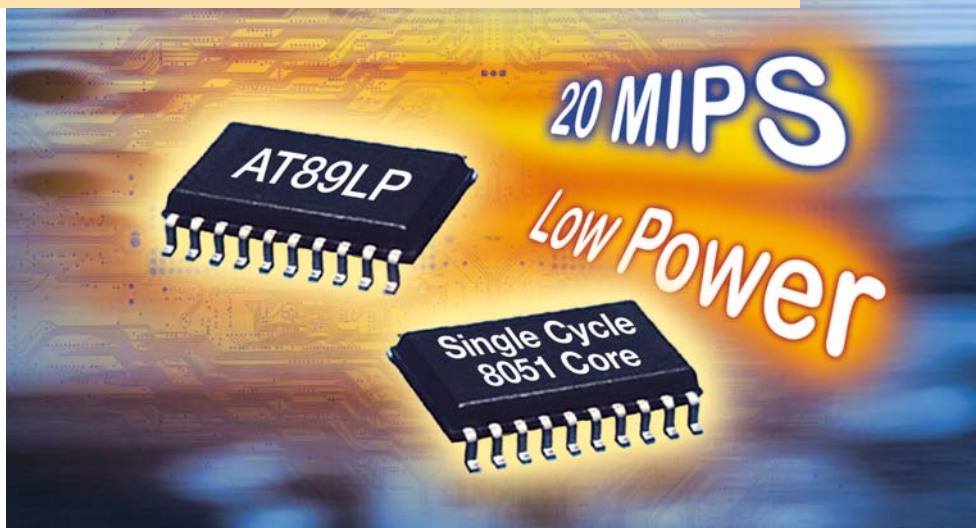


## 8051 Single Cycle Core Microcontrollers

### AT89LP FAMILY – PROVIDES HIGH PERFORMANCE & LOW POWER

Atmel's® AT89LP family consists of high performance 8-bit microcontrollers that execute most instructions in a single clock cycle, whereas the classic 8051CPU 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 82%, or boost the application performance up to 20 MIPS, i.e. 12 times faster than the traditional 8051 core.



#### Key Features & Benefits

- Binary Compatibility with Existing Products
- Single Clock Cycle per Byte Fetch
- Boosted Performance: 20 MIPS @ 20 MHz
- Power Consumption Reduced by 82%
- EMC Issues Solved by Reducing Operating Frequency
- 2.0 V to 5.5 V Operating Range
- On-chip DataFlash® for Data Storage

#### Applications

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



# AT89LP FAMILY 8051 SINGLE CYCLE CORE

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## Literature Requests

[www.atmel.com/literature](http://www.atmel.com/literature)



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## Binary Compatibility with the Standard 8051 Instruction Set

Easy Application Upgrade Without Costly and Time-consuming Redesign

## 12 Times Faster than the Traditional 8051 Core

Application Performance Boosted up to 20 MIPS

## Reduced Power Consumption

3 V	AT89LP	AT89
Active Mode	@ 1 MHz 1 mA	@ 12 MHz 5.5 mA
Idle Mode	@ 1 MHz 840 µA	@ 12 MHz 1 mA
Power Down Mode	1 µA	20 µA

## EMC Issues Solved

By Reducing Operating Frequency

Device	Device Flash (KB)	DataFlash (KB)	RAM (Bytes)	Pulse Width Modulation	Analog Comparator	10-bit A/D Channel	Serial Peripheral Interface	Watchdog	Pins	In-System Programming	In Application Programming	Packages
AT89LP2052*	2	-	256	Y	Y	-	Y	Y	20	Y	-	TSSOP, PDIP, SOIC
AT89LP214**	2	-	128	Y	Y	-	Y	Y	14	Y	-	TSSOP, PDIP, SOIC
AT89LP4052*	4	-	256	Y	Y	-	Y	Y	20	Y	-	TSSOP, PDIP, SOIC
AT89LP414	4	-	256	Y	Y	-	Y	Y	14	Y	-	TSSOP, PDIP, SOIC
AT89LP428	4	1	512	Y	Y	-	Y	Y	28, 32	Y	Y	TSSOP, PDIP, TQFP
AT89LP828	8	2	512	Y	Y	-	Y	Y	28, 32	Y	Y	TSSOP, PDIP, TQFP
AT89LP840	8	2	512	Y	-	8	Y	Y	40,44	Y	Y	PDIP, PLCC, TQFP
AT89LP841	8	2	512	Y	-	-	Y	Y	40,44	Y	Y	PDIP, PLCC, TQFP
AT89LP1628	16	2	512	Y	Y	-	Y	Y	28, 32	Y	Y	TSSO, PDIP, TQFP
AT89LP2040	20	2	1K	Y	-	8	Y	Y	40,44	Y	Y	PDIP, PLCC, TQFP
AT89LP3240	32	2	1K	Y	-	8	Y	Y	40,44	Y	Y	PDIP, PLCC, TQFP
AT89LP6440	64	4	2K	Y	-	8	Y	Y	40,44	Y	Y	PDIP, PLCC, TQFP

\* Available  
\*\* 3Q/2005

## Development Tools

### AT89ISP

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

### Third Party Tools

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