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DATASHEET

Ensemble® Subsystems
OpenVPX Development Chassis – 6-Slot

Engineered Development Chassis for Any OpenVPX Subsystem



- **6-slot 6U OpenVPX™ development chassis**
- **Built to support high-performance subsystems**
- **Cost-effective solution for lab development**
- **Customizable backplane and I/O supports multiple configurations**
- **Pre-qualified with Ensemble subsystem modules**

The 6-slot OpenVPX™ Development Chassis from Mercury Systems is a key building block in Mercury's subsystem development infrastructure. Supporting a number of backplanes with slot counts of 6 or less, the chassis is designed to provide for multiple high-performance subsystem configurations to solve challenging problems in the radar, electronic warfare or image processing market spaces. The OpenVPX development chassis helps programs bring algorithms and technologies to higher Technology Readiness Levels (TRL) by supporting their deployment on systems based on deployable designs.

Built for Performance

As a provider of high-performance solutions addressing the most challenging problems in the sensor processing chain, Mercury engineered the 6-slot OpenVPX development chassis to work with a wide variety of module types, from low-power Single Board Computers (SBCs) to high-performance processors such as the HDS6601 or RF/IF processing engines such as the SCFE-V6-OVPX.

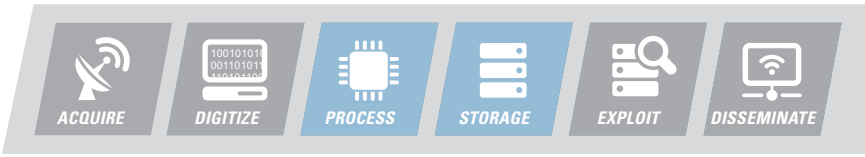
Because the chassis supports lab development activities, it is ideal for profiling applications on commercial air-cooled OpenVPX hardware that is identical in design to rugged, deployable OpenVPX modules. The chassis can also work with more rugged configurations of OpenVPX modules that require airflow for cooling.

Chassis fans are configured in a push/pull mode, ensuring that sufficient cooling is available to support modules dissipating in excess of 175W. The combined push/pull fan configuration supplies more than 700 CFM of airflow to the card cage, providing enough air per slot to support a full complement of high-performance modules. Two thermal sensors are positioned at the exhaust outlet, allowing users to determine the temperature of the air after cooling modules. Fans are managed by a control card, allowing automatic adjustment of fan speed based on cooling requirements.

Multiple Configuration Options

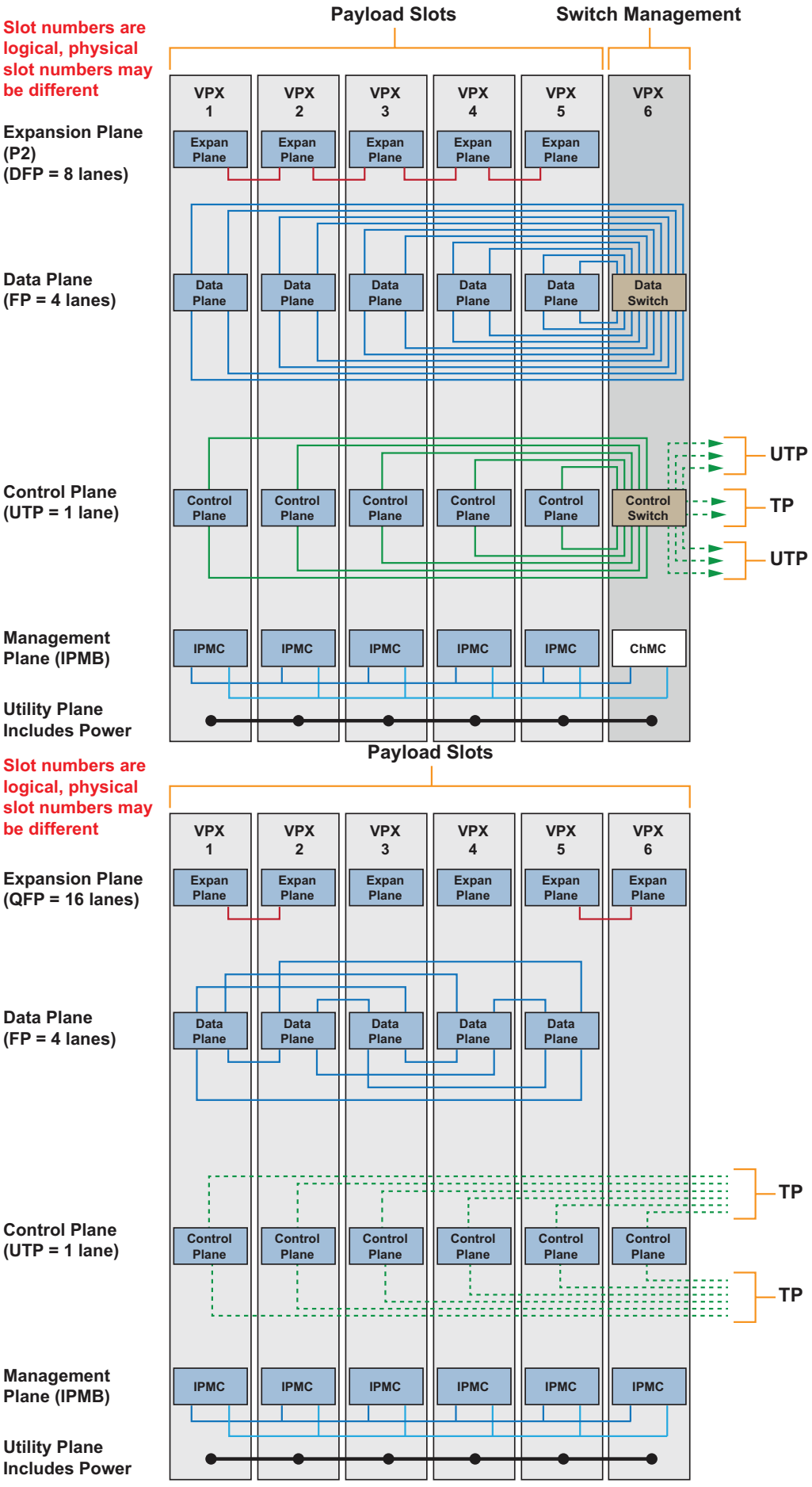
As a building block for high-performance OpenVPX subsystems, the 6-slot OpenVPX development chassis is designed for configurability. Multiple backplanes can be supported, from 5- or 6-slot switch-based designs to 5-slot mesh profiles. Custom backplanes can also be developed as needed to match application data flow requirements. The enclosure itself can be configured for 19" rack-mount installation or desktop use. Power and fan configurations can be modified for particular configurations, with high-power and cooling installations targeting the most demanding applications, and more cost-effective installations targeting lower power and thermal requirements.

Mercury Systems is a best-of-breed provider of commercially developed, open sensor and Big Data processing systems, software and services for critical commercial, defense and intelligence applications.



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Payload Slots
Switch Management
Slot numbers are logical, physical slot numbers may be different
VPX 1
VPX 2
VPX 3
VPX 4
VPX 5
VPX 6
Expansion Plane (P2) (DFP = 8 lanes)
Expan Plane
Data Plane (FP = 4 lanes)
Data Plane
Data Switch
Control Plane (UTP = 1 lane)
Control Plane
Control Switch
UTP
TP
UTP
Management Plane (IPMB)
IPMC
ChMC
Utility Plane Includes Power
Payload Slots
Slot numbers are logical, physical slot numbers may be different
Expansion Plane (QFP = 16 lanes)
Data Plane (FP = 4 lanes)
Control Plane (UTP = 1 lane)
TP
TP
Management Plane (IPMB)
Utility Plane Includes Power

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Power supplies are configured for 12V-optimized OpenVPX modules, but provide all required voltages for OpenVPX modules, including +12V, +5V, +3.3V and -12V. Power at 24V is also provided to drive the chassis fan infrastructure. Due to the modular design of the subsystem, power supplies can be replaced or updated easily. Indicators on the front panel of the enclosure provide assurance that all voltages are available.

Designed for easy access, Rear-Transition Modules (RTM) can be installed as required, and airflow is available to the RTM area should active components be present on any rear modules.

Lab Development System

Several key features make the 6-slot OpenVPX chassis a natural choice for lab development systems.

- Low-profile design takes up a minimum of space, and aluminum construction minimizes enclosure weight
- Electro-Static Discharge (ESD) jacks are provided on both the front and rear of the chassis
- Cable access holes are designed into the enclosure framework, supporting the routing of cables to both the front panel and the rear transition area as appropriate for the configuration
- Ergonomic space design for injector/ejector seating is optimized for the high extraction force needed for OpenVPX modules
- Switches are provided for the SYS_RESET and NVMRO OpenVPX signals, allowing easy testing for the operation of these signals in any installed backplane
- A chassis ground stud is provided at the rear of the enclosure
- Two removable I/O panels are provided on the front panel of the enclosure, providing access to custom cabling or additional I/O configurations at the subsystem level

VPX-REDI

The VPX (VITA 46) standard defines 6U and 3U board formats with a modern high-performance connector set capable of supporting today's high-speed fabric interfaces. VPX is most attractive when paired with the Ruggedized Enhanced Design Implementation (REDI) standard (VITA 48). The 6-slot (or 16-slot) OpenVPX chassis supports 6U air-cooled module implementations of VPX-REDI including standard VITA 48.1 air-cooled modules and the latest VITA 48.7 Air Flow-By™ (AFB) air-cooled modules.

Open Standards Mean Interoperability and Planning for the Future

The OpenVPX Industry Working Group was an industry initiative launched by defense prime contractors and COTS system developers to proactively solve the interoperability issues associated with the VITA 46 (VPX) family of specifications. This group has created an overarching System Specification defining VPX system architecture through pinout definitions to establish a limited set of application-specific reference solutions. These OpenVPX standard solutions provide clear design guidance to COTS suppliers and the user community, assuring interoperability across multi-vendor implementations. The OpenVPX System Specifications were ratified by the VSO in February 2010 and became an ANSI standard shortly thereafter.

Specifications

Size 17.18"L by 10.46"H (6U) by 15"D

Weight 34 pounds (with backplane installed, no payload modules)

Power Supply

- +12V @ 125a
- +5V @ 35a
- +3.3V @ 10a
- -12V @ 10a

OpenVPX slot count

- 6 (at 1" pitch) Can support backplanes up to 6 slots (switched or mesh)

Front Panel

- Write Enable switch
- Voltage LEDs
- SYS_RESET switch
- DC Inhibit switch
- Blank I/O panel
- ESD Jack

Rear Panel

- Chassis ground stud
- 220V AC IEC320 inlet with cable clamp
- 20a circuit breaker
- ESD jack

Note: Chassis can be customized to meet requirements.
Contact Mercury's Services and System Integration group.

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