

NM-VPX-0045

3U VPX 5 Slot 1/2 ATR Chassis

KEY FEATURES AND BENEFITS

- 3U Size
- VPX Backplane
- Conduction Cooled Board
- Air Cooled Option
- 250 W Power Supply
- MIL-STD-461E/F Compatible
- MIL-STD-704D Power Supply
- 1" Slot pitch

APPLICATIONS

- Avionics



Note: Image is for representation purpose only.

Overview

ATR is a standard that specifies form fit and function of a "black box" installed in the aircraft. This standard also known as ARINC and was designated as ARINC 404 standard.

ARINC 404 specifies mechanical dimensions of Line Replaceable Units (or LRU's) and their racking systems in different locations in the aircraft. LRU's are installed on specially designed trays, which provide mechanical fixture, shock absorbing options, cooling facilities options and plug-in capability options.

ATRs are increasingly being deployed in wheeled and tracked vehicles and used in shipboard applications. Each application is subject to its own array of harsh environmental factors including shock, vibration, temperature, moisture and salt, that need to be taken into consideration. The ATR has been introduced into applications never before imagined, including surveillance, data collection, storage and weapons control.

Introduction

NM-VPX-0045 is a high performance 3U chassis in which external air is directly forced over electronic payload modules using a rear mounted exhaust fan. This efficient thermal management technique is suitable for full PSU wattage applications.

3U Back planes

3U backplanes are VPX compatible and provide fully standard bus slot & signal daisy-chain functionalities. VPX slots are tailored for 1 inch pitch standard & deliver full compatibility with 0.8 inch pitch 3U modules.

All 3U backplanes integrate a Temperature Supervisory Unit (TSU) with panel LED (over/under temperature) that controls Power Supply & Fan operation. Remote optoisolated control switches for 'Battle-short' & chassis PSU 'on/standby' are fitted as standard.

- VPX backplanes conform to VITA 46.0/.1/.10/.3/.4/.7.

Power Supplies:

NM-VPX-0045 chassis PSUs support a wide variety of DC input voltages (**MIL-STD-704D**) and customer defined DC power output combinations up to 250 Watts.

Vin Option: 28V DC
Output Power: 250 Watts

Output Voltage options: +5V DC/40A, +3.3V DC/22A, 12V DC/8A, -12V DC/8A

To comply with MIL-STD-461E, a high capacity integrated EMI/EMC input voltage filter is fitted as standard on all 3U models. All models integrate the same PSU and backplane electronics. Power Supply Hold up support for 50ms upto 100 Watts.

Power Supply Module is equipped with an EMI Filter and Attenuator Module (FIAM). This front-end device is fitted prior to the DC/DC converters to provide EMI filtering, inrush current limiting and transient protection.

Front-end FIAM modules are protected against DC reverse polarity. An optional reverse polarity diode may be fitted in series with power connector input pin IN (+).

3U ATR Chassis PSUs incorporate isolated DC/DC converters and oversized hold-up capacitors to ensure proper operation during short power line failures. Outputs are protected against short-circuit, thermal-shutdown etc. PSUs are custom made to match the enclosure mechanics.

The PSU model is attached to the chassis rear panel and provides both conduction & convection cooling, internal air recirculation also aids in dissipating heat generated. Forced air drawn through the chassis is exhausted, dissipating the majority of heat generated. Heat is also dissipated through the rear panel via thermal conduction to the chassis frame.

Rear Fan Options

3UATR chassis fit a single Rugged (-10°C to +70°C) exhaust fan as standard. Military fans are optional (-54°C to +125°C).

LED Front Panel Indicators

Up to 6 front panel LED indicators for chassis monitoring; power on/off status, system board failure, input voltage, temp., etc.

Front Panel

Custom layout with client logo, connectors & silk-screening or a general purpose panel with **MIL-C-38999** connectors is supplied.

Top/Bottom Covers

Optional extended or heat exchanger covers can be selected for additional wiring clearance & are removable for easy maintenance.

Chassis Metalwork

Precision machined aeronautical aluminum with **MIL-DTL-5541F** chromate coating. All panels & joints incorporate EMI gaskets.

Mounting Tray

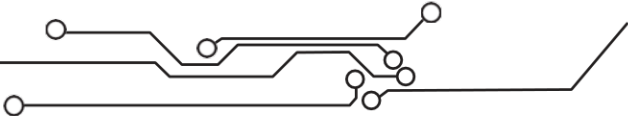
Low profile with quick release system offers easy insertion/removal capability, weight optimized with minimized dimensions.

EMI/EMC Filter

High capacity integrated EMI/EMC input voltage filter is fitted as standard on all 3U models to comply with **MIL-STD-461F**.

3U military backplanes allow unlimited pin I/O wiring capability. Flexible top & bottom wiring integration is facilitated by a standard 25mm bottom cavity clearance to avoid requiring a custom backplane.

Class 1 military power input connectors fitted on the backplane offer shock & vibration reliability inter connectivity between chassis internal modules & allows high DC current rates with low voltage drops and minimum contact heating.



NM-VPX-0045 **3U VPX 5 Slot 1/2 ATR Chassis**

Air Recirculation

All 3U chassis incorporate a low profile internal fan pack to recirculate air, improving card-cage, PSU & module heat dissipation.

Card-cage Slots

Conduction-cooled boards interfaced with & Air-cooled fins on Chassis.

All CM ATRs surpassed **MIL-STD-810F** chassis environmental testing. Certificates achieved qualify our products for practically all types of military applications irrespective of the installation platform; Avionics, Ground vehicles, Naval Systems, etc.

SPECIFICATIONS

<p>Maximum PSU Power : 250 Watts (28V DC) PSU Voltage Input : 28 VDC ±30% STD BACKPLANE : 3U (1" Pitch), 5-SLOT VPX</p> <p>BOARD FORMAT : Conduction-cooled slots as per Ansi Vita 48.2</p> <p>EXT. REAR FAN : 1 x Rugged Fan <u>or</u> 1 x Rotron PX2 Fan</p> <p>Air Flow : 27 CFM (Rugged) : 65 CFM (Optional)</p>	<p>EMI/EMC Compatibility : MIL-STD-461E/F</p> <p>Conducted Emissions</p> <ul style="list-style-type: none"> • EMI CE102 115V (10 KHz-10MHz). Power Lead ON. • EMI CE101 115V (60 Hz-10KHz). Power Lead L1. <p>Conducted Susceptibility</p> <ul style="list-style-type: none"> • CS101 (30 Hz-150KHz). Electromagnetic Immunity. • CS114 (10 KHz-200MHz). Electromagnetic Immunity. • CS115 (Impulse Excitation). • CS116 (10 KHz-100MHz). Electromagnetic Immunity. <p>Radiated Emissions</p> <ul style="list-style-type: none"> • Radiated E Field RE102 ROD Navy Fixed & AF (10KHz-1GHz). • Radiated H Field RE101 ROD Navy Fixed & AF (30Hz-100KHz). <p>Radiated H Field RS101 (30Hz-150KHz). Electromagnetic Immunity.</p> <ul style="list-style-type: none"> • Radiated E Field RS103 (2MHz-1GHz). Electromagnetic Immunity
<p>I/O</p> <p>FRONT PANEL I/O : 6 Power Pins (13 Amp) & 382 I/O Pins (5 Amp)</p> <p>MTBF : 25° GB 82,000 Hours, 65° AIC 27,000 Hours</p> <p>Mechanical</p> <p>Dimensions (mm) : 124 x 318 x 194 (W x D x H)</p>	
<p>Environmental Qualifications as per MIL-STD-810F</p> <ul style="list-style-type: none"> • MIL-STD-810F High Temperature (Method 501.4) • MIL-STD-810F Low Temperature (Method 502.4) • MIL-STD-810F Temperature Shock (Method 503.4) • MIL-STD-810F Humidity (Method 507.4) • MIL-STD-810F Shock (Method 516.5) • MIL-STD-810F Altitude (Method 500.4) • MIL-STD-810F Acceleration (Method 513.5) • MIL-STD-810F Vibration (Method 514.5) • MIL-STD-810F Salt Fog (Method 509.4) <p>Operating Temperature : -40 to +85 deg C Storage Temperature : -55 to +100 deg C</p>	