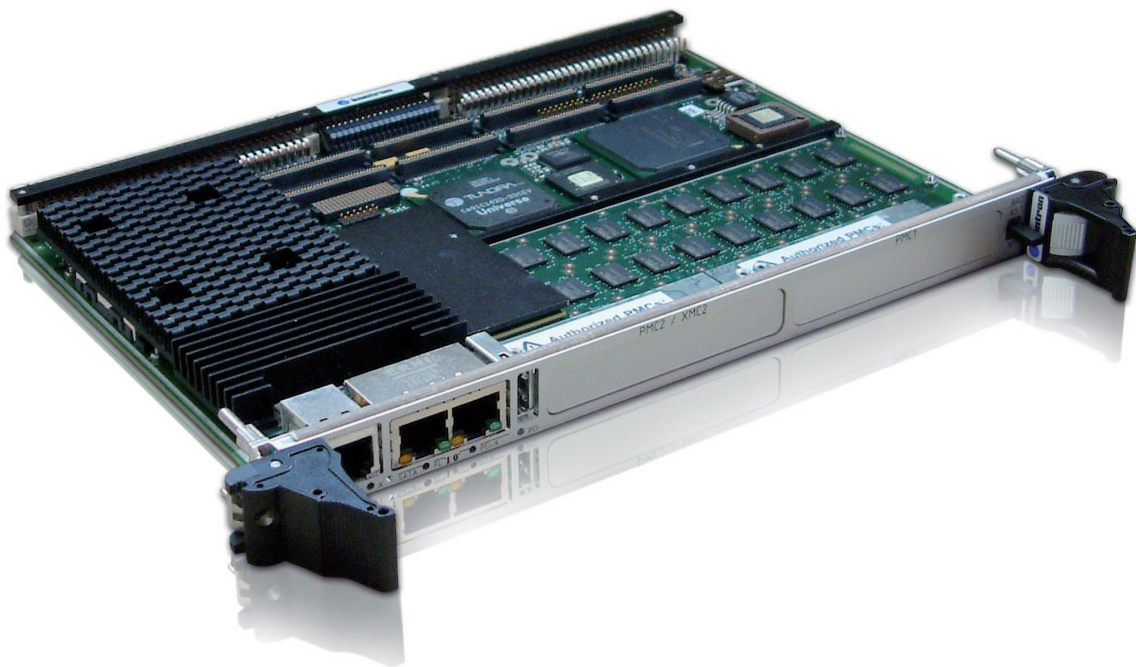# » PENTXM2 «

Server Class Manageable VME Blade

» Trend Setting I/O Versatility
  XMC and PMC Slots, PMC Carrier

» Air, Rugged Air-Cooled and Conduction-Cooled Releases
  Operating from -40°C to +85°C

» Linux 2.6, VxWorks, LynxOS, Windows and QNX Neutrino Support

PENTXM2
Server Class Manageable VME Blade

The Kontron PENTXM2 family of single board computers (SBCs) uses the Low Power Dual-Core Intel Xeon processor and E7520 chipset and offers high speed, server-class performance for advanced embedded applications. The single slot PENTXM2 SBC is ideal for thermally constrained environments and includes all the up to date I/O standard interfaces required in a server blade PC. Furthermore, the PENTXM2 product supports the Intelligent Platform Management Interface (IPMI) specification for easy integration in complex systems. The Kontron PENTXM2 is therefore ideal for bandwidth intensive applications both in a standalone or in a complex cluster configuration.

The PENTXM2 is a 6U VME SBC which features a 1.67 GHz Dual-Core Intel Xeon processor (Codenamed Sossaman) combined with the Intel E7520 server class Memory Controller Hub (MCH). It handles server-like data throughput and provides next generation PCI-Express I/O bandwidth capabilities.

Greater Performance/Watt

The Dual-Core Intel Xeon Low Voltage processor is a member of Intel's growing product line of multicore processors. The dual-core technology allows approximately twice the performance at similar power consumption as previous single core products.

The user application will also benefit from the use of high bandwidth data interfaces:

» 667 MHz Front Side Bus (FSB)

» 6.4 GB/s peak memory access to DDR2-400 SDRAM

» PCI-Express interfaces to network, mezzanine and external devices

Unique Versatility

The PENTXM2 supports all the up-to-date standard interfaces required for a modern communicant server:

» Dual Gigabit ports, configurable either on front or on rear PO in order to support VITA 31.1 backplane networking

» High speed serial storage and data I/O interfaces: SATA-150 and USB 2.0

» x8 PCI-Express mezzanine interface to tailor the supported features with high performance COTS ANSI/ VITA 42 XMC such as Dual Head 3D-graphics or multiports Gigabit Ethernet cards.

» x4 PCI-Express interface on the enhanced performance PO connector to expand I/O capabilities via the use of a PMC carrier or any other PCI Express device. The PENTXM2 features an onboard legacy EIDE interface to plug-on a 2"5 disk or compact-flash kit. A rich set of LEDs at the frontpanel report disk activity on EIDE and SATA buses.

PENTXM2 Block Diagram and Front Panel
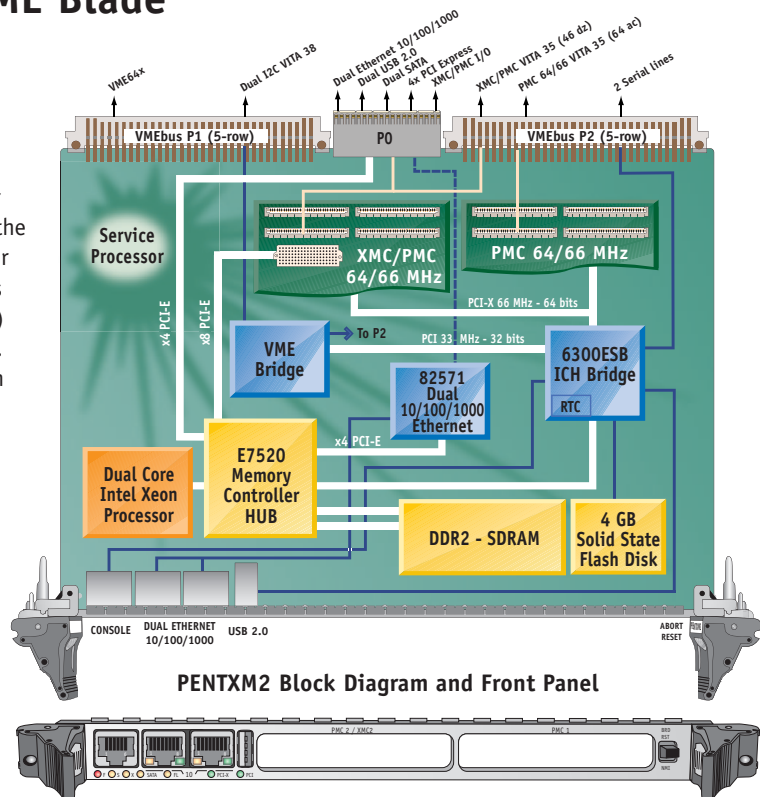
Designed to meet the requirements of Harsh Environments

The PENTXM2 has been designed using the same PCB for both air and rugged boards versions. Builds variants span a complete range of temperature, shock and vibration requirements as specified in the VITA 47 standards.

Long Term Availability

The Dual-Core Intel Xeon processor and Intel E7520 chipset are members of the Embedded Intel Applications products range which feature extended life cycle. Associated with Kontron´s experienced long term support offering (LTS Protect), customer's investment is protected from frequent re-design and maintenance costs.

Warranty and Services

All of Kontron´s hardware products are covered by a two-year return-to-factory warranty.

Several service programs are available, including hardware and software update services, product repair and exchange services, and either on-site or remote technical assistance. In addition to its standard support services, Kontron offers customized consultation to system integrators.

ISO 9001: Kontron´s ISO 9001 certification is just another way for us to back our commitment to quality products and customer service.

Technical Information

System processor and Chipset

Processor	Dual-Core Intel Xeon Low Voltage (ULV) operating at 1.67 GHz. Front Side Bus: 667 MHz
Cache Structure	2 MB L2 cache
Gigabit Ethernet Controller	Two 10/100/1000 Mbps Ethernet network controllers
Memory Controller	Integrated DDR2 memory controller with ECC support, clocked at 400 MHz
UARTs	2x UART, 16550-style, supplied by the 6300ESB ICH

Memory

System Memory	Up to 4 GB DDR2 SDRAM clocked at 400 MHz, with ECC
NAND Flash	4 GB of user NAND Flash on secondary EIDE interface
Optional Mass Storage	Onboard EIDE interface used by a Hard Disk instead of one PMC

Onboard Controllers

RTC	RTC#1 6300ESB integrated PC6AT clock with calendar, 10-hour ride-through capacitor RTC#2 Industrial grade RTC with integrated battery, 10-year lifetime typical
Gigabit Ethernet Controller	Intel 82571EB Gigabit Ethernet Controller
I/O Controller Hub	Intel 6300ESB ICH provides: Dual Serial ATA (SATA-150) interfaces Three USB 2.0 interfaces Watchdog timer
VME Controller	Tundra Universe II Controller

Extension

PMCs Carrier Board	V2PMC2 carrier board supported for two additional PMCs
Rear Transition Module	6U VME RTM for backplane I/O extension

Rear I/O via P0&P2

Gigabit Ethernet	2x 10/100/1000BASE-TX on P0 (VITA 31.1)
PCI Express	x4 PCI-Express on P0
USB & SATA Ports	2x USB 2.0 & 2x SATA-150 ports on P0
Serial Ports	2x Serial ports on P2
PMC I/Os	PMC 1: VITA 35 P4V2-64ac on P2 - XMC/PMC 2: first 32 VITA 35 P4V2-46dz PMC I/Os on P2, second 32 PMC I/Os on P0

Front Panel Interfaces

Gigabit Ethernet	2x 10/100/1000BASE-TX on RJ-45 connectors
Serial Port	1 UART interface configurable in EIA-232, EIA-422 or EIA-485
USB Port	1 USB connector
Reset	1 Reset/Abort button
PMC/XMC	1 PMC slot and 1 PMC/XMC slot

Build Options

VITA38 IPMI BMC enabled/disabled
Standard Air-Cooled (SA) or Conduction-Cooled (RC) Releases

Software

Power-on Built-In-Tests testing over 95% of board features
BIOS firmware compliant with Extensible Firmware Interface (EFI) specification
BSPs available for Linux 2.6, VxWorks, LynxOS, Windows and QNX Neutrino

Power

Power needs:	5V	– 3A /	
	3.3V	– 7A under BIOS activity	

Weight

Standard Air-Cooled:	490g approx.
Conduction-Cooled:	830g approx.

Technical Information

	SA Standard Commercial	RA Rugged Air-Cooled	RC Rugged Conduction-Cooled
Conformal Coating	Optional	Standard	Standard
Airflow	1.8 m/s without throttling at 55°	3.5 m/s without throttling at 71°	NA
Temperature	VITA 47-Class AC1	VITA 47-Class AC3	VITA 47-Class CC3 / Class CC4
Cooling Method	Convection	Convection	Conduction
Operating	0° to +55°C	-40° to +71°C	-40° to +71°C / +85°C
Storage	-45° to +85°C	-45° to +100°C	-45° to +100°C
Vibration Sine (Operating)	20/500 Hz: 2g	22/2,000 Hz: 3g	22/2,000 Hz: 5g
Random	VITA 47-Class V1	VITA 47-Class V2	VITA 47-Class V3
Shock (Operating)	20g/11 ms Half Sine	40g/20 ms Half Sine	40g/20 ms Half Sine
Altitude (Operating)	-1,640 to 15,000 ft	-1,640 to 33,000 ft	-1,640 to 60,000 ft
Relative Humidity	90% without condensation	95% without condensation	95% without condensation

Ordering Information

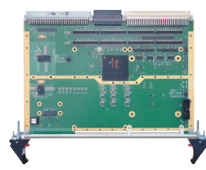| Article	Part.- No	Description
Standard version:		
PENTXM2	PENTXM2-SA36S-10N00	1.67 GHz Dual-Core, 2 GB SDRAM
PENTXM2	PENTXM2-SA34S-10N00	1.67 GHz Dual-Core, 1 GB SDRAM
PENTXM2	PENTXM2-SA34S-10000	1.67 GHz Dual-Core, 1 GB SDRAM, 4 GB User Flash Disk
PENTXM2	PENTXM2-SA36S-10000	1.67 GHz Dual-Core, 2 GB SDRAM, 4 GB User Flash Disk
PENTXM2	PENTXM2-SA36S-10000V	1.67 GHz Dual-Core, 2 GB SDRAM, 4 GB User Flash Disk, Conformal coating
PENTXM2	PENTXM2-SA38S-10000	1.67 GHz Dual-Core, 4 GB SDRAM, 4 GB User Flash Disk, Conformal coating
Rugged Air-Cooled version:		
PENTXM2	PENTXM2-RA34S-10000	1.67 GHz Dual-Core, 1 GB SDRAM, 4 GB User Flash Disk
PENTXM2	PENTXM2-RA36S-10000	1.67 GHz Dual-Core, 2 GB SDRAM, 4 GB User Flash Disk
PENTXM2	PENTXM2-RA38S-10000	1.67 GHz Dual-Core, 4 GB SDRAM, 4 GB User Flash Disk
Rugged Conduction-Cooled version:		
PENTXM2	PENTXM2-RC34S-10000	1.67 GHz (Class CC3) / 1.33 GHz (Class CC4) Dual-Core, 1 GB SDRAM, 4 GB User Flash Disk
PENTXM2	PENTXM2-RC36S-10000	1.67 GHz (Class CC3) / 1.33 GHz (Class CC4) Dual-Core, 2 GB SDRAM, 4 GB User Flash Disk
Associated Products:		
RTM	PBV36-P0-PENTXM2-00	VITA 36 Rear Transition Module (RTM) for Air-Cooled version
	PBV36-P0-PENTXM2-00V	VITA 36 Rear Transition Module (RTM) for Air-Cooled version, Conformal coating
PMC Carriers	V2PMC2-SA	6U VME Air-Cooled Dual PMCs Carrier board
	V2PMC2-RC	6U VME Conduction-Cooled Dual PMCs Carrier board

ASSOCIATED PRODUCTS
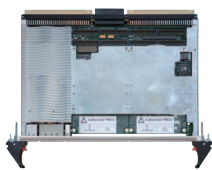
PENTXM2-RA   **PENTXM2-RC**   **V2PMC2-SA**   **V2PMC2-RC**   **PBV36 RTM**

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