ARM MCU, SAM32 Family SAM D5X Series Microcontrollers, ARM Cortex-M4F, 32bit, 120 MHz, 1 MB, 256 KB

Manufacturers	Microchip Technology, Inc
Package/Case	TQFP-128
Product Type	Embedded Processors & Controllers
RoHS	
Lifecycle	

Images are for reference only

Please submit RFQ for ATSAMD51P20A-AU or Email to us: sales@ovaga.com We will contact you in 12 hours.   RFQ

General Description

The SAM D51 high performance micro-controller series is targeted for general purpose applications using the 32-bit ARM® Cortex®-M4 processor with Floating Point Unit (FPU), running up to 120 MHz ,up to 1 MB Dual Panel Flash with ECC, and up to 256 KB of SRAM with ECC .

Series offers excellent features with class leading power performance ideal for multiple market segments.

Key features

·   Quad Serial Peripheral Interface(QSPI) with Execute in Place (XIP) Support.

·   Up to 2 Secure Digital Host Controller (SDHC)

·   Inter-IC Sound(I2S)Controller for Audio

·   Peripheral Touch Controller (PTC) supporting up to 256 channels of capacitive touch .

·   Full speed USB with embedded Host/device.

·   Supports 5 Low power modes with class leading 65µA/MHz Active Power Performance.

·   Integrated security including Asymmetric and Symmetric Crypto hardware acceleration

·   Serial communication (SERCOM) ports configurable as UART/USART, ISO 7816, SPI or I2C

Supported by MPLAB X IDE and MPLAB Harmony.

Features

ARM Cortex-M4F CPU running at up to 120 MHz

Floating Point Unit (FPU)

Embedded Trace Module (ETM) with instruction trace stream

Core Sight Embedded Trace Buffer (ETB)

Error Correction Code (ECC)

Dual bank with Read-While-Write (RWW) support

EEPROM hardware emulation

Error Correction Code (ECC) RAM option

Up to 4 KB of Tightly Coupled Memory (TCM)

Up to 8 KB additional SRAM with backup retention capability

Power-on Reset (POR) and Brown-out detection (BOD)

Internal and external clock options

External Interrupt Controller (EIC)

Two-pin Serial Wire Debug (SWD) programming, test, and debugging interface

Five Low Power Modes (Idle, Standby, Hibernate, Backup, and Off)

Sleep Walking peripherals.

Battery backup support

Embedded Buck/LDO regulator supporting on-the-fly selection.

65µA/MHz active power consumption.

Five confidential modes of operation (ECB, CBC, CFB, OFB, CTR)

True Random Number Generator (TRNG)

RSA, DSA

Elliptic Curves Cryptography (ECC) ECC GF(2n), ECC GF(p)

Integrity Check Module (ICM) based on Secure Hash Algorithm (SHA1, SHA224, SHA256), DMA

32-channel Direct Memory Access Controller (DMAC)

Compatibility with SD and SDHC Memory Card Specification Version 3.01

Compatibility with SDIO Specification Version 3.0

Compliant with JDEC specification, MMC memory cards V4.51

eXecute-In-Place (XIP) support

Up to 75 MHz SDR operation and DDR support

Embedded host and device function

USART with full-duplex and single-wire half-duplex configuration

ISO7816

I2C up to 3.4MHz

SPI

LIN master/slave

RS485

SPI inter-byte space

One two-channel Inter-IC Sound Interface (I2S)

Up to 14-bit parallel capture mode

Up to 256 channel capacitive touch and proximity sensing

32-channel Event System

16-bit ,32-bit or 8-bit TC with two compare/capture channels

Two 24-bit Timer/Counters for Control (TCC), with extended functions

Three 16-bit Timer/Counters for Control (TCC), with extended functions

Up to 5 wake-up pins with tamper detection and de-bouncing filter

Watchdog Timer (WDT) with Window mode

CRC-32 generator

Position Decoder (PDEC)

Frequency meter (FREQM)

One Configurable Custom Logic (CCL)

Differential and single-ended input

Automatic offset and gain error compensation

Oversampling and decimation in hardware to support 13-, 14-, 15-, or 16-bit resolution

Dual 12-bit, 1 MSPS Output Digital-to-Analog Converter (DAC)

Two Analog Comparators (AC) with Window Compare function

One temperature sensor

99 programmable I/O pins

1.71V – 3.6V
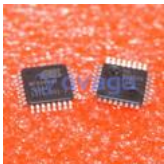
128-pin TQFP,120-pin TFBGA

Related Products

[ATSAMA5D36A-CU](#)

Microchip Technology, Inc

LFBGA-324

[ATMEGA32M1-AU](#)

Microchip Technology, Inc

TQFP-32

[ATXMEGA128D3-AU](#)

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