



Teradici Remote Workstation Karte PCoIP Host Card Overview

TERA2220 PCoIP Host Card Overview

Teradici is the developer of the PC-over-IP (PCoIP) remote desktop protocol, which is leveraged in several VDI solutions and provided with Teradici hardware solutions which are OEMéd by several vendors. PCoIP is the standard remote desktop protocol from VMware Horizon View to setup small, medium and large VDI environments.

Because it is not always possible, to provide a virtual desktop to the end user, Teradici developed an additional hardware device. For high performance end users working with CAD application or other high performance applications, a virtual desktop cannot provide the same performance like a PC. Is it necessary, to get a secure access to the PC from anywhere (LAN and WAN), then the TERA2220 remote workstation host card is the best solution for this. The remote workstation host card is installed into the PC, connected with Ethernet and the graphical host card and at the same moment, the end user can access his PC with a zero client on his desk. The PC self can be moved into the datacenter or any other secure location within the company. The end user can use the TERA2321 oder TERA2140 zero client.

Art.-Nr. 122674

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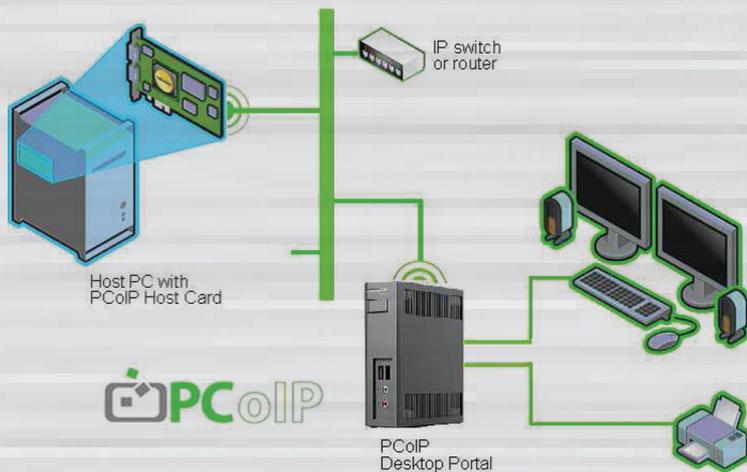
TERA2240 PCoIP Host Card Overview

The PCoIP technology is designed to deliver a user's desktop from a centralized host PC with an immaculate, uncompromised end user experience across standard IP networks – including full quad or dual DVI monitor video, complete USB compatibility, and full-duplex high-definition audio. The new TERA2240 PCoIP host board is a fan-less, reliable host-side PCI Express x1 half height (2.713 inches by 6.6 inches) add-in card based on the proprietary Teradici TERA2220 Host processor that resides in a host PC or workstation.

The PCoIP Host/Client system separates the user from the PC or workstation, which provides both increased security and needs minimal IT administration and support overhead for the enterprise while giving end users complete remote display and I/O functionality for personal computer (PC) or workstation graphics user interfaces. It is connected to the network via standard Ethernet using either RJ45 at 10/100/1000Mbps or Fiber at 100/1000Mbps.

The second-generation PCoIP Host/Client system provides the following benefits:

- Wide range of applications from very robust personal workstations to simple kiosks
- Support for up to four 1920x1200 high-resolution, perception-free DVI video outputs and USB 2.0 peripherals allows PC or workstation relocation to the datacenter or computer room without compromising end user experience or productivity
- High cost effectiveness when integrated into PCs or workstations
- Robust PC experience delivered to the end user without the need for Terminal Services protocols
- Performance using existing enterprise networks, enabling low cost, straightforward kiosk or digital signage functionality.



The TERA2240 PCoIP host card supports five 1Gbit of DDR3 memory and provides four mini-DisplayPort and an Ethernet connector RJ45. This card is compatible with TERA21xx Zero Clients, and VMware® View™ 4.5 or later.



Key Features

Processor

- Processor: TERA2220 PCoIP Host Processor
- Process: 65nm G-process CMOS
- Package size: 896-ball FCBGA (31 x 31 mm package), 1.0 mm ball pitch

Board

- 8 layer printed circuit board (PCB)
- PCI Express x1 Gen 1.1 system interface
- Half-height low-profile form factor
- Physical dimensions: 2.713 inches (height) X 6.6 inches (length), single slot
- Board power: 13.15 watts
- Thermal: Passive heat sink

Connectors

- Two mini-DisplayPort video-in connectors
 - One display with a maximum of 2560x1600 resolution
 - Two displays, each with a maximum of 1920x1200 resolution
- Ethernet connector (using either RJ45 at 10/100/1000Mbps or Fiber at 100/1000Mbps)
 - 10/100/1000Base-T copper interface with Link and Activity LEDs
- Power Button Cable connector (Optional for Remote Power Management)

Memory

- 5 x 1024 Mbit 16-bit DDR3 DRAM devices (512MB DDR3 with ECC)
- 256 Mbit of parallel flash for high-speed system booting

10/100/1000 Ethernet Media Access Controller

- Dedicated for PCoIP traffic
- Auto-negotiation of link speed and duplex mode
- Flow control using back pressure for half-duplex mode and pause frames (IEEE 802.3x) for full-duplex mode
- Wake-on-LAN capability
- Device Bandwidth Limit: 600 Mbps

Security

- Wire speed AES GCM 128/256 bit encryption/decryption for network traffic
- Management communication protected by SSL

Jumper

- Factory Default Reset Jumper to reset the Host card to its factory default configuration
- Ground Reference Jumper for the remote power button



Processor Description

The TERA2220 PCoIP host card uses the TERA2220 PCoIP Host Processor. The TERA2220 interfaces with the system graphics controller on both the host computer's northbridge (for the DVI signal) and the southbridge (for USB and audio controller access via PCI Express). PCoIP focuses on interconnecting using compatible system hardware interfaces, allowing it to function with any operating system that is installed on the host PC or workstation. The TERA2220 PCoIP host card includes a TERA2220 at the host PC that encodes the display, USB, and audio signals before transmitting them over an IP network. It also supports a reverse communication path for items like USB keyboards, mouse, microphone, audio, and other peripherals. The TERA2220 host processor offers functions such as:

Perception-Free Remote GUI

- By interfacing at the physical layer, and using specialized encoding algorithms running on a high-performance multi-core processing engine, the PCoIP system provides a perception-free remote GUI that is completely independent of any operating system
- This enables all of a PC's active components to be centralized for better management and security while ensures that the user maintains a 100% full, rich PC experience.

Image Processing Technology

- Encodes digital video input in real time and is capable of dynamically adjusting the compression to the available network bandwidth
- Image compression is achieved by first decomposing the input video image into different types of image objects. Each image object is then compressed using a set of image processing algorithms that are optimized for the specific type of object. The final stage of image processing is to encapsulate the compressed image data streams into the payload of Ethernet packets to be sent to the portal device
- Optimizes compression algorithms and quality in real time to achieve the best possible image quality for the available network bandwidth, thus allowing the PCoIP system to operate in various types of networks and data rates.

Security and Authentication

- A TLS tunnel is used for all non-media communications between both the TERA2220 and PCoIP Portal Processors and between the PCoIP host and portal processors and the CMS
- Mutual certificate-based device authentication occurs as part of the TLS handshake protocol. PCoIP Host Processor media traffic is encrypted using an IPsec ESP tunnel whose keying information is established securely over the TLS tunnel.



Display Options

The TERA2220 PCoIP host board supports quad DVI-D input via four mini-DisplayPort connectors. A mini-DisplayPort cable is required to connect the Host board to the graphics card.

- For two displays, each with a maximum of 2560x1600 resolution
- For four displays, each with a maximum of 1920x1200 resolution

Configurations

This table lists the configuration currently available for the TERA2240 PCoIP host board.

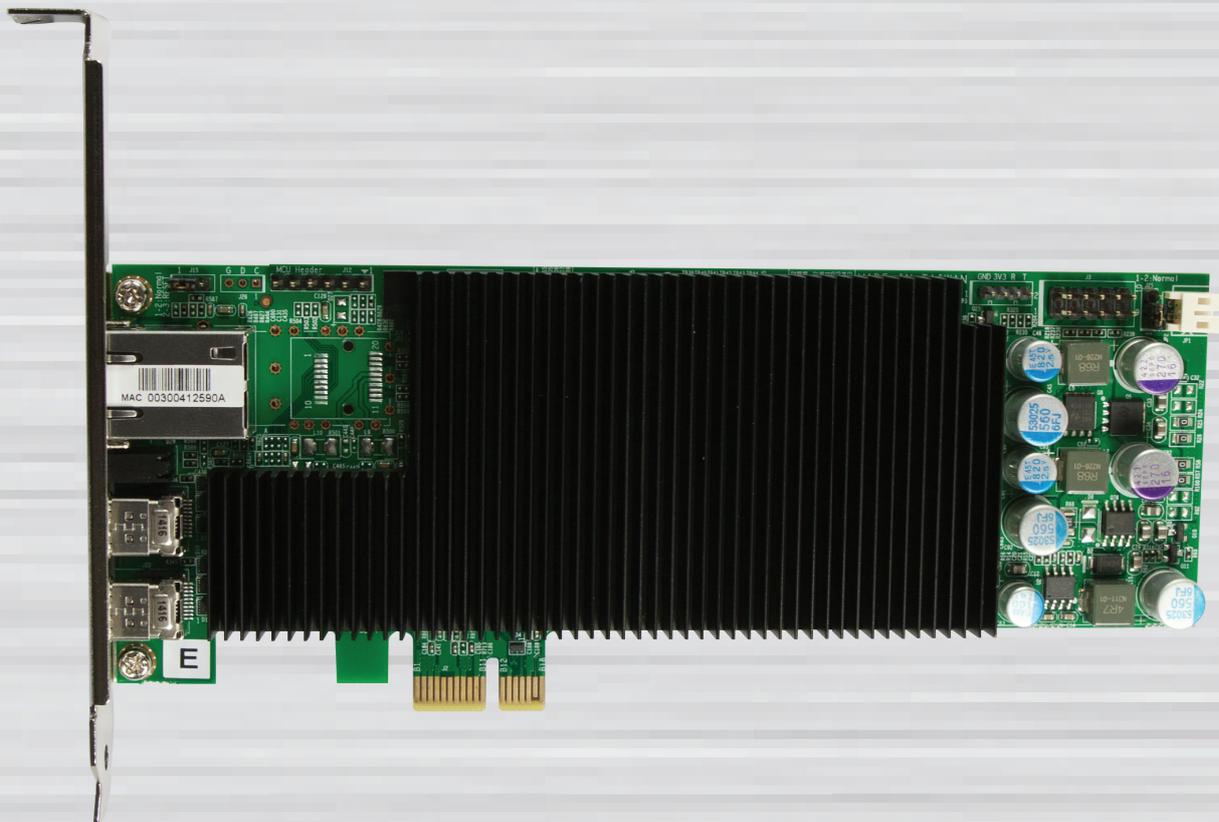
Specification	Description
Chip	TREA2220 Host Processor
Chip package size	31 mm x 31 mm
Memory type	5pcs 1024 Mbit 16-bit DDR3 DRAM
Physical dimensions	2.713 inches (height) X 6.6 inches (length), single slot
Maximum board power	13.15 watts
Connectors	Two mini-DisplayPort connectors Ethernet connector with RJ45 Power Button Cable connector (Optional for Remote Power Management)
LEDs on the bracket	Green LED for PCoIP session Red LED for PCoIP heartbeat
Jumper	Factory Default Reset Jumper Ground Reference Jumper for the remote power button
Thermal cooling solution	Single slot passive heat sink
Mean time between failure	126,357 hours at controlled 55°C environment



Mechanical Specifications

PCI Express Board

The TERA2220 PCoIP host board conforms to the PCI Express x1 half height low profile form factor (2.713 inches by 6.6 inches) add-in card using the TERA2220 Host processor.



**PCI Express Board Layout
(RJ45 Edition; w/ ATX bracket, Shipment Specification)**



Placement of Standard I/O Connectors

Four mini-DisplayPort Connectors

Heartbeat/Session LEDs

RJ45 Connector



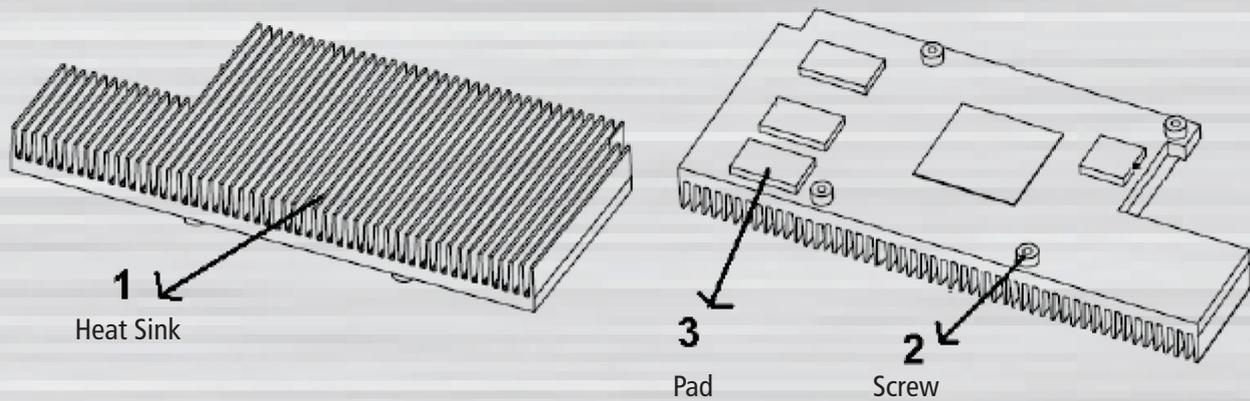
Standard Connector Placement (RJ45 Edition)



Thermal Specifications

Cooling Solution

The TERA2220 PCoIP host board utilizes a passive heat sink over the Processor for cooling.



Support Information

Operating System Support

Completely operating system independent

- Windows® 2000 / XP / Vista / 7 / 8
- Linux

System Requirements

- PCI Express compliant motherboard with one x1/x4/x8/x16 slot
- A graphics card with one to four DVI, HDMI, DisplayPort or mini-DisplayPort connectors
- Ethernet LAN switch or router (10/100/1000 Mbps),
- TERA2220 PCoIP host card is compatible with TERA2 zero client devices as well as software PCoIP client solutions (However, to take full advantage of the advanced features of the TERA2 family devices, a zero client based on the TERA2 zero client processor must be used)



Package Content

- TERA2220 PCoIP Host card
- Mini-DisplayPort cables
 - DVI-to-mini-DisplayPort cable x 2 (Optional)
 - DisplayPort-to-mini-DisplayPort cable x 2 (Optional)
 - Mini-DisplayPort-to-mini-DisplayPort cable x 2 (Optional)
- Power Button cable x 1 (Optional for Remote Power Management)
- Ethernet cable x 1 (Optional for RJ45 host card)
- Additional Low Profile bracket x 1
- Quick installation guide

Certificates and Agencies

- Conformité Européenne (CE)
- Federal Communications Commission (FCC)
- Canada ICES/NMB-003 Class/Classe B
- Voluntary Control Council for Interference (VCCI)
- Underwriters Laboratories (UL)
- C-Tick
- KCC
- BSMI/CNS
- RoHS