SAM Automotive Series

SAMDA1, SAMV70 and SAMV71 MCUs

Targeting Automotive Capacitive Touch to Infotainment Applications

The SAMDA1 series is an entry-level family of Arm® Cortex®-M0+ based automotive-qualified devices with Local Interconnect Network (LIN) support and the Peripheral Touch Controller (PTC) which offers superior capacitive touch performance for designs including buttons, slider, and wheel applications.

The SAMV70 is a high-performance Arm Cortex-M7 MCU for designs that require MOST® connectivity for MOST25 or MOST50, through the MediaLB® interface. In addition, the dual CAN FD interfaces provide the latest CAN communications standards.

The SAMV71 further extends the capability of the SAMV70 by adding Ethernet with hardware support for IEEE1588 and Ethernet-AVB. Both the SAMV70 and SAMV71 MCUs are ideal for automotive Infotainment applications as well as many other applications that require connectivity and performance.

The SAMDA1 Series

With the Peripheral Touch Controller and LIN Interface, the SAMDA1 is ideal for many in-cabin applications.

Key Applications

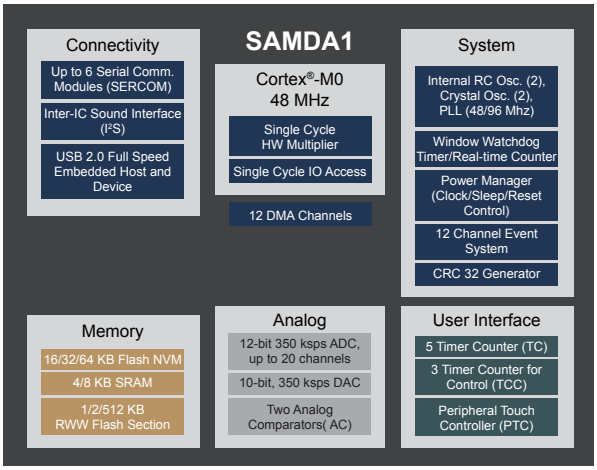
- In-cabin capacitive-touch HMI with or without haptic or acoustic feedback
- LIN attached applications such as door handle sensors or interior mirrors
- Touch interface for center console and interior lighting
- General purpose controller for low end infotainment applications

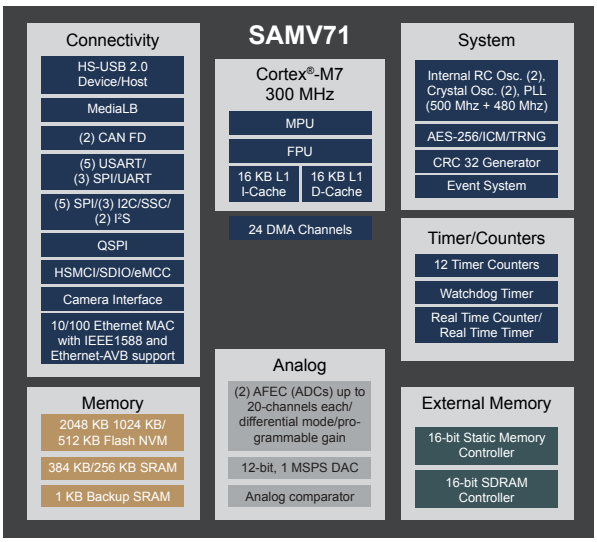
The SAMV7x Series

Both the SAMV70 and SAMV71 are ideal for many automotive applications that require a high performance MCU with connectivity. The SAMV71 is a superset of the SAMV70 and adds Ethernet as well as extends the memory options.

Key Applications

- Automotive infotainment with Ethernet-AVB connectivity
- Smart antennas
- Audio processing
- Active noise cancellation module





MICROCHIP

SAMDA1 Configuration Options

	ATSAMDA1J	ATSAMDA1G	ATSAMDA1E
Pins	64	48	32
General-Purpose I/O Pins (GPIO)	52	38	26
Flash	64/32/16 KB	64/32/16 KB	64/32/16 KB
RWW Flash Section	2 KB/1 KB/512B	2 KB/1 KB/512B	2 KB/1 KB/512B
SRAM	8/4/4 KB	8/4/4 KB	8/4/4 KB
Temperature Grade	–40°C to 105°C AEC-Q100 Grade 2	–40°C to 105°C AEC-Q100 Grade 2	–40°C to 105°C AEC-Q100 Grade 2
Package Options	64-pin TQFP	48-pin TQFP/48-pin QFN	32-pin TQFP/32-pin QFN

SAMV70 Configuration Options

	ATSAMV70Q	ATSAMV70N	ATSAMV70J
Pins	144	100	64
General-Purpose I/O Pins (GPIO)	114	75	44
Flash	1024 KB/512 KB	1024 KB/512 KB	1024 KB/512 KB
SRAM	384 KB/256 KB	384 KB/256 KB	384 KB/256 KB
Ethernet (with IEEE 1588)	–	–	–
Temperature Grade	–40°C to 105°C AEC-Q100 Grade 2	–40°C to 105°C AEC-Q100 Grade 2	–40°C to 105°C AEC-Q100 Grade 2
Package Options	144-pin LQFP/144-pin TFBGA	100-pin LQFP/100-pin TFBGA	64-pin LQFP

SAMV71 Configuration Options

	ATSAMV71Q	ATSAMV71N	ATSAMV71J
Pins	144	100	64
General-Purpose I/O Pins (GPIO)	114	75	44
Flash	2048 KB/1024 KB/512 KB	2048 KB/1024 KB/512 KB	2048 KB/1024 KB/512 KB
SRAM	384 KB/256 KB/256 KB	384 KB/256 KB/256 KB	384 KB/25 6KB/256 KB
Ethernet (with IEEE1588) and Ethernet AVB	Yes	Yes	Yes
Temperature Grade	–40°C to 105°C AEC-Q100 Grade 2	–40°C to 105°C AEC-Q100 Grade 2	–40°C to 105°C AEC-Q100 Grade 2
Package Options	144-pin LQFP/144-pin TFBGA	100-pin LQFP/100-pin TFBGA	64-pin LQFP

Development Tools

Ecosystem

Microchip provides award-winning development tools to move your design from conception to production fast. Our SAM MCUs are supported by Atmel Studio 7 Integrated Development Environment (IDE) for developing and debugging. Atmel START is an innovating online tool for intuitive, graphical configuration of embedded software projects. For more information, please visit www.microchip.com/devtools

Evaluation Kits

The SAMDA1 Xplained Pro Evaluation Kit is ideal for evaluating and prototyping with the SAMDA1 Arm Cortex-M0+ based MCUs. Extension boards to the SAMDA1 Xplained Pro can be purchaed individually.

The SAMV71 Xplained Ultra Evaluation Kit is ideal for evaluating and prototyping with the SAMV71, SAMV70, SAM70 Arm Cortex-M7 based MCUs. Xplained Pro Extension kits compatible with SAMV71 Xplained Ultra can be purchased individually.

Software Stacks

SAMDA1: Third-party LIN software stack by ihr GmbH www.ihr.de/ihr/

SAMV71: Third-party Ethernet-AVB stack by Harman www.services.harman.com/Industries/automotive-connected-car

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