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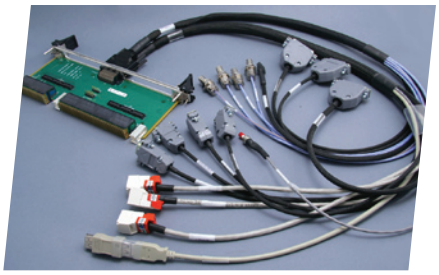


PRODUCT DATASHEET



RTM6-185

Rear Transistion Module for the VPX6-185 SBC



Features

- Supports all standard product I/O variants of the VPX6-185
- Breakout cable for base card I/O supports:
  - Four EIA-232 serial ports on DE-9 connectors
  - Three Gigabit Ethernet ports on RJ-45
  - One USB port on USB jack
  - 14 DIOs on DB-25
  - Utility signals CARDFAIL*, ALT_BOOT_JMP*, and PB_RESET*
  - I2C bus access for debug purposes
  - Pushbutton reset switch
- Breakout cable available for each supported IPM
  - Mode 1 - 8-bit SCSI
  - Mode 6 – Serial IPM
  - Mode 9 - Dual 1553
  - Mode 11 - SATA/1553
  - Mode 12 - Dual SATA
- Dual SAMTEC High-Speed Differential Connector (QSH-DP) for Customizable PMC/XMC I/O
  - Support for legacy Curtiss-Wright PMC I/O cables via generic RTM Interface Module (RIM)
  - Mates with SAMTEC HQDP cable for custom board-to-cable solutions
- Passive RTM. Fused backplane power available on connectors.
- Debug headers for JTAG/I2C bus testing

Overview

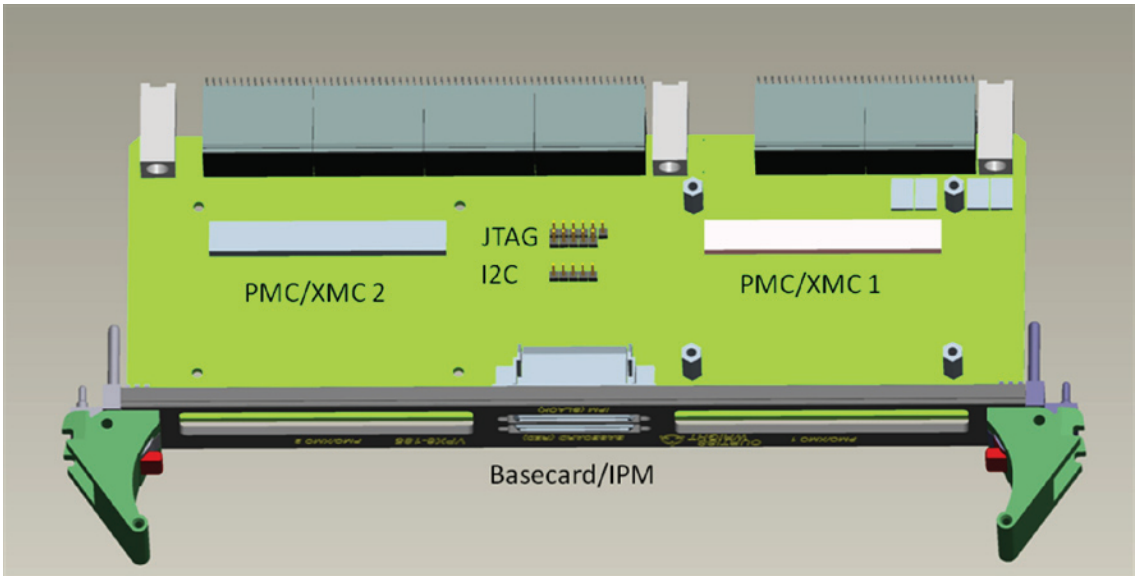
Curtiss-Wright Controls Embedded Computing RTM6-185, supporting cables and RTM Interface Modules (RIM) provides a versatile solution for accessing the wide range of I/O available on the VPX6-185 Single Board Computer. More specifically, the RTM solution provides easy access to the VPX6-185 card I/O and utility signals available from the P3, P4, P5 and P6 backplane interface connectors. This includes I/O from the VPX6-185 base card such as Ethernet, USB, Serial I/O, DIO and installed PMC, XMC and IPM modules. The Rear Transition Module (RTM) plays an important role in the VITA 46 open architecture as a direct cable solution currently does not exist.

The RTM6-185 solution uses a combination of high speed connectors, cables and RIMs to provide the user with a convenient method to access backplane I/O during development in lab environments.

CURTISS WRIGHT Controls Embedded Computing

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Figure 1: RTM Layout and connectors



Base Card & IPM I/O

Base card and IPM signals are available through a pair of stacked 68-pin VHDCI connectors. These connectors support standard cable assemblies with a built-in retention/locking mechanism to withstand moderate levels of shock and vibration. In addition, this high density I/O interface allows for functional partitioning of the I/O. One of the two VHDCI connectors provides access to the base card I/O and utility signals, while the second connector provides access to IPM specific I/O signals. Break out cables, one for the basecard and one for IPMs are used to provide access to these signals. See table 1 for ordering information and deccriptions. The basecard and IPM cables are color coded (red and black respectively), and are clearly identified on the faceplate to prevent inadvertent connection to the wrong receptacle.

Table 1: 185 RTM and Cables

Product Number	Connects to	Description
CBL-185-IPM-006	VPX6-185 RTM IPM mode 6 cable	Breakout cable for VPX6-185 in pin-out mode 6. Provides separate branches for two 9-pin D connectors for RS-232 ports and four 25-pin D connectors for RS-422/485 ports. This cable connects to the high-density connector for IPM-specific I/O on RTM6-185-000.
CBL-185-IPM-009	VPX6-185 RTM IPM mode 9 cable	Break-out cable for VPX6-185 in mode 8 (single 1553) and mode 9 (dual 1553) versions. Provides separate branches and connectors for the transformer-coupled 1553 signals, 1553 configuration inputs, two RS-232/422/485 ports, and 25-pin female D connector for TTL discretes. Connectors for 1553 signals are 3-lug Twinax bulkhead jack connectors (Trompeter part number BJ79-47). This cable connects to the high-density connector for IPM-specific I/O on RTM6-185-000.
CBL-185-IPM-011	VPX6-185 RTM IPM mode 11 cable	Breakout cable for VPX6-185 in mode 11. This provides Dual SATA connections on two 7-pin SATA Connectors, dual 1553 connections on Twinax, 1553 Clock on a 10-pin double-row header and dual EIA-422 on DE-25 connectors.
CBL-185-IPM-012	VPX6-185 RTM IPM mode 12 cable	Break-out cable for VPX6-185 in mode 12 (dual 1553) versions. This provides Dual SATA connections on two 7-pin SATA Connectors, and dual EIA-422 on DE-25 connectors.
CBL-185-RPL-000	VPX6-185 Rear Panel Cable (RTM)	Break-out cable for VPX6-185 Rear Transistion Module providing 4 x RS232 ports on DE-9 connectors, 3 x GigE ports on RJ45 jacks, 1 x USB on USB jack, 1 x push button reset switch and 1 x DB25 pin contacts (male) offering DIO, CARDFAIL and ALT_BOOT.

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PMC/XMC I/O

The PMC/XMC I/O from each of the VPX6-185's two mezzanine sites are brought to separate SAMTEC QSH-DP connectors on the RTM. This allows a number of different of interface solutions offering access to the PMC/XMC I/O.

A variety of RTM Interface Modules (RIM) can be created based on the XMC or PMC installed. The RIM-185-000 is a generic RIM that allows users to connect I/O from legacy PMC modules supported by CWCEC's existing line of PMC I/O cables. This RIM features a 78-pin D-Sub edge connector compatible with existing PMC I/O cables that feature the mating 78-pin D-Sub plug.

To support new PMC or XMC modules, a custom RIM can be developed to mate with the SAMTEC QSH-DP connector to bring signals to standard connectors at the back panel of the chassis (RIM). Table 2 shows part numbers mating SAMTEC connectors that can used on mezzanine modules.

For users requiring a direct cable solution, Samtec offers a HQDP patch cable system allowing for users to build custom cable soutions that terminate directly to standard I/O connector jacks using one half of the HQDP cable. Alternatively, the entire patch cable can be used, if an external PCB is developed accommodated these standard I/O connector jacks along with a QSH-DP patch cable interface connector.

Table 2

SAMTEC Part Number	Mated Height
QTH-060-01-L-D-DP-LC	5mm
QTH-060-02-L-D-DP-LC	8mm
QTH-060-03-L-D-DP-LC	11mm

Table 3

Connector	Available Power	Max. Current Rating (A)
J0 – Base Card	5V	0.5
J0 – IPM	5V	1
PMC/XMC I/O	5V	3
	12V	1.5
	3.3V Aux.	1.5
	12V Aux.	1.5
	-12V Aux.	1.5

Power

The RTM6-185 is designed as a passive interface module. It does, however, provide power to various connectors, should it be required by the user or RIM for future purposes/uses. The power is provided thru fused connections. Table 3 provides a description of what is provided to each connector.

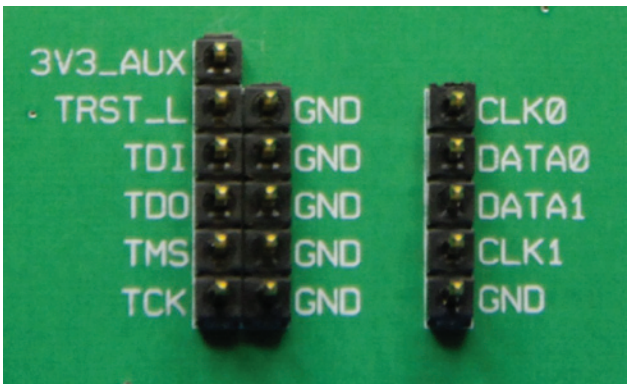
Replacement fuses are Polymer Reset Fuses rated at 33V and 1.85A in an SMD 2920 package. They are available from Littelfuse as model 2920L185DR.

Test Headers

A JTAG test header is available on the RTM. The pinout for this header is shown in Figure 2.

Access to the redundant VPX backplane I2C busses is available on a 5-pin header and on the basecard breakout cable. The RTM can also be disconnected from the I2C bus by uninstalling configuration resistors.

Figure 2



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Standards

The VPX6-185 RTM conforms to the following VPX standards:

Standard	Description
VITA 46.0	VPX Standard
VITA 46.9	PMC/XMC to 3/6U VITA 46 Pin Mapping
VITA 46.10	Rear Transition Module

The tables below show the power, dimensions and weight characteristics of the card.

Power Requirements	
3.3V Aux	Not used on the RTM
5V (VS3)	Not used on the RTM
12V (VS1/VS2)	Not used on the RTM
12V Aux	Not used on the RTM
-12V Aux	Not used on the RTM

Dimensions and Weight		
Option	Dimensions	Weight
Air-cooled 0.8"	Per VITA 46 draft 0.8" pitch	TBD
Air-cooled 1.0" option	Per VITA 48 draft 1.0" pitch	TBD
Note. The air-cooled format is designed to fit chassis with 0.8" slot pitch. For convenience it is offered with a 1" front panel to accommodate installation in 1" pitch chassis. * Refer to Ruggedization Guidelines data sheet for more information.		

Cooling Air Requirements		
Configuration	Temperature Range	Air-Flow
RTM-185-000 with RIM-185-000	0°C to 50°C	None required.
Air-flow is specified for sea-level conditions. The temperature refers to the inlet temperature at the card.		

Ruggedization Levels

The RTM6-185 and cables is for air-cooled level 0 operation.
See the Curtiss-Wright ruggedization guidelines data sheet for more information.

Ordering Information

The part number for the RTM is: RTM6-185-000

The generic RTM interface module is: RIM-185-000. Other RIMs will be added when available.

Supporting cables part numbers as shown in table 1.

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