

Intel® Core™ i7 Processor Dual PMC/XMC Embedded Controller (Bridgeless VMEbus)



APPLICATIONS

VP 717/18x is a single slot processor board based on the Intel® Core™ i7 processor up to 2.53 GHz, the Mobile Intel® QM57 Express chipset and up to 8 Gbytes of DDR3-1066 ECC DRAM. It is designed to be VMEbus compatible without implementing the capability to communicate across the VMEbus interface and features 2 PMC/XMC sites and a variety of interfaces including an option for an on-board 2.5-inch mass storage drive or

CompactFlash™. VP 717/18x is 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.

HIGHLIGHTS

- 2.53 GHz, 2.0 GHz or 1.33 GHz Intel® Core™ i7 processor:
 - dual-core processor
 - 1066 MHz DRAM Bus (800 MHz for 1.33 GHz processor)
 - 4 Mbytes shared last level cache
 - Intel® Hyper-Threading Technology
 - Intel® Turbo Boost technology
 - Intel® 64 Technology (64-bit computing support)
- Up to 8 Gbytes of dual channel DDR3-1066 ECC DRAM
- High performance SATA and EIDE disk interfaces with support for optional on-board mass storage drive
- Onboard CompactFlash™ site
- 2 x PMC/XMC module interfaces:
 - 32/64-bit, 33/66/100 MHz PCI/PCI-X™
 - 2 x XMC module interfaces (x8 PCI Express®)
 - Expansion carrier for 2 more PMC sites
- 2 x 10/100/1000 Mbps Ethernet interfaces:
 - Gigabit Ethernet for VME64x backplane (VITA 31.1)
- 3 x serial channels and 3 x USB 2.0 interfaces
- Analog graphics, keyboard and mouse interfaces
- VMEbus Bridgeless Interface supports:
 - SYSRESET, SYSFAIL, ACFAIL, GAX
 - VMEbus daisy chain
- 8 Mbytes of BIOS Flash EPROM
- 64 Mbytes of Application Flash EPROM
- Watchdog timer; Long Duration Timer
- Single slot
- Extended temperature versions:
 - -25°C to +70°C (E-Series)
 - -40°C to +85°C (K-Series, includes humidity sealant)
- Ruggedized air-cooled versions (RA-Series):
 - -40°C to +75°C, conformally coated
- Rugged conduction-cooled versions (RC-Series):
 - conduction-cooled to ANSI/VITA 30.1-2002
 - -40°C to +85°C, conformally coated
- Optional Built-In Test (BIT) support:
 - Power-on BIT, Initiated BIT, Continuous BIT
- Support for Linux®, Windows®, VxWorks®, QNX®, Solaris™ and LynxOS®

Central Processor

- 2.53 GHz Intel® Core™ i7-610E processor, 2.0 GHz Intel® Core™ i7-620LE processor or 1.33 GHz Intel® Core™ i7-660UE processor
- common processor features are:
 - dual-core processor
 - 4 Mbytes shared last level cache
 - Intel® Hyper-Threading Technology
 - Intel® 64 Technology (64-bit computing)
 - Intel® Turbo Boost technology
- processor to DRAM memory, bus speed:
 - 610E and 620LE - 1066MHz
 - 660UE - 800MHz
- graphics engine, core clock speed:
 - 610E - 500MHz
 - 620LE - 266MHz
 - 660UE - 166MHz
- Intel Turbo Boost technology allows faster graphics engine speed depending on the CPU loading
- utilizes Intel® Platform Controller Hub (PCH):
 - Mobile Intel® QM57 Express chipset

DRAM

- up to 8 Gbytes DDR3-1066 ECC DRAM:
 - up to 8 Gbytes soldered on-board
 - single bit error correction
 - peak bandwidth of 17 Gbytes/s
 - dual channel architecture
- accessible from processor or VME bus

Mass Storage Interfaces

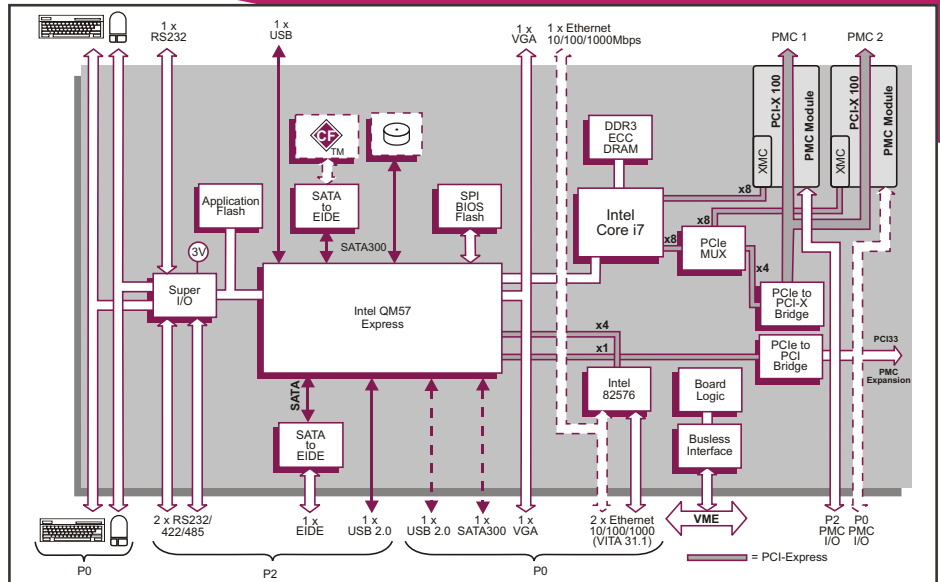
- 2 x external drive interfaces supporting:
 - single EIDE drive via P2 connector
 - single SATA300 drive via P0 (see Note 1)
- optional on-board 2.5 inch SATA300 mass storage drive
- 1 x EIDE interface supports on-board CompactFlash™ socket

Ethernet Interfaces

- two interfaces supporting 10/100/1000 Mbps:
 - implemented by Intel® 82576EB LAN Controller via x4 PCI Express® link
 - both interfaces accessed via optional P0 (see Note 1)
 - 1 channel switchable to front panel RJ45
- support for VITA 31.1:
 - Gigabit Ethernet for VME64x backplanes

PMC/XMC Interfaces

- 2 x PMC/XMC shared sites:
 - PMC sites support 32/64-bit, 33/66/100MHz PCI-X operation
 - PCI 3.3V or 5V signaling
 - XMC (Switched Mezzanine Card) sites support x8 PCI Express® links
 - XMC sites powered from 5V supply
- PMC Site 1 I/O via front panel and P2
- PMC Site 2 I/O via front panel and optional P0 (see Note 1)
- expansion to optional dual PMC carrier board:
 - via expansion connector (32-bit/33 MHz)
 - or via PMC/XMC site 2 (64-bit/66 MHz)



Graphics Interface

- implemented by the integrated chipset graphics controller
- resolutions up to 1920 x 1200 @ 16M colors
- analog graphics accessed via front panel
- 26-way high-density connector or optional P0

Serial Interfaces

- 3 x serial channel interfaces:
 - 1 x RS232 accessed via 26-way high density connector on front panel
 - 2 x RS232/422/485 accessed via P2
- 16550 compatible UARTs

Other Peripheral Interfaces

- PC-compatible Real Time Clock
- 3 x USB 2.0 interfaces:
 - 1 x USB via a 26-way high-density connector on front panel
 - 1 x USB via P2 connector
 - option for USB via P0 connector (see Note 1)
- keyboard and mouse interfaces accessed via a 26-way high-density connector on front panel or optionally via P0 connector
- watchdog timer
- 1 x 32-bit Long Duration Timer with processor interrupt capability

Flash EPROM

- 8 Mbytes of BIOS Flash EPROM
- 64 Mbytes of Application Flash EPROM

Software Support

- support for Linux®, Windows®, VxWorks®, QNX®, Solaris™ and LynxOS®

Firmware Support

- UEFI-compliant BIOS with legacy mode support
- comprehensive Power-On Self-Test (POST)
- LAN boot firmware included

Built-In Test (BIT) Support (optional)

- Power-on BIT (PBIT)
- Initiated BIT (IBIT)
- Continuous BIT (CBIT)

Safety

- PCB (PWB) manufactured with flammability rating of UL94V-0

VMEbus Bridgeless Interface

- P1 and P2 connectors compatible with VME64x
- busless VME interface supports:
 - SYSRESET, SYSFAIL, ACFAIL, GAX
 - VMEbus daisy chain

Electrical Specification

- +5V @ 9.4A (typical with 2.53 GHz processor and 4 Gbytes DRAM)
- +12V@0.0A; -12V@0.0A; 3.3V not required
- +12V and -12V routed to both PMC/XMC sites and PMC expansion connector

Environmental Specification

- operating temperatures:
 - 0°C to +55°C (N-Series)
 - 25°C to +70°C (E-Series: 2.0 GHz or 1.33 GHz)
 - 40°C to +70°C (K-Series: 2.0 GHz)
 - 40°C to +85°C (K-Series: 1.33 GHz)
- non-operating temperature: -40°C to +85°C
- 5% to 95% Relative Humidity, non condensing (operating or non-operating):
 - K-Series includes humidity sealant
- rugged versions:
 - conduction-cooled: VP 717/18x-RC
 - air-cooled: VP 717/18x-RA

Mechanical Specification

- 6U form-factor
- single slot, front panel width 0.8-inch (20.3mm)
- utilizes 160-way connectors for P1 and P2
- optional P0
- IEEE 1101.10 handles
- shock: 20g, 11ms, ½ sine
- vibration: 5Hz-2000Hz at 2g, 0.38mm peak displacement

Note 1: The optional P0 connector supports either PMC Site 2 I/O x64 and 1 x Ethernet or PMC Site 2 I/O x32, SATA, USB and 2 x Ethernet

ORDERING INFORMATION

Order Number Product Description (Hardware)

VP 717/180-yz 1.33 GHz Intel® Core™ i7-660UE processor
 VP 717/182-yz 2.0 GHz Intel® Core™ i7-620LE processor
 VP 717/183-yz 2.53 GHz Intel® Core™ i7-610E processor

For the order number suffix (yz) options please contact your local sales office:
 Where y = P2 and P0 I/O configurations Where z = DRAM size

y - P2 and P0 I/O configurations

z - up to 8 Gbytes DRAM

For accessories please contact your local sales office.

For extended temperature E and K-Series, or ruggedized RA and RC-Series, please contact your local sales office.