

## C165-L

Processor-Oriented Microcontroller  
with up to 25 MHz CPU Clock



THE C165-L<sup>1)</sup> is a processor oriented version within the Infineon C166 microcontroller family. It meets the demands of embedded applications with high-end realtime 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 3 V reducing the power consumption in battery-powered applications. Two surface mount packages are available; PG-MQFP-100 and PG-TQFP-100.

### Key Features

- High Performance 16-bit CPU with 4-stage pipeline
- 80 ns Instruction Cycle Time at 25 MHz CPU Clock (SAB C165-L25M)
- 3 V Operation at max.20 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 MByte Linear Address Space for Code and Data
- 2 KByte On-Chip RAM
- 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
- On-Chip Bootstrap-Loader
- 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
- 100-Pin MQFP Green Package or 100-Pin TQFP Green Package (14 x 14 x 1.4 mm, 0.5 mm pitch; suited for PCMCIA-Applications)

<sup>1)</sup> For complete device designations (corresponding to PRO ELECTRON) please refer to the data sheet.

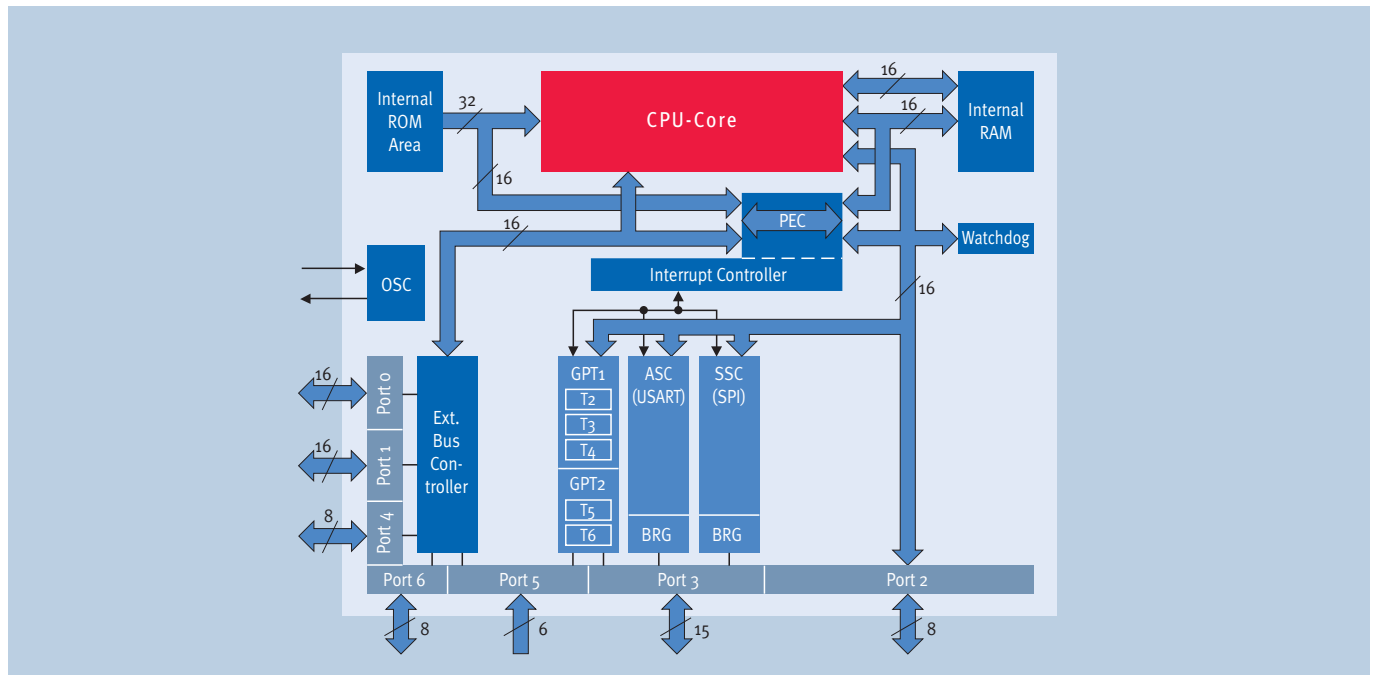
[www.infineon.com/microcontrollers](http://www.infineon.com/microcontrollers)

## Microcontrollers

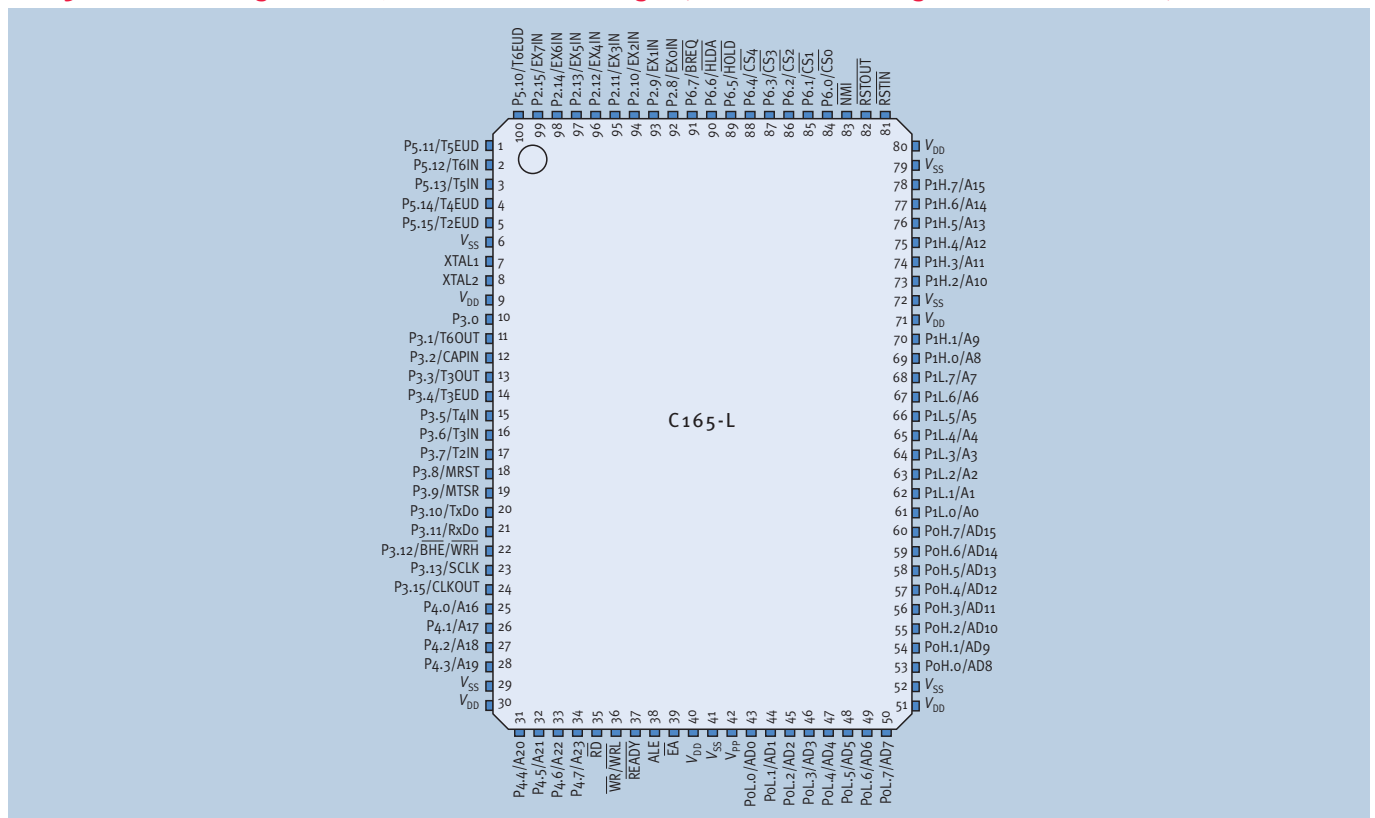


Never stop thinking

## C165-L Block Diagram



## C165-L Pin Configuration, PG-MQFP Package (PG-TQFP Package also available)



How to reach us:  
<http://www.infineon.com>

Published by  
 Infineon Technologies AG  
 81726 München, Germany

© Infineon Technologies AG 2006.  
 All Rights Reserved.

### Legal Disclaimer

The information given in this Product Brief shall in no event be regarded as a guarantee of conditions or characteristics ("Beschaffenheitsgarantie"). With respect to any examples or hints given herein, any typical values stated herein and/or any information regarding the application of the device, Infineon Technologies hereby disclaims any and all warranties and liabilities of any kind, including without limitation warranties of non-infringement of intellectual property rights of any third party.

### Information

For further information on technology, delivery terms and conditions and prices please contact your nearest Infineon Technologies Office ([www.infineon.com](http://www.infineon.com)).

### Warnings

Due to technical requirements components may contain dangerous substances. For information on the types in question please contact your nearest Infineon Technologies Office.

Infineon Technologies Components may only be used in life-support devices or systems with the express written approval of Infineon Technologies, if a failure of such components can reasonably be expected to cause the failure of that life-support device or system, or to affect the safety or effectiveness of that device or system. Life support devices or systems are intended to be implanted in the human body, or to support and/or maintain and sustain and/or protect human life. If they fail, it is reasonable to assume that the health of the user or other persons may be endangered.

Ordering No. B158-H8873-X-X-7600  
 Printed in Germany  
 PS 0606 nb