

## Programming Times for Selected Devices

Manufacturer	Device	Memory	Conditions	Operations	Time (s)
Atmel	AT90CAN128	128KB Flash	VDD=5V, SCLK=2MHz	Erase + Program + Verify	11.50
Atmel	ATMEGA16	16KB Flash	VDD=5V, SCLK=1,785MHz (fCPU=8MHz)	Erase + Program + Verify	1.90
Atmel	ATMEGA64	64KB Flash	VDD=5V, SCLK=1,785MHz (fCPU=8MHz)	Erase + Program + Verify	5.80
Atmel	ATTINY2313	2KB Flash	VDD=5V, SCLK=1,785MHz (fCPU=8MHz)	Erase + Program + Verify	0.70
Freescale	MC68HC908AP64	64KB Flash	VDD=5V, fBUS=8MHz	Erase + Program + Verify	5.45
Freescale	MC68HC908EY16	16KB Flash	VDD=5V, fBUS=4MHz	Erase + Program + Verify	2.35
Freescale	MC68HC908KX8	8KB Flash	VDD=5V, fBUS=8MHz	Erase + Trimming + Program + Verify	1.90
Freescale	MC68HC908QY4A	4KB Flash	VDD=5V, fBUS=8MHz	Erase + Program + Verify	0.90
Freescale	MC9S08AW60	60KB Flash	VDD=5V, BDC clock=20MHz	Erase + Trimming + Program + Verify	7.00
Freescale	MC9S08QD4	4KB Flash	VDD=5V, BDC clock=8MHz	Erase + Trimming + Program + Verify	2.75
Freescale	MC9S12C32	32KB Flash	VDD=5V, BDM Clock=25 MHz	Erase + Program + Verify	2.51
Freescale	MC9S12XDG128	128KB Flash	VDD=5V, BDM Clock= 25 MHz	Erase + Blank Check + Program + Verify	7.95
Freescale	MCF52235	256KB Flash	VDD=3.6V, BDM, PLLFREQ=60MHz, SCLK=6,25MHz	Erase + Program + Verify	5.00
Freescale	MC9RS08KA2	2KB Flash	VDD=5V, fBUS=4MHz	Erase + Trimming + Program + Verify	1.98
Fujitsu	MB90F347	128KB Flash	VDD=5V, OSC=4MHz, BAUDRATE=500000 bps	Program + Verify	14.00
Microchip	PIC10F222	512W Flash	VDD=5V, SCLK=4MHz	Erase + Program + Verify	1.25
Microchip	PIC12F509	1KW Flash	VDD=5V, SCLK=4MHz	Erase + Program + Verify	2.37
Microchip	PIC16F785	2KW Flash	VDD=5V, SCLK=4MHz	Erase + Program + Verify	1.55
Microchip	PIC16F873A	4KW Flash	VDD=5V, SCLK=4MHz	Erase + Program + Verify	4.50
Microchip	PIC18F4523	32KB Flash	VDD=5V, SCLK=4MHz	Erase + Program + Verify	2.45
NEC	UPD78F0393	32KB Flash	VDD=5V, CSI, SCLK=2,5MHz	Program + Verify	3.27
NEC	UPD78F0889	96KB Flash	VDD=5V, CSI, SCLK=2,5MHz	Program + Verify	9.40
NXP	LPC2101	8KB Flash	VDD=3.3V, JTCLK=2MHz	Erase + Program + Verify	1.30
NXP	LPC2103	32KB Flash	VDD=3.3V, JTCLK=2MHz	Erase + Program + Verify	2.50
Renesas	R5F61582	256KB Flash	VDD=5V, UART, BAUDRATE=250000 bps	Program + Verify	28.84
STMicroelectronics	M25P10-A	128KB Flash	VDD=3.6V, SCLK=12.5MHz	Program + Verify	4.30
STMicroelectronics	M93C66-W	512B EEPROM	VDD=5V, SCLK=1.785MHz, 16-Bit	Program + Verify	0.87
STMicroelectronics	ST72C254G2	8KB C-Flash	VDD=5V, fCPU=8MHz	Program + Verify	3.60
STMicroelectronics	ST72F324J6	32KB HD-Flash	VDD=5V, fCPU=8MHz	Program + Verify	4.68
STMicroelectronics	ST72F344S4	16KB X-Flash	VDD=5V, fCPU=8MHz	Erase + Program + Verify	7.65
STMicroelectronics	ST72F561K9	60KB HD-Flash	VDD=5V, fCPU=8MHz	Program + Verify	8.10
STMicroelectronics	ST7FLITE09	1.5KB X-Flash	VDD=5V, fCPU=8MHz	Program + Verify	0.80
STMicroelectronics	ST7FLITE29	8KB X-Flash	VDD=5V, fCPU=8MHz	Program + Verify	2.50
STMicroelectronics	STR712FR2	256KB + 16KB	VDD=3.3V, JTCLK=6MHz	Program + Verify	9.50
STMicroelectronics	STR730FZ2	256KB Flash	VDD=5V, JTCLK=6MHz	Program + Verify	9.10
Texas Instruments	TMS470R1A384	384KB Flash	VDD=3.3V, JTCLK=6MHz	Program + Verify	15.60

Programming times depend on Programming Algorithm version, target board connections, target microcontroller mask, and other conditions. Programming times for your actual system may therefore be different than the ones listed here.

SoftTec Microsystems reserves the right to modify Programming Algorithms at any time.