

XC27x6X™

Next Generation PowerTrain Microcontroller with 32/16bit Performance

The XC27x6X is a member of the new XC2700X microcontroller family, a subset of the XC2000 family, with focus on power train applications.

High-performance CPU features, memory scalability and powerful Dual-A/D converters are some of the major benefits of the XC2700 family. Equipped with advanced peripherals like multiple PWM-units, flexible serial interfaces (Universal Serial Interfaces (USICs)), as well as a MultiCAN unit with up to 2 CAN nodes, the microcontroller is the perfect fit for value driven PowerTrain applications. External component integration such as an embedded voltage regulator, eePROM emulation with additional flash modules and various on chip oscillators additionally optimizes total system costs. Compatibility, scalability and a maximum re-use within the XC2700 family provides the customer with an extensive range of products and functions, covering today's, as well as the future application needs. The close link to the 32bit microcontroller enables later upgrades.

Applications

- Automotive PowerTrain
 - Automotive PowerTrain
 - Motorcycle motor controllers

Features

- High performance C166S V2 CPU with 5-stage pipeline
- 66MHz CPU clock, single clock cycle instruction execution with 15ns instruction cycle time
- 15ns multiplication (16 x 16bit), background division (32/16bit) and multiply-and-accumulate (MAC) instructions
- Up to 768KByte on-chip Flash memory
- Up to 64KByte ideal for data flash and eePROM emulation
- Up to 51KByte on Chip RAM
 - 1KByte on-chip stand-by RAM (SBRAM)
 - 2KByte on-chip dual-port RAM (DPRAM)
 - 16KByte on-chip data SRAM (DSRAM)
 - 32KByte on-chip program/data SRAM (PSRAM)
- Fast context switching support with two additional local register banks
- 16-priority-level interrupt system with up to 96 sources, sample-rate down to one clock cycle



- 8-channel peripheral event controller (PEC) - single-cycle data transfer
- Synchronous A/D converters supporting up to 24 A/D channels with a conversion time of 1 - 2µs
- 16-Channel general purpose capture/compare unit
- 4 capture/compare units, with up to 7 channels each, for flexible PWM signal generation
- Multi-functional general purpose timer unit with 5 timers
- 2 universal serial interface channels (USIC) to be used as UART, LIN, buffered SPI, IIC Bus Interface & IIS Interface
- On-Chip MultiCAN Interface (Rev. 2.0B active) with 64 message objects on 2 CAN nodes
- Up to 116 general purpose I/O lines (for 144 pin XC2786X device)
- Up to 75 general purpose I/O lines (for 100 pins XC2766X device)
- On-chip debug support via JTAG interface, calibration support
- Built-in error correction (eCC)
- Supported by a large range of development tools
- C166 family compatible
- 100/144-pin green LQFP package, 0.5 mm (19.7 mil) pitch
- Single Power Supply from 3.0V to 5.5V
- Temperature range: -40° to +125°C

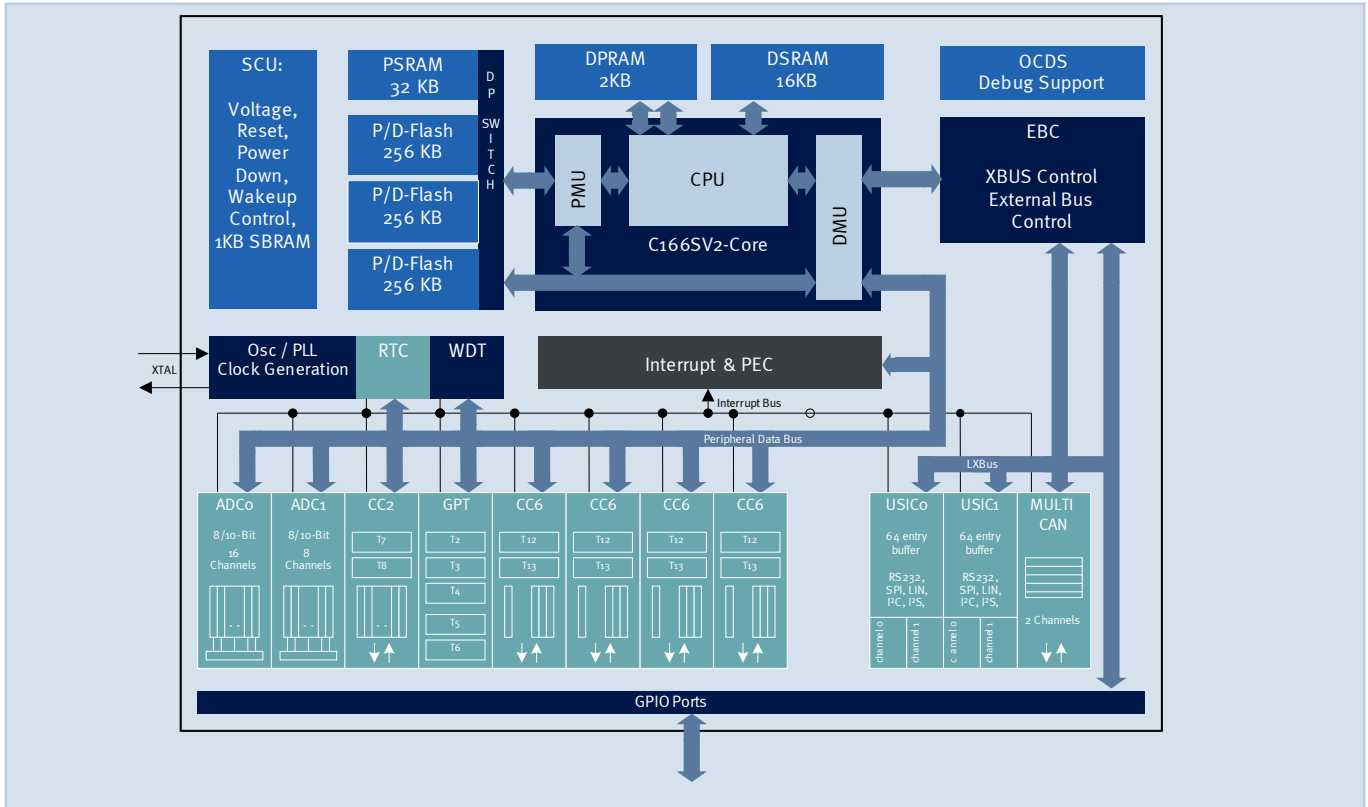
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Microcontrollers



Never stop thinking

Block Diagram



Product Summary

Type	Frequency [MHz]	eFlash [KByte]	RAM [KByte]	Serial Interface	ADC Channels	Temperature Range [°C]	Package
SAK-XC2766X-96F66L	66	768	51*	2 x USIC* 2 x CAN*	16	-40 ... +125	PG-LQFP-100
SAK-XC2786X-96F66L	66	768	51*	2 x USIC* 2 x CAN*	24	-40 ... +125	PG-LQFP-144

* extendable on request



Electronic Engine Control Units are enhancing engine performance and supporting environmental requirements.

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