



5 Slot Conduction Cooled Chassis with Liquid Assist

VPX VITA 48.2 Advanced Thermal Solutions
500 Series LoC3U-510

Part of our LoC3U-500 Series of liquid-over-conduction cooled chassis and integrated systems, the model 510 was developed to maintain safe operating temperatures for high power 3U VPX and SOSA aligned systems. High speed VPX systems demand leading edge solutions to manage hot, power hungry board payloads. The chassis provides liquid cooling assist to widely available VITA 48.2 conduction cooled board sets with aggregate power demands over 600W and up to 800W depending on other variables. Custom and standard 4 to 6 slot backplanes with VPX and SOSA aligned slot profiles in combinations supporting high speed signal processing applications. Single or dual VITA 62 power supply slots. The lightweight aluminum alloy chassis is sealed to provide ingress and EMI protection. Direct connect backplane and I/O panel ensures optimal signal integrity, eliminates cabling, improves shock and vibration performance and simplifies maintenance procedures.

Features

- Cooling for up to 600W of total power
- 5 payload slots plus 1 power supply slot (optional 4+2)
- Custom backplanes with VPX and SOSA aligned slot profiles
- Custom I/O panel with MIL-STD 38999 options for high speed signals
- Side cold plate fluid channels envelope payload for maximum heat dissipation
- Uses 50/50, distilled water/Propylene Glycol, Ethylene Glycol, polyalphaolefin
- Quick disconnect inlet and outlet fluid connectors
- Gasketing to ensure environmental and EMI compliance.
- Designed to meet MIL-STD-810, MIL-STD-461, and MIL-S-901D
- Rugged bolt together construction.
- Tested at 55C and 85C ambient temperatures
- Single or dual VITA 62 pluggable power supply modules

Benefits

- System integration services available
- Access to LCR VPX backplane designs
- Liquid assist cooling stretches VITA 48.2 module usage
- Compact lightweight design



The LoC3U-510 is intended for use in high power, high speed C4ISR (Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance) systems operating in mission critical defense applications.



SPECIFICATIONS

Physical

Dimensions: 8.25" H (w/ optional .25" mounting feet) 6.4" (W) x 9.69" (D) w/connectors
 Machined aluminum alloy 6061-T6, bolt together construction
 Weight: Approximately 20lbs excluding board payload

Backplane options

Custom 5+1 or 4+2 payload + power supply slot backplanes
 VPX and SOSA-aligned slot profiles
 10, 40 and 100GBase KR4 capable
 VITA 66 and 67 optical and RF apertures

Thermal

Operating: -40 to 55°C, consult LCR regarding 85°C
 Coolant Flow Rate: 1.5 GPM to 3.5 GPM total system flow rate Coolant:
 50/50, Distilled water/Propylene Glycol, Ethylene Glycol, polyalphaolefin
 Coolant Inlet Pressure: 100 psi
 Thermal load: 600W to 800W, coolant type and inlet temperature dependent

I/O Capabilities

Custom I/O panel supporting high speed connectivity
 High density MIL-STD 38999 circular connectors
 High speed 10GbE 38999 Hercules connectors
 Rugged SMA connectors for RF and optical I/O

Environmental

Shock: 30 Gs @ 11ms half sine
 Vibration: 20 to 2000Hz at 5Gs
 Designed to meet MIL-STD-810, MIL-STD-461, and MIL-S-901D

Payload Compatibility

3U VPX multi-core single board computers, high speed GPGPU and FPGA modules, video processing and Ethernet switching

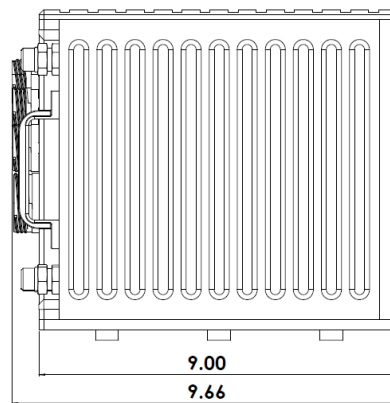
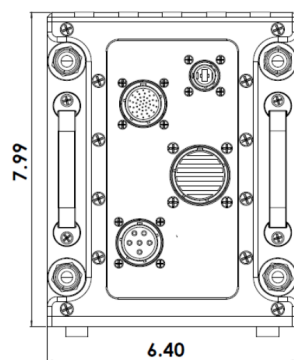
Power Supply

Dual VITA 62 pluggable power supplies supporting 12 and 5V centric board payloads
 MIL-STD-704E, MIL-STD-1275
 Input voltage: 18 to 36 VDC
 Output: up to 1400W total

Applications

Mission computing, software radio, digital recording systems, digital signal processing, high speed data acquisition, video displays in defense assets operating in demanding environments

Chassis Dimensions



Example I/O Panel Shown

LCR provides a full line of VPX products and services - everything you need from development to deployment including; COTS rugged application ready chassis solutions as well as custom designs, custom 3U VPX backplanes supporting the latest slot profiles plus development tools including load boards and test fixtures.

ORDER NUMBER

DESCRIPTION

Consult LCR Sales

LoC3U-510 conduction cooled chassis with liquid assist for high power 3U VPX module payloads