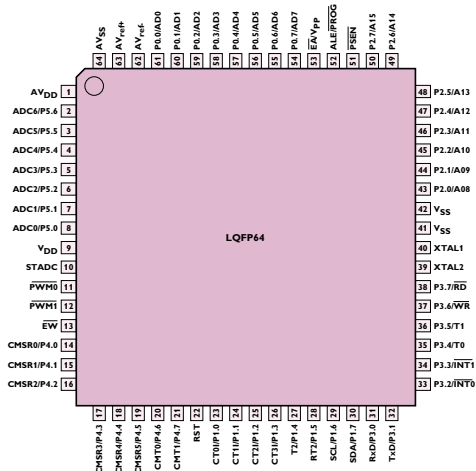


8xC554

80C51 microcontroller with 16 MHz 6-clock operation and 10-bit ADC

Pin configuration



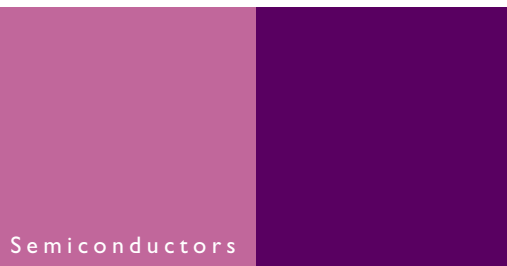
Features

- 16 MHz (max) 6-clock operation 375 nsec instruction cycle
- 16 KBytes – 512 bytes RAM expandable externally to 64 KBytes
- 10-bit ADC with 7 multiplexed analog inputs
- Two 8-bit resolution Pulse Width Modulation (PWM) outputs
- I²C serial bus
- 2 standard 16-bit timer/counters
- Third 16-bit timer/counter coupled to 4 capture registers and 3 compare registers
- Enhanced UART
- On-chip watchdog timer
- Power control modes include Idle and power-down

Ordering information

ROMless	Temperature °C	Package	MAX Frequency (MHz)	Drawing Number
P80C554SBBD	0 to +70	LQFP	16	SOT-314-2
P80C554SFBD	-40 to +85	LQFP	16	SOT-314-2

ROM	Temperature °C	Package	MAX Frequency (MHz)	Drawing Number
P83C554SBBD	0 to +70	LQFP	16	SOT-314-2
P83C554SFBD	-40 to +85	LQFP	16	SOT-314-2



Description

The 8xC554 single-chip 8-bit microcontroller is manufactured in an advanced CMOS process and is a derivative of the 80C51 microcontroller family. This new 8xC554 supports 16 MHz 6-clock operation and is available in a 64-lead LQFP. The 87C554 has the same instruction set as the 80C51. Three versions of the 8xC554 derivative exist:

- 87C554 – 16 KBytes OTP
- 80C554 – ROMless version
- 83C554 – 16 KBytes ROM

The 87C554 contains a 16k x 8 non-volatile OTP EPROM, a 512 x 8 read/write data memory, five 8-bit I/O ports, one 8-bit input port, 2 standard 16-bit timer/event counters (identical to the timers of the 80C51), an additional 16-bit timer coupled to capture and compare latches, a 15-source, 4-priority-level nested interrupt structure, a 7-channel 10-bit ADC, dual pulse-width (PWM) modulation outputs, two serial interfaces (UART and I²C bus), a “watchdog” timer, and on-chip oscillator and timing circuits. In addition, the 8xC554 has two power reduction modes - idle mode and power-down mode. In idle mode, the CPU is halted while the RAM, timers, serial ports, ADC, and interrupt system continue functioning. In power-down mode, the oscillator is halted, RAM contents are frozen and all other chip functions are inoperative.

The 80C51 instruction set has extensive bit-handling capabilities and supports both binary and BCD arithmetic. Over 100 80C51 instructions exist: 19 one-byte, 45 two-byte, and 17 three-byte instructions. With a 16MHz crystal, 58% of the instructions are executed in 375 nsec and 40% in 750 nsec. Multiply and divide instructions require 1.5 usec.

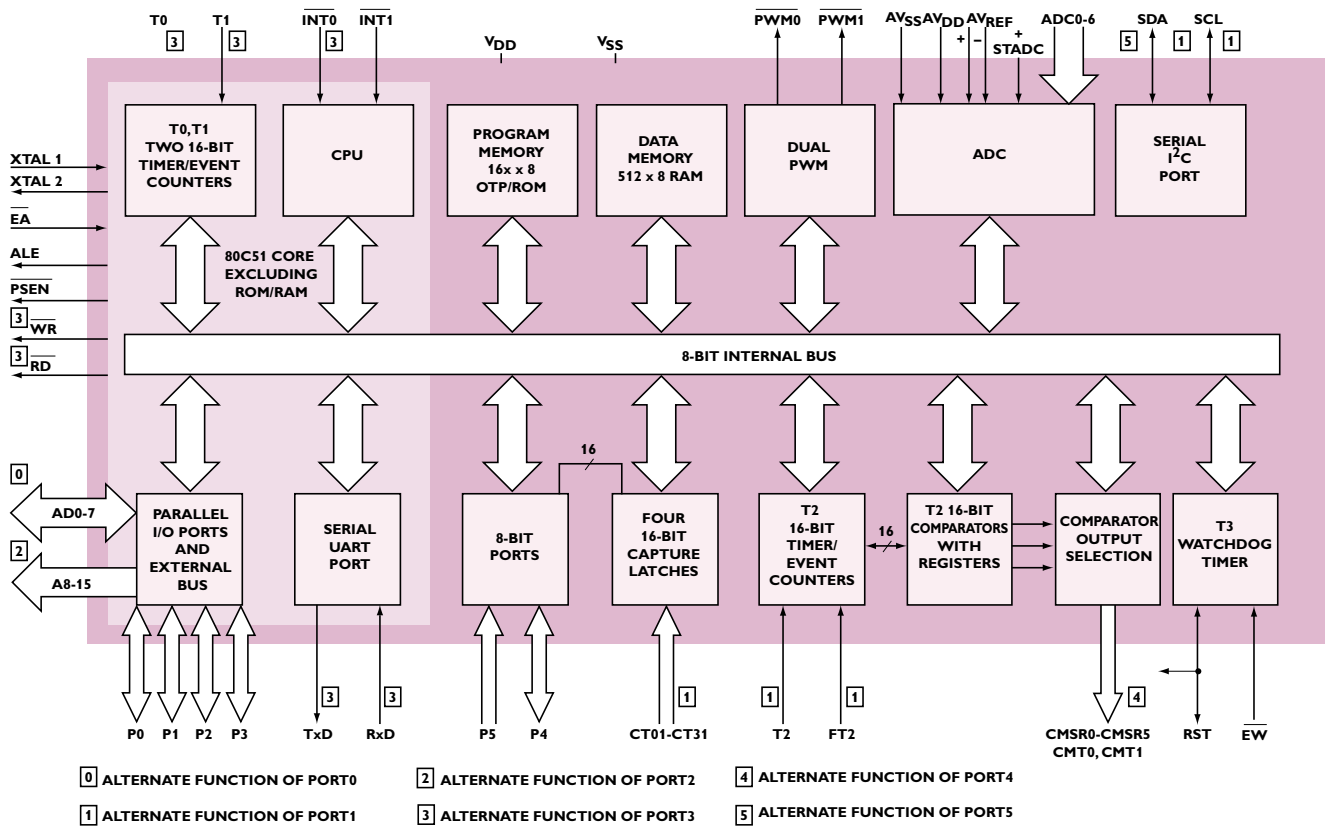
OTP	Temperature °C	Package	MAX Frequency (MHz)	Drawing Number
P87C554SBBD	0 to +70	LQFP	16	SOT-314-2
P87C554SFBD	-40 to +85	LQFP	16	SOT-314-2

8xC554

80C51 microcontroller with 16 MHz 6-clock operation and 10-bit ADC



8xC554 block diagram



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