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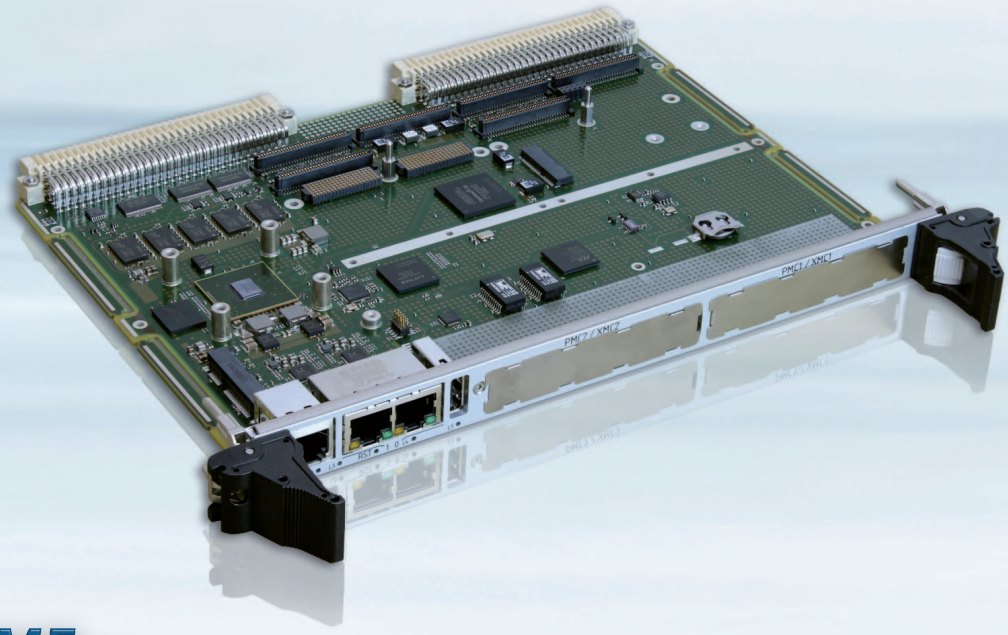
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Find the *Kontron VM6103-SA24* at our website: *Click HERE*

VM6103



VMEbus Technology

LOW POWER DISSIPATION BLADE COMPUTER

Designed for Intense I/O Control Applications

- Dual-Core or Quad-Core 1 GHz / 1.6 GHz 64-bit ARM based Processor
- < 10 W Low Power Dissipation, in Dual-Core 1 GHz
- High versatility with of I/O expansions: Dual PMC, XMC, Mini-PCIe slots
- High capacity of storage: 32 GB eMMC and M.2 SATA III SSD Socket
- Long Term Supply and Support

POSSIBILITIES START HERE kontron

VM6103 – 6U VME LOW POWER CONNECTIVITY ENGINE

The VM6103 is the first member of a full range of High-Performance, Low Power dissipation Kontron range of products featuring QorIQ 'Layerscape' multicore ARM processors.

The VM6103 Connectivity Engine provides a flexible off-the-shelf method for quickly developing and deploying cost-conscious high-performance with low power dissipation tailored systems.

The low power consumption of the powerful Dual-Core 64-bit ARM Cortex-A53 makes the VM6103 well-suited to critical environments such as industrial, transportation and defense applications.

The VM6103 features a highly scalable computing performance as it is available either with a dual-core or quad-core ARM processor clocked at a frequency from 1 GHz up to 1.6 GHz.

The outstanding flexibility of the design of VM6103 provides numerous I/O expansion slots and the processing upgrade using pinout compatible 4-core processors.

QORIQ 'LAYERSCAPE' LS1023 AND LS1043

The LS1023 and LS1043 are pin-compatible cost-effective, power-efficient, and highly integrated System-on-Chip (SoC) design that extends the reach of the line of QorIQ communications processors, featuring extremely power-efficient 64-bit ARM® Cortex®-A53 cores with ECC-protected L1 and L2 cache memories for high reliability, running from 1.0 GHz up to 1.6 GHz. These processors include Neon SIMD co-processing and DP FPU.

The VM6103 running the Dual-Core 1 GHz LS1023A processor features the outstanding performance of 4600 DMIPS/ 5240 64b CoreMark in a power dissipation budget which does not exceed 10 W.

The VM6103 offers a straightforward upgrade path for both new customers and existing legacy QorIQ Power Architecture e500, e600 users.

EXTENSIVE I/O SUPPORT

The VM6103 base version provides two Gigabit Ethernet ports, configurable either on front or rear on P0 in compliance with VITA 31.1, four serial lines, up to 8 GPIOs, three USB links, one SATA M.2 storage slot, one miniPCI-express slot and two onboard Mezzanine Sites, supporting PMC and XMC for one of the two slots.

FULLY RUGGED BY DESIGN

Designed specifically for harsh environments, the VM6103 is ideal for applications where high reliability and survivability are a must. Available in Kontron air- and conduction-cooled ruggedization levels, the VM6103 also aims Natural Convection cooled applications.

LONG TERM PROGRAM: HIGH AVAILABILITY, LOW TCO

Kontron is providing outstanding elements to increase reliability and to lower Total-Cost-of-Ownership (TCO) for VM6103. Kontron provides a Long Term Supply program service (LTS) for over 15 years.

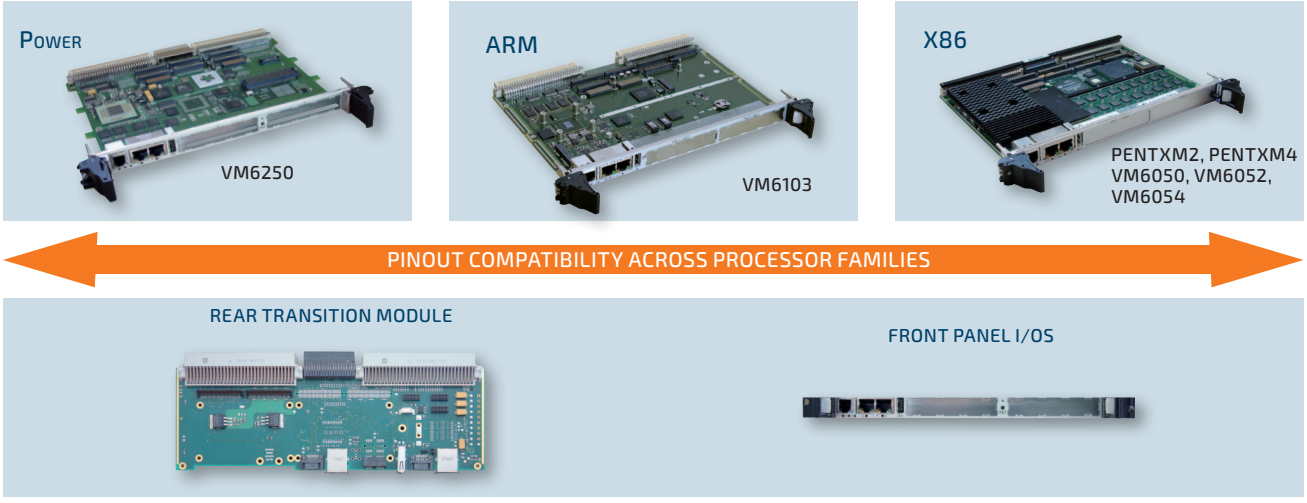
A comprehensive Health Management is optionally available to support easy field maintenance. All this makes the VM6103 the ideal candidate for long term programs.

CENTRALIZED HEALTH MANAGEMENT

A shelf manager is optionally available for centralized health management. Moreover, sequenced system power-up and Temperature/Power/Performance management are available. The Power-On Built-in Test (PBIT) option is a comprehensive package for board and system diagnosis.

LEGACY COMPATIBILITY

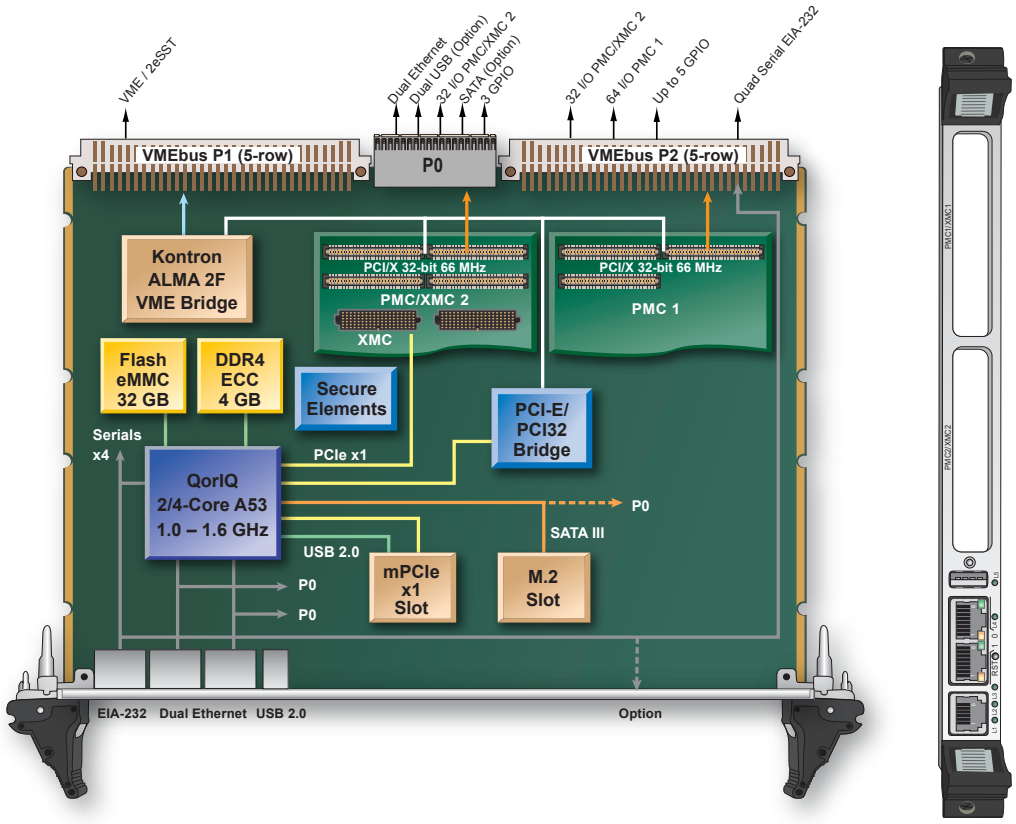
The VM6103 is front and rear I/O compatible with Kontron's line of x86 and Power VME SBCs, supporting the same Rear Transition Module. The net effect of this fit form function compatibility is to allow our customers a simple line replacement policy of the SBC in deployed systems



▶ TECHNICAL INFORMATION

FORM FACTOR		6U VME, single slot, 0.8 inch pitch
SYSTEM ON CHIP (SOC): QORIQ LAYERSCAPE LS1023A/LS1043A	Processor	One NXP QorIQ Layerscap LS1023A Dual-Core or LS1043A Quad-Core 64-bit ARM® Cortex®-v8 A53 based processor speed from 1.0 GHz up to 1.6 GHz 1 MB L2 cache Neon SIMD Co-processor and DP FPU Power dissipation lower than 10 W 28-nanometer silicon technology
	Memory Controller	Integrated 36-bit DDR4 memory controller with ECC support up to 1600 MT/s.
	PCI Express 2.0 Interface	1 lane PCIe to PCIe/ PCI bridge to PMC1, PMC2 and VME bridge 1 lane 5 GT/s gen2 PCIe to XMC1 1 lane 5 GT/s gen2 PCIe to miniPCIe slot
	SATA	Up to 6 Gb/s integrated Serial ATA host controllers 1 SATA port on M.2 socket (or P0 depending on build option)
	USB	3 USB 2.0 ports
	Gigabit Ethernet Controller	2 Gigabit MAC with RGMII Interface
	QSPI	Connects to two QSPI flash devices (64 Mbytes each)
	System Memory	4 GB DDR4 SDRAM at 1600 MT/s
	SPI Flash	Firmware Boot Device, 2x 64 Mbytes
	eMMC Flash	32 GB 4-bit eMMC 4.5 MLC flash
	F-RAM	F-RAM 1 Mbit of non-volatile ferroelectric RAM
	EEPROM	One serial 256 Kbit EEPROM dedicated to VPD data One serial 256 Kbit EEPROM dedicated to system data
ON-BOARD CONTROLLER	Watchdog	Five watchdog timer with configurable timeout counter with timeout periods from 0.5 to 128 seconds, generates IRQ or reset or IRQ/reset cascaded (cPLD implementation) cPLD watchdog also available
	Ethernet PHY	Ethernet PHY with 2 Ethernets 10/100/1000 BASE-T(X) ports. The Ethernet PHY is connected to the SoC through a 2x RGMII links. Each port is software configurable either on front panel (RJ-45) or on rear P0
	System CPLD	One CPLD Board controller for power sequencing, reset handling, monitoring, failure detection, VME I2C communication. Provides configuration/status registers on IFC interface
	VME	Kontron ALMA2f VME controller with 2eSST on FPGA
PMC/XMC SLOTS	Dual PMC	PCI32 @ 66 MHz, VI/O is fixed and set to 3.3 V
	XMC	PCIe x1, Gen2 (only for slot 2, no XMC interface on slot 1)
	Mechanical format	PMC IEEE1386 type, SA and RC
MINIPCIE SLOT	PCI-Express	PCIe x1, Gen2
	USB	USB 2.0 (should be exclusive with P0 build option)
	Mechanical format	Full-mini card 52 pin count
M.2 SLOT	SATA	Gen3 (should be exclusive with P0 connector)
	Mechanical format	Type 2242 Z-height lower than 4.7 mm, Key M
SYSTEM REAR INTERCONNECTION	Gigabit Ethernet	2x 10/100/1000 BASE-T(X) on P0
	USB Ports	2x high-speed USB Ports on P0
	SATA Ports	1x SATA Ports on P0
	Serial Ports	4x EIA-232 null-modem Tx/Rx Serial Ports rear panel on P2
	GPIO	3x GPIOs on P0 and 5 x GPIOs on P2 depending on build option
	PMC slot 1	I/Os available on P2
	PMC/XMC slot 2	32 I/Os available on P2 32 I/Os available on P0
FRONT INTERFACE	Gigabit Ethernet	2x 10/100/1000Base-T(X) on RJ-45 connectors.
	Serial Port	1x RS-232 UART interfaces, RJ-12 connector or 4x RS-232 as option
	USB Port	1x USB 2.0 port for storage or keyboard/mouse
	Reset	One Reset button and Shelf Manager control (SMB command on VME)
	LEDs	Bicolor LEDS on front panel
	Board Temperature	ADT7461A on-chip sensor and remote thermal diode. 3x LM73 sensors
MISCELLANEOUS	Battery	BR1225 on board socket, SuperCap manufacturing build option available, exclusive of battery socket
	Backplane Power Supply	+5 V only fully protected by fuse +12 V for PMC/XMC slot +5 V aux optional -12 V for PMC/XMC slot
	Power Consumption	< 10 W without mezzanines, without options, without peripherals/devices (Dual-Core 1 GHz processor)

VM6103 BLOCK DIAGRAM AND FRONT PANEL



ENVIRONMENTAL SPECIFICATION

	SA - STANDARD COMMERCIAL	WA - EXTENDED TEMPERATURE	RA - RUGGED AIR-COOLED	RC - RUGGED CONDUCTION-COOLED
Conformal Coating	Optional	Standard	Standard	Standard
Cooling Method	Convection	Convection	Convection	Conduction
Operating Temperature	0° to +55°C	-20° to +65°C	-40° to +70°C	-40° to +85°C
Storage Temperature	-40° to +85°C	-45° to +100°C	-50° to +100°C	-50° to +100°C
Vibration Sine (Operating)	20-500 Hz - 2 g	20-500 Hz - 2 g	20-2,000 Hz - 3 g	22-2,000 Hz - 5 g
Random	f (Hz) 10 40 / PSD (g2/Hz) 0.01 0.01	f (Hz) 100 200 2000 / PSD (g2/Hz) 0.0007 0.0007 0.00005	5 Hz to 100 Hz +3 dB/octave 100 Hz to 1000 Hz 0.04 g2/Hz 1000 Hz to 2000 Hz-6 dB/octave	5 Hz to 100 Hz +3 dB/octave 100 Hz to 1000 Hz 0.1 g²/Hz 1000 Hz to 2000 Hz-6 dB/octave
Shock (Operating)	20 g/11 ms Half Sine	20 g/11 ms Half Sine	20 g/20 ms Half Sine	40 g/20 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
VM6103	VM6103-SA24-00000000	6U single slot 4 HP VME SBC, 1.0 GHz QorIQ dual core LS1023A processor, 4 GB DDR4-1600 SDRAM with ECC, 32 GB eMMC MLC flash, two PMC slots, one XMC slot, 3 GPIOs on P2, no P0 connector, Air-Cooled (0°C to +55°C), one SATA M.2 Type 2242/2260, key M slot for storage module, TPM/Wibu hardware build option equipped, four serial lines on P2, battery option equipped, MiniPCIe socket equipped.
VM6103	VM6103-SA44-00000000	6U single slot 4 HP VME SBC, 1.6 GHz QorIQ quad core LS1043A processor, 4 GB DDR4-1600 SDRAM with ECC, 32 GB eMMC MLC flash, two PMC slots, one XMC slot, 3 GPIOs on P2, no P0 connector, Air-Cooled (0°C to +55°C), one SATA M.2 Type 2242/2260, key M slot for storage module, TPM/Wibu hardware build option equipped, four serial lines on P2, battery option equipped, MiniPCIe socket equipped.

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