TPMC377 Conduction Cooled PMC, 4 Channel Isolated RS232/RS422/RS485 Programmable Serial Interface
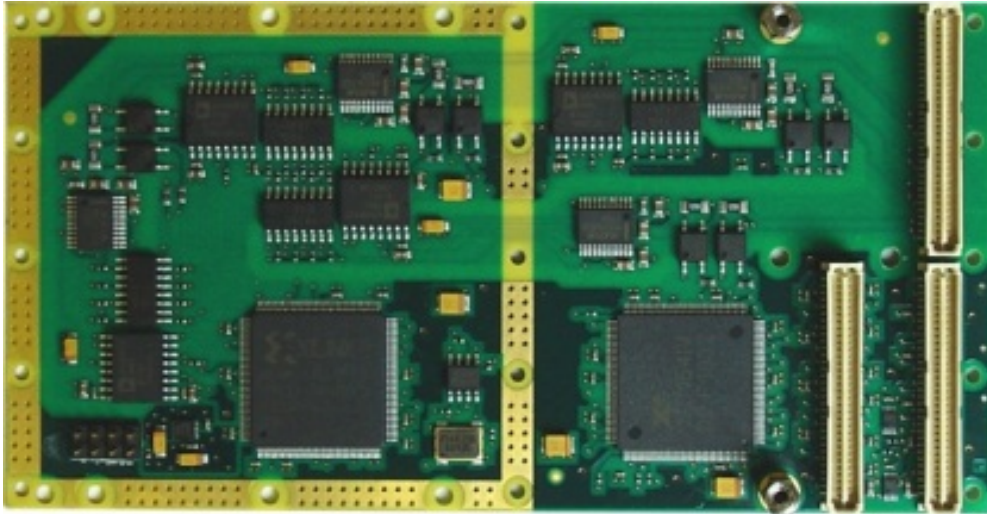

Application Information

The TPMC377 is a conduction cooled single-width 32 bit PMC module offering 4 channels of high performance RS232/RS422/RS485 programmable asynchronous serial interface with P14 I/O. Each of the four channels are isolated from the system and against each other by digital isolator and on board integrated DC/DC converter.

The serial channels can be individually programmed to operate as RS232, RS422 or RS485 full duplex / half duplex interface. In addition programmable termination is provided for the RS422/RS485 interfaces. After power-up all serial I/O lines are in a high impedance state.

Each RS232 channel supports RxD, TxD, RTS, CTS and GND. RS422 and RS485 full duplex support a four wire interface (RX+, RX-, TX+, TX-) plus ground (GND). RS485 half duplex supports a two wire interface (DX+, DX-) plus ground (GND).

Each channel has 64 byte transmit and receive FIFOs to significantly reduce the overhead required to provide data to and get data from the transmitters and receivers. The FIFO trigger levels are programmable and the baud rate is individually programmable up to 921.6 kbps for RS232 channels and 5.5296 Mbps for RS422/RS485 channels. The UART offers readable FIFO levels.

All channels generate interrupts on PCI interrupt INTA. For fast interrupt source detection the UART provides a special Global Interrupt Source Register.

All serial channels use ESD protected transceivers. ESD protection is up to ±15KV.

The TPMC377 can operate with 3.3V and 5.0V PCI I/O signaling voltage.

Software Support (TDRV002-SW-xx) for different operating systems is available.

Issue 1.0.0
2013-12-02

Technical Information

- Conduction cooled single-width 32 bit PMC module conforming to IEEE P1386.1, no front panel
  - Target Chip: XR17D154 (Exar)
  - PCI 2.3 compliant interface
  - PCI I/O signaling voltage 5V and 3.3V
- Board size: 143.75 mm x 74 mm
- Asynchronous serial interface
- Quad UART: Exar XR17D154
- Programmable Interfaces:
  - RS232
  - RS422
  - RS485 full duplex
  - RS485 half duplex
  - Programmable Termination for RS422/RS485
- Support of RxD, TxD, RTS, CTS and GND for each RS232 channel; RxD+/-, TxD+/- and GND for each RS422/RS485 FD channel; D+/- and GND for each RS485 HD channel.

- Programmable baud rates:
  RS232: up to 921.6 kbps
  RS422/RS485: up to 5.5296 Mbps
- 64 byte transmit FIFO per channel
- 64 byte receive FIFO per channel
- Readable FIFO levels
- Global Interrupt Source Register
- General Purpose 16 bit Timer/Counter
- Galvanic isolation of each Transceiver Channel
- ESD protected transceiver (up to ± 15KV)
- Operating temperature -40°C to +85°C
- MTBF (MIL-HDBK217F/FN2 G_B 20°C)
  TPMC377-10R: 805000h
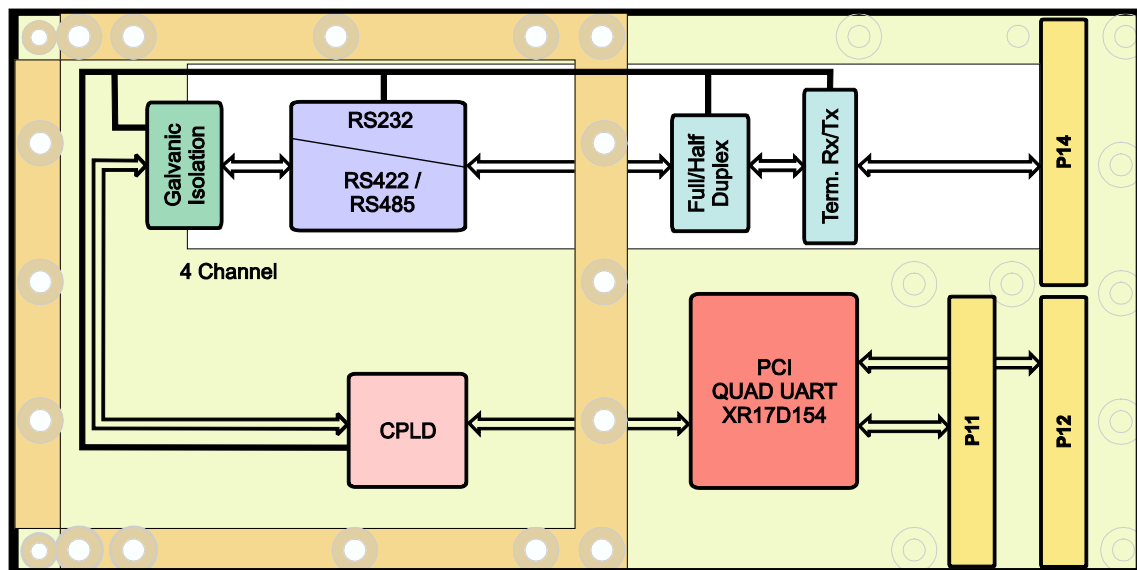
Order Information

RoHS Compliant
TPMC377-10R   ccPMC, 4 Channel Isolated Programmable RS232/RS422/RS485, P14 I/O

For the availability of non-RoHS compliant (leaded solder) products please contact TEWS.

Documentation
TPMC377-DOC   User Manual

Software
TDRV002-SW-25 Integrity Software Support
TDRV002-SW-42 VxWorks Software Support (Legacy and VxBus-Enabled Software Support)
TDRV002-SW-65 Windows Software Support
TDRV002-SW-72 LynxOS Software Support
TDRV002-SW-82 Linux Software Support
TDRV002-SW-95 QNX Software Support

For other operating systems please contact TEWS.

Related Products
TPIM001   PIM I/O Module, HD50 connector