RED ROCK® TECHNOLOGIES
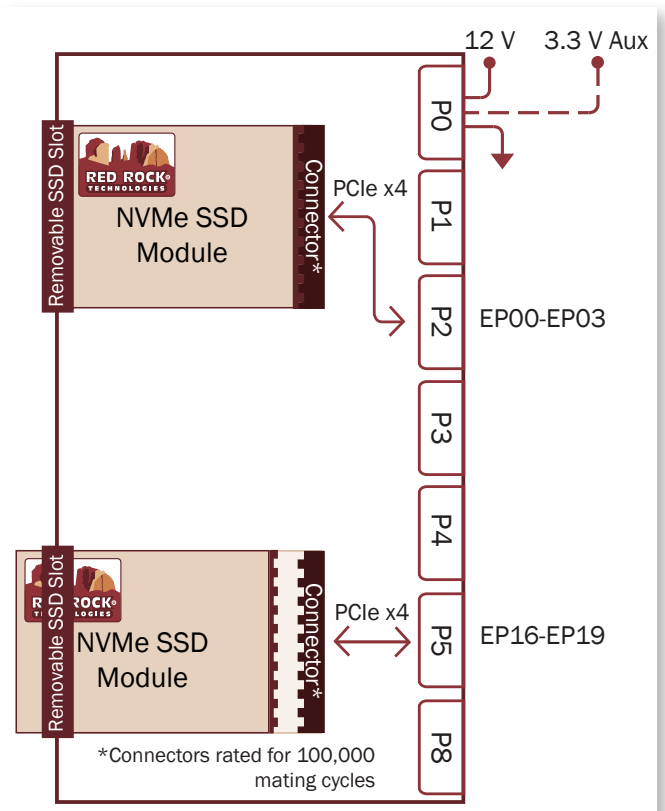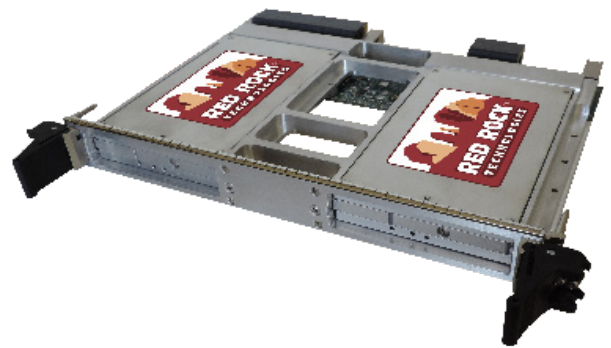
6U VPX Air Cooled Carrier with PCIe Interface and Removable NVMe SSD Modules

6U VPX AIR COOLED CARRIER WITH PCIE INTERFACE AND REMOVABLE NVME SSD MODULES is for applications that require the frequent removal of SSD, fast transfer rates and large capacities. It consists of two components: the 6U VPX carrier board with PCI express (PCIe) interface to VPX backplane that mounts in one slot of 6U VPX chassis and the removable NVMe SSD modules. The connectors between the drive module and the carrier are rated for 100,000 mating cycles to support frequent insertions and removals.

The NVMe SSD module can use any COTS NVMe Solid State Drive (SSD) providing capacities up to 32TB (16TB per drive module) and transfer rates of up to 3940 MB/S.

- Capacities up to 32TB (2 x 16TB)
- 3940 MB/S transfer rates
- 100,000 mating cycles
- Removable module with COTS NVMe SSDs
- Two OpenVPX Fat Pipe (FP) PCIe x4 interfaces
- 100,000 mating cycles
- VITA 65 Slot Profiles (SOSA Aligned):
  - SLT6-PAY-4F2Q1H4U1T1S1S1TU2U2T1H-10.6.4-n
    - VPX P2 EP00-EP03
    - VPX P5 EP16-EP19
- VITA 46, 47, 48, 65
- Boot and/or storage disk
- Air cooled
- Military erase options
- FIPS140-2, FIPS197, TCG Opal options
- Option for thumbscrews to remove drive module without tools
- Requires only +12V and +3.3V Aux power
- VxWorks, Linux, and Windows support

*Connectors rated for 100,000 mating cycles

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6U VPX Air Cooled Carrier with PCIe Interface

RRT-6UVPX-NVMe-R-A-P2EP00EP03-P5EP16EP19- **UR** - **X**

Options May be left blank

Extended Temperature Range

X	-40°C to 85°C

Conformal Coating

UR	Polyurethane
AR	Acrylic

ORDER EXAMPLES

RRT-6UVPX-NVMe-R-A-P2EP00EP03-P5EP16EP19-UR-X
RRT-6UVPX-NVMe-R-A-P2EP00EP03-P5EP16EP19

Removable NVMe SSD Drive Module

RRT-DM-NVME- **pSLC** - **4TB** - **UR** - **X** - **FE** - **TS**

Requirements

NAND Flash Type

TLC	3D NAND
MLC	Multi Level Cell
pSLC	Pseudo Single Level Cell

Capacity

500GB - 15.3TB	For TLC
500GB - 8TB	For TLC-X
1TB - 16TB	For MLC
1TB - 8TB	For pSLC

Options May be left blank

No Tools

TS	Thumbscrews

Security

FE	Fast Erase
SE1	NSA/CSS Manual 9-12 Erase
SE2	RCC-TG IRIG 106-107 Chapter 10 Erase
OPAL	TCG Opal Compliant SSD
FIPS140-2	FIPS 140-2 Compliant SSD
FIPS197	FIPS 197 Compliant SSD

Extended Temperature Range

X	-40°C to 85°C

Conformal Coating

UR	Polyurethane
AR	Acrylic

ORDER EXAMPLES

RRT-DM-NVMe-TLC-15.3TB-TS
RRT-DM-NVMe-TLC-3840GB-UR-X-SE1
RRT-DM-NVMe-MLC-16TB-FIPS197
RRT-DM-NVMe-pSLC-1TB-UR-X-SE1

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6U VPX AIR COOLED CARRIER WITH PCIE INTERFACE AND REMOVABLE NVME SSD MODULE

PERFORMANCE				
NAND FLASH TYPE	TLC	MLC	pSLC	TLC-X
CAPACITIES[1]	Up to 30.6TB	Up to 32TB	Up to 8TB	Up to 16TB
INTERFACE[2]	PCIe Gen 3/4 x 4	PCIe Gen 2 x 4		PCIe Gen 3 x 4
THROUGHPUT - SUSTAINED	3500MB/S (Gen3), 5000MB/S (Gen4)	800 MB/S	1000 MB/S	1500MB/S
RELIABILITY				
MTBF - DRIVE	1 million hours		2 million hours	
MTBF - VPX BOARD[3]	3 million hours			
DATA RETENTION	1 year		5 years	1 year
ENDURANCE (100GB) TOTAL BYTES WRITTEN	70 TBW		250 TBW	70 TBW
CARRIER/DRIVE MODULE MATING CYCLES	100,000 mating cycles			
POWER				
VOLTAGE - PAYLOAD SLOT	+12V, +3.3V Aux			
WATTS (IDLE)	7 W	1.5 W		
WATTS (ACTIVE)	20 W	10 W		
ENVIRONMENTAL				
OPERATING TEMP., VITA 47 CLASS[4]	0º C to 55º C, AC1		0º C to 60º C, AC1	See TLC
EXT. OPERATING TEMP., VITA 47 CLASS[4]	See TLC-X	Not available	-40°C to 85°C, AC3	
STORAGE TEMP.	-40°C to 85°C			
ALTITUDE	10,000 ft. (3,000 meters)		80,000 ft. (24,000 meters)	
RELATIVE HUMIDITY	5% to 95%			
SHOCK, VITA 47 CLASS[5]	20g, 11 millisecond terminal sawtooth pulse, OS1		40g, 11 millisecond terminal sawtooth pulse, OS2	
VIBRATION, VITA 47 CLASS[6]	0.04 g2/Hz, 5 Hz to 100 Hz, V1		0.1 g2/Hz, 100 Hz to 1000 Hz, V3	
PHYSICAL				
FORM FACTOR	6U VPX			
WEIGHT	12.2 oz (346 grams) max for carrier, 6.5 oz (184 grams) max per drive module 25.1 oz (712 grams) max total (carrier + 2 drive modules)			
PITCH	1"			

NOTES

(1) Larger capacities available as new COTS U.2 NVMe drives released
(2) Interface connected via compatible slot profile SLT6-PAY-4F2Q1H4U1T1S1S1TU2U2T1H-10.6.4-n
(3) Telcordia SR-332, issue 3, operating temp (40C), electrical stress (50%), environmental factor (1.0)
(4) Thermal qualification per MIL-STD-810F, Method 501 Procedure II, and MIL-STD-810F, Method 502, Procedure II
(5) Shock qualification per MIL-STD-810F, Method 516, Procedure I
(6) Vibration qualification per MIL-STD-810F, Method 514, Procedure I