

P87C51Mx2

64 KB / 96 KB OTP with 2 KB / 3 KB RAM
Extending memory beyond 64 Kbytes



Features

- 23-bit program memory space (8 MB) and 23-bit data memory space (8 MB)
- 96 KB (MC2) 64 KB (MB2) of on-chip program OTP
- 3 KB (MC2) 2KB (MB2) of on-chip data RAM
- Up to 24 MHz CPU clock with 6 clock cycles per machine cycle
- Programmable Counter Array (PCA)
- Two full-duplex enhanced UARTs
- Serial Peripherals Interface (SPI) communication modules
- 100% binary compatibility with the classic 80C51

Applications

- Security Systems
- HVAC
- Protocol Conversion
- Handheld

Benefits

- Increases program/data address range to 8 MB each
- Enhances performance and efficiency for C programs
- Fully 80C51-compatible microcontroller
- Provides seamless and compelling upgrade path from classic 80C51
- Preserves 80C51 code base, investment/knowledge, and peripherals & ASICs

Description

The P87C51Mx2 represents the first microcontroller based on Philips Semiconductors' new 51MX core. The P87C51MC2 features 96 kilobytes (KB) of OTP program memory and 3 KB of data SRAM, while the P87C51MB2 has 64 KB of OTP and 2 KB of RAM. In addition, both devices are equipped with a Programmable Counter Array (PCA), a watchdog timer that can be configured to different time ranges through SFR bits, as well as two enhanced UARTs and Serial Peripheral Interface (SPI).

The 51MX (Memory eXtension) core is an accelerated 80C51 architecture that executes instructions at twice the rate of standard 80C51 devices. The linear address range of the 51MX has been expanded to support up to 8 megabytes (MB) of program memory and 8 MB of data memory. It retains full program code compatibility to enable design engineers to re-use 80C51 development tools, eliminating the need to move to a new, unfamiliar architecture. The 51MX core also retains 80C51 bus compatibility to allow for the continued use of 80C51-interfaced peripherals and Application Specific Integrated Circuits (ASICs).

The P87C51Mx2 provides greater functionality, increased performance and overall lower system cost. By offering an embedded memory solution combined with the enhancements to manage the memory extension, the P87C51Mx2 eliminates the need for a software work-around. The increased program memory enables design engineers to develop more complex programs in a high-level language like C, for example, without struggling to contain the program within the traditional 64 KB of program memory. These enhancements also greatly improve C Language efficiency for code size below 64 KB.

Ordering information

Part Number	Temperature Range	Package	Drawing Number
P87C51MB2BA /02	0° to +70° C	PLCC, 44 leads	SOT-187-2
P87C51MC2BA /02	0° to +70° C	PLCC, 44 leads	SOT-187-2

PHILIPS

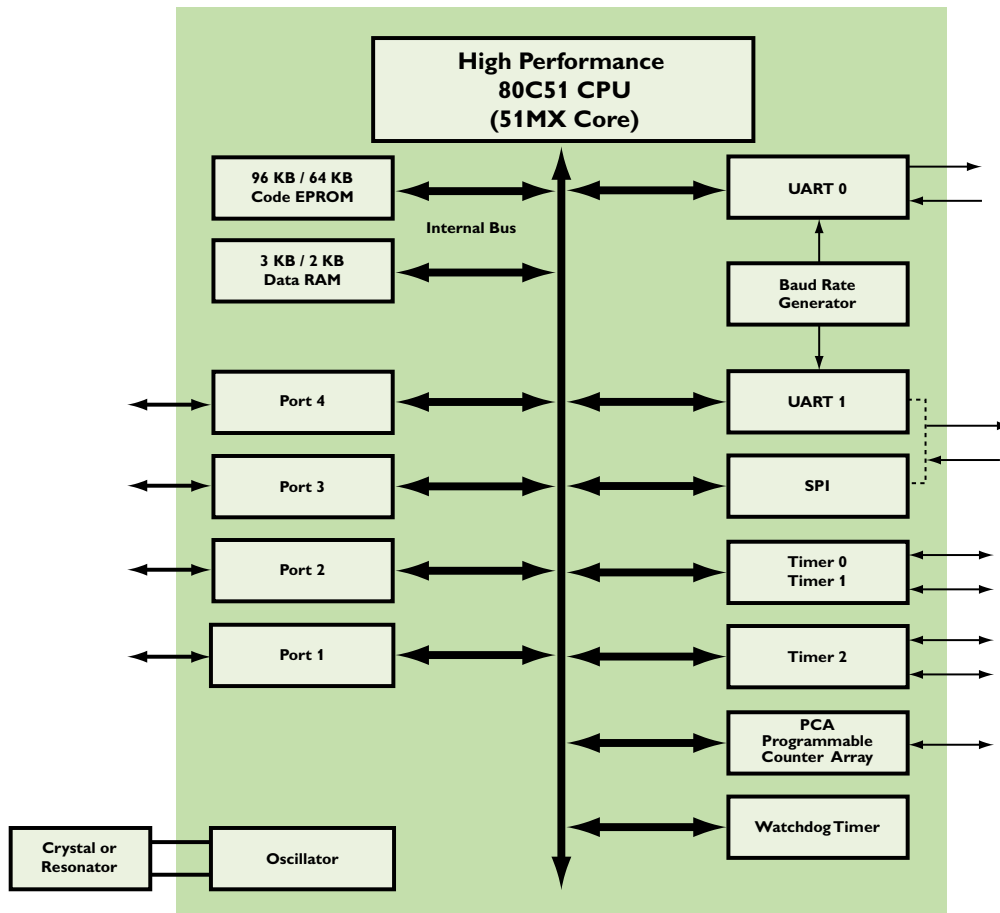
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P87C51Mx2 block diagram



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Date of release: March 2003

document order number: 9397 750 11294

Published in U.S.A.