Atmel SMART SAM3X Series MCU
ARM 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
• ARM 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

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<thead>
<tr>
<th>Ordering Code</th>
<th>Flash</th>
<th>Package</th>
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<td>LFBGA144</td>
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* 2x256KB dual-bank Flash
**2x128KB dual-bank Flash