4-slot Air-Flow-By Rugged Chassis

6U OpenVPX Developmental System Building Block with Customizable Backplane

Design, develop, deploy faster with pre-qualified rugged chassis

- 3x 6U OpenVPX™ payload slots, 1x VITA 62 power supply slot
- Pre-qualified and tested for rugged environments
- Customizable backplane and I/O support multiple configurations
- Pre-integrated with EnsembleSeries™ processing modules

To build ready-to-deploy, function-rich processing subsystems, begin development with a pre-qualified and tested Air Flow-By™ (AFB) rugged chassis. This AFB chassis supports multiple high-performance subsystem configurations to solve challenging problems in radar, electronic warfare, image processing, and industrial computing applications. Its backplane and I/O are easily customized to help programs bring algorithms and technologies to higher technology readiness levels (TRL).

The 4-slot 6U OpenVPX rugged chassis is pre-integrated to work with a wide variety of module types, from low-power single board computers (SBCs) to high-performance, server-class processing modules such as the HDS6605, or graphics processing engines such as the GSC6204. The chassis' backplane supports the latest high-speed Ethernet, InfiniBand™, and PCI Express® interfaces. Its robust channel design and fabrication enables unrestricted data transfer rates across a wide temperature range with ample thermal margin to spare.

Multiple Configuration Options

Its customizable backplane supports multiple module interconnect configurations to match application data flow requirements. Whether designing for a demanding high-performance application or a more cost-effective installation with lower power and thermal requirements, the chassis' power and fan configurations can be modified to meet a wide range of needs.

The modular nature of the VITA 62 power slot allows for the use of a variety of power supplies that convert many input voltages to OpenVPX standard voltages. From 28 VDC to 270 VDC to 3-phase AC inputs, the chassis supports any of these inputs with a simple swap of the VITA 62 supply. The power supply slot (as well as the rest of the system) is fully integrated into the VITA 46.11 chassis management solution built-in to the chassis architecture.

I/O solutions are mapped to external MIL-DTL 38999 connectors. They include low- and high-speed copper I/O along with optional fiber optic interfaces and components. The chassis includes flexible mapping from OpenVPX backplane interfaces to the connector ecosystem that can be customized on request.

Optionally the chassis may include a 2.5" standard rugged SSD module interfaced to the processing subsystem via 6 Gbps SATA. Choose between a standard industrial SSD or Mercury's TRRUST-Stor® and ASURRE-Stor™ SSD solutions for added security for data at rest.

System Bandwidth

Bandwidth is critical and especially applicable to switched fabric resources that dictate the responsiveness of the entire subsystem. All modular solutions, including OpenVPX, are to some degree interconnect bound. They are restricted by the limitations of even the best industry interconnect technology. To address this, Mercury fabricates system interconnections with innovative technology that mitigates insertion-loss and crosstalk while maintaining full VITA/OpenVPX compliance. With this boost in system performance, the latest fabrics can run at full speed.

VPX-REDI

The VPX VITA 46 standard defines 6U and 3U board formats with a modern high-performance connector that supports today's high-speed fabric interfaces. VPX is most attractive when paired with the Ruggedized Enhanced Design Implementation standard — REDI (VITA 48). The 4-slot rugged OpenVPX chassis supports 6U Air Flow-By payload and power supply module implementations of VPX-REDI (standard VITA 48.7).

Rugged Air Flow-By

Air- and conduction-cooled subsystems rely on filtration to remove contaminants from their cooling air streams. Air Flow-By technology eliminates filtration with a cooling solution inside a sealed and rugged package. Fully compliant to the VITA 48.7 standards, Mercury's Air Flow-By implementation maintains OpenVPX's 1-inch pitch requirement, is highly resilient to liquid and particle contamination, boosts SWaP, reduces operating temperature, and extends MTBF to enable deployment of the most powerful and reliable processing solutions.

TECHNICAL SPECIFICATIONS

Mechanical

Size:	4.5" W x 8.25" H x 13.5" D
	4.5" W x 8.75" H x 13.5" D with optional SATA SSD
Weight:	Under 30 pounds before module population

Cooling

Air Flow-By uses an air management cooling approach. For more information on AFB cooling, see our MOTS/MOTS+ rugged packaging tech brief.

Power Supply

PCM6222 VITA 62 power supply (std.); 28 VDC input, max ~1500W

Other power supply options available

OpenVPX Slot Count

Four 1" pitch slots

- 3x OpenVPX payload slots
- 1x VITA 62 power supply slot

Front Panel

- Power input connector
- Digital I/O connector (MIL-DTL-38999), low- and high-speed copper I/O. Customized on request
- Optional fiber optical connector for high-speed interfaces (40 GbE available, 100 GbE coming soon)
- Chassis ground stud

Rear Panel

Chassis may be customized to meet requirements. Contact your Mercury sales representative for details

Storage Option

2.5" rugged SSD module interfaced via 6 Gbps SATA. Choose from industrial SSDs or secure TRRUST-Stor® and ASURRE-Stor SSD solutions

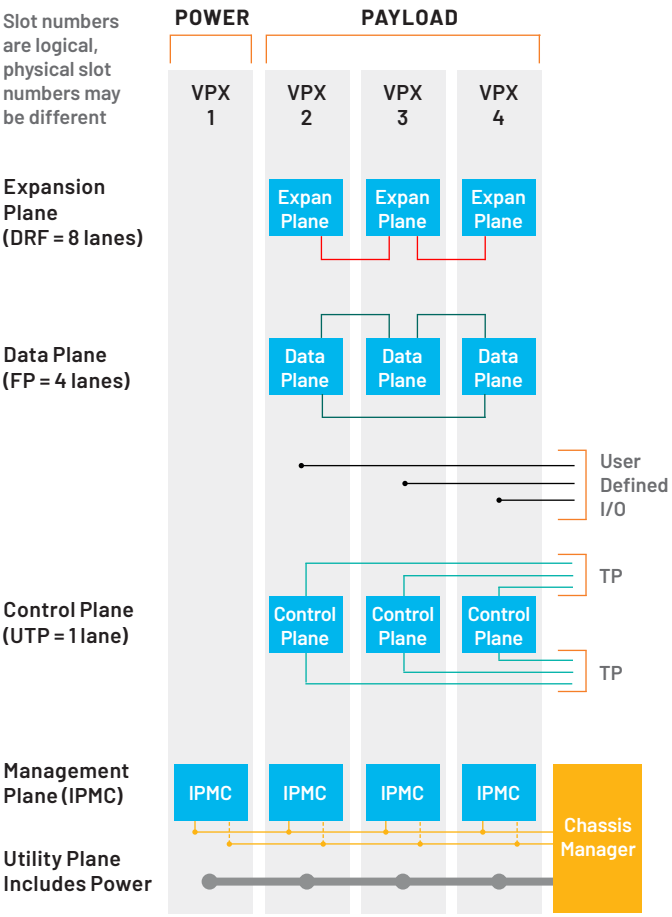
Mercury's Processing Ecosystem

To build a high-performance processing subsystem, combine:

- 1x HDS6605 (high density server)
- 1x SFM6126 (network switch) with 2x IOM-400 (I/O interface mezzanines)
- 1x SCM6010 (storage)
- 1x VITA 62 power slot
- 1x rugged 4-slot AFB chassis

Or, choose from our broad portfolio of interoperable hardware and software building blocks to design an edge-ready processing subsystem.

EXAMPLE DIAGRAM



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