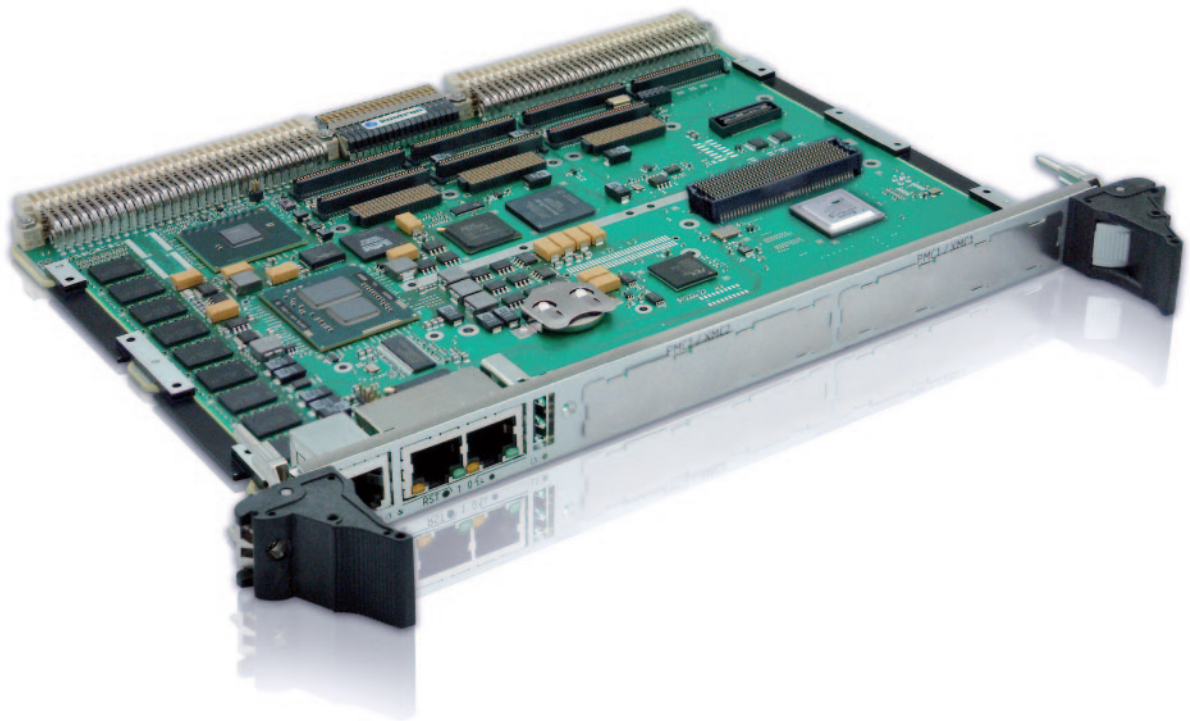


» VM6050 «



6U VME Intel® Core™ i7 Single Board Computer

- » High Processing Capacities
Outstanding Performance in VME format with SSE 4.2 CPU Instruction Set
- » Exceptional I/O Versatility
Build the Solution fitting your Program Requirements: XMC, PMC and VITA 57 FMC Support, Digital Graphics, Virtex 5 FPGA, SATA Disk onboard
- » Commercial and Rugged Versions
Designed for the most Demanding Applications
- » Extended Life Cycle
Adapted Long Term Support Program to your Application Life Cycle

VM6050 6U VME High Performance Intel® Core™ i7 Computer

The VM6050 is built around Intel®'s state-of-the-art Core™ i7 dual-core processor. The VM6050 provides exceptional I/O capabilities onboard and outstanding flexibility by providing support for both PMC, XMC and FMC mezzanine cards. The VM6050's VME interface helps customers preserve their investment in legacy VME equipment.

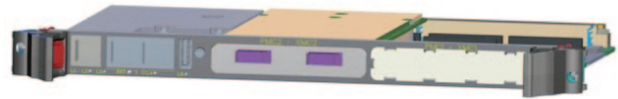
Extensive I/O Connectivity

The VM6050 standard version provides four Gigabit Ethernet interfaces, two serial lines, six GPIO, three USB links, two SATA interfaces, one 4x PCI-Express link and two onboard Mezzanine Sites, supporting PMC/XMC and FMC cards (VITA 57 FPGA I/O). The VM6050 supports the V2PMC2, a 6U VME PCI-X/PMC carrier card that holds up to two single-width or one double-width PCI-X/PMC module.

High Versatility and Customization

The VM6050 offers many options to fit a large range of application requirements: SATA disk onboard, FMC VITA 57 support, USB/SATA Flash slot. And thanks to a specific module plugged on left hand mezzanine slot, the VM6050 can feature Digital Graphics, VGA, additional GPIOs, USB and High Definition Audio IO coming from Core I7 processor.

Example: VM6050 with two Display Ports module



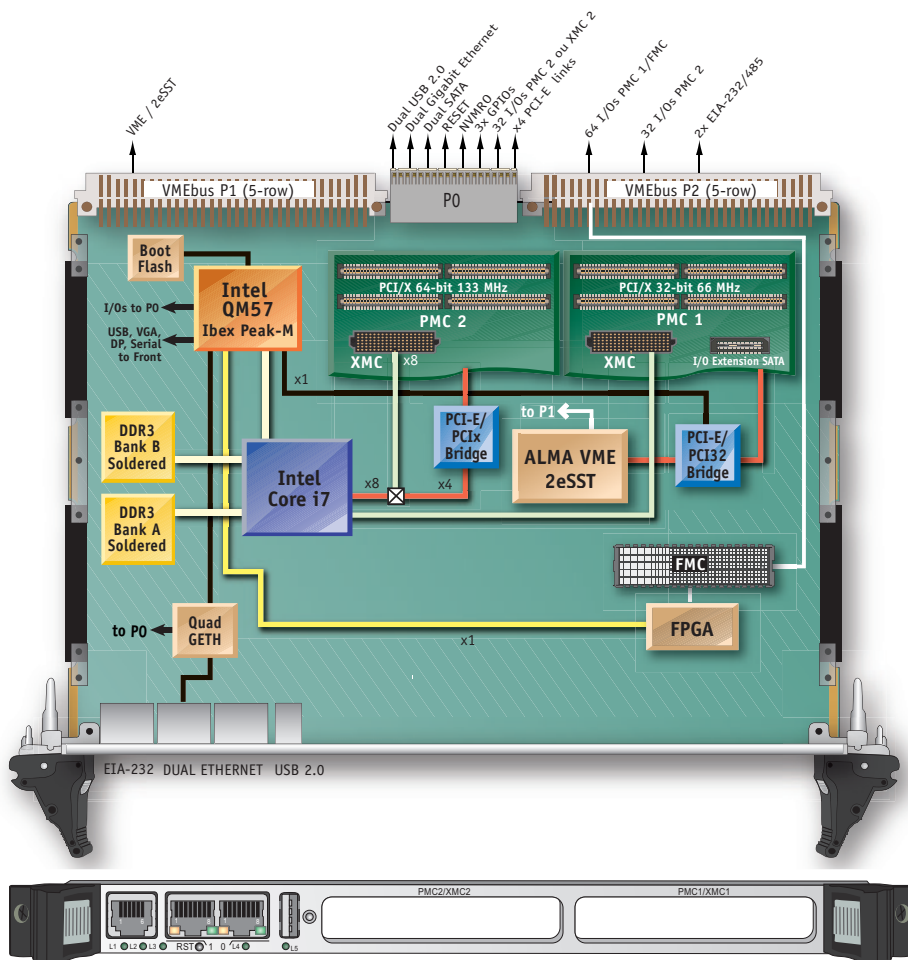
Long Term Availability

Maximizing the lifetime of an application is a critical issue when it comes to saving development investments. The VM6050 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 VM6050 available for ten years or longer.

Legacy Compatibility

The VM6050 is front and rear I/O compatible with Kontron's PENTXM2/4 and VM6250 SBCs, supporting the same peripherals, Rear Transition Module and PMCs Carrier.

VM6050 Block Diagram and Front Panel



Associated Products

Evaluation System



E21-VM6050

Rear Transition Module



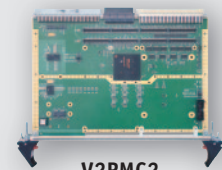
PBV36-P0-VM6-00

SATA Disk Carrier



KIT-DISK25-SATA

PMCs carrier



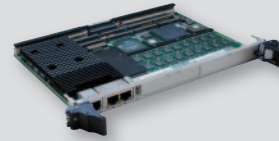
V2PMC2

PowerPC



VM6250

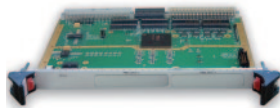
x86



PENTXM2, VM6050

← Pinout Compatibility across Silicon Families →

» Mezzanine Carrier



» Rear Transition Module



» Front Panel I/Os



Technical Information

Processor

Intel® Core™ i7 processor (32nm manufacturing process):

- » Core i7-620LE Low Voltage, 4 MB L3 cache (shared instruction/data cache between both cores)
- » Two Cores with Hyperthreading (4 threads total) from 1.2 GHz to 2 GHz
- » 4 Mbytes cache
- » Intel Hyper-Threading Technology
- » Intel Turbo Boost Technology
- » Intel 64 Technology

Memory

| | |
|---------------------|--|
| System Memory | Up to 8 GB dual channel DDR3 SDRAM running at 1066 MHz, with ECC, soldered |
| Flash (uEFI BIOS) | 4 MB FLASH, with recovery image and uEFI BIOS settings |
| EEPROM | Serial EEPROM (24LC64) 8 KB for storing product VPD |
| USB/SATA NAND Flash | Flash mezzanine socket for USB or SATA NAND Flash modules (typically 8, 16 or 32 GB) |

Onboard Controller

| | |
|-------------------------|---|
| Platform Controller Hub | Mobile Intel® QM57 Express Chipset: |
| Gigabit Ethernet | 4 x 1000BASE-T (2 front and 2 rear) |
| Watchdog | FPGA-based, timeout ranging from 1s to 510s, IRQ, Reset, dual-stage |
| RTC | Integrated in QM57 with 256 Byte CMOS RAM |

Front Interfaces

| | |
|------------------|---|
| Standard version | 1 x RS232/422/485, 2 x 1000BASE-T, 1 x USB 2.0, LEDs, 2 x PMC/XMC slots |
|------------------|---|

Onboard Interfaces

| | |
|------------------|--|
| Debug Interface | XDP port for processor emulation probe connection |
| USB/SATA | 1 x onboard FLASH mezzanine socket for USB or SATA modules |
| Mezzanines slots | PMC/XMC/FMC connectors |
| SATA onboard | SATA connector |

Options

| | |
|--------------------------|---|
| Graphics | Core i7 processor provides high performance 3D graphics features that can be used thanks to an optional module providing two Display Ports either on front panel or on the backplane through P0. » Support for two independent displays » Supports digital display resolutions up to 2560 x 1600 pixels @ 60Hz » Dynamic Video Memory Technology (DVMT) This module is plugged on PMC/XMC left-hand slot. |
| FMC VITA 57 option | FMC VITA 57 slot with Xilinx Virtex5 LX20T FPGA I/O instead of PMC/XMC right-hand slot |
| SATA disk carrier option | SATA disk carrier instead of PMC/XMC right-hand slot |
| 5V only/no P0 | VMC64 compatible version: 3.3V not required, under power consumption restrictions regarding mezzanines No P0 connector fitted |
| Other options | Additional USB, HDA, GPIO instead of PMC/XMC left-hand slot, please contact Kontron |

Technical Information

| | |
|-------------------------|---|
| Software | Power-on Built-In-Tests testing over 95% of board features AMI BIOS version 2.00.1201 Linux Operating System Fedora 14 Board Support Package Real Time Operating System VxWorks Windows |
| Power | Power needs: 3.3V, 5V (+12/-12V if required for mezzanine) |
| Core i7-620LE @ 1.2 GHz | Typical/Max: 30W / 42W |
| Core i7-620LE @ 2 GHz | Typical/Max: 40W / 54W |
| Weight | Standard Air-Cooled Version: 430g approx. / Conduction-Cooled Version: 700g approx. |

Environmental Specification

| | 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: | | |
| VM6050 | VM6050-2SA34-00110 | 6U VME SBC Core i7 620LE @ 2 GHz, SA class, 4 GB SDRAM, 2 PMC/XMC |
| VM6050 | VM6050-2SA34-10110-L | 6U VME SBC Linux Eval Version / Core i7 620LE @ 2 GHz, SA class, 4 GB SDRAM, 8 GB Flash min, 2 PMC/XMC / Software: Onboard Flash with turnkey Linux Fedora 14 distribution - Kernel 2.6.35 |
| VM6050 | VM6050-2SA35-00110 | 6U VME SBC Core i7 620LE @ 2 GHz, SA class, 8 GB SDRAM, 2 PMC/XMC |
| Turnkey Evaluation Platform: | | |
| EZ1-VM6050 | EZ1-VM6050-00-L | Turnkey VME development System based on VM6050-2SA34-10110-L. I/Os: 4xGbE, 3xUSB, 2xSATA, 2 front DisplayPorts + one PMC/XMC slot. Linux Fedora 14 distribution - Kernel 2.6.35 |

VM6050 options: make your choice !

- > Class: SA, WA, RA, RC
- > Digital and VGA Graphics onboard
- > Conformal Coating, additional USB & GPIOs and HDA.
- > Memory: 4 GB, 8 GB
- > Mezzanine slots: 2 PMC, 2 PMC/XMC, VITA 57 FMC support, onboard SATA connector

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

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