

November 11, 2010

Key Features of Renesas Electronics' New RX630 Group and RX63N/RX631 Group MCUs

1. Specifications of the RX630 Group

Group name	RX630 Group						
Part No.	R5F5630 ECDXX*1 (without CAN version)	R5F5630 DCDXX*1 (without CAN version)	R5F5630 BCDXX*1 (without CAN version)	R5F5630 ACDXX*1 (without CAN version)	R5F5630 8CDXX*1 (without CAN version)	R5F5630 7CDXX*1 (without CAN version)	R5F5630 6CDXX*1 (without CAN version)
	R5F5630 EDDXX*1 (with CAN version)	R5F5630 DDDXX*1 (with CAN version)	R5F5630 BDDXX*1 (with CAN version)	R5F5630 ADDXX*1 (with CAN version)	R5F5630 8DDXX*1 (with CAN version)	R5F5630 7DDXX*1 (with CAN version)	R5F5630 6DDXX*1 (with CAN version)
Flash ROM	2MB	1.5MB	1MB	768KB	512KB	384KB	256KB
E2 data flash	32KB						
RAM	128KB		96KB		64KB		
CPU core	RX CPU <ul style="list-style-type: none"> • General registers: 32-bit × 16 • Multiplier: 32-bit • Divider: Yes • Multiply-and-accumulate (MAC) unit: Yes (two types: one for memory-to-memory operations and one for register-to-register operations) 						
Floating-point unit	Single-precision floating-point unit (support for add, subtract, compare, multiply, divide, etc. commands)						
Max. operating frequency/Power supply voltage	100MHz / 2.7 to 3.6V						
Main clock	4 to 14MHz						
Sub clock	32.768KHz						
Embedded clock	<ul style="list-style-type: none"> • Low speed on-chip Oscillator: 125KHz 						

Group name	RX630 Group
	<ul style="list-style-type: none"> • High speed on-chip Oscillator: 50MHz
On-chip peripheral functions	<ul style="list-style-type: none"> • External bus: 177, 176, 145, 144, 100-pin [Yes], 80, 64-pin [No] • Direct memory access controller (DMAC): 4 channels • Data transfer controller (DTC) • 16-bit timer pulse unit: 177, 176, 145, 144-pin [12 channels], 100, 80, 64-pin [6 channels] • Multi-function timer pulse unit2: 6 channels • Port output enable 2 • Programmable pulse generator (PPG): Max. 32-bit output • 8-bit timer (TMR): 4 channels • Compare match timer: 4 channels • Real-time clock (RTC) • Watchdog timer (WDT) • Independent watchdog timer (IWDT) • Serial communication interface (SC1c): 177, 176, 145, 144-pin [12 channels], 100-pin [6 channels], 80, 64-pin [1 channel] • Serial communication interface (SC1d) • I2C bus interface: 177, 176, 145, 144-pin [4 channels], 100-pin [2 channels], 80, 64-pin [1 channel] • USB 2.0 Full-Speed, Function module • CAN *3: 177, 176, 145, 144-pin [3 channels] (1MB, 768KB: 2 channels), 100, 80, 64-pin [1 channel] • 12-bit A/D converter: 177, 176, 145, 144-pin [21 channels], 100-pin [14 channels], 80-pin [11 channels], 64-pin [6 channels] • 10-bit A/D converter: 177, 176, 145, 144, 100-pin [8 channels], 80, 64-pin [4 channels] • 10-bit D/A converter: 177, 176, 145, 144-pin [2 channels], 100, 80, 64-pin [1 channel] • Temperature sensor • CRC calculator • Low-voltage detection circuit (LVD)
Operating temperature range	-40°C to +85°C

Group name	RX630 Group		
Package	LQFP176 (FC: 0.5mm pitch), LQFP144 (FB: 0.5mm pitch), LGA177 (LC: 0.5mm pitch)*4, LGA145 (LE: 0.65mm pitch)*4, BGA176 (BG)*4	LQFP176 (FC: 0.5mm pitch), LQFP144 (FB: 0.5mm pitch), LQFP100 (FP: 0.5mm pitch), LGA177 (LC: 0.5mm pitch)*4, LGA145 (LE: 0.65mm pitch)*4, LGA100 (LA: 0.5mm pitch)*4, BGA176 (BG)*4	LQFP100 (FP: 0.5mm pitch), LQFP80 (FN: 0.5mm pitch)*4, LQFP64 (FM: 0.5mm pitch)*4, LGA100 (LA: 0.5mm pitch)*4

2. Specifications of the RX63N/RX631 Group

Group name	RX63N, RX631 Group					
Part No. (RX63N)	R5F563N BCDXX*1 (without CAN version)	R5F563N ACDXX*1 (without CAN version)	R5F563N 8CDXX*1 (without CAN version)	R5F563N 7CDXX*1 (without CAN version)	R5F563N 6CDXX*1 (without CAN version)	—
	R5F563N BDDXX*1 (with CAN version)	R5F563N ADDXX*1 (with CAN version)	R5F563N 8DDXX*1 (with CAN version)	R5F563N 7DDXX*1 (with CAN version)	R5F563N 6DDXX*1 (with CAN version)	—
Part No. (RX631)	R5F5631 BCDXX*1 (without CAN version)	R5F5631 ACDXX*1 (without CAN version)	R5F5631 8CDXX*1 (without CAN version)	R5F5631 7CDXX*1 (without CAN version)	R5F5631 6CDXX*1 (without CAN version)	R5F5631 0CDXX*1 (without CAN version)
	R5F5631 BDDXX*1 (with CAN version)	R5F5631 ADDXX*1 (with CAN version)	R5F5631 8DDXX*1 (with CAN version)	R5F5631 7DDXX*1 (with CAN version)	R5F5631 6DDXX*1 (with CAN version)	R5F5631 0DDXX*1 (with CAN version)
Flash ROM	1MB	768MB	512MB	384KB *5	256KB *6	—
E2 data flash	32KB					

RAM	128KB	96KB	64KB	128KB
CPU core	RX CPU <ul style="list-style-type: none"> • General registers: 32-bit × 16 • Multiplier: 32-bit • Divider: Yes • Multiply-and-accumulate (MAC) unit: Yes (two types: one for memory-to-memory operations and one for register-to-register operations) 			
Floating-point unit	Single-precision floating-point unit (support for add, subtract, compare, multiply, divide, etc. commands)			
Max. operating frequency / Power supply voltage	100MHz / 2.7 to 3.6V			
Main clock	4 to 14MHz			
Sub clock	32.768KHz			
Embedded clock	<ul style="list-style-type: none"> • Low speed on-chip Oscillator: 125KHz • High speed on-chip Oscillator: 50MHz 			
On-chip peripheral functions	<ul style="list-style-type: none"> • External bus: 176-pin [32-bit@50MHz], 144-pin [16-bit@50MHz], 100-pin [16-bit@25MHz] • SDRAM interface: 176-pin [32-bit@50MHz], 144-pin[16-bit@50MHz], 100-pin[16-bit@25MHz] • Direct memory access controller (DMAC): 4 channels • EXDMAC: 2 channels • Data transfer controller (DTC) • 16-bit timer pulse unit: 177, 176, 145, 144-pin [12 channels], 100, 85-pin [6 channels] • Multi-function timer pulse unit2: 6 channels • Port output enable 2 • Programmable pulse generator (PPG): Max. 32-bit output • 8-bit timer (TMR): 4 channels • Compare match timer: 4 channels • Real-time clock (RTC) • Watchdog timer (WDT) • Independent watchdog timer (IWDT) 			

	<ul style="list-style-type: none"> • Serial communication interface (SC1c): 177, 176, 145, 144-pin [12 channels], 100-pin [8 channels], 85-pin [5 channels] • Serial communication interface (SC1d) • I2C bus interface: 177, 176, 145, 144-pin [4 channels], 100, 85-pin [2 channels] • USB 2.0 Full-Speed, Host and Function modules/OTG): 177, 176-pin [2 channels], 145, 144, 100, 85-pin [1 channel] • Ethernet controller *2 • CAN*3: Max. 2 channels • 12-bit A/D converter: 177, 176, 145, 144-pin [21 channels], 100-pin [14 channels], 85-pin [11 channels] • 10-bit A/D converter: 8 channels • 10-bit D/A converter: 2 channels • Temperature sensor • CRC calculator • Low-voltage detection circuit (LVD) 	
Operating temperature range	-40°C to +85°C	
Package	LQFP176 (FC: 0.5mm pitch), LQFP144 (FB: 0.5mm pitch), LQFP100 (FP: 0.5mm pitch), LGA177 (LC: 0.5mm pitch) *4 LGA145 (LK: 0.5mm pitch) *4 LGA100 (LA: 0.5mm pitch) *4 LGA85 (LD: 0.65mm pitch) *4 BGA176 (BG: 0.8mm pitch) *4	LQFP176 (FC: 0.5mm pitch), LQFP144 (FB: 0.5mm pitch)

1. XX is replaced with a package code. See the items in parentheses in the package list.
2. The Ethernet controller is only available in RX63N Group products.
3. The model name differs depending on whether or not a CAN interface is present.
4. These will be deployed after the release of the LQFP 176/144/100 versions.
5. Only LQFP100 packages are supported.
6. Only LQFP100 packages are supported in RX63N Group products. Only LGA85 packages are supported in RX631 Group products.