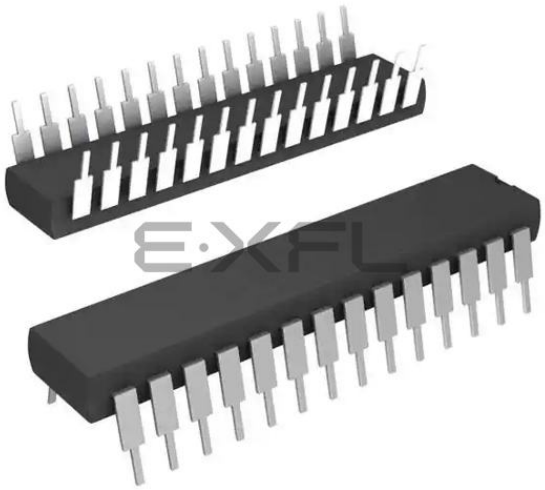


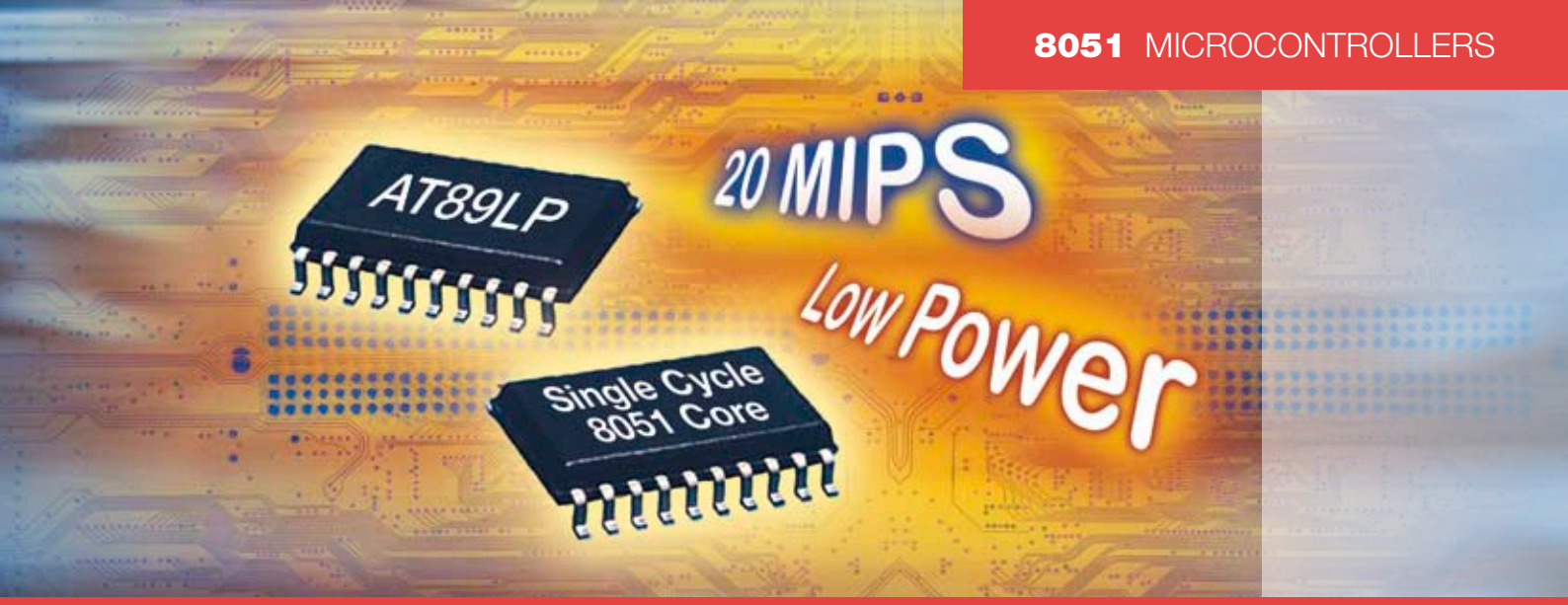
Welcome to E-XFL.COM

What is "Embedded - Microcontrollers"?

"Embedded - Microcontrollers" refer to small, integrated circuits designed to perform specific tasks within larger systems. These microcontrollers are essentially compact computers on a single chip, containing a processor core, memory, and programmable input/output peripherals. They are called "embedded" because they are embedded within electronic devices to control various functions, rather than serving as standalone computers. Microcontrollers are crucial in modern electronics, providing the intelligence and control needed for a wide range of applications.

Applications of "Embedded - Microcontrollers"

Details	
Product Status	Obsolete
Core Processor	8051
Core Size	8-Bit
Speed	20MHz
Connectivity	SPI, UART/USART
Peripherals	Brown-out Detect/Reset, POR, PWM, WDT
Number of I/O	30
Program Memory Size	8KB (8K x 8)
Program Memory Type	FLASH
EEPROM Size	1K x 8
RAM Size	768 x 8
Voltage - Supply (Vcc/Vdd)	2.4V ~ 5.5V
Data Converters	-
Oscillator Type	Internal
Operating Temperature	-40°C ~ 85°C (TA)
Mounting Type	Through Hole
Package / Case	28-DIP (0.300", 7.62mm)
Supplier Device Package	28-PDIP
Purchase URL	https://www.e-xfl.com/product-detail/microchip-technology/at89lp828-pu



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 µA	14.3 µA

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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