger, a trial version of the HEW IDE, and demonstration firmware.

> The RSKs are specifically designed to be both an evaluation and development system. The kit includes everything that an engineers needs to be up and running within only a few minutes.

> The single installer prepares the target PC with a comprehensive development environment including trial C/C++ compiler, editor, build manager and full source level debugger. A full set of peripheral sample code gives the user an excellent kick start to their project development

> Where necessary (for example RSK RX62N) the kit includes open source communication stacks such as USB host / function as well as Ethernet.

> Many third part OS vendors, such as Micrium, Segger and FreeRTOS have ported their software to the RSKs. Trial BSPs are generally available for their web sites.

Processor	*RSK Part Number*
RX610	R0K556100S000BE
RX62N	R0K5562N0S000BE
RX62T	R0K5562T0S000BE

Application Development Tools

RX MCUs are supported by a comprehensive set of popular Renesas hardware and software tools that have been widely praised for their capabilities and ease of use. Additional support is provided by a dedicated community of third-party experts offering many helpful, time-saving products and services, including the development environments and optimized compilers from KPIT Cummins (GNURX) and IAR.

HEW: A Complete Integrated Development Environment (IDE)

HEW accelerates progress on the full range of system design tasks, from editing, to peripheral driver generation, to compilation, to debugging, and to Flash programming. HEW works with the Renesas compiler or Open Source GNURX compiler. HEW and the GNURX compiler are both free. The free Renesas C++ compiler allows unlimited binary output size for 60 days; thereafter, restricting compile size to 128 KB.

HEW Part Number: ***YS32HEWRX-1-6***

> Project Manager
> Output Window
> Built-in Editor
> Full Bus Trace
> Peripheral Driver Generator
> Virtual Desktop
> Local Variable Watch
> C/C++ Variable Watch
> Stack Trace
> Memory Views
> Debug Control (E1, E20, J-Link)

Complete Debugging, Emulation, and Programming

On-chip debugging of an RX-based application is performed via JTAG connection to the target and USB connection to the Windows-based IDE. E1 and J-Link offer thorough CPU control and visibility. E20 adds high-speed tracing.

Renesas E1
R0E000010KCE00

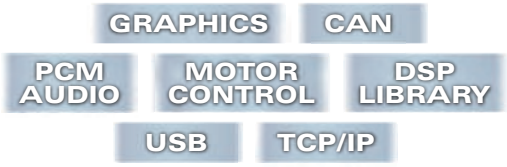
Renesas E20
R0E000200KCT00

SEGGER
J-Link

Support Software

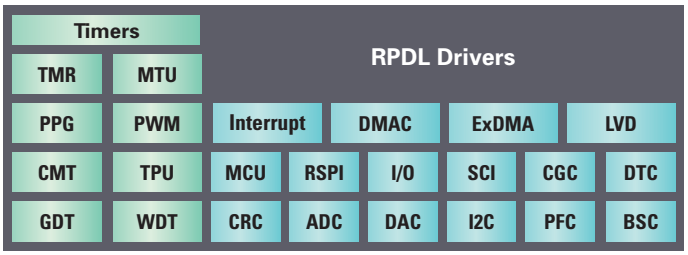
Renesas Software Library

Renesas offers a wide variety of free sample code and libraries supporting applications using Ethernet, USB, CAN, DSP, Motor Control, PCM Audio and Graphics. Renesas also provides the Renesas Peripheral Driver Library (RPDL) and the Peripheral Driver Generator (PDG) free of charge.



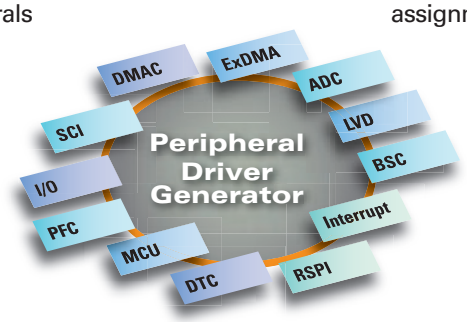
Renesas Peripheral Driver Library (RPDL)

Low-level firmware drivers for all basic RX peripherals are free, source code included. RPDL eliminates the need for creating your drivers, saving time and reducing errors. RPDL functions are easily integrated into HEW projects, and PDG can be used to generate initialization code and calls to RDPL functions based on your own specified configuration.



Renesas Peripheral Device Generator (PDG)

- A Windows user interface for configuring RX peripherals and pins
- Menus to select/initialize peripherals
- Generates C code calls to RPDL driver functions
- Select and manage pin assignments



Third-party RTOS and Middleware

RX600 devices are well suited for embedded real time tasks, high computation, as well as simultaneous data transfers on many high-speed communication channels. Because of this, communication middleware and Real Time Operating Systems (RTOS) are commonly needed. Renesas has established technology partnerships with many leading independent suppliers to provide high-quality, cost-effective solutions.

	RTOS	USB Stack	TCP/IP Stack	File System	Graphic Software	Wi-Fi	BlueTooth
CandleDragon Inc.							✔
CMX Systems	✔	✔	✔	✔			
Crank Software Inc.					✔		
Micrium	✔	✔	✔	✔	✔		
Redpine Signals						✔	
RoweBots Research	✔	✔	✔	✔			
SEGGER	✔	✔	✔	✔	✔		
FreeRTOS	✔		✔				
HCC-Embedded		✔					
Express Logic	✔	✔	✔	✔			

Additional Renesas MCU Support

ALLIANCE PARTNER RENESAS

- The Alliance Partner Program allows you to connect instantly with hundreds of qualified design consulting and contracting professionals.
- am.renesas.com/Alliance

RENESAS UNIVERSITY PROGRAM

- For educators and students. Teach with professional grade tools. Learn MCUs with a modern architecture.
- RenesasUniversity.com

Renesas INTERACTIVE

- Gain the technical knowledge you need. Research and learn at your own pace, where you want, when you want, for free.
- RenesasInteractive.com

RenesasRulz.com
Think it. Build it. Post it.

MyRenesas

- Gathering place for technical information on Renesas MCUs and MPUs.
- am.renesas.com/MyRenesas

Solution Kits for RX

RX Direct-drive Solutions for TFT-LCD

A quick and easy solution to add colour TFT-LCD to your design

- Low-cost 32-bit MCU solution to drive color TFT-LCD panels up to WQVGA resolution
- Only 5% loading on CPU when refreshing the TFT-LCD panel at 60 Hz, with ample bandwidth left for running the rest of the application
- Free graphics API library and examples for evaluating graphics
- Third-party support for additional graphics requirements

Part number:
YLCDRSKRX62NS

Motor Control Solutions Using the RX MCU

A solid evaluation and development platform for motor control

- Drive sensorless PMAC motors
- Field oriented control, 3-phases
- Single PCB: inverter + MCU
- High-frequency modulation >20 kHz
- Demo code and library
- Compact and small board USB powered
- E1, HEW, Renesas compiler unlimited for 60 days, 128 KB code size limit after

Coming Soon!

Renesas RX62N RPB Board

FRX62N Webserver Demo kit with outstanding test routines you could do via network

- HTML file hosting
- FPU function test by bouncing ball and Mandelbrot calculation
- DMIPS MCU benchmark
- "Pong" Mini game

Features

- Real-Time IEEE-1588 Ethernet PHY
- USB device port
- Mini Joystick
- Connection port for fast prototyping

Development Environment

- Renesas HEW IDE
- Built-in SEGGER J-Link Lite debugger
- Demo Source code and libraries

Part number:
YRPBRX62N

RX is Online – www.rxmcu.com

Renesas makes product data, design and application information, and much more available 24/7 in the RX area of our website. Bookmark it and visit it often to get the latest data on the newest and previously released devices, learn details about (and download free versions of) system development tools, use time-saving MCU-selection aids, participate in discussion forums, find out about upcoming events, take advantage of special promotions, and more.

- ***The handy Quick Device Selector will find just the right MCU for you according to your connectivity, flash, RAM and pin requirements.***

Before purchasing or using any Renesas Electronics products listed herein, please refer to the latest product manual and/or data sheet in advance.

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