Ensemble™

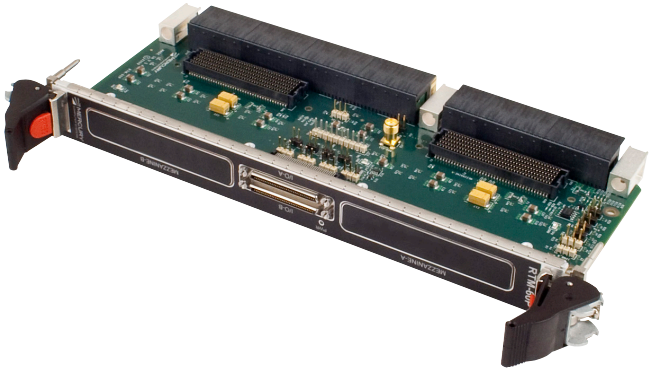
DATASHEET

MERCURY COMPUTER SYSTEMS

Ensemble 6000 Series OpenVPX RTM-60P Rear Transition Module

Bringing I/O to the Ensemble 6000 Series

- Supports Ensemble 6000 Series Power Architecture™ and Intel® Payload Modules
- Breakout cable for standard I/O included
- Support for PMC/XMC user I/O via standard connector
- Architected to meet OpenVPX™ design principles



The Ensemble™ 6000 Series OpenVPX™ RTM-60P Rear Transition Module from Mercury Computer Systems is designed as a VITA 46 VPX-compliant module in a 6U form factor, also compatible with OpenVPX system architecture design principles. This module is an innovative design intended to support Ensemble 6000 Series 6U VPX payload modules. When integrated with payload modules, such as the HCD6220 or the LDS6520, the RTM-60P brings user I/O from the backplane connectors to industry-standard interfaces. The RTM-60P utilizes a breakout cable for common serial and Ethernet connections. An additional breakout cable is available to provide access to backplane USB, DVI, and clock signals. For PMC/XMC user I/O, the RTM-60P implements standard FMC connectors, providing a flexible interface for any user I/O solution.

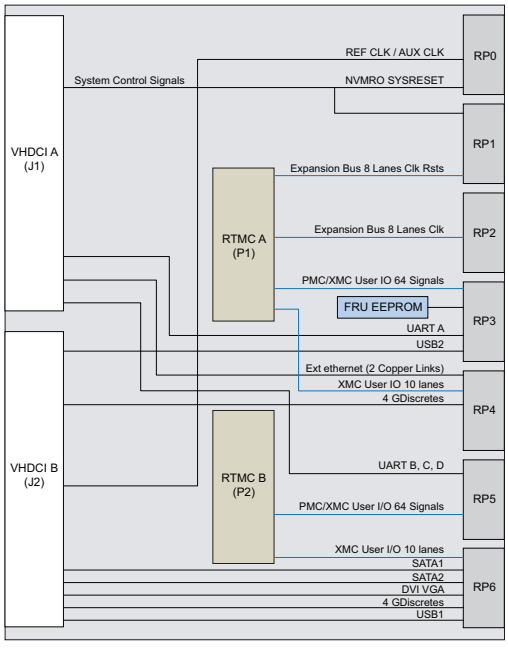


***Figure 1**. RTM-60P functional block diagram*

Standard Ethernet and Serial I/O

The RTM-60P uses a high-density connector and an included breakout cable to provide access to RS-232/RS-422 serial interfaces and 10/100/1000BASE-T Ethernet interfaces. The RTM-60P provides four 9-pin serial interfaces and four RJ45 Ethernet interfaces via the breakout cable, enough to support the available interfaces provided on Mercury's Ensemble 6000 Series 6U VPX payload modules.

Additional Backplane User I/O

With the use of an additional breakout cable (sold separately), the RTM-60P also supports dual USB interfaces, dual SATA interfaces, eight LVTTL general-purpose I/O interfaces, and the standard VITA 65 REF_CLK and AUX_CLK signals. Each of these interfaces is broken out to standard interfaces on the additional breakout cable.

PMC/XMC User I/O

In an innovation not yet seen in the VPX industry, Mercury utilizes standard FMC connectors on the RTM-60P that map to the PMC and XMC user I/O connections from the payload module. Although FMC connectors are utilized, the user I/O connectors on the RTM-60P are not FMC compliant and are, therefore, referred to as Rear Transition Mezzanine Card (RTMC) connectors.

This design has two major advantages:

- Enables I/O from the Rear Transition Module based on VITA standard connectors, where past designs in the industry are custom.
- Provides all the necessary design ingredients to support rear I/O solutions for most industry PMC or XMC modules, including sufficient I/O pins for both PMC and XMC user I/O on the same connector.

Other Capabilities

The RTM-60P has the necessary interfaces, so that the associated payload module can manage it as an unintelligent field replaceable unit (FRU). The RTM-60P can provide its FRU information, such as module name, model number, and serial number, to the managing 6U OpenVPX payload module.

Open Standards Means Interoperability and Planning for the Future

The OpenVPX Industry Working Group is an industry initiative, launched by defense prime contractors and commercial system developers, to take a proactive approach to solving 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 suppliers and the user community, assuring interoperability across multi-vendor implementations. The OpenVPX System Specification was ratified by the VSO in February 2010.

Specifications

Module

Compliant with the VITA 46.0 VPX standard
Designed to comply with the draft VITA 46.9
(PMC/XMC to 3/6U VITA 46 Pin Mapping) and
VITA 46.10 (Rear Transition Module) standards

Serial and Ethernet I/O

Available via included breakout cable

RS-232/RS-422 9-pin serial interfaces	4
10/100/1000BASE-T RJ45 Ethernet interfaces	4

Additional I/O

Available via separate breakout cable
(Mercury part number 911-56008)

Male eSATA interfaces	2
DVI-D male interface	1
USB 2.0 Type A female interface	1
USB 3.0 Type A female interface	1
SMA male interfaces for REF_CLK/AUX_CLK signals	4

PMC/XMC User I/O via dual RTMC Sites

Available via dual FMC connectors (not VITA 57 compliant)
Backplane interface designed to comply with the
draft VITA 46.9 standard

Environmental

Commercial non-rugged – for lab use only.

2307.03E-1218-DS-es6000vpx-rtm60p

MERCURY COMPUTER SYSTEMS™

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