

# SPC56xB, SPC56xC, SPC56xD



STMicroelectronics

Automotive 32-bit Flash microcontrollers for car body applications

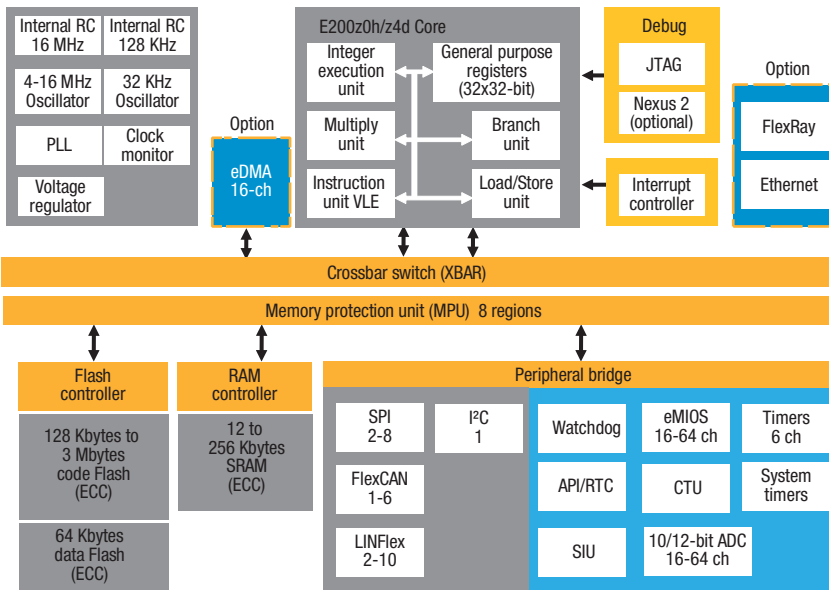
# Automotive 32-bit Flash microcontrollers for car body applications

STMicroelectronics' SPC56xB/C/D family of 32-bit Flash microcontrollers is dedicated to the specific needs of body and convenience applications.

The modularity and compatibility of the product family portfolio is set to an unmatched level. A new state-of-the-art technology, combined with a high-performance core and tailor-made peripherals, make this family of products the perfect platform solution, achieving the best equilibrium between system cost and performance. From product specification, on through design and manufacturing, focus is on reliability, application robustness and added value.

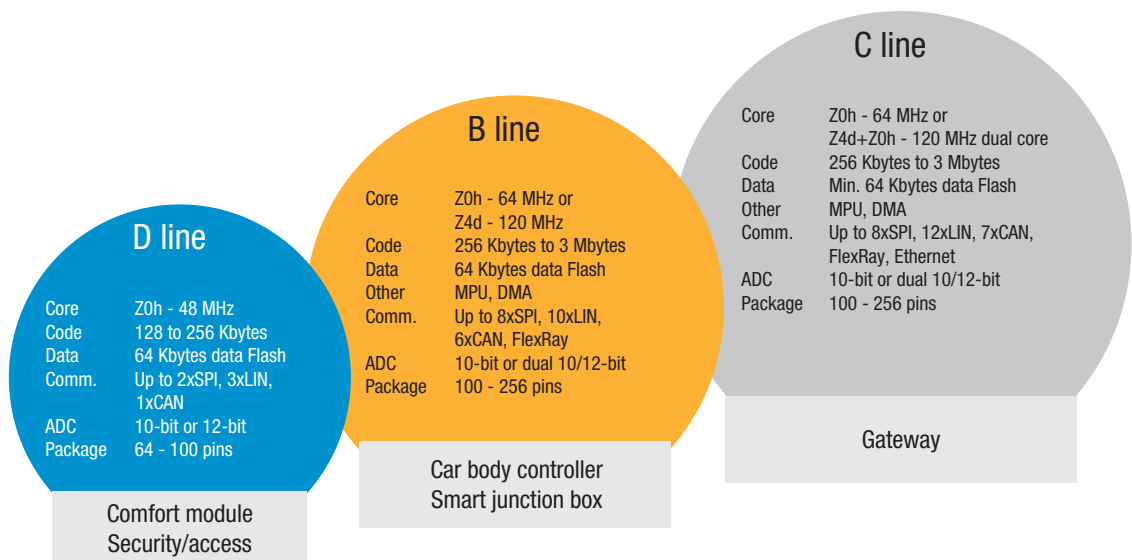
Use of an industry standard Power Architecture® core, sharing standard peripherals with similar products across all application fields, increases integration, maximizes design reuse and shortens time to market.

## SPC56xB/C/D block diagram



## Applications

- Car body controllers
- Smart junction boxes
- Comfort modules
- Gateways
- Security/access
- Door and seat with sensorless positioning



## Innovative concepts

### Lighting module support

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

### Power management

A sophisticated low-power management allows for 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 with identification of the CAN message ID triggering wake-up.



## Benefits

### Reduced system cost

- Lighting module with diagnostic
- EEPROM emulation support
- Improved EMI
- Innovative power management concept
- Dual on-chip RC oscillators

### Improved time to market

- Standard core for maximum reuse
- Designed for AUTOSAR
- Memory/pinout/performance scalability
- Compatibility of product family
- Existing tools ecosystem and know-how

### Power and robustness

- Z0h - Z4d Power Architecture Core - Dual core options
- ECC on all memories
- Memory/register protection functions
- Clock security system/backup oscillator
- CPU clock independent watchdog
- Injection robust I/Os

### Reduced cost of non-quality

- Zero defect strategy from design to production
- Latest 90 nm automotive focused technology
- Co-development of technology with Freescale
- Supply chain strengthened via dual source capability

### A comprehensive development tools offer

The SPC56 product family is supported by a wide range of development tools using a vast network of 3<sup>rd</sup> parties. This includes 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.

## SPC56xB/C/D family overview for car body and convenience

Part Number	Package	System		Code Flash (Kbyte)	Data Flash (Kbyte)	RAM (Kbyte)	A/D	Timed I/Os	Serial Interfaces SPI/LIN/CAN/I2C	Other <sup>1</sup>
		Core	Max Freq.							
SPC560D30L1	LQFP64	e200z0h	48	128	64	12	16-ch	12	2/3/1/-	12-bit ADC, 16-ch eDMA, Shifted PWM with Cross Triggering Unit
SPC560D30L3	LQFP100	e200z0h	48	128	64	12	33-ch	28	2/3/1/-	
SPC560D40L1	LQFP64	e200z0h	48	256	64	16	16-ch	12	2/3/1/-	
SPC560D40L3	LQFP100	e200z0h	48	256	64	16	33-ch	28	2/3/1/-	
SPC560B40L3	LQFP100	e200z0h	64	256	64	24	28-ch	28	3/3/2/1	10-bit ADC, 8 entry MPU, Shifted PWM with Cross Triggering Unit, 32KHz SXOSC
SPC560B40L5	LQFP144	e200z0h	64	256	64	24	36-ch	56	3/3/2/1	
SPC560B50L3	LQFP100	e200z0h	64	512	64	32	28-ch	28	3/4/3/1	
SPC560B50L5	LQFP144	e200z0h	64	512	64	32	36-ch	56	3/4/3/2	
SPC560B54L3	LQFP100	e200z0h	64	768	64	64	31-ch	37	3/4/6/1	Dual ADC (10-bit/12-bit), 8 entry MPU, 16-ch eDMA, Shifted PWM with Cross Triggering Unit, 32KHz SXOSC
SPC560B54L5	LQFP144	e200z0h	64	768	64	64	39-ch	64	5/8/6/1	
SPC560B60L3	LQFP100	e200z0h	64	1024	64	80	31-ch	37	3/4/6/1	
SPC560B60L5	LQFP144	e200z0h	64	1024	64	80	39-ch	64	5/8/6/1	
SPC560B60L7	LQFP176	e200z0h	64	1024	64	80	53-ch	64	6/10/6/1	
SPC560B64L5	LQFP144	e200z0h	64	1536	64	96	39-ch	64	5/8/6/1	
SPC560B64L7	LQFP176	e200z0h	64	1536	64	96	53-bit	64	6/10/6/1	
SPC564B64L7	LQFP176	e200z4d	120	1536	64	128	52-ch	64	8/10/6/1	
SPC564B64L8	LQFP208	e200z4d	120	1536	64	128	58-ch	64	8/10/6/1	Dual ADC (10-bit/12-bit), 16 entry MPU, MMU, SPE, 32-ch eDMA, 32KHz SXOSC, Shifted PWM with CTU, FleyRay, CSE (optional)
SPC564B70L7	LQFP176	e200z4d	120	2048	64	160	52-ch	64	8/10/6/1	
SPC564B70L8	LQFP208	e200z4d	120	2048	64	160	58-ch	64	8/10/6/1	
SPC564B74L7	LQFP176	e200z4d	120	3072	64	192	52-ch	64	8/10/6/1	
SPC564B74L8	LQFP208	e200z4d	120	3072	64	192	58-ch	64	8/10/6/1	Dual ADC (10-bit/12-bit), 16 entry MPU, MMU, SPE, 32-ch eDMA, 32KHz SXOSC, Shifted PWM with CTU, FleyRay, Ethernet, Cryptographic Service Engine (CSE optional)
SPC560C40L3	LQFP100	e200z0h	64	256	64	32	28-ch	28	3/4/6/1	
SPC560C50L3	LQFP100	e200z0h	64	512	64	48	28-ch	28	3/4/6/1	
SPC56EC64L7	LQFP176	e200z4d / e200z0h	120	1536	64	192	52-ch	64	8/10/6/1	
SPC56EC64L8	LQFP208	e200z4d / e200z0h	120	1536	64	192	58-ch	64	8/10/6/1	
SPC56EC64B3	LBGA256	e200z4d / e200z0h	120	1536	64	192	58-ch	64	8/10/6/1	
SPC56EC70L7	LQFP176	e200z4d / e200z0h	120	2048	64	256	52-ch	64	8/10/6/1	
SPC56EC70L8	LQFP208	e200z4d / e200z0h	120	2048	64	256	58-ch	64	8/10/6/1	
SPC56EC70B3	LBGA256	e200z4d / e200z0h	120	2048	64	256	58-ch	64	8/10/6/1	
SPC56EC74L7	LQFP176	e200z4d / e200z0h	120	3072	64	256	52-ch	64	8/10/6/1	
SPC56EC74L8	LQFP208	e200z4d / e200z0h	120	3072	64	256	58-ch	64	8/10/6/1	
SPC56EC74B3	LBGA256	e200z4d / e200z0h	120	3072	64	256	58-ch	64	8/10/6/1	

1. All products include watchdog, 16 MHz and 128 kHz internal RC oscillators, real-time clock, clock monitoring and register protection. Operating temperature range from - 40° C to 105° C up to - 40° C to 125° C.



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