SIEMENS

C161
The Basic 16-bit Microcontrollers

These members of the C166 family offer all benefits of a full 16-bit controller at the average price of an 8-bit controller. The C161* product range is focused on price sensitive applications such as in consumer products. Grouped around the 16MHz C166 core a variety of basic peripherials have been chosen for optimal product and system costs.

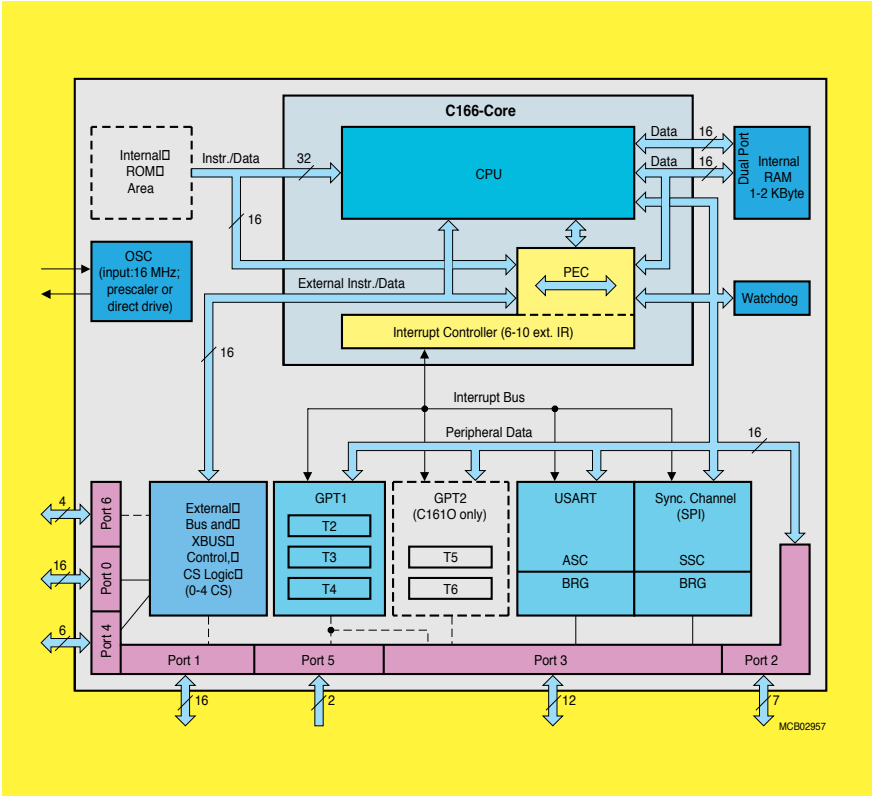
Device Cross-Reference
The table below describes the differences between the three C161 derivatives.

Feature	C161V	C161K	C161O
Internal RAM Size (IRAM)	1 KByte	1 KByte	2 KBytes
Chip Select Signals	---	2	4
Bus Modes	MUX	MUX/Demux	MUX/Demux
Power Saving Modes	---	yes	yes
Fast External Interrupts	4	4	7
General Purpose Timer Unit 1 (GPT1)	yes	yes	yes
Input / Output Functionality of GPT1	---	yes	yes
General Purpose Timer Unit 2 (GPT2) with Capture Input (CAPIN) Functionality	---	---	yes
Bootstrap Loader	---	yes	yes

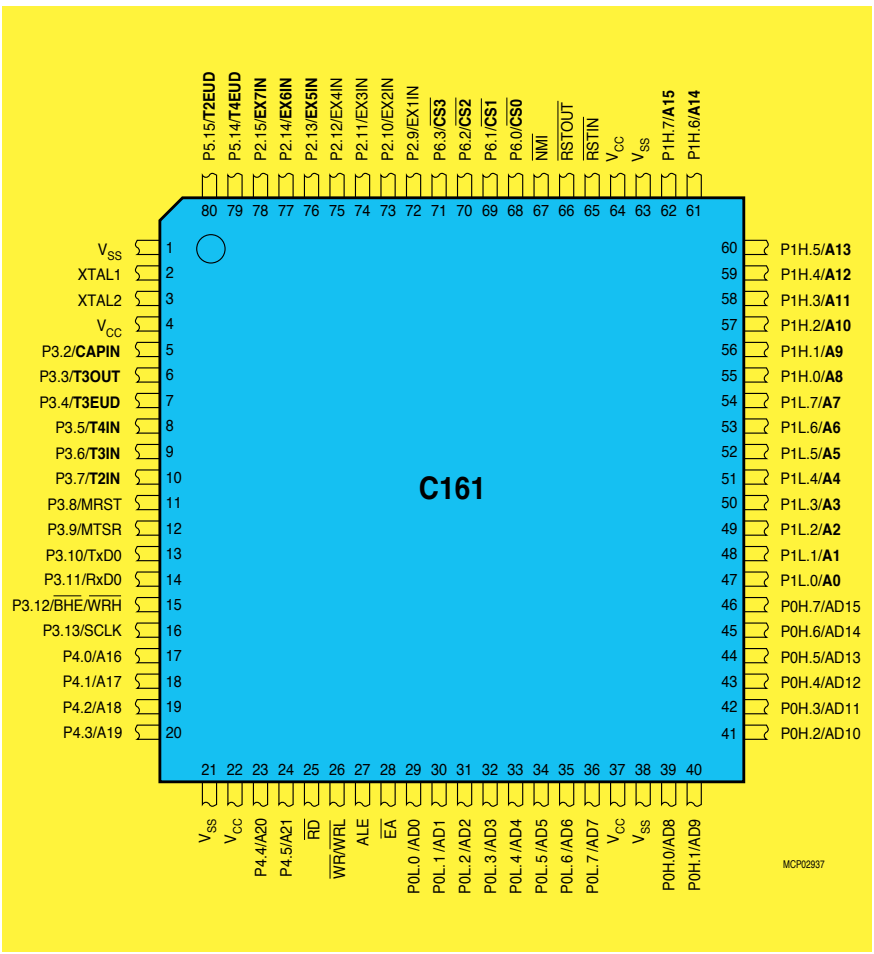
- High Performance 16-bit CPU with 4-stage pipeline
- 125 ns Instruction Cycle Time at 16 MHz CPU Clock
- 625 ns Multiplication (16 x 16 bit) 1,25 µs Division (32/16 bit)
- Clock Generation via Prescaler or via Direct Clock Input
- Enhanced Boolean Bit Manipulation Facilities
- Additional Instructions to Support HLL and Operating Systems
- Register-Based Design with Multiple Variable Register Banks
- Single-Cycle Context Switching Support
- Up to 4 MBytes Linear Address Space for Code and Data
- Up to 2 KBytes 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 (C161V provides MUX Bus only)
- Programmable Chip-Select Signals (not on C161)
- 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 20 Sources, (14 Sources on C161V)
- Multi-Functional General Purpose Timer Units with up to five 16-bit Timers
- Two Serial Channels (Synchronous/Asynchronous and High-Speed-Synchronous)
- Programmable Watchdog Timer
- Up to 63 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
- 80-Pin MQFP-Package

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

C161V/C161K/C161O Block Diagram



C161V/C161K/C161O Pin Configuration Square MQFP-80 Package (top view)



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