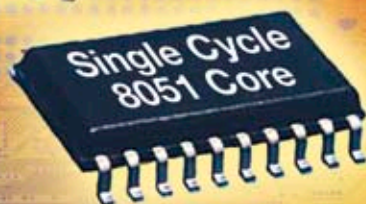




20 MIPS

Low Power



➤ 8051 Single Cycle Core Microcontrollers

AT89LP Family Provides High Performance & Low Power

Atmel® AT89LP family consists of high performance 8-bit microcontrollers that execute most instructions in a single clock cycle, whereas the classic 8051 CPU requires 12 clock cycles.

At the same MIPS throughput as the classic 8051, existing applications can use a much lower clock frequency, thus allowing designers to either reduce power consumption by up to 80%. Designers can also boost the application performance and reach up to 20 MIPS throughput, i.e. 12 times faster than the traditional 8051 core.

Key Features & Benefits

- Binary Compatibility with Existing 8051 Product
 - Easy Application Upgrade Without Costly and Time-consuming Redesign
- Single Clock Cycle per Byte Fetch
- Boosted Performance: 20 MIPS @ 20 MHz
 - 12 Times Faster than the Traditional 8051 Core
- Power Consumption Reduced by 80%
- EMC Issues Solved by Reducing Operating Frequency
- 2.0V to 5.5V Operating Range
- On-chip Flash Data for Data Storage
- On-chip Debug

Applications

- Battery Management
- White Goods
- Universal Remote Control
- Power Management
- Industrial and Motor Control



■ Reduced Power Consumption

| Typical values @ 5.5V | AT89LP | AT89 |
|-----------------------|-----------------|------------------|
| Active Mode | 1.59 mA @ 1 MHz | 7.5 mA @ 12 MHz |
| Idle Mode | 0.56 mA @ 1 MHz | 1.48 mA @ 12 MHz |
| Power Down Mode | <2 μ A | 14.3 μ A |

| Device | Program Flash (KB) | Flash Data (Bytes) | RAM (Bytes) | Pulse Width Modulation | Analog Comparator | Serial Peripheral Interface | UART | Watchdog | Pins | In-System Programming | In-Application Programming | Packages | Availability |
|------------|--------------------|--------------------|-------------|------------------------|-------------------|-----------------------------|------|----------|--------|-----------------------|----------------------------|-------------------|--------------|
| AT89LP2052 | 2 | – | 256 | 2 | Y | Y | Y | Y | 20 | Y | – | TSSOP, PDIP, SOIC | now |
| AT89LP213 | 2 | – | 128 | 2 | Y | Y | – | Y | 14 | Y | – | TSSOP, PDIP | now |
| AT89LP214 | 2 | – | 128 | – | Y | Y | Y | Y | 14 | Y | – | TSSOP, PDIP | now |
| AT89LP216 | 2 | – | 128 | 2 | Y | Y | Y | Y | 16 | Y | – | TSSOP, PDIP, SOIC | now |
| AT89LP4052 | 4 | – | 256 | 2 | Y | Y | Y | Y | 20 | Y | – | TSSOP, PDIP, SOIC | now |
| AT89LP413 | 4 | – | 128 | 2 | Y | Y | – | Y | 14 | Y | – | TSSOP, PDIP, SOIC | 4Q/06 |
| AT89LP414 | 4 | – | 256 | – | Y | Y | Y | Y | 14 | Y | – | TSSOP, PDIP, SOIC | 4Q/06 |
| AT89LP416 | 4 | – | 128 | 2 | Y | Y | Y | Y | 16 | Y | – | TSSOP, PDIP, SOIC | 4Q/06 |
| AT89LP428 | 4 | 512 | 768 | 6 | 2 | Y | Y | Y | 28, 32 | Y | Y | TSSOP, PDIP, TQFP | 1Q/07 |
| AT89LP828 | 8 | 1024 | 768 | 6 | 2 | Y | Y | Y | 28, 32 | Y | Y | TSSOP, PDIP, TQFP | 1Q/07 |

Development Tools

AT89ISP

In-System Programmer (ISP) for Atmel AT89LP devices. It provides an intuitive interface for In-System Programming that can be run from a personal computer.

USB-Based Programmer

USB-powered Small-factor ISP Programmer for AT89LP derivatives. This tool is ideal for field code upgrades and easy portability.

On-chip Debug

Hardware debug system with Windows® IDE interface. It allows the user to access debugging functions built into AT89LP derivatives. This results in faster development and verification of user codes in real-time.

Third Party Tools

Various third party tool providers for the AT89LP family are available at:
www.atmel.com/products/8051/thirdparty.asp

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