Honeywell

HPE ProLiant DL360 Gen9 Server Planning Installation Service Guide

HWDOC-X528-en-B

August 2020

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CHAPTER

1

ABOUT THIS DOCUMENT

This guide contains planning, installation and service information for the Honeywell-configured HPE Proliant DL360 Generation 9 (Gen9) server. The instructions and service information contained in this guide addresses the server, and assumes that associated network communication equipment is pre-installed by the Honeywell factory or has manuals dedicated to its installation and service. This server is not a standard HP model and you cannot order it independently from HP.

NOTE

If the Local Control Network (LCN) coaxial based system has been integrated with an Experion Fault Tolerant Ethernet (FTE) based system, the node (server) may be upgraded to be an Experion Local Control Network (ELCN) node, which has its ELCN Interface provided via FTE. This node may be installed as a physical or virtual platform.

If the node is upgraded to an ELCN node, and the node is a physical (a.k.a. bare-metal) platform, a Local Control Network Processor (LCNP) board coaxial interface to LCN is not used. The LCN MAU is disconnected, and/or the LCNP board is removed.

Redundant ELCN Bridges are required if the ELCN node is communicating with any other existing, coaxial-based LCN node.

Some LCN nodes may have been replaced by their ELCN equivalent nodes, and overall system features/architecture will differ from that of a non-ELCN integrated system (classic LCN/TPN system). In this case it may be necessary to refer to appropriate ELCN documentation, in addition to the information provided herein.

The following table lists Honeywell ELCN/Experion publications that may be useful for references.

ELCN Reference Documents Table for Server/Workstation PSIG Documents

Publication	Content Type
Experion LCN Hardware Upgrade Kit Instructions (51195195-415)	UEA installation
Experion LCN Quick Start Guide (EPDOC-X480-en-511A)	General hardware/software/migration information
Experion Software Installation User's Guide (EPDOC-X136-en-511A)	Experion software installation (various methods)
Experion LCN Overview and Implementation Guide	Bridge hardware installation, software configuration, operation,

Publication	Content Type
(EPDOC-X478-en-511A)	servicing/troubleshooting
Experion LCN Planning, Installation, and Service Guide (HWDOC-X479-en-E)	ELCN system planning, hardware/software installation, servicing/troubleshooting
Experion LCN Specification (ELCN03)	General ELCN technical specifications
Fault Tolerant Ethernet Installation and Service Guide (EPDOC-XX36-en511A)	FTE system installation, servicing/troubleshooting
Universal Embedded Appliance Hardware Installation and Maintenance Guide (HWDOC-X469-en-A)	General UEA planning, installation, and service information before it is commissioned as an ELCN appliance.
Integrated Experion-TPS User's Guide (EPDOC-XX66-en-511A)	Supplementary installation tasks needed before using TPS Nodes on an Experion system. Describes configuration tasks needed for TPS Nodes.
Virtualization Planning and Implementation Guide (EPDOC-X147-en-A)	Implementing networks, Preparing ESXi host, Administering virtualization
Server and Client Planning Guide (EPDOC-X128-en-511A)	High-level planning/design for Experion servers, clients, controllers
Process Operations Manual (SW11-601)	Process operations, alarm/message handling, reporting, history functions, system operations, system menu functions, console/station peripheral devices
Integrated Experion-TPS User's Guide (EPDOC-XX66-en-511A)	Supplementary installation and configuration tasks for Experion TPS Nodes
Experion PKS R511.1 Migration Planning Guide (EPDOC-XX70-en-511A)	Planning information for migration of Experion system from legacy R4xx system software to Experion R510.1 software.
Switch Configuration Tool User's Guide	Experion switch configuration information

Publication	Content Type
(EPDOC-X246-en-511A)	
Experion Network Best Practices (WP-07-02-ENG)	Best practices for planning the installation of Experion FTE networks, and connecting them into plant IT networks.
Experion R510 Software Change Notice (EPDOC-X166-en-511A)	Describes Experion R510 features/enhancements, overall product, release interoperabilities, system dependencies, problem resolutions, known issues, special considerations
Customer Release Guide R687 (CRG-687)	TPN/TPS Migration information (ELCN migration Information included)
TPN R687 Software Change Notice (TNDOC-X166-en-6871A)	Document changes, compatibility and migration/installation processes for the TPS Process Network Release of R687 software.
Experion Control Building User's Guide (EPDOC-XX19-en-511A)	Procedures for basic tasks in the Control Builder application (configuring hardware devices, continuous control strategies, sequential control strategies).

1.1 Revision history

Version	Date	Description
A	August 2020	Initial Release of the document

CHAPTER

2

PLANNING

2.1 Overview

Platforms sold by Honeywell are engineered for the process control mission of Experion and TPS systems to provide consistent and robust performance. Through an extensive qualification process, Honeywell defines specific peripheral devices, slot locations, and BIOS settings for best performance and reliability, sometimes even adding cooling fans for longer service. Honeywell platforms are then built to Honeywell specifications by the computer manufacturer.

Honeywell engineering has tested the HPE ProLiant DL360 Gen9 server with other Honeywell hardware and software and has qualified its use for specific configurations as identified in the Software Change Notice (SCN). This server is not a standard HP model and cannot be ordered independently from HP. The Technical Assistance Center (TAC) is trained to support Honeywell platforms. Use of any other server, including a similar HP model, is considered a project special and its TAC support is limited according to the services policy.

This release of the server is based upon RAID-5 and dual power supply design and provides computer-based functionality for Experion and TPS systems. For TPS systems and certain Experion systems configured with Fault Tolerant Ethernet (FTE), the server has an LCNp4e2 card installed, which allows connection to the TotalPlant Process Network (TPN) coax through the LCN Media Access Unit (MAU). Additionally, the server connects to the Ethernet or FTE using the on board quad NIC.

The peripheral electronics assemblies are based upon either the Peripheral Component Interconnect Express (PCIe) bus or USB 2.0. All mass storage devices are connected through SATA and PCIe. The SATA DVDRW drive is connected through the SATA connector on the motherboard. The RAID-5 SAS controller card is located on server motherboard.

The standard memory of this platform:

- For MZ-PCSV83 51156502-100 is 16GB (Using 2x8GB ECC DDR4 RDIMM 2400MHz or faster) that can be upgraded to 32GB(Using 4x8GB ECC DDR4 RDIMM 2400MHz or faster.

Memory devices must be of the same type, size and speed from the same memory supplier. There cache memory options are not provided for this server.

- BIOS configuration

2.1.1 Software requirements

The HPE ProLiant DL360 Gen9 server runs on the following operating systems:

- Microsoft Windows Server 2008 R2 (64-bit)
- Microsoft Windows Server 2016

The server platform runs the latest version of Application Processing Platform (APP) node or Experion Server (ESVT, ESV, ACE/SCE, ACE-T, EAS, eServer, EApp). Refer to the latest *Experion General Release Software Change Notice* for software applications that have been qualified for use on the HPE ProLiant DL360 Gen9 server platform.

2.1.2 BIOS configuration

All HPE ProLiant DL360 Gen9 server platforms must have the BIOS version P89-2.41 05/30/2017 or later.

2.2 Description

- Honeywell server model number
- Equipment configuration
- Electronics module
- Storage and media devices
- Standard features of HPE ProLiant DL360 Gen9 server

2.2.1 Honeywell server model number

This document applies to the Honeywell server platform identified in the following table.

Model number	Description	Part number
EP-COAR28	Windows Server 2008 R2 COA	-
EP-COAS16	Windows Server 2016 standard COA	-
MZ-PCEH05	300 GB 2.5" 15 K RPM SAS HDD to use as a Hotspare (Not supplied with standard configuration. The customer needs to buy it if hot spare is required.)	51155539-907
MZ-PCEM40	8GB ECC DDR4 RDIMM MEM EXP(1x8GB) 2400Mhz or faster	51156502-901
MZ-PCSV83	Intel® Xeon® Processor E5-2620v4 (15M Cache, 2.10 GHz, 7.20GT/s Intel® QPI) / 16GB RDIMM (2x8GB) /4 x300GB 15K RPM Serial-Attach SCSI 12Gbps 2.5in Hot	51156502-100

Model number	Description	Part number
	plug Hard Drive (QTY4)/ P440ar/2G SAS Controller (RAID 5 configuration).	

2.2.2 Equipment configuration

The Honeywell-based HPE ProLiant DL360 Gen9 server can be installed in Honeywell 1000 mm deep LCN cabinet only.

2.2.3 Electronics module

The tables in this section provide the electronics module for the Honeywell-based HPE ProLiant DL360 Gen9 server.

Typical operating power requirements

Description	DC power	AC voltage	AC RMS current	AC power
Electronic assembly	N/A	120 (90-132) Vrms 240 (180-260) Vrms	0.80 0.41	94W 95W

Maximum operating power requirements

Description	DC power	AC voltage	AC RMS current	AC power
Electronic assembly	N/A	120 (90-132) Vrms 240 (180-260) Vrms	1.069A 0.522A	130W

Weight and dimensions

Description	Height	Width	Depth	Weight
Assembly	432 mm	434.6 mm	698mm	19.2kg (42.3lb)

Storage and media devices

This server has four 300 GB 2.5” 15K RPM SAS hard drives the standard mass storage, where drives 0, 1, 2 and 3 are in a RAID-5 configuration. The 5th 300 2.5” 15K RPM SAS HDD can be used as a hot spare and is optional. You must order the 5th - 300 GB 2.5” 15K RPM SAS HDD separately using the model number P/N MZ-PCEH05.

The server is shipped with a HP USB QWERTY keyboard and mouse. However, if you require a Honeywell supplied monitor then you must order it separately.

All mass storage devices are connected through SATA and PCIe. SATA DVDRW drive is connected through the SATA connector on the motherboard. The RAID-5 SAS controller card is located on server motherboard.

2.2.4 Standard features of HPE ProLiant DL360 Gen9 server

The common features of HPE ProLiant DL360 Gen9 server are as follows:

- Intel Xeon E5-2620 V4 2.1GHz 4 x 256KB L2 Cache 20MB L3 Cache 80W Octa-Core Processor
- 16 GB (2x8GB) ECC DDR4 2400 MHz RDIMM or faster
- Energy Smart – Two hot-plug high-efficient 500 W power supply
- Two 110 volt / 230 volts power cords
- SATA DVD-RW drive
- Four 300 GB, 15K RPM,12GBPs 2.5” SAS hard drives or better
- Integrated Matrox G200 video standard
- HP smart array P440ar 2GB MB RAID 5 Configuration
- Rear ports with 1Video, 2 USB V3.0, 4 RJ45, 1 ID push button with blue/amber LED
- Front ports with 1 USB 2.0/ 1USB3.0 ID push button with blue/amber LED, 1 video, 1 system power on/off button
- Four flexible LOM Broadcom® NetXtreme II™ 5709c Gigabit Ethernet NIC with failover and load balancing
- Bus type is PCIe
- Consists of one x4 low profile and one x16 half length full height expansion slot

2.3 Platform information

2.3.1 Honeywell documentation

The following table lists other Honeywell publications that may be useful when installing or operating the server platform.

Publication	Contains information on
FE05: Fault Tolerant Ethernet Installation and Service Guide	Installing and using FTE.

2.3.2 HPE documentation

The following table lists HPE publications and other sources of information that is useful when installing, operating, and servicing the Honeywell server.

Publication	Contains information on	Available
Information Update	Last-minute updates about technical changes to your computer or advanced technical-reference material for experienced users or technicians.	Packaged with the computer
HPE ProLiant DL360 Gen9 server Maintenance and Service Guide	Maintenance and service information for the server.	http://www.hp.com
HPE ProLiant DL360 Gen9 server User Guide	Using the server	http://www.hp.com

2.4 Slots configuration

NOTE
A Local Control Network Processor (LCNP) board and LCN Media Access Unit (MAU) are no longer used if the Server has been upgraded to be an ELCN node.

HPE ProLiant DL360 Gen9 server has one riser. The details of the slot are as follows:

Expansion slot	Type	Form factor	Connector width	Bus width
1	PCIe3	Full height half length slot	x 16	x 16
2	PCIe3	Low Profile Slot	x 8	x 8

The following is the list of options that can be configured in your platform.

Model number	Honeywell part number	Description
TP-LCNP05	51454493-126	LCN Interface PCIe Rev2

- Slot configuration for Experion node setup
- Slots configuration

- General Ethernet configuration
- Cnet configuration using PCIC interface

2.4.1 Slot configuration for Experion node setup

FTE Supervisory (Default)

An add on Dual NIC is available for FTE. There is no integrated NIC support for HP ProLiant DL360 Gen9 server.

Slot number	Description
Slot-1	-
Slot-2	HPE 332T NIC card

2.4.2 Slots configuration

> **NOTE**
> A Local Control Network Processor (LCNP) board and LCN Media Access Unit (MAU) are no longer used if the Server has been upgraded to be an ELCN node.

HPE ProLiant DL360 Gen9 server has one riser. The details of the slot are as follows:

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Model number	Honeywell part number	Description
TP-LCNP05	51454493-126	LCN Interface PCIe Rev2

- Slot configuration for Experion node setup
- Slots configuration
- General Ethernet configuration
- Cnet configuration using PCIC interface

2.4.3 General Ethernet configuration

Single NIC

Slot number	Description
Slot-1	-
Slot-2	HPE 332T NIC card

Dual NICs

Slot number	Description
Slot-1	-
Slot-2	HPE 332T NIC card

2.4.4 Cnet configuration using PCIC interface

You must purchase the Magma PE3R PCie to PCI converter box separately and use it, since the HPE DL360 Gen 9 server does not natively support the PCI interface.

For more information, refer to the section Configuring ControlNet interface card.

Slot number	Description
Slot-1	Magma PCIe host adapter[1]
Slot-2	HPE 332T NIC card

[1] Magma PCIe host adapter interface needs to be done using low profile bracket supplied with Magma.

2.5 Memory configuration

MZ-PCSV83 (51156502-100) : 16GB (2x8GB) ECC DDR4,RDIMM 2400 MHz or faster is standard memory configuration for this server

The label on the outside of the shipping container identifies the capacity of the memory installed. Honeywell uses the Memory Expansion Model number to help the supplier identify the memory that must be added with the platform.

Honeywell model number	Description
MZ-PCEM40	8GB ECC DDR4 RDIMM Mem Exp (1x8GB) 2400 MHz or faster

- Standard memory configuration for 16GB using two 8GB RDIMM
- Maximum memory configuration

2.5.1 Standard memory configuration for 16GB using two 8GB RDIMM

The following table provides the memory configuration for Intel Xeon E5-2620 V4 2.1GHz processor with 16GB, consisting of two 8GB ECC DDR4 RDIMM (2400MHz or faster).

		CPU1
Channels	Slot numbers	Population order
Channel 1	12	A; 8GB RDIMM
	11	E; empty
	10	I; empty
Channel 4	9	B; 8GB RDIMM
	8	F; empty
	7	J: empty
Channel 3	1	C; empty
	2	G; empty
	3	K; empty
Channel 2	4	D; empty
	5	H; empty
	6	L; empty

2.5.2 Maximum memory configuration

32GB, consisting of four (4) 8GB ECC RDIMM MEM EXP (4x8GB) 2400 MHz or faster

Channel	Population order	Slot numbers	
Channel 1	A	12	8GB DDR4 RDIMM
	E	11	
	I	10	
Channel 4	B	9	8GB DDR4 RDIMM
	F	8	
	J	7	

Channel	Population order	Slot numbers	
Channel 3	C	1	8GB DDR4 RDIMM
	G	2	
	K	3	
Channel 2	D	4	8GB DDR4 RDIMM
	H	5	
	L	6	

2.6 System specifications

2.6.1 Microprocessor

Microprocessor	Intel® Xeon® Processor E5-2620 v4 85W Octa-Core Processor
Level 2 Cache	1MB
Level 3 Cache	20MB
Chipset	Intel® C610 Series Chipset

2.6.2 Expansion slots

PCIe riser	Slot1: Full-height/half-length x 16 PCIe 3.0 Slot2: Low Profile x 8 PCIe 3.0

2.6.3 Memory

Architecture	16 GB (2x 8GB) ECC DDR4-2400MHz RDIMM
DIMM sockets	24 RDIMM socket
DIMM capacities	8 GB ECC DDR4 2400 MHz RDIMM
Minimum RAM	16 GB (2x 8GB) ECC DDR4 2400MHz RDIMM or faster
Maximum RAM	32GB(4x8GB) ECC DDR4 2400MHz RDIMM or faster

2.6.4 Raid controller

RAID controller	HPE Smart Array P440ar 2GB FBWC RAID 5 configuration (4HDD on RAID)

2.6.5 Optical disk drive

DVD drive	SATA DVD R/W

2.6.6 Video

Video type	Integrated Matrox G200 video standard

2.6.7 Network interface

Adapter type	1. 4 port (PCIe express 4 lens) HP Flexible LOM
	2. HPE 332T NIC card

2.6.8 Power

The following provides the specifications for DC power supply.

Wattage	Energy Smart – Two hot-plug high-efficient 500Watts CEC Compliant PSU

2.6.9 Environmental

Operating temperature	+10° to +35° C (50° to 95° F) with a maximum temperature gradation of 10° per hour. Note : for Altitudes above 2950 feet , the maximum operating temperature is derated 1°F/550ft. The displayed temperature ratings are for sea level. An altitude derating of 1°C per 300 m (1.8°F per 1,000 ft) to 3048 m (10,000 ft) is applicable. No direct sunlight allowed.
Shipping temperature	-30°C to 50°C (-22°F to 122°F)
Storage temperature	-30°C to 60°C (-22°F to 140°F)
Maximum wet bulb temperature	28°C (82.4°F) **ATTENTION** All temperature ratings described previously are for sea level. An altitude derating of 1°C per 300 m (1.8°F per 1,000 ft) to 3048 m (10,000 ft) is applicable. Direct sunlight is not allowed.
Operating humidity	10% to 90% (non-condensing) with a maximum humidity gradation of 10% per hour
Storage humidity	5% to 95% (non-condensing)) with a maximum humidity gradation of 10% per hour **ATTENTION** Storing maximum humidity of 95% is based on a maximum temperature of 45°C (113°F). Altitude maximum for storage corresponds to a pressure minimum of 70 KPa.

2.6.10 Physical – form factor

1U rack height	1U, HP Friction Rail Kit

2.6.11 Drive bays

Internal	Up to 8 bay SFF Hot plug Drive Cage
External	Slim optical drive

2.6.12 Altitude

Operating	3048 m (10,000 ft). This value may be limited by the type and number of options installed. Maximum allowable altitude change rate is 457 m/min (1500 ft/min). That is 1°F /167.64 meters or 17.22°c/167.64 meters
Storage	9144 m (30,000 ft). Maximum allowable altitude change rate is 457 m/min (1500 ft/min)

2.6.13 External peripherals

Keyboard	Windows compliant USB (equivalent or better)
Mouse	USB (equivalent or better)

2.6.14 Drives

Hard Drive	4 x 300 GB 2.5-inch SAS, 15K RPM hot-plug drives, hard drives 0, 1, 2, and 3 are in a RAID 5 configuration with hard drive 4 as a hot spare drive. The hot spare must be purchased separately

2.6.15 External ports

Serial	One DB-9 connectors
LAN	4 x RJ-45
SCSI External	None
USB	Four USB Ports (Two in Front and two at rear)
Video	2 Ports: one standard front and one at the rear
ILO Remote Management Port	1GB dedicated

2.6.16 Management

Power related	Monitoring of voltage, fan, µprocessor and other thermal conditions
Memory	Track ECC error reporting
Server management	HP Insight Control featuring Integrated Lights-Out Advanced

- Hard disk drive specifications
- Removable media specifications
- Mouse and keyboard
- Monitor
- Video cable

2.6.17 Hard disk drive specifications

As the fifth hard drive is optional, customers must buy them separately. The following table provides the operating power requirements for 300GB hard drive.

Description	Requirement
DC 5 volt Power (typ)	2.25w
DC 12 volt Power (typ)	13.44 Watts +10%, -8%
Other DC POWER	16 Watts Max, 4.1 Watts idle
AC Power	N/A

The following table provides the maximum weight and dimensions for 300GB hard drive.

Description	Requirement
Height	14.81 mm
Width	70 mm
Depth	100.5mm
Weight	0.201 kg

2.6.18 Removable media specifications

The HPE ProLiant DL360 Gen9 server has one SATA DVD- RW drive. The SATA DVD-RW drive is connected to the SATA connector on the motherboard. DC 5 volt power, 6.5 Watts is the operating power requirement for DVD RW drive.

2.6.19 Mouse and keyboard

A USB mouse, with standard cursor control device and a USB standard PC keyboard are included with the HPE ProLiant DL360 Gen9 server.

2.6.20 Monitor

The Honeywell-based HPE ProLiant DL360 Gen9 server platform supports industrial standard video format (typically 1024X768 at a refresh rate of 60Hz). A multisync monitor is required for the HPE ProLiant DL360 Gen9 server operating system. The HPE ProLiant DL360 Gen9 server can be configured only with a single screen option. In this configuration, the monitor is connected to the integrated video output connector.

Note that this server is not provided with the touch screen option

2.6.21 Video cable

A correct system startup and operation of the HPE ProLiant DL360 Gen9 server requires an industry standard VESA DDC interface with the monitor. If a monitor or video cable that does not support DDC is attached to the Server Platform, the display generator will default to a resolution, which precludes communication with the system software and stops startup. A quick check to determine if a cable is DDC—compatible is to check that pins 5, 9 and 12 of the HD15 connector are wired. The IS supplied cable (51196742-200) is DDC compatible.

To use a front video adapter, the customer needs to buy an HP DP to VGA dongle (P/N 655519-B21). For more information, click here to access the Hewlett Packard customer support center.

2.7 Industrial regulatory compliance

The compliance specifications in this section apply to cabinet installations.

> **WARNING**
>
> Honeywell does not claim Safety Compliance or Electromagnetic Compatibility (EMC) Compliance for system equipment configurations that have not been described in this guide as standard system configurations. Any equipment configuration other than that described in this publication decertifies the Safety and EMC compliance of this product.

- Electromagnetic Compatibility
- Safety compliance

2.7.1 Electromagnetic Compatibility

The following table provides the Electromagnetic Compatibility (EMC) specifications (Industrial Regulatory) for European community.

Element	Description
Emissions	EN 61326-1:2006 (Industrial Locations, CISPR 11, Class A)
Immunity	EN 61326-1:2006 (Industrial Locations)

ATTENTION

The following formula is a proximity guideline, for use of Portable Transceivers (walkie-talkies) in the frequency range of 80MHz to 1GHz.

D > 0.30*√{P} (D must be greater than 0.30 multiplied by the square root of P)

D = Distance from equipment, in meters.

P = Power Output of the Portable Transceivers (walkie-talkies), in Watts.

Examples:

P = 10 Watts, D > 0.949 meters

P = 5 Watts, D > 0.671 meters

P = 1 Watt, D > 0.300 meters

Electrical cables, which are routed external to the equipment, must be fully shielded cables (360 degree metallic shielding), to comply with the above EMC standards.

2.7.2 Safety compliance

The following are the product safety compliance.

- CSA C22.2 No. 1010.1-92 (R1999) and 1010.1B-97 (R2001) Am. 2
- IEC 61010-1, 2001, 2nd edition

ATTENTION

In the above referenced standards is a “Normative Reference” section citing additional standards, which may apply as, suited and required for product compliance.

2.8 Light industrial regulatory compliance

The compliance specifications in this section apply to installations other than cabinets.

ATTENTION

Honeywell does not claim Safety Compliance or Electromagnetic Compatibility (EMC) Compliance for system equipment configurations that have not been described in this guide as standard system configurations. Any equipment configuration other than that described in this publication decertifies the Safety and EMC compliance of this product.

2.8.1 Electromagnetic Compatibility

The following table provides the Electromagnetic Compatibility (EMC) specifications (Industrial Regulatory) for European community.

Element	Description
Emissions	IEC 61326, 1997 (Basic Requirements, CISPR 11, Class A)
Immunity	IEC 61326, 1997 (Basic Requirements)

ATTENTION

The following formula is a proximity guideline, for use of Portable Transceivers (walkie-talkies) in the frequency range of 80MHz to 1GHz.

D > 0.30*√{P} (D must be greater than 0.30 multiplied by the square root of P)

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Electrical cables, which are routed external to the equipment, must be fully shielded cables (360 degree metallic shielding), to comply with the above EMC standards.

2.8.2 Safety compliance

The following are the light industrial regulatory product safety compliance .

- CSA C22.2 No. 1010.1-92 (R1999) and 1010.1B-97 (R2001) Am. 2
- IEC 61010-1, 2001, 2nd edition

ATTENTION

In the above referenced standards is a “Normative Reference” section citing additional standards, which may apply as, suited and required for product compliance.

CHAPTER

3

INSTALLATION

This section describes the procedures for installing the platform and cabling the server in a 1-meter deep Honeywell cabinet.

3.1 Tasks for installing the server

The following table lists the major platform installation tasks.

Checklist	Tasks
	Understanding the Power and grounding requirements. Also refer to, *TPN System Installation Guide (SW20-600)*.
	Installing the server and connecting the cables
	Starting the server

3.1.1 Before you begin

Ensure that you perform the following tasks.

- Ensure that the cabinet is properly grounded
- Unpack the platform from the box and verify the parts
- Place the server on a secure surface near the cabinet to mount
- Ensure that you have the necessary cables ready

3.2 Power and grounding requirements

The ground connection is made through the third wire in the AC power cord.

3.2.1 Grounding consoles and cabinets

The *TPN System Installation Manual, SW20-600*, provides information on grounding furniture, including the following:

- Ground Wiring Overview
- Grounding LCN Cabinets and Stations
- Cabinet Logic Ground
- Grounding LCN Cables

WARNING

The power supply circuit is connected to AC power. The power control switch on the front panel only enables the power supply circuit outputs.

ATTENTION

It is strongly recommended that you connect the power cord to a clean power source with backup such as an Uninterruptible Power Source (UPS).

3.3 Cabinet spacing requirements

Due to thermal constraints, only one HPE ProLiant DL360 Gen9 server can be mounted on a new build 1-meter deep Honeywell MP-C1MCB1 cabinet. The server must be mounted on rack space interval 11U through 15U counting from the bottom of the cabinet and moving up. Install a 1U air duct baffle and blank front panel in the rails directly above the server.

The room ambient temperature must be kept between 10 Vdm; and 30 Vdm; C (50 Vdm; to 86 Vdm; F).

3.3.1 Unused cabinet spaces

ATTENTION

To ensure proper computer cooling and airflow through the cabinet, all the unused rack mount locations must have a blank front panel and an air duct baffle installed.

The blank front panels and air duct baffles are available in four height options. The following table provides the four height options and the corresponding part and tab numbers.

Height option	Part	Part number	Tab number
1U	Blank front panel Air duct baffle	51201248 51303521	-100 -100
2U	Blank front panel Air duct baffle	51201248 51303521	-200 -200
3U	Blank front panel Air duct baffle	51201248 51303521	-300 -300
4U	Blank front panel Air duct baffle	51201248 51303521	-400 -400

3.4 Installing the server and connecting the cables

This section describes the procedures for installing and cabling the server in a one-meter deep Honeywell cabinet with model number MP-C1MCB1. This procedure assumes that a new one-meter deep equipment cabinet, Honeywell model number MP-C1MCB1, was shipped from the Honeywell factory with pre-assembled “Sliding Ready Rails”. The Sliding Ready Rails II kit and 1U Cable Management Arm kit are included with the purchase of Honeywell part number 51156502 (MZ-PCSV82).

- Honeywell server back panel connections
- Installing the server
- Connecting the cables
- Install air duct baffles and blank panel front covers in cabinet

3.4.1 Honeywell server back panel connections

The figure in this section illustrates the back panel of the server and identifies the connectors for all devices. It also shows an LCNp4e2 card installed. Your configuration may not include these cards.

3.4.2 Installing the server

To install the server

1. From the front of the cabinet, open the door to access the mounting rails.
2. Fully extend the right and left Sliding Ready Rails (pre-installed in the Honeywell factory).
3. Lower the server into the J-shaped slots on each slide, starting with the slot that is closest to the cabinet.
4. Depress the slide locks and push the server toward the cabinet until the front bezel mounting ears makes contact with the front of the Sliding ReadyRails.
5. Engage the screw captivated in each mounting ear of the server front bezel with the threaded inserts in the front of the Sliding ReadyRails. Hand-tighten these screws.

> **ATTENTION**
> The Sliding Ready Rails kit includes a cable management arm (installed in the Honeywell factory) that mounts to the rear of the Sliding Ready Rails. AC power cords and KVM cables are prerouted through the cable management arm. For additional information, refer to the “Rack Installation Guide” shipped with the cabinet.

6. If you are using the 8-port KVM switch/control console for your human interface (pre-installed in the Honeywell factory), connect the KVM cable mouse and keyboard connections to the USB connectors on the rear of the server. The KVM cable may have separate USB connections for the mouse and keyboard or they may be combined into one USB connector through a USB to PS/2 adapter (included with the KVM cable).

3.4.3 Connecting the cables

To connect the cables

1. Connect the video and network interface cables.

> **WARNING**
> AC power cords from all computing nodes mounted in a given cabinet must be distributed across the two power entries as equally as possible. Failure to do so may result in tripping the circuit breakers.

2. Connect the Honeywell AC power cords.
3. Perform any one of the following, as necessary.
   - If you are not using Fault Tolerant Ethernet (FTE), connect the Ethernet cable to the on-board RJ-45 connector.
   - If you are using an Intel dual NIC card for FTE, connect the FTE cable to the NIC card in the expansion slot.
   - If you are using the on-board NICs for FTE, connect the FTE cable to the onboard RJ-45 connector.
4. Secure any loose cables, and verify that all cables have proper strain relief.

5. If necessary, refer to the section Install air duct baffles and blank panel front covers in cabinet.

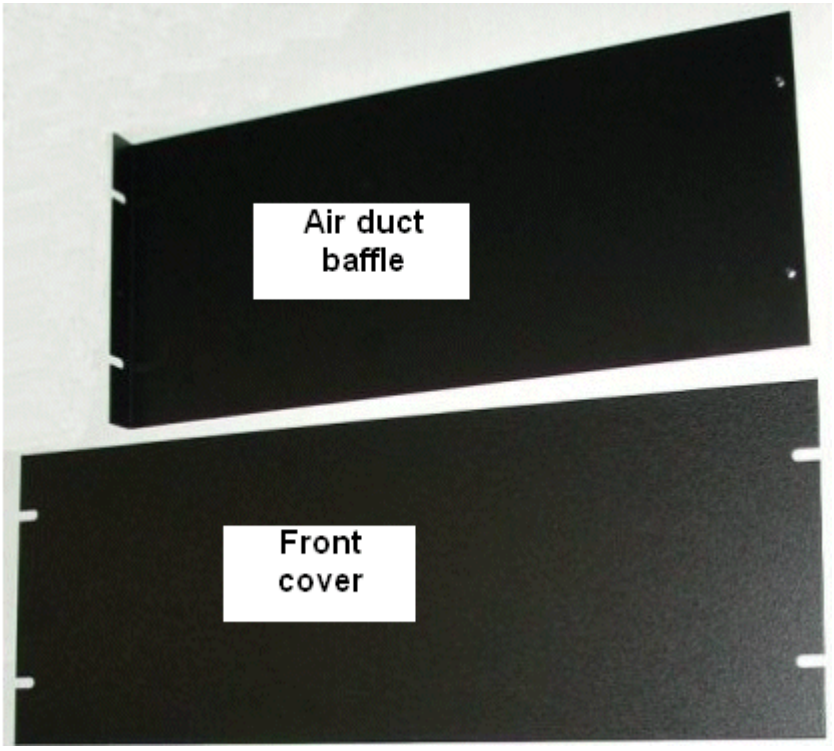
> **ATTENTION**
> Any unused rack mount space must have an air duct baffle and blank front panel installed.

6. To complete the installation, turn on the server.

3.4.4 Install air duct baffles and blank panel front covers in cabinet

Air duct baffles and blank panel front covers ensure that the airflow within the cabinet allows proper cooling for the servers. The following image illustrates the air duct baffles and blank panel front covers used in cabinet.

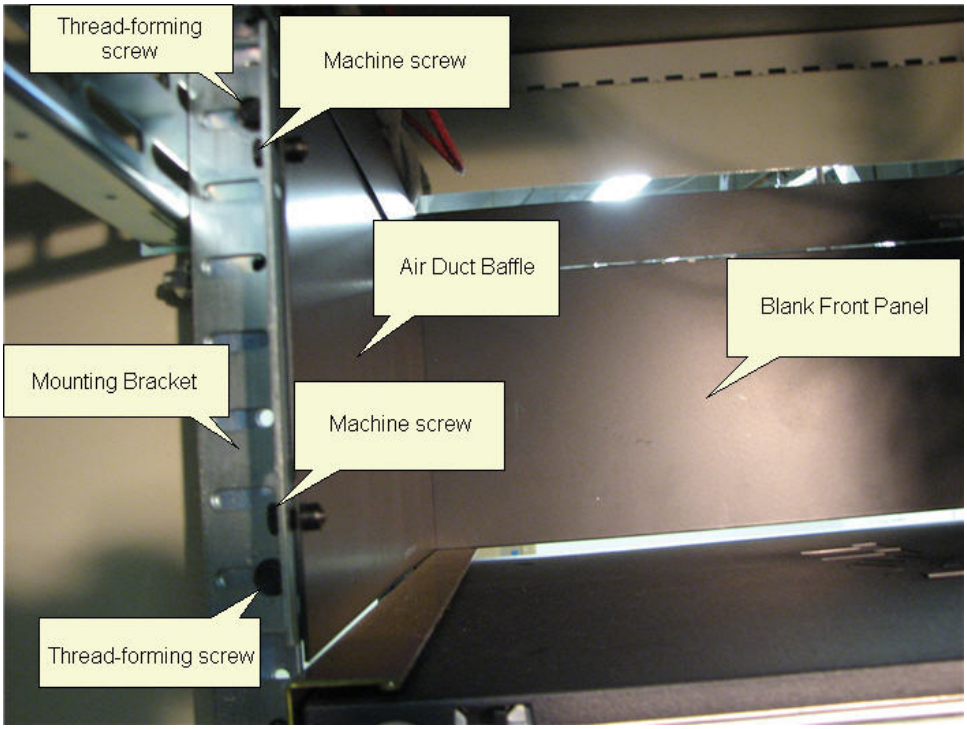
Figure 3.1 Air Duct Baffle and Blank Panel Front Cover



To install air duct baffles and blank panel front covers in cabinet

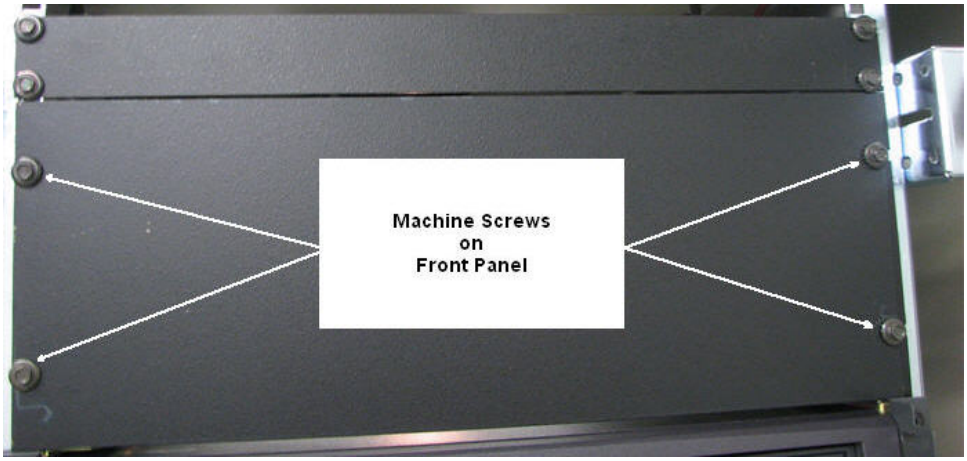
1. Place the air duct baffle inside the cabinet with the bent tab resting along the front of the right cabinet rail.

Figure 3.2 Installation of Air Duct Baffle and Blank Panel Front Cover



2. Place the blank front panel across the front of the cabinet rails. Attach it to the air duct baffle and right cabinet rail using two machine screws and two external tooth washers threaded into the two clip nuts, and then tighten the screws.

Figure 3.3 Secure Blank Panel Front Cover with Machine Screws



3. Attach the other side of the blank front panel to the left cabinet rail using two machine screws and two external tooth washers threaded into the two clip nuts and tighten the screws.
4. Attach the rear mounting bracket to the rear cabinet rail using two thread forming screws and two external tooth washers and tighten the screws.
5. Attach the air duct baffle to the rear mounting bracket using two machine screws and two external tooth washers threaded into the two self clinching nuts. Tighten the screws.

3.5 Starting the server

3.5.1 To start the server

1. Press the Power On/Standby button on the front panel of HPE ProLiant DL360 Gen9 server.
2. Wait for the power light to become solid blue.

- Configuring RAID in HPE ProLiant DL360 Gen9 server
- Starting the TDC emulator services
- Checking the LCNp4e2 status

3.5.2 Configuring RAID in HPE ProLiant DL360 Gen9 server

Perform the following steps to configure a new virtual disk of RAID5 four physical disks and one hot spare.

To configuring RAID in HPE ProLiant DL360 Gen9 server

> ATTENTION
>
> User need to have keyboard and mouse connected to server to configure RAID.

1. Press **F10** Intelligent Provisioning menu during booting of server.
2. Select and Click **Smart Storage Administrator** from the menu.
3. In **Smart Storage Administrator** select and click **SMART Array P440ar**.
4. Click **Configure**.
5. Select **Create Array**.
6. The **Create Array** page appears.
   Check all four 300GB SAS HDD are visible.
7. Check **Select All (4)** box and click **Create Array** (at bottom of screen).
8. Create **Logical drive** menu appears.
   Select RAID Level as **RAID5**
   Strip Size/ Full Stripe Size as 256KB/768KB
   Sectors/Track 32
   Size Maximum Size
   Parity Initialization Method **Default value**
   Caching **Enabled**
   Click **Create Logical Drive Menu** (at bottom right hand side of screen)
9. **Logical drive was successfully created. Please choose one of actions below** pop-up appears.
10. Review Array details, Logical drives, Physical drives and device path details.
    Click **Finish**.
11. **Smart Storage Administrator** main window appears.
    Click **X** on top right hand side of screen to close Smart Storage Administrator Windows.

12. **Are you sure you want to exit the application?** pop-up appears.
    Click **OK**.
13. Follow the instructions as displayed.
14. Server will reboot.

3.5.3 Starting the TDC emulator services

If this is a TPS node with the LCNp4e2 board installed, start the TDC Emulator service. Perform the following steps to start the service.

To start the TDC emulator service

1. Choose **Start** > **Run**.
   The **Run** dialog box appears.
2. Type **services.msc**.
   The **Services** page appears.
3. Right-click **TDC Emulator service** and click **Start**.

3.5.4 Checking the LCNp4e2 status

If this is an Experion "T" node or a TPS node with the LCNp4e2 board installed, perform the following steps to verify the LCNp4e2 passed self test.

To check the LCNp4e2 status

1. Choose **Start** > **Programs** > **Honeywell TPS** > **LCNP Status**.
2. Verify that the LCNP status indicates **Passed Self Test** and the circle is green.
3. Verify that the TPN Address appears in the LEDs field of the LCNP Status display, after the Board 0 is configured for the node's TPN address. You must reset the LCNP after configuration.

> **TIP**
> For more information, refer to the *LCNP Status User's Guide*.

CHAPTER

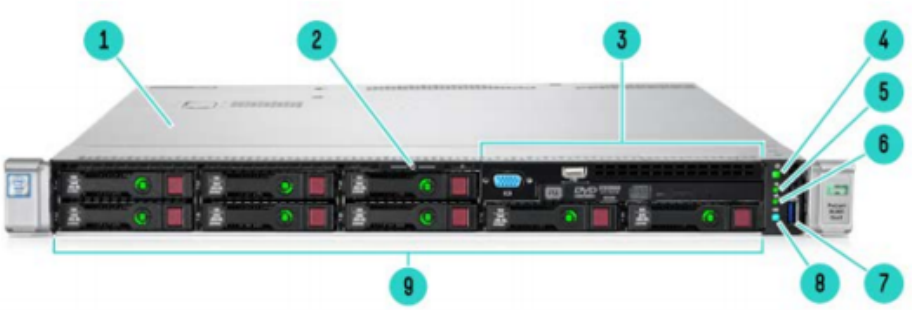
4

OPERATION

4.1 Server overview

4.1.1 Front view

The following image illustrates the front view of the HPE ProLiant DL360 Gen9 server.

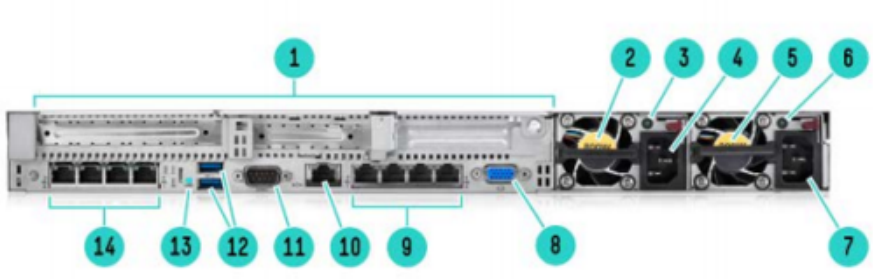


Following is the description for the items in the image.

Item	Description
1	Access Panel
2	Serial Label Pull Tab
3	HPE Universal Media Bay or NVMe **NOTE** Shown W/ VGA , USB 2.0 and DVD-ROM or DVD-RW option. Alternative options: NVMe HDD Kits, 2 SFF HDDs or VGA and USB 2.0.
4	Power On/Standby button and system power LED button
5	Health LED
6	NIC Status LED
7	USB 3.0 connector
8	Unit Identification Button & LED
9	SAS/SATA/SSD/NVMe Drive Bays **NOTE** 8SFF Model shown can be configured: 8SAS/SATA Drives or 10 SAS/SATA Drives.

4.1.2 Rear view

The following image illustrates the rear view of the HPE ProLiant DL360 Gen9 server.



Following is the description for the items in the image.

Item	Description
1	PCIe 3.0 slots 1-3 **NOTE** Slot 1 and 2 Riser Ships Standard , Slot 3 Optional one FH/3/4 length slots.
2	HPE Flexible Slot Power Supply Bay 2
3	Power Supply 2 Status LED
4	Power Supply 2 C13 Connection
5	HPE Flexible Slot Power Supply Bay 1
6	Power Supply 1 Status LED
7	Power Supply 1 C13 Connection
8	Video Connector
9	Embedded 4X1GbE Network Adapter
10	Dedicated iLO 4 Connector
11	Serial Port Connector (Optional)
12	USB 3.0 Connectors (2)
13	Unit Identification LED
14	FlexibleLOM bay (Optional) **NOTE** Shown: 4X1GbE .

4.2 Network connections

NOTE
A Local Control Network Processor (LCNP) board and LCN Media Access Unit (MAU) are no longer used if the Server has been upgraded to be an ELCN node.

Each Honeywell-configured platform must be connected to an ETHERNET network.

- Ethernet network
- LCN cables

4.2.1 Ethernet network

ETHERNET 10/100/1000 Base T connection is the standard connection used on the Honeywell-configured platform. An on-board dual NIC must be used for FTE configuration.

4.2.2 LCN network

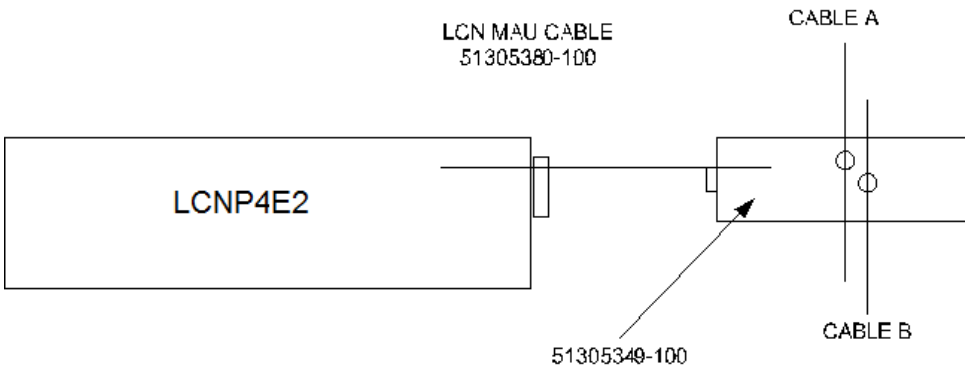
The connection to the LCN is made through a Local Control Network Processor (LCNp4e2) card. The LCNp4e2 card is a Honeywell PWA that allows the TPS Operator Station to emulate Universal Stations. This card provides the communication path for the Operator Station to other LCN modules. The LCNp4e2 consists of an LCNp4e2 Card, a MAU cable and the LCN MAU (Media Access Unit). The LCNp4e2 card is a PCIe card and is located in PCI-ex8 slot 1. The LCNp4e2, MAU and MAU cable are required on Server Platform. The LCN node address must be set to the address the customer wants. If the LCN address is not known then the node address must be set to zero (0). Setting the address to zero (0) allows the node to be connected to the LCN without the risk of an address conflict with some other node. This is consistent with the current LCN standard procedure. The Honeywell server platform uses only a digital system clock. When the HPE ProLiant DL360 Gen9 server platform is added to an existing system that contains nodes running analog clocks that system must have at least two (2) KxLCN boards for analog/digital clock translation. The model number for the LCNP4e is TP-LCNP04 (with Honeywell part number 51405098-100) and for the LCNp4e2 is TP-LCNP05 (with Honeywell part number 51454493-126).

4.2.3 LCN cables

The two LCN cables and with T-connectors (and terminators, if applicable) are routed vertically inside the left rear corner of the cabinet (when viewed from the rear door) near the vertical cable duct where the connection is made to the LCN MAU. The cable between the LCNp4e2 board and the LCN MAU is 2 meters in length.

4.2.4 LCN connections

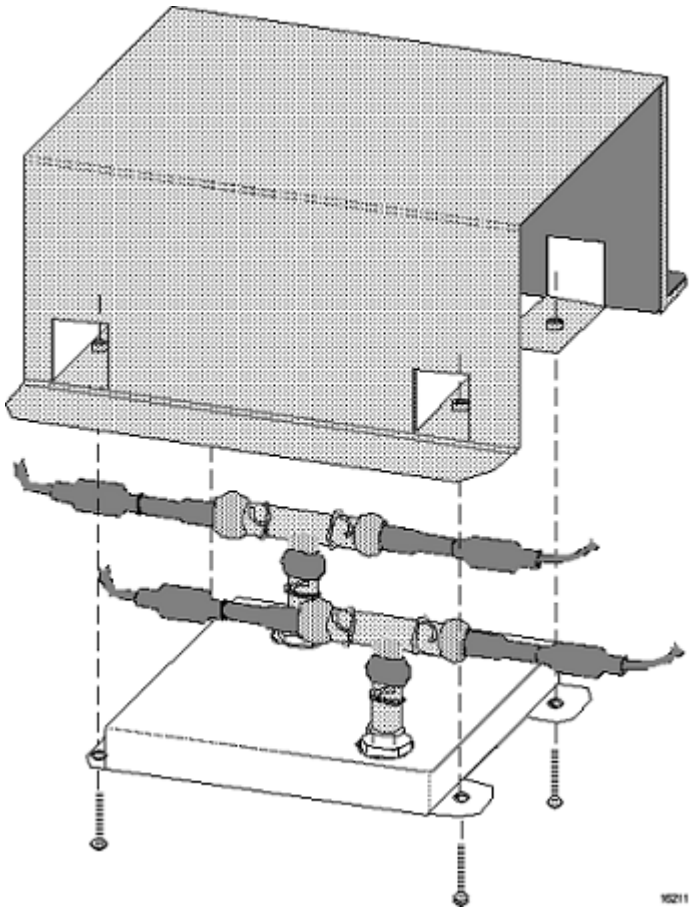
The LCN Cable A and Cable B connections are made through a single cable from the LCNp4e2 board to the LCN Media Access Unit (MAU) contained in a metal housing. The following illustrates a LCN MAU to LCN cabling.



4.2.5 MAU connection

Connect the MAU to both Cable A and Cable B coax T-connector as illustrated in the following Figure.

Figure 4.1 Connect the MAU to Cable A and Cable B



4.2.6 ControlNet Network

A ControlNet Network is a single coaxial trunk cable broken up into segments interconnected by links. Node Connections to the network are created through a Tap and drop cable. Repeaters are used to link segments together and for changes in media from coax to fiber optic. All points on the network must either have an interface card or a terminator. Terminators are comprised of termination resistors, which are used to mark the beginning and end of a trunk segment and Tap Dummy Load (TDL) which terminate a drop cable when no node is present. The model number for the ControlNet Universal Interface is TC-PCIC02-100.

The following image displays the PCIC card used by Honeywell.

TC-PCIC02: This is a universal PCIC card.

ATTENTION

TC-PCIC02: Controlnet Network interface can be connected to HPE Proliant DL360 Generation 9 (Gen9) server using Magma PCIe to PCI converter. For more information on "How to connect using Magma Converter?", refer to the Magma PE3R Installation Instructions available at the following Honeywell Process Solutions support website.

https://www.honeywellprocess.com/library/support/Documents/Experion/Magma_Installation_Instructions_HWDOC-X279-en.pdf

4.3 Configuring ControlNet interface card

You can configure a ControlNet interface card using the Magma PE3R PCIe to PCI converter box.

1. For more information on the Magma PE3R PCIe to PCI converter box, log into **honeywellprocess.com**.
2. Enter your user name and password.
3. Go to the Product Support section.
4. Search for Magma PE3R instructions.

CHAPTER

5

SERVICING

> **NOTE**
> A Local Control Network Processor (LCNP) board and LCN Media Access Unit (MAU) are no longer used if the Server has been upgraded to be an ELCN node.

5.1 Remove the server from the rack

Refer to the HP Quick Deploy Rail System Installation Instructions at the following HP website for removing the server from the rack.

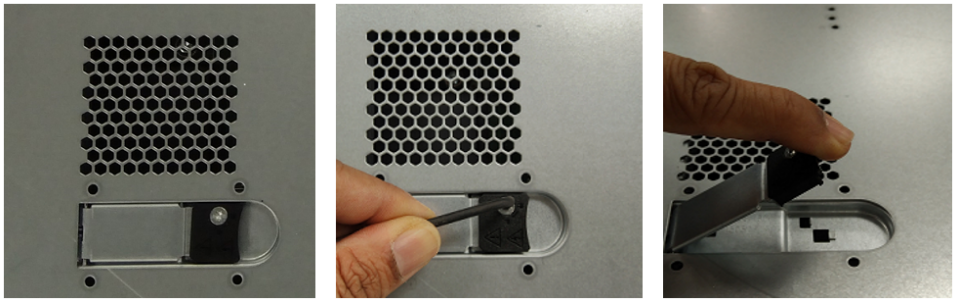
http://www8.hp.com/

5.2 Removing the access panel

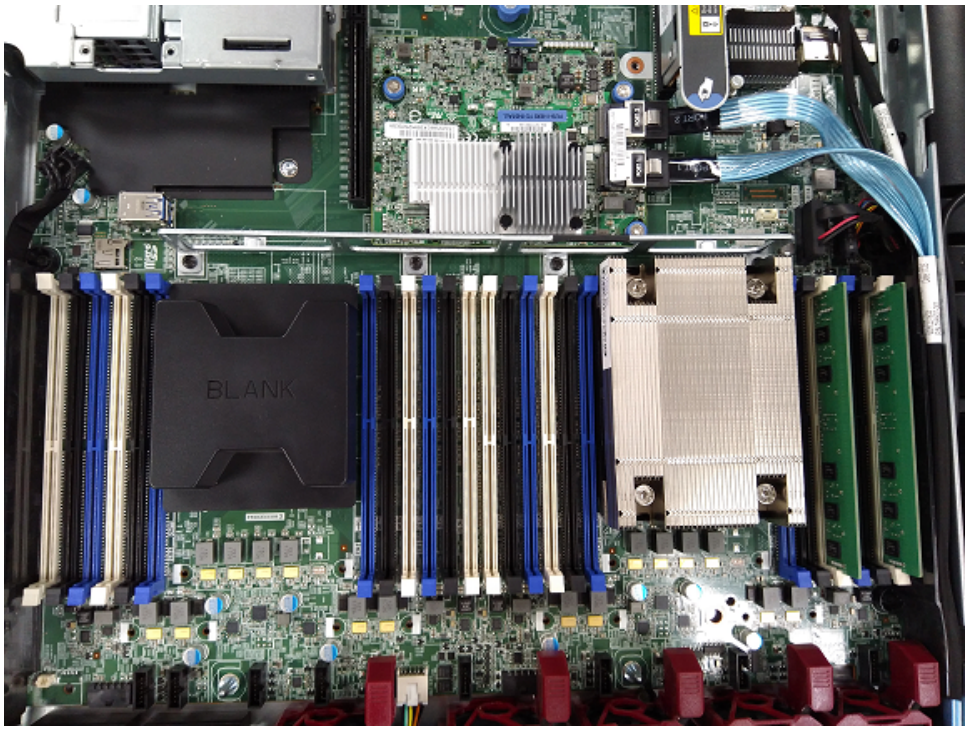
5.2.1 To remove the access panel

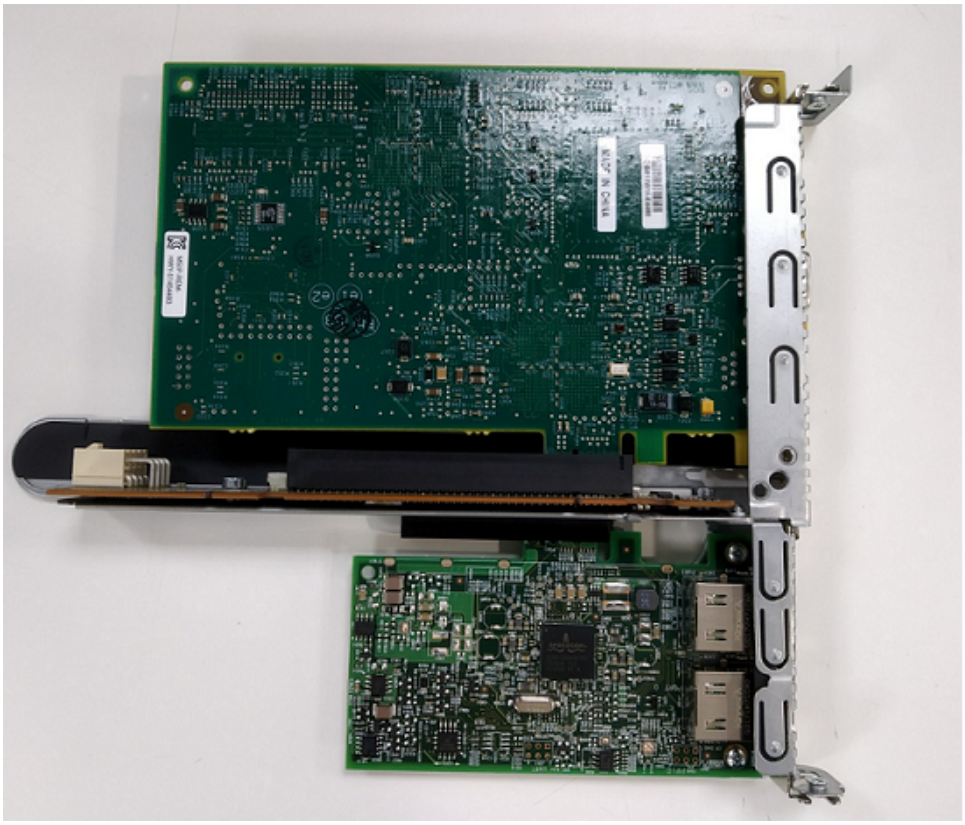
1. Turn off the server.
2. Disconnect the power cord from the power source.
3. Disconnect the power cord from the server.
4. Remove the server from the rack and place it on a flat surface.

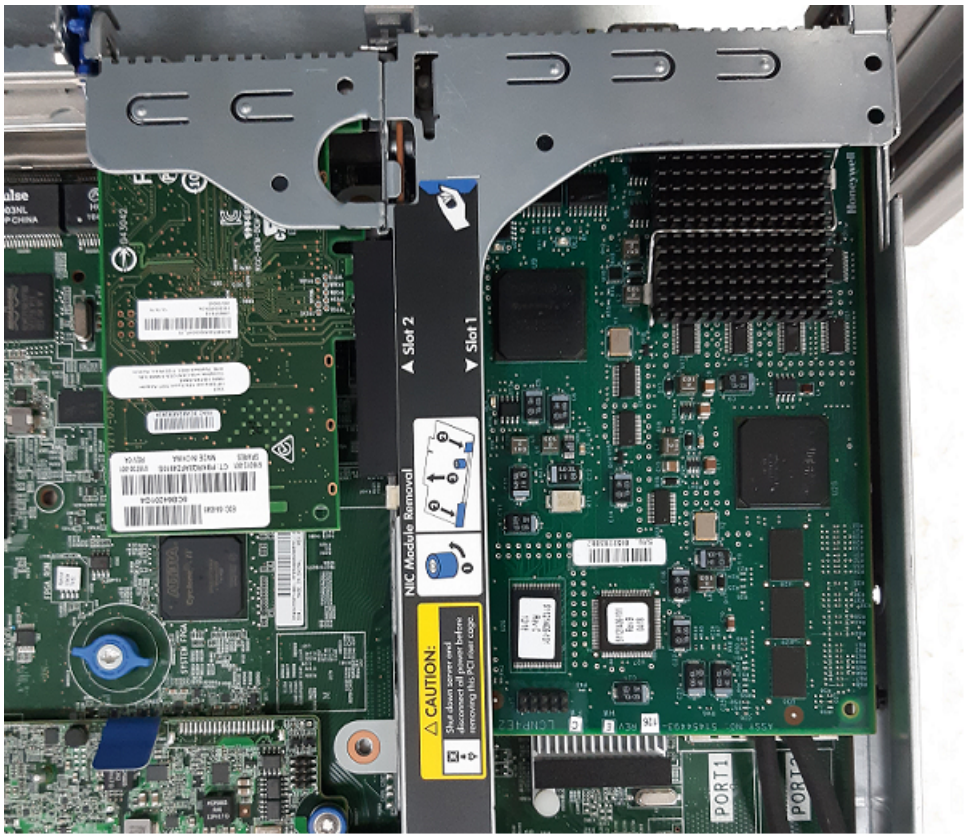
5. Press the locking latch and gently lift the latch up as illustrated.



6. Remove the top cover of the server and place it aside.
   The inside of the server is accessible.



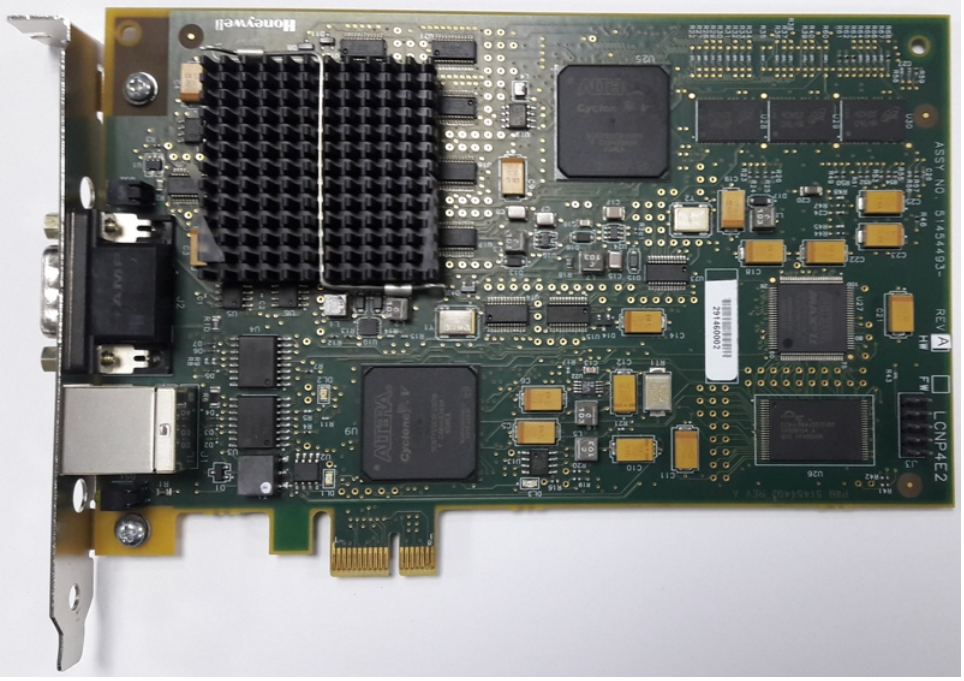




5.3 Servicing the LCNp4e2

The LCNp4e2 board has 256 MB of on-board memory.

Figure 5.1 LCNp4e2 Board



- Replacing the LCNp4e2 board

5.4 Servicing the hard disk drives and power supply

The server from Honeywell is configured with four 300GB SAS hard drives. All the four HDDs are used in a RAID-5 configuration and the fifth hard drive is a hot spare. The configuration also contains a dual redundant power supply. Both the hard disk drives and power supplies are hot swappable. You must, however, remove and replace only one power supply or hard disk drive at a time. Ensure that this is done on a system that is powered on. Refer to the HP documentation listed in the following table for detailed instructions on swapping the power supply and hard disk drive.

Publication	Contains information on
HPE ProLiant DL360 Gen9 Server Maintenance and Service Guide	Service and maintenance
HPE ProLiant DL360 Gen9 Server User Guide	Operation, setup, troubleshooting

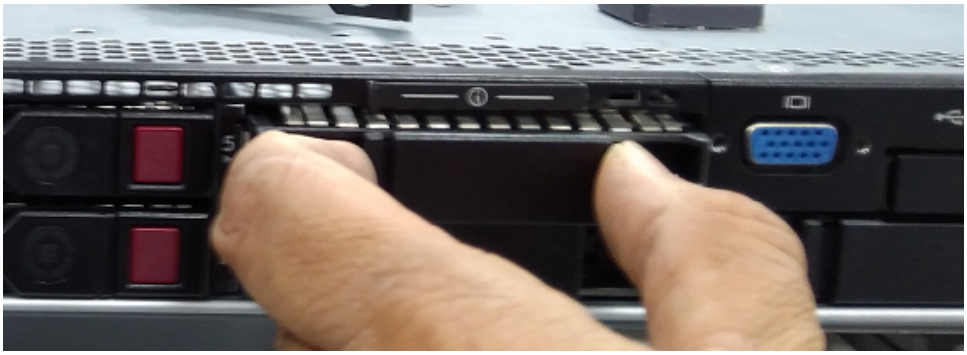
- Installing hot spare hard drive

5.4.1 Installing hot spare hard drive

You can insert the hot spare hard drive only when the server in on.

To insert the hot spare hard drive

1. From the front end of the server, locate the blocking plate.
2. Press the latches located at the ends of the blocking plate and pull the blocking plate as illustrated below.



3. Remove the blocking plate.

4. Insert the hot spare hard drive in the fifth bay, from where the blocking plate was removed.

5. Press the bracket on the hard drive such that it is locked in the fifth bay.

6. The hot spare hard drive is installed on the server.

5.5 Servicing Honeywell options

CAUTION

Do not damage the EMI gasket fingers when removing/installing boards.

WARNING

Use a grounding strap and grounded work surfaces and equipment when handling any electro statically sensitive components such as the video cards, NIC adapter cards, and SCSI controller cards. Store and transport parts only in electro statically safe containers.

5.5.1 LCN node setup board configuration

Slot number	Description
Slot-1	LCNp4e2
Slot-2	HPE 332T NIC card

5.5.2 Slot requirements for general Ethernet and FTE node setup

The following table identifies the specific slots for each of the Honeywell options for general Ethernet and FTE node configurations. Four Ethernet 10/100/1000 embedded Base-T connections are standard on the Honeywell-based HPE ProLiant DL360 Gen 9 Server Platform. The Broadcom dual embedded GB NICs are enabled without PXE in the System BIOS.

The default configurations listed are for FTE connectivity through the Add-On HPE 332T NIC Card NICs. The following charts defines the two FTE configuration and general Ethernet configurations.

360P	FTE Only	No FTE, but 1 or 2 Ethernet ports
Broadcom Dual Onboard NIC	Use Add-On NICs (NIC1 & NIC2)	Use one or two Integrated NICs (NIC1 or NIC2)

5.5.3 Add additional memory

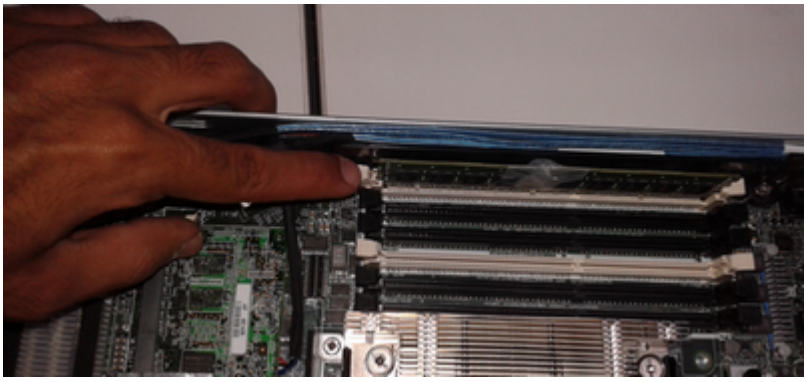
Prerequisites

- Turn off the system
- Disconnecting power cords and cables from the server.

> **CAUTION**
>
> The DIMMs are hot to the touch for some time after the system is powered down. Allow time for the DIMMs to cool before handling them. Handle the DIMMs by the edges and avoid touching DIMM components.

To add additional memory

1. Perform the steps in section Remove the server from the rack.
2. Remove the access panel. Refer to section Removing the access panel.
3. Swing the access panel up to expose the DIMM memory slots.
4. While wearing a grounded ESD wrist strap, press the socket ejectors on the memory module socket down to allow the memory module to be inserted into the socket.

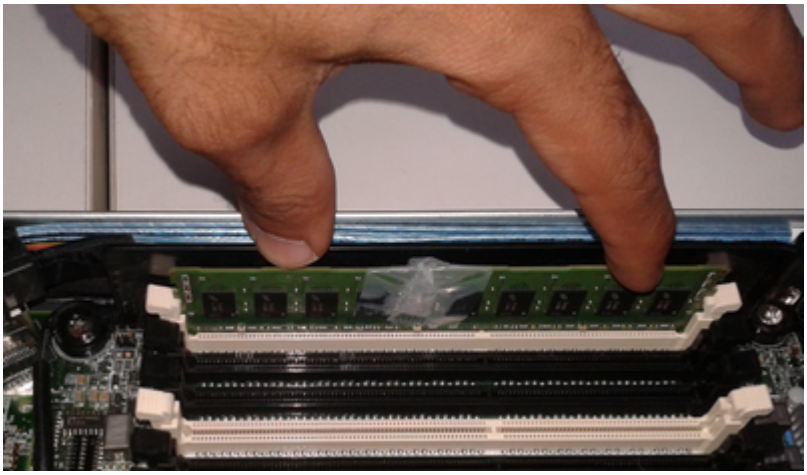


5. Insert the memory module as described in section Memory configuration.
6. Align the memory module's edge connector with the alignment key on the memory module socket, and insert the memory module into the socket.

> **ATTENTION**
>
> The memory module socket has an alignment key that allows you to install the memory module in the socket only in one way.

7. Press down the memory module with your thumbs while pulling up on the socket ejectors with your index fingers to lock the memory module into the socket.

   When the memory module is properly seated in the socket, the socket ejectors on the memory module socket align with the socket ejectors on the other sockets that have memory modules installed.



8. Push down on the hood latch. The access panel slides to a closed position.
9. Use the T-15 Torx screwdriver attached to the rear of the server to tighten the security screw on the hood latch.
10. Install the server into the rack.
11. Reconnect the power cords and cables to the back panel of the server.
12. Press the Power On/Off button on the server, to turn on the server.

5.5.4 Verifying correct BIOS settings

All Honeywell systems must have the Honeywell recommended BIOS version. Honeywell configures specific BIOS settings in the factory for each of the server platform configurations, and these settings must not be altered. BIOS settings for the server are listed in the tables.

5.5.5 Motherboard BIOS Setting

Power-up the computer. Press the **F9** key to enter the BIOS setup utility. The BIOS version is P89-2.41 05/30/2017(*).

System Option – Serial Port Option

Embedded serial port	COM1 IRQ4 IO:3F8H-3FFH
Virtual Serial Port	Disabled(*)

System Option – USB option

USB control	USB Enabled
USB Boot Support	Disabled (*)
Removable Flash media boot sequence	External Drive keys first
Virtual Install Disk	Disabled
Embedded user partition	Disabled
Internal SD Card Slot	Enabled
USB 3.0 Mode	Auto

System Option – Processor option

Intel® Hyperthreading	Enabled
Processor Core disable	0
Processor X2APIC Support	Enabled

System Option – SATA Controller Option

Embedded SATA Configuration option	Enable SATA AHCI Support
SATA Secure Erase	Disabled

System Option – Virtualization Option

Intel® VT-d	Disabled
SR – IOV	Enabled

System Option – Boot Time Optimization

Dynamic Power Capping functionality	Auto
Extended Memory Test	Disabled
Memory Fast Training	Enabled

System Option – Memory operation

Advanced memory Protection	Advanced ECC Support (*)

Boot Option

Boot Mode	Legacy Bios Mode (*)
UFEI Optimized Boot	Disabled
Boot ordered Policy	Retry Boot order indefinitely

Boot Option – Legacy Bios Boot Order (*)

Standard Boot Order (IPL)	
1	CD/DVD
2	USB DriveKey
3	Hard Drive C: (See Boot Controller Order)
4	Embedded LOM 1 Port 1 : HPE Ethernet16b 4-Port 331i Adapter - NIC

Boot Controller Order	
1	Embedded SATA Controller #1
2	Embedded RAID 1 : Smart Array P440ar Controller

Network Option – Network Boot Option

Network Boot Retry Support	Enabled
Embedded LOM 1 Port 1	Network Boot
Embedded LOM 1 Port 2	Disabled
Embedded LOM 1 Port 3	Disabled
Embedded LOM 1 Port 4	Disabled

Network Option – Pre-Boot Network Settings

Pre-Boot Network Interface	Auto
DHCPv4	Enabled

Network Option – VLAN Configuration

VLAN Control	Disabled
VLAN ID	0
VLAN Priority	0

Storage Option

Fibre Channel/FCoE San Policy	Scan Configured Targets Only

Embedded UEFI Shell

Embedded UEFI Shell	Enabled
Add Embedded UEFI Shell to Boot Order	Disabled
UEFI Shell Script Auto-Start	Disabled
Shell Auto-Start Script Location	Auto
Network Location for Shell Auto-Start Script	

Power Management

Power profile	Maximum Performance (*)

Power Management – Advanced Power Option

Dynamic Power Savings Mode Performance	FAST
Collaboration Power Control	Enabled
Redundant Power Supply Mode	Balanced Mode

Performance Option

Intel Turbo boost Technology	Enabled
ACPISLIT	Enabled

Performance Option – Advanced Performance Tuning Option

Node Interleaving	Disabled
Intel NIC DMA Channel [IOAT]	Disabled
HW Prefectcher	Enabled
Adjacent Sector Prefetch	Enabled
DCU Stream Prefetcher	Enabled
DCU IP Prefetcher	Enabled
QPI Snoop Configuration	Home Snoop
QPI Home Snoop optimization	Directory + OSB Enabled
Memory Proximity reporting for I/O	Enabled
NUMA Group Size Optimization	Clustered
Intel Performance Monitoring Support	Disabled

Server Security

Set Power On Password	********
Set Admin Password	********
One-Time Boot Menu (F11 Prompt)	Enabled
Intelligent Provisioning (F10 Prompt)	Enabled
Embedded Diagnostics	Enabled
Embedded Diagnostics Mode	Auto
No-Execute Protection	Enabled
Processor AES-NI Support	Enabled
Trusted Platform Module option	

PCI Device Enable/Disable

Embedded RAID 1	Smart Array P440ar Controller
Embedded LOM 1	Disabled
Adaptor	NIC
Embedded SATA Controller #1	Intel SATA Controller
Embedded SATA Controller #2	

Server Availability

ASR Status	Disabled
ASR Timeout	10 Minutes
Wake-On LAN	Disabled (*)
Post F1 Prompt	Delayed 20 Seconds (*)
Power Button Mode	Enabled
Automatic Power-On	Always Power Off (*)
Power-On Delay	No Delay

Bios Serial Console and EMS

Bios Serial Console Port	Physical Serial Port
Bios Serial Console Emulation Mode	VT100+
Bios Serial Console Baud Rate	115200
EMS Console	COM 1; IRQ4; I/O: 3F8H-3FFh

Advanced Options

ROM Selection	Use Current ROM
Embedded Video Connection	Auto
Server information	
Power On Logo	Disabled (*)

Advanced Options – Fan and Thermal Options

Thermal Configuration	Optimal Cooling (*)
Thermal Shutdown	Enabled
Fan Installation Requirements	Enable Messaging
Fan Failure Policy	Shutdown /Halt on Critical Fan fail
Extended Ambient Temperature Support	Disabled

Advanced Options – Advanced System ROM Option

NMI Debug Button	Enabled
PCI Bus Padding	Enabled
Consistent Device Naming	CDN Support for LOMs only
Mixed Power Supply Reporting	Enabled
PCI Express ECRC Support	Disabled
Serial Number	xxxxxxxxxx

5.6 Spare parts

Item	Description	HP part number	Honeywell part number
Expansion Ram	HP 8GB DDR4-2400 RDIMM or faster	805347-B21	51156502-901
Keyboard/Mouse	HP USB BFR-PVC US Keyboard/Mouse Kit	631341-B21	51156502-902
Hard Disk Drive	HP 300GB 12G SAS 15K 2.5in SC ENT HDD or better	870753-B21	51155539-907
Rack mount Rails	HP 1U SFF Gen9 Rail Kit for HP DL360 Gen 9	734807-B21	51156502-903
SMPS	HP 500W CS Plat PL Ht Plg Pwr Supply Kit	720478-B21	51156502-904
DVD Drive	HP 9.5mm SATA DVD RW Jb Kit	764632-B21	51156502-905

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