

# Microcontrollers

## F<sup>2</sup>MC-16L High Performance/Low Power/Low Voltage Microcontrollers

Series MB90xxx	Part	ROM/OTP kB	RAM Byte	Clock MHz (kHz)	Ports	ICU/OCU	Timer/ Counter	UART	Serial I/O	A/D Conv.	External Bus Interface	Prog. Pulse Gen.	Special Features	Power- Saving Modes	Pin Count
610A	<a href="#">MB90611A</a>	ext	1024	16 (PLL ext. 4 MHz)	52		2 x 16 bit	3 ch		8 x 10 bit	Yes	2 ch x 8 bit or	Chip Select Outputs	SLEEP STOP, ...	100
	<a href="#">MB90613A</a>	ext	3072									1 ch x 16 bit			
620A	<a href="#">MB90622A</a>	32	1664	12 (PLL ext. 4 MHz)  (32 kHz)	59		3 x 16 bit	1 ch	1 x 8 bit	4 x 10 bit		2 ch x 16 bit	LCD Controller 4 x 32	SLEEP STOP, ...	100
	<a href="#">MB90623A</a>	48	2048												
	<a href="#">MB90P623A</a>	48	2048												
630A	<a href="#">MB90632A</a>	32	1024	16 (PLL ext. 4 MHz)	82	2 ch/4 ch		1 ch	2 x 8 bit	8 x 10 bit	Yes	2 ch x 8 bit or	2 ch D/A Converter, Up Down Counter	SLEEP	100
	<a href="#">MB90634A</a>	64	2048									1 ch x 16 bit			
	<a href="#">MB90P634A</a>	64	3072												
640A	<a href="#">MB90641A</a>	64	2048	16 (PLL ext. 4 MHz)	83		5 x 16 bit	2 ch			Yes	2 ch x 8 bit or	Chip Select Outputs	SLEEP	100
	<a href="#">MB90P641A</a>	64	2048									1 ch x 16 bi			
650A	<a href="#">MB90652A</a>	64	3072	16 (PLL ext. 4 MHz)  (32 kHz)	79	2 ch/4 ch		1 ch	2 x 8 bit	8 x 10 bit	Yes	2 ch x 8 bit or	2 ch D/A Converter, Up Down Counter, I <sup>2</sup> C- Interface	SLEEP STOP,...	100
	<a href="#">MB90653A</a>	128	5120									1 ch x 16 bit			
	<a href="#">MB90P653A</a>	128	5120												
	<a href="#">MB90654A 1</a>	256	8192												
	<a href="#">MB90F654A 1</a>	256	8192												
660A	<a href="#">MB90662A</a>	32	1664	16 (PLL ext. 4 MHz)	51		4 x 16 bit	1 ch		8 x 10 bit			AC Inverter Motor, (Multi Function Timer) PWM	SLEEP	64
	<a href="#">MB90663A</a>	48	2048												
	<a href="#">MB90P663A</a>	48	2048												

670	<a href="#">MB90671</a>	16	640	16 (PLL ext. 4 MHz)	65	4 ch/8 ch	2 x 16 bit	2 ch		8 x 10 bit	Yes	2 ch x 8 bit or		SLEEP	80		
	<a href="#">MB90672</a>	32	1664									(24 bit)				1 ch x 16 bit	STOP, ...
	<a href="#">MB90673</a>	48	2048														
	<a href="#">MB90P673</a>	48	2048														
	<a href="#">MB90T673</a>	ext	2048														
675	<a href="#">MB90676</a>	32	1644	16 (PLL ext. 4 MHz)	84	4 ch/8 ch (24 bit)	2 x 16 bit	2 ch		8 x 10 bit	Yes	2 ch x 8 bit or	I <sup>2</sup> C-Interface	SLEEP	100		
	<a href="#">MB90677</a>	48	2048									1 ch x 16 bit				STOP, ...	
	<a href="#">MB90678</a>	64	3072														
	<a href="#">MB90P678</a>	64	3072														
	<a href="#">MB90T678</a>	ext	2048														

**F<sup>2</sup>MC-16LX High Performance/Low Power Microcontrollers**

Series MB90xxx	Part	ROM/ Flash kB	RAM (KB)	Clock MHz (kHz)	Ports	ICU/OCU	Timer/ Counter	UART	Serial I/O	A/D Conv.	External Bus Interface	Prog. Pulse Gen.	Special Features	Power- Saving Modes	Supply Volts	Pin Count	
895	<a href="#">MB90F897</a>	64KB Flash	2048	16 (PLL, ext 4 MHz) 32.768KHz	34	4	2 x 16 bit	2 ch		8 x 10 bit	-	2 ch x 8 bit or	Dual Operation Flash and CAN	SLEEP STOP	3.5V to 5.5V	48	
	<a href="#">MB90F897S</a>	64KB Flash	2048	16 (PLL, ext 4MHz)	36							1 ch x 16 bit	SLEEP, STOP, CLOCK				
520	<a href="#">MB90522B</a>	64	4	16 (PLL ext.)	85	2 ch/8 ch	2 x 16 bit	1 ch	2 x 8 bit	8 x 10 bit		2 ch x 8 bit or	LCD Controller 4 x 32 2 ch D/A Converter, Up Down Counter	SLEEP	3.0 to 5.5	120	
	<a href="#">MB90F523A</a>	128	4	4 MHz) (32 kHz)								1 ch x 16 bit		STOP, ...			4.5 to 5.5
	<a href="#">MB90523B</a>	128	4														

540G/GS	<a href="#">MB90543G</a>	128	6	16 (PLL ext.	81	8 ch/2 ch or	2 x 16 bit	2 ch	1 x 8 bit	8 x 10 bit	Yes	4 ch x 8 or	2 ch CAN2.0B Interface	SLEEP	3.0 to 5.5	100
	<a href="#">MB90543GS</a>													STOP, ...		
	<a href="#">MB90F543G</a>	128	6	4 MHz) (32 kHz)		6 ch/4 ch						16 bit			4.5 to 5.5	
	<a href="#">MB90F543GS</a>															
545G	<a href="#">MB90F546G/GS</a>	256	8	16 (PLL ext 4Mhz) 32.768Khz	80	8	2 ch	2 ch	1 ch	10 bit x 8ch	Yes	4 ch x 8 bit, 2 ch x 16 bit	CAN	SLEEP STOP CLOCK	4.5 to 5.5  3.5 to 5.5	100
	<a href="#">MB90547G/GS</a>	64	2	16 (PLL ext 4Mhz) 32.768Khz										SLEEP STOP CLOCK	3.5 to 5.5	
	<a href="#">MB90548G/GS</a>	128	4	16 (PLL ext 4Mhz) 32.768Khz										SLEEP STOP CLOCK	4.5 to 5.5	
	<a href="#">MB90F548G/GL/GLS/GS</a>	128	4	16 (PLL ext 4Mhz) 32.768Khz										SLEEP STOP	4.5 to 5.5	
	<a href="#">MB90549G/GS</a>	256	6	16 (PLL ext 4Mhz)										SLEEP STOP	4.5 to 5.5	
	<a href="#">MB90F549G/GS</a>	256	6	16 (PLL ext 4Mhz)										SLEEP STOP	4.5 to 5.5	
550A/B	<a href="#">MB90552B</a>	64	2	16 (PLL ext.	83	4 ch/4 ch	2 x 16 bit	1 ch	2 x 8 bit	8 x 10 bit	Yes	6 ch x 8 bit or	2 ch I <sup>2</sup> C-Interface, Clock Monitor Output	SLEEP	3.5 to 5.5	100
	<a href="#">MB90553B</a>	128	4	4 MHz)								3 ch x 16 bit		STOP, ...	3.5 to 5.5	
	<a href="#">MB90F553A</a>	128	4												4.5 to 5.5	
	<a href="#">MB90P553A</a>															
560	<a href="#">MB90561</a>	32	1	16 (PLL ext.	50	4 ch/4 ch	2 x 16 bit	2 ch		8 x 10 bit		6 ch x 8 bit or	3 ch PPG for AC or DC motor control Wave Generator	SLEEP	3.5 to 5.5	64
	<a href="#">MB90562</a>	64	2	4 MHz)								3 ch x 16 bit		STOP, ...	3.5 to 5.5	
	<a href="#">MB90F562</a>	64	2												4.5 to 5.5	

565	<a href="#">MB90567</a>	96	4	16 (PLL ext 4 MHz)	51	8	2 ch	2 ch		8 x 10 bit				SLEEP STOP	2.7 to 3.6	64
	<a href="#">MB90568</a>	128														
	<a href="#">MB90F568</a>	128														
570	<a href="#">MB90573</a>	128	5	16 (PLL ext.	97	2 ch/4 ch		2 ch	3 x 8 bit	8 x 10 bit	Yes	2 ch x 8 bit	2 ch D/A Converter	SLEEP	3.0 to 5.5	120
	<a href="#">MB90574A</a>	256	10	4 MHz) (32 kHz)									2 ch Up Down Counter	STOP, ...	3.0 to 5.5	
	<a href="#">MB90F574</a>	256	10										I <sup>2</sup> C-Interface Chip Select Outputs		4.5 to 5.5	
580/C/CA	<a href="#">MB90583C/CA</a>	128	6	16 (PLL ext 4Mhz)	77	8 ch	3ch x 16 bit	5 ch		10 bit x 8 ch		2 ch x 8 bit, 1 ch x 16 bit	IE Bus, DAC	SLEEP	3.0 to 5.5	100
	<a href="#">MB90F583C/CA</a>	128	6	16 (PLL ext 4Mhz)										STOP	4.5 to 5.5	
	<a href="#">MB90F584C/CA</a>	256	6	16 (PLL ext 4Mhz) 32.768											4.5 to 5.5	
	<a href="#">MB90587C/CA</a>	64	4	16 (PLL ext 4Mhz) 32.768											3.0 to 5.5	
590	<a href="#">MB90594G</a>	256	6	16 (PLL ext.	78	6 ch/6 ch	2 x 16 bit	3 ch	1 x 8 bit	8 x 10 bit		6 ch x 8 bit, 6 ch x 16 bit	2 ch CAN2.0B Interface	SLEEP	4.5 to 5.5	100
	<a href="#">MB90F594G</a>	256	6	4 MHz)									4 ch Stepper Motor Driver, Sound Generator	STOP, ...		
	<a href="#">MB90F591G</a>	384	8						1 ch			6 ch x 8 bit, 3 ch x 16 bit				
	<a href="#">MB90591G</a>	384	8			8 ch										
595	<a href="#">MB90598G</a>	128	4	16 (PLL ext.	78	4 ch/4ch	2 x 16 bit	2 ch	1 x 8 bit	8 x 10 bit		12 ch x 8 bit	CAN2.0B Interface 4 ch Stepper Motor Driver	SLEEP	4.5 to 5.5	100
	<a href="#">MB90F598G</a>	128	4	4 MHz)								or 6 ch x 16 bit		STOP, ...	4.5 to 5.5	

## F2MC-16LX High Performance/Low Power Microcontrollers

Series MB90xxx	Part	ROM/ Flash kB	RAM (KB)	Clock MHz (kHz)	Ports	ICU/OCU	Timer/ Counter	UART	Serial I/O	A/D Conv.	External Bus Interface	Prog. Pulse Gen.	Special Features	Power- Saving Modes	Supply Volts	Pin Count
<a href="#">405</a>	MB90M407	96	4	16.8 (PLL ext.4.2 MHz)	26	2 ch/1 ch	-	2 ch	2 ch shared with UART	16 x 10 bit	-	-	FL driver controller 32 digits max. x59 segments max. for Total 60 High Voltage Tolerant ports	SLEEP	3.0 to 3.6	100
	MB90M408	128	4											STOP, ...		
	MB90MF408	128	4													
420G	<a href="#">MB90427G</a>	64	4	16 (PLL ext. 4 MHz) (32 kHz)	58	4 ch -	2 x 16 bit	2 ch	-	8 x 10 bit	-	3ch x 16bit	1 ch CAN2.0B Interface, LCD Controller 4 x 24.4ch Stepper Motor Driver, Sound Generator Low voltage reset and CPU brown out detect reset (with A suffix)	SLEEP	3.0 to 5.5  4.5 to 5.5	100
	<a href="#">MB90427GA</a>	64	4											STOP, ...		
	<a href="#">MB90428G</a>	128	6													
	<a href="#">MB90428GA</a>	128	6													
	<a href="#">MB90F428G</a>	128	6													
	<a href="#">MB90F428GA</a>	128	6													
440	<a href="#">MB90443G</a>	128	6	16 (PLL ext.4Mhz) 32.768	81	8	2 ch	2 ch	1 ch	10bit x 8ch	yes	4 ch x 8 bit, 2 ch x 16 bit	CAN	SLEEP STOP	4.5 to 5.5	100
	<a href="#">MB90F443G</a>	128	6											SLEEP STOP CLOCK		

455	<a href="#">MB90F455/C/S/CS</a>	24	2	16 (PLL ext.4Mhz) 32	36	4ch	2 ch x 16 bit	1 ch		10bit x 8ch		2 ch x16 bit		SLEEP STOP CLOCK	3.5 to 5.5	48
	<a href="#">MB90F456/C/S/CS</a>	32	3													
	<a href="#">MB90F457/C/S/CS</a>	64	2													
	<a href="#">MB90455/C/S/CS</a>	24	2													
	<a href="#">MB90456/C/S/CS</a>	32	2													
	<a href="#">MB90457/C/S/CS</a>	64	2													
460	<a href="#">MB90462</a>	64	2	16 (PLL ext.4Mhz)	51	8	2 ch	2 ch	1 ch	10bit x 8ch		3 ch	Wave Generator	SLEEP STOP	4.5 to 5.5	100
	<a href="#">MB90F462</a>	128	2													
470	<a href="#">MB90473</a>	128	10	16 (PLL ext.4Mhz) 32.768	84	8	1 ch x 16 bit	1 ch	2 ch	10bit x 8ch		6 ch x 8 bit, 3 ch x 16 bit	I <sup>2</sup> C	SLEEP STOP CLOCK	1.8 to 3.6	100
	<a href="#">MB90474</a>	256	16												1.8 to 3.6	
	<a href="#">MB90477</a>	256	8												1.8 to 3.6	
	<a href="#">MB90478</a>	256	8												1.8 to 3.6	
	<a href="#">MB90F474H</a>	256	16												2.7 to 3.6	
	<a href="#">MB90F474L</a>	256	16												2.4 to 3.6	

480	<a href="#">MB90F481</a>	192	4	16 (PLL ext.4Mhz) 32.768	84	8	1 ch x 16 bit	1 ch	2 ch	10bit x 8ch		6 ch x 8 bit, 3 ch x 16 bit	SLEEP STOP CLOCK	2.4 to 3.6	100	
	<a href="#">MB90F482</a>	256	6													
495	<a href="#">MB90497G</a>	64	4	16 (PLL ext.4Mhz) 32.768	85	8	4 ch x 16 bit	1 ch		10bit x 8ch	yes	2 ch x 8 bit, 1 ch x 16 bit	CAN	SLEEP STOP CLOCK	3.0 to 5.5	64
	<a href="#">MB90F497G</a>	128	4												4.0 to 5.5	

**F2MC-16LX High Performance/Low Power Microcontrollers**

Series MB90xxx	Part	ROM/Flash kB	RAM (KB)	Clock MHz (kHz)	Ports	ICU/OCU	Timer/Counter	UART	Serial I/O	A/D Conv.	External Bus Interface	Prog. Pulse Gen.	Special Features	Power-Saving Modes	Supply Volts	Pin Count
335	<a href="#">MB90F337</a>	64K	4	24 (PLL ext.6Mhz)	120	4ch/4ch	3 ch x 16 bit	2 ch	1 ch			3 ch x16 bit	USB 2.0 Mini Host	SLEEP STOP CLOCK	3.0 to 3.6	64
	<a href="#">MB90337</a>	64K	4		45											
340	<a href="#">MB90F342/C/S/CS</a>	256	20	24 (PLL ext.4Mhz) 32	92	8ch/8ch	2 ch x 16 bit	4 ch		10bit x 16ch	Yes	8 ch x16 bit	LIN	SLEEP STOP CLOCK	3.5 to 5.5	100
	<a href="#">MB90F343/C/S/CS</a>	384	20													
	<a href="#">MB90F345/C/S/CS</a>	512	30													
	<a href="#">MB90F346/C/S/CS</a>	64	2													
	<a href="#">MB90F347/C/S/CS</a>	128	6													
	<a href="#">MB90348/C/S/CS</a>	128	16													
	<a href="#">MB90F349/C/S/CS</a>	256	16													

350	<a href="#">MB90352/S/C/CS</a>	128	4	24 (PLL ext.4Mhz) 32.768	51	6 ch/4 ch	4ch x 16bit	2 ch		10bit x 15ch	Yes	6 ch x 16 bit	CAN, LIN	SLEEP STOP CLOCK	3.5 to 5.5	64
	<a href="#">MB90F352/S/C/CS</a>	128	4													
370	<a href="#">MB90F372</a>	64	6	16 (PLL ext.4Mhz) 32.768	120	6	4 ch x 16 bit	1 ch		10bit x 12ch	-	3 ch x 16 bit	PS2 Interface & LCD	SLEEP STOP CLOCK	3.0 to 3.6	144
	<a href="#">MB90372</a>	64	6													
	<a href="#">MB90F377</a>	64	6										PS2 Interface			
385	<a href="#">MB90387</a>	64	2	16 (PLL ext.4Mhz) 32.768	34	4	2 ch	1 ch		10bit x 8ch	-	4 ch x8 bit, 2 ch x 16 bit	CAN	SLEEP STOP CLOCK	3.5 to 5.5	48
	<a href="#">MB90387S</a>	64	2	16 (PLL ext.4Mhz)	36									SLEEP STOP		
	<a href="#">MB90F387</a>	64	2	16 (PLL ext.4Mhz) 32.768	34									SLEEP STOP CLOCK		
	<a href="#">MB90F387S</a>	64	2	16 (PLL ext.4Mhz)	36									SLEEP STOP		
390	<a href="#">MB90390</a>	384	10	20 (PLL ext.5 MHz)	96	6 ch/8 ch	2x16 bit	3ch	1x8 bit	10bit x 8ch	-	6 ch	CAN, SMC	SLEEP  STOP	4.5 to 5.5	100

**F2MC-16F High Speed/High Performance Microcontrollers**

Series MB90xxx <sup>2</sup>	Part	ROM/ OTP Flash kB	RAM Byte	Clock MHz	Ports	ICU/OCU	Timer/ Counter	UART	Serial I/O	A/D Conv.	External Bus Interface	Prog. Pulse Gen.	Special Features	Power- Saving Modes	Pin Count
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210	<a href="#">MB90214</a>	64	3072	16	65		4 x 16 bit	3 ch		8 x 10 bit	Yes	1 ch x 8 bit	Write inhibit RAM, Gear Function	SLEEP	80
	<a href="#">MB90P214B</a>	64	4096											STOP, ...	
220	<a href="#">MB90223</a>	64	3072	12	102	4 ch/8 ch	6 x 16 bit	4 ch		16 x 10 bit	Yes	2 ch x 16 bit	4 x PWC 4 ch. Write Inhibit RAM, Gear Function	SLEEP	120
	<a href="#">MB90224</a>	96	4608	16										STOP, ...	
	<a href="#">MB90P224A/B</a>	96	4608	16											
230	<a href="#">MB90233</a>	48	2048	16	84	4 ch/6 ch	6 x 16 bit	1 ch	1 ch	8 x 10 bit	Yes	1 ch x 8 bit	D/A Converter, S-EEPROM Interface, Level Comparator, 6 ch PWM	SLEEP	100
	<a href="#">MB90234</a>	96	3072											STOP, ...	
	<a href="#">MB90P234</a>	96	3072												
242	<a href="#">MB90F243<sup>3</sup></a>	128	1024	16	62	4 ch/	2 x 16 bit	1 ch	1 ch	6 x 10 bit	Yes		Product Sum Unit	SLEEP	80
	<a href="#">MB90F243H</a>	128	1024	20	62		2 x 16 bit			6 x 10 bit				STOP, ...	
	<a href="#">MB90F244</a>	128	1152	25	63		3 x 16 bit								
	<a href="#">MB90242A</a>	ext.	2048	16	38		2 x 16 bit			8 x 10 bit					
	<a href="#">MB90F245</a>	192	1536							6 x 10 bit					
246A	<a href="#">MB90246A</a>	ext	4096	16	57	2 ch/	3 x 16 bit	1 ch	2 ch	8 x 10 bit	Yes		Product Sum Unit, 3 ch D/A Converter, 4 ch PWM	SLEEP	100
														STOP, ...	

1. Under development
2. MB90Pxxx signifies OTP device
3. MB90Fxxx signifies Flash device

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