

# TN9210

## Triple-speed 10GBase-T Network Adapter Card

Low Power - Low Area - Low Cost

### 10 Gigabit Performance!

With only 4.95 Watts maximum power consumption (full duplex to 100 meters), the TN9210 offers the lowest power consumption and the best cost solution in the market today. Targeted at high-end Workstations and low cost Application Servers, which seek to service the increasing demand for higher network bandwidth, while maintaining backward compatibility with existing Ethernet infrastructure.

### Overview

The TN9210 Network Adapter reference design hosts the Tehuti's new 3rd generation TN4010 controller, an optimized 10 Gigabit Ethernet MAC designed for low-power, low-cost, single-port connectivity required by Application Servers and Workstations. The TN4010 MAC is paired with the Marvell® Alaska® 88x3110 transceiver, a low-power, high-performance 10 Gigabit Ethernet PHY, to enable tri-speed connectivity (10GBase-T, 1000Base-T, and 100Base-TX) over low-cost standard CAT-6a Ethernet cabling, up to 100m (Cat-5e and CAT-6 are supported compliant to Link Segment specifications).

This combination creates a new gateway to cost-conscious consumer applications, as well as to intensive data environments.

### Key Features

- Low Cost, Low Power, 10 Gigabit performance in a low profile PCIe form factor
- Backward compatibility with 1000Base-T, 100Base-T Networks
- PCI Express Gen-2 x4 Host Bus Interface
- EEE (Energy Efficient Ethernet)
- 16K Jumbo Frames
- IP, TCP, UDP checksum offloading
- RMON statistics
- IEEE 802.1Q Tagged VLAN
- Virtual NIC support
- Reduced CPU utilization and improved throughput
- Standard CAT-6a Cabling with RJ45 Connectors

# TN9210: Triple-speed 10GBase-T Network Adapter Card

Features	Benefits
<b>PCI Express Host Bus Interface</b> <ul style="list-style-type: none"> <li>• PCI Express Rev 2.0 specification (5 GT/s)</li> </ul>	<ul style="list-style-type: none"> <li>• Standard high performance bus interface</li> <li>• Supports x4, x2, x1 lanes</li> </ul>
<b>Reduced System complexity</b> <ul style="list-style-type: none"> <li>• 1Mbit internal memory</li> <li>• Internal OTP</li> </ul>	<ul style="list-style-type: none"> <li>• No on-board DRAM required</li> <li>• No Flash/EEPROM required on board</li> </ul>
<b>Ethernet and Media support</b> <ul style="list-style-type: none"> <li>• Full IEEE Std 802.3an Compliant</li> <li>• 10Gb/1000Mb/100Mb auto negotiation support</li> <li>• IEEE 802.3az support (EEE – Energy Efficient Ethernet)</li> <li>• Jumbo frame support (16K)</li> <li>• IEEE 802.1q VLAN support</li> <li>• RFC2819 RMON MIB statistics</li> <li>• Multicast</li> <li>• IEEE 802.3ad Link Aggregation support</li> </ul>	<ul style="list-style-type: none"> <li>• 10Gb/s over unshielded twisted pair (UTP)</li> <li>• Backward compatibility for wide range of systems</li> <li>• Power reduction on idle times</li> <li>• Higher network utilization for large data transfers</li> <li>• Traffic isolation for security</li> <li>• Generic statistics monitoring</li> <li>• Reduce network traffic</li> <li>• Maximize network throughput via teaming</li> </ul>
<b>OptiStrata™ Accelerator Engine</b> <ul style="list-style-type: none"> <li>• Integrated OptiStrata™ Processor</li> </ul>	<ul style="list-style-type: none"> <li>• Flexibility in implementing packet processing algorithms and supporting future TCP/IP stack implementations</li> </ul>
<b>Performance enhancements</b> <ul style="list-style-type: none"> <li>• Microsoft Scalable Networking</li> <li>• Receive-side scaling (RSS)</li> <li>• MSI</li> <li>• IP, TCP and UDP checksum offloading</li> <li>• Large Send (up to 64 KB)</li> <li>• Low Latency (&lt; 4 <math>\mu</math>S)</li> </ul>	<ul style="list-style-type: none"> <li>• Reduced host bus traffic</li> <li>• Efficiently support multi-core systems</li> <li>• Minimize overhead and eliminates interrupt sharing</li> <li>• Lower CPU utilization</li> <li>• Increased network throughput</li> <li>• Ideal for high performance computing applications</li> </ul>
<b>Driver support</b> <ul style="list-style-type: none"> <li>• Microsoft Windows Server 2012, Microsoft Windows Server 2012 R2, Microsoft Windows Server 2008 R2, Microsoft Hyper-V, Microsoft Windows 10 Pro Insider Preview 64 bit, Microsoft Windows Win 8.1 32/64 bit, Microsoft Windows Win 7 32/64 bit</li> <li>• Linux 2.6.x, Linux 3.x</li> <li>• vmware® ESXi 5.x, ESXi 6.0</li> <li>• Apple OS X 10.10.3 or later</li> </ul>	<ul style="list-style-type: none"> <li>• Short time to market</li> <li>• Seamless software integration</li> <li>• No interference with existing TCP/IP implementations</li> <li>• Advanced multi-processor platforms support</li> </ul>
<b>Manageability</b> <ul style="list-style-type: none"> <li>• Advanced cable diagnostics</li> <li>• Comprehensive Built-In self-test</li> </ul>	<ul style="list-style-type: none"> <li>• Wake up system from remote site</li> <li>• On the field cable and network connection debug</li> <li>• Improves yield, increases reliability, and lowers overall cost</li> <li>• Optimizing system management &amp; thermal design</li> </ul>
<b>Physical and Electrical</b> <ul style="list-style-type: none"> <li>• Voltage: 3.3V</li> <li>• Power consumption (Full bidirectional traffic, 100m cable): <ul style="list-style-type: none"> <li>10G speed: 4.95W</li> <li>1G speed: 3.3W</li> <li>100M speed: 2.48W</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Operating Temperature 0 ÷ C to 70 ÷ C</li> <li>• Storage Temperature -40 ÷ C to 85 ÷ C</li> <li>• Green &amp; RoHS Compliant</li> <li>• Size: 82mmX62mm</li> </ul>