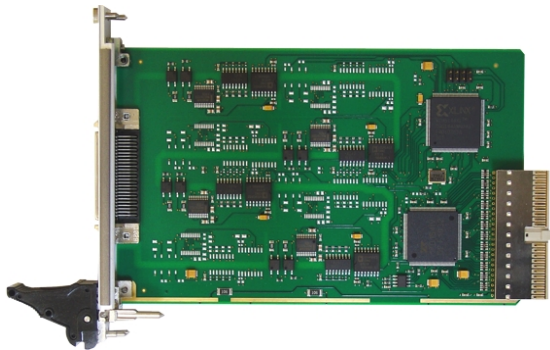# TCP470 4 Channel Isolated RS323/RS422/RS485 Programmable Serial Interface

Application Information

The TCP470 is a standard 3U 32 bit CompactPCI module and offers 4 channels of high performance serial interface. The module offers front panel I/O with a HD50 SCSI-2 type connector. Each of the eight channels are isolated from the system and against each other by digital isolator and on board integrated DC/DC converter. A 8 channel variant is realized as a special assembly called TCP469.

The TCP470 module based on the Exar XR17D154 universal PCI quad UART.

Each serial channel can be programmed via a CPLD register to operate as an RS232, RS422 or RS485 interface. The RS422 and RS485 interfaces can be programmed as Full Duplex or Half Duplex interface with programmable termination.

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). 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 programmable multiprotocol transceivers. ESD protection is up to ±15KV.

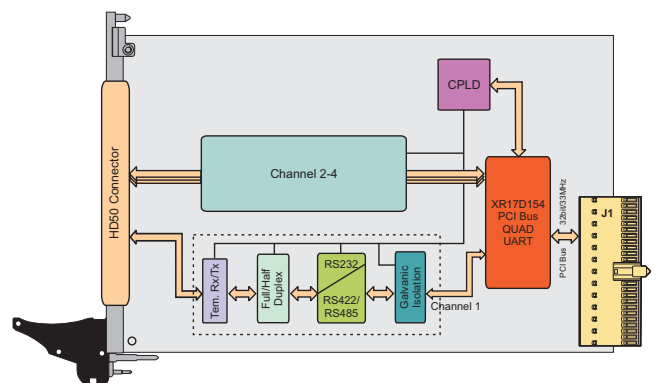All Modules can operate with 3.3V and 5.0V PCI I/O signaling voltage.

For First-Time-Buyers the engineering documentation TCP470-ED is recommended. The Engineering Documentation includes TCP470-DOC, schematics and data sheets of TCP470.

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

Technical Information

- Standard 3U 32 bit CompactPCI module conforming to PICMG 2.0 R3.0
  - Target Chip: XR17D154 (Exar)
  - PCI 2.3 compliant interface
  - PCI I/O signaling voltage 5V and 3.3V
- Board size: 160 mm x 100 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)
  TCP470-10: 756000h

02/2011

Order Information

RoHS Compliant
TCP470-10R 4 Channel Serial Programmable Interface, front panel I/O

None RoHS Compliant
TCP470-10 None RoHS compliant version of TCP470-10R

Documentation
TCP470-DOC User Manual
TCP470-ED Engineering Documentation (TCP470-DOC, Schematics, Assembly Drawing, Data Sheets)

Software
TDRV002-SW-25 Integrity Software Support
TDRV002-SW-42 VxWorks Software Support (Legacy and VxBus-Enabled Software Support)
TDRV002-SW-65 Windows XP/XPE/2000 Software Support
TDRV002-SW-72 LynxOS Software Support
TDRV002-SW-82 Linux Software Support
TDRV002-SW-95 QNX 6 Software Support

For other operating systems please contact TEWS

Related Products
TA301 Cable Kit for modules with HD50 connector

TCP001-FP 6U front panel extension for 3U cPCI boards