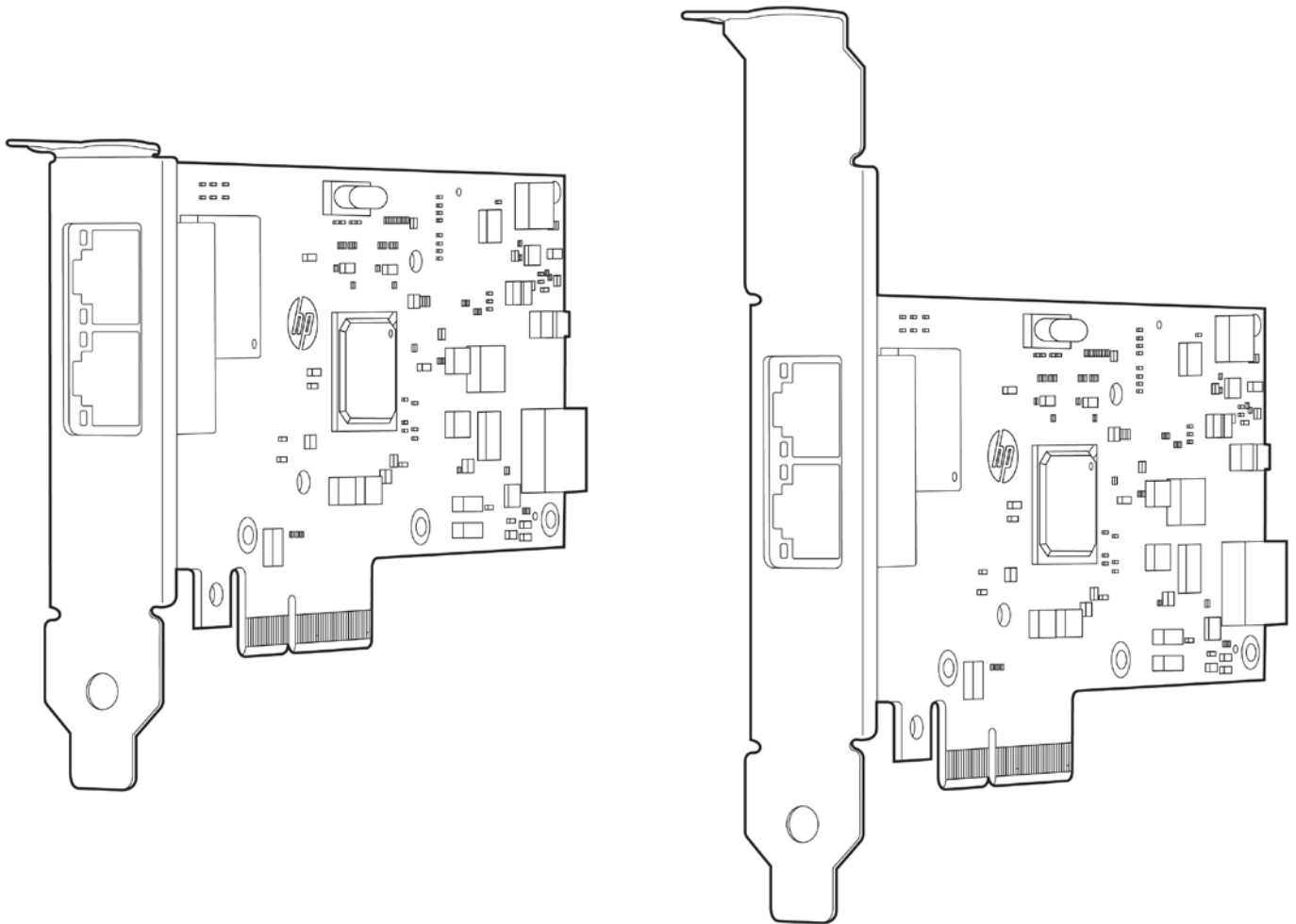# QuickSpecs

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 Gen8 DL/ML/SL servers and select G7 servers.

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

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

Models

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

Kit Contents	• HPE Ethernet 1Gb 2-port 361T Adapter PCA with a standard height bracket attached to it (the low profile bracket is included in the clamshell that the PCA ships in)
	• Product Warranty statement and the Quick Install Card (QIC).

Hewlett Packard Enterprise

Compatibility

Server Support   **ProLiant DL (rack-optimized)**:
- HPE ProLiant DL160 Gen8
- HPE ProLiant DL165 G7
- HPE ProLiant DL320e Gen8
- HPE ProLiant DL320e Gen8 v2
- HPE ProLiant DL360e Gen8
- HPE ProLiant DL360p Gen8
- HPE ProLiant DL380e Gen8
- HPE ProLiant DL380p Gen8
- HPE ProLiant DL385p Gen8
- HPE ProLiant DL560 Gen8
- HPE ProLiant DL580 G7
- HPE ProLiant DL585 G7
- HPE ProLiant DL980 G7

ProLiant ML (expansion-optimized):
- HPE ProLiant ML310e Gen8
- HPE ProLiant ML310e Gen8 v2
- HPE ProLiant ML350e Gen8
- HPE ProLiant ML350e Gen8 v2
- HPE ProLiant ML350p Gen8

ProLiant SL (scalable line):
- HPE ProLiant SL210t Gen8
- HPE ProLiant SL230s Gen8
- HPE ProLiant SL250s Gen8
- HPE ProLiant SL270s Gen8

NOTE: This is a list of supported servers. Some may be discontinued.

Standard Features

Features

Product Highlights
- Two Gigabit Ethernet Ports
- Supported on HPE ProLiant Gen8 & Select G7 Rack & Tower servers
- Intel® Ethernet I350 controller
- Designed with server needs in mind:
    - IEEE 802.1p, 802.1Q, 802.3, 802.3ad, and 802.3x
    - EEE, 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

Performance

Gigabit Throughput Combined with Legacy Ethernet Support
10/100/1000 Mbps Ethernet transfer rate delivers outstanding network performance that improves response time and removes bottlenecks. Because the HPE 361T supports both 10Mbps Ethernet and 100Mbps Fast Ethernet in addition to Gigabit Ethernet, users are guaranteed end-to-end protocol support across their enterprise.

PCI Express Interface
HPE was an early champion of PCI Express bus technology and has played a key role in the development and industry adoption of the PCI Express specification. The HPE 361T features a high performance Intel® Ethernet Controller I350 and offers a four lane (x4) PCI Express bus based on the PCIe v2.1 standard, yielding faster transmissions with lower CPU utilization than earlier solutions.

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.

Jumbo Frames
Jumbo Frames (also known as Extended Frames) offer a 9.5K byte Maximum Transmission Unit (MTU), which is approximately six times the size of traditional Ethernet frames. Like all HPE ProLiant server adapters, the HPE 361Tsupports jumbo frames as a way to achieve higher throughput and better CPU utilization when deployed in a network infrastructure that supports them. Jumbo frames are particularly useful for database transfers and tape backups.

Optimized for Virtualization
I/O Virtualization support for Intel's Virtual Machine Device Queues (VMDq), VMware NetQueue and Microsoft VMQ help meet the performance demands of consolidated virtual workloads.
Compliant with Single-Root I/O Virtualization (SR-IOV), accommodating multiple Virtual Machines (VMs) to share single PCIe resources. The device is capable of SR-IOV, and requires Firmware, Software and OS support

IEEE 1588 & 802.1AS
Hardware assist for IEEE 1588 and IEEE 802.1AS time synchronization implementations for time sensitive applications.

Power Management
The 361T supports latest power management technologies such as Energy Efficient Ethernet & DMA

Standard Features

Technologies	coalescing:

- **Energy Efficient Ethernet**: Compliant with IEEE 802.3az, featuring advanced power savings features throttles power usage with network load activity.
- **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.

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.
PXE Boot	Support for pre-boot execution environment (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 management/ deployment server at another location on the network. Additionally, PXE enables decentralized software distribution and remote troubleshooting and repairs. Linux boot via PXE or BOOTP, Windows Deployment Services, or UEFI which allows networked computer to boot using a program code image supplied by a remote server. It complies with the Pre-boot eXecution Environment (PXE) Version 2.1 specification.
HPE Sea of Sensors 3D	Support for HPE Sea of Sensors 3D Technology which is a collection of 32 sensors that automatically track thermal activity - heat - across the server. When temperatures get too high, sensors can kick on fans and make other adjustments to reduce energy usage. What makes it better is the upgrade from all six fans kicking on at one time to a new system where only one kicks on - the one in proximity of the area that started heating up - thus reducing the amount of energy used for cooling.

Scalability and Reliability

Dual Ports	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**
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.
Distance capabilities	The HPE 361T supports cable runs up to 100 meters (328 feet).

Network Management

Auto-negotiation	The HPE 361T automatically senses and configures itself to 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 at the other end of the cable.
Wake-on-LAN	The HPE 361T provides Wake-on-LAN (WOL) support through the PCI Express bus. A system that supports Wake on LAN can remain available to a systems administrator during its normal downtime. Once the machine is awakened, the systems administrator can remotely control, audit, debug, or manage the machine.
Management Support	Like all HPE ProLiant server adapters, the HPE 361T ships with drivers and agents that can be managed from all versions of Systems Insight Manager. Additionally, it supports any management application that supports SNMP.

Standard Features

Server Integration   The SmartStart configuration utility includes setup support for the HPE 361T so that the adapter can be configured as part of the SmartStart configuration process. Insight Manager can recognize the 361T individually or in a port-bonded team, and it can collect and report SNMP statistics on the adapter events. Integrated Management Log (IML) support is provided by the 361T for critical event logging on HPE ProLiant servers.

Configuration Utilities   Each HPE 361T 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

LED Indicators   Bracket LED indicators show link integrity, network activity, and speed on each port for easy troubleshooting.

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.
See Internet address **http://www.hpe.com** for overall information on Hewlett Packard Enterprise.

Service and Support

Service and Support **HPE Technology Services**

HPE Technology Services offers you technical consultants and support expertise to solve your most complex infrastructure problems. We help keep your business running, boost availability, and avoid downtime.

Protect your business beyond warranty with HPE Care Pack Services

When you buy HPE Options, it's also a good time to think about what level of service you may need. HPE Care Pack services provide total care and support expertise with committed response choices designed to meet your IT and business need.

HPE Foundation Care services deliver scalable support-packages for HPE industry-standard servers and software. You can choose the type and level of service that is most suitable for your business needs. New to this portfolio is HPE Collaborative Support. If you are running business critical environments, Hewlett Packard Enterprise offers Proactive Care or Critical Advantage. These services help you deliver high levels of application availability through proactive service management and advanced technical response.

Here is the support service recommendation from the Foundation Care and Proactive Care portfolio. For customized support service solution, Hewlett Packard Enterprise can work with you to tailor a service solution for your unique support requirements using broader services portfolio of Foundation Care and Proactive Care.

Recommended HPE Care Pack Services for optimal satisfaction with your HPE product

Recommended Services

3-Year HPE 24x7 4 hour Response, Proactive Care

Helps optimize your systems and delivers high levels of application availability through proactive service management and advanced technical response. A skilled Technical Manager will own your query or issue end to end until resolved, delivering a single point of contact for you

OR

3-Year HPE 24x7 4 hour Response, HPE Collaborative Support

Provides problem resolution support across the stack of HW, firmware, and Hewlett Packard Enterprise and 3rd party SW. In case the issue is with 3rd party SW, Hewlett Packard Enterprise does known issue resolution. If Hewlett Packard Enterprise cannot solve the issue, it will contact the third-party vendor and create a problem incident on your behalf

http://h20195.www2.hp.com/V2/GetPDF.aspx/4AA3-8232ENW.pdf

HPE Installation of ProLiant Add On Options Service

This easy-to-buy, easy-to-use HPE Care Pack service helps ensure that your new Hewlett Packard Enterprise hardware or software is installed smoothly, efficiently, and with minimal disruption of your IT and business operations

Related HPE Care Pack Services to enhance your HPE product experience

Related Services

3-Year HPE 24x7 4 hour Response, Proactive Care

Helps optimize your systems and delivers high levels of application availability through proactive service management and advanced technical response. A skilled Technical Manager will own your query or issue end to end until resolved, delivering a single point of contact for you

OR

3-Year HPE 24x7 4 hour Response, Hardware Support Onsite Service

Provides you with rapid remote support and if required a Hewlett Packard Enterprise authorized representative who will arrive on site any time and day of the year to begin hardware maintenance service within 4 hours of the service request being logged **http://h20195.www2.hp.com/V2/GetPDF.aspx/5982-**

Service and Support

6547EEE.pdf

3-Year HPE 6-hour Onsite Call-to-Repair, HPE Collaborative Support
Offers customers a single point of contact for server problem diagnosis, hardware problem resolution to return the hardware in operating condition within 6 hours of the initial service request to the HPE Global Solution Center, and basic software problem diagnosis, fault isolation, and resolution if available to Hewlett Packard Enterprise. **http://h20195.www2.hp.com/V2/GetPDF.aspx/4AA3-8232ENW.pdf**

HPE Proactive Select Service
Provides a flexible way to purchase Hewlett Packard Enterprise best-in-class consultancy and technical services. You can buy Proactive Select Service Credits when you purchase your hardware and then use the credits over the next 12 months. **http://h20195.www2.hp.com/V2/GetPDF.aspx/4AA2-3842ENN.pdf**

Insight Remote Support	Provides 24 X 7 remote monitoring, proactive notifications, and problem resolution. Learn more **http://www.hp.com/go/insightremotesupport**
HPE Support Center	Personalized online support portal with access to information, tools and experts to support Hewlett Packard Enterprise business products. Submit support cases online, chat with Hewlett Packard Enterprise experts, access support resources or collaborate with peers. Learn more **http://www.hp.com/go/hpsc** The HPE Support Center Mobile App* allows you to resolve issues yourself or quickly connect to an agent for live support. Now, you can get access to personalized IT support anywhere, anytime. HPE Insight Remote Support and HPE Support Center are available at no additional cost with a Hewlett Packard Enterprise warranty, HPE Care Pack or Hewlett Packard Enterprise contractual support agreement. ***The Hewlett Packard Enterprise Support Center Mobile App is subject to local availability**
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. Supplies and consumable parts will not be provided as part of this service; standard warranty terms and conditions apply. Parts and components that have exceeded their maximum supported lifetime and/or the maximum usage limitations as set forth in the manufacturer's operating manual or the technical product data sheet will not be provided, repaired or replaced as part of this service.
Warranty / Service Coverage	For ProLiant servers and storage systems, this service covers HPE-branded hardware options qualified for the server, purchased at the same time or afterward, internal to the enclosure, as well as external monitors up to 22" and tower UPS products; these items will be covered at the same service level and for the same coverage period as the server unless the maximum supported lifetime and/or the maximum usage limitation has been exceeded. Coverage of the UPS battery is not included; standard warranty terms and conditions apply. The defective media retention service feature option applies only to Disk or eligible SSD/Flash Drives replaced by Hewlett Packard Enterprise due to malfunction. It does not apply to any exchange of Disk or SSD/Flash Drives that have not failed. SSD/Flash Drives that are specified by Hewlett Packard Enterprise as consumable parts and/or that have exceeded maximum supported lifetime and/or the maximum usage limit as set forth in the manufacturer's operating manual or the technical data sheet are not eligible for the defective media retention service feature option.
For more information	To learn more on services for HPE ESSN Options, please contact your Hewlett Packard Enterprise sales representative or Hewlett Packard Enterprise Authorized Channel Partner. Or visit: **http://www.hp.com/services/proliant** or **http://www.hp.com/services/bladesystem**

Related Options

Gigabit Server Adapters	HP NC365T 4-port Ethernet Server Adapter	593722-B21
	HP Ethernet 1Gb 4-port 331T Adapter	647594-B21
	HP Ethernet 1Gb 2-port 332T Adapter	615732-B21

10 Gigabit Server Adapters	**NOTE:** A minimum of two Gigabytes (2 GB) of server memory is required per each adapter.	
	HP NC523SFP 10Gb 2-port Server Adapter	593717-B21
	HP NC552SFP 10Gb 2-port Ethernet Server Adapter	614203-B21
	HP Ethernet 10Gb 2-port 530SFP Adapter	652503-B21
	HP Ethernet 10Gb 2-port 530T Adapter	656596-B21
	HP Ethernet 10Gb 2-port 560SFP+ Adapter	665249-B21
	HP Ethernet 10Gb 2-port 561T Adapter	716591-B21
	HP Ethernet 10Gb 2-port 570SFP+ Adapter	718904-B21

FlexibleLOM Adapters	**NOTE:** A minimum of two Gigabytes (2 GB) of server memory is required per each adapter.	
	Ethernet Adapters	
	HP Ethernet 1Gb 4-port 331FLR Adapter	629135-B21
	HP Ethernet 1Gb 4-port 366FLR Adapter	665240-B21
	HP Ethernet 10Gb 2-port 530FLR-SFP+ Adapter	647581-B21
	HP Ethernet 10Gb 2-port 560FLR-SFP+ Adapter	665243-B21
	HP Ethernet 10Gb 2-port 561FLR-T Adapter	700699-B21
	HP Ethernet 10Gb 2-port 570FLR-SFP+ Adapter	717491-B21
	FlexFabric Adapters	
	HP FlexFabric 10Gb 2-port 526FLR-SFP+ Adapter	629138-B21
	HP FlexFabric 10Gb 2-port 533FLR-T Adapter	700759-B21
	HP FlexFabric 10Gb 2-port 534FLR-SFP+ Adapter	700751-B21
	HP FlexFabric 10Gb 2-port 554FLR-SFP+ Adapter	629142-B21
	NOTE: Please see the QuickSpecs for Technical Specifications and additional information: **http://www.hp.com/go/ProLiantNICs**	

Technical Specifications

Compliance	802.3, 802.3u, 802.3x, 802.3ab, 802.3ad, 802.1p, 802.1Q, 802.3az, IEEE 1588 - PCIe v2.0 standard - RoHS (6 of 6) - FCC (U.S. only) Class B - DOC (Canada) Class B - CE EN 55024, EN55022 Class B - VCCI Class II - UL 1950 - CSA 950 - EN 60950 - CE - ACPI 1.1a - Microsoft WHQL (Windows Hardware Quality Labs)		

General Specifications	**Communications 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	
	Interrupt levels	Automatically configured	
	Cable Connector	Two RJ-45	
	Bus Connector	PCIe	
	Distance and Wiring	Up to 328 feet/100 m with Category 5 (or better) twisted-pair cabling	
	Card Dimensions (without brackets) (L x W)	5.3 x 2.5 in (13.50cm x 6.4 cm)	

Power and Environmental Specifications	**Operating**	Temperature	32° to 131° F (0° to 55° C)
		Humidity	10% to 95% non-condensing
	Non-operating	Temperature	-40° to 185° F (-40° to 85° C)
		Humidity	-5% to 95%
	Power requirement	4.1W idle without EEE link partner 3.2W idle with EEE link partner 4.2W maximum	
	Emissions Standards	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	
	Safety Compliant	UL, Canada UL, EN60950	

Operating System Support	- Microsoft Windows Server 2008 - Microsoft Windows HPC Server 2008 - Red Hat Enterprise Linux 5.7, 6.1 - SUSE Linux Enterprise Server - Solaris 10 - ESX/ESXi 4.1 & ESXi 5.0 - Citrix Xenserver 6.0 - Microsoft Windows Hyper-V		

NOTE: For more Linux OS support & certification information, please visit our the ProLiant &

Technical Specifications

BladeSystem Server Linux matrix:
http://h18004.www1.hp.com/products/servers/linux/hplinuxcert.html
NOTE: For more OS support & certification information, please visit the NIC driver download web pages at this location: **http://h18004.www1.hp.com/support/files/networking/us/index.html**

Environment-friendly Products and Approach	**End-of-life Management and Recycling**	Hewlett Packard Enterprise offers end-of-life Hewlett Packard Enterprise product return, trade-in, and recycling programs in many geographic areas. For trade-in information, please go to **http://www.hp.com/go/green**. To recycle your product, please go to: **http://www.hp.com/go/green** or contact your nearest Hewlett Packard Enterprise sales office. Products returned to Hewlett Packard Enterprise will be recycled, recovered or disposed of in a responsible manner. The EU WEEE directive (2002/95/EC) 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 at: **http://www.hp.com/go/green**. 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
17-Dec-2015	Form Version 8 to 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	From Version 7 to 8	Added	Added the HPE ProLiant ML350e Gen8 v2 to the Compatibility section.
10-Sep-2013	From Version 6 to 7	Changed	Compatibility, 10 Gigabit Server Adapters, and FlexibleLOM Servers were revised.
19-Feb-2013	From Version 5 to 6	Changed	Changes were made in The Overview Section and Related Options Section.
04-Dec-2012	From Version 4 to 5	Changed	Changes made in Compatibility, Standard Features, and Related Options sections.
10-Oct-2012	From Version 3 to 4	Changed	Changes made in Compatibility section.
24-Sep-2012	From Version 2 to 3	Changed	Changes made in the Compatibility section.
20-Aug-2012	From Version 1 to 2	Changed	Changes made in the Compatibility section.

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