

The XC164CS is a new derivative of the popular C166 microcontroller families.

Based on the enhanced C166S V2 architecture it outperforms existing 16 bit solutions. Impressive DSP performance and advanced interrupt handling combined with a powerful integrated peripheral set and high performance on-chip Flash or ROM memory make the XC164CS the instrument of choice for demanding industrial and automotive applications like synchronous DC motor control, future head lamp concepts or effective power steering solutions.

The flexible and intelligent PWM unit simplifies control of AC-, DC- or reluctance motors. A high speed, high resolving ADC handles the fast and accurate translation of complex analog environment. Networked solutions can be confidently solved with powerful communication interfaces like the high speed TwinCAN module with autonomous gateway function.

All that combined in a small P-TQFP-100 package keeps your system costs under control.



XC164CS

Applications

- Intelligent Head Lamp Concepts
- Electrical Power Steering
- Airbag
- Body Control Modules
- Multi Phase Drive Control

Features

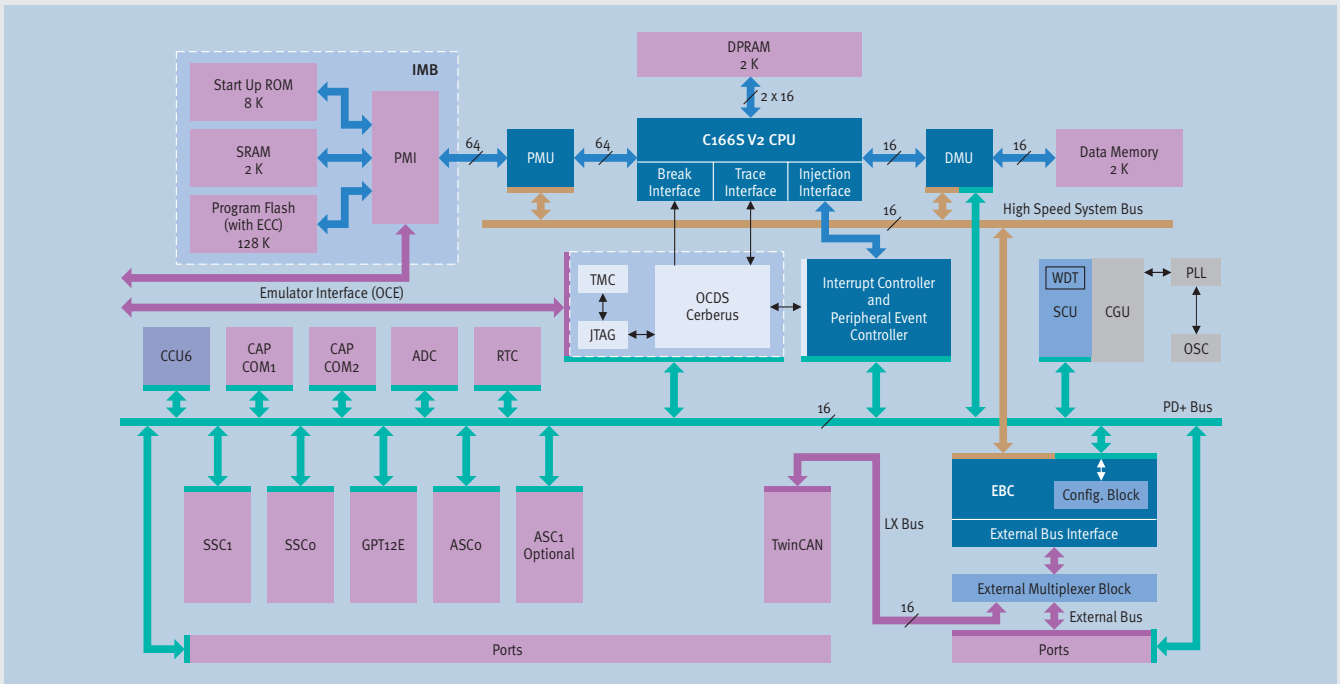
- High Performance 16-bit C166S V2 CPU with 5-Stage Pipeline
- Single clock cycle instruction execution with 25 ns instruction time at 40 MHz CPU clock
- 25 ns multiplication (16x16 bit) time at 40 MHz CPU clock
- DSP support with Built-in advanced MAC unit
- 16 MByte total linear address space for code and data

- Flexible Synchronous External Bus Interface
- 16-Priority-Level Interrupt System with 8 group levels each
- On-chip debug controller and related interface to JTAG controller
- Gated clock concept (function related) for reduced power consumption and improved EMC
- 6 KByte on chip RAM
- 128 KByte advanced Program Flash or ROM Memory
- Flexible System Control and Power Management
- Real Time Clock with alarm interrupt
- 14-Channel 10-bit A/D Converter, conversion time $\lt; 3 \mu\text{s}$
- Two 16-Channel Capture/Compare Units with 2 independent time bases each
- Two Multifunctional General Purpose Timer Units
- Asynchronous/Synchronous Serial Channels (USART)
- Two High Speed Synchronous Serial Channels (SPI)
- TwinCAN module, two Full-CAN nodes with 32 message buffers and gateway function
- CAPCOM6E module with two independent timers dedicated to PWM generation for AC and DC motor control
- Up to 79 I/O Lines with individual bit addressability
- Package: P-TQFP-100 Plastic Thin Quad Flat Package
- Temperature Range: -40°C to +125°C
- Supply Voltage:
 - Core Supply: 2.5 V
 - Ports: 5.0 V

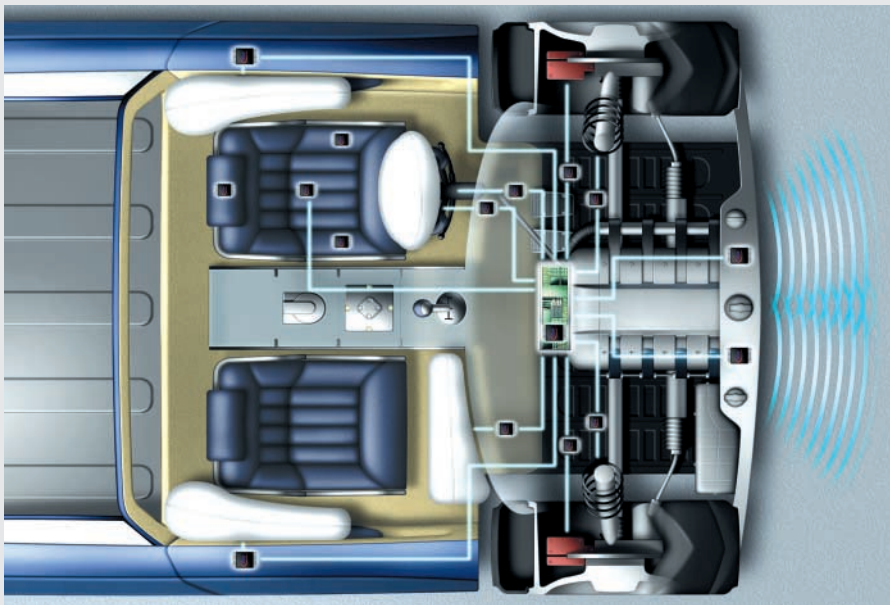
XC164CS
Performance with "Drive"



XC164CS Block Diagram



Type	Order Code	Package
SAF-XC164CS-16FF	Q67127-C2356	P-TQFP-100
SAK-XC164CS-16FF	Q67127-C2297	P-TQFP-100
SAF-XC164CS-16RF	Q67121-D*	P-TQFP-100
SAK-XC164CS-16RF	Q67121-D*	P-TQFP-100



XC164CS
Best fit for automotive safety and drive control applications

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XC164CS Block Diagram

XC164xx-16FF

