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SPC56 MCU family development tools

Tools for the SPC56 family

Evaluation and development tools to get your system application started with the SPC56 family of 32-bit automotive MCUs

OVERVIEW

The SPC56 family of automotive microcontrollers is supported by a full range of state-of-the-art tools from major third parties:

- Development tool chains and IDE's
- Real time debuggers and emulators
- Drivers and runtime software libraries
- AUTOSAR platforms
- Calibration tools

ST works continuously with our third-party partners to ensure that the latest devices in the SPC56 family are supported by these toolchains. Our aim is to provide customers with efficient toolchains yielding optimum code size and performance, via productivity tools such as emulators with backward simulation from a recorded trace, or quality-assurance tools, such as code-coverage analyzers.

BENEFITS

- Comprehensive set of modular and scalable development solutions
- Broad 3rd-party tool support
- Reduced development time, faster time-to-market
- Full compliance with quality and safety standards

DEVELOPMENT TOOLS

Compilers and IDE

STMicroelectronics collaborates with major third parties to provide state of the art tools for the SPC56xx family in accordance with the latest automotive quality and safety standards (ISO 61508, ISO 26262, MISRA, Automotive Spice).

Debugging and emulation tools

Close cooperation with our partners has resulted in a comprehensive set of scalable solutions for debuggers and emulators, continuously updated to support our latest devices.

Run-time libraries

In order to increase development efficiency, drivers and runtime libraries are available for all devices.

Autosar

A complete AUTOSAR environment is available to support the entire SPC56 family of MCUs. Various AUTOSAR revisions are supported on specific part numbers.

RTOS

A full range of operating systems compliant with OSEK and AUTOSAR standards is available through our third-party network.

SUMMARY OF TOOLS AND PROVIDERS

SPC56 product lines	IDE and compilers	Debuggers and emulators
SPC563M line **SPC564A line** **SPC560P line** **SPC560B/C/D line** **SPC56EL line**	Green Hills www.ghs.com Wind River www.windriver.com Cosmic Compiler www.cosmic-software.com High-Tec GNU Compiler www.hightec-rt.com Byte Craft www.bytecraft.com Ash Ware www.ashware.com	Lauterbach www.lauterbach.com PLS www.pls-mc.com iSystem www.isystem.com RLink www.raisonance.com P&E Micro www.pemicro.com

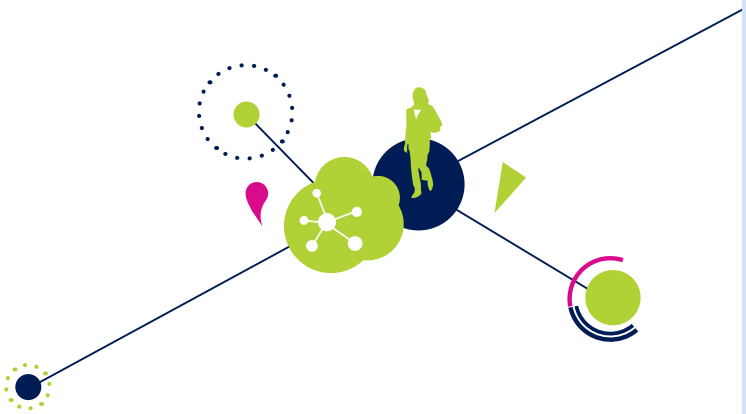
SPC56 FAMILY STARTER KITS

The SPC56xx-SK provides a complete entry level solution enabling quick evaluation of the SPC56 family of automotive microcontrollers. The system is based on an interchangeable microcontroller daughter board and integrates a JTAG interface for making easier, starting from a single evaluation platform, the evaluation and the development of applications for the complete range of microcontrollers.

Part number	Description	Devices
SPC560B50-DB	Bolero daughter board for REVA Kit.	SPC560B50L5
SPC560B50SK	Raisonance Starter Kit for Bolero 512K with integrated Rlink. Includes RFlasher and Ride software (limited to 64K).	SPC560B50L5
SPC560P50-DB	Pictus daughter board for REVA Kit.	SPC560P50L5
SPC560P50SK	Raisonance Starter Kit for Pictus 512K with integrated Rlink. Includes RFlasher and Ride software (debug limited to 64K).	SPC560P50L5
SPC563M64-DB	Monaco daughter board for REVA Kit.	SPC563M64L5
SPC563M64SK	Raisonance Starter Kit for Monaco 1M5 with integrated Rlink. Includes RFlasher and Ride software (debug limited to 64K).	SPC563M64L5

SPC56 FAMILY EVALUATION KITS

The SPC56xxKIT is a full evaluation system supporting SPC56 family microcontrollers. The complete system consists of a motherboard and a mini-module which plugs onto the motherboard. Different mini-modules are available for evaluating powertrain, body, chassis and safety applications with different target devices of the family. The evaluation system allows full access to the CPU, all of the CPU's I/O signals and motherboard's peripherals such as CAN, SCI, LIN, Flex-Ray and Ethernet.



KEY FEATURES

- Power switch with LED indicators
- 12 V DC power supply input barrel connector and onboard L9758 regulator with three different power voltages: 5 V, 3.3 V and 1.2 V
- Configurable onboard peripherals to operate at 5 V or 3.3 V
- Two CAN channels: one with high-speed transceiver and DB9 connector, one with low-speedfault-tolerant and high-speed transceiver (selectable with jumpers) and DB9 connector
- Two LIN channels: one with transceiver and pin header connector populated, one with footprints only
- One SCI channel with transceiver with DB9 connector
- Two Flex-Ray channels: one with transceiver and DB9 male connector, one with footprint only
- Four user push buttons with polarity selection, four user LED's, potentiometer for analog voltage input, pin array for accessing all I/O signals
- Expansion connectors for accessing all I/O signals

EVALUATION KITS FOR POWERTRAIN MICROCONTROLLERS

Part number	Description	Supported devices
SPC56XXMB	Motherboard for all SPC56 family products, includes: universal power supply, USB cable, documentation CD, Rlink flasher HW-SW (demo).	All
SPC563MADPT144S	Socketed mini module for SPC563M in QFP144 package. Requires SPC56XXMB.	SPC563M60L5 SPC563M64L5
SPC563MADPT176S	Socketed mini module for SPC563M and SPC564A in QFP176 package. Requires SPC56XXMB.	SPC563M60L7 SPC563M64L7 SPC564A70L7 SPC564A74L7 SPC564A80L7
SPC564AADPT324S	Socketed mini module for SPC564A in BGA324 package. Requires SPC56XXMB.	SPC564A74B4 SPC564A80B4

EVALUATION KITS FOR SAFETY AND CHASSIS MICROCONTROLLERS

Part number	Description	Supported devices
SPC56XXMB	Motherboard for all SPC56xx products, includes: universal power supply, USB cable, documentation CD, Rlink flasher HW-SW (demo).	All
SPC560PADPT64S	Socketed mini module for SPC560P in QFP64 package. Requires SPC56XXMB.	SPC560P34L1 SPC560P40L1
SPC560PADPT100S	Socketed mini module for SPC560P in QFP100 package. Requires SPC56XXMB.	SPC560P40L3 SPC560P44L3 SPC560P50L3 SPC56AP60L3
SPC560PADPT144S	Socketed mini module for SPC560P in QFP144 package. Requires SPC56XXMB.	SPC560P50L5 SPC560P54L5 SPC56AP60L5
SPC56ELADPT100S	Socketed mini module for SPC56EL in LQFP100 package. Requires SPC56XXMB.	SPC56EL60L3
SPC56ELADPT144S	Socketed mini module for SPC56EL in LQFP144 package. Requires SPC56XXMB.	SPC56EL60L5

EVALUATION KITS FOR CAR BODY MICROCONTROLLERS

Part number	Description	Supported devices
SPC56XXMB	Motherboard for all SPC56 family products, includes: universal power supply, USB cable, documentation CD, Rlink flasher HW-SW (demo).	All
SPC560BADPT64S	Socketed mini module for SPC560D in QFP64 package. Requires SPC56XXMB.	SPC560D40L1
SPC560B64A100S	Socketed mini module for SPC560B/C in QFP100 package. Requires SPC56XXMB.	SPC560B40L3 SPC560B50L3 SPC560B54L3 SPC560B60L3 SPC560C40L3 SPC560C50L3
SPC560BADPT144S	Socketed mini module for SPC560B in QFP144 package. Requires SPC56XXMB.	SPC560B40L5 SPC560B50L5
SPC560BADPT176S	Socketed mini module for SPC560B in QFP176 package. Requires SPC56XXMB.	SPC560B64L7

SPC56 FAMILY EMULATION AND CALIBRATION ADAPTERS

ST offers emulation and calibration systems designed to work with enhanced automotive calibration and debug tools, for all packages of SPC56 automotive MCU family.

There are two available emulation/calibration solutions, both of which can be directly attached to the application (in lieu of the SPC56 device itself) using Poly-Pod connectors matching the device package footprint. By using one of these solutions connected to their application, customers can access additional or improved features such as data measurement, parameter calibration, memory management and full-speed execution traces.

The first solution are standalone calibration adapter boards (such as the SPC56xxCALx adapter) which provide both emulation and calibration functions all in a single board. The calibration adapter embeds up to 2 Mbytes of onboard SRAM and a Nexus port to support calibration operations.

The second solution is the VertiCal hardware system, with a standardized tool connector that allows a variety of calibration and debug hardware to be connected as required. A VertiCal base board can be plugged directly onto the application using a Poly-Pod, and complemented with a RAM/Debug Top Board for calibration and debugging tasks.

CALIBRATION ADAPTER KEY FEATURES

- Power switch with LED indicators
- Onboard 3.3 V voltage regulator
- Monaco or Andorra in CSP496 package
- Up to 2 MB of onboard 16-/32-bit SRAM, depending on target device
- Calibration bus with latch between CPU and RAM
- Mictor and ERNI debug connectors
- High-speed CAN transceiver L9616

CALIBRATION ADAPTERS

Part number	Description	Supported devices
SPC563M64CAL144	Calibration System for SPC563M64 in QFP144 target package.	SPC563M64L5
SPC563M64CAL176	Calibration System for SPC563M64 in QFP176 target package.	SPC563M64L7
SPC564A70CAL176	Calibration system for SPC564A70 in QFP176 target package.	SPC564A70L7
SPC564A80CAL176	Calibration system for target SPC564A80 in QFP176 package.	SPC564A80L7

VertiCal MODULES

Part number	Description	Devices
SPC563M64AVB144	Vertical base board for target SPC563M64 in QFP144 package	SPC563M64L5
SPC563M64AVB176	Vertical base board for target SPC563M64 in QFP176 package	SPC563M64L7
SPC564A80AVB176	Vertical base board for SPC564A80 in QFP176 target package	SPC564A80L7
SPC564A80AVB324	Vertical base board for SPC564A80 in BGA324 target package	SPC564A80B4
SPC564A70AVB176	Full Vertical kit for SPC564A80 in QFP176 target package. Includes poly-pod and RAM Top Board.	SPC564A80L7
SPC564A70AVB324	Full Vertical kit for SPC564A80 in BGA324 target package.Includes poly-pod and RAM Top Board.	SPC564A80B4
SPC56XVTOP-A	RAM/Debug Top Board for SPC564A VertiCal base boards	SPC564Axx
SPC56XVTOP-M	RAM/Debug Top Board for SPC563M VertiCal base boards	SPC563Mxx

ACCESSORIES

Part number	Description	Supported devices
POLYPOD-TQ144	Poly-Pod for QFP144 targets	All
POLYPOD-TQ176	Poly-Pod for QFP176 targets	All
POLYPOD-BG324	Poly-Pod for BGA324 targets	All

SOFTWARE TOOLS FOR THE SPC56 FAMILY

There are a range of software tools for developing AUTOSAR solutions with the SPC56 family. Full information on these software tools can be found in a companion document: SPC56 MCU family software components for AUTOSAR-enabled systems, available on www.st.com/automotive

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