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What is "[Embedded - Microcontrollers](#)"?

"[Embedded - Microcontrollers](#)" refer to small, integrated circuits designed to perform specific tasks within larger systems. These microcontrollers are essentially compact computers on a single chip, containing a processor core, memory, and programmable input/output peripherals. They are called "embedded" because they are embedded within electronic devices to control various functions, rather than serving as standalone computers. Microcontrollers are crucial in modern electronics, providing the intelligence and control needed for a wide range of applications.

Applications of "[Embedded - Microcontrollers](#)"

Details

Product Status	Active
Core Processor	S12Z
Core Size	16-Bit
Speed	32MHz
Connectivity	CANbus, I ² C, LINbus, SCI, SPI
Peripherals	DMA, LCD, POR, PWM, WDT
Number of I/O	78
Program Memory Size	64KB (64K x 8)
Program Memory Type	FLASH
EEPROM Size	2K x 8
RAM Size	4K x 8
Voltage - Supply (Vcc/Vdd)	4.5V ~ 5.5V
Data Converters	A/D 4x10b
Oscillator Type	Internal
Operating Temperature	-40°C ~ 85°C (TA)
Mounting Type	Surface Mount
Package / Case	100-LQFP
Supplier Device Package	100-LQFP (14x14)
Purchase URL	https://www.e-xfl.com/product-detail/nxp-semiconductors/s912zvfp64f1cll

S12ZVH Mixed-Signal Microcontrollers

S12 MagniV Single-Chip Solution for Automotive Instrument Clusters

Product One-Sheet

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[Data Sheet](#)

[Tools](#)

S12Z core architecture—16-bit microcontroller at 32 MHz bus

Cluster integration—single-chip instrument cluster solution integrates an automotive voltage regulator operating between 5 and 18 volts

Connectivity—CAN, LIN, SPI, I²C, analog comparators, multiple timers with PWM functionality

Connectivity—CAN/LIN physical layers, LCD display controller and instrument cluster gauge drivers with stepper stall detection (SSD)

S12ZVH Specifications

PART NUMBER	S12ZVH128CLQ	S12ZVH128CLL	S12ZVHL64CLQ	S12ZVHL64CLL
PACKAGE DESCRIPTION	LQFP 144 20*20*1.4P0.5	LQFP 100 14*14*1.4P0.5	LQFP 144 20*20*1.4P0.5	LQFP 100 14*14*1.4P0.5
INTERNAL FLASH	128 KB	128 KB	64 KB	64 KB
RAM	8 KB	8 KB	4 KB	4 KB
EEPROM	4 KB	4 KB	2 KB	2 KB
STEPPER MOTOR CONTROLLER	4	2	2	2
LCD SEGMENTS	40 x 4	32 x 4	40 x 4	32 x 4
CAN PHY	1	–	–	–
LIN PHY	–	–	1	1

Features



S12Z core, 32 MHz bus



CAN/LIN physical layer



4 KB EEPROM, 128 KB flash with ECC



Built-in automotive voltage regulator from 5 to 18 V at -40°C to +105°C

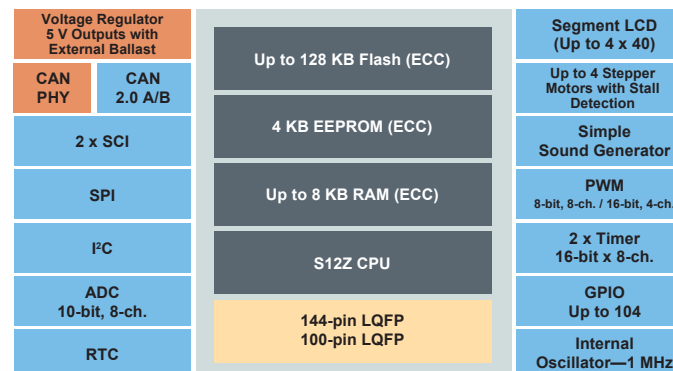


4 up-to-four stepper motor drivers with stall detect



Real-time clock with calendaring

S12ZVH: S12 MagniV Mixed-Signal MCU Block Diagram



Target Applications

- ▶ Automotive instrument clusters
- ▶ Heating ventilation and air conditioning (HVAC)

Enablement Tools

- ▶ S12ZVH low-cost evaluation board
 - Part number: TRK-S12ZVH128
 - Custom 4 x 40 LCD glass
 - CAN connector interfaced with MCU internal CAN PHY
 - Serial communications LIN, SCI, SPI and I²C
 - LEDs connected to PWM channels
 - Four pushbuttons connected to KBI inputs
 - Four motor control headers, 4 x 1 pins
 - 32 kHz oscillator for real-time counter
 - Piezoelectric speaker with amplification circuit
- ▶ P&E MULTILINK
- ▶ CodeWarrior development tool suite
- ▶ Cosmic software

www.nxp.com/S12ZVH

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