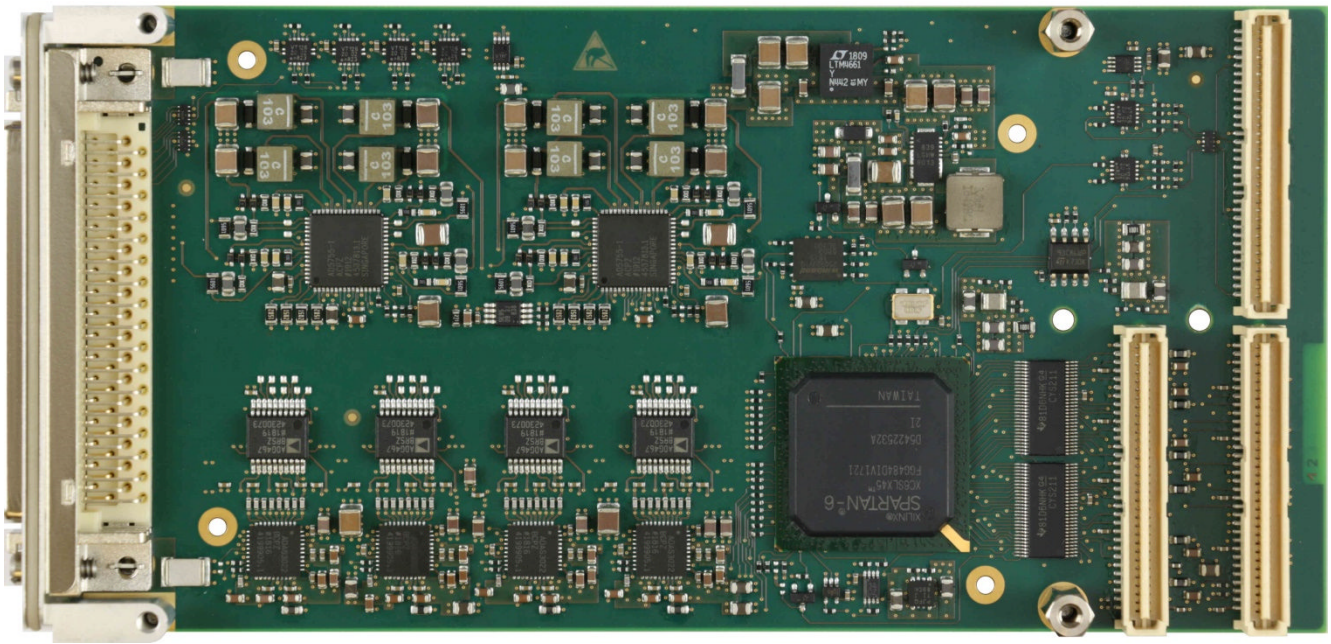
TPMC541 32/16 Single-Ended or 16/8 Differential A/D Channels, 8/4 Voltage & Current Range D/A Channels and 8 LVTTL/TTL Digital I/O Channels



Application Information

The TPMC541 is a standard single-wide 32 bit 33MHz PCI Mezzanine Card (PMC) providing

- up to 32/16 single-ended or 16/8 differential 16 bit bipolar analog input channels,
- 8/4 single-ended simultaneous update 16bit unipolar/bipolar analog output channels and
- 8 tristate capable 5V-tolerant LVTTL/TTL digital input/output channels.

The TPMC541 features up to four multi-channel ADC devices, each device providing up to 8 single-ended or 4 differential A/D channels. Each ADC device is configurable to operate in either 8-channel single-ended or 4-channel differential input mode.

For each ADC device operating in single-ended input mode, the following analog input ranges are available per A/D channel:

Single-Ended Input Voltage Ranges:

±0.64V, ±1.28V, ±2.56V, ±5.12V, ±10.24V, ±12.288V

For each ADC device operating in differential input mode, the following analog input ranges are available per A/D channel:

Differential Input Voltage Ranges:

±0.64V, ±1.28V, ±2.56V, ±5.12V, ±10.24V, ±20.48V, ±24.576V

The TPMC541 also features up to two multi-channel DAC devices, each device providing up to 4 single-ended voltage output or current output D/A channels.

For each individual D/A channel, the following analog output ranges are available:

Voltage Output Ranges:

0 to 5V, 0 to 10V, ±5V, ±10V, 0 to 6V, 0 to 12V, ±6V, ±12V

Current Output Ranges:

4 to 20mA, 0 to 20mA, 0 to 24mA

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The TPMC541 provides dedicated A/D and D/A sequencer units for periodic analog-to-digital and digital-to-analog conversions at a configurable conversion rate.

In sequencer mode, A/D conversion data is temporarily stored in an on-board data buffer and is transferred to system memory by PCI master DMA transfer while D/A conversion data is fetched from buffers in system memory by PCI master DMA transfer and is temporarily stored in an on-board data buffer.

The sequencers provide a Frame Mode for repetitive frames of A/D and D/A conversions upon an internal or external trigger signal event.

Conversion clock (conversion rate) and frame trigger signals may be generated on-board for internal use and may also be driven out on P14 rear I/O if the card is operating as a master card in a Multi-Board configuration. The conversion clock (conversion rate) and frame trigger signals may also be sourced externally via the P14 rear I/O interface if the card is operating as a slave card in a Multi-Board configuration.

The TPMC541 also features 8 ESD protected digital I/O lines. Each digital I/O line has a dedicated line transmitter with individual output enable control and a dedicated line receiver. The line receivers are always enabled, so the digital I/O line level can always be monitored.

Each digital I/O line input is capable of generating an interrupt triggered on rising edge, falling edge or both. Additionally, a glitch filter can be configured to get rid of bouncing on the digital I/O inputs.

Each digital I/O line has a 4.7kΩ pull resistor to a common reference. The common pull resistor reference is programmable by software to +3.3V, +5V or GND.

Each TPMC541 is factory calibrated. The correction data is stored in an on-board serial EEPROM unique to each PMC module. The correction data values may be used to perform a hardware correction for any A/D channel and input range and any D/A channel and output range.

The analog input, analog output and digital I/O signals are accessible via a Mini D Ribbon (MDR68) type front I/O connector.

Technical Information

- Standard single-wide PCI Mezzanine Card (PMC)
  - 32bit / 33MHz PCI
  - DMA PCI Master capability
- Mini D Ribbon (MDR68) type front I/O connector
- 8 ESD protected tristate capable 5V-tolerant LVTTL/TTL digital input/output channels
- Up to 32/16 single-ended or 16/8 differential 16 bit analog input channels
  - Channel sample rate from 100ksps to 800ksps, depending on number of active channels
  - Single-Ended input ranges:
    - ±0.64V, ±2.56V, ±5.12, ±10.24V, ±12.288V
  - Differential input ranges:
    - ±0.64V, ±1.28V, ±2.56V, ±5.12V, ±10.24V, ±20.48V, ±24.576V
- 8/4 single-ended 16 bit voltage or current range analog output channels
  - Up to 38ksps simultaneous conversion rate
  - Output voltage ranges:
    - 0-5V, 0-10V, ±5V, ±10V
    - 0-6V, 0-12V, ±6V, ±12V
  - Output current ranges
    - 4-20mA, 0-20mA, 0-24mA
- Programmable conversion rates
  - Can be output to other cards
  - Can be input from other cards
- I/O Trigger signal for synchronization purposes
- Hardware Correction Option, Factory calibrated
- Temperature Sensor on-board
- Operating Temperature Range -40° to +85° (forced air cooling required)

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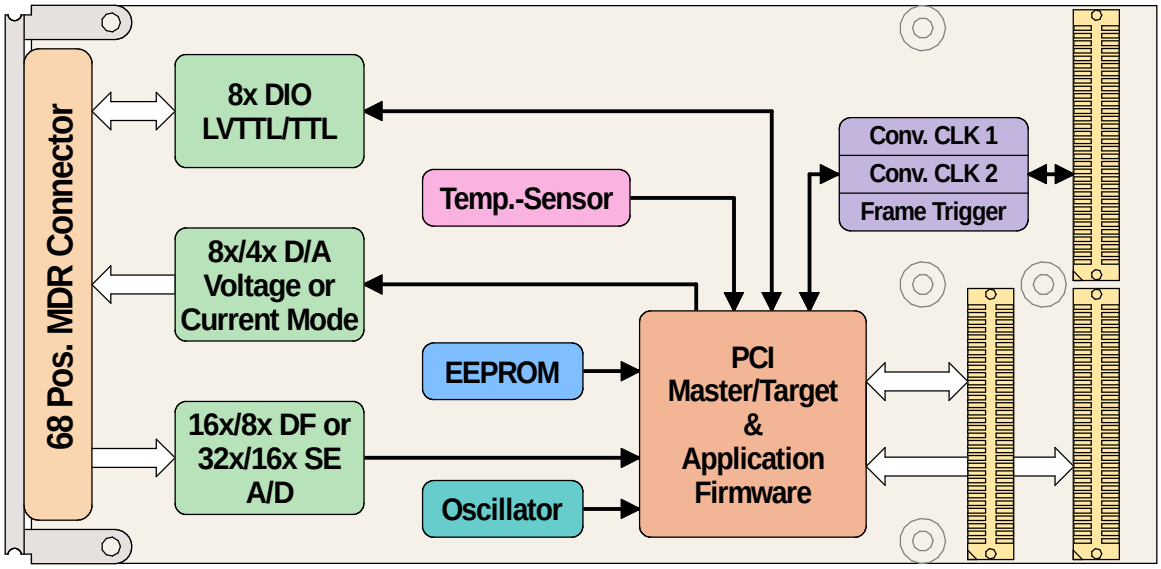

TPMC541 Block Diagram

Order Information

RoHS Compliant

TPMC541-10R	Up to 32 Single-Ended or 16 Differential 16 Bit Analog Input Channels, 8 Single-Ended 16 Bit Voltage & Current Range Analog Output Channels and 8 LVTTL/TTL Digital I/O Channels, with MDR68 front panel I/O
TPMC541-20R	Up to 16 Single-Ended or 8 Differential 16 Bit Analog Input Channels, 4 Single-Ended 16 Bit Voltage & Current Range Analog Output Channels and 8 LVTTL/TTL Digital I/O Channels, with MDR68 front panel I/O

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

Documentation

TPMC541-DOC	User Manual

Software

TDRV019-SW-25	Integrity Software Support
TDRV019-SW-42	VxWorks Software Support (Legacy and VxBus-Enabled Software Support)
TDRV019-SW-65	Windows Software Support
TDRV019-SW-82	Linux Software Support
TDRV019-SW-95	QNX Software Support

For other operating systems please contact TEWS.

Related Products

TA113	MDR68 Cable
TA207	MDR68 Terminal Block
TA312	Cable Kit for Modules with MDR68 Connector

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