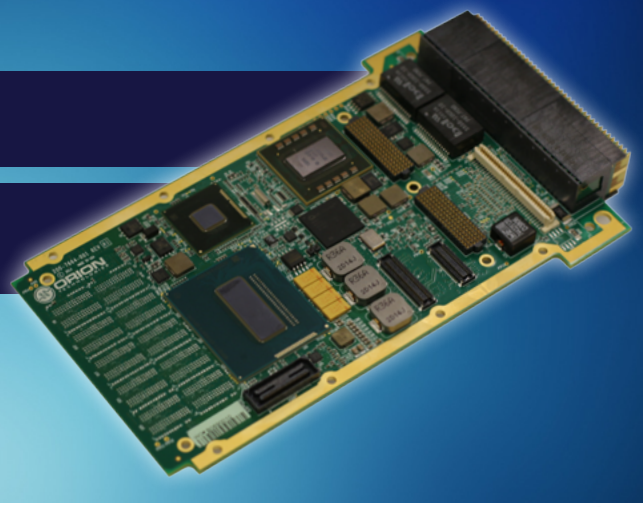
VPX7664

3U VPX Fourth Generation Intel Core i7 Single Board Computer (Air or Conduction Cooled)



OpenVPX

Power and Flexibility

The Orion VPX7664 single board computer (SBC) is the industry's most flexible, rugged, high- performance Multi-Core SBC in today's embedded marketplace. Our anti-tamper options make it ideal for military applications.

By incorporating the power of the Intel® Fourth Generation Core™ i7 and an unparalleled complement of I/O via the customer configurable "Personality Module", it can be adapted to practically any Military, Industrial or Commercial application.

The VPX7664 is available in 6 levels of ruggedization from commercial temperature air-cooled (0.8" pitch) to extended temperature REDI (Vita 48.2, 1" pitch).

With three OpenVPX 4-lane PCI express v3.0 fabric ports and an 8-lane PCI express v3.0 XMC/PMC slot the VPX7664 design has streamlined high-speed board-to-board communication.

The VPX7664 includes two 10GbE Base-T ports, two serial ports, two USB 3.0 ports, three USB 2.0 ports, eight general purpose I/O and XMC P16 I/O which are all accessible through VPX connectors P1 and P2.

Features

- Multi-Core 4th Generation Intel® Core™ i7
- QM87 PCH Chipset
- 32KB L1 data and instruction cache per Core
- 256KB internal L2 Cache per Core
- Up to 8MB shared data and instruction L3 Cache
- Extended temperature & rugged REDI (Vita 48.2)
- On-board temperature monitoring
- Up to 64GB of soldered DDR3 SDRAM with ECC
- Up to 16GB of on-board NAND Flash
- Trusted Platform Module
- One 8-lane PCIe 3.0 XMC slot (Vita 42.3)
- Three 4-lane PCIe v3.0 ports on VPX P1 (Vita 46.4)
- Two 10GbE Base-T ports (auto negotiate 10G/1G/100M)
- Four Serial ports, configurable
- Eight General purpose I/O, configurable
- Two USB 3.0 and Three USB 2.0
- Two SATA 6.0 Gb/s ports
- PCIe Switch to OpenVPX Backplane providing non-transparent port and DMA capabilities
- XMC P16 & PMC P14 Rear I/O
- Various Operating System Software Support
- Digital Video & Audio ports available
- Anti-Tamper features available

Hardware Specifications

Processor

- Intel®: Dual or Quad Core i7 4th Generation
- Processor Speed: 1.8GHz to 3.4GHz
- Up to 6MB Intel® Smart Cache

Processor Features

- Dual/Quad-core with hyper-threading technology
- Integrated Intel® HD 4600 Graphics Controller
- Intel® QM67 Chipset
- Dual channel integrated memory controller

VPX Connector

- Three PCI Express Fat Pipes Version 3.0

OpenVPX Profiles

- MOD3-PAY-2F1F2U-16.2.1
- MOD3-PAY-1F2F2U-16.2.2
- MOD3-PAY-2F2U-16.2.3
- MOD3-PAY-1F1F2U-16.2.4
- MOD3-PAY-2F-16.2.7
- MOD3-PAY-1F4U-16.2.8
- MOD3-PAY-8U-16.2.9
- MOD3-PER-2F-16.3.1
- MOD3-PER-1F-16.3.2
- MOD3-PER-1U-16.3.3

Video Ports

- One dedicated video port to backplane

Configurable Video:
- DVI
- HDMI
- Display Port

Local XMC Bus

- XMC Bus: PCI Express 3.0
- XMC Bus Width: Double FAT Pipe (x8 Lanes)

Memory

- DRAM Memory Type: DDR3 SDRAM
- DRAM Memory Size: Up to 16GB
- On-Board User FLASH: UP to 64GB
- BIOS Flash: 64Mbit

PCIe Switch

- PCIe lanes: Three x4 lanes v3.0
- Access: VPX Connectors P1
- DMA support: Yes
- Non-transparent support: Yes

Peripherals

SATA Port
- Controller: Integrated on Chipset
- Speed: 6.0 Gb/s
- Access: VPX Connector P2

Two 10 Gb Ethernet Base-T Ports
- Controller: Intel x540 MAC/PHY
- Configuration: Auto Negotiating 10GbE/1GbE/100MbE
- Access: VPX Connector P1

Quad Serial Ports
- Controller Type: PCIe to serial bridge
- Signal levels: Configurable via Personality Module
- Access: VPX Connectors P2

Up to Five USB Ports
- Controller: Integrated on Processor
- Version: Two 3.0, Three 2.0
- Access: VPX Connector P1/P2

General Purpose I/O

- Configuration: 8 GPIOs
- Signal levels: Configurable by Personality Module
- Access: VPX Connector P2

Environmental

	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6
Cooling Method	Air-cooled	Air-cooled	Air-cooled	Conduction	Conduction	Conduction
Conformal Coating	Standard	Standard	Standard	Standard	Standard	Standard
Operating Temperature	0 to +55°C	-40 to +55°C	-40 to +85°C	-40 to +70°C	-40 to +85°C	-40 to +85°C
Vibration	0.002g²/Hz*	0.002g²/Hz*	0.04g²/Hz*	0.1g²/Hz*	0.1g²/Hz*	0.1g²/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	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	0% to 95%, non-condensing
Wedgelocks				Primary	Primary	Secondary

*Flat response to 1000 Hz

Options Guide

VPX7664 - A B C D

Base Model Number

Processor Options

1 = Intel® Core™ i3-4112E Dual Core Fourth Generation Processor (3M Cache, 1.80 GHz max)
2 = Intel® Core™ i5-4400E Dual Core Fourth Generation Processor (3M Cache, up to 3.30 GHz max)
3 = Intel® Core™ i7-4700EQ Quad Core Fourth Generation Processor (6M Cache, up to 3.40 GHz max)

Memory Options

1 = 4GB RAM, 16GB NAND Flash
2 = 8GB RAM, 16GB NAND Flash
4 = 16GB RAM, 64GB NAND Flash

Reserved

1 = 1x HDMI, 1x USB 3.0, 2x USB 2.0, 1x SATA, 1x RS-422, 2x RS-232, 2x GPIO
2 = 4x RS-422, 2x SATA, 8x GPIO

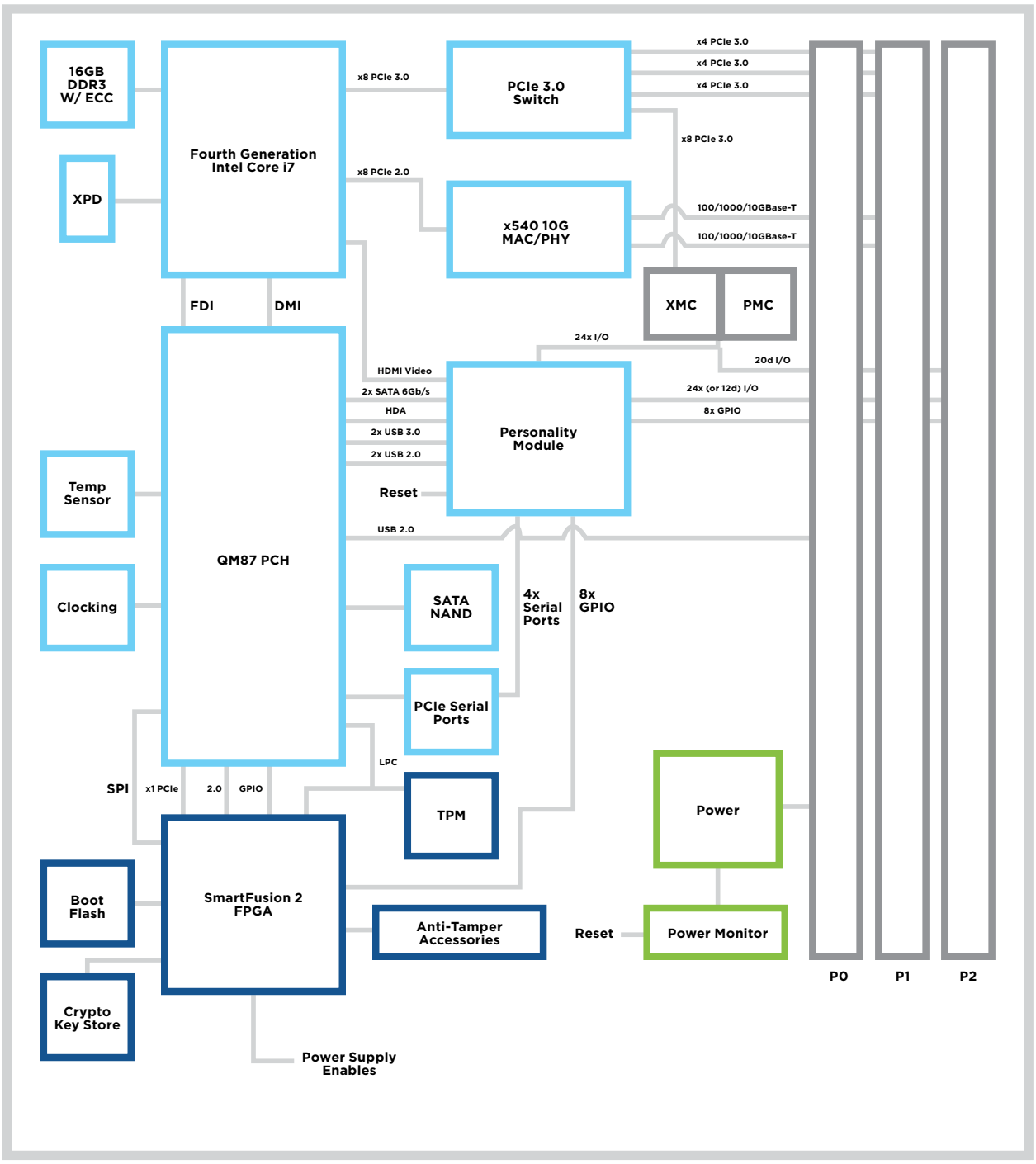
Environmental Options

1 = Level 1
2 = Level 2
3 = Level 3
4 = Level 4
5 = Primary side conduction cooled
6 = Secondary side conduction cooled

Orion has successfully generated products utilizing an extensive assortment of microprocessors since 1990. Our single board computer product offering includes both custom and standard form factors such as VPX, VME, Compact PCI and PMC. The majority of our products are offered in five ruggedization levels from standard commercial to rugged, extended temperature with conduction cooling. At Orion, we put the customer at the center of our business. We strive to provide the highest quality of products backed by our exceptional service and support.

Whether it's a small quantity, one-time requirement or a high volume product for years to come, we would like to be your partner in embedded solutions.

Block Diagram



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