PCIE-0400-TSN

TIME SENSITIVE NETWORKING (TSN) SUPPORTED KONTRON ETHERNET NETWORK INTERFACE CARD WITH 4 PORTS

- PCIe Network Interface Card with integrated TSN switch
- Connects directly to a redundant TSN ring-, line- or star network
- IEEE-802.1 TSN compliant
- Industrial grade, half size, low profile
Time Sensitive Networking

Time Sensitive Networking (TSN) is a set of international standards, based on Ethernet, which leads into a standardized Industrial Ethernet for both the needs of a classical IT environment and the operational fieldbus area.

Under the given challenges of IIoT and Industrie 4.0 it is essential that the process data information from the production field (edge) into the local server landscape (fog) to the cloud will be implemented smoothly. Today’s challenges are tied to the interfaces from the production floor, which is typically dominated by a scattered landscape of real time capable fieldbus networks, into the IT level. Realized by gateways, these interfaces create enhanced complexity, cost and management overhead.

The benefits of TSN are obvious and range from a simplified network infrastructure, lower product costs to even introducing virtual networks and server infrastructure.

The Kontron PCIe-0400-TSN is a modular Gigabit Ethernet Interface card with Time Sensitive Networking support in a PCIe half size, low profile format that will be used to connect to time sensitive (deterministic) and redundant networks according to IEEE-802.1 TSN.

Based on standard Ethernet according to IEEE-802.3, the dual or quad network interfaces with switching function can be used to build deterministic control applications in converged networks from the production floor to the IT level.
## TECHNICAL INFORMATION

### BOARD SIZE
- Half size, low profile
- Standard and low profile front brackets

### INTERFACES
- 4 port 10/100/1000 Ethernet, RJ45
- Host Interface PCIe Gen 1 x4
- LEDs for Link, Speed, activity

### BRACKET OPTIONS
- Standard and low profile, 2 and 4 ports

### MOUNTING
- PCIe Interface card

### SWITCH OPERATION
- Cut through, StoreAndForward

### PROCESSOR
- Intel® Cyclone V, field upgradeable

### POWER
- <10 W
- EN55022 class B

### EMC
- Up to 10,000 ft (3,000 m)
- 15 G 11 ms duration (half sine) (tbc)
- 10–500 Hz: 1G/3 axis (tbc)

### ALTITUDE
- -40 °C to +85 °C (tbc)

### SHOCK, ACCORDING TO EN 60068-2-27
- 15 G 11 ms duration (half sine) (tbc)

### VIBRATION, ACCORDING TO EN 60068-2-6
- 10–500 Hz: 1G/3 axis (tbc)

### OPERATING TEMPERATURE
- -40 °C to +85 °C (tbc)

### HUMIDITY
- 10 % - 90 % @ 39 °C, non condensing
- > 50,000 h (tbc)

### SOFTWARE SUPPORT
- Linux Kernel device drivers, TSN Software stacks

### VERIFIED OS
- Linux

### RoHS COMPLIANT
- Yes

### COOLING
- Fanless passive cooling

### SUPPORTED TSN STANDARDS IEEE-802.1 TSN
- 802.1 as(rev): timing and synchronization
- 802.1 Qbv: traffic scheduling
- 802.1 Qbu: frame preemption
- 802.1 Qcc: Stream Reservation Protocol enhancements
- 802.1 CB, Qci, …: N/A – will be provided per update

## ORDERING INFORMATION

<table>
<thead>
<tr>
<th>ARTICLE</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCIE-0400-TSN</td>
<td>4 port Gigabit Ethernet Network Interface card</td>
</tr>
<tr>
<td></td>
<td>PCIe half size, low profile</td>
</tr>
<tr>
<td></td>
<td>Supporting IEEE-802.1 TSN in redundant ring, star and line topology</td>
</tr>
<tr>
<td></td>
<td>-40 °C to +85 °C Operating Temperature</td>
</tr>
</tbody>
</table>

## GLOBAL HEADQUARTERS

**KONTRON S&T AG**

Lise-Meitner-Str. 3-5
86156 Augsburg, Germany
Tel.: +49 821 4086 0
Fax: +49 821 4086 111
info@kontron.com
www.kontron.com