

RH3480 Solid-State Data Recorder

3U SRIO VPX Radiation Tolerant SSSDR

Compact, high performance solution for radiation intense environments

- Proven reliability to enable on-orbit sensor data processing and storage
- High-performance system efficiently transfers significantly more data in less time
- Application-specific customization expedites schedules and minimizes full-system design costs
- Built-in error correction and NAND mitigates defects



The RH3480 SSSDR is purpose-built to withstand harsh, radiation intense environments such as those found in LEO satellites and in certain industrial or medical settings. Designed in a compact 3U form factor, the RH3480 is the highest density SSSDR available on the market, serving industry needs for reliable, SWaP-optimized storage solutions as edge applications advance. Plus, the RH3480 offers long-term data integrity with the most powerful error correction code (ECC) available.

FEATURES

480 GB large geometry, industrial-grade SLC NAND flash memory

Dual-host (1 host with 8 lanes) and dual port (2 hosts with 4 lanes each) options

All components radiation tolerant by design (except NAND) at > 100 krad

Proprietary horizontal Reed-Solomon algorithm for error correction

Designed for fault tolerance with multiple failed NAND flash devices

VPX compatible, VITA 48.2 compliant, P2 unpopulated

Ruggedized construction and assembly

Performance

SRIO at 3.125 GB/s

Dual port writes 18.4 GB/s, reads 16 GB/s

Dual host writes 9.2 GB/s, reads 8 GB/s

Package

3U form factor, 160 mm or 220 mm size, 1" pitch

Weighs < 750 grams

Microprocessor and software free

480 GB guaranteed across life

Operation and Reliability

Linear and host-addressable operating modes

ECC fully corrects 5 in every 16 host data bytes

Automatic retirement of failed blocks

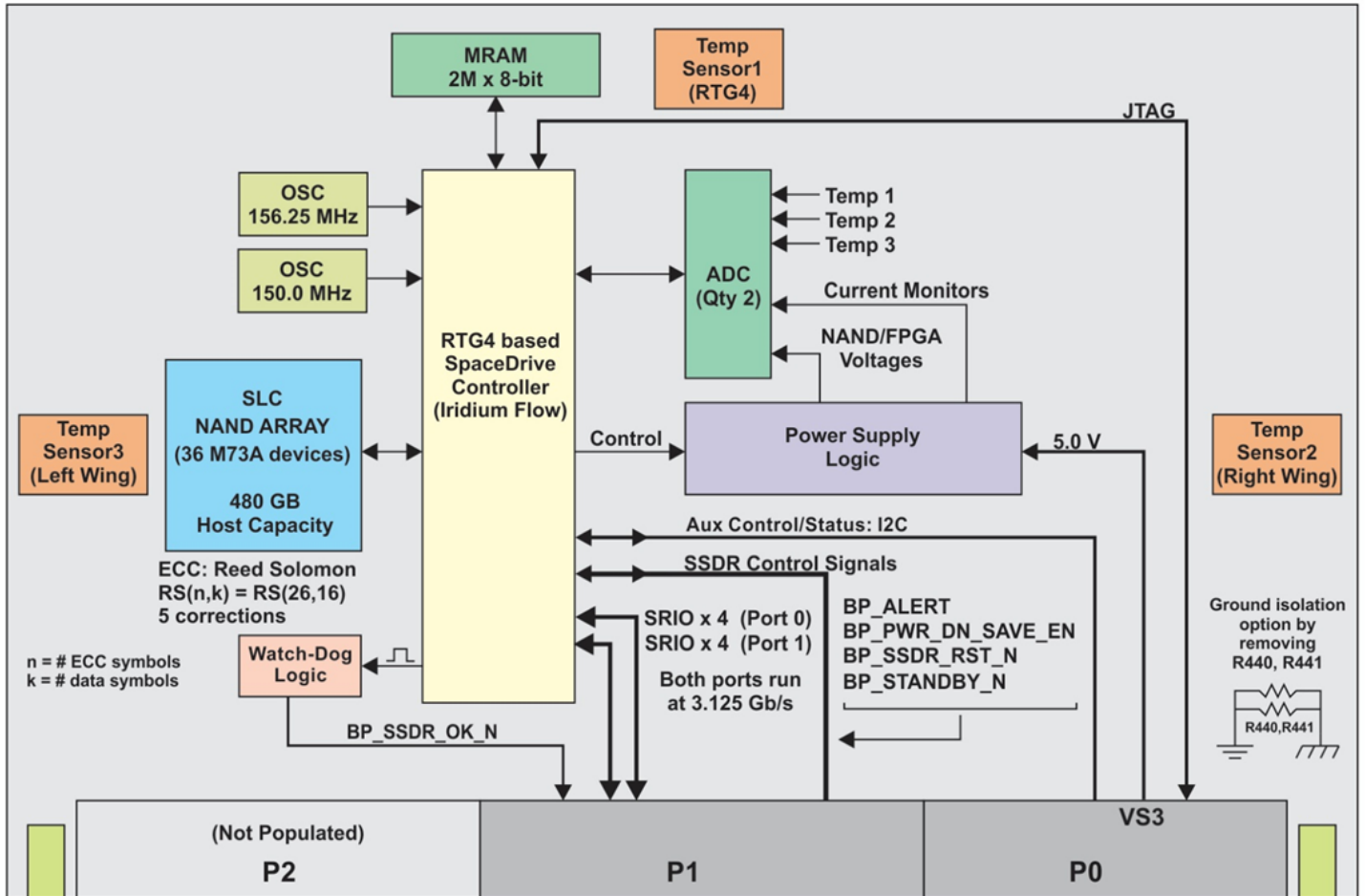
Abrupt power interruption protection

NAND defect mitigation for factory defects and bad blocks discovered during burn-in

Hot-swap device

Full drive erase in < 30 seconds

5V power



18 Gb/s twin port SRIO 3U SSDR configuration

Applications

- LEO satellites
- Nuclear industry
- Medical industry
- High-altitude aircraft
- Airborne weapons
- Mission-critical ground computing subsystems
- Missiles
- Launch vehicles
- Scientific missions

Radiation Tolerance

- Total ionizing dose (TID) > 100 krad (all components except NAND)
- SLC NAND TID > 30 krad

RTG-4-based NAND processor and controller

- Configuration upsets immunity to LET > 103 MeV.cm²/mg
- Single-event latch-up (SEL) immunity to LET > 103 MeV.cm²/mg
- Registers SEU rate < 10-12 errors/bit-day (GEO solar min)
- Single-event transient (SET) upset rate < 10-8 errors/bit-day (GEO solar min)
- TID > 100 krad

Environmental

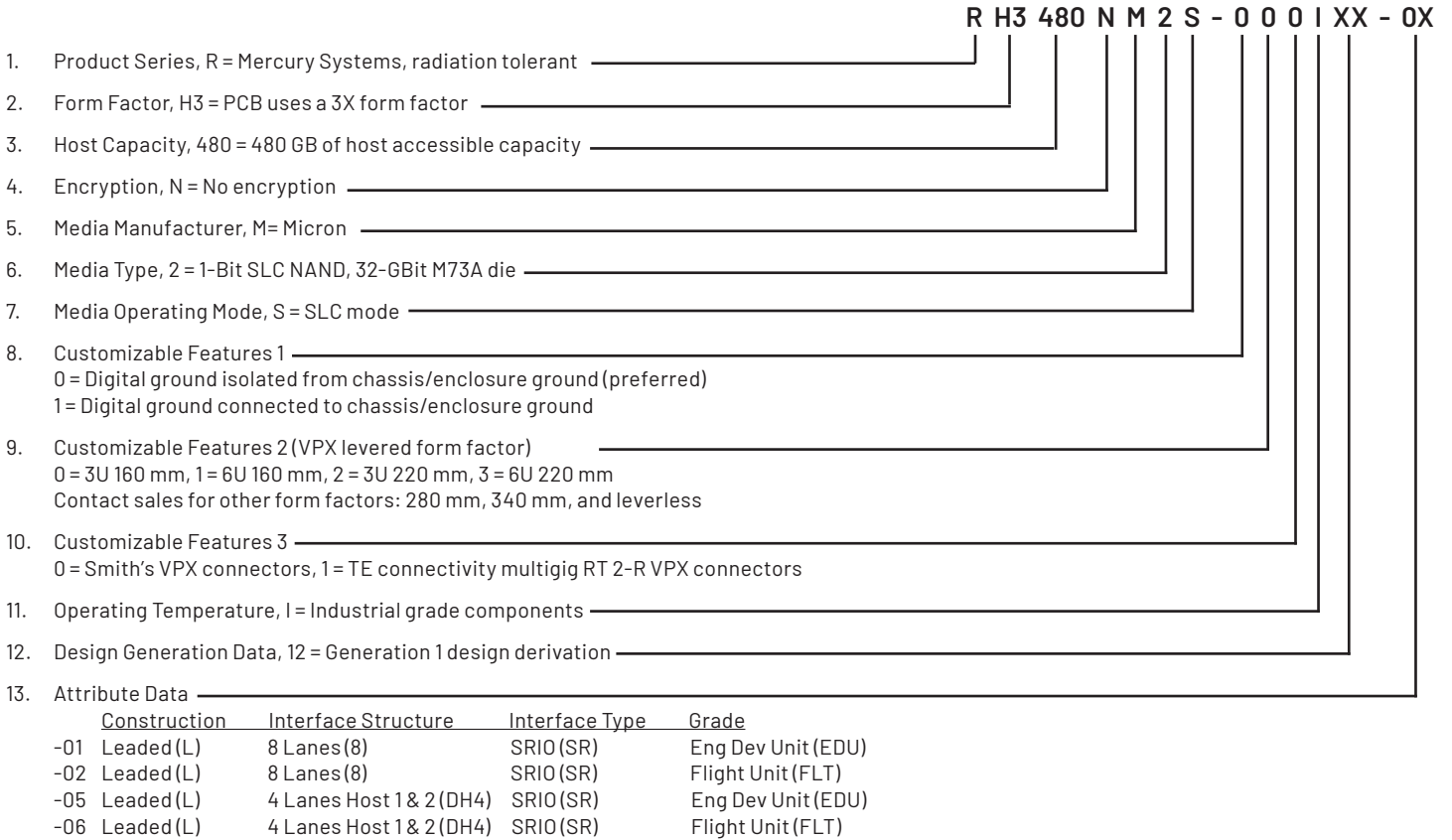
- Operating temperature: -40°C to 72°C
- Storage temperature: -55°C to 105°C
- Vibration: 3 axis, 16 Grms
- Shock: 18 total (3+, 3- per axis)

VPX Connectors

- Smith's KVPX series
- TE connectivity multigig
- RT 2-R series

PART NUMBERING

Note: Dashes in part number are required



Example Part Number: RH3480NM2S-000I12-01 (480 GB EDU with isolated ground and Smith's connectors)



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