

ARM-based Solutions



Architected for Performance, Power Efficiency and Ease of Use

Take control of your application development with Atmel® ARM® processor-based microcontrollers (MCUs). Our devices make it easier for you to create the application solutions that best meet your customers' needs.

Our portfolio ranges from entry-level devices to advanced, highly integrated MCUs with extensive connectivity, refined interfaces and iron-clad security. Other advantages include high bandwidth architecture, power efficiency and software portability. Our ARM processor-based MCUs are backed by a worldwide ecosystem consisting of development tools, operating systems and protocol stacks, Flash programming, software and technical support from industry-leading suppliers.

A key addition to this ecosystem is Atmel Studio 6, the integrated development environment that now supports Atmel ARM Cortex™-M processor-based MCUs as well as Atmel AVR® devices. With Atmel Studio 6, you get a faster path to take your concepts to market. The IDE includes the Atmel Software Framework—1,100 project examples with source code that will eliminate most of the low-level coding in your designs.

Key Features

- **Atmel ARM Processor-based Flash MCUs** — Based on the ARM® Cortex™-M4, Cortex™-M3, ARM926EJ-S™ and ARM7TDMI® processors, Atmel ARM processor-based Flash MCUs offer:
 - Up to 2MB of Flash memory and 160KB of SRAM, with operating frequencies up to 120MHz.
 - Innovative direct memory access (DMA) and memory implementations, which enable high-speed data transfers while freeing the processor for the application.
 - "Touch-ready" capability, through Atmel QTouch® capacitive touch technology.
 - The lowest power consumption available in a Cortex-M4 processor-based MCU.
- **Atmel ARM Processor-based Embedded MPUs** — Based on the ARM926EJ-S™ core—with operating frequencies up to 400 MHz, a large set of high-performance peripherals, DDR2 and NAND Flash support—the Atmel SAM9 MCUs are optimized for reduced system cost in industrial applications. The devices come with a free Linux® and Android™ distribution and Microsoft® Windows® Embedded CE BSP.

ARM Processor-based Solutions Devices

| Device Family | Summary Benefit | Applications | Technologies | Key Parameters |
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| <u>SAM3N Cortex™ M3 Flash MCU</u> | Uncompromised Performance and Ease of Use | Industrial control | | |
| | | Metering | ARM Processor | |
| | | Medical | QTouch | 16KB to 256KB Flash |
| | | Test and measurement | Low power | 48-, 64- and 100-pin packages |
| | | Toy and consumer peripherals | Data Speedway | 48MHz |
| | | | Self programming | Native Atmel® Qtouch® support |

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| <u>SAM3S Cortex™ M3 Flash MCU</u> | Simplifies PCB Design and Reduces Power Consumption | Industrial control | ARM Processor | 64KB to 256KB flash 48-, 64- and 100-pin packages |
| | | Metering | QTouch | 64MHz |
| | | Consumer goods and toys | Low power | Native Atmel® Qtouch® support |
| | | Medical | Data Speedway | Multiple high-speed communication peripherals |
| | | | Self programming | |

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| <u>SAM4L Cortex™- M4 Flash MCU</u> | Lowest Power in Active and Sleep Modes Shortest Wake-up Time Highly Efficient Signal Processing Ease of Use | Sensors and Detectors | | 128KB to 256KB Flash |
| | | Medical Meters | | 48-, 64- and 100-pin Packages |
| | | Remote Controls | | 48MHz |
| | | Toys | Low Power | Multiple High-speed Communication Peripherals |
| | | Wireless Devices | ARM Processor | Built-in Security Features |
| | | | QTouch | |

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| <u>SAM4S Cortex™ M4 Flash MCU</u> | Scalable Performance and Memory Density, Power Efficiency | Medical | | |
| | | Industrial control | | |
| | | Industrial automation | | |
| | | M2M | ARM processor | Up to 2MB Flash Up to 160KB SRAM |
| | | Smart grid | Atmel QTouch | 64- and 100-pin packages |
| | | Consumer and computing peripherals | Low power | Up to 120MHz |
| | | Embedded audio | Data speedway | Native QTouch support |
| | | | Self programming | Multiple high-speed communication peripherals |

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| <u>SAM3U Cortex™</u> | Industry's First Cortex M3 MCU with On-chip High- | High-speed gateways in | ARM Processor | 64KB to 256KB flash |
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| <u>M3 Flash MCU</u> | speed USB | industrial and medical applications | QTouch | 100- and 144-pin packages |
| | | | Low power | 96MHz |
| | | PC & mobile phone accessories | Data Speedway | Native Atmel® Qtouch® support |
| | | USB tokens & drives | Self programming | High-speed (480Mbps) USB Device and Phy |
| | | Data loggers | | 1.62V to 3.6V operation |

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| <u>SAM3A Cortex™</u> <u>M3 Flash MCU</u> | Optimized for CAN Connectivity | Industrial control | | |
| | | Machine-to-machine (M2M) | | |
| | | Test and measurement | ARM processor | 256KB to 512KB dual-bank Flash |
| | | Medical Smart grid | Atmel QTouch | Up to 100KB SRAM |
| | | PC and consumer peripherals | Low power | 100- and 144-pin packages |
| | | | Data speedway | 86MHz Connectivity peripherals |
| | | | Self-programming | Native QTouch support |

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| <u>SAM3X Cortex™</u> <u>M3 Flash MCU</u> | Delivers Enhanced Connectivity | Industrial control | | |
| | | Machine-to-machine (M2M) | | |
| | | Test and measurement | ARM processor | 256KB to 512KB dual-bank Flash |
| | | Medical Smart grid | Atmel QTouch | Up to 100KB SRAM |
| | | PC and consumer peripherals | Low power | 100- and 144-pin packages |
| | | | Data speedway | 86MHz |
| | | | Self-programming | Connectivity peripherals |
| | | | | Native QTouch support |

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| <u>SAM7S/SE</u> <u>ARM7TDMI®</u> <u>Flash MCU</u> | Improved Deterministic Performance for Real-time Applications | | | 16KB to 512KB flash |
| | | | | 48-, 64-, 128- and 144-pin packages |
| | | Consumer goods and toys | ARM Processor | 55MHz |
| | | Industrial control | Low power | Peripheral DMA controller maximizes data throughput |
| | | Metering | Data Speedway | Selected devices feature SDRAM, NAND Flash interface and ECC |
| | | Medical | Self programming | |

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| <u>SAM7X/XC</u> <u>ARM7TDMI®</u> <u>Flash MCU</u> | Connectivity | Telecom | ARM Processor | 128KB to 512KB flash |
| | | Metering | Low power | 100-pin packages |
| | | Building | Data Speedway | 55MHz |

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| | | automation Medical | Self programming | Ethernet, CAN, USB Selected devices feature crypto |
| <u>SAM7L</u> <u>ARM7TDMI®</u> <u>Flash MCU</u> | Ultra-low-power Flash MCU with 100nA Power-down Mode | Consumer goods and toys Industrial control Metering Medical | ARM Processor Low power Data Speedway Self programming | 64KB to 128KB flash 128- and 100-pin packages 36MHz 40-segment LCD controller |
| <u>SAM9XE</u> <u>ARM926EJ™</u> <u>Flash MCU</u> | ARM9-based Flash MCU with Optimized Performance, Connectivity and Data Bandwidth | Telematics Medical Industrial automation | ARM Processor Low power Data Speedway Self programming | 128KB to 512KB flash 208- and 217-pin packages 180MHz Multiple networking and connectivity options |
| <u>SAM9N/CN</u> <u>ARM926EJ™</u> <u>Embedded MPU</u> | High-performance Entry-level Processors with Security Option | Home and commercial building automation Human-machine interface (HMI) White goods Point-of-sales terminals (POS) Medical equipment | ARM processor Low power Data speedway | 400MHz Multiple connectivity peripherals Support for DDR2, LPDDR and MLC NAND Flash Optional crypto and secure BootROM |
| <u>SAM9R</u> <u>ARM926EJ™</u> <u>Embedded MPU</u> | Performance and Connectivity Optimized for USB-enabled Applications | White goods Home and commercial building automation Point-of-sale (POS) terminals | ARM Processor Low power Data Speedway | 240MHz HS USB, LCDC, Resistive Touch Peripheral DMA controller maximizes data throughput Small footprint package option |
| <u>SAM9G</u> <u>ARM926EJ™</u> | Highly-integrated Embedded | Building Automation | ARM Processor | 240 MHz to 400MHz |

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| <u>Embedded MPU</u> | Microprocessors | Point-of-sale (POS) terminals | Low power | Multiple connectivity peripherals |
| | Optimized for Industrial Applications | Data loggers | Data Speedway | High bandwidth architecture |
| | | Medical equipment | | Support for DDR2 and LPDDR |
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| <u>SAM9X</u> <u>ARM926EJ™</u> <u>Embedded MPU</u> | High-performance Microprocessors with Multiple Networking/ Connectivity Peripherals | Home and commercial building automation | | |
| | | Human-Machine Interface (HMI), Machine-to-Machine (M2M) | | |
| | | Point-of-Sale (POS) terminals | ARM processor | 400MHz |
| | | Medical equipment | Low power | Multiple connectivity peripherals |
| | | White goods | Data Speedway | Advanced graphics control |
| | | | | Support for DDR2, LPDDR and MLC NAND Flash |

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| <u>SAM9M</u> <u>ARM926EJ™</u> <u>Embedded MPU</u> | Multimedia-enabled High-performance MPU with Hardware Video Decoder and Optional Crypto | Home and commercial building automation | | |
| | | Point-of-sale (POS) terminals | | 400MHz |
| | | Entertainment systems | | DDR2 and LPDDR support |
| | | Internet appliances | | Hardware video decoder with playback in multiple formats and resolutions |
| | | Medical | ARM Processor | 2D accelerator with scaling, rotation, color conversion and picture-in-picture |
| | | Video-enabled control panels | Low power | Selected devices with crypto |
| | | | Data Speedway | |

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| <u>Legacy Products</u> | World's First ARM-based Microcontrollers | Medical | | |
| | | Industrial automation | | |
| | | Point-of-sale (POS) terminals | | |

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