3U VPX Conduction Cooled Carrier with PCIe Interface and Removable NVMe SSD Module

RED ROCK® TECHNOLOGIES

- Capacities up to 16 TB
- 3940 MB/S Transfer rates
- Removable SSD module
- OpenVPX Fat Pipe (FP) PCIe x4 interface
- 100,000 mating cycles
- VITA 65 Slot Profiles:
  - SLT3-PAY-1F1U1S1S1U1U2F1H-14.6.11
    - VPX P1 EP00-EP03 OR
    - VPX P1 EP04-EP07
  - SLT3-PER-1F-14.3.2
- VITA 46, 47, 48, 65
- Boot and/or storage disk
- Conduction cooled
- COTS NVMe SSDs
- Military erase options
- FIPS140-2, FIPS197, TCG Opal options
- Option for thumbscrews to remove drive module without tools
- PC kit available to connect drive module to PC
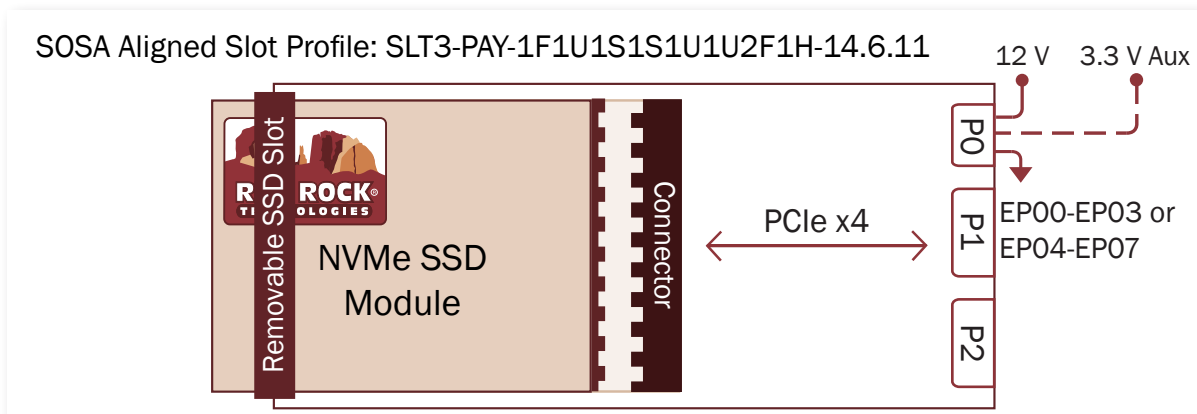- VxWorks, Linux and Windows support

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PARHELIA

3U VPX CONDUCTION COOLED CARRIER WITH PCIE INTERFACE AND REMOVABLE NVME SSD MODULE

is for applications that require the frequent removal of SSD, fast transfer rates and large capacities. It consists of two components: the 3U VPX carrier board with PCI express (PCIe) interface to VPX backplane that mounts in one slot of 3U VPX chassis and the removable NVMe SSD module. 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 16TB and transfer rates of up to 3940 MB/S. Options for FIPS140-2, FIPS197, TCG Opal, and military erase.

SOSA Aligned Slot Profile: SLT3-PAY-1F1U1S1S1U1U2F1H-14.6.11

Removable SSD Slot | NVMe SSD Module | Connector | PCIe x4 | 12 V | 3.3 V Aux | P0 | P1 | EP00-EP03 or EP04-EP07 | P2

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3U VPX Conduction Cooled Carrier with PCIe Interface

RRT-3UVPX-NVMe-R-C- **P1EP00EP03** - **UR** - **X**

Requirements

VPX Interface
P1EP00EP03   Payload Slot EP00-EP03 (SOSA Aligned)
P1EP04EP07   Payload Slot EP04-EP07 (SOSA Aligned)
PER   Peripheral Slot

Options May be left blank

Extended Temperature Range
X   -40ºC to 85ºC

Conformal Coating
UR   Polyurethane
AR   Acrylic

ORDER EXAMPLES

RRT-3UVPX-NVMe-R-C-P1EP00EP03-UR-X
RRT-3UVPX-NVMe-R-C-PER

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   -40ºC to 85ºC

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

3U VPX CONDUCTION COOLED CARRIER WITH PCIE INTERFACE AND REMOVABLE NVME SSD MODULE

PERFORMANCE				
NAND FLASH TYPE	TLC	MLC	pSLC	TLC-X
CAPACITIES[1]	Up to 15.3TB	Up to 16TB	Up to 4TB	Up to 8TB
INTERFACE[2]	PCIe Gen 3/4 x4	PCIe Gen 2 x 4		PCIe Gen 3 x4
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	
VOLTAGE - PERIPHERAL SLOT	12V +/- 5%, +5V +/- 5%, +3.3V +/- 5%	
WATTS (IDLE)	7 W	1.5 W
WATTS (ACTIVE)	20 W	10 W

ENVIRONMENTAL				
OPERATING TEMP., VITA 47 CLASS[4]	0°C to 55°C, CC1		0°C to 60°C, CC1	See TLC
EXT. OPERATING TEMP., VITA 47 CLASS[4]	See TLC-X	Not available	-40°C to 85°C, CC4	
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	3U VPX
WEIGHT	14 oz. max
PITCH	0.8"

NOTES
(1) Larger capacities available as new COTS U.2 NVMe drives released
(2) Interface connected via compatible slot profile SLT3-PAY-1F1U1S1S1U1U2F1H-14.6.11 OR SLT3-PER-1F-14.3.2
(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