

### TPMC501 32 Channels of Isolated 16 bit A/D

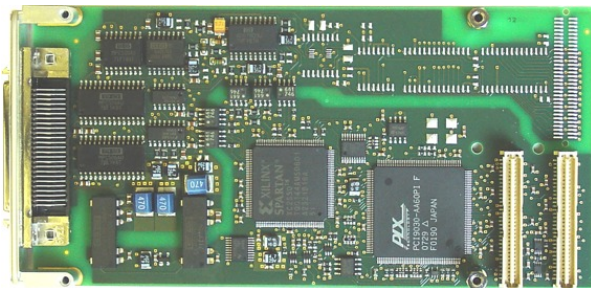
#### Application Information

The TPMC501 is a PCI Mezzanine Card compatible module with galvanically isolated 32 multiplexed 16 bit ADC with on board DC/DC converters. The data acquisition and conversion time is mode-dependent: Maximum 12 $\mu$ s without channel / gain change, maximum 14.5 $\mu$ s with channel / gain change.

The 32 ADC input channels can be software configured to operate in single-ended or differential mode with 16 input channels. The mixed mode is possible e.g. channel 1 to channel 8 selected as differential inputs and channel 9 to channel 16 and channel 25 to channel 32 as single-ended input channels.

The ADC multiplexer is overvoltage protected up to 70Vpp. A programmable gain amplifier allows gains of 1, 2, 5, 10 (TPMC501-10x, -12x, -20x and -22x) and 1, 2, 4, 8 (TPMC501-11x, -13x, -21x and -23x). The full-scale input voltage range is +/-10V for the TPMC501-10x, -11x, -20x, -21x and 0V to 10V for the TPMC501-12x, -13x, -22x, -23x (for a gain of 1).

Additionally the TPMC501 provides a sequencer to control the analog inputs without wasting CPU time. Each channel can be independently enabled and configured by a sequencer instruction RAM. After the last instruction of a programmed sequence has completed the ADC data of all channels enabled for the sequence are stored in the data RAM.



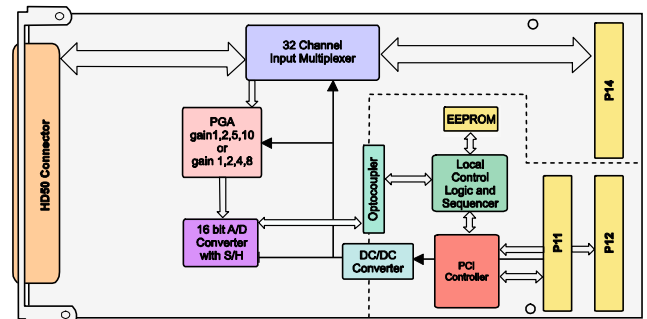
The repeat frequency of the sequencer can be programmed by using the sequence timer. The sequence timer is programmable from 100 $\mu$ s to 6.5535s in steps of 100 $\mu$ s. Whenever the timer reaches the programmed value the sequencer starts a new sequence. A special function is the sequencer continuous mode. It is activated, if the sequence timer register is set to 0. In this mode the sequencer will start again with the first instruction of the sequence as soon as the last instruction of the previous sequence has been completed.

Each TPMC501 is factory calibrated. The calibration data is stored in an EEPROM unique to each TPMC501.

For First Time Users the Engineering Documentation TPMC501-ED is recommended. The Engineering Documentation includes TPMC501-DOC, schematics and data sheets. Software Support (TPMC501-SW-xx) is available for different operating systems.

#### Technical Information

- Standard single-width 32 bit PMC module conforming to IEEE P1386.1
- PCI 2.1 compliant interface
- 3.3V and 5V PCI Signaling Voltage
- Board size: 149 mm x 74 mm
- 32 single-ended or 16 differential channels of isolated 16 bit A/D conversion
- Acquisition and conversion time up to 12 $\mu$ s without and up to 14.5 $\mu$ s with channel / gain change
- ESD protected input multiplexer
- Programmable gain amplifier: gain 1, 2, 5, 10 or 1, 2, 4, 8
- 12 bit A/D converter with internal S/H and reference
- Full-scale input range +/-10V at gain 1
- Interrupt capability at end-of-conversion
- Factory calibrated, calibration information stored in EEPROM



## The Embedded I/O Company

### Order Information

#### RoHS Compliant

<b>TPMC501-10R</b>	32 Single-ended or 16 Differential Channels of Isolated 16 bit A/D, gain 1, 2, 5, 10, input range +/- 10V, front panel I/O
<b>TPMC501-11R</b>	Same as TPMC501-10 but programmable gain of 1, 2, 4, 8
<b>TPMC501-12R</b>	Same as TPMC501-10 but 0-10V inputs
<b>TPMC501-13R</b>	Same as TPMC501-10 but programmable gain of 1, 2, 4, 8 and 0-10V inputs
<b>TPMC501-20R</b>	Same as TPMC501-10R but P14 I/O
<b>TPMC501-21R</b>	Same as TPMC501-11R but P14 I/O
<b>TPMC501-22R</b>	Same as TPMC501-12R but P14 I/O
<b>TPMC501-23R</b>	Same as TPMC501-13R but P14 I/O

#### None RoHS Compliant

TPMC501-10	None RoHS compliant version of TPMC501-10R
TPMC501-11	None RoHS compliant version of TPMC501-11R
TPMC501-12	None RoHS compliant version of TPMC501-12R
TPMC501-13	None RoHS compliant version of TPMC501-13R
TPMC501-20	None RoHS compliant version of TPMC501-20R
TPMC501-21	None RoHS compliant version of TPMC501-21R
TPMC501-22	None RoHS compliant version of TPMC501-22R
TPMC501-23	None RoHS compliant version of TPMC501-23R

#### Documentation

<b>TPMC501-DOC</b>	User Manual
<b>TPMC501-ED</b>	Engineering Documentation, includes TPMC501-DOC

#### Software

<b>TPMC501-SW-25</b>	Integrity Software Support
<b>TPMC501-SW-42</b>	VxWorks Software Support (Legacy and VxBus-Enabled Software Support)
<b>TPMC501-SW-65</b>	Windows XP/XPE/2000 Software Support
<b>TPMC501-SW-72</b>	LynxOS Software Support
<b>TPMC501-SW-82</b>	LiNux Software Support
<b>TPMC501-SW-95</b>	QNX 6 Software Support

For other operating systems please contact TEWS.

#### Related Products

<b>TA301</b>	Cable Kit for modules with HD50 connector
<b>TPIM001</b>	PIM I/O Module with HD50 SCSI-2 type connector