



Company name	Device family or device	CPU frequency	Bus interface (address/data) (bits)	Instruction width (bits)	Operating voltages (V)	Typical power at maximum frequency	Power-down modes	DSP/multiplication hardware support (bits)	FPU	Caching
Analog Devices www.analog.com Enter No. 460	ADuC814	131 kHz to 16.78 MHz	External: 16/8 code, 24/8 data	8	3/5	36 mW (3V)	33 to 45 μ W			
	ADuC816 ADuC824	98.3 kHz to 12.58 MHz	External: 16/8 code, 24/8 data	8	3/5	25 mW (3V)	18 to 60 μ W			
	ADuC836 ADuC834	98.3 kHz to 12.58 MHz	External: 16/8 code, 24/8 data	8	3/5	25 mW (3V)	18 to 60 μ W			
	ADuC812	16 MHz	External: 16/8 code, 24/8 data	8	3/5	48 mW (3V)	15 μ W			
	ADuC831 ADuC832	31 kHz to 1 16.78 MHz	External: 16/8 code, 24/8 data	8	3/5	25 to 50 mW (3V)	33 to 39 μ W			
	ADuC841 ADuC842	As much as 8 MHz	External: 16/8 code, 24/8 data	8	3/5	25 to 50 mW (3V)	33 to 39 μ W			
	Atmel www.atmel.com Enter No. 461	FPSLIC FPSLIC Secure	1 to 25 MHz	16/8	16	3 to 3.6	2 to 3 mA/ MHz	Less than 100 μ A	8×8 unsigned, 16×16 signed	Two-cycle 8×8 fixed point
AVR		1 to 24 MHz	16/8	16	1.8 to 5.5	1 to 3 mA	Less than 1 μ A	8×8 unsigned, 16×16 signed	Two-cycle 8×8 fixed point	
MCS 51AT 89 family		12 to 33 MHz	8	16	2.7 to 6	80 mW	Idle: 2 mA, power-down: 12 μ A	8×8		
Cybernetic Micro Systems www.controlchips.com Enter No. 462	8051	51 MHz	16/8 (8051 side) 20/8 (EISA side)	8, 16	3.3/5 tolerant	150 mW		8×8	Square root	
Cygna Integrated Products www.cygna.com Enter No. 463	C8051F00X C8051F01X	25 MHz	16/8	8	2.7 to 3.6	27 to 34 mW	Software control: 1 to 15 μ A	8×8		
	C8051F02X	25 MHz	16/8	8	2.7 to 3.6	34 mW	Software control: less than 1 μ A	8×8		
	C8051F2XX	25 MHz	16/8	8	2.7 to 3.6	27 mW	Software control: less than 1 μ A	8×8		

	Memory	Memory controller	MMU	Package selection	Timers	Serial, parallel I/O	Interrupts	ADC/DAC	Additional features	Price (10,000)
	8-kbyte code flash/EE, 640-byte data flash/EE, 256-byte SRAM			28 TSSOP	Three 16-bit, wake-up/RTC	UART, I ² C, SPI, 11 PIOs	11	Six-channel, 12-bit, 5 µsec ADC; two 12-bit DACs	On-chip voltage reference, on-chip temperature sensor	\$3.73
	8-kbyte code flash/EE, 640-byte data flash/EE, 256-byte SRAM			52 PQFP, 56 CSP	Three 16-bit, wake-up/RTC	UART, I ² C, SPI, 26 PIOs	11	Dual 24/16-bit ADC; programmable gain, 12-bit DAC	On-chip excitation and transducer-burnout current sources	\$7.51 to \$8.86
	62-kbyte code flash/EE, 4-kbyte data flash/EE, 2-kbyte plus 256-byte SRAM			52 PQFP, 56 CSP	Three 16-bit, wake-up/RTC, dual 16-bit PWM	UART, I ² C, SPI, 26 PIOs	11	Dual 24/16-bit ADC with programmable gain, 12-bit DAC	Dual data pointer, 11-bit stack pointer	\$8.70 to \$10.16
	8-kbyte code flash/EE, 640-byte data flash/EE, 256-byte SRAM	DMA to external data memory		52 PQFP, 56 CSP	Three 16-bit	UART, I ² C, SPI, four 8-bit digital I/O ports	Nine	Eight-channel, 12-bit, 200k-sample/sec ADC; two 12-bit voltage-output DACs	On-chip voltage reference, on-chip temperature sensor	\$6.85
	62-kbyte code flash/EE, 4-kbyte data flash/EE, 2k-byte + 256-byte SRAM			52 PQFP, 56 CSP	Three 16-bit, wake-up/RTC, dual 16-bit PWM	UART, I ² C, SPI, four 8-bit digital I/O ports	12	Eight-channel, 12-bit, 200k-sample/sec ADC; two 12-bit voltage-output DACs	Dual data pointer, 11-bit stack pointer, on-chip PLL	\$7.62
	62-kbyte code flash/EE, 4-kbyte data flash/EE, 2k-byte + 256-byte SRAM			52 PQFP, 56 CSP	Three 16-bit, wake-up/RTC	UART, I ² C, SPI, four 8-bit digital I/O ports	12	Eight-channel, 12-bit, 200k-sample/sec ADC; two 12-bit voltage-output DACs	Single-cycle 8052 core, on-chip PLL	\$8.35
	20- to 32-kbyte program, 4- to 16-kbyte data memory, reconfigurable, EEPROM (secure)			84 PLCC, 100 TQFP, 144/208 PQFP, 256 caBGA (Secure)	Two 8-bit, 16-bit	UART, I ² C, 8-bit digital I/O Ports	31 internal, four external	JTAG debug, 5000- to 40,000-gate FPGA		\$5 to \$85
	1- to 128-kbyte flash, 64-byte to 4-kbyte EEPROM, 128-byte to 4-kbyte SRAM			8/20/28/40 DIP, 32/44/64 TQFP, 20 SSOP, 8/20 SOIC	Two 8-bit, two 16-bit	SPI, UART, I ² C, 8-bit parallel (64-kbyte addressing)	27 internal, eight external	Eight-channel, 10-bit ADC	JTAG debug	50 cents to \$4
	1- to 32-kbyte flash, 2-kbyte EEPROM, 128- to 512-byte SRAM			20/40 Pin PDIP, 20 SOIC, 44 TQFP	One to three 16-bit	SPI full-duplex UART			In-system-programmable flash, three-level lock-bit security	\$1 to \$3
	4-kbyte dual-port RAM, 8-kbyte program RAM			100 SQFP	Three 16-bit	Four 8-bit parallel ports, full-duplex UART, 8-bit host interface	Seven		Breakpoint/single-step debugging, selectable IRQ and memory address on EISA/104 interface	\$12
	32-kbyte ISP flash for program/data, 256-byte SRAM, 2- or 4-kbyte XRAM			32 LQFP, 48/64 TQFP	Four 16-bit, programmable counter array with five capture modules, watchdog	SPI, SMBus, UART, up to 32 PIOs	21 (two levels)	Eight-channel, 12-bit ADC; two 12-bit DACs	Two analog comparators	\$8 to \$11
	64-kbyte ISP flash for program/data, 256-byte SRAM, 4-kbyte XRAM			64/100 TQFP	Five 16-bit, programmable counter array with five capture modules, watchdog	SPI, SMBus, two UART, up to 64 PIOs	21 (two levels)	Eight-channel, 12-bit ADC; two 12-bit DACs	Two analog comparators	\$10 to \$13
	8-kbyte ISP flash for program/data, 256-byte SRAM, 1-kbyte XRAM			48 TQFP, 32 LQFP	Three 16-bit, watchdog	SPI, UART, up to 32 PIOs	21 (two levels)	Up to 32-channel, 8/12-bit ADC, any/all PIO as source	Two analog comparators	\$3 to \$7

Company name	Device family or device	CPU frequency	Bus interface (address/data) (bits)	Instruction width (bits)	Operating voltages (V)	Typical power at maximum frequency	Power-down modes	DSP/multiplication hardware support (bits)	FPU	Caching
	C8051F30X	25 MHz	16/8	8	2.7 to 3.6	14 mW	Software control: less than 1 μ A	8 \times 8		
	C8051F12X	50 MHz	16/8	8	2.7 to 3.6	68 mW	Software control: less than 1 μ A	8 \times 8		
	C8051F31X	25 MHz	16/8	8	2.7 to 3.6	14 mW	Software control: less than 1 μ A	8 \times 8		
	C8051F04X	25 MHz	16/8	8	2.7 to 3.6	34 mW	Software control: less than 1 μ A	8 \times 8		
Cypress MicroSystems www.cypressmicro.com Enter No. 464	CY8C25122A CY8C26233A CY8C26443A CY8C26643A	24 MHz	16/8	8, 16, 24	3.3/5	20 mA	Analog, digital, both	MAC		
Dallas Semiconductor/Maxim www.maxim-ic.com Enter No. 465	DS80C320 DS87C520 DS87C530 DS89C420	18 or 33 MHz	16/8	8	2.7 to 5.5	10 to 100 mA	Stop, idle			
	DS500x DS5240 DS225x	16 or 25 MHz	16/8 or 24/8	8	4.5 to 5.5	30 to 100 mA	Stop, idle			
	DS80C390 DS80C400	40 or 75 MHz	22/8 or 24/8	8	4.5 to 5.5	35 to 75 mA	Power management	16 \times 16 multiplier with MAC unit		
	DS87C550 MAX765x	12 or 33 MHz	16/8	8	2.7 to 5.5	10 to 30 mA	Power management			
Fujitsu Microelectronics America www.fma.fujitsu.com Enter No. 466	F2MC-8L	1 to 12.5 MHz	16/8	16	1.8 to 6	50 mW	Sleep, stop, subclock, watch, timer			
Hitachi Semiconductor www.semiconductor.hitachi.com Enter No. 467	Series H8/38024	8 MHz	16/8	16, 3 2	1.8 to 5.5	35 mW	Eight	8 \times 8		
Infineon Technologies www.infineon.com/microcontrollers Enter No. 468	C868	40 MHz		8	3.3		Slowdown, idle, power-down	8 \times 8		
	C508	40 MHz	16/8	8	5	113 mW	Slowdown, idle, power-down	8 \times 8		
	C505CA	40 MHz	16/8	8	5	143 mW	Slowdown, idle, power-down	8 \times 8		
	C515C	20 MHz	16/8	8	5	94 mW	Slowdown, idle, power-down	8 \times 8		

	Memory	Memory controller	MMU	Package selection	Timers	Serial, parallel I/O	Interrupts	ADC/DAC	Additional features	Price (10,000)
	8-kbyte ISP flash for program/data, 256-byte SRAM			11 MLP	Three 16-bit, programmable counter array with three capture modules	SMBus, UART, eight PIOs	12 (two levels)	Up to 32-channel, 8/12-bit ADC, any/all PIO as source	2% internal oscillator	\$2 to \$4
	128-kbyte ISP flash for program/data, 256-byte SRAM, 8-kbyte XRAM			64/100 TQFP	Five 16-bit, programmable counter array with six capture modules, watchdog	SPI, SMBus, two UART, up to 64 PIOs	21 (two levels)	Eight-channel, 12-bit ADC; two 12-bit DACs	2% internal oscillator with PLL	\$13 to \$15
	16-kbyte ISP flash for program/data, 256-byte SRAM, 1-kbyte XRAM			32 LQFP, 28 MLP	Four 16-bit, programmable counter array with five capture modules	SMBus, SPI, UART, 25 PIOs	14 (two levels)	Up to 17-channel, 10-bit ADC	2% internal oscillator	\$4 to \$5
	64-kbyte ISP flash for program/data, 256-byte SRAM, 4-kbyte XRAM			64/100 TQFP	Five 16-bit, programmable counter array with six capture modules, watchdog	CAN 2.0B, SPI, SMBus, two UARTs, up to 64 PIOs	21 (two levels)	Eight-channel, 12-bit ADC; two 12-bit DACs	32 message objects	\$12 to \$14
	8- or 16-kbyte program flash, 128-byte SRAM			8 PDIP, 20/28/48 PDIP/SSOP/SOIC, 48 QFP	Up to eight user definable 8/16/24/32-bit, PWM	Up to four user-definable SPI/asynchronous, six to 44 PIOs	16	As many as two eight-channel, ADC/DAC	User-definable filters, amplifier/scalers, comparators	\$1.58
	8- or 16-kbyte EPROM; 16-, 32-, or 64-kbyte flash; 256-byte, 1-, or 4-kbyte RAM			PDIP/PLCC/TQFP	Three 16-bit, real-time clock, watchdog	Two full-duplex UARTs	10 to 14		In-system programmable, EMI reduction, dual DPTR, nonvolatile SRAM	\$4 to \$25
	ROMless versions, up to 5-kbyte non-volatile SRAM, 32-, 64-, or 128-kbyte SRAM			80/100 QFP, 40/72 SIMM	Two or three 16-bit, watchdog	One or two full-duplex UARTs	Six or 15		In-system programmable, nonvolatile-memory control circuitry	\$7 to \$50
	256-bytes RAM, 4-kbyte SRAM, 512-bytes RAM for CAN			64 QFP, 68 PLCC, 100 LQFP	Three or four 16-bit, watchdog	Two full-duplex UARTs	16		CAN, one-wire, 10/100-Mbps Ethernet MAC	\$8 to \$10
	256-byte RAM, 1-kbyte SRAM, 8-kbyte EPROM, 16-kbyte flash			68 PLCC, 68 windowed CLCC, 80 PQFP, 64 TQFP	Three 16-bit, four channel 8-bit PWM, watchdog	Two full-duplex UARTs	11 or 16	Eight-channel, 10- or 12-bit ADC; PWM DAC	Dual DPTR, EMI reduction	\$7.60 to \$12
	128-byte to 18-kbyte RAM, 4- to 60-kbyte ROM, 16- to 60-kbyte flash			28/48/64/80/100 QFP/QFP/SOP/SDIP/DIP (plastic)	8/16-bit, 21-bit time-base, 8-bit PWM, PPG, PWC, watchdog	SIO, I ² C, USB, SM bus, UART, up to 85 PIOs	Up to 16 external	Up-to-eight-channel, 8/10-bit, DAC	Buzzer output, remote-control carrier generator, DTMF generator, LCD driver, VFD, stepper motor control	From \$1.20
	32-kbyte flash, 8- to 32-kbyte mask ROM			80 QFP/TQFP	Three 8-bit, two 16-bit, watchdog, two PWM	One asynchronous/synchronous	13 internal, nine external	Eight-channel, 10-bit ADC	LCD controller, on-chip debug, 32-kHz subclock	\$1.70 to \$4.65
	8-kbyte ROM/SRAM, 512-byte RAM			38 PTSSOP, 28 PDSO	Five 16-bit, one- to seven-channel PWM	UART, SPI/I ² C (for booting), 13 PIOs, five input only	Nine internal, four external	Four-channel, 8-bit ADC	Motor-control peripheral, brownout, PLL	Less than \$2
	16- to 32-kbyte ROM/OTP or ROMless, 1.25-kbyte RAM			64 PMQFP	Five 16-bit, up to 11-channel PWM	UARTs, 40 PIOs, eight input only	Nine internal, 10 external	Eight-channel, 10-bit ADC	Motor-control peripheral, PLL	\$3 (ROMless)
	16- to 32-kbyte ROM/OTP or ROMless, 1.25-kbyte RAM			44 PMQFP	Three 16-bit, four-channel PWM	CAN, UART, 34 PIOs	Six internal, six external	Eight-channel, 10-bit ADC	CAN 2.0B active	\$3 (ROMless)
	64-kbyte ROM/OTP or ROMless, 3.25-kbyte RAM			80 PMQFP	Three 16-bit, four-channel PWM	CAN, UART, SPI, 49 PIOs, eight input only	Seven internal, 10 external	Eight-channel, 10-bit ADC	CAN 2.0B active	\$5 (ROMless)

8-BIT MICROPROCESSORS (CONTINUED)

Company name	Device family or device	CPU frequency	Bus interface (address/data) (bits)	Instruction width (bits)	Operating voltages (V)	Typical power at maximum frequency	Power-down modes	DSP/multiplication hardware support (bits)	FPU	Caching
Intel Corp www.intel.com Enter No. 469	MCS2518 XC251SA/ SB/SP/SQ 8XC251TA/ TB/TP/TQ	16 or 24 MHz	24/8	16 internal, 8 external	4.5 to 5.5 ±10%	85 mA	Idle, power-down	16×8		
	MCS518 XC31/32/51/ 52/54/588 XC51FA/FB/ FC8XC51RA/ RB/RC83 C51KB	12, 16, 24, or 33 MHz	8	8	4.5 to 5.5 ±10%	24 mA	Idle, power-down	8×8		
Microchip Technology www.microchip.com Enter No. 470	PIC12	0 to 20 MHz	14/8	12/14	2 to 5.5	10 mW	Low-power sleep, individual peripheral on/ off control			
	PIC16C	0 to 20 MHz	14/8	12/14	2 to 6	50 mW	Low-power sleep, individual peripheral on/ off control			
	PIC18	40 MHz	21/8	16	2 to 5.5	50 mW	Low-power sleep, individual peripheral on/ off control	8×8		
	rfPIC	10 MHz	14/8	12/14	2.5 to 5.5	10 mW	Low-power sleep, individual peripheral on/off control			
Mitsubishi Electric & Electronics USA www.mitsubishi-chips.com Enter No. 471	740	32 kHz to 20 MHz	16/8	8	1.8 to 5.5	40 mW	Standby: 35 μW, sleep: 0.5 μW	Software multiply		
Motorola www.motorola.com/semiconductors Enter No. 472	68HC05 family	2.1 to 4 MHz	8	8	2.2 to 5	25 mW (2 MHz)	Wait, stop			
	68HC08 family	2.1 to 4 MHz	8	8	2.2 to 5	75 mW (8 MHz)	Wait, stop			
	68HC11 family	As much as 5 MHz	8	8	3 or 5	124 mW (3 MHz)	Wait, stop			
	Nitron 68HC908 family	8 MHz	16/8	8	2.7 to 5.5	7 mA	Wait, stop, auto wake-up from stop			
NEC Electronics www.necel.com Enter No. 473	K0	1 to 12 MHz	8	8	1.8 to 5.5	5 to 10 mA (5V)	Halt, stop			
	K0S	1 to 10 MHz	8	8	1.8 to 5.5	0.25 to 2.5 mA (5V)	Halt, stop			

Memory	Memory controller	MMU	Package selection	Timers	Serial, parallel I/O	Interrupts	ADC/DAC	Additional features	Price (10,000)
8- or 16-kbyte OTP, ROM, 512- or 1024-byte RAM			44 PLCC, 40 PDIP	Three 16-bit, watchdog	One or two UARTs	Eight (four levels)		PCA, 40-byte register file	\$4.84 to \$6.87
8-, 16-, or 32-kbyte EPROM, OTP, ROM, 256- or 512-byte RAM			44 PLCC/PDIP/MQFP	Three 16-bit, watchdog	Full-duplex UART/serial I/O	Eight (two levels)		PCA	\$1.61 to \$5.48
768- to 3584-byte ROM/OTP/flash, 25- to 128-byte SRAM, 16- to 128-byte EEPROM			8 PDIP/SOIC/CERDIP/DFN	8/16-bit real-time clock/counter (8-bit programmable prescaler)	UART, I ² C and other interface buffers	Four to 12	Up to four-channel, 8/10-bit ADC	In-circuit serial programming, low-voltage detection, brownout reset, internal oscillator, analog comparator	80 cents to \$2
768-byte to 14-kbyte ROM/OTP/flash, 68- to 368-byte SRAM, 64- to 256-byte EEPROM			14 to 44 DIP/SOIC/SSOP/PLCC/TQFP/MQFP/CERDIP/QFN	Multiple 8-/16-bit with PWM, capture/compare	USART, I ² C, SPI, LIN, M ² C, 13 to 33 GPIOs, USB	Four to 12	Four- to eight-channel, 8/12-bit ADC; 8-bit DAC	In-circuit serial programming, low-voltage detection, brownout reset, internal oscillator, analog comparator, voltage reference, op amp	\$1.10 to \$5.50
4- to 128-kbyte OTP/flash, 256-byte to 4-kbyte SRAM, 128-byte to 1-kbyte EEPROM			18 to 84 DIP/SOIC/PLCC/TQFP/SDIP/QFN	Two 10-bit PWM, three 8-/16-bit watchdog, start-up, power-up	Up to two UARTs, three-wire SPI, I ² C, M ² C, 23 to 68 GPIOs, CAN	As many as 22 external, two UART on address bit	10-bit, support during sleep	In-circuit serial programming, low-voltage detection, brownout reset	\$1.60 to \$6.50
768- to 3584-byte OTP/flash, 25- to 128-byte SRAM, 16- to 128-byte EEPROM			18 to 20 CERDIP/SSOP/SOIC	One 8-bit timer, watchdog	2.0B			310- to 440-MHz RF transmitter in-circuit serial programming, low-voltage detection, brownout reset, 25-mA source/sink per I/O	\$1.94 to \$2.09
4- to 60-kbyte flash, OTP, EPROM, mask, 192-byte to 2-kbyte SRAM			32 to 144 PQFP, 32 to 64 SDIP	One to four 8-bit, zero to two 16-bit, zero to two PWMs, watchdog	UART, one or two SIOs, I ² C, CAN, USB, 29 to 72 GPIOs	As many as nine external	Up-to-13-channel, 10-bit, DAC	LCD, key-on wake-up	\$1 to \$10
1.2- to 32-kbyte OTP, 64- to 920-byte SRAM			SDIP, SOIC, CLCC/PLCC, DIP, CDIP, QFP, LQFP	16-bit two IC, two OC, MFT, 16-bit one IC OC, 16-bit four IC, four OC, RTI, 16-bit one IC, one OC, 8-bit one IC, 16-bit event, timebase, 8-bit, IR timer	SCI, I ² C, MBUS (DDC 1/2 B), SCI SPI, USB, SIOP, SCI CAN, CAN	Two plus one/peripheral	8-bit		70 cents to \$18
1- to 64-kbyte flash, 64- to 920-byte SRAM			SDIP, SOIC, CLCC, PLCC, DIP, CDIP, QFP, LQFP	16-bit two IC, two OC, MFT, 16-bit one IC OC, 16-bit four IC, four OC, RTI, 16-bit one IC, one OC, 8-bit one IC, 16-bit event, timebase, 8-bit, IR timer	SCI, I ² C, MBUS (DDC 1/2 B), SCI SPI, USB, SIOP, SCI CAN, CAN	Two plus one/peripheral	8- or 10-bit	Monitor mode, PWMs on timer, temperature sensor, comparator, high current drive	\$1 to \$10
4- to 32-kbyte OTP, 192-byte to 1-kbyte SRAM			DIP, CDIP/PDIP, CLCC/PLCC, QFP, LQFP	As many as four 16-bit, three/four IC, four/five OC, RTI, pulse accumulator	SCI, SPI, 38 PIOs	18	8-bit		\$2 to \$15
1.5- to 4-kbyte flash, 128-byte RAM			8 to 16 PDIP/SOIC, 16 TSSOP	Two-channel, 16-bit timer with IC, OC, or PWM	Up to 14 PIOs	IRQ, KBI, timer IC	Four-channel, 8-bit	Trimable internal oscillator; system protection from selectable trip-point low-voltage inhibit	70 cents
8- to 60-kbyte, ROM, flash, and OTP versions			QFP	8-bit, 16-bit, watchdog, real-time, PWM	UART, I ² C, three-wire, two-wire	Eight maskable	Eight-channel 8/10-bit	Optional LCD versions	\$2 to \$5
2- to 24-kbyte, ROM, flash, and E2 versions			SSOP, LQFP	8-bit, 16-bit, watchdog, real-time, PWM	UART, I ² C, three-wire	Eight maskable	Four to eight 8/10-bit	Optional LCD versions	\$1.50 to \$4

8-BIT MICROPROCESSORS (CONTINUED)

Company name	Device family or device	CPU frequency	Bus interface (address/data) (bits)	Instruction width (bits)	Operating voltages (V)	Typical power at maximum frequency	Power-down modes	DSP/multiplication hardware support (bits)	FPU	Caching
	Kx1	2 to 10 MHz	8	8	2.7 to 5.5	5 to 10 mA (5V)	Halt, stop	16×16 multiply, 32×16 divide		
Philips Semiconductors www.philips.semiconductors.com Enter No. 474	80C51 family	12 to 33 MHz	16/8	8	2.7 to 5.5	50 to 200 mW	Idle, power-down			
	89LPC900 family	12 MHz	16/8, no external	8	2.4 to 3.6	25 mW	Idle/power-down			
	80C51MX family	24 MHz	23/8	8	2.7 to 5.5	100 to 200 mW	Idle, power-down			
Rabbit Semiconductor www.rabbitsemiconductor.com Enter No. 475	Rabbit 2000	30 MHz	20/8	8, 16	2.5 to 5	120 mA (5V)	Sleepy: 60 μA (2.5V)	16×16		
	Rabbit 3000	54 MHz	20/8	8/16	1.8 to 3.6	108 mA (3.3V)	Sleepy: 23 uA, ultra sleepy: 2 μA (1.8V)	16×16		
Sharp Microelectronics of the Americas www.sharpsma.com Enter No. 476	LZ87010	40 MHz	16/8	8, 16, 24	3.0 to 3.6	100 mW	Idle 1.2 mA, stop: 5 μA	8×8		
Silicon Storage Technology www.sst.com Enter No. 477	FlashFlex-51	12, 33, or 40 MHz	16/8	8	2.7 to 5.5	25 mA	Idle, standby, power-down	8×8		
STMicroelectronics www.st.com Enter No. 478	ST6	8 MHz		8 to 24	3 to 6	3.3 mA	Wait: 350 μA, stop: 0.1 μA			
	ST72254	As much as 8 MHz			3.2 to 5.5	5.6 mA	Halt: 10 μA (less than 85°C)/ 150 μA (less than 125°C)	Yes		
	ST72260 ST72262 ST72264	As much as 8 MHz			2.4 to 5.5	6.2 mA	Halt, active-halt, wait, slow	Yes		
	ST72321J ST72324JK	As much as 8 MHz				6.5 mA	Halt: 10 μA (less than 85°C)/ 50 μA (less than 125°C)	Yes		
	ST72334 ST72314 ST72124	8 MHz			3.2 to 5.5	7.4 mA	Halt, active-halt, wait, slow	Yes		
	ST72521				2.7 to 5.5	6.2 mA		Yes		
	ST7261 ST7262 ST7263B	1, 2, 4, or 8 MHz		8 to 32	3 to 5.5	12 mA	Slow, wait, halt	Yes		
	ST7265	3, 6, or 8 MHz		8 to 32	2.4 to 5.5	14 mA	Wait, halt	Yes		

Memory	Memory controller	MMU	Package selection	Timers	Serial, parallel I/O	Interrupts	ADC/DAC	Additional features	Price (10,000)
8- to 60-kbyte, ROM, flash versions			SSOP, QFP	8-bit, 16-bit, watchdog, real-time, PWM	UART, LIN bus	Six to eight external	Eight-channel, 10-bit	Fail-safe clock, external device reset	\$2.50 to \$4.50
2- to 64-kbyte OTP/flash, 128- to 8-kbyte SRAM			14 to 80 TSSOP/SO/DIP/PLCC/LQFP	Two to four 16-bit, five capture/compare/PWM	UART, one or two I ² C, PIO	As many as 15 sources, four levels, six external	Up to eight-channel, 8- or 10-bit ADC; two-channel, 8-bit DAC	In-system programming, comparators, brownout detection, power-on reset	\$1 to \$9
1- to 8-kbyte flash, 256- to 768-byte SRAM, 64- to 512-byte EEPROM			14 to 28 TSSOP/PLCC/DIP	Three 16-bit, two PWM, 24-bit RTC, four capture/compare/PWM	UART, I ² C, SPI, PIO	15 sources, four levels, three external	8- and 10-bit in development	In-system programming, comparators, brownout detection, power-on reset	80 cents to \$2.50
32- to 96-kbyte OTP/flash, 1- to 3-kbyte SRAM			44 PLCC/LQFP	Three 16-bit, two PWM, five capture/compare/PWM	Two UART, I ² C, SPI, PIO	13 sources, four levels, two external		In-system programming, 8-Mbyte addressing, 24-bit pointers	\$3 to \$4
External flash and ROMs, external SRAM	Three chip selects, two out/write enables, as many as six devices	Yes	100 PQFP	Five 8-bit, 10-bit with two match registers, real-time, watchdog	Four asynchronous, two synchronous with SPI, 40 PIOs	Four external		Slave port, bootstrap mode, spread-spectrum circuitry for low EMI	\$7.50
External flash and ROMs, external SRAM	Three chip selects, two out/write enables, as many as six devices	Yes	128 LQFP, 128 TFBGA	10 8-bit, 10-bit with two match registers, real-time, PWM, watchdog	Six asynchronous, IrDA, four synchronous, SPI, two with HDLC/SDLC, 56 PIOs	Four to eight external		Slave port, bootstrap mode, quadrature decoder, pulse capture, auxiliary I/O bus, spread-spectrum circuitry for low EMI	\$8.75
64-kbyte flash, 4-kbyte + 256-byte SRAM	External bus interface (SRAM/EPROM/flash)		100 LQFP	Six 16-bit capture/compare/PWM, watchdog	Two full-duplex UART, I ² C, 56 PIOs	15	Eight 12-bit, 500k-sample/sec ADCs, two 8-bit DACs with 5- μ sec conversion rate	In-system programming, two-clock machine cycle, on-chip debug/trace	\$12
20-, 36-, 40-, 72-kbyte flash, 256-byte to 1-kbyte RAM			40 PDIP, 44 PLCC, 44 TQFP	Three 16-bit, watchdog	Full-duplex UART, enhanced version, SPI bus	Six to eight (two to four levels)		In-application programming, PCA, BOD	\$1.53 to \$4.40
1- to 8-kbyte OTP, ROM, up to 128-byte EEPROM, up to 320-byte of SRAM			DIP, SDIP, SO, SSOP, QFP	8-bit, 16-bit, 8-bit autoreload, watchdog	UART, SPI	Six-level fixed stack for calls or interrupts	Up to 21-channel, 8-bit	Low-voltage detector	80 cents to \$3
4- or 8-kbyte ROM or flash, 256-byte RAM			28 SO, 32 SDIPs	Two 16-bit, PWM, watchdog	SPI, I ² C	Seven internal, 22 external	Six-channel, 8-bit		\$1.93 to \$2.31
4- or 8-kbyte ROM or flash, 256-byte RAM			28 SO, 32 SDIPs	Two 16-bit, PWM, watchdog	SPI, I ² C	10 internal, 22 external	Six-channel, 10-bit	In-application flash programming	\$1.52 to \$1.87
8- to 60-kbyte ROM or high density flash, 384-byte to 2-kbyte RAM			32/44 TQFP, 32/42 SDIP	Two 16-bit, PWM, 8-bit autoreload, watchdog	SPI, I ² C	10 internal, nine/six external	12-channel, 10-bit	In-application flash programming	\$2.28 to \$3.49
ROM, flash, EEPROM, ROM 384- or 512-byte RAM			44/64 TQFP44, 42/56 SDIP	Two 16-bit, PWM, watchdog	SPI, SCI	10 internal, 15 external	Up-to-eight-channel, 8-bit	Enhanced reset, external clock	\$2.53 to \$3.22
32- to 60-kbyte flash/ROM, read-out protection, 1- to 2-kbyte RAM			64/80 TQFP	Two 16-bit, PWM, 8-bit autoreload, watchdog	SPI, SCI, I ² C, CAN	14 internal, 15 external, TLI	16-channel, 10-bit	CAN, in-application flash programming	\$3.95
4- to 16-kbyte flash, EEPROM, OTP and ROM, 256- to 768-byte SRAM			PDIP, SO, TQFP, CSDIP	16-bit, 8-bit autoreload, 8-bit timebase unit, PWM, watchdog	SCI, SPI, I ² C, USB (low speed) 11 to 31 PIOs	12 external	Eight-channel, 8/10-bit	Low-speed USB, in-application programming	\$1.51 to \$2.96
16- or 32-kbyte, 1- to 5-kbyte SRAM			64 TQFP	16-bit with compare, 6-bit PWM, 4-bit rate multiplier, watchdog	I ² C, USB (full speed), 47 PIOs	16 external	Two-channel, 8-bit	Full-speed USB, in-circuit programming	NA

Company name	Device family or device	CPU frequency	Bus interface (address/data) (bits)	Instruction width (bits)	Operating voltages (V)	Typical power at maximum frequency	Power-down modes	DSP/multiplication hardware support (bits)	FPU	Caching
	ST7Lite family	As much as 8 MHz			2.4 to 5.5	4 mA	Halt, active-halt, wait, slow	Yes		
	ST92F150 ST92F124	24 MHz	External: 22/8	8 to 48	4.5 to 5.5	45 mA	Slow: 2.5 mA/MHz, halt/stop: 10 μ A	8 \times 8		
Toshiba America Electronic Components www.toshiba.com Enter No. 479	TLCS-870/C	32 kHz to 16 MHz	16/8	8 to 40	1.8 to 5.5	7.5 mA	Idle: 5.5 mA, slow: 14 μ A, sleep: 6 μ A, stop: 0.5 μ A	Yes		
	TLCS-870/X	32 kHz to 16 MHz	20/8	8 to 48	2.7 to 5.5	20 mA	Idle: 10 mA, stop: 0.5 μ A	Yes		
	TLCS870	32 kHz to 8 MHz	16/8	8 to 32	1.8 to 6	8 mA	Idle: 4 mA, slow: 30 μ A, sleep: 15 μ A, stop: 0.5 μ A	Yes		
Triscend www.triscend.com Enter No. 480	E5 configurable family	As much as 40 MHz	32/8	8	3.3/5 tolerant		Selective function disable, full power-down: less than 50 μ A	8 \times 8		
Ubicom www.ubicom.com Enter No. 481	IP2022	100 MHz	8, external: 8 or 16	16	2.5/2.5 or 3.3, 5 tolerant	130 mA	Yes	One-cycle 8 \times 8 signed/unsigned instructions		
Xemics SA www.xemics.com Enter No. 482	XE88LC03 LC06	MHz (MTP)7 2 MHz (LC06 ROM)	16/8	22	2.4 to 5.5 (MTP) 1.2 to 5.5 (ROM)	0.3 mA/MHz, not supply voltage dependent	Sleep, hibernate selective function disable	8 \times 8 single-cycle instruction		Three-instruction pipeline
	XE88LC01 LC02 LC05	MHz (MTP)7 2 MHz (LC02 ROM)	16/8	22	2.4 to 5.5 (MTP) 1.2 to 5.5 (ROM)	0.3 mA/MHz, not supply-voltage dependent	Sleep, hibernate selective-function disable	8 \times 8 single-cycle instruction		Three-instruction pipeline
Zilog www.zilog.com Enter No. 483	eZ80L92 (Webserver-i)	20 or 50 MHz	24/8	24	3.3/5 tolerant	40 mA	Sleep, halt			
	eZ80I90 (Webserver)	50 MHz	24/8	24	3.3/5 tolerant	50 mA		16 \times 16 plus 40 MAC		
	eZ80 Webserver-i Ethernet Module	48 MHz	24/8	24	3.3/5 tolerant	125 mA	Sleep, halt			
	Z8 Encore! (new)	20 MHz	16/8	16	2.7 to 3.6; 5-tolerant I/O's	15 mA	Sleep, halt	16 \times 16 multiply, 32 \times 16 divide		
	Z8	16 MHz	16/8	16	3 to 5.5	20 mA	Stop: 10 μ A	16 \times 16 multiply, 32 \times 16 divide		
	Z86L81/86/98	8 MHz	8	8	2 to 3.6	Less than 10 mA	Stop, halt			
	Z86L82/85/88	8 MHz	8	8	2 to 3.6	Less than 10 mA	Stop, halt			
	Z86L87/89/73	8 MHz	8	8	2 to 3.6	Less than 10 mA	Stop, halt			
	Z86L825/826/827	8 MHz	8	8	2 to 3.6	Less than 10 mA	Stop, halt			

Memory	Memory controller	MMU	Package selection	Timers	Serial, parallel I/O	Interrupts	ADC/DAC	Additional features	Price (10,000)
1.5- or 8-kbyte (>)flash, 128- or 256-byte EEPROM, 128- to 384-byte SRAM			16/20 SO, 16/20 DIP	One 8-bit, watchdog, real-time, input capture, 12-bit autoreload, one to four PWM	SPI	10 internal, four external	Five/seven-channel, 8/10-bit	DALI communication interface	95 cents to \$1.05
60- to 128-kbyte flash, 2- to 6-kbyte SRAM		Yes	100 PQFP, 64/100 TQFP	Two 16-bit, two extended, watchdog,	Two CAN, J1850, two UART, I ² C, SPI	128 vectors, 23 external, seven priorities, NMI	16-channel, 10-bit	2X CAN, J1850	\$4.90 to \$6.50
4- to 60-kbyte ROM, up to 2-kbyte SRAM			SDIP, QFP, LQFP, SSOP, SOP	As many as four 8-bit, as many as two 16-bit, one 18-bit timers, watchdog	Up to two UART, synchronous SIO, up to three I ² C, up to one CAN, up to eight PWMs	15 vectors	Up-to-16-channel 10-bit ADC, up to eight-channel 8-bit ADC, up to one 8-bit DAC	LED, LCD, VFT drivers, dual clock, clock gear, brushless motor control	90 cents to \$5
16- to 96-kbyte ROM, up to 3-kbyte SRAM	Yes		SDIP, QFP, LQFP, SOP	As many as four 8-bit, as many as three 16-bit timers, watchdog	Up to one UART, up to two synchronous SIOs, up to two I ² C, up to 10 PWM	63 vectors	Up to 16-channel 10-bit ADC, up to 12-channel 8-bit ADC	LED, LCD, VFT drivers, dual clock, clock gear, brushless motor control	\$2 to \$5
4- to 60-kbyte ROM, up to 2-kbyte SRAM, up to 16-kbyte EEPROM program, up to 512-byte EEPROM data			SDIP, QFP, LQFP, SSOP, SOP	As many as four 8-bit, one or two 16-bit, up to one 18-bit timers, watchdog	Up to one UART, up to three synchronous SIO, up to two I ² C, up to one high-speed SIO	15 vectors	Up to 16-channel 8-/10-bit ADC, up to six AD comparator in, puts up to eight DACs	LED, LCD, VFT drivers, dual clock, clock gear, on-screen display, remote-control pulse detector	75 cents to \$3.25
Up to 64-kbyte RAM	External 8-bit such as flash		128/208 QFP, 484BGA	Three 16-bit, 32-bit watchdog, can add timers	UART, can add (UART, SPI, I ² C, HDLC), 56 to 228 PIO	12, can add more		As many as 30,000 on-chip programmable-logic gates, as many as 120 user-definable I/O pins	\$4.80 to \$18.75
64-kbyte flash (program or data), 16-kbyte + 4-kbyte SRAM			80 PQFP, 100 μBGA	Two 160-bit MFTs (PWM, cap/comparator, prescale), 8-bit prescale, real time,	Two full-duplex Ethernet, watchdog USB, GPSI, SPI, UART, more via software, 52 GPIO	15	Eight-channel, 10-bit		\$13.30
22-kbyte MTP, 512-byte SRAM			32 TQFP	Four 8-bits up-down, PWM, real time, Xtal	115-kbps UART, 24 PIOs	As many as 24, 16 events	Four comparators	Prescaler with 1- and 128-Hz interrupt	\$3
22-kbyte MTP, 512- to 1024-byte SRAM			44/64/80/100 LQFP, 44 LPLL	Four 8-bits, up-down, PWM, real time, Xtal	115-kbps UART, SPI, up to 60 PIO	As many as 24, 16 events	13-channel 16+10-bit zooming ADC, 16-bit DAC	Prescaler with 1- and 128-Hz interrupt	\$5 to \$10
8-kbyte RAM	External flash		100 LQFP	Six PRTs	Two UART, 24 PIOs	32		Ethernet and PPP driver support.	\$4.39 to \$5.56
	Two DMA, external flash		100 LQFP	Six PRTs	Two UART, 32 PIO	32		SSL, Ethernet and PPP driver support.	\$7.49 to \$8.24
1-Mbyte flash, 512-kbyte RAM	External flash		Two 50-pin system expansion interface	Six PRTs	Two UART, 24 PIO	32		Ethernet and PPP driver support, IrDA transceiver, RJ45 Connector	\$52.80 (5000)
Up to 64-kbyte flash or ROM, 4-kbyte SRAM	Three-channel DMA		18/28/40 DIP, 28 SOIC, 20 SSOP, 44 PLCC/LQFP, 64 LQFP, 68 PLCC, 80 QFP	Four 16-bit with PWM, capture and compare	Up to two 9-bit UARTS, I ² C, SPI	24	Up to 12-channel, 10-bit ADC (sigma/delta)	On-chip debugger, one-pin in-circuit programming, DMA, voltage brownout, power-on reset	\$2.01 to \$5.60
OTP, EPROM, 236-byte SRAM			18/28/40 DIP, 18/28 SOIC, 20 SSOP, 44 PLCC/QFP	Two or three 8-bit with 6-bit prescaler, watchdog	One UART, 32 PIOs	Six	Eight-channel 8-bit ADC	In-circuit programming, POR, brownout reset	68 cents to \$8.25
OTP, 24/32/64 K ROM, 237-byte RAM			28 DIP, 28 SOIC, 28 SSOP	One 8-bit, one 16-bit, watchdog, POR	23 I/O	Six		Low-voltage detection, two independent comparators	\$1.92 to \$2.54
OTP, 4/8/16 K ROM, 237-byte RAM			28 DIP, 28 SOIC, 28 SSOP	One 8-bit, one 16-bit, watchdog, POR	23 I/O	Five		Low-voltage detection, two independent comparators	\$1.25 to \$1.33
OTP, 16/24/32 K ROM, 236-byte RAM			40 DIP, 44 PLCC, 44 QFP	One 8-bit, one 16-bit, watchdog, POR	31 I/O	Six		Low-voltage detection, two independent comparators	\$2.42 to \$3.20
4/8/16 K ROM, 237-byte RAM			20 DIP, 20 SOIC	One 8-bit, one 16-bit, watchdog, POR	16 I/O	Six		Low-voltage detection, two independent comparators	\$1.22 to \$1.29