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# 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, I<sup>2</sup>C, 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)

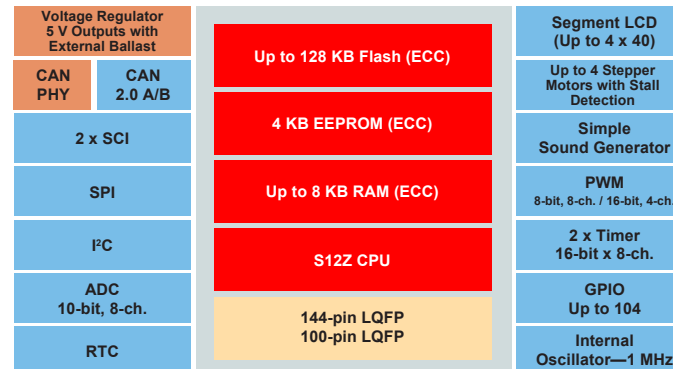
### S12ZVH Specifications

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 I<sup>2</sup>C
  - 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](http://www.nxp.com/S12ZVH)

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