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# VMIVME-7695

## Single-Slot Pentium II Embedded Module
## Processor-Based VMEbus Single-Board Computer

- Pentium® II processor-based single-board computer (SBC)
- Special features for embedded applications include
  - M-Systems, Inc.'s Flash DiskOnChip® (optional)
  - 16 Mbyte IDE flash drive
  - Three programmable 16-bit timers
  - 32 Kbyte of battery-backed SRAM
  - Software-selectable watchdog timer with reset
  - Remote boot support over Ethernet
  - Supports VMEbus P2 connection to HD/floppy drive
  - PMC expansion site with VMEbus P2 I/O
  - VME64 modes supported: A32/A24/D32/D16/D08(EO)/MBLT64/BLT32
  - VMEbus interrupt handler, interrupter, and system controller
  - Includes real-time endian conversion hardware for little-endian and big-endian data interfacing (patent no. 6,032,212)
  - Enhanced bus error handling
  - Passive heat sink design (no moving parts)
- Standard features include
  - Pentium II embedded module (333 MHz)
  - Up to 512 Mbyte SDRAM using three 144-pin SODIMMs
  - 64-bit S3 Trio 3D AGP SVGA controller with 4 Mbyte SGRAM
  - On-board Fast Ethernet controller supporting 10BaseT and 100BaseTX interfaces
  - On-board Ultra DMA/33 hard drive and floppy drive controllers with VMEbus P2 I/O
  - Two high-performance 16550-compatible serial ports (Requires VMIACC-0045 or individual connector adapter.)
  - Enhanced parallel port with ECP/EPP modes supported (Requires VMIACC-0045 or individual connector adapter.)
  - PS/2-style keyboard and mouse port on front panel
  - Real-time clock and miniature speaker included
  - Dual USB ports
- Operating system support available
  - Windows NT®/Windows® 2000
  - VxWorks
  - QNX
  - Solaris
  - Linux
  - LynxOS

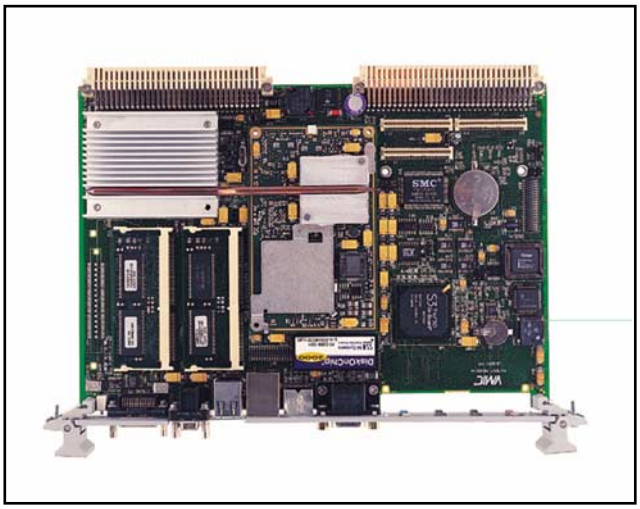
### APPLICATIONS

- Simulation
- Instrumentation
- Industrial control
- Process control and monitoring
- Factory automation
- Intelligent networked PLC controllers
- Automated test
- Data acquisition

**MICROPROCESSOR** — The VMIVME-7695 brings Intel® Pentium II processor with MMX™ to VMEbus, offering a processor speed of 333 MHz. The Pentium II 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 II processor's performance. The Pentium II processor also provides 512 Kbyte of internal L2 cache using dual independent bus architecture for high bandwidth and performance.

**DRAM MEMORY** — The VMIVME-7695 offers options for up to 512 Mbyte of system memory in up to three SODIMMs. The on-board DRAM is dual ported to the VMEbus.

**DiskOnChip** — The VMIVME-7695 provides the option to include 72, 144, or 288 Mbyte of memory accessible through M-Systems, Inc.'s DiskOnChip. This memory can be used as boot flash memory, or can be installed by the BIOS as an additional standard drive. No additional software is required. The DiskOnChip can be used as the only



### Ordering Options

| April 11, 2001 800-007695-000 K | | A | B | C | – | D | E | F |
|---|---|---|---|---|---|---|---|---|
| VMIVME-7695 | – | | | | – | | | |

**A = Processor**
0 = Reserved
1 = Reserved
2 = Reserved
3 = Reserved
4 = 333 MHz Pentium II Processor
5 = Reserved
6 = Reserved

**B = SDRAM Memory**
0 = Reserved
1 = Reserved
2 = Reserved
3 = 32 Mbyte
4 = 64 Mbyte
5 = 128 Mbyte
6 = 256 Mbyte
7 = 384 Mbyte
8 = 512 Mbyte

**C = DiskOnChip**
0 = No DiskOnChip
1 = Reserved
2 = Reserved
3 = Reserved
4 = Reserved
5 = 72 Mbyte
6 = 144 Mbyte
7 = 288 Mbyte

### Companion Single-Slot VMEbus Floppy/Hard Disk Module

| | | A | B | C | – | D | E | F |
|---|---|---|---|---|---|---|---|---|
| VMIVME-7452 | – | 5 | | | – | | | |

**A = 5**
**BC = Indicates Disk Module Configuration**
(See the VMIVME-7452 specification for details on disk module configuration options.)

### Adapter Cables

Micro DB9 to standard DB9, 36 in. P/N 360-010050-001
Micro DB25 to standard DB25, 36 in. P/N 360-010051-001
Cable Kit VMIACC-0045 contains:
Qty. 2 - Micro DB9 to DB9, 4 in.
Qty. 1 - Micro DB25 to DB25, 4 in.

**For Ordering Information, Call:**
**1-800-322-3616 or 1-256-880-0444 • FAX (256) 882-0859**
**E-mail: info@vmic.com Web Address: www.vmic.com**
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drive in the system, or can be used as a second drive; for example, as in conjunction with the VMIVME-7455 CD-ROM drive.

**BIOS** — System, video, and Ethernet remote boot BIOS are provided in reprogrammable flash memory.

**SUPER VGA CONTROLLER** — High-resolution graphics and multimedia-quality video are supported on the VMIVME-7695 by an S3 Trio 3D AGP graphics chip. The Trio 3D is complemented by 4 Mbyte SGRAM with an accelerated 64-bit data interface. Screen resolutions supported by the Trio 3D are listed below.

| Screen Resolution | Maximum Colors | Refresh Rate (Hz) |
|---|---|---|
| 320 x 200 | 256, 64 K, 16 M | 70 |
| 320 x 240 | 256, 64 K, 16 M | 72 |
| 400 x 300 | 256, 64 K, 16 M | 72 |
| 512 x 384 | 256, 64 K, 16 M | 70 |
| 640 x 400 | 256, 64 K, 16 M | 70 |
| 640 x 480 | 256, 32 K, 64 K, 16 M | 60, 72, 75, 85 |
| 800 x 600 | 256, 32 K, 64 K, 16 M | 56, 60, 72, 75, 85 |
| 1,024 x 768 | 256, 32 K, 64 K, 16 M | 43(I), 60, 70, 75, 85 |
| 1,152 x 864 | 256, 32 K, 64 K, 16 M | 60, 70, 75, 85 |
| 1,280 x 1,024 | 256, 32 K, 64 K | 43(I), 60, 75, 85 |

**Ethernet CONTROLLER** — The VMIVME-7695 supports Ethernet LANs with the Intel 21143 Ethernet controller. 10BaseT and 100BaseTX transfers are supported and the interface is accessible via an RJ45 connector on the front panel. The VMIVME-7695 includes the Lanworks Technologies, Inc.'s remote boot BIOS, allowing the user to remotely boot a wide variety of operating systems using the Ethernet interface. The Lanworks Technologies, Inc.'s BIOS offers the following:

- Support for the RPL, TCP/IP BootP, TCP/IP DACP, NetWare 802.3, NetWare 802.2, and NetWare EthII protocols
- Unparalleled boot sector virus protection
- Detailed boot configuration screens
- Comprehensive diagnostics
- Optional disabling of local boot capability
- Dual-boot option letting the user select network or local booting

Note the Lanworks Technologies, Inc.'s remote boot feature is not available on SBCs ordered with the DiskOnChip flash memory. Remote Ethernet booting is not operable with M-Systems, Inc.'s DiskOnChip option. Lanworks Technologies, Inc. only supports one logical drive in addition to the remote network drive.

**SERIAL PORT** — Two 16550-compatible serial ports are featured on the VMIVME-7695 front panel. The serial channel has a 16-byte FIFO to support baud rates up to 56 Kbps. The serial ports utilize two micro DB9-style connectors. Transition cables to standard DB9 connectors are available. Please refer to the Ordering Options.

**ENHANCED PARALLEL PORT** — Also accessible on the VMIVME-7695 front panel is a Centronics-compatible, fully bidirectional parallel port meeting all IEEE-1284 standards (Compatibility, Nibble, EPP, and ECP). The parallel port contains a 16-byte FIFO to allow data rates up to 2 Mbyte/s in ECP mode. The parallel port utilizes a micro DB25-style connector. A transition cable to standard DB25 is available. Please refer to the Ordering Options.

**KEYBOARD AND MOUSE PORTS** — The VMIVME-7695 has a combined PS/2 keyboard and mouse connector. A **Y**-adapter cable is included.

**FLASH MEMORY** — The VMIVME-7695 provides nonvolatile flash memory using two technologies: the SanDisk IDE Flash memory device and the optional M-Systems, Inc.'s DiskOnChip Flash memory device.

The VMIVME-7695 includes 16 Mbyte of IDE Flash memory from SanDisk Corporation. This Flash memory is accessible through the secondary IDE port and looks to the system like a standard IDE hard drive. The BIOS in the VMIVME-7695 fully support booting from the IDE Flash memory.

As an option, the VMIVME-7695 includes the M-Systems, Inc.'s DiskOnChip Flash memory device. This flash device is mapped in memory space and offers up to 72 Mbyte of Flash memory. The VMIVME-7695 BIOS fully supports booting from the DiskOnChip Flash memory. During bootup, the DiskOnChip loads its software into the VMIVME-7695 memory and installs itself as an additional drive. No additional external software is required. The DiskOnChip can be used as the only disk in the system, or it can be used as a secondary disk.

**16-bit TIMERS** — The VMIVME-7695 provides the user with three 16-bit timers (in addition to system timers) which are 82C54 compatible. These timers are mapped in I/O space, and are completely software programmable.

**WATCHDOG TIMER** — The VMIVME-7695 provides a software-programmable watchdog timer. The watchdog timer is enabled under software control. Once the watchdog timer is enabled, on-board software must access the timer within the specified time period, or a timeout will occur. A user jumper allows the timeout to be configured to cause a board reset, a nonmaskable interrupt (NMI), or neither. Independently of the user jumper, software can enable a VMEbus *SYSFAIL circuit. If enabled, the watchdog timeout will cause assertion of the VMEbus *SYSFAIL signal.

**BATTERY-BACKED SRAM** — The VMIVME-7695 provides 32 Kbyte of battery-backed SRAM. The contents of the SRAM are preserved when +5 V power is interrupted or removed from the unit.



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**RESET SWITCH AND ANNUNCIATORS** — A small push-button switch on the front panel will reset the VMIVME-7695. If the System Controller is enabled, a SYSRESET* will also be generated on the VMEbus. Eight LEDs are visible on the front panel: power good status, thermal failure indicator, status of VMEbus SYSFAIL, IDE activity, LAN activity, and LAN Mode (10 or 100 MHz mode). A small speaker is also included on the VMIVME-7695 to provide PC/AT sound output.

**PMC EXPANSION SITE** — The VMIVME-7695 supports IEEE P1386 common mezzanine card specification with a 5 V PCI mezzanine card expansion site. Space is reserved on the front panel of the VMIVME-7695 for access to PMC mezzanine card connectors. Furthermore, the VMIVME-7695 is equipped with 160-pin VME64 connectors allowing PMC I/O to be accessed via the P2 connector. The PMC I/O connector signals are routed to the VME64 P2 user-defined pins using an industry-standard pinout. The PMC expansion capability allows your favorite devices to be used with the VMIVME-7695, as shown in Figure 2.

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

- Fibre Channel
- Reflective Memory
- Analog and digital I/O
- High-speed serial and parallel I/O
- Networking adapters: FDDI, ATM, 100BaseTX 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
- Second Ethernet
- PMC-to-PMC expanders

VMIC supports the PMC expansion site with its VMIPMC-5576XL Reflective Memory interface. Reflective Memory is VMIC's family of memory-based networking products. Reflective Memory provides a high-speed network using memory. Data written into local memory is also written into the memories of all other nodes in the network. This error-free transmission requires no overhead from the host processor.

Contact VMIC for more information concerning third-party PMC modules and compatibility.

**VMEbus INTERFACE** — The VMIVME-7695 VMEbus interface is based on the Universe II high-performance PCI-to-VME interface from Tundra.

**SYSTEM CONTROLLER** — The on-board VMEbus system controller allows the board to operate as a slot 1 system controller, or it may be disabled when another board is acting as the system controller. The system controller may be programmed to provide the following modes of arbitration:

Round Robin (RRS)
Single Level (SGL)
Priority (PRI)

The system controller provides a SYSCLK driver, IACK* daisy-chain driver, and a VMEbus access timeout timer. The system controller also provides an arbitration timeout if BBSY* is not seen within a specified period after a BGOUT* signal is issued. This period is programmable for 16 or 256 ms.

The VMIVME-7695 autodetects whether it is inserted in slot 1 and configures itself as the system controller automatically.

**VMEbus REQUESTER** — The microprocessor can request and gain control of the bus using any of the VMEbus request lines (BR3* to BR0*) under software control. The requester can be programmed to operate in any of the following modes:

Release-On-Request (ROR)
Release-When-Done (RWD)
VMEbus Capture and Hold (BCAP)

**MAILBOXES** — The VMEbus Interface provides four 32-bit mailboxes, which are accessible from both the microprocessor and the VMEbus providing interprocessor communication. The mailboxes have the ability to interrupt the microprocessor when accessed by VMEbus, and VMEbus interrupts may be generated on mailbox access from the SBC.

**INTERRUPT HANDLER** — The interrupt handler monitors, and can be programmed to respond to any or all VMEbus IRQ* lines. All normal-process VMEbus-related interrupts can be mapped to PCI INTA# or SERR# interrupts. These include:

Mailbox interrupts
VMEbus interrupts
VMEbus interrupter IACK cycle (acknowledgment of VMIVME-7695 VMEbus-issued interrupts)

All error processing VMEbus-related interrupts can be mapped to PCI INTA# or SERR#. Note: PCI SERR# initiates a SBC NMI. These include:

ACFAIL* interrupt
BERR* interrupt
SYSFAIL* interrupt



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The interrupt handler has a corresponding STATUS/ID register for each IRQ* interrupt. Once the handler receives an IRQ*, it requests the VMEbus and, once granted, it performs an IACK cycle for that level. Once the IACK cycle is complete and the STATUS/ID is stored in the corresponding ID register, an appropriate interrupt status bit is set in an internal status register, and a PCI interrupt is generated. The PCI interrupt can be mapped to PCI INTA# or SERR#.

**INTERRUPTER** — Interrupts can be issued under software control on any or all of the seven VMEbus interrupt lines (IRQ7* to IRQ1*). A common ID register is associated with all interrupt lines. During the interrupt acknowledge cycle, the interrupter issues the ID to the interrupt handler.

The interrupter can be programmed to generate a PCI INTA# or SERR# interrupt when a VMEbus interrupt handler acknowledges a software-generated VMEbus interrupt.

**ENDIAN CONVERSION** — The Intel 80x86 family of processors use little-endian format. To accommodate other VMEbus modules which transfer data in big-endian format such as the 680x0 processor family, the VMIVME-7695 incorporates byte-swapping hardware. This provides independent byte swapping for both the Master and Slave interfaces. Both Master and Slave interface byte swapping are under software control.

**MASTER INTERFACE** — MA32:MBLT32:MBLT64 (A32:A24:A16:D32:D16:D8 (EO):BLT32)

The VMEbus master interface provides nine separate memory windows into VMEbus resources. Each window has separate configuration registers for mapping PCI transfers to the VMEbus (that is, PCI base address, window size, VMEbus base address, VMEbus access type, VMEbus address/data size, etc.). The maximum/minimum window sizes for the nine windows are as follows:

| Window | Minimum Size | Maximum Size |
|---|---|---|
| 0, 4 | 4 Kbyte | 4 Gbyte |
| 1 to 3, 5 to 7 | 64 Kbyte | 4 Gbyte |
| Special Cycle | 64 Mbyte | 64 Mbyte |

**SLAVE INTERFACE** — Memory Access SAD032:SD32:SBLT32:SBLT64 (A32:A24:A16:D32:D16:D8 (EO): BLT32)

The VMEbus slave interface provides eight separate memory windows into PCI resources. Each window has separate configuration registers for mapping VMEbus transfers to the PCI bus (that is, VMEbus base address, window size, PCI base address, VMEbus access type, VMEbus address/data size, etc.). The maximum/minimum window sizes for the eight windows are as follows:

| Window | Minimum Size | Maximum Size |
|---|---|---|
| 0, 4 | 4 Kbyte | 4 Gbyte |
| 1 to 3, 5 to 7 | 64 Kbyte | 4 Gbyte |

In addition, each window can be programmed to operate in coupled or decoupled mode. In decoupled mode, the window utilizes a write-posting FIFO and/or a read prefetching FIFO for increased system performance. In coupled mode, the FIFOs are bypassed and VMEbus transactions are directly coupled to the PCI bus (that is, transfers on VMEbus are not completed until they are completed on the PCI bus).

**ENHANCED BUS ERROR HANDLING** — Enhancements over the Universe chip's bus error handling features are provided. A latch and register are provided to allow the SBC to read the VMEbus address that caused a bus error in all modes. The Universe chip's support is limited to decoupled mode.

Support for bus cycle timeout and assertion of bus error is provided. The board may be configured to assert bus error upon timeout regardless of its status as system controller. The Universe chip asserts bus error only if it is system controller. In addition, this board may be configured to assert an interrupt upon bus cycle timeout.

**OPERATING SYSTEM AND SOFTWARE SUPPORT** — The VMIVME-7695 provides embedded features beyond PC/AT functionality. These features are supported by VMIC software products aimed at developers who are incorporating VMIC SBCs, I/O boards, and workstations into systems. Windows NT/Windows 2000 and VxWorks are the most common operating systems supported by VMIC software products.

**Windows NT/Windows 2000** — The IOWorks® software family is a set of software components that can work together or separately to provide a total development environment for any application in a Windows NT/ Windows 2000 OS.

**VMISFT-9420 VMEbus Access™ for Windows NT/Windows 2000** — The VMEbus Access product is specifically designed for accessing the advanced VMEbus architecture of the VMIVME-7695. Running on Windows NT/Windows 2000, VMEbus Access is both sophisticated and easy to use.

The function library, VMEbus toolset, and open architecture VMEbus Access offers make it one of the most powerful products on the market today. It provides compatibility with existing VMIC VMEbus PC platforms and compatibility with future VMEbus PC platforms VMIC creates.

The VMEbus Access development package gives you everything you need to develop applications for your VME operations. This package includes the *VMEmanager*™ function library and four utilities that enable you to easily configure a VMEbus, dynamically monitor VMEbus activities, manage VMEbus data, and use DDE-client applications.

VMEbus Access provides powerful tools for developing, debugging, and monitoring VMEbus applications and increasing VMEbus performance. The flexible design of VMEbus Access enables you to incorporate it as a stand-alone solution, or use it to open your VMEbus operations to the IOWorks product suite.



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VMEbus Access manipulates the hardware behind the scenes. With VMEbus Access, you can develop applications in or use existing applications developed in most programming environments. For example, VMEbus Access enables your VMEbus to recognize applications developed in these popular programming environments:

- IOWorks Manager™
- LabVIEW
- Citect
- Wonderware InTouch
- Visual IOWorks®
- Visual Basic®
- Visual C++®

### VxWorks OS SUPPORT

**VMISFT-7418 BOARD SUPPORT PACKAGE** — The VMISFT-7418 is a Wind River Systems, Inc.'s certified board support package (BSP) for VMIC's series of VMEbus Pentium processor-based computers, which is required to run the VxWorks OS. With the SBC, VxWorks, the BSP, and other VMEbus equipment from VMIC, implementations can be created for a wide variety of applications including real-time factory automation, simulation, instrumentation and control, and process control and monitoring.

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

The BSP allows VxWorks applications to have access to the VMEbus. When hardware includes single cycle and block transfers using DMA devices, they are supported by the BSP, as well as interprocessor communications with mailbox registers. VMEbus interrupt handling and error handling are supported. Since the VMEbus environment often contains a mixture of devices from various manufacturers, the byte-swapping feature is provided to allow big-endian and little-endian devices to share data correctly.

### QNX OS SUPPORT

**VMISFT-7417 BOARD SUPPORT PACKAGE** — The VMISFT-7417 BSP provides QNX support and includes a VMEbus manager, user API, and configuration files needed to run the QNX BSP on VMIC's VMIVME-7xxx SBC products. This BSP provides customizable VMEbus access. Using the QNX OS on a VMIVME-7xxx SBC provides a computing platform suitable for real-time applications. QNX provides the applications programmer with a real-time extensible POSIX OS.

VMIC's VMISFT-7417 is designed to tailor QNX's x86 OS to the VMIVME-7xxx platform. This combination provides a self-hosted development environment which runs entirely on the VMIVME-7xxx SBC boards without requiring any external host systems.

### Solaris OS SUPPORT

**VMISFT-7416 BOARD SUPPORT PACKAGE** — The VMISFT-7416 BSP includes everything necessary to allow installation of the Solaris Intel edition OS (available separately from Sun Microsystems, Inc.) onto VMIVME-7695 SBC. This BSP includes a nexus driver for VMEbus access. It allows military and telecommunications and other applications to take advantage of Sun Microsystems, Inc.'s Solaris OS on a VMEbus-based Intel SBC. This BSP and the Solaris OS provide POSIX-compliant real-time characteristics.

### LynxOS x86 OS SUPPORT

**VMISFT-7419 BOARD SUPPORT PACKAGE** — The VMISFT-7419 BSP includes all of the device drivers and configuration tables needed to install the LynxOS x86 development system (available separately from Lynx Real-Time Systems, Inc.) onto VMIC's VMIVME-7695.

Using the LynxOS on the VMIC SBCs provides a computing platform suitable for hard real-time applications. LynxOS provides the applications programmer with a stable development environment based on industry-wide standards such as POSIX and Motif.

### I/O SUPPORT

**VMISFT-9450 IOWorks BOARD DRIVERS** — This driver supports VMIC's extensive line of VME I/O boards, and is available for Windows NT/Windows 2000 and VxWorks. IOWorks board drivers take advantage of all the key benefits and features of each supported I/O board, and new I/O boards are constantly being added.

IOWorks board drivers contain both a C++ class library and a C function library that provide a common interface to VMIC I/O products for reading, writing, and configuring. You do not need to know the details of how an individual board is programmed. For instance, you can use the SetAttributes function on any supported VMIC board; the WriteAnalog function controls the output from any VMIC analog output board; or the GetScanMode function retrieves the scan mode for any VMIC analog board.

## SPECIFICATIONS

6U Eurocard format, one slot

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

### Power Requirements:

+5 VDC (±5 percent), 6.5 A (typical), 8 A maximum

+12 VDC (±5 percent), 105 mA (typical), 200 mA maximum

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



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**Operating Temperature:** 0 to 55 ˚C (Forced air cooling required)

**Relative Humidity:** 10 to 90 percent, noncondensing

**MTBF:** 101,419 hours (Bellcore)

**VMEbus Interface:**

| | |
|---|---|
| DTB Master: | BLT32/BLT64, A32/D32, A24/D32, A16/D32 |
| DTB Slave: | BLT32/BLT64, A32/D32, A24/D32, A16/D32 |
| Requester: | Programmable, BR(3-0), ROR, RWD, BCAP |
| Interrupt Handler: | IH(1 to 7) D8(O) |
| Interrupter: | Programmable, IRQ7* to IRQ1* |
| Arbiter: | SGL, PRI, RRS |
| BTO: | Programmable (16 to 1,024 µs) |
| Compliance: | Rev. C.1 |

**PMC Expansion Site Connector:**
5 V signaling, types 1 and 2
32-bit PCI bus, 33 MHz maximum

## COMPATIBLE PRODUCTS

The VMIVME-7695 can be used with a number of VMIC PMC bus and VMEbus products.

**Floppy/Hard Disk:** VMIC produces floppy/hard drive modules to support the built-in IDE and floppy controller ports. The VMIVME-7452 provides hard disk storage and a 3.5-inch floppy drive. The unit fits into a standard VMEbus 6U single-slot form factor. An internal flexible board-to-board cable option along with a VMEbus P2 backplane connection option are available. The VMIVME-7695 requires the P2 backplane connection option of the VMIVME-7452.

**Accessory Header Boards:** The VMIACC-0562 accessory provides J3 ribbon cable connection to floppy and hard drives, or P2 connection to an adjacent floppy/hard drive VMEbus board.

**CD-ROM Support:** Since much of today's advanced software is delivered on CD-ROM, the VMIVME-7455 provides CD-ROM capability within a single 6U VME slot.

**PMC Capability:** See page 3 for details of the PMC expansion site.

**VMEbus:** The VMIVME-7695 enables access to VMIC's wealth of VMEbus products. If you have real-world control, monitoring, and real-time networking requirements, VMIC has a solution for you. Today's system requirements demand state-of-the-art solutions. Our advanced I/O features such as Built-in-Test, self-test, isolation, digital autocalibration, and intelligent on-board DSP give our customers those solutions.

**Analog ADC:**
— Up to 64 channels
— 12- and 16-bit ADC
— Isolation
— Differential and single-ended
— Low- and high-speed sampling rates
— Programmable gains and filters
— Simultaneous sample-and-hold
— Autocalibration
— Signal conditioning: RTD, strain gauge, and thermocouples

**Analog Output:**
— Up to 32 channels
— 12- and 16-bit DAC
— Isolation
— Voltage and current outputs
— Programmable function generator

**Digital Input:**
— Up to 128 channels per board
— Change-of-state and time tagging
— Isolated
— Contact and voltage sensing
— Pulse accumulators
— AC and DC inputs up to 240 V
— TTL, RS-422, or RS-485

**Digital Output:**
— Up to 128 channels
— TTL and high voltage
— Isolated
— Solid-state and mechanical relays, latching or momentary
— Real-time and off-line fault detection and isolation

**Chassis and Power Supplies:** VMIC provides a number of chassis and table top enclosures to complete your installation. A variety of power supplies are available to suit your system needs.

**IOWorks for Industrial Automation and Test and Measurement:** IOWorks is a modular IEC 61131-3-compliant component PC control software product designed to support just about any I/O requirement for industrial automation and test and measurement. The IOWorks control strategy was designed around PC platform and operating system independency to provide you with the highest performance solutions based upon open architecture and open software standards. Software standards such as OPC, OLE, ODBC, and DDE provides significant flexibility and expandability. IOWorks software,



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coupled with open architecture solutions, provides the ideal solution for applications where supportability, cost, and performance coupled with designed in migration paths to protect your software investment is critical.

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**Figure 1. IOWorks Solutions for Your I/O Problems**

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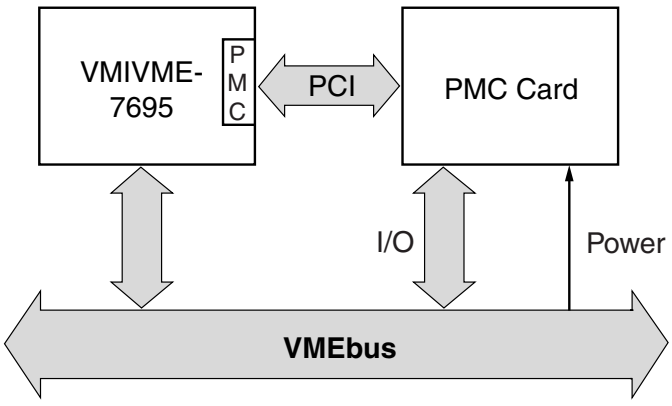



**Figure 2. PMC Expansion**



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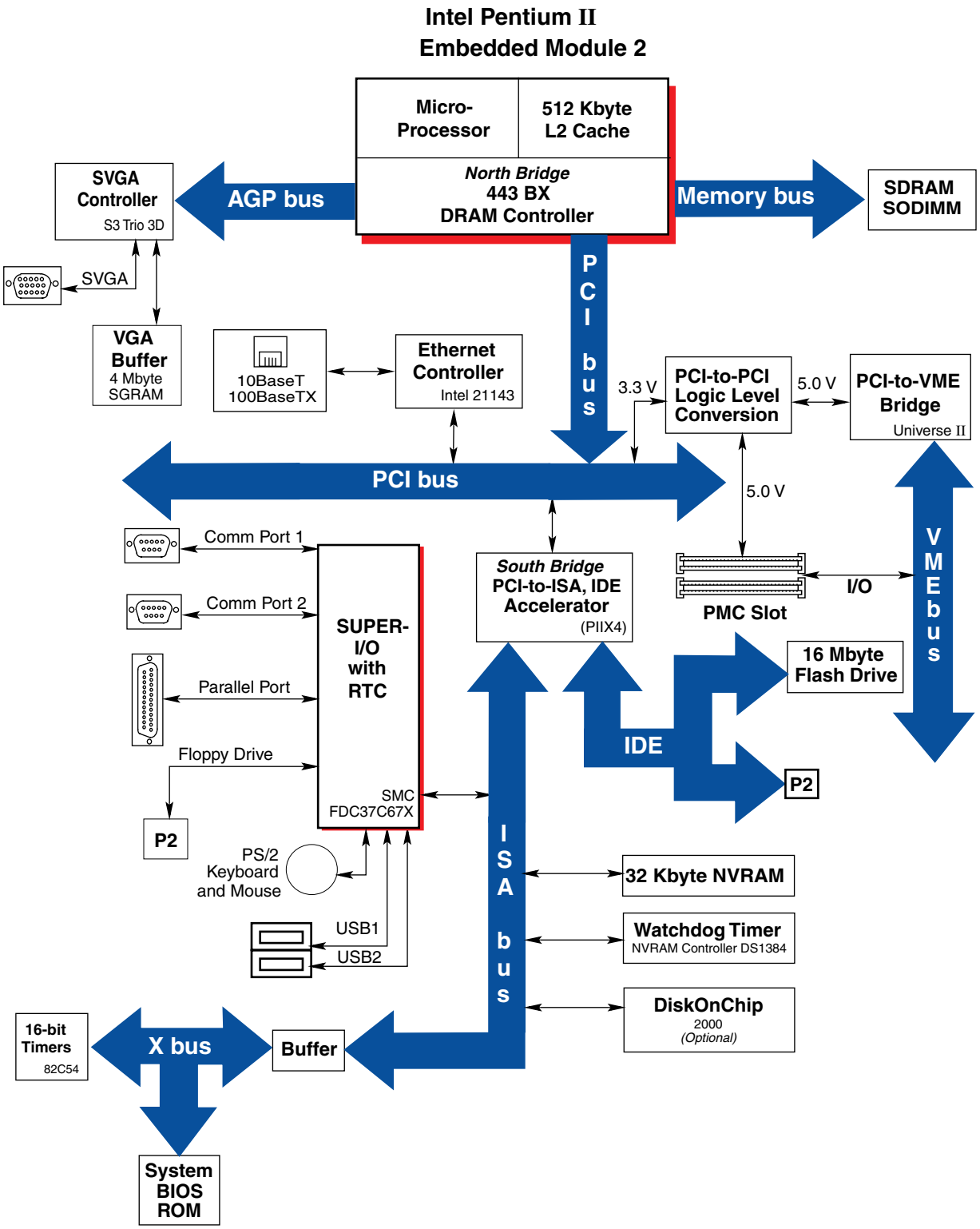



**Figure 3. VMIVME-7695 Block Diagram**



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