

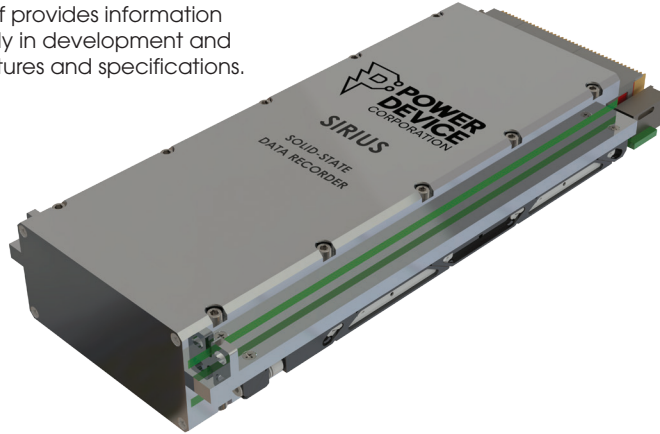


PDC Sirius Radiation-Tolerant Solid-State Data Recorder

Preliminary Product Brief

Model: PSR-D1B1C

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



The PDC Sirius SDDR is Power Device Corporation's next-generation radiation-tolerant solid-state data recorder, engineered to meet the demanding requirements of spaceborne data acquisition, processing, and storage. Designed in alignment with the 3U SpaceVPX form factor and SOSA standards, Sirius delivers robust high-speed performance in a compact, ruggedized module ideal for a wide range of mission profiles.

Key Features

Performance

- PCIe 2.0 x4 interface
- 16 Gbit/s bandwidth
- Capacities from 2.5 TByte to 10 TByte
 - pSLC densities at end of life

Form Factor

- 3U SpaceVPX
- SOSA-aligned

Screening Levels

- Engineering/Lab unit
- Commercial Space
- Higher levels planned - Contact factory

Operating & Environmental Specifications

- Radiation Tolerant up to 75 krad (Si)
- Latch-up immune up to 60 MeV-cm²/mg
- Operating temperature:
 - Acceptance Level Temp: -30°C ±3°C to +70°C ±3°C
 - Qualification Level Temp: -40°C ±3°C to +80°C ±3°C
- Low Power Consumption
 - 12V input, with all internal power rails generated on-board
 - Low power consumption, optimized for space-based platforms

Benefits

- Robust Data Protection
 - Radiation-tolerant controller chip with bit-level and device-level ECC
 - Designed for on-orbit sensor data buffering, processing, and logging
- Flexible & Scalable Architecture
 - Supports multi-module configurations for increased density or redundancy
 - Seamless pairing with PDC's Osiris HPSC SBC or integration into the Nebula box-level system
- Proven Lineage
 - Based on PDC's TRL-9 flight-proven single-board computing heritage
 - Designed for high-reliability missions requiring secure, sustained data processing and storage

Applications

- Space-based avionics and mission computers
- Satellite sensor data logging
- LEO and deep space missions
- Planetary landers, rovers, and interplanetary spacecraft
- Launch vehicle diagnostics and payload telemetry

For more information: powerdevicecorp.com

Overview

The PDC Sirius SSDR is Power Device Corporation's next-generation radiation-tolerant solid-state data recorder, engineered to meet the demanding requirements of spaceborne data acquisition, processing, and storage. Designed in alignment with the 3U SpaceVPX form factor and SOSA standards, Sirius delivers robust high-speed performance in a compact, ruggedized module ideal for a wide range of mission profiles.

The Sirius SSDR features a PCIe 2.0 x4 interface and offers up to 10 TByte of single-level cell (pSLC) flash storage in a radiation-tolerant architecture. This high-reliability solution is designed to protect mission-critical data from the harsh effects of space radiation, leveraging advanced SEU and SEFI mitigation techniques.

Available in multiple screening levels — including Engineering/Lab unit (E), Commercial Space (C), and higher screening options — Sirius supports a wide range of mission durations and environments, from LEO constellations to deep space exploration.

Ordering Information

PSR-D1B1C

Screening Flow/Radiation Tolerance:

- E = Engineering/Lab unit (no rad data/ not for environmental testing)
- C = Commercial Space (generic rad data ~ 30krad)
- Higher levels planned - Contact factory

Type/Slot Profile:

- B1 = Backplane configuration

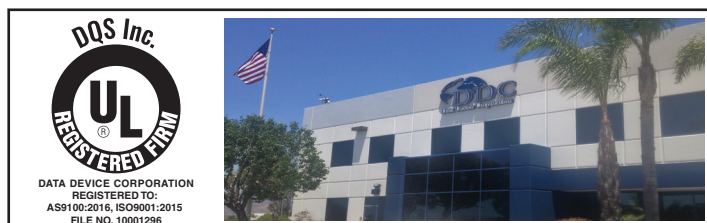
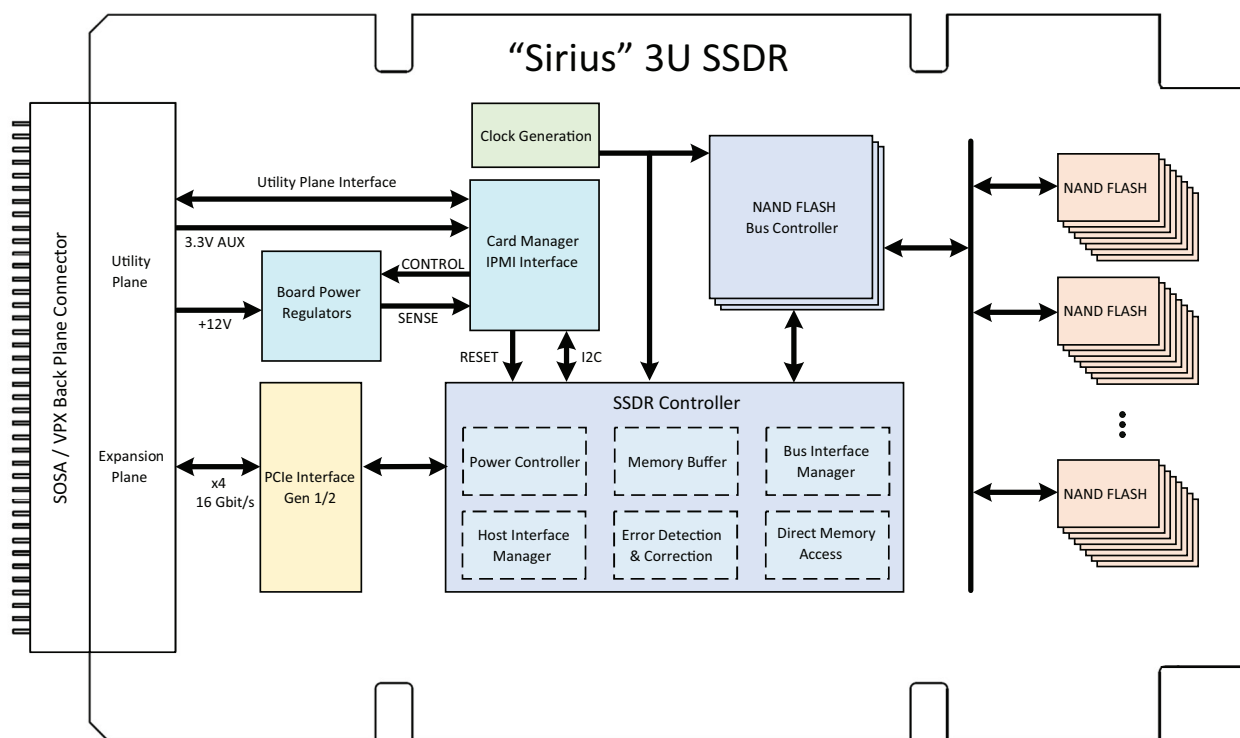
Memory:

- D1 = 2.5 TBytes
- D2 = 5 TBytes
- D3 = 10 TBytes

Base Part Number:

PDC Sirius SSDR

Sirius SSDR Block Diagram



For ordering assistance and technical support,

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