Honeywell

Honeywell Process Solutions

R710 Honeywell Server

Planning, Installation, and Service Guide

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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 Dell PowerEdge R710 Server (R710 Honeywell Server).The instructions and service information contained herein address the server itself, and assumes that associated network communication equipment is pre-installed by the Honeywell factory or have 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	Part no
R710 Honeywell Server Planning, Installation, and Service Guide - pisg710	EP-DPCX16	Release Independent	51154294-905

Revision Notes

The following table lists the details of revisions of this document.

Revision	Revision Date	Revision Notes
A	09/2010	Updated with information on E5620 CPU specifications
B	02/2011	Updated with information on Configuring ControlNet interface card using Dell PCIe riser card
C	08/2011	Updated for ECO P310057
D	05/2012	Updated for ECN 2012-1012
E	09/2013	Updated to include 8GB memory configuration for Experion R410 release.
F	04/2014	Updated to insert Troubleshooting section

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 2003/XP	TP08X
TPS System Planning Guide for Windows 2003/XP	TP10X
TPS System Administration Guide for Windows XP/2003	TP06X
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.
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.
	**REFERENCE -EXTERNAL:** Identifies an additional source of information outside of the bookset.
	**REFERENCE - INTERNAL:** Identifies an additional source of information within the book set.
	**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.
	**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.

Symbol	Definition
	**ESD HAZARD:** Danger of an electro-static discharge to which equipment may be sensitive. Observe precautions for handling electrostatic sensitive devices.

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1. Planning

1.1 Overview

About R710 Honeywell Server

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

Honeywell engineering has tested the R710 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 to support 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 LCNP4E 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 R710 server platform.

BIOS configuration

- All R710 Honeywell server platforms must have BIOS version 1.3.6 or later.
- All R710 Honeywell MLK server platforms must have BIOS version 6.1.0[1.1.45] or later.

1.2 Description

Honeywell server model number

This user's guide applies to the Honeywell server platform identified in the following table.

Model Number	Description	Part Number
MZ-PCSV52	R710 Honeywell server	51154294-100
MZ-PCSV53	R710 Honeywell MLK server	51154294-200

Figure 1-1 R710 Honeywell Server

Equipment configuration

The server platform is used for TPS and Experion nodes and must be rack mounted only on a 1-meter deep Honeywell equipment cabinet, 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 R710 server.

This server cannot be mounted on 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 Quad-Core Intel® Xeon® 2.8 X5560 processor. The standard DDR3 memory for this platform is 2GB, 1066MHz

(2x1GB DDR3 Single Ranked Fully Buffered Adv ECC DIMMs), optionally expandable to 4GB. There are no cache memory options.

The peripheral electronics assemblies are based upon the Peripheral Component Interconnect Express (PCIE) bus or USB 2.0.

Storage and media devices

The standard mass storage for this platform has five 146 GB 2.5 ” 15K 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 SATA DVD Combo drive.

All mass storage devices are connected through SAS and SATA. SATA DVDRW drive is connected through the SATA connector on the motherboard. 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 Single Intel® Xeon® X5560, 2.8Ghz, 8M Cache, Turbo, HT, 1333 MHz Max Memory 6.4GT/s QPI. (For MZ-PCSV52 only)
- Dell motherboard with Single Intel® Xeon® E5620, 4C/8T, 2.4 GHz, L3-12MB, QPI- 5.86 GT/s, QPI Links-2, 80 W, DDR3-800/1066, HT -Y, Turbo-Y. (For MZ-PCSV53 only)
- Cache:
  - L2 : 4MB
  - L3 : 12MB
- Rear Ports:
  - One serial
  - One Video
  - Two USB V2.0
  - Four RJ45
  - One ID push button with blue/amber LED.
  - iDRAC6 Enterprise RJ-45 connector (Optional)

- iDRAC6 Express SD module (Optional)

- Front Ports:
  - Two USB 2.0
  - ID push button with blue/amber LED
  - One video
  - One system power on/off button
- Four embedded Broadcom® NetXtreme II™ 5709c Gigabit Ethernet NIC with failover and load balancing.
- Energy Smart – Two hot-plug high-efficient 570W Power Supply
- Two 110 Volt / 230Volts Power Cords.
- 2x2GB 1R low voltage UDIMM DDR3 1067MHz Adv. ECC for MZ-PCSV53.
- SATA DVD-RW Drive.
- Five 146 GB or larger, 15K RPM, 2.5” SAS Hard Drives.
- Integrated Matrox G200 with 8MB of Cache.
- PERC 6/I (Firmware Version 6.3.1-0003, A14) 256 MB.

Slots configuration

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

- Bus Type: PCIE Expansion slots
  - Two x8 PCIe Gen2 slots
  - Two x4 PCIe Gen2 slots

Model No	Description
TP- LCNP04	LCN Interface card PCIE LCNP4E
NE- NICSS1	Single NIC Card PCIE Server
NE- NICS02	Dual NIC Card PCIE Port STP
NE-NICS03	Dual NIC Card PCIe, GB, ET Chipset

Note: NE-NICS03 is an option available for PCIe card and it is recommended that you install it in Slot3. You can use only one interface card from NE-NICS02 and NE-NICS03 at a time.

Optional features

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

- Dual NIC
- LCNP4E
- Single NIC
- Memory upgrade to 4 GB
- Universal ControlNet Interface

Power cords

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

Part Description	Part Number
AC power cord, 120 V	51305557-100
AC power cord, 240 V	51107941-115

1.3 Platform Information

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: *Honeywell Peripheral Adapters*	Using the OEP/IKB adapter with computer platforms that do not have the ISA card.
FE05: *Fault Tolerant Ethernet Installation and Service Guide*	Installing and using FTE.

Dell documentation

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

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 and Safety.	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

Publication	Contains information on	Available
Dell™ PowerEdge™ R710 Systems User's Guide	Removing and replacing parts. Technical specifications. Configuring system settings. Troubleshooting and solving problems.	Product Documentation CD www.dell.com
Rack Installation Instructions — Sliding Rails	Installing the system in a server rack or cabinet.	Packaged with the computer www.dell.com
Windows Installation Instructions and Important Information	Initializing 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™ R710 Systems Installation and Troubleshooting Guide	Diagnosing problems. Using status indicators for troubleshooting.	Product Documentation CD www.dell.com

1.4 TPN node slot requirements

For more detailed slot configuration refer to Table 4-2.

TPN node setup

Slot No	Slot Type	Description
1	PCI E x4 (Up)	Free Slot
2	PCI E x4 (Down)	Free Slot
3	PCI E x8 (Up)	LNCP4E
4	PCI E x8 (Down)	Free Slot

1.5 FTE slot requirements

The default configurations listed in the following tables are for FTE connectivity through the on-board NICs. The optional configurations listed in the following tables are for FTE connectivity through an Intel Dual NIC card. For more details on slot configuration refer to Table 4-3.

FTE Supervisory (Default)

Slot No	Slot Type	Description
1	PCI-E x4 (Up)	Free Slot
2	PCI-E x4 (Down)	Free Slot
3	PCI-E x8 (Up)	Free Slot
4	PCI-E x8 (Down)	Free Slot

FTE Supervisory (Optional)

Slot No	Slot Type	Description
1	PCI-E x4 (Up)	Free Slot
2	PCI-E x4 (Down)	Free Slot
3	PCI-E x8 (Up)	Dual NIC
4	PCI-E x8 (Down)	Free Slot

3 NICs, FTE Co-Joined through Dual NIC (Default)

Slot No	Slot Type	Description
1	PCI-E x4 (Up)	LCNP4E
2	PCI-E x4 (Down)	Free Slot
3	PCI-E x8 (Up)	Free Slot
4	PCI-E x8 (Down)	Free Slot

3 NICs, FTE Co-Joined through Dual NIC (Optional)

Slot No	Slot Type	Description
1	PCI-E x4 (Up)	LCNP4E
2	PCI-E x4 (Down)	Free Slot
3	PCI-E x8 (Up)	Dual NIC
4	PCI-E x8 (Down)	Free Slot

3 NICs, FTE Co-Joined through Single NIC for EHG (Default)

Slot No	Slot Type	Description
1	PCI-E x4 (Up)	LCNP4E
2	PCI-E x4 (Down)	Free Slot
3	PCI-E x8 (Up)	Single NIC
4	PCI-E x8 (Down)	Free Slot

3 NICs, FTE Co-Joined through On-board Single NIC for EHG (Optional)

Slot No	Slot Type	Description
1	PCI-E x4 (Up)	LCNP4E
2	PCI-E x4 (Down)	Free Slot
3	PCI-E x8 (Up)	Dual NIC
4	PCI-E x8 (Down)	Free Slot

1.6 General Ethernet slot requirements

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

Option 1 – Single NIC (One On-board NIC)

Slot No	Slot Type	Description
1	PCI-E x4 (Up)	Free Slot
2	PCI-E x4 (Down)	Free Slot
3	PCI-E x8 (Up)	Free Slot
4	PCI-E x8 (Down)	Free Slot

Option 2 – Dual NICs (Two On-board NICs)

Slot No	Slot Type	Description
1	PCI-E x4 (Up)	Free Slot
2	PCI-E x4 (Down)	Free Slot
3	PCI-E x8 (Up)	Free Slot
4	PCI-E x8 (Down)	Free Slot

Option 3 – 3 NICs (Single NIC with Two On-board NICs)

Slot No	Slot Type	Description
1	PCI-E x4 (Up)	Free Slot
2	PCI-E x4 (Down)	Free Slot
3	PCI-E x8 (Up)	Single NIC
4	PCI-E x8 (Down)	Free Slot

Option 4 – 4 NICs (Dual NIC with Two On-board NICs)

Slot No	Slot Type	Description
1	PCI-E x4 (Up)	Free Slot
2	PCI-E x4 (Down)	Free Slot
3	PCI-E x8 (Up)	Dual NIC

Slot No	Slot Type	Description
4	PCI-E x8 (Down)	Free Slot

1.7 Honeywell server options

Device options

In addition to the standard configuration for the server, your platform can be configured with additional options based on the model number you ordered. The following table lists optional items for R710 Honeywell server.

Model No	Description
TP-LCNP04-100	LCNP4E
NE-NICS02-100	Dual NIC
NE-NICSS1-100	Single NIC
MZ PCEM12-100	2GB, 1333 MHz (2x1GB DDR3 Single Ranked Fully Buffered Adv ECC DIMMs), optionally expandable to 4GB
MZ-PCEM14-100	2GB,1333MHz (1x 2GB DDR3 single ranked fully buffered adv ECC UDIMM)

Memory option configuration

System memory can be increased to a maximum of 4 GB. 2GB is the standard installed memory. The memory devices are to be from the same memory supplier and must be installed in matched pairs. The label outside shipping container identifies the capacity of the memory installed.

Memory Expansion Model number is used by Honeywell to inform the supplier about the type of memory to be added to the platform. All the 2GB DDR3 Adv, ECC Memory must be Single Ranked.

Table 1-3 Standard and optional memory configuration for MZ-PCSV52

DIMM Socket	2 GB Memory (standard)	4 GB Memory
A1	Not available for use	Not available for use
A4	Not available for use	Not available for use

DIMM Socket	2 GB Memory (standard)	4 GB Memory
A7	Not available for use	Not available for use
A2	1 GB	1 GB, 1066 MHz, 1R Adv ECC DDR3 UDIMM
A5	-	1 GB, 1333 MHz, 1R Adv ECC DDR3 UDIMM
A8	Cannot be used	Cannot be used
A3	1 GB	1 GB, 1066 MHz, 1R Adv ECC DDR3 UDIMM
A6	-	1 GB, 1333 MHz, 1R Adv ECC DDR3 UDIMM
A9	Cannot be used	Cannot be used
Total	**2GB**	**4 GB**

Table 1-4 Standard and optional memory configuration for MZ-PCSV53

DIMM Socket	2 GB Memory (standard)	4 GB Memory
A1	Not available for use	Not available for use
A4	Not available for use	Not available for use
A7	Not available for use	Not available for use
A2	1 GB	1 GB, 1333 MHz, 1R Adv ECC DDR3 UDIMM
A5	-	1 GB, 1333 MHz, 1R Adv ECC DDR3 UDIMM
A8	Cannot be used	Cannot be used
A3	1 GB	1 GB, 1333 MHz, 1R Adv ECC DDR3 UDIMM
A6	-	1 GB, 1333 MHz, 1R Adv ECC DDR3 UDIMM
A9	Cannot be used	Cannot be used
Total	**2GB**	**4 GB**

The following table lists the standard and optional memory configuration for MZ-PCSV53 shipped from May 2012 onwards.

Table 1-5 Standard and optional memory configuration for MZ-PCSV53 from May 2012

DIMM Socket	4 GB Memory
A1	Not available for use
A4	Not available for use
A7	Not available for use
A2	2 GB, 1333 MHz, 1R Adv ECC DDR3 low voltage UDIMM
A5	--
A8	Cannot be used
A3	2 GB, 1333 MHz, 1R Adv ECC DDR3 low voltage UDIMM
A6	--
A9	Cannot be used
Total	**4 GB**

For Experion R410.x, you can expand memory to 8GB by using memory module MZ-PCEM14. The following table describes the memory configuration for MZ-PCEM14.

Table 1-6 Standard and optional memory configuration for MZ-PCEM14

DIMM Socket	Memory size	Total memory
A1	Not available for use	-
A4	Not available for use	-
A7	Not available for use	-
A2	2 GB	-

DIMM Socket	Memory size	Total memory
A5	2 GB	-
A8	Cannot be used	-
A3	2 GB	-
A6	2 GB	8 GB
A9	Cannot be used	-

ATTENTION

If you are using 1GB modules that is 2GB (2x1GB) / 4GB (4x1GB) memory modules, then you must replace the same with MZ-PCEM14 modules for upgrading your memory configuration to 8GB.

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 for a cabinet

The following table lists the operating environmental limitations in a cabinet.

Table 1-7 Environmental Operating Specifications for a Cabinet

Description	Cabinets
Ambient room temperature	10° to 35°C (50° to 95°F) with a maximum temperature gradation of 10°C per hour. **Note**: For altitudes above 2950 feet, the maximum operating temperature is derated 1°F/550 feet.
Humidity	20 to 80% RH, non-condensing

Description	Cabinets
Operating vibration	0.26 Grams at 5-350Hz in operational orientations.
Site induced shock	6g, 10 msec half-sine pulses, 1 positive, 1 negative, all 3 axes

Electronic assembly specifications

The following tables list the electronic assembly specifications.

Table 1-8 Typical Operating Power Requirements

Description	Requirement
DC POWER	N/A
AC Voltage	120 (90-132) Vrms 240 (180-260) Vrms
AC RMS Current	1.27 Arms 0.63 Arms
AC Power	134 Watts 130 Watts

Table 1-9 Maximum Operating Power Requirements

Description	Requirement
DC POWER	N/A
AC Voltage	120 (90-132) Vrms 240 (180-260) Vrms
AC RMS Current	1.75 Arms 0.82 Arms
AC Power	183 Watts 181 Watts

Table 1-10 Electronic Assembly Weight and Dimensions

Description	Requirement
Height	8.64cm (3.40 Inch)
Width	44.31cm (17.44 Inch)
Depth	68.07cm (26.80 Inch)
Weight	(maximum configuration) 26.1kg (57.54lbs)

Hard disk drive specifications

The R710 Honeywell Server has five hard disk drives. It uses four 146 GB SAS 2.5" hard drives for RAID-5 (striping). The fifth hard drive is used as a hot spare drive. There is no option to add additional hard drives. Disk drives in this platform must be of the same size (GB) and speed (RPM).

Table 1-11 146GB Hard Disk Drive Power Requirements

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

Table 1-12 146GB Hard Disk Drive Weight and Dimensions

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

Removable media specifications

The R710 Honeywell Server has one SATA DVD- RW drive. The SATA DVD-RW drive is connected to the SATA connector on the motherboard.

Table 1-13 Removable Media Power Requirements

Description	CDRW/DVD ROM Requirements
DC 5 volt Power	6.5 Watts

Mouse and keyboard

The USB mouse is the standard cursor control device and is included with the R710 Honeywell Server.

A USB standard PC keyboard is included with the R710 Honeywell Server.

Monitor

The R710 Honeywell Server supports industrial standard video format (typically 1024X768 at a refresh rate of 75Hz). R710 Server can be configured only with a multisync monitor and a single screen option. In this configuration, the monitor is connected to the AGP video controller output connector. Note that no touch screen option is available for the R710 Honeywell Server.

Video cable

Correct system startup and operation of the R710 Honeywell Server requires industry standard VESA DDC interface to the monitor. If a monitor or video cable that does not support DDC is attached to the Server Platform, the resolution of the display generator is such that it precludes the communication with the system software and also prevents startup. A quick check to determine if a cable is DDC compatible is to check that pins 5, 9 and 12 of the HD15 connector are wired. The IS supplied cable (51196742-200) is DDC compatible.

1.10 Industrial regulatory compliance

Overview

The compliance specifications in this section apply to cabinet installations.

WARNING

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

Electromagnetic Compatibility (EMC)

Table 1-14 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 > 0.300 meters

NOTE

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

Safety compliance

Table 1-15 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

ATTENTION

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

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 guide as standard system configurations. Any equipment configuration other than that described in this publication decertifies the Safety and EMC compliance of this product.

Electromagnetic Compatibility (EMC)

Table 1-16 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 > √ **{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

ATTENTION

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

Safety compliance

Table 1-17 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

ATTENTION

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

2. Installation

2.1 Introduction

This section describes the procedures for installing the platform 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 Platform Installation Tasks

✓	Task
	Understanding the Power and grounding requirements. Also refer to, *TPN System Installation Guide (SW20-600), Section 4, System Grounding.*
	Installing the server and connecting the cables
	Starting the Server

Before you begin

Ensure that you perform the following tasks.

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

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

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 you connect the power cord 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) R710 Honeywell servers can be mounted on a new build 1-meter deep Rittal MP-C1MCB1 cabinet. These servers must be mounted on 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 on the second 3U interval, and so on. 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 10º and 30º C (50º to 86º F).

Unused cabinet spaces

ATTENTION

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

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

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 connecting the cables

Overview

This section describes the procedures for installing and cabling the server in a 1-meter deep Honeywell cabinet with 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 Sliding Ready Rails pre-assembled.

Honeywell server back panel connections

The following figure shows the back panel of the server and identifies the connectors for all devices. It also shows an LCNP4E card and dual NIC card installed. Your configuration may not include these cards.

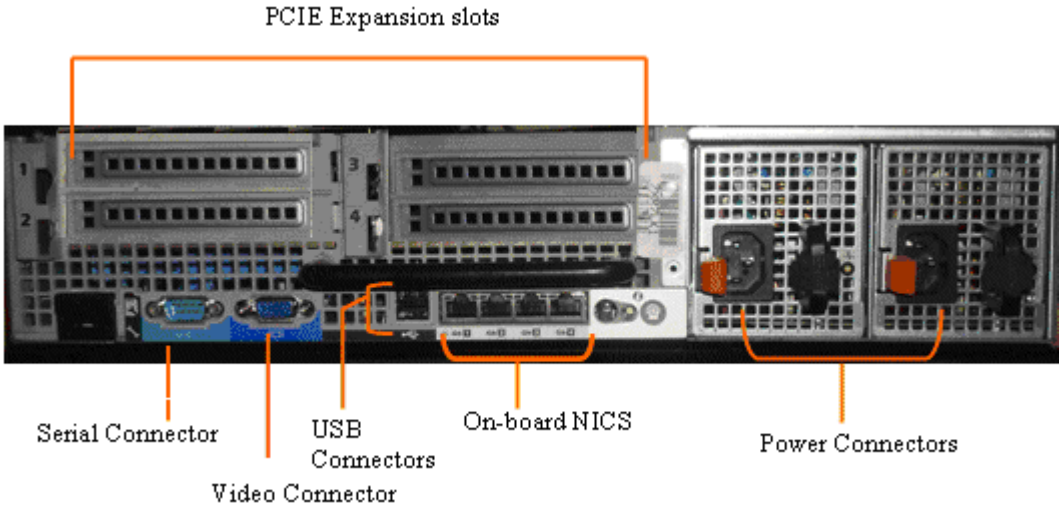


Figure 2-1 R710 Honeywell Server Rear View

Installing the server

The following table describes the steps to install the server.

Step	Action
1	From the front of the cabinet, open the door to access the mounting rails.
2	Fully extend the right and left Sliding Ready Rails (pre-installed in the Honeywell factory).
3	Lower the server into the J-shaped slots on each slide, starting with the slot that is closest to the cabinet.
4	Push the server toward the cabinet until the retaining clips snap into place.
5	Slide the server directly into the cabinet and engage the captivated screws in the front flange of the Sliding Ready Rails. After 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.

Step	Action
	 **ATTENTION** The Sliding Ready Rails kit includes a cable management arm (installed in the Honeywell factory) that mounts to the rear of the Sliding Ready Rails. AC power cords and KVM cables are pre-routed through the cable management arm. For additional information, refer to the "*Rack Installation Guide*" shipped with the cabinet.
6	If you are using the 8-port KVM switch/control console for your human interface (pre-installed in the Honeywell factory), connect the KVM cable mouse and keyboard connections to the USB connectors on the rear of the server. The KVM cable may have separate USB connections for the mouse and keyboard or they may be combined into one USB connector through a USB to PS/2 adapter (included with the KVM cable).

Connecting the cables

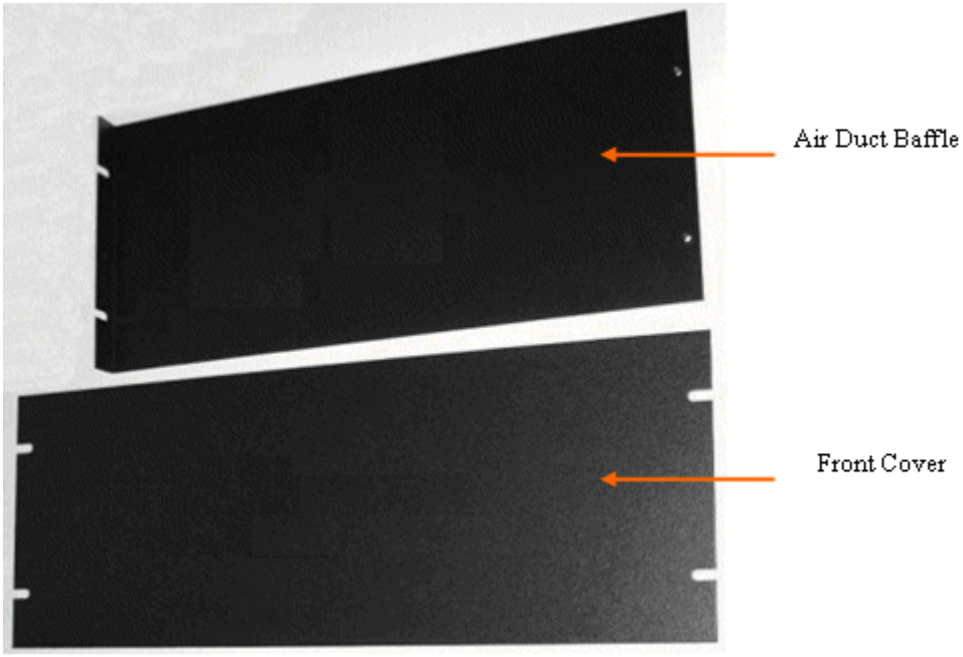
The following table describes the procedure to connect the power cords and cables to the back panel of the server.

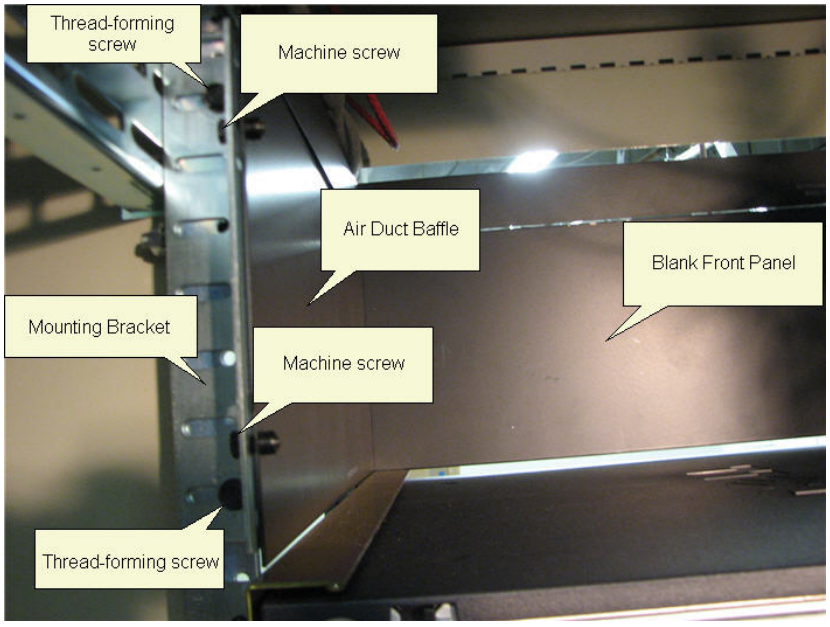
Step	Action
1	Connect the video and network interface cables.
	 **WARNING** AC power cords from all computing nodes mounted on a given cabinet must be distributed across the two power entries as equally as possible. Failure to do so may result in tripping the circuit breakers.
2	Connect the Honeywell AC power cords.
	 **ATTENTION** Ensure that the power cords are connected to separate power entries. For more information refer to Power cords in the section 1.2.

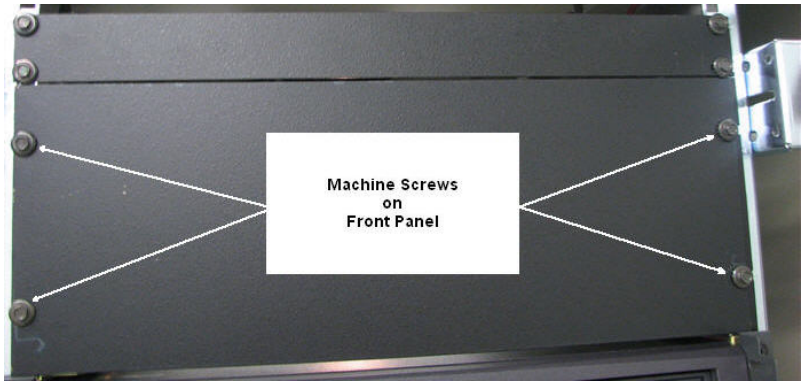
Step	Action
3	Perform any one of the following, as necessary. • If you are not using Fault Tolerant Ethernet (FTE), connect the Ethernet cable to the on-board RJ-45 connector. • If you are using an Intel dual NIC card for FTE, connect the FTE cable to the NIC card in the expansion slot. • If you are using the on-board NICs for FTE, connect the FTE cable to the onboard RJ-45 connector.
4	Secure any loose cables, and verify that all cables have proper strain relief.
5	If necessary, go to section Installing air duct baffles and blank front cover
	ATTENTION Any unused rack mount space must have an air duct baffle and blank front panel installed.
6	Go to Section 2.6, Starting up your Server, to complete the installation.

2.5 Installing air duct baffles and blank front cover

This section describes the steps to install the air duct baffle and blank front cover in the cabinet. These are available in four height options; refer to Table 2-2 for height options. Installing these parts ensures that the airflow within the cabinet allows proper cooling of the computers.


Air Duct Baffle
Front Cover

Step	Action
1	Place the air duct baffle inside the cabinet with the bent tab resting along the front of the right cabinet rail. 
2	Place the blank front panel across the front of the cabinet rails.
3	Attach the blank front panel to the air duct baffle and the right cabinet rail, using two machine screws and two external tooth washers threaded into the two clip nuts.
4	Tighten the screws.

Step	Action
	
5	Attach the other side of the blank front panel to the left cabinet rail using two machine screws and two external tooth washers threaded into the two clip nuts and tighten the screws.
6	Attach the rear mounting bracket to the rear cabinet rail using two thread forming screws and two external tooth washers and tighten the screws.
7	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 the Server

Before you begin

ATTENTION

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 starting the server.

Turning on the power

The following table describes the steps to turn on the power.

Step	Action
1	Press the power button on the front panel of R710 Honeywell server.

Step	Action
2	Wait for the power light to become solid green.
3	If the power light does not become solid green, refer to the troubleshooting section of the *Dell™ PowerEdge™ R710 Systems Hardware Owner's Manual.*

Configuring RAID in R710 Honeywell servers

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

ATTENTION

You must perform the following steps only when the RAID level is not configured on the host machine, and when the server contains only five hard drives. While performing the following steps, you cannot access the information present in the hard drives.

Step	Action
1	Turn on the server.
2	After starting the server, the message ***Power Edge Expandable RAID controller BIOS Copyright© 2008, LSI Corporation Press <Ctrl>, <R> to Run Configuration utility*** appears. Press **CTRL+R**.
3	The **VD Mgmt (Virtual Disk Management)** screen appears. Select **Controller#**.
4	Press **F2** to display the menu of available actions.
5	Select the **Clear Configuration** using the ARROW keys.
	ATTENTION By performing this action, data will be completely inaccessible from the hard drives.
6	You are prompted with the message ***Are you sure you want to clear configuration?*** Select **Yes** to delete the existing virtual disk, if any.
7	Select **Controller #**, and then Press **F2** to display the menu of available actions.

Step	Action
8	Select **Create New VD** and press **ENTER**. The **Create New VD** screen appears. The cursor is on the **RAID Level** option.
9	Press **ENTER** to display the RAID levels.
10	Select a **RAID-5** using the arrow keys, and then press **ENTER**.
11	Press the **TAB** key and then move the cursor to the list of physical disks.
12	Press the **SPACEBAR** key and then select disk 00:00,00:01,00:02 and 00:03.
13	Press **TAB** key and then move the cursor to **Advanced Settings**. Press the **spacebar** to make the settings active.
14	Press **TAB** key and then move the cursor to **Initialize**. Press the spacebar to make the selection.
15	Press **TAB** key and then move the cursor to **OK** and press **ENTER**.
16	The computer prompts you with the message ***Initialization will destroy data on the virtual disk. Are You Sure you want to continue***. Press **OK**.
17	The message appears ***Virtual disk initialization complete***. Press **OK**.
18	Press **CTRL+N** to access the **PD Mgmt (Physical Disk Management)** screen.
19	Highlight the drive 00: 04 using the ARROW key, and then press **F2** to display the menu of available actions.
20	Highlight **Make Global HS** using the arrow keys, and then press **ENTER**.
21	Select **Yes** to confirm the Hot Spare disk creation.
22	Press **CTRL+P**. The **VD Mgmt (Virtual Disk Management)** screen appears.
23	Highlight **Virtual Disk#** using the ARROW key. On the right pane of the menu, Check size of Virtual disk it must be 408.378GB (if you are using 146GB HDDs).
24	Press **ESC** to exit. The computer prompts you with the message ***Are you sure you want to exit.***
25	Press **OK** to exit from the Virtual Disk Management screen.
26	Press **CTRL+ALT+DELETE** to restart the server.

Starting the TDC Emulator Services

If this is a TPS node with the LCNP4E board installed, start the TDC Emulator service. Perform the following steps to start the service.

Step	Action
1	Choose **Start > Run**. The **Run** dialog box appears.
2	In the **Open** textbox, type *services.msc*
3	Right-click *TDC Emulator service* and click **start**, to start the service.

Checking the LCNP4E status

If this is an Experion "T" node or a TPS node with the LCNP4E board installed, perform the following steps to verify the LCNP4E passed self test.

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

REFERENCE

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

3. Operation

3.1 Overview

Front view of server

The following figure shows the front view of the server.

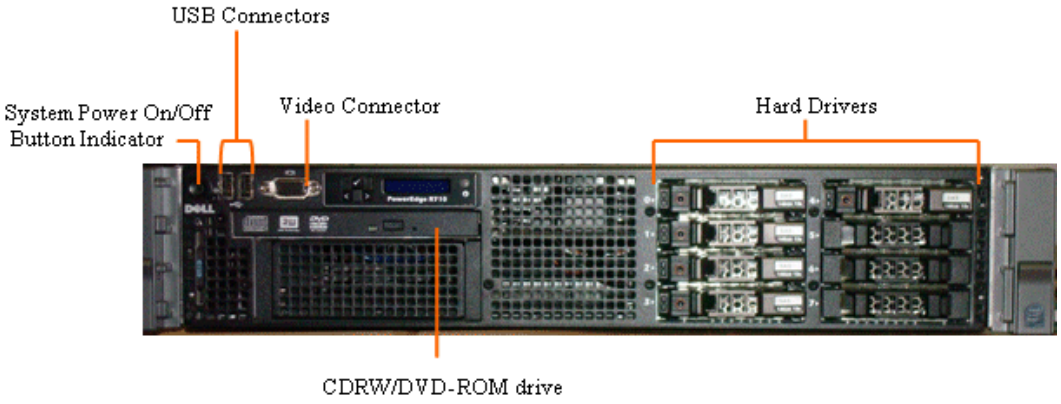


Figure 3-1 Front View of R710 Server

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
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™ R710 Product Information Guide	Warranty and Safety.	Packaged with the computer www.dell.com

Publication	Contains information on	Available
Dell™ PowerEdge™ R710 Systems Hardware User's Guide	Removing and replacing parts. Technical specifications. Configuring system settings. Troubleshooting and solving problems.	Product Documentation CD www.dell.com
Rack Installation Instructions — Sliding Rails	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 R710 Honeywell Server electronics module must be connected to an LCN network and/or an Ethernet network.

Ethernet network

Two Ethernet 10/100/1000 embedded Base-T connection is standard on the R710 Honeywell Server. The Broadcom dual embedded GB NICs are enabled without PXE in the System BIOS. 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 through a Local Control Network Processor (LCNP4E) card. The LCNP4e card is a Honeywell PWA that allows the TPS Operator Station to emulate Universal Stations. This card provides the communication path for the Operator Station to other LCN modules. The LCNP4E consists of an LCNP4E Card, a MAU cable and the LCN MAU (Media Access Unit). The LCNP4e card is a PCIe card. For TPN only nodes where only the LCNP4e card is present, the LCNP4e card is placed in the PCIe x8 slot 3. For Experion nodes, the LCNP4e card is placed in PCIe x4 slot 1, if there is a NIC card in slot 3. The LCNP4E, MAU and MAU cable are required on Server Platform. The LCN node address should be set to the address the customer wants. 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 Honeywell Server Platform uses only a digital system clock. When the Honeywell R710 Server Platform is added to an existing system that contains nodes running analog clocks that system must have at least two (2) KxLCN boards for analog/digital clock translation. The model number for the LCNP4E is TP-LCNP04.

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 LCNP4E 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 LCNP4E 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 displayed in the following figure (tower unit MAU shown, cabinet mounted MAU similar).

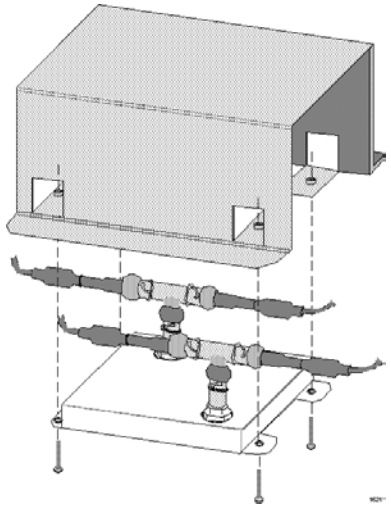


Figure 3-2 LCN MAU to LCN Cable T-Connections

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

The following images display the types of PCIC card used by Honeywell:

- **TC-PCIC01**: This is a non universal PCIC card.

- **TC-PCIC02**: This is a universal PCIC card.

REFERENCE -EXTERNAL:

- **TC-PCIC01**: TC- PCIC01 card can be only interfaced using Magma PCIe to PCI Converter. Refer to the Magma PCI Expansion Chassis Installation Instructions (PE4DR-HNWL) supplied with the Magma hardware kit.
- **TC-PCIC02**: Controlnet Network interface can be connected to R710 server using Dell PCI riser card or Magma PCIe to PCI converter. For more information on "How to connect using Magma Converter?" refer to the Magma PCI Expansion and Chassis Installation Instructions (PE4DR-HNWL) supplied with the Magma hardware kit.

For more information on how to connect using Dell PCIe riser card, refer to section 3.3 Configuring ControlNet interface card using Dell PCIe riser card inside Dell PE R710 server.

CAUTION

Ensure you use the correct PCIC interface cards as displayed in the images. DO NOT use TC-PCIC01 card with Dell PCI riser.

3.3 Configuring ControlNet interface card using Dell PCIe riser card inside Dell PE R710 server

To configure ControlNet interface card using Dell PCIe riser card you must remove the existing PCIe riser and replace it with a new PCIe riser card inside Dell PE R710 server.

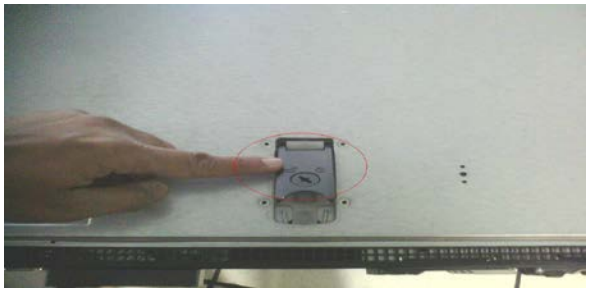
Removing existing PCIe riser

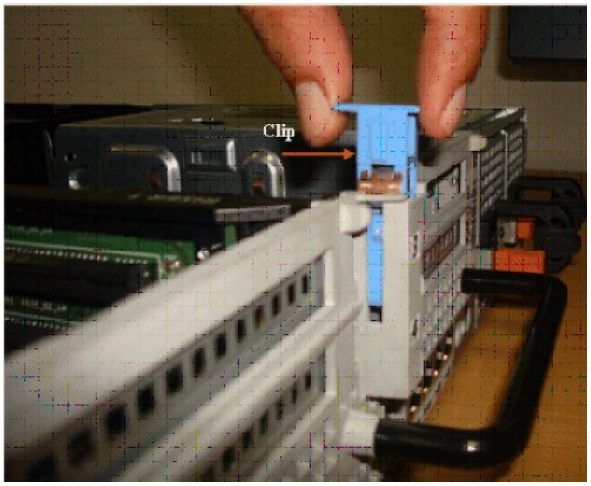
Before you begin

ATTENTION

PCIe riser is an electro statically sensitive device. Use a grounding strap, grounded work surfaces and equipment when handling this component.

Perform the following steps to remove existing PCIe riser 2 slot card inside the server.

Step	Action
1	Shut down your system.
2	Remove the power cords from the rear end of the server and wait for 20 seconds.
3	Unlock and lift the flip as displayed in the image. 

Step	Action
4	Locate the card retainer clip (blue plastic expansion card retainer) and then pull out the clip to release the metal shield (card slot blank plate). 

Step	Action
5	Press the blue clip and lift gently to remove the riser card.  The raiser card looks as displayed in the image. 
6	Unscrew the riser card from bracket as displayed in the image. 

Step	Action
	ATTENTION Ensure that you **DO NOT** connect the power cord.

Installing PCIe riser card and ControlNet card

Before you begin

ATTENTION PCIe riser is an electro statically sensitive device. Use a grounding strap, grounded work surfaces and equipment when handling this component.

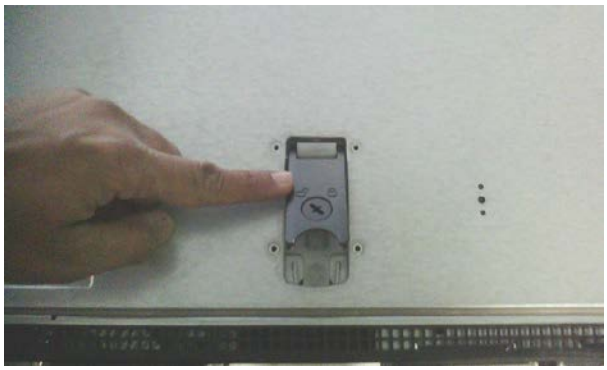
Perform the following steps to install PCIe riser card and ControlNet card inside Dell PE R710 server.

Step	Action
1	Insert PCIe riser card in the bracket as displayed in the image. 

Step	Action
2	Tighten the screw as displayed in the image.  The slot card along with bracket is ready for insertion into the server system. 

Step	Action
3	Insert the card on motherboard riser slot and press gently.  The riser card is ready to use. 

Step	Action
4	Insert PCIe based PCIC-02 ControlNet interface card in PCIe slot. 
5	Close the card restrainer/clip which was removed earlier. 

Step	Action
6	Close the cover of the server system and push the flip. 
7	Insert the power chords back to the server.
8	Switch on the Dell PE R710 Server.

4. Servicing

4.1 Servicing the R710 Honeywell server

Before you begin

	**ESD HAZARD** Shut down the server.
	**SHOCK HAZARD** o To avoid electrical shock, ensure that you unplug the computer from the electrical outlet. o Disconnect the power cords and cables from the back panel.
	**CAUTION** Before you begin any of the procedures in this section, follow the safety instructions in the *Dell System Information Guide*.
	**ATTENTION** o Remove the server from the cabinet or tower unit and place on a secure surface. o After removing the cover, ensure that you do not disconnect the cables from the system board.

Removing the Front bezel

A lock on the bezel restricts access to the hard drives. To remove or install any of these drives, you must first remove the front bezel.

To remove the front bezel, perform the following steps.

Step	Action
1	Remove the server from the cabinet and place on a secure surface.
2	Use the system key to unlock the front bezel by placing the key lock open.

Step	Action
3	Push the tab up at the left end of the bezel. 
4	Pull the bezel away from the system. 

Removing the Side cover

A lock on the side cover bezel restricts access to the motherboard. To remove or installs the components on the motherboard; you must first remove the side cover.

To remove the side cover, perform the following steps.

Step	Action
1	Rotate the latch release lock counter clockwise to unlock.
2	Lift the latch on top of the system and slide the cover back. 
3	Lift the cover away from the system. 

Step	Action
	

4.2 Servicing the LCNP4E

LCNP4E board description

The LCNP4E board has 256 MB of on-board memory.

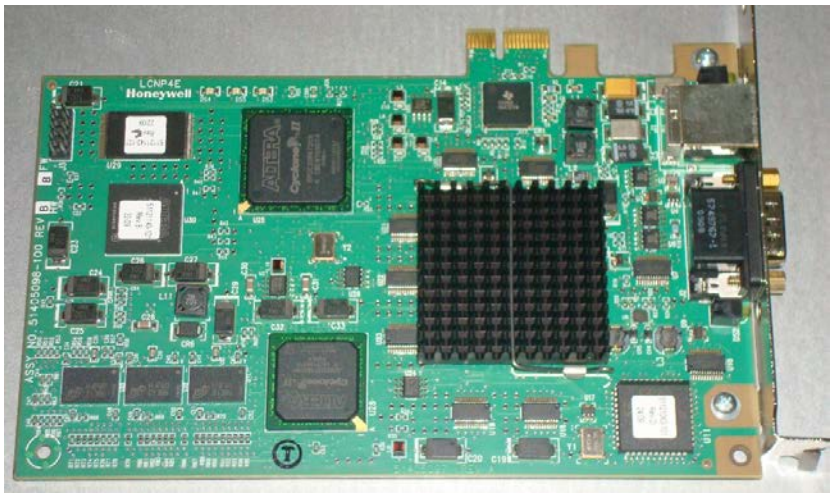
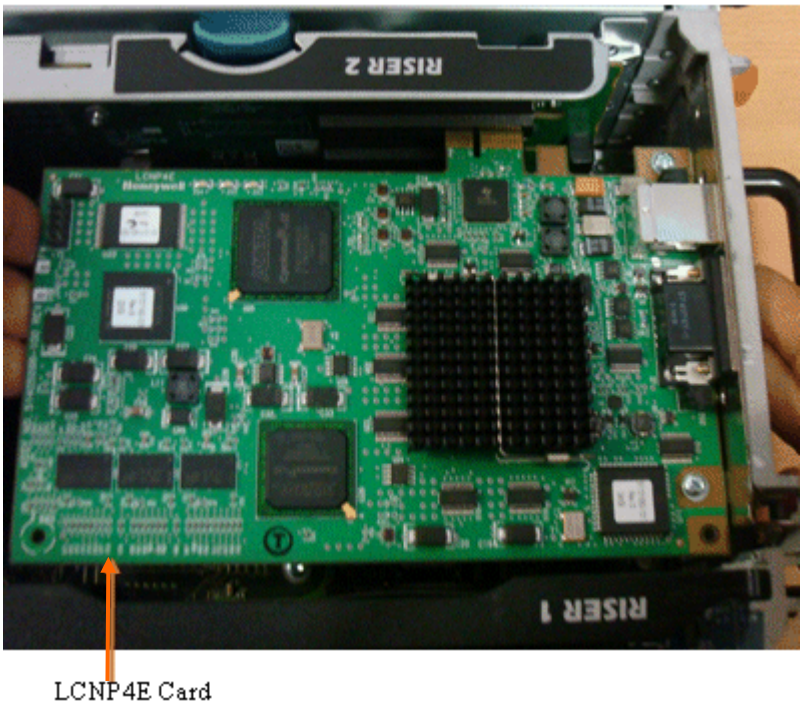


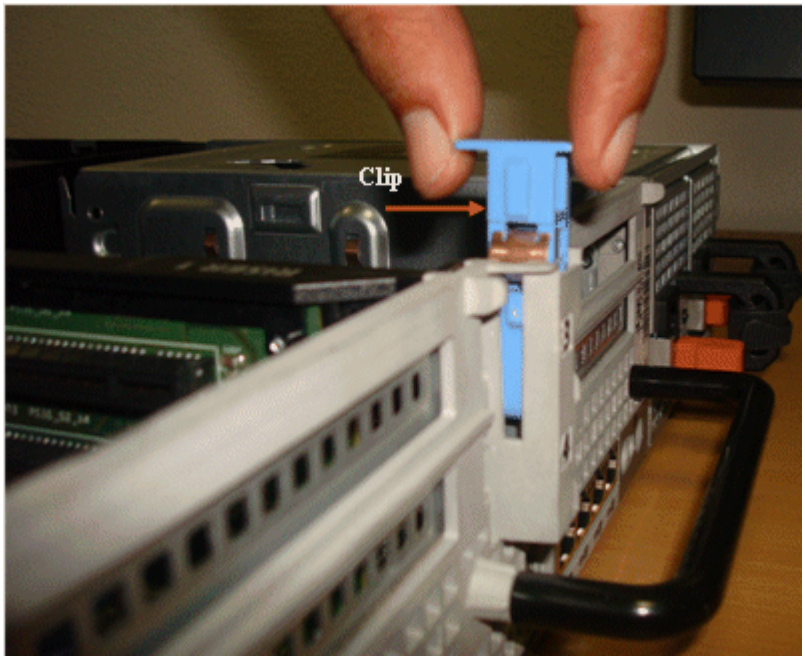
Figure 4-1 LCNP4E Board

Replacing the LCNP4E board

For TPN only nodes where only the LCNP4e card is present, the LCNP4e card is placed in the PCIe x8 slot 3. For Experion nodes, the LCNP4e card is placed in PCIe x4 slot 1, if there is a NIC card in slot 3. Refer to the following steps to replace the LCNP4E card. Refer to Dell™ PowerEdge™ R710 Systems Hardware Owner's Manual.

	**ESD HAZARD** The LCNP4E board is an electro statically sensitive device. Use a grounding strap and grounded work surfaces and equipment when handling this component. Store and transport the parts only in electro statically safe containers.

Step	Action
1	Disconnect the LCN MAU cable from the LCNP4E card.
2	While wearing a grounded ESD wrist strap, grasp the LCNP4E card at the corners and gently remove the existing card from the PCIE slot 1 or slot 3. 
3	Insert the replacement LCNP4E card firmly into PCIE slot 1 or slot 3, until the card is fully seated.
4	Align the LCNP4E card edge connector with the expansion card connector.

Step	Action
5	Close the clip as shown. 
6	Reconnect the LCN MAU cable to the LCNP4E card.
	ATTENTION Do not route cables over or behind the cards. Cables routed over the cards can prevent the system cover from closing properly or damage the equipment.
7	Replace the cover and bezel.
8	Replace the server in the cabinet.
9	Reconnect the power cords and cables to the back panel of the server.
10	Reconnect the LCN MAU cable.
11	Press the Power On/Off button on the server, to turn on the power.

4.3 Servicing the hard disk drives and power supply

Overview

The server from Honeywell is configured with 5, 146 GB SAS hard drives. Four are used in a RAID-5 configuration and the 5th 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 listed in the following table 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 information on
Dell™ PowerEdge™ R710 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 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

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

ESD HAZARD

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

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 x4 slot 1 (Up)	PCI-E x4 slot 2 (Down)	PCI-E x8 slot 3 (Up)	PCI-E x8 slot 4 (Down)
Free Slot	Free Slot	LCNP4E	Free Slot

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 in the following tables are for FTE connectivity through the on-board NICs. The optional configurations listed in the following tables 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 x4 slot 1 (Up)	PCI-E x4 slot 2 (Down)	PCI-E x8 slot 3 (Up)	PCI-E x8 slot 4 (Down)
FTE Supervisory (Default)	Free Slot	Free Slot	Free Slot	Free Slot
FTE Supervisory (Optional)	Free Slot	Free Slot	Dual NIC	Free Slot
3 NICs, FTE co-joined through dual NIC (Default)	LCNP4E	Free Slot	Single NIC	Free Slot
3 NICs, FTE co-joined through dual NIC (Optional)	LCNP4E	Free Slot	Dual NIC	Free Slot
3 NICs, FTE co-joined through single NIC for EHG (Default)	LCNP4E	Free Slot	Single NIC	Free Slot
3 NICs, FTE co-joined through on-board single NIC for EHG (Optional)	LCNP4E	Free Slot	Dual NIC	Free Slot
Single NIC (One On-board NIC)	Free Slot	Free Slot	Free Slot	Free Slot
Dual NICs (Two On board NICs)	Free Slot	Free Slot	Free Slot	Free Slot
3 NICs (Single NIC with Two On-board NICs)	Free Slot	Free Slot	Single NIC	Free Slot
4 NICs (Dual NIC with Two On-board NICs)	Free Slot	Free Slot	Dual NIC	Free Slot

Replacing the cards in expansion slots

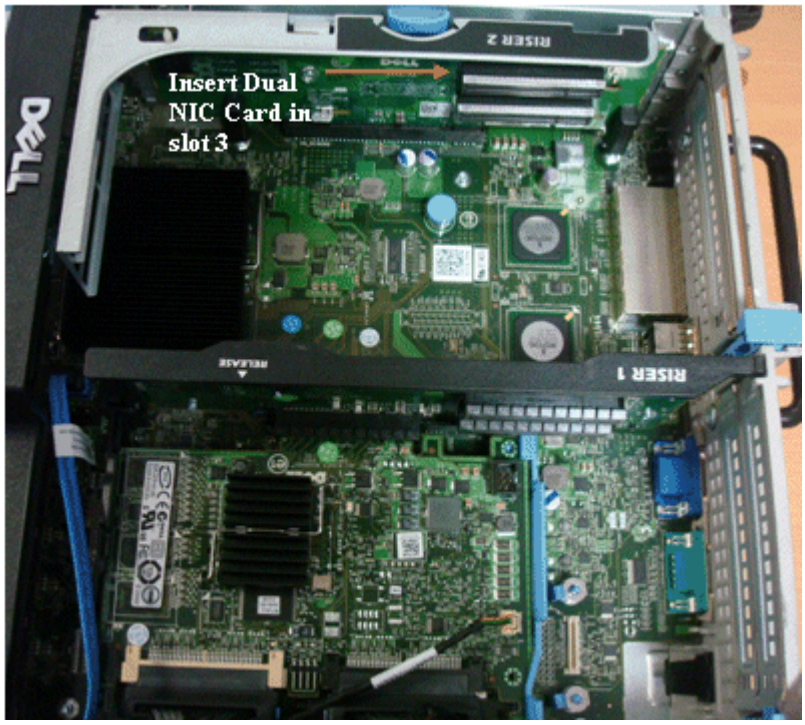
The following procedure contains information on replacing the expansion cards in the PCIE slots. Also refer to *Dell™ PowerEdge™ R710 Systems Hardware Owner's Manual*.

Before you begin

- Refer to Section 4.1.

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

Step	Action
1	Disconnect the cables from the expansion card.
2	While wearing a grounded ESD wrist strap, grasp the existing Dual NIC card at the corners and gently remove it from the PCIE-x8 slot 3.
3	Align the new Dual NIC card edge connector with the expansion card connector.

Step	Action
4	Insert the Dual NIC card firmly into PCIE-X slot 3 until the card is fully seated. 
5	Close the clip.
6	Close the expansion card retainer.
7	Connect expansion card cable to the expansion card.
	ATTENTION Do not route cables over or behind the cards. Cables routed over the cards can prevent the system cover from closing properly or damage the equipment.
8	Close the cover and bezel.
9	Replace the server in the cabinet.

Step	Action
10	Connect the power cords and cables to the back panel of the server.
11	Press the Power On/Off button on the server, to turn on the power.

Add additional memory

The standard memory capacity is 2 GB. The system memory can be increased to 4 GB, MZ PCEM12. Memory devices must be from the same memory supplier.

The following table shows the placement of memory devices for the memory capacity options. The following table so is organized that the DIMM sockets are in the same order as they are located on the motherboard. Refer to the Table 1-3and Table 1-4 for more details on memory usage.

Table 4-4 Memory Upgrade Configuration

DIMM Socket	2 GB Memory (standard)	4 GB Memory
A1	Not available for use	Not available for use
A4	Not available for use	Not available for use
A7	Not available for use	Not available for use
A2	1 GB	1 GB
A5	-	1 GB
A8	Cannot be used	Cannot be used
A3	1 GB	1 GB
A6	-	1 GB
A9	Cannot be used	Cannot be used
Total	**2GB**	**4 GB**

The following table lists the memory upgrade configuration (4GB using 2GB 1333MHz, 1R Adv. ECC DDR3 low voltage DIMM) for systems shipped from May 2012 onwards.

DIMM Socket	4 GB Memory
A1	Not available for use
A4	Not available for use
A7	Not available for use
A2	2 GB
A5	--
A8	Cannot be used
A3	2GB
A6	--
A9	Cannot be used
Total	**4 GB**

For Experion R410.x, you can expand memory to 8GB by using memory module MZ-PCEM14. The following table describes the memory configuration for MZ-PCEM14.

DIMM Socket	Memory size	Total memory
A1	Not available for use	-
A4	Not available for use	-
A7	Not available for use	-
A2	2 GB	-
A5	2 GB	-
A8	Cannot be used	-
A3	2 GB	-
A6	2 GB	8 GB
A9	Cannot be used	-

ATTENTION

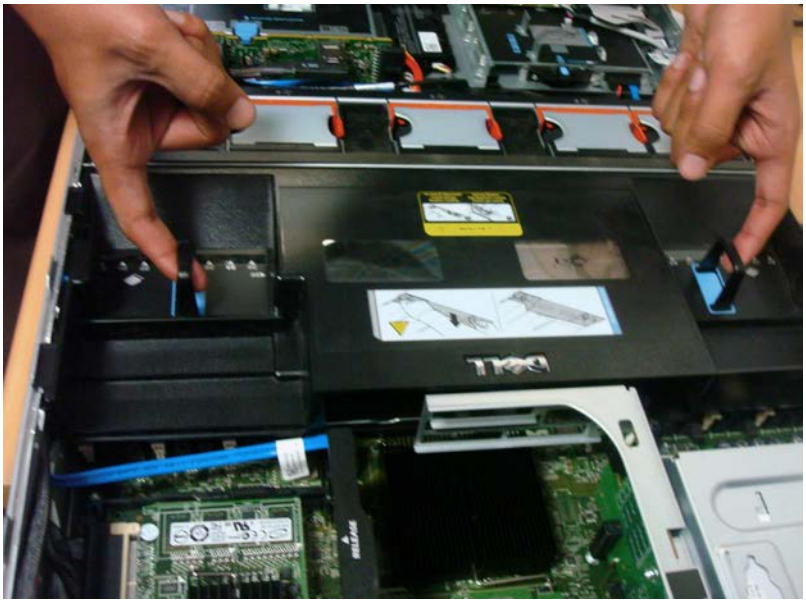
When adding additional memory, you might get a warning message stating that memory is not optimal. This message occurs due the interleaf memory socket design. You can ignore this message.

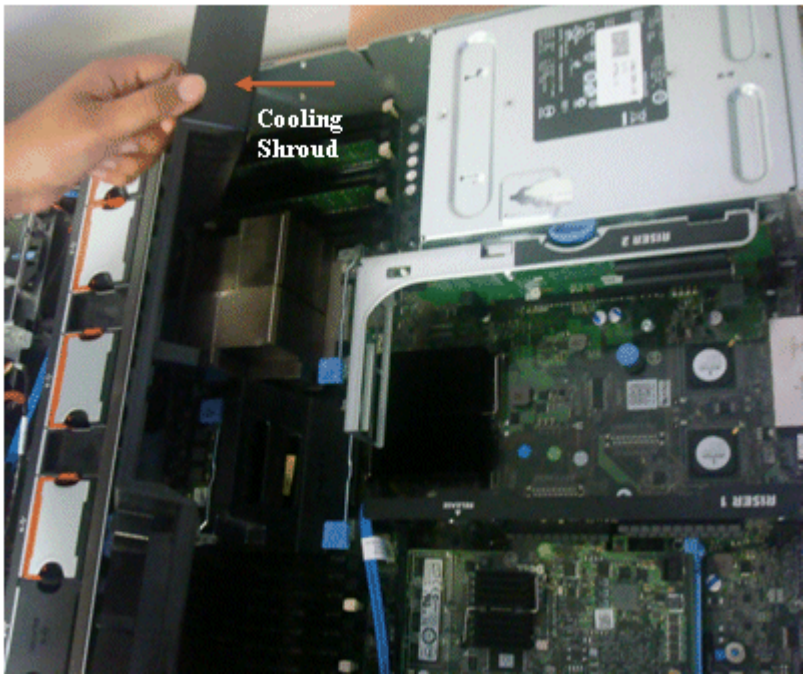
Refer the following steps to upgrade the memory. Refer to Dell™ PowerEdge™ R710 Systems Hardware Owner's Manual.

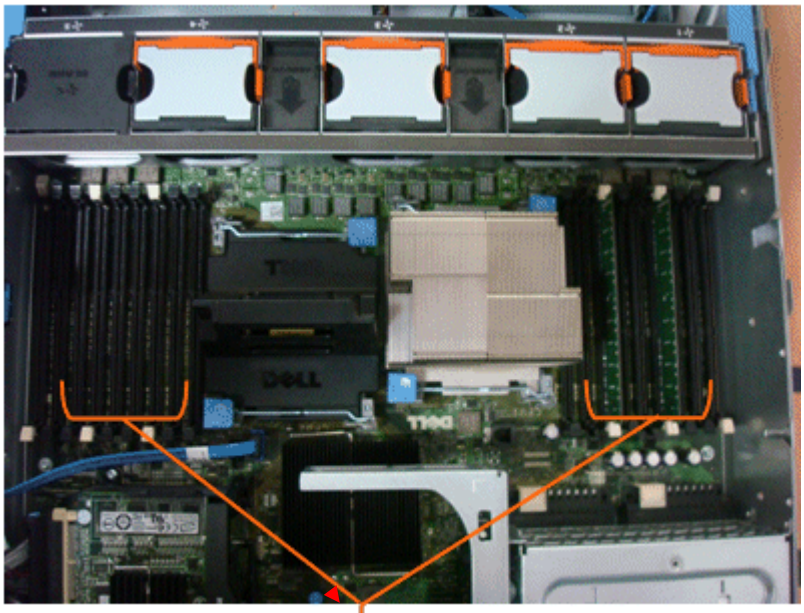
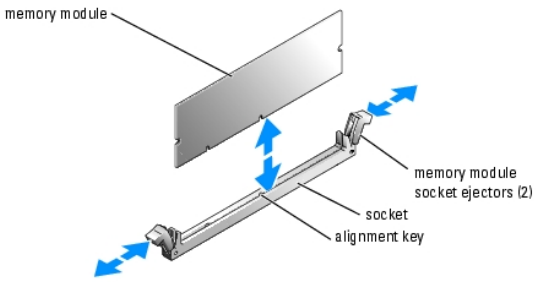
ESD HAZARD

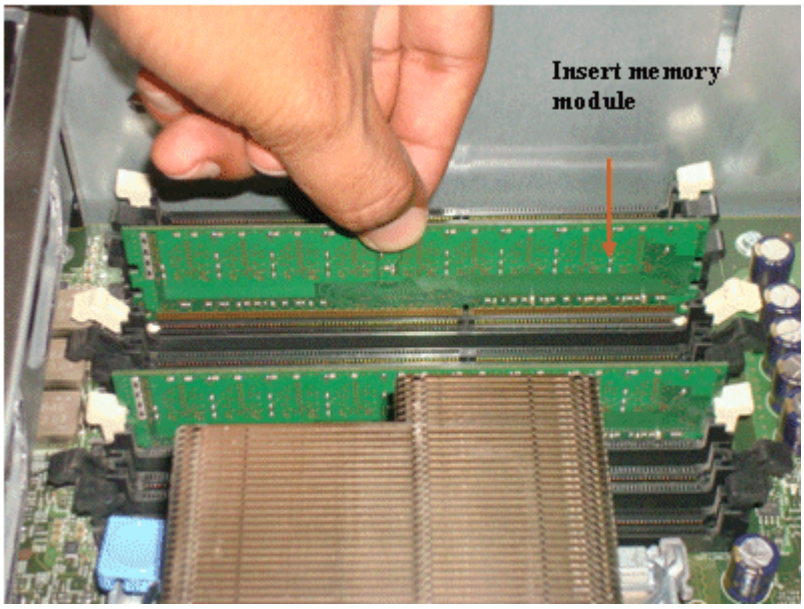
Memory is electro statically sensitive. Use a grounding strap and grounded work surfaces and equipment while handling these components. Store and transport parts only in electro statically safe containers.

Step	Action
1	Perform all the procedures in Section 4.1 to access the motherboard including: o Shutting down the system. o Disconnecting power cords and cables from the server. o Accessing the electronics.

Step	Action
	CAUTION The DIMMs are hot to the touch for some time after the system is powered down. Allow time for the DIMMs to cool before handling them. Handle the DIMMs by the edges and avoid touching DIMM components.
2	Remove the cooling shroud as shown. 

Step	Action
3	Swing the cooling shroud up to expose the DIMM memory slots. 

Step	Action
	The DIMM sockets are now exposed. Refer to the Table 4-4 for DIMM socket configuration. Standard configuration is shown below.  Memory Slots
4	While wearing a grounded ESD wrist strap, press the socket ejectors on the memory module socket down to allow the memory module to be inserted into the socket. 

Step	Action
5	Insert the memory module as shown. 
6	Align the memory module's edge connector with the alignment key on the memory module socket, and insert the memory module into the socket. **ATTENTION** The memory module socket has an alignment key that allows you to install the memory module in the socket only in one way.
7	Press down the memory module with your thumbs while pulling up on the socket ejectors with your index fingers to lock the memory module into the socket. When the memory module is properly seated in the socket, the socket ejectors on the memory module socket align with the socket ejectors on the other sockets that have memory modules installed.
8	Rotate the cooling shroud into position until it latches.
9	Replace the cover and bezel.
10	Replace the server in the cabinet.

Step	Action
11	Reconnect the power cords and cables to the back panel of the server.
12	Press the Power On/Off button on the server, to turn on the power.

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 must not be altered. BIOS settings for the server are listed in Table 4-7 for you to verify the correct settings. Table 4-5 and

Table 4-6 list specific embedded NIC BIOS settings for FTE and non-FTE configurations using an Intel Dual NIC card for connectivity.

Table 4-5 BIOS Settings (default)

BIOS setting	Configuration				
	FTE only	**FTE with EHG**	**No FTE, but 1 or 2 Ethernet ports**	**No FTE, but 3 Ethernet ports**	**No FTE, but 4 Ethernet ports**
PCI-e Intel 100/1000 PT/ET Dual NIC	None	None	None	None	Install
Broadcom QUAD Onboard NIC	Use Onboard NICs (NIC1 and NIC2)	Use Onboard NICs (NIC1 and NIC2)	Use one or two Onboard NICs (NIC1 or NIC2)	Use Onboard NICs (NIC1 and NIC2)	Use four NICs
PCI-e Single NIC Board	None	Install	None	Install	None

Table 4-6 BIOS Settings (optional)

BIOS setting	Configuration				
	FTE only	**FTE with EHG**	**No FTE, but 1 or 2 Ethernet ports**	**No FTE, but 3 Ethernet ports**	**No FTE, but 4 Ethernet ports**
PCIe Intel Pro 100/1000 Dual NIC	Install	Install	None	None	None
Broadcom QUAD Onboard NIC	Disable (through BIOS settings)	Enable one NIC (through BIOS settings)	Enable two NIC through BIOS settings)	Enable four NIC (through BIOS settings) and use three.	Enable Four NIC (through BIOS settings)
PCIe Single NIC Board	None	None	None	None	None

BIOS Settings for 51154294-100 (MZ-PCSV52)

Entering the BIOS

Use this procedure to access BIOS and view the settings.

ATTENTION

Ensure you **DO NOT** perform this procedure unless you are familiar with BIOS.

Step	Action
1	Turn on the server.
2	Press F2 to enter the BIOS Setup.
3	Check if the BIOS version is 1.3.6 or later.

The following tables lists the BIOS settings configured in the factory for the server platform. Your configuration may vary.

System date and time

Item	Value
System Time	(As appropriate)
System Date	(As Appropriate)

Memory information

Item	Value
System Memory Size	2GB or more depending on the memory installed on server
System Memory Type	ECC DDR3
System Memory Speed	1067 MHz or higher
Video Memory	8 MB
System Memory Testing	Enabled
Memory Operation Mode	Advanced ECC Mode
Node Interleaving	Disabled

CPU information

Item	Value
64-bit	Yes
Core Speed	2.80 GHz or higher
Bus Speed	6.40GT/S
Logical Processor	Enabled
Virtualization Technology	Disabled
Adjacent Cache Line Prefetch	Enabled

Item	Value
Hardware prefetcher	Enabled
Execute Disable	Enabled
No. Of Cores/Processor	All
Turbo Mode	Enabled
C-State	Enabled
C1 E state	Enabled
Processor 1 Family – Model – Stepping [Intel ® Xeon ® CPU X5560 @ 2.80 GHz or greater]	06-1A-5 or higher
Level 2 Cache	4x256 KB
Level 3 Cache	8MB
Number of Cores	4

SATA settings

Item	Value
Embedded SATA	ATA Mode
Port A	Auto
Model	TSST Corp DVD +/- RW L633B
Drive Type	Optical Drive
Capacity	N/A
Port B	Off

Boot settings

Item	Value
Boot Mode	BIOS

Boot Sequence	
SATA Optical drive	Enabled
Hard drive C:	Enabled
Boot Sequence Retry	Disabled

Integrated devices

Item	Value
Integrated RAID Controller	Enabled
User Accessible USB Ports	All Ports ON
Internal USB Port	On
Internal SD Card Port	Off
Embedded NIC 1 and NIC 2	Enabled
Embedded GB NIC 1 MAC Address Capability Detected	Enabled Xxxxxxxxxxx TOE
Embedded GB NIC 2 MAC Address Capability Detected	Enabled Xxxxxxxxxxx TOE
Embedded GB NIC 3 and NIC 4 MAC Address Capability Detected	Disabled Not present Key not detected
OS Watchdog Timer	Disabled
I/OAT DMA Engine	Disabled
Embedded Video Controller	Enabled

PCI IRQ assignment

Item	Value
Embedded NIC 1	IRQ 15
Embedded NIC 2	IRQ 14
Integrated RAID	IRQ 15
Embedded USB UHCI Controller 4	IRQ 14
Embedded USB UHCI Controller 5	IRQ 11
Embedded USB EHCI Controller 2	IRQ 10
Embedded USB UHCI Controller 1	IRQ 6
Embedded USB UHCI Controller 2	IRQ 5
Embedded USB EHCI Controller 1	IRQ 6
Embedded Video	IRQ 10
Embedded SATA1	IRQ 14

Serial communication

Item	Value
Serial Communication	On without Console Redirection
Serial Port Address	Serial Device 1 = Com1 Serial Device 2 = Com 2
External Serial Connector	Serial Device 1
Fail-Safe Baud Rate	115200
Remote Terminal Type	VT100/VT220
Redirection After Boot	Enabled

Embedded server management

Item	Value
Front-Panel LCD Options	Model Number
User Defined LCD String	<Enter>

Power management

Item	Value
Power Management	OS Control
CPU Power Performance Management	OS DBPM
Fan Power and Performance Management	Minimum Power
Memory Power and Performance Management	Maximum Performance

System security

Item	Value
System Password	Not Enabled
Setup Password	Not Enabled
Password Status	Unlocked
TPM Security	Off
TPM Activation	No Change
TPM Clear	No
Power Button	Enabled
NMI Button	Disabled
AC Power Recovery	Off
AC Power recovery delay	Immediate

Item	Value
User define Delay	Enter

Quitting the BIOS

Step	Action
1	Press the Esc on the keyboard. A message appears asking you to save the settings.
2	Click **Save Changes** and exit.
3	Press **ENTER** key to restart the server.

BIOS Settings for 51154294-200 (MZ-PCSV53)

Entering the BIOS

Use this procedure to access BIOS and view the settings.

ATTENTION

Ensure you **DO NOT** perform this procedure unless you are familiar with BIOS.

Step	Action
1	Turn on the server.
2	Press F2 to enter the BIOS Setup.
3	Check if the BIOS version is 6.1.0[1.1.45] or later.

The following tables lists the BIOS settings configured in the factory for the server platform. Your configuration may vary.

System date and time

Item	Value
System Time	(As appropriate)
System Date	(As Appropriate)

Memory information

Item	Value
System Memory Size	4GB or more depending on the memory installed on server
System Memory Type	ECC DDR3
System Memory Speed	1067Mhz or higher
System Memory voltage	1.5 V
Video Memory	8 MB
System Memory Testing	Enabled
Memory Operation Mode	Advanced ECC Mode
Node Interleaving	Disabled
Memory Operation Voltage	Auto

CPU information

Item	Value
64-bit	Yes
Core Speed	2.4GHZ or higher
Bus Speed	5.86GT/s
Logical Processor	Enabled
Virtualization Technology	Disabled
Adjacent Cache Line Prefetch	Enabled
Hardware pre-fetcher	Enabled
DCU Streamer pre-fetcher	Enabled

Item	Value
Data reuse	Enabled
Execute Disable	Enabled
No. Of Cores/Processor	All
Turbo Mode	Enabled
C1 E state	Enabled
C-State	Enabled
Processor 1 Family – Model – Stepping [Intel ® Xeon ® CPU E5620@2.4GHz or higher	06-2C-2 or higher
Level 2 Cache	4x256 KB
Level 3 Cache	8MB
Number of Cores	4

SATA settings

Item	Value
Embedded SATA	ATA Mode
Port A	Auto
Model	PLDS DVD +/- RW DS-8A4S
Drive Type	Optical Drive
Capacity	N/A
Port B	Off

Boot settings

Item	Value
Boot Mode	BIOS

Item	Value
Boot Sequence	
SATA Optical drive Hard drive C(Integrated RAID PERC 6/I Integrated)	Enabled Enabled
Boot Sequence Retry	Disabled

Integrated devices

Item	Value
Integrated RAID Controller	Enabled
User Accessible USB Ports	All Ports ON
Internal USB Port	On
Internal SD Card Port	Off
Embedded NIC 1 and NIC 2	Enabled
Embedded GB NIC 1 MAC Address Capability Detected	Enabled Xxxxxxxxxxx TOE
Embedded GB NIC 2 MAC Address Capability Detected	Enabled Xxxxxxxxxxx TOE
Embedded NIC 1 and NIC 2	Disabled
Embedded GB NIC 3 and NIC 4 MAC Address Capability Detected	Disabled Xxxxxxxxxxx TOE
OS Watchdog Timer	Disabled
I/OAT DMA Engine	Disabled

Item	Value
Embedded Video Controller	Enabled
SR-IOV Global Enable	Disabled

PCI IRQ assignment

Item	Value
Embedded NIC 1	IRQ 15
Embedded NIC 2	IRQ 14
Integrated RAID	IRQ 15
Embedded USB UHCI Controller 4	IRQ 14
Embedded USB UHCI Controller 5	IRQ 11
Embedded USB EHCI Controller 2	IRQ 10
Embedded USB UHCI Controller 1	IRQ 6
Embedded USB UHCI Controller 2	IRQ 5
Embedded USB EHCI Controller 1	IRQ 6
Embedded Video	IRQ 10
Embedded SATA1	IRQ 14

Serial communication

Item	Value
Serial Communication	On without Console Redirection
Serial Port Address	Serial Device 1 = Com1 Serial Device 2 = Com 2
External Serial Connector	Serial Device 1
Fail-Safe Baud Rate	115200
Remote Terminal Type	VT100/VT220

Item	Value
Redirection After Boot	Enabled

Embedded server management

Item	Value
Front-Panel LCD Options	Model Number
User Defined LCD String	<Enter>

Power management

Item	Value
Power Management	OS Control
CPU Power Performance Management	OS DBPM
Fan Power and Performance Management	Minimum Power
Memory Power and Performance Management	Maximum Performance

System security

Item	Value
Intel® AES- NI	Enabled
System Password	Not Enabled
Setup Password	Not Enabled
Password Status	Unlocked
TPM Status	Disabled , Deactivated
TPM Security	Off
TPM Activation	No Change

Item	Value
TPM Clear	No
Add Intel(R) TXT	Disabled
Power Button	Enabled
NMI Button	Disabled
AC Power Recovery	Off
AC Power recovery delay	Immediate
User define Delay	Enter
Keyboard NumLock	On
Report Keyboard Errors	Report
F1/F2 Prompt on Error	Enabled

Quitting the BIOS

Step	Action
1	Press the Esc on the keyboard. A message appears asking you to save the settings.
2	Click **Save Changes** and exit.
3	Press **ENTER** key to restart the server.

4.6 Configuring RAID on R710 Honeywell servers

ATTENTION

You must perform the following steps only when the RAID level is not configured on the host machine, and contains 5 hard drives. By performing the following steps, the information present in the hard drives cannot be accessed.

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

Step	Action
1	Turn on the server.
2	Read the information carefully when the server starts booting. When you come across the message ***Power Edge Expandable RAID controller BIOS Copyright© 2008, LSI Corporation Press <Ctrl>, <R> to Run Configuration utility***, Press **Ctrl+R**. The **VD Mgmt (Virtual Disk Management)** screen appears.
3	Select **Controller#** and then press **F2** to display the menu of available actions.
4	Select the **Clear Configuration**. You are prompted with the message ***Are you sure you want to clear configuration?***
	ATTENTION By performing this action, data will be completely inaccessible from the hard drives.
5	Select **Yes** to delete the existing virtual disk if any.
6	Select **Controller #**, and then Press **F2** to display the menu of available actions.
7	Select **Create New VD** and press **ENTER**. The **Create New VD** screen appears. The cursor is on the **RAID Level** option.
8	Press **ENTER** to display the RAID levels.
9	Select a **RAID-5** using the arrow keys, and then press **ENTER**.
10	Press **Tab** and then move the cursor to the list of physical disks.
11	Press the spacebar and then select disk 00:00,00:01,00:02 and 00:03.
12	Press **Tab** and then move the cursor to **Advanced Settings**. Press the spacebar to make the settings active.
13	Press **Tab** and then move the cursor to **Initialize**. Press the spacebar to make the selection.
14	Press **Tab** and then move the cursor to **OK** and press **ENTER**. The system prompts you with the message ***Initialization will destroy data on the virtual disk. Are You Sure you want to continue***.
15	Press **OK**. The message appears ***Virtual disk initialization complete***.

Step	Action
16	Press **OK**.
17	Press **Ctrl+N** to access the **PD Mgmt** (Physical Disk Management) screen.
18	Highlight the drive 00: 04 using the arrow keys, and then press **F2** to display the menu of available actions.
19	Highlight **Make Global HS** using the arrow keys, and then press **ENTER**.
20	Select **Yes** to confirm the Hot Spare disk creation.
21	Press **Ctrl+P**. The VD **Mgmt** screen appears.
22	Highlight **Virtual Disk#** using the arrow keys. On right hand side menu windows Check size of Virtual disk it should be 408.378GB (if you are using 146GB HDDs).
23	Press **Esc** to exit and then system prompts you with the message ***Are you sure you want to exit?***
24	Press **OK** to exit from the Virtual Disk Management screen.
25	Press **Ctrl+Alt+Del** to restart the server.

4.7 Troubleshooting

Integrated Dell Remote Access Controller 6 (iDRAC6) issue

Dell R710 server with embedded iDRAC6 may experience the following errors:

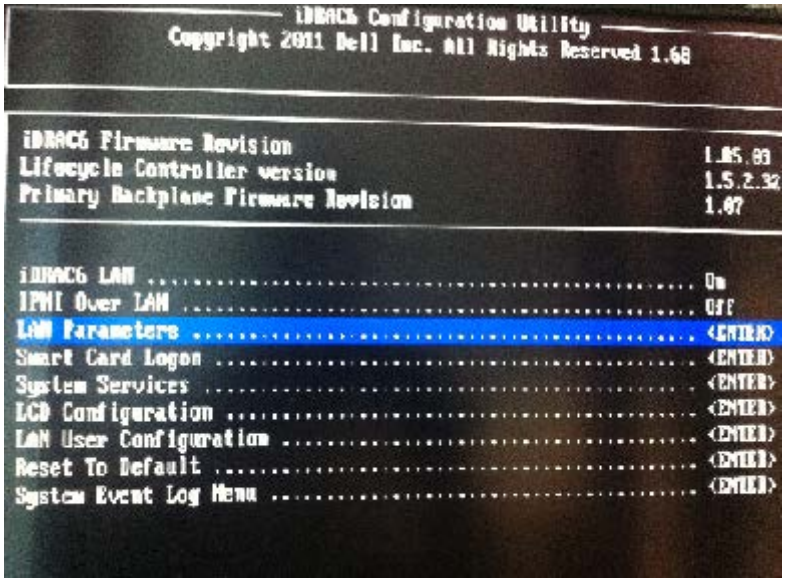
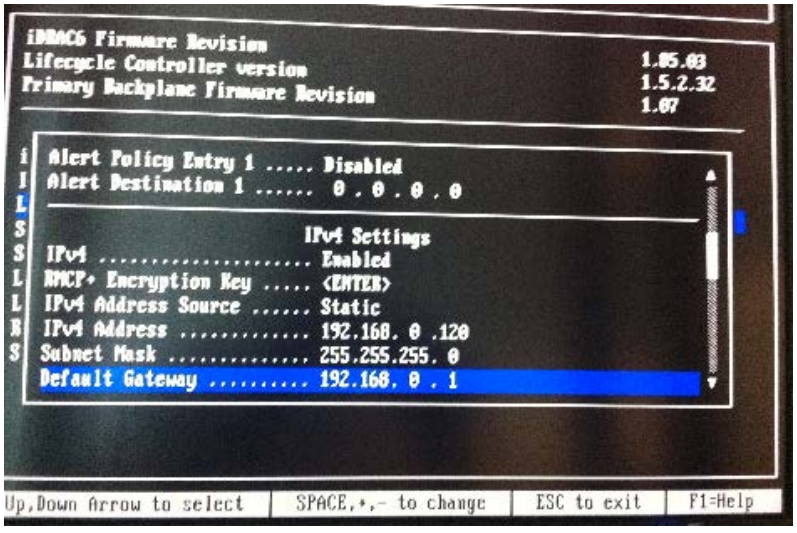
- Flooding of IPMIDRV (Error #1003): The windows system warning events appear on the screen. During this, the system become slow and behaves strange for several hours.
- Reporting of IPMIDRV (Error #1004): After the server reboots, during POST, the message "iDRAC6 communication failure" appears on the screen.

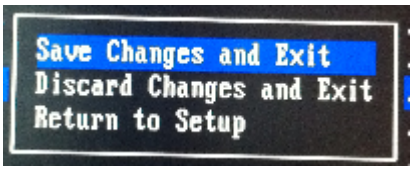
The iDRAC6 network interface is enabled with a static IP address 192.168.0.120 by default. If you use this default IP address on all Dell servers, then the Address Resolution Protocol (ARP) traffic increases. Hence, you must change the default IP address before accessing the iDRAC6.

After the iDRAC6 is configured on the network, it can be accessed with the assigned IP address using the iDRAC6 Web interface, Telnet, or Secure Shell (SSH), and supported network management protocols, such as Intelligent Platform Management Interface (IPMI).

Perform the following steps to change the default iDRAC6 IP address using “iDRAC6 Configuration Utility”

Step	Action
1	Restart the server. When the server is restarting the following message appears. **Press <Ctrl-E> for Remote Access Setup within 5 sec** 
2	Press **Ctrl+E**. The **iDRAC6 Configuration Utility** screen appears.
	ATTENTION If your operating system begins to load before you press Ctrl+E, allow the system to restart, then restart your server and try again.
3	Scroll down to “**LAN Parameters**” and then press **Enter**. The **LAN Parameters** dialog box appears.

Step	Action
	
4	Scroll down to **Default Gateway** option and change the default IP address. 
5	After changing the default IP address press **Esc** twice.

Step	Action
	A dialog box appears.
6	Select **Save Changes and Exit**. 

For more information about the iDRAC6 utility refer to the following link.

ftp://ftp.dell.com/Manals/all-products/esuprt_electronics/esuprt_software/esuprt_remote_ent_sys_mgmt/integrated-dell-remote-access-cntrllr-6-for-monolithic-srvr-v1.95_User's%20Guide_en-us.pdf

In addition, you must update the following:

- Dell OMSA 7.1 with necessary patch (this is provided by the latest init media)
- Latest iDRAC firmware from the support section of the www.dell.com website.
- Microsoft patch from the http://support.microsoft.com/kb/970360 link (this is qualified by SUIT team and part of March 2013 SUIT media).

4.8 Spare parts

Table 4-7 Spare Parts for R710 Server

Item	Description	Part No.
Mouse	USB Optical Mouse	51154292-902
Keyboard	USB Keyboard Windows Keyboard	51154292-903
Expansion RAM	2GB, 2 x 1GB 1R 1066 MHz ECC DDR 3 UDIMM	51154292-904
	2GB , 1R 1333Mhz ECC DDR3 low voltage UDIMM	51154292-913
Processor(For Tab	Intel® Xeon® X5560, 2.8Ghz, 8M Cache,	

Item	Description	Part No.
100 only)	Turbo, HT, 1333MHz Max Memory 6.4GT/s QPI or higher	51154294-901
Processor(For Tab 200 only)	Intel® Xeon® E5620, 4C/8T, 2.4 GHz, L3-12MB, QPI- 5.86 GT/s, QPI Links-2, 80 W, DDR3-800/1066, HT -Y, Turbo-Y.	51154294-910
RAID Controller	PERC 6/I (Firmware Version 6.2.0-0013, A11) 256 MB RAID 5 Configuration (4 HDD on RAID +1 Hot Spare)	-
Rack mount Rails for R710	Sliding ready Rails for R710 with Cable Management Arm	51154294-902
DVD Drive	ASSY, DVD+/- RW	51154294-903
Manuals	Electronic Documentation	51154292-907
Riser Card	Dell PCIe riser card for PE R710 Server	51154294-911
Installation Guide	Dell PCIe Riser Installation Guide	51154294-912
Software	EP-COA2K3 Windows Server 2003 COA EP-COA2k8 Windows Server 2008 COA EP-COAR28 Windows Server 2008 R2 COA	-
Hard Drive	5, hot-swappable, 2.5” 146GB SAS, 15K rpm minimum	-
Power Supply	Energy Smart – Two hot-plug high-efficient 570W PSU	-
Warranty/Service	Next Business Day, Parts and Labor Service, Service 3 years	-

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	Phone	Facsimile	Email

	Hours			
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	hpscustomersupport@hon

			8463	eywell.com
Greece	08:00 – 19:00	00800 12 9493	+30 21 1 268 6973	hpscustomersupport@honeywell.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)	+61-8-9362-9564	GTAC@honeywell.com

	+61-8-9362-9559 (outside Australia)		
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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