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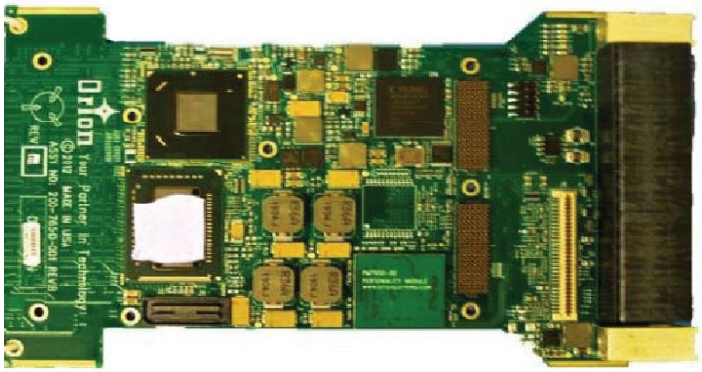
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VPX7650

Multi Core REDI (Vita 48) 3U OpenVPX Second Generation Intel® Core™ i7 Single Board Computer

Power & Flexibility
Second Generation Core™ i7

The Orion VPX7650 single board computer (SBC) is the industry's most flexible, rugged, high-performance multi core SBC in today's embedded marketplace.

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

The VPX7650 is available in 5 levels of ruggedization, from commercial temperature air cooled (0.8" pitch) to extended temperature REDI (Vita 48.2, 0.85" pitch).

With three OpenVPX 4-lane PCI express v2.0 fabric ports and an 8-lane PCI express v2.0 XMC slot, the VPX7650 design has streamlined high-speed board-to-board communication.

The VPX7650's two 1000Base-BX ports, two Serial ports, up to four USB 2.0 ports, eight General Purpose I/O and PMC P14 or XMC P16 I/O are all accessible through VPX connectors P1 and P2.

Features

- Multi Core Second Generation Intel® Core™ i7 up to 2.2GHz
- Mobile Intel® 6 Series Chipset
- 32KB L1 data and instruction caches 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
- 35W typical power dissipation
- Up to 8GB of soldered DDR3 SDRAM with ECC
- Up to 16GB of on-board NAND Flash
- Trusted Platform Module
- One 8-lane PCIe XMC slot (Vita 42.3)
- Three 4-lane PCIe v2.0 ports on VPX P1 (Vita 46.4)
- Two 10/100/1000 Base-BX ports (Vita 46.9)
- One optional 1000 Base-T port
- Two Serial ports, 1x RS232, 2nd configurable
- Eight General Purpose I/O, configurable
- Up to four USB 2.0 ports
- One SATA 6.0 Gb/s port
- PCIe Switch to OpenVPX backplane
- XMC front panel & P14/P16 Rear I/O RTC
- Various Operating System Software Support
- Digital Video & Audio ports available

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www.oriontechnologies.com

VPX7650 Multi Core REDI (Vita 48) 3U OpenVPX
Second Generation Intel® Core™ i7 Single Board Computer

Hardware Specifications

Processor

- Intel®: Dual or Quad Core Second Generation Core™ i7
- Processor Speed: 1.5GHz to 2.2GHz
- Inst. Cache: 32KB
- Data Cache: 32KB
- L2 Cache: 256KB
- L3 Cache: Up to 8MB shared

Processor Features

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

VPX Connector

- Three PCI Express Fat Pipes Version 2.0

Open VPX 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

Local XMC Bus

- XMC Bus: PCI Express 2.0
- XMC Bus Width: Double FAT Pipe (x8 Lanes)
- XMC I/O Access: Front Panel, P16 and PMC P14 to VPX P2

Memory

- DRAM Memory Type: DDR3 SDRAM
- DRAM Memory Size: Up to 8GB
- On-Board User FLASH: Up to 16GB
- BIOS Flash: 32Mbit

PCIe Switch

- PCIe Lanes: Three x4 lanes v2.0
- Access: VPX Connector P1
- DMA Support: Yes

Peripherals

SATA Port

- Controller: Integrated on Chipset
- Speed: 6.0 Gb/s
- Access: VPX Connector P1

Two 10/100/1000 Base-BX Ports

- Controller: Intel® Integrated MAC/PHY
- Configuration: Auto Negotiating 10/100/1000
- Access: VPX Connector P1

Dual Serial Ports

- Controller Type: Integrated on SIO
- Signal Levels: 1x RS232, 1x configurable
- Access: VPX Connectors P1/P2

Up to Four USB Ports

- Controller: Integrated on Processor
- Version: 2.0
- Access: VPX Connector P1

General Purpose I/O

- Configuration: Eight GPIO
- Signal Levels: Configurable by Personality Module
- Access: VPX Connector P2

Miscellaneous

Real-Time Clock

- Integrated on Chipset

Reset

- Power on reset, Push button reset and VPX backplane reset

XPD/JTAG

- Processor XPD/JTAG emulator interface

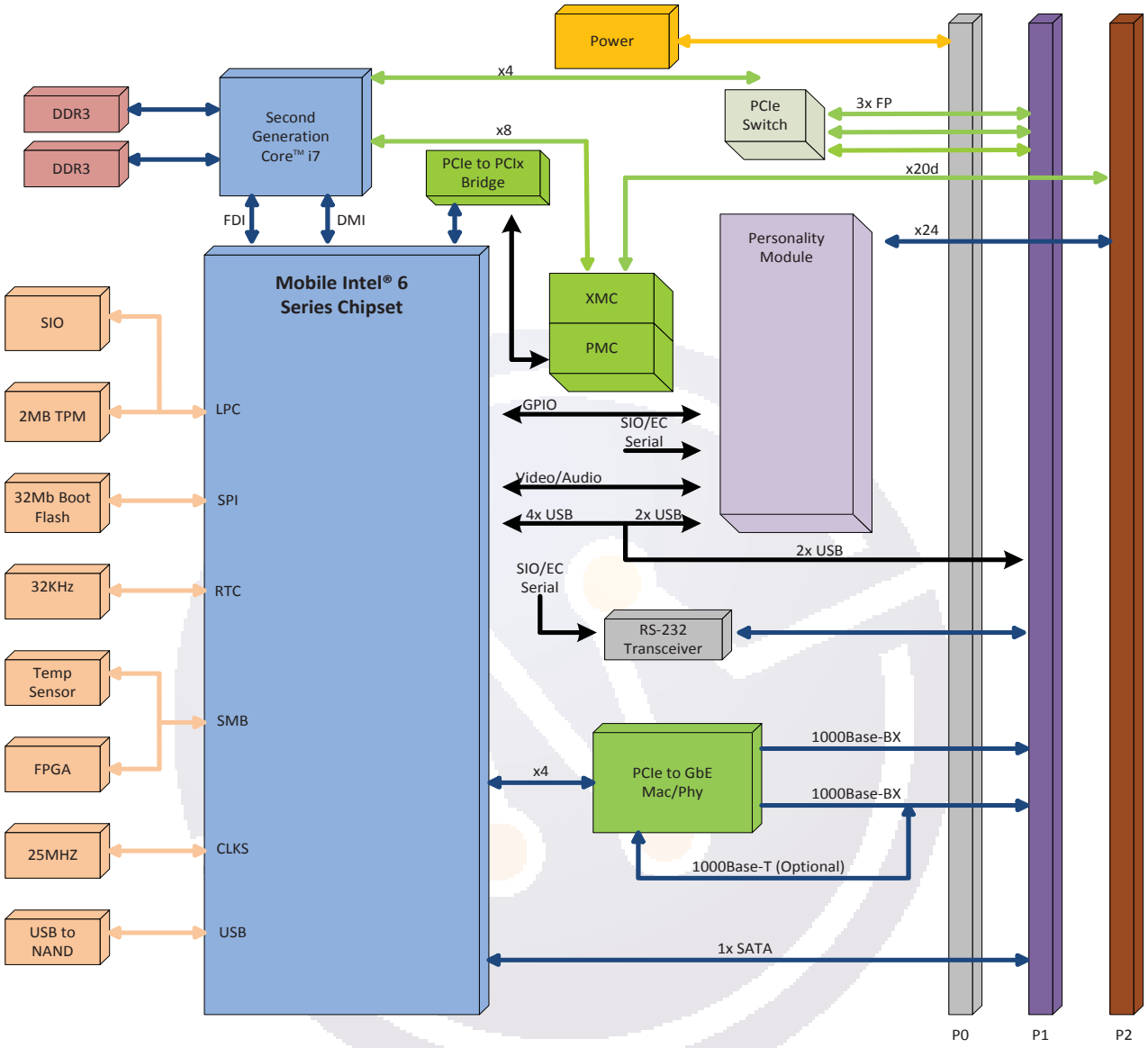
LEDS

- Runtime Status LEDS
- RJ-45 Ethernet LEDS

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Block Diagram



Environmental

	Level 1	Level 2	Level3	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	0.002g²/Hz*	0.002g²/Hz*	0.04g²/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
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 repsonse to 1000 Hz

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Ordering Information

VPX7650 – A B C D

Base Model Number

Processor Options

1 = 1.5 GHz Dual Core Second Generation Core™ i7 (i7-2610UE)

2 = 2.2 GHz Dual Core Second Generation Core™ i7 (i7-2655LE)

3 = 2.1 GHz Quad Core Second Generation Core™ i7 (i7-2715QE)

Memory Options

1 = 2GB DDR3, 8GB NAND Flash

2 = 4GB DDR3, 8GB NAND Flash

3 = 8GB DDR3, 16GB NAND Flash

Backplane Pinout

1 = 3 Fat Pipes

2 = 2 Fat Pipes

Environmental Options

1 = Level 1

2 = Level 2

3 = Level 3

4 = Level 4

5 = Level 5

Orion has successfully generated products utilizing an extensive assortment of microprocessors since 1990. Our design experience ranges from the development of a single, very low power processors to the latest, high-performance, mulit-core, multi-processor products. Our single board computer product offering includes both custom and standard form factors such as VPX, VME, CompactPCI and PMC. The majority of our products are offered in five ruggedization levels from standard commercial to rugged, extended temperature with conduction cooling.

We guarantee all of our products are free of manufacturing and design defects, and we provide real customer 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.

ORION TECHNOLOGIES

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Artisan Technology Group is an independent supplier of quality pre-owned equipment

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