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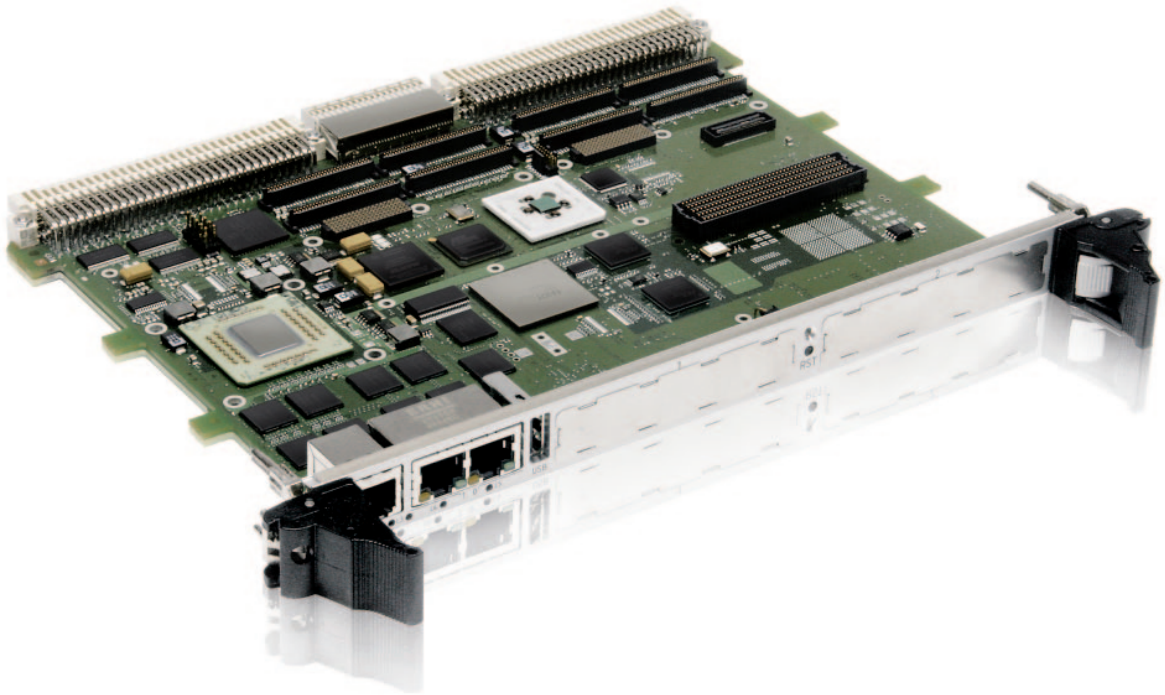
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kontron

» VM6250 «

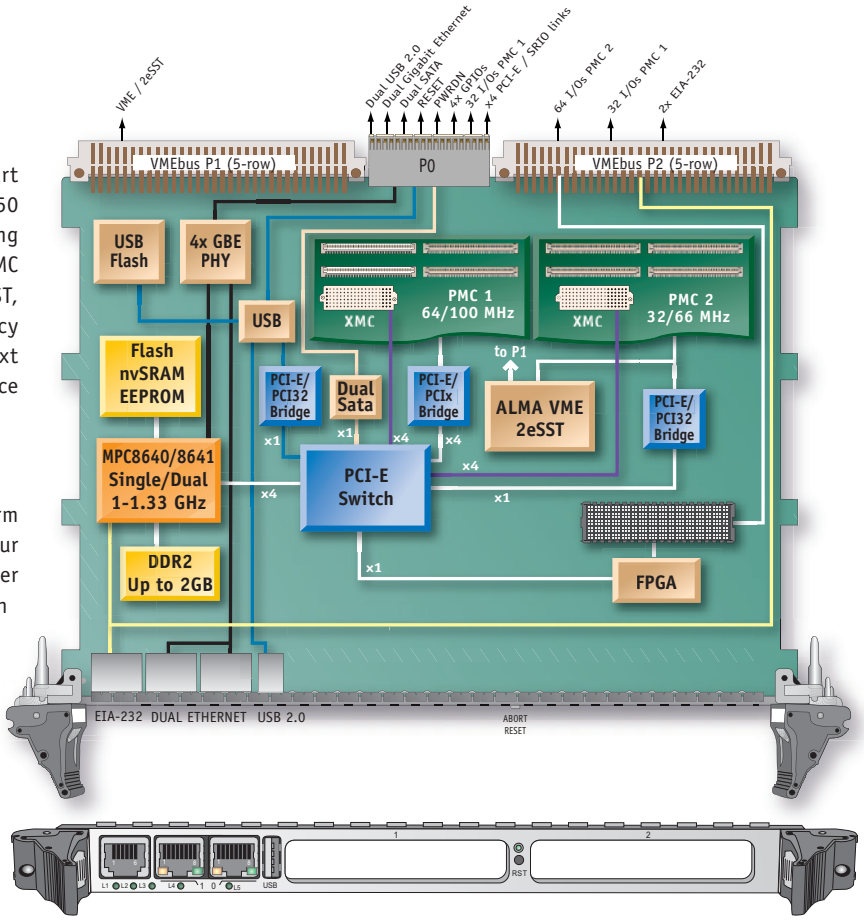


6U VME High Performance PowerPC Computer

» Up to 1.33 GHz Freescale Dual-Core MPC8641 with AltiVec
» Support for XMC and PMC Modules
» Air and Conduction-Cooled Releases
» Operating from -40°C to +85°C
» Linux Fedora 9 and VxWorks 6.x Support

6U VME High Performance PowerPC Computer

The VM6250 is built around Freescale's state-of-the-art MPC8640/8641 single or dual-core e600 processor. The VM6250 provides exceptional I/O capabilities onboard and outstanding flexibility by being the first 6U VME board to provide support for PMC and XMC mezzanine cards. The VM6250's high performance, 2eSST, VME interface helps customers preserve their investment in legacy VME equipment. The VM6250 was designed to be Kontron's next generation VME SBC providing substantial price and performance advantages over previous generations of VME computers.



Powerful Freescale MPC864x PowerPC Architecture

The MPC864x processors feature an AltiVec engine to perform 128-bit wide parallel processing instructions (SIMD), and a four channel DMA controller to accelerate data transfers. In order to fill all the requirements with the best compromise between performance and power dissipation, the VM6250 is available in several different configurations. It can be equipped with a MPC8640 single or dual processor at frequencies of 1 GHz and 1.25 GHz or with a MPC8641 single or dual processor at a frequency of 1.33 GHz.

Soldered DDR2 Memories with ECC Support

The MPC864x provide DDR2 memory controllers operating at up to 533 MHz with 72-bit wide DDR2 SDRAM configured with 8 bits of Error-Correcting Code (ECC). The peak memory bandwidth is 4.3 GB/s.

Numerous Storage Interfaces

128 KB of Auto-store, Non-Volatile Random Access Memory allows backup of critical data when power is removed. Dual redundant 32 Mb NOR Flash are used to store firmware code and built-in tests, and two serial 64-Kbit EEPROMs are dedicated to system and application data storage. A USB 2.0 Flash drive slot is available onboard supporting low profile USB 2.0 Flash disk modules up to 8 GB. One dual SATA II and two USB 2.0 ports are also available on the P0 backplane connector. The VM6250 is equipped with the Alma VME controller supporting the VME64x and 2eSST protocols offering up to 320 MB/s peak throughput.

Backplane Switch

Two compliant VITA 31.1 Gigabit Ethernet links are available on P0 connector. In addition, one 4x PCI Express link is available on P0, which, optionally may be configured as one 4x Serial RapidIO link.

Extensive I/O connectivity

The VM6250 provides up to four 10/100/1000BASE-TX Ethernet interfaces, two EIA-232 serial lines, five general purpose I/Os, three USB 2.0 links, two SATA II interfaces and one 4x PCI-Express link. Two onboard Mezzanine Sites support PCI and PCI-Express cards.

Legacy Compatibility

The VM6250 has been designed to offer legacy I/O compatibility with the Kontron's VMPC6x and PowerEngine7 boards to provide for an easy path for technology insertion into existing systems.

Software

The VM6250 is delivered with PowerOn Built-in-tests and the OpenSource U-Boot firmware. The VM6250 supports Wind River's VxWorks 6.x Real Time Operating System Software and Fedora 9 Linux distributions. Consult factory for other O/S support.

10-year Long Life Cycle

Investing in a new project is always a challenge and risky. Maximizing the lifetime of an application is therefore a critical issue when it comes to saving development investments. The VM6250 has been designed with long life cycle components. Beyond the use of standard commercially available components, Kontron offers Longevity of Supply services which are designed to make the VM6250 available for ten years or longer.

Designed to meet the Requirements of Harsh Environments

The VM6250 has been designed using the same PCB for both air and conduction-cooled boards. Build variants span a complete range of temperature, shock and vibration requirements as specified in the VITA 47 standards.

SATA Disk Carrier

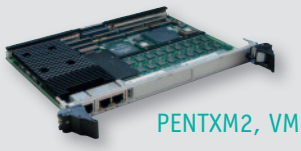
For applications where large and high speed data storage is necessary, the VM6250 is available in a version with an onboard SATA connector allowing a SATA disk carrier to be mounted directly on the board, saving on an external storage device. This disk carrier (KIT-DISK25-SATA) is mounted over the right-hand mezzanine slot.

PowerPC



VM6250

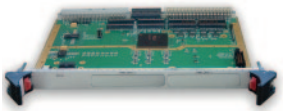
x86



PENTXM2, VM6050

Pinout Compatibility across Silicon Families

» Mezzanine Carrier



» Rear Transition Module



» Front Panel I/Os



Technical Information

System Processor and Chipset	
Processor	Freescale MPC8641 or MPC8640 single/dual-Core PowerPC Processor operating from 1 GHz up to 1.33 GHz
Cache Structure	L1 cache: 32 KB Data + 32 KB Instruction ; L2 cache: 2 x 1 MB
Gigabit Ethernet Controller	Four 10/100/1000 Mbps Ethernet/IEEE®802.3 networks controllers
Memory Controller	Integrated DDR2 memory controller with ECC support, up to 533 MHz, 72-bit
UARTs	2x UART, 16550-style, 4-wire, integrated in MPC864x
Memory	
System Memory	Up to 2 GB DDR2 SDRAM up to 533 MHz, 64-bit wide + ECC, soldered
Firmware Boot device	2x up to 32 Mb soldered NOR flash for Uboot, redundant boot device
NAND Flash	Up to 8 GB USB Nand Flash modules socket
NOVRAM	1x 128 KB of NOVRAM (Simtek/Cypress)
EEPROM	2x serial EEPROM
Onboard Controllers	
Watchdog	2x Watchdog timer with programmable timeout
RTC	RV-8564-C2 from Micro-Crystal
Gigabit Ethernet PHY	Broadcom BCM5466R, low-power QUAD Gigabit Ethernet Transceiver
SATA Controller	1x Dual SATA II Controller Sil3132
USB Controller	2x Dual USB 2.0 Controller NXP ISP1562
VME Controller	Alma VME Controller (2eSST supported)
Extension	
PMCs Carrier board	V2PMC2 carrier board supported for two additional PMCs
Rear Transition Module	6U VME RTM for backplane I/Os extension
Rear I/O via P0 & P2	
Gigabit Ethernet	2x 10/100/1000BASE-TX on P0 (VITA 31.1)
PCI Express or Serial RapidIO	x1/x4 PCI Express 1.0 on P0 (Default) or x1/x4 serial RapidIO on P0 (multiplexed with PCIe) (Build Option)
USB & SATA Ports	2x USB 2.0 & 2 x SATA II Ports on P0
Serial Ports	1 / 2 Serial Ports on P2
PMC I/Os	PMC 2 - VITA 35 P4V2-64ac on P2, PMC1 - first 32 VITA 35 P4V2-46dz PMC I/Os on P2; second 32 PMC I/Os on P0
GPIO	4x GPIO on P0
Front Panel Interfaces	
Gigabit Ethernet	2x 1000BASE-TX on RJ-45 connectors
Serial Port	1 EIA-232 UART interface, RJ-11 connector.
USB Port	1 USB connector
Reset	Reset button
PMC/XMC	2x PMC or XMC slots
Build Options	x1/x4 serial RapidIO
Software	Power-on Built-In-Tests testing over 95% of board features Uboot Firmware 1.3.3 release Real Time Operating System VxWorks 6.x Board Support Package – Consult factory for other O/S and versions Linux Operating System Fedora 9 Board Support Package

Technical Information

Power	Power needs: 3.3V, 5V (+12/-12V if required for mezzanine)	
Power consumption	Single: Max. / Typ.	Dual: Max. / Typ.
MPC8640 1.00 GHz	33W / 27W	41W / 31W
MPC8640 1.25 GHz	41W / 39W	53W / 43W
MPC8641 1.33 GHz	44W / 38W	60W / 45W
Weight	Standard Air-Cooled Version: 430g approx. / Conduction-Cooled Version: 700g approx.	

Environmental Specifcation

	SA Standard Commercial	WA Extended Temperature	RA Rugged Air-Cooled	RC Rugged Conduction-Cooled
Conformal Coating	Optional	Standard	Standard	Standard
Airflow	1.2 m/s	1.5 m/s	1.8 m/s	NA
Temperature	VITA 47-Class AC1	VITA 47-Class AC2	VITA 47-Class AC3	VITA 47-Class CC4
Cooling Method	Convection	Convection	Convection	Conduction
Operating	0° to +55°C	-20° to +65°C	-40° to +71°C	-40° to +85°C
Storage	-45° to +85°C	-45° to +85°C	-45° to +100°C	-45° to +100°C
Vibration Sine (Operating)	20-500 Hz - 2g	20-500 Hz - 2g	20-2,000 Hz - 3g	20-2,000 Hz - 5g
Random	VITA 47-Class V1	VITA 47-Class V1	VITA 47-Class V2	VITA 47-Class V3
Shock (Operating)	20g/11 ms Half Sine	20g/11 ms Half Sine	40g/11 ms Half Sine	40g/11 ms Half Sine
Altitude (Operating)	-1,500 to 60,000 ft	-1,500 to 60,000 ft	-1,500 to 60,000 ft	-1,500 to 60,000 ft
Relative Humidity	90% without condensation	95% without condensation	95% without condensation	95% without condensation

Ordering Information

Article	Order Code	Description
Fast Track Order Code deliverable in less than 15 days:		
VM6250	VM6250-1SA24-10110	Air-Cooled version, Single Core MPC8640 @ 1GHz/533MHz, 1GB DDR2 SDRAM, 128k NVRAM, 2 PMC slots
EZ1-VM6250	EZ1-VM6250	Turnkey evaluation and development platform

VM6250 options: make your choice !

> Class: SA, WA, RC. Class RA on project request
> Processor: Single and Dual Core MPC8640/MPC8641
> CPU Frequency: 1GHz, 1.25GHz, 1.33GHz
> Memory: 1GB, 2GB
> Mezzanine slots: 2 PMC, 2 PMC/XMC, onboard SATA connector
> Conformal Coating

Please contact Kontron GSS-ATD-Toulon@kontron.com or your Kontron Sales representative to define the version fitting your requirements.

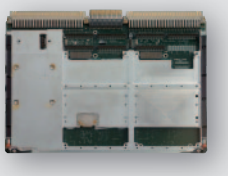
ASSOCIATED PRODUCTS

Evaluation System



EZ1-VM6250

Conduction cooled



VM6250-RC

Rear Transition Module



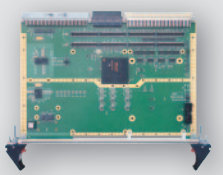
PBV36-P0-VM6-00

SATA Disk Carrier



KIT-DIS25-SATA

PMCs carrier



V2PMC2

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