

ARM MCU, SAM3S Series, SAM32 Family SAM 3S Series Microcontrollers, ARM Cortex-M3, 32bit, 64 MHz

Manufacturers	Microchip Technology, Inc
Package/Case	LQFP-64
Product Type	Embedded Processors & Controllers
RoHS	Green
Lifecycle	



Images are for reference only

Please submit RFQ for ATSAM3S4BA-AU or [Email to us: sales@ovaga.com](mailto:sales@ovaga.com) We will contact you in 12 hours.

[RFQ](#)

General Description

The SAM3S4B is a member of the Microchip's SAM3S series microcontrollers based on the high-performance 32-bit ARM® Cortex®-M3 RISC processor. It operates at a maximum speed of 64MHz and features 256KB of flash memory and 48KB of SRAM.

The extensive peripheral set includes a Full Speed USB device port with embedded transceiver, a high-speed multimedia card interface for SDIO/SD/MMC, two USARTs, two UARTs, two TWIs (I2C), three SPIs, I2S, PWM timer, three 16-bit timers, RTC, 10-ch 12-bit ADC, 2-ch 12-bit DAC, and an analog comparator.

The QTouch library offers an easy way to implement buttons, wheels, and sliders. The parallel data capture mode on the PIOs collects data from external devices not compliant with standard memory read protocols, such as low-cost image sensors. DMA transfers the data to memory, offloading the CPU.

The device operates from 1.62V to 3.6V and is available in 64-pin QFP and QFN packages and is pin-to-pin compatible with the SAM3N4B and SAM7S64.

Features

Microcontroller Features

Core

ARM® Cortex®-M3 revision 2.0 running at up to 64 MHz

Memory Protection Unit (MPU)

DSP Instructions, Thumb®-2 instruction set

Memories

256 Kbytes Single Plane embedded Flash, 128-bit wide access, memory accelerator

48 Kbytes embedded SRAM

16 Kbytes ROM with embedded bootloader routines (UART, USB) and IAP routines

System

Embedded voltage regulator for single-supply operation

Power-on-Reset (POR), Brown-out Detector (BOD) and Watchdog for safe operation

Quartz or ceramic resonator oscillators: 0.6 to 30MHz main power with Failure Detection and low power 32.768 kHz for RTC or device clock

High precision 8/12 MHz factory trimmed internal RC oscillator with 4 MHz default frequency for device startup. In-application trimming access for frequency adjustment

Slow clock internal RC oscillator as permanent low-power mode device clock

Two PLLs up to 130 MHz for device clock and for USB

Temperature Sensor

Up to 22 peripheral DMA (PDC) channels

Low Power Modes

Sleep and Backup modes, down to $< 2 \mu\text{A}$ in Backup mode

Ultra low power RTC

Package

64-lead LQFP, 10 x 10 mm, pitch 0.5 mm

64-lead QFN, 9 x 9 mm, pitch 0.5 mm

Temperature operating range

Industrial (-40°C to $+85^{\circ}\text{C}$)

Peripheral Features

USB 2.0 Device and Embedded Host: 12 Mbps, up to 8 bidirectional Endpoints and Multi-packet Ping-pong Mode. On-Chip Transceiver

USB 2.0 Device: 12 Mbps, 2668 byte FIFO, up to 8 bidirectional Endpoints. On-Chip Transceiver

2 USARTs with ISO7816, IrDA®, RS-485, SPI, Manchester and Modem Mode

Two 2-wire UARTs

2 Two Wire Interface (I2C compatible), 1 SPI, 1 Serial Synchronous Controller (I2S), 1 High Speed Multimedia Card Interface (SDIO/SD Card/MMC)

two 3-channel 16-bit Timer Counters with capture, waveform, compare and PWM mode. Quadrature Decoder Logic and 2-bit Gray Up/Down

Counter for Stepper Motor

4-channel 16-bit PWM with Complementary Output, Fault Input, 12-bit Dead Time Generator Counter for Motor Control

32-bit Real-time Timer and RTC with calendar and alarm features

32-bit Cyclic Redundancy Check Calculation Unit (CRCCU)

I/O

47 I/O lines with external interrupt capability (edge or level sensitivity), debouncing, glitch filtering and on-die Series Resistor Termination

Three 32-bit Parallel Input/Output Controllers, Peripheral DMA assisted Parallel Capture Mode

Analog Features

10-channel, 1MSPS ADC with differential input mode and programmable gain stage

One 2-channel 12-bit 1MSPS DAC

One Analog Comparator with flexible input selection, Selectable input hysteresis

Debugger Development Support

Serial Wire/JTAG Debug Port(SWJ-DP)

Debug access to all memories and registers in the system, including Cortex-M4 register bank when the core is running, halted, or held in reset.

Serial Wire Debug Port (SW-DP) and Serial Wire JTAG Debug Port (SWJ-DP) debug access.

Flash Patch and Breakpoint (FPB) unit for implementing breakpoints and code patches.

Data Watchpoint and Trace (DWT) unit for implementing watchpoints, data tracing, and system profiling.

Instrumentation Trace Macrocell (ITM) for support of printf style debugging.

IEEE1149.1 JTAG Boundary-scan on all digital pins.

Integrated Software Libraries and Tools

ASF-Atmel software Framework – SAM software development framework

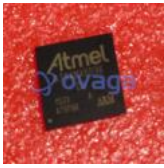
Integrated in the Atmel Studio IDE with a graphical user interface or available as standalone for GCC, IAR compilers.

DMA support, Interrupt handlers Driver support

USB, TCP/IP, Wi-Fi and Bluetooth, Numerous USB classes, DHCP and Wi-Fi encryption Stacks

RTOS integration, FreeRTOS is a core component

Related Products



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[ATMEGA32M1-AU](#)

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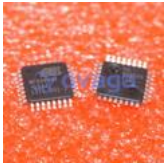
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