

## FEATURES

- 3/4 ATR based on D2D Chassis
- Application-specific 3U 9-slot hybrid OpenVPX/cPCI backplane
  - 1 x 3U OpenVPX 1.058" pitch slot
  - 7 x 3U OpenVPX 0.8" pitch slot
  - 1 x 3U cPCI slot
  - 2 x 3U MIL-STD-704E application-specific power supply slot
- Application-specific I/O panel CCA
  - I/O panel CCA with rugged I/O connectors and signal conditioning
  - RF I/O cabling and rugged optical transceiver
- Dual 230W current-sharing application-specific MIL-STD-704E power supplies
- 28 VDC DC/DC converter provides regulated fan voltage for optimum cooling performance

# CHASSIS SOLUTION 58-170

HIGH POWER, FORCED-AIR CONDUCTION 3/4 - ATR HYBRID 3U OPENVPX AND COMPACT PCI FOR UAV AIRBORNE ROTARY WING



## MARKET

Military

## APPLICATIONS

UAV airborne rotary wing radar

## OVERVIEW

This application-specific 3/4 ATR Enclosure is based on the D2D chassis design and is 7.45" x 7.57" x 15.2" (WxHxD). It supports an application-specific 9-slot hybrid 3U OpenVPX™/cPCI backplane.

The chassis includes dual 3U 28VDC-input 230W current-sharing application-specific MIL-STD-704E power supplies.

Designed for a fixed-mounted rotary wing platform radar application, the chassis operates at 0 to 20 kft and -40 to +71°C.

## CHALLENGE

Design and manufacture a UAV airborne high power forced air conduction-cooled ATR chassis for rotary wing aircraft with a hybrid 3U OpenVPX/CompactPCI® (cPCI) conduction cooled card cage and 3U hybrid OpenVPX/cPCI backplane, and dual current-sharing application-specific MIL-STD-704E power supplies.

## CONCERNS

Program required a hybrid mixed-pitch 3U OpenVPX/cPCI card cage and backplane, dual 230W current-sharing application-specific MIL-STD-704E power supplies, and aggressive +71°C ambient temperature requirement and an aggressive fixed-mounted rotary wing platform vibration profile.

## HOW CAN WE HELP REDUCE YOUR RISK?

Atrenne can help you with all of your application-specific backplane and chassis requirements.

The solutions that you see on our website are just a small sample of what we have done. Please browse our solutions and contact us for a consultation.

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HIGH POWER, FORCED-AIR CONDUCTION  
3/4 - ATR HYBRID 3U OPENVPX AND COMPACT  
PCI FOR UAV AIRBORNE ROTARY WING

## SPECIFICATIONS

### PHYSICAL

- Dimensions: (H x W x D)
  - 7.57" x 7.45" x 15.2" (192.3 x 189.2 x 386.1mm)
- Weight: 26lb (11.8kg), including power supply

### POWER/ELECTRICAL

- DC input: 28 VDC per MIL-STD-704E and MIL-STD-704F
- Backplane connectors
  - 3U OpenVPX connectors
  - Positronics power supply connectors
- Connector pitch: mixed 0.8" pitch and 1.0" pitch

### CONSTRUCTION

- Construction: brazed aluminum
- Top and bottom: aluminum 6061
- Card cage brazement: dip brazed aluminum 6061
- Power supply
  - Dual 3U 28VDC-input 230W current-sharing application-specific MIL-STD-704E power supplies
  - DC outputs total 230W

### ENVIRONMENTAL

- Temperature
  - Operating: -40 to +71°C
  - Non-operating: -40 to +71°C
- Altitude
  - Operating: 0 to 20 kft
  - Storage: 0 to 35 kft
- Humidity: 100% condensing per MIL-STD-810G, Method 507.5 Procedure I, Cycle B1
- Cooling: air-cooled sidewalls utilizing built-in MIL grade high performance fan
- Shock: 20g, 11 ms per MIL-STD-810E, Method 516.4, Procedure I
- Vibration: Platform-specific rotary-wing UAV vibration profile
  - Structural Analysis for additional vibration profiles was also performed for a chassis variant:
  - Propeller Aircraft per MIL-STD-810G, Annex D, Category 13 (Figure 514.6D-2)

- Jet Aircraft per MIL-STD-810G, Annex D, Category 12 (Figure 514.6D-1)
- Helicopter per MIL-STD-810G, Annex D, Category 14 (General) (Figure 514.6D-3)
- Crash safety:
  - $N_x = +2.25/-9.0$  g's (longitudinal, positive aft)
  - $N_y = +/-3.75$  g's (lateral)
  - $N_z = +9.0$  g's, -4.5 g's (vertical, positive down)
- Acceleration:
  - $N_x = +2.0/-3.0$  g's (longitudinal, positive aft)
  - $N_y = +/-2.0$  g's (lateral)
  - $N_z = +4.5$  g's, -2.0 g's (vertical, positive down)
- Fungus: MIL-STD-810G Method 508.6
- Salt Spray: 5% NaCl salt solution per MIL-STD-810G, Method 509.5
- Magnetic Effect: RTCA/DO-160F, Section 15 for Category A
- EMC: MIL-STD-461F: CE102, CE106, CS101, CS103, CS104, CS105, CS114, CS115, CS116, RE102, RS103

Note: Qualification testing completed and passed on selected parameters; others are designed to meet. Contact factory for more information.

## WARRANTY

This product has a one year warranty.

## CONTACT INFORMATION

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