

2006.04

Everywhere you imagine. **RENESAS**

M16C
PLATFORM

M32C

Renesas MCU
M16C Family
(M16C / M32C)



Powerful Processor
Easy to Use

Renesas Technology
www.renesas.com

The M16C/M32C solve all the problems related to MCUs, and contribute to a real reduction in cost, and they are useful over a wide range of applications.

F-ZTAT
Flash & Flexible

"F-ZTAT" is a general term for the flash memory built into RENESAS MCUs

RENESAS is constantly developing new solutions based on "Flash & Flexible" using F-ZTAT memory.

F-ZTAT
Flash & Flexible

Complete set of security functions

High stability/safety features

Low power consumption

Excellent EMI and EMS characteristics

Wide compatibility

High-speed processing in actual use

Many types of peripheral functions

M16C/M32C have reached the highest levels of MCU performance.
These MCUs offer full support to our customers.

Low radiated noise (EMI)

M16C/M32C MCUs reduce switching noise to a minimum. They achieve reductions of more than 20dB.

Therefore, your PC board can be designed with only minimal noise suppression measures.

EM Scan

Measuring Method: EM scan measurement using electromagnetic field probe

Measuring Condition: Measurement frequency range: 40 to 120MHz



Facility used to measure electrical noise:

EPS-M1 EM scanner made by Noise Laboratory Co., Ltd.

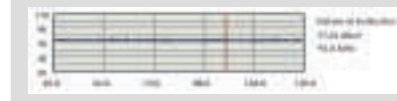
Place measured: Kansai Electronic Industry Development Center

Frequency range measured: 30 to 110 MHz

Area measured: 2 mm square

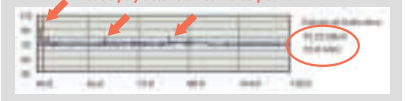
M16C/62P

Power: 5V
Clock: 24 MHz (PLL)



RISC-A made by another company

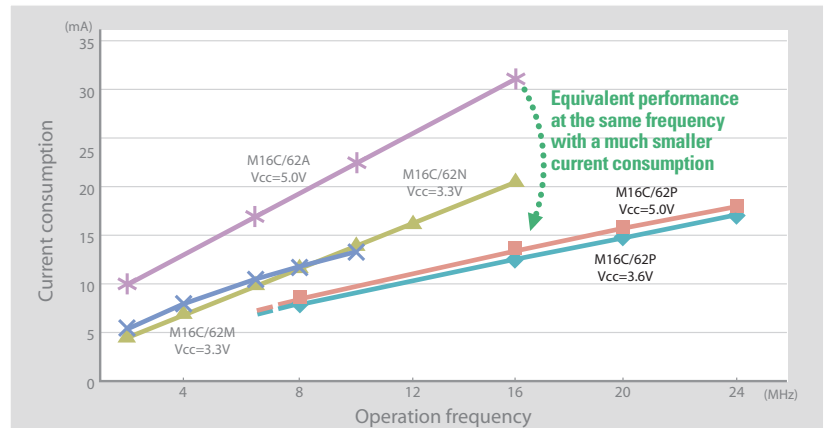
Power: 5V
Clock: 20 MHz (PLL)



Note: In addition to the above, we evaluate electrical noise using the VDE method and TEMCELL method, and only ship products that have passed certain standards.

Evolving current consumption characteristic (Reference)

Advances in processing techniques are used to decrease power consumption. Tasks are processed with greatly reduced current. Therefore, a smaller external power supply can be used.



M16C/M32C Roadmap

The CPU cores are compatible with higher and lower models, allowing you to change models to match the desired performance and cost.

Compatible at the binary level because the same CPU is used.



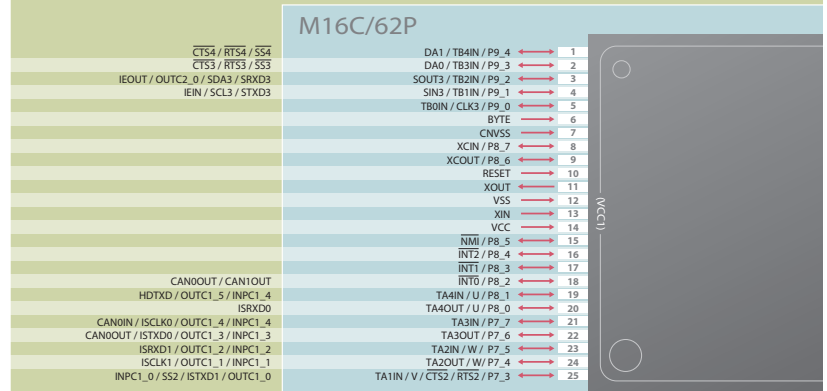
Pin compatible

The M16C/M32C are pin compatible, so you do not need to change the circuit on a PC board when changing models.

In addition to "pin-compatibility," these MCUs offer compatibility with peripheral functions.

Therefore, if you need to change to a higher level MCU model in order to increase capacity, you can do so with few or no design changes to your PC board.

Additional functions of the M32C/85 group (they inherit all standard functions)



List of Part Numbers



M16C/26A, 28 and 29 Group

Group	Memory type	Internal memory (Byte)			Type name	Operating frequency (MHz)	Shoetest instruction execution time (ns)	Operating temperature (°C)	Supply voltage (V)	Input port	I/O port	Function	Package			
		ROM	Data Flash	RAM												
M16C/26A	Mask ROM	24K		1K	M30260M3A-XXXGP						39	• Input timer : 3 • Output timer : 5 • 10-bit A/D converter : 12ch (48pin) • Serial Interface : 3 (48pin) • Watchdog timer : 1 • 3-Phase Inverter control : 6 • PLL	48P6Q-A	PLQP0048KB-A		
					M30263M3A-XXXFP					33	42P2R		PLSP0042GA-B			
		48K	-	2K	M30260M6A-XXXGP				39	48P6Q-A	PLQP0048KB-A					
					M30263M6A-XXXFP				33	42P2R	PLSP0042GA-B					
					M30260M8A-XXXGP				39	48P6Q-A	PLQP0048KB-A					
					M30263M8A-XXXFP				33	42P2R	PLSP0042GA-B					
	Flash ROM	24K		1K	M30260F3AGP					39	48P6Q-A		PLQP0048KB-A			
					M30263F3AFP					33	42P2R		PLSP0042GA-B			
		48K	4K	2K	M30260F6AGP				39	48P6Q-A	PLQP0048KB-A					
					M30263F6AFP				33	42P2R	PLSP0042GA-B					
		64K			M30260F8AGP				39	48P6Q-A	PLQP0048KB-A					
					M30263F8AFP				33	42P2R	PLSP0042GA-B					
		M16C/28	Mask ROM	64K		4K	M30280M8-XXXHP**						71	• Input timer : 3 • Output timer : 5 • Input capture : 8 • Output compare : 8 • 10-bit A/D converter : 24ch (80pin) • Serial I/O : 5 • Watchdog timer : 1 • 3-Phase Inverter control : 6 • Multi master I2C-bus • PLL	80P6Q-A	PLQP0080KB-A
							M30281M8-XXXHP**						55		64P6Q-A	PLQP0064KB-A
96K	-			8K	M30280MA-XXXHP**				71	80P6Q-A	PLQP0080KB-A					
					M30281MA-XXXHP**				55	64P6Q-A	PLQP0064KB-A					
					128K		12K	M30280MC-XXXHP				71	80P6Q-A		PLQP0080KB-A	
								M30281MC-XXXHP				55	64P6Q-A		PLQP0064KB-A	
Flash ROM	48K				M30280F6HP					71	80P6Q-A	PLQP0080KB-A				
					M30281F6HP					55	64P6Q-A	PLQP0064KB-A				
	64K			4K	M30280F6WG**	20	50	-20 to 85 or -40 to 85	2.7 to 5.5 [10MHz] 3.0 to 5.5 [20MHz]	-	71	85FOG	PTLG0085JB-A			
					M30280F8HP				71	80P6Q-A	PLQP0080KB-A					
					M30281F8HP				55	64P6Q-A	PLQP0064KB-A					
					M30280F8WG**				71	80P6Q-A	PLQP0080KB-A					
	96K			8K	M30280FAHP					71	80P6Q-A	PLQP0080KB-A				
					M30281FAHP				55	64P6Q-A	PLQP0064KB-A					
		M30280FAWG**						71	85FOG	PTLG0085JB-A						
		M30280FCHP**						71	80P6Q-A	PLQP0080KB-A						
128K		12K	M30281FCHP**					55	64P6Q-A	PLQP0064KB-A						
M16C/29	Mask ROM	64K		4K	M30290M8-XXXHP**					71	• Input timer : 3 • Output timer : 5 • Input capture : 8 • Output compare : 8 • 10-bit A/D converter : 24ch (80pin) • Serial I/O : 5 • Watchdog timer : 1 • 3-Phase Inverter control : 6 • CRC calculation circuit • PLL • CAN : 1ch	80P6Q-A	PLQP0080KB-A			
					M30291M8-XXXHP**					55		64P6Q-A	PLQP0064KB-A			
		96K	-	8K	M30290MA-XXXHP**				71	80P6Q-A		PLQP0080KB-A				
					M30291MA-XXXHP**				55	64P6Q-A		PLQP0064KB-A				
					128K		12K	M30290MC-XXXHP**					71	80P6Q-A	PLQP0080KB-A	
								M30291MC-XXXHP**					55	64P6Q-A	PLQP0064KB-A	
	Flash ROM	96K	4K	8K	M30290FAHP**					71		80P6Q-A	PLQP0080KB-A			
					M30291FAHP**				55	64P6Q-A		PLQP0064KB-A				
				128K		12K	M30290FCHP**					71	80P6Q-A	PLQP0080KB-A		
							M30291FCHP**					55	64P6Q-A	PLQP0064KB-A		

Note : These products are in planning or under development, specifications may be changed.

★★ : Under development



M16C/30P Group

Group	Memory type	Internal memory (Byte)			Type name	Operating frequency (MHz)	Shotest instruction execution time (ns)	Operating temperature (°C)	Supply voltage (V)	Input port	I/O port	Function	Package	
		ROM	Data Flash	RAM										
M16C/30P	Mask ROM	96K	-	5K	M30302MAP-XXXFP**	16	62.5	-20 to 85 or -40 to 85	2.7 to 5.5 [10MHz, 1 wait] 4.2 to 5.5 [16MHz]	1	87	• Input timer : 3 • Output timer : 3 • 10-bit A/D converter : 12ch • DMAC:1ch • Serial I/O : 3 • Watchdog timer : 1	100P6S-A	PRQP0100JB-A
					M30302MAP-XXXGP**								100P6Q-A	PLQP0100KB-A
					M30302MCP-XXXFP								100P6S-A	PRQP0100JB-A
		M30302MCP-XXXGP		100P6Q-A	PLQP0100KB-A									
		M30302MDP-XXXFP		100P6S-A	PLQP0100JB-A									
		M30302MDP-XXXGP		100P6Q-A	PLQP0100KB-A									
	Flash ROM	160K		M30302MEP-XXXFP	100P6S-A								PLQP0100JB-A	
				M30302MEP-XXXGP	100P6S-A								PLQP0100JB-A	
				M30302FEPFP**	100P6Q-A								PRQP0100JB-A	
		192K		4K	M30302FEPGP**								100P6Q-A	PLQP0100KB-A
					M30302SPFP								100P6S-A	PLQP0100JB-A
					M30302SPGP								100P6Q-A	PLQP0100KB-A

★★ : Under development

Packages



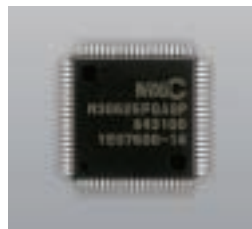
48P6Q-A/PLQP0048KB-A
(0.5mm pitch)



64P6Q-A/PLQP0064KB-A
(0.5mm pitch)



80P6Q-A/PLQP0080KB-A
(0.5mm pitch)



80P6S-A/PRQP0080JA-A
(0.65mm pitch)



85FOG/PTLG0085JB-A

List of Part Numbers



M16C/62P Group

Group	Memory type	Internal memory (Byte)			Type name	Operating frequency (MHz)	Shotest instruction execution time (ns)	Operating temperature (°C)	Supply voltage (V)	Input port	I/O port	Function	Package	
		ROM	Data Flash	RAM										
M16C/62P	Mask ROM	48K		4K	M30622M6P-XXXFP								100P6S-A	PRQP0100JB-A
					M30622M6P-XXXGP								100P6Q-A	PLQP0100KB-A
					M30622M8P-XXXFP						87		100P6S-A	PRQP0100JB-A
					M30622M8P-XXXGP								100P6Q-A	PLQP0100KB-A
					M30623M8P-XXXGP						70		80P6S-A	PRQP0080JA-A
					M30622MAP-XXXFP						87		100P6S-A	PRQP0100JB-A
		64K		5K	M30622MAP-XXXGP								100P6Q-A	PLQP0100KB-A
					M30623MAP-XXXGP						70		80P6S-A	PRQP0080JA-A
					M30620MCP-XXXFP						87		100P6S-A	PRQP0100JB-A
					M30620MCP-XXXGP								100P6Q-A	PLQP0100KB-A
					M30621MCP-XXXGP						70		80P6S-A	PRQP0080JA-A
					M30622MEP-XXXFP								100P6S-A	PRQP0100JB-A
		128K		10K	M30622MEP-XXXGP						87		100P6Q-A	PLQP0100KB-A
					M30623MEP-XXXGP						113		128P6Q-A	PLQP0128KB-A
					M30622MGP-XXXFP						87		100P6S-A	PRQP0100JB-A
					M30622MGP-XXXGP								100P6Q-A	PLQP0100KB-A
					M30623MGP-XXXGP						113		128P6Q-A	PLQP0128KB-A
					M30624MGP-XXXFP								100P6S-A	PRQP0100JB-A
		256K	-	20K	M30624MGP-XXXGP						87		100P6Q-A	PLQP0100KB-A
					M30625MGP-XXXGP						113		128P6Q-A	PLQP0128KB-A
					M30622MWP-XXXFP						87		100P6S-A	PRQP0100JB-A
					M30622MWP-XXXGP								100P6Q-A	PLQP0100KB-A
					M30623MWP-XXXGP						113		128P6Q-A	PLQP0128KB-A
					M30624MWP-XXXFP						87		100P6S-A	PRQP0100JB-A
		320K		24K	M30624MWP-XXXGP								100P6Q-A	PLQP0100KB-A
					M30625MWP-XXXGP						113		128P6Q-A	PLQP0128KB-A
					M30626MWP-XXXFP						87		100P6S-A	PRQP0100JB-A
					M30627MWP-XXXGP						113		128P6Q-A	PLQP0128KB-A
					M30622MHP-XXXFP						87		100P6S-A	PRQP0100JB-A
					M30622MHP-XXXGP								100P6Q-A	PLQP0100KB-A
		384K		24K	M30623MHP-XXXGP						113		128P6Q-A	PLQP0128KB-A
					M30624MHP-XXXFP								100P6S-A	PRQP0100JB-A
					M30624MHP-XXXGP						87		100P6Q-A	PLQP0100KB-A
					M30625MHP-XXXGP						113		128P6Q-A	PLQP0128KB-A
					M30626MHP-XXXFP						87		100P6S-A	PRQP0100JB-A
					M30626MHP-XXXGP								100P6Q-A	PLQP0100KB-A
		512K		31K	M30626MHP-XXXGP						113		128P6Q-A	PLQP0128KB-A
					M30627MHP-XXXGP						87		100P6S-A	PRQP0100JB-A
					M30626MJP-XXXFP								100P6Q-A	PLQP0100KB-A
					M30627MJP-XXXGP						113		128P6Q-A	PLQP0128KB-A
					M30622F8PFP						87		100P6S-A	PRQP0100JB-A
					M30622F8PGP								100P6Q-A	PLQP0100KB-A
		128K		10K	M30623F8PGP						70		80P6S-A	PRQP0080JA-A
					M30620FCPPF						87		100P6S-A	PRQP0100JB-A
					M30620FCPGP								100P6Q-A	PLQP0100KB-A
					M30621FCPPG						70		80P6S-A	PRQP0080JA-A
					M30624FGPPF						87		100P6S-A	PRQP0100JB-A
					M30624FGPGP								100P6Q-A	PLQP0100KB-A
		384K		31K	M30625FGPGP						113		128P6Q-A	PLQP0128KB-A
					M30626FHPFP						87		100P6S-A	PRQP0100JB-A
					M30626FHPPG								100P6Q-A	PLQP0100KB-A
					M30627FHPPG						113		128P6Q-A	PLQP0128KB-A
					M30626FJPFP						87		100P6S-A	PRQP0100JB-A
					M30626FJPGP								100P6Q-A	PLQP0100KB-A
		512K		31K	M30627FJPGP						113		128P6Q-A	PLQP0128KB-A
					M30622SPFP								100P6S-A	PRQP0100JB-A
					M30622SPGP								100P6Q-A	PLQP0100KB-A
					M30620SPFP								100P6S-A	PRQP0100JB-A
					M30620SPGP						87		100P6Q-A	PLQP0100KB-A
					M30624SPFP								100P6S-A	PRQP0100JB-A
		ROM less	-	20K	M30624SPGP								100P6Q-A	PLQP0100KB-A
					M30626SPFP								100P6S-A	PRQP0100JB-A
					M30626SPGP								100P6Q-A	PLQP0100KB-A
					M30626SPFP								100P6S-A	PRQP0100JB-A
					M30626SPGP								100P6Q-A	PLQP0100KB-A
					M30626SPGP								100P6Q-A	PLQP0100KB-A



100PFB/PTQP100LB-A
(0.4mm pitch)



100P6Q-A/PLQP0100KB-A
(0.5mm pitch)



100P6S-A/PRQP0100JB-A
(0.65mm pitch)



128P6Q-A/PLQP0128KB-A
(0.5mm pitch)



144P6Q-A/PLQP0144KA-A
(0.5mm pitch)

List of Part Numbers



M32C/84 Group

Group	Memory type	Internal memory (Byte)			Type name	Operating frequency (MHz)	Shotest instruction execution time (ns)	Operating temperature (°C)	Supply voltage (V)	Input port	I/O port	Function	Package	
		ROM	Data Flash	RAM										
M32C/84	Mask ROM	128K		10K	M30840MC-XXXFP						87		100P6S-A	PRQP0100JB-A
					M30840MC-XXXGP								100P6Q-A	PLQP0100KB-A
					M30842MC-XXXGP						123		144P6Q-A	PLQP0144KA-A
		192K	-	16K	M30840ME-XXXFP						87	• Input timer : 6 • Output timer : 5	100P6S-A	PRQP0100JB-A
					M30840ME-XXXGP								100P6Q-A	PLQP0100KB-A
					M30842ME-XXXGP						123	• 10-bit A/D converter : 100pin:26ch, 144pin:34ch	144P6Q-A	PLQP0144KA-A
	Flash ROM	320K		24K	M30843MW-XXXFP						87	• 8-bit D/A converter : 2ch • DMAC : 4ch	100P6S-A	PRQP0100JB-A
					M30843MW-XXXGP								100P6Q-A	PLQP0100KB-A
					M30845MW-XXXGP						123	• DMAC II : Activated by an interrupt from any peripheral function.	144P6Q-A	PLQP0144KA-A
		320K			M30845FWGP	32	31.2	-20 to 85 or -40 to 85	3.0 to 5.5 [24MHz] 4.2 to 5.5 [32MHz]		1	• Intelligent I/O : 1 groups	144P6Q-A	PLQP0144KA-A
					M30843FHFP						87	• Serial I/O : 5	100P6S-A	PRQP0100KB-A
					M30843FHGP						123	• Watchdog timer : 1	100P6Q-A	PLQP0100KB-A
	ROM less	-	-	10K	M30843FJFP						87	• CAN:2ch	144P6Q-A	PLQP0144KA-A
					M30843FJGP						123	• CRC calculation circuit • X-Y conversion circuit	100P6S-A	PRQP0100JB-A
					M30845FJGP						123	• PLL	144P6Q-A	PLQP0144KA-A
					M30840SFP						47		100P6S-A	PRQP0100JB-A
					M30840SGP								100P6Q-A	PLQP0100KB-A
					M30842SGP						83		144P6Q-A	PLQP0144KA-A



M32C/85 Group

Group	Memory type	Internal memory (Byte)			Type name	Operating frequency (MHz)	Shotest instruction execution time (ns)	Operating temperature (°C)	Supply voltage (V)	Input port	I/O port	Function	Package	
		ROM	Data Flash	RAM										
M32C/85	Mask ROM	-			M30853MW-XXXFP						87	• Input timer : 6 • Output timer : 5	100P6S-A	PRQP0100JB-A
					M30853MW-XXXGP								100P6Q-A	PLQP0100KB-A
		320K			M30855MW-XXXGP						123	• 10-bit A/D converter : 100pin:26ch, 144pin:34ch	144P6Q-A	PLQP0144KA-A
					M30853FWFP						87	• 8-bit D/A converter : 2ch • DMAC : 4ch	100P6S-A	PRQP0100JB-A
	Flash ROM			24K	M30853FWGP							• DMAC II : Activated by an interrupt from any peripheral function.(except FWT,FHT,FGT)	100P6Q-A	PLQP0100KB-A
					M30855FWGP	32	31.2	-20 to 85 or -40 to 85	3.0 to 5.5 [24MHz] 4.2 to 5.5 [32MHz]		1	• Intelligent I/O : 1 group	144P6Q-A	PLQP0144KA-A
					M30853FHFP						87	• Serial I/O : 5	100P6S-A	PRQP0100JB-A
					M30853FHGP						123	• Watchdog timer : 1	100P6Q-A	PLQP0100KB-A
		384K	4K		M30855FHGP							• CAN:2ch	144P6Q-A	PLQP0144KA-A
					M30853FJFP						87	• CRC calculation circuit	100P6S-A	PRQP0100JB-A
					M30853FJGP						123	• X-Y conversion circuit	100P6Q-A	PLQP0100KB-A
					M30855FJGP						123	• PLL	144P6Q-A	PLQP0144KA-A



M32C/87 Group

Group	Memory type	Internal memory (Byte)			Type name	Operating frequency (MHz)	Shotest instruction execution time (ns)	Operating temperature (°C)	Supply voltage (V)	Input port	I/O port	Function	CAN	Package			
		ROM	Data Flash	RAM													
M32C/87	Mask ROM	384K		24K	M30873MH-XXXGP								2ch	100P6Q-A	PLQP0100KB-A		
					M30873MHA-XXXGP						87	1ch					
					M30873MHB-XXXGP							-					
					M30875MH-XXXGP							2ch	144P6Q-A	PLQP0144KA-A			
					M30875MHA-XXXGP						123	1ch					
					M30875MHB-XXXGP							-					
		512K	-	31K	M30876MJ-XXXFP								2ch	100P6S-A	PRQP0100JB-A		
					M30876MJ-XXXGP								100P6Q-A	PLQP0100KB-A			
					M30876MJA-XXXFP						87	1ch	100P6S-A	PRQP0100JB-A			
					M30876MJA-XXXGP								100P6Q-A	PLQP0100KB-A			
					M30876MJB-XXXFP							-	100P6S-A	PRQP0100JB-A			
					M30876MJB-XXXGP								100P6Q-A	PLQP0100KB-A			
	Flash ROM	384K		24K	M30878MJ-XXXGP								2ch	144P6Q-A	PLQP0144KA-A		
					M30878MJA-XXXGP						123	1ch					
					M30878MJB-XXXGP							-					
					M30873FHGP**							87	• Input timer : 6 • Output timer : 5	2ch	100P6Q-A	PLQP0100KB-A	
					M30873FHAGP**								100pin:26ch,144pin:34ch	1ch			
					M30873FHBGP**							-					
		512K		31K	M30875FHGP**							123	• 8-bit D/A converter : 2ch • DMAC : 4ch	2ch	144P6Q-A	PLQP0144KA-A	
					M30875FHAGP**							1ch					
					M30875FHBGP**							-					
					M30876FJGP**	32	31.3	-20 to 85 or -40 to 85	3.0 to 5.5 [24MHz] 4.2 to 5.5 [32MHz]		1	• DMAC II : Activated by an interrupt from any peripheral function.	2ch	100P6Q-A	PLQP0100KB-A		
					M30876FJAGP**						87	1ch					
					M30876FJBGP**							-					
	Flash ROM	768K			M30878FJAGP**							123	• Intelligent I/O : 2 groups • Serial I/O : 100pin:6,144pin:7	2ch	144P6Q-A	PLQP0144KA-A	
					M30878FJBGP**							1ch					
					M30879FKGP							-					
					M30879FKAGP						87	• X-Y conversion circuit • PLL	2ch	100P6Q-A	PLQP0100KB-A		
					M30879FKBGP							1ch					
					M3087BFKGP							-					
		Flash ROM				M3087BFKAGP							123		2ch	144P6Q-A	PLQP0144KA-A
						M3087BFKBGP							1ch				
						M30879FLFP							-				
						M30879FLGP								2ch	100P6S-A	PRQP0100JB-A	
						M30879FLAFP								100P6Q-A	PLQP0100KB-A		
						M30879FLAGP							1ch	100P6S-A	PRQP0100JB-A		
	1M				M30879FLBFP										100P6Q-A	PLQP0100KB-A	
					M30879FLBGP							-	100P6S-A	PRQP0100JB-A			
					M3087BFLGP							2ch	144P6Q-A	PLQP0144KA-A			
					M3087BFLAGP						123	1ch					
					M3087BFLBGP							-					

List of Renesas Development Tools

Development Tools

Series	Group	MCU	Software tools			Onchip debugging emulator	Emulator *7	
			RTOS	C compiler package (with simulator debugger)	IDE		Full spec emulator	
M16C/Tiny	M16C/26A	M30260 M30263						
	M16C/28	M30280 M30281						
	M16C/29	M30290 M30291	M3T-MR30/4 *1	M3T-NC30WA *3 (MISRA C *4)	High-performance Embedded Workshop *6	E8 *8	PC7501	M30290T-EPB *11
	M16C/60	M16C/62P						M3062PT2-EPB *9
M16C/30	M16C/30P	M30302				—	PC7501 *10 PC4701U *10	M3062PT2-EPB *10 M3062PT3-RPD-E *10
M32C/80	M32C/84		M3T-MR308/4 *2	M3T-NC308WA *5 (MISRA C *4)		E8 *8	PC7501	M30850T-EPB
	M32C/87							M30870T-EPB

- *1: M3T-MR30/4 is the generic name for real-time OS development kit (M3T-MR30K/4) and mass production contract (M3T-MR30S/4).
*2: M3T-MR308/4 is the generic name for real-time OS development kit (M3T-MR308K/4) and mass production contract (M3T-MR308S/4).
*3: M3T-NC30WA (type name: ROC30600CLW05R) includes integrated development environment, C compiler, assembler and simulator debugger.
*4: MISRA C rule checker SQMint (type name: ROC00000SCW01R) is an optional product for the Renesas C compiler.
*5: M3T-NC308WA (type name: ROC30800CLW05R) includes integrated development environment (High-performance Embedded workshop), C compiler, assembler and simulator debugger.
*6: High-performance Embedded Workshop is included with C compiler package or emulator debugger.
*7: You can download the latest version of the following debuggers.
*8: The E8 emulator comes with an emulator program (integrated development environment: High-performance Embedded Workshop, E8 emulation debugger, free C compiler evaluation version, and a free Flash Development Toolkit evaluation version).
The packed programs versions may vary, depending on when they are shipped.
*9: When the operating frequency is 16 MHz or less, you can use the combination of emulator, PC4701U and emulation pod M3062PT3-RPD-E.
*10: MCU operating frequency is 24 MHz for PC7501 and M3062PT-EPB (under development), 16 MHz for PC4701U and M3062PT3-RPD-E.
*11: The conversion board for the target connection is necessary for M30290T-EPB. The set sales of the emulator and the conversion board are also available.

Compact Emulators

Series	Group	MCU	Compact emulator
M16C/Tiny	M16C/26A	M30260	M30290T2-CPE
		M30263	
	M16C/28	M30280	
		M30281	
	M16C/29	M30290	
	M30291		
M16C/60	M16C/62P		M3062PT3-CPE
M16C/30	M16C/30P	M30302	
M32C/80	M32C/84		M30850T2-CPE
	M32C/87		M30870T2-CPE

Starter Kits

MCU		Starter kits
Series	Group	
M16C/Tiny	M16C/26A	Renesas Starter Kit for M16C/26A (ROK33026AS000BR)
	M16C/28	Renesas Starter Kit for M16C/28, 29 (ROK33029S000BE)
	M16C/29	
M16C/60	M16C/62P	Renesas Starter Kit for M16C/62P (ROK33062PS000BE)
M32C/80	M32C/84	Renesas Starter Kit for M32C/84, 87 (ROK330879S000BE)
	M32C/87	

Development Tools Product Appearances

Emulator PC7501

New emulator for high-speed M16C platform processors



Compact Emulators

Low-Cost, All-in-One Compact Emulators



Starter Kits

Introductory tools supporting basic functions at a low cost



Emulator E8

High-performance on-chip debugger with flash programmer function



RENESAS website M16C family URL: <http://www.renesas.com/homepage.jsp>

RENESAS website M16C family

Home / Products / M16C and M16C+ / M16C Family

WHAT'S NEW

18 Mar 2006

- Renesas Starter Kit for M16C/62P, New
- Renesas Starter Kit for M16C/28, New

For details, please refer to [Latest Products](#).

Overview

The M16C family offers the industry's* a broadest multi-purpose MCU platform, with wireless code and pin compatibility—all the way from 8-bit to 32-bit technology.

The M16C family offers a robust platform of 16-/32-bit CISC microcontrollers with speeds from 1 to 160 to 847 MHz, up to 512K on-chip flash memory, high RDP code efficiency, extensive I/O/IOVIO control, and strong low power consumption. It also features a broad range of standard on-chip peripheral options and the highest pin-to-pin compatibility (up to 1-44 pins) in the industry.

This single architecture Renesas Standard Platform MCU delivers the most comprehensive device scalability from low-to-high-end, M16C+ a connected pin component, complete platform code compatibility, and wide range of I/O/IOVIO and peripheral combinations allows development of a single board, or family of boards, enabling parallel and product development and introduction of platform-based end products.

Together with our low-cost development environment, you will save in development time and system cost by as much as 40%.

Key Applications:

- Consumer: TV, PDA, VCR, PMP, projector, home electronics, mobile phone
- Industrial: Control systems, actuatable valve, car audio system, actuatable infrastructure
- PC/Networking: ASIC, MAC, PC-server (GPIB), network server, or other, PMP (ASIC), basical printer, scanner
- Industrial: M16C systems, low cost sensors, kind of data transfer, MPDS, card reader, M16C, utility meters, medical equipment, GPS systems

Why M16C?

Platform:	Best Price/Performance—Offers 16-/32-bit CPU processing capabilities matched to the actual application needs, including speeds as high as 24 MHz for fast execution of complex on-chip code and fast interrupt response speed.
Flexibility:	High Peripheral Integration—Provides external components by selecting from the broadest choice of on-chip peripheral devices—UART, CRC, DPSC, A/D and D/A converters, SPI, timers, CAN, PC, I/OCT.
Speed:	Advanced Flash Memory—On-Chip Memory up to 512K on-chip flash memory, a wide range of RDP (RDP) control (up to 512K) for M16C+ including up to 4K control (M16C+).
Powerful:	Fast, Powerful CPU—Code Efficiency—Complete on-chip code allowing across applications and product generations with up to 2.5 MHz operation.
Compatible:	Full-Speed Code Compatibility—Inherits the most comprehensive device scalability from low-to-high-end, including pin, peripheral, and code compatibility across the platform.
Efficient:	Robust Power Performance—Excellent ultra-low power consumption, strong processing performance with efficient logic, and extensive on-chip power management.
Small:	Streamlined Packages—Coming up to 8-pin, less than 1 mm for 2.5-16 mm device.

The website includes the state-of-the-art technical information that is needed for system development and various other information is also available.

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