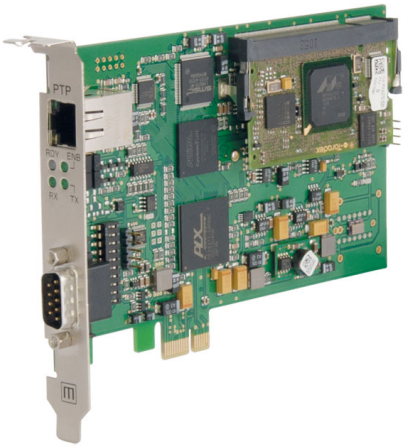

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PTP270PEX: IEEE1588-2008 slot card for computers (PCI Express)

The PTP270PEX provides sub-microsecond accuracy for computers. The card has been designed to add ultra precise time stamping capabilities to your data acquisition and measurement applications. The PCI Express card can be installed in any single lane PCIe slot and offers an impressive selection of time, pulse and frequency outputs.

Important Note

This product is no longer available. We will of course continue to provide support for units that have already been purchased and are still in use. Please contact our [1]Sales Team for further details.

Key Features

- PCI Express Interface
- IEEE 1588-2008 (PTP V2) compatible ordinary clock
- Pulse per second and 10 MHz output
- Memory Mapped I/O time reads for high access rates
- RS-232 interface
- IRIG-B/AFNOR time code generator
- Plug and Play
- Driver software for all popular operating systems

Description

This PTP PCI Express slot card is the best choice for adding a highly accurate time base to your servers or workstations over a simple Ethernet connection. The time source for the card is a IEEE1588 grandmaster clock like the LANTIME M600/GPS/PTP. In the past, sub-microsecond accuracy in PCs could be achieved with GPS synchronized devices only but now with PTP there is no need for complex antenna cabling to every PC.

The integrated single board computer (SBC) is running the PTP stack and provides a PCI Express interface that is compatible with other Meinberg PCIe devices. In this way the board PTP270PEX can be operated by using the standard Meinberg driver package and there is no need to run a PTP software on the computer.

The card can be used as a stratum 0 reference time source for NTP and transforms any machine into a Stratum 1 NTP server without consuming additional physical space in your server room.

Being the first PCI Express PTP V2 compatible timing device on the market, the PTP270PEX comes with a truckload of features to enable software developers to overcome the timing limitations of COTS operating systems like Linux or Windows. The powerful and highly functional Meinberg API (Application Programming Interface) delivers an easy to use and portable way of accessing all Meinberg bus level timing devices. The Meinberg SDK can be downloaded free-of-charge.

Legacy interfaces like IRIG DCLS, 1PPS or 10 MHz can be used to connect other equipment to the PCIe slotcard and transfer the time base over dedicated cable connections to systems which cannot be synchronized via NTP or other network protocols.

The memory mapped access feature offers a fast, simple and efficient way of reading the board time with high precision at very high rates.

The device is designed to be a timing device only and cannot be used as a standard network interface card.

The **Windows** driver package includes a time synchronization service which runs in the background and adjusts the Windows system time continuously and invisibly. This package also includes a monitor program to enable the user to check the status of the device and time adjustment service. If the monitor program is run with administrator rights, it can also be used to modify configurable parameters.

The **Linux** and **FreeBSD** driver packages include a kernel driver which allows the product to be used as a reference time source for the NTP daemon included in most Unix-like operating systems. This also allows the computer to be used as an NTP time server to provide accurate time to NTP clients on the network. Some command line tools can be used to modify configurable parameters and monitor the status of the clock in use.

Characteristics

Accuracy	+-20 ns to grandmaster clock
Status Indicators	4 Status LEDs: * System Status * Outputs active * PTP packet sent * PTP packet received
Frequency Outputs	Frequency output 10 MHz, TTL level
Pulse Outputs	Pulse Per Second (PPS), TTL level, pulse width: 200 ms
Accuracy of Pulse Outputs	+/- 100 ns (relative to the used IEEE 1588 Grandmaster Clock, after initial synchronization phase)
Interface	Single serial RS-232 interface
DCLS Timecode Output	DCLS, TTL with 50 Ohm load (active high or active low)
Supported Timecode Formats	* **B002:** 100pps, DCLS signal, no carrier, BCD time of year * **B003:** 100pps, DCLS signal, no carrier, BCD time of year, SBS time of day * **IEEE1344:** Code according to IEEE1344-1995, 100pps, BCD time of year, SBS time of day, IEEE1344 expansion for date, time zone, daylight saving and leap second in Control Functions segment (CF) * **AFNOR:** Code according to NFS-87500, 100pps, BCD time of year, complete date, SBS time of day
Time Trigger Inputs	Resolution: 20 nsec, triggered by falling TTL slope Time of trigger event readable via PCI Express interface
PC Interface	Single-lane (x1) PCI Express (PCIe) Interface PCI Express r1.0a compatible
Network Interface	1 x 10/100 MBit with RJ45, IEEE 1588
Operating Voltage	+3.3V, @ 600mA +12V, @ 300mA

Board Type	Standard height board (101 mm x 150 mm)
Precision Time Protocol (IEEE 1588)	PTP/ IEEE 1588-2008 Multicast including * Network Protocols: - UDP/IPv4 (Layer 3) - IEEE 802.3 (Layer 2) * Delay Mechanisms: - End-to-End - Peer-to-Peer * PTP Management Messages for monitoring and configuration
Supported Temperature	Operational: 0 - 50 °C (32 - 122 °F) Storage: -20 - 70 °C (-4 - 158 °F)
Supported Humidity	Max. 85 % (non-condensing) at 40 °C
Warranty	Three-year warranty
Options	**Oscillator upgrade:** * OCXO-LQ, -MQ or -HQ (instead of TCXO) for extended Holdover capabilities (see [2]oscillator table for further details)
RoHS Status of Product	This product is fully RoHS-compliant.
WEEE Status of Product	This product is handled as a B2B (Business to Business) category product. To ensure that the product is disposed of in a WEEE-compliant fashion, it can be returned to the manufacturer. Any transportation expenses for returning this product (at end-of-life) must be covered by the end user, while Meinberg will bear the costs for the waste disposal itself.

Manual

The English manual is available as a PDF file: [3]Download (PDF)

Links:

[1] mailto:sales@meinberg.de
[2] https://www.meinbergglobal.com/english/specs/gpsopt.htm
[3] https://www.meinbergglobal.com/download/docs/manuals/english/ptp270pex.pdf