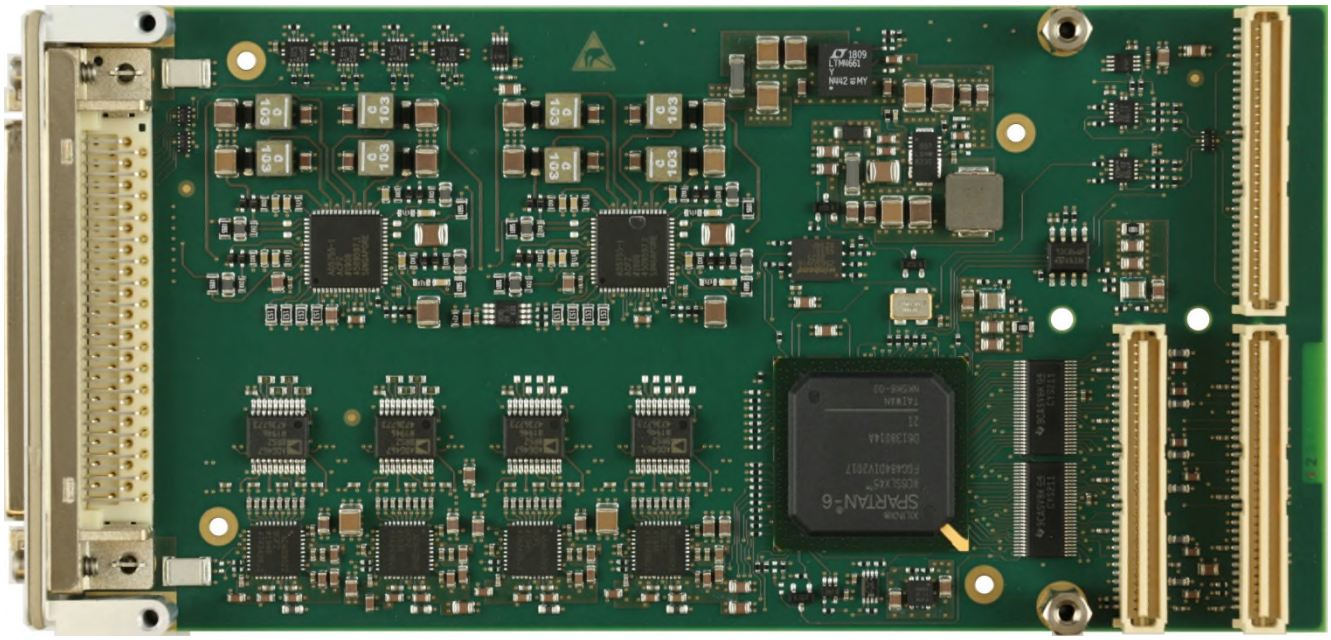
# TPMC543 8 Analog Current Input Channels, 16/8 Analog High-Voltage Input Channels, 8 Analog Voltage/Current Output Channels and 8 Digital LVTTL/TTL I/O Channels



TPMC543-10R

## Application Information

The TPMC543 is a standard single-wide 32 bit 33MHz PCI Mezzanine Card (PMC).

The TPMC543-10R features 4 multiplexed multi-channel 16 bit ADC devices, each device providing either 8 single-ended or 4 differential A/D channels.

On the TPMC543-10R the A/D channels are hardware-configured to provide:

- 8 differential bipolar analog current input channels
- 16 single-ended / 8 differential bipolar analog high-voltage input channels

The TPMC543-10R also features 2 multi-channel 16 bit DAC devices, providing a total of:

- 8 single-ended multi-mode analog output channels

Each individual D/A channel, is programmable for one of the following modes:

- Bipolar Voltage Output
- Unipolar Voltage Output
- Unipolar Current Output

Additionally the TPMC543-10R provides 8 tristate capable 5V-tolerant LVTTL/TTL digital input/output channels.



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The TPMC543 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.

Each of the ESD protected digital I/O lines 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 pull resistor to a common reference. The common pull resistor reference is programmable by software to +3.3V, +5V or GND.

Each TPMC543 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 with PCI Master DMA capability
- Mini D Ribbon (MDR68) type front I/O connector
- 8 ESD protected tristate capable 5V-tolerant LVTTL/TTL digital input/output channels
- Programmable digital input glitch-filter
- 4 Multi-Channel 16 bit ADC devices
  - Channel sample rate from 100ksps to 800ksps (depending on number of active channels per ADC)
- 8 differential analog current input channels
  - Current input range: ±25mA
- 16 single-ended / 8 differential analog high-voltage input channels
  - Single-Ended ranges per channel : ±10V, ±20V, ±40V, ±48V
  - Differential ranges per channel: ±10V, ±20V, ±40V, ±80V, ±96V
- 2 Multi-Channel, Multi-Mode 16 bit DAC devices
- 8 single-ended voltage or current mode analog output channels
  - Up to 38ksps simultaneous conversion rate
  - Output voltage ranges per channel:
    - Unipolar: 0-5V, 0-6V, 0-10V, 0-12V
    - Bipolar: ±5V, ±6V, ±10V, ±12V
  - Output current ranges per channel
    - 4-20mA, 0-20mA, 0-24mA
- Programmable conversion rates
- Conversion signal can be output to other cards
- Conversion signal can be input from other cards
- I/O Trigger signal for synchronization
- Hardware Correction Option, Factory calibrated
- Temperature Sensor on-board
- Operating Temperature Range -40° to +85° (**forced air cooling is required**)



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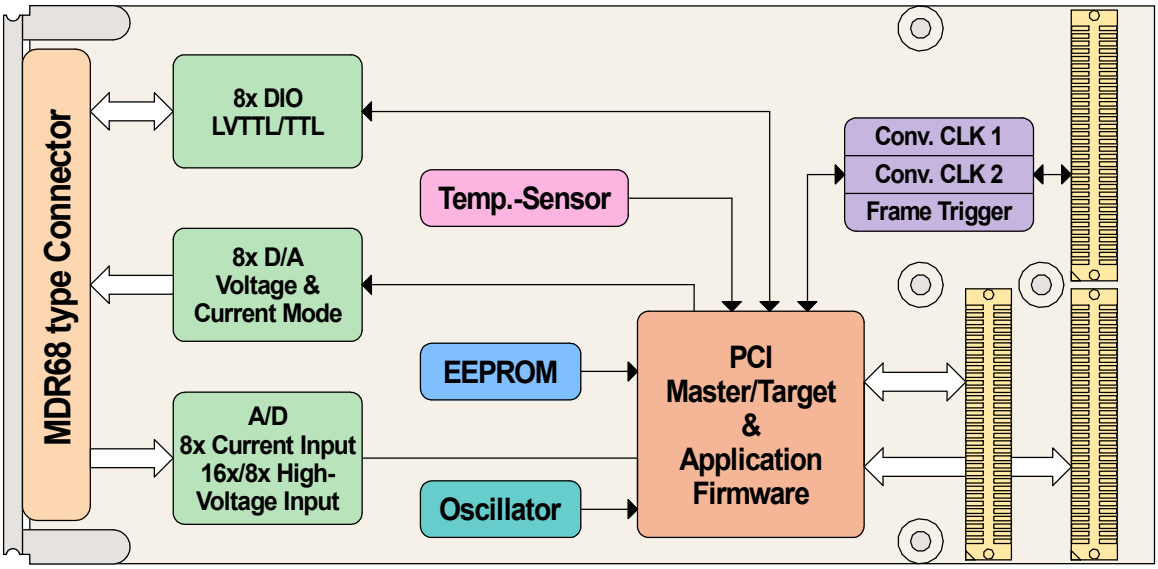


TPMC543-10R Block Diagram

## Order Information

### RoHS Compliant

| | |
|---|---|
| **TPMC543-10R** | 8 Differential Analog Current Input Channels (±25mA), 16 Single-Ended / 8 Differential Analog High-Voltage Input Channels (up to ±48V / ±96V), 8 LVTTL/TTL Digital I/O Channels, MDR68 front panel I/O |

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

### Documentation

| | |
|---|---|
| **TPMC543-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.





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