

**Honeywell**

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**Honeywell Process Solutions**

**PE2950-Honeywell Server  
Planning, Installation, and Service Guide**

EP-DPCXX8

Release Independent

May 2012

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**Honeywell**

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## About This Document

This document contains installation and service information for the Dell™ PowerEdge™ 2950 Server (2950-based Honeywell server). The instructions and service information contained herein address the server itself, and assumes that associated network communication equipment has been pre-installed by the Honeywell factory or has manuals dedicated to its installation and service. This server is not a standard Dell model and cannot be ordered independently from Dell.

### Release Information

Document Name	Document ID	Release Number
PE2950-Honeywell Server, EX19-100	EP-DPCXX8	Release Independent

### Revision Notes

Revision	Revision Date	Revision Notes
A	10/02/2007	Initial issue
B	08/20/2007	ECO P270163
C	10/26/2010	ECO P300098
D	08/02/2011	ECO P310057
E	05/01/2012	Updated for Experion R410


## References









The following list identifies all documents that may be sources of reference for material discussed in this publication.




Document Title	Doc ID
<b>TPS Users</b>	
<i>TPS System Site Planning</i>	SW02-550 or later
<i>TPS System Implementation Guide for Windows 2000</i>	TP08W
<i>TPS System Planning Guide for Windows 2000</i>	TP10W
<i>TPS System Administration Guide for Windows 2000</i>	TP06W
<i>TPS System Implementation Guide for Windows 2003</i>	TP08X
<i>TPS System Planning Guide for Windows 2003</i>	TP10X
<i>TPS System Administration Guide for Windows 2003</i>	TP06X
<b>Experion PKS Users</b>	
<i>Experion PKS Overview</i>	EP-DCSX32 or later
<i>Experion PKS Software Installation and Upgrade Guide</i>	EP-DCXX12 or later
<i>Server and Client Planning Guide</i>	EP-DSX132 or later
<i>Server and Client Configuration Guide (for Experion PKS)</i>	EP-DSXX22 or later
<i>Experion PKS Operators Guide</i>	EP-DSXX42 or later
<b>FTE Users</b>	
<i>Fault Tolerant Ethernet Installation and Service Guide</i>	FE05

## Symbol Definitions

The following table lists those symbols used in this document to denote certain conditions.

Symbol	Definition
	<b>ATTENTION:</b> Identifies information that requires special consideration.

Symbol	Definition
	<b>TIP:</b> Identifies advice or hints for the user, often in terms of performing a task.
	<b>REFERENCE - EXTERNAL:</b> Identifies an additional source of information outside of the book set.
	<b>REFERENCE - INTERNAL:</b> Identifies an additional source of information within the book set.
<b>CAUTION</b>	Indicates a situation which, if not avoided, may result in equipment or work (data) on the system being damaged or lost, or may result in the inability to properly operate the process.
	<p><b>CAUTION:</b> Indicates a potentially hazardous situation, which if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.</p> <p><b>CAUTION</b> symbol on the equipment refers the user to the product manual for additional information. The symbol appears next to required information in the manual.</p>
	<p><b>WARNING:</b> Indicates a potentially hazardous situation, which if not avoided, could result in serious injury or death.</p> <p><b>WARNING</b> symbol on the equipment refers the user to the product manual for additional information. The symbol appears next to required information in the manual.</p>
	<b>WARNING, Risk of electrical shock:</b> Potential shock hazard where HAZARDOUS LIVE voltages greater than 30 Vrms, 42.4 Vpeak, or 60 VDC may be accessible.
	<b>ESD HAZARD:</b> Danger of an electro-static discharge to which equipment may be sensitive. Observe precautions for handling electrostatic sensitive devices.
	<b>Protective Earth (PE) terminal:</b> Provided for connection of the protective earth (green or green/yellow) supply system conductor.

Symbol	Definition
	<b>Functional earth terminal:</b> Used for non-safety purposes such as noise immunity improvement. NOTE: This connection shall be bonded to Protective Earth at the source of supply in accordance with national local electrical code requirements.
	<b>Earth Ground. Functional earth connection.</b> NOTE: This connection shall be bonded to Protective Earth at the source of supply in accordance with national and local electrical code requirements.
	<b>Chassis Ground:</b> Identifies a connection to the chassis or frame of the equipment should be bonded to Protective Earth at the source of supply in accordance with national and local electrical code requirements.

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# 1. Planning

## 1.1 Overview

### About the PE2950- Honeywell Server platform

Platforms sold by Honeywell are engineered for the process control mission of Experion and TPS systems to provide consistent, 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 PE2950-based Honeywell 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 Dell model and cannot be ordered independently from Dell. The Technical Assistance Center (TAC) is trained on and fully supports Honeywell platforms. Use of any other server, including a similar Dell 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. This server provides computer-based functionality for the Experion system and the TPS system. For TPS systems and certain Experion systems configured with Fault Tolerant Ethernet (FTE), the server has an LCNP4M 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 NIC interface or an optional dual NIC card.

### Software requirements

The server runs on the following operating systems.

- Windows Server 2003 SP2 for Experion R3xx and TPS 4xx releases.
- Windows Server 2008 non HyperV media, 32-bit for Experion R400.x releases
- Windows Server 2008R2 64-bit for Experion R410.x releases.

The server platform runs the latest version of Application Processing Platform (APP Node) or Experion Server (ESVT, ESV, ACE, EHG, or SIM). Refer to the latest SCN for software applications that have been qualified for use on the PE2950-based server platform.

## **BIOS configuration**

All server platforms must have release 1.5.1 or later version of BIOS installed.

## **1.2 Description**

### **Honeywell server model number**

This user manual applies to the Honeywell-based server platform identified in the following table.

Model Number	Description	Part Number
MZ-PCSV50-100	PE2950-based Honeywell server	51153732-100



**Figure 1-1 PE2950-based Honeywell Server**

### **Equipment configuration**

The server platform is used for TPS and Experion nodes and must be rack mounted in a 1-meter deep Honeywell equipment cabinet only, model number MP-C1MCB1. When mounted in a cabinet, the enclosure uses 2U of space plus 1U of space for a blank front panel and air duct baffle which must be mounted directly above each 2950-based server.

This server cannot be mounted in the Icon Series console, legacy Honeywell Cabinets, Classic, or Z/EZ console; hence, this document does not include instructions for these types of installations.

### **Electronics module**

The electronics assemblies for the server are based upon the Dual-Core Intel® Xeon® processors. The standard DDR2 memory for this platform is 1GB, 667 MHz (2– 512 MB

DDR2 Single Ranked Fully Buffered DIMMs), optionally expandable to 2 GB, 3 GB, or 4 GB. There are no cache memory options.

The peripheral electronics assemblies are based on the Peripheral Component Interconnect (PCI), PCI Extended (PCI-X) and PCI Express (PCI-E) bus and support USB 1.1/2.0.

### **Storage and media devices**

The standard mass storage for this platform has five 73 GB 2.5" 10K RPM SAS hard drives, where drive numbers 0, 1, 2, and 3 are in a RAID-5 configuration and drive number 4 is a hot spare.

Standard media devices in the server are the CDRW/DVD-ROM drive and 3.5 inch floppy drive.

All mass storage devices are connected via IDE or PCIe interfaces. The floppy drive and EIDE CDRW/DVD ROM drive are connected via the floppy disk connector and the IDE connector on the motherboard respectively. The RAID-5 SAS controller card is located near the card cage.

### **Standard features**

The following is a list of the common features of this platform:

- Dell motherboard with 2 Dual Core Intel Xeon 5150 processors, 2.66GHz, 4 MB L2 Cache
- Dual Embedded Gigabit NIC (Broadcom)
- PERC 5i SAS RAID-5 Controller
- Expansion slots: three total – two PCI-X slots and one PCI-E x8 slot
- Front Port: two USB 2.0, one ID push button with blue/amber LED, one video, one system power on/off button
- Rear Port: one serial, two USB 2.0, two RJ45 connectors, one ID push button with blue/amber LED
- Memory: two 512 MB DDR-2 667 MHz, ECC SDRAM
- Media Drive: EIDE CDRW/DVD-ROM Drive
- Hard Drives: five 73 GB or larger, 10K RPM, 2.5" SAS Hard Drives
- Removable Drive: 3.5 inch, 1.44 Mb floppy drive

## 1. Planning

### 1.3. Finding Information for Your Platform

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- Video: integrated ATI ES1000 video controller; VGA connector - video memory 16 MB
- 750 W Dual Redundant Power Supply
- Two 110 Volt Power Cords

#### Optional features

The following is a list of the additional options that may be configured in your platform:

- Dual NIC
- LCNP4M
- Universal ControlNet Interface
- Memory upgrade to 2 GB, 3 GB, or 4 GB
- Single NIC

#### Power cables

The following table lists the Honeywell AC power cords applicable to cabinet, rack mount configuration.

Part Description	Part Number
AC power cord, 120 V	51305490-600
AC power cord, 240 V	51305489-600

## 1.3 Finding Information for Your Platform

#### Honeywell documentation

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

**Table 1-1 Honeywell Publications**

Publication	Contains information on
ADP01: <i>Honeywell Peripheral Adapters</i>	Contains information for using the OEP/IKB adapter with computer platforms that do not have the ISA card.
FE05: <i>Fault Tolerant Ethernet</i>	Contains information for installing and using FTE.



Publication	Contains information on
<i>Installation and Service Guide</i>	

### Dell documentation

The following table lists Dell publications and other sources of information that will be useful when installing, operating, and servicing the Honeywell Server.

**Table 1-2 Dell Publications**

Publication	Contains information on	Available
<i>Information Update</i>	Last-minute updates about technical changes to your computer or advanced technical-reference material for experienced users or technicians	Packaged with the computer
<i>Dell™ PowerEdge™ Product Information Guide</i>	Warranty information Safety information	Packaged with the computer <a href="http://www.dell.com">www.dell.com</a>
<i>Getting Started With Your System</i>	Unpacking and connecting cables	Packaged with the computer
<i>Quick Installation Guide</i>	Installing and configuring the server and operating system	Packaged with the computer Product Documentation CD
<i>Dell™ PowerEdge™ PE2950 Systems User's Guide</i>	How to remove and replace parts Technical specifications How to configure system settings How to troubleshoot and solve problems	Product Documentation CD <a href="http://www.dell.com">www.dell.com</a>
<i>Rack Installation Guide</i>	Installing the system in a server rack or cabinet	Packaged with the computer <a href="http://www.dell.com">www.dell.com</a>
<i>Windows Installation Instructions and Important Information</i>	Initialization of the Windows operating system	Packaged with the computer <a href="http://www.dell.com">www.dell.com</a>
<i>Dell™ Systems – RAID Controller Initialization</i>	Initializing the RAID controller	Packaged with the computer
<i>Dell™ Systems – Upgrading RAID Firmware</i>	Upgrading the RAID firmware	Packaged with the computer

## 1. Planning

### 1.4. TPN Node Slot Requirements

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Publication	Contains information on	Available
<i>Dell™ PowerEdge™ 2950 Systems Installation and Troubleshooting Guide</i>	Diagnosing problems Using status indicators for troubleshooting	Product Documentation CD <a href="http://www.dell.com">www.dell.com</a>

## 1.4 TPN Node Slot Requirements

For more detailed slot configuration see Table 4-2.

### TPN node setup

Slot Description	Option
Slot 1 – PCI-E x8	Free Slot
Slot 2 – PCI-X	Dual NIC/Single NIC/Free Slot
Slot 3 – PCI-X	LNCP4M

## 1.5 FTE Slot Requirements

The default configurations listed below are for FTE connectivity through the on-board NICs. The optional configurations listed below are for FTE connectivity through an Intel Dual NIC card. For more detailed slot configuration see Table 4-3.

In case your default network configuration (Dual embedded NIC or Intel Pro 1000MT PCI based add on card) fails and you cannot find similar replacement cards then following optional Network Configuration can be used.

Intel Pro 1000PT Dual Server adapter (NE-NICS02), Single server adapter (NE-NICSS1) and Dual NIC ET Card (NE-NICS03). It is recommended that you install these optional Network Configuration cards in Slot 1 PCIex8.

### FTE Supervisory and ControlNet (Default)

Slot Description	Option
Slot 1 – PCI-E x8	Free Slot
Slot 2 – PCI-X	Free Slot
Slot 3 – PCI-X	Universal ControlNet Interface

**FTE Supervisory and ControlNet (Optional)**

Slot Description	Option
Slot 1 – PCI-E x8	Free Slot
Slot 2 – PCI-X	Dual NIC
Slot 3 – PCI-X	Universal ControlNet Interface

**FTE co-joined via single NIC (Default)**

Slot Description	Option
Slot 1 – PCI-E x8	Free Slot
Slot 2 – PCI-X	Single NIC
Slot 3 – PCI-X	Free Slot

**FTE co-joined via Dual NIC (Optional)**

Slot Description	Option
Slot 1 – PCI-E x8	Free Slot
Slot 2 – PCI-X	Dual NIC
Slot 3 – PCI-X	Free Slot

**FTE co-joined via single NIC for EHG (Default)**

Slot Description	Option
Slot 1 – PCI-E x8	Free Slot
Slot 2 – PCI-X	Single NIC
Slot 3 – PCI-X	Free Slot

## 1. Planning

### 1.6. General Ethernet Slot Requirements

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#### FTE co-joined via on-board single NIC for EHG (Optional)

Slot Description	Option
Slot 1 – PCI-E x8	Free Slot
Slot 2 – PCI-X	Dual NIC
Slot 3 – PCI-X	Free Slot

## 1.6 General Ethernet Slot Requirements

General Ethernet must be used on the first/second on-board NICs. For more detailed slot configuration see Table 4-3.

#### Option 1 – Single Ethernet (one on-board NIC used)

Slot Description	Option
Slot 1 – PCI-E x8	Free Slot
Slot 2 – PCI-X	Free Slot
Slot 3 – PCI-X	Free Slot

#### Option 2 – Dual Ethernet (both on-board NICs used)

Slot Description	Option
Slot 1 – PCI-E x8	Free Slot
Slot 2 – PCI-X	Free Slot
Slot 3 – PCI-X	Free Slot

#### Option 3 – 3 NICs, Ethernet (both on-board NICs used plus one single NIC)

Slot Description	Option
Slot 1 – PCI-E x8	Free Slot
Slot 2 – PCI-X	Single NIC
Slot 3 – PCI-X	Free Slot

**Option 4 – 4 NICs, Ethernet (both on-board NICs used plus one dual NIC)**

Slot Description	Option
Slot 1 – PCI-E x8	Free Slot
Slot 2 – PCI-X	Dual NIC
Slot 3 – PCI-X	Free Slot

## 1.7 Honeywell Server Options

### Device options

In addition to the standard configuration for the server, your platform may be configured with additional options based on the model number you ordered. The following table lists optional items for this server.

Model Number	Option Description
TP-LCNP02-100	LCNP4M
NE-NICS01-100	Dual NIC
MZ-PCEB32-100	Single NIC
TC-PCIC02-100	Universal ControlNet Interface
MZ-PCEM03-100	Two additional 1GB memory modules
NE-NICSS1	Single NIC Card PCIe, Server
NE-NICS02	Dual NIC Card PCIe Dual Port STP
NE-NICS03	Dual NIC Card, PCIe,GB, T Chipset

If your default network configuration (Dual Embedded NIC or Intel Pro 1000 MT PCI based add on card) fails and if you are unable to find similar replacement card, then you can use Intel) must be installed on the slot-1 PCI-X 8

### Memory Option Configuration

System memory can be increased to a maximum of 4 GB. The memory capacity can be increased to 2 GB by ordering one memory option kit, MZ-PCEM03, 3 GB by ordering two memory option kits, MZ-PCEM03, and 4 GB by ordering three memory option kits, MZ-PCEM03. Each option kit comes with two 512 MB DIMMs. Memory devices must be from the same memory supplier.

## 1. Planning

### 1.8. Other Options

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The following table shows the placement of memory devices for the memory capacity options. The table is organized so that the DIMM sockets are in the same order as they are located on the motherboard.

**Table 1-3 Standard and Optional Memory Configuration**

DIMM Socket	1 GB Memory (standard)	2 GB Memory	3 GB Memory	4 GB Memory
1	512 MB	512 MB	512 MB	512 MB
5			512 MB	512 MB
2	512 MB	512 MB	512 MB	512 MB
6			512 MB	512 MB
3		512 MB	512 MB	512 MB
7				512 MB
4		512 MB	512 MB	512 MB
8				512 MB

## 1.8 Other Options

Honeywell offers a cabinet mounted 8-port KVM switch/control console (model number TP-KVMCB1 for switch with PS/2 interface and model number TP-KVMCB2 for switch with USB interface) to provide a human interface (booting and maintenance activities) to cabinet mounted servers. Either option comes pre-installed from the Honeywell factory.

## 1.9 Specifications

### Environmental specifications when cabinet mounted

The following table lists operating environmental limitations in a cabinet.

**Table 1-4 Environmental Operating Specifications**

Description	Cabinets
Ambient room temperature	10 to 30 ° C (50° - 86° F)
Humidity	20 to 80% RH, non-condensing
Operating vibration	0.012" P-P displ from 5.0 Hz to 12.7 Hz, then 0.1g to 150 Hz; 60 min per axis, all 3 axes
Site induced shock	6g, 10 msec half-sine pulses, 1 positive, 1 negative, all 3 axes

## Electronic assembly specifications

The following tables list electronic assembly specifications.

**Table 1-5 Typical Operating Power Requirements**

Description	Requirement
DC POWER	N/A
AC Voltage	120 (90-132) Vrms 240 (180-260) Vrms
AC RMS Current	2.1 Arms 1.22 Arms
AC Power	249 Watts 240 Watts

**Table 1-6 Maximum Operating Power Requirements**

Description	Requirement
DC POWER	N/A
AC Voltage	120 (90-132) Vrms 240 (180-260) Vrms
AC RMS Current	2.78 Arms 1.52 Arms
AC Power	332 Watts 317 Watts

**Table 1-7 Electronic Assembly Weight and Dimensions**

Description	Requirement
Height	86.36 mm (3.40 in.)
Width	444.5 mm (17.5 in.)
Depth	744.5 mm (29.31 in.)
Weight	23 Kg (51 lbs)

## Hard disk drive specifications

The server platform has eight hard disk drive bays. It uses four 73 GB SAS hard drives for RAID-5 (striping). The fifth hard drive is used as a hot spare. The sixth through eighth hard drive bays are empty. There is no option to add additional hard drive(s). Disk drives in this platform must be the same size (GB) and speed (RPM).

## 1. Planning

### 1.9. Specifications

---

**Table 1-8 73 GB Hard Disk Drive Power Requirements**

Description	Requirement
DC 5 volt Power (typ)	5 Watts +/- 5%
DC 12 volt Power (typ)	12 Watts +10%, -8%
Other DC POWER	29 Watts Max, 18.0 Watts idle

**Table 1-9 73 GB Hard Disk Drive Weight and Dimensions**

Description	Requirement
Height	14.81 mm (0.58 in.)
Width	70.1 mm (2.76 in.)
Depth	100.20 mm (3.94 in.)
Weight	0.22 kg (0.49 lbs)

#### Removable media specifications

The server has one dedicated 3.5 inch floppy drive. This floppy drive is to be left in place and cannot be remotely mounted. The server platform is configured with one removable media drive, a CD-RW/DVD-ROM drive. The CD-RW/DVD-ROM drive is pinned "Master" and is connected to the IDE connector on the motherboard.

**Table 1-10 Removable Media Power Requirements**

Description	Device Requirements
	CDRW/DVD ROM
DC 5 volt Power	8.0 Watts

#### Mouse and Keyboard

The USB mouse is the standard cursor control device and is included with the server platform. A USB standard keyboard is also included.

Honeywell offers a cabinet mounted 8-port KVM switch/control console (model number TP-KVMCB1 for switch with PS/2 interface and model number TP-KVMCB2 for switch with USB interface) to provide human interface (booting and maintenance activities) to cabinet mounted servers. Either option comes pre-installed from the Honeywell factory.

When running Dell diagnostics the USB keyboard must be connected to a USB port on the back panel. To run Dell diagnostics successfully while the keyboard is connected to



a front panel USB port you must download the latest diagnostics from the Dell Support Website at <http://support.dell.com>.

### **Monitor**

A monitor is required for the server operating system. This platform is configured with a single screen option only and an on-board integrated ATI ES1000 video controller. A monitor does not come with this server platform; you must order a monitor separately. A laptop with terminal emulation software can also be used.

**CAUTION:** The video cable must support DDC. If either a monitor or video cable that does not support DDC is connected, the display generator will default to a resolution that 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 HD 15 connector are wired. The supplied cable, part number 51196742-200 is DDC compatible.

The server platform supports industrial standard video formats, typically 1280X1024, at a refresh rate of 75Hz or 1024X768 at a refresh rate of 75Hz.

## 1. Planning

### 1.10. Industrial Regulatory Compliance

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## 1.10 Industrial Regulatory Compliance

### Overview

The compliance specifications in this section apply to cabinet installation.



#### WARNING

Honeywell does not claim Safety Compliance or Electromagnetic Compatibility (EMC) Compliance for system equipment configurations that have not been described in this manual 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 (EMC)

**Table 1-11 EMC Specifications (Industrial Regulatory)**

European Community:	
Emissions:	IEC 61326, 1997 (Industrial Locations, CISPR 11, Class A)
Immunity:	IEC 61326, 1997 (Industrial Locations)
<b>Attention:</b> The following formula is a proximity guideline, for use of Portable Transceivers	
	(walkie-talkies) in the frequency range of 80MHz to 1GHz: <b><math>D &gt; 0.30 \cdot \sqrt{P}</math></b> (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. <b>Examples:</b> P = 10 Watts, D > 0.949 meters P = 5 Watts, D > 0.671 meters P = 1 Watt, D > 0.300 meters
	<b>Note:</b> Electrical cables, which are routed external to the equipment, must be fully shielded cables (360 degree metallic shielding), in order to comply with the above EMC standards.

**Safety compliance****Table 1-12 Safety Compliance (Industrial Regulatory)**

Product Safety Compliance:	
	CSA C22.2 No. 1010.1-92 (R1999) & 1010.1B-97 (R2001) Am. 2
	IEC 61010-1, 2001, 2nd edition
	<b>Note:</b> Within the above referenced standards is a “Normative Reference” section citing additional standards, which may apply as, suited and required for product compliance.

## 1. Planning

### 1.11. Light Industrial Regulatory Compliance

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## 1.11 Light Industrial Regulatory Compliance

### Overview

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



#### WARNING

Honeywell does not claim Safety Compliance or Electromagnetic Compatibility (EMC) Compliance for system equipment configurations that have not been described in this manual 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 (EMC)

**Table 1-13 EMC Specifications (Light Industrial Regulatory)**

European Community:	
Emissions:	IEC 61326, 1997 (Basic Requirements, CISPR11, Class A)
Immunity:	IEC 61326, 1997 (Basic Requirements)
<b>Attention:</b> The following formula is a proximity guideline, for use of Portable Transceivers	
	(walkie-talkies) in the frequency range of 80MHz to 1GHz: $D > \sqrt{P}$ (D must be greater than the square root of P) D = Distance from equipment, in meters. P = Power Output of the Portable Transceivers (walkie-talkies), in Watts.  <b>Examples:</b> P = 10 Watts, D > 3.162 meters P = 5 Watts, D > 2.236 meters P = 1 Watt, D > 1.000 meters
	<b>Note:</b> Electrical cables, which are routed external to the equipment, must be fully shielded cables (360 degree metallic shielding), in order to comply with the above EMC standards.

**Safety Compliance****Table 1-14 Safety Compliance (Light Industrial Regulatory)**

<b>Product Safety Compliance:</b>	
	CSA C22.2 No. 1010.1-92 (R1999) & 1010.1B-97 (R2001) Am. 2
	IEC 61010-1, 2001, 2nd edition
	<b>Note:</b> Within the above referenced standards is a “Normative Reference” section citing additional standards, which may apply as, suited and required for product compliance.

## **1. Planning**

### **1.11. Light Industrial Regulatory Compliance**

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## 2. Installation

### 2.1 Introduction

#### Overview

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

#### Tasks for installing the server

The following table lists the major platform installation tasks.

**Table 2-1 Server Installation Tasks**

Task		For more information see . . .
✓	Be aware of all power and grounding requirements for your furniture.	Specific site requirements  Section 2.2 “Power and Grounding Requirements”  <i>TPN System Installation (SW20-600), Section 4, System Grounding</i>
✓	Install the server in the cabinet	Section 2.4, Installing the Server and Connect Cables
✓	Start up the server	Section 2.6, Starting up your Server

#### Before you begin

Before performing the procedures in this section, verify the following tasks have been performed.

✓	Description
	Verify the cabinet has been properly grounded.
	Unpack the platform from the box and verify all parts are accounted for.
	Use a #2 Philips head screwdriver.
	Position the server on a secure surface near the cabinet it will be mounted in.
	Identify and verify all necessary cables for your particular configuration are available.

## 2. Installation

### 2.2. Power and Grounding Requirements

---

## 2.2 Power and Grounding Requirements

### Grounding for computer based nodes

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

### Grounding consoles and cabinets

The *TPN System Installation Manual, SW20-600, Section 4, "System Grounding"* contains information on grounding furniture, including the following:

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

### AC Power Warning



#### WARNING

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

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#### ATTENTION

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

---



## 2.3 Cabinet Spacing Requirements

### Server Arrangements

Due to thermal constraints, a maximum of five (5) 2950-based Honeywell servers can be mounted in a new build 1-meter deep Rittal MP-C1MCB1 cabinet. These servers must be mounted in the first 15U of vertical rack space, counting from the bottom of the cabinet and moving up, with the first server mounted in the first 3U interval of rack space (includes 1U for air duct baffle and blank front panel), the second server mounted in the second 3U interval, etc. Each server must have a 1U air duct baffle and blank front panel installed in the rails directly above them.

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

### Unused Cabinet Spaces



#### ATTENTION

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

---

All unused rack mount locations must have blank front panels and air duct baffles installed to ensure proper cooling. These are available in four height options. The following table shows the four height options and the corresponding part and tab numbers each.

## 2. Installation

### 2.4. Installing the Server and Connect Cables

---

**Table 2-2 Air Duct Baffle and Blank Front Panel Height Options**

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

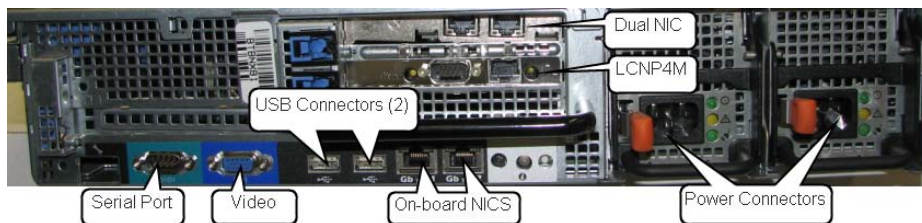
## 2.4 Installing the Server and Connect Cables

### Overview

This section contains procedures for installing and cabling the server in a 1-meter deep Honeywell cabinet only, model number MP-C1MCB1. This procedure assumes a new 1-meter deep equipment cabinet, Honeywell model number MP-C1MCB1, was shipped from the Honeywell factory with VersaRail slides pre-assembled.

### Honeywell server connections


The following figure shows the back panel of the server and identifies the connectors for all devices. It also shows an LCNP4M card and dual NIC card installed. Your configuration may not include these cards.



**Figure 2-1 PE2950-based Honeywell Server Rear View**

### Install the server and connect the cables

Use this procedure to install the server in a cabinet and connect all power cords and cables to the server platform, refer to Figure 2-1 for cable connections.

Step	Action
1	From the front of the cabinet, open the door to access the mounting rails.
2	Fully extend the right and left VersaRail slides (pre-installed in the Honeywell factory).
3	Lower the server into the J-shaped slots in each slide, starting with the slot that is closest to the cabinet.
4	Push the server toward the cabinet until the retaining clips snap into place.
5	<p>Slide the server directly into the cabinet and engage the captivated screws in the front flange of the VersaRails. Once the retaining screws are engaged in the threaded inserts, tighten them until the server rack mount flanges contact and are secured to the front mounting rails of the cabinet.</p> <p>Note: The VersaRail kit includes a cable management arm (installed in the Honeywell factory) that mounts to the rear of the VersaRail. AC power cords and KVM cables will be pre-routed through the cable management arm. For additional information, see the <i>"Rack Installation Guide"</i> provided with the instructions shipped with the cabinet.</p>
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 via a USB to PS/2 adapter (included with the KVM cable).
7	Connect the video and network interface cable(s).
	<p><b>WARNING:</b> AC power cords from all computing nodes mounted within 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 breaker(s).</p>
8	<p>Connect the Honeywell AC power cords.</p> <p>Note: Make sure that the power cords are connected to separate power entries.</p> <p>For more power cord information refer to Power Cords in Section 1.2.</p>
9	If you are not using Fault Tolerant Ethernet (FTE), connect the Ethernet cable to the on-board RJ-45 connector.

## 2. Installation

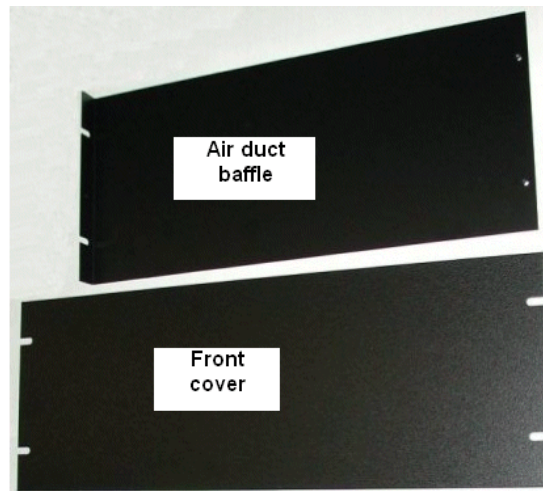
### 2.5. Install air duct baffles and blank front panels in cabinet

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Step	Action
	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 on-board RJ-45 connector.
10	Secure any loose cables, and verify that all cables have proper strain relief.
11	If necessary, continue to Section 2.5 to install an air duct baffles and blank front panels.  Note: Any unused rack mount space must have an air duct baffle and blank front panel installed.
12	Go to Section 2.6, Starting up your Server, to complete the installation.

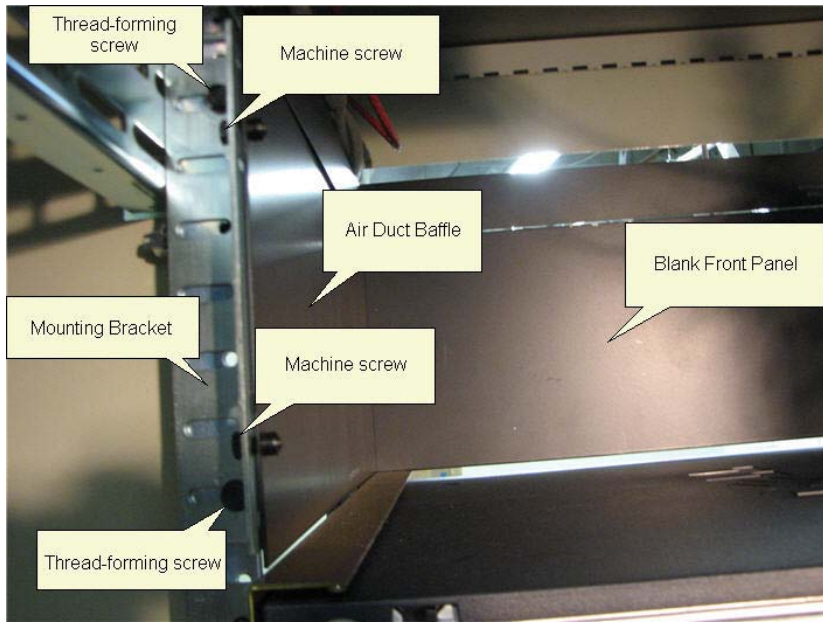
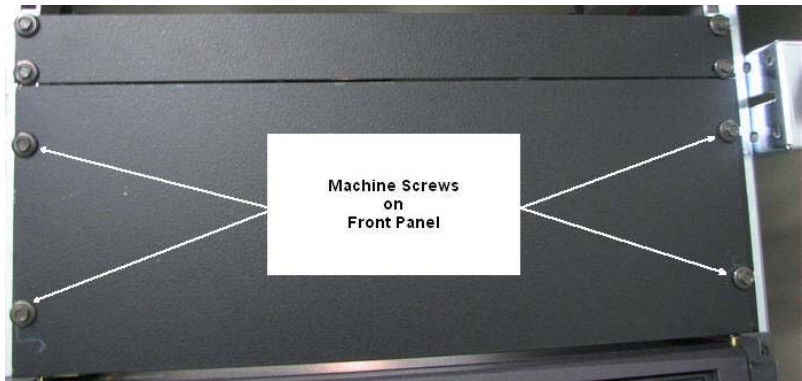
## 2.5 Install air duct baffles and blank front panels in cabinet

Use the following procedure to install the air duct baffle and blank front panel in the cabinet. These are available in four height options; refer to Table 2-2 for height options. Installing these parts will insure that the airflow within the cabinet allows proper cooling of the computers.



## 2. Installation

### 2.6. Starting up your Server

Step	Action
1	<p>Place the air duct baffle inside the cabinet with the bent tab resting along the front of the right cabinet rail.</p> 
2	<p>Place the blank front panel across the front of the cabinet rails and 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 tighten the screws.</p> 
3	<p>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</p>

## 2. Installation

### 2.6. Starting up your Server

---

Step	Action
	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.

## 2.6 Starting up your Server

### Overview

The following table lists those tasks that must be performed prior to operating your server platform. This section contains procedures for each of these tasks.

Note: Cabinet mounted servers that do not have a KVM switch/console require the connection of the USB mouse and keyboard (supplied with the server) for server startup.

✓	Task
	Turn on power and check status.
	Check LCNP4M status.

### Turn on power and check status

Step	Action
1	Press the power button on the front panel.
2	Wait for the power light to become solid green.
3	If the power light does not become solid green, refer to the <i>“Advanced Troubleshooting”</i> section of the <i>Dell Precision™ PE2950 System User's Guide</i> .

### Check LCNP4M status

If this is a TPS node with the LCNP4M board installed, verify that the LCNP passed self test.

Step	Action
1	From the <b>Start</b> menu, go to Programs>Honeywell TPS, select <b>LCNP Status</b> .
2	Verify that the LCNP status indicates <b>Passed Self Test</b> and the circle is green.

Step	Action
3	Verify that <b>TPN Address</b> appears in the <b>LEDs</b> field of the LCNP Status display once Board 0 has been configured for the node's TPN address. You will need to reset the LCNP after configuration.

**REFERENCE**

Refer to the LCNP Status section in the *LCNP Status User's Guide* for more information.

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## **2. Installation**

### **2.6. Starting up your Server**

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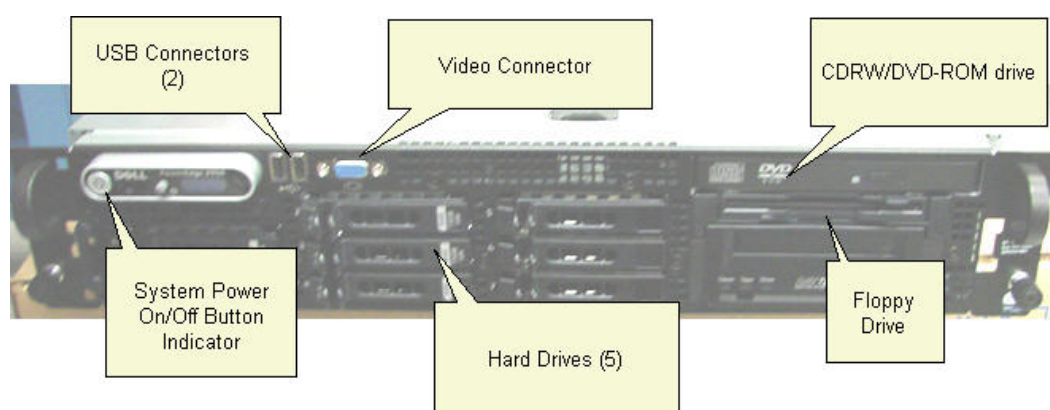


## 3. Operation

### 3.1 Overview

#### Front view of server

The following figure shows the front view of the server.



**Figure 3-1 Front View of PE2950-based Server**

#### Additional references

The following table lists the Dell publications that contain operation and servicing information.

**Table 3-1 Dell Publications for Operation and Servicing**

Publication	Contains information on	Available
<i>Information Update</i>	Last-minute updates about technical changes to your computer or advanced technical-reference material for experienced users or technicians	Packaged with the computer
<i>Dell™ PowerEdge™ Product Information Guide</i>	Warranty information Safety information	Packaged with the computer <a href="http://www.dell.com">www.dell.com</a>
<i>Dell™ PowerEdge™</i>	How to remove and replace parts	Product

### 3. Operation

#### 3.2. Network Connections

---

Publication	Contains information on	Available
<i>PE2950 Systems User's Guide</i>	Technical specifications How to configure system settings How to troubleshoot and solve problems	Documentation CD <a href="http://www.dell.com">www.dell.com</a>
<i>Rack Installation Guide</i>	Installing the system in a server rack or cabinet	Packaged with the computer <a href="http://www.dell.com">www.dell.com</a>
<i>Windows Installation Instructions and Important Information</i>	Initialization of the Windows operating system	Packaged with the computer <a href="http://www.dell.com">www.dell.com</a>

## 3.2 Network Connections

### Overview

Each server platform must be connected to an LCN network and/or an ETHERNET network. The standard default for the on-board NIC in the BIOS is enabled without PXE. For FTE configurations using the Intel Dual NIC card for connectivity, the BIOS must be disabled, refer to Section 4.5 to verify BIOS settings.

### Ethernet network

Two ETHERNET 10/100/1000 embedded Base T connections are standard on the server platform. Most TPS/Experion FTE systems will use the on-board NICs. If you are using FTE, you must install the FTE cables according to the specific instructions in the *FTE Installation and Service Guide*. Some Experion configurations using the on-board NICs may also use an additional single or dual NIC card.

### LCN network

The connection to the LCN is made via a Local Control Network Processor (LCNP4M) card. This card is a Honeywell card that allows the TPS Operator Station to emulate Universal Stations. This card provides the communication path for the Operator Station to the other LCN modules. The LCNP4M consist of an LCNP4M Card, a MAU cable, and the LCN MAU (Media Access Unit). The LCNP4M card is a three quarter length PCI card that consumes PCI-X slot 3. The LCNP4M, MAU, and MAU cable are required to connect to the LCN Network.

The LCN node address should be set to the address the customer requires. If the LCN address is not known, then the node address should 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 server platform uses a digital system clock. When the server platform is added to an existing system that contains node(s) running analog clocks, that system must have at least two (2) KxLCN boards for analog/digital clock translation.

**Note:** LCNP4M card cannot be replaced with an LCNP4 card. The LCNP4M (model number TP-LCNP02-100) is required.

#### **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 LCNP4M board and the LCN MAU is 2 meters in length.

Refer to *LCN System Installation, Subsection 3.6* for the rules and techniques of installing an LCN cable system.

#### **LCN connections**

The LCN Cable A and Cable B connections are made through a single cable from the LCNP4M board to the LCN Media Access Unit (MAU) contained in a metal housing.

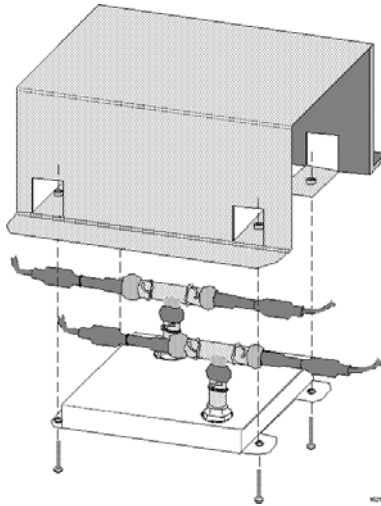
#### **MAU connection**

Connect the MAU to both the Cable A and Cable B coax T-connector as shown below (tower unit MAU shown, cabinet mounted MAU similar).

### 3. Operation

#### 3.2. Network Connections

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**Figure 3-2 LCN MAU to LCN Cable T-Connections**

#### **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 TDLs (Tap Dummy Load) which terminate a drop cable when no node is present. The model number for the ControlNet Universal Interface is TC-PCIC02-100.

## 4. Servicing

### 4.1 Servicing the PE2950-Honeywell Server

#### Before you begin servicing



#### Attention

Perform a complete system shutdown before you begin any of the procedures in this section.

---



#### CAUTION

Before you begin any of the procedures in this section, follow the safety instructions in the *Dell System Information Guide*.

---



#### CAUTION

To avoid electrical shock, always unplug your computer from the electrical outlet before opening the cover.

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#### Attention

Be careful when opening the computer cover to ensure that you do not accidentally disconnect cables from the system board.

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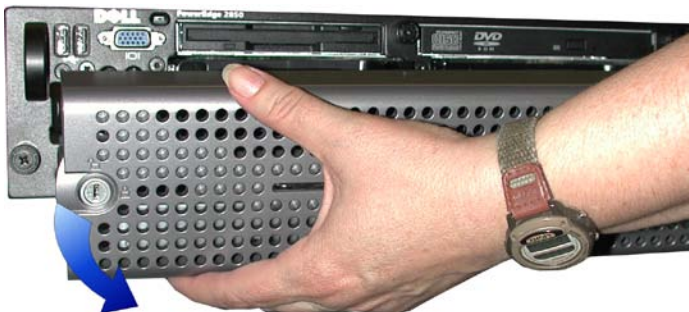
#### Accessing the electronics

To simplify servicing the server enclosure, See also “*Removing and Installing Parts*” in the *Dell™ PowerEdge™ 2950 Systems Installation and Troubleshooting Guide*.

Step	Action
1	Perform a complete shutdown.
2	Disconnect all power cords and cables from the back panel of the server.
	<b>CAUTION</b> Because of the weight (51 lbs, 23 Kg) and length of the server two people should perform this procedure.
3	Remove the server from the cabinet and place on a secure surface.

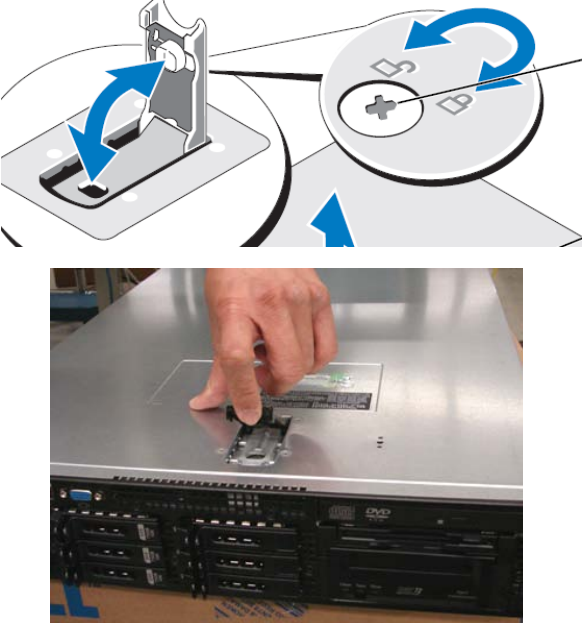

#### 4. Servicing

##### 4.1. Servicing the PE2950-Honeywell Server

Step	Action
4	Use the system key to unlock the front bezel by placing the key lock in the open position.
5	<p>Press the tab at the left end of the bezel. Rotate the left end of the bezel away from the system to release the right end of the bezel. Pull the bezel away from the system.</p>  

**4. Servicing**

**4.1. Servicing the PE2950-Honeywell Server**

Step	Action
6	<p>Turn the latch release lock counter-clockwise to the unlocked position. Lift up on the latch on top of the system.</p>  <p>The diagram shows a close-up of a latch mechanism with a blue arrow indicating a counter-clockwise rotation to an unlocked position. Below the diagram is a photograph of a hand lifting the latch on the top of the server chassis.</p>
7	<p>Grasp the cover on both sides and carefully lift the cover off the system.</p>  <p>The photograph shows the server chassis with the top cover removed, revealing the internal components including the motherboard, RAM, and power supply.</p>
8	<p>Set the cover aside, away from the system.</p>

## 4. Servicing

### 4.2. Servicing the LCNP4M

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Step	Action
9	<p>Service the hardware components as required:</p> <ul style="list-style-type: none"><li>• For servicing the LCNP4M board, see Section 4.2.</li><li>• For servicing the hard drives and power supplies, see Section 4.3.</li><li>• For servicing other Honeywell installed options, see Section 4.4.</li><li>• For other components, see the <i>Dell™ PowerEdge™ 2950 Systems Installation and Troubleshooting Guide</i>.</li></ul>

## 4.2 Servicing the LCNP4M

### LCNP4M board description

The LCNP4M board has 16 MB of on-board memory.



**Figure 4-1 LCNP4M Board**

### Replace the LCNP4M board

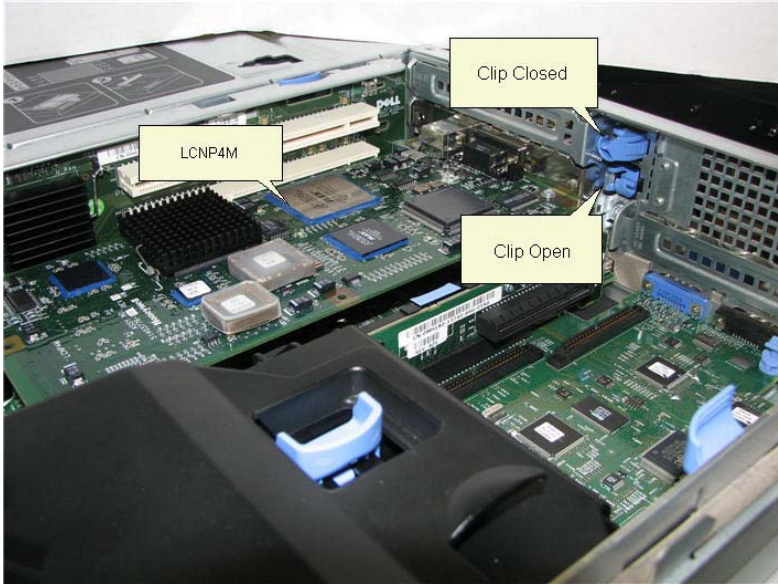
The LCNP4M board is located in the PCI-X slot 3. Use the following procedure to replace the LCNP4M assembly. See also “*Removing an Expansion Card*” and “*Installing an Expansion Card*” in the *Dell™ PowerEdge™ 2950 Systems Installation and Troubleshooting Guide*.





#### ESD HAZARD

The LCNP4M board is an electrostatically sensitive device. Use a grounding strap and grounded work surfaces and equipment when handling this component. Store and transport parts only in electrostatically safe containers.

Step	Action
1	Perform all procedures in Section 4.1 to access the LCNP4M card including: <ul style="list-style-type: none"><li>• Shutting down system</li><li>• Disconnecting power cords and cables from the server</li><li>• Accessing the electronic.</li></ul>
2	Disconnect the LCN MAU cable from the LCNP4M card.
3	Push the blue tab in on the expansion card guide latch until it clicks into an open position. 
4	While wearing a grounded ESD wrist strap, grasp the LCNP4M card at the corners and gently remove it from the PCI-X slot 3.

## 4. Servicing

### 4.2. Servicing the LCNP4M

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Step	Action
5	Align the LCNP4M card edge connector with the expansion card connector.
6	Insert the LCNP4M card firmly into PCI-X slot 3 until the card is fully seated.
7	Close the expansion card guide latch.
8	Reconnect the LCN MAU cable to the LCNP4M card.  Note: Do not route cables over or behind the cards. Cables routed over the cards can prevent the system cover from closing properly or cause damage to the equipment.
9	Replace the cover and bezel.
10	Replace the server in the cabinet.
11	Reconnect the power cords and cables to the back panel of the server.
12	Reconnect the LCN MAU cable.
13	Press the Power On/Off button to turn the power back on.
14	Restart the Operating System.

## 4.3 Servicing the Hard Disk Drives and Power Supply

### Overview

The server from Honeywell is configured with 5, 73 GB 10K RPM SAS hard drives. Four are used in a RAID-5 configuration and the 5<sup>th</sup> 73 GB 10K RPM SAS 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 in a system that is powered on. Refer to the Dell documentation below for detailed instructions on swapping the power supply and hard disk drive.

### References

The following table lists the specific Dell publications and relevant sections for troubleshooting and servicing the hard disk drives and power supplies.

**Table 4-1 Dell Publications for Hard Disk Drives and Power Supplies**

Publication	Contains this type of information
<i>Dell™ PowerEdge™ 2950 Systems Installation and Troubleshooting Guide</i>	System Overview Basic Troubleshooting Indicators, Codes, and Messages Removing and Installing Parts Jumpers and Connectors Using the System Setup Program Indicators, Codes, and Messages Finding Software Solutions Running the System Diagnostics Troubleshooting Your System Installing System Options Installing Drives Getting Help Jumpers, Switches, and Connectors I/O Ports and Connectors Abbreviations and Acronyms

## 4. Servicing

### 4.4. Servicing Honeywell Options

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## 4.4 Servicing Honeywell Options

### Overview



#### CAUTION

Be careful not to damage the EMI gasket fingers when removing/installing boards.

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#### ESD HAZARD

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

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### Slot requirements for TPN Node Setup

The following table identifies the specific slots for the Honeywell options for a TPN node configuration.

**Table 4-2 Slot Requirements for TPN Node Configuration**

PCI-E slot 1	PCI-X slot 2	PCI-X slot 3
Free Slot	Dual NIC/Single NIC/Free Slot	LCNP4M

### 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. The default configurations listed below are for FTE connectivity through the on-board NICs. The optional configurations listed below are for FTE connectivity through an Intel Dual NIC card.

**Table 4-3 Slot Requirements for General Ethernet and FTE Node Configurations**

Configuration	PCI-E slot 1	PCI-X slot 2	PCI-X slot 3
FTE Supervisory with ControlNet (Default)	Free Slot	Free Slot	ControlNet Interface
FTE Supervisory with ControlNet (Optional)	Free Slot	Dual NIC	ControlNet Interface
FTE co-joined via single NIC (Default)	Free Slot	Single NIC	Free Slot
FTE co-joined via dual NIC (Optional)	Free Slot	Dual NIC	Free Slot
FTE co-joined via single NIC for EHG (Default)	Free Slot	Single NIC	Free Slot
FTE co-joined via on-board single NIC for EHG (Optional)	Free Slot	Dual NIC	Free Slot
Standard Ethernet via on-board NIC	Free Slot	Free Slot	Free Slot
Standard Ethernet via on-board NICs	Free Slot	Free Slot	Free Slot
Standard Ethernet via on-board NICs plus single NIC	Free Slot	Single NIC	Free Slot
Standard Ethernet via on-board NICs plus dual NIC	Free Slot	Dual NIC	Free Slot

## 4. Servicing

### 4.4. Servicing Honeywell Options

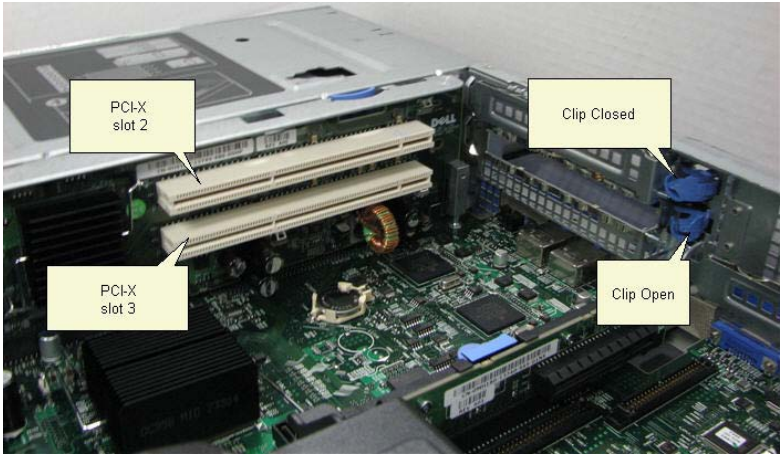
#### Replace cards in expansion slots

Use the following procedure to replace the expansion cards in the PCI slots. See also *“Removing an Expansion Card”* and *“Installing an Expansion Card”* in the *Dell™ PowerEdge™ PE2950 Systems Installation and Troubleshooting Guide*.




#### ESD HAZARD

Expansion cards are electrostatically sensitive device. Use a grounding strap and grounded work surfaces and equipment when handling these components. Store and transport parts only in electrostatically safe containers.

Step	Action
1	Perform all procedures in Section 4.1 to access the expansion card slots including: <ul style="list-style-type: none"><li>• Shutting down system</li><li>• Disconnecting power cords and cables from the server</li><li>• Accessing the electronics.</li></ul>
2	Disconnect cable(s) from the expansion card.
3	Push the blue tab in on the expansion card guide latch until it clicks into an open position. 

## 4. Servicing

### 4.4. Servicing Honeywell Options

Step	Action
4	While wearing a grounded ESD wrist strap, grasp the expansion card at the corners and gently remove it from the expansion card connector.
5	<p>If you are replacing an expansion card, align the card edge connector on the new expansion card with the expansion card connector and insert the expansion card firmly into the expansion card connector until the card is fully seated.</p> <p>If you are removing an expansion card permanently, install a metal filler bracket over the empty expansion slot opening.</p> <p>Note: Place the filler bracket into the back slot of the cage first, then place over the front of the slot opening.</p>  <p>If you are installing a new expansion card, remove the metal filler bracket. Align the card edge connector on the new expansion card with the expansion card connector.</p> <p>Note: Keep this bracket in case you need to remove the expansion card later. Filler brackets must be installed over empty expansion card slots to maintain Federal Communications Commission (FCC) certification of the system. The brackets also keep dust and dirt out of the system and aid in proper cooling and airflow inside the system</p>
6	Close the blue tab on the expansion card guide latch.
7	<p>Connect the expansion card cable to the expansion card.</p> <p>Note: Do not route cables over or behind the cards. Cables routed over the cards can prevent the system cover from closing properly or cause damage to the equipment.</p>

## 4. Servicing

### 4.4. Servicing Honeywell Options

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Step	Action
8	Replace the cover and bezel.
9	Replace the server in the cabinet.
10	Reconnect the power cords and cables to the back panel of the server.
11	Press the Power On/Off button to turn the power back on.
12	Restart the Operating System.

#### Add additional memory

System memory can be increased to a maximum of 4 GB. The memory capacity can be increased to 2 GB by ordering one memory option kit, MZ-PCEM03, 3 GB by ordering two memory option kits, MZ-PCEM03, and 4 GB by ordering three memory option kits, MZ-PCEM03. Each memory option kit comes with two 512 MB DIMMs. Memory devices must be from the same memory supplier.

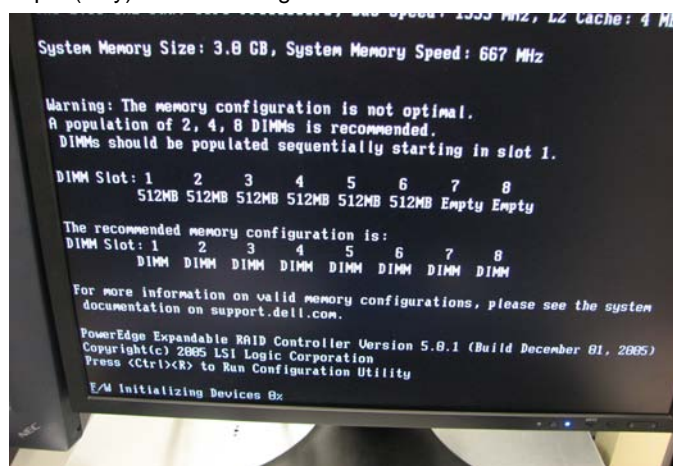


The following table shows the placement of memory devices for the memory capacity options. The table is organized so that the DIMM sockets are in the same order as they are located on the motherboard.

**Table 4-4 Memory Upgrade Configuration**

DIMM Socket	1 GB Memory (standard)	2 GB Memory	3 GB Memory	4 GB Memory
1	512 MB	512 MB	512 MB	512 MB
5			512 MB	512 MB
2	512 MB	512 MB	512 MB	512 MB
6			512 MB	512 MB
3		512 MB	512 MB	512 MB
7				512 MB
4		512 MB	512 MB	512 MB
8				512 MB

Note: When adding additional memory you may get a warning message that appears during boot up stating the memory is not optimal. This message occurs because of the interleaved memory socket design. You do not need to do anything to resolve this message. The following screen capture is an example (only) of the message.



## 4. Servicing

### 4.4. Servicing Honeywell Options

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Use the following procedure to install the memory upgrade. See also “*Dell™ PowerEdge™ PE2950 Systems User's Guide*.”





#### ESD HAZARD

Memory is electrostatically sensitive. Use a grounding strap and grounded work surfaces and equipment when handling these components. Store and transport parts only in electrostatically safe containers.

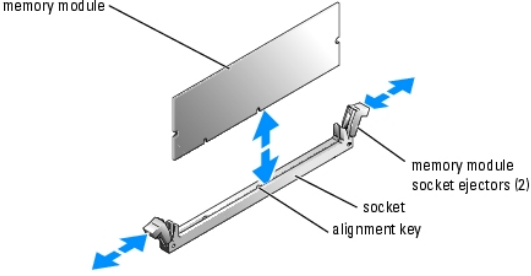
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Step	Action
1	<p>Perform all procedures in Section 4.1 to access the motherboard including:</p> <ul style="list-style-type: none"><li>• Shutting down system</li><li>• Disconnecting power cords and cables from the server</li><li>• Accessing the electronics.</li></ul>
<div></div> 2	<p><b>CAUTION</b></p> <p>The DIMMs are hot to the touch for some time after the system has been powered down. Allow time for the DIMMs to cool before handling them. Handle the DIMMs by the edges and avoid touching DIMM components.</p> <p>Press the blue plastic cooling shroud latch release.</p> 

Step	Action
3	<p>Swing the cooling shroud up and out of the way to expose the DIMM memory slots.</p> 
4	<p>The DIMM sockets are now exposed. Refer to Table 4-4 for DIMM socket configuration. Standard configuration shown below.</p> 

## 4. Servicing

### 4.4. Servicing Honeywell Options

Step	Action
5	<p>While wearing a grounded ESD wrist strap, press the socket ejectors on the memory module socket down and out to allow the memory module to be inserted into the socket</p>  <p>memory module</p> <p>memory module socket ejectors (2)</p> <p>socket</p> <p>alignment key</p>
6	<p>Align the memory module's edge connector with the alignment key on the memory module socket, and insert the memory module into the socket.</p> <p>Note: The memory module socket has an alignment key that allows you to install the memory module in the socket in only one way.</p>
7	<p>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.</p> <p>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.</p>
8	Rotate the cooling shroud into position until it latches.
9	Replace the cover and bezel.
10	Replace the server in the cabinet.
11	Reconnect the power cords and cables to the back panel of the server.
12	Press the Power On/Off button to turn the power back on.
13	Restart the Operating System.

## 4.5 Verifying Correct BIOS Settings

### Purpose

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 should not be altered. BIOS settings for the server are listed in Table 4-7 so that you may verify the correct settings. Table 4-5 and Table 4-6 below list specific embedded NIC BIOS settings for FTE and non-FTE configurations using an Intel Dual NIC card for connectivity. If you are using the on-boards NICs for FTE and non-FTE connectivity, use Table 4-7 to verify specific embedded NIC BIOS settings.

**Table 4-5 Embedded NIC 1 BIOS Settings using Intel Dual NIC Card for Connectivity**

Configuration	BIOS setting	
	Embedded GB NIC 1	Toe Capability
FTE only	Disabled	Disabled
FTE with EHG	Enabled without PXE	Enabled
No FTE, but 1 or 2 Ethernet ports	Enabled without PXE	Enabled
No FTE, but 3 Ethernet ports	Enabled without PXE	Enabled

**Table 4-6 Embedded NIC 2 BIOS Settings using Intel Dual NIC Card for Connectivity**

Configuration	BIOS setting	
	Embedded GB NIC 2	Toe Capability
FTE only	Disabled	Disabled
FTE with EHG	Disabled	Disabled
No FTE, but 1 or 2 Ethernet ports	Enabled without PXE	Enabled
No FTE, but 3 Ethernet ports	Enabled without PXE	Enabled

## 4. Servicing

### 4.5. Verifying Correct BIOS Settings

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#### Accessing BIOS

Use this procedure to access BIOS and view the settings. **DO NOT** attempt to do this procedure unless you are familiar with BIOS.

Step	Action
1	Turn on the server. Press <b>F2</b> to enter the BIOS Setup.
2	Check the BIOS version is 1.5.1 or later.

#### BIOS Settings

This table lists the BIOS settings configured in the factory for the server platform. Your configuration may vary.

**Table 4-7 PE2950-based Server BIOS Settings**

	Item	Value
	<b>System Time</b>	(As appropriate)
	<b>System Date</b>	(As Appropriate)
	<b>Memory Information</b>	
	System Memory Size	1.0 GB or greater
	System Memory Type	DDR2 FB-DIMM
	System Memory Speed	667 MHz or greater
	Video Memory	16 MB
	System Memory Testing	Enabled
	Redundant Memory	Disabled
	Snoop Filter	Disabled
	Low Power Mode	Disabled
	<b>CPU Information</b>	
	64-bit	Yes
	Core Speed	2.66 GHz or greater
	Bus Speed	1333 MHz or greater

## 4. Servicing

### 4.5. Verifying Correct BIOS Settings

	Item	Value
	Virtualization Technology	Disabled
	Adjacent Cache Line Prefetch	Enabled
	Hardware Prefetcher	Enabled
	Demand_Based Power Management	Disabled
	Processor / ID <ul style="list-style-type: none"><li>• Intel® Xeon® CPU 5150</li><li>• Level 2 Cache:</li><li>• Number of Cores</li></ul>	6F6 or equivalent 2.66 GHZ or greater 4 MB or greater 2
	<b>SATA Port A</b>	OFF
	<b>SATA Port B</b>	OFF
	<b>Boot Sequence</b>	
	a) IDE CD-ROM Device	Enabled
	b) Diskette drive A:	Enabled
	c) Hard drive C:	Enabled
	<b>Boot Sequence Retry</b>	Disabled
	<b>Integrated Devices</b>	
	Integrated RAID Controller	Enabled
	Embedded SATA	OFF
	IDE CD-ROM Controller	Auto
	Diskette Controller	Auto
	User Accessible USB Ports	All Ports ON

## 4. Servicing

### 4.5. Verifying Correct BIOS Settings

	Item	Value
	Embedded GB NIC 1 MAC Address TOE Capability	Default: Enabled without PXE XXXXXXXXXX Default: Enabled If you are using an Intel Dual NIC card in your configuration see Table 4-5
	Embedded GB NIC 2 MAC Address TOE Capability	Default: Enabled without PXE XXXXXXXXXX Default: Enabled If you are using an Intel Dual NIC card in your configuration see Table 4-6.
	I/OAT DMA Engine	Disabled
	System Interrupts Assignments	Standard
<b>PCI IRQ Assignment</b>		
	Embedded Video	IRQ 10
	Embedded USB UHCI Controller 1	IRQ 11
	Embedded USB UHCI Controller 2	IRQ 10
	Embedded USB UHCI Controller 3	IRQ 11
	Embedded USB EHCI Controller	IRQ 11
	Integrated RAID	IRQ 5
	Embedded NIC 1	IRQ 11
	Embedded NIC 2	IRQ 11
<b>Serial Communication</b>		
	Serial Communication	On without Console Redirection
	External Serial Connector	COM1



	Item	Value
	FailSafe Baud Rate	115200
	Remote Terminal Type	VT100/VT220
	Redirection After Boot	Enabled
<b>Embedded Server Management</b>		
	Front-Panel LCD Options	Default
	User Defined LCD String	<Enter> "Blank Line"
<b>System Security</b>		
	System Password	Not Enabled
	Setup Password	Not Enabled
	Password Status	Unlocked
	Power Button	Enabled
	NMI Button	Disabled
	AC Power Recovery	Off
<b>Keyboard NumLock</b>		On
<b>Report Keyboard Errors</b>		Report

### Exiting the BIOS setup utility

Step	Action
1	Press <Esc> key.
2	Select "Save Changes and Exit" option and then press <b>Enter</b> .
3	The system reboots.

## 4. Servicing

### 4.6. Spare Parts Lists

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## 4.6 Spare Parts Lists

### Spare parts

The following table lists the optimal replaceable units (ORUs) for the server.

**Table 4-8 Spare Parts for PE2950-based Server**

Description	Part No.
1 GB memory expansion Ram (2-512 MB)	51153731-911
Processor (4 MB L2)	51153731-907
RAID Controller	51153732-910
Rack mount rails (VersaRails)	51153732-911
Floppy Drive (1.44 MB Floppy, Slim line)	51153732-912
CDRW/DVD ROM (Slim line)	51153732-913
73 GB, 2.5 inch, 10K RPM SAS Hard Drive	51153732-914
Mouse (USB)	51153732-915
Keyboard (USB)	51153732-916

## 5. Notices

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## 5.1 Documentation feedback

You can find the most up-to-date documents on the Honeywell Process Solutions support website at:

<http://www.honeywellprocess.com/support>

If you have comments about Honeywell Process Solutions documentation, send your feedback to:

[hpsdocs@honeywell.com](mailto:hpsdocs@honeywell.com)

Use this email address to provide feedback, or to report errors and omissions in the documentation. For immediate help with a technical problem, contact your local Honeywell Process Solutions Customer Contact Center (CCC) or Honeywell Technical Assistance Center (TAC) listed in the “Support and other contacts” section of this document.

## 5. Notices

### 5.2. How to report a security vulnerability

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## 5.2 How to report a security vulnerability

For the purpose of submission, a security vulnerability is defined as a software defect or weakness that can be exploited to reduce the operational or security capabilities of the software.

Honeywell investigates all reports of security vulnerabilities affecting Honeywell products and services.

To report a potential security vulnerability against any Honeywell product, please follow the instructions at:

<https://honeywell.com/pages/vulnerabilityreporting.aspx>

Submit the requested information to Honeywell using one of the following methods:

- Send an email to [security@honeywell.com](mailto:security@honeywell.com).

or

- Contact your local Honeywell Process Solutions Customer Contact Center (CCC) or Honeywell Technical Assistance Center (TAC) listed in the “Support and other contacts” section of this document.

## 5.3 Support

For support, contact your local Honeywell Process Solutions Customer Contact Center (CCC). To find your local CCC visit the website, <https://www.honeywellprocess.com/en-US/contact-us/customer-support-contacts/>

## 5.4 Training classes

Honeywell holds technical training classes on Experion PKS. These classes are taught by experts in the field of process control systems. For more information about these classes, contact your Honeywell representative, or see <http://www.automationcollege.com>.



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