

ATR-5700 Series, Rugged VPX Enclosure for 3U OpenVPX Modules

Features

- ◆ Supports up to six 3U air cooled boards
- ◆ Internal TEF™ Cooling System
- ◆ Fully sealed internal electronics compartment
- ◆ 6-Slot FMM ready VPX Backplane
- ◆ 6-Channel 600W Intelligent power supply
- ◆ 3ea, High-CFM, 12VDC ball bearing fans
- ◆ Air flow in both sides front and out rear
- ◆ RuSH™ System Health Monitor
- ◆ Available with optional shock isolated tray
- ◆ Backplane topology and I/O are configurable at time of order
- ◆ Fully assembled, wired and tested

Overview

The ATR-5700 Series Flight Deployable enclosure offers a rugged solution, typically found in expensive conduction cooled platforms, with the benefit of using inexpensive air-cooled boards.

This is made possible by Dawn's revolutionary, Thermal Exchanged Flow™ (TEF) Cooling System. The TEF uses a microcomputer controlled two stage cooling system consisting of a completely sealed inner-housing and a forced air outer-housing. The inner-housing incorporates a high velocity fan to move heat from the boards to the interior walls heat exchanger. Thermal energy passes through the walls to the external heat exchanger where it is removed by two high-CFM fans.

Two cavities within the inner-housing are provided to accept power supplies or hold-up modules. The ATR-5700 uses a microcomputer controlled 600W 6-Channel, VPX power supply that operates at 94% efficiency. Supplies are configurable through a user menu and may be operated in normal or battle short mode. The power supply is thermally attached to the bulkheads for heat removal. An optional hold-up module will be available to support applications requiring this feature.

Backplane topology and I/O is configurable at time of order through use of Dawn's Fabric Mapping Module (FMM ^{patent pending}) technology.

The chassis may be ordered with only the features required to minimize cost.



Technical Specification

Mechanical

Backplane Compatibility: VITA65 OpenVPX FMM Ready
PCB Design: 22-Layer, Ultra high performance, impedance controlled stripline
Plating: ENIG "Gold"
Finish: LPI Green Solder mask over Immersion Gold
Chassis Compatibility: IEEE1101-10/11 rails/card guides
Capacity: 6ea 3U size VPX modules on 1 inch pitch
Cooling: Thermal Exchanged Flow (TEF) 3 High CFM fans
Heat Dissipation: Approximately 600W for 36C rise/ambient
Heat Dissipation/Slot: 100W average, or > for <6 boards
Material: Aluminum 5052-H32 and 6061-T6
Finish: C241-BK01, Color Black, Texture Medium
Plating: Chromate Conversion per MIL-C-5541E, Clear
Dimensions: 12.62" Long x 8.80" Wide x 10.62" Tall
Chassis Weight: Approximately 25 lb less payload.
Optional Tray Weight: Approximately 2.5 lb.

Electrical

Power Input Connector: Mil Circular Shell size 13-4
Power Supply Input: 28VDC Nominal
Power Supply Output: +3.3V@60A, +5V@40A, +12V@16.7A, AUX_ +3.3V@4A, AUX_ +12V@4A, AUX_ -12V@3A (Combined maximum all outputs is 600W)

Environmental

Storage Temperature: -50°C to +120°C
Operating Temperature: -40°C to +85°C
Flammability Rating: UL94-V0
Humidity: <95% non-condensing
MTBF: >150K Hours including fans

Military Standards

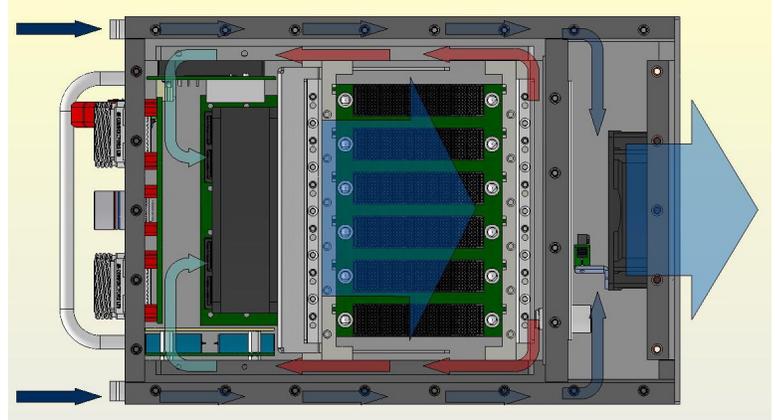
MIL-STD-810F, MIL-STD-901D, MIL-STD-461E, MIL-STD-1472F

Ordering Information – Please Order P/N 11-1017441-XYZZ

(A unique 4 digit code (-XYZZ) will be assigned at time of order to signify customer and configuration)

Thermal Exchanged Flow™ (TEF) Cooling

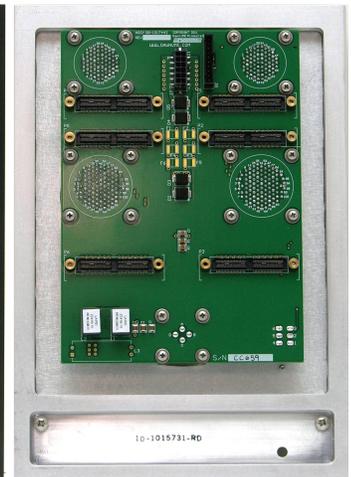
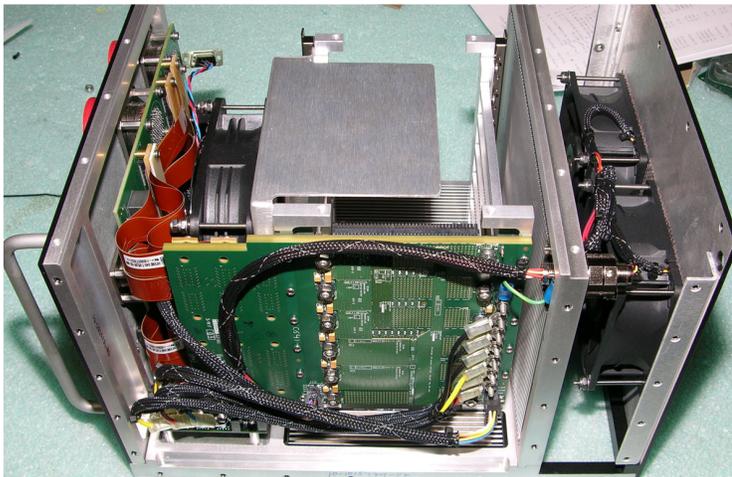
- Sealed housing is comprised of solid aluminum heat exchange bulkheads with thermally bonded fins on each side
- Hot air is circulated via fan through boards and fins inside sealed electronics housing driving thermal energy into bulkheads
- Thermal energy is removed and exhausted to the rear of chassis by fans pulling ambient air through plenums and fins of exterior sides of bulkhead
- Dawn's RuSH™ system health monitor insures a safe operating environment by monitoring temperatures and controlling fan speeds in a closed loop manner



Above: View of machined card guides, heat exchange bulkhead, and rear exhaust fans

View of power supply mounted to heat exchange bulkhead. Chassis has option for 1 or 2 power supply modules or 1 power supply module and 1 hold up module.

Below: Chassis near final assembly



Other Products from Dawn:

Card cages for commercial, aerospace and military applications
 Enclosure 3D solid model design and production from commercial to full rugged military
 Custom and Standard product PCB design, layout, production
 RuSH™ Rugged system health monitor
 Backplanes for cPCI 2.1, cPCI 2.16, VME, VME64x, VXS, VPX, CUSTOM, Build to Print
 Powered Enclosures for Development, Prototype, Production, Deployment
 Prototype Boards, Extender Boards, Form Factor Extenders
 Front Panels, Filler Panels, Custom Panels, Build to Print Panels
 Build to print machining, fabrication and assembly

Front Panel View

Ribbon cable I/O connectors on rear side of front panel