MCU 32-bit ARM Cortex M3 RISC 128KB Flash 1.8V/3.3V 100-Pin LQFP Tray

Manufacturers	Microchip Technology, Inc
Package/Case	LQFP-100
Product Type	Embedded Processors & Controllers
RoHS	Rohs
Lifecycle	

Images are for reference only

Please submit RFQ for ATSAM3U2CA-AU or Email to us: sales@ovaga.com We will contact you in 12 hours.   RFQ

General Description

Microchip'sARM®-based SAM3U2C is a member of the SAM3U family of flash microcontrollers based on the high-performance 32-bit ARM Cortex®-M3 RISC processor.

It operates at a maximum speed of 96MHz and features 128KB of flash memory and 32KB of SRAM.

The peripheral set includes a High Speed USB device and PHY at 480Mbps, high-speed multimedia card interface for SDIO/SD/MMC, a 16-bit external bus interface supporting NAND flash, three USARTs, TWI (I2C), four SPIs, I2S, four PWM timers, three 16-bit timers, RTC, 4x12-bit and four 10-bit ADC.

The architecture is designed to sustain high-speed data transfers. The multi-layer bus matrix, multiple SRAM banks, PDC, and DMA support parallel tasks and maximize data throughput.

The SAM3U1C operates from 1.62V to 3.6V and is available in 100-pin LQFP and BGA packages.

Features

Microcontroller Features

Core

ARM Cortex-M3 revision 2.0 running at up to 96 MHz

Memory Protection Unit (MPU)

Thumb®-2 instruction set

Memories

128 Kbytes Dual Plane embedded Flash, 128-bit wide access, memory accelerator, dual bank

36 Kbytes embedded SRAM

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

Static Memory Controller (SMC): SRAM, NOR, NAND support. NAND Flash controller with 4 Kbytes RAM buffer and ECC

External Bus Interface - 8 or 16 bits, 4 chip selects, 24-bit address

System

Embedded voltage regulator for single-supply operation

POR, BOD and Watchdog for safe reset

Quartz or resonator oscillators: 3 to 20 MHz main and optional 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 fast device startup

Slow Clock Internal RC oscillator as permanent clock for device clock in low power mode

One PLL for device clock and one dedicated PLL for USB 2.0 High Speed Device

17 Peripheral DMA Controller (PDC) channels and 4-channel central DMA

Low Power modes

Sleep, Wait, and Backup modes, down to 1.65 μA in Backup mode with RTC, RTT, and GPBR

Package

100-lead LQFP – 14 × 14 mm, pitch 0.5 mm

100-ball TFBGA – 9 × 9 mm, pitch 0.8 mm

Temperature operating range

Industrial (-40° C to +85° C)

Peripheral Features

USB 2.0 Device: 480 Mbps, 4-Kbyte FIFO, up to 7 bidirectional Endpoints, dedicated DMA

3 USARTs (ISO7816, IrDA®, Flow Control, SPI, Manchester support) and one UART

2 TWI (I2C compatible)

1 Serial Perpheral Interface (SPI)

1 Synchronous Serial Controller (SSC) (I2S)

1 High Speed Multimedia Card Interface (HSMCI) (SDIO/SD/MMC)

3-channel 16-bit Timer/Counter (TC) for capture, compare and PWM

4-channel 16-bit PWM (PWMC)

32-bit Real-time Timer (RTT) and Real-time Clock (RTC) with calendar and alarm features

I/O

57 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

Analog Features

4-channel 12-bit 1 msps ADC with differential input mode and programmable gain stage

4-channel 10-bit ADC

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

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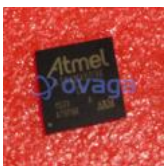
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LFBGA-324
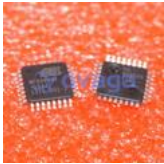

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