

The Embedded I/O Company



TPIM007

PIM for Gigabit Ethernet XMCs

Version 1.0

User Manual

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TPIM007-10R

PIM for four Channel 10/100/1000 Mbit/s
Ethernet XMCs, RJ45

(RoHS compliant)

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1 Product Description

The TPIM007 is a PMC I/O Module (PIM) compatible module providing easy access to the XMC back I/O lines of XMC carriers when used on a PIM carrier.

The TPIM007 distributes the Ethernet signals of TEWS' Gigabit Ethernet XMC modules with P16 back I/O to RJ45 connectors located in the front panel of the PIM module.

Impedance mismatches, caused by CMC connectors and backplane connectors, lead to signal distortion of the Ethernet signals. To reduce these effects, the routing on the TPIM007 is optimized for differential Ethernet signals.

Additionally, common mode choke filters are placed into the Ethernet signal lines to improve signal quality by suppressing common mode noise on the Ethernet signal lines.

The TPIM007-10R reproduces the front I/O signal mapping of TEWS' four channel 10/100/1000 Mbit/s Ethernet adapter XMC in its RJ45 connectors when used with the TXMC395-10R for example.

The module meets the requirements to operate in extended temperature range from -40°C to +85°C.

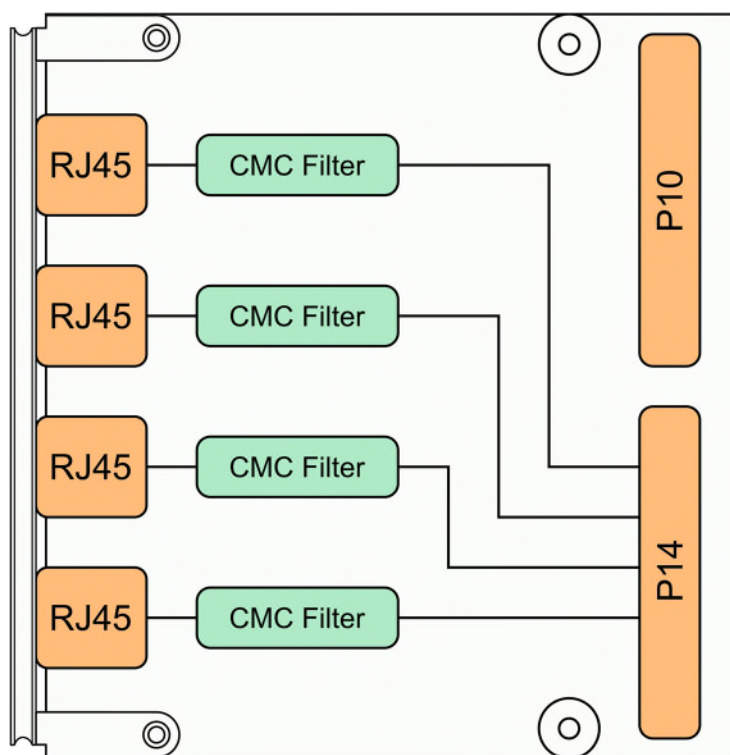


Figure 1-1 : Block Diagram

2 Technical Specification

| PIM Interface | | | | | |
|----------------------------------|---|-----------|----------------|---------|----------------|
| Mechanical Interface | PMC I/O Module (PIM) Interface conforming to VITA 36 – 199X Draft 0.1 Standard single-width (69 mm x 74 mm) | | | | |
| On Board Devices | | | | | |
| Common Mode Choke Filters | For each interface: LG01-0356N2 (Halo) | | | | |
| I/O Interface | | | | | |
| Number of Channels | 4 | | | | |
| I/O Connector | RJ45 (TE Connectivity 406732 or compatible) | | | | |
| Physical Data | | | | | |
| Power Requirements | none | | | | |
| Temperature Range | <table border="1"> <tr> <td>Operating</td> <td>-40°C to +85°C</td> </tr> <tr> <td>Storage</td> <td>-40°C to +85°C</td> </tr> </table> | Operating | -40°C to +85°C | Storage | -40°C to +85°C |
| Operating | -40°C to +85°C | | | | |
| Storage | -40°C to +85°C | | | | |
| MTBF | 667000 h MTBF values shown are based on calculation according to MIL-HDBK-217F and MIL-HDBK-217F Notice 2; Environment: G _B 20°C. The MTBF calculation is based on component FIT rates provided by the component suppliers. If FIT rates are not available, MIL-HDBK-217F and MIL-HDBK-217F Notice 2 formulas are used for FIT rate calculation. | | | | |
| Humidity | 5 – 95 % non-condensing | | | | |
| Weight | 46 g | | | | |

Table 2-1 : Technical Specification

3 Handling and Operation Instructions

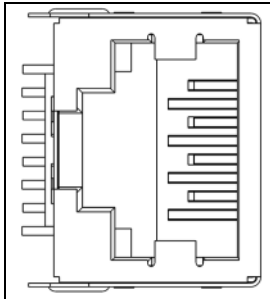
3.1 ESD Protection



This PIM module is sensitive to static electricity.
Packing, unpacking and all other module handling has to be done with appropriate care.

4 Pin Assignment – I/O Connectors

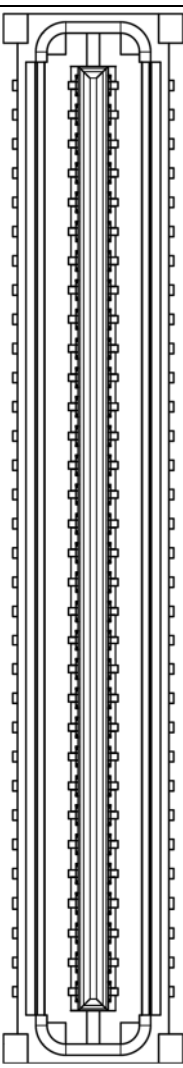
4.1 RJ45 Connector



| Pin | Signal (1000Base-T) | Signal (100Base-TX/10Base-T) |
|-----|---------------------|------------------------------|
| 1 | TX0/RX0+ | TX+ |
| 2 | TX0/RX0- | TX- |
| 3 | TX1/RX1+ | RX+ |
| 4 | TX2/RX2+ | not used |
| 5 | TX2/RX2- | not used |
| 6 | TX1/RX1- | RX- |
| 7 | TX3/RX3+ | not used |
| 8 | TX3/RX3- | not used |

Table 4-1 : RJ45 Connector

4.2 P14 Connector



| Signal | Pin | Pin | Signal |
|---------------------|-----|-----|---------------------|
| ETHERNET_1_TX2/RX2+ | 2 | 1 | ETHERNET_1_TX0/RX0+ |
| ETHERNET_1_TX2/RX2- | 4 | 3 | ETHERNET_1_TX0/RX0- |
| ETHERNET_1_TX3/RX3- | 6 | 5 | ETHERNET_1_TX1/RX1- |
| ETHERNET_1_TX3/RX3+ | 8 | 7 | ETHERNET_1_TX1/RX1+ |
| ETHERNET_4_TX3/RX3+ | 10 | 9 | ETHERNET_4_TX2/RX2+ |
| ETHERNET_4_TX3/RX3- | 12 | 11 | ETHERNET_4_TX2/RX2- |
| ETHERNET_3_TX2/RX2+ | 14 | 13 | ETHERNET_3_TX0/RX0+ |
| ETHERNET_3_TX2/RX2- | 16 | 15 | ETHERNET_3_TX0/RX0- |
| ETHERNET_3_TX3/RX3- | 18 | 17 | ETHERNET_3_TX1/RX1- |
| ETHERNET_3_TX3/RX3+ | 20 | 19 | ETHERNET_3_TX1/RX1+ |
| NC | 22 | 21 | NC |
| NC | 24 | 23 | NC |
| NC | 26 | 25 | NC |
| NC | 28 | 27 | NC |
| NC | 30 | 29 | ETHERNET_2_TX1/RX1+ |
| NC | 32 | 31 | ETHERNET_2_TX1/RX1- |
| ETHERNET_4_TX1/RX1+ | 34 | 33 | ETHERNET_4_TX0/RX0+ |
| ETHERNET_4_TX1/RX1- | 36 | 35 | ETHERNET_4_TX0/RX0- |
| NC | 38 | 37 | NC |
| NC | 40 | 39 | NC |
| NC | 42 | 41 | NC |
| NC | 44 | 43 | NC |
| NC | 46 | 45 | NC |
| NC | 48 | 47 | NC |
| NC | 50 | 49 | NC |
| NC | 52 | 51 | NC |
| NC | 54 | 53 | ETHERNET_2_TX0/RX0+ |
| NC | 56 | 55 | ETHERNET_2_TX0/RX0- |
| ETHERNET_2_TX3/RX3+ | 58 | 57 | ETHERNET_2_TX2/RX2+ |
| ETHERNET_2_TX3/RX3- | 60 | 59 | ETHERNET_2_TX2/RX2- |
| NC | 62 | 61 | NC |
| NC | 64 | 63 | NC |

Table 4-2 : P14 Connector