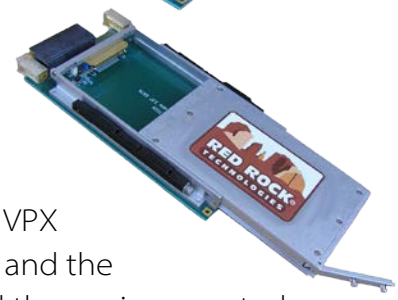
3U VPX NVMe Carrier with Removable Drive Module



RRT-3UVPX-NVMe-R

For applications that require the frequent removal of SSD, the 3U VPX NVMe Removable drive module is recommended. It consists of 2 components; the 3U VPX carrier board with PCI express (PCIe) interface that mounts in the 3U VPX chassis and the removable NVMe drive module. The connectors between the drive module and the carrier are rated for 100,000 mating cycles to support frequent insertions/removals.

The drive module can use any COTS U.2 NVMe Solid State Drive (SSD) providing capacities up to 16TB and transfer rates of up to 3940 MB/S. Option for discrete controlled secure erase.

FEATURES INCLUDE

- PCIe Gen 3 x 4 interface to VPX backplane
- OpenVPX Fat Pipe (FP) storage module profile MOD-3-PER-1F-16.3.2.1 or 2
- VITA 46, 47, 48, 65
- Provides boot disk and/or disk storage
- Conduction or air cooled versions
- Rugged removable module connectors rated for 100,000 mating cycles
- Uses COTS U.2 NVMe SSDs for wide range of options
- Options for discrete controlled secure erase
- Robust design for extreme temperature, shock & vibration environments
- High performance PCIe x4 transfer rates up to 3940 MB/S
- VxWorks™, Linux and Windows™ drivers available

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Security Options

ERASE/DESTROY OPTIONS INVOKED BY COMMAND OR BY DISCRETE INPUT

Fast Erase Sets all locations to set value

NSA/CSS Manual 9-12 Erase Erases all locations, including bad blocks, then sets all locations to 0x55, then internal verification is performed reading 1% of capacity confirming data pattern

RCC-TG IRIG 106-07 Chapter 10 Erase Erases all locations, including bad blocks, then sets all locations to 0x55, then sets all locations to 0xAA, and finally erased

Drive Destroy Performs erase of all NAND flash including internal SSD firmware, file system, and tables which makes the drive unusable and unreadable

Ordering Information – 3U VPX Carrier Board

RRT-3UVPX-NVMe-R – C – UR – X

Requirements

Cooling
C - Conduction Cooled
A1 - Air Cooled, 0.8" pitch
A2 - Air Cooled, 0.85" pitch
A3 - Air Cooled, 1.0" pitch

Options May be Left Blank

Extended Temperature Range
X - -40ºC to 85ºC

Conformal Coating
UR - polyurethane
AR - acrylic

Example: RRT-3UVPX-NVMe-R-C-UR-X
Example: RRT-3UVPX-NVMe-R-A3

Ordering Information – Removable Drive Module

RRT-DM-NVMe – MLC – 480GB – SE1 – UR – X

Requirements

PCIE Drive Type
MLC - Multi Level Cell SSD

Capacity
Any capacity up to 16TB

Options May be left blank

Extended Temperature Range
X - -40ºC to 85ºC

Conformal Coating
UR - polyurethane
AR - acrylic

Security Options
FE - Fast Erase
SE1 - NSA/CSS Manual 9-12 Erase
SE2 - RCC-TG IRIG 106-07 Chapter 10 Erase
DD - Drive Destroy

Example: RRT-DM-NVMe-MLC-480GB-SE1-UR-X
Example: RRT-DM-NVMe-MLC-16TB-UR
Example: RRT-DM-NVMe-MLC-1TB

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3U VPX Removable NVMe Drive Module Specifications

Performance	
Version	SSD-MLC
Capacities (1)	Up to 16TB
NAND FLASH Type	MLC
Interface (2)	PCIe Gen 3 x 4
Throughput	3940 MB/S
Sector Size	512
Reliability	
MTBF-Drive (in hours)	1.5 million
MTBF-Drive Module (6)	3 million hours
MTBF-Drive Carrier (6)	3 million hours
Data Retention	12 months power-off retention once SSD reaches rated endurance at 30°C
Endurance Rating(7)	500 TBW (2TB) for 5 years
Carrier/Drive Module Mating cycles	100,000
Power	
Voltage	5 V+/- 5%, +3.3V +/- 5%
Watts	1.2
Watts-active	2.5
Environmental	
Temperature – operating (3) VITA 47 Class	-40 to 85C, CC4, AC3 for –X option 0 to 70C, CC1, AC1 for Standard SSD
Temperature storage	-40 to 85C
Relative Humidity	5% to 95%
Altitude	80,000 ft (24,000 meters)
Shock (4) VITA 47 Class	40g 11 millisecond half-sine, OS2
Vibration (5), VITA 47 Class	0.1 g^2/Hz100 Hz to 1000 Hz,V3
Physical	
Form Factor	3U VPX
Weight	14 oz max.
Pitch	0.8", 0.85" and 1.0" options

(1) Larger capacities available as new COTS U.2 NVMe drives released
(2) Interface connected via compatible slot profile MOD-3-PER-1T-16.3.3.1 or 2
(3) Thermal qualification per MIL-STD-810F, Method 501 Procedure II, and MIL-STD-810F, Method 502, Procedure II
(4) Shock qualification per MIL-STD-810F, Method 516, Procedure I
(5) Vibration qualification per MIL-STD-810F, Method 514, Procedure I
(6) Telcordia SR-332, issue 3, operating temp (40C), electrical stress (50%), environmental factor (1.0)
(7) Based on JESD218 standard with 4KB random write workload

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