![Silicon Labs logo]

# Mixed-Signal 8-bit Microcontrollers

**2014 PRODUCT SELECTOR GUIDE**

**8**

**8-bit MCUs**

Fast, low-power solutions featuring fully-integrated analog functionality and peripherals

# The 8051 family architecture has the largest existing ecosystem, representing nearly a quarter of the MCU market

## Analog Peripherals

- AMUX
- 10-bit 300 ksps ADC
- IREF
- Temp Sensor
- VREF
- VREF
- Voltage Comparators

## Digital I/O

- UART
- SMBus
- 2 x SPI
- PCA
- Timer 0
- Timer 1
- Timer 2
- Timer 3
- CRC
- Crossbar
- EMIF
- Port 0
- Port 1
- Port 2

## Precision Clocking

| 24.5 MHz Precision Internal Oscillator | 20 MHz Low Power Internal Oscillator |
|---|---|
| External Oscillator | Hardware Smartclock |

## High-speed Controller Core

| 64/32 kB ISP Flash | 8051 CPU (25 MIPS) | 4352 B SRAM | |
|---|---|---|---|
| Flexible Interrupts | Debug Circuitry | POR | WDT |

**Analog Intensive**
Up to 100 MHz operation
12-bit, 16-bit and 24-bit ADCs available
16 x 16 MAC options

**Automotive/Industrial**
CAN 2.0 and LIN 2.1 available
-40 to 125 °C operation
All devices automotive qualified

**Broad Based**
Internal 2 % accurate oscillator — all devices
±2 °C temperature sensing available
EEPROM options
Capacitive sense available

**Low Power**
DC-DC buck and boost converter options
Capacitive sense available
Ultra-low sleep current/fast wake up times
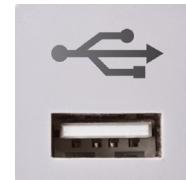
**USB**
Free software libraries
5 V regulator
Crystal-less operation

## Select a secure architecture

The C8051 is based on a Harvard architecture, allowing it to only execute code fetched from program memory, and allows locking of program memory to prevent unauthorized examination. These are two advantages in the C8051 hardware that protects a product from security attacks.

## Select a low latency system

Variations in interrupt response time can cause adverse effects in some applications, causing, for example, audio distortion or motor noise and vibration. With the C8051 it's easy to work "close to the metal" and have full control over the entire system.

## Select a simple solution

The C8051 microcontroller is ideal for processing 8-bit data that comes from port I/O or sensors inputs. A great many applications don't require complex mathematics processing, and benefit significantly from the code density advantages of an 8-bit processor when not tasked with 16-bit or 32-bit mathematics. Human interface functions, sensor interface, and distributed processing functions are examples that easily benefit from the simplicity of the C8051 solutions.

**Despite strong media coverage of the rapid expansion of the ARM ecosystem, the largest ecosystem in MCUs still exists around the mature and tiny 8051 MCU architecture.**

IHS, 2013

# 10 reasons Silicon Labs C8051 MCUs are the world's highest performance 8-bit microcontrollers
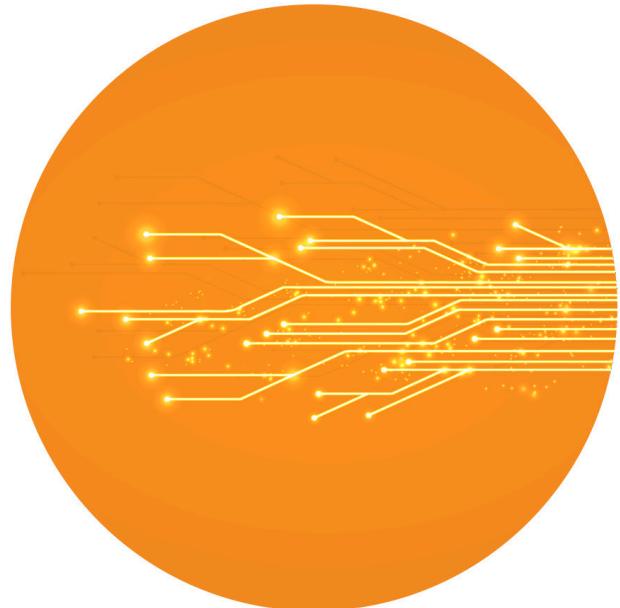
### Highly Integrated MCUs

C8051 microcontrollers offer a complete set of high performance, configurable peripherals in very small packages.

### High Performance Analog Peripherals

Reduce system cost and simplify designs. 8–24-bit ADCs, 12-bit DACs, comparators, PGAs, voltage references, temperature sensors and capacitive sensing.

### Crystal-less Operation

Precision internal oscillators with speeds up 50 MHz support full speed processor and peripheral operation and reduce PCB area requirements and BOM cost.

### Fast and Efficient Processor Core

With up to 100 MIPS peak throughput, the C8051 microcontrollers provide an economical solution that satisfies the performance needs of embedded applications.

### Fast and Efficient Digital Peripherals

Efficient peripherals reduces processor overhead and include high performance timers and PWMs for high-resolution and high-speed serial peripherals to optimize throughput.
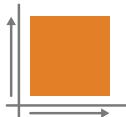
### No Performance Compromises

C8051 microcontrollers provide robust oscillators, core, I/O and analog and digital peripherals with guaranteed performance over voltage and temperature range.

### Highly Integrated USB

Free software libraries simplify development, and crystal-less operation, onboard voltage regulator, and internal memory reduces PCB area and BOM cost.
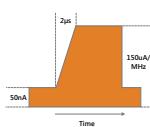
### Ultra Low Power

Ultra low standby with brown out detection, fast wake times, and low active current along with buck and boost converter options offer long battery lifetime.
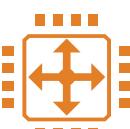
### Digital Crossbar and Analog Multiplexer

Silicon Labs' patented crossbar technology enables maximum flexibility and unparalleled ease of development, allowing designers to select peripherals without pinout conflicts.

### Simplicity Studio™ Software and Crossbar Configurator

Automatic configuration code generation, free unlimited code size Keil compiler, profile tools, easily updated support packages, software and documentation, all at your finger tips.

| 8051 | Package Type | Flash (kB) | RAM (kB) | MHz | GPIO | CAN | LIN | SPI | UART | I²C | EMIF | ADC 1 | ADC 2 | DAC | Comparator | Internal OSC | Timers | PCA Channels | LCD | AES | RTC | MAC (16x16) | DMA | Capacitive Sense | LFO | DC-DC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **ANALOG INTENSIVE** | | | | | | | | | | | | | | | | | | | | | | | | | | |
| C8051F00x | LQFP32 | 32 | 0.25, 2.25 | 20, 25 | 8 | | | 1 | 1 | 1 | | 12-bit, 4-ch. | | 12-bit, 2-ch. | 1 | 20% | 4 | 5 | | | | | | | | |
| C8051F00x | TQFP48 | 32 | 0.25, 2.25 | 20, 25 | 16 | | | 1 | 1 | 1 | | 12-bit, 8-ch. | | 12-bit, 2-ch | 2 | 20% | 4 | 5 | | | | | | | | |
| C8051F00x | TQFP64 | 32 | 0.25, 2.25 | 20, 25 | 32 | | | 1 | 1 | 1 | | 12-bit, 8-ch. | | 12-bit, 2-ch | 2 | 20% | 4 | 5 | | | | | | | | |
| C8051F02x | TQFP100 | 64 | 4.25 | 25 | 64 | | | 1 | 2 | 1 | Y | 10/12-bit, 8-ch. | 8-bit, 8-ch. | 12-bit, 2-ch. | 2 | 20% | 5 | 5 | | | | | | | | |
| C8051F02x | TQFP64 | 64 | 4.25 | 25 | 32 | | | 1 | 2 | 1 | Y | 10/12-bit, 8-ch. | 8-bit, 8-ch. | 12-bit, 2-ch | 2 | 20% | 5 | 5 | | | | | | | | |
| C8051F04x | TQFP100 | 32, 64 | 4.25 | 25 | 64 | 1 | | | 2 | 1 | Y | 10/12-bit, 13-ch. | 8-bit, 8-ch. | 12-bit, 2-ch | 3 | 2% | 5 | 6 | | | | | | | | |
| C8051F04x | TQFP64 | 32, 64 | 4.25 | 25 | 32 | 1 | | | 2 | 1 | Y | 10/12-bit, 13-ch. | 8-bit, 8-ch. | 12-bit, 2-ch | 3 | 2% | 5 | 6 | | | | | | | | |
| C8051F06x | TQFP100 | 32, 64 | 4.25 | 25 | 59 | 1 | | | 2 | 1 | Y | 16-bit, 1-ch. | 16-bit, 1-ch. | 12-bit, 2-ch. | 3 | 2% | 5 | 6 | | | | | Y | | | |
| C8051F06x | TQFP64 | 32, 64 | 4.25 | 25 | 24 | 1 | | | 2 | 1 | | 16-bit, 1-ch. | 16-bit, 1-ch. | 12-bit, 2-ch. | 3 | 2% | 5 | 6 | | | | | Y | | | |
| C8051F12x | TQFP100 | 128 | 8 | 50, 100 | 64 | | | 1 | 2 | 1 | Y | 10/12-bit, 8-ch. | 8-bit, 8-ch. | 12-bit, 2-ch. | 2 | 2% | 5 | 6 | | | | Y | | | | |
| C8051F12x | TQFP64 | 128 | 8 | 50, 100 | 32 | | | 1 | 2 | 1 | Y | 10/12-bit, 8-ch. | 8-bit, 8-ch. | 12-bit, 2-ch. | 2 | 2% | 5 | 6 | | | | Y | | | | |
| C8051F13x | TQFP100 | 64, 128 | 8 | 100 | 64 | | | 1 | 2 | 1 | Y | 10-bit, 8-ch. | | | 2 | 2% | 5 | 6 | | | | Y | | | | |
| C8051F13x | TQFP64 | 64, 128 | 8 | 100 | 32 | | | 1 | 2 | 1 | Y | 10-bit, 8-ch. | | | 2 | 2% | 5 | 6 | | | | Y | | | | |
| C8051F35x | LQFP32 | 8 | 1 | 50 | 17 | | | 1 | 1 | 1 | | 24-bit, 8-ch. | | 8-bit, 2-ch. | 1 | 2% | 4 | 3 | | | | | | | | |
| C8051F35x | QFN28 | 8 | 1 | 50 | 17 | | | 1 | 1 | 1 | | 24-bit, 8-ch. | | 8-bit, 2-ch. | 1 | 2% | 4 | 3 | | | | | | | | |
| **AUTOMOTIVE/INDUSTRIAL** | | | | | | | | | | | | | | | | | | | | | | | | | | |
| C8051F50x | QFN32 | 32, 64 | 4.25 | 50 | 25 | 1 | 1 | 1 | 1 | 1 | Y | 12-bit, 25-ch. | | | 2 | 0.5% | 4 | 6 | | | | | | | | |
| C8051F50x | QFN40 | 64 | 4.25 | 50 | 33 | 1 | 1 | 1 | 1 | 1 | Y | 12-bit, 32-ch. | | | 2 | 0.5% | 4 | 6 | | | | | | | | |
| C8051F50x | QFN48 | 32, 64 | 4.25 | 50 | 40 | 1 | 1 | 1 | 1 | 1 | Y | 12-bit, 32-ch. | | | 2 | 0.5% | 4 | 6 | | | | | | | | |
| C8051F50x | QFP32 | 64 | 4.25 | 50 | 25 | 1 | 1 | 1 | 1 | 1 | Y | 12-bit, 25-ch. | | | 2 | 0.5% | 4 | 6 | | | | | | | | |
| C8051F50x | QFP48 | 32, 64 | 4.25 | 50 | 40 | 1 | 1 | 1 | 1 | 1 | Y | 12-bit, 32-ch. | | | 2 | 0.5% | 4 | 6 | | | | | | | | |
| C8051F51x | QFP40 | 32 | 4.25 | 50 | 33 | 1 | 1 | 1 | 1 | 1 | Y | 12-bit, 32-ch. | | | 2 | 0.5% | 4 | 6 | | | | | | | | |
| C8051F52x | DFN10 | 2, 4, 8 | 0.25 | 25 | 6 | | 1 | 1 | 1 | | | 12-bit, 6-ch. | | | 1 | 0.5% | 3 | 3 | | | | | | | | |
| C8051F53x | QFN20 | 2, 4, 8 | 0.25 | 25 | 16 | | 1 | 1 | 1 | | | 12-bit, 16-ch. | | | 1 | 0.5% | 3 | 3 | | | | | | | | |
| C8051F53x | TSSOP20 | 2, 4, 8 | 0.25 | 25 | 16 | | 1 | 1 | 1 | | | 12-bit, 16-ch. | | | 1 | 0.5% | 3 | 3 | | | | | | | | |
| C8051F54x | QFN24 | 8, 16 | 1.25 | 50 | 18 | | 1 | 1 | 1 | 1 | | 12-bit, 18-ch. | | | 2 | 0.5% | 4 | 6 | | | | | | | | |
| C8051F54x | QFN32 | 8, 16 | 1.25 | 50 | 25 | | 1 | 1 | 1 | 1 | | 12-bit, 25-ch. | | | 2 | 0.5% | 4 | 6 | | | | | | | | |
| C8051F54x | QFP32 | 8, 16 | 1.25 | 50 | 25 | | 1 | 1 | 1 | 1 | | 12-bit, 25-ch. | | | 2 | 0.5% | 4 | 6 | | | | | | | | |
| C8051F55x | QFN24 | 16, 32 | 2.25 | 50 | 18 | 1 | 1 | 1 | 1 | 1 | | 12-bit, 18-ch. | | | 2 | 0.5% | 4 | 6 | | | | | | | | |
| C8051F56x | QFN32 | 16, 32 | 2.25 | 50 | 25 | 1 | 1 | 1 | 1 | 1 | | 12-bit, 25-ch. | | | 2 | 0.5% | 4 | 6 | | | | | | | | |
| C8051F56x | QFN40 | 16, 32 | 2.25 | 50 | 33 | 1 | 1 | 1 | 1 | 1 | Y | 12-bit, 32-ch. | | | 2 | 0.5% | 4 | 6 | | | | | | | | |
| C8051F56x | QFP32 | 16, 32 | 2.25 | 50 | 25 | 1 | 1 | 1 | 1 | 1 | | 12-bit, 25-ch. | | | 2 | 0.5% | 4 | 6 | | | | | | | | |
| C8051F57x | QFN40 | 16, 32 | 2.25 | 50 | 33 | 1 | 1 | 1 | 1 | 1 | Y | 12-bit, 32-ch. | | | 2 | 0.5% | 4 | 6 | | | | | | | | |
| C8051F58x | QFP32 | 96, 128 | 8 | 50 | 25 | 1 | 1 | 1 | 2 | 1 | | 12-bit, 25-ch. | | | 3 | 0.5% | 6 | 12 | | | | | | | | |
| C8051F58x | QFN40 | 128 | 8 | 50 | 33 | 1 | 1 | 1 | 2 | 1 | Y | 12-bit, 32-ch. | | | 3 | 0.5% | 6 | 12 | | | | | | | | |
| C8051F58x | QFN48 | 96, 128 | 8 | 50 | 40 | 1 | 1 | 1 | 2 | 1 | Y | 12-bit, 32-ch. | | | 3 | 0.5% | 6 | 12 | | | | | | | | |
| C8051F58x | QFP32 | 96, 128 | 8 | 50 | 25 | 1 | 1 | 1 | 2 | 1 | | 12-bit, 25-ch. | | | 3 | 0.5% | 6 | 12 | | | | | | | | |
| C8051F58x | QFP48 | 96, 128 | 8 | 50 | 40 | 1 | 1 | 1 | 2 | 1 | Y | 12-bit, 32-ch. | | | 3 | 0.5% | 6 | 12 | | | | | | | | |
| C8051F59x | QFN40 | 96 | 8 | 50 | 33 | 1 | 1 | 1 | 2 | 1 | Y | 12-bit, 32-ch. | | | 3 | 0.5% | 6 | 12 | | | | | | | | |
| **USB** | | | | | | | | | | | | | | | | | | | | | | | | | | |
| C8051F32x | LQFP32 | 16 | 2.25 | 25 | 25 | | | 1 | 1 | 1 | | 10-bit, 17-ch. | | | 2 | 1.5% | 4 | 5 | | | | | | | | |
| C8051F32x | QFN28 | 16 | 2.25 | 25 | 21 | | | 1 | 1 | 1 | | 10-bit, 13-ch. | | | 2 | 1.5% | 4 | 5 | | | | | | | | |
| C8051F32x | QFN28 | 16 | 1.5 | 25 | 15 | | | | 1 | | | | | | 2 | 1.5% | 2 | | | | | | | | | |
| C8051F34x | LQFP32 | 32, 64 | 2.25, 4.25, 5.25 | 50 | 25 | | | 1 | 2 | 1 | | 10-bit, 21-ch. | | | 2 | 1.5% | 4 | 5 | | | | | | | | |
| C8051F34x | QFN32 | 32, 64 | 2.25, 4.25 | 50 | 25 | | | 1 | 2 | 1 | | 10-bit, 21-ch. | | | 2 | 1.5% | 4 | 5 | | | | | | | | |
| C8051F34x | TQFP48 | 32, 64 | 2.25, 4.25, 5.25 | 50 | 40 | | | 1 | 2 | 1 | Y | 10-bit, 20-ch. | | | 2 | 1.5% | 4 | 5 | | | | | | | | |
| C8051F38x | LQFP32 | 16, 32, 64 | 2.25, 4.25 | 50 | 50 | | | 1 | 2 | 2 | | 10-bit, 21-ch. | | | 2 | 1.5% | 6 | 5 | | | | | | | | |
| C8051F38x | QFN32 | 16, 32, 64 | 2.25, 4.25 | 50 | 50 | | | 1 | 2 | 2 | | 10-bit, 21-ch. | | | 2 | 1.5% | 6 | 5 | | | | | | | | |
| C8051F38x | TQFP48 | 32, 64 | 2.25, 4.25 | 50 | 50 | | | 1 | 2 | 2 | Y | 10-bit, 32-ch. | | | 2 | 1.5% | 6 | 5 | | | | | | | | |

| 8051 | Package Type | Flash (kB) | RAM (kB) | MHz | GPIO | CAN | LIN | SPI | UART | $I^2C$ | EMIF | ADC 1 | ADC 2 | DAC | Comparator | Internal OSC | Timers | PCA Channels | LCD | AES | RTC | MAC (16x16) | DMA | Capacitive Sense | LFO | DC-DC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **BROAD-BASED** | | | | | | | | | | | | | | | | | | | | | | | | | | |
| C8051F30x | QFN11 | 2, 4, 8 | 0.25 | 25 | 8 | | | | 1 | 1 | | 8-bit, 8-ch. | | | 1 | 2% | 3 | 3 | | | | | | | | |
| C8051F30x | SOIC14 | 2, 4, 8 | 0.25 | 25 | 8 | | | | 1 | 1 | | 8-bit, 8-ch. | | | 1 | 2% | 3 | 3 | | | | | | | | |
| C8051F31x | LQFP32 | 8, 16 | 1.25 | 25 | 29 | | | 1 | 1 | 1 | | 10-bit, 21-ch. | | | 2 | 2% | 4 | 5 | | | | | | | | |
| C8051F31x | QFN24 | 16 | 1.25 | 25 | 21 | | | 1 | 1 | 1 | | 10-bit, 13-ch. | | | 2 | 2% | 4 | 5 | | | | | | | | |
| C8051F31x | QFN28 | 8, 16 | 1.25 | 25 | 25 | | | 1 | 1 | 1 | | 10-bit, 17-ch. | | | 2 | 2% | 4 | 5 | | | | | | | | |
| C8051F33x | DIP20 | 8 | 0.75 | 25 | 17 | | | 1 | 1 | 1 | | 10-bit, 16-ch. | | 10-bit, 1-ch. | 1 | 2% | 4 | 3 | | | | | | | Y | |
| C8051F33x | QFN20 | 2, 4, 8, 16 | 0.75 | 25 | 17 | | | 1 | 1 | 1 | | 10-bit, 16-ch. | | 10-bit, 1-ch. | 1 | 2% | 4 | 3 | | | | | | | Y | |
| C8051F33x | QFN24 | 16 | 0.75 | 25 | 21 | | | 1 | 1 | 1 | | 10-bit, 16-ch. | | 10-bit, 1-ch. | 1 | 2% | 4 | 3 | | | | | | | Y | |
| C8051F36x | LQFP32 | 16, 32 | 1.25 | 50, 100 | 27,29 | | | 1 | 1 | 1 | | 10-bit, 21-ch. | | 10-bit, 1-ch. | 2 | 2% | 4 | 6 | | | | Y | | | | |
| C8051F36x | QFN28 | 16, 32 | 1.25 | 50, 100 | 24,25 | | | 1 | 1 | 1 | | 10-bit, 17-ch. | | 10-bit, 1-ch. | 2 | 2% | 4 | 6 | | | | Y | | | | |
| C8051F36x | TQFP48 | 32 | 1.25 | 100 | 39 | | | 1 | 1 | 1 | Y | 10-bit, 21-ch. | | 10-bit, 1-ch. | 2 | 2% | 4 | 6 | | | | Y | | | | |
| C8051F37x | QFN24 | 16, 16 | 1 | 50 | 21 | | | 1 | 1 | 2 | | 10-bit, 16-ch. | | 10-bit, 2-ch. | 2 | 2% | 6 | 3 | | | | | | | Y | |
| C8051F39x | QFN20 | 4, 8, 16 | 1 | 50 | 17 | | | 1 | 1 | 2 | | 10-bit, 16-ch. | | 10-bit, 2-ch. | 1 | 2% | 6 | 3 | | | | | | | Y | |
| C8051F39x | QFN24 | 8, 16 | 1 | 50 | 21 | | | 1 | 1 | 2 | | 10-bit, 16-ch. | | 10-bit, 2-ch. | 2 | 2% | 6 | 3 | | | | | | | Y | |
| C8051F41x | LQFP32 | 16, 32 | 2.25 | 50 | 24 | | | 1 | 1 | 1 | | 12-bit, 24-ch. | | 12-bit, 2ch. | 2 | 2% | 4 | 6 | | | Y | | | | | |
| C8051F41x | QFN28 | 16, 32 | 2.25 | 50 | 20 | | | 1 | 1 | 1 | | 12-bit, 20-ch. | | 12-bit, 2ch. | 2 | 2% | 4 | 6 | | | Y | | | | | |
| C8051F71x | QFN48 | 8 | 0.5 | 25 | 39 | | | 1 | 1 | 1 | | 10-bit, 12-ch. | | | 1 | 2% | 4 | 4 | | | | | | 27 | | |
| C8051F71x | QFN48 | 8 | 0.5 | 25 | 39 | | | 1 | 1 | 1 | | 10-bit, 12-ch. | | | 1 | 2% | 4 | 3 | | | | | | 27 | | |
| C8051F71x | QFP64 | 8 | 0.5 | 25 | 54 | | | 1 | 1 | 1 | Y | 12-bit, 16-ch. | | | 1 | 2% | 4 | 3 | | | | | | 38 | | |
| C8051F85x | QFN20 | 2, 4, 8 | 0.25, 0.5 | 25 | 16 | | | 1 | 1 | 1 | | 12-bit, 15-ch. | | | 2 | 2% | 4 | 3 | | | | | | | Y | |
| C8051F85x | QSOP24 | 2, 4, 8 | 0.25, 0.5 | 25 | 18 | | | 1 | 1 | 1 | | 12-bit, 16-ch. | | | 2 | 2% | 4 | 3 | | | | | | | Y | |
| C8051F86x | SOIC16 | 2, 4, 8 | 0.25, 0.5 | 25 | 13 | | | 1 | 1 | 1 | | 12-bit, 12-ch. | | | 2 | 2% | 4 | 3 | | | | | | | Y | |
| **LOW-POWER** | | | | | | | | | | | | | | | | | | | | | | | | | | |
| C8051F90x | QFN20 | 8 | 0.75 | 25 | 16 | | | 2 | 1 | 1 | | 10-bit, 15-ch. | | | 2 | 2% | 4 | 6 | | | Y | | | | | Y |
| C8051F90x | QFN24 | 8 | 0.75 | 25 | 16 | | | 2 | 1 | 1 | | 12-bit, 15-ch. | | | 2 | 2% | 4 | 6 | | | Y | | | | | Y |
| C8051F90x | QSOP24 | 8 | 0.75 | 25 | 16 | | | 2 | 1 | 1 | | 10/12-bit, 15-ch. | | | 2 | 2% | 4 | 6 | | | Y | | | | | Y |
| C8051F91x | QFN24 | 16 | 0.75 | 25 | 16 | | | 2 | 1 | 1 | | 10/12-bit, 15-ch. | | | 2 | 2% | 4 | 6 | | | Y | | | | | Y |
| C8051F91x | QSOP24 | 16 | 0.75 | 25 | 16 | | | 2 | 1 | 1 | | 10-12-bit, 15-ch. | | | 2 | 2% | 4 | 6 | | | Y | | | | | Y |
| C8051F92x | LQFP32 | 32 | 4.25 | 25 | 24 | | | 2 | 1 | 1 | Y | 10-bit, 23-ch. | | | 2 | 2% | 4 | 6 | | | Y | | | | | Y |
| C8051F92x | QFN24 | 32 | 4.25 | 25 | 16 | | | 2 | 1 | 1 | | 10-bit, 15-ch. | | | 2 | 2% | 4 | 6 | | | Y | | | | | Y |
| C8051F92x | QFN32 | 32 | 4.25 | 25 | 24 | | | 2 | 1 | 1 | Y | 10-bit, 23-ch. | | | 2 | 2% | 4 | 6 | | | Y | | | | | Y |
| C8051F93x | LQFP32 | 64 | 4.25 | 25 | 24 | | | 2 | 1 | 1 | Y | 10-bit, 23-ch. | | | 2 | 2% | 4 | 6 | | | Y | | | | | Y |
| C8051F93x | QFN24 | 64 | 4.25 | 25 | 16 | | | 2 | 1 | 1 | | 10-bit, 15-ch. | | | 2 | 2% | 4 | 6 | | | Y | | | | | Y |
| C8051F93x | QFN32 | 64 | 4.25 | 25 | 24 | | | 2 | 1 | 1 | Y | 10-bit, 23-ch. | | | 2 | 2% | 4 | 6 | | | Y | | | | | Y |
| C8051F96x | DQFN76 | 16, 32, 64, 128 | 4.25, 8 | 25 | 57 | | | 2 | 1 | 1 | | 12-bit, 16-ch. | | | 2 | 2% | 4 | 6 | 128 | Y | Y | | | | | Y |
| C8051F96x | QFN40 | 16, 32, 64, 128 | 4.25, 8 | 25 | 34 | | | 2 | 1 | 1 | | 12-bit, 16-ch. | | | 2 | 2% | 4 | 6 | 36 | Y | Y | | | | | Y |
| C8051F96x | TQFP80 | 16, 32, 64, 128 | 4.25, 8 | 25 | 57 | | | 2 | 1 | 1 | | 12-bit, 16-ch. | | | 2 | 2% | 4 | 6 | 128 | Y | Y | | | | | Y |
| C8051F97x | QFN24 | 16, 32 | 4, 8 | 25 | 19 | | | 1 | 1 | 1 | | 10-bit, 19-ch. | | | | 2% | 4 | 3 | | | Y | | | 19 | | Y |
| C8051F97x | QFN32 | 16, 32 | 4, 8 | 25 | 28 | | | 1 | 1 | 1 | | 10-bit, 28-ch. | | | | 2% | 4 | 3 | | | Y | | | 28 | | Y |
| C8051F97x | QFN48 | 16, 32 | 4, 8 | 25 | 43 | | | 1 | 1 | 1 | | 10-bit, 43-ch. | | | | 2% | 4 | 3 | | | Y | | | 43 | | Y |
| C8051F98x | QFN20 | 2, 4, 8 | 0.5 | 25 | 16 | | | 1 | 1 | 1 | | 10/12-bit, 9-ch. | | | 1 | 2% | 4 | 3 | | | | | | | | |
| C8051F98x | QFN24 | 4, 8 | 0.5 | 25 | 17 | | | 1 | 1 | 1 | | 10/12-bit, 10-ch. | | | 1 | 2% | 4 | 3 | | | | | | | | |
| C8051F98x | QSOP24 | 4, 8 | 0.5 | 25 | 17 | | | 1 | 1 | 1 | | 10/12-bit, 10-ch. | | | 1 | 2% | 4 | 3 | | | | | | | | |
| C8051F99x | QFN20 | 8 | 0.5 | 25 | 16 | | | 1 | 1 | 1 | | 12-bit, 9-ch. | | | 1 | 2% | 4 | 3 | | | Y | | | 13 | | |
| C8051F99x | QFN24 | 8 | 0.5 | 25 | 17 | | | 1 | 1 | 1 | | 12-bit, 10-ch. | | | 1 | 2% | 4 | 3 | | | Y | | | 14 | | |
| C8051F99x | QSOP24 | 8 | 0.5 | 25 | 17 | | | 1 | 1 | 1 | | 12-bit, 10-ch. | | | 1 | 2% | 4 | 3 | | | Y | | | 14 | | |

## Package Options

| Package | Dimensions |
|---|---|
| TQFP100 | 16 mm × 16 mm |
| TQFP64 | 12 mm × 12 mm |
| TQFP48 | 9 mm × 9 mm |
| LQFP32 | 9 mm × 9 mm |
| SOIC14 | 8.5 mm × 6 mm |
| TSSOP20 | 6.5 mm × 6.5 mm |
| QFN28 | 5 mm × 5 mm |
| QFN24/20 | 4 mm × 4 mm |
| QFN20 | 3 mm × 3 mm |
| QFN10 | 2 mm × 2 mm |

# Silicon Labs C8051 tools make development simple



## Simplicity Studio

Easy access to the Simplicity IDE, configuration tools, demos, examples, datasheets, application notes, community forum and Silicon Labs support, plus an unlimited code size Keil compiler, all free of charge.
**www.silabs.com/simplicity-studio**



## 10 years

### Development Kits

Priced $64–$99, these kits are the most comprehensive development option.

### ToolStick Evaluation Kits

Priced from $9.90, these kits are the easiest and least expensive option.

### Longevity Commitment

Silicon labs targets a minimum 10-year life cycle.
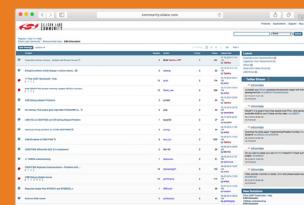
### Silicon Labs Community

Find the support and answers you need on Silicon Labs community forum.



Find you nearest distributor, or buy or sample online, see details at **www.silabs.com/buy**