

The logo for AcQ International features the word "AcQ" in a red, serif font, followed by a cluster of colorful dots in blue, red, and pink, and the word "International" in a red, sans-serif font.

# AcQ International

## OpenVPX™ 3U Single Board Computer with T4240

The AcQ “MEDUSA” VPX3424 is a 3U OpenVPX™ (VITA 65) Single Board Computer (SBC) featuring the T4240 QorIQ® Processor from NXP. This 12-core, 24-thread processor running at up to 1.8GHz is based on the PowerPC e6500 core with AltiVec® technology and offers the cutting edge of both performance (up to 216 GFlops) and power efficiency. With up to 12GB DDR3 RAM with ECC and a range of fast interconnects, it forms the beating heart of this new board, bringing you unparalleled performance.



For less demanding applications, the “MEDUSA” can be equipped with the T4160 processor (8 cores; 16 threads) or with the T4080 processor (4 cores; 8 threads), both running at up to 1.8GHz and with reduced power envelope.

Using the T4240’s built-in AltiVec® technology accelerators, cryptographic engine and high-speed serial interfaces, the VPX3424 is capable of processing data at record-breaking speeds for many common algorithms such as FFTs, image analysis, networking or wireless protocols. Further accelerators allow for extensive hardware-based network traffic parsing, scheduling (QoS) and queue management.

### FPGA-Powered Flexibility (Xilinx Kintex-7)

The VPX3424 has a large, user-programmable FPGA and dozens of customizable OpenVPX™ User I/O pins, allowing you to add support for application specific interfaces or offload specialized tasks to the FPGA. From adding a simple PWM signal to multiple additional Ethernet controllers, the user-programmable FPGA adds great flexibility to meet your design needs. Available in different sizes.

### Software Support

Support for Integrity®, Linux, PikeOS™ and VxWorks® is available for the VPX3424. Other Operating Systems are available on request. Each supported software environment comes with extensive documentation, example software, compiler and IDE. Furthermore, a development kit is available for the on-board user-programmable FPGA with code examples and documentation to kick-start your firmware development.

### Small Form Factor System

A conduction cooled ruggedized REDI (VITA 48) variant of the VPX3424 is available as part of the AcQ OpenVPX™-based small form factor system (VITA 75), a highly modular and extendable platform for a range of embedded applications. This system brings together an optimized combination of performance and SWaP. AcQ offers a wide range of boards for this system using the OpenVPX™ (VITA 65) architecture. These boards include I/O, networking and audio functionality. A PMC/XMC carrier (VPX3001) is also available. Contact us for more details on this system and how it can meet your application’s needs.

## Features

### Processor

- NXP T4240 with 12 dual-threaded e6500 cores up to 1.8GHz (up to 216 GFlops)
- Three clusters of 4 cores with 2MB cache per cluster
- Each core has built-in AltiVec® technology accelerators
- Advanced MMU capabilities for enhanced safety and reliability and virtualization
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### Memory and storage

- Up to 12GB of DDR3 RAM
- Three DDR3 controllers; 64-bit bus with ECC up to 1866MT/s
- Backed by 1.5MB of CoreNet™ Platform Cache
- 2Mbit of FRAM
- 64GB eMMC
- 256MB Flash for programs

### FPGA

- User-programmable FPGA (Xilinx Kintex-7)
- Can use up to 36 free pins on the OpenVPX™ User I/O (differential pairs; SERDES)
- IFC connection between CPU and FPGA
- Development kit

### Interfaces (RTM)

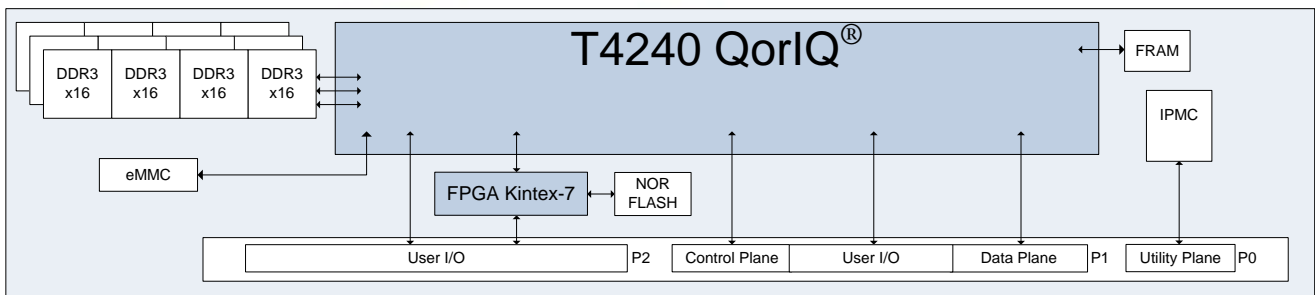
- IPMI bus
- Software configurable data plane: 2x PCIe x4 or 1x PCIe x8 or 1x PCIe x4 and 1x Serial RapidIO® x4
- Control plane: up to four Gbit Ethernet links (1000BASE-T or 1000BASE-KX)
- Two SATA ports
- Two USB 2.0 ports
- Software configurable: two UARTs or one UART with RTS/CTS
- FPGA IP using GPIO pins

### Miscellaneous

- Extensive on-board temperature, voltage and current monitoring and logging capabilities (IPMC)
- Board Management Control on IPMI bus (VITA 46.11)
- Debug facilities through AURORA and JTAG on-board connector
- Part of the Freescale® Product Longevity Program
- Air-cooled and conduction cooled ruggedized REDI (VITA 48) variants available
- Operation temperature of components for the REDI compliant board, conduction cooled, is at least -40°..+85° Celsius.

### Ordering information

- VPX3424 with T4240 1.5GHz Enc, conduction cooled or 1.8GHz Enc air cooled, 3 x 4GB DDR3 RAM, 64GB eMMC
- Other configurations are possible on request
- VPX3416: similar with T4160
- VPX3408: similar with T4080
- RTMs for VPX3424, VPX3416 and VPX3408 are available too.



Simplified block diagram



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