

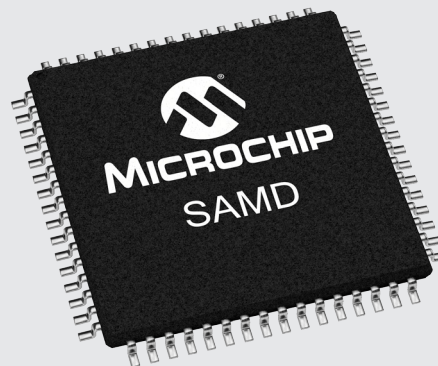
# SAMD Microcontroller Family

New Benchmark in Flexibility and Ease Of Use

## Summary

The SAMD microcontroller family delivers performance and energy efficiency through a powerful combination of an optimized architecture, proven technologies such as peripheral event system, Peripheral Touch Controller (PTC) and a highly integrated peripheral set.

The ARM® Cortex®-M0+ based SAMD family consists of 4-pin and code-compatible products. They all use the same processor, bus matrix, interrupt system and other core features but are differentiated in regards to pin counts, memories and peripheral mix.



SAMD Family Features	SAM D10	SAM D11	SAM D20	SAM D21
Cortex-M0+	8–16 KB Flash		16–256 KB Flash	32–256 KB Flash
Event System	14, 20 and 24 pins		32, 48 and 64 pins	
10-bit 350 Ksps ADC	6 ch. DMA		–	12 ch. DMA
Serial Wire Debug	1x T/C for Control		–	3x T/C for Control
Internal RCs	–	FS USB Device	–	FS USB H&D
High GPIO Count	–	–	–	I <sup>2</sup> S

## Hardware and Software Tools

Prototype your designs with Microchip's Xplained Pro Kit for the SAM D11, SAM D20 and SAM D21 devices or the Xplained Mini Kit for the SAM D10 devices. All the kits incorporate an embedded programmer and debugger. If you prefer to use a standalone programmer/debugger, the SAM-ICE™ emulator fully supports the SAMD family. Atmel Studio and the Advanced Software Framework also support the SAMD family of products, providing an easy-to-use and low-cost development platform to reduce your time to market.

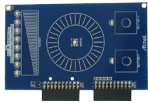
## Development Tools

### SAM D20/D21 Xplained Pro Evaluation Kits (ATSAMD20-XPRO) (ATSAMD21-XPRO)



The Xplained Pro boards available for SAM D21 and SAM D20 include an embedded debugger and three extension headers. The SAM D21 board also has a USB connector for the on chip USB.

### QT1 Xplained Pro Extension Kit (ATQT1-XPRO)



The QT1 extension is perfect for evaluating the Peripheral Touch Controller in SAMD family devices.

### SAM D11 Xplained Pro Evaluation Kit (ATSAMD11-XPRO)



This kit features an embedded debugger, two capacitive touch buttons and one expansion header.

### I/O1 Xplained Pro Extension Kit (ATIO1-XPRO)



The I/O1 extension expands your Xplained Pro board with a light and temperature sensor, a microSD card and hardware to test UART, SPI and I<sup>2</sup>C.

### PROTO1 Xplained Pro Extension Kit (ATPROTO1-XPRO)



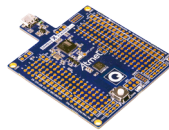
This kit extension provides a breadboarding area for general prototyping with the SAMD Xplained Pro Boards.

### OLED1 Xplained Pro Extension Kit (ATOLED1-XPRO)

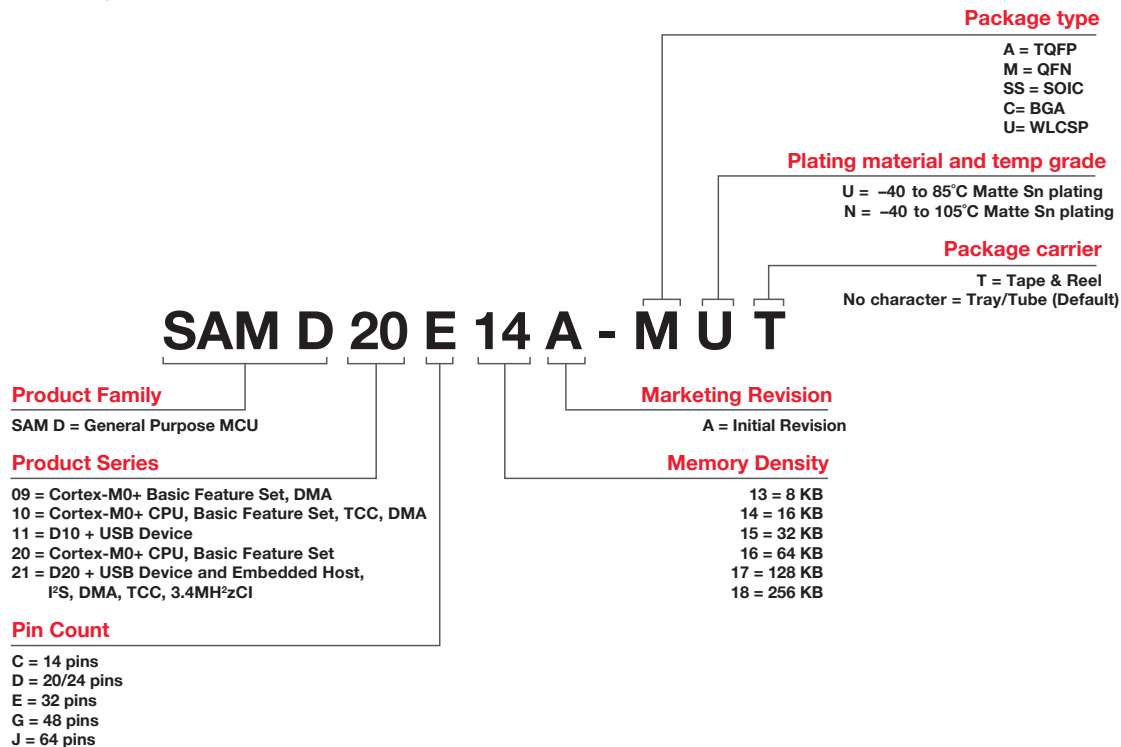


This extension wing connects a 128 x 32 OLED display, LEDs and buttons to the Xplained Pro Board.

### SAM D10 Xplained Mini Evaluation Kit (ATSAMD10-XMINI)



The SAM D10-XMINI is an ideal low-cost entry point to Microchip's SAMD Cortex-M0+ development. The board features an embedded debugger and a prototyping area.



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