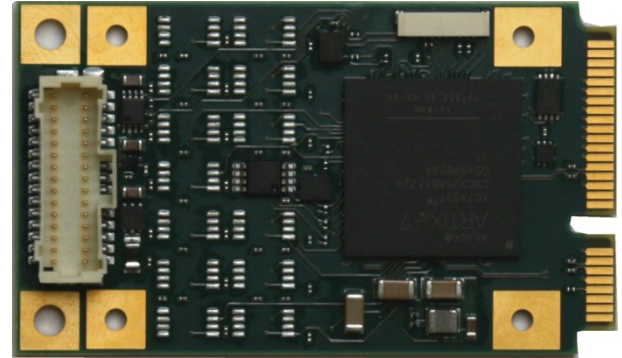


TMPE623 Reconfigurable FPGA with Digital I/O PCIe Mini Card



TMPE623-10R with Heatsink mounted



TMPE623 without Heatsink

Application Information

The TMPE623 is a standard full PCI Express Mini Card, providing a user programmable Xilinx Artix-7 7A50T FPGA.

Depending on the order option the TMPE623 offers 26 ESD-protected 5V-tolerant TTL lines or 13 differential I/O lines using ESD-protected EIA-422 / EIA-485 compatible line transceivers or Multipoint-LVDS transceivers.

All I/O lines are individually programmable as input or output. TTL I/O lines can be set to high, low, or tristate. Each TTL I/O line has a pull-resistor to a common programmable pull voltage that can be set to +3.3 V, +5 V and GND. Differential I/O lines are terminated, EIA-422 / EIA-485 lines with 120 Ω , M-LVDS lines with 100 Ω .

The I/O signals are accessible through a 30 pin Pico-Clasp latching connector.

The User FPGA is configured by a SPI flash. An in-circuit debugging option is available via a JTAG header for read back and real-time debugging of the FPGA design (using Xilinx "ChipScope"). For direct JTAG access to the FPGA using the Xilinx Platform Cable USB, the TA308 Programming Kit is required.

User applications for the TMPE623 with XC7A50T-2 FPGA can be developed using the design software Vivado WebPACK which can be downloaded free of charge from www.xilinx.com.

TEWS offers a well-documented basic FPGA Example Application design. It includes an .xdc file with all necessary pin assignments and basic timing constraints. The example design covers the main functionalities of the TMPE623. It implements local Bus interface to local Bridge device, register mapping and basic I/O. It comes as a Xilinx Vivado project with source code and as a ready-to-download bit stream.

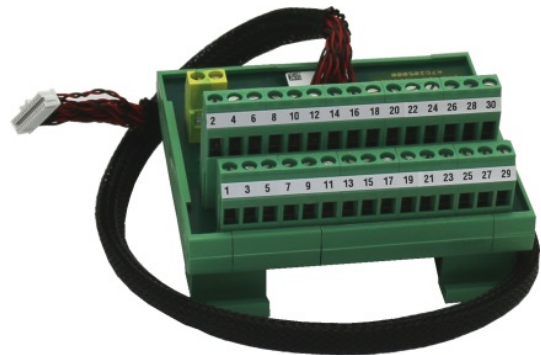
The TMPE623 provides a basic heatsink to facilitate thermal management. The heatsink can be used to install additional cooling solutions like passive or active heatsinks or to provide a thermal connection to an enclosure.



TMPE623 with TA308



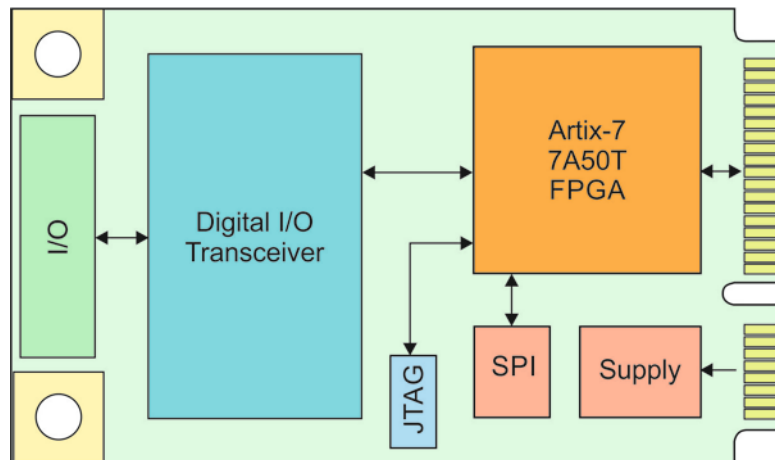
TMPE623 with TA308 & Platform Cable USB



TA309

Technical Information

- Form Factor: Full-Mini Card
 - Board size: 50.95 mm x 30 mm
 - PCI Express 1.1 compliant interface
- Xilinx XC7A50T-2 Artix-7 User programmable FPGA
 - PCIe endpoint in FPGA
- 128 Mbit SPI-EEPROM for FPGA configuration and User Data
- Digital I/O
 - 26 ESD-protected 5 V-tolerant TTL lines with programmable pull resistor (-10R)
- 13 differential EIA-422 / EIA-485 lines (-11R)
- 13 differential M-LVDS lines (-12R)
- Direction individually programmable
- I/O access
 - 30 pin Pico-Clasp latching connector
- Operating temperature -40°C to +85°C
- MTBF (MIL-HDBK217F/FN2 GB 20°C)
 - TMPE623: 1.200.000 h



TMPE623 Block Diagram

The Embedded I/O Company

Order Information

RoHS Compliant

TMPE623-10R	Artix-7 7A50T FPGA, 26 TTL I/O
TMPE623-11R	Artix-7 7A50T FPGA, 13 differential EIA-422 / EIA-485 I/O
TMPE623-12R	Artix-7 7A50T FPGA, 13 differential M-LVDS I/O

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

Documentation

TMPE623-DOC	User Manual
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Software

TDRV020-SW-25	Integrity Software Support
TDRV020-SW-42	VxWorks Software Support (Legacy and VxBus-Enabled Software Support)
TDRV020-SW-65	Windows Software Support
TDRV020-SW-82	Linux Software Support
TDRV020-SW-95	QNX Software Support

For other operating systems please contact TEWS.

Related Products

TA308	Cable Kit for Modules with XRS JTAG Connector
TA309	Cable Kit for Modules with Pico-Clasp Connector