

2008 EDN Microcontroller/Microprocessor Directory

8-bit microprocessors sorted by company

| Company name | Device name or family | Instruction set architecture | CPU frequency (MHz) | Bus interface (address/data) (bits) | Instruction width (bits) | Core / I/O operating voltages (V) | Typical power at maximum frequency | Powerdown modes and minimum power | DSP/multiplication hardware support (bits) | FPU | Caching |
|---|---|----------------------------------|---------------------|-------------------------------------|--------------------------|-----------------------------------|------------------------------------|-----------------------------------|--|-----|---------|
| Actel Corporation www.actel.com | Core8051 | 8051 (one clock per instruction) | 40 | 16/8 | 16 | 1.5 / 1.5, 1.8, 2.5, 3.3 | FPGA dependent (core) | Idle, stop | 8x8 | | |
| Altium www.altium.com | TSK165A (Standard software) | PIC16C5X | Over 50 | 3/8 | 12 | 1.5, 1.8, 2.5, 3.3, 5 | Device-dependent | Powerup, Powerdown | | | |
| Altium www.altium.com | TSK165A_D (JTAG enabled software) | PIC16C5X | Over 50 | 3/8 | 12 | 1.5, 1.8, 2.5, 3.3, 5 | Device-dependent | Powerup, Powerdown | | | |
| Altium www.altium.com | TSK165B (Standard software) | PIC16C5X | Over 50 | 3/8 | 12 | 1.5, 1.8, 2.5, 3.3, 5 | Device-dependent | Powerup, Powerdown | | | |
| Altium www.altium.com | TSK165B_D (JTAG enabled software) | PIC16C5X | Over 50 | 3/8 | 12 | 1.5, 1.8, 2.5, 3.3, 5 | Device-dependent | Powerup, Powerdown | | | |
| Altium www.altium.com | TSK165C (Standard software) | PIC16C5X | Over 50 | 6/8 | 12 | 1.5, 1.8, 2.5, 3.3, 5 | Device-dependent | Powerup, Powerdown | | | |
| Altium www.altium.com | TSK165C_D (JTAG enabled software) | PIC16C5X | Over 50 | 6/8 | 12 | 1.5, 1.8, 2.5, 3.3, 5 | Device-dependent | Powerup, Powerdown | | | |
| Altium www.altium.com | TSK51A (Standard software) | 80C31 | Over 50 | 16/8 | 8 | 1.5, 1.8, 2.5, 3.3, 5 | Device-dependent | | 8x8 | | |
| Altium www.altium.com | TSK51A_D (JTAG enabled software) | 80C31 | Over 50 | 16/8 | 8 | 1.5, 1.8, 2.5, 3.3, 5 | Device-dependent | | 8x8 | | |
| Altium www.altium.com | TSK52A (Standard software) | ASM51 | Over 50 | 16/8 | 8 | 1.5, 1.8, 2.5, 3.3, 5 | Device-dependent | | 8x8 | | |
| Altium www.altium.com | TSK52A_D (JTAG enabled software) | ASM51 | Over 50 | 16/8 | 8 | 1.5, 1.8, 2.5, 3.3, 5 | Device-dependent | | 8x8 | | |
| Altium www.altium.com | TSK52B_W (Wishbone compliant software) | ASM51 | Over 50 | 16/8 | 8 | 1.5, 1.8, 2.5, 3.3, 5 | Device-dependent | | 8x8 | | |

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| Memory | DMA / memory controller | MMU | Package selection | Timers / PWM | Serial, Parallel I/O | Interrupts | ADC; DAC | Temperature ranges (degrees Celsius) | Additional features | Price (\$/10,000) |
|--|-------------------------|-----|-------------------|--------------------------|---|--------------------------|---|--------------------------------------|---|---------------------|
| Up to 64-kbyte program and 64-kbyte data | | | IP core | Four 8-bit or two 16-bit | Four 8-bit ports, full-duplex UART | 13, four priority levels | Can be used with 12-bit ADC on Fusion FPGAs | -40 to +125 | OCI debug interface, FS2 debugger, reprogrammable or radiation tolerant block | Free in Actel FPGAs |
| Up to 512-byte program and 2-kbyte data | SRAM, SDRAM | | IP core | Watchdog | CAN/RS232, EMAC, I ² C, LCD, Serial Flash, Configurable IO Port, PS2, SPI, RS-232, SPI, VGA, BT656 Analog Video, External Timer, Ethernet, DMA, JTAG | | | N/A (Core) | Over 59 available peripherals | |
| Up to 512-byte program and 2-kbyte data | SRAM, SDRAM | | IP core | Watchdog | CAN/RS232, EMAC, I ² C, LCD, Serial Flash, Configurable IO Port, PS2, SPI, RS-232, SPI, VGA, BT656 Analog Video, External Timer, Ethernet, DMA, JTAG | | | N/A (Core) | JTAG enabled on-chip debug interface, over 59 available peripherals | |
| Up to 512-byte program and 2-kbyte data | SRAM, SDRAM | | IP core | Watchdog | CAN/RS232, EMAC, I ² C, LCD, Serial Flash, Configurable IO Port, PS2, SPI, RS-232, SPI, VGA, BT656 Analog Video, External Timer, Ethernet, DMA, JTAG | | | N/A (Core) | Over 59 available peripherals | |
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| Up to 512-byte program and 2-kbyte data | SRAM, SDRAM | | IP core | Watchdog | CAN/RS232, EMAC, I ² C, LCD, Serial Flash, Configurable IO Port, PS2, SPI, RS-232, SPI, VGA, BT656 Analog Video, External Timer, Ethernet, DMA, JTAG | | | N/A (Core) | Over 59 available peripherals | |
| Up to 512-byte program and 2-kbyte data | SRAM, SDRAM | | IP core | Watchdog | CAN/RS232, EMAC, I ² C, LCD, Serial Flash, Configurable IO Port, PS2, SPI, RS-232, SPI, VGA, BT656 Analog Video, External Timer, Ethernet, DMA, JTAG | | | N/A (Core) | JTAG enabled on-chip debug interface, over 59 available peripherals | |
| Up to 64-kbyte program and 256-kbyte data internal, 64-kbyte data external | SRAM, SDRAM | | IP core | 16-bit configurable | CAN/RS232, EMAC, I ² C, LCD, Serial Flash, Configurable IO Port, PS2, SPI, RS-232, SPI, VGA, BT656 Analog Video, External Timer, Ethernet, DMA, JTAG | | | N/A (Core) | Over 59 available peripherals | |
| Up to 64-kbyte program and 256-kbyte data internal, 64-kbyte data external | SRAM, SDRAM | | IP core | 16-bit configurable | CAN/RS232, EMAC, I ² C, LCD, Serial Flash, Configurable IO Port, PS2, SPI, RS-232, SPI, VGA, BT656 Analog Video, External Timer, Ethernet, DMA, JTAG | | | N/A (Core) | JTAG enabled on-chip debug interface, over 59 available peripherals | |
| Up to 64-kbyte program and 64-kbyte data | SRAM, SDRAM | | IP core | | CAN/RS232, EMAC, I ² C, LCD, Serial Flash, Configurable IO Port, PS2, SPI, RS-232, SPI, VGA, BT656 Analog Video, External Timer, Ethernet, DMA, JTAG | 7 external | | N/A (Core) | Over 59 available peripherals | |
| Up to 64-kbyte program and 64-kbyte data | SRAM, SDRAM | | IP core | | CAN/RS232, EMAC, I ² C, LCD, Serial Flash, Configurable IO Port, PS2, SPI, RS-232, SPI, VGA, BT656 Analog Video, External Timer, Ethernet, DMA, JTAG | 7 external | | N/A (Core) | JTAG enabled on-chip debug interface, over 59 available peripherals | |
| Up to 64-kbyte program and 64-kbyte data | SRAM, SDRAM | | IP core | | CAN/RS232, EMAC, I ² C, LCD, Serial Flash, Configurable IO Port, PS2, SPI, RS-232, SPI, VGA, BT656 Analog Video, External Timer, Ethernet, DMA, JTAG | 7 external | | N/A (Core) | Wishbone interface, over 59 available peripherals | |

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|--|--|------------------------------|---------------------|--------------------------------------|--------------------------|-----------------------------------|------------------------------------|-----------------------------------|--|-----|---------|
| Altium www.altium.com | TSK52B_VD (Wishbone compliant software) | ASM51 | Over 50 | 16/8 | 8 | 1.5, 1.8, 2.5, 3.3, 5 | Device-dependent | | 8x8 | | |
| Altium www.altium.com | TSK80A (Standard software) | Z80CPU | Over 40 | 16/8 | 8 | 1.5, 1.8, 2.5, 3.3, 5 | Device-dependent | Idle, stop | 8 ALU, 16 Arithmetic | | |
| Altium www.altium.com | TSK80A_D (JTAG enabled software) | Z80CPU | Over 40 | 16/8 | 8 | 1.5, 1.8, 2.5, 3.3, 5 | Device-dependent | Idle, stop | 8 ALU, 16 Arithmetic | | |
| Analog Devices www.analog.com | ADuC812 | 8051 | 16 | external: 16/8 code, 24/8 data | 8 | 3/5 | 48 mW (3V) | 15 mW | | | |
| Analog Devices www.analog.com | ADuC814 | 8051 | 131 kHz to 16.78 | external: 16/8 code, 24/8 data | 8 | 3/5 | 36 mW (3V) | 33 to 45 mW | | | |
| Analog Devices www.analog.com | ADuC816 ADuC824 | 8051 | 98.3 kHz to 12.58 | external: 16/8 code, 24/8 data | 8 | 3/5 | 25 mW (3V) | 18 to 60 mW | | | |
| Analog Devices www.analog.com | ADuC831 ADuC832 | 8051 | 131 kHz to 16.78 | external: 24/8 data | 8 | 3/5 | 25 to 50 mW (3V) | 33 to 39 mW | | | |
| Analog Devices www.analog.com | ADuC836 ADuC834 | 8051 | 98.3 kHz to 12.58 | external: 16/8 code, 24/8 data | 8 | 3/5 | 25 mW (3V) | 18 to 60 mW | | | |
| Analog Devices www.analog.com | ADuC841 ADuC842 ADuC843 | 8051 | Up to 16.78 | external: 24/8 data | 8 | 3/5 | 25 to 50 mW (3V) | 33 to 39 mW | | | |
| Analog Devices www.analog.com | ADuC845 | 8051 | 98 kHz to 12.58 | external: 24/8 data | 8 | 3/5 | 2.3 mA (3.6V) | 33 to 39 mW | | | |
| Analog Devices www.analog.com | ADuC847 | 8051 | 98 kHz to 12.58 | external: 24/8 data | 8 | 3/5 | 2.3 mA (3.6V) | 33 to 39 mW | | | |
| ASIX Electronics www.asix.com.tw | AX11001 | 8051 | 100 | | 8 | 1.8/3.3 | 136 to 236 mA | Stop Mode, 0.3 mA | | | |
| ASIX Electronics www.asix.com.tw | AX11005 | 8051 | 100 | | 8 | 1.8/3.3 | 136 to 236 mA | Stop Mode, 0.3 mA | | | |
| ASIX Electronics www.asix.com.tw | AX11015 | 8051 | 100 | 21/16 | 8 | 1.8/3.3 | 138 to 236 mA | Stop Mode, 0.8 mA | | | |

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|--|-----------------------------|-----|---------------------|---|---|--------------------------------|---|--------------------------------------|---|-------------------|
| Up to 64-kbyte program and 64-kbyte data | SRAM, SDRAM | | IP core | | CAN/RS232, EMAC, I ² C, LCD, Serial Flash, Configurable IO Port, PS2, SPI, RS-232, SPI, VGA, BT656 Analog Video, External Timer, Ethernet, DMA, JTAG | 7 external | | N/A (Core) | JTAG enabled on-chip debug interface, wishbone interface, over 59 available peripherals | |
| Up to 64-kbyte program and 64-kbyte data | SRAM, SDRAM | | IP core | | CAN/RS232, EMAC, I ² C, LCD, Serial Flash, Configurable IO Port, PS2, SPI, RS-232, SPI, VGA, BT656 Analog Video, External Timer, Ethernet, DMA, JTAG | Two, Maskable and Non-Maskable | | N/A (Core) | Over 59 available peripherals | |
| Up to 64-kbyte program and 64-kbyte data | SRAM, SDRAM | | IP core | | CAN/RS232, EMAC, I ² C, LCD, Serial Flash, Configurable IO Port, PS2, SPI, RS-232, SPI, VGA, BT656 Analog Video, External Timer, Ethernet, DMA, JTAG | Two, Maskable and Non-Maskable | | N/A (Core) | JTAG enabled on-chip debug interface, over 59 available peripherals | |
| 8-kbyte Flash/EE, 640-byte 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 ports | 9 | Eight-channel, 12 bit, 200-KSPS; two 12-bit voltage output DACs | -40 to +125 | Voltage reference and temperature sensor | \$6.85 |
| 8-kbyte Flash/EE, 640-byte Flash/EE, 256-byte SRAM | | | 28 TSSOP | Three 16-bit, wake-up, real-time | UART, I ² C, SPI, 11 PIO | 11 | Six-channel, 12-bit, 5 µsec; two 12-bit DACs | -40 to +125 | Voltage reference and temperature sensor | \$3.73 |
| 8-kbyte Flash/EE, 640-byte Flash/EE, 256-byte SRAM | | | 52 PQFP, 56 CSP | Three 16-bit, wake-up, real-time | UART, I ² C, SPI, 26 PIO | 11 | Dual 24/16-bit with programmable gain, 12-bit DAC | -40 to +85 | On-chip excitation and transducer burn-out current sources | \$7.51 to \$8.86 |
| 62-kbyte Flash/EE, 4-kbyte Flash/EE, 2-kbyte + 256-byte SRAM | | | 52 PQFP, 56 CSP | Three 16-bit, wake-up, real-time, dual 16-bit PWM | UART, I ² C, SPI, four 8-bit ports | 12 | Eight-channel, 12 bit, 200-KSPS; two 12-bit voltage output DACs | -40 to +125 | Dual data pointer, 11-bit stack pointer, PLL, upgrade for ADuC812 | \$7.62 |
| 62-kbyte Flash/EE, 4-kbyte Flash/EE, 2-kbyte + 256-byte SRAM | | | 52 PQFP, 56 CSP | Three 16-bit, wake-up, real-time, dual 16-bit PWM | UART, I ² C, SPI, 26 PIO | 11 | Dual 24/16-bit with programmable gain, 12-bit DAC | -40 to +125 | Dual data pointer, 11-bit stack pointer, upgrade for ADuC824/816 | \$8.70 to \$10.16 |
| 62-kbyte Flash/EE, 4-kbyte Flash/EE, 2-kbyte + 256-byte SRAM | | | 8x8-mm CSP, 52 PQFP | Three 16-bit, wake-up, real-time, dual 16-bit PWM | UART, I ² C, SPI, four 8-bit ports | 12 | Eight-channel, 12 bit, 400-KSPS; two 12-bit, voltage-output DAC; 20-ppm reference | -40 to +125 | Single-cycle 8052 core, PLL, fast core version of ADuC831/832 | \$4.45 to \$7.95 |
| 62-kbyte Flash/EE, 4-kbyte Flash/EE, 2-kbyte + 256-byte SRAM | | | 8x8-mm CSP, 52 MQFP | Three 16-bit, wake-up, real-time, single and dual PWM | UART, SPI, I ² C | 11 | 10-channel 24-bit, dual sigma delta with PGA, 12-bit DAC | -40 to +125 | Single-cycle 8052 core, PLL | \$7.37 to \$10.10 |
| 62-kbyte Flash/EE, 4-kbyte Flash/EE, 2-kbyte + 256-byte SRAM | | | 8x8-mm CSP, 52 MQFP | Three 16-bit, wake-up, real-time, single and dual PWM | UART, SPI, I ² C | 11 | 10-channel, 24-bit, sigma-delta with PGA; 12-bit DAC | -40 to +125 | Single-cycle 8052 core, PLL | \$5.25 to \$7.95 |
| 32-kbyte SRAM, 128-kbyte Flash | 3-channel DMA | | 80 LQFP | Three 16-bit, watchdog | Three full-duplex UART, I ² C, SPI, 1-wire, 10/100 Ethernet | 13 | | 0 to +70 -40 to +85 | TCP/IP network stack with integrated Ethernet MAC/PHY, Hardwired TCP/IP Accelerator | |
| 32-kbyte SRAM, 512-kbyte Flash | 3-channel DMA | | 80 LQFP, 80 TFBGA | Three 16-bit, watchdog | Three full-duplex UART, I ² C, SPI, 1-wire, 10/100 Ethernet | 13 | | 0 to +70 -40 to +85 | TCP/IP network stack with integrated Ethernet MAC/PHY, Hardwired TCP/IP Accelerator | |
| 32-kbyte SRAM, 512-kbyte Flash | 5-channel DMA | | 128 LQFP | Three 16-bit, watchdog | Three full-duplex UART, I ² C, SPI, 1-wire, 10/100 Ethernet, Local bus, EMI, MII | 13 | | 0 to +70 -40 to +85 | TCP/IP network stack with integrated Ethernet MAC/PHY, Hardwired TCP/IP Accelerator | |

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|--|----------------------------------|------------------------------|---------------------|-------------------------------------|--------------------------|-----------------------------------|--|---|--|---------------------------|---------|
| ASIX Electronics www.asix.com.tw | AX11025 | 8051 | 100 | 21/8 | 8 | 1.8/3.3 | 138 to 236 mA | Stop Mode, 0.8 mA | | | |
| Atmel www.atmel.com | Smart Card Reader | 8051 | 16, 32 | | | 3.6 to 5.5 | | | | | |
| Atmel www.atmel.com | AVR AUTOMOTIVE | AVR | Up to 16 | 16/8 | 16 | 2.7 to 5.5 | 350 uA/MIPS | Power save with 32kHz RTC and power down. Less than 1uA | 8x8 and 16x16 (un)signed and fractional. | | |
| Atmel www.atmel.com | AVR CAN | AVR | Up to 16 | 16/8 | 16 | 2.7 to 5.5 | 1 mA/MIPS | Power save with 32kHz RTC and power down. Less than 1uA | 8x8 and 16x16 (un)signed and fractional. | | |
| Atmel www.atmel.com | AVR LCD | AVR | Up to 20 | 16/8 | 16 | 1.8 to 5.5 | 350 uA/MIPS | Power save with 32kHz RTC and power down. Less than 1uA | 8x8 and 16x16 (un)signed and fractional. | | |
| Atmel www.atmel.com | AVR PWM | AVR | Up to 16 | 16/8 | 16 | 2.7 to 5.5 | 500 uA/MIPS | Power save with 32kHz RTC and power down. Less than 1uA | 8x8 and 16x16 (un)signed and fractional. | | |
| Atmel www.atmel.com | AVR SECURE | AVR | | 16/8 | 16 | 2.7 to 5.5 | 1 to 3 mA | Less than 1 mA | 8x8 (un)signed, 16x16 signed | Two-cycle 8x8 fixed-point | |
| Atmel www.atmel.com | AVR Smart Battery | AVR | 1 to 8 | 16/8 | 16 | 1.8 to 2.5 | | Power save with 32kHz RTC, power off, power down. Less than 1uA | 8x8 and 16x16 (un)signed and fractional. | | |
| Atmel www.atmel.com | AVR USB | AVR | 1 to 24 | 16/8 | 16 | 2.7 to 5.5 | 750 uA/MIPS | Power save with 32kHz RTC and power down. Less than 1uA | 8x8 and 16x16 (un)signed and fractional. | | |
| Atmel www.atmel.com | AVR XMEGA Flash microcontrollers | AVR | Up to 32 | 16/8 | 16 | 1.6 to 3.6 | 350 uA/MIPS | Power save with 32 kHz RTC and power down. Less than 1 uA | 8x8 and 16x16 (un)signed and fractional. | | |
| Atmel www.atmel.com | MCS-51 AT89 | 8051 | 12 to 40 | 16/8 | 8 | 2.7 to 6 | 80 mW | Idle: 2 mA, powerdown: less than 1 uA | 8x8 | | |
| Atmel www.atmel.com | MCS-51 AT89LP | 8051 | Up to 25 | 16/8 | 8 | 2.0 to 5.5 | 0.27 mA/MHz (2.5V); 0.57 mA/MHz (5.0 V) | Less than 1uA | 8x8 unsigned | | |

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|---|--|-----|--|---|---|-------------------------|----------------------------------|---------------------------------------|---|-------------------|
| 32-kbyte SRAM, 512-kbyte Flash | 3-channel DMA | | 128 LQFP | Three 16-bit, watchdog | Three full-duplex UART, I ² C, SPI, 1-wire, 10/100 Ethernet, CAN, EMI, MII | 13 | | -40 to +85 | TCP/IP network stack with integrated Ethernet MAC/PHY, Hardwired TCP/IP Acceleration | |
| 16 and 32 | | | 24 SSOP, 20 TSSOP, 28/52 PLCC, 32/64 VQFP | | UART, USB, SPI, PCMCIA | | | 0 to +70 -40 to +85 | ISO7816, DC/DC converter, EMV pre-certified software | |
| 2- to 128-kbyte Flash, 128-byte to 4-kbyte EEPROM, 128-byte- to 4-kbyte SRAM | | | SOIC:8/14/20, TQFP:44/64, VQFN:32/44/64 | Up to 4 timers, 8 PWMs | CAN, LIN, SPI, USART, TWI, USI, 8-bit parallel (64-kbyte addressing) | All peripherals and I/O | 10-bit | -40 to +125 | On-Chip Debugging, In-System Programming, Self-Programming Memory, PPAP qual. | |
| 32- to 128-kbyte Flash, 1- to 4-kbyte EEPROM, 2- to 4-kbyte SRAM | | | 64 TQFP/QFN, Die | Up to 4 timers, 8 PWMs | SPI, USART, TWI, 8-bit parallel (64-kbyte addressing) CAN 2.0 A and 2.0B | All peripherals and I/O | 10-bit | -40 to +85 | On-Chip Debugging, In-System Programming, Self-Programming Memory | |
| 16- to 64-kbyte Flash, 512-byte to 2-kbyte EEPROM, 1- to 4-kbyte SRAM | | | 64 TQFP, 64 MLF, Die | Up to 3 timers, 4 PWMs | SPI, USART, TWI, USI | All peripherals and I/O | 10-bit | -40 to +85 | On-Chip Debugging, In-System Programming, Self-Programming Memory | \$2.50 to \$4 |
| 8-kbyte Flash, 512-byte EEPROM, 512-byte SRAM | | | 24/32 SO, 32 QFN, Die | Up to 2 timers, 10 PWMs | SPI, USART, TWI, DALI | All peripherals and I/O | 10-bit | -40 to +85 | On-Chip Debugging, Power Factor Correction, In-System Programming, Self-Programming Memory | |
| 8- to 64-kbyte Flash, 32- to 256-kbyte MaskROM, 4- to 72-kbyte EEPROM, 1.5- to 6-kbyte SRAM | | | 44 LQFP, Die, Module | Two 16-bit | TWI | 27, eight external | | -40 to +85 | 16-bit coprocessor, ISO 7816 external interface, common criteria EAL4+ | From \$2 |
| 8- to 40-kbyte Flash, 256- to 512-byte EEPROM, 512-byte to 2-kbyte SRAM | | | TSOP28, LGA36, LQFP48, Die | Two timers, 1 PWM | TWI, Smbus | All peripherals and I/O | 10-bit, 16-bit Sigma Delta ADC | -40 to +85 | 1-4 Li-Ion battery cells, Smart Battery management, On-Chip Debugging, In-System Programming | |
| 64- to 128-kbyte Flash, 2- to 8-kbyte EEPROM, 4-kbyte SRAM or 16- to 24-kbyte MaskROM, 16- to 24-kbyte EEPROM, 512-byte to 1-kbyte SRAM | | | 64 TQFP/QFN, 48/64/100 LQFP, | Up to 4 timers, 8 PWMs | SPI, USART, TWI, USB (Full speed, low speed, 2.0, OTG) | All peripherals and I/O | 10-bit | -40 to +85 | On-Chip Debugging, In-System Programming, Self-Programming Memory, Two- to four-hub port, three to six function endpoints | \$1.50 to \$7 |
| 16- to 384-kbyte Flash, 1- to 4-kbyte EEPROM, 4- to 32-kbyte SRAM | 4-channel DMA and 8-channel Event System | | TQFP:100/64/44 QFN:64/44 CBGA:100 | Eight, 24 PWM | SPI, USART, TWI, | All peripherals and I/O | 12-bit ADC and DAC, up to 2 Msps | -40 to +85 | On-Chip Debugging, AES/Des Crypto engine, Multilevel Interrupts, Dynamic Clock Gating, picoPower technology | |
| 1- to 64-kbyte Flash, 2-kbyte EEPROM, 128 to 2048-byte SRAM | | | 44 TQFP, 64/80 VQFP, 44/52 PLCC, 20/28 SOIC, 24/16 SSOP, 20/24/40 PDIP | One to three 16-bit | SPI, full-duplex UART, CAN, USB | Nine, four levels | Eight-channel, 10 bit | 0 to +70 -40 to +85 -40 to +125 | MP3, In-system-programmable Flash, three-level lock bit security, smart-card reader interface | 50 cents to \$4 |
| 2- to 256-Kbyte Code Flash, 512-byte to 4-Kbyte Flash Data, 256-byte to 2-Kbyte SRAM | | | 14/16/20/40 DIP, 14/16/20 SOIC, 14/16/20/28/32 TSSOP, 28/32/44 TQFP | Three, Compare/Capture Array, 2 PWM, watchdog | UART, enhanced SPI, TWI | Nine, four levels | Eight-channel, 10 bit | 0 to +70 -40 to +85 | On-Chip Debug, RC Oscillator, In-Application Programming | 70 cents to \$4 |

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|--|---|------------------------------|---------------------|-------------------------------------|--------------------------|-----------------------------------|------------------------------------|--|--|---|---------|
| Atmel www.atmel.com | MCU Wireless Solutions | AVR | MCU dependent | 32/16/8 | 32/16/8 | 1.6 to 5.5 | MCU dependent | MCU dependent | MCU dependent | | |
| Atmel www.atmel.com | megaAVR Flash microcontrollers | AVR | Up to 20 | 16/8 | 16 | 1.8 to 5.5 | 350 uA/MIPS | Power save with 32kHz RTC and power down. Less than 1 uA | 8x8 and 16x16 (un)signed and fractional. | | |
| Atmel www.atmel.com | tinyAVR Flash microcontrollers | AVR | Up to 20 | 16/8 | 16 | 1.8 to 5.5 | 300 uA/MIPS | Power save with 32kHz RTC and power down. Less than 1uA | 8x8 and 16x16 (un)signed and fractional. | | |
| CAST www.cast-inc.com | R8051XC | 8051 | 100 to 250 | external: 16/8 | 8 | | 0.96 mW/MHz | Idle = 60% reduction Sleep = 99% reduction | 8-bit ALU; optional 16-bit multiply/divide | | |
| Cybernetic Micro Systems www.controlchips.com | P-51 | 8051 | 51 | 16/8 (8051), 20/8 (EISA) | 8, 16 | 3.3/5 tolerant | 150 mW | | 8x8 | Single-cycle square root: 8-bit root of 16-bit number | |
| Cypress Semiconductor www.cypress.com | CY8C21123 CY8C21223 CY8C21323 | M8C | 24 | 16/8 | 8, 16, 24 | 2.4 to 5.25 | 3 mA | Sleep Mode 8 uW | | | |
| Cypress Semiconductor www.cypress.com | CY8C23433 CY8C23533 | M8C | 24 | 16/8 | 8, 16, 24 | 3 to 5.25 | 5 mA | Sleep Mode 13 uW | 8x8 multiply, 32-bit accumulate, decimator | | |
| Cypress Semiconductor www.cypress.com | CY8C24123A CY8C24223A CY8C24423A | M8C | 24 | 16/8 | 8, 16, 24 | 2.4 to 5.25 | 5 mA | Sleep Mode 13 uW | 8x8 multiply, 32-bit accumulate, decimator | | |
| Cypress Semiconductor www.cypress.com | CY8C24794 CY8C24894 CY8C24994 | M8C | 24 | 16/8 | 8, 16, 24 | 3 to 5.25 | 14 mA | Sleep Mode 11 uW | Two 8x8 multiply, 32 bit accumulate, decimator | | |
| Cypress Semiconductor www.cypress.com | CY8C27143 CY8C27243 CY8C27443 CY8C27543 CY8C27643 | M8C | 24 | 16/8 | 8, 16, 24 | 3 to 5.25 | 5 mA | Sleep Mode 13 uW | 8x8 multiply, 32-bit accumulate, decimator | | |
| Cypress Semiconductor www.cypress.com | CY8C29466 CY8C29566 CY8C29666 CY8C29866 | M8C | 12 | 16/8 | 8, 16, 24 | 4.75 to 5.25 | 8 mA | Sleep Mode 36 uW | Two 8x8 multiply, 32 bit accumulate, decimator | | |
| Cypress Semiconductor www.cypress.com | CYUSB6953 | M8C | 12 | 16/8 | 8, 16, 24 | 2.7 to 3.6 | 74 mA | Sleep Mode 3 uW | | | |

2008 EDN Microcontroller/Microprocessor Directory

8-bit microprocessors sorted by company

| Memory | DMA / memory controller | MMU | Package selection | Timers / PWM | Serial, Parallel I/O | Interrupts | ADC; DAC | Temperature ranges (degrees Celsius) | Additional features | Price (\$/10,000) |
|---|--|--|--|---|--|---|--|--------------------------------------|--|------------------------------|
| 1- to 512-kbyte Flash, 0- to 8-kbyte EEPROM, 0- to 32-kbyte SRAM | | | Transceiver and MCU choice dependent | MCU dependent | MCU dependent | All peripherals and I/O | MCU dependent | -40 to +85 | 800/900 MHz and 2.4 GHz transceivers, IEEE 802.15.4, ZigBee(Pro), 6LoWPAN, AVR/AVR32 MCUs | \$5 to \$8 (Two chip bundle) |
| 4- to 256-kbyte Flash, 256-byte to 4-kbyte EEPROM, 512-byte to 8-kbyte SRAM | | | 28/40 PDIP, 32/44/64/100 TQFP, 32/44/64 QFN, Die | Up to 6 timers, 16 PWMs | SPI, USART, TWI, USI, CAN, LIN, USB 8-bit parallel (64-kbyte addressing) | All peripherals and I/O | 10-bit | -40 to +85 | picoPower technology, On-Chip Debugging, In-System Programming, Self-Prog. Memory | \$1 to \$6 |
| 1- to 8-kbyte Flash, 0 to 512-byte EEPROM, 32-byte to 512-byte SRAM | | | 8/16/20 PDIP, 8/14/20 SOIC, 20/32 QFN | Up to 2 timers, 5 PWMs | SPI, USART, TWI, USI | All peripherals and I/O | 10-bit | -40 to +85 | picoPower technology, On-Chip Debugging, In-System Programming, Self-Prog. Memory | 50 cents to \$2 |
| Configurable: up to 8-Mbyte (with banking) | External supported through HOLD interface | | IP core | Optional: 16-bit timer/counters; timer with CCU; Watchdog | Optional: up to four 8-bit; serial; asynch. serial | Up to 18 | | N/A (Core) | Integrated on-chip debug (native OCDS or FS2) | License |
| 4-kbyte dual-port RAM, 8-kbyte program RAM, direct host read, write access | Register to select code RAM or data RAM for direct host access | Pins/registers set address mapping into host address space | 100 SQFP | Three 16-bit | Four 8-bit ports, full-duplex UART, PC-104- or 8051-compatible 8-bit host interface | Seven, via write/read to specific memory location | | 0 to +70 -55 to +125 (storage) | Breakpoint/single-step debugging, selectable IRQ and memory addressing, looks like a memory device to host | \$12 |
| 4-kbyte program Flash, 256-byte SRAM | | | 8/16 SOIC, 20 SSOP, 24 MLF | Up to four dynamically allocatable 8/16/24/32-bit timers, counters, PWMs | Up to two dynamically allocatable SPI, up to one dynamically allocatable UART, I2C | 12 | Up to two 10-bit ADC, up to two analog comparators | -40 to +85 | Dynamically allocatable comparators, pseudorandom sequence generator, | |
| 8-kbyte program Flash, 256-byte SRAM | | | 28 SSOP, 32 QFN | Up to four dynamically allocatable 8/16/24/32-bit, timers, counters, PWMs | Up to two dynamically allocatable SPI, up to one dynamically allocatable UART, I2C | 13 | Up to two 10-bit ADC, up to one 6/8/9-bit DAC, up to two analog comparators | -40 to +85 | dynamically allocatable comparators, pseudorandom sequence generator; analog multiplexer Bus. Capacitive sensing via CapSense | |
| 4-kbyte program Flash, 256-byte SRAM | | | 8/20/28 PDIP, 8/20/28 SOIC, 20/28 SSOP, 32 QFN | Up to four dynamically allocatable 8/16/24/32-bit, timers, counters, PWMs | Up to two dynamically allocatable SPI, up to one dynamically allocatable UART, I2C | 12 | Up to two 13-bit ADC, up to two 6/8/9-bit DAC, up to two analog comparators | -40 to +85 -40 to +125 | dynamically allocatable filters, amplifier/scalers, comparators, pseudorandom sequence generator, | |
| 16-kbyte program Flash, 1-kbyte SRAM | | | 56/68 QFN, 100 VFBGA | Up to four dynamically allocatable 8/16/24/32-bit, timers, counters, PWMs | Up to two dynamically allocatable SPI, up to one dynamically allocatable UART, full-speed USB, I2C | 12 | Up to two 13-bit ADC, up to two 6/8/9-bit DAC, up to two analog comparators | -40 to +85 | dynamically allocatable filters, amplifier/scalers, comparators, sequence generator, analog multiplexer bus. Capacitive sensing via CapSense, High Speed SAR ADC | |
| 16-kbyte program Flash, 256-byte SRAM | | | 8/28 PDIP, 20/28/48 SSOP, 20/28 SOIC, 44 TQFP, 48 QFN, | Up to eight dynamically allocatable 8/16/24/32-bit, counters, PWMs | Up to four dynamically allocatable SPI, up to two dynamically allocatable UART, I2C | 18 | Up to four 13-bit ADC, up to four 6/8/9-bit DAC, up to four analog comparators | -40 to +85 -40 to +125 | dynamically allocatable filters, amplifier/scalers, comparators, pseudorandom sequence generator, | |
| 32-kbyte program Flash, 2-kbyte SRAM | | | 28/48 SSOP | Up to 16 dynamically allocatable 8/16/24/32-bit, timers, counters, PWMs | Up to eight dynamically allocatable SPI, up to four dynamically allocatable UART, I2C | 26 | Up to four 13-bit ADC, up to four 6/8/9-bit DAC, up to four analog comparators | -40 to +85 -40 to +125 | dynamically allocatable filters, amplifier/scalers, comparators, pseudorandom sequence generator, | |
| 8-kbyte program Flash, 512-byte SRAM | | | 48 QFN | Up to four dynamically allocatable 8/16/24/32-bit, timers, counters, PWMs | Up to two dynamically allocatable SPI, up to one dynamically allocatable UART, I2C | 12 | Up to two 10-bit ADC, up to two analog comparators | 0 to +70 | dynamically allocatable filters, amplifier/scalers, comparators, sequence generator, Direct Sequence Spread Spectrum 2.4 GHz radio system | |

2008 EDN Microcontroller/Microprocessor Directory

8-bit microprocessors sorted by company

| Company name | Device name or family | Instruction set architecture | CPU frequency (MHz) | Bus interface (address/data) (bits) | Instruction width (bits) | Core / I/O operating voltages (V) | Typical power at maximum frequency | Powerdown modes and minimum power | DSP/multiplication hardware support (bits) | FPU | Caching |
|---|--------------------------------|------------------------------|----------------------|-------------------------------------|--------------------------|-----------------------------------|--|-----------------------------------|--|-----|---------|
| Digital Core Design www.dcd.pl | DP80390XP | 8051 | Technology dependent | 24/8 | 8 | Technology dependent | Technology dependent | Stop, power management mode | 16/32 | Yes | |
| Digital Core Design www.dcd.pl | DP8051XP | 8051 | Technology dependent | 16/8 | 8 | Technology dependent | Technology dependent | Stop, power management mode | 16/32 | Yes | |
| EM Microelectronic www.emmicroelectronic.com | EM6580 | UPUS RISC | 32 kHz 800 kHz | 7/4 | 16 | 1.9/ 2.3 to 5.5 | 0.17 mW (3V, 800kHz) | Standby 3.3 uA sleep 320 nA | | | |
| EM Microelectronic www.emmicroelectronic.com | EM6607 | UPUS RISC | 32 kHz | 7/4 | 16 | 1.2/ 1.2 to 3.6 | 0.005 mW (3V, 32kHz) | Standby 0.5 uA sleep 100 nA | | | |
| EM Microelectronic www.emmicroelectronic.com | EM6625 | UPUS RISC | 32 kHz 128 kHz | 7/4 | 16 | 1.2/ 1.2 to 3.6 | 0.005 mW (3V, 32kHz) | Standby 0.4 uA sleep 200 nA | | | |
| EM Microelectronic www.emmicroelectronic.com | EM6626 | UPUS RISC | 32 kHz 128 kHz | 7/4 | 16 | 1.2/ 1.2 to 3.6 | 0.005 mW (3V, 32kHz) | Standby 0.4 uA sleep 200 nA | | | |
| EM Microelectronic www.emmicroelectronic.com | EM6635 | UPUS RISC | 32 kHz 500 kHz | 7/4 | 16 | 1.2/ 1.2 to 3.6 | 0.005 mW / 0.15 mW (3V, 32kHz / 500kHz) | Standby 0.4 uA | | | |
| EM Microelectronic www.emmicroelectronic.com | EM6680 | UPUS RISC | 32 kHz 800 kHz | 7/4 | 16 | 1.2/ 1.2 to 3.6 | 0.33 mW (3V, 800kHz) | Standby 3.5 uA sleep 350 nA | | | |
| EM Microelectronic www.emmicroelectronic.com | EM6682 | UPUS RISC | 32 kHz 800 kHz | 7/4 | 16 | 0.9 to 5.5 | 0.33 mW (3V, 800kHz) | Standby 3.5 uA sleep 350 nA | | | |
| EM Microelectronic www.emmicroelectronic.com | EM6812 | CR816 RISC | 32 kHz to 10 | 16/8 | 22 | 1.9/ 2 to 5.5 | 0.12 mA/MHz (3V) | Standby 6 uA sleep 200 nA | 8x8 multiplier single-cycle | | |
| Freescale www.freescale.com | Flexis AC Family (MC9S08AC) | HCS08 Core | 48 | | 8 | 2.7 to 5.5 | 90 mW/150 mW (3V/5V) | 0.9 uW/1.5 uW (3V/5V) | | | |
| Freescale www.freescale.com | Flexis AC Family (MCF51AC) | ColdFire | 50 | | 8,16,32 | 2.7 to 5.5 | 180 mW/300 mW (3V/5V) | 2.4 uW/4.0 mW (3V/5V) | | | |
| Freescale www.freescale.com | Flexis JM Family (MC9S08JM) | HCS08 Core | 48 | | 8 | 2.7 to 5.5 | 90 mW/150 mW (3V/5V) | 0.9 uW/1.5 uW (3V/5V) | | | |
| Freescale www.freescale.com | Flexis JM Family (MCF51JM) | ColdFire | 50 | | 8,16,32 | 2.7 to 5.5 | 180 mW/300 mW (3V/5V) | 2.4 uW/4.0 mW (3V/5V) | | | |
| Freescale www.freescale.com | HC08 AS, AZ series | HC08 | 8 | 8 | 8 | 5 | 125 mW | Wait, stop | | | |
| Freescale www.freescale.com | HC08 GP, GT series | HC08 | 8 | 8 | 8 | 3 to 5 | 75 mW | Wait, stop, auto- wake-up | | | |
| Freescale www.freescale.com | HC08 GR, GZ series | HC08 | 8 | 8 | 8 | 3.3 to 5 | 100 mW | Wait, stop, auto- wake-up | | | |
| Freescale www.freescale.com | HC08 GR8 series | HC08 | 8 | 8 | 8 | 3 to 5 | 75 mW | Wait, stop, auto- wake-up | | | |

2008 EDN Microcontroller/Microprocessor Directory

8-bit microprocessors sorted by company

| Memory | DMA / memory controller | MMU | Package selection | Timers / PWM | Serial, Parallel I/O | Interrupts | ADC; DAC | Temperature ranges (degrees Celsius) | Additional features | Price (\$/10,000) |
|---|-------------------------|-----|-----------------------------------|--|--|-----------------------|-----------------------------------|--|--|-------------------|
| Up to 8-Mbyte code, up to 16-Mbyte data | | | | Four 16-bit Timers, Compare/Capture, PWM, Watchdog | Two UARTs, SPI, Master/Slave I ² C, four 8-bit IO Ports, DMAC 10/100 Ethernet | Peripheral, external | | | DoCD hardware assisted debugging system, Synchronous eXternal Data Memory interface, Multiplication and Division Unit, dual data pointers with auto (in/de)crement | |
| Up to 64-kbyte code, up to 16-Mbyte data | | | | Four 16-bit Timers, Compare/Capture, PWM, Watchdog | Two UARTs, SPI, Master/Slave I ² C, four 8-bit IO Ports, DMAC 10/100 Ethernet | Peripheral, external | | | DoCD hardware assisted debugging system, Synchronous eXternal Data Memory interface, Multiplication and Division Unit, dual data pointers with auto (in/de)crement | |
| 8-kbyte FLASH 80x4-bits RAM | | | 8/14 SO Chip | 10-bit, PWM, watchdog, clock divider | One input, 5 GPIO | 8, two external | 4-bit and SVLD | -20 to +85 | ISP, PowerCheck, Sleep Counter Reset, fully internal RC, code3 protection | |
| 4-kbyte ROM 96x4-bits RAM | | | 24/28 SO, 24/28 TSSOP Chip | 8-bit, PWM, watchdog, clock divider, real-time | Four input, serial write buffer, 16 GPIO | 12, nine external | Three-level supply-level detector | -20 to +85 | High drive outputs | |
| 8-kbyte ROM 128x4-bits RAM | | | 52 TQFP Chip | 10-bit, PWM, 12-bit BCD counter, watchdog, 4-bit, clock divider, real-time | Four input, SPI, eight GPIO | 13, five external | Eight-level supply level detector | -20 to +85 | LCD 20x4, temperature compensated bias generator | |
| 8-kbyte ROM 128x4-bits RAM | | | 64 TQFP Chip | 10-bit, PWM, 12-bit BCD counter, watchdog, 4-bit, clock divider, real-time | Four input, SPI, eight GPIO | 13, five external | Eight-level supply level detector | -20 to +85 | LCD 32x4, temperature compensated bias generator, | |
| 8-kbyte ROM 256x4-bits RAM | | | 40 MLF Chip | Two 8-bits, 8-bit BCD counter, 3-bit event counter, real-time | Eight input, one output, SPI, 19 GPIO | 18, six external | Three-level supply-level detector | -20 to +85 | High drive outputs | |
| 3-kbyte ROM 80x4-bits RAM | | | 8/14 SO, 8/14 TSSOP Chip | 10-bit, PWM, watchdog, clock divider | One input, five GPIO | eight, two external | 4-bit and SVLD | -20 to +85 | PowerCheck, Sleep Counter Reset, fully internal RC | |
| 3-kbyte ROM 80x4-bits RAM | | | 8/14 SO, 8/14 TSSOP Chip | 10-bit, PWM, watchdog, clock divider | One input, five GPIO | eight, two external | 4-bit and SVLD | -20 to +85 | PowerCheck, Sleep Counter Reset, fully internal RC | |
| 5.6- to 22.5-kbyte Flash, 512-byte RAM, 12-byte LP RAM, 4-byte DP-RAM | | | 24 SO, 24 TSSOP Chip | Four 8-bit or two 16-bit, watchdog, PWM, frequency generator, real-time | SPI, 16 GPIO | 20, nine external | Eight-level supply level detector | -40 to +85 | ISP, brownout, high drive outputs, fully internal RC, code protection | |
| 8-kbyte RAM, 128-kbyte Flash | | | 80 LQFP, 64 LQFP, 64 QFP | Two 6 channel 16-bit, 2 channel 16-Bit | 2xSCI, 2xSPI, I2C | Interrupt Controller | 16-channel 10-bit | -40 to 85 | Internal Clock, Watchdog Timer, Cyclic Redundancy Check | \$2.48 |
| 32-kbyte RAM, 256-kbyte Flash | | | 80 LQFP, 64 LQFP, 64 QFP | Two 6 channel 16-bit FlexTimer, 2 channel 16-Bit | 2xSCI, 2xSPI, I2C, CAN | Interrupt Controller | 24-channel 12-bit (2.5 us) | -40 to 105 | Comparators, Cyclic Redundancy Check, Low-Voltage Detect, Real Time Clock | \$3.64 |
| 4-kbyte RAM, 60-kbyte Flash | | | 64 QFP, 64 LQFP, 48 QFN, 44 LQFP | 6 channel 16 bit, 2 channel 16 bit | 2xSCI, 2xSPI, I2C, CAN, USB OTG, | Interrupt Controller | 12-channel 12bit | -40 to 85 | ICE + BDM, RTC, ACMP, MCG, COP, KBI | \$2.79 |
| 16-kbyte RAM, 128-kbyte Flash | | | 80 LQFP, 64 LQFP, 64 QFP, 44 LQFP | Two 16bit timers, 6 channel 16bit PWM | 2xSCI, 2xSPI, 2xI2C, CAN, USB OTG, | Interrupt Controller | 12-channel 12bit | -40 to 105 | CAU, RNGA, COP, ACMP, DEBUG, LVD, MCG, KBI, CMT | \$3.50 |
| 60-kbyte Flash, 2k-byte RAM, 1k-byte EEPROM | | | 52 PLCC, 64 QFP | Eight 16-bit, PWM | SCI, SPI, CAN, BDLC, up to 50 GPIO | IRQ, KBI (five pins) | 15-channel, 8-bit | -40 to +85 -40 to +105 -40 to +125 | COP, low-voltage inhibit | \$4.75 to \$6.75 |
| 8- to 32-kbyte Flash, 512-byte RAM | | | 20 DIP, 42 SDIP, 44 QFP | Four 16-bit, PWM | SCI, SPI, up to 33 GPIO | IRQ, KBI (eight pins) | Eight-channel, 8-bit | -40 to +85 | COP, low-voltage inhibit, high current pins | \$3.50 to \$5.50 |
| 16- to 60-kbyte Flash, 1- to 2k-byte RAM | | | 32/48 LQFP, 64 QFP | Four to eight 16-bit, PWM | ESCI, SPI, CAN, up to 53 GPIO | IRQ, KBI (eight pins) | Eight to 24-channel, 8-bit | -40 to +85 -40 to +105 -40 to +125 | COP, low-voltage inhibit, high current pins | \$3.60 to \$4.20 |
| 4- to 8-kbyte Flash, 384-byte RAM | | | 28 DIP, 28 SOIC, 32 LQFP | Three 16-bit, PWM | SCI, SPI, up to 21 GPIO | IRQ, KBI (four pins) | Six-channel, 8-bit | -40 to +85 -40 to +105 -40 to +125 | COP, low-voltage inhibit, high current pins | \$2.25 to \$3.30 |

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8-bit microprocessors sorted by company

| Company name | Device name or family | Instruction set architecture | CPU frequency (MHz) | Bus interface (address/data) (bits) | Instruction width (bits) | Core / I/O operating voltages (V) | Typical power at maximum frequency | Powerdown modes and minimum power | DSP/multiplication hardware support (bits) | FPU | Caching |
|---|------------------------|------------------------------|---------------------|-------------------------------------|--------------------------|-----------------------------------|------------------------------------|---|--|-----|------------------------|
| Freescale www.freescale.com | HC08 JB series | HC08 | 3, 6 | 8 | 8 | 5 | 25 mW | Wait, stop | | | |
| Freescale www.freescale.com | HC08 JL, JK series | HC08 | 8 | 8 | 8 | 3 to 5 | 50 mW | Wait, stop | | | |
| Freescale www.freescale.com | HC08 LJ, LK series | HC08 | 8 | 8 | 8 | 3.3 to 5 | 75 mW | Wait, stop, auto-wakeup | | | |
| Freescale www.freescale.com | HC08 MR series | HC08 | 8 | 8 | 8 | 5 | 125 mW | Wait | | | |
| Freescale www.freescale.com | HC08 QT/QY series | HC08 | 3.2 | 8 | 8 | 3 to 5 | 30 mW | Wait, stop, auto-wakeup | | | |
| Freescale www.freescale.com | HC08QB | HC08 | 8 | 8 | 8 | 3 to 5 | 12 mA (5V, 8 MHz) | Wait, stop, auto-wakeup | | | |
| Freescale www.freescale.com | HCS08 GB, GT series | HCS08 | 20 | 8 | 8 | 1.8 to 3.6 | 54 mW | Powerdown: 20 nA, wait, stop, real-time interrupt | | | |
| Freescale www.freescale.com | HCS08 QG series | HCS08 | 10 | 8 | 8 | 1.8 to 3.6 | 11.4 mW | Powerdown, wait, stop, real-time interrupt | | | |
| Freescale www.freescale.com | HCS08 AW series | HCS08 | 20 | 8 | 8 | 2.7 to 5.5 | 73.5 mW | Wait, stop2, stop3, real-time interrupt | | | |
| Freescale www.freescale.com | MC9S08QE128 | HCS08 | 50 | 25 | | 1.8 to 3.6 | | Ultra low power wait, stop | | | |
| Freescale www.freescale.com | MCF5227x Family | ColdFire | 166 | 24/32 | 8,16,32 | 1.5/3.3 | 300 mW | 0.75 mW | Hardware divide, Enhanced MAC | | 8-kbyte (configurable) |
| Freescale www.freescale.com | MPC560xP | Power Architecture | 60 | 32/32 | 32 | 1.5/3.3/5.0 | 250mW | Wait, stop, real-time interrupt | | | |
| Freescale www.freescale.com | RS08 KA series | RS08 | 10 | 8 | 8 | 1.8 to 5.5 | 28 mW | Wait, stop, real-time interrupt | | | |
| Fujitsu Microelectronics America us.fujitsu.com/micro | F2MC - 8L | F2MC-8L | 1 to 12.5 | 16/8 | 16 | 2.2 to 5.5 | 30 mW | Sleep, stop, subclock, watch, timer | | | |
| Fujitsu Micro-electronics America www.fma.fujitsu.com | F2MC - 8FX | F2MC-8L/8FX | 1 to 10 | 16/8 | 16 | 1.8 to 5.5 | 17.5 mW | Sleep, stop, subclock, watch, timer | | | |
| Infineon Technologies www.infineon.com/microcontrollers | C505CA | 8051 C500 | 20 (3.33 MIPS) | 16/8 | 8 | 5 | 143 mW | Slow down, idle, powerdown | 8x8 | | |
| Infineon Technologies www.infineon.com/microcontrollers | C515C | 8051 C500 | 10 (1.67 MIPS) | 16/8 | 8 | 5 | 94 mW | Slow down, idle, powerdown | 8x8 | | |
| Infineon Technologies www.infineon.com/microcontrollers | XC864 | 8051 XC800 | 24 | 16/8 | 8 | 3.0 to 5.5 | | Slow down, idle, powerdown | 8x8 | | |

2008 EDN Microcontroller/Microprocessor Directory

8-bit microprocessors sorted by company

| Memory | DMA / memory controller | MMU | Package selection | Timers / PWM | Serial, Parallel I/O | Interrupts | ADC; DAC | Temperature ranges (degrees Celsius) | Additional features | Price (\$/10,000) |
|--|------------------------------------|-----|--|--|--|--|---|--|--|--------------------|
| 8- to 16-kbyte Flash, 256- to 384-byte RAM | | | 20 DIP, 44 QFP, 32 LQFP, 20 to 28 SOIC | Two to four 16-bit | USB 2.0, SCI, up to 37 GPIO | IRQ, KBI (up to eight pins) | | 0 to +70 | COP, low-voltage inhibit, high current pins | \$1.90 to \$4.25 |
| 1.5- to 4-kbyte Flash, 128- to 256-byte RAM | | | 20 to 28 SOIC, 20 to 28 DIP, 20 to 28 PDIP, 32 to 48 LQFP, 32 SDIP | Two to four 16-bit, PWM | SCI, up to 26 GPIO | IRQ, KBI (up to eight pins) | 12 to 14-channel, 8-bit | -40 to +85 -40 to +125 | COP, low voltage inhibit, high current pins, RC oscillator option | \$1.25 to \$2.25 |
| 12- to 24-kbyte Flash, 512 to 768-byte RAM | | | 64/80 QFP, 52/64/80 LQFP | Four 16-bit, PWM | SCI with IR, SPI, LCD, up to 48 GPIO | IRQ, KBI (eight pins) | Six-channel, 10-bit | -40 to +85 | COP, low-voltage inhibit, high current pins | \$3.25 to \$4.90 |
| 16- to 32-kbyte Flash, 768-byte RAM | | | 64 QFP, 56 SDIP | Six 16-bit, six 12-bit PWM | SCI, SPI, up to 42 GPIO | IRQ | 10-channel, 10-bit | -40 to +85 -40 to +105 | COP, low-voltage inhibit, MC fault protection | \$3.60 to \$6.45 |
| 1.5- to 4-kbyte Flash, 128-byte RAM | | | 8 DIP/DFN, 16 PDIP, 16 TSSOP, 8 to 16 SOIC | Two 16-bit, PWM | Five to 13 GPIO | IRQ, KBI (up to six pins) | Four-channel, 8-bit | -40 to +85 -40 to +105 -40 to +125 | COP, trimmable internal oscillator, low-voltage inhibit, high current pins | 70 cents to \$1.33 |
| 4- to 8-kbyte Flash, 256-byte RAM | | | 16 DIP, 16 SOIC, 16 TSSOP | Four-channel, 16-bit | SPI, ESCI, up to 13 GPIO | KBI (eight pins) | 10-channel, 10-bit | -40 to +85 -40 to +105 -40 to +125 | COP, low-voltage inhibit | \$1.38 |
| 32- to 60-kbyte Flash, 2- to 4-kbyte RAM | | | 44/64 QFP, 42 SDIP, 48 QFN | Eight 16-bit, PWM | Two SCI, SPI, I ² C, up to 56 GPIO | IRQ, KBI (up to eight pins) | Eight-channel, 10-bit | -40 to +85 | Debug module with two comparators and nine trigger modes, single-pin interface, background debug, hardware breakpoint | \$2.65 to \$3.95 |
| 4- to 8-kbyte Flash, 256- to 512-byte RAM | | | 16 PDIP, 16 QFN, 16 TSSOP, 8 DFN, 8 PDIP, 8 SOIC NB | Two 16-bit, PWM, One 8-bit | SCI, SPI, I ² C, up to 12 GPIO | IRQ, KBI (up to eight pins) | Eight-channel, 10-bit, Analog Comparator | -40 to +85 | Debug module with two comparators and nine trigger modes, single-pin interface, background debug, hardware breakpoint | 99 cents |
| 16- to 60-kbyte Flash, 1- to 2-kbyte RAM | | | 64 QFP, 64 LQFP, 48 QFN, 44 LQFP | Eight 16-bit, PWM | Two SCI, SPI, I ² C, up to 54 GPIO | IRQ, KBI (up to eight pins) | 16-channel, 10-bit | -40 to +125 | Debug module with two comparators and nine trigger modes, single-pin interface, background debug, hardware breakpoint | \$3.60 to \$5.20 |
| 64 to 128K, 4 to 8-kbyte RAM | | | 80 LQFP, 64 LQFP | 16-bit; 6-channel, two 3-channel | 2 SCI, 2 I ² C, 2 SPI | | 24 channel; 12-bit ADC | -40 to +85 | Internal Clock Source, 70 GPIO, Low power 32 kHz oscillator | \$3.59 |
| 128-kbyte SRAM | 16-bit DDR / 32-bit SDR SDRAM, DMA | | 196 MAPBGA 176 LQFP | Four 32-bit, 4 PWM | LCD Controller, Full speed/low speed USB OTG, FlexCAN, SSI, I ² C, 3 UART, DSPI | 3 external interrupts / interrupt controller | 8-channel 12bit touchscreen controller | -40 to 85 | BDM, JTAG, RTC and watchdog timers | \$7.50 |
| 256-512-kbyte Flash, 24-40-kbyte SRAM | 16 channel DMA | | 100/144 LQFP | 12-channel, 8 PWM | two SCI, four SPI, two CAN, optional dual channel Flexray | | Up to 26-channel 10-bit, 1 us conversion time | -40 to +125C | Nexus debug mode, hardware single step/breakpoint | |
| | | | 8 SOIC-NB, 8 PDIP, 6 DFN | One 8-bit | | | Analog Comparator | -40 to +85 | Background debug mode with single-pin interface, hardware breakpoint | |
| 128-byte to 18-kbyte RAM, 4- to 60-kbyte ROM, 16- to 60-kbyte Flash | | | 28/32/48/64/80/100 QFP/LQFP | 8/16-bit, 21-bit time-base, 8-bit PWM, PPG, PWC, real-time, watchdog | SIO, I ² C, USB, SM bus, UART, up to 85 GPIO | Up to 16 external | Twelve-channel (maximum); 8/10-bit DAC | -40 to +85 -40 to +105 | CR oscillator, buzzer output, remote-control carrier generator, DTMF generator, LCD driver, VFD, stepper-motor control, inverter control | From 98 cents |
| 250-byte to 2-kbyte RAM, 8- to 60-kbyte ROM, 8-kbyte to 60-kbyte Flash | Dual operation Flash | | 28/32/48/64/80/100 QFP/QFP/SOP | 8/16-bit, 21-bit time-base, 8-bit PWM, PPG, PWC, real-time, watchdog | SIO, I ² C, SM bus, LIN-UART, up to 85 GPIO | Up to 12 external | 12-channel (maximum); 8/10-bit DAC | -40 to +85 | Ultra low power, CR oscillator, brownout detect, remote-control carrier generator, LCD driver | From \$1 |
| 16- to 32-kbyte ROM/OTP or ROMless, 1.2-kbyte RAM | 8-bit, up to 64-kbyte | | 44 PMQFP | Three 16-bit, four-channel PWM | CAN 2.0B, UART, 34 PIO | Six, six external | Eight-channel, 10-bit | 0 to +70 -40 to +85 -40 to +125 | | \$4.50 (ROMless) |
| 64-kbyte OTP, 3.2-kbyte RAM | 8-bit, up to 64-kbyte | | 80 PMQFP | Three 16-bit, four-channel PWM | CAN 2.0B, UART, SPI, 49 PIO, eight-input only | Seven, 10 external | Eight-channel, 10-bit | 0 to +70 -40 to +85 | | \$5 (ROMless) |
| 2- or 4 kbyte Flash 256-byte RAM | | | 20-pin TSSOP | Three 16-bit | UART, SPI, 14 GPIO (eight input only) | | Eight-channel, 10-bit | -40 to +85 -40 to +105 | Brownout, motor-control peripheral, Vector Computer, PLL, on-chip oscillator | \$0.85 |

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| Company name | Device name or family | Instruction set architecture | CPU frequency (MHz) | Bus interface (address/data) (bits) | Instruction width (bits) | Core / I/O operating voltages (V) | Typical power at maximum frequency | Powerdown modes and minimum power | DSP/multiplication hardware support (bits) | FPU | Caching |
|--|---|------------------------------|----------------------------|-------------------------------------|--------------------------|-----------------------------------|------------------------------------|---|--|-----|---------|
| Infineon Technologies www.infineon.com/microcontrollers | XC866 | 8051 XC800 | 26.67 (12 MIPS) | 16/8 | 8 | 3.0 to 5.5 | | Slow down, idle, powerdown | 8x8 | | |
| Infineon Technologies www.infineon.com/microcontrollers | XC866 HOT | 8051 XC800 | 26.67 (12 MIPS) | 16/8 | 8 | 3.0 to 5.5 | | Slow down, idle, powerdown | 8x8 | | |
| Infineon Technologies www.infineon.com/microcontrollers | XC878 | 8051 XC800 | 26.67 | 16/8 | 8 | 3.0 to 5.5 | | Slow down, idle, powerdown | Vector Computer (CORDIC/MDU) | | |
| Infineon Technologies www.infineon.com/microcontrollers | XC886/8 | 8051 XC800 | 24 | 16/8 | 8 | 3.0 to 5.5 | | Slow down, idle, powerdown | Vector Computer (CORDIC/MDU) | | |
| Lattice Semiconductor www.latticesemi.com | LatticeMico8 | LatticeMico8 Open Source | Over 150, device dependant | 8 to 24/8 configurable | 18 | Device dependant | Device dependant | Fully static | | | |
| Maxim Integrated Products www.maxim-ic.com | DS500x DS225x | 8051 | 16, 25 | 16/8 or 24/8 | 8 | 4.5 to 5.5 | 30 to 100 mA | Stop, idle | | | |
| Maxim Integrated Products www.maxim-ic.com | DS5250 | 8051 | 16, 25 | 16/8 or 24/8 | 8 | 4.5 to 5.5 | 30 to 100 mA | Stop, idle | MAA (RSA support), DES engine, CRC engine | | |
| Maxim Integrated Products www.maxim-ic.com | DS80C32x DS87C5x0 DS89C4x0 | 8051 | 18, 25, 33 | 16/8 | 8 | 2.7 to 5.5 | 10 to 100 mA | Stop, idle | | | |
| Maxim Integrated Products www.maxim-ic.com | DS80C390 DS80C4x0 | 8051 | 40, 75 | 22/8 or 24/8 | 8 | 4.5 to 5.5 | 35 to 75 mA | Stop, idle, power management mode | 16x16 MAC | | |
| Microchip Technology www.microchip.com | PIC10 | PICmicro | 8 | 12/8 | 12 | 2 to 5.5 | 2 mW | Low-power sleep | | | |
| Microchip Technology www.microchip.com | PIC12 | PICmicro | 20 | 14/8 | 12, 14 | 2 to 5.5 | 10 mW | Low-power sleep, individual peripheral enable | | | |
| Microchip Technology www.microchip.com | PIC16 | PICmicro | 20 | 14/8 | 12, 14 | 2 to 5.5 | 30 mW | Low-power sleep, individual peripheral enable | | | |
| Microchip Technology www.microchip.com | PIC18 J-series | PICmicro | 48 | 16/8 | 16 | 2.0 to 3.6 | 30 mW | Low-power sleep, individual peripheral enable | 8x8 | | |
| Microchip Technology www.microchip.com | PIC18 Traditional and PIC18Fxx K-series | PICmicro | 40 or 48 / 64 (K-series) | 16/8 | 16 | 1.8 to 3.6 (K-series) or 2 to 5.5 | 60 mW | Low-power sleep, individual peripheral enable | 8x8 | | |
| NEC Electronics America www.am.necel.com | μPD78F0711 μPD78F0712 | NEC 78K | 20 | | 8 | 4.0 to 5.5 | 26 mA | Halt, Stop; 3.5 uA | 16x16 multiply, 32/16 divide | | |
| NEC Electronics America www.am.necel.com | μPD78F8024 | NEC 78K | 20 | | 8 | 1.8 to 5.5 | 4.5 mA | Halt, Stop; 1uA | 8 x 8 -> 16; 16 / 8 divide | | |

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| Memory | DMA / memory controller | MMU | Package selection | Timers / PWM | Serial, Parallel I/O | Interrupts | ADC; DAC | Temperature ranges (degrees Celsius) | Additional features | Price (\$/10,000) |
|---|-------------------------|-----|---|--|---|-------------------------|---|--------------------------------------|--|-------------------|
| 8- or 16-kbyte Flash, 768-byte RAM | | | 38 PTSSOP | Five 16-bit, seven-channel PWM | UART, SPI, 21 GPIO (eight input only) | 14 | Eight-channel, 10-bit | -40 to +85 -40 to +125 | Brownout, motor-control peripheral, PLL, on-chip oscillator | \$1.25 |
| 8- or 16-kbyte Flash, 768-byte RAM | | | 38 PTSSOP | Five 16-bit, seven-channel PWM | UART, SPI, 21 GPIO (eight input only) | 14 | Eight-channel, 10-bit | -40 to 140 | Brownout, motor-control peripheral, PLL, on-chip oscillator | \$1.80 |
| 52- or 64-kbyte Flash | | | 64-pin TQFP | Five 16-bit, seven-channel PWM | 2 X UART, SPI, 21 GPIO (eight input only) | | Eight-channel, 10-bit | -40 to +85 -40 to +105 | Brownout, motor-control peripheral, Vector Computer, PLL, on-chip oscillator | \$3.00 |
| 8- to 32-kbyte Flash, 768-byte RAM | | | 38 PTSSOP | Five 16-bit, seven-channel PWM | UART, SPI, 21 GPIO (eight input only) | 14 | Eight-channel, 10-bit | -40 to +85 -40 to +125 | Brownout, motor-control peripheral, PLL, on-chip oscillator | \$2 to \$3 |
| Configurable program memory size, optional external scratch pad | | | IP core | | | 1 External | | (Core) | Open Source, 32 general purpose registers, optional memory ready strobe | |
| ROMless versions, up to 5-kbyte nonvolatile SRAM, 32-, 64-, or 128-kbyte SRAM | | | 80/100 MQFP, 40/72 SIMM | Two or three 16-bit, watchdog | One or two full-duplex UART | 6 or 15 | | 0 to +70 -40 to +85 | In-system-programmable, nonvolatile memory-control circuitry | \$7 to \$50 |
| ROMless versions, up to 5-kbyte nonvolatile SRAM, 32-, 64-, or 128-kbyte SRAM | | MMU | 80/100 MQFP, 40/72 SIMM | Two or three 16-bit, watchdog | One or two full-duplex UART | 6 or 15 | | 0 to +70 -40 to +85 | In-system-programmable, nonvolatile memory-control circuitry | |
| 8- or 16-kbyte EPROM, 16 or 64-kbyte Flash, 256-kbyte, 1-, or 4-kbyte RAM | | | PDIP, PLCC, TQFP | Three 16-bit, real-time, watchdog | Two full-duplex UART | 10 to 14 | | 0 to +70 -40 to +85 | In-system-programmable, EMI reduction, dual DPTR, nonvolatile SRAM | \$4 to \$25 |
| Up to 73-kbyte SRAM, 512-byte RAM for CAN | | MMU | 64 QFP, 68 PLCC, 100 LQFP | Three or four 16-bit, watchdog | Two full-duplex UART, CAN, 10/100 Ethernet | 16 | | 0 to +70 -40 to +85 | TCP/IP network stack with integrated Ethernet MAC. 1-Wire | \$6 |
| 384- to 768-kbyte Flash, 16- to 24-kbyte RAM | | | 6 SOT-23, 8 PDIP, 8 2x3 DFN | 8-bit | 4 GPIO | | 2-channel. 8-bit | -40 to +125 | In-circuit serial programming, internal oscillator, comparator, ADC, POR, voltage reference | 48 to 78 cents |
| 768- to 3584-kbyte ROM, OTP, Flash, 25- to 128-kbyte SRAM, 16- to 256-kbyte EEPROM | | | 8 2x3 DFN, 8 MSOP, 8 PDIP, 8 SOIC, 8 4x4 DFN | 8/16-bit, Capture-Compare-PWM | 6 GPIO | 4 to 12 | Up to 4-channel. 8/10-bit | -40 to +125 | In-circuit serial programming, low-voltage detect, brownout reset, internal oscillator, comparator, ADC, Data EE, voltage reference | 75 cents to \$2 |
| 768-kbyte to 14-kbyte ROM/OTP/Flash, 68- to 368-kbyte SRAM, 64- to 256-kbyte EEPROM | | | 14- to 64 PDIP/SOIC/SSOP/TSSOP/PLCC/TQFP/MQFP/QFN | 8-/16-bit, Capture-Compare-PWM | 12 to 53 GPIO, USART, I ² C, SPI, LIN, USB, | 4 to 12 | 4- to 13-channel, 8/10/12-bit; 8-bit DAC | -40 to +125 | Op amp, in-circuit programming, low-voltage detect, brownout reset, internal oscillator, comparator, ADC, Data EE, voltage reference | \$0.87 to \$5.50 |
| 8- to 128-kbyte Flash, 1- to 4-kbyte SRAM | | | 28 QFN/SOIC/DIP, 40 PDIP, 44 QFN/TQFP, 64, 80, 100 TQFP | Up to five 10-bit PWM, five 8-/16-bit timers, watchdog, start-up, power-up | Up to two UART, SPI, I ² C; USB 2.0, 21 to 68 GPIO | 4 external, 18 internal | Up to 15-channel, 10-bit, 100-KSPS | -40 to +85 | In-circuit serial programming, low-voltage detect, brownout reset | \$1.50 to \$4.25 |
| 4- to 128-kbyte Flash, 256-kbyte to 4-kbyte SRAM, 128-kbyte to 1-kbyte EEPROM | | | 18/20/28/44/64/80 DIP/SOIC/TQFP/SDIP/QFN | Up to five 10-bit PWM, five 8-/16-bit timers, watchdog, start-up, power-up | Up to two UART, SPI, I ² C; CAN 2.0B, USB 2.0, 23 to 68 GPIO | 4 external, 18 internal | Up to 16-channel, 10-bit, 30-200-KSPS or 12-bit 50-KSPS | -40 to +125 | In-circuit serial programming, low-voltage detect, brownout reset | \$1.32 to \$8.50 |
| 8- to 32-kbyte Flash | | | SSOP, SDIP, TQFP | 8-bit, 16-bit, 10-bit for inverter PWM | UART, CSI | Up to 29 maskable | Four- to eight-channel, 10-bit | -40 to +85 | POC, LVI, Real Time Output Port | \$2.00 to \$3.00 |
| 8-kbyte Flash; 512-kbyte RAM | | | 64-LQFP | Four 8-bit, 16-bit, watchdog | UART/LIN, CSI, I ² C | 6 external, 14 internal | 4-channel 10-bit | -40 to +85 | HCD, POC, LVI | |

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| Company name | Device name or family | Instruction set architecture | CPU frequency (MHz) | Bus interface (address/data) (bits) | Instruction width (bits) | Core / I/O operating voltages (V) | Typical power at maximum frequency | Powerdown modes and minimum power | DSP/multiplication hardware support (bits) | FPU | Caching |
|--|-----------------------|------------------------------|---------------------|-------------------------------------|--------------------------|-----------------------------------|------------------------------------|---|--|-----|---------|
| NEC Electronics America www.am.necel.com | 78K0/Fx2 | NEC 78K | 20 | | 8 | 1.8 to 5.5 | 4.5 mA (5V) | Halt, Stop: 1 uA | 16x16 multiply, 32/16 divide | | |
| NEC Electronics America www.am.necel.com | 78K0/Lx2 | NEC 78K | 20 | | 8 | 1.8 to 5.5 | 4.5 mA (5V) | Halt, Stop: 1 uA | 16x16 multiply, 32/16 divide | | |
| NEC Electronics America www.am.necel.com | 78K0/Lx3 | NEC 78K | 10 | | 8 | 1.8 to 5.5 | 2.3mA (5V) | Halt, Stop: 1 uA | | | |
| NXP Semiconductors www.nxp.com/microcontrollers | LPC700 | 80C51 | 20 | | 8 | 2.7 to 5.5 | | Idle, powerdown | | | |
| NXP Semiconductors www.nxp.com/microcontrollers | LPC900 | 80C51 | 18 | | 8 | 2.3 to 3.6 | | Idle, powerdown | | | |
| Rabbit Semiconductor www.rabbit.com | Rabbit 2000 | Z80/Z180 style | 30 | 20/8 | 8, 16 | 2.5 to 5.5 | 120 mA (5V) | Sleepy: 60 uA (2.5V) | 16x16 | | |
| Rabbit Semiconductor www.rabbit.com | Rabbit 3000 | Z80/Z180 style | 54 | 20/8 | 8, 16 | 1.8 to 3.6 | 108 mA (3.3V) | Sleepy: 32 kHz, ultra sleepy: 16, 8, 2 kHz (1.8V) | 16x16 | | |
| Rabbit Semiconductor www.rabbit.com | Rabbit 4000 | Z80/Z180 style | 60 | 20/8 | 8, 16 | 1.8 to 3.3 | 108 mA (3.3V) | Sleepy: 32 kHz, ultra sleepy: 16, 8, 2 kHz (1.8V) | 16x16 | | |
| Ramtron www.ramtron.com | VRS51L2070 | 8051 | 40 | 16/8 (data memory) | 8 | 3.0 to 3.6 | 80 mW | 3.6 mW | Standard 8051 8x8 MULT/DIV instructions, 16x16 single-cycle MAC, five-cycle 16-bit DIV with single-cycle 32-bit barrel shifter | | |
| Ramtron www.ramtron.com | VRS51L3072 | 8051 | 40 | 16/8 (data memory) | 8 | 3.0 to 3.6 | 80 mW | 3.6 mW | Standard 8051 8x8 MULT/DIV instructions, 16x16 single-cycle MAC, five-cycle 16-bit DIV with single-cycle 32-bit barrel shifter | | |
| Ramtron www.ramtron.com | VRS51L3074 | 8051 | 40 | 16/8 (data memory) | 8 | 3.0 to 3.6 | 80 mW | 3.6 mW | Standard 8051 8x8 MULT/DIV instructions, 16x16 single-cycle MAC, five-cycle 16-bit DIV with single-cycle 32-bit barrel shifter | | |
| Ramtron www.ramtron.com | VRS51L3174 | 8051 | 40 | 16/8 (data memory) | 8 | 3.0 to 3.6 | 80 mW | 3.6 mW | Standard 8051 8x8 MULT/DIV instructions, 16x16 single-cycle MAC, five-cycle 16-bit DIV with single-cycle 32-bit barrel shifter | | |

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8-bit microprocessors sorted by company

| Memory | DMA / memory controller | MMU | Package selection | Timers / PWM | Serial, Parallel I/O | Interrupts | ADC; DAC | Temperature ranges (degrees Celsius) | Additional features | Price (\$/10,000) |
|---|--|-----|--|---|--|---|--|--|--|-------------------|
| 32- to 128-kbyte Flash | | | LQFP, (FP) LQFP 44/80 pin | 8-bit, 16-bit, watchdog, watch, PWM | UART, CSIs, CAN, aFCAN, LIN | 8 external, 24 29 internal | 8 - to 16 - channel, 10-bit | -40 to +125 | Embedded flash optimized for automotive; Supports CAN and LIN; power-on clear, low-voltage indicator | |
| 16- to 128-kbyte Flash, up to 7-kbyte SRAM | | | LQFP, QFP | 8-bit, 16-bit, watchdog, realtime, PWM | UART, LIN, I ² C, CSI | Up to 26 maskable | Five- to eight-channel, 10-bit | -40 to +85 | On-chip POC, LVI, 240 kHz and 8 MHz oscillator, LCD driver, bootswap function | \$2.5 to \$5 |
| 8- to 60-kbyte Flash | | | LQFP, (FP) LQFP 48-80 pins | 8-bit, 16-bit, watchdog, PWM, realtime with alarm function | UART, CSIs, LIN | 5 to 7 external, 17 to 22 internal | Six-eight channel, 10-bit, three channel, 16-bit | -40 to +85 | On-chip LCD controller (36 x 8 or 40 x 4 segments), Manchester Code generator and receiver for remote control, Supports up to 288 display segments | |
| Up to 8-kbyte OTP, 128-byte RAM | | | 14, 16, 20 TSSOP, PDIP, SOIC | Two 16-bit, watchdog | Full duplex UART, I ² C | Up to 8, two external | Two 8-bit | 0 to +70 | Programmable port output configurations, selectable Schmitt trigger inputs, LED drive outputs | From \$0.83 |
| Up to 768-byte RAM, 16-kbyte Flash, 512-byte EEPROM | | | 14/16/20/28 TSSOP, 8 SO, 10/28 HVQFN, 8/20 DIP | Four, PWM, real-time | CAN, I ² C, UART, SPI | Up to 15, up to four external | Four-channel, 8-bit | -40 to +125 -40 to +105 -40 to +85 | 76 pin-compatible, byte erasable Flash | From \$0.51 |
| External Flash, ROM, SRAM | Three chip selects, two out/write enables, up to six devices | Yes | 100 PQFP | Five 8-bit, 10-bit with two match registers, real-time, watchdog | Four asynchronous, two synchronous with SPI, 40 PIO | 4 external | | -40 to +85 | Slave port, bootstrap mode, spread spectrum circuitry for low-EMI | |
| External Flash, ROM, SRAM | Three chip selects, two out/write enables, up to 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 or SPI, two with HDLC/SDLC, 56 PIO | 4 to 16 external | | -55 to +85 | Slave port, bootstrap mode, quadrature decoder, pulse capture, auxiliary I/O bus, spread spectrum circuitry for low-EMI | |
| External Flash, ROM, SRAM | 8 independent channel with two external DMA request inputs | Yes | 128 LQFP, 128 TFBGA | 10 8-bit, 10-bit with two match registers, real-time, PWM, two watchdog, 16-bit timer | Six asynchronous, IrDA, four synchronous or SPI, two with HDLC/SDLC, 40 PIO, DMA | 4 to 16 external | | -40 to +85 | Slave port, bootstrap mode, quadrature decoder, pulse capture, auxiliary I/O bus, spread spectrum circuitry for low-EMI, 10 Base-T, seven hardware breakpoints | |
| 64-kbyte Flash, 4352-byte SRAM | | | 64 QFP | 14 16-bit, watchdog, PWM with up to 16-bit resolution | SPI, I ² C, 2 UARTs, 56 GPIO | 49 sources (16 external, port change), 16 interrupt vectors | | -40 to +85 | JTAG-USB, In System/Application Flash Programming, Debugging, 2 PWC, internal precision oscillator, brown-out detect | Under \$4 |
| 2-kbyte FRAM, 64-kbyte Flash, 4352-byte SRAM | | | 64 QFP | 14 16-bit, watchdog, PWM with up to 16-bit resolution | SPI, I ² C, 2 UARTs, 56 GPIO | 49 sources (16 external, port change), 16 interrupt vectors | | -40 to +85 | JTAG-USB, In System/Application Flash Programming, Debugging, 2 PWC, internal precision oscillator, brown-out detect | Under \$4.50 |
| 8-kbyte FRAM, 64-kbyte Flash, 4352-byte SRAM | | | 64 QFP | 14 16-bit, watchdog, PWM with up to 16-bit resolution | SPI, I ² C, 2 UARTs, 56 GPIO | 49 sources (16 external, port change), 16 interrupt vectors | | -40 to +85 | JTAG-USB, In System/Application Flash Programming, Debugging, 2 PWC, internal precision oscillator, brown-out detect | Under \$5 |
| 8-kbyte FRAM, 64-kbyte Flash, 4352-byte SRAM | | | 44 QFP | 14 16-bit, watchdog, PWM with up to 16-bit resolution | SPI, I ² C, 2 UARTs, 40 GPIO | 49 sources (16 external, port change), 16 interrupt vectors | | -40 to +85 | JTAG-USB, In System/Application Flash Programming, Debugging, 2 PWC, internal precision oscillator, brown-out detect. Standard 8051 pin compatible | Under \$5 |

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| Company name | Device name or family | Instruction set architecture | CPU frequency (MHz) | Bus interface (address/data) (bits) | Instruction width (bits) | Core / I/O operating voltages (V) | Typical power at maximum frequency | Powerdown modes and minimum power | DSP/multiplication hardware support (bits) | FPU | Caching |
|--|-------------------------|------------------------------|-----------------------|-------------------------------------|--------------------------|-----------------------------------|--|--|--|-----|----------------------------|
| Renesas Technology www.renesas.com | H8/38004 (H8/SLP) | H8 | 4 | 16/8 | 16, 32 | 2.2 to 3.6 | | Seven modes | 8x8 | | |
| Renesas Technology www.renesas.com | H8/38024R (H8/SLP) | H8 | 10 | 16/8 | 16, 32 | 2.7 to 3.6 | | Eight modes | 8x8 | | |
| Renesas Technology www.renesas.com | H8/38104 (H8/SLP) | H8 | 20 | 16/8 | 16, 32 | 2.7 to 5.5 | | Seven modes | 8x8 | | |
| Renesas Technology www.renesas.com | H8/38124 (H8/SLP) | H8 | 20 | 16/8 | 16, 32 | 2.7 to 5.5 | | Eight modes | 8x8 | | |
| Renesas Technology www.renesas.com | H8/3827 (H8/SLP) | H8 | 16 | 16/8 | 16, 32 | 2.7 to 5.5 | | Eight modes | 8x8 | | |
| Renesas Technology www.renesas.com | H8/38347 (H8/SLP) | H8 | 16 | 16/8 | 16, 32 | 2.7 to 5.5 | | Eight modes | 8x8 | | |
| Renesas Technology www.renesas.com | H8/38447 (H8/SLP) | H8 | 16 | 16/8 | 16, 32 | 2.7 to 5.5 | | Eight modes | 8x8 | | |
| Semtech www.semtech.com | XE8801A Sensing Machine | CoolRISC | 2 | 16/8 | 22 | 2.4 to 5.5 | 0.3 mA/MHz, not supply-voltage-dependant | Sleep, hibernate, selective function disable | 8x8 single-cycle multiplication | | Three-instruction pipeline |
| Semtech www.semtech.com | XE8802 Sensing Machine | CoolRISC | 7 (ROM), 2.5, 5 (MTP) | 16/8 | 22 | 2.4 to 5.5 (MTP) 1.2 to 5.5 (ROM) | 0.3 mA/MHz, not supply-voltage-dependant | Sleep, hibernate, selective function disable | 8x8 single-cycle multiplication | | Three-instruction pipeline |
| Semtech www.semtech.com | XE8805A Sensing Machine | CoolRISC | 2 | 16/8 | 22 | 2.4 to 5.5 | 0.3 mA/MHz, not supply-voltage-dependant | Sleep, hibernate, selective function disable | 8x8 single-cycle multiplication | | Three-instruction pipeline |
| Semtech www.semtech.com | XE8806A Radio Machine | CoolRISC | 2.5 (MTP), 7 (ROM) | 16/8 | 22 | 2.4 to 5.5 (MTP) 1.2 to 5.5 (ROM) | 0.3 mA/MHz, not supply-voltage-dependant | Sleep, hibernate, selective function disable | 8x8 single-cycle multiplication | | Three-instruction pipeline |
| Semtech www.semtech.com | XE8807A Radio Machine | CoolRISC | 5 (MTP) | 16/8 | 22 | 2.4 to 5.5 | 0.3 mA/MHz, not supply-voltage-dependant | Sleep, hibernate, selective function disable | 8x8 single-cycle multiplication | | Three-instruction pipeline |
| Silicon Laboratories www.silabs.com/mcu | C8051F02X | 8051 | 25 | 16/8 | 8 | 2.7 to 3.6/5 tolerant | 32 mW | 0.2 uA | 8x8 | | |
| Silicon Laboratories www.silabs.com/mcu | C8051F04X | 8051 | 25 | 16/8 | 8 | 2.7 to 3.6/5 tolerant | 46 mW | 0.2 uA | 8x8 | | |
| Silicon Laboratories www.silabs.com/mcu | C8051F06X | 8051 | 25 | 16/8 | 8 | 2.7 to 3.6/5 tolerant | 46 mW | 0.2 uA | 8x8 | | |

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| Memory | DMA / memory controller | MMU | Package selection | Timers / PWM | Serial, Parallel I/O | Interrupts | ADC; DAC | Temperature ranges (degrees Celsius) | Additional features | Price (\$/10,000) |
|---------------------------------------|-------------------------|-----|------------------------------|--|--|---------------------|--|--------------------------------------|---|-------------------|
| 16-kbyte, 32-kbyte, 1-kbyte RAM | | | 64LQFP 64QFP | One 8-bit, One 16-bit, watchdog | 1 Serial, 50 GPIO | 11 | 4-channel 10-bit | -40 to 85 | 16-bit AEC, 25x4 LCDC, 2-ch 10-bit PWM | \$3.10 |
| 32-kbyte Flash, 1-kbyte RAM | | | 80QFP, 80TQFP, 85TFLGA | Three 8-bit, One 16-bit, watchdog | 1 Serial, 66 GPIO | 13 | 8-channel 10-bit | -40 to 85 | 16-bit AEC, 32x4 LCDC, 2-ch 10-bit PWM | \$3.81 |
| 16-kbyte, 32-kbyte Flash, 1-kbyte RAM | | | 64QFP, 64LQFP | One 8-bit, One 16-bit, watchdog | 1 Serial, 49 GPIO | 11 | 4-channel 10-bit | -40 to 85 | 16-bit AEC, 25x4 LCDC, 2-ch 10-bit PWM | \$3.10 |
| 16-kbyte, 32 Flash, 1-kbyte RAM | | | 80TQFP, 80QFP | Three 8-bit, One 16-bit, watchdog | 1 Serial, 65 GPIO | 13 | 8-channel 10-bit | -40 to 85 | 16-bit AEC, 32x4 LCDC, 2-ch 10-bit PWM | \$3.34 |
| 32-kbyte, 60-kbyte Flash, 2-kbyte RAM | | | 80 QFP 80 TQFP | Three 8-bit, One 16-bit, watchdog, 14-bit PWM | 2 Serial, 64 GPIO | 13 | 8-channel 10-bit | -20 to 75 | 16-bit AEC, 32x4 LCDC | \$3.93 |
| 32-kbyte, 60-kbyte Flash, 2-kbyte RAM | | | 100 QFP 100 TQFP | Three 8-bit, One 16-bit, watchdog, 14-bit PWM | 3 Serial, 84 GPIO | 13 | 12-channel 10-bit | -40 to 85 | 16-bit AEC, 40x4 LCDC | \$4.16 |
| 32-kbyte, 60-kbyte Flash, 2-kbyte RAM | | | 100 QFP 100 TQFP | Three 8-bit, One 16-bit, watchdog, 14-bit PWM | 3 Serial, 84 GPIO | 13 | 12-channel 10-bit | -40 to 85 | 16-bit AEC, 40x4 LCDC | \$4.16 |
| 22-kbyte MTP, 520-byte SRAM | | | 44 LQFP | Four 8-bits, up-down, PWM, real-time, Xtal, 22-bit prescaler | 115-kbps UART, 24 PIO | Up to 24, 16 events | 16-bit, 1 to 1000x preamp, four differential or seven pseudo-differential inputs | -40 to +85 MTP -40 to +125 ROM | Prescaler with 1 Hz and 128 Hz interrupt | \$4.57 |
| 11- or 22-kbyte MTP, 1032-byte SRAM | | | 100 LQFP | Four 8-bits, up-down, PWM, real-time, Xtal, 22-bit prescaler | 115-kbps UART, SPI, 60 PIO | Up to 24, 16 events | 16-bit, 1 to 1000x preamp, four differential or seven pseudo-differential inputs, four low-power comparators | -40 to +85 MTP -40 to +125 ROM | Prescaler with 1 Hz and 128 Hz interrupt and 120 segment LCD driver | \$7.32 |
| 22-kbyte MTP, 520-byte SRAM | | | 64 LQFP | Four 8-bits, up-down, PWM, real-time, Xtal, 22-bit prescaler | 115-kbps UART, 24 PIO | Up to 24, 16 events | 16-bit, 1 to 1000x preamp, four differential or seven pseudo-differential inputs, 8- and 16-bit DAC | -40 to +85 MTP -40 to +125 ROM | Prescaler with 1 Hz and 128 Hz interrupt | \$4.95 |
| 22-kbyte MTP, 520-byte SRAM | | | 32 TQFP | Four 8-bits, up-down, PWM, real-time, Xtal, 22-bit prescaler | 115-kbps UART, 24 PIO, 156-kbps Bitjockey (Radio UART) | Up to 24, 16 events | Four low-power comparators | -40 to +85 MTP -40 to +125 ROM | Prescaler with 1 Hz and 128 Hz interrupt | \$3.02 |
| 11-kbyte MTP 520-byte RAM | | | 32 TQFP | Four 8-bits, up-down, PWM, real-time, Xtal, 22-bit prescaler | 115-kbps UART, 24 PIO, 156-kbps Bitjockey (Radio UART) | Up to 24, 16 events | Four low-power comparators | -40 to +85 MTP | Prescaler with 1 Hz and 128 Hz interrupt | \$3.02 |
| 64-kbyte Flash, 4352-byte SRAM | | | 64/100 TQFP | Five 16-bit, five-channel PCA, watchdog | SMBus, SPI, two UART, 64 PIO | 22, two levels | Eight-channel, 12 bit, 100-KSPS; two eight-channel, 8-bit, 500-KSPS; two-channel, 12-bit DAC | -40 to +85 | Two comparators, Vref, temperature sensor, JTAG debug | \$5.96 to \$8.03 |
| 32- to 64-kbyte Flash, 4352-byte SRAM | | | 64/100 TQFP | Five 16-bit, six-channel PCA, watchdog | CAN 2.0B, SMBus, SPI, two UART, 64 PIO | 20, two levels | 13-channel, 10- or 12-bit, 100-KSPS; eight-channel, 8-bit, 500-KSPS; two-channel, 12-bit DAC | -40 to +85 | Three comparators, Vref, temperature sensor, 2% internal oscillator, 32 CAN message objects, ±60V PGA, JTAG debug | \$4.26 to \$6.94 |
| 32- to 64-kbyte Flash, 4352-byte SRAM | DMA | | 64/100 TQFP | Five 16-bit, six-channel PCA, watchdog | CAN 2.0B, SMBus, SPI, two UART, 59 PIO | 22, two levels | Two channel 16-bit 1-MSPS, two eight channel 10-bit 200-KSPS, two channel 12-bit DAC | -40 to +85 | Three comparators, Vref, temperature sensor, 32 CAN message objects, 2% internal oscillator, JTAG debug | \$6.23 to \$9.56 |

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8-bit microprocessors sorted by company

| Company name | Device name or family | Instruction set architecture | CPU frequency (MHz) | Bus interface (address/data) (bits) | Instruction width (bits) | Core / I/O operating voltages (V) | Typical power at maximum frequency | Powerdown modes and minimum power | DSP/multiplication hardware support (bits) | FPU | Caching |
|--|-----------------------|------------------------------|---------------------|-------------------------------------|--------------------------|-----------------------------------|--------------------------------------|-----------------------------------|--|-----|----------------------------------|
| Silicon Laboratories www.silabs.com/mcu | C8051F0XX | 8051 | 25 | 16/8 | 8 | 2.7 to 3.6/ 5 tolerant | 35 mW | 5 uA | 8x8 | | |
| Silicon Laboratories www.silabs.com/mcu | C8051F12X | 8051 | 100 | 16/8 | 8 | 2.7 to 3.6/ 5 tolerant | 145 mW | 0.2 uA | 8x8, 16x16 two-cycle MAC | | 63-entry branch target buffer |
| Silicon Laboratories www.silabs.com/mcu | C8051F13X | 8051 | 100 | 16/8 | 8 | 2.7 to 3.6/ 5 tolerant | 145 mW | 0.2 uA | 8x8, 16x16 two-cycle MAC | | 63-entry branch target buffer |
| Silicon Laboratories www.silabs.com/mcu | C8051F2XX | 8051 | 25 | 16/8 | 8 | 2.7 to 3.6/ 5 tolerant | 24 mW | 0.1 uA | 8x8 | | |
| Silicon Laboratories www.silabs.com/mcu | C8051F30X | 8051 | 25 | 16/8 | 8 | 2.7 to 3.6/ 5 tolerant | 14 mW | Less than 0.1 uA | 8x8 | | |
| Silicon Laboratories www.silabs.com/mcu | C8051F31X | 8051 | 25 | 16/8 | 8 | 2.7 to 3.6/ 5 tolerant | 17 mW | Less than 0.1 uA | 8x8 | | |
| Silicon Laboratories www.silabs.com/mcu | C8051F32X | 8051 | 25 | 16/8 | 8 | 2.7 to 5.25 | 20 mW | Less than 0.1 uA | 8x8 | | |
| Silicon Laboratories www.silabs.com/mcu | C8051F33X | 8051 | 25 | 16/8 | 8 | 2.7 to 3.6/ 5 tolerant | 20 mW | Less than 0.1 uA | 8x8 | | |
| Silicon Laboratories www.silabs.com/mcu | C8051F34x | 8051 | 50 | 16/8 | 8 | 2.7 to 5.25 | 49 mW | Less than 0.1 uA | 8x8 | | |
| Silicon Laboratories www.silabs.com/mcu | C8051F35X | 8051 | 50 | 16/8 | 8 | 2.7 to 3.6/ 5 tolerant | 49 mW | Less than 0.1 uA | 8x8 | | |
| Silicon Laboratories www.silabs.com/mcu | C8051F36x | 8051 | 100 | 16/8 | 8 | 2.7 to 3.6/ 5 tolerant | 145 mW | Less than 0.1 uA | 8x8, 16x16 two-cycle MAC | | 63-entry branch target buffer |
| Silicon Laboratories www.silabs.com/mcu | C8051F41x | 8051 | 50 | 16/8 | 8 | 2.0 to 5.25 | 49 mW | Less than 0.1 uA | 8x8 | | |
| Silicon Laboratories www.silabs.com/mcu | C8051F5xx | 8051 | 25 | 16/8 | 8 | 2.7 to 5.25 | 14 mW | 0.2 uA | 8x8 | | |
| Silicon Laboratories www.silabs.com/mcu | C8051F9xx | 8051 | 25 | 16/8 | 8 | 0.9 to 3.6/ 5 tolerant | 170 uA/MHz | Less than 50 nA | 8x8 | | |
| Silicon Laboratories www.silabs.com/mcu | C8051T6xx | 8051 | 25 | 16/8 | 8 | 2.7 to 3.6/ 5 tolerant | 14 mW | Less than 0.1 uA | 8x8 | | |
| SST www.sst.com | SST89E516RDx | MCS51 | 40 | 16/8 | 8 | 4.5 to 5.5 | 125 mW (5V, 40 MHz activemode) | Idle, Powerdown | 8x8 | | |

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8-bit microprocessors sorted by company

| Memory | DMA / memory controller | MMU | Package selection | Timers / PWM | Serial, Parallel I/O | Interrupts | ADC; DAC | Temperature ranges (degrees Celsius) | Additional features | Price (\$/10,000) |
|--|-------------------------|-----|----------------------------|---|---------------------------------------|----------------|---|--------------------------------------|---|--------------------|
| 16- to 32-kbyte Flash, 2304-byte SRAM | | | 32 LQFP, 48/64 TQFP | Four 16-bit, five-channel PCA, watchdog | SMBus, SPI, UART, 32 PIO | 21, two levels | Eight-channel, 10/12-bit, 100-KSPS; two-channel, 12-bit DAC | -40 to +85 | Two comparators, Vref, temperature sensor, JTAG debug | \$4.32 to \$5.48 |
| 128-kbyte Flash, 8448-byte SRAM | | | 64/100 TQFP | Five 16-bit, six-channel PCA, watchdog | SMBus, SPI, two UART, 64 PIO | 20, two levels | Eight-channel, 10/12-bit, 100-KSPS; eight-channel, 8-bit, 500-KSPS; two-channel, 12-bit DAC | -40 to +85 | Two comparators, Vref, temperature sensor, JTAG debug, 2% internal oscillator with PLL | \$7.88 to \$12.40 |
| 64- to 128-kbyte Flash, 8448-byte SRAM | | | 64/100 TQFP | Five 16-bit, six-channel PCA, watchdog | SMBus, SPI, two UART, 64 PIO | 20, two levels | Eight-channel, 10-bit, 100-KSPS | -40 to +85 | Two comparators, Vref, temperature sensor, JTAG debug, 2% internal oscillator with PLL | \$7.55 to \$9.50 |
| 8-kbyte Flash, 1280-byte SRAM | | | 48 TQFP, 32 LQFP | Three 16-bit, watchdog | SPI, UART, 32 PIO | 22, two levels | 32-channel, 12-bit, 100-KSPS | -40 to +85 | Two comparators, JTAG debug | \$1.72 to \$2.34 |
| 8-kbyte Flash, 256-byte SRAM | | | 11 MLP | Three 16-bit, three-channel PCA, watchdog | SMBus, UART, eight PIO | 12, two levels | Eight-channel, 8-bit, 500-KSPS | -40 to +85 | Comparator, temperature sensor, 2% internal oscillator, on-chip debug | 99 cents to \$1.32 |
| 8- to 16-kbyte Flash, 1280-byte SRAM | | | 32 LQFP, 28 MLP | Four 16-bit, five-channel PCA, watchdog | SMBus, SPI, UART, 29 PIO | 14, two levels | 21-channel, 10-bit, 200-KSPS | -40 to +85 | Two comparators, temperature sensor, 2% internal oscillator, on-chip debug | \$1.54 to \$2.52 |
| 16-kbyte Flash, 2304-byte SRAM | | | 32 LQFP, 28 MLP | Four 16-bit, five-channel PCA, watchdog | USB 2.0, SMBus, SPI, UART, 25 PIO | 16, two levels | 17-channel, 10-bit, 200-KSPS | -40 to +85 | Two comparators, Vref, temperature sensor, 1.5% internal oscillator, on-chip debug | \$1.76 to \$3.07 |
| 2-, 4-, or 8-kbyte Flash, 768-byte SRAM | | | 20 MLP | Four 16-bit, three-channel PCA, watchdog | SMBus, SPI, UART, 17 PIO | 13, two levels | 16-channel, 10-bit, 200-KSPS; 10-bit DAC | -40 to +85 | Comparator, Vref, temperature sensor, 2% internal oscillator, on-chip debug | \$1.06 to \$1.87 |
| 32- to 64-kbyte Flash, 3328- to 5376 byte SRAM | | | 48 TQFP, 32 LQFP, 28 MLP | Four 16-bit, five-channel PCA, watchdog | USB 2.0, SMBus, SPI, 2 x UART, 29 PIO | 16, two levels | 17-channel, 10-bit, 200-KSPS | -40 to +85 | Two comparators, Vref, temperature sensor, 1.5% internal oscillator, on-chip debug | \$3.72 to \$4.42 |
| 8-kbyte Flash, 768-byte SRAM | | | 32 LQFP, 28 MLP | Four 16-bit, three-channel PCA, watchdog | SMBus, SPI, UART, 17 PIO | 12, two levels | Eight-channel, 24-bit, 1-KSPS; two-channel, 8-bit DAC | -40 to +85 | Comparator, temperature sensor, 2% internal oscillator, on-chip debug | \$2.20 to \$3.55 |
| 16- to 32-kbyte Flash, 1280-byte SRAM | | | 48 TQFP, 32 LQFP, 28 MLP | Four 16-bit, five-channel PCA, watchdog | SMBus, SPI, UART, 29 PIO | 14, two levels | 17-channel, 10-bit, 200-KSPS, 10-bit DAC | -40 to +85 | Two comparators, temperature sensor, 2% internal oscillator, on-chip debug | \$2.47 to \$3.84 |
| 16- to 32-kbyte Flash, 1280- to 2304-byte SRAM | | | LQFP32, MLP28 | Four 16-bit, six-channel PCA, watchdog | SMBus, SPI, UART, 29 PIO | 13, two levels | 24-channel, 12-bit, 200-KSPS; 2 x 12-bit DAC | -40 to +85 | VREG, SmaRTClock, Two comparators, temperature sensor, 2% internal oscillator, on-chip debug | \$2.56 to \$3.43 |
| 2- to 8-kbyte OTP, 256-byte SRAM | | | QFN10, QFN20, TSSOP20, | Three 16-bit, three-channel PCA, watchdog | LIN, SPI, UART, 17 PIO | 14, two levels | 16-channel, 12-bit, 200-KSPS | -40 to +125 | VREG, One comparator, temperature sensor, 0.5% internal oscillator, on-chip debug | \$1.43 to \$1.85 |
| 64-kbyte Flash, 4352-byte internal RAM | | | 24 or 32 QFN, 32 LTQFP | Four 16-bit, six-channel PCA, watchdog | SMBus, SPI, UART | 18, two levels | 23-channel, 10-bit, 300-KSPS | -40 to +85 | Integrated LDO regulator and dc-dc converter, comparator, temperature sensor, 2% internal oscillator, 20 MHz low-power oscillator, external oscillator support, SmaRTClock, on-chip debug | \$1.99 |
| 2- to 8-kbyte OTP, 256-byte SRAM | | | 11 MLP, SOIC14 | Three 16-bit, three-channel PCA, watchdog | SMBus, UART, eight PIO | 12, two levels | Eight-channel, 10-bit, 500-KSPS | -40 to +85 | Comparator, temperature sensor, 2% internal oscillator, on-chip debug | \$0.45 to \$0.57 |
| 64-Kbyte + 8-kbyte Flash, 1-Kbyte RAM | | | 40 PDIP/QQFN, 44 PLCC/TQFP | Three 16-bit, PCA, watchdog | Enhanced UART, SPI | 8, four levels | | 0 to +70 -40 to +85 | In-Application Programming; In-System Programming; BOD; Second DPTR, Port4 | \$1.00 to \$3.00 |

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8-bit microprocessors sorted by company

| Company name | Device name or family | Instruction set architecture | CPU frequency (MHz) | Bus interface (address/data) (bits) | Instruction width (bits) | Core / I/O operating voltages (V) | Typical power at maximum frequency | Powerdown modes and minimum power | DSP/multiplication hardware support (bits) | FPU | Caching |
|--|-----------------------|------------------------------|---------------------|-------------------------------------|--------------------------|-----------------------------------|------------------------------------|--|--|-----|---------|
| SST www.sst.com | SST89E52RC | MCS51 | 33 | 16/8 | 8 | 4.5 to 5.5 | 125 mW (5V, 33 MHz activemode) | Idle, Powerdown | 8x8 | | |
| SST www.sst.com | SST89E54RC | MCS51 | 33 | 16/8 | 8 | 4.5 to 5.5 | 125 mW (5V, 33 MHz activemode) | Idle, Powerdown | 8x8 | | |
| SST www.sst.com | SST89E54RDx | MCS51 | 40 | 16/8 | 8 | 4.5 to 5.5 | 125 mW (5V, 40 MHz activemode) | Idle, Powerdown | 8x8 | | |
| SST www.sst.com | SST89E58RDx | MCS51 | 40 | 16/8 | 8 | 4.5 to 5.5 | 125 mW (5V, 40 MHz activemode) | Idle, Powerdown | 8x8 | | |
| SST www.sst.com | SST89V516RDx | MCS51 | 33 | 16/8 | 8 | 2.7 to 3.6 | 75 mW (3V, 33 MHz activemode) | Idle, Powerdown | 8x8 | | |
| SST www.sst.com | SST89V54RDx | MCS51 | 33 | 16/8 | 8 | 2.7 to 3.6 | 75 mW (3V, 33 MHz activemode) | Idle, Powerdown | 8x8 | | |
| SST www.sst.com | SST89V58RDx | MCS51 | 33 | 16/8 | 8 | 2.7 to 3.6 | 75 mW (3V, 33 MHz activemode) | Idle, Powerdown | 8x8 | | |
| STMicroelectronics www.st.com | ST7 LITE0 | ST7 | 8 | | 8 | 2.4 to 5.5 | 4.5 mA | Halt: 0.5 uA, wait 1.75 mA, slow 0.75 mA, Slow wait 0.65 mA | Hardware multiply | | |
| STMicroelectronics www.st.com | ST7 LITE1B | ST7 | 8 | | 8 | 2.7 to 5.5 | 7 mA | Halt: >1 uA, autowake-up 20 uA, wait 3 mA, slow 700 uA | Hardware multiply | | |
| STMicroelectronics www.st.com | ST7 LITE3 | ST7 | 8 | | 8 | 2.7 to 5.5 | 6 mA | Halt: 0.5 uA, autowake-up 20 uA, active-halt 700 uA, wait 2.4 mA, slow 700 uA | Hardware multiply | | |
| STMicroelectronics www.st.com | ST7 LITE49M | ST7 | 8 | | 8 | 2.4 to 5.5 | 5 mA | Halt: 500 uA, autowake-up 50 uA, active-halt 120 uA, wait 2mA, slow 550 uA, slow wait 450 uA | Hardware multiply | | |
| STMicroelectronics www.st.com | ST7 LITEU0 | ST7 | 8 | | 8 | 2.4 to 5.5 | 5 mA | Halt: 500 uA, autowake-up 15 uA, active-halt 100 uA, wait 500 uA, slow 350 uA | Hardware multiply | | |
| STMicroelectronics www.st.com | ST7 SUPERLITE | ST7 | 8 | | 8 | 2.4 to 5.5 | 4.5 mA | Halt: 0.5 uA, wait 1.75 mA, slow 0.75 mA, Slow wait 0.65 mA | Hardware multiply | | |
| STMicroelectronics www.st.com | ST7 ULTRALITEUS | ST7 | 8 | | 8 | 2.4 to 5.5 | 5 mA | Halt: 500 uA, autowake-up 15 uA, active-halt 100 uA, wait 500 uA, slow 350 uA | Hardware multiply | | |
| STMicroelectronics www.st.com | ST72F264 | ST7 | 8 | | 8 | 2.7 to 5.5 | 7.2 mA | Halt, active-halt, wait, slow | Hardware multiply | | |
| STMicroelectronics www.st.com | ST72F321B | ST7 | 8 | | 8 | 3.8 to 5.5 | 7.1 mA | Halt: <1 uA (less than 85°C), halt: 5 uA (less than 125°C), slow, wait, active-halt | Hardware multiply | | |

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8-bit microprocessors sorted by company

| Memory | DMA / memory controller | MMU | Package selection | Timers / PWM | Serial, Parallel I/O | Interrupts | ADC; DAC | Temperature ranges (degrees Celsius) | Additional features | Price (\$/10,000) |
|--|-------------------------|-----|--|--|-------------------------------|-------------------------------------|-------------------------------|--|--|-------------------|
| 8-Kbyte + 1-Kbyte Flash, 512-byte RAM | | | 40 PDIP, 44 PLCC | Three 16-bit, watchdog | Enhanced UART | 8, four levels | | 0 to +70 | In-Application Programming; In-System Programming; Second DPTR | \$1.00 to \$1.20 |
| 16-Kbyte + 1-Kbyte Flash, 512-byte RAM | | | 40 PDIP, 44 PLCC | Three 16-bit, watchdog | Enhanced UART | 8, four levels | | 0 to +70 | In-Application Programming; In-System Programming; Second DPTR | \$1.00 to \$1.20 |
| 16-kbyte + 8-kbyte Flash, 1-kbyte RAM | | | 40 PDIP, 44 PLCC/TQFP | Three 16-bit, PCA, watchdog | Enhanced UART, SPI | 8, four levels | | 0 to +70 -40 to +85 | In-Application Programming; In-System Programming; BOD; Second DPTR, Port4 | \$1.00 to \$3.00 |
| 32-kbyte + 8-kbyte Flash, 1-kbyte RAM | | | 40 PDIP, 44 PLCC/TQFP | Three 16-bit, PCA, watchdog | Enhanced UART, SPI | 8, four levels | | 0 to +70 -40 to +85 | In-Application Programming; In-System Programming; BOD; Second DPTR, Port4 | \$1.00 to \$3.00 |
| 64-kbyte + 8-kbyte Flash, 1-kbyte RAM | | | 40 PDIP, 44 PLCC/TQFP | Three 16-bit, PCA, watchdog | Enhanced UART, SPI | 8, four levels | | 0 to +70 -40 to +85 | In-Application Programming; In-System Programming; BOD; Second DPTR, Port4 | \$1.00 to \$3.00 |
| 16-kbyte + 8-kbyte Flash, 1-kbyte RAM | | | 40 PDIP, 44 PLCC/TQFP | Three 16-bit, PCA, watchdog | Enhanced UART, SPI | 8, four levels | | 0 to +70 -40 to +85 | In-Application Programming; In-System Programming; BOD; Second DPTR, Port4 | \$1.00 to \$3.00 |
| 32-kbyte + 8-kbyte Flash, 1-kbyte RAM | | | 40 PDIP, 44 PLCC/TQFP | Three 16-bit, PCA, watchdog | Enhanced UART, SPI | 8, four levels | | 0 to +70 -40 to +85 | In-Application Programming; In-System Programming; BOD; Second DPTR, Port4 | \$1.00 to \$3.00 |
| 1.5-kbyte Flash, 128-byte EEPROM, 128-byte SRAM | | | 20 QFN 20 SO 20 DIP | 8-bit, 12-bit auto-reload with PWM | SPI | 10, four external | 5 channel, 8-bit with op-amp | -40 to +85 | 1% RC internal oscillator, PLL, 3 level LVD | From \$0.49 |
| 2- to 4-kbyte Flash, 128-byte EEPROM, 256-byte SRAM | | | 20 SO, 20 DIP, 16 SO, 16 DIP | 2x8-bit with prescaler, 2x12-bit auto-reload with 4 PWM, real-time clk, watchdog | SPI | 12 vectors, 15 external | 7-channel, 10-bit with op-amp | -40 to +85 | 1% RC internal oscillator, PLL, in-application programming | From \$0.70 |
| 8-kbyte Flash, 256-byte EEPROM, 384-byte SRAM | | | 20 QFN 20 SO 20 DIP | 2x8-bit, 2x12-bit auto-reload, 4 PWM, watchdog | SPI, LINSCI | 10 vectors, 12 external | 7-channel, 10-bit | -40 to +85 | 1% RC internal oscillator, PLL, enhanced LVD | From \$0.95 |
| 4-kbyte Flash, 128-byte EEPROM, 384-byte SRAM | | | 32 LQFP 32 DIP | 2x8-bit, 2x12-bit auto-reload, 4 PWM, dead-time, one-pulse, watchdog | I ² C Master/Slave | 13 | 10 channel, 10-bit | -40 to +85 | 1% RC internal oscillator, 3-level LVD | From \$0.75 |
| 2-kbyte Flash, 128-byte SRAM | | | 8 DFN 8 SO 8 DIP | 8-bit with prescaler, 12-bit auto-reload with PWM | | 11 vectors, trap, reset, 5 external | | -40 to +85 | 1% RC internal oscillator; 2x low voltage detectors | From \$0.60 |
| 1-kbyte Flash, 128-byte SRAM | | | 20 QFN 20 SO 20 DIP | 8-bit, 12-bit auto-reload with PWM | SPI | 10, four external | 5 channel 8-bit with op-amp | -40 to +85 | 1% RC internal oscillator, PLL, 3 level LVD | From \$0.45 |
| 1-kbyte Flash, 128-byte SRAM | | | 8 DFN 8 SO 8 DIP | 8-bit with prescaler, 12-bit auto-reload with PWM | | 11 vectors, trap, reset, 5 external | 5 channel 10-bit | -40 to +85 | 1% RC internal oscillator; 2x low voltage detectors | From \$0.46 |
| 4- or 8-kbyte ROM or Flash, 256-byte RAM | | | 28 SO, 32 SDIP, 36 BGA (6x6 mm) | Two 16-bit, PWM, watchdog | SPI, I ² C, SCI | 10, 22 external (nested) | 6 channel 10-bit | 0 to +70 -10 to +85 -40 to +85 | PLL, in-application Flash programming | From \$0.99 |
| 32- to 60-kbyte ROM or high density Flash, 1- to 2-kbyte RAM | | | 44/64 TQFP, 42/56 SDIP, 32 QFP | Two 16-bit, PWM, 8-bit auto-reload, watchdog | SPI, I ² C, SCI | 10, 15 external (nested) | 16-channel 10-bit | 0 to +70 -40 to +85 -40 to +105 -40 to +125 | In-application Flash programming | From \$1.80 |

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| Company name | Device name or family | Instruction set architecture | CPU frequency (MHz) | Bus interface (address/data) (bits) | Instruction width (bits) | Core / I/O operating voltages (V) | Typical power at maximum frequency | Powerdown modes and minimum power | DSP/multiplication hardware support (bits) | FPU | Caching |
|--|---------------------------------------|----------------------------------|---------------------|-------------------------------------|--------------------------|-----------------------------------|------------------------------------|--|--|-----|---------|
| STMicroelectronics www.st.com | ST72F324B | ST7 | 8 | | 8 | 3.8 to 5.5 | 7.1 mA | Halt: <1 uA, active-halt: 80 uA, wait: 1.0 mA, slow-wait: 580 uA, slow: 600 uA | Hardware multiply | | |
| STMicroelectronics www.st.com | ST72F324BL | ST7 | 8 | | 8 | 2.85 to 3.6 | 4.7 mA (3.3V) | Halt: >1uA, active-halt: 350 uA, wait: 3.2 mA, slow: 700 uA | Hardware multiply | | |
| STMicroelectronics www.st.com | ST72F32A | ST7 | 8 | | 8 | 3.8 to 5.5 | 4.4 mA | Halt: <1 uA active-halt: 60 uA wait: 0.6 mA slow wait: 430 uA slow: 0.48 mA | Hardware multiply | | |
| STMicroelectronics www.st.com | ST72F34x | ST7 | 8 | | 8 | 2.7 to 5.5 | 8.5 mA | Halt: 1 uA active-halt: 0.5 mA wait: 3.7 mA autowakeup: 50 uA slow wait: 2.2 mA slow: 4.1 mA | Hardware multiply | | |
| STMicroelectronics www.st.com | ST72F361 | ST7 | 8 | | 8 | 4.5 to 5.5 | 10 mA | Halt: <1 uA active-halt: 0.5 mA wait: 1 mA slow wait: 0.4 mA slow: 0.5 mA | Hardware multiply | | |
| STMicroelectronics www.st.com | ST72F561 CAN | ST7 | 8 | | 8 | 4.5 to 5.5 | 9 mA | Slow: 0.8 mA wait: 5.5 mA slow-wait: 5.5 mA | Hardware multiply | | |
| STMicroelectronics www.st.com | ST72F60 ST72F63B Low-speed USB | ST7 | 8 | | 8 | 4 to 5.5 | 10.5 mA | wait, halt | Hardware multiply | | |
| STMicroelectronics www.st.com | ST72FMC1 ST72FMC2 Motor Control | ST7 | 8 | | 8 | 4.5 to 5.5 | 12 mA | Slow: 5 mA, wait: 6 mA, slow-wait: 1.5 mA | Hardware multiply | | |
| STMicroelectronics www.st.com | STM8S | STM8 | 24, 16 | | 8, 16 | 3 to 5.5 | 2.5 mA | Halt 5.5uA, Active Halt 11.5 uA | Hardware multiply | | |
| STMicroelectronics www.st.com | UPSD33xx | 8051 | 40 | 16/8 | 8 | 3.3/3.3 or 3.3/5 | | | | | |
| STMicroelectronics www.st.com | UPSD34xx | 8051 | 40 | 16/8 | 8 | 3.3/3.3 or 3.3/5 | | | | | |
| Teridian Semiconductor www.teridian.com | 71M651x | 8051 (one clock per instruction) | 5 | 8 | 8 | 2.5 | 8.5 mA | 2 uA battery | | | |
| Teridian Semiconductor www.teridian.com | 71M652x | 8051 (one clock per instruction) | 5 | 8 | 8 | 2.5 | 8.5 mA | 3 uA sleep | | | |
| Teridian Semiconductor www.teridian.com | 71M653x | 8051 (one clock per instruction) | 10 | 8 | 8 | 2.5 | 30mA | 0.5 uA sleep 32 normal | | | |

2008 EDN Microcontroller/Microprocessor Directory

8-bit microprocessors sorted by company

| Memory | DMA / memory controller | MMU | Package selection | Timers / PWM | Serial, Parallel I/O | Interrupts | ADC; DAC | Temperature ranges (degrees Celsius) | Additional features | Price (\$/10,000) |
|--|-------------------------|-----|--|--|---|--------------------------------------|------------------------|--|---|-------------------|
| 8- to 32-kbyte ROM or Flash, 384 byte to 1-kbyte RAM | | | 32/44 TQFP, 32/42 SDIP | Two 16-bit, PWM, watchdog | SPI, SCI | 10, nine external (nested) | 12-channel 10-bit | 0 to +70 -40 to +85 -40 to +105 -40 to +125 | Enhanced reset, in-application Flash programming | From \$1.12 |
| 8- to 32-kbyte ROM or Flash, 384 byte to 1-kbyte RAM | | | 32/44 TQFP, 32/42 SDIP | Two 16-bit, PWM, watchdog | SPI, SCI | 10, nine external (nested) | 12-channel 10-bit | 0 to +70 -40 to +85 -40 to +105 -40 to +125 | Enhanced reset, in-application Flash programming | From \$1.25 |
| 4- or 8-kbyte Flash, 384-byte SRAM | | | 64 TQFP | 16-bit with compare, 6-bit PWM, 4-bit rate multiplier, watchdog | I ² C, USB full speed, 47 PIO | 16 external | 2 channel 8-bit | -40 to +85 | In-application programming | From \$0.84 |
| 8- or 16-kbyte Flash, 1024 or 512 byte SRAM, 256-byte EEPROM | | | 32 LQFP, 44 LQFP | 16-bit w 1-capture, 1-compare, PWM; 16-bit w 2-capture, 2-compare, PWM, watchdog, real time | Two I ² C, SCI, SPI | 10, 9 external | 8 or 10-channel 10-bit | -40 to +85 | In-application programming | From \$1.30 |
| 48- or 60-kbyte, 1.5- or 2-kbyte SRAM | | | 32/44/64 TQFP | 16-bit, 2 capture, compare, PWM, 8-bit capture, compare, PWM, 8-bit ART with 2 or 4 PWM, watchdog | SPI, LIN SPI, 47 PIO | Up to 21 external | 16-channel 10-bit | -40 to +85 | In-application programming | From \$1.70 |
| 32- to 60-kbyte Flash or ROM, 1- to 2-kbyte RAM | | | 32/44/64 TQFP | 16-bit PWM, 8-bit, 8-bit auto-reload PWM, watchdog, real-time | SPI, two LINSPI, CAN active | 14, 21 external, TLI, nested | 16-channel 10-bit | -40 to +85 -40 to +105 -40 to +125 | In-application Flash programming | From \$1.80 |
| 4-, 8-, 16-, 32-kbyte Flash; 384-, 512 or 1024-byte SRAM | | | 32 PDIP, 24/34 SO, 48 TQFP, 40 QFN | 16-bit with 2 capture, compare, PWM, watchdog | SCI, I ² C, USB low speed, up to 27 PIO | 9 | 8-channel 8/10-bit | 0 to +70 | DFU class, In-application programming | From \$0.82 |
| 8- to 60-kbyte Flash or ROM, 384 byte to 1.5-kbyte RAM | | | 32/44/64/80 TQFP, 56 SDIP | 8-bit autoreload with four PWM, two 16-bit with PWM, six channel PWM, real-time, watchdog | SPI, LINSPI | 16 external, nested four levels, NMI | 16-channel 10-bit | -40 to +85 -40 to +105 -40 to +125 | Dedicated motor control cell for three-phase brushless AC or DC motors and compressors | From \$1.87 |
| 4-, 8-, 16-, 32-, 64-, 128-kbyte Flash, up to 6-kbytes SRAM, up to 2-kbytes EEPROM | | | TSSOP20, 32 QFN/LQFP, 44/48/64/80 LQFP | 16-bit control (CAPCOM, complementary outputs, dead-time insertion), Two 16-bit (CAPCOM, PWM), 8-bit, auto wake up timer, two watchdog | 2 x UART (LIN, IrDA), SPI, I ² C, CAN, up to 68 I/Os | 37 | 16-channel 10-bit | -40 to +125 | Advanced timer for motor control and lighting, Internal 16MHz RC and 128kHz RC, SWIM and Debug Module | |
| 80- to 288-kbyte Flash, 2- to 32-kbyte RAM | Internal or external | | 52/80 TQFP | Nine, watchdog, five PWM | SPI, I ² C, two UART, IrDA | 13, two external | 8-channel 10-bit | -40 to +85 | JTAG Debug and Programming, 16 Macrocell CPLD, Reset supervisor | From \$3.60 |
| 80- to 288-kbyte Flash, 4- to 8-kbyte RAM | Internal or external | | 52/80 TQFP | Nine, watchdog, five PWM | FS USB, SPI, I ² C, two UART, IrDA | 13, two external | 8-channel 10-bit | -40 to +85 | JTAG Debug and Programming, 16 Macrocell CPLD, Reset supervisor | From \$3.20 |
| 64-kbyte Flash | | | 100LQFP, 68QFN, 64LQFP | 2 | 2 UARTs | 6, 4 priority levels | 22-bit | -40 to +85 | Precision AFE, RTC, LCD Driver, battery backup, ICE interface | \$2.21 to \$6.01 |
| 8- to 32-kbyte Flash | | | 64LQFP, 68QFN | 2 | 2 UARTs | 6, 4 priority levels | 22-bit | -40 to +85 | Precision AFE, RTC, LCD Driver, battery backup, ICE interface | \$2.53 to \$3.85 |
| 128 to 256-kbyte Flash | | | 68QFN, 100LQFP, 120LQFP | 2 | 2 UARTs | 6, 4 priority levels | 22-bit | -40 to +85 | Precision AFE, RTC, LCD Driver, battery backup, ICE interface | |

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| Company name | Device name or family | Instruction set architecture | CPU frequency (MHz) | Bus interface (address/data) (bits) | Instruction width (bits) | Core / I/O operating voltages (V) | Typical power at maximum frequency | Powerdown modes and minimum power | DSP/multiplication hardware support (bits) | FPU | Caching |
|---|-----------------------|----------------------------------|---|-------------------------------------|--------------------------|-----------------------------------|------------------------------------|--|--|-----|-----------------------------------|
| Teridian Semiconductor www.teridian.com | 73S1209 73S1210 | 8051 (one clock per instruction) | 24 | 8 | 8 | 2.5 | 21 mA | 7 uA sleep | | | |
| Teridian Semiconductor www.teridian.com | 73S1215 73S1217 | 8051 (one clock per instruction) | 24 | 8 | 8 | 2.5 | 30 mA | 7 uA sleep | | | |
| Toshiba America Electronic Components www.toshiba.com/taec | 870 | TLCS | 32 kHz to 8 (4clock for 1 machine cycle) | 16/8 | 8 to 32 | 2.7 to 5.5/6 | 6 mA | Idle: 3 mA, slow: 30 uA, sleep: 15 mA, stop: 0.5 uA | Yes | | |
| Toshiba America Electronic Components www.toshiba.com/taec | 870/C | TLCS | 32 kHz to 16 (4clock for 1 machine cycle) | 16/8 | 8 to 40 | 1.8 to 5.5 | 7.5 mA | Idle: 5.5 mA, slow: 14 uA, sleep: 6 uA, stop: 0.5 uA | Yes | | |
| Toshiba America Electronic Components www.toshiba.com/taec | 870/C1 | TLCS | 32 kHz to 8 (1clock for 1 machine cycle) | 16/8 | 8 to 40 | 1.8 to 5.5 | 17.0 mA | Idle: 5.5 mA, slow: 25 uA, sleep: 12 uA, stop: 10 uA | Yes | | |
| Toshiba America Electronic Components www.toshiba.com/taec | 870/X | TLCS | | 20/8 | 8 to 48 | 4.5 to 5.5 | 20 mA | Idle: 16 mA, stop: 0.5 mA | Yes | | |
| Uvicom www.ubicom.com | IP2022 | Uvicom | 120 | Software I/O (Serial/Parallel I/O) | 16 | 2.5/2.5 or 3.3, 5 tolerant | 175 mW | Sleep: 500 mW, runtime clock control, function disable | One-cycle 8x8 signed/unsigned | | None, single-cycle memory on-chip |
| ZiLOG www.zilog.com | Crimzon ZLP12840xxx28 | Z8/Crimzon | 8 | 17/8 | 8, 16, 24 | 2.0 to 3.6 | 2 mA | STOP 1uA; HALT 0.8 mA | | | |
| ZiLOG www.zilog.com | Crimzon ZLP12840xxx32 | Z8/Crimzon | 8 | 17/8 | 8, 16, 24 | 2.0 to 3.6 | 2 mA | STOP 1uA; HALT 0.8 mA | | | |
| ZiLOG www.zilog.com | Crimzon ZLP12840xxx64 | Z8/Crimzon | 8 | 17/8 | 8, 16, 24 | 2.0 to 3.6 | 2 mA | STOP 1uA; HALT 0.8 mA | | | |
| ZiLOG www.zilog.com | Crimzon ZLP12840xxx96 | Z8/Crimzon | 8 | 17/8 | 8, 16, 24 | 2.0 to 3.6 | 2 mA | STOP 1uA; HALT 0.8 mA | | | |
| ZiLOG www.zilog.com | Crimzon ZLP32300xxx04 | Z8/Crimzon | 8 | 17/8 | 8,16,24 | 2.0 to 3.6 | 2 mA | STOP 1uA; HALT 0.8 mA | | | |
| ZiLOG www.zilog.com | Crimzon ZLP32300xxx08 | Z8/Crimzon | 8 | 17/8 | 8,16,24 | 2.0 to 3.6 | 2 mA | STOP 1uA; HALT 0.8 mA | | | |
| ZiLOG www.zilog.com | Crimzon ZLP32300xxx16 | Z8/Crimzon | 8 | 17/8 | 8,16,24 | 2.0 to 3.6 | 2 mA | STOP 1uA; HALT 0.8 mA | | | |
| ZiLOG www.zilog.com | Crimzon ZLP32300xxx32 | Z8/Crimzon | 8 | 17/8 | 8,16,24 | 2.0 to 3.6 | 2 mA | STOP 1uA; HALT 0.8 mA | | | |
| ZiLOG www.zilog.com | Crimzon ZLR16300xxx04 | Z8/Crimzon | 8 | 17/8 | 8,16,24 | 2.0 to 3.6 | 2 mA | STOP 1uA; HALT 0.8 mA | | | |
| ZiLOG www.zilog.com | Crimzon ZLR16300xxx08 | Z8/Crimzon | 8 | 17/8 | 8,16,24 | 2.0 to 3.6 | 2 mA | STOP 1uA; HALT 0.8 mA | | | |
| ZiLOG www.zilog.com | Crimzon ZLR16300xxx16 | Z8/Crimzon | 8 | 17/8 | 8,16,24 | 2.0 to 3.6 | 2 mA | STOP 1uA; HALT 0.8 mA | | | |
| ZiLOG www.zilog.com | Crimzon ZLR32300xxx04 | Z8/Crimzon | 8 | 17/8 | 8,16,24 | 2.0 to 3.6 | 2 mA | STOP 1uA; HALT 0.8 mA | | | |

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| Memory | DMA / memory controller | MMU | Package selection | Timers / PWM | Serial, Parallel I/O | Interrupts | ADC; DAC | Temperature ranges (degrees Celsius) | Additional features | Price (\$/10,000) |
|--|-------------------------|-----|-----------------------------|---|---|----------------------|---|--------------------------------------|--|-------------------|
| 32-kbyte Flash | | | 68QFN 44QFN | 2 | 2 UARTs | 6, 4 priority levels | | -40 to +85 | Smart Card Reader Interface, ISO-7816 UART, keypad interface, LCD interface, LDO/voltage converter | \$2.36 to \$3.46 |
| 64-kbyte Flash | | | 68QFN 44QFN | 2 | 2 UARTs, USB | 6, 4 priority levels | | -40 to +85 | Smart Card Reader Interface, ISO-7816 UART, keypad interface, LCD interface, LDO/voltage converter | \$3.04 to \$4.61 |
| 4- to 60-kbyte OTP/ROM, up to 2-kbyte SRAM | | | SDIP, QFP, LQFP, SSOP, SOP | Up to four 8-bit, up to two 16-bit, up to 18-bit, watchdog | Up to one UART, up to three synchronous SIO, up to two I ² C, up to one high-speed SIO | 15 | Up to 16-channel, 8/10-bit ADC; up to six comparator inputs; up to eight DACs | -40 to +85 | LED, LCD, VFT drivers, dual clock, on-screen-display, remote-control pulse detector | \$1 to \$4 |
| 4- to 60-kbyte Flash/OTP/ROM, up to 2-kbyte SRAM | | | SDIP, QFP, LQFP, SSOP, SOP | Up to four 8-bit, up to two 16-bit, 18-bit, up to right PWM, watchdog | Up to two UART, synchronous SIO, up to three I ² C, up to one CAN | 31 | Up to 16-channel, 10-bit; up to eight channel, 8-bit; up to one 8-bit DAC | -40 to +85 | LED, LCD, VFT drivers, POR, LVD(2level), dual clock, brushless motor control | \$1 to \$4 |
| 16- to 60-kbyte Flash/ROM, up to 3-kbyte SRAM | | | SDIP, QFP, LQFP, | Up to four 8-bit, up to two 16-bit, 18-bit, up to right PWM, watchdog | Up to three UART, synchronous SIO, up to two I ² C, one SEI, up to 56 PIO | 52 | Up to 16-channel, 10-bit | -40 to +85 | High-speed processing capability equivalent to 16-bit microcontrollers, dual clock, clock gear, POR, LVD(2levels), On-Chip Debug, Pull-up register | \$1 to \$4 |
| 16- to 120-kbyte Flash/OTP/ROM, up to 4-kbyte SRAM | | | SDIP, QFP, LQFP, SOP | Up to four 8-bit, up to three 16-bit, up to 10 PWM, watchdog | Up to one UART, up to two synchronous SIO, up to two I ² C | 63 | Up to 16-channel, 10-bit; up to 12-channel, 8-bit | -40 to +85 | LED, VFT drivers, dual clock, clock gear, brushless motor control, on-screen-display | \$1 to \$4 |
| 64-kbyte Flash, 16-kbyte + 4-kbyte SRAM | SRAM | | 80 PQFP, 80 uBGA | Two 16-bit, 8-bit pre-scale, real-time, watchdog | Two Serdes units for Ethernet, USB, GPSI, SPI, UART, 52 GPIO | 15 | Eight-channel, 10-bit | -40 to +85 0 to +55 | Software I/O, dual threads, three-cycle context switching | \$8.50 to \$9.90 |
| 128-kbyte OTP, 1-kbyte RAM | | | 20/28 DIP, SOIC, SSOP | 8-bit 8-bit BRG 16-bit watchdog | Up to 24 GPIO | 6 with 20 sources | | 0 to +70 | HVD, LVD, 2 Comparators, WDT, UART, IR Learning Amp | \$1.92 to \$2.89 |
| 32-kbyte OTP, 1-kbyte RAM | | | 20/28 DIP, SOIC, SSOP | 8-bit 8-bit BRG 16-bit watchdog | Up to 24 GPIO | 6 with 20 sources | | 0 to +70 | HVD, LVD, 2 Comparators, UART, IR Learning Amp | \$1.92 to \$2.89 |
| 64-kbyte OTP, 1-kbyte RAM | | | 20/28 DIP, SOIC, SSOP | 8-bit 8-bit BRG 16-bit watchdog | Up to 24 GPIO | 6 with 20 sources | | 0 to +70 | HVD, LVD, 2 Comparators, WDT, UART, IR Learning Amp | \$1.92 to \$2.89 |
| 96-kbyte OTP, 1-kbyte RAM | | | 20/28 DIP, SOIC, SSOP | 8-bit 8-bit BRG 16-bit watchdog | Up to 24 GPIO | 6 with 20 sources | | 0 to +70 | HVD, LVD, 2 Comparators, WDT, UART, IR Learning Amp | \$1.92 to \$2.89 |
| 4-kbyte OTP, 237 bytes RAM | | | 20/28/40/48 DIP, SOIC, SSOP | 8-bit 16-bit watchdog | Up to 32 GPIO | 6 with 20 sources | | 0 to +70 | HVD, LVD, 2 Comparators | \$1.42 to \$2.13 |
| 8-kbyte OTP, 237 bytes RAM | | | 20/28/40/48 DIP, SOIC, SSOP | 8-bit 16-bit watchdog | Up to 32 GPIO | 6 with 20 sources | | 0 to +70 | HVD, LVD, 2 Comparators | \$1.42 to \$2.13 |
| 16-kbyte OTP, 237 bytes RAM | | | 20/28/40/48 DIP, SOIC, SSOP | 8-bit 16-bit watchdog | Up to 32 GPIO | 6 with 20 sources | | 0 to +70 | HVD, LVD, 2 Comparators | \$1.42 to \$2.13 |
| 32-kbyte OTP, 237 bytes RAM | | | 20/28/40/48 DIP, SOIC, SSOP | 8-bit 16-bit watchdog | Up to 32 GPIO | 6 with 20 sources | | 0 to +70 | HVD, LVD, 2 Comparators | \$1.42 to \$2.13 |
| 4-kbyte ROM, 237 bytes RAM | | | 20/28 DIP, SOIC, SSOP | 8-bit 16-bit watchdog | Up to 24 GPIO | 6 with 20 sources | | 0 to +70 | HVD, LVD, 2 Comparators | \$0.75 to \$1.27 |
| 8-kbyte ROM, 237 bytes RAM | | | 20/28 DIP, SOIC, SSOP | 8-bit 16-bit watchdog | Up to 24 GPIO | 6 with 20 sources | | 0 to +70 | HVD, LVD, 2 Comparators | \$0.75 to \$1.27 |
| 16-kbyte ROM, 237 bytes RAM | | | 20/28 DIP, SOIC, SSOP | 8-bit 16-bit watchdog | Up to 24 GPIO | 6 with 20 sources | | 0 to +70 | HVD, LVD, 2 Comparators | \$0.75 to \$1.27 |
| 4-kbyte ROM, 237 bytes RAM | | | 20/28/40/48 DIP, SOIC, SSOP | 8-bit 16-bit watchdog | Up to 32 GPIO | 6 with 20 sources | | 0 to +70 | HVD, LVD, 2 Comparators | \$1.42 to \$2.13 |

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| Company name | Device name or family | Instruction set architecture | CPU frequency (MHz) | Bus interface (address/data) (bits) | Instruction width (bits) | Core / I/O operating voltages (V) | Typical power at maximum frequency | Powerdown modes and minimum power | DSP/multiplication hardware support (bits) | FPU | Caching |
|------------------------|--------------------------|------------------------------|---------------------|-------------------------------------|--------------------------|-----------------------------------|------------------------------------|-----------------------------------|--|-----|---------|
| ZiLOG www.zilog.com | Crimzon ZLR32300xxx08 | Z8/Crimzon | 8 | 17/8 | 8,16,24 | 2.0 to 3.6 | 2 mA | STOP 1uA; HALT 0.8 mA | | | |
| ZiLOG www.zilog.com | Crimzon ZLR32300xxx16 | Z8/Crimzon | 8 | 17/8 | 8,16,24 | 2.0 to 3.6 | 2 mA | STOP 1uA; HALT 0.8 mA | | | |
| ZiLOG www.zilog.com | Crimzon ZLR32300xxx32 | Z8/Crimzon | 8 | 17/8 | 8,16,24 | 2.0 to 3.6 | 2 mA | STOP 1uA; HALT 0.8 mA | | | |
| ZiLOG www.zilog.com | Crimzon ZLR64400xxx32 | Z8/Crimzon | 8 | 17/8 | 8, 16, 24 | 2.0 to 3.6 | 2 mA | STOP 1uA; HALT 0.8 mA | | | |
| ZiLOG www.zilog.com | Crimzon ZLR64400xxx64 | Z8/Crimzon | 8 | 17/8 | 8, 16, 24 | 2.0 to 3.6 | 2 mA | STOP 1uA; HALT 0.8 mA | | | |
| ZiLOG www.zilog.com | eZ80F91 | Enhanced Z80/Z180; eZ80 Core | 50 | 24/8 | 8, 16, 24 | 3.0 to 3.6 | 230 mA (max) | SLEEP/HALT | | | |
| ZiLOG www.zilog.com | eZ80F92 | eZ80 | 20 | 24/8 | 8, 16, 24 | 3.0 to 3.6 | 30 mA | SLEEP/HALT | | | |
| ZiLOG www.zilog.com | eZ80F93 | eZ80 | 20 | 24/8 | 8, 16, 24 | 3.0 to 3.6 | 30 mA | SLEEP/HALT | | | |
| ZiLOG www.zilog.com | FMC04100 | eZ8 | 20 | 16/8 | 8 to 40 | 2.7 to 3.6 | 20 mA | STOP Mode <1uA | 8x8 multiply | | |
| ZiLOG www.zilog.com | FMC08100 | eZ8 | 20 | 16/8 | 8 to 40 | 2.7 to 3.6 | 20 mA | STOP Mode <1uA | 8x8 multiply | | |
| ZiLOG www.zilog.com | FMC16100 | eZ8 | 20 | 16/8 | 8 to 40 | 2.7 to 3.6 | 20 mA | STOP Mode <1uA | 8x8 multiply | | |
| ZiLOG www.zilog.com | Z8 Encore! 8F0113 | eZ8 | 20 | 16/8 | 8 to 40 | 2.7 to 3.6 | 12 mA | STOP; 6uA; HALT | 8x8 multiply | | |
| ZiLOG www.zilog.com | Z8 Encore! 8F0123 | eZ8 | 20 | 16/8 | 8 to 40 | 2.7 to 3.6 | 12 mA | STOP; 6uA; HALT | 8x8 multiply | | |
| ZiLOG www.zilog.com | Z8 Encore! 8F0213 | eZ8 | 20 | 16/8 | 8 to 40 | 2.7 to 3.6 | 12 mA | STOP; 6uA; HALT | 8x8 multiply | | |
| ZiLOG www.zilog.com | Z8 Encore! 8F0223 | eZ8 | 20 | 16/8 | 8 to 40 | 2.7 to 3.6 | 12 mA | STOP; 6uA; HALT | 8x8 multiply | | |
| ZiLOG www.zilog.com | Z8 Encore! 8F0411 | eZ8 | 20 | 16/8 | 8 to 40 | 2.7 to 3.6 | 12 mA | STOP; 6uA; HALT | 8x8 multiply | | |
| ZiLOG www.zilog.com | Z8 Encore! 8F0412 | eZ8 | 20 | 16/8 | 8 to 40 | 2.7 to 3.6 | 12 mA | STOP; 6uA; HALT | 8x8 multiply | | |
| ZiLOG www.zilog.com | Z8 Encore! 8F0413 | eZ8 | 20 | 16/8 | 8 to 40 | 2.7 to 3.6 | 12 mA | STOP; 6uA; HALT | 8x8 multiply | | |
| ZiLOG www.zilog.com | Z8 Encore! 8F0421 | eZ8 | 20 | 16/8 | 8 to 40 | 2.7 to 3.6 | 12 mA | STOP; 6uA; HALT | 8x8 multiply | | |
| ZiLOG www.zilog.com | Z8 Encore! 8F0811 | eZ8 | 20 | 16/8 | 8 to 40 | 2.7 to 3.6 | 12 mA | STOP; 6uA; HALT | 8x8 multiply | | |
| ZiLOG www.zilog.com | Z8 Encore! 8F0812 | eZ8 | 20 | 16/8 | 8 to 40 | 2.7 to 3.6 | 12 mA | STOP; 6uA; HALT | 8x8 multiply | | |
| ZiLOG www.zilog.com | Z8 Encore! 8F0813 | eZ8 | 20 | 16/8 | 8 to 40 | 2.7 to 3.6 | 12 mA | STOP; 6uA; HALT | 8x8 multiply | | |
| ZiLOG www.zilog.com | Z8 Encore! 8F0822 | eZ8 | 20 | 16/8 | 8 to 40 | 2.7 to 3.6 | 12 mA | STOP; 6uA; HALT | 8x8 multiply | | |
| ZiLOG www.zilog.com | Z8 Encore! 8F0823 | eZ8 | 20 | 16/8 | 8 to 40 | 2.7 to 3.6 | 12 mA | STOP; 6uA; HALT | 8x8 multiply | | |

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|--|-------------------------|-----|--|---------------------------------|----------------------|-------------------|------------------------------------|--------------------------------------|--|-------------------|
| 8-kbyte ROM, 237 bytes RAM | | | 20/28/40/48 DIP, SOIC, SSOP | 8-bit 16-bit watchdog | Up to 32 GPIO | 6 with 20 sources | | 0 to +70 | HVD, LVD, 2 Comparators | \$1.42 to \$2.13 |
| 16-kbyte ROM, 237 bytes RAM | | | 20/28/40/48 DIP, SOIC, SSOP | 8-bit 16-bit watchdog | Up to 32 GPIO | 6 with 20 sources | | 0 to +70 | HVD, LVD, 2 Comparators | \$1.42 to \$2.13 |
| 32-kbyte ROM, 237 bytes RAM | | | 20/28/40/48 DIP, SOIC, SSOP | 8-bit 16-bit watchdog | Up to 32 GPIO | 6 with 20 sources | | 0 to +70 | HVD, LVD, 2 Comparators | \$1.42 to \$2.13 |
| 32-kbyte ROM, 1-kbyte RAM | | | 20/28 DIP, SOIC, SSOP | 8-bit 8-bit BRG 16-bit watchdog | Up to 24 GPIO | 6 with 20 sources | | 0 to +70 | HVD, LVD, 2 Comparators, UART, IR Learning Amp | \$1.45 to \$1.76 |
| 64-kbyte ROM, 1-kbyte RAM | | | 20/28 DIP, SOIC, SSOP | 8-bit 8-bit BRG 16-bit watchdog | Up to 24 GPIO | 6 with 20 sources | | 0 to +70 | HVD, LVD, 2 Comparators, UART, IR Learning Amp | \$1.45 to \$1.76 |
| 256-kbyte Flash (1024-kbyte ext), 16-Mbyte external, 16-kbyte SRAM (512-kbyte ext) | On-chip Flash/RAM | | 144 LQFP, 144-ball BGA | 4, 16-bit, 4 PWMs | Up to 32 GPIO | Up to 48 | | 0 to +70 -40 to +105 | 10/100 Ethernet MAC, 2 UARTs, SPI, I2C peripheral interfaces | \$8.33 to \$9.61 |
| 128-kbyte Flash, 16-Mbyte external, 8-kbyte SRAM | On-chip Flash/RAM | | 100 LQFP | 6, 16-bit | Up to 24 GPIO | Up to 38 | | 0 to +70 -40 to +105 | 2 UARTs, SPI, I2C, GPID, RTC, WDT, PQR/VBO | \$5.28 to \$5.81 |
| 64-kbyte Flash, 16-Mbyte external, 4-kbyte SRAM | On-chip Flash/RAM | | 100 LQFP | 6, 16-bit | Up to 24 GPIO | Up to 38 | | 0 to +70 -40 to +105 | 2 UARTs, SPI, I2C, GPID, RTC, WDT, PQR/VBO | \$4.91 to \$5.40 |
| 4-kbyte Flash, 512 bytes SRAM, | | | 32 QFN, 32 QFP | 1, 16-bit, 6 PWMs | Up to 17 GPIO | Up to 18 | Up to 8 channel 10-bit; 10-bit SAR | 0 to +70 -40 to +105 | 6-channel 12-bit Motor Control PWMs, Op Amp, Fault Shutdown | \$2.32 to \$2.55 |
| 8-kbyte Flash, 512 bytes SRAM, | | | 32 QFN, 32 QFP | 1, 16-bit, 6 PWMs | Up to 17 GPIO | Up to 18 | Up to 8 channel 10-bit; 10-bit SAR | 0 to +70 -40 to +105 | 6-channel 12-bit Motor Control PWMs, Op Amp, Fault Shutdown | \$2.21 to \$2.42 |
| 16-kbyte Flash, 512 bytes SRAM, | | | 32 QFN, 32 QFP | 1, 16-bit, 6 PWMs | Up to 17 GPIO | Up to 18 | Up to 8 channel 10-bit; 10-bit SAR | 0 to +70 -40 to +105 | 6-channel 12-bit Motor Control PWMs, Op Amp, Fault Shutdown | \$2.10 to \$2.30 |
| 1-kbyte Flash, 256 bytes SRAM | | | 8 QFN, 8-/20-/28 SOIC, 20-/28 SSOP, 8-/20-/28 PDIP | 2, 16-bit | Up to 24 GPIO | Up to 24 | | 0 to +70 -40 to +105 | WDT, POR/VBO, UART, 5.5 Internal Oscillator | \$0.99 to \$1.66 |
| 1-kbyte Flash, 256 bytes SRAM | | | 8 QFN, 8-/20-/28 SOIC, 20-/28 SSOP, 8-/20-/28 PDIP | 2, 16-bit | Up to 22 GPIO | Up to 24 | Up to 8 channel 10-bit | 0 to +70 -40 to +105 | WDT, POR/VBO, UART, 5.5 Internal Oscillator | \$1.04 to \$1.73 |
| 2-kbyte Flash, 512 bytes SRAM | | | 8 QFN, 8-/20-/28 SOIC, 20-/28 SSOP, 8-/20-/28 PDIP | 2, 16-bit | Up to 24 GPIO | Up to 24 | | 0 to +70 -40 to +105 | WDT, POR/VBO, UART, 5.5 Internal Oscillator | \$1.04 to \$1.75 |
| 2-kbyte Flash, 512 bytes SRAM | | | 8 QFN, 8-/20-/28 SOIC, 20-/28 SSOP, 8-/20-/28 PDIP | 2, 16-bit | Up to 22 GPIO | Up to 24 | Up to 8 channel 10-bit | 0 to +70 -40 to +105 | WDT, POR/VBO, UART, 5.5 Internal Oscillator | \$1.09 to \$1.82 |
| 4-kbyte Flash, 1-kbyte SRAM | | | 20 SSOP, 20 PDIP | 2, 16-bit | Up to 11 GPIO | Up to 24 | | 0 to +70 -40 to +105 | WDT, POR/VBO, UART, I2C | \$1.25 to \$1.38 |
| 4-kbyte Flash, 1-kbyte SRAM | | | 28 SOIC, 28 PDIP | 2, 16-bit | Up to 19 GPIO | Up to 24 | | 0 to +70 -40 to +105 | WDT, POR/VBO, UART, I2C | \$1.29 to \$1.57 |
| 4-kbyte Flash, 1-kbyte SRAM | | | 8 QFN, 8-/20-/28 SOIC, 20-/28 SSOP, 8-/20-/28 PDIP | 2, 16-bit | Up to 24 GPIO | Up to 24 | | 0 to +70 -40 to +105 | WDT, POR/VBO, UART, 5.5 Internal Oscillator | \$1.10 to \$1.84 |
| 4-kbyte Flash, 1-kbyte SRAM | | | 20 SSOP, 20 PDIP | 2, 16-bit | Up to 11 GPIO pins | Up to 24 | 2 channel 10-bit | 0 to +70 -40 to +105 | WDT, POR/VBO, UART, I2C | \$1.31 to \$1.44 |
| 8-kbyte Flash, 1-kbyte SRAM | | | 20 SSOP, 20 PDIP | 2, 16-bit | Up to 11 GPIO | Up to 24 | | 0 to +70 -40 to +105 | WDT, POR/VBO, UART, I2C | \$1.35 to \$1.48 |
| 8-kbyte Flash, 1-kbyte SRAM | | | 28 SOIC, 28 PDIP | 2, 16-bit | Up to 19 GPIO | Up to 24 | | 0 to +70 -40 to +105 | WDT, POR/VBO, UART, I2C | \$1.39 to \$1.67 |
| 8-kbyte Flash, 1-kbyte SRAM | | | 8 QFN, 8-/20-/28 SOIC, 20-/28 SSOP, 8-/20-/28 PDIP | 2, 16-bit | Up to 24 GPIO | Up to 24 | | 0 to +70 -40 to +105 | WDT, POR/VBO, UART, 5.5 Internal Oscillator | \$1.18 to \$1.96 |
| 8-kbyte Flash, 1-kbyte SRAM | | | 28 SOIC, 28 PDIP | 2, 16-bit | Up to 19 GPIO | Up to 24 | 5 channel 10-bit | 0 to +70 -40 to +105 | WDT, POR/VBO, UART, SPI, I2C | \$1.45 to \$1.74 |
| 8-kbyte Flash, 1-kbyte SRAM | | | 8 QFN, 8-/20-/28 SOIC, 20-/28 SSOP, 8-/20-/28 PDIP | 2, 16-bit | Up to 22 GPIO | Up to 24 | Up to 8 channel 10-bit | 0 to +70 -40 to +105 | WDT, POR/VBO, UART, 5.5 Internal Oscillator | \$1.24 to \$2.05 |

2008 EDN Microcontroller/Microprocessor Directory

8-bit microprocessors sorted by company

| Company name | Device name or family | Instruction set architecture | CPU frequency (MHz) | Bus interface (address/data) (bits) | Instruction width (bits) | Core / I/O operating voltages (V) | Typical power at maximum frequency | Powerdown modes and minimum power | DSP/multiplication hardware support (bits) | FPU | Caching |
|------------------------|-------------------------|------------------------------|---------------------|-------------------------------------|--------------------------|-----------------------------------|------------------------------------|-----------------------------------|--|-----|---------|
| ZiLOG www.zilog.com | Z8 Encore! 8F1621 | eZ8 | 20 | 16/8 | 8 to 40 | 3.0 to 3.6 | 12 mA | STOP; 6uA; HALT | 8x8 multiply | | |
| ZiLOG www.zilog.com | Z8 Encore! 8F3222 | eZ8 | 20 | 16/8 | 8 to 40 | 3.0 to 3.6 | 12 mA | STOP; 6uA; HALT | 8x8 multiply | | |
| ZiLOG www.zilog.com | Z8 Encore! 8F4821 | eZ8 | 20 | 16/8 | 8 to 40 | 3.0 to 3.6 | 12 mA | STOP; 6uA; HALT | 8x8 multiply | | |
| ZiLOG www.zilog.com | Z8 Encore! 8F6423 | eZ8 | 20 | 16/8 | 8 to 40 | 3.0 to 3.6 | 12 mA | STOP; 6uA; HALT | 8x8 multiply | | |
| ZiLOG www.zilog.com | Z8 Encore! 8F0422 | eZ8 | 20 | 16/8 | 8 to 40 | 2.7 to 3.6 | 12 mA | STOP; 6uA; HALT | 8x8 multiply | | |
| ZiLOG www.zilog.com | Z8 Encore! 8F0821 | eZ8 | 20 | 16/8 | 8 to 40 | 2.7 to 3.6 | 12 mA | STOP; 6uA; HALT | 8x8 multiply | | |
| ZiLOG www.zilog.com | Z8 Encore! 8F2421 | eZ8 | 20 | 16/8 | 8 to 40 | 3.0 to 3.6 | 12 mA | STOP; 6uA; HALT | 8x8 multiply | | |
| ZiLOG www.zilog.com | Z8 Encore! 8F4822 | eZ8 | 20 | 16/8 | 8 to 40 | 3.0 to 3.6 | 12 mA | STOP; 6uA; HALT | 8x8 multiply | | |
| ZiLOG www.zilog.com | Z8 Encore! 8F4823 | eZ8 | 20 | 16/8 | 8 to 40 | 3.0 to 3.6 | 12 mA | STOP; 6uA; HALT | 8x8 multiply | | |
| ZiLOG www.zilog.com | Z8 Encore! 8F6421 | eZ8 | 20 | 16/8 | 8 to 40 | 3.0 to 3.6 | 12 mA | STOP; 6uA; HALT | 8x8 multiply | | |
| ZiLOG www.zilog.com | Z8 Encore! 8F6422 | eZ8 | 20 | 16/8 | 8 to 40 | 3.0 to 3.6 | 12 mA | STOP; 6uA; HALT | 8x8 multiply | | |
| ZiLOG www.zilog.com | Z8 Encore! MC 8F1622 | eZ8 | 20 | 16/8 | 8 to 40 | 3.0 to 3.6 | 12 mA | STOP; 6uA; HALT | 8x8 multiply | | |
| ZiLOG www.zilog.com | Z8 Encore! MC 8F2422 | eZ8 | 20 | 16/8 | 8 to 40 | 3.0 to 3.6 | 12 mA | STOP; 6uA; HALT | 8x8 multiply | | |
| ZiLOG www.zilog.com | Z8 Encore! MC 8F3221 | eZ8 | 20 | 16/8 | 8 to 40 | 3.0 to 3.6 | 12 mA | STOP; 6uA; HALT | 8x8 multiply | | |
| ZiLOG www.zilog.com | Z8 Encore! 8F0423 | eZ8 | 20 | 16/8 | 8 to 40 | 2.7 to 3.6 | 12 mA | STOP; 6uA; HALT | 8x8 multiply | | |
| ZiLOG www.zilog.com | Z8F011A | eZ8 | 20 | 16/8 | 8 to 40 | 2.7 to 3.6 | 12 mA | STOP Mode; <2uA | 8x8 multiply | | |
| ZiLOG www.zilog.com | Z8F012A | eZ8 | 20 | 16/8 | 8 to 40 | 2.7 to 3.6 | 12 mA | STOP Mode; <2uA | 8x8 multiply | | |
| ZiLOG www.zilog.com | Z8F0130 | eZ8 | 20 | 16/8 | 8 to 40 | 2.7 to 3.6 | 12 mA | STOP Mode; <2uA | 8x8 multiply | | |
| ZiLOG www.zilog.com | Z8F0131 | eZ8 | 20 | 16/8 | 8 to 40 | 2.7 to 3.6 | 12 mA | STOP Mode; <2uA | 8x8 multiply | | |
| ZiLOG www.zilog.com | Z8F021A | eZ8 | 20 | 16/8 | 8 to 40 | 2.7 to 3.6 | 12 mA | STOP Mode; <2uA | 8x8 multiply | | |
| ZiLOG www.zilog.com | Z8F022A | eZ8 | 20 | 16/8 | 8 to 40 | 2.7 to 3.6 | 12 mA | STOP Mode; <2uA | 8x8 multiply | | |
| ZiLOG www.zilog.com | Z8F0230 | eZ8 | 20 | 16/8 | 8 to 40 | 2.7 to 3.6 | 12 mA | STOP Mode; <2uA | 8x8 multiply | | |
| ZiLOG www.zilog.com | Z8F0231 | eZ8 | 20 | 16/8 | 8 to 40 | 2.7 to 3.6 | 12 mA | STOP Mode; <2uA | 8x8 multiply | | |
| ZiLOG www.zilog.com | Z8F041A | eZ8 | 20 | 16/8 | 8 to 40 | 2.7 to 3.6 | 12 mA | STOP Mode; <2uA | 8x8 multiply | | |
| ZiLOG www.zilog.com | Z8F042A | eZ8 | 20 | 16/8 | 8 to 40 | 2.7 to 3.6 | 12 mA | STOP Mode; <2uA | 8x8 multiply | | |
| ZiLOG www.zilog.com | Z8F0430 | eZ8 | 20 | 16/8 | 8 to 40 | 2.7 to 3.6 | 12 mA | STOP Mode; <2uA | 8x8 multiply | | |

2008 EDN Microcontroller/Microprocessor Directory

8-bit microprocessors sorted by company

| Memory | DMA / memory controller | MMU | Package selection | Timers / PWM | Serial, Parallel I/O | Interrupts | ADC; DAC | Temperature ranges (degrees Celsius) | Additional features | Price (\$/10,000) |
|--|-------------------------|-----|--|--------------|----------------------|------------|------------------------|--------------------------------------|---|-------------------|
| 16-kbyte Flash, 2-kbyte SRAM | 3 DMA Channels | | 40 PDIP, 44 PLCC, 44 LQFP | 3 | Up to 31 GPIO | Up to 24 | 8 channel 10-bit | 0 to +70 -40 to +105 | WDT, 2 UARTs, SPI, I2C, POR/VBO | \$2.29 to \$2.81 |
| 32-kbyte Flash, 2-kbyte SRAM | 3 DMA Channels | | 64 LQFP, 68 PLCC | 4 | Up to 46 GPIO | Up to 24 | 12 channel 10-bit | 0 to +70 -40 to +105 | WDT, 2 UARTs, SPI, I2C, POR/VBO | \$3.45 to \$3.85 |
| 48-kbyte Flash, 4-kbyte SRAM | 3 DMA Channels | | 40 PDIP, 44 PLCC, 44 LQFP | 3 | Up to 31 GPIO | Up to 24 | 8 channel 10-bit | 0 to +70 -40 to +105 | WDT, 2 UARTs, SPI, I2C, POR/VBO | \$3.52 to \$4.17 |
| 64-kbyte Flash, 4-kbyte SRAM | 3 DMA Channels | | 80 QFP | 4 | Up to 60 GPIO | Up to 24 | 12 channel 10-bit | 0 to +70 -40 to +105 | WDT, 2 UARTs, SPI, I2C, POR/VBO | \$4.22 to \$4.69 |
| 4-kbyte Flash, 1-kbyte SRAM | | | 28 SOIC, 28 PDIP | 2, 16-bit | Up to 19 GPIO | Up to 24 | 5 channel 10-bit | 0 to +70 -40 to +105 | WDT, POR/VBO, UART, I2C | \$1.35 to \$1.63 |
| 8-kbyte Flash, 1-kbyte SRAM | | | 20 SSOP, 20 PDIP | 2, 16-bit | Up to 11 GPIO | Up to 24 | 2 channel 10-bit | 0 to +70 -40 to +105 | WDT, POR/VBO, UART, I2C | \$1.42 to \$1.55 |
| 24-kbyte Flash, 2-kbyte SRAM | 3 DMA Channels | | 40 PDIP, 44 PLCC, 44 LQFP | 3 | Up to 31 GPIO | Up to 24 | 8 channel 10-bit | 0 to +70 -40 to +105 | WDT, 2 UARTs, SPI, I2C, POR/VBO | \$2.68 to \$3.05 |
| 48-kbyte Flash, 4-kbyte SRAM | 3 DMA Channels | | 64 LQFP, 68 PLCC | 4 | Up to 46 GPIO | Up to 24 | 12 channel 10-bit | 0 to +70 -40 to +105 | WDT, 2 UARTs, SPI, I2C, POR/VBO | \$3.81 to \$4.24 |
| 48-kbyte Flash, 4-kbyte SRAM | 3 DMA Channels | | 80 QFP | 4 | Up to 60 GPIO | Up to 24 | 12 channel 10-bit | 0 to +70 -40 to +105 | WDT, 2 UARTs, SPI, I2C, POR/VBO | \$3.83 to \$4.25 |
| 64-kbyte Flash, 4-kbyte SRAM | 3 DMA Channels | | 40 PDIP, 44 PLCC, 44 LQFP | 3 | Up to 31 GPIO | Up to 24 | 8 channel 10-bit | 0 to +70 -40 to +105 | WDT, 2 UARTs, SPI, I2C, POR/VBO | \$3.91 to \$4.61 |
| 64-kbyte Flash, 4-kbyte SRAM | 3 DMA Channels | | 64 LQFP, 68 PLCC | 4 | Up to 46 GPIO | Up to 24 | 12 channel 10-bit | 0 to +70 -40 to +105 | WDT, 2 UARTs, SPI, I2C, POR/VBO | \$4.21 to \$4.68 |
| 16-kbyte Flash, 2-kbyte SRAM | 3 DMA Channels | | 64 LQFP, 68 PLCC | 4 | Up to 46 GPIO | Up to 24 | 12 channel 10-bit | 0 to +70 -40 to +105 | WDT, 2 UARTs, SPI, I2C, POR/VBO | \$2.59 to \$2.88 |
| 24-kbyte Flash, 2-kbyte SRAM | 3 DMA Channels | | 64 LQFP, 68 PLCC | 4 | Up to 46 GPIO | Up to 24 | 12 channel 10-bit | 0 to +70 -40 to +105 | WDT, 2 UARTs, SPI, I2C, POR/VBO | \$2.97 to \$3.32 |
| 32-kbyte Flash, 2-kbyte SRAM | 3 DMA Channels | | 40 PDIP, 44 PLCC, 44 LQFP | 3 | Up to 31 GPIO | Up to 24 | 8 channel 10-bit | 0 to +70 -40 to +105 | WDT, 2 UARTs, SPI, I2C, POR/VBO | \$3.16 to \$3.78 |
| 4-kbyte Flash, 1-kbyte SRAM | | | 8 QFN, 8-/20-/28 SOIC, 20-/28 SSOP, 8-/20-/28 PDIP | 2, 16-bit | Up to 22 GPIO | Up to 24 | Up to 8 channel 10-bit | 0 to +70 -40 to +105 | WDT, POR/VBO, UART, 5.5 Internal Oscillator | \$1.15 to \$1.92 |
| 1-kbyte Flash, 256 bytes SRAM, 16 Bytes EEPROM | | | 8 QFN, 8-/20-/28 SOIC, 20-/28 SSOP, 8-/20-/28 PDIP | 2, 16-bit | Up to 25 GPIO | Up to 18 | | 0 to +70 -40 to +105 | | \$1.07 to \$1.77 |
| 1-kbyte Flash, 256 bytes SRAM, 16 Bytes EEPROM | | | 8 QFN, 8-/20-/28 SOIC, 20-/28 SSOP, 8-/20-/28 PDIP | 2, 16-bit | Up to 23 GPIO | Up to 18 | Up to 8 channel 10-bit | 0 to +70 -40 to +105 | Temp Sensor, Op Amp, LVD (8pin only) | \$1.12 to \$1.85 |
| 1-kbyte Flash, 256 bytes SRAM, 64 Bytes EEPROM | | | 20-/28 SOIC, SSOP, QFN, PDIP | 2, 16-bit | Up to 23 GPIO | Up to 18 | Up to 8 channel 10-bit | 0 to +70 -40 to +105 | 23,17 SPIO, WDT, POR/VBO, 5.5 Internal Oscillator, SAR ADC | \$0.54 to \$0.85 |
| 1-kbyte Flash, 256 bytes SRAM, 64 Bytes EEPROM | | | 20-/28 SOIC, SSOP, QFN, PDIP | 2, 16-bit | Up to 25 GPIO | Up to 18 | | 0 to +70 -40 to +105 | 25, 17 SPIO, WDT, POR/VBO, 5.5 Internal Oscillator, SAR ADC | \$0.570 to \$1.10 |
| 2-kbyte Flash, 512 bytes SRAM, 64 Bytes EEPROM | | | 8 QFN, 8-/20-/28 SOIC, 20-/28 SSOP, 8-/20-/28 PDIP | 2, 16-bit | Up to 25 GPIO | Up to 18 | | 0 to +70 -40 to +105 | | \$1.13 to \$1.86 |
| 2-kbyte Flash, 512 bytes SRAM, 64 Bytes EEPROM | | | 8 QFN, 8-/20-/28 SOIC, 20-/28 SSOP, 8-/20-/28 PDIP | 2, 16-bit | Up to 23 GPIO | Up to 18 | Up to 8 channel 10-bit | 0 to +70 -40 to +105 | Temp Sensor, Op Amp, LVD (8pin only) | \$1.18 to \$1.94 |
| 2-kbyte Flash, 256 bytes SRAM, 64 Bytes EEPROM | | | 20-/28 SOIC, SSOP, QFN, PDIP | 2, 16-bit | Up to 23 GPIO | Up to 18 | Up to 8 channel 10-bit | 0 to +70 -40 to +105 | 23,17 SPIO, WDT, POR/VBO, 5.5 Internal Oscillator, SAR ADC | \$0.58 to \$0.85 |
| 2-kbyte Flash, 256 bytes SRAM, 64 Bytes EEPROM | | | 20-/28 SOIC, SSOP, QFN, PDIP | 2, 16-bit | Up to 25 GPIO | Up to 18 | | 0 to +70 -40 to +105 | 25, 17 SPIO, WDT, POR/VBO, 5.5 Internal Oscillator, SAR ADC | \$0.61 to \$0.92 |
| 4-kbyte Flash, 1-kbyte SRAM, 128 Bytes EEPROM | | | 8 QFN, 8-/20-/28 SOIC, 20-/28 SSOP, 8-/20-/28 PDIP | 2, 16-bit | Up to 25 GPIO | Up to 18 | | 0 to +70 -40 to +105 | | \$1.18 to \$1.96 |
| 4-kbyte Flash, 1-kbyte SRAM, 128 Bytes EEPROM | | | 8 QFN, 8-/20-/28 SOIC, 20-/28 SSOP, 8-/20-/28 PDIP | 2, 16-bit | Up to 23 GPIO | Up to 18 | Up to 8 channel 10-bit | 0 to +70 -40 to +105 | Temp Sensor, Op Amp, LVD (8pin only) | \$1.24 to \$2.05 |
| 4-kbyte Flash, 256 bytes SRAM, 64 Bytes EEPROM | | | 20-/28 SOIC, SSOP, QFN, PDIP | 2, 16-bit | Up to 23 GPIO | Up to 18 | Up to 8 channel 10-bit | 0 to +70 -40 to +105 | 23,17 SPIO, WDT, POR/VBO, 5.5 Internal Oscillator, SAR ADC | \$0.60 to \$0.94 |

2008 EDN Microcontroller/Microprocessor Directory

8-bit microprocessors sorted by company

| Company name | Device name or family | Instruction set architecture | CPU frequency (MHz) | Bus interface (address/data) (bits) | Instruction width (bits) | Core / I/O operating voltages (V) | Typical power at maximum frequency | Powerdown modes and minimum power | DSP/multiplication hardware support (bits) | FPU | Caching |
|---|-----------------------|------------------------------|---------------------|-------------------------------------|--------------------------|-----------------------------------|------------------------------------|-----------------------------------|--|-----|---------|
| ZiLOG www.zilog.com | Z8F0431 | eZ8 | 20 | 16/8 | 8 to 40 | 2.7 to 3.6 | 12 mA | STOP Mode; <2uA | 8x8 multiply | | |
| ZiLOG www.zilog.com | Z8F043A | eZ8 | 20 | 16/8 | 8 to 40 | 2.7 to 3.6 | 12 mA | STOP Mode; <2uA | 8x8 multiply | | |
| ZiLOG www.zilog.com | Z8F081A | eZ8 | 20 | 16/8 | 8 to 40 | 2.7 to 3.6 | 12 mA | STOP Mode; <2uA | 8x8 multiply | | |
| ZiLOG www.zilog.com | Z8F082A | eZ8 | 20 | 16/8 | 8 to 40 | 2.7 to 3.6 | 12 mA | STOP Mode; <2uA | 8x8 multiply | | |
| ZiLOG www.zilog.com | Z8F0830 | eZ8 | 20 | 16/8 | 8 to 40 | 2.7 to 3.6 | 12 mA | STOP Mode; <2uA | 8x8 multiply | | |
| ZiLOG www.zilog.com | Z8F0831 | eZ8 | 20 | 16/8 | 8 to 40 | 2.7 to 3.6 | 12 mA | STOP Mode; <2uA | 8x8 multiply | | |
| ZiLOG www.zilog.com | Z8F083A | eZ8 | 20 | 16/8 | 8 to 40 | 2.7 to 3.6 | 12 mA | STOP Mode; <2uA | 8x8 multiply | | |
| ZiLOG www.zilog.com | Z8F0880 | eZ8 | 20 | 16/8 | 8 to 40 | 1.8 to 3.6 | | | 8x8 multiply | | |
| ZiLOG www.zilog.com | Z8F1232 | eZ8 | 20 | 16/8 | 8 to 40 | 2.7 to 3.6 | 12 mA | STOP Mode; <2uA | 8x8 multiply | | |
| ZiLOG www.zilog.com | Z8F1233 | eZ8 | 20 | 16/8 | 8 to 40 | 2.7 to 3.6 | 12 mA | STOP Mode; <2uA | 8x8 multiply | | |
| ZiLOG www.zilog.com | Z8F1680 | eZ8 | 20 | 16/8 | 8 to 40 | 1.8 to 3.6 | | | 8x8 multiply | | |
| ZiLOG www.zilog.com | Z8F2480 | eZ8 | 20 | 16/8 | 8 to 40 | 1.8 to 3.6 | | | 8x8 multiply | | |

2008 EDN Microcontroller/Microprocessor Directory

8-bit microprocessors sorted by company

| Memory | DMA / memory controller | MMU | Package selection | Timers / PWM | Serial, Parallel I/O | Interrupts | ADC; DAC | Temperature ranges (degrees Celsius) | Additional features | Price (\$/10,000) |
|---|-------------------------|-----|--|--------------|----------------------|------------|------------------------|--------------------------------------|---|-------------------|
| 4-kbyte Flash, 256 bytes SRAM, 64 Bytes EEPROM | | | 20-/28 SOIC, SSOP, QFN, PDIP | 2, 16-bit | Up to 25 GPIO | Up to 18 | | 0 to +70 -40 to +105 | 25, 17 SPIO, WDT, POR/VBO, 5.5 Internal Oscillator, SAR ADC | \$0.63 to \$0.97 |
| 4-kbyte Flash, 256 bytes SRAM, 100 Bytes EEPROM | | | 20-/28 SOIC, SSOP, QFN, PDIP | 1 | Up to 23 GPIO | Up to 18 | Up to 8 channel 10-bit | 0 to +70 -40 to +105 | 23,17 SPIO, WDT, POR/VBO, 5.5 Internal Oscillator, SAR ADC | \$0.84 to \$0.96 |
| 8-kbyte Flash, 1-kbyte SRAM, | | | 8 QFN, 8-/20-/28 SOIC, 20-/28 SSOP, 8-/20-/28 PDIP | 2, 16-bit | Up to 25 GPIO | Up to 18 | | 0 to +70 -40 to +105 | | \$1.29 to \$2.10 |
| 8-kbyte Flash, 1-kbyte SRAM, | | | 8 QFN, 8-/20-/28 SOIC, 20-/28 SSOP, 8-/20-/28 PDIP | 2, 16-bit | Up to 23 GPIO | Up to 18 | Up to 8 channel 10-bit | 0 to +70 -40 to +105 | Temp Sensor, Op Amp, LVD (8pin only) | \$1.35 to \$2.19 |
| 8-kbyte Flash, 256 bytes SRAM, 64 Bytes EEPROM | | | 20-/28 SOIC, SSOP, QFN, PDIP | 2, 16-bit | Up to 23 GPIO | Up to 18 | Up to 8 channel 10-bit | 0 to +70 -40 to +105 | 23,17 SPIO, WDT, POR/VBO, 5.5 Internal Oscillator, SAR ADC | \$0.68 to \$1.03 |
| 8-kbyte Flash, 256 bytes SRAM, 64 Bytes EEPROM | | | 20-/28 SOIC, SSOP, QFN, PDIP | 2, 16-bit | Up to 25 GPIO | Up to 18 | | 0 to +70 -40 to +105 | 25, 17 SPIO, WDT, POR/VBO, 5.5 Internal Oscillator, SAR ADC | \$0.65 to \$0.99 |
| 8-kbyte Flash, 256 bytes SRAM, 100 Bytes EEPROM | | | 20-/28 SOIC, SSOP, QFN, PDIP | 1 | Up to 23 GPIO | Up to 18 | Up to 8 channel 10-bit | 0 to +70 -40 to +105 | 23,17 SPIO, WDT, POR/VBO, 5.5 Internal Oscillator, SAR ADC | \$0.87 to \$1.40 |
| 8-kbyte Flash, 1- + 1-kbyte SRAM, 128 Bytes EEPROM | | | 20-/28 SOIC, 20-/28 SSOP, 40 PDIP, 44 LQFP, 44 QFN | 3 | Up to 37 GPIO | Up to 18 | Up to 8 channel 10-bit | 0 to +70 -40 to +105 | 4channel 16bit Timers/PWMs, Temp Sensor, Op Amp | \$0.81 to \$1.15 |
| 12-kbyte Flash, 256 bytes SRAM, | | | 20-/28 SOIC, SSOP, QFN, PDIP | 2, 16-bit | Up to 23 GPIO | Up to 18 | Up to 8 channel 10-bit | 0 to +70 -40 to +105 | 23,17 SPIO, WDT, POR/VBO, 5.5 Internal Oscillator, SAR ADC | \$0.630 to \$0.97 |
| 12-kbyte Flash, 256 bytes SRAM, | | | 20-/28 SOIC, SSOP, QFN, PDIP | 2, 16-bit | Up to 25 GPIO | Up to 18 | | 0 to +70 -40 to +105 | 25, 17 SPIO, WDT, POR/VBO, 5.5 Internal Oscillator, SAR ADC | \$0.60 to \$0.94 |
| 16-kbyte Flash, 2- + 1-kbyte SRAM, 256 Bytes EEPROM | | | 20-/28 SOIC, 20-/28 SSOP, 40 PDIP, 44 LQFP, 44 QFN | 3 | Up to 37 GPIO | Up to 18 | Up to 8 channel 10-bit | 0 to +70 -40 to +105 | 4channel 16bit Timers/PWMs, Temp Sensor, Op Amp | \$0.97 to \$1.28 |
| 24-kbyte Flash, 2- + 1-kbyte SRAM, | | | 20-/28 SOIC, 20-/28 SSOP, 40 PDIP, 44 LQFP, 44 QFN | 3 | Up to 37 GPIO | Up to 18 | Up to 8 channel 10-bit | 0 to +70 -40 to +105 | 4channel 16bit Timers/PWMs, Temp Sensor, Op Amp | \$1.04 to \$1.40 |