

MPMC-9335-2001

**CURTISS-
WRIGHT**

3U VPX 3-slot Compact Signal/Image Processing System

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Key Features

- 3U VPX backplane
- Cold-plate cooling
- SWaP optimized
- Standard Configuration
 - + 1 x VPX-1220 SBC
 - + 1 x VPX- 4923 GPU DSP
 - + 2 x MilCAN offload controllers
 - + 4 x GbE ports
 - + 1 x Spare SSD slot
- 28 VDC input

Applications

- Signals Intelligence
- Radar
- Airborne or ground vehicles

Overview

The Curtiss-Wright Defense Solutions MPMC-9335-2001 is a leading edge, flexible and rugged high performance signal and image processing system which can be readily configured to meet the needs of any military or aerospace requirement, from benign laboratory to harsh deployed ground vehicle environments.

The MPMC-9335-2001 uses advanced packaging techniques to provide the processing power of a quad core Intel® Xeon® based single board computer (SBC) and NVIDIA® Pascal™ GPGPU in a rugged enclosure that measures a compact 250 cubic inches, yet is able to operate and survive external temperatures of 71°C, achieving full performance at temperatures in excess of 55°C using cold-plate cooling. This enables system designers to implement and deploy a highly capable processing system without the need for fans, vehicle supplied air, liquid or other demands from the vehicle.

Standard Configuration

The standard system configuration of the MPMC-9335-2001 is equipped with an integrated 28 VDC power supply unit, one VPX3-1220 Single Board Computer (SBC), one VPX3-4923 GPGPU, two MilCAN offload controllers and an integrated heater to support cold starts down to -50°C.

Technology

The MPMC-9335 utilizes cold-plate cooling technology to keep temperature rise at a minimum. The Curtiss-Wright boards in the system utilize a combination of thermal management layers within the Printed Wiring Board (PWB) and aluminum and copper thermal frames that provide cooling paths for mezzanine cards and high-powered components such as the processor and bridge devices. Heat is transferred from the modules to the chassis via the thermal interface of the modules' heat-frame and wedgelocks.

From there, the heat is channeled to the chassis outer wall and then to the chassis base where it is dissipated into the cold-plate.

To ensure the highest levels of performance, the MPMC-9335 chassis has been designed to meet or surpass MIL-STD-810 Qualifications for military equipment and DO-160 Environmental Conditions for airborne equipment.

The MPMC-9335 has successfully passed numerous environmental tests including temperature, altitude, shock, vibration, fluid susceptibility, voltage spikes, electrostatic discharge and more.

Circuit cards installed in the sealed compact chassis are completely isolated from external environmental conditions such as humidity, dust and sand.

Filters on power inlet and IO signals as well as EMC gaskets around every chassis joint provide excellent resistance to external EMI and minimise emissions providing improved reliability.

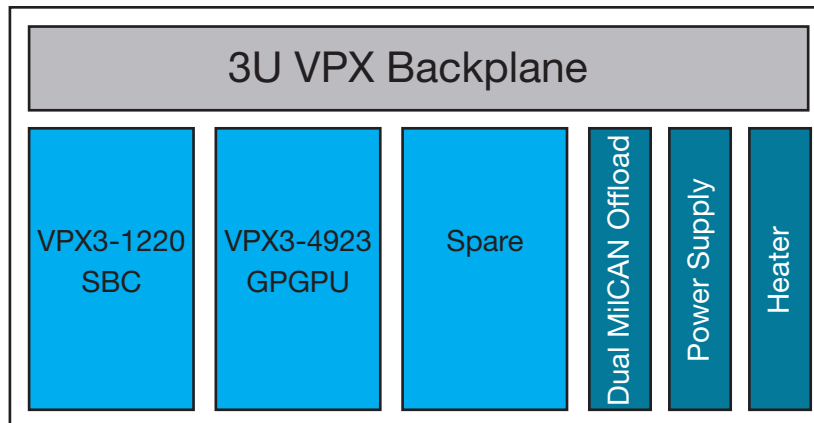


Figure 1: MPMC-9335-2001 Block Diagram

Specifications

Dimensions

- Dimensions (L x W x H): 9.3 x 5.5 x 4.9" (236.22 x 139.70 x 124.46 mm)
- Mass: ~13.6 lbs (~6.17 kg)
 - + Configured with VPX3-1220 SBC and VPX3-4923 GPGPU

Power

- 180W, cold-plate at 55°C

Temperature

- Cold-plate: -40 to 55°C

Interfaces

- Verified External Interfaces
 - + 4 x 1000BASE-T Ethernet
 - + 2 x MilCAN (1 Mb)
- Internal Debug Interfaces: accessible with the rear cover removed, breakout cable required, available separately
 - + 3 x USB 2.0
 - + 2 x EIA-232
 - + 2 x DVI

Development Support

To support the use of the MPMC-9335 in a development environment the BCS-P-9335 (Bench Cooling System – Passive) convection baseplate assembly is available from Curtiss-Wright. The baseplate assembly allows the MPMC-9335 to be attached using the standard mounting bolts and provides sufficient cooling for full power operation in a normal lab or office environment. Also available are breakout cable assemblies for the front panel 38999 connectors (CBL-FPSET-9335-01) as well as for the internal debug connector (CBL-DBG-9335-01).

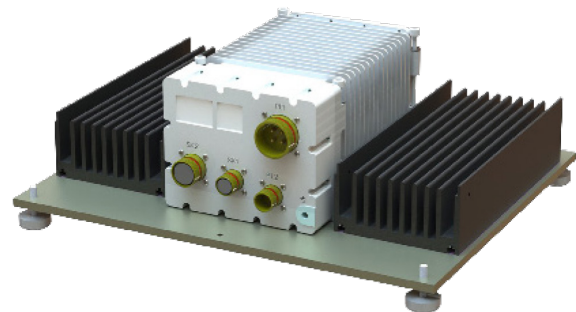


Figure 2: MPMC-9335 with bench cooling system

Operating System

The MPMC-9335-2001 has been verified to run Fedora™ Core Linux® Technology.

Ordering Information

Please contact the factory.

TABLE 1 Qualification Testing		
PARAMETER	SEVERITY	ENVIRONMENTAL
Temperature	-46 to +55°C Baseplate temperature	DEF-STAN 00-35 Part 3 Issue 4 Test CL5, CL2
Humidity		DEF-STAN 00-35 Part 3 Issue 4 Test CL6
Salt fog		DEF-STAN 00-35 Part 3 Issue 4 Test CN2
Low pressure	4000 m (61.6 kPa)	DEF STAN 00-35, Part 3, Issue 4, Ch3-21, S4.2, Proc A
Altitude	12,192 m (18.8 kPa)	MIL-STD-810F 500.4 PII, Operation
Rapid Decompression	2,192 m (18.8 kPa)	MIL-STD-810F 500.4 PIII
Vibration		Def Stan 00-35 Part 3, Issue 4, Test M1 › Tracked Vehicles › Road Transportation › Air Transportation (Jet/Propeller)
Shock	30 g 18 ms	DEF-STAN 00-35 Part 3 Issue 4 Test M3
Ballistic shock	200 g 3 ms	DEF-STAN 00-35 Part 3 Issue 4 Test M3
Sand and dust		DEF-STAN 00-35 Part 3 Issue 4 Test CL25
Immersion	IPX5	IEC 60529
Lightning		STANAG 4236
EMC emissions	DCE01.B, DC02.B, DCE03.B, DRE01.B, DRE02.B	DEF-STAN 59-411 Land Class A, radiated and conducted emissions
EMC susceptibility	DCS01.B, DCS02.B, DCS03.B, DCS05.B, DCS06.B, DRS01.B, DRS02.B, DRS03.B	DEF-STAN 59-411 Land Class A, conducted and radiated susceptibility
ESD	DCS10.B	DEF-STAN 59-411, ISO 10605
Other		Automotive EMC Directive, 2004/104/EC