



Atmel SAM3X Series

Cortex-M3 Flash Microcontroller with Ethernet, dual CAN and HS USB Host and Device with PHY

Benefits

- ARM® Cortex™-M3 technology
- Highly-integrated peripheral set for connectivity and communication
- Safety and security features
- Native Atmel QTouch® capacitive touch support
- Multiple external memory interfaces
- Simplified PCB design and low system cost
- Sophisticated and flexible power management under all conditions of use

Key Features

- 1.62V to 3.6V supply
- Cortex-M3 rev 2.0 processor running at up to 84MHz
- Memory protection unit (MPU)
- Native 6-layer AHB bus matrix, 25 DMA channels
- Up to 2 x 256KB dual-bank Flash and up to 100KB dual-bank SRAM
- Power consumption 500µA/MHz, RAM retention mode 8µA, backup mode down to 1.6µA
- Up to 103 I/O lines with integrated serial resistors (on-die termination)
- 100- and 144-pin packages
- Connectivity
 - Dual CAN with eight mailboxes
 - Ethernet MAC 10/100 with dedicated DMA
 - USB 2.0 HS Device/Mini Host with PHY
 - HS SD/SDIO/MMC, USART, SPI, I2S, I2C
- 16-bit external bus interface, supporting SRAM, PSRAM, NOR and NAND Flash with error code correction (ECC)
- Safety and security
 - ECC on flash
 - Independent watchdog
 - Dual-bank flash
 - Clock failure detection
 - True Random Number Generator (TRNG)
 - On-the-fly external memory scrambling
- Analog
 - Up to 16-channel 12-bit 1Msps ADC with PGA stage and differential inputs
 - 2-channel 12-bit 1Msps DAC
 - Temperature sensor
- Timers and Pulse Width Modulator (PWM)
 - Powerful and flexible 32-bit timers with quadrature decoder and gray counter
 - 16-bit PWM with complementary output, fault input, 12-bit dead-time generator counter
 - Calendar RTC, watchdog timer
- System
 - Embedded regulator, power-on reset, brown-out detection
 - Multiple clock sources, including 32kHz oscillator and factory-trimmed RC

Application Areas

- Building and home control/automation
- Industrial automation
- Machine-to-machine (M2M)
- Test and measurement
- Medical
- Smart grid



Evaluation Kit and Ecosystem

- Full-featured evaluation board and free-of-charge software package with full source code, usage examples, documentation, and ready-to-use projects for industry-standard compilers
- Supported by Atmel Studio integrated development environment (IDE)
- Atmel BitCloud® (ZigBee PRO) stack available
- Atmel QTouch® library support for robust capacitive touch sensing interfaces for button, sliders and wheels
- Worldwide support ecosystem of industry-leading suppliers of development tools, real-time operating systems and middleware products
- **Kit Ordering Code ATSAM3X-EK**



Device Ordering Information

Ordering Code	Flash	Package
ATSAM3X8EA-CU	512KB*	LFBGA144
ATSAM3X8EA-AU	512KB*	LQFP144
ATSAM3X8CA-CU	512KB*	LFBGA100
ATSAM3X8CA-AU	512KB*	LQFP100
ATSAM3X4EA-CU	256KB**	LFBGA144
ATSAM3X4EA-AU	256KB**	LQFP144
ATSAM3X4CA-CU	256KB**	LFBGA100
ATSAM3X4CA-AU	256KB**	LQFP100

* 2x256KB dual-bank Flash

**2x128KB dual-bank Flash



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