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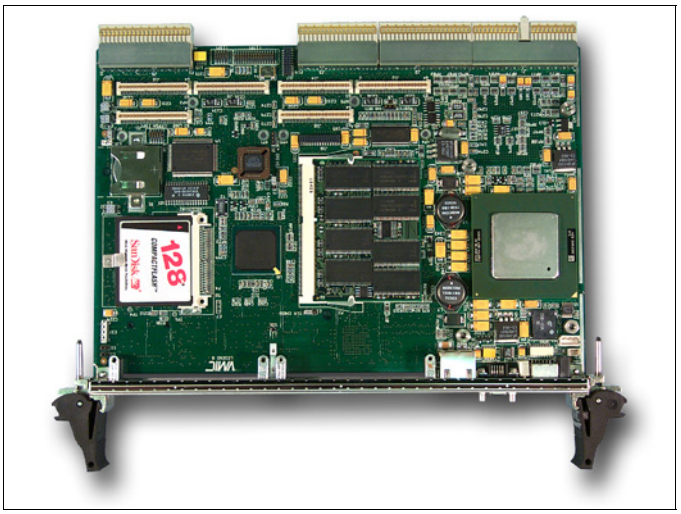
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Find the *Abaco Systems / VMIC VMICPCI-7756-878* at our website: ***Click HERE***

VMICPCI-7756

Intel® Pentium® III Processor-Based Single Board Computer with 133 MHz System Bus

- ***Single slot Pentium® III FC-PGA socket processor-based single board computer (SBC) with 133 MHz system bus***
- ***Up to 192 Mbyte IDE CompactFlash (optional)***
- ***Four programmable timers (two 16-bit, two 32-bit)***
- ***32 Kbyte of nonvolatile SRAM***
- ***Remote Ethernet booting***
- ***Software-selectable watchdog timer with reset***
- ***Dual PMC expansion sites***
- ***Peripheral-slot CPU (embedded 64-bit PCI bridge allows onboard Pentium III processor to operate independent of the CompactPCI® bus)***
- ***Compliant with CompactPCI 2.0 revision 3.0***
- ***Compliant with PICMG® 2.1 Rev. 1.0 for high availability hot swap***
- ***64-bit, 33 MHz CompactPCI (primary) bus support***
- ***Pentium III FC-PGA/PGA2 socket processor with speeds up to 1.26 GHz***
- ***Up to 512 Mbyte PC-133 SDRAM using one 144-pin SODIMM module***
- ***Integrated 2D/3D graphics (built-in VGA maximum resolution (8 bpp at 1,600 x 1,200, 16 bpp at 1,600 x 900, and 24 bpp at 1,280 x 1,024))***
- ***Onboard Fast Ethernet controller supporting 10BaseT and 100BaseTX interfaces***
- ***Onboard Ultra DMA/100 hard drive and floppy drive controllers with CompactPCI backplane I/O***
- ***Two high performance 16550-compatible serial ports. Both serial ports available through CompactPCI backplane connectors.***
- ***One USB port available via the CompactPCI backplane connectors***
- ***PS/2-style keyboard and mouse port on front panel***
- ***Real time clock and miniature speaker included***
- ***Passive heat sink***
- ***Operating system support for Windows NT® and Windows NT Embedded, Windows® 2000, VxWorks®, Solaris™, Linux®, LynxOS® and QNX®***



Functional Characteristics

Microprocessor: The VMICPCI-7756 brings Intel® Pentium III processor to CompactPCI bus, offering processor speeds up to 1.26 GHz. The Pentium III processor has 32-bit addressing and a 64-bit data bus. Its superscalar architecture allows three instructions to be executed per clock cycle. A dynamic branch prediction unit, separate instruction and data caches, and MMX™ technology also increase the Pentium III processor's performance. The Pentium III processor also provides internal L2 cache using dual independent bus architecture for high bandwidth and performance.

High Availability Hot Swap: The VMICPCI-7756 complies with PICMG 2.1 Rev. 1.0 standard for CompactPCI hot swap. The VMICPCI-7756 complies with the high-availability provisions of this standard. This means that, in addition to being able to remove and replace the board with the system operating, processing can automatically be switched to a second backup board already installed in the system in the event of failure in the primary processor.

Super VGA Controller[1]: High-resolution graphics and multimedia-quality video are supported on the VMICPCI-7756 by an internal 815E AGP graphics controller. The controller uses 4 Mbyte synchronous DRAM display cache with a high-bandwidth 64-bit data interface and supports screen resolutions up to 1,600 x 1,200.

DRAM Memory: The VMICPCI-7756 accepts one 144-pin SODIMM PC-133 SDRAM module for a maximum memory capacity of 512 Mbyte. The onboard DRAM is dual ported to the CompactPCI bus.

BIOS: System BIOS, video BIOS, and LAN Boot BIOS are provided in reprogrammable flash memory. BIOS loader software can be provided.

[1] The VMICPCI-7756 requires an adapter cable (available separately) to adapt the board's micro-DB9 connector to the standard VGA high-density DB15 connector.

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Ordering Options							
Apr. 5, 2005 800-657756-000 K		A	B	C	D	E	F
VMICPCI-7756	–				0	0	0

A = Processor
0 = Reserved
1 = Reserved
2 = Reserved
3 = Reserved
4 = 733 MHz Pentium III FC-PGA Socket Processor with 256 Kbyte L2 Cache
5 = Reserved
6 = 866 MHz Pentium III FC-PGA Socket Processor with 256 Kbyte L2 Cache
7 = Reserved
8 = 1.26 GHz Pentium III FC-PGA Socket Processor with 512 Kbyte L2 Cache

B = SDRAM Memory
0 = Reserved
1 = Reserved
2 = Reserved
3 = 32 Mbyte
4 = 64 Mbyte
5 = 128 Mbyte
6 = 256 Mbyte
7 = 512 Mbyte

C = CompactFlash Drive
0 = None
1 = 8 Mbyte
2 = Reserved
3 = Reserved
4 = Reserved
5 = 64 Mbyte
6 = Reserved
7 = 96 Mbyte
8 = 128 Mbyte
9 = 160 Mbyte
G = 192 Mbyte

DEF = 0 (Options reserved for future use.)

CompactPCI Rear Transition Utility Board

VMIACC-0577

The VMIACC-0577 mounts in the rear transition area of the backplane and provides access to the serial, USB, enhanced IDE, floppy disk, and PMC I/O connectors by way of the J3 and J5 connectors. The VMIACC-0577 is sold separately.

Connector Adapter Kit

360-000168-004

A connector adapter, part number 360-000168-004, is available to adapt the product's front panel, 9-pin video port Micro-D connector to a Standard-D 15-pin connector. **This adapter is sold separately.**

For Ordering Information, Call:
1-800-322-3616 or 1-256-880-0444 • FAX (256) 882-0859
Email: info.embeddedsystems@gefanuc.com
Web Address: www.gefanuc.com/embedded
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Ethernet Controller: The VMICPCI-7756 supports Ethernet LANs with the Intel 82559 PCI Ethernet controller. 10BaseT and 100BaseTX options are supported via an RJ45 connector.

Remote Ethernet Booting: The VMICPCI-7756 utilizes Lanworks Technologies, Inc.'s BootWare BIOS. BootWare provides the ability to remotely boot the VMICPCI-7756 and provides the following features:

- NetWare (802.2, 802.3, or Eth II), TCP/IP (DHCP or BootP), RPL and PXE boot support
- Unparalleled boot sector virus protection
- Detailed boot configuration screens
- Comprehensive diagnostics
- Optional disabling of local boots
- Dual-boot option lets users select network or local booting

Serial Ports: Two 16550-compatible serial ports are featured on the VMICPCI-7756. Each serial channel has an independent 16-byte FIFO to support baud rates up to 115 Kbaud.

USB Port: The VMICPCI-7756 provides one Universal Serial Bus (USB) port. The port is available at the CompactPCI backplane connector.

Keyboard and Mouse Ports: The VMICPCI-7756 supports a combined PS/2 keyboard and mouse connector for peripherals. A **Y**-adapter cable is supplied with the unit.

Flash Memory: The VMICPCI-7756 provides up to 192 Mbyte of CompactFlash memory accessible through the secondary IDE port. The VMICPCI-7756 BIOS includes an option to allow the board to boot from the flash memory.

The onboard flash emulates a hard disk drive. Accesses to flash are identical to file operations for a hard disk drive. Because of the hard disk emulation feature, no OS-specific software drivers are required for flash memory operation.

Programmable Timers: The VMICPCI-7756 provides the user with two 16-bit timers and two 32-bit timers that are independently programmable. These timers are mapped in PCI memory space, and are capable of generating PCI interrupts.

Watchdog Timer: The VMICPCI-7756 provides a software-programmable watchdog timer. The watchdog timer is enabled under software control. Once the watchdog timer is enabled, onboard software must access the timer within the specified timer period, or the output of the watchdog timer will reset the unit.

Nonvolatile SRAM: The VMICPCI-7756 provides 32 Kbyte of nonvolatile SRAM. The contents of the SRAM are preserved when +5V power is interrupted or removed from the unit.

Reset Switch and Annunciators: A small push-button switch on the front panel will reset the VMICPCI-7756. Only the onboard

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VMICPCI-7756 logic will be reset. There will be no reset generated on the CompactPCI bus. Six LEDs are visible on the front panel: +5V power, board status, IDE activity, LAN activity, LAN Mode (10 or 100 MHz mode), and hot swap status. A small speaker is also included on the VMICPCI-7756 to provide sound output.

PMC Expansion Sites: The VMICPCI-7756 supports the IEEE P1386 common mezzanine card specification with two 5V PCI mezzanine card expansion sites. PMC I/O is routed to the CompactPCI backplane connectors.

The following is a partial list of commercially available PMC modules:

- Fibre Channel
- Analog and digital I/O
- High speed serial and parallel I/O
- Networking adapters: FDDI, ATM, Ethernet, Fast Ethernet
- PMC-to-PC Card adapter
- MIL-STD-1553 bus interface
- SRAM
- Flash
- Solid-state disk
- Data acquisition cards
- SCSI-2 adapter
- Parallel links
- Octal DSP
- Quad SIO
- GPIB
- FAX/modem
- PMC-to-PMC expanders
- T1/E1 and serial communications interfaces

Contact GE Fanuc Embedded Systems for more information concerning PMC modules and compatibility.

CompactPCI bus Bridge: The VMICPCI-7756 incorporates a PCI peripheral device that performs PCI bridging functions for embedded and intelligent I/O applications. The PCI device acts as a gateway to an intelligent subsystem. It allows the local VMICPCI-7756 Pentium III processor to configure and control the onboard local subsystem independent from the CompactPCI bus host processor. The VMICPCI-7756 local PCI subsystem is presented to the CompactPCI bus host as a single CompactPCI device.

The VMICPCI-7756 PCI bridge device provides the following features:

PCI Interface

- Fully compliant with the PCI Local Bus Specification, Revision 2.1
- 64-bit, 33 MHz CompactPCI (primary) bus support
- 3.3V operation with 5.0V tolerant I/O
- Concurrent local (secondary) and CompactPCI (primary) bus operation
- Supports full hot swap and high availability hot swap per PICMG 2.1 Rev. 1.0

Buffer Architecture

- Queuing of multiple transactions in either direction
- 256 byte of posted write (data and address) buffering in each direction
- 256 byte of read data buffering in each direction
- Four delayed transaction entries in each direction

Configuration Registers and CSRs

- Two sets of standard PCI configuration registers corresponding to the local and CompactPCI interfaces. Each set is accessible from either the local or CompactPCI interface.
- Four 32-bit base address configuration registers mapping the control and status registers (CSRs)

Transaction Forwarding

- Four primary interface base address configuration registers for downstream forwarding with size and prefetchability programmable for all four address ranges
- Direct offset address translation for downstream memory and I/O transactions
- Three secondary interface address configuration registers specifying local address ranges for upstream forwarding with size and prefetchability programmable for all three address ranges
- Inverse decoding above 4 Gbyte address boundary for upstream DACs
- Ability to generate type 0 and type 1 configuration commands on the primary or secondary interface via configuration or I/O CSR accesses

Operating System and Software Support

GE Fanuc Embedded Systems has a wide range of software products designed to run on Intel processor-based SBCs, such as the VMICPCI-7756. These products are aimed at developers who are incorporating GE Fanuc Embedded Systems' SBCs, I/O boards, and workstations into systems.

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Windows NT OS Support — VMISFT-9421 Generic Device Driver: The VMISFT-9421 is very useful in those cases where the driver for peripheral devices is not available.

The generic hardware driver is a set of functions and utilities that makes it possible to easily develop, debug, and run standard Windows NT applications that access any PC Card (PCMCIA), PMC, and CompactPCI devices.

Visual Basic®, C/C++, and any other language that can call functions in a dynamic link library or connect to a DDE server are supported.

VxWorks OS Support — VMISFT-7418 Board Support Package: The VMISFT-7418, VxWorks board support package (BSP), is a Wind River Systems, Inc. certified BSP for GE Fanuc's series of CompactPCI Pentium processor-based computers that is required to run the VxWorks OS. Complete source code is provided, thus giving the user the utmost flexibility in system reconfiguration. Along with the Wind River Systems, Inc.-supplied software, a VxWorks OS kernel can be built and rebuilt for specific applications. For example, the user can easily reconfigure standard output to be via serial port or SVGA.

VMISFT-7418 is linked by the user with VxWorks OS, thus allowing software applications created with Wind River Systems, Inc.'s development system to load and run on the particular GE Fanuc SBC hardware being used. Serial ports, parallel ports, keyboard, text mode video, and Ethernet are all supported, as well as floppy and IDE hard disk drives that can be connected to the computer boards. The BSP also provides Flash boot, NVRAM, and timer support.

VMISFT-7418 allows VxWorks applications to have access to the CompactPCI bus including memory, I/O, and configuration cycles. The BSP provides interprocessor communications capability via shared memory. The interprocessor communications provides system slot SBC to peripheral-slot communications via the CompactPCI bus.

QNX, Solaris, Linux and LynxOS: QNX, Solaris, Linux, and LynxOS are supported by VMICPCI-7xxx without the need for additional software drivers. The timers and battery-backed RAM may be accessed directly by application code.

Physical/Environmental Specifications

Dimensions: 6U single slot Eurocard form factor

Height	9.2 in. (233.4mm)
Depth	6.3 in. (160mm)
Thickness	0.8 in. (20.3mm)

Power Requirements:

+5VDC (+5 percent, -3 percent), 5A (typical), 6A maximum
+3.3VDC (+5 percent, -3 percent), 3A (typical), 8A maximum
+12VDC (+5 percent, -3 percent), 100mA (typical), 500mA maximum
-12VDC (+5 percent, -3 percent), 50mA (typical), 100mA maximum

Note: The currents at +12 and -12VDC are specified with the serial connectors open.

Temperature:

Operating: 0 to +50° C
(Air flow requirement as measured at output side of heatsink is to be greater than 350 LFM)
Storage: -20 to +70° C

Relative Humidity: 10% to 90%, noncondensing

PMC Expansion Site Connectors:

5V signaling, types 1 and 2
32-bit PCI bus, 33 MHz maximum

MTBF: 155,813 hours (Bellcore)

Compatible Products

PMC Expansion Sites: GE Fanuc Embedded System supports PMC via the two onboard PMC expansion sites. These expansion sites allow the VMICPCI-7756 to take advantage of the many commercially available PMC boards from third-party sources and GE Fanuc Embedded Systems.

Trademarks

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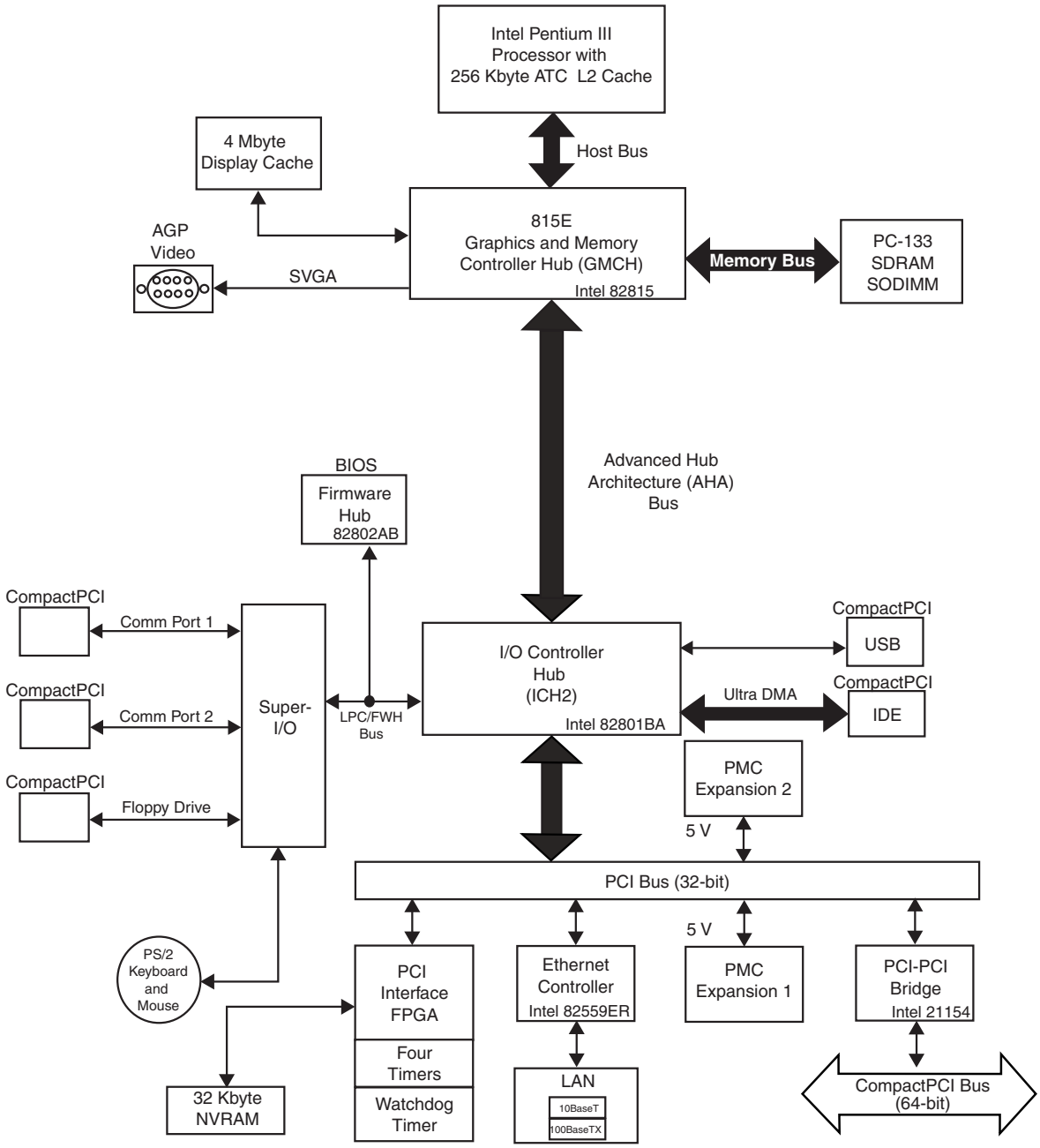


Figure 1. VMICPCI-7756 Block Diagram

GE Fanuc Embedded Systems Information Centers

USA and the Americas:

Huntsville, AL	***1 800 322-3616***
	1 (256) 880-0444
Ventura, CA	***1 (805) 650-2111***
Greenville, SC	***1 (864) 627-8800***

Europe, Middle East and Africa:

Edinburgh, UK	***44 (131) 561-3520***
Paris, France	***33 (1) 4324 6007***

Additional Resources

For more information, please visit the GE Fanuc Embedded Systems web site at:

www.gefanuc.com/embedded

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