SIEMENS

C165 Processor Oriented Microcontroller with up to 25 MHz CPU Clock

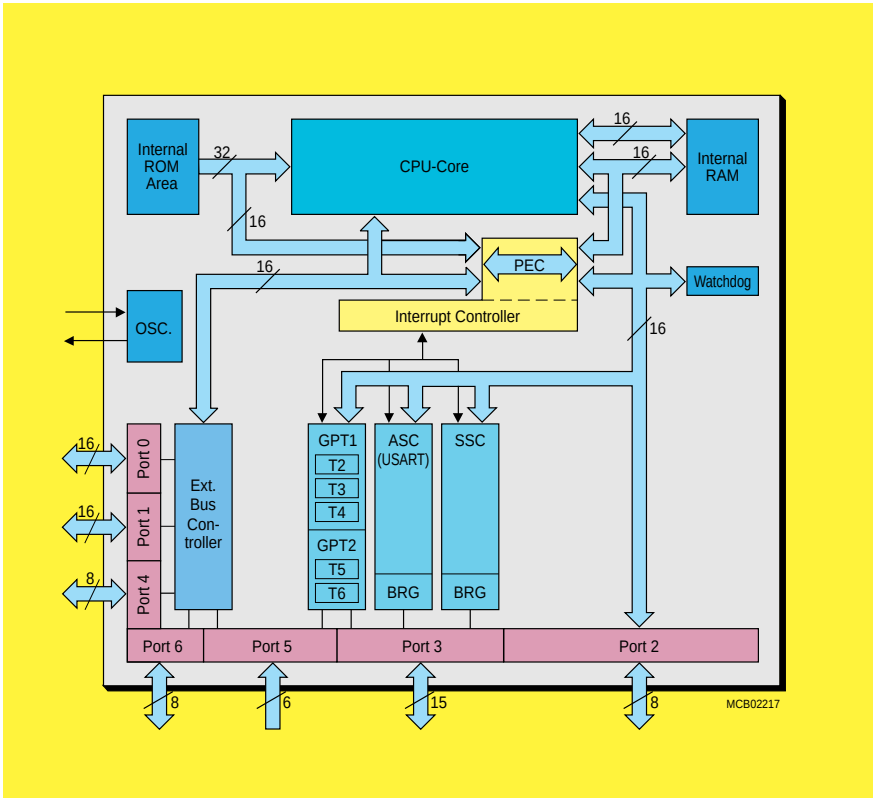
The C165* is a processor oriented version within the Siemens C166 microcontroller family. It meets the demands of embedded applications with high-end real-time requirements and large data throughput where pricing is a sensitive factor, for example in dataprocessing and telecom products.

The fastest version of the C165, the SAB-C165-L25M, needs just 80 ns at 25 MHz CPU clock to process each instruction. The C165 can operate at voltages down to 2.7V reducing the power consumption in battery-powered applications. Two surface mount packages are available; MQFP-100 and TQFP-100.

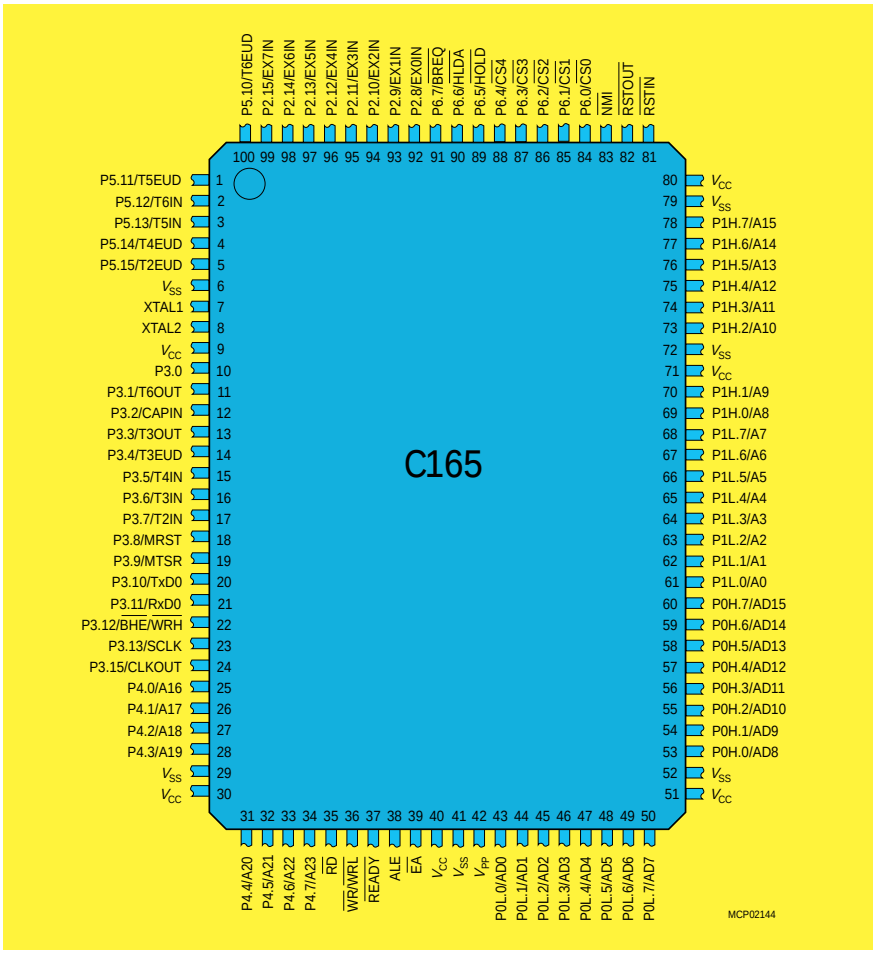
- High Performance 16-bit CPU with 4-stage pipeline
- 80 ns Instruction Cycle Time at 25 MHz CPU Clock (SAB-C165-L25M)
- 3V Operation at max. 14 MHz
- 400 ns Multiplication (16 x 16 bit) 800 ns Division (32/16 bit) (SAB-C165-L25M)
- Enhanced Boolean Bit Manipulation Facilities
- Additional Instructions to Support HLL and Operating Systems
- Register-Based Design with Multiple Variable Register Banks
- Single-Cycle Context Switching Support
- Up to 16 MBytes Linear Address Space for Code and Data
- 2 KBytes On-Chip RAM
- 4 KByte On-Chip ROM (-Rx types only)
- Programmable External Bus Characteristics for Different Address Ranges
- 8-bit or 16-bit External Data Bus
- Multiplexed or Demultiplexed External Address/Data Buses
- Five Programmable Chip-Select Signals
- Hold- and Hold-Acknowledge Bus Arbitration Support
- 1024 Bytes On-Chip Special Function Register Area
- Idle and Power Down Modes
- 8-Channel Interrupt-Driven Single-Cycle Data Transfer Facilities via Peripheral Event Controller (PEC)
- 16-Priority-Level Interrupt System with 28 Sources, Sample-Rate down to 40 ns (SAB-C165-L25M)
- Two Multi-Functional General Purpose Timer Units with a total of five 16-bit Timers
- Two Serial Channels (Synchronous/Asynchronous and High-Speed-Synchronous)
- Programmable Watchdog Timer
- Up to 77 General Purpose I/O Lines
- Supported by a large Range of Development Tools including C-Compilers, Makro-Assembler Packages, Real-Time Operating Systems, Emulators, Evaluation Boards, HLL-Debuggers, Simulators, Logic Analyzers Disassemblers, Programming Boards
- On-Chip Bootstrap Loader
- 100-Pin MQFP-Package (EIAJ) or 100-Pin TQFP-Package (14 x 14 x 1.4 mm, 0.5 mm pitch; suited for PCMCIA-Applications)

* For complete device designations (corresponding to PRO ELECTRON) please refer to the data sheet.

C165
Block Diagram



C165
Pin Configuration
MQFP-Package
(TQFP-Package also available)



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