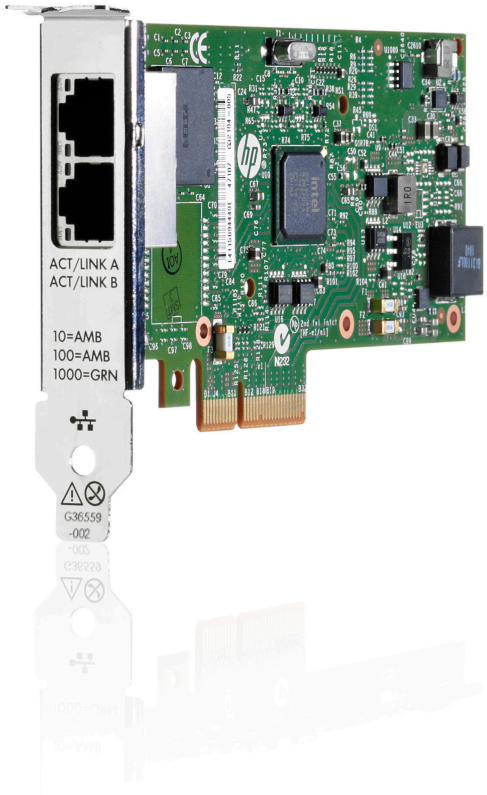
Overview

HPE Ethernet 1Gb 2-port 361T Adapter

The HPE 361T offers two high-performing 1GbE PCIe Gen 2.1 connections in a low cost, low power, halogen-free design. Based on the new fully integrated (bridgeless) Intel® Ethernet I350 Controller, it introduces new levels of performance and power management technologies for HPE ProLiant servers.

It can be used with a full height or low profile bracket, and can operate at three different data rates (10/100/1000 Mb/s).

The HPE 361T is positioned as the follow-on to the HPE NC360T.



HPE Ethernet 1Gb 2-port 361T Adapter

Platform Information

Kit Contents

HPE Ethernet 1Gb 2-port 361T Adapter
Standard height bracket attached, the low profile bracket included
Quick install card
Product warranty statement

Compatibility - Supported Servers

HPE Proliant DL20 Gen9 Server
HPE Proliant DL60 Gen9 Server
HPE Proliant DL80 Gen9 Server
HPE Proliant DL120 Gen9 Server
HPE Proliant DL160 Gen9 Server
HPE Proliant DL180 Gen9 Server
HPE Proliant DL360 Gen9 Server
HPE Proliant DL360 Gen10 Server
HPE Proliant DL380 Gen9 Server
HPE Proliant DL380 Gen10 Server
HPE ProLiant DL385 Gen10 Server
HPE Proliant DL560 Gen9 Server
HPE Proliant DL580 Gen9 Server
HPE Proliant ML30 Gen9 Server
HPE Proliant ML110 Gen9 Server
HPE Proliant ML150 Gen9 Server
HPE Proliant ML350 Gen9 Server
HPE Apollo 2000 - XL1x0r Gen9 Server
HPE Apollo 4500 – XL450 Gen9 Server
HPE Apollo 6500 - XL270d Gen9 Server
NOTE: This is a list of supported servers. Some may be discontinued.

Models

HP Ethernet 1Gb 2-port 361T Adapter	652497-B21

Standard Features

At a Glance Features

- Two Gigabit Ethernet Ports
- Supported on HPE ProLiant servers
- Intel® Ethernet I350 controller

Designed with server needs in mind:

- IEEE 802.1p, 802.1Q, 802.3, 802.3ad, and 802.3x
- IEEE, EFI/uEFI support
- ProLiant Teaming including Network Fault Tolerance, Transmit Load Balancing, and Switch-Assisted Load Balancing
- 9.5K Jumbo frames
- DMA Coalescing
- IEEE 1588 (Precision Time Stamping) & 802.1AS (Hardware enabled Time Synchronization)
- TCP/IP checksum offload (TCO) and large send offload (LSO)
- PXE
- Intel® Integrated I/O and Data Direct I/O for increased performance and reduced latency
- Virtualization with VMDq
- IPv6 packet transmit and receive (excluding all offload capabilities); IPv6 aware SNMPv1 agent for Windows
- Supports Wake-on-LAN (WoL)

Two Gigabit ports allow users to save slots in situations where their servers are slot-constrained. Hewlett Packard Enterprise has long been an advocate of dual port adapters for servers; the HPE 361T is the latest best-of-breed dual port devices for HPE ProLiant servers.

NOTE: Port enumeration on the HPE 361T is from the top down, i.e. the port near the top of the adapter is port #1 and the port closest to the gold teeth is port #2

Throughput-Theoretical Bandwidth

This adapter delivers 2 Gb/s bi-directional Ethernet transfer rate per port (4 Gb/s per adapter), providing the network performance needed to improve response times and alleviate bottlenecks.

Auto-negotiation

This adapter automatically senses the speed of the device to which it is attached. It also automatically configures for half or full duplex, depending on the duplex mode of the switch, hub, or router connected to the adapter.

Configuration Utilities

This adapter ships with a suite of operating system-tailored configuration utilities that allow the user to enable initial diagnostics and configure adapter teaming. This includes a patented teaming GUI for Microsoft Windows operating systems. Additionally, support for scripted installations of teams in a Microsoft Windows environment allow for unattended OS installations.

DMA Coalescing

Supports DMA Coalescing, the incoming data packets and interrupts associated with these DMA calls are intelligently batched to keep the system devices in lower power states.

Standard Features

Energy Efficient Ethernet	Compliant with IEEE 802.3az, featuring advanced power savings features throttles power usage with network load activity.
HPE Sea Of Sensors 3D	Support for the HPE Sea of Sensors which is a collection of 32 sensors that automatically track thermal activity - heat - across the server. When temperatures get too high, sensors can initiate fans and make other adjustments to reduce energy usage. A significant improvement lies in the ability to apply fan speed increases only to the portion of the system that is rising in temperature, rather than all six fans in unison, which reduces the amount of energy used for cooling.
Intel Integrated I/O with Data Direct I/O	New on HPE ProLiant Gen8 servers, Intel® Integrated I/O features reduces memory access from I/O on local socket which speeds up CPU data transfer and accelerates inbound and outbound traffic flows. Together, Integrated I/O and Data Direct I/O technologies reduce system power, increases I/O performance and reduced I/O latency.
Jumbo Frames	This adapter supports Jumbo Frames (also known as extended frames), permitting up to a 9,500 byte (KB) transmission unit (MTU) when running Ethernet I/O traffic. This is over six times the size of a standard 1500-byte Ethernet frame. With Jumbo Frames, networks can achieve higher throughput performance and greater CPU utilization. These attributes are particularly useful for database transfer and tape backup operations.
LED Indicators	LED indicators show link integrity and network activity for easy troubleshooting.
Load Balancing	Transmit Load Balancing (TLB) and Switch-assisted Load Balancing (SLB) are two advanced features that customers can use to build a bigger pipe for improved networking bandwidth. These port-bonding techniques enable users to install up to four dual-port HPE 361T adapters (total of 8 ports) in a HPE ProLiant server and aggregate their throughput up to a theoretical maximum of 16 Gigabits per second full-duplex transmissions.
Management Support	This adapter ships with agents that can be managed from HPE Systems Insight Manager or other management application that support SNMP.
Network Fault Tolerance (NFT)	Network Fault Tolerance, sometimes called "failover" or "NIC Redundancy," allows for the installation of multiple server adapters so that the active device can be backed up by a redundant adapter to improve availability. The Hewlett Packard Enterprise teaming utility also allows users to specify that when a failed adapter is fixed and replaced, the original adapter resumes its function as the primary network connection.
PCI Express Interface	This adapter features a high performance Intel® Ethernet Controller I350 and offers a four lane (x4) PCI Express bus based on the PCIe 2.1 standard, yielding faster transmissions with lower CPU utilization than earlier solutions.
Preboot eXecution Environment (PXE)	Support for PXE enables automatic deployment of computing resources remotely from anywhere. It allows a new or existing server to boot over the network and download software, including the operating system, from a

Standard Features

	management/ deployment server at another location on the network.Additionally, PXE enables decentralized software distribution and remote troubleshooting and repairs.
Server Integration	This adapter is a validated, tested, and qualified solution that is optimized for HPE ProLiant servers. Hewlett Packard Enterprise validates a wide variety of major operating systems drivers with the full suite of web-based enterprise management utilities including HPE Intelligent Provisioning and HPE Systems Insight Manager that simplify network management. This approach provides a more robust and reliable networking solution than offerings from other vendors and provides users with a single point of contact for both their servers and their network adapters.
Precision Time Protocol (IEEE 1588 PTP)	Synchronization of system clocks throughout a network, achieving clock accuracy in the sub-microsecond range, making it suitable for measurement and control systems.
VMware NewQueue and Microsoft Virtual Machine Queue (VMQ)	VMware NetQueue is technology that significantly improves performance of 10 Gigabit Ethernet network adapters in virtualized environments. Windows Hyper-V VMQ (VMQ) is a feature available on servers running Windows Server 2008 R2 with VMQ-enabled Ethernet adapters. VMQ uses hardware packet filtering to deliver packet data from an external virtual machine network directly to virtual machines, which reduces the overhead of routing packets and copying them from the management operating system to the virtual machine.
Wake-on-LAN	This adapter provides Wake-on-LAN (WoL) support through the PCI Express bus. A system that supports Wake-on-LAN can remain available to the systems administrator during its normal downtime. Once the machine is awakened, the systems administrator can remotely control, audit, debug, or manage the machine.
Warranty	Maximum: The remaining warranty of the HPE product in which it is installed (to a maximum three-year, limited warranty). Minimum: One year limited warranty. **NOTE:** Additional information regarding worldwide limited warranty and technical support is available at: **http://h17007.www1.hpe.com/us/en/enterprise/servers/warranty/index.aspx#.V4e3tPkrJhE**

Service and Support

Service and Support	**NOTE: This adapter is covered under HPE Support Services/ Service Contract applied to the HPE ProLiant Server or enclosure. No separate HPE Support Services# need to be purchased.** Most HPE branded options sourced from HPE that are compatible with your product will be covered under your main product support at the same level of coverage, allowing you to upgrade freely. Additional support is required on select workload accelerators, switches, racks and UPS options 12KVA and over. Coverage of the UPS battery is not included under HPE support services; standard warranty terms and conditions apply.
Warranty and Support Services	Warranty and Support Services will extend to include HPE options configured with your server or storage device. The price of support service is not impacted by configuration details. HPE sourced options that are compatible with your product will be covered under your server support at the same level of coverage allowing you to upgrade freely. Installation for HPE options is available as needed. To keep support costs low for everyone, some high value options will require additional support. Additional support is only required on select high value workload accelerators, fibre switches, InfiniBand and UPS options 12KVA and over. Coverage of the UPS battery is not included under TS support services; standard warranty terms and conditions apply.
Protect your business beyond warranty with HPE Support Services	HPE Technology Services delivers confidence, reduces risk and helps customers realize agility and stability. Connect to HPE to help prevent problems and solve issues faster. HPE Support Services enable you to choose the right service level, length of coverage and response time as you purchase your new server, giving you full entitlement to the support you need for your IT and business. Protect your product, beyond warranty.
Parts and Materials	Hewlett Packard Enterprise will provide HPE-supported replacement parts and materials necessary to maintain the covered hardware product in operating condition, including parts and materials for available and recommended engineering improvements. Parts and components that have reached their maximum supported lifetime and/or the maximum usage limitations as set forth in the manufacturer's operating manual, product quick-specs, or the technical product data sheet will not be provided, repaired, or replaced as part of these services. The defective media retention service feature option applies only to Disk or eligible SSD/Flash Drives replaced by Hewlett Packard Enterprise due to malfunction.
For more information	Visit the Hewlett Packard Enterprise Service and Support **website**.

Technical Specifications

System Unit	**Dimensions (L x W)**	13.5 x 6.4 cm 5.3 x 2.5 in
	NOTE: Without Bracket	
General Specifications	**Network Processor**	Intel® Ethernet I350 Controller
	Data Rate	10/100/1000 Mbps, Half- and full-duplex
	Data Path	Four lane (x4) PCI Express compatible with x4, x8, and x16 PCI Express slots
	Bus type	PCI Express
	Connector	RJ-45 (Two)
	Wiring	Twisted-pair cabling
	Cable Distance	Up to 328 feet (100 m) with Category 5 (or better)
	Interrupt Levels	Automatically configured
Power and Environmental Specifications	**Power**	4.1W idle without EEE link partner 3.2W idle with EEE link partner 4.2W maximum
	Temperature - Operating	0° to 55°C (32° to 131°F)
	Temperature - Non-Operating	-40° to 85° C (-40° to 185° F)
	Humidity - Operating	10% to 95% non-condensing
	Humidity - Non-operating	-5% to 95% non-condensing
	Emissions Classification	FCC Class B, VCCI Class B, BSMI Class A, CISPR 22 Class B, EN 55022 Class B, EN55024-1, ICES-003 Class B, MIC Class B, ACA Class B
	RoHS Compliance	6 of 6
Operating System and Virtualization Support	The Operating Systems supported by this adapter are based on the server OS support. Please refer to the OS Support Matrix at **https://www.hpe.com/us/en/servers/server-operating-systems.html**.	
Environment-friendly Products and Approach - End-of-life Management and Recycling	Hewlett Packard Enterprise offers end-of-life **product return, trade-in, and recycling programs**, in many geographic areas, for our products. Products returned to Hewlett Packard Enterprise will be recycled, recovered or disposed of in a responsible manner. The EU WEEE Directive (2012/19/EU) requires manufacturers to provide treatment information for each product type for use by treatment facilities. This information (product disassembly instructions) is posted on the **Hewlett Packard Enterprise web site**. These instructions may be used by recyclers and other WEEE treatment facilities as well as Hewlett Packard Enterprise OEM customers who integrate and re-sell Hewlett Packard Enterprise equipment.	

Summary of Changes

Date	Version History	Action	Description of Change
18-Dic-2017	Version 15	Changed	Product Information- Compatibility was updated
06-Nov-2017	Version 14	Changed	Technical Specifications-OS and VirtualizationSupport section was updated.
16-Oct-2017	Version 13	Changed	Overview, Standard Features-At a Glance, Technical Specifications-OS were updated.
11-July-2017	Version 12	Changed	Compatibility section was updated.
03-Apr-2017	Version 11	Changed	Platform Information section was updated.
22-Jul-2016	Version 10	Changed	QuickSpecs sections were updated.
17-Dec-2015	Version 9	Changed	Related Options section was updated.
		Removed	Obsolete SKUs deleted: 412648-B21, 435508-B21, 394793-B21, 394793-B21, 538696-B21, 458492-B21, 468332-B21, 489892-B21, 581201-B21, 503746-B21, 538696-B21, 458492-B21.
11-Oct-2013	Version 8	Added	Added the HPE ProLiant ML350e Gen8 v2 to the Compatibility section.
10-Sep-2013	Version 7	Changed	Compatibility, 10 Gigabit Server Adapters, and FlexibleLOM Servers were revised.
19-Feb-2013	Version 6	Changed	Changes were made in The Overview Section and Related Options Section.
04-Dec-2012	Version 5	Changed	Changes made in Compatibility, Standard Features, and Related Options sections.
10-Oct-2012	Version 4	Changed	Changes made in Compatibility section.
24-Sep-2012	Version 3	Changed	Changes made in the Compatibility section.
20-Aug-2012	Version 2	Changed	Changes made in the Compatibility section.
04-Jun-2012	Version 1	New	Initial version.

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