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iVME7210

VMEbus Processor Board

Embedded Computing for Business-Critical Continuity™

PRELIMINARY DATA SHEET

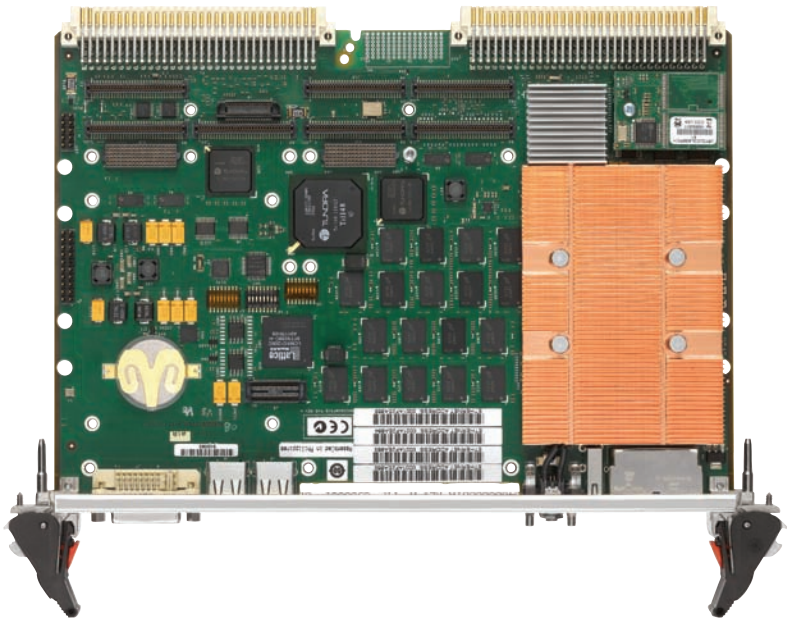
The iVME7210 VMEbus processor board is compliant with the VITA 41.3 VXS specification

- Intel® Core™ i7 dual-core integrated processor (1.06 GHz ULV or 2.0 GHz LV)
- 4GB or 8GB ECC-protected DDR3-1066 (soldered)
- Mobile Intel® 5 Series chipset: Ibex Peak-M Platform Controller Hub (PCH)
- DVI-I interface
- Dual Gigabit Ethernet, USB 2.0 and SATA to VXS P0
- Four on-board Gigabit Ethernet (GbE) interfaces
- Five serial ports
- Up to three front USB 2.0 ports
- Up to two PMC/XMC sites
- Optional rear transition module
- SATA hard drive and mounting kit available

Featuring Intel® Core™ i7 processor variants up to 2.0 GHz and the mobile Intel® QM57 Express chipset, Emerson Network Power's new iVME7210 is designed for a range of industrial, medical and military/aerospace applications including robotics, image processing, radar/sonar, C4ISR and signal intelligence. On-board memory includes up to 8GB DDR3 memory and 256KB non-volatile Ferroelectric Random Access Memory (FeRAM). FeRAM does not require batteries or periodic refreshes and offers many more read/write cycles and faster performance than flash memory, which benefits critical non-volatile data storage, data logs and dynamic program updates. Connectivity includes DVI-I, four Gigabit Ethernet ports, up to three USB 2.0 ports, five serial ports, single or dual PMC/XMC sites and on-board SATA drive.

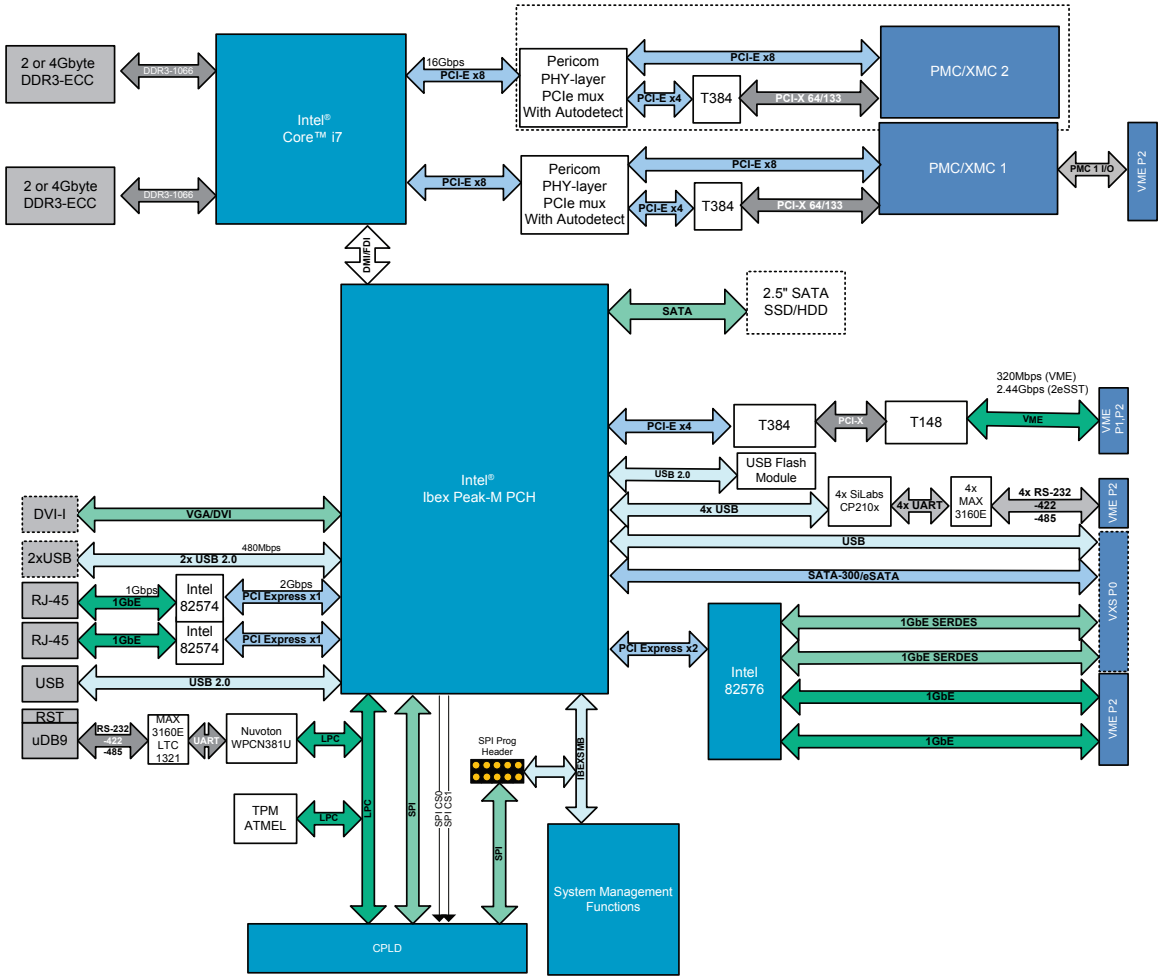
The board's Digital Visual Interface (DVI) provides support for high quality digital graphics and the Trusted Platform Module (TPM) enhances data security and encryption capabilities. The iVME7210 supports a range of operating system and software options including Wind River VxWorks, Fedora 11/Red Hat 6 Linux and LynuxWorks LynxOS. Extended temperature and rugged versions will be available via Emerson alliance partners.

Overall, with the high performance dual-core processor for scalability and leading edge I/O and memory for flexibility, the iVME7210 board is a superior choice for advanced defense and aerospace systems, signal testing and simulation, medical imaging, and transportation control.



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iVME7210 Block Diagram



Specifications

HARDWARE PROCESSOR/CHIPSET

- Intel Core i7 integrated dual-core processor (1.06 GHz ULV or 2.0 GHz LV)
- A 32KB instruction and 32KB data first-level cache (L1) for each core
- A 256KB shared instruction/data second-level cache (L2) for each core
- Up to 4MB shared instruction/data third-level cache (L3), shared among all cores
- No front side bus, north bridge is integrated in the processor

MEMORY

- Dual channel 17.1GB/s memory architecture
- 4GB or 8GB ECC-protected DDR3-1066, soldered down

USER FLASH/NVRAM MEMORY

- 4GB or 8GB eUSB flash module
- 256KB FRAM (NVRAM)

BOOT FLASH MEMORY

- Dual UEFI in SPI flash devices
- Support for crisis recovery

VMEBUS INTERFACE

- Compliance: ANSI/VITA 1-1994 VME64 (IEEE STD 1014), ANSI/VITA 1.1-1997 VME64 Extensions, VITA 1.5-199x 2eSST, VITA 41.3 VXS
- Controller: Tundra Tsi148 PCI-X to VMEbus bridge with support for VME64 and 2eSST protocols

I/O CAPABILITIES

- DVI-I interface
- Four Gigabit Ethernet interfaces, (two front and two rear. Dual rear Ethernet controller may be configured (via software) to operate in one of two modes:
  - Copper PHY Mode: Supporting 802.3, 802.3u, and 802.3ab (10BASE-T, 100BASE-TX, and 1000BASE-T) Ethernet standards
  - SerDes Mode: Intended for VITA 41.3 (VXS.3) compliant systems, based upon the 1000 Mb/s Baseband IEEE 802.3 Ethernet standard

  Note: Access to dual rear Ethernet is via the RTM when operating in Copper PHY mode. Access is via the VXS P0 connector when operating in SerDes mode.
- Up to five serial interfaces (one front, four rear to RTM)
- Up to four USB 2.0 interfaces (three front and one rear via P0)
- Up to two PMC/XMC sites
- XMC capable (PCI Express x8)
- Up to one SATA interface via P0

OPTIONAL TRANSITION MODULES

- 4x Serial RJ-45 (COM2-5)
- 2x GbE RJ-45
- PMC Interface Module (PIM)

OTHER FEATURES

- SATA hard drive mounting kit
- Watchdog timer (Ibex Peak-M)
- Three 8254 interval timers (Ibex Peak-M)
- Eight high-precision event timers (Ibex Peak-M)
- POST codes, status and user LEDs
- Reset switch
- IEEE locking ejector or SCANBE handles
- Power-up ramping and in-rush current protection

POWER REQUIREMENTS

- Maximum for 1.06 GHz (iVME7210), 4GB memory variant
  - 3.3V 6A 19.8W (Estimated)
  - 5.0V 5A 25.0W (Estimated)
- Maximum for 2.0 GHz (iVME7210), 8GB memory variant
  - 3.3V 7A 22.1W (Estimated)
  - 5.0V 5.7A 28.5W (Estimated)

MTBF

Calculated per Telecordia SR-332, Issue 1 and based on a ground fixed, controlled environment assuming an inlet air temperature of between 0 °C and 50 °C. 200,000 hours.

ELECTROMAGNETIC COMPATIBILITY (EMC)

- Intended for use in systems meeting the following regulations:
  - US: FCC Part 15, Subpart B, Class A (non-residential)
  - Canada: ICES-003, Class A (non-residential)
- Emerson board products are tested in a representative system to the following standards:
  - CE Mark per European EMC Directive 89/336/EEC with Amendments; Emissions: EN55022 Class B; Immunity: EN55024

ENVIRONMENTAL REQUIREMENTS

- Operating temperature: 0 °C to +55 °C
- Relative humidity: 5% to 95% at +40 °C (non-condensing)
- Operating altitude: -300 m to +4500 m
- Product complies with flammability ratings according to UL-94V0
- Airflow: 300LFM = 1.54 m/s
- Operating vibration: 5 to 500 Hz sinusoidal, 2 G (1 oct/min); 5 - 62 Hz, 5 m/s; 62 - 500 Hz, 20 m/s
- Operating shock: 5 G, 20 ms half sine x3

DOCUMENTATION

- Installation Guide and Technical Reference Manual
- Hardware Release Notes
- UEFI BIOS Release Notes
- Linux Installation and Programmer's Guides

Ordering Information

Part Number	Description
iVME7210-0161	Intel® Core i7™ 1.06 GHz, 4GB DDR3, 2PMC/XMC SCANBE
iVME7210-0163	Intel Core i7 1.06 GHz, 4GB DDR3, 2PMC/XMC IEEE
iVME7210DVI-0161	Intel Core i7 1.06 GHz, 4GB DDR3, DVI, PMC/XMC SCANBE
iVME7210DVI-0163	Intel Core i7 1.06 GHz, 4GB DDR3, DVI, PMC/XMC IEEE
iVME7210-0171	Intel Core i7 2.0 GHz, 8GB DDR3, 2PMC/XMC SCANBE
iVME7210-0173	Intel Core i7 2.0 GHz, 8GB DDR3, 2PMC/XMC IEEE
iVME7210DVI-0171	Intel Core i7 2.0 GHz, 8GB DDR3, DVI, 1PMC/XMC SCANBE
iVME7210DVI-0173	Intel Core i7 2.0 GHz, 8GB DDR3, DVI, 1PMC/XMC IEEE
iVME7210VXS-0161	Intel Core i7 2.0 GHz, 4GB DDR3, VXS, 2PMC/XMC SCANBE
iVME7210VXS-0163	Intel Core i7 2.0 GHz, 4GB DDR3, VXS, 2PMC/XMC IEEE
iVME7210DVIVXS-0161	Intel Core i7 2.0 GHz, 4GB DDR3, DVI, 1PMC/XMC SCANBE
iVME7210DVIVXS-0163	Intel Core i7 2.0 GHz, 4GB DDR3, DVI, 1PMC/XMC IEEE
iVME7210VXS-0171	Intel Core i7 2.0 GHz, 8GB DDR3, VXS, 2PMC/XMC SCANBE
iVME7210VXS-0173	Intel Core i7 2.0 GHz, 8GB DDR3, VXS, 2PMC/XMC IEEE
iVME7210DVIVXS-0171	Intel Core i7 2.0 GHz, 8GB DDR3, DVI, 1PMC/XMC SCANBE
iVME7210DVIVXS-0173	Intel Core i7 2.0 GHz, 8GB DDR3, DVI, 1PMC/XMC IEEE
iVME7210-MNTKIT	iVME7210 HD mounting kit
iVME7210-MNTKIT80GB	iVME7210 HD mounting kit with 80GB SATA HD
SERIAL-MINI-D2	Serial cable - Micro D sub connector to standard DB-9
MVME7216E-101	MVME RTM, New I/O on 5-row P2, GbE, 4 serial, PIM, 6E

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- Services
- Surge Protection

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Offices: Tempe, AZ U.S.A. 1 800 759 1107 or +1 602 438 5720
Paris, France +33 1 60 92 31 20 • Munich, Germany +49 89 9608 2333 • Tel Aviv, Israel +972 9 9560361
Hong Kong +852 2176 3540 • Shanghai, China +86 21 3395 0289 • Tokyo, Japan +81 3 5403 2730 • Seoul, Korea +82 2 3483 1500

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