



Z51F6412 Product Brief

PB024102-0312

Z8051 FAMILY ADVANTAGES

- High-Performance, Low-Cost Architecture
- Industry-Standard 8051-Compatible Core
- Industry-Wide Popularity
- Numerous Third-Party Tools Available
- Zilog's Continuing Commitment to Supporting Our Customers

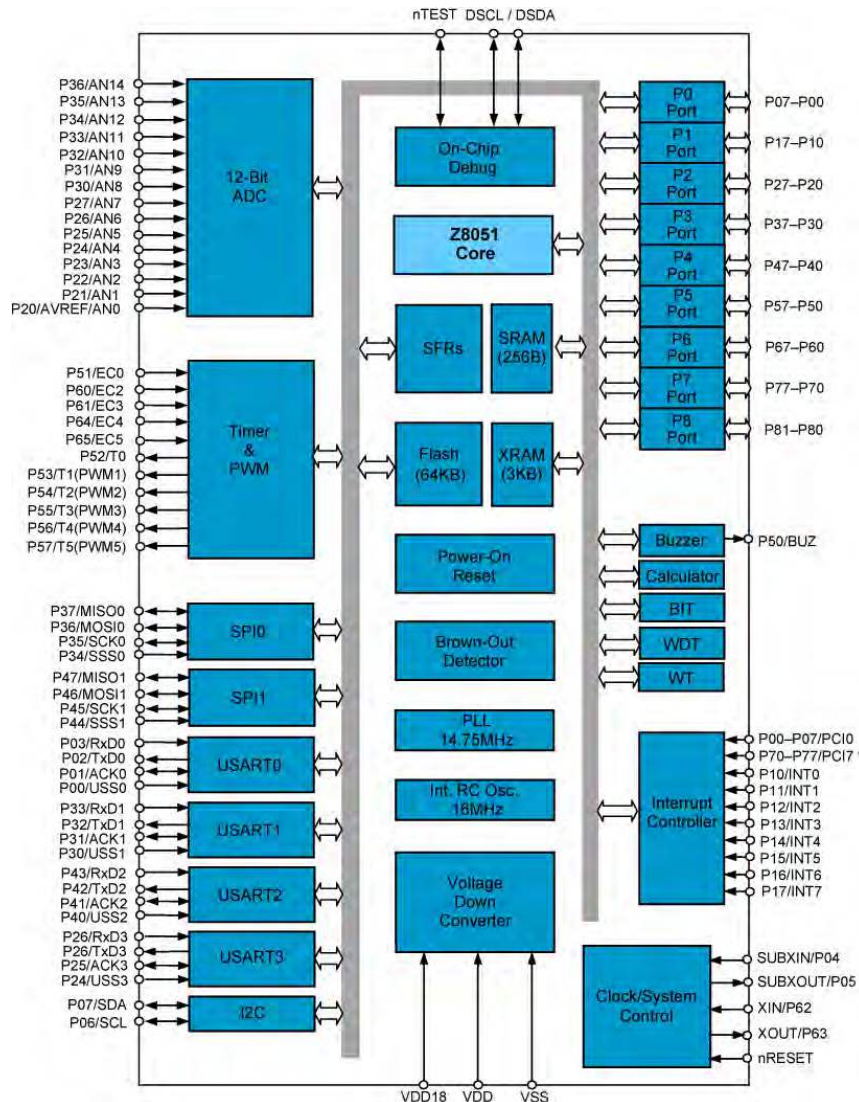
Zilog's Z51F6412 MCU

An Industry-Standard 8-Bit Embedded Control Solution

Overview

The Z51F6412 MCU, a member of Zilog's new Z8051 product family, is an advanced CMOS 8-bit microcontroller with 64KB of Flash memory. This powerful microcontroller provides a highly flexible and cost-effective solution to many embedded control applications, including medical devices and robotics. With 256 bytes of SRAM, 3KB of XRAM, two clocks per machine cycle, general-purpose I/O, multiple timers (2x8-bit or 1x16-bit), plus PWM, watchdog and watch timers, 4 USARTs, buzzer port, I²C, on-chip POR, 12-bit ADC and much more, the Z51F6412 MCU is your 64K Flash solution for 8051 embedded application development.

Z51F6412 MCU Block Diagram



KEY FEATURES

- High-Performance 8-Bit CISC Core
- 12-Bit, 15-Channel ADC
- Timers with Six Capture, Counter, Compare and PWM Modes
- Calculator

Z51F6412 MCU Feature Set

- High-Performance 8-Bit CISC Core (2 clocks per machine cycle)
- 64KB On-Chip Flash Memory with Code Encryption Option
- 256 Bytes SRAM
- 3KB XRAM
- Operating Frequency: 0–16 MHz
- Operating Voltage: 2.0V–5.5V (@0–10 MHz); 3.0V–5.5V (@0–16 MHz)
- On-Chip 16 MHz RC Oscillator with Programmable Clock Divider
- Power-Saving Modes (Idle, Stop1, Stop 2)
- 12-Bit ADC with 15 Input Channels
- On-Chip PLL (1.38 to 14.75 MHz)
- Configurable Timers
 - 8-bit Capture/Compare/Counter PWM with Timer (two 8-bit channels or one 16-bit channel)
 - 16-bit Capture/Counter PWM Timers (4 channels)
 - Basic Interval Timer
- Watchdog Timer
- Watch Timer
- Serial Peripheral Interface (2 channels)
- Four Universal Synchronous/Asynchronous Receiver/Transmitters (USART/SPI/I²C)
- Buzzer Driver Port
- Up to 66 GPIO pins, configurable as push-pull, pull-up or open-drain
- Hardware Calculator (single clock cycle for multiplication; 32 clock cycles for division)
- Multiple Interrupts from Multiple Sources via Priority Setting
- Programmable Brown-Out Detector
- Low-Frequency Subactive Mode
- Operating Temperature: –40°C to 85°C
- Packages: 80-Pin LQFP, 64-Pin LQFP
- Lead-Free Manufacture

Zilog's Z8051 Family of MCUs: flexible, industry-standard MCU solutions backed by Zilog's long-term commitment to supporting our customers.

APPLICATIONS

- Medical Devices
- Peripheral Bridges
- Robotics

Ordering Information

The Z51F6412 MCU is offered in the following packages. Construct your part number based on the specific package you wish to order.

Z51F6412 MCU Part Number	ROM	SRAM	XRAM	Package
Z51F6412ATX	64KB	256b	3KB	80-pin LQFP
Z51F6412ARX	64KB	256b	3KB	64-pin LQFP

Order the Z51F6412 MCU separately using part numbers from the above table. For complete ordering information, please refer to the Z51F6412 MCU Product Specification (PS0303).

For more information about Zilog's Z8051 family of products, ordering or product collateral, please consult your local Zilog distributor or representative. You can find sales office locations and the most current product information on our website; please visit us at www.zilog.com.

Documentation

For a complete listing of all available application notes, data sheets, user manuals, and sample libraries, please visit us at www.zilog.com.

Document Number	Description
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PS0303	Z51F6412 Product Specification
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Related Products

Zilog carries a number of products based on the Z8051 Core to suit your application requirements. For more information about the following products, please visit us at www.zilog.com.

Product Name	Description
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Z51F0410 MCU	Z8051 core with 4KB Flash, 256b RAM and 256b EEPROM in a 10-pin SSOP package
Z51F0811 MCU	Z8051 core with 8KB Flash, 256b RAM and 512b EEPROM in 16-, 20- & 28-pin TSSOP and 32-pin QFN packages
Z51F3220 MCU	Z8051 core with 32KB Flash, 1KB RAM in 32-pin SOP & 44-pin MQFP packages
Z51F3221 MCU	Z8051 core with 32KB Flash, 1.25KB RAM in 64- & 80-pin LQFP packages
ZGFI7101 Earth Leakage Current Detector	Z8051 core ground fault interrupt with 8-pin PDIP and SOP packages



Warning: DO NOT USE THIS PRODUCT IN LIFE SUPPORT SYSTEMS.

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As used herein

Life support devices or systems are devices which (a) are intended for surgical implant into the body, or (b) support or sustain life and whose failure to perform when properly used in accordance with instructions for use provided in the labeling can be reasonably expected to result in a significant injury to the user. A critical component is any component in a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system or to affect its safety or effectiveness.

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