

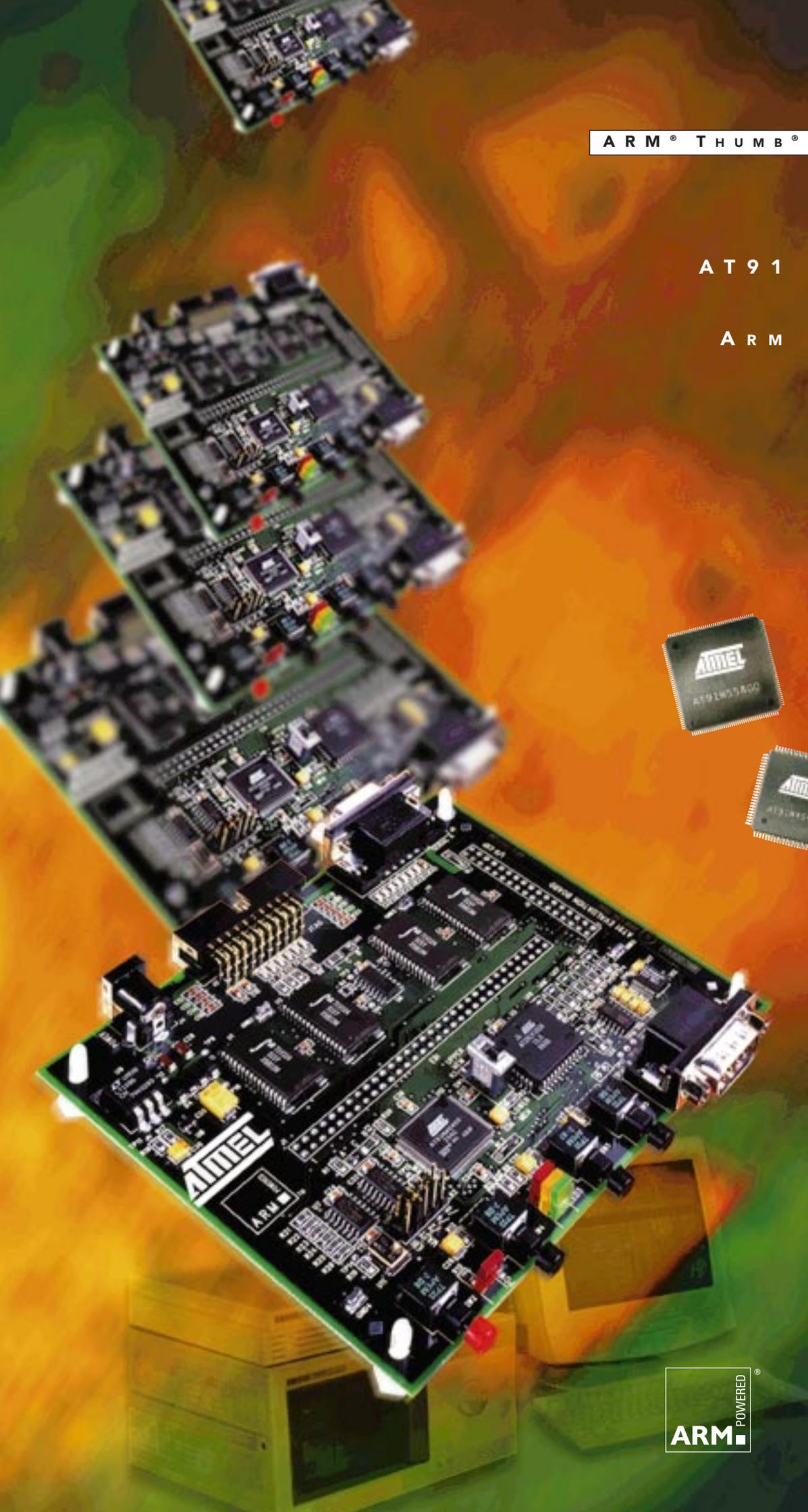
ARM® THUMB® MICROCONTROLLERS

AT91 SERIES

ARM THUMB

MICROCONTROLLERS

OFF-THE-SHELF



Atmel Corporation is a leading manufacturer of nonvolatile memory, microcontrollers, logic programmable ICs and application specific circuits. Our strategy is to develop products - often based on our patented position in nonvolatile memory - that can provide customers in these markets a competitive edge.

Headquartered in San Jose, California, Atmel operates four fabs in the United States and Europe.

Dreaming of 32-bit performance and very low power consumption at a 16-bit system price? You've got it with Atmel's AT91 series of ARM® Thumb®-based microcontrollers. They are a market leader in MIPS/Watt performance, and they're smart too. Their ARM7TDMI™ processor features high-performance 32-bit RISC architecture and a high-density 16-bit instruction set. And they're manufactured on Atmel's leading-edge technology.

The fully programmable External Bus Interface (EBI) offers a direct connection to off-chip memory as fast as one clock cycle for a read or write operation. An eight-level priority vectored interrupt controller in conjunction with the Peripheral Data Controller (on-chip DMA) significantly improves real-time performance.

The AT91 series includes a wide choice of on-chip peripherals for your precise applications. The PDC bypasses the MCU core facilitating data transfer between memory and the configurable peripherals.



All this guarantees you low risk and quick time-to-market. So go ahead. Design the ARM Thumb processor into your next computing-intensive embedded control applications. The series is just right for cellular telephones, pagers, GPS, payphones, point-of-sale terminals and networking applications.

THE AT91 SERIES AT A GLANCE...

- ARM7TDMI ARM Thumb processor

- High-performance 32-bit RISC architecture
- 16-bit Thumb high code-density instruction set
- 32-bit ARM high-performance instruction set
- In-Circuit Emulation interface
- Leader in MIPS/Watt.

- IEEE 1149.1 JTAG boundary scan.

- Wide range of on-chip memories: SRAM, Flash, ROM

- Up to 128K bytes of SRAM memory
- Up to 256K bytes of mask ROM memory
- Up to 2M bytes of Flash memory.

- Internal low-power 32-bit AMBA bus architecture.

- Advanced power-saving modes

- Fully programmable external bus interface as fast as one clock cycle for a read or write operation

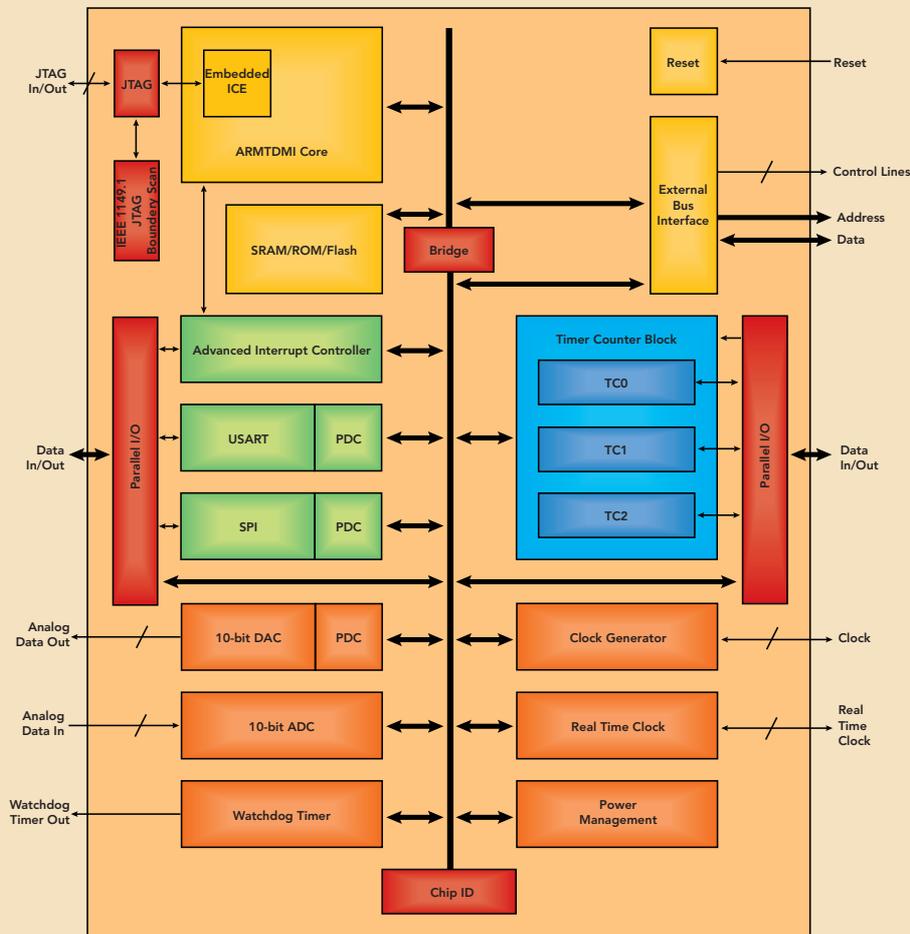
- maximum external address space of 64M bytes
- up to 8 chip selects
- software programmable 8/16-bit external databus.

- Peripheral data controller (PDC) for high-speed data transfers without CPU intervention.

- Low-latency, eight-level priority, individually maskable, vectored interrupt controller.

- Wide range of on-chip peripherals: USART, 16-bit Timer Counter, Watchdog Timer, Real-Time Clock, Serial Peripheral Interface, ADC, DAC.

AT91 SERIES BLOCK DIAGRAM



Third-party vendors (see table) offer state-of-the-art development tools for Atmel's AT91 series, including C-compilers, assemblers, and real-time operating systems up to high-end emulation solutions. A low-cost

evaluation kit, the AT91EB01, makes it easy to evaluate the features of the

AT91, including the embedded ARM7TDMI processor.

With these tools it's a snap to develop application software in parallel with system hardware. And you can count on Atmel's technical support and training to ensure you get your product to market faster.





Member of Continental Group



AT91 THIRD PARTY TOOL SUPPLIERS

SUPPLIER	PRODUCT NAME
Compilers, Assemblers and Debuggers	
Green Hills Software Inc.	MULTI® Development Environment C and C++ Compilers
Allant Software Corporation	ASPEX Development Environment
Mentor Graphics	Microtec Development Environment XRAY® Debugger and Simulator
ARM Ltd	ARM Software Development Kit C++ Compiler
Embedded Performance Inc.	ARM SDT (CCE-ARM)
Europe Technologies S.A.	ARM SDT ASPEX Development Environment
Accelerated Technology Inc.	ARM SDT
JTAG ICE Interfaces	
Macraigor Systems	Wiggler Raven
Embedded Performance Inc.	JEENI™
Hewlett Packard	Emulation Probe, E5900A #300
Europe Technologies S.A.	Multi-ICE™ Interface Unit
ARM Ltd	Multi-ICE™ Interface Unit
Emulators	
Hewlett Packard	Logic analysis system 16602A with emulation module E9495A #001
DLI GmbH	Personal Line and proLine
Europe Technologies S.A.	ICE40400 for HP and DLI emulator
Evaluation and Development Boards	
Atmel	AT91EB01 (M40400) AT91EB63 (M63200)
Europe Technologies S.A.	EVM40400
RTOS Board Support Package	
Accelerated Technology Inc.	Nucleus



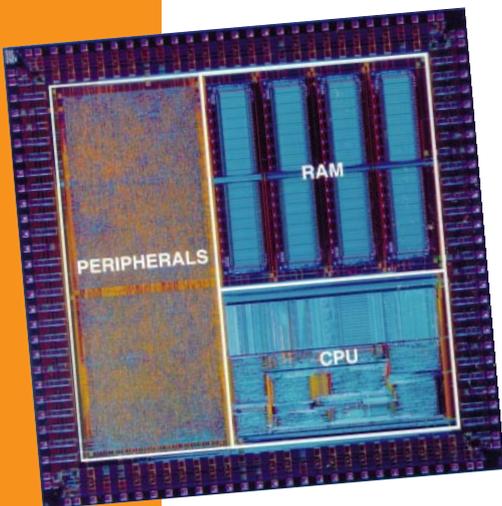
Atmel and its customers are working together to define the next generation of AT91 ARM Thumb microcontrollers. The availability of these top-quality

off-the-shelf products supported by a wide range of development tools allows you to start your software development while we build

the new AT91 MCU. Time is money, and in this case it's risk free.

Using the same base architecture for the new microcontroller makes the software port on the new device straightforward. Your products reach the market faster than with the development of an ASIC.

Perhaps you'd prefer to integrate your own IP. No problem. Atmel offers the ARM7TDMI as an embedded core. Atmel also supplies other IP blocks including nonvolatile memories, DSP cores and digital and analog peripheral functions for system level integration.



Hand-held devices such as portable telephones



Sensors and actuators



Telecom/ networking

AT91 MICROCONTROLLERS

YOUR BEST VALUE FOR LOW-POWER 32-BIT PERFORMANCE

The AT91 series adds up to your best value for low-power 32-bit performance thanks to Atmel's ARM7TDMI embedded core technology. This off-the-shelf series includes a complete set of software development tools and a low-cost evaluation kit. You gain all the advantages of a standard product; low-risk, low-cost and shorter time-to-market.

Our product design and manufacturing technologies give you the ability to quickly adapt the AT91 to your needs. And best of all this attractive 32-bit solution comes at a 16-bit system price.

Atmel also offers a classic 8-bit MCS-51®-compatible Flash-based microcontroller family, and the industry-leading 8-bit RISC MCU series, the AVR®.

Device	Speed (MHz)	Temp	Flash (Bytes)	Mask ROM (Bytes)	SRAM (Bytes)	Package	Supply Voltage (Volt)	IEEE 1149.1	Power Saving	Additional Features
M40400	25/33	C/I	-	-	4K	TQFP100	2.7-3.6	-	Idle mode	3 Timers 2 USARTs Watchdog PDC Multi Processor Interface 6 Timers, 3 USARTs, SPI PDC, Watchdog
M40400	12	C/I	-	-	4K	TQFP100	1.8-3.6	-		
M40416	25	C/I	2M	-	4K	BGA120	2.7-3.6	-	CPU and peripheral clock deactivation	
M40100	33/40	C/I	-	-	1K	TQFP100	2.7-3.6	-		
M40800	33/40	C/I	-	-	8K	TQFP100	2.7-3.6	-	Clock deactivation, Slow, Standby and Power down modes	
R40807	33	C/I	-	-	8K + 128K	TQFP100	2.7-3.6	-		
M40403	33	C/I	-	32K	4K	TQFP100	2.7-3.6	-	y	
M40807	33	C/I	-	128K	8K	TQFP100	2.7-3.6	-		
M63200	25	C/I	-	-	2K	TQFP176	2.7-3.6	y	y	
M55200	33	C/I	-	-	2K	TQFP176	2.7-3.6	y		
M55800	33	C/I	-	-	8K	TQFP176	2.7-3.6	y		



GPS terminals



Consumer products



Point of sales terminals



Payphones



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