

# Atmel | SMART SAMA5D3 Series

Meet Industrial and Consumer Design Requirements with ARM Cortex-A5 Processor-Based Devices

The new Atmel® | SMART SAMA5D3 series, based on the ARM® Cortex®-A5 processor, alleviates trade-offs in performance, power and ease of use. This series of embedded microprocessor units (MPUs) operates at 850DMIPS at under 150mW, with high levels of connectivity, enhanced user interfaces and robust security. The SAMA5D3 series is an ideal high-performance, low-power platform for cost-sensitive industrial and consumer applications.

## Key Applications

- Human-machine interface, control panels
- PLC
- Smart grid device
- Barcode scanners, barcode printers
- Industrial and residential gateways
- Outdoor GPS, smart watches

## Key Highlights

### System Performance

The SAMA5D3 series delivers up to 850DMIPS at 536MHz while offering bandwidth of 1328MB/s at 166MHz bus speed. The floating point unit (FPU) provides additional high-precision processing power for image, audio and sensor data.

### Low Power Consumption

Ideal for battery-operated applications, the SAMA5D3 series consumes less than 150mW in active mode at 536MHz and under 0.5mW in low-power mode when retaining context and offering fast wake up. It supports both LPDDR and LPDDR2 memories, along with standard DDR2.

### Comprehensive Peripheral Set

The SAMA5D3 series has everything you need for connectivity and user interface applications with two Ethernet MAC (including Gigabit with IEEE 1588), three HS USB ports, two CAN, soft modem (works with an external smartDAA from Conexant), seven UARTS, SPIs, I2Cs, a TFT LCD controller with HW overlays and resistive touchscreen. A camera interface enables seamless connection to CMOS sensors. It also integrates three SDIO/SD/MMC ports, a 12-bit ADC and multiple timers.

### Security

SAMA5D3 devices include a secure boot feature to prevent cloning of your application as well as a hardware encryption engine to secure communications and data storage.

### Lifetime Commitment

Atmel offers customers a 12-year lifetime commitment from the time of product introduction.

### Safety

The SAMA5D3 includes functions which ease the implementation of safety standards like IEC61508, Power-On Reset, Independent Watchdog timer, Register write protection and some others.



## Ecosystem



Atmel has created and supports free Linux® distributions available at [www.linux4SAM.org](http://www.linux4SAM.org) and <https://github.com/linux4sam>. We offer full coverage of system-on-chip (SoC) peripherals in the Linux kernel, as well as bootloaders such as AT91Bootstrap, U-Boot and Barebox.



Atmel offers a free graphics software development kit (SDK) based on Qt. This SDK includes demos, widgets, background images, a set of icons, and useful graphical elements. Using these proven elements, you can develop your own customized user interface.



Atmel is now offering a free Android™ 4.2 Jelly Bean port for the SAMA5D3 series, available on our dedicated website [www.at91.com/android4sam](http://www.at91.com/android4sam). This expands on the Atmel current Android 2.3 port available for SAM9 MPUs. Android is ideal for use in some embedded applications such as control panels, smart watches, DECT phones and more. Android comes with multimedia and connectivity stacks, graphical user interfaces and a comprehensive SDK. It's a good alternative to a standard Linux system.



For RTOS, bare metal C or C++ designers, Atmel delivers the softpack, a set of over 40 C drivers that run on the SAMA5D3 evaluation kits and exercises all peripherals. The softpack is also very useful for board bring up as well as quick prototyping.



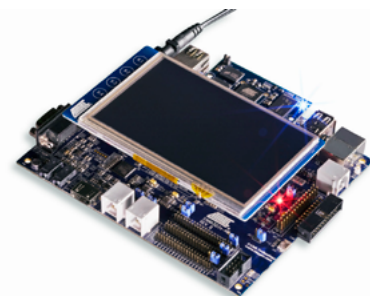
[Linux4SAM](http://www.linux4sam.org)



[Android4SAM](http://www.at91.com/android4sam)

To evaluate and prototype with the SAMA5D3 series, look to the SAMA5D3 series evaluation kits, which come loaded with Linux and Qt.

To ease your design process and reduce your time to market, Atmel collaborates with a global and ever-expanding network of partners that deliver hardware and software solutions for the SAMA5D3 series of embedded MPUs.



## SAMA5D3 Series Selector Guide

Ordering Code	Feature Set	LCD	10/100 EMAC	10/100/1000 EMAC	Dual CAN	ISI	USB	Secure Boot	Crypto	Small Package	Extended Temperature Range (-40°C / +105°C Ambient)	Kit Ordering Code
ATSAMA5D31A-CU		✓	✓	--	--	✓	✓	✓	✓	--	--	ATSAMA5D31-EK
ATSAMA5D31A-CFU		✓	✓	--	--	✓	✓	✓	✓	✓	--	ATSAMA5D31-EK
ATSAMA5D33A-CU		✓	--	✓	--	✓	✓	✓	✓	--	--	ATSAMA5D33-EK
ATSAMA5D34A-CU		✓	--	✓	✓	✓	✓	✓	✓	--	--	ATSAMA5D34-EK
ATSAMA5D35A-CU		--	✓	✓	✓	✓	✓	✓	✓	--	--	ATSAMA5D35-EK
ATSAMA5D35A-CN		--	✓	✓	✓	✓	✓	✓	✓	--	✓	ATSAMA5D35-EK
ATASAMA5D36-CU		✓	✓	✓	✓	✓	✓	✓	✓	--	--	ATSAMA5D36-EK
ATSAMA5D36A-CN		✓	✓	✓	✓	✓	✓	✓	✓	--	✓	ATSAMA5D36-EK

- CU devices are -40°C to 85°C temperature range and are available in a BGA324 package with 0.8mm ball pitch.

- CN devices are -40°C to 105°C temperature range and are available in a BGA324 package with 0.8mm ball pitch.

For more information on the SAMA5D3 series, go to



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