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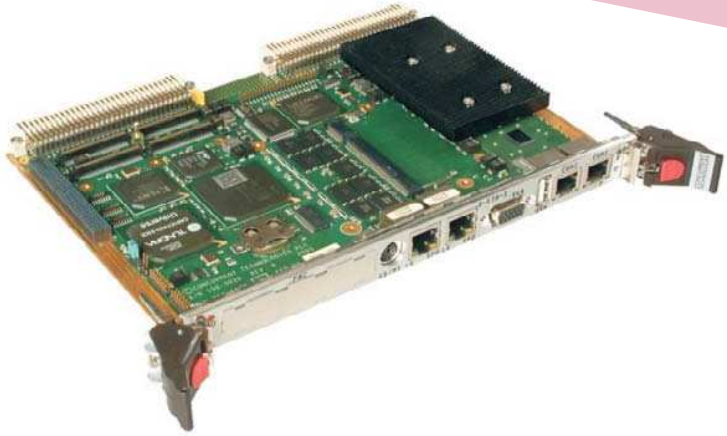
Find the *Concurrent Technologies VP 347/021-23* at our website: *Click HERE*

VME

# VP 347/02x

## N, E, K - Series

## Intel® Pentium® M Processor Single Board Computer



RoHS 2002/95/EC

## APPLICATIONS

The VP 347/02x is a PC-compatible high performance, high functionality one-slot VME single board computer. Supporting either the 1.8 GHz Intel® Pentium® M processor 745 or the 1.4 GHz Intel Pentium M processor Low Voltage 738, the board features up to 2 Gbytes of 333 MHz DDR DRAM and a variety of interfaces including an option for an on-board Hard Disk Drive, CompactFlash™ or Hitachi GST Microdrive™. The VP 347/02x is suitable for a range of demanding applications within the industrial control, defense, telecomms, telemetry, scientific and aerospace markets. Its functionality can be further increased through the use of PMC modules. To simplify the board's integration many popular industry standard operating systems are supported. The board is plug compatible with the VP 345/02x, VP 101/01x, VP 100/01x, VP PSE/P3x and VP PSE/C1x.

## HIGHLIGHTS

- 1.8 GHz or 1.4 GHz Intel Pentium M processor:
  - 64 Kbytes L1 cache
  - 2 Mbytes L2 cache
  - no CPU fan needed; low power processor
- 1.6 GHz Pentium M processor (1 Mbyte L2 cache) and 1.0 GHz ULV Celeron M (512 Kbytes L2 cache) versions available; see VP 345/02x datasheet
- Single slot (for all option combinations)
- Up to 2 Gbytes of 333 MHz DDR DRAM (with ECC)
- High performance EIDE interfaces with optional on-board disk drive or CompactFlash™/Microdrive™ interface (in a single-slot)
- Ultra Wide SCSI interface
- 2 x Gigabit Ethernet interfaces
- PMC module interface (32/64-bit at 33/66 MHz)
- Expansion connector for dual site PMC carrier board
- 1 Mbyte of BIOS Flash EPROM
- Graphics interface
- PS/2 keyboard and mouse port
- 2 x RS232 serial channels
- 4 x USB 2.0 ports
- Floppy disk interface
- 1 x Parallel Printer Port (ECP, EPP and IEEE1284)
- Watchdog timer
- Long Duration Timer
- VME-64 Interface supporting A32/A24/A16/D64/D32/D16/D8(EO), MBLT64 and with support for fast hardware byte-swapping
- Extended temperature versions available:
  - -25°C to +70°C (E-Series)
  - -40°C to +85°C (K-Series, includes humidity sealant)
  - supporting 1.4 GHz processor
- Support for VxWorks®, Windows NT®, Windows® 2000, Windows® XP, Windows® XP Embedded, RTX®, Linux®, Solaris™, LynxOS®, QNX® and MS-DOS®

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# Specification

## Central Processor

- two processor versions available
- 1.8 GHz Intel® Pentium® M processor 745:-
  - → uses µFC-PGA 478 (micro Flip-Chip Pin Grid Array) package
- 1.4 GHz Intel® Pentium® M processor Low Voltage 738:-
  - → uses µFC-BGA 479 (micro Flip-Chip Ball Grid Array) package
- Common processor features are:-
  - → 64 Kbytes of primary (L1) on-die cache
  - → 2 Mbytes of secondary (L2) on-die cache
  - → 400 MHz Front Side Bus (FSB)
  - → no CPU fan
- 1.6 GHz Pentium M processor (1 Mbyte L2 cache) and 1.0 GHz ULV Celeron M (512 Kbytes L2 cache) versions available; see VP 345/02x datasheet
- utilizes 64-bit Intel® 855GME chipset:-
  - → supports 400 MHz bus frequency
  - → uses Intel® 6300ESB I/O Controller Hub
- ITP debug port

## DRAM

- supporting up to 2 Gbytes 333 MHz DDR ECC SDRAM:-
  - → 1 Gbyte soldered onboard
  - → up to 1 Gbyte provided via SODIMM socket (not available on K-Series board)
  - → single bit error correction
- accessible from processor or VME bus

## Hard Disk Interfaces

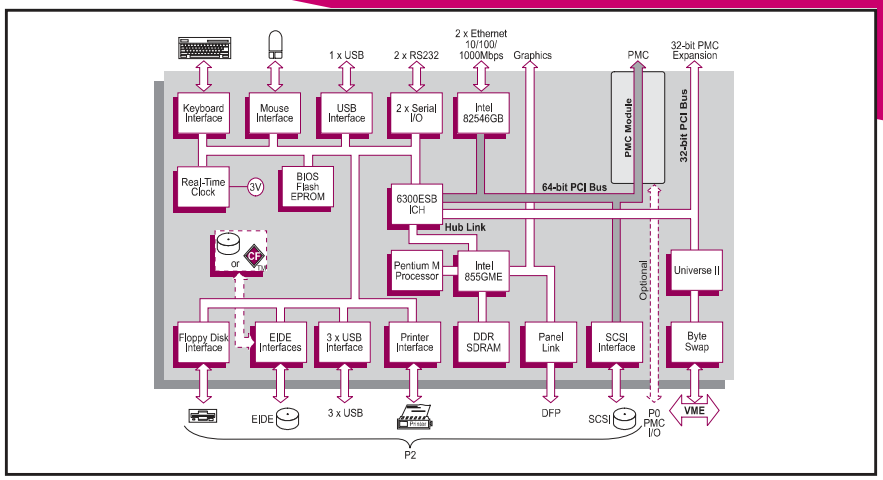
- Ultra-SCSI 8-bit and Ultra Wide SCSI 16-bit:-
  - → accessed via P2 connector
  - → single-ended asynchronous or synchronous, with active termination and signal negation
  - → utilizing LSI Logic® 53C1020 SCSI I/O Processor
  - → synchronous SCSI data rates up to 40 Mbytes/sec
- EIDE interface:-
  - → accessed via P2 connector
  - → supports up to Ultra-DMA 100 for high performance drives
  - → two channels (primary and secondary)
  - → primary channel is accessible via P2 connector
  - → secondary channel can be used for on-board 2.5 inch disk drive or CompactFlash module or Microdrive Type II drive (the board still fits in a single slot). Does not use PMC site
  - → connects to an optional Mass Storage Module (DS MSS/IFP or DS MSS/00z)

## Ethernet Interfaces

- 2 x channels supporting 10 Base-T, 100 Base-TX, 1000Base-T:-
  - → implemented by Intel® 82546GB LAN Controller via 64-bit PCI bus
- accessed via front panel RJ45 connectors

## Graphics Interface

- implemented by the Intel® 855GME GMCH:-
  - → resolutions up to 2048 x 1536 @75Hz
  - → up to 16M colors
- analog interface accessed via a front panel connector
- flat panel supported using DFP via P2 connector (see Note 2)




## Serial Interfaces

- 2 x RS232 serial interfaces:-
  - → via RJ45 connectors on front panel
  - → 16550 compatible UARTs

## PMC Interface

- one PMC slot with I/O via front panel and optionally via P0:-
  - → 32/64-bit, 33/66 MHz PCI operation
  - → 3.3V or 5V signaling levels
  - → still available when EIDE drive option fitted
- expansion to optional dual PMC carrier board:-
  - → using expansion connector (32-bit/33 MHz)
  - → or using the baseboard PMC site (64-bit/66 MHz)

## Other Peripheral Interfaces

- 4 x USB 2.0 (Universal Serial Bus) interfaces:-
  - → 1 x USB via front panel
  - → 3 x USB via P2 connector (see Note 2)
- keyboard and mouse interfaces via a single PS/2™ type connector on front panel
- PC-compatible Real Time Clock (Year 2000 compliant)
- floppy disk interface via P2 connector
- parallel printer port interface (ECP, EPP and IEEE1284) via P2 connector
- watchdog timer
- 1 x 32-bit Long Duration Timer with processor interrupt capability

## VME Interface

- implemented by Tundra® Universe II™ device
- VME Master/Slave
- A32/A24/A16/D64/D32/D16/D8(EO)/MBLT64
- fast hardware byte swapping
- auto system controller detect
- full interrupter / interrupt handler support
- bus error interrupt hardware

## Flash EPROM

- 1 Mbyte of BIOS Flash EPROM

## Firmware Support

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

## Software Support

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

## Electrical Specification

- +5V@5.4A (typical at 1.8 GHz with 1 Gbyte DRAM)
- +12V@0.0A; -12V@0.0A
- +12V and -12V routed to both PMC sites and PMC expansion connector

## Environmental Specification

- operating temperatures:-
  - → 0°C to +55°C (N-Series: 1.8 GHz, 1.4 GHz)
  - → -25°C to +70°C (E-Series: 1.4 GHz)
  - → -40°C to +85°C (K-Series: 1.4 GHz)
- 10% to 90% Relative Humidity, non condensing (operating):-
  - → K-Series includes humidity sealant
- -40°C to +85°C (storage)
- 10% to 90% Relative Humidity, non condensing (storage)

## Mechanical Specification

- 6U form-factor
- single slot - width 0.8inch (20.3mm)
- utilizes 160-way DIN connectors for P1 and P2:-
  - → compatible with 96-way DIN connectors
- optional P0 (for VME64x backplanes only)
- shock:
  20g, 11ms, ½ sine (operating);
  30g, 11ms, ½ sine (non-operating)
- vibration:
  5Hz-2000Hz at 2g, 0.38mm peak displacement (operating);
  5Hz-2000Hz at 5g, 0.76mm peak displacement (non-operating)

**Note 1:** selected variants are supplied with VME64x handles

**Note 2:** 5-row backplane is required to provide P2 access to 3 x USB and DFP

## ORDERING INFORMATION

| Order Number | Product Description (Hardware) |
|---|---|
| VP 347/020-xy | 1.4 GHz Pentium M processor Low Voltage 738 |
| VP 347/021-xy | 1.8 GHz Pentium M processor 745 |
| AD CP1/DR1-z3 | 2.5 inch Hard Disk Drive (HDD) assembly |
| AD 200/001-02 | Dual CompactFlash Carrier |
| AD CRz/PMC-zz | 33 or 66 MHz PMC Carrier Board for 2 PMC modules |
| DS MSS/IFP-zz | Options for HDD, CD, Floppy Disk Drive (FDD) |
| DS MSS/00z-zz | Options for HDD, CD-RW/DVD, CompactFlash, FDD |

**Replace the order number suffix (xy) with selections from the following:**

| Where x = P2/P0 Breakout combinations | Where y = |
|---|---|
| 1 - 3-row, Narrow SCSI, floppy, printer, ExtReset | 1 - reserved |
| 2 - 3-row, EIDE, floppy, printer, ExtReset | 2 - reserved |
| 3 - reserved | 3 - 1 Gbyte |
| 4 - 5-row, Narrow SCSI, floppy, printer, 1xUSB, DFP, ExtReset | 4 - 1.5 Gbytes |
| 5 - 5-row, EIDE, Narrow SCSI, Wide SCSI, floppy, 1xUSB, DFP, ExtReset | 5 - 2 Gbytes |
| 6 - reserved | |
| 7 - 5-row + P0, PMC I/O, EIDE, Narrow SCSI, Wide SCSI, floppy, 3xUSB, DFP | |

For z options please contact your local sales office

For extended temperature, 1.4 GHz E or K-Series, please contact your local sales office

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Specification subject to change; E and OE. RoHS 2002/95/EC compliant.

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