



ATMEL

CONFIGURATORS

E E P R O M - B A S E D
C O N F I G U R A T I O N

M E M O R I E S

F O R F P G A S

W I T H S I N G L E -

V O L T A G E

I N - S Y S T E M

P R O G R A M M I N G

Atmel offers the broadest range of configurable logic devices in the industry. PLDs, FPGAs, Gate Arrays and Cell-Based devices are manufactured at our fabrication facilities in Colorado Springs, Colorado and Rousset, France. In addition, the Company operates a number of Design Centers throughout the world. All Atmel facilities, whether design or fab, are ISO 9001 and 9002 registered.

In order to position itself as a complete "Systems Solution" vendor, Atmel has been adding manufacturing capacity at nearly twice the industry average. This has enabled us to offer our customers extremely broad product lines, aggressive pricing, and short turnaround times.

WANT TO GET TO MARKET FASTER AND EASIER? REPLACE YOUR OTP FPGA CONFIGURATORS WITH ATEMEL'S NEW AT17 REPROGRAMMABLE DEVICES.

Still using OTP devices to configure FPGAs? Pity. Each time your code changes you have to remove the OTP from your PC board, toss it, and replace it with a new one. OTP could be an acronym for *One Tired Product*.

Atmel has a better idea: Our new reprogrammable AT17 Series configuration memories. Using ISP (In-System Programming) and EEPROM technology, Atmel's FPGA configurators can be programmed over and over, without ever removing them from your board.

How many times does your code change before your design goes into production? Once? Twice? A hundred times? No problem. Atmel's AT17 Series configurators are guaranteed for 10,000 write cycles.

They work with virtually any SRAM-based FPGA (including Atmel's own broad line of FPGAs).

They're available for 3.3- and 5-volt systems, in a variety of densities and package styles.

They offer features that can make your job easier, reduce inventories, and lower your assembly costs.

And, best of all, they're priced competitively with OTPs.

So do yourself a favor. In your next design, drop out that OTP. And drop in an Atmel AT17 reprogrammable configurator.

THE AT17 SERIES AT A GLANCE...

- Single Voltage (5V/3.3V) In-System Programming using industry-standard 2-wire protocol
- Fast FPGA configuration speed (15 MHz)
- 2 second programming times
- Wide selection of densities to 1M, cascadable to serve larger FPGAs
- System-friendly "Ready Pin" ensures reliable system power-up
- Programmable Reset Polarity
- Write Protect feature allows use of unused portion of device memory for storage of NVM data
- Industry standard programmer support
- Direct drop-in upgrade for OTP devices
- Priced competitively with OTP

AT17 SERIES CONFIGURATION MEMORIES ARE DESIGNED TO SUPPORT ANY SRAM-BASED FPGA — WITH FEATURES OTPS JUST CAN'T MATCH:

SINGLE VOLTAGE (3.3V OR 5V) IN-SYSTEM PROGRAMMING

AT17 Series configuration memories can be programmed and reprogrammed via a simple two-wire interface using an industry standard algorithm—without ever removing the part from the board. You get unmatched flexibility, plus major inventory savings.

ULTRA-FAST DOWNLOADS

The AT17 Series supports FPGA configuration rates of up to 15 MHz. Plus data can be downloaded into an AT17 via ISP in two seconds or less.



The AT17 configures FPGAs at 15 MHz.

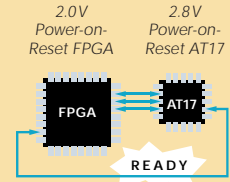
WIDE SELECTION OF DENSITIES

With 65, 128, 256 and 512K, and now 1 Meg densities to choose from—all available in 3.3V or 5V versions—AT17 Series devices can be matched more precisely to your configuration needs.

FLEXIBLE WRITE-PROTECTED NVM MEMORY

AT17 Series configurators allow the designer to borrow unused segments of memory for storage

of nonvolatile data. Ideal for operations like data-logging, last number redial and caller ID, the AT17 could, in many cases, eliminate the need for additional NVM storage devices.



Want to eliminate the voltage monitor from your design? Use an AT17 instead of an OTP memory.

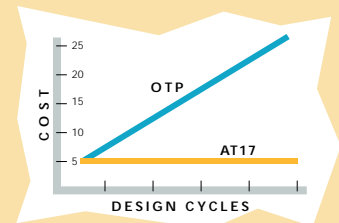
SYSTEM-FRIENDLY "READY PIN"

A system-friendly "Ready Pin" is provided on our 512K and 1M devices that holds the FPGA in reset until the configurator is fully powered up and ready to download data.

It eliminates the need for a system voltage monitor device, which saves real estate and reduces assembly costs.

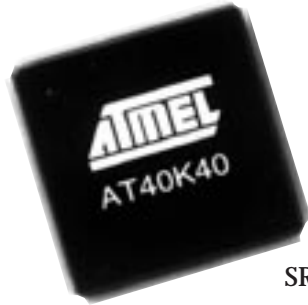
...AND THE BEST FEATURE OF ALL

AT17 FPGA configurators cost no more than the OTP devices you're currently using. And when you consider the time and money you can save using a reprogrammable configurator, they will actually cost you *less!*



AT17 devices are priced competitively with OTPs. Over the long run they'll save you money.

FPGAs FOR COMPUTE-INTENSIVE LOGIC, DSP AND RAM FUNCTIONS—
THE PERFECT MATCH FOR AT17 SERIES CONFIGURATORS



Atmel's new AT40K Series co-processor FPGAs feature architecture designed specifically for compute-intensive DSP functions. The logic cell's octagonal shape and orthogonal and diagonal cell-to-cell connections

are optimized for array multiplication, making the AT40K Series

perfect for multiplication-intensive applications like image processing, real-time video, telecommunications, and control systems.

The AT40K solves the Logic vs. SRAM trade-off as well. Some devices use logic cells for SRAM—a scheme

that quickly eats up logic capacity.

Others arrange SRAM in large blocks on the periphery of the array. While it may preserve logic, it's also slow and inflexible—plus it squanders

bus capability.

Optimum performance is achieved by locating SRAM

close to where it's needed. In the AT40K it's distributed throughout the array in discrete, dedicated 32 x 4 blocks.

It's flexible. It's integrated. And since routing resources are kept to a minimum, it's extremely fast.

ATMEL AT40K FPGAs				
Device	Gates	Registers	SRAM(bits)	I/Os
AT40K05	5K - 10K	256	2048	128
AT40K10	10K - 20K	576	4096	192
AT40K20	20K - 30K	1024	8192	256
AT40K30	30K - 40K	1600	12,800	320
AT40K40	40K - 50K	2304	18,432	384

AT40K SERIES FPGAs AT A GLANCE ...

- Distributed, single/dual port 10ns SRAM, independent of logic cells— Ideal for FIFO designs
- Up to 384 PCI compliant I/Os
- Mixed 3V/5V capability
- Architecture optimized for efficient, ultrafast array multipliers
- Cache Logic® dynamic full/partial reconfigurability in-system
- Eight global clocks
- Efficient, industry-standard design tools, optimized for synthesis
- QuickChange™ tools for adaptive hardware designs
- Variety of surface mount packages
- All devices in family are pin-compatible

WHAT ARE YOU WAITING FOR?

Our AT17 configurators are faster and more flexible than OTPs. They're the only configuration memories on the market with ISP. And they're competitively priced. Plus our FPGAs offer computing horsepower that's unmatched in the industry.

Why not start putting this technology to work right now? For more information or to review Data Sheets for Atmel products visit our web site. You can download information directly or request it through our automated Fax-on-Demand system. It's available 24 hours a day, seven days a week. For an index of all documents available, call our fax hotline and request Document #100.

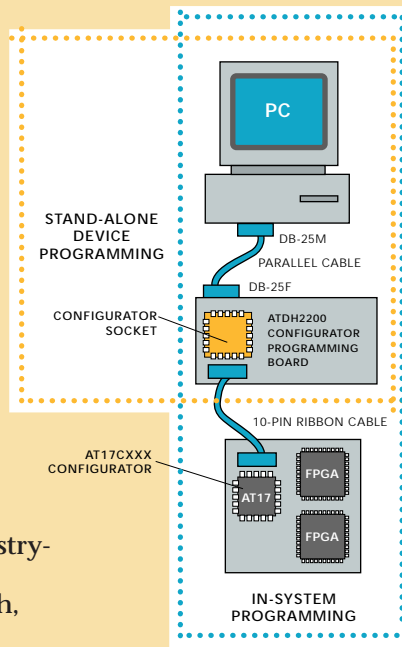
Website: www.atmel.com

Fax-on-Demand: 1-800-292-8635 (North America)

**ATMEL CONFIGURATION MEMORIES
CAN BE PROGRAMMED VIA ISP
OR BY A WIDE VARIETY OF
INDUSTRY-STANDARD PROGRAMMERS**

Code changes? No problem. Field up-grades?
No problem either. With our AT17 Series devices,
In-System Programming makes it all possible.

AT17 configurators can be programmed using industry-
standard programmers: Data I/O, Needham, Advantech,
BP Microsystems, Logical Devices, Stag, System General, and
others are all supported. They can also be programmed using
our ATDH2200 programming board. An ISP port is provided,
along with software and cables for programming on
target systems. Adapters are available to handle
all AT17 Series package styles.



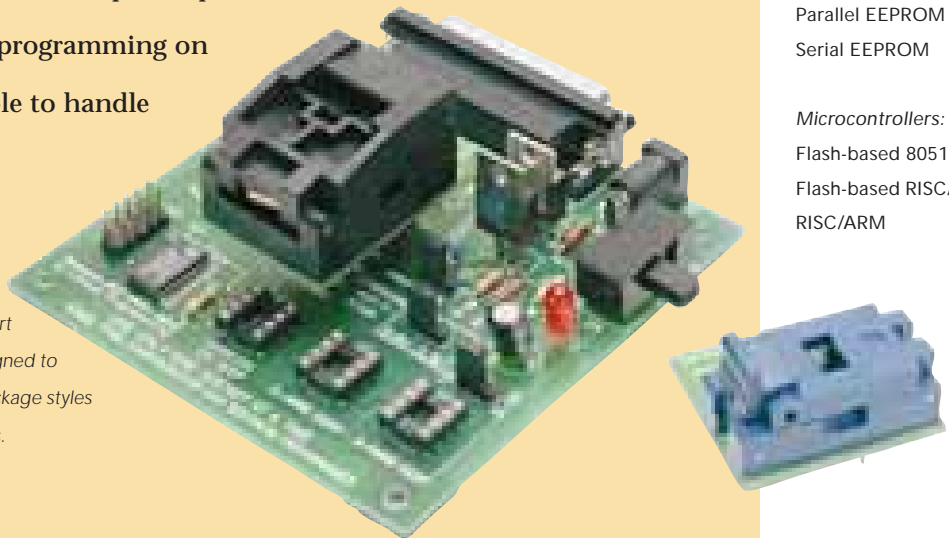
**ATMEL
PRODUCTS:**

- User-Configurable Logic:
- SPLDs
- CPLDs
- FPGAs
- Gate Arrays
- Embedded Arrays
- Cell-based ICs
- Custom ASIC
- ASSPs

- Nonvolatile Memory:
- OTP/EPROM
- Flash Memory
- DataFlash™
- Parallel EEPROM
- Serial EEPROM

- Microcontrollers:
- Flash-based 8051
- Flash-based RISC/AVR
- RISC/ARM

Atmel's ATDH2200 programming board provides a port for ISP and are designed to support all AT17 package styles and device densities.



AT17 SERIES FPGA CONFIGURATORS						
Device	Density	Single Voltage ISP	Vcc	8-pin DIP	20-pin PLCC	20-pin SOIC
AT17C65	65K x 1	YES	5.0	•	•	•
AT17LV65	65K x 1	YES	3.3	•	•	•
AT17C128	128K x 1	YES	5.0	•	•	•
AT17LV128	128K x 1	YES	3.3	•	•	•
AT17C256	256K x 1	YES	5.0	•	•	•
AT17LV256	256K x 1	YES	3.3	•	•	•
AT17C512	512K x 1	YES	5.0	•	•	•
AT17LV512	512K x 1	YES	3.3	•	•	•
AT17C010	1M x 1	YES	5.0	•	•	•
AT17LV010	1M x 1	YES	3.3	•	•	•



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