

VPX7440

Rugged Conduction or Air Cooled
3U Broadcom XLP432 for VPX



Power and Flexibility

The Orion VPX7440 Single Board Computer (SBC) is the industry's most flexible, rugged, high-performance Multi-Core SBC in today's embedded marketplace, based on the highly scalable Broadcom XLP432 it is ideal for any high compute requirements.

Incorporating the power of the Thirty-two Core Broadcom XLP432 processor and the unparalleled complement of I/O, the VPX7440 can be adapted to any Military, Industrial or Commercial application where customization and configurability are key.

Available in 5 levels of ruggedization, from commercial temperature air-cooled (0.8" pitch) to extended temperature REDI (Vita 48.2, 1" pitch).

With four OpenVPX 4-lane PCI Fat Pipes, Eight Ethernet ports, two configurable serial ports, twenty-seven GPIO, one differential GPIO and USB, the VPX7440 design has optimized high-speed multi-core processing with user I/O.

The combination of Multi-Core processing, complete offering of user I/O and 5 levels of ruggedization, the VPX7440 is ideal for any high performance embedded application.

Features

- Thirty-two Core Broadcom XLP432 processors up to 1.6GHz
- Thirty-two nxCPU processing engines
- 64KB L1 instruction cache per core
- 32KB L1 data cache per core
- 512KB internal L2 cache per core
- 8MB shared L3 cache
- Extended Temperature and Rugged REDI (VITA 48.2)
- Full 2 Level Maintenance allows in-field replacement
- OpenVPX (VITA 65) compliant including support for multiple module profiles
- On-board temperature monitoring
- Up to 4GB DDR3-1600 SDRAM with ECC
- Up to 4GB NAND Flash
- Four PCIe 2.0 Fat Pipes (x4 lanes each)
- Two 10/100/1000 Base-T Ethernet ports
- Four 10/100/1000 Base-BX Ethernet ports
- Two Serial ports: RS-232/RS-422, configurable
- Twenty-seven General Purpose I/O
- One differential General Purpose I/O
- One USB 2.0 port
- On-board Real-Time Clock
- Various Operating System Software Support

Hardware Specifications

Processor

- Broadcom MIPS64 Processor with up to 32 cores
- Processor Speed: 1.6GHz
- L1-I/L1-D Cache (per core): 64KB/32KB
- L2 Cache (per core): 512KB
- L3 Cache (shared): Up to 8MB

Processor Features

- Up to 32 nxCPU processing engines
- RSA Acceleration Engine: 40K/sec (RSA1024)
- Security Acceleration Engine: 40Gpbs
- Hardware IEEE 1588 Timestamping

PCIe

- PCIe lanes: Four x4 lanes v2.0
- Access: Two x4 lanes VPX Connector P1
Two x4 lanes VPX Connector P2

Four 1 Gb Ethernet Base-BX Ports

- Controller: Integrated MAC
- PHY: Marvell 88E1112 PHY
- Configuration: Auto Negotiating 10/100/1000
- Access: VPX Connector P1

Two 1 Gb Ethernet Base-T Ports

- Controller: Integrated MAC
- PHY: Marvell 88E1111 PHY
- Configuration: Auto Negotiating 10/100/1000
- Access: VPX Connector P1

USB Port

- Controller: Integrated on Processor
- Version: 2.0
- Access: VPX Connector P2

Two Serial Ports

- Controller Type: Integrated
- Signal levels: Configurable RS-232/422
- Access: VPX Connectors P1

General Purpose I/O

- Configuration: 28 GPIOs
- Signal levels: 3.3V LVCMOS
- Access: VPX Connector P2

Memory

- DRAM Memory Type: DDR3 SDRAM
- DRAM Memory Size: Up to 4GB(soldered)
- 16Mb NOR Boot Flash
- 4GB NAND Flash

JTAG

- Processor EJTAG emulator interface

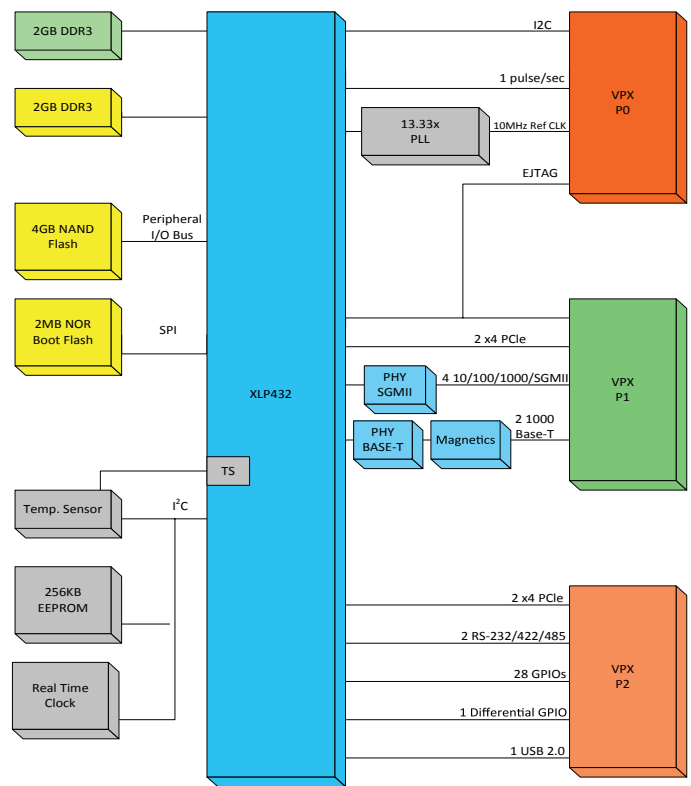
Temperature

- Operating: -40°C to +85°C
- Storage: -50°C to +100°C

Relative Humidity

- Operating: 5% to 95%, non-condensing
- Storage: 5% to 95%, non-condensing

Block Diagram



Environmental	Level 1	Level 2	Level 3	Level 4	Level 5
Cooling Method	Air-cooled	Air-cooled	Air-cooled	Conduction	Conduction
Conformal Coating	Standard	Standard	Standard	Standard	Standard
Operating Temperature	0 to +55°C	-40 to +55°C	-40 to +70°C	-40 to +70°C	-40 to +85°C
Vibration	0.002g ² /Hz*	0.002g ² /Hz*	0.04g ² /Hz*	0.1g ² /Hz*	0.1g ² /Hz*
Shock	20g Peak sawtooth 11 ms duration	20g Peak sawtooth 11 ms duration	20g Peak sawtooth 11 ms duration	40g Peak sawtooth 11 ms duration	40g Peak sawtooth 11 ms duration
Humidity	0% to 95%, non-condensing	0% to 95%, non-condensing	0% to 95%, non-condensing	0% to 95%, non-condensing	0% to 95%, non-condensing

*Flat response to 1000 Hz