

Atmel | SMART SAMA5D4 Series

720p Hardware Video Decoder and Advanced Security

The new Atmel® | SMART SAMA5D4 series, expands the SAMA5 microprocessors family and targets IoT, Industrial and Consumer applications. It is ARM® Cortex®-A5-based, and adds a 720p resolution hardware video decoder and advanced security features. The chip has significantly better system performance using the ARM NEON™ 128-bit SIMD (single instruction, multiple data) architecture extension and a 128kByte L2 Cache. The IC has advanced security features to protect the application software from counterfeiting, to safeguard software assets, and to securely store and transfer data.

Key Applications

- Control panels for security, home automation, thermostats, etc.
- Surveillance cameras
- Industrial human-machine interface (HMI)
- Fitness equipment, such as treadmills and exercise machines
- Industrial and residential gateways
- Smart grid infrastructure

Key Highlights

720p 30fps Video Playback

The SAMA5D4 series enables you to bring up to 720p 30fps video playback to your user interface applications using the embedded hardware video decoder that supports H264, VP8, MPEG4, and JPEG. This is complemented by an integrated TFT LCD display controller and resistive touchscreen interface.

High-performance Architecture

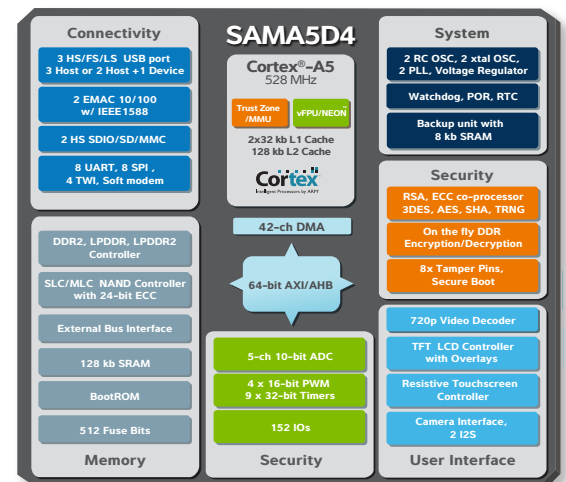
Based on the ARM Cortex-A5 core with the ARM NEON SIMD engine, the SAMA5D4 series is ideal for applications requiring high-precision computing and fast signal processing. This series of microprocessors delivers 840DMIPS at 528MHz and a 128kB of L2 cache improves the overall system performance. The SAMA5D4 also features a 32-bit wide DDR controller running up to 176MHz that can deliver up to 1408MB/s of bandwidth. It is configurable in either a 16- or 32-bit bus interface allowing you an optimum trade-off between performance and memory cost.

Advanced Security

The SAMA5D4 series security features prevent cloning of your application, protects and authenticates software, and securely stores and transfer data. It allows unique on-the-fly encryption and decryption of software code from the external DRAM, and includes secure boot, tamper detection pins, and safe erasure of security-critical data. The part features the ARM TrustZone® system-wide approach to security as well as advanced hardware encryption engines supporting private and public key cryptography.

Lifetime Commitment

Atmel offers customers a 12-years lifetime commitment from the time of this product's introduction.



Ecosystem



Atmel has created and supports a free Linux® distributions available at www.linux4SAM.org and <https://github.com/linux4sam>. With our commitment to the Linux open-source community, we provide full coverage of SoC peripherals in the Linux kernel as well as bootloaders such as AT91Bootstrap and U-Boot.



Atmel offers a free graphics software development kit (SDK) based on Qt available at www.linux4SAM.org. 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™ port for the SAMA5D devices, available at www.at91.com/android4sam. Originally developed for mobile handset devices, Android is ideal for use in 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.



For RTOS, bare metal C or C++ designers, Atmel delivers the softpack, a set of around 40 C drivers that run on the SAMA5D4 evaluation kits and exercises all peripherals. The softpack is also very useful for board bring up as well as quick prototyping and available for download from the product page on the Atmel web site.

To evaluate and prototype your application, Atmel provides an evaluation kit.

To ease your design process and reduce your time-to-market, Atmel collaborates with a global and expanding network of partners that deliver hardware, PMIC, memories, SOM (system-on-module), and software solution for the SAMA5D4 series of MPUs. For more information on our partners and the Atmel evaluation kit, you can visit <http://www.atmel.com/microsite/SAMA5>



SAMA5D4 Series Selector Guide

	Video Decoder	Neon/ L2 Cache	Advanced Security*	DDR Databus Width	Packages
ATSAMA5D41A-CU	--	✓	✓	16-bit	BGA289 (14x14, 0.8mm)
ATSAMA5D42A-CU	--	✓	✓	16-bit/ 32-bit	BGA361 (16x16, 0.8mm)
ATSAMA5D43A-CU	✓	✓	✓	16-bit	BGA289 (14x14, 0.8mm)
ATSAMA5D44A-CU	✓	✓	✓	16-bit/ 32-bit	BGA361 (16x16, 0.8mm)

All devices are -40°C to +85°C temperature range.

* Security: On the fly encryption/decryption of DRAM, secure boot, tamper detection pins, secure key storage, ARM Trust Zone, hardware cryptography engines RSA, ECC, AES, 3DES as well as SHA and TRNG

For more information on the SAMA5D4 series, go to www.atmel.com/SAMA5D4



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