VME Rugged

VP F12/0sd-RC

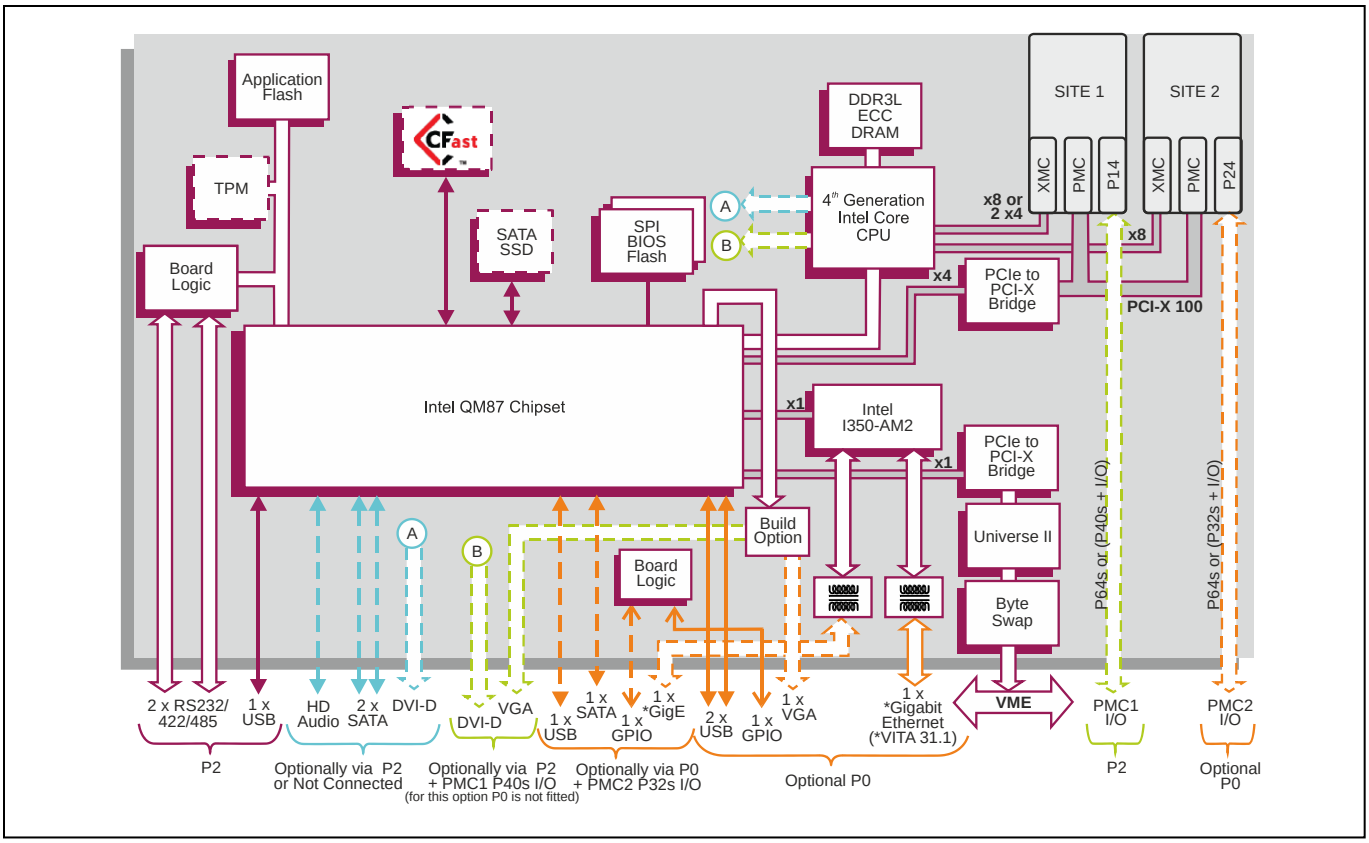
RC - Series

Rugged Conduction-Cooled VME board based on 4th Generation Intel® Core™ i5 processor

Key Features

A 6U VME board suitable for deployment in rugged conduction-cooled environments.

- Based on 4th generation Intel® Core™ i5 processor
- Supports two PMC/XMC sites for on-board expansion
- On-board Application Flash for VxWorks® support
- Option for CFast™ and 2.5-inch storage drives
- Designed to be suitable for long life-cycle applications
- Optional Built In Test firmware and software
- Support for Linux®, Windows® and VxWorks®; for other Operating Systems contact your local Concurrent Technologies Sales Office



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Specification

Rugged VME Processor Board
- conduction-cooled to IEEE 1101.2
- conformally coated

Central Processor
- 4th generation Intel® Core™ CPU:
  - → 2-core Intel® Core™ i5-4422E CPU up to 2.9 GHz, 3M Last Level cache
  - → Intel® Advanced Vector Extensions 2 (AVX2)
  - → Intel® AES New Instructions (AES-NI)
- utilizes the Intel® QM87 Chipset

DRAM
- 16 Gbytes soldered DDR3L-1600 ECC DRAM:
  - → single bit error correction
  - → peak bandwidth of 25.6 Gbytes/s
  - → dual channel architecture
- accessible from processor or VME bus

Mass Storage Interfaces
- options for up to 3 x external SATA interfaces:
  - → 2 x SATA300 via P2
  - → 1 x SATA300 via P0
- 2 x SATA interfaces for optional on-board:
  - → CFast™ module, SATA300
  - → 2.5-inch SATA600 SSD (uses PMC/XMC Site 2)

Ethernet Interfaces
- 2 x Gigabit Ethernet interfaces via rear panel:
  - → accessed via optional P0
  - → on-board magnetics
  - → implemented by Intel® Ethernet Controller I350-AM2 via x1 PCI Express® Gen 2 port
- support for VITA 31.1:
  - → Gigabit Ethernet for VME64x backplanes

PMC/XMC Interfaces
- 2 x PMC shared sites supporting:
  - → 32/64-bit, 33/66 MHz PCI bus
  - → 64-bit PCI-X bus up to 100 MHz
  - → 3.3V or 5V PCI signaling
- 2 x XMC (Switched Mezzanine Card) sites:
  - → support x8 PCI Express (Gen 1, Gen 2)
  - → XMC Site 1 can also support 2 x4 PCI Express
  - → both sites provide 5V VPWR
- PMC/XMC Site 1 I/O via P2:
  - → P64s via P2 or factory build option to provide P40s plus VGA and DVI-D via P2
- PMC/XMC Site 2 I/O via optional P0:
  - → P64s via P0 or factory build option to provide P32s plus other I/O (see Note 1.1 & Note 1.2)

Serial Interfaces
- 2 x serial channel interfaces:
  - → 2 x RS232/422/485 accessed via P2
- 16550 compatible UARTs

Graphics Interfaces
- up to 2 x DVI-D interfaces (build options) via P2:
  - → up to 1920 x 1200
  - → 1 x interface uses I/O pins for PMC/XMC Site 1
- VGA interface via rear using either P2 or P0:
  - → analog, up to 1920 x 1200
- VGA interface via rear, P2 or P0, is defined by a factory build option:
  - → when P0 connector fitted then VGA signals default via P0 and are not available via P2
  - → VGA via P2 uses I/O pins for PMC/XMC Site 1
- all interfaces support 32-bit color depth
- support for Microsoft® DirectX 11, OpenGL 2.0, Windows® and Linux®

Stereo Audio
- option for Intel® High Definition digital stereo audio interface via P2

Other Peripheral Interfaces
- PC-compatible Real Time Clock
- up to 4 x USB 2.0 interfaces:
  - → 1 x USB via P2
  - → 2 x USB via P0
  - → option for an additional USB via P0 (see Note 1.2)
- 1 or 2 x GPIO signals via P0 (see Note 1)
- watchdog timer
- 1 x 32-bit Long Duration Timer with processor interrupt capability

Flash EPROM
- 8 Mbytes of BIOS Flash EPROM, dual devices:
  - → main/backup device enabled via switch
- 64 Mbytes of Application Flash memory for VxWorks applications

Software Support
- support for Linux®, Windows® and VxWorks®

Optional Built-In Test (BIT) Support
- Power-on BIT (PBIT), Initiated BIT (IBIT), Continuous BIT (CBIT)

Optional Board Security Packages
- Trusted Platform Module (TPM):
  - → build option for either TPM 1.2 or TPM 2.0
- option for Sanitization Utility Software Package
- proprietary board-level security features

Firmware Support
- Insyde® Software InsydeH2O™ BIOS:
  - → includes Compatibility Support Module
- based upon Intel® Platform Innovation Framework for EFI
- comprehensive Power-On Self-Test (POST)
- LAN boot firmware included

VME Interface
- P1 and P2 connectors compatible with VME64x
- implemented using IDT® Universe II™ device
- VME Master/Slave
- A32/A24/A16/D64/D32/D16/D8(EO)/MBLT
- fast hardware byte swapping
- auto system controller detect
- full interrupter / interrupt handler support
- bus error interrupt hardware

Electrical Specification
- +5V @ 5.9A (typical with Intel Core i5-4422E processor and 16 Gbytes DRAM)
- +12V, -12V and +3.3V not required
- +12V and -12V routed to both PMC/XMC sites

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

Environmental Specification
- operating temperature (at card edge):
  - → VITA 47 Class CC4, -40°C to +85°C
  - → conduction-cooled (VITA 48.2)
- non-operating temperature:
  - → VITA 47 Class C4, -55°C to +105°C
- operating altitude:
  - → -1,000 to 50,000 feet (-305 to 15,240 meters)
- 5% to 95% Relative Humidity, non condensing
- commercial versions, see separate datasheet:
  - → air-cooled: VP F1x/msd

Mechanical Specification
- 6U form-factor
- single slot, width 0.8 inch (20.3mm)
- utilizes 160-way connectors for P1 and P2
- optional P0 connector
- operating mechanical:
  - → shock - VITA 47 Class OS2, 40g
- random vibration - VITA 47 Class V3, 0.1g²/Hz
- rear plug compatibility with the popular VP 91x/x1x-RC and VP 717/x8x-RC families

Note 1:
The optional P0 connector supports factory build options for either:

1.1) PMC/XMC Site 2 P64s I/O, 1 x VGA, 1 x GPIO, 2 x USB 2.0 and 1 x Ethernet (VITA 31.1) interfaces
or
1.2) PMC/XMC Site 2 P32s I/O, 1 x VGA, 1 x SATA, 2 x GPIO, 3 x USB 2.0 and 2 x Ethernet (VITA 31.1) interfaces

Please contact your local Concurrent Technologies sales office for further details on board build options and accessories.

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