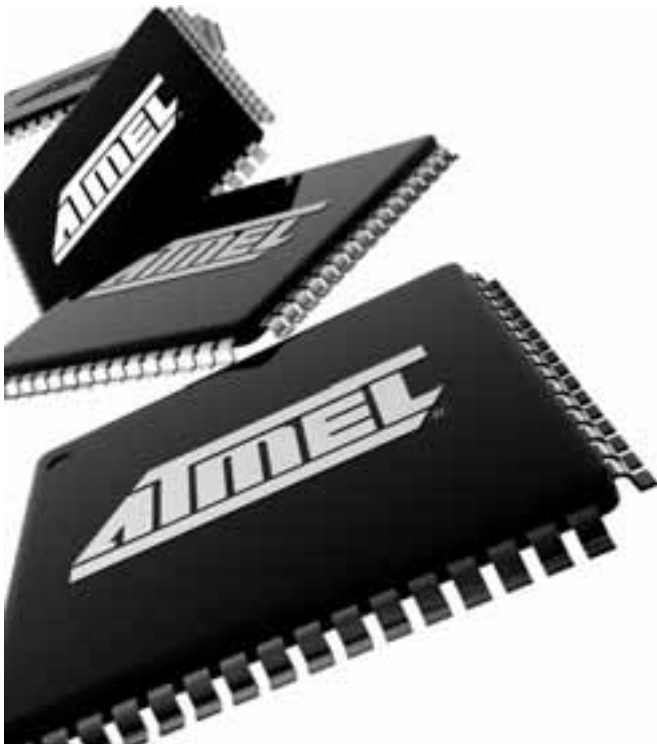




Atmel ARM-based Microcontrollers

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Director, Atmel SDC

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Introduction

- **Atmel is an Established Supplier of ARM® Microcontrollers**

- Over 150 Devices in Production
- Aggressive Roadmap for Performance, Lower Power, Memory Density, and Security
- The #3 largest MCU supplier (8-bit/32-bit MCU, and Touch Controllers)

- **Key Market Segments**

- Energy Metering and Smart Grid
- POS Terminals
- Industrial Automation
- Building and Home Control
- M2M Applications
- HMI Control, Panels
- Medical
- Consumer



Atmel ARM Worldwide Team

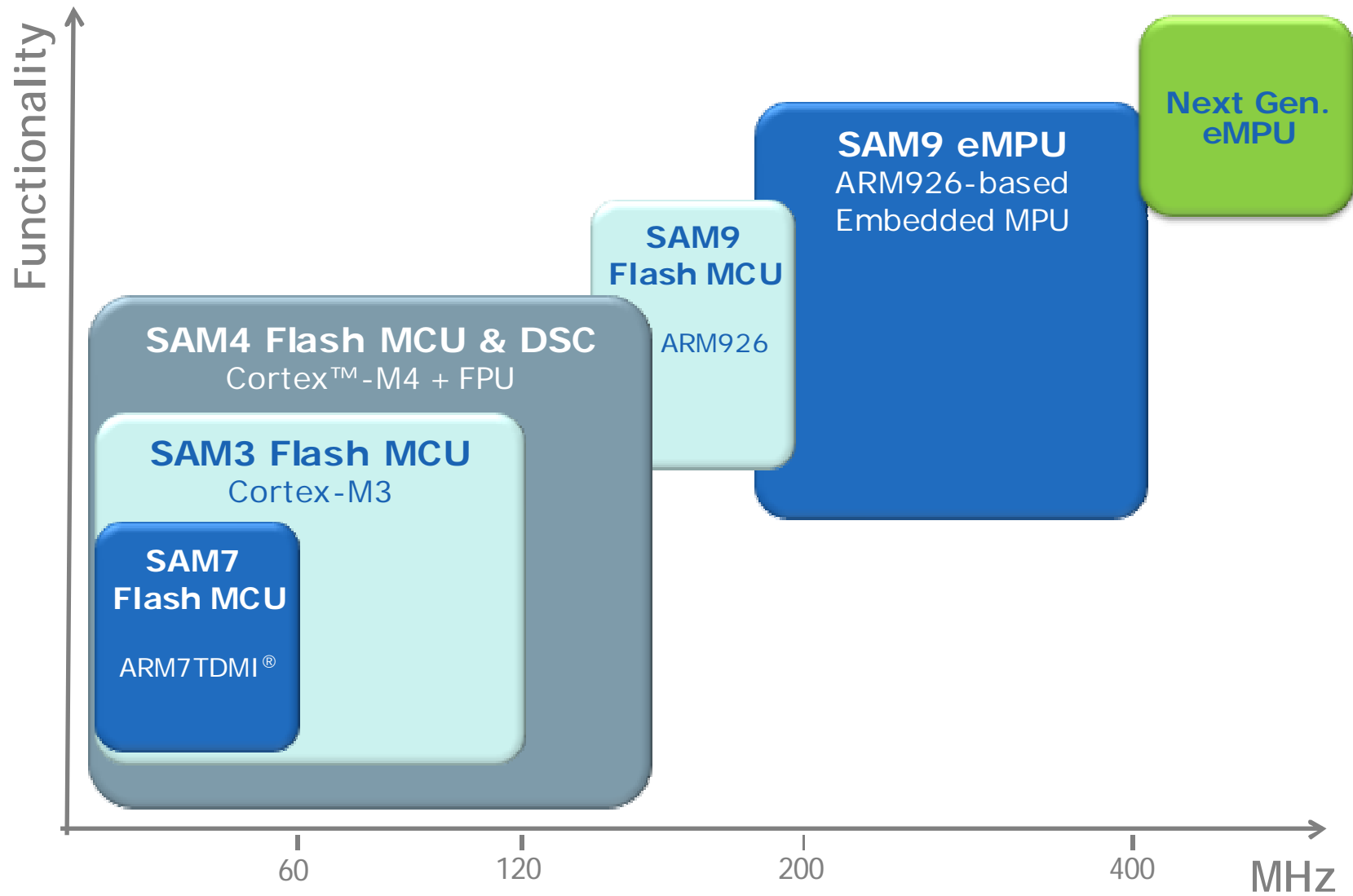


● Atmel

● Atmel ARM® Microcontroller Center
Design, Support, Applications

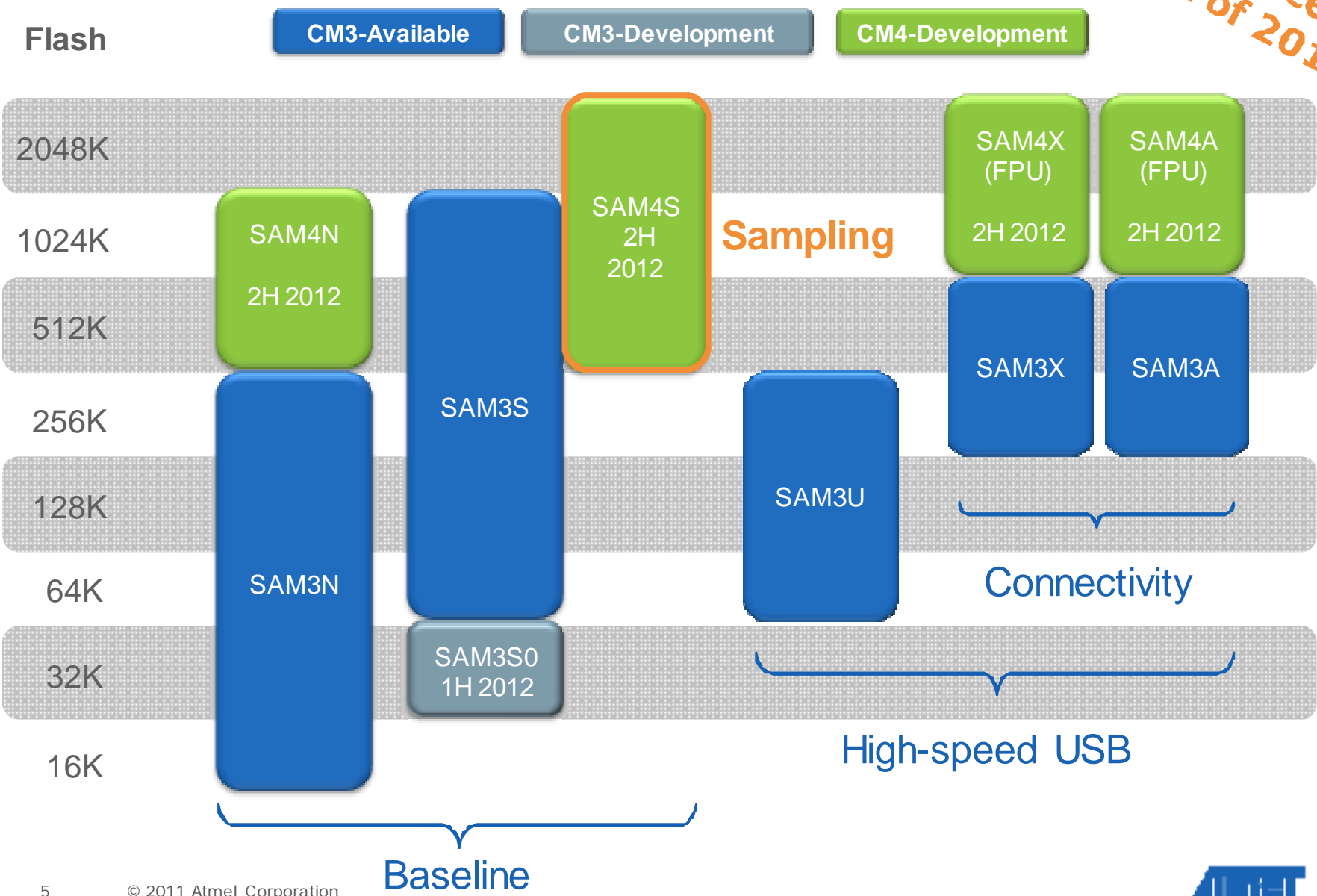


Atmel Complete ARM Portfolio



Atmel Cortex-M MCU Offering

200 Devices
by End of 2012



Atmel SAM3/4 MCU Family Features

	SAM3/4N	SAM3/4S	SAM3U	SAM3/4A	SAM3/4X
Frequency (Max)	80MHz	120MHz	96MHz	150MHz	150MHz
Flash (KB)	16-1024	32-2048	64-256	256-2048	256-2048
SRAM (KB)	4-80	16-160	20-50	32-192	32-192
USB	—	FS Dev	HS Dev	HS OTG	HS OTG
EMAC	—	—	—	—	✓
Dual CAN	—	—	—	✓	✓
DAC	—	✓	✓	✓	✓
QTouch Capacitive Touch	✓	✓	✓	✓	✓
External Bus	—	✓	✓	—	✓

Common Features	Cortex™-M CPU	Timer, PWM	QFP/QFN/BGA	48 to 176 Pins
	Extended Supply 1.62-3.6V		Up to 16 x 12-bit ADC	
	Backup Mode Down to 1.8µA		USART, SPI, I ² C, I2S	



Atmel SAM3/4 MCU Family Features

Software Package

QTouch Buttons,
Sliders & Wheels
Support

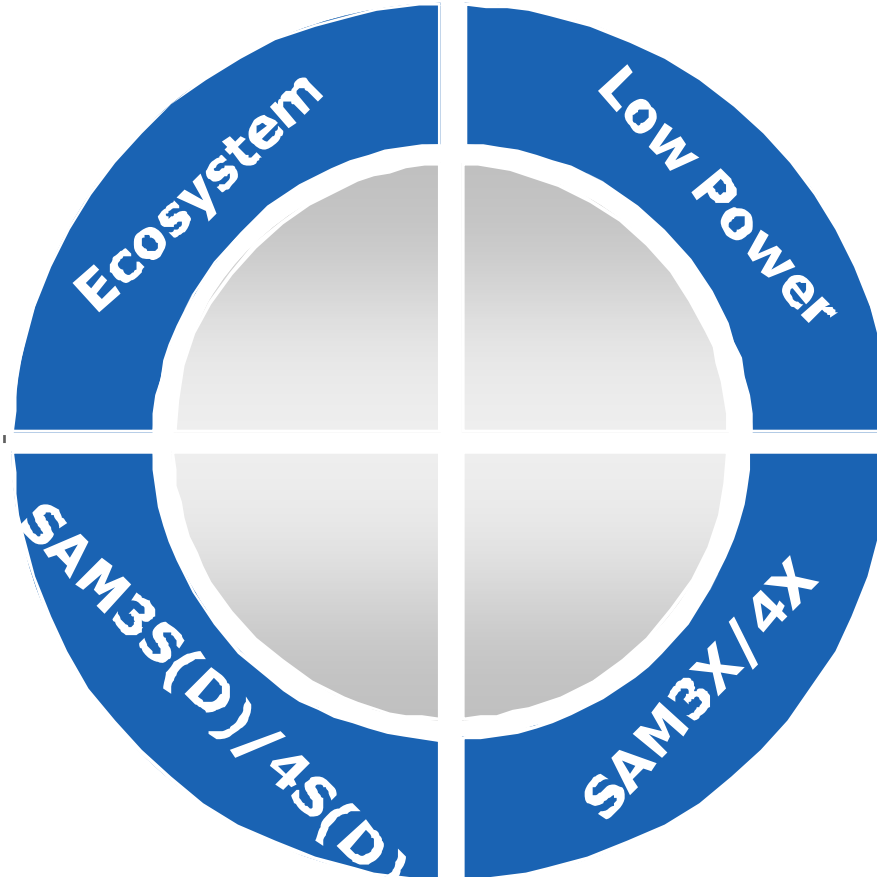
802.15.4 Wireless
Support

WiFi (Partners)

Dual-bank Flash
(SD Version)

Parallel I/O
Capture

On-die Termination



Unique True 1.8V
Operation

Lowest Power
Consumption
@ Clock Rate >
32MHz

Low Leakage SRAM
Retention

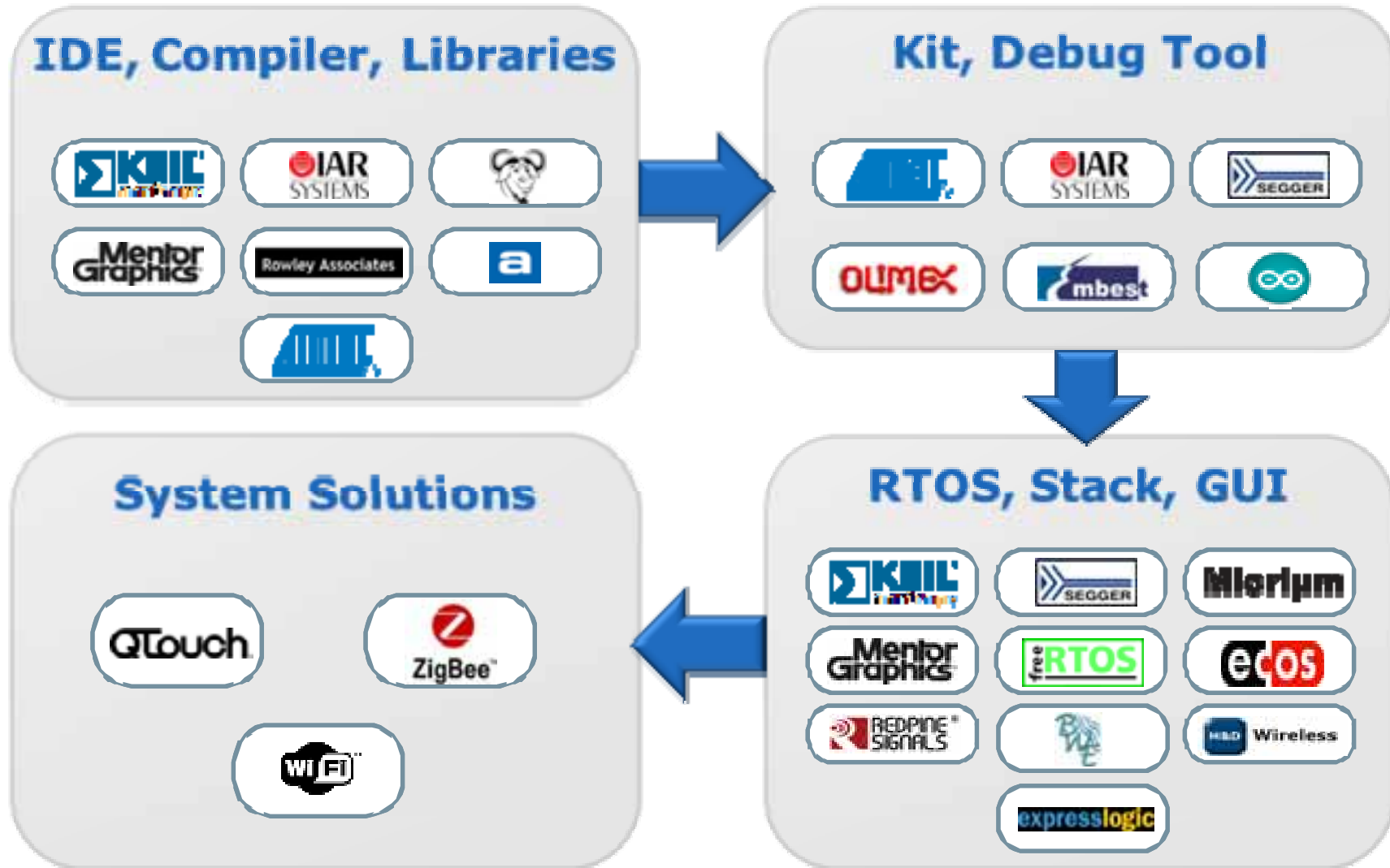
HS USB OTG with
Embedded PHY

Ethernet, CAN

100, 144, 208 Pins



Ease of Use: Ecosystem and Partners



Atmel Studio 6 Advantages

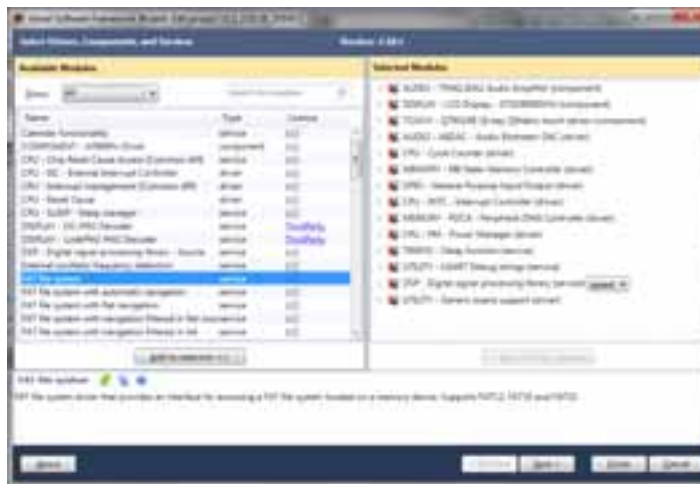
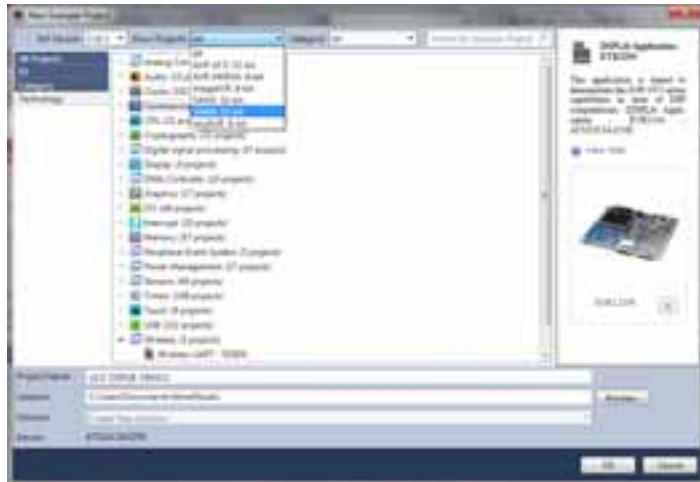


- Develop => Free, Professional IDE
- Design => 1,000 Project Examples
- Migrate => 300 Atmel ARM and AVR MCUs
- Create => Touch Applications

Atmel Studio Saves You Time and Money



Atmel Software Framework

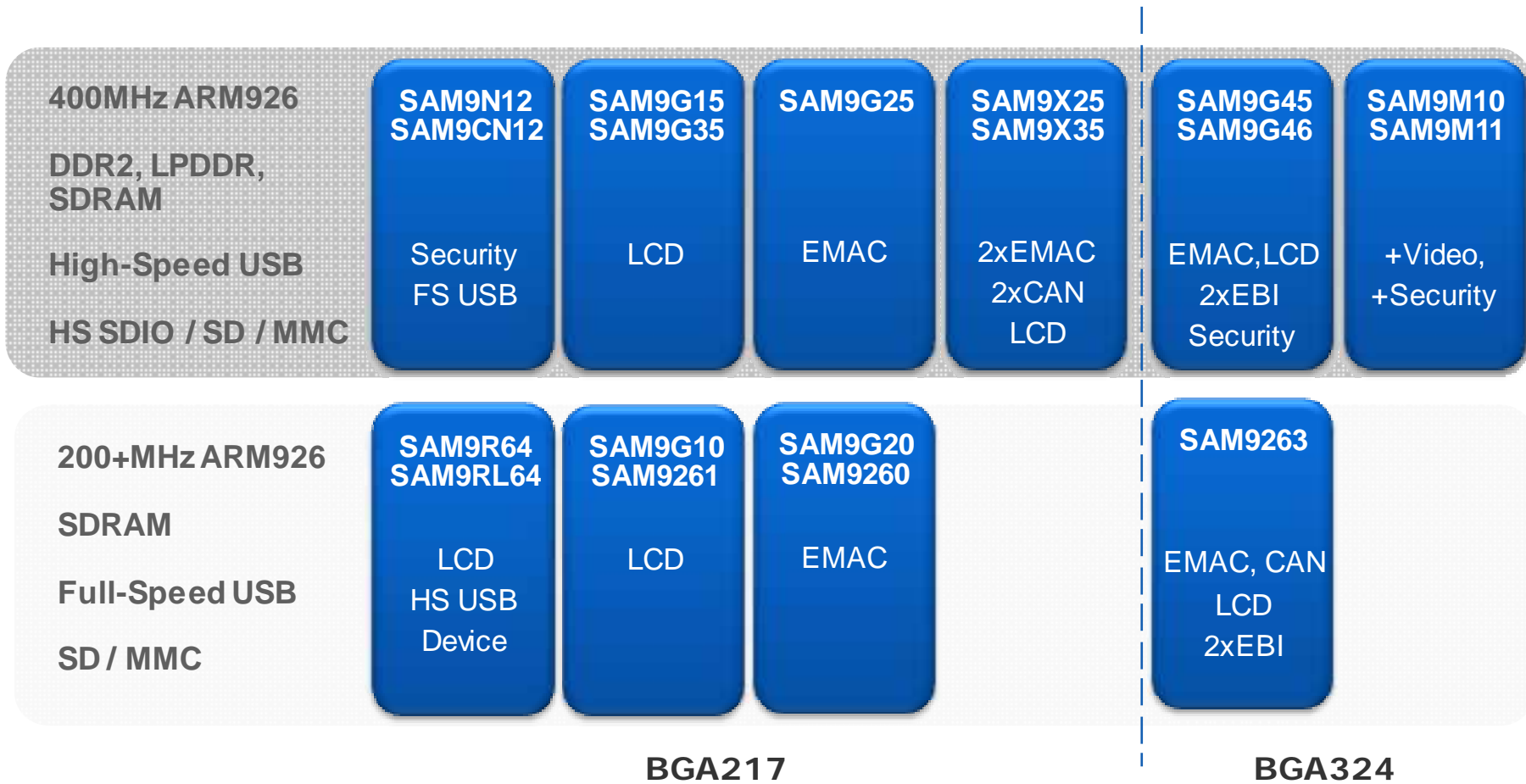


- **Software Library**
 - Vast library of source code for peripheral drivers, HW abstractions and SW stacks
 - Can provide 50% of the device SW, allows focus on application differentiation
- **Standard APIs**
 - Easy code migration between different Atmel devices
 - Support for 300 ARM and AVR MCUs
 - Common SW platform for 8- and 32-bit
- **ASF Explorer**
 - User interface in the Studio IDE
 - Select from 1,000 project examples
 - Choose, configure, integrate ASF components in your project
 - Built-in help and documentation



Atmel SAM9 Portfolio

Available Development



Atmel SAM9G/X Product Overview

	SAM9G15	SAM9G25	SAM9X25	SAM9G35	SAM9X35
LCD + Graphics Accelerator	✓	—	—	✓	✓
Resistive Touchscreen	✓	—	—	✓	✓
Camera Interface	—	✓	—	—	—
EMAC	—	✓	✓ x2	✓	✓
Dual CAN	—	—	✓	—	✓

Common Features	ARM926 CPU	400 MHz	HS USB (H+D) + FS Host	32-bit Timers
	LPDDR/DDR2	BGA217	Soft Modem	16-bit PWM
	Raw MLC NAND Flash		HS SDIO/SD/MMC	10-bit ADC



Atmel SAM9 Crypto Microcontrollers

	SAM9CN12	SAM9G46	SAM9M11
Encryption	AES/3DES/SHA	AES/3DES/SHA	AES/3DES/SHA
Secure Boot	✓	—	—
LCD	✓	✓	✓
USB H + D	FS	HS	HS
Camera	—	✓	✓
EMAC	—	✓	✓
Video Decoder	—	—	✓
MLC NAND Flash	✓	—	—
Common Features	ARM926 CPU	400 MHz	USART, SPI, I2C, I2S
	LPDDR/DDR2	HS SDIO/SD/MMC	32-bit Timers
	SLC NAND Flash	10-bit ADC	16-bit PWM
			RTC



Atmel SAM9 Features

400MHz ARM926

DMA & Multi-layer Bus

Graphics Acceleration
on G15/G35/X35

3x HS USB Ports

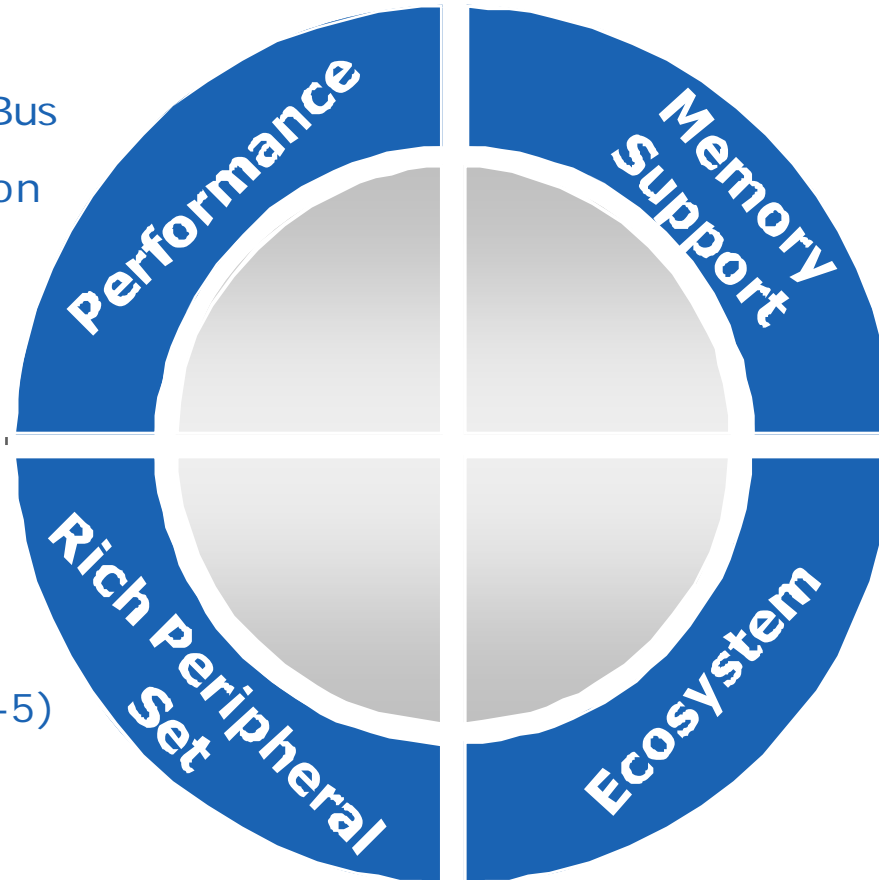
Dual CAN &
Dual Ethernet

Softmodem (SAM9-5)

Power Efficiency
1V Core Supply

Cryptography and
Security

Video Decoder



LPDDR/DDR2

SLC or MLC NAND

Free Linux, Android,
Win CE BSPs

3rd-party Ecosystem

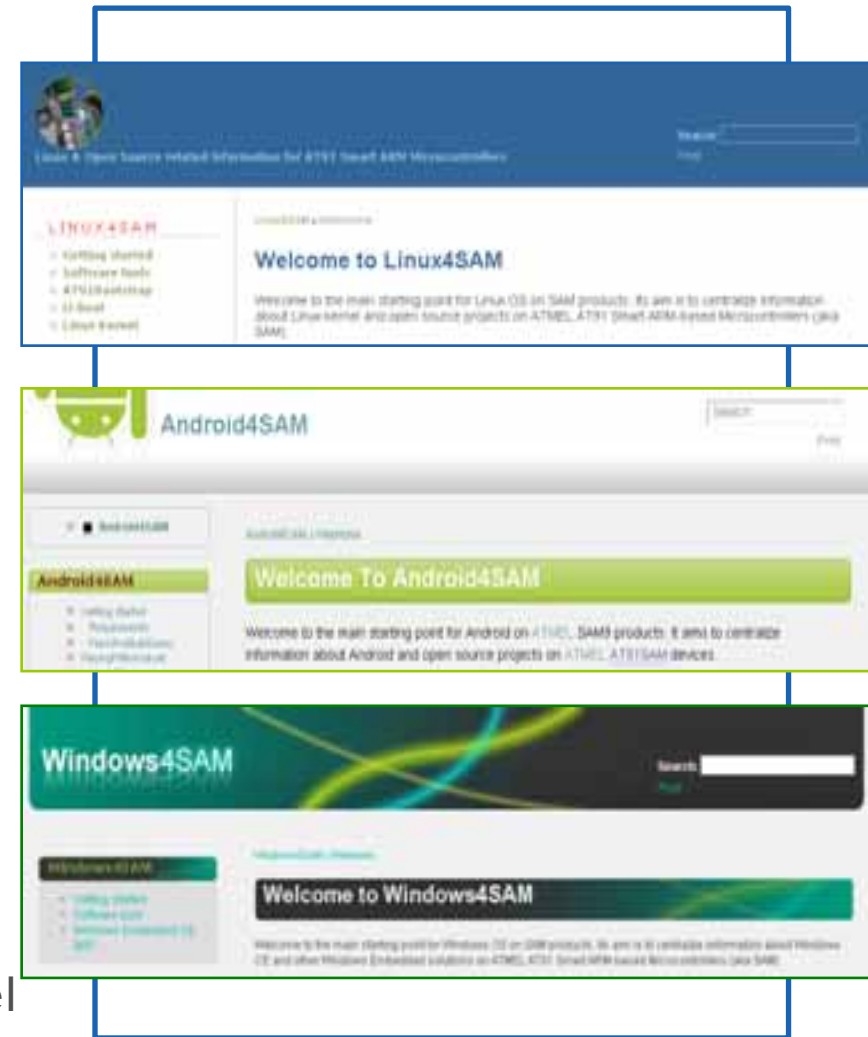
Technical Support &
User Community



Atmel SAM9 - OS Support



- Free Downloads from at91.com
 - Linux4SAM
 - Android4SAM
 - Windows4SAM
- Each Includes:
 - Sources
 - Prebuilt Demos with Installation Scripts
 - Build Instructions
 - Tips & Tricks
- Hotline Support Directly from Atmel



Atmel SAM9 Ecosystem

Modules Suppliers



Kits



OS / RTOS / Middleware



UI Solutions Suppliers



Atmel is an ARM MCU Market Leader



Comprehensive Portfolio and Ecosystem, Future-Proof Roadmap



High-quality and Short-cycle Technical Support



Peripheral Compatibility Over the Whole Product Range Maximizes Software Reuse



High-speed Connectivity, Intelligent User Interface and Multi-media Support



Security System Solutions



Free Linux Distributions, Android Support and Wince BSPs from Atmel



Touch Solution: maXTouch, QTouch



Wireless Solution: ZigBee, Wi-Fi



Tight Partner Tools Integration





Enabling Unlimited Possibilities™