



# TILEncore-Gx36

## Intelligent Application Adapter

Quad 10Gb Ethernet Adapter Card with 36-Core Network Acceleration Processor, and PCIe 2.0 x8

The TILEncore-Gx36™ intelligent application adapter is a very high-performance networking and computing platform designed to unleash the performance and throughput of embedded systems and servers. The massive computing power of the TILE-Gx™ processor is complemented with 40Gbps of Ethernet I/O and a large memory capacity in a compact, power-efficient PCIe form factor, enabling both network endpoint or “bump in the wire” configurations.

The TILEncore-Gx36 platform works with Mellanox’s industry-leading Multicore Development Environment™ (MDE) software, providing standard Linux development and ease of programming across the entire line of TILEncore-Gx™ adapters, including models with 36 and 72 cores.

### POWERFUL COMPUTING PLATFORM

The TILEncore-Gx36 is comprised of the TILE-Gx processor (and its memory subsystems) and the interface subsystem with SFP/SFP+ connectors. The 36-core TILE-Gx36™ processor brings wire-speed, 40Gbps deep packet processing to the most demanding applications. The processor is supported by up to 16GBytes of DDR3 memory with ECC and can be powered either through the PCIe fingers or 6-pin power connector.

The platform is typically installed into a Linux x86 host desktop or rackmount server. The TILEncore-Gx36 can also be configured to operate in a stand-alone mode without the use of its PCIe edge connector.

### FLEXIBLE I/O

The rear plate includes four high-speed Ethernet ports (SFP/SFP+) and each can be configured for 1Gbps or 10Gbps operation. In addition, a USB 2.0 port is included to support debug and management operations. An 8-lane PCIe Gen2 edge connector interfaces to the host system, offering up to 32Gbps of peak throughput.

### TYPICAL USER APPLICATIONS

- 4x 10 Gbps intelligent offload Network Interface Card (NIC) for quick hardware deployment
- PCIe-based accelerator card for compute-intensive offloads
- Platform for TILE-Gx software development and benchmarking



## HIGHLIGHTS

### BENEFITS

- Software-defined network acceleration
- Massive computing power
- Large memory capacity
- Wire-speed performance

### FEATURES

- Supports “bump-in-the-wire” or network endpoint configurations
- Supports INTx and MSI interrupts across PCIe
- On-board ambient and die temperature sensors
- RS-232 (UART) port accessed via a 3-pin header
- On-board voltage and current measurement of power supplies

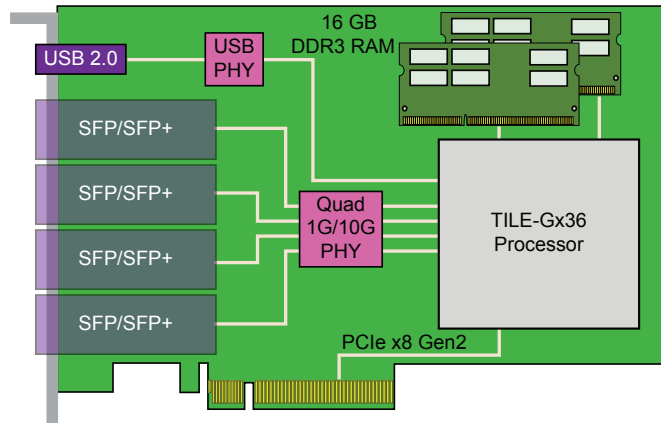


Figure 1. TILEncore-Gx36 Block Diagram

## SPECIFICATIONS

### General

- Full-height, half-length, single-slot PCI Express
- RoHS-6 compliant per EU 2002/95/EU

### PCIe Interface

- Eight-lane PCIe 2.0, Gen2 compliant
- Fall-back to 4, 2, or 1 lane
- Fall-back to Gen1 mode

### Network Interfaces

- The platform is typically installed into a Linux x86 host.
- Four SFP/SFP+ ports, each configurable as 1Gbps or 10Gbps Ethernet
- Note: Optical SFP/SFP+ modules are not included

### Console Interface

- One USB 2.0 endpoint port for development and debug

### Memory

- Two SO-DIMM sockets for DDR3 with ECC
- Up to DDR3-1600, 16GB total

### Technical Features

- Supports INTx and MSI interrupts across PCIe
- On-board ambient and die temperature sensors
- RS-232 (UART) port accessed via a 3-pin header
- On-board voltage and current measurement of power supplies

### Cooling

- Active cooling fan/heatsink
- Requires\*\*:

  - 100lfm @ 50°C with no adjacent card
  - 400lfm @ 50°C with adjacent card

### Indicators

- Rear plate “Power OK” indicator
- LEDs on rear plate for Ethernet link status and activity

### Power

- Two power options:
  - Via gold-finger PCI connector (requires 65W)
  - Standard 6-pin Molex “ATX power” connector, 12V
- Typical power dissipation: 50W @ 1.2GHz
- Maximum power dissipation: 65W

### Environmental

- Operating temperature: 0°C to 50°C
- Storage temperature: -40°C to 70°C
- Humidity: 10% to 90% RH non-condensing

### Physical Specifications

- Board height: 4.38 in (11.1 cm)
- Board length: 6.6 in (16.8 cm)
- Bracket height: 4.72 in (12 cm)

\* This section describes hardware features and capabilities. Please refer to the driver and firmware release notes for feature availability.

\*\* The 50°C temperature represents the ambient temperature inside the chassis.

Table 1 - Part Number and Description

OPN	Description
TLB4-03680-12-PCIe-4S10-16-v2-GCE	TILEncore adapter with 1.2GHz Gx36 processor, 4x10GE SFP/SFP+ ports, 16GB, with crypto acceleration.