

XC2300S - Series

16/32-bit μ C for Lowest-End Automotive Safety

The XC2300S series, with the XC232xS (VQFN-48) and XC231xS (TSSOP-38) derivatives, further enlarges the XC2300 microcontroller family in the ultra lowend. With a maximum memory size of 64kB Flash and up to 8kB RAM, the microcontrollers of this series are well suited for very low-end cost-sensitive safety applications like lowest-end Airbag or Belt Pretensioner applications.

Targeted Automotive Safety Applications

Lowest-end Airbag
Belt-Pretensioner

Highlights:

High performance 16-/32-bit C166SV2 CPU with 5-stage pipeline
Single clock cycle instruction execution with 10ns instruction time
Up to 40 MIPS peak performance @ 40MHz CPU clock
Up to 64kB Flash
Single voltage supply (core supply over embedded voltage regulator)

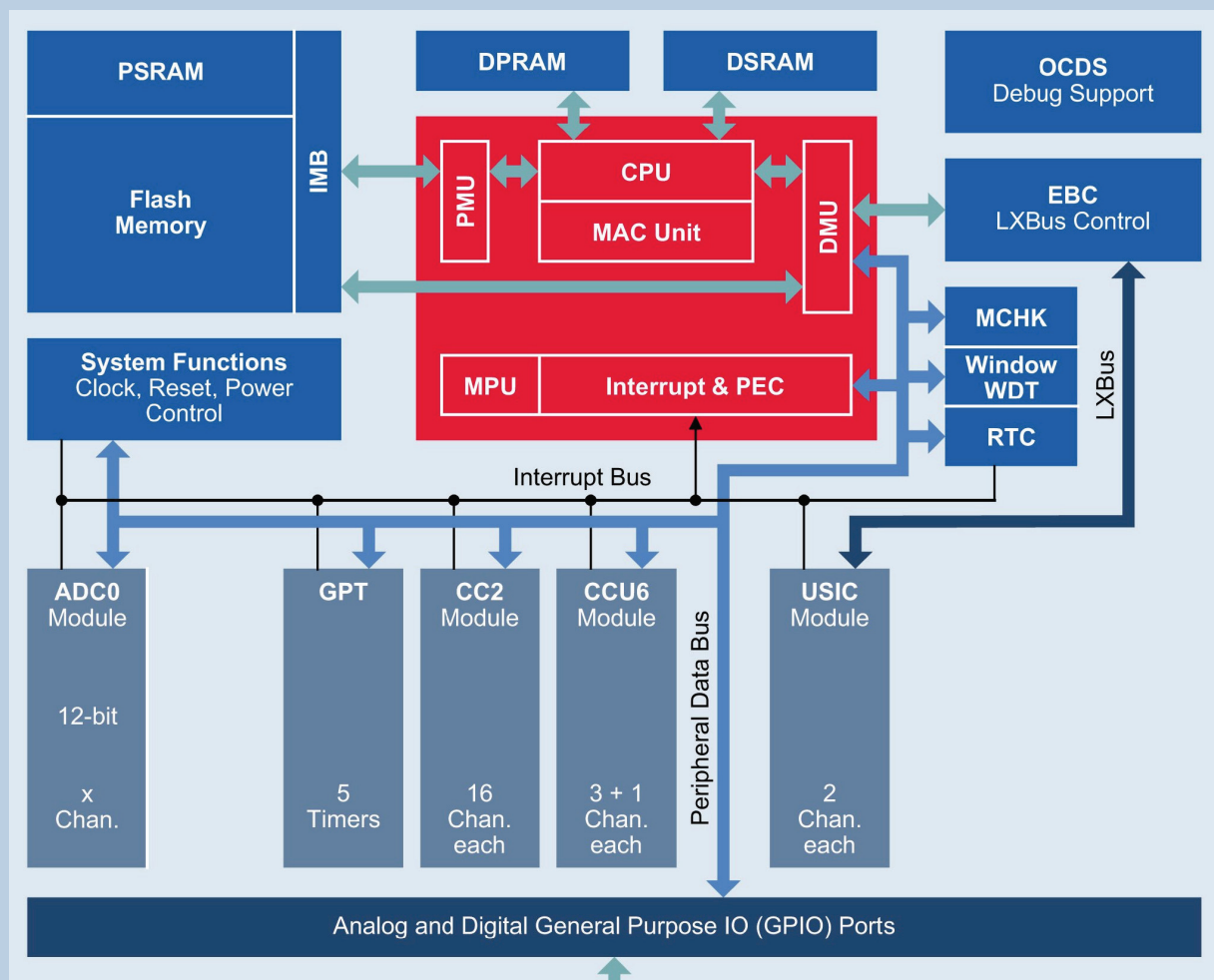
- Small 38pin and 48pin packages

Features

- High-performance CPU with five-stage pipeline and MPU
- 16 priority levels providing 96 interrupt nodes
- 8-channel interrupt-driven data transfer facilities via peripheral event controller (PEC)
- Hardware CRC-Checker with programmable polynomial to supervise on-chip memory areas
- Up to 64kB Flash, up to 8kB SRAM
- Memory content protection through Error Correction Code (ECC)
- Up to 9-channel dual A/D converter, optional data preprocessing (data reduction, range check), open wire detection, conversion time $\sim 0.675\mu\text{s}$
- One 16-channel general purpose capture/compare units (CCU2)
- One capture/compare units (CCU6) for flexible PWM signal generation for any kind of motor control
- Multi-functional general purpose timer unit with 5 timers
- 2 serial interface channels to be used as UART, LIN, SPI, I2C, I2S
- On-chip system timer and on-chip real time clock
- Programmable watchdog timer and oscillator watchdog
- Window WDT with clock source separate from fsys
- Up to 40 general purpose I/O lines with flexible pin assignment
- On-chip bootstrap loader
- On-chip debug support via Device Access Port (DAP) or JTAG interface
- Single voltage supply of 3.3 to 5V
- 38 pin green TSSOP, 48 pin green VQFN package
- Temperature range: -40 to $+125^\circ\text{C}$
- Supported by a large range of development tools

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| Type | Frequency [MHz] | eFlash [KByte] | RAM [KByte] | USIC* Channels | CAN Nodes | CCU** Modules | ADC Channels | Package |
|-------------------|-----------------|----------------|-------------|----------------|-----------|---------------|--------------|----------|
| SAK-XC2310S-4F20R | 20 | 32 | 6 | 2 | - | 2 | 7 | TSSOP-38 |
| SAK-XC2310S-4F40R | 40 | 32 | 6 | 2 | - | 2 | 7 | TSSOP-38 |
| SAK-XC2310S-8F20R | 20 | 64 | 8 | 2 | - | 2 | 7 | TSSOP-38 |
| SAK-XC2310S-8F40R | 40 | 64 | 8 | 2 | - | 2 | 7 | TSSOP-38 |
| SAK-XC2320S-4F40V | 40 | 32 | 6 | 2 | - | 2 | 9 | VQFN-48 |
| SAK-XC2320S-8F40V | 40 | 64 | 8 | 2 | - | 2 | 9 | VQFN-48 |

*Configurable Module: LIN, UART, SSC/SPI, I²C, I²S

**Capture Compare Units: CCU6/CCU2

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