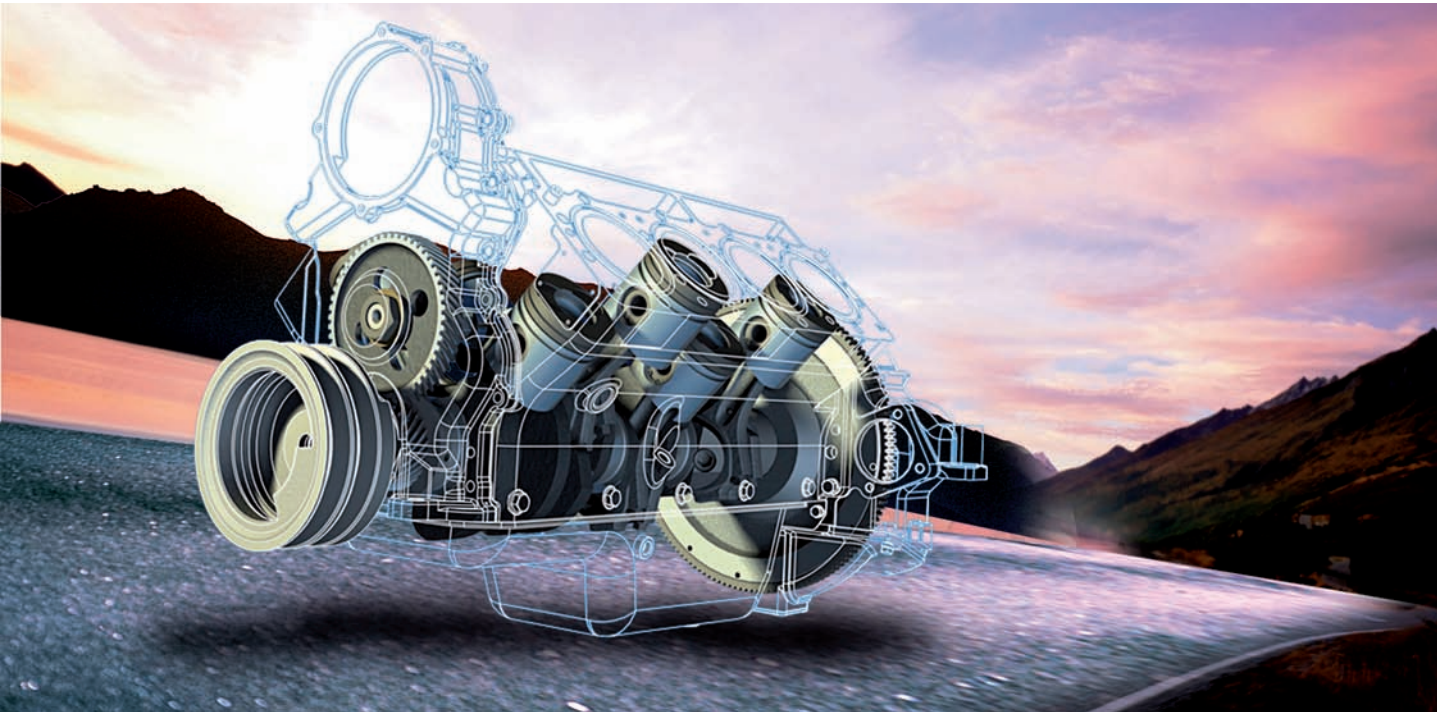


SPC563M

Automotive 32-bit microcontrollers
for powertrain applications



September 2008

STMicroelectronics introduces the SPC563M family, new product lines of 32-bit Flash microcontrollers tailored to the specific needs of four-cylinder gasoline engines and robotized transmission applications.

The SPC563M family is the first member of ST's 32-bit powertrain microcontroller offering, aimed to cover the full range of applications with dedicated solutions providing the best cost/performance ratio.

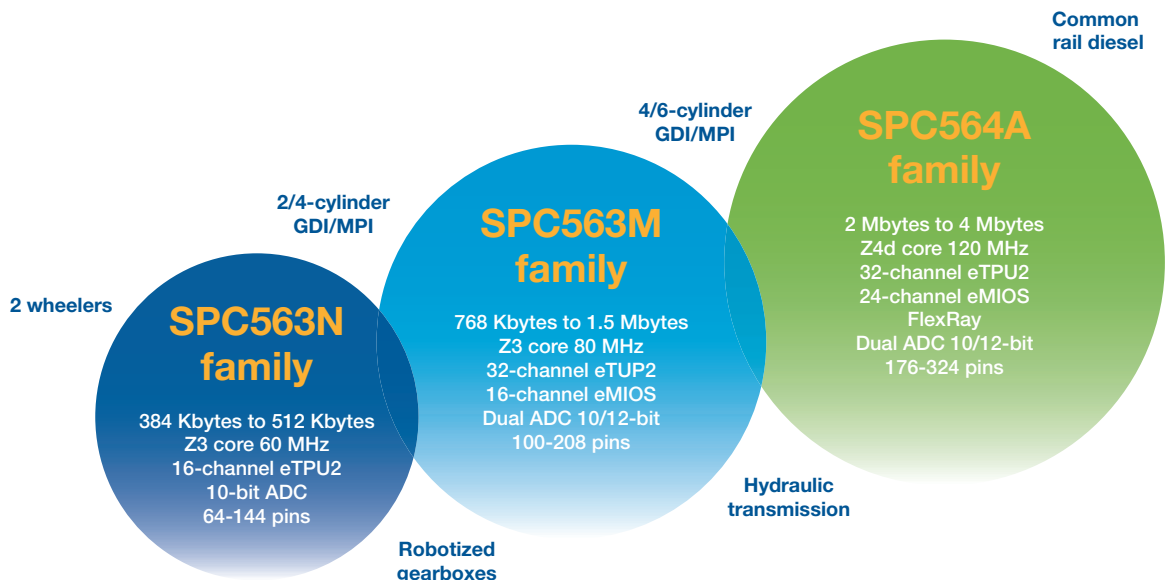
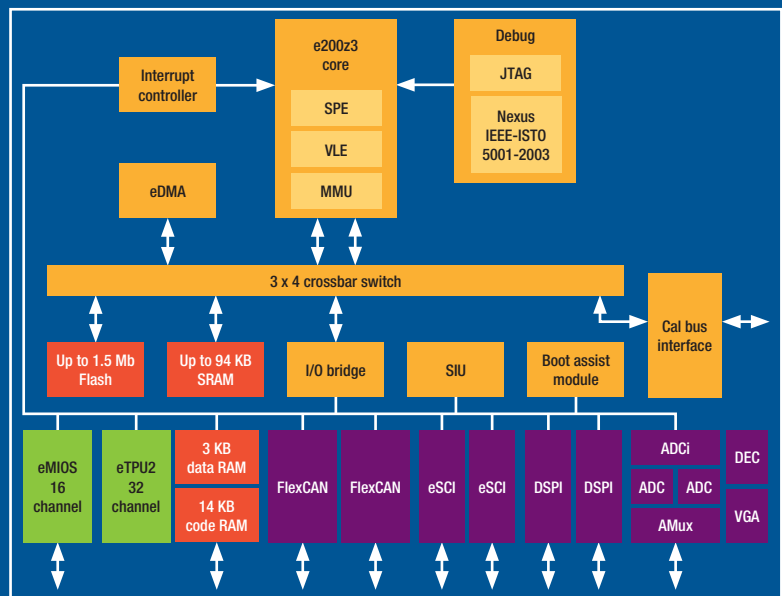
From product specification, through design and manufacturing, ST's focus is on reliability, application robustness and added value.

Use of an industry standard PowerPC® core, sharing standard peripherals with similar products across all application fields, increases integration, maximizes design reuse and shortens time to market.

Applications

- 2/4-cylinder GDI/MPI
- Low-end diesel engines
- Robotized gearboxes
- Suspension

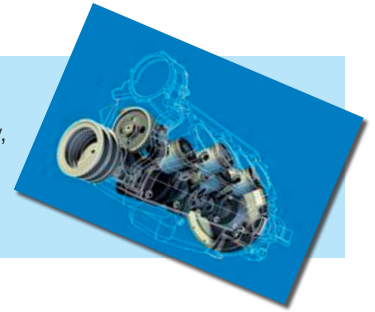
SPC563M family block diagram



SPC56 for powertrain applications

Innovative concepts - Powering green innovations

With a dedicated eTPU2 coprocessor to offload the CPU, integrated DSP capability, and a wide range of enhancements, SPC563M devices enable tight emission control to meet new and upcoming automotive requirements, while decreasing overall system cost.



SPC563M family benefits

Tight emission control

- High-performance e200z3 core integrating digital signal processing and vector floating point computation
- Enhanced timer sets (eTPU2, eMIOS)
- Dual ADCs with input variable gain amplifier and decimation filter allowing knock detection integration

Improved time to market

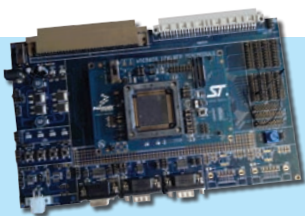
- Compatibility across the families through a modular peripheral set
- AUTOSAR compliant maximizing SW and tools reuse
- Memory/pin-out/performance scalability

Reduced system cost

- Very high I/O availability in QFP packages
- Innovative calibration concept and tools support
- Requires only one linear voltage regulator (5 V)

Reduced cost of non-quality

- Unique dual source set-up
- Latest 90 nm automotive focused technology
- Co-development of technology and state-of-the-art design methodology for zero defects



An extensive development tools offering

The SPC56 product family is supported by a wide range of development tools using a vast network of 3rd parties. These include classical C compilers, debuggers and emulators, as well as advanced tools such as configuration tools or auto-code generators. Evaluation boards are available from ST.

Designed for AUTOSAR

All products are designed to fulfill [AUTomotive Open System Architecture](#) requirements. Available AUTOSAR packages include MCAL, basic software, OS, configuration tools and on-site support.

SPC563M powertrain and transmission family overview

Part number ¹	Package	System				Memory		A/D		Timer functions		Serial interface CAN/SCI/SPI	Others
		Core	Freq. Max.	DMA Ch.	Core Ext.	Flash (Kbyte)	RAM (Kbyte)	Units	Ch	eTPU2 (code+data RAM)	eMIOS ch		
SPC563M54	LQFP100	e200z3	64	32	FPU SIMD VLE MMU	768	48	2 x 12-bit	23	32 ² (14+3 KB RAM)	16 ²	2 / 1 / 2	VGA Dec. filter Temp. sensor
	LQFP144								32	32 (14+3 KB RAM)	16 ²	2 / 2 / 2	
SPC563M60	LQFP100	e200z3	80	32	FPU SIMD VLE MMU	1024	64	2 x 12-bit	23	32 ² (14+3 KB RAM)	16 ²	2 / 1 / 2	Cal. bus VGA Dec. filter Temp. sensor
	LQFP144								32	32 (14+3 KB RAM)	16 ²	2 / 2 / 2	
	LQFP176								34	32 (14+3 KB RAM)	16 ²	2 / 2 / 2	
	LBGA208								34	32 (14+3 KB RAM)	16 ²	2 / 2 / 2	
SPC563M64	LQFP144	e200z3	80	32	FPU SIMD VLE MMU	1536	94	2 x 12-bit	32	32 (14+3 KB RAM)	16 ²	2 / 2 / 2	Cal. bus VGA Dec. filter Temp sensor
	LQFP176								34	32 (14+3 KB RAM)	16 ²	2 / 2 / 2	
	LBGA208								34	32 (14+3 KB RAM)	16 ²	2 / 2 / 2	

1. Operating temperature range from -40 °C to 125 °C

2. All eMIOS and eTPU channels available through the 32-bit timed serial bus supporting Microsecond Bus frame format



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