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SPC56
32-bit Power Architecture® MCUs

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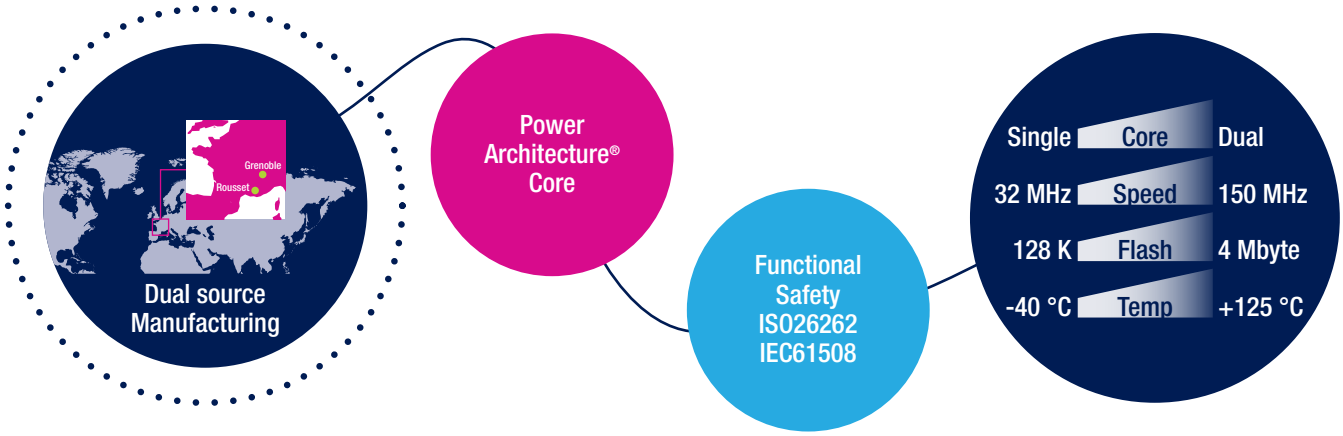
Introduction



32-bit Power Architecture® MCUs for Automotive

The SPC56 family, built on the renowned Power Architecture®, provides a wide range of cores, peripherals, memory and package options offering a large variety of automotive and safety oriented solutions. STMicroelectronics SPC56 B, C, D, P, L, M, and A lines are the 7 pillars of SPC56 Automotive Grade family. State-of-the-art technology, with unmatched modularity and compatibility combined with high performance cores and tailor-made peripherals, makes this family the perfect platform solution, to optimize system cost and performance.
From product specification, through design and manufacturing, the focus is on reliability, application robustness and safety.

THE "AUTOMOTIVE" ADVANTAGE

- Up to 125°C full performance
- Product longevity
- Outstanding Product Quality
- High-low temperature performance guaranteed

TRUE DUAL SOURCE

- Designed on standard automotive power architecture
- ST proprietary in-house dual front and backend manufacturing capability

PERFORMANCE SCALABILITY

- Single – Dual Core
- Power Architecture e200z0 to z4 cores
- 32-150 MHz core speed
- 128 kB - 4 MB Flash

DESIGNED FOR SAFE APPLICATION

- Memory with ECC
- ISO 26262 for ASIL-D safety
- Dual Core with both Lock Step (LSM) and Decoupled Parallel (DPM) modes

SECURITY

CSE: Cryptography Engine

MARKET STANDARD POWER ARCHITECTURE

- High performance peripherals
- Up to 12 bit ADC
- True 3.3-5 V Inputs/Outputs
- CAN, LIN, FlexRay, Ethernet

LOW COST OF OWNERSHIP

- Emulation/debugging using IEEE standard
- Free development environment and code generator
- Low cost compiler and debugger

Addressing a wide requirement range from low performance, low power to high end multicore, fitting automotive applications and beyond

D-Line

- Base element of the family to address automotive applications that are migrating from an 8-bit to 32-bit solution
- Combines small package and memory footprints with features such as 12-bit ADCs
- Based on e200z0 core up to 48 MHz offers flash size from 128 kB up to 256 kB

B-Line

- Dedicated to the specific needs of body and convenience applications
- Offers excellent interfacing and a solution for real-time car lights, generic load diagnostics and low-power standby mode with fast wake-up capability
- Ranging from e200z0h to e200z4d core, from 256 kB to 3 MB flash offering optional Cryptography Services Engine

C-Line

- Dedicated to the specific needs of gateway applications that require connections to multiple in-vehicle networks supporting various protocols from LIN, SPI, UART, CAN to FlexRay and Ethernet
- Ranging from single core to dual core, from 256 kB to 3 MB flash offering optional Cryptography Services Engine

P-Line

- Flexible cost-competitive solution to cover a wide range of motor control and safety oriented applications
- Key functions including an advanced timer with programmable cross triggering unit for easy development of real-time, sensor-less field-oriented control solutions and airbag applications
- Ranging from e200z0h single core to dual core, from 192 kB to 1 MB flash

L-Line

- Designed to cover a wide range of automotive applications that must meet ISO 26262 up to the most stringent ASIL-D level with a single MCU
- Key safety features include lock-step mode, crossbar, eDMA, MPU, temperature sensors, centralized fault collection and control unit, built-in logic and memory self-test, CRC unit, ECC protected memories, voltages and clock-failure detection
- Ranging from single to dual e200z4d core up to 120 MHz, from 768 kB to 2 MB flash

M-Line

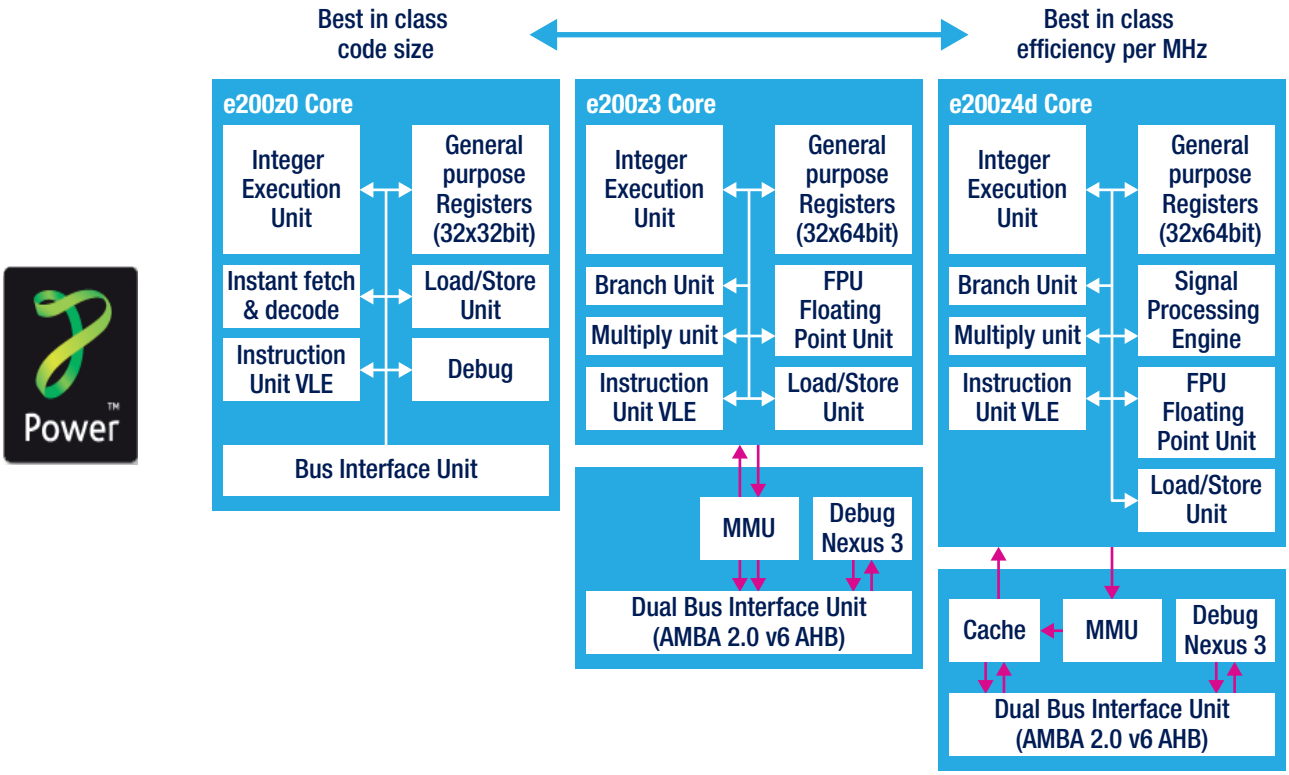
- Entry level for engine propulsion control and automotive transmission control applications
- High performance time processing unit eTPU with DSP capability
- based on e200z3 core @80 MHz offers flash size from 1 MB up to 1.5 MB

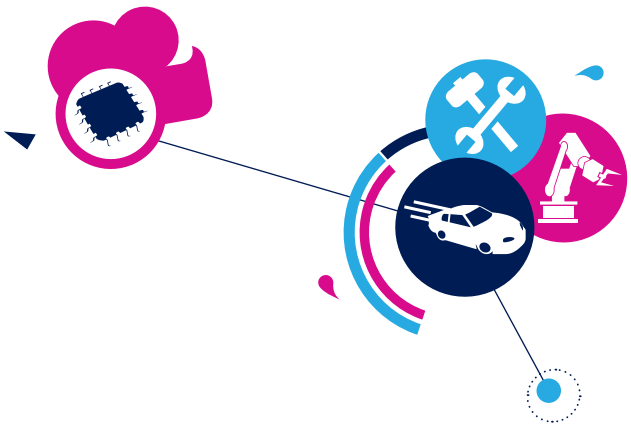
A-Line

- Dedicated to the specific needs of propulsion control and transmission control applications
- Offering high performance time processing unit eTPU with DSP capability
- Based on e200z4d core @150 MHz offers flash size from 2 MB up to 4 MB

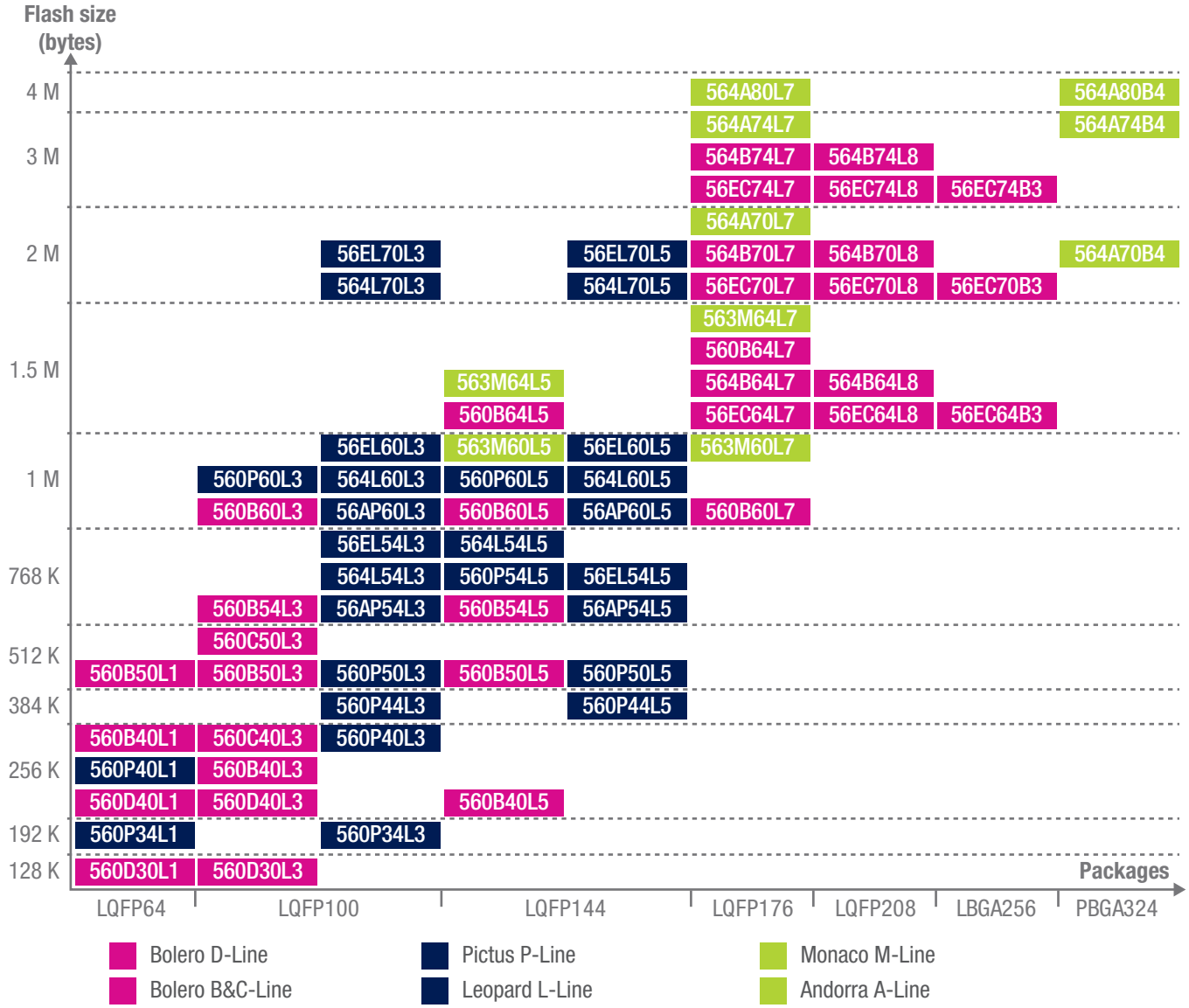
SPC56 POWER ARCHITECTURE CORES OFFER

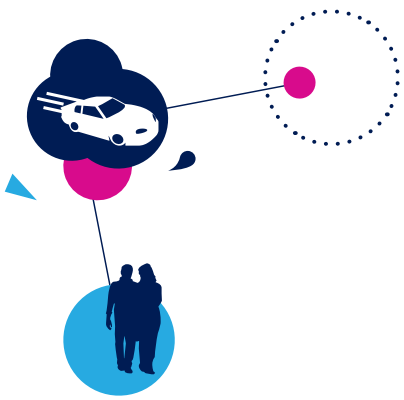
Core	e200zo	e200z3	e200z4d
Pipeline	4	4	5
Issue (instructions/cycle)	Single	Single	Dual
MMU	-	8 pages	16 pages
CPU cache	-	-	Instructions + Data
CPU MHz range	32 to 80 MHz	80 MHz	Up to150 MHz



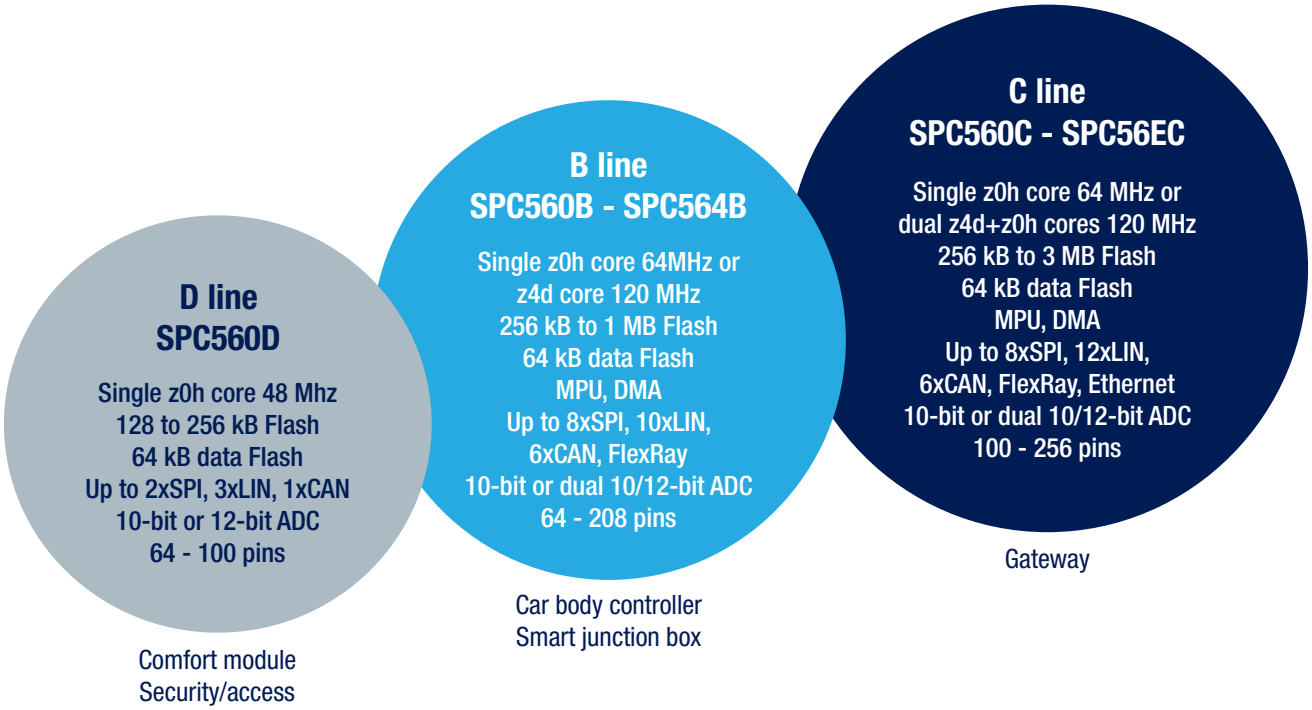


SPC56 – THE LEADING PORTFOLIO





SPC56 B-, C-, D-line



SPC56 B-line (Bolero), SPC56 C-line (Gateway), SPC56 D-line (Body Access)

STMicroelectronics SPC56 B, C and D lines belong to the SPC56 family of 32-bit Flash Automotive MCUs dedicated to the specific needs of car body and convenience applications, with enhanced power management features.
It's unique architecture's modularity and scalability provides compatible devices covering the wide spectrum of car body applications with tailored peripherals, optimum cost and performance trade-offs.

SPC56 B-C-D KEY FEATURES

- e200z0/e200z4d core up to 120 MHz
- Single or dual core
- 128 kbytes to 3 Mbyte Flash
- 12 kbytes to 256 kbytes SRAM
- 10-bit or 12bit ADC
- Best performance & cost trade-off
- Ethernet and cryptography engine (SPC564B/EC)
- Optimized Load control & power management
- Optimized for Body applications

APPLICATIONS

- Body control module
- Smart junction box
- Comfort module
- Gateway
- Security / access
- Door module
- Seat module with sensor-less positioning

KEY BENEFITS

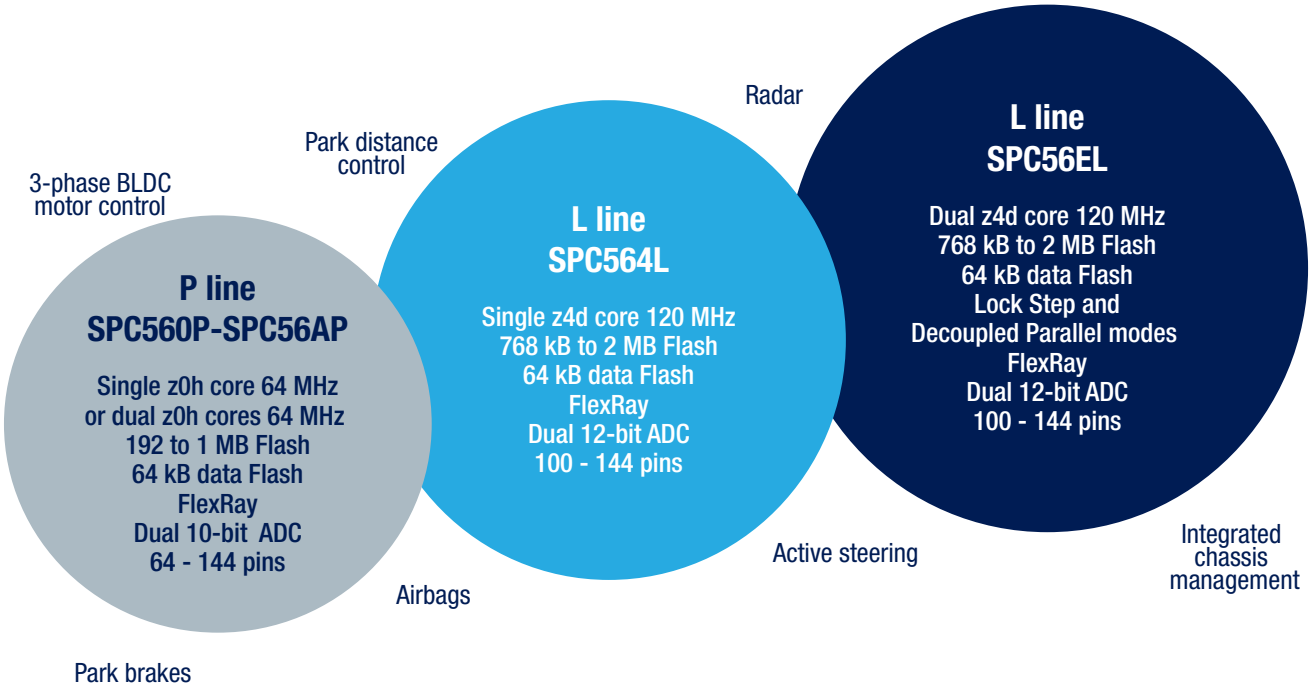
Lighting Module Support

The family features a module dedicated to the control of car lighting, providing real-time diagnostic capability for 100% of the loads. It extends the capability of existing systems since each channel can be configured on the fly for incandescent lamps and LEDs through software.

Power Management

A sophisticated low-power management allows a quantum leap in power saving, avoiding the use of a secondary microcontroller. The low-power and wake-up concepts support LIN and CAN communication from standby mode. STOP mode supports Pretended Networking, with consumption below 4 mA.

SPC56 P-, L-line



SPC56 P-line (Pictus), SPC56 L-line (Leopard)

STMicroelectronics SPC56 P and L lines belong to the SPC56 family of 32-bit Flash Automotive MCUs dedicated to the specific needs of chassis and safety applications, with specific focus on functional safety and advanced three-phase motor control. The Chassis and Safety family provides single and dual core solutions covering a wide range of embedded flash sizes.

SPC56 P KEY FEATURES

- e200z0 core up to 64 MHz
- Single or dual core
- 192 kbytes to 1 Mbyte Flash
- 12 to 80 kbytes SRAM
- 10-bit ADC
- Best code density & cost
- Optimized peripherals for Motor control & Airbag systems
- Cost Effective Safety Appl.

SPC56 L KEY FEATURES

- e200z4d up to 120 MHz
- Single or dual core
- 768 kbytes to 2 Mbyte Flash
- 128 to 192 kbytes SRAM
- 12-bit ADC
- DSP & Floating Point Unit
- Safety ASILD/SIL level 3 apps
- Optimized peripherals for motor control
- Optimized for Chassis & Safety

APPLICATIONS

- Airbags
- Electric power steering
- Safety domain controller
- Braking
- Active suspension
- Driver assistance
- Advanced motor control

KEY BENEFITS

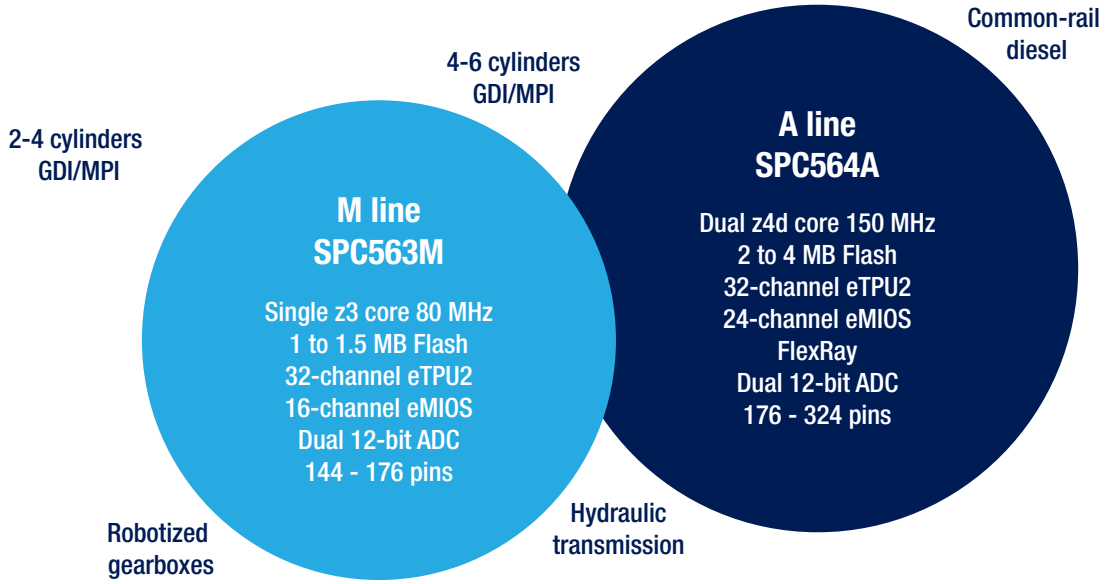
SPC56 P

The SPC56 P-line is offering low cost functional safety addressing ASIL-B requirements and in variants providing optimized peripherals for electric motor control & airbag systems.

SPC56 L

The SPC56 L-line is an enhanced development with increased safety implementation such as dual core architecture working both in Lock Step and Decoupled Parallel modes addressing the requirements of ISO 26262. Its safety concept, based on hardware implementation, offers a certified ASIL-D turnkey solution easily extensible to SIL3 compliance.

SPC56 M-, A-line



SPC56 M-line (Monaco), SPC56 A-line (Andorra)

STMicroelectronics SPC56 M and A lines belong to the SPC56 family of 32-bit Flash Automotive MCUs dedicated to the specific needs of mid-range propulsion control and automotive transmission control applications offering an enhanced high performance time processing unit (eTPU).

SPC56 M KEY FEATURES

- e200z3 core up to 80 MHz
- Single core
- 1 Mbyte to 1.5 Mbyte Flash
- 64 to 94 kbytes SRAM
- 12-bit ADC
- DSP & floating point unit
- High performance time processing unit (eTPU)

SPC56 A KEY FEATURES

- e200z4 core up to 150 MHz
- Single core
- 2 Mbyte to 4 Mbyte Flash
- 128 to 192 kbytes SRAM
- 12-bit ADC
- DSP & floating point unit
- High performance time processing unit (eTPU)

APPLICATIONS

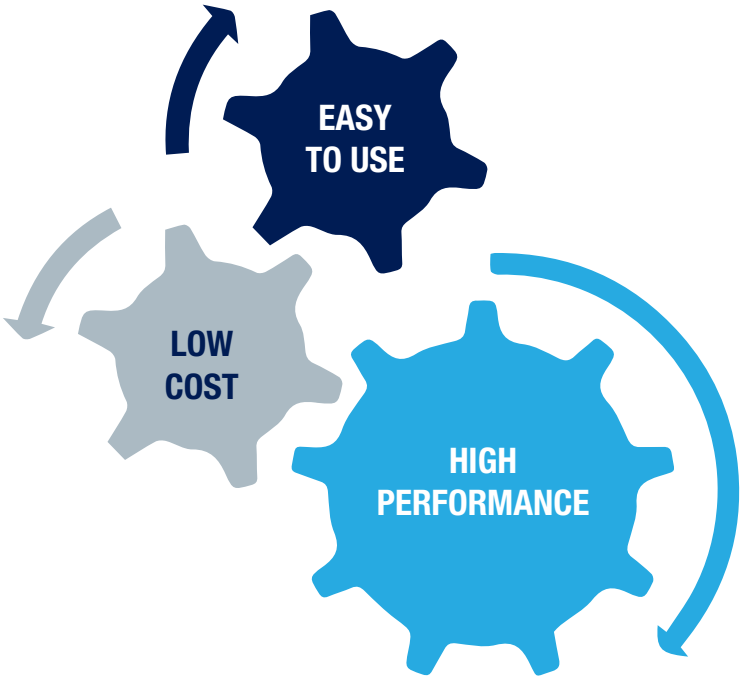
- 2/4-cylinder engines
- Common-rail diesel engines
- Low end 6-cylinder engines
- High-end 4-cylinder gasoline direct-injection (GDI)
- Robotized transmission
- Hydraulic transmission
- Suspension

KEY BENEFITS

eTPU2

The eTPU2 is an enhanced co-processor designed for timing control. Operating in parallel with the host CPU, the eTPU2 processes instructions and real-time input events, performs output waveform generation and accesses shared data without host intervention.
Consequently, for each timer event, the host CPU setup and service times are minimized or eliminated. A powerful timer subsystem is formed by combining the eTPU2 with its own instruction and data RAM.
ST's high-level assembler/compiler library allows customers to develop their own functions on the eTPU2.

Development tools



A new getting started package

ST provides an open and flexible design environment offering a code development solution that can be used either with embedded ST low cost GCC Compiler and Debugger or with any other market solution.
Users can easily adopt ST's and third parties solutions stand alone or integrate their preferred tools choice into the ST tool framework.

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

DEBUGGER

The SPC5-UDESTK is a low cost, JTAG/USB Debugger and flasher developed by PLS for the ST tool chain. It is composed by the SPC-UDESTK JTAG/USB adapter and by the Universal Debug Engine (UDE) software.

UDE perpetual, full feature but code size limited (128kbyte) evaluation license is available for free download; an unlimited code size license is available at www.st.com (eSTore) or at any ST franchised distributor.

Order code:

- SPC5-UDESTK-EVAL (USB/JTAG Adapter with 128kB license)
- SPC5-UDESTK-FULL (USB/JTAG Adpater with one year unlimited license)
- SPC5-UDEDBG-TL (one yaer unlimited UDE license)

Other third party debugger solutions are available from: Lauterbach, PLS Development Tools, iSystem, Keolabs/Raisonance, P&E Microcomputer Systems.

DISCOVERY KITS

SPC56 Discovery is the most effective solution to evaluate SPC56 MCUs.

Discovery systems are available according to device complexity.

Discovery

Comes with a PLS USB-JTAG integrated interface.
It is the easiest and most convenient solution to explore SPC56 MCUs.
All I/O are accessible through 0.1" pin array connector, JTAG connector available as well.

SPC56D-Discovery with SPC560D40L1
order code: SPC560D-DIS

SPC56B-Discovery with SPC560B54L5
order code: SPC560B-DIS

Discovery+

Comes with more connectivity options on board (CAN, LIN, K-LIN,UART), 12 V external power supply to get started in a connected environment (external USB/JTAG adapter may be required).
All I/O are accessible through 0.1" standardized pin array connector, JTAG connector available, main communication interfaces directly accessible through dedicated connectors with transceiver on board.

Discovery Kit for the P Line with SPC560P50L5.
order code: SPC564P-DISP

Discovery Kit for the L Line with SPC56EL70L5.
order code: SPC56EL70L5DISP

Discovery Kit for the A Line with SPC564A70L7.
order code: SPC564A-DISP

Discovery Kit for the M Line with SPC563M64L7.
order code: SPC563M-DISP

PREMIUM EVALUATION BOARD

The complete system consists of a motherboard plus a device specific mini-module and it allows full access to the CPU, all CPU's I/O signals and motherboard's peripherals such as CAN, SCI, LIN, Flex-Ray and Ethernet.
Different mini-modules are available covering the full SPC56 product lines.

SPC56 Mother Board with mini-module
Order code: see Board Summary table

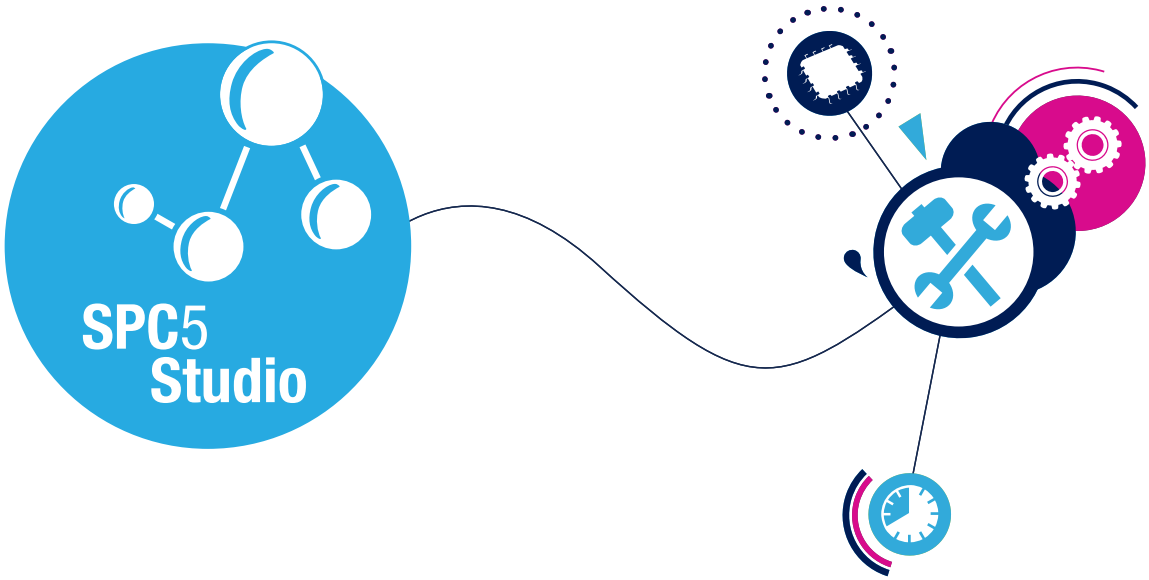
Note: Discovery Kits and Premium Evaluation Boards are supported by specific SPC5 Studio Components to immediately start customizing your project.

SPC5-CONNECT

The SPC5-Connect is a programmable USB interface designed to connect a PC to development/application hardware via communication buses such as CAN, UART, K-Line and SPI for monitoring and controlling; it provides also flash programming capability (SPC5-FLASHER).

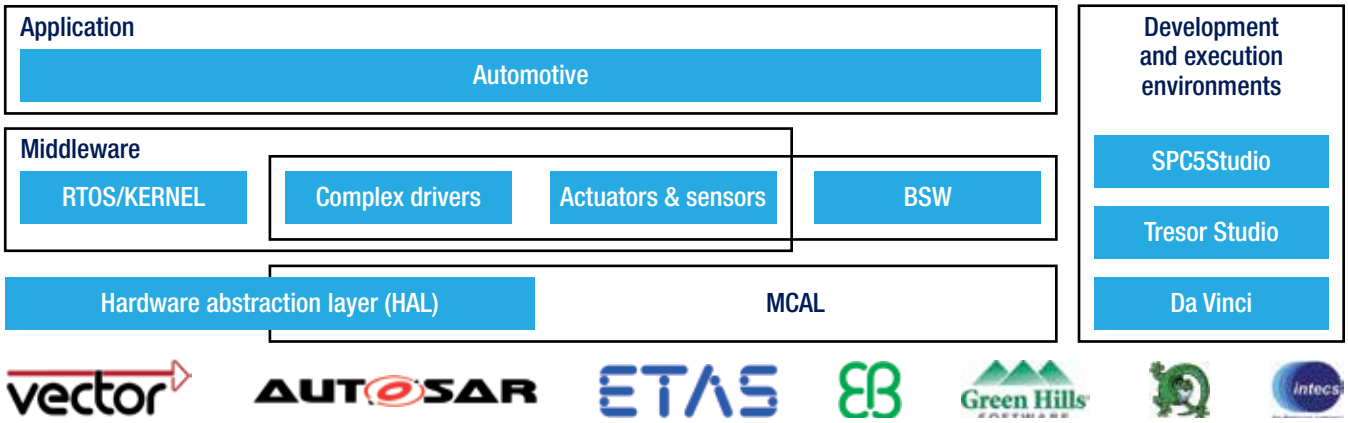
The SPC5-Connect, based on the 32bit SPC563M64 microcontroller, offers also access to the integrated microcontroller features like I/O signals, analog channels, external interrupt inputs and communication buses through a programming scripts software (SPC5-CONMANAGER).

SPC5Studio



SPC5Studio provides a comprehensive framework to quickly and easily design, build and deploy Embedded Applications for SPC56 Power Architecture 32-bit Microcontrollers combining a project editor, a sophisticated code generator, a dedicated HighTec GNU «C» compiler, a PLS starter kit debugger and several software elements such as code examples, low level drivers and libraries.
Pin Map wizard allows the visual configuration of I/O alternate functions, performs an automatic conflict checker and automatic generation of initialization code. Configuration summary is provided as well in xls format for customer application's PCB consistency check.
Application wizard provides a better-than-ever user experience in getting started to develop your own application with SPC56 MCU's; it leverages on ST's Automotive discovery kits, application boards, and all the related SW elements to combine SW and HW functionalities with a few steps, without reading manuals or writing a single line of code.
The SPC5Studio generated code is optimized due to the use of modern open source code generation techniques and can be used as a reference functional implementation; the generated code can be easily modified to the user's needs.
Documentation wizard offers on line help and component documentation access.
SPC5Studio is engineered into an Eclipse open source framework giving the user the possibility to add functions by developing their own plugins.
Project import / export functionality allows easy integration with other tools.
SPC5studio is available for free and can be downloaded at www.st.com.

Software solutions



Comprehensive portfolio granting embedded solutions at all levels

AVAILABLE EMBEEDED INTO SPC5Studio

Hardware abstraction layer (HAL)

This layer is the first one to interact with the MCU hardware. ST offers, embedded into SPC5Studio, consistent programming interface across product lines:

- Unique set of Application programming Interfaces (API) to abstract hardware dependent functionalities
- Compatible across the families

All key peripherals are supported

- General Purpose timer, ADC,ICU/PWM, RTC, SPI, Timers, CAN, Serial Interface, Buffered UART, I^2C, Flash, EEPROM, External Interrupt

SPC56 Discovery software examples

Executable examples help to get started quickly with SPC56 Discoveries and microcontrollers. Every example, available into SPC5Studio, includes source files, the related binary and .elf files to program, modify and debug with any environment/tool. They include SPC5Studio project files to easily import, open and modify those using SPC5Studio configurator wizards.

AVAILABLE FOR DOWNLOAD ON ST WEB SITE

Software libraries

- Flash Drivers:
  - Highly portable flash drivers for run-time / off-line device programming
- Communication Protocols
  - Main automotive protocols are supported directly by ST or in collaboration with Vector Informatik GmbH. In particular ST offers solutions for LIN and MSC (Micro-second-bus) protocol while Vector supports CAN, LIN and J1939 protocols for all SPC56 product lines
- Cryptography Software Library
  - Cryptography library can run on the whole SPC5 microcontroller family. It provides a software algorithms and examples for symmetric and asymmetric Encryption/Decryption, message authentication and Random Number Generation.
  - SPC564B/EC versions include a cryptographic engine for which ST offers, for easy integration and use, a CSE hardware functionalities abstraction view and a software library extensions to extend hardware capability. It is delivered as SPC5Studio plug-in

RTOS/kernel

RTOS is the root component to share time between several tasks on a single core. It ensures task switch within a known and limited duration. Several solutions for the SPC56 are available, both Open Source or Commercial, including ChibiOS, Intecs, ETAS, Vector and Green Hills products.

AVAILABLE UNDER LICENSE (CONTACT ST SALES OFFICE FOR DETAILS):

Safety Oriented Libraries

ST offers solutions to increase the system functional safety level and integrity of the microcontroller:

- Core Self-Test: Fault graded Core Self-Test library for SPC56 featuring e200z0h or e200z4h cores
- Instruction Self-Test: Instruction Self-Test library to validate the correct execution of all instruction (VLE, BookE, SPE) ensuring the full functionality of the core for SPC56 products featuring e200z0h or e200z4

AUTOSAR

Software components for AUTOSAR enabled systems

Automotive Open System Architecture (AUTOSAR) is a worldwide development partnership of car manufacturers, suppliers and other companies from the electronics, semiconductor and software industries to facilitate the exchange and update of software and hardware over the service life of the vehicle. STMicroelectronics is an AUTOSAR Premium Partner, and committed to support the development of standardized software infrastructure for automotive applications.

ST's MCAL Suite, based on proprietary HAL drivers, is an optimized and comprehensive set of AUTOSAR-compliant drivers featuring top performance with lowest memory footprints. The suite is developed and validated in accordance with CMMI and AUTOSPICE level 3 framework to guarantee high quality standard and is complemented by Complex Device Drivers and libraries, to support SPC56 standard / non-standard microcontroller peripherals.

The MCAL Suite and full AUTOSAR solutions are available with multiple licensing options (evaluation, development and production licenses / project, product and company licenses) to fulfil challenging technical and cost targets.

Note: Details on ST Software offer, including detailed availability matrix, are available on www.st.com.

DEVICE SUMMARY

	Part Number	Core	CPU Clock Frequency max (MHz)	Package	FLASH Size (Prog)	FLASH Size (Data)	Internal RAM Size	Serial Interface						Timed I/Os	A/D Channels	A/D Resolution	Cryptography
								SPI	LIN	CAN	I²C	FlexRay	Ethernet				
D-Line	SPC560D30L1	e200z0	48	LQFP 64	128	64	12	2	3	1	-	-	-	14ch eMIOS (16-bit)	16	1x12-bit	-
	SPC560D30L3	e200z0	48	LQFP 100	128	64	12	2	3	1	-	-	-	28ch eMIOS (16-bit)	33	1x12-bit	
	SPC560D40L1	e200z0	48	LQFP 64	256	64	16	2	3	1	-	-	-	14ch eMIOS (16-bit)	16	1x12-bit	-
	SPC560D40L3	e200z0	48	LQFP 100	256	64	16	2	3	1		-		28ch eMIOS (16-bit)	33	1x12-bit	-
C-Line	SPC560C40L1	e200z0	64	LQFP 64	256	64	32	2	4	5	1	-	-	12ch eMIOS (16-bit)	8	1x10-bit	-
	SPC560C40L3	e200z0	64	LQFP 100	256	64	32	3	4	6	1	-	-	28ch eMIOS (16-bit)	28	1x10-bit	-
	SPC560C50L1	e200z0	64	LQFP 64	512	64	48	2	4	5	1	-	-	12ch eMIOS (16-bit)	8	1x10-bit	-
	SPC560C50L3	e200z0	64	LQFP 100	512	64	48	3	4	6	1	-	-	28ch eMIOS (16-bit)	28	1x10-bit	-
	SPC56EC64B3	e200z4d/ e200z0	120	LBGA 256	1536	64	192	8	10	6	1	1	1	64ch eMIOS (16-bit)	62	1x10-bit; 1x12-bit	CSE;SHE
	SPC56EC64L7	e200z4d/ e200z0	120	LQFP 176	1536	64	192	8	10	6	1	1	1	64ch eMIOS (16-bit)	51	1x10-bit; 1x12-bit	CSE;SHE
	SPC56EC64L8	e200z4d/ e200z0	120	LQFP 208	1536	64	192	8	10	6	1	1	1	64ch eMIOS (16-bit)	62	1x10-bit; 1x12-bit	CSE;SHE
	SPC56EC70B3	e200z4d/ e200z0	120	LBGA 256	2048	64	256	8	10	6	1	1	1	64ch eMIOS (16-bit)	62	1x10-bit; 1x12-bit	CSE;SHE
	SPC56EC70L7	e200z4d/ e200z0	120	LQFP 176	2048	64	256	8	10	6	1	1	1	64ch eMIOS (16-bit)	51	1x10-bit; 1x12-bit	CSE;SHE
	SPC56EC70L8	e200z4d/ e200z0	120	LQFP 208	2048	64	256	8	10	6	1	1	1	64ch eMIOS (16-bit)	62	1x10-bit; 1x12-bit	CSE;SHE
	SPC56EC74B3	e200z4d/ e200z0	120	LBGA 256	3072	64	256	8	10	6	1	1	1	64ch eMIOS (16-bit)	62	1x10-bit; 1x12-bit	CSE;SHE
	SPC56EC74L7	e200z4d/ e200z0	120	LQFP 176	3072	64	256	8	10	6	1	1	1	64ch eMIOS (16-bit)	51	1x10-bit; 1x12-bit	CSE;SHE
	SPC56EC74L8	e200z4d/ e200z0	120	LQFP 208	3072	64	256	8	10	6	1	1	1	64ch eMIOS (16-bit)	62	1x10-bit; 1x12-bit	CSE;SHE
B-Line	SPC560B40L1	e200z0	64	LQFP 64	256	64	24	2	3	2	1	-	-	12ch eMIOS (16-bit)	12	1x10-bit	-
	SPC560B40L3	e200z0	64	LQFP 100	256	64	24	3	3	2	1	-	-	28ch eMIOS (16-bit)	28	1x10-bit	-
	SPC560B40L5	e200z0	64	LQFP 144	256	64	24	3	3	2	1	-	-	56ch eMIOS (16-bit)	36	1x10-bit	-
	SPC560B50L1	e200z0	64	LQFP 64	512	64	32	2	4	3	1	-	-	12ch eMIOS (16-bit)	12	1x10-bit	-
	SPC560B50L3	e200z0	64	LQFP 100	512	64	32	3	4	3	1	-	-	28ch eMIOS (16-bit)	28	1x10-bit	-
	SPC560B50L5	e200z0	64	LQFP 144	512	64	32	3	4	3	1	-	-	56ch eMIOS (16-bit)	36	1x10-bit	-
	SPC560B54L3	e200z0	64	LQFP 100	768	64	64	3	4	6	1	-	-	37ch eMIOS (16-bit)	31	1x10-bit; 1x12-bit	-
	SPC560B54L5	e200z0	64	LQFP 144	768	64	64	5	8	6	1	-	-	64ch eMIOS (16-bit)	39	1x10-bit; 1x12-bit	-
	SPC560B60L3	e200z0	64	LQFP 100	1024	64	80	3	4	6	1	-	-	37ch eMIOS (16-bit)	31	1x10-bit; 1x12-bit	-
	SPC560B60L5	e200z0	64	LQFP 144	1024	64	80	5	8	6	1	-	-	64ch eMIOS (16-bit)	39	1x10-bit; 1x12-bit	-
	SPC560B60L7	e200z0	64	LQFP 176	1024	64	80	6	10	6	1	-	-	64ch eMIOS (16-bit)	53	1x10-bit; 1x12-bit	-
	SPC560B64L5	e200z0	64	LQFP 144	1536	64	96	5	8	6	1	-	-	64ch eMIOS (16-bit)	39	1x10-bit; 1x12-bit	-
	SPC560B64L7	e200z0	64	LQFP 176	1536	64	96	6	10	6	1	-	-	64ch eMIOS (16-bit)	56	1x10-bit; 1x12-bit	-

	Part Number	Core	CPU Clock Frequency max (MHz)	Package	FLASH Size (Prog)	FLASH Size (Data)	Internal RAM Size	Serial Interface						Timed I/Os	A/D Channels	A/D Resolution	Cryptography
								SPI	LIN	CAN	I²C	FlexRay	Ethernet				
B-Line	SPC564B64L7	e200z4d	120	LQFP 176	1536	64	128	8	10	6	1	1	-	64ch eMIOS (16-bit)	51	1x10-bit; 1x12-bit	CSE;SHE
	SPC564B64L8	e200z4d	120	LQFP 208	1536	64	128	8	10	6	1	1	-	64ch eMIOS (16-bit)	62	1x10-bit; 1x12-bit	CSE;SHE
	SPC564B70L7	e200z4d	120	LQFP 176	2048	64	160	8	10	6	1	1	-	64ch eMIOS (16-bit)	56	1x10-bit; 1x12-bit	CSE;SHE
	SPC564B70L8	e200z4d	120	LQFP 208	2048	64	160	8	10	6	1	1	-	64ch eMIOS (16-bit)	62	1x10-bit; 1x12-bit	CSE;SHE
	SPC564B74L7	e200z4d	120	LQFP 176	3072	64	192	8	10	6	1	1	-	64ch eMIOS (16-bit)	56	1x10-bit; 1x12-bit	CSE;SHE
	SPC564B74L8	e200z4d	120	LQFP 208	3072	64	192	8	10	6	1	1	-	64ch eMIOS (16-bit)	62	1x10-bit; 1x12-bit	CSE;SHE
P-Line	SPC560P34L1	e200z0	64	LQFP 64	192	64	12	2	2	1	-	-	-	6ch eTimer (16-bit); 8ch FlexPWM (16-bit)	12	1x10-bit	-
	SPC560P34L3	e200z0	64	LQFP 100	192	64	12	2	2	1	-	-	-	6ch eTimer (16-bit); 8ch FlexPWM (16-bit)	16	1x10-bit	-
	SPC560P40L1	e200z0	64	LQFP 64	256	64	20	3	2	2	-	-	-	6ch eTimer (16-bit); 8ch FlexPWM (16-bit)	12	1x10-bit	-
	SPC560P40L3	e200z0	64	LQFP 100	256	64	20	3	2	2	-	-	-	6ch eTimer (16-bit); 8ch FlexPWM (16-bit)	16	1x10-bit	-
	SPC560P44L3	e200z0	64	LQFP 100	384	64	36	4	2	2	-	1	-	12ch eTimer (16-bit); 8ch FlexPWM (16-bit)	16	2x10-bit	-
	SPC560P44L5	e200z0	64	LQFP 144	384	64	36	4	2	2	-	1	-	12ch eTimer (16-bit); 8ch FlexPWM (16-bit)	26	2x10-bit	-
	SPC560P50L3	e200z0	64	LQFP 100	512	64	40	4	2	2	-	1	-	12ch eTimer (16-bit); 8ch FlexPWM (16-bit)	16	2x10-bit	-
	SPC560P50L5	e200z0	64	LQFP 144	512	64	40	4	2	2	-	1	-	12ch eTimer (16-bit); 8ch FlexPWM (16-bit)	26	2x10-bit	-
	SPC560P54L3	e200z0	64	LQFP 100	768	64	64	5	2	3	-	1	-	12ch eTimer (16-bit)	16	1x10-bit	-
	SPC560P54L5	e200z0	64	LQFP 144	768	64	64	5	2	3	-	1	-	12ch eTimer (16-bit)	26	1x10-bit	-
	SPC560P60L3	e200z0	64	LQFP 100	1024	64	80	5	2	3	-	1	-	12ch eTimer (16-bit)	16	1x10-bit	-
	SPC560P60L5	e200z0	64	LQFP 144	1024	64	80	5	2	3	-	1	-	12ch eTimer (16-bit)	26	1x10-bit	-
	SPC56AP54L3	Dual e200z0	64	LQFP 100	768	64	64	5	2	3	-	1	-	12ch eTimer (16-bit)	16	1x10-bit	-
	SPC56AP54L5	Dual e200z0	64	LQFP 144	768	64	64	5	2	3	-	1	-	12ch eTimer (16-bit)	26	1x10-bit	-
	SPC56AP60L3	Dual e200z0	64	LQFP 100	1024	64	80	5	2	3	-	1	-	12ch eTimer (16-bit)	16	1x10-bit	-
	SPC56AP60L5	Dual e200z0	64	LQFP 144	1024	64	80	5	2	3	-	1	-	12ch eTimer (16-bit)	26	1x10-bit	-
L-Line	SPC564L54L3	e200z4d	120	LQFP 100	768	-	96	3	2	2	-	1	-	18ch eTimer (16-bit); 8ch FlexPWM (16-bit)	11	2x12-bit	-
	SPC564L54L5	e200z4d	120	LQFP 144	768	-	96	3	2	2	-	1	-	18ch eTimer (16-bit); 8ch FlexPWM (16-bit)	22	2x12-bit	-
	SPC564L60L3	e200z4d	120	LQFP 100	1024	-	128	3	2	2	-	1	-	18ch eTimer (16-bit); 8ch FlexPWM (16-bit)	11	2x12-bit	-
	SPC564L60L5	e200z4d	120	LQFP 144	1024	-	128	3	2	2	-	1	-	18ch eTimer (16-bit); 8ch FlexPWM (16-bit)	22	2x12-bit	-
	SPC564L70L3	e200z4d	120	LQFP 100	2048	-	192	3	2	3	-	1	-	18ch eTimer (16-bit); 8ch FlexPWM (16-bit)	11	2x12-bit	-
	SPC564L70L5	e200z4d	120	LQFP 144	2048	-	192	3	2	3	-	1	-	18ch eTimer (16-bit); 8ch FlexPWM (16-bit)	22	2x12-bit	-
	SPC56EL54L3	Dual e200z4d	120	LQFP 100	768	-	96	3	2	2	-	1	-	18ch eTimer (16-bit); 8ch FlexPWM (16-bit)	11	2x12-bit	-
	SPC56EL54L5	Dual e200z4d	120	LQFP 144	768	-	96	3	2	2	-	1	-	18ch eTimer (16-bit); 8ch FlexPWM (16-bit)	22	2x10-bit	-
	SPC56EL60L3	Dual e200z4d	120	LQFP 100	1024	-	128	3	2	2	-	1	-	18ch eTimer (16-bit); 8ch FlexPWM (16-bit)	11	2x12-bit	-
	SPC56EL60L5	Dual e200z4d	120	LQFP 144	1024	-	128	3	2	2	-	1	-	18ch eTimer (16-bit); 8ch FlexPWM (16-bit)	22	2x12-bit	-
	SPC56EL70L3	Dual e200z4d	120	LQFP 100	2048	-	192	3	2	3	-	1	-	18ch eTimer (16-bit); 8ch FlexPWM (16-bit)	11	2x12-bit	-
	SPC56EL70L5	Dual e200z4d	120	LQFP 144	2048	-	192	3	2	3	-	1	-	18ch eTimer (16-bit); 8ch FlexPWM (16-bit)	22	2x12-bit	-
M-Line	SPC563M60L5	e200z3	80	LQFP 144	1024	-	64	2	2	2	-	-	-	16ch eMIOS (24-bit); 32ch eTPU (24-bit)	32	2x12-bit	-
	SPC563M60L7	e200z3	80	LQFP 176	1024	-	64	2	2	2	-	-	-	16ch eMIOS (24-bit); 32ch eTPU (24-bit)	34	2x12-bit	-
	SPC563M64L5	e200z3	80	LQFP 144	1536	-	94	2	2	2	-	-	-	16ch eMIOS (24-bit); 32ch eTPU (24-bit)	32	2x12-bit	-
	SPC563M64L7	e200z3	80	LQFP 176	1536	-	94	2	2	2	-	-	-	16ch eMIOS (24-bit); 32ch eTPU (24-bit)	34	2x12-bit	-
A-Line	SPC564A70B4	e200z4d	150	PBGA 324	2048	-	128	3	3	3	-	1	-	24ch eMIOS (24-bit); 32ch eTPU (24-bit)	40	2x12-bit	-
	SPC564A70L7	e200z4d	150	LQFP 176	2048	-	128	3	3	3	-	1	-	24ch eMIOS (24-bit); 32ch eTPU (24-bit)	34	2x12-bit	-
	SPC564A74B4	e200z4d	150	PBGA 324	3072	-	160	3	3	3	-	1	-	24ch eMIOS (24-bit); 32ch eTPU (24-bit)	40	2x12-bit	-
	SPC564A74L7	e200z4d	150	LQFP 176	3072	-	160	3	3	3	-	1	-	24ch eMIOS (24-bit); 32ch eTPU (24-bit)	34	2x12-bit	-
	SPC564A80B4	e200z4d	150	PBGA 324	4096	-	192	3	3	3	-	1	-	24ch eMIOS (24-bit); 32ch eTPU (24-bit)	40	2x12-bit	-
	SPC564A80L7	e200z4d	150	LQFP 176	4096	-	192	3	3	3	-	1		24ch eMIOS (24-bit); 32ch eTPU (24-bit)	34	2x12-bit	-

BOARD SUMMARY

	Part number	Description	Supported devices
Discovery Kits	SPC560B-DIS	SPC56B-Discovery with SPC560B54L5	SPC56 B-Line
	SPC560D-DIS	SPC56D-Discovery with SPC560D40L1	SPC56 D-Line
	SPC564A-DISP	Discovery Kit for the A Line. Includes one evaluation board with SPC564A.	SPC56 A-Line
	SPC563M-DISP	Discovery Kit for the M Line. Includes one evaluation board with SPC563M.	SPC56 M-Line
	SPC560P-DISP	SPC56P-Discovery+ with SPC560P50L5	SPC56 P-Line
	SPC56EL70L5DISP	Discovery Kit for the L Line. Includes one evaluation board with SPC56EL60L5.	SPC56 L-Line
Connect	SPC5-CONNECT	SPC5 Programmable communication interface. USB based hardware for PC, supports CAN, SCI, ADC and GPIO.	SPC56 family
Debugger	SPC5-UDEDEBG-TL	UDE Starter Kit version for SPC5 family of automotive microcontrollers, one year license and maintenance.	SPC5x family
	SPC5-UDESTK-EVAL	USB/JTAG Debug interface for SPC5 family of automotive microcontrollers. Evaluation version.	SPC5x family
	SPC5-UDESTK-FULL	USB/JTAG Debug interface for SPC5 family of automotive microcontrollers. Includes 1 year license.	SPC5x family
Premium Evaluation boards	SPC56XXMB	Motherboard for all SPC56x microcontrollers. Includes: universal power supply, USB cable, documentation CD.	SPC56 family
	SPC560B64A100S	Socketed mini module for B-Line, C-Line and D-Line in LQFP100 package. Requires SPC56XXMB.	SPC560B40L3, SPC560B50L3, SPC560B54L3, SPC560B60L3, SPC560C40L3, SPC560C50L3, SPC560D30L3, SPC560D40L3
	SPC560BADPT144S	Socketed mini module for B-Line in LQFP144 package. Requires SPC56XXMB.	SPC560B40L5, SPC560B50L5, SPC560B54L5, SPC560B60L5, SPC560B64L5
	SPC560BADPT208S	Socketed mini module for Bolero 512K in BGA208 package. Requires SPC56XXMB.	SPC560B50B2
	SPC560B64A208S	Socketed mini module for B-Line in BGA208 package. Requires SPC56XXMB.	SPC560B50B2, SPC560B64B2
	SPC560BADPT176S	Socketed mini module for B-Line in LQFP176 package. Requires SPC56XXMB.	SPC560B64L7
	SPC560BADPT64S	Socketed mini module for B-Line in LQFP64 package. Requires SPC56XXMB.	SPC560D30L1, SPC560D40L1
	SPC560PADPT64S	Socketed mini module for P-Line in LQFP64 package. Requires SPC56XXMB.	SPC560P34L1, SPC560P40L1, SPC560P50L1
	SPC560PADPT100S	Socketed mini module for P-Line single and dal core in LQFP100 package. Requires SPC56XXMB.	SPC560P34L3, SPC560P40L3, SPC560P44L3, SPC560P50L3, SPC560P60L3, SPC56AP54L3, SPC56AP60L3
	SPC560PADPT144S	Socketed mini module for P-Line single and dal core in LQFP144 package. Requires SPC56XXMB.	SPC560P50L5, SPC560P60L5, SPC56AP60L5
	SPC563MADPT208S	Socketed mini module for M-Line in BGA208 package. Requires SPC56XXMB.	SPC563M60B2, SPC563M64B2
	SPC564AADPT208S	Socketed mini module for Andorra/Monaco in BGA208 package. Requires SPC56XXMB.	SPC563M60B2, SPC563M64B2, SPC564A80B2
	SPC563MADPT144S	Socketed mini module for M-Line in LQFP144 package. Requires SPC56XXMB.	SPC563M60L5
	SPC563M64A176S	Socketed mini module for M-Line and A-Line in LQFP176 package. Requires SPC56XXMB.	SPC563M60L7, SPC563M64L7, SPC564A80L7, SPC564A70L7
	SPC563MADPT176S	Socketed mini module for M-Line and A-Line in LQFP176 package. Requires SPC56XXMB.	SPC563M60L7, SPC563M64L7, SPC564A80L7, SPC564A70L7
	SPC563M64A100S	Socketed mini module for M-Line in LQFP100 package. Requires SPC56XXMB.	SPC563M64L3
	SPC564AADPT324S	Socketed mini module for Andorra in BGA324 package. Requires SPC56XXMB.	SPC564A70B4, SPC564A74B4, SPC564A80B4
	SPC560PADPT176S	Socketed mini module for P-Line dual core in LQFP176 package. Requires SPC56XXMB.	SPC56AP60L7
	SPC56EC74A208QS	Socketed mini module for Bolero 3M in BGA208 package. Requires SPC56XXMB.	SPC56EC74B1
	SPC56EC74A256S	Socketed mini module for Bolero 3M in BGA256 package. Requires SPC56XXMB.	SPC56EC74B3
	SPC56EC74A176S	Socketed mini module for Bolero 3M in LQFP176 package. Requires SPC56XXMB.	SPC56EC74L7
	SPC56ELADPT100S	Socketed mini module for L-Line in LQFP100 package. Requires SPC56XXMB.	SPC56EL54L3, SPC56EL60L3, SPC56EL70L3
	SPC56ELADPT144S	Socketed mini module for L-Line in LQFP144 package. Requires SPC56XXMB.	SPC56EL60L5

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