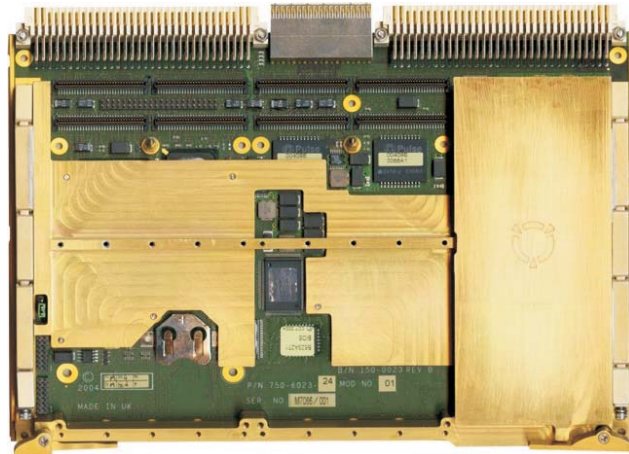


Intel® Pentium® M Processor Dual PMC Embedded Controller



APPLICATIONS

The VP 315/022-RC is a PC-compatible high performance, high functionality, ruggedized VME board supporting the Intel® Pentium® M Processor. This single slot board features 2 PMC sites, 1 Gbyte of soldered DDR ECC SDRAM and a variety of interfaces including Serial ATA150, EIDE, Gigabit Ethernet and USB. The VP 315/022-RC is a ruggedized conduction cooled board

suitable for a range of demanding applications within the defense, industrial control, telecomms, telemetry, scientific and aerospace markets. To simplify the board's integration many popular industry standard operating systems are supported. The board is rear plug compatible with the VP 315/02x and VP 315/022-RA families.

HIGHLIGHTS

- Ruggedized dual PMC controller for VME systems:
 - conduction cooled to IEEE 1101.2
 - conformally coated
- Intel Pentium M Processor:
 - operating at 1.2 GHz
 - 64 Kbytes L1 cache
 - 1 Mbyte L2 cache
- 1 Gbyte of 266 MHz DDR ECC SDRAM (soldered)
- High performance EIDE interface
- Serial ATA interface:
 - up to 150 Mbytes/s transfer rates
- 2 x PMC module interfaces (32/64-bit and 33/66 MHz):
 - expansion carrier provides 2 more PMC sites
- 2 x 10/100/1000 Mbps Ethernet interfaces:
 - Gigabit Ethernet for VME64x backplane (VITA 31.1)
- 64 Mbytes of Application Flash EPROM
- 512 Kbytes of BIOS Flash EPROM
- High resolution graphics interface
- Keyboard and mouse interfaces
- 2 x serial channel interfaces
- 2 x Universal Serial Bus (USB 2.0) interfaces
- Long duration timer, watchdog timer
- VME-64 interface supporting A32/A24/A16/D64/D32/D16/D8(E0), MBLT64 and with support for fast hardware byte-swapping
- Single slot
- Air cooled version available:
 - see VP 315/022-RA datasheet
- Non-ruggedized version available:
 - see VP 315/02x datasheet
 - rear plug compatible with the ruggedized versions
 - useful for bench development
 - use in commercial (non-rugged) applications
- Support for VxWorks®, Linux®, Windows NT®, Windows® 2000, Windows® XP Embedded, Windows® XP, RTX®, QNX®, Solaris™, LynxOS® and MS-DOS®

Ruggedized dual PMC controller

- conduction cooled to IEEE 1101.2
- conformally coated
- air cooled version available:-
→ see VP 315/022-RA datasheet
- non-ruggedized version available:-
→ see VP 315/02x datasheet

Central Processor

- Intel® Pentium® M Processor:-
→ uses µFC-BGA 479
(micro Flip-Chip Ball Grid Array) package
→ operating at 1.2GHz
→ 64 Kbytes of primary (Level 1) on-die cache
→ 1 Mbyte of secondary (Level 2) on-die cache
→ 400 MHz Front Side Bus (FSB)
- utilizes 64-bit Intel® 855GME chipset:-
→ supports 400 MHz bus frequency
- utilizes Intel® 6300ESB I/O Controller Hub

DRAM

- supporting 1 Gbyte of 266 MHz DDR ECC SDRAM soldered on the board
- single bit error correction
- accessible from processor or VME bus

EIDE Hard Disk Interface

- supports up to Ultra-DMA 100 for high performance drives
- primary channel is accessible via P2

Serial ATA Interface

- Serial ATA (SATA) interface:-
→ one SATA port via P0
- supports up to 150 Mbytes/s transfer rates

Ethernet Interfaces

- implemented by Intel® 82546GB LAN Controller via 64-bit/66 MHz PCI bus
- two interfaces supporting 10Base-T, 100Base-TX, 1000Base-T:-
→ one or both interfaces accessed via P0
- support for VITA 31.1:-
→ Gigabit Ethernet for VME64x backplanes

Graphics Interface

- implemented by the Intel® 855GME GMCH host bridge providing:-
→ resolutions up to 2048 x 1536 @75Hz
→ up to 16M colors
- analog graphics interface supported via P0

PMC Interfaces

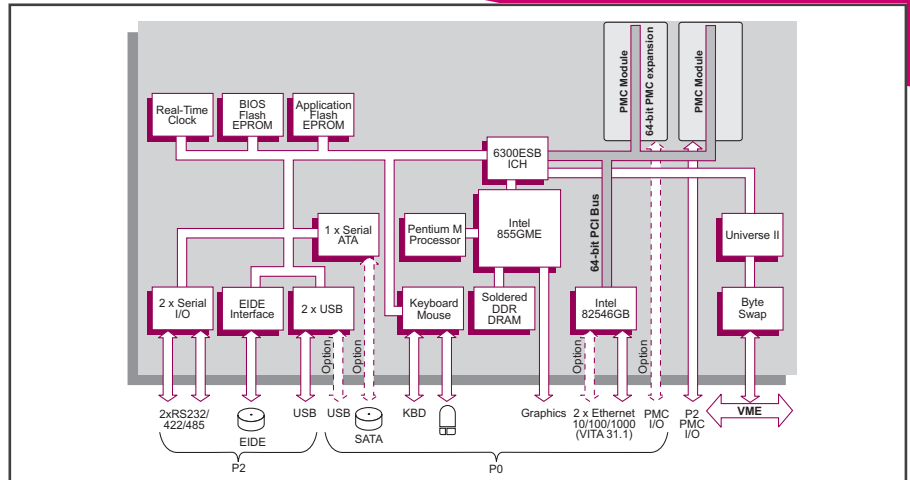
- 2 x PMC sites and for both sites:-
→ I/O via P2 for site 1 and via P0 for site 2
→ 32/64-bit and 33/66 MHz PCI operation
→ 3.3V PCI signaling
- expansion to optional dual PMC carrier board:-
→ using one baseboard PMC site
→ 64-bit/66 MHz

Serial Interfaces

- 2 x serial channel interfaces
- 16550 compatible UART
- rear panel access:-
→ 2 x RS232/422/485, both via P2

Flash EPROM

- 64 Mbytes Application Flash EPROM
- 512 Kbytes of BIOS Flash EPROM
- user specified CMOS settings held in BIOS Flash EPROM



Other Peripheral Interfaces

- PC-compatible Real Time Clock (Year 2000 compliant):-
→ default time loaded from BIOS Flash EPROM
- 2 x USB 2.0 interfaces, one via P2 connector and one via P0 connector
- keyboard and mouse interfaces accessed via P0 connector
- watchdog timer
- 1 x 32-bit Long Duration Timer with processor interrupt capability

Software Support

- support for VxWorks, Linux, Windows NT, Windows 2000, Windows XP Embedded, Windows XP, RTX, QNX, Solaris, LynxOS and MS-DOS

Firmware Support

- Phoenix® BIOS
- comprehensive Power-On Self-Test (POST)
- LAN boot firmware included

VME Interface

- implemented by Tundra® Universe II™ device
- VME Master/Slave
- A32/A24/A16/D64/D32/D16/D8(E0)/MBL64
- fast hardware byte swapping
- auto system controller detect
- full interrupter / interrupt handler support
- bus error interrupt hardware

Electrical Specification

- +5V@3.4A (typical with 1 Gbyte DRAM)
- +12V@0A; -12V@0A
- +12V and -12V routed to both PMC sites

Environmental Specification

- operating temperatures:-
→ -40°C to +85°C (no airflow)
- 10% to 95% Relative Humidity, non condensing (operating)
- -45°C to +100°C (storage)
- 10% to 95% Relative Humidity, non condensing (storage)
- altitude:
-1,000 to 50,000 feet (-305 to 15,240 metres) (operating)

Safety

- PCB (PWB) manufactured with flammability rating of 94V-0

Mechanical Specification

- 6U form-factor
- single VME slot - front panel width 0.8inch (20.3mm)
- utilizes 160-way DIN connectors for P1 and P2
- utilizes P0 2mm connector
- shock:
40g, 11ms, ½ sine (operating)
- sine vibration:
5Hz-2000Hz at 5g, peak (operating)
- random vibration:
0.1 g²/Hz (10Hz-1KHz);
-6dB/octave (1KHz-2KHz) (operating)
- rear plug compatible with commercial non-ruggedized VP 315/02x:-
→ see separate VP 315/02x datasheet
- rear plug compatible with ruggedized air cooled VP 315/022-RA:-
→ see separate VP 315/022-RA datasheet

ORDERING INFORMATION

Order Number Product Description (Hardware)

VP 315/022-x2RC Pentium M, 1Gbyte DRAM, ruggedized conduction cooled

For ruggedized dual PMC Carrier and Ruggedized P2/P0 breakouts please contact your local sales office

Replace the order number suffix (-x2RC) with one of the following:

Where x = P2/P0 I/O options

x = 3 provides P2 I/O see **; P0 I/O = PMC2 64-bit, 1xGigE, see ++
x = 4 provides P2 I/O see **; P0 I/O = PMC2 32-bit, 2xGigE, USB, 1xSATA see ++

** PMC1 64-bit, EIDE, USB, 2xRS232/422/485 are available on P2 connector
++ Keyboard, Mouse, VGA are available on P0 connector

For ruggedized air cooled version, see separate VP 315/022-RA datasheet
For non-rugged version, see separate VP 315/02x datasheet