Honeywell

Honeywell Process Solutions

Planning, Installation, and Service for PE2850 Server

EX18-100
EP-DCX554
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Honeywell

Notices and Trademarks

Honeywell International

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About This Document

This document contains installation and service information for the PE2850 Honeywell computer platform.

Release Information

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Planning, Installation, and Service for PE2850 Server, EX18-100	EP-DCX554	Release Independent	May 2012

Revision Notes

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A	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
TPS Users	
TPS System Site Planning	SW02-550 or later
TPS System Implementation Guide for Windows 2000	TP08W
TPS System Planning Guide for Windows 2000	TP10W
TPS System Administration Guide for Windows 2000	TP06W
Experion PKS Users	
Experion PKS Overview	EP-DCSX32 or later
Experion PKS Software Installation and Upgrade Guide	EP-DCXX12 or later

Server and Client Planning Guide	EP-DSX132 or later
Server and Client Configuration Guide (for Experion PKS)	EP-DSXX22 or later
Experion PKS Operators Guide	EP-DSXX42 or later
FTE Users	
Fault Tolerant Ethernet Installation and Service Guide	FE05

Symbol Definitions

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

Symbol	Definition
	**ATTENTION:** Identifies information that requires special consideration.
	**TIP:** Identifies advice or hints for the user, often in terms of performing a task.
	**REFERENCE -EXTERNAL:** Identifies an additional source of information outside of the book set.
	**REFERENCE - INTERNAL:** Identifies an additional source of information within the book set.
CAUTION	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.
	**CAUTION**: 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. **CAUTION** symbol on the equipment refers the user to the product manual for additional information. The symbol appears next to required information in the manual.

Symbol	Definition
	**WARNING**: Indicates a potentially hazardous situation, which if not avoided, could result in serious injury or death. **WARNING** symbol on the equipment refers the user to the product manual for additional information. The symbol appears next to required information in the manual.
	**WARNING, Risk of electrical shock:** Potential shock hazard where HAZARDOUS LIVE voltages greater than 30 Vrms, 42.4 Vpeak, or 60 VDC may be accessible.
	**ESD HAZARD:** Danger of an electro-static discharge to which equipment may be sensitive. Observe precautions for handling electrostatic sensitive devices.
	**Protective Earth (PE) terminal:** Provided for connection of the protective earth (green or green/yellow) supply system conductor.
	**Functional earth terminal:** 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.
	**Earth Ground. Functional earth connection.** NOTE: This connection shall be bonded to Protective Earth at the source of supply in accordance with national and local electrical code requirements.
	**Chassis Ground:** Identifies a connection to the chassis or frame of the equipment shall be bonded to Protective Earth at the source of supply in accordance with national and local electrical code requirements.

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1. System Planning

1.1 Overview

About the PE2850 platform

The PE2850 platform provides PC-based functionality for the Experion system and the TPS system. For TPS systems, the PE2850 has an LCNP4M card installed, which allows connection to the TotalPlant Process Network (TPN) coax through the LCN Media Access Unit (MAU). Additionally, the PE2850 connects to the Ethernet through a standard Ethernet adapter card, or the optional FTE Ethernet adapter card.

PE2850 software requirements

The Dell PE2850 server provides the functionality of a server based PC on the following Windows operating systems.

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

The PE2850 Server platform runs the latest version of Application Processing Platform (APP Node), Experion Server, ESVT, SIM, ACE, SCE, and EHG. Refer to the latest SCN for software applications that have been qualified for use on the PE2850 platforms.

BIOS configuration

All PE2850 platforms must have release A01 or a later version of BIOS installed.

1.2 PE2850 Description

PE2850 enclosure

The PE2850 is the server platform used for TPS and Experion nodes. It can only be rack mounted in a Honeywell equipment cabinet, model number MP-C1MCB1. The Dell PE2850 is equipped with VersaRail slides that allow it to directly rack mount in the 1-meter deep cabinet. When mounted in a cabinet with VersaRails, the enclosure uses 2U, 8.9 cm or 3.5 in of space.

Because of the 32-inch mounting depth, the PE2850 server (Honeywell model number MZ-NTPC71, part number 51153700-100) cannot be mounted in Icon, Classic, Z or EZ consoles.

Figure 1-1 PE2850 Enclosure

Electronics module

The peripheral electronics assemblies for the PE2850 are based upon either the Peripheral Component Interconnect (PCI-X) bus, AGP or USB 2. The standard SDRAM memory for this platform is 2GB (4– 512 MB DDR SDRAM). It is optionally expandable to 3.0 GB. There are no cache memory options.

Storage and media devices

The standard mass storage for this platform is 5, 36 GB 15K RPM SCSI hard drives. Four are used with RAID-5 and the 5th 36 GB 15K RPM SCSI hard drive is a hot spare.

There is also a CD-RW/DVD-ROM drive and a 4mm SCSI tape drive, and one dedicated 3.5 inch floppy drive.

All mass storage devices are connected using IDE or SCSI interfaces. The floppy drive connects to the floppy disk connector on the motherboard and the EIDE CDRW/DVD-ROM is pinned as “master” and connects to the IDE connector on the motherboard. The tape drive is pinned to “6” and is connected to the SCSI connector, also on the motherboard.

PE2850 common standard features

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

- Dell motherboard with Intel Xeon two CPUs
- 1 MB L2 Cache
- Rear Port: 1 serial, 2 USB V 2.0, 2 RJ45, 1 PS/2 Mouse, 1 ID push button with blue/amber LED, RJ4 for optional DRAC 4/I management controller.
- Front Port: 2 USB 2.0, ID push button with blue/amber LED, 1 video, 1 system power on/off button.
- Bus Type: PCI-X
- PCI Expansion slots: three 64-bit, 133-MHz PCI-X slots (3.3 V)
- 700 W Dual Redundant Power Supply
- 4-512 MB DDR-2 400, ECC SDRAM
- EIDE CDRW/DVD-ROM Drive
- Five 36 GB or larger, 15K RPM, Ultra 320 SCSI Hard Drives
- 3.5” 1.44 Mb floppy drive
- Integrated ATI Radeon 7000-M video controller; VGA connector - Video Memory: 16 MB
- PERC 4e-Di SCSI RAID-5 Controller
- PowerVault 100T, DAT72 Tape Drive

PE2850 optional features

The following is a list of the additional options that may be configured in your PE 2850 platform:

- LCNP4M
- Dual NIC for FTE
- Single NIC for Server
- Two additional 512 MB memory modules

1.3 Finding Information for Your PE2850

Honeywell documentation

The following table lists other Honeywell publications that may be useful when installing or operating the PE2850 platform.

Table 1-1 Honeywell Publications

Publication	Contains information on
RE01: *Honeywell Remoting Options*	Contains information for using a remote system with the computer platform.
ADP01: *Honeywell Peripheral Adapters*	Contains information for using the OEP/IKB adapter with computer platforms that do not have the ISA card.
FE05: *Fault Tolerant Ethernet Installation and Service Guide*	Contains information for installing and using FTE on a TPS or Experion PKS node.

Dell documentation

The following table lists Dell publications and other sources of information that will be useful when installing, operating and servicing the PE2850.

Table 1-2 Dell Publications

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
Dell™ PowerEdge™ Product Information Guide	Warranty information Safety information	Packaged with the computer www.dell.com
Getting Started With Your System	Unpacking and connecting cables	Packaged with the computer
Quick Installation Guide	Installing and configuring the server and operating system	Packaged with the computer Product Documentation CD
Dell™ PowerEdge™ PE2850 Systems User's Guide	How to remove and replace parts Technical specifications How to configure system settings How to troubleshoot and solve problems	Product Documentation CD www.dell.com
Rack Installation Guide	Installing the system in a server rack or cabinet	Packaged with the computer www.dell.com
Windows Installation Instructions and Important Information	Initialization of the Windows operating system	Packaged with the computer www.dell.com
Dell™Systems – Raid Controller Initialization	Initializing the RAID controller	Packaged with the computer
Dell™Systems – Upgrading Raid Firmware	Upgrading the RAID firmware	Packaged with the computer
Dell™ PowerEdge™ 2850 Systems Installation and Troubleshooting	Diagnosing problems Using status indicators for troubleshooting	Product Documentation CD www.dell.com

Guide		

1.4 PE2850 Options

Device options

In addition to the standard configuration for the PE2850, your platform may be configured with additional options based on the model number you ordered. The following table lists optional items for the PE2850.

Model Number	Option Description
TP-LCNP02-100	Honeywell LCN Interface LCNP4M and MAU
NE-NICS01-100	Dual NIC for FTE
MZ-PCEB32-100	Single NIC for server
TC-PCIC02-100	ControlNet Interface
MZ-PCEM34	Two additional 1GB memory modules

Standard memory configuration

The standard installed memory for the PE2850 is 2 GB consisting of four 512 MB DDR-2 SDRAM.

Table 1-3 Standard Memory Configuration

DIMM Socket	Channel A	Total Memory
DIMM1_B	512 MB	
DIMM1_A	512 MB	
DIMM2_B	512 MB	
DIMM2_A	512 MB	2.0 GB
DIMM3_B	-	
DIMM3_A	-	

Memory Option Configuration

Memory can be expanded up to 3 GB by replacing the two 512 MB memory modules in with two 1 GB memory module using model number MZ-PCEM34 in the DIMM sockets as shown in the following table. Memory devices must be from the same supplier.

Note: If dual ranked memory modules are installed in bank 2 (DIMM2_A, DIMM2B), you cannot install memory modules in bank 3 (DIMM3_A, DIMM3_B)

Table 1-4 Memory Upgrade Configuration

DIMM Socket	Channel A	Total Memory
DIMM1_B	1 GB	
DIMM1_A	1 GB	
DIMM2_B	512 MB	
DIMM2_A	512 MB	3.0 GB
DIMM3_B		
DIMM3_A		

Mounting Cabinet

Because of the 32-inch mounting depth of the PE2850 server, it can only be mounted in Honeywell equipment cabinet, model number MP-C1MCB1. This server cannot be mounted in Icon, Classic, Z or EZ consoles.

1.5 Specifications

Environmental specifications for cabinet

The following table lists operating environmental limitations.

Description	Cabinets
Ambient room temperature	10 - 30 deg C
Humidity	20 – 80% RH, non-condensing
Operating vibration	0.012" P-P display to 12.7 Hz, then 0.1g to 150 Hz
Site induced shock	6g, 10 msec half-sine

PE2850 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	2.75 Arms 1.58 Arms
AC Power	330 Watts 330 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	3.74 Arms 2.02 Arms
AC Power	448 Watts 448 Watts

Table 1-7 Electronic Assembly Weight and Dimensions

Description	Requirement

Height	86.56 mm, 3.4 in
Width	447 mm, 17.6 in
Depth	756.8 mm, 29.8 in
Weight	26.76 Kg, 59 lbs

PE2850 hard disk drive specifications

The Dell PE2850 Server Platform has five hard disk drive bays. It uses four 36 GB SCSI hard drives for RAID-5 (stripping). The fifth hard drive is used as a hot spare. There is no option to add additional hard drive(s). Disk drives in this platform must be the same size (GB) and speed (RPM).

Table 1-8 36 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	22 Watts Max, 10.0 Watts idle

Table 1-9 36 GB Hard Disk Drive Weight and Dimensions

Description	Requirement
Height	25.4 mm, 1 in
Width	101.6 mm, 4 in
Depth	146.0 mm, 5.75 in
Weight	0.6 kg, 1.3 lbs

Removable media specifications

The Dell PE 2850 server has one dedicated 3.5 inch floppy drive. This floppy drive cannot be remotely mounted in consoles. The PE 2850 server platform is configured with two removable media drives, in addition to the floppy drive mounted in the electronics module. These drives are a CD-RW/DVD-ROM drive and a 4mm SCSI tape drive. The CD-RW/DVD-ROM drive is pinned to “6” and is connected to the SCSI connector on the motherboard.

Table 1-10 Removable Media Power Requirements

Description	Device Requirements	
	CDRW/DVDRW	Tape drive

DC 5 volt Power	6.0 Watts	4 Watts
DC 12 volt Power	21.6 Watts	5 Watts

Mouse and Keyboard

The USB mouse is the standard cursor control device and is included with the Dell PE 2850 Server Platform. A USB standard keyboard is also included.

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 multisync monitor is required for the Dell PE2850 server operating system. This platform is configured with a single screen on-board video option.

CAUTION

The video cable must support DDC. If a video cable that does not support DDC is connected, the display generator defaults to a resolution that precludes communication with the system software and stops startup. The supplied cable, part number 51196742-200 is DDC compatible.

No touch screen option is available for this platform.

The Dell PE2850 server platform supports industrial standard video formats, typically 1280x1024, at a refresh rate of 60Hz for FPDs or 1024x768 at a refresh rate of 75Hz for CRTs.

Other specifications

Refer to the *Dell™ PowerEdge™ PE2850 Systems User's Guide* for additional technical specifications on the PE2850 platform and the vendor documentation for specifications on other peripheral devices.

1.6 Industrial Regulatory Compliance

Overview

The compliance specifications in this section apply to TPS and Experion PKS 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 1-11 EMC Specifications (Industrial Regulatory)

European Community:

Emissions: IEC 61326, 1997 (Industrial Locations, CISPR 11, Class A

Immunity: IEC 61326, 1997 (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*SQRT{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 > 0.300meters

Note: 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) and 1010.1B-97 (R2001) Am. 2

IEC 61010-1, 2001, 2nd edition

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

1.7 Light Industrial Regulatory Compliance

Overview

The compliance specifications in this section apply to TPS and Experion.

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)

Attention: 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.

Examples:
P = 10 Watts, D > 3.162 meters
P = 5 Watts, D > 2.236 meters
P = 1 Watt, D > 1.000 meters

Note: 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)

Product Safety Compliance:

CSA C22.2 No. 1010.1-92(R1999) and 1010.1B-97 (R2001) Am. 2

IEC 61010-1, 2001, 2nd edition

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

2. Platform Installation

2.1 Introduction

Overview

This section contains procedures for installing and cabling the PE2850 as a server.

Tasks for installing the PE2850

The following table lists the major platform installation tasks.

Table 2-1 PE2850 Installation Tasks

✓	Task	For more information refer to . . .
✓	Be aware of all power and grounding requirements for your furniture.	– Specific site requirements – 2.2 “Power and Grounding Requirements” – *TPN System Installation (SW20-600)*, Section 4, “System Grounding”
✓	Install the PE2850 in the cabinet.	– *Dell’s Rack Installation Guide (W1948)*
✓	Start up the PE2850	– *Dell’s Getting Started With Your System and Quick Installation Guide.*
✓	If you are remotely connecting the computer, connect the remote components.	– *Remote Peripheral Systems Installation and Upgrade (RE01)*

Before you begin

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

✓	Description
	Verify the cabinet has been properly grounded.
	Unpack the PE2850 platform from the box and verify all parts are accounted for.
	Have a Philips head screwdriver available.
	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.

2.2 Power and Grounding Requirements

Grounding for PC 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, 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

53895

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.

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 Environmental Specifications

Description	Operating	Storage
Ambient room temperature	10º to 30º C (50º to 85º F)	-40º to 65º C (-40º to 149º F)
Humidity	8 - 80% RH, non-condensing	5 – 95% RH, non-condensing
Vibration	.25G at 3 to 200 Hz for 15 minutes	.5G at 3 to 200 HZ for 15 minutes
Shock	6 consecutive pulses: 50 G for up to 2 ms	6 consecutive pulses: 92 G for up to 2 ms

2.4 Cabinet Spacing Requirements

Server Arrangements

Due to thermal constraints, a maximum of five (5) computing nodes can be mounted in a new build 1-meter deep Rittal MP-C1MCB1 cabinet. The ambient temperature is to be kept between 10º and 30º C (50º to 85º F).

Unused Cabinet Spaces

Important: All unused rack mount locations must have blank front panels and air duct baffles. These are available in four height options. The following shows the four height options and the corresponding part and tab numbers each.

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

2.5 Connecting Cables

PE2850 connections

The following picture shows the back of the PE2850 enclosure and identifies the connectors for all devices. Refer to Table 2-2 Description of Connectors for more details.

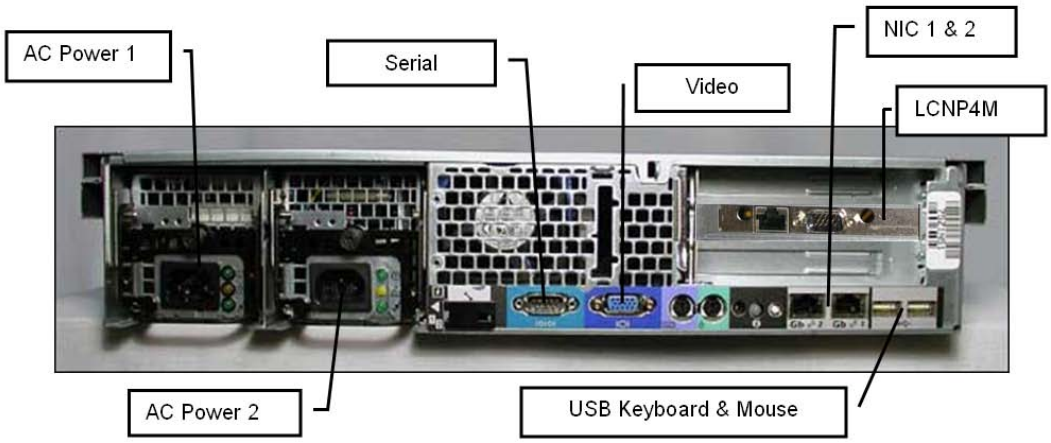


Figure 2-1 PE2850 Rear View

Table 2-2 Description of Connectors

Connector	Description
Power	AC Power Supply 1
Power	AC Power Supply 2
Serial	Serial connection
Video	For display devices
LCNP4M	Use to connect the LCN MAU cable (PCI2)
Single or Dual NIC (NIC 1 and 2)	
2 USB	2 USB 2.0 connections (Keyboard and Mouse)

Use this procedure to connect all cables to the computer platform. Refer to Figure 2-1, PE2850 Rear View. If you are connecting the computer to a remote system, refer to *Honeywell Remoting Options (RE05)* manual.

Step	Action
1	From the rear of the cabinet, open the door to access the computer.
2	Connect the mouse and keyboard cables to the USB connectors.
3	If you are not using Fault Tolerant Ethernet (FTE), connect the Ethernet cable to the RJ-45 connector on the Network Interface. If you are using FTE, you will need to connect the FTE cables according to the instructions in the *FTE Installation and Service Guide.*
4	Connect the video cable.
5	Secure any loose cables, and verify that all cables have proper strain relief.

PE2850 power cables

The following table lists the AC power cables.

Part Description	Part Number
120 VAC, 2-meter (78 inches)	(2) 51305490-600
AC power cord, 220 V	(2) 5130557-100
MZ-NTPC71 Advanced Experion Server, 2U Rack Mount Option	
240 VAC, 2-meter (78 inches)	(2) 51305489-600

2.6 Starting up your PE2850

Overview

The following table lists those tasks that must be performed prior to operating your PE2850 platform. This section contains procedures for each of these tasks.

✓	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 of the PE2850.
2	Wait for the power light to become solid green.
3	If the power light does not become solid green, refer to the "Advanced Troubleshooting" section of the *Dell Precision™ PE2850 System User's Guide.*

Check LCNP4M status

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

Step	Action
1	From the **Start** menu, select **LCNP4M Status**.
2	Verify that the LCNP4M status indicates **Passed Self Test** and the circle is green.
3	Verify that **LCN Address** appears in the **LEDs** field of the LCNP Status display.

REFERENCE

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

3. PE2850 Operation

3.1 Overview

Front view of enclosure

The following figure shows the front view of the PE2850 enclosure.

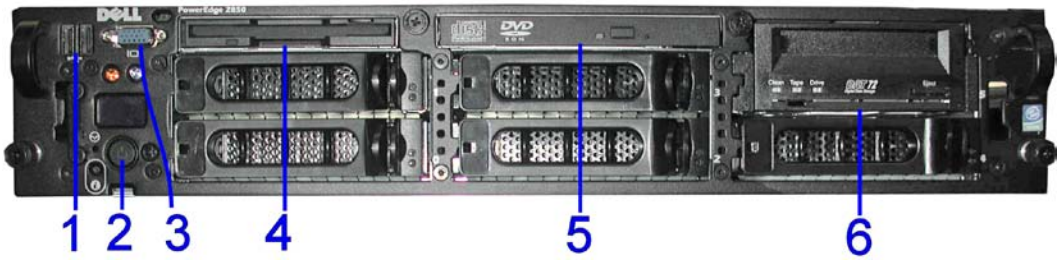


Figure 3-1 Front View of PE2850 Enclosure

Table 3-1 PE2850 Front Panel

No.	Control	Description
1	USB Ports (2)	Used for connecting other peripherals.
2	Power Button	Press this button to turn on the computer.
3	Video Output	Alternate output for video display.
4	Floppy Drive	Floppy diskette drive, 3.5 inch, 1.44 MB
5	EIDE CD/DVD-ROM	CD-RW/DVD-ROM Drive
6	Tape Drive	Tape Drive

Additional references

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

Table 3-2 Dell Publications for Operation and Servicing

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
Dell™ PowerEdge™ Product Information Guide	Warranty information Safety information	Packaged with the computer www.dell.com
Dell™ PowerEdge™ PE2850 Systems User's Guide	How to remove and replace parts Technical specifications How to configure system settings How to troubleshoot and solve problems	Product Documentation CD www.dell.com
Rack Installation Guide	Installing the system in a server rack or cabinet	Packaged with the computer www.dell.com
Windows Installation Instructions and Important Information	Initialization of the Windows operating system	Packaged with the computer www.dell.com

3.2 Network Connections

Overview

Each Dell PE2850 server platform must be connected to an LCN network and/or an ETHERNET network.

Ethernet network

Two ETHERNET 10/100/1000 embedded Base T connections are standard on the Dell PE2850 server platform. TPS/Experion FTE systems will only 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*.

Experion configurations may use an additional single or dual port NIC.

LCN network

The connection to the LCN is made via a Local Control Network Processor (LCNP4M) card. This card provides the communication path for the Dell PE2850 to other LCN modules. The LCNP4M consists of an LCNP4 Card, a MAU cable and the LCN MAU (Media Access Unit). The LCNP4M card is a half length PCI card that consumes one PCI-X slot. 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 Dell PE2850 Server platform uses a digital system clock. When the Dell PE2850 server platform is added to an existing system that contains node running analog clocks, that system must have at least two (2) KxLCN boards for analog/digital conversion.

Important: LCNP4 will not fit in the Dell PE2850 due to card length. The LCNP4M (Model number TP-LCNP02-100) is required.

LCN cables

The two cables and T-connectors (and terminators, if applicable) must be located underneath (the future location) of the GUS unit, with an additional loop, 1 meter in length (with a T-connector), to be routed into the rear of the platform where the connection is made to the LCN MAU. The cable between the LCNP4 board and the LCN MAU is 2 meters in length. Refer to Figure 3-2.

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 LCNP4 board to the LCN Media Access Unit (MAU) contained in a metal housing.

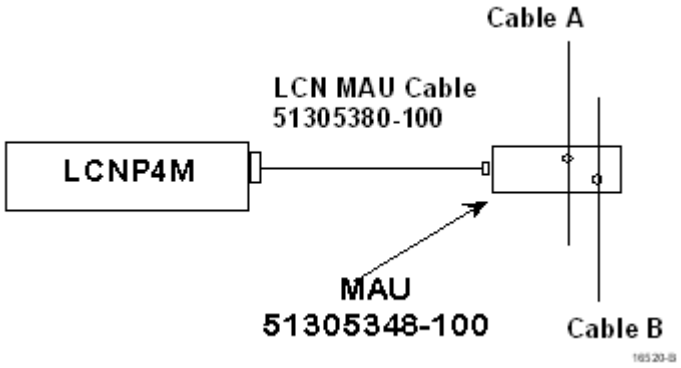


Figure 3-2 LCNP4M MAU to LCN Cabling

MAU connection

Connect the MAU to both Cable A and Cable B coax T-connector as shown below.

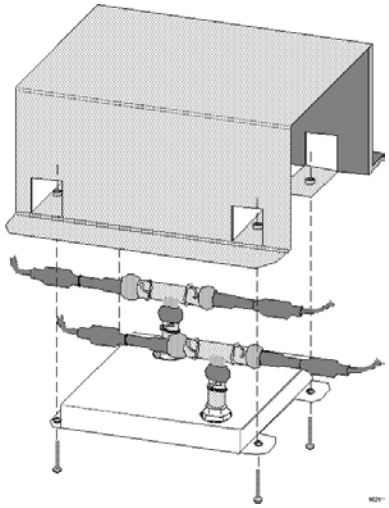


Figure 3-3 LCN MAU to LCN Cable T-Connections

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. Platform Servicing

4.1 Servicing the PE2850

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.

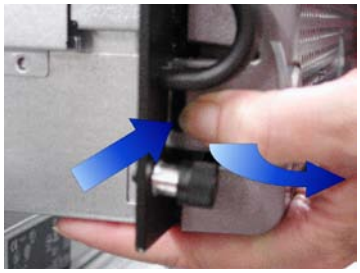
Attention

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

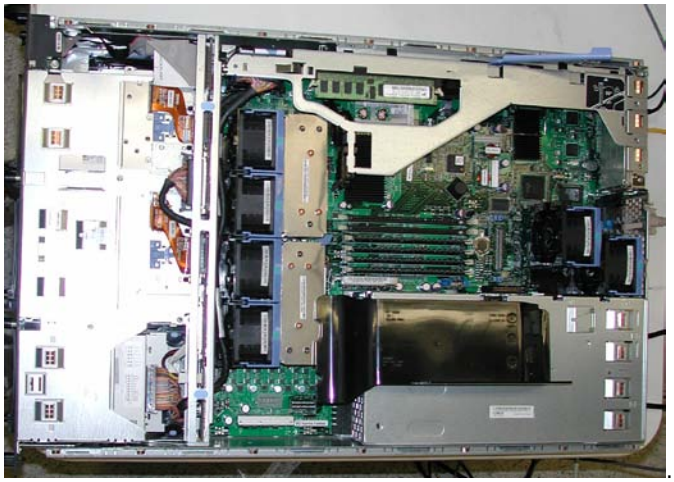
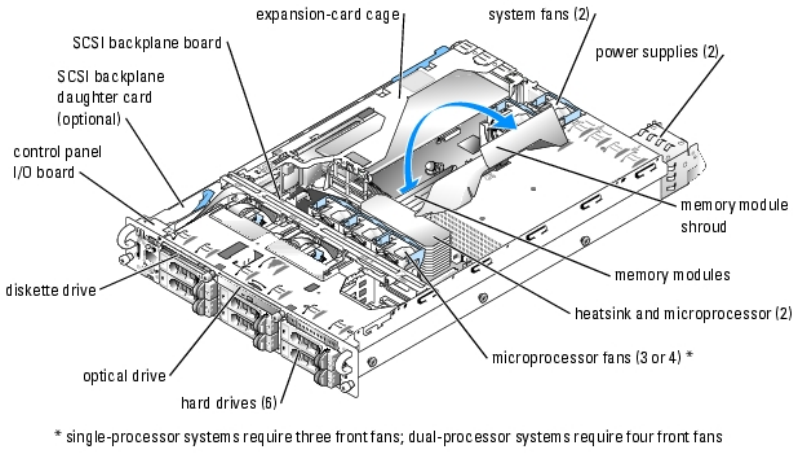
Accessing the electronics

To simplify servicing, the PE2850 enclosure, Refer to “Removing and Installing Parts” in the *Dell™ PowerEdge™ 2850 Systems Installation and Troubleshooting Guide*.

Step	Action
1	Remove the PE2850 from the cabinet and place on a secure surface. Refer to Dell’s *Rack Installation Guide* for more information.  *Caution* *Because of the weight (59 lbs, 26.76Kg) and length of the PE2850 two people should perform this procedure.*

Step	Action
2	Use the system key to unlock the front bezel by placing the key lock in the open position.
3	Push the tabs (one on each side) of the bezel inward and pull off of the font panel.  

Step	Action
4	Loosen the two thumbscrews on top of the front cover. 
5	Grasp the cover at both ends, slide it toward the back of the system.

Step	Action
6	Lift the cover off and set aside, away from the system.   * single-processor systems require three front fans; dual-processor systems require four front fans

Step	Action
7	Service the hardware components as required: • For servicing the LCNP4M board, refer to Section 4.2 in this document. • For servicing other Honeywell installed options refer to Section 4.3 in this document. • For other components, refer to the *Dell™ PowerEdge™ 2850 Systems Installation and Troubleshooting Guide*.

4.2 Servicing the LCNP4M

LCNP4M board description

The LCNP4M board has 16 MB of on-board memory that is soldered to the board.

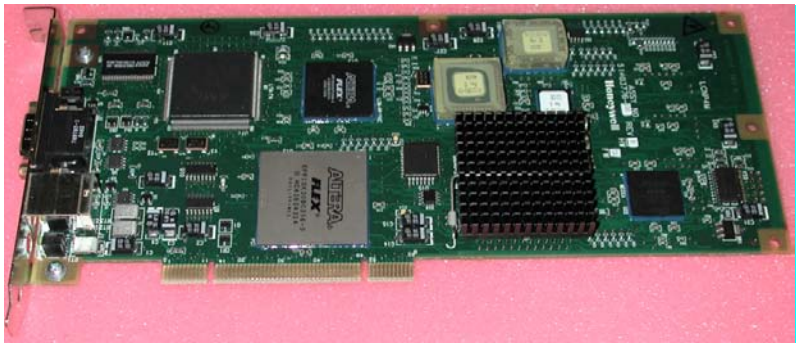


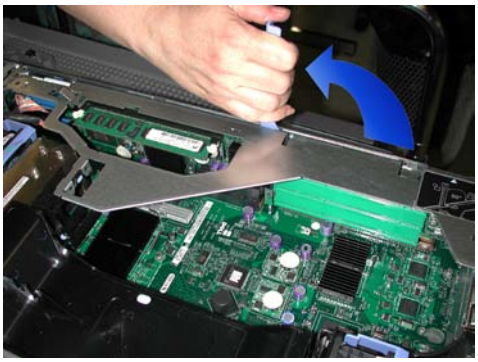
Figure 4-1 LCNP4M Board

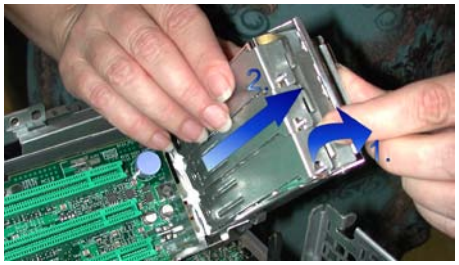
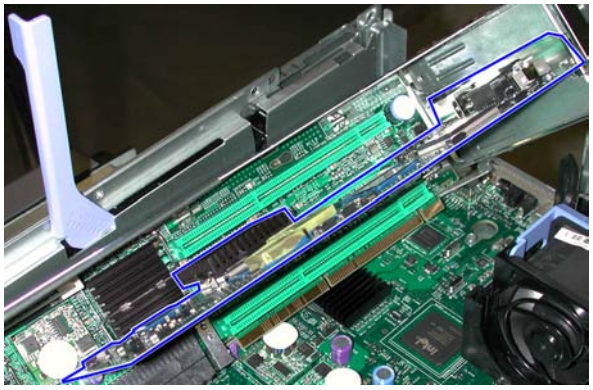
Replace the LCNP4M board

The LCNP4M board is located in the PCI2 slot. Use the following procedure to replace the LCNP4M assembly. Refer to “Removing an Expansion Card” and “Installing an Expansion Card” in the *Dell™ PowerEdge™ 2850 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 necessary procedures in Section 4.1, “Servicing the PE2850” to access the LCNP4M assembly., including: • Shutting down system • Disconnecting power from the computer • Accessing the inside of the electronics enclosure Disconnecting cables from the card being replaced.
2	Turn off the system, including any attached peripherals, and disconnect the system from the electrical outlet.
3	Remove the bezel and the cover using the “Accessing the electronics” procedure in Section 4.1.
4	Disconnect the LCN MAU cable from the LCNP4M board.
5	To access the expansion slots, lift the blue lever on the expansion slot cage to a vertical position. 

Step	Action
6	Lift the expansion slot cage from its horizontal placement to a more vertical position. Note the picture below does not show any cards already in the slots. 
7	While wearing a grounded ESD wrist strap, remove the old LCNP4M board assembly from the PCI slot.
8	Verify that the new LCNP4M board has the correct LCN pin assignments.
9	Insert the new LCNP4M board assembly firmly into in the PCI2 slot connector until the assembly card is fully seated. 

Step	Action
10	Install the screw that secures the assembly card bracket to the expansion slot cage. The top of this screw may be on the underside of the bracket. 
11	Position the expansion slot cage back to the horizontal position.
12	To secure the expansion slot cage, push the blue lever back down to a horizontal position.
13	Replace the cover and bezel.
14	Reconnect the system to its electrical outlet and turn the system on, including any attached peripherals.
15	Replace the PE2850 in the cabinet using the appropriate installation procedures in Section 2, “Platform Installation” and Dell’s *Rack Installation Guide* publication.
16	Press the Power On/Off button to turn the power back on.
17	Run the Configurator to re-establish the correct node number.
18	Reconnect the LCN MAU cable.
19	Restart the Operating System.

4.3 Servicing the Hard Disk Drives and Power Supply

Overview

The PE2850 from Honeywell is configured with 5, 36 GB 15K RPM SCSI hard drives. Four are used with RAID-5 and the 5th 36 GB 15K RPM SCSI hard drive is a hot spare. The configuration also contains redundant power supplies. 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 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
Dell™ PowerEdge™ 2850 Systems Installation and Troubleshooting Guide	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

4.4 Servicing Honeywell Options

Overview

CAUTION

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

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.

Slot requirements for LCN Node Setup

The following table identifies the specific slots for the Honeywell options for a LCN node configuration. Note for FTE, the second on-board NICs BIOS settings must be set to Enabled.

Table 4-2 Slot Requirements for LCN Node Configuration

PCI1	PCI2	PCI3
Free slot	LCNP4M	Free Slot

Slot requirements for Experion Node Setup

The following table identifies the specific slots for each of the Honeywell options for Experion Node configurations.

Table 4-3 Slot Requirements for Experion Node Configurations

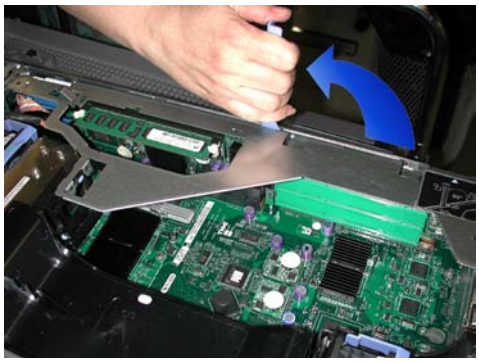
Configuration	PCI1	PCI2	PCI3
2 NICs, standard Ethernet via on-board NICs	Free slot	Free Slot	Free Slot
2 NICs, FTE Supervisory via on-board NICs with ControlNet	Free slot	ControlNet Interface	Free slot
2 NICs, FTE Supervisory/Co-Joined via on-board NICs with LCNP4M	Free slot	LCNP4M	Free slot
2 NICs, FTE Co-joined via on-board NICs	Free slot	Free slot	Free slot
3 NICs, FTE Co-joined via on-board NICs for EHG	Free Slot	Free Slot	Single NIC
3 NICs, Standard Ethernet via on-board NICs	Free Slot	Free Slot	Single NIC
4 NICs, Standard Ethernet via on-board NICs	Free Slot	Free Slot	Dual NIC

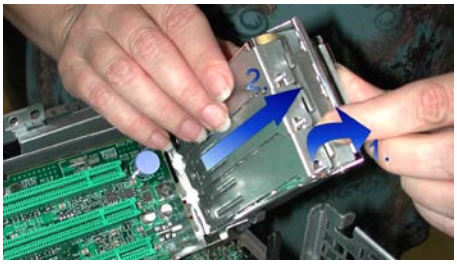
Replace cards in expansion slots

Use the following procedure to replace the expansion cards in the PCI slots. Refer to "Removing an Expansion Card" and "Installing an Expansion Card" in the *Dell™ PowerEdge™* PE2850 *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 necessary procedures in Section 4.1, “Servicing the PE2850” to access the LCNP4M assembly., including: • Shutting down system • Disconnecting power from the computer • Accessing the inside of the electronics enclosure Disconnecting cables from the card being replaced.
2	Turn off the system, including any attached peripherals, and disconnect the system from the electrical outlet.
3	Remove the bezel and the cover using the “Accessing the electronics” procedure in Section 4.1.
4	Disconnect cable(s) from the expansion card.
5	To access the expansion slots, lift the blue lever on the expansion slot cage to a vertical position. 

Step	Action
6	While wearing a grounded ESD wrist strap, lift the expansion slot cage from its horizontal placement to a more vertical position. Remove the filler bracket from the expansion slot or if replacing an existing card, remove the screw that holds the card and remove the existing card. Note the picture below shows all the slots empty with filler brackets. 
7	While wearing a grounded ESD wrist strap, insert the new board firmly into in the PCI slot connector until the card is fully seated.
8	Install the screw that secures the assembly card bracket to the expansion slot cage. The top of this screw may be on the underside of the bracket. 
9	Reposition the expansion slot cage and the blue locking lever to their horizontal positions.

Step	Action
10	Replace the cover and bezel.
11	Reconnect the cable to the card.
12	Replace the PE2850 in the cabinet using the appropriate installation procedures in Section 2, “Platform Installation.”
13	Reconnect the system to its electrical outlet and turn the system on, including any attached peripherals.
14	Press the Power On/Off button on the platform to turn the power back on.
15	Restart the Operating System.

Add additional memory

Memory can be expanded up to 3 GB by installing two 1 GB memory modules, model number MZ-PCEM34, in the DIMM sockets as shown in the following table. Memory devices must be from the same supplier.

Note: If dual ranked memory modules are installed in bank 2 (DIMM2_A, DIMM2B), you cannot install memory modules in bank 3 (DIMM3_A, DIMM3_B)

Table 4-4 Memory Upgrade Configuration

DIMM Socket	Channel A	Total Memory
DIMM1_B	1 GB	
DIMM1_A	1 GB	
DIMM2_B	512 MB	
DIMM2_A	512 MB	3.0 GB
DIMM3_B		
DIMM3_A		

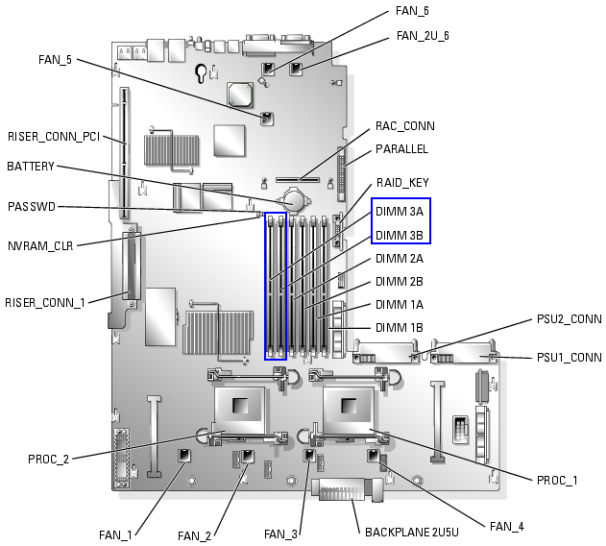
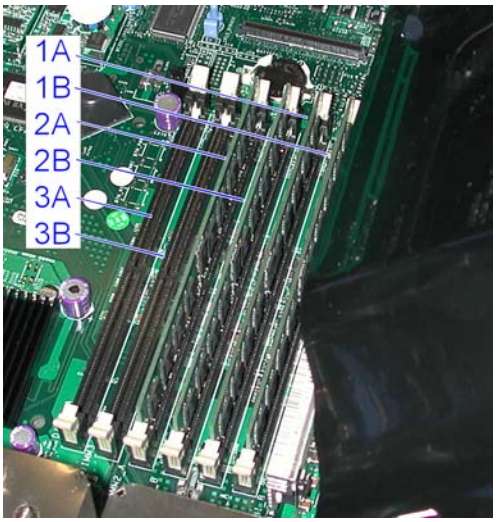
Use the following procedure to install the memory upgrade. Refer to "*Dell™ PowerEdge™ PE2850 Systems User's Guide.*"

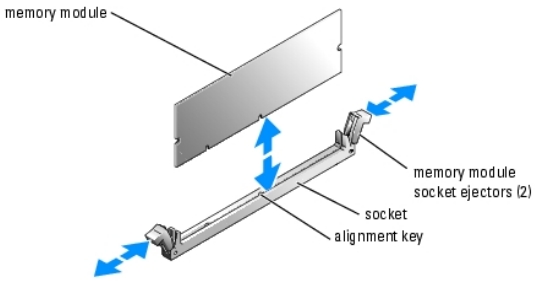
ESD HAZARD

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.

Step	Action
1	Perform all necessary procedures in Section 4.1, “Servicing the PE2850” to access the motherboard, including: • Shutting down system • Disconnecting power from the computer • Accessing the inside of the electronics enclosure Disconnecting cables from the card being replaced.
2	Turn off the system, including any attached peripherals, and disconnect the system from the electrical outlet.
3	Remove the bezel and the cover using the “Accessing the electronics” procedure in Section 4.1.

Step	Action
4	Lift the RAM cover up and over to expose the DIMMs.  

Step	Action
5	Note where the memory modules are to be placed on the motherboard, 3A and 3B.  

Step	Action
6	While wearing a grounded ESD wrist strap, place a 512 MB memory module into DIMM 3A and DIMM 3B. 
7	Reposition the RAM cover.
8	Replace the cover and bezel.
9	Replace the PE2850 in the cabinet using the appropriate installation procedures in Section 2, “Platform Installation.”
10	Reconnect the system to its electrical outlet and turn the system on, including any attached peripherals.
11	Press the Power On/Off button on the front of the platform to turn the power back on.
12	Restart the Operating System.

4.5 Verifying Correct BIOS Settings

Purpose

Honeywell configures specific BIOS settings in the factory for each of the computer platform configurations, and these settings should not be altered. BIOS settings for the PE2850 are listed in Table 4-5 so that you may verify the correct settings.

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	Restart the computer
2	When the power on self-test screens appear, press **F2** to enter the BIOS Setup.

PE2850 BIOS Settings

This table lists the BIOS settings configured in the factory for the PE2850 server platform.

Table 4-5 PE2850 BIOS Settings

System Info	
System Time	[Local Time]
System Date	[Local Date]
Diskette Drive A	3.5 inch, 1.44 MB
System Memory	2048 MB ECC DDR2
Video Memory	16 MB SDRAM
System Memory Testing	Enabled
Redundant Memory	Disabled
OS Install mode	Off
BIOS Version	A01 or Later
CPU Information	
Bus Speed	800MHz
Logical Processor	Enabled
Sequential Memory Access	Enabled

Table 4-5 PE2850 BIOS Settings

Processor 1 ID	F34
Core Speed	3.40 GHz
Level 2 Cache	1024 KB
Processor 2 ID	F34
Core Speed	3.40 GHz
Level 2 Cache	1024 KB
Boot Sequence	
1) IDE CD-ROM Device	
2) Diskette Drive A	
3) Hard Drive C:	
Hard Drive Sequence	
1) System BIOS boot devices	
2) Embedded PERC 4e/Di Adapter	(bus 02 dev 0E)
Flash Drive Emulation Type	Auto
Integrated Devices	
Embedded RAID controller	RAID Enabled
Channel A	RAID
Channel B	SCSI
IDE CD-ROM controller	Auto
Diskette controller	Auto
USB Controller	On with BIOS Support
Embedded GB NIC1	Enabled without PXE
Mac Address	[Varies]
Embedded GB NIC2	Enabled without PXE
Console Redirection	
Console Redirection	Off
Failsafe Baud Rate	115200
Remote Terminal Type	VT100/VT2020
Redirection after reboot	Enabled

Table 4-5 PE2850 BIOS Settings

Embedded Server Management	
Front Panel LCD options	Default
User-Defined LCD string	Line 1… Line 2…
System Security	
System Password	Not Enabled
Setup Password	Not Enabled
Password Status	Unlocked
Power Button	Enabled
Keyboard NumLock	On
Report Keyboard Errors	Report

To continue, press the <**Esc**> key. Select "**Save Changes and Exit**" option, and press Enter. The system will restart.

4.6 PE2850 Spare Parts Lists

PE2850 enclosure spare parts

The following table lists the optimal replaceable units (ORUs) for the PE2850 enclosure.

Table 4-6 Spare Parts for PE2850 Enclosure

Description	Part No.
LCNP4M Assembly	51403776-100
MAU Assembly	51305348-100
MAU Cable, EC	51305380-100
Video cable	51196742-200
ControlNet Universal Interface	TC-PCIC02-100
Additional 512 MB memory modules	51199169-902
Floppy Drive 3.5 inch, 1,44 MB	51153700-905
Hard Drives, 36 GB SCSI hard drives for RAID-5 (striping)	51153700-906

Table 4-6 Spare Parts for PE2850 Enclosure

Description	Part No.
Tape Drive, 4mm SCSI	51163700-907

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

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.

5.2 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.

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 and other contacts

For support, contact your local Honeywell Process Solutions Customer Contact Center (CCC).

North America

Country	Phone	Facsimile	Email
Canada and United States	800-822-7673	973-455-5000	asksscc@honeywell.com

Northern Europe

Country	Local Time Business Hours	Phone	Facsimile	Email

Denmark	07:00 – 18:00	80–252165	+45 6980 2349	hpscustomersupport@honeywell.com
Finland	08:00 – 19:00	0800–9–15938	+358 (0)9 2319 4396	hpscustomersupport@honeywell.com
Ireland	06:00 – 17:00	1800939488	+353 (0)1 686 4905	hpscustomersupport@honeywell.com
Netherlands	07:00 – 18:00	0800 020 3498	+31 (0)20 524 1609	hpscustomersupport@honeywell.com
Norway	07:00 – 18:00	800–11478	47–852–287–16	hpscustomersupport@honeywell.com
Sweden	07:00 – 18:00	0200883167	+46 (0)8 509 097 84	hpscustomersupport@honeywell.com
United Kingdom	06:00 – 17:00	08002797226	+44 (0)20 3031 1064	hpscustomersupport@honeywell.com

Southern Europe

Country	Local Time Business Hours	Phone	Facsimile	Email
Belgium	07:00 – 18:00	080048580	+32 (0)2 791 96 02	hpscustomersupport@honeywell.com
France	07:00 – 18:00	0805100041	+33 (0)1 72 74 33 44	hpscustomersupport@honeywell.com
Luxembourg	07:00 – 18:00	8002–8524	+352 24611292	hpscustomersupport@honeywell.com
Spain	07:00 – 18:00	800099804	+34 91 791 56 25	hpscustomersupport@honeywell.com
Portugal	06:00 – 17:00	800–8–55994	+34 91 791 56 25	hpscustomersupport@honeywell.com

Eastern Europe

Country	Local Time Business Hours	Phone	Facsimile	Email
Bulgaria	08:00 – 19:00	700 20771	+359 (0)2 489 7384	hpscustomersupport@honeywell.com
Croatia	07:00 – 18:00	0800 80 6392	+420 227 204 957	hpscustomersupport@honeywell.com
Czech Republic	07:00 – 18:00	800 142 784	+420 227 204 957	hpscustomersupport@honeywell.com
Hungary	07:00 – 18:00	06 800 20 699	+36 (06) 1 577 7371	hpscustomersupport@honeywell.com
Poland	07:00 – 18:00	00 800 121 50 46	+48 22 485 35 10	hpscustomersupport@honeywell.com
Romania	08:00 – 19:00	0 800 800 178	+40 (0)31 710 7590	hpscustomersupport@honeywell.com
Russia Federation	09:00 – 20:00	8.10.80 02-412 50 11	+7 495 796 98 94	hpscustomersupport@honeywell.com
Slovakia	07:00 – 18:00	0800 002 340	+421 (0)2 3301 0376	hpscustomersupport@honeywell.com

Central Europe

Country	Local Time Business Hours	Phone	Facsimile	Email
Austria	07:00 – 18:00	0800 006438	+43 (0)1 253 6722 4904	hpscustomersupport@honeywell.com
Germany	07:00 – 18:00	0800 7239098	+49 (0)30 6908 8463	hpscustomersupport@honeywell.com
Greece	08:00 – 19:00	00800 12	+30 21 1 268	hpscustomersupport@hon

		9493	6973	eywell.com
Israel	08:00 – 19:00	1 809 407 309	+972 (0)2 591 6148	hpscustomersupport@honeywell.com
Italy	07:00 – 18:00	8000 35205	+39 06 96681356	hpscustomersupport@honeywell.com
Switzerland	07:00 – 18:00	00 080 035	+41 (0)31 560 41 60	hpscustomersupport@honeywell.com

Middle East and South Africa

Country	Local Time Business Hours	Phone	Email
Bahrain	08:00 – 19:00	8008 1343	hpscustomersupport@honeywell.com
Oman	08:00 – 19:00	8007 7595	hpscustomersupport@honeywell.com
Qatar	08:00 – 19:00	800 5460	hpscustomersupport@honeywell.com
Saudi Arabia	08:00 – 19:00	800 844 5309	hpscustomersupport@honeywell.com
South Africa	07:00 – 18:00	0800 983 634	hpscustomersupport@honeywell.com
Turkey	08:00 – 19:00	00800 448823587	hpscustomersupport@honeywell.com
United Arab Emirates	09:00 – 20:00	8000 444 0300	hpscustomersupport@honeywell.com

Other regions

Region	Phone	Facsimile	Email
Pacific	1300-364-822 (toll free within Australia) +61-8-9362-9559 (outside Australia)	+61-8-9362-9564	GTAC@honeywell.com

India	+91-20-6603-2718 / 19 1800-233-5051	+91-20-6603-9800	Global-TAC-India@honeywell.com
Korea	+82-80-782-2255 (toll free within Korea)	+82-2-792-9015	Global-TAC-Korea@honeywell.com
People's Republic of China	+86-21-2219-6888 800-820-0237 400-820-0386		Global-TAC-China@honeywell.com
Singapore	+65-6823-2215	+65-6445-3033	GTAC-SEA@honeywell.com
Japan		+81-3-6730-7228	Global-TACJapanJA25@honeywell.com

World Wide Web

Honeywell Process Solutions support website:

http://www.honeywellprocess.com/support

Elsewhere

Contact your nearest Honeywell office.

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.

Honeywell

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