

Note: This preliminary product brief provides information for a product that is currently in development and is subject to changes in features and specifications.



PDC's space-proven Single Board Computer (SBC) product line now includes Microchip's PIC64-HPSC microprocessor. The PDC Osiris Computer Module is a high performance (up to 26,000 DMIPS and 1 TFLOPS) SWaP optimized SpaceVPX product in a 3U form factor. Available as a software development board, Rad-tolerant, or rad hard SBC. We have shipped space components and boards for over 25 years!

Key Features

Performance

- HPSC – High Performance Spaceflight Computing
- High speed processing – 26K DMIPS

Memory

- 16 GByte of EDAC corrected PDC DDR4 SDRAM
- Up to 8 Gbit Rad-Hard ECC protected MRAM
- Can be integrated with PDC SSDR's up to 10 Terabytes pSLC
- Secure, trusted boot options

I/O Interfaces

- 240G TSN Switch
- PCIe Gen3, Spacewire ports
- UART, I2C, SPI, MDIO
- (4) 10G fiber or copper, and (4) 1G copper ethernet to front panel (mezzanine)

Operating & Environmental Specifications

- Outstanding SBC radiation hardness
 - TID: 100krad (RH) or 50krad (RT)
 - Latchup Immune >78MeV (Y), >42MeV (C,A)
 - Single Event Effects: 2E-3 per board-day
- Low Power Consumption
 - Input Voltage: 12V and +3.3V AUX
- Acceptance Level Temp: -30°C ±3°C to +70°C ±3°C
- Qualification Level Temp: -40°C ±3°C to +80°C ±3°C

Benefits

- Proven reliability: built on PDC's established pedigree of TRL-9 single board computers, and utilizes PDC's flight proven rad-hard memory products
- High performance computing for demanding space applications
- Ease of use
 - Development Kit - provides easy I/O access, enabling rapid prototyping or demonstration in a lab
 - Board support package (planned)
 - Available in box level solution (option)

Applications

- Launchers
- Satellites
- Payload processing
- Command & control
- Landers & Rovers

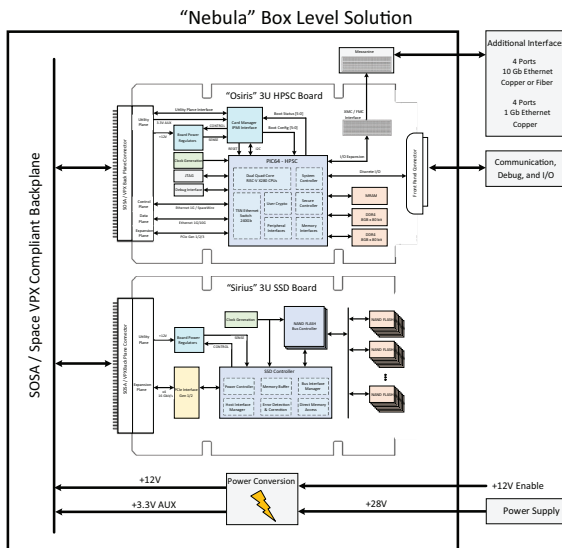
For more information: powerdevicecorp.com

Overview

The PDC Osiris Computer Module is Power Device Corporation's next-generation space computer based on the Microchip PIC64-HPSC microprocessor. The Osiris Computer Module is the third-generation architecture of PDC's Space Grade Single Board Computer product family, featuring improved performance and significantly increased memory density. Available in multiple screening levels for LEO, GEO or similar missions. With excellent radiation performance for total ionizing dose (TID > 100 krad (Si)) and Single-Event Effects (2e-3 per day), the PDC Osiris Computer Module provides high-performance processing (up to 26,000 DMIPS) in a compact 3U SpaceVPX form factor. It incorporates several of PDC's Rad-Hard memories, including 16 GB of EDAC corrected DDR4 SDRAM and up to 8 Gbit Rad-Hard ECC protected MRAM. It can also be integrated with PDC's Rad-Hard, 3U SpaceVPX Solid State Data Recorder (SSDR) for up to 10 TB in pSLC mode. In addition, it offers many I/O options including a 240G TSN Switch, PCI Express (PCIe) Gen3, SpaceWire ports, UART, I2C, SPI, MDIO, (4) 10Gb fiber or copper, and (4) 1Gb copper ethernet to the front panel via mezzanine card (available both in flight and non-flight configurations).

The PDC Osiris Computer Module offers significant processing and I/O capabilities without requiring significant power or space from the host platform, hitting a sweet spot for system integrators that need to minimize SWaP. It has been designed to support both Rad-Hard applications and lower-cost LEO missions, depending on Module ordering options. PDC will also offer a Development Kit designed to get the user up and running quickly in a lab environment.

Nebula Box Level Block Diagram



Ordering Information

POC-DXMXFXB1X

Screening Flow/Radiation Tolerance:

- E = Engineering/Lab unit - No rad data (not for environmental testing)
- C = Commercial Space - 30 krad (generic rad data)
- A = LEO or similar - 50 krad
- Y = GEO or similar - 100 krad

Backplane:

- B1 = 3U Space SBC MODA3-6.1-1-L3K-(4E7)(4E7)(2E7)(2SW)(P3D)(P3D)

NAND Flash Memory:

- F0 = None
- F1 = 512 Gbit (SLC)
- F2 = 2.5 Tbit (pSLC)
- F3 = Both - 512 Gbit (SLC) + 2.5 Tbit (pSLC)

MRAM Memory:

- M1 = 1 Gbit (QSPI)
- M2 = 2 Gbit (QSPI)
- M4 = 4 Gbit (QSPI)
- M8 = 8 Gbit (QSPI)

DDR4 SDRAM:

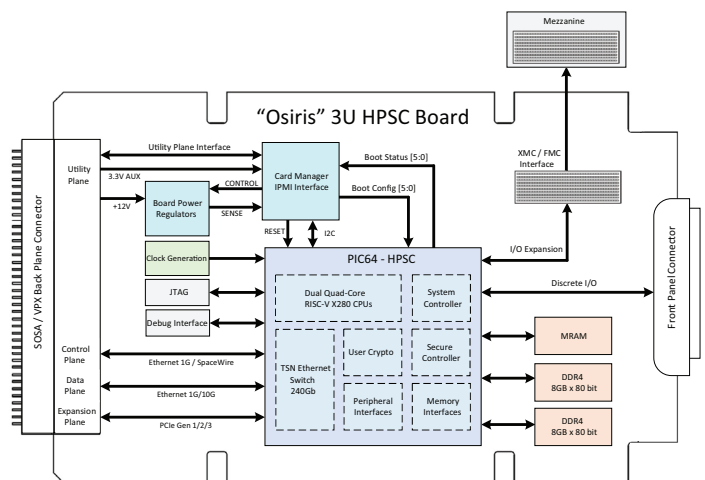
- D1 = 8 GByte x80
- D2 = 16 GBytes x80

Base Part Number:

PDC Osiris Computer Module

Note: AMP string is derived from the Appendix to S251 titled "SOSA Spacecraft Avionics Standard Content Appendix" (Ver. 4)

Osiris Module Block Diagram



The information in this Flyer is believed to be accurate; however, no responsibility is assumed by Power Device Corporation for its use, and no license or rights are granted by implication or otherwise in connection therewith. Specifications are subject to change without notice.

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