Infineon Technologies - XC164CS16F40FBBFXQMA1 Datasheet

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What is "Embedded - Microcontrollers"?

"Embedded - Microcontrollers" refer to small, integrated circuits designed to perform specific tasks within larger systems. These microcontrollers are essentially compact computers on a single chip, containing a processor core, memory, and programmable input/output peripherals. They are called "embedded" because they are embedded within electronic devices to control various functions, rather than serving as standalone computers. Microcontrollers are crucial in modern electronics, providing the intelligence and control needed for a wide range of applications.

Applications of "Embedded - Microcontrollers"

Details	
Product Status	Last Time Buy
Core Processor	C166SV2
Core Size	16-Bit
Speed	40MHz
Connectivity	CANbus, EBI/EMI, SPI, UART/USART
Peripherals	PWM, WDT
Number of I/O	79
Program Memory Size	128KB (128K x 8)
Program Memory Type	FLASH
EEPROM Size	-
RAM Size	8K x 8
Voltage - Supply (Vcc/Vdd)	2.35V ~ 2.7V
Data Converters	A/D 14x8/10b
Oscillator Type	Internal
Operating Temperature	-40°C ~ 85°C (TA)
Mounting Type	Surface Mount
Package / Case	100-LQFP
Supplier Device Package	PG-TQFP-100-5
Purchase URL	https://www.e-xfl.com/product-detail/infineon-technologies/xc164cs16f40fbbfxqma1

XC164CS Series

The 16-bit Flash Microcontroller Family in P/PG-TQFP-100 Package

THE XC164CS SERIES are derivatives 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 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 resolution ADC handles the fast and accurate translation of complex analog environment. Networked solutions can be solved with powerful communication interfaces like the high speed TwinCAN module with autonomous gateway function.

The XC164CS series gives embedded system designers the ability to scale memory, speed and peripherals. The small P/PG-TQFP-100 package makes it fit to any industrial and automotive applications that require little board space and low cost.

Applications

- Intelligent head lamp concepts
- Electrical power steering
- Airbag
- Body control modules
- Multi phase drive control

Features

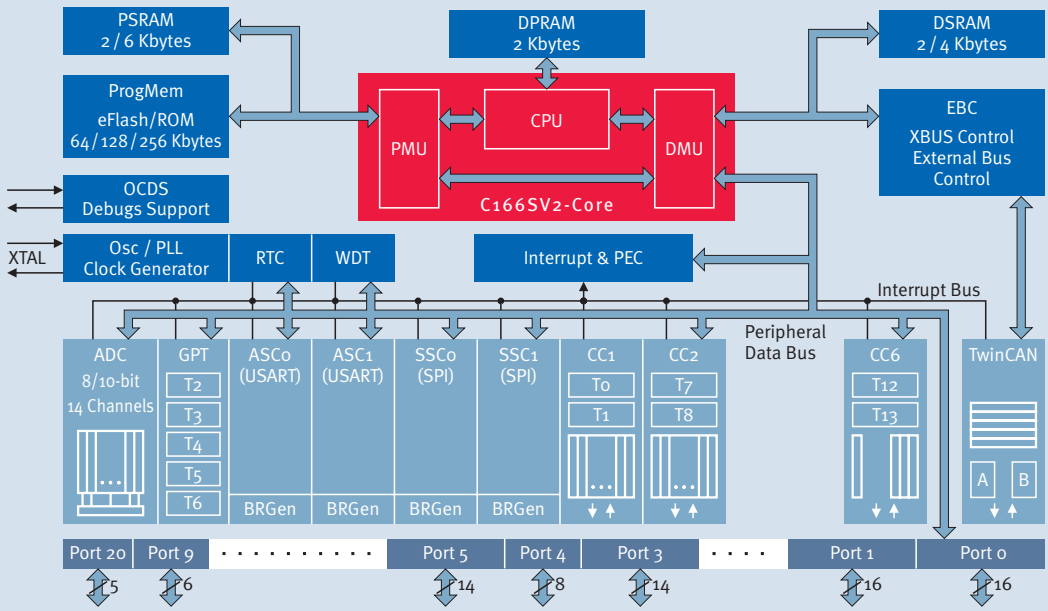
- High performance 16-bit C166S V2 CPU with 5-stage pipeline
- Single clock cycle instruction execution with 25 ns instruction time at 40 MHz CPU clock
- 25 ns multiplication (16 x 16 bit) time at 40 MHz CPU clock
- DSP support with built-in advanced MAC unit
- 16 Mbytes total linear address space for code and data
- Flexible synchronous external bus interface
- 16-priority-level Interrupt system with 8 group levels each
- Gated clock concept (function related) for reduced power consumption and improved EMCFeatures
- 6/8/12 Kbytes on-chip RAM
- 64/128/256 Kbytes on-chip program Flash (with Error Correction) or ROM
- Flexible system control and power management
- Real time clock with alarm interrupt
- 14-channel 10-bit A/D converter, conversion time down to 2.15 µs (on versions -CS and -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 (on versions -CS and -D)
- CAPCOM6E module with two independent timers dedicated to PWM generation for AC and DC motor control
- On-chip real time clock
- Enhanced power saving modes with flexible power management
- Programmable watchdog timer and oscillator watchdog
- Up to 79 I/O lines with individual bit addressability
- On-chip bootstrap loader
- Supported by a large range of development tools
- On-chip debug support via JTAG interface
- Package: P/PG-TQFP-100 plastic thin quad flat package
- Temperature range: -40°C to +125°C and -40°C to + 85°C
- Supply Voltage:
  - Core Supply: 2.5 V
  - Ports: 5.0 V

www.infineon.com/microcontrollers

Microcontrollers

Never stop thinking

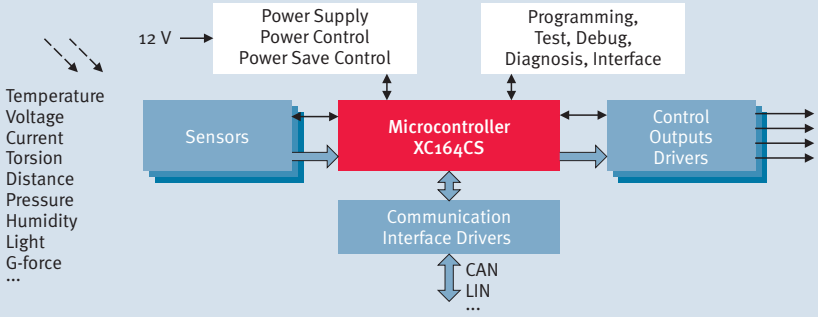
Block Diagram



Product Summary

	XC164CS	XC164S	XC164D	XC164N
eFlash [Kbytes] or ROM	64/128/256	64/128/256	64/128/256	64/128/256
RAM [Kbytes]	6/8/12	6/8/12	6/8/12	6/8/12
Package	P/PG-TQFP-100	P/PG-TQFP-100	P/PG-TQFP-100	P/PG-TQFP-100
Frequency [MHz]	20/40	20/40	20/40	20/40
Temperature Range [°C]	-40 ... 85 -40 ... 125	-40 ... 85	-40 ... 85	-40 ... 85
TwinCAN	✓	–	✓	–
A/D Converter	✓	✓	–	–

Application Example



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