PERFORMANCE TECHNOLOGIES

# CPC5565

## Intel® Core™ 2 Duo Single Board Computer

### Highlights

>> Intel® Core™ 2 Duo Featuring a 64-Bit Dual-Core 2.2 GHz Processor

>> Single-Slot, High-Performance Computing Solution for PICMG® 2.16 Systems

>> 128-Bit Addressability to 16 GB PC2-3200 DDR Memory

>> Onboard Eight-Port Gigabit Switch

>> PMC Expansion Port with Support for 2x1000 Mbps Ethernet and 32/64 bit, 33/66 MHz PCI Bus

>> Supports Both 32- and 64-Bit Operating Systems:
- NexusWare® CGL OS and Development Environment
- Linux® x64
- Windows® XP x64
- Solaris™ 9/10 x64

>> Full Compliance with PICMG® 2.16 and 2.9 Specifications

The CPC5565 is a 64-bit single-slot CompactPCI® single-board computer designed for high-performance embedded applications. It features the Intel® Core™ 2 Duo processor.

The Intel Core 2 Duo processor provides a highly scalable x86 architecture that delivers next-generation performance and a flexible upgrade path from 32- to 64-bit computing. Its multi-core architecture offers advanced processing speed while addressing the power and heat constraints of the CompactPCI form factor. Designed to run Linux® , Solaris™, and Windows® applications, the CPC5565 is the ideal processor for the high-end packet processing or multi-threaded software applications found in softswitch, aerospace, wireless, defense, or other compute-intensive applications.

Paired with the CPC5910 storage expansion module, the CPC5565 can support local storage arrays of up to 3 Terabytes of high-performance SATA drives, which makes it an ideal embedded database server.

### Hardware Features

The CPC5565 features Intel Core 2 Duo™ processors and chipsets that have been carefully selected for longevity from Intel's embedded products roadmap. This ensures that these SBC's will be available for a number of years. The selected processors have a range of clock speeds that support either single- or dual-core operation.

The Intel 3100 chipset features an 800 MHz Front side bus and offers a path to the array of I/O options, including USB 2.0, serial, PCI bus 33/66MHz, six SATA channels, and PCI Express®. The PCI Express channels are dedicated to the dual Gb Ethernet ports of the on-board Gb ethernet controller, the high performance AMD/ATI E2400 video controller, and the PCI Express to PCI Bridge.

The USB and SATA connections can be used to support a variety of devices, including a rear transition module (RTM) for hard disk storage, SSDDR memory/flash modules and static cabling, via the RTM, to the rear of a chassis. The SATA flash drives are ideal for program and OS storage when the CPC5565 is deployed without the RTM and the PTMC (PICMG® 2.15) site is being used for a daughter card.

The SBC comes standard with an AMD/ATI Radeon™ E2400 video processor with Internal 128 MB GDDR3 memory. This is a high-performance video GPU with support for 2D/3D graphics, video/audio playback and video acceleration as well as dual-display support for HDMI and DVI-D through the front panel HDMI connection at 480p, 720p or 1080i output. The E2400 supports DAC Speeds of up to 400 MHz and QXGA resolution up to 2048 x 1536. In addition, via the RTM4810, a rear panel, 9 pin sub-D connection for VGA graphics is also provided.

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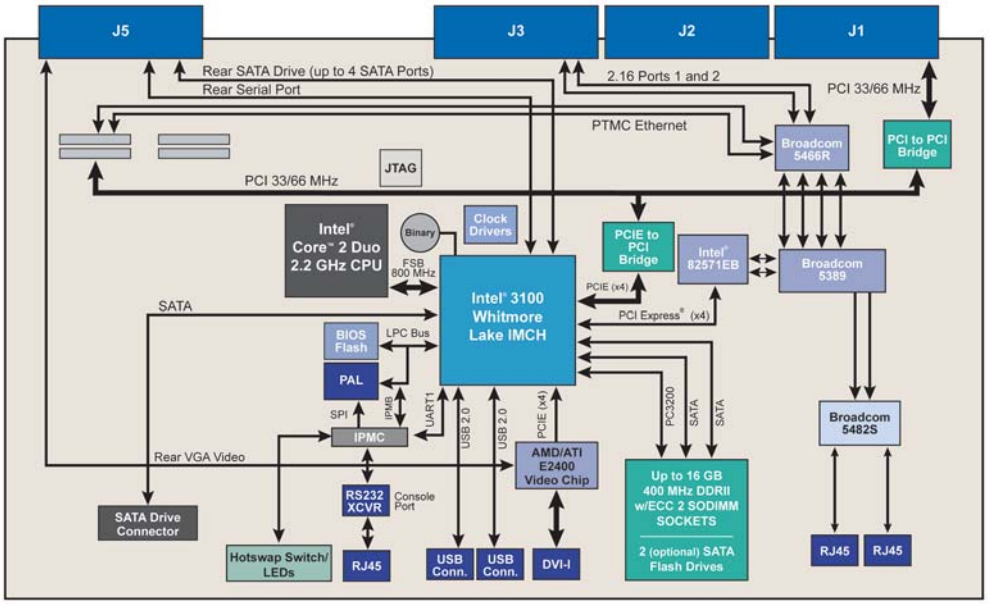
The onboard layer 2 Gb ethernet switch provides two PICMG® 2.16 GbE connections to the backplane, two GbE connections to the PMC mezzanine site, two GbE TX routed to the front panel, and two GbE connections to the Intel® 3100, which allows total flexibility in routing IP traffic between all elements of the board without going offboard for switching. The switch can be configured with the desired switching options at boot through the board BIOS.

The PMC standard-compliant expansion site supports both dual GbE to the onboard switch and PCI bus 32/64 bit at either 33 or 66 MHz. An independent PCI bus is provided to the system through the rear panel connections at the same speeds and bus widths, so the CPC5565 can act either as a system master in a traditional master/slave system or as a peer in a network centric architecture.




CPC5565 - Single-Slot High-Density Compute Blade

## Flexible I/O and Super Computer Performance

The CPC5565 is designed for use with Performance Technologies' complete line of Advanced Managed Platform™ products such as the AMP5086 and AMP5095 chassis. It allows system designers to build robust, highly-reliable solutions that combine state-of-the-art management, the highest performance power and cooling, and integrated switching.

All of these solutions are compliant with the PICMG CompactPCI specification, which assures interoperability, broad vendor selection, and a range of choices to complement the CPC5565.

A clustered computing architecture built with the CPC5565 and standards-compliant Advanced Managed Platform can outperform proprietary blade server architectures from both computing density-per-rack and total-cost-of-ownership perspectives.

# CPC5565

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The RTM4810, an advanced rear transition module, offers support for both SATA 2.5-in. hard drive disks, as well as an analog VGA video interface, and USB. The CPC5565 can boot from any storage medium on this RTM or through a SATA connector on the rear face plate. By using the RTM 4810, the CPC5565 can be chained to a CPC5910 storage expansion module that contains two 3.5-in. hard drive disks to make a local storage array with up to 3 TB of directly attached storage.

## Thermal Design for Embedded Applications

The CPC5565 is designed to fit into the power and cooling capabilities of Performance Technologies' Advanced Managed Platform solution, so customers can be assured that their applications will meet stringent requirements that include NEBS, UL, and ETSI. It is also designed from the ground up to be RoHS-compliant for systems that require toxic materials elimination. By employing advanced techniques that include the use of the onboard IPMC microcontroller to control CPU clock speed, Performance Technologies has designed the CPC5565 to automatically adjust to the most demanding environmental conditions.

## Configuration Options

| Product Number | Description |
|---|---|
| PT-CPC5565-12389 | Intel® Core™ 2 Duo 2.2 GHz 64-Bit SBC, 2GB, no HDD, PMC |
| PT-CPC5565-12390 | Intel® Core™ 2 Duo 2.2 GHz 64-Bit SBC, 2GB, 120 GB HDD, No PMC |
| PT-CPC5565-12391 | Intel® Core™ 2 Duo 2.2 GHz 64-Bit SBC, 4GB, no HDD, PMC |
| PT-CPC5565-12392 | Intel® Core™ 2 Duo 2.2 GHz 64-Bit SBC, 4GB, 120 GB HDD, No PMC |
| PT-CPC5565-12393 | Intel® Core™ 2 Duo 2.2 GHz 64-Bit SBC, 8GB, no HDD, PMC |
| PT-CPC5565-12394 | Intel® Core™ 2 Duo 2.2 GHz 64-Bit SBC, 8GB, 120 GB HDD, No PMC |

| Product Number | Description |
|---|---|
| PT-CPC5910 | SATA Storage Expansion Module with two hot-swappable SATA drives. Requires RTM4810 rear transition module with SATA chain cable. |

| Product Number | Description |
|---|---|
| PT-RTM4810-12152 | Rear Transition Module with no disk drive. |
| PT-RTM4810-12153 | Rear Transition Module with one 120 GB SATA drive. |
| PT-ACC4810-12161 | 0.5 Meter SATA Cable uses for linking to a CPC5910 in the same chassis. |

# CPC5565

## Technical Specifications

### Ordering Information

>> To discuss specific requirements and/or pricing, contact sales@pt.com

### Software Options

>> Performance Technologies' NexusWare® suite of software provides a comprehensive Carrier Grade Linux® (CGL) OS and development environment as well as middleware and protocol communications software.

For more information visit **go.pt.com/software** or call your local representative.

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### Processor

- Intel® Core 2 dual-core architecture:
  - Independent L1 cache structures per core
  - Shared L2 cache (4 MB)
  - 64-bit processor
- Compatible with existing 32-bit code base
- Enhanced Intel SpeedStep® technology for more efficient power management

### Video

- AMD/ATI Radeon™ E2400 Video Processor
  - Internal 128 MB GDDR3 Memory
  - High-performance 2D, 3D, and multimedia graphics
  - QXGA resolution up to 2048 x 1536
  - HDMI output for 480p, 720p, and 1080i
  - 32 bits per pixel
  - DirectX 10 and OpenGL 2.0 support
  - Video acceleration
    - Advanced de-interlacing algorithms
    - Programmable, independent gamma control for video overlay
  - SMARTSHADER™ 4.0
  - SMOOTHVISION™ 2.0
  - Dual-display mode
  - Integrated HD audio codec supports PCM and Dolby® Digital 5.1 Audio Formats

### Memory

- Low latency, high bandwidth
- 64-bit DDR2 PC2-3200
- 200-pin SO-RDIMM
- Supports up to16 GB DRAM
- ECC checking with double-bit detect and singlebit correct

### Physical Interfaces

- Onboard Managed Switch
  - 1 Gb routed to:
    - Host CPU, two ports
    - PMC slot, two ports
    - PICMG® 2.16 backplane, two ports
    - Front panel, two ports
- PMC slot
- Support for up to 6 SATA devices
  - 1 to the onboard SATA HDD
  - 1 to the onboard SO-RDIMM Flash device
  - 1 to a second SO-RDIMM or J5 of the RTM
  - 3 to the SATA ports of the RTM
- Three USB 2.0 ports
  - Two front and one rear
- Onboard video
  - DVI-I connector for digital and/or analog video
  - Rear VGA connector
- Serial port
  - Front/rear
- User-defined LEDs

### Dimensions

- Single width CompactPCI form factor, 6U x 4HP (233 mm x 160 mm)

### Switch Management

- CLI via RS-232 and in-band Ethernet ports
- Telnet
- SNMP v1, v2c, v3 - RFC 1157
- MIBs
  - MIBII - RFC 1213, MIBII bridge - RFC 1493
  - IEEE 802.1q MIB - RFC 2674
  - Performance Technologies enterprise MIB

### Specification Compliance

- PICMG 2.16 R1 CompactPCI packet-switched backplane
- PICMG 2.9 R1.0 CompactPCI system management specification/IPMI (intelligent platform management interface) version 1.5
- IEEE Std. 802.3 - 2000 edition CSMA/CD access method and physical layer specification
- USB 2.0, high speed

### Power

- 66 W maximum with V(I/O) set to 3.3V
  - Multiple low power states
  - System Management Mode (SMM)
  - ACPI Compliant

### Environmental

- Operating: 0 to 55°C (32 to 131°F)
- Non-operating: -20 to 80°C (-4 to 176°F)
- Humidity: 5 to 90% RH non-condensing

### Agency Certifications (Pending)

- FCC Class A
- CE
- UL 60950
- EN 60950
- ETSI EN 300 386
- Designed to meet the requirements of NEBS Level 3

### MTBF

- TBD