ORION TECHNOLOGIES

VPX7660

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

OpenVPX™

FEATURES

POWER AND FLEXIBILITY

Fourth Generation Core™ i7

The Orion VPX7660 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® Fourth Generation Core™ i7 and the unparalleled complement of I/O via the customer configurable "Personality Modules", this SBC can be adapted to practically any Military, Industrial or Commercial application.

The VPX7660 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 v3.0 fabric ports and an 8-lane PCI express v3.0 XMC slot,the VPX7660design has streamlined high-speed board-to-board communication.

The VPX7660's two 1000Base-BX ports, four Serial ports, up to four USB 3.0 ports, eight General Purpose I/O and PMC P14 or XMC P16 I/O are all accessible through VPX connectors P1 and P2.

Multi Core Fourth Generation Intel® Core™ i7 up to 3.4GHz (Max Turbo Freq)	Up to 6MB Unified Intel Smart Cache	Extended Temperature & Rugged REDI (Vita 48.2)	On-board temperature monitoring
35W typical power dissipation	Up to 16GB 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 v3.0 ports on VPX P1 (Vita 46.4)	Two 10/100/1000 Base-BX ports (Vita 46.9) One 10/100/1000 Base-T port	Four Serial ports
Eight General Purpose I/O, configurable	Up to four USB 3.0 portsUp to four SATA 6.0 Gb/s ports	PCIe Switch to OpenVPX backplane	XMC front panel & P14/P16 Rear I/O RTC
Various Operating System Software Support	Built-In Test, Integrated into the BSP	Digital Video & Audio ports available (VGA, Digital Video and Audio)	Temperature sensor

HARDWARE SPECIFICATIONS

Peripherals Per FPGA

Up to Four SATA Ports

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

Two 10/100/1000 Base-BX Ports / One 10/100/1000 Base-T Port

- Controller: Intel® Integrated MAC/PHY
- Configuration: Auto Negotiating 10/100/1000
- Access: VPX Connector P1
- Features: 802.1Q Trunk
  Jumbo Frames
  Flow control & moderation rate

Four Serial Ports

- Controller Type: Integrated on SIO
- Signal levels: RS232/422
- Access: VPX Connectors P1/P2

Up to Four USB Ports

- Controller: Integrated on Processor
- Version: 3.0
- Access: VPX Connector P1

General Purpose I/O

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

Processing Capabilities

Processor

- Intel® Dual or Quad Core Fourth Generation Core™ i7
- Processor Speed: 1.6GHz to 2.7GHz
- Cache: Up to 6MB shared

Processor Features

- Dual or Quad core with hyper-threading technology
- Integrated Graphics Controller
- Intel® 8 Chipset
- Dual channel integrated memory controller

VPX Connector

- Three PCI Express Fat Pipes Version 3.0

Local XMC Bus

- XMC Bus: PCI Express 3.0
- XMC Bus Width: Pouble 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 16GB
- On-Board User FLASH: Up to 16GB
- BIOS Flash: 32Mbit

PCIe Switch

- PCIe Lanes: Three x4 lanes v3.0
- Access: VPX Connectors P1
- DMA Support: Yes

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

Miscellaneous

Real-Time Clock

- Integrated on Chipset

Reset

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

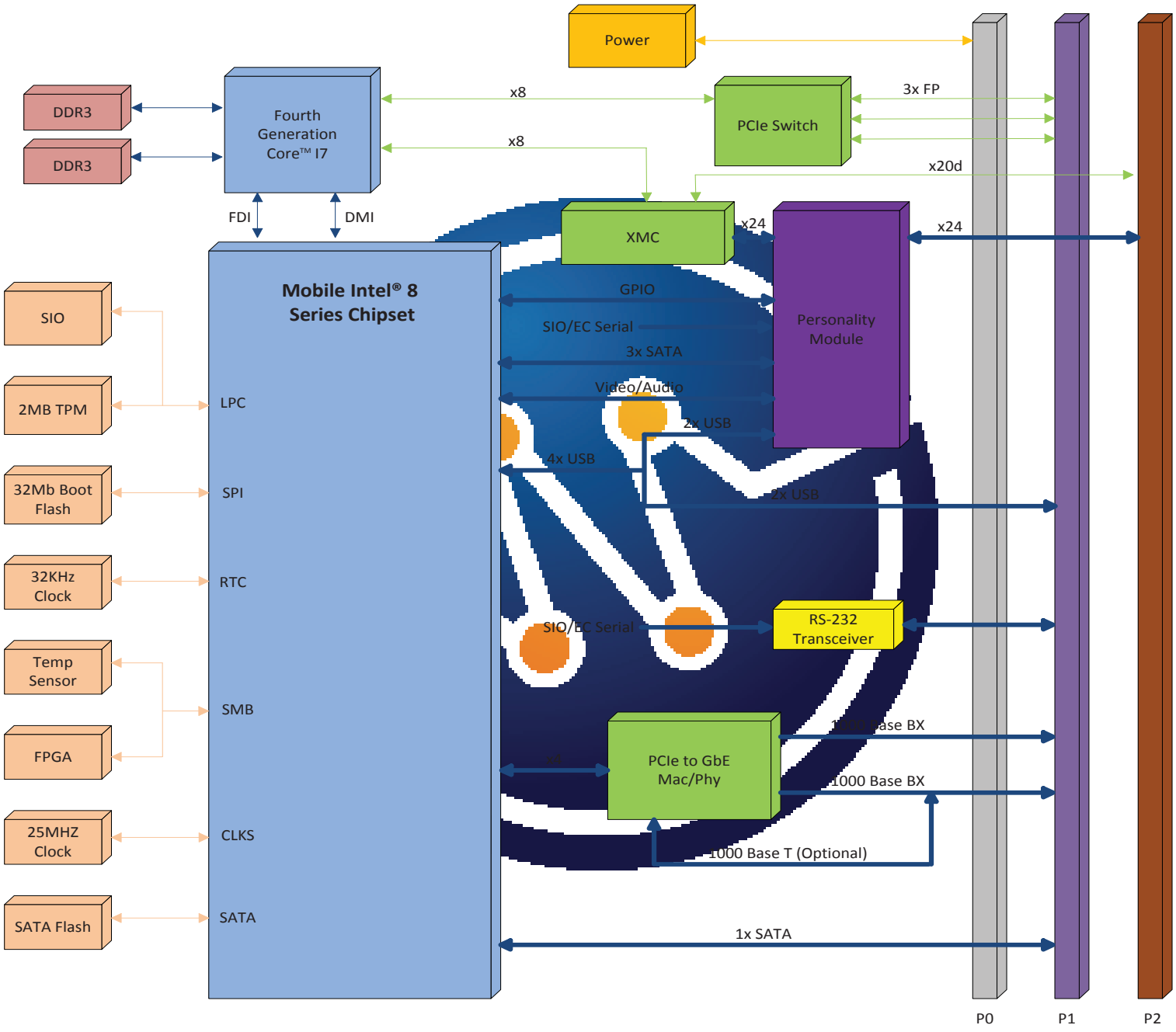
XPD/JTAG

- Processor XPD/JTAG emulator interface

LEDS

- Runtime Status LEDS
- RJ-45 Ethernet LEDS

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

ORDERING GUIDE

VPX7660 – A B C D

Base Model Number

Processor Options

Environmental Options

1 = 1.6GHz (2.7GHz max) Dual Core Fourth Generation Core i5(i5-4402E)
2 = 2.7GHz (3.3GHz max) Dual Core Fourth Generation Core i5(i5-4570TE)
3 = 2.4GHz (3.4GHz max) Dual Core Fourth Generation Core i5(i5-4700EQ)

Memory Options

1 = 8GB DDR3, 8GB NAND Flash
2 = 8GB DDR3, 16GB NAND Flash
3 = 16GB DDR3, 16GB NAND Flash

Reserved

Must be 0

Environmental Options

1 = Level 1
2 = Level 2
3 = Level 3
4 = Level 4
5 = Level 5

Contact Us
2100 N. Alafaya Trail Suite 100, Orlando, FL 32826
Tel: (407) 476-2120 Fax: (407) 203-7659
Email: info@oriontechnologies.com
www.oriontechnologies.com

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 singleboard 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.