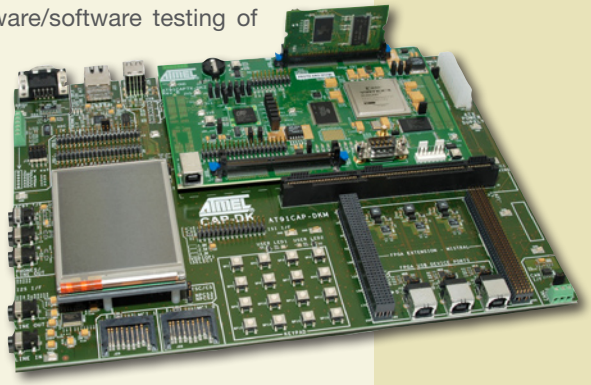

# AT91CAP7X-DK Development Kit
## for CAP Customizable Microcontroller

The AT91CAP7X-DK development board implements the fixed portion of the AT91CAP7 device as a microcontroller standard product, tightly coupled to a high-density FPGA that emulates the MP Block. The boards also include a range of memories and physical interfaces/connectors representing external system components. This configuration enables parallel hardware/software testing of the application under development at close to operational speed, with no penalty for hardware modifications. This enables software development to proceed in parallel with hardware development, and significantly reduces the design cycle time, increasing confidence in a right-first-time system solution.



The AT91CAP7X-DK development board or “kit” is composed of three associated boards, namely Motherboard, Mezzanine and Memory Extension to be used jointly in order to develop AT91CAP7 processor applications.

### AT91CAP7X-DK Motherboard

The AT91CAP7X-DK motherboard features the following on-board interfaces:

- ATX power supply connector
- 2x Full-speed Host USB interfaces
- 100-base TX Ethernet PHY with three status LEDs
- DBGU serial communication port
- 4x analog inputs
- AC97 interface with three 3.5 mm audio jack connectors (MIC IN, LINE IN, LINE OUT)
- I2S audio codec with two 3.5 mm audio jack connectors (LINE IN, LINE OUT)
- 2x SD/MMC card slots
- Atmel TWI serial EEPROM
- 1/4 inch TFT LCD VGA interface
- Touch Screen Controller
- Image Sensor expansion connector
- 16 push buttons arranged in a keypad form
- CAN bus interface
- Software controlled Power LED
- 2x general-purpose LEDs
- PIO expansion connectors (PIOA, PIOB, PIOC, PIOD)
- CAP Mezzanine extension connectors (2x 320 pins)
- PCI64 form FPGA I/O extension connector
- Custom mezzanine-style FPGA I/O extension connector
- 3x USB device PHY interfaces with USB B connectors (FPGA controlled)

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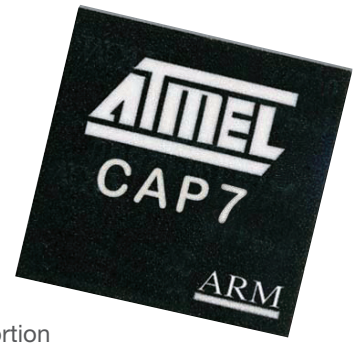
### AT91CAP7X Features




- 160 KB of fast on-chip SRAM
- A large MP Block of 450K ASIC gates (2-input NAND equivalents)
- Micro Core = ARM7TDMI® at 80 MHz
- MPRAM = 2x DPRAM 2K x 16
- ROM = 256 KB
- A minimal number of ARM peripherals are instantiated in the fixed portion of the design to address low cost applications
- Flexibility to instantiate other peripherals in the MP Block using IP available in Atmel's vast library

### The CAP Customizable Microcontroller

Atmel's CAP is an ARM microcontroller-based system-on-chip with fast local memory, a wide range of industry standard peripherals and interfaces, and a Metal Programmable (MP) Block that allows the designer to add custom logic. By combining the performance, density and low power consumption of the fixed portion of the device with the flexibility of the MP Block, CAP enables application-specific products to be developed in a fraction of the time and at a fraction of the cost of standard-cell ASICs, but at a unit price close to that of standard cell devices. CAP also offers superior performance, smaller form factor and lower power consumption at a unit price significantly lower than an MCU-plus-FPGA combination for the same functionality.

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