Product Brief

Never stop thinking

XC2365A

Next Generation Safety Microcontroller with 32-Bit Performance

The XC2365A is a new member of the XC2300 microcontroller family, with focus on safety-applications. The XC2365A contains, besides the well known standard peripherals, dedicated safety features like a memory protection unit (MPU), a memory checker module (CRC) and a new broken wire detection ability of the ADC. The XC2365A comes in a 100-pin package, available memory options are up to 832kB embedded flash.

Applications

- Automotive Safety

Features

- High performance 16-/32-bit C166S V2 CPU with 5-stage pipeline
- Single clock cycle instruction execution with 12.5 ns instruction time at 80 MHz CPU clock
- 12.5 ns multiplication (16 x 16 bit), background division (32/16 bit) and multiply-and-accumulate (MAC) instructions
- Zero cycle jump execution
- Register-based design with Multiple Variable Register Banks
- Fast context switching support with two additional local register banks
- 16 Mbytes total linear address space for code and data
- 1024 Bytes on-chip SFR area (C166 family compatible)
- Integrated Memory Protection Unit (MPU)
- 16-priority-level interrupts system with up to 87 sources, sample-rate down to one clock cycle
- 8-channel interrupt-driven single-cycle data transfer facilities via peripheral event controller (PEC)
- Clock generation via on-chip PLL or via Prescaler
- Hardware CRC-Checker with Programmable Polynomial to supervise On-Chip Memory Areas
- Availabe SRAM (including ECC):
  - 8 Kbyte on-chip stand-by RAM (SBRAM)
  - 2 Kbytes on-chip dual-port RAM (DPRAM)
  - 16 Kbytes on-chip data SRAM (DSRAM)
  - Up to 32 Kbytes on-chip program/data SRAM (PSRAM)

Main Features

- Up to 832 Kbytes on-chip Flash memory
  - Built-in error correction (ECC)
  - Up to 64 Kbytes ideal for data flash and EE PROM emulation
- Two synchronizable A/D converters with 16 channels, optional data processing, a conversion time below 1µs and broken wire detection
- 16-Channel general purpose capture/compare unit
- 2 capture/compare units for flexible PWM signal generation (3 capture/compare channels and 1 compare channel)
- Multi-functional general purpose timer unit with 5 timers
- Six serial interface channels to be used as UART, LIN, buffered SPI, IIC Bus Interface, IIS Interface (optional feature; dedicated interfaces offered as well)
- On-Chip MultiCAN Interface (Rev. 2.0B active) with 64 message objects on 3 CAN nodes
- On-chip real time clock
- Programmable watchdog timer and oscillator watchdog
- Up to 75 general purpose I/O lines
- On-chip bootstrap loader
- Supported by a large range of development tools
- On-chip debug support via JTAG interface
- 100-pin green LQFP package, 0.5mm (19.7m) pitch
- Single Power Supply from 3.0 V to 5.5 V
- Temperature range -40° to +125°C

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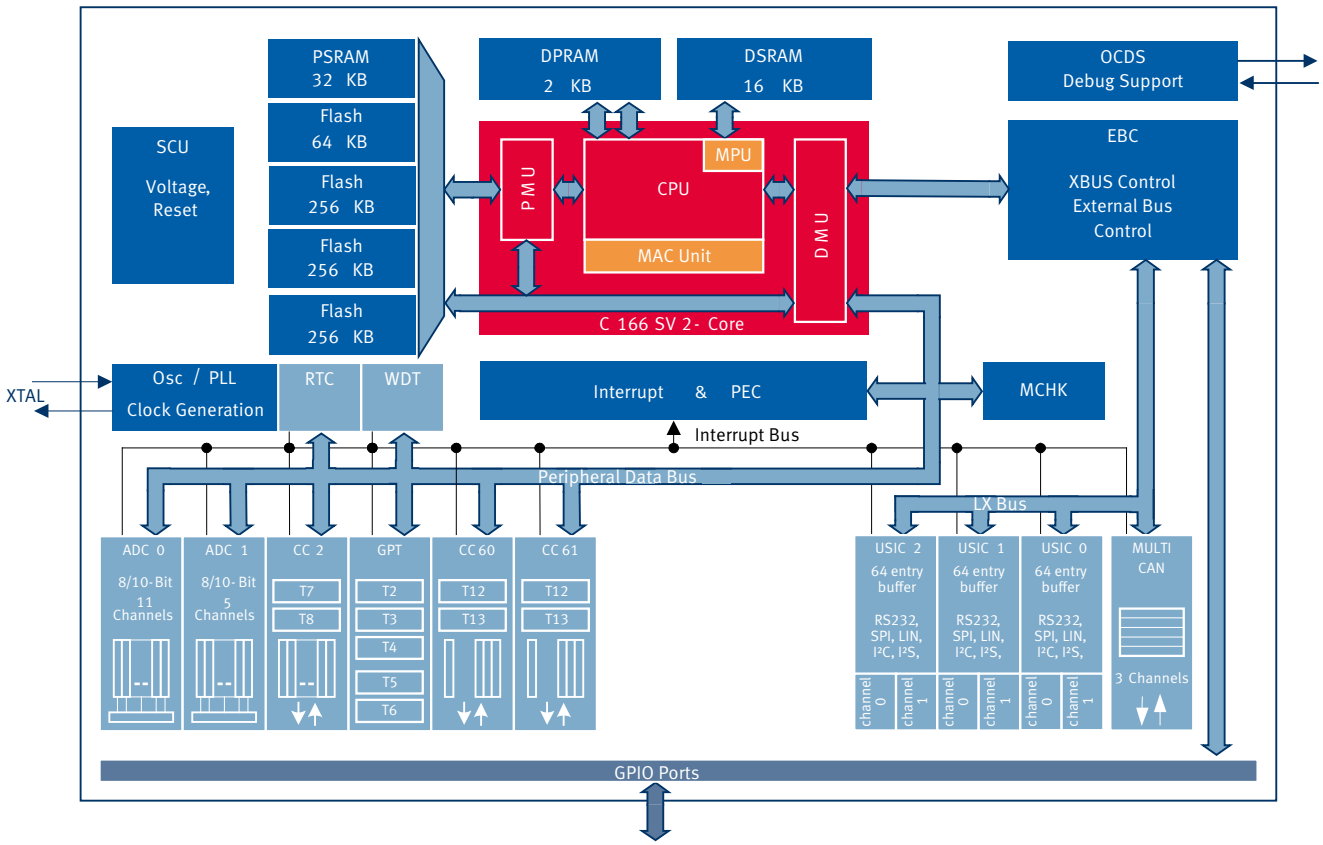
Block Diagram XC2365A



Product Summary

Type	eFlash [Kbytes]	RAM [Kbytes]	Frequency [MHz]	Serial Interface	ADC Channels	Temperature Range [°C]	Package
SAK-XC2365A-104F80L50	832	50	80	6 x USIC, 3 CAN	16	-40 ... 125	PG-LQFP-100

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