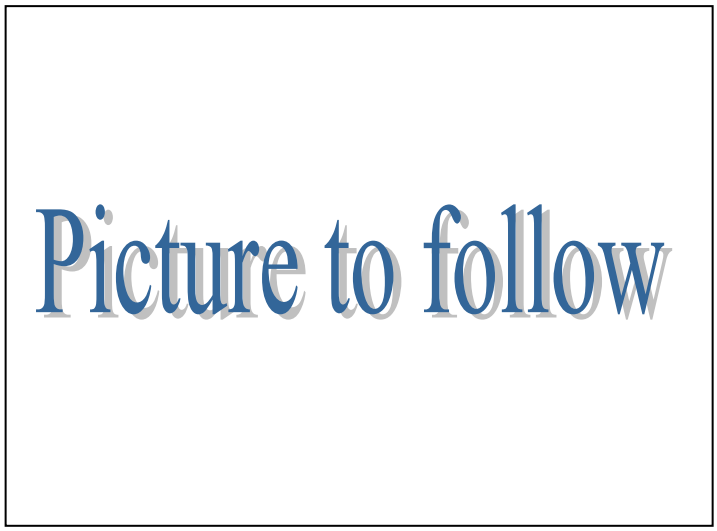
ARM3S-CDATS

ARM3S Cortex™-M3 DEVELOPMENT & TRAINING SYSTEM



The Atmel® SAM3S Cortex™-M3 is a Flash MCU based on the high performance 32 bit ARM® Cortex-M3 RISC processor integrating features to simplify system design and reduce power consumption.
Inspired by the best-selling SAM7S series, the SAM3S is the ideal migration path to a more powerful and feature-rich MCU. The SAM3S series is pin compatible with the SAM7S series of devices.
Key Features included Simplified System Design and Low System Cost. Integrated serial resistors eliminate the need for external resistors to preserve signal integrity.
Parallel Capture Mode
The SAM3S is the first ARM® MCU with parallel data capture mode on PIOs and DMA support. The parallel data capture mode on the PIOs complements the external bus interface for data collection from external devices that are not compliant with standard memory read protocols, such as low-cost image sensors.
The SAM3S series is touch-ready, offering native support for Atmel QTouch® technology for easy implementation of buttons, sliders and wheels in your application.
Safe and secure the memory protection unit improves code protection and secures multi-application/task execution. Unique 128-bit ID and scrambled external bus interface ensures software confidentiality while the hardware CRC checks memory integrity.

ARM3S-CDATS is based on the Atmel® AT91SAM3S range of micro-controllers with high performance 32-bit RISC architecture and a high density 16-bit instruction set with real-time emulation and embedded trace support, which combine micro-controller with embedded high-speed flash memory.

The **ARM3S-CDATS** consists of the **ARM3S-TB** target board fitted with the powerful **Atmel AT91SAM3S4B256 "In System Programmable"** device, together with the **Crossware® ARM3S Software Development Suite** complete with **Jaguar™** JTAG interface.
The **AT91SAM3S4B256** is a high performance micro-controller with **128K bytes** of downloadable non-volatile **FLASH** Memory and **32K bytes** of **SRAM**.

Designed for **EDUCATIONAL** and **TRAINING** purposes but also ideal for **INDUSTRIAL DEVELOPMENT** applications, the **ARM3S-TB** target board is directly link-able to **Abitec's APPS-BD Applications board** with its wide range of features for student learning.
The **ARM3S Development Suite** includes an advanced optimizing C compiler, Code Creation Wizards, source level instruction and peripheral simulator extendable to simulate complete target systems, source level debugger and the Crossware "Jaguar" JTAG to USB debugger interface. Software downloading to the target is achieved by plugging the Jaguar into the JTAG connector on the ARM3S-TB and into a suitable USB port on the host PC. Programs are developed in 'C' or "C++", debugged and then compiled before downloading. Program download can also be achieved via the, 9 way D type, serial port connection or the on board USB port.

A standard 40 way IDC connector on the ARM3S-TB give full access to the multiplexed controller ports and can be used for direct connection of additional teaching applications. Access to the ports is also duplicated via optional screw terminal blocks allowing easy connection for demonstration or development purposes. ARM3S-TB target board is manufactured as a 180 mm x 120 mm printed circuit board with through plated holes, solder mask and screen printed component identification.
The ARM3S-TB target board is supplied mounted on an acrylic base with rubber feet for stability whilst in use on the bench.

ARM SAM3S Cortex™-M3 Target Board Specification

- AT91SAM3S4B256 Atmel Cortex™-M3 micro-controller.
- Integrated serial resistors eliminate the need for external resistors to preserve signal integrity.
- Parallel capture mode.
- Memory protection unit
- 128K Bytes of In-System Re-programmable downloadable FLASH memory.
- 32 K Bytes SRAM
- 10 channels of ADC
- 2 channel of 12 bit DAC
- USB2.0 Full Speed Device Port

- 2 Enhanced USARTs
- SPI, SSC & TWI
- High Speed Multimedia Card Interface
- SD Memory Card interface
- In System Programmable (ISP) downloaded via RS232, USB or JTAG connections.
- All controller connections accessed via an IDC connector for external processor bus examination.
- Dimensions: 180 x 120 mm PCB
- 2 Programmable UART serial port (via external 9 way D type connector) buffered by line receiver/driver
- On-board low-dropout voltage and reset generation. Generates +3.3V from a +5V supply.
- Powered from a simple unregulated 8 to 13V dc applied to 2.1mm connector (centre positive).
- Power On LED
- 4 channel 16 bit PWM
- Up to 47 multiplexed Programmable Input/Output lines accessible via IDC headers (3 lines allocated for in service programming).
- Screw terminal block option* to access the I/O lines.
- Input/Output connections compatible with a range of Applications products (via 40 way header).
- Nested Vectored Interrupt Controller (256 level priority)
- 6 x 3ch16- bit Programmable Counter Timer
- 12-bit Programmable Watchdog Timer (WDT) providing reset and interrupt signals.
- 3 programmable external clock signals
- Hardware reset signal push button.
- Can be powered via the USB connector.
- Power supply, cables, communication software and technical manual (on CD-ROM) included.

ARM3S-TB Connectors:

Standard fit

- 2 RS232, female "D"9 way
- USB, type B connector
- MMC/SD memory card connector
- J-TAG socket
- 2.1 mm power supply connector
- 40 pin IDC expansion connector (APPS-BD compatible)

Optional fit

- Screw Terminal Blocks (4x12 way) access to signal lines
- Screw Terminal Block (2 way) access to on board 3.3V power
- Screw Terminal Block (2 way) access to USB 5V

ARM3S "C" SOFTWARE DEVELOPMENT SUITE

Features:

- Advanced optimizing embedded C++/ANSI C compiler and libraries
- Code Creation Wizards for on-chip peripherals
- Source level simulation of instructions and on-chip peripherals
- Simulation of complete target system using Crossware *Virtual Workshop Interface*
- Source level JTAG debugging via USB
- Multiple application debugging
- Multi-threaded, multi-target environment

Includes:

- ARM tool chain and libraries
- Code creation wizards
- Instruction set and peripheral simulator
- Source level debugger
- Jaguar™ USB JTAG debugger interface
- Embedded Development Studio
- Printed and electronic manuals
- Technical support and updates for 12 months

The Crossware Jaguar USB JTAG interface is designed to facilitate on-chip ARM debugging. It connects to the standard 20-pin ARM J-TAG connector, allowing the source-level debugger to drive the on-chip ARM embedded debug logic.

ARM3S-CDATS standard package consists of the ARM3S-TB target board supplied in a rugged moulded storage case, the Technical/User Manual on CD-ROM, Crossware ARM3S Software development suite with Jaguar hardware, Serial cable, USB cable, Power supply and student tutorial/experiments book on CD-ROM.

Operating system requirements are Windows 2000, XP or above

Ordering Information

ARM3S training system……..……..ARM3S-CDATS (specify UK, US or EU PSU)
Screw terminal option fitted to ARM3S-TB…...……ST-OPT-ARM3S
Experiments Manual (paper copy)……..……..... EM-ARM3S
ARM3S C Development Suite with CD-ROM user manual..…..ARM3S-CDS
ARM3S C Development Suite Paper manual only…….……ARM3S-CDSPM

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