

Dell Server

9G Hardware Setup

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Kodak GCG.
3700 Gilmore Way
Burnaby, BC
Canada V5G 4M1
(604) 451-2700

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Revision History

Revision	Date	Author	Comments
A	Aug 14, 2006	Derek Braendel	Created with PE2900, PE2950
B	Dec 19, 2006	Derek Braendel	Changed MCE connectivity to 39U160 from 39U320

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1. SCOPE

This document outlines the procedures for setting up the Dell Server hardware for the PE2900 and PE2950 Dell Servers to be ready to install Windows 2000 / 2003, for various Kodak workflows:

Dell hardware config documents for legacy Dell servers are:

72-3572A	PE400SC, 700, 1400, 1600SC, 2400, 2500, 2600, 2650, 4400, 4600 and 6400 Servers
709-00383A	PE800, 2800, 2850 Server
709-00615A	PE830 Server
709-00701A	PE840 Server

Ghost install Docs:
Once the hardware is configured use one of the following docs for applying the Ghost baseline to the platform:

709-00230A	Windows 2003 Ghost Install for Dell PE. This is used for all Dell PowerEdge platforms.
709-00384A	Windows 2000 Ghost Install for Dell PE. This is used for all Dell PowerEdge platforms.

For driver updates:

- Ghost DVD's for a specific Server already contain driver files.
- **Tech Planet** contains the latest supported versions for all platforms.
  http://techplanet.creo.com/software_solutions/workflow_hardware
- Manufacturers Site: for troubleshooting situations where Tech Planet did not help, check the suppliers site for the most up to date versions. Engineering uses Server Supplier as 1st priority, and Component Supplier as 2nd priority.
  Dell Drivers: http://support.dell.com

2. OVERVIEW OF PROCEDURE

Assemble hardware	1. Check delivered parts against sales order. 2. Add any optional cards, memory, or drives in the correct locations. 3. Connect external hardware (FC RAID, modem, UPS). 4. Connect Dongle to USB port. 5. Power on server.
Check and configure bios, firmware.	1. Configure SCSI controller(s). 2. Setup RAID disks (write cache, containers). 3. Configure BIOS.

2.1 UPS Requirements

Refer to the following documents to choose an appropriate UPS for your Server:

72-2125A	Site Prep document. Will list the power and environmental requirements of each server type
719-00223A	APC PowerChute. Will describe how to set up for APC type UPS's
719-00607A	TrippLite PowerAlert. Will describe how to set up for TrippLite type UPS's

3. PE2900/2950 HARDWARE SETUP

This section describes how to set up a new PowerEdge 2900 based server that has not been pre-configured for Kodak Workflow. It'll show the user how to perform the following:

- Hardware configuration
- BIOS Settings
- Disk Setup

3.1 Installing Hardware

The following is a typical workflow configuration.

	Workflow	Spec
CPU	All	2x 2.33Ghz
Memory	All	4GB (8x512GB DIMMs)
Disk	Base	2x 73GB
	Prinergy	3x 73GB (1 mirror + 1 jbod)
	Evo	3x 73GB (1 mirror + 1 jbod)
	InSite	4x 73GB (2 mirrors)
Monitor	All	15" LCD

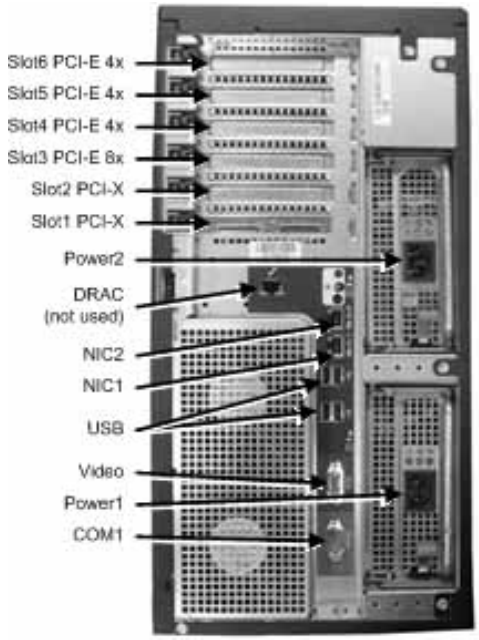
1) Please verify the delivered hardware against the sales order and the specifications below.

Standard System Components for 2900 servers (606-00134A)			
Item	**Type**	**PE2900**	**PE2950**
CPU	2.33 Ghz Woodcrest CPU	2x	2x
RAM	ECC 533Mhz FBD DDR2 (8x 512MB)	4GB	4GB
Hard disks	73GB 10Krpm SAS in hot swap cases	2x 73GB in Base	2x 73GB in Base
DVD / FLPY	EIDE	1x	1x
Network	Broadcom 5708/5721 with ToE Copper Gigabit	2 Ports	2 Ports
RAID controller	PERC 5i onboard SAS RAID Controller 256MB cache, battery backed	Internal	Internal
External modem	USR or MultiTech External 56K	1x	1x
Monitor	15", Flat panel LCD color monitor	1x	none
Power Cord	North America: IEC320-R to Nema15-P Rest of world: IEC320-R to IEC320-P	2x	2x
Software + documents	Windows 2003 R2 Server, 5 client licenses EULA downgrade rights to Windows 2000	1x	1x
Software + documents	GHOST8	1x	1x
Keyboard	Standard Dell USB Keyboard	1x	none
Mouse	Dell 2-button USB LED Mouse with Scroll	1x	none
MUX Pod	RJ45 to USB pod for a Rackmount KVM MUX	none	1x
USB Splitter	2 port splitter	none	1x

2) Install all of the optional hardware, as listed on the sales order.

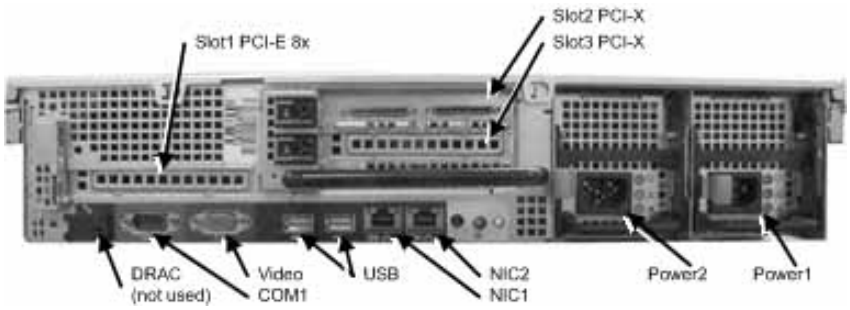
Optional system components				
Item	**Type**	**Kodak PN**	**PE2900**	**PE2950**
RAM	4GB of RAM ships with this server by default. No RAM upgrades are available at this time.	n/a	2 DIMMs per bank	
Hard disk	73GB 10Krpm SAS HotSwap	607-00182A	Up to 10 disks total (including system)	Up to 4 disks total (including system)
	146GB 10Krpm SAS HotSwap	607-00183A		
	300GB 10Krpm SAS HotSwap	607-00184A		
Network	Intel PRO/1000 PCI-X Controller, LC Optical	609-00248	PCI slot 2	PCI slot 3
	Intel PRO/1000 PCI-X Controller, RJ45 Copper	94-3221		
	Intel PRO/1000 PCI-E Controller, LC Optical	609-00430	PCI slot 6 or 5	PCI slot 1
	Intel PRO/1000 PCI-E Controller, RJ45 Copper	609-00431		
SCSI controller	LVD Adaptec 39U320, PCI-X (non Output Device)	609-00404	PCI slot 1 or 2	PCI slot 2 or 3
	LVD Adaptec 39U160, PCI-X (MCE only)	94-3220		
	HVD LSI 8751D SCSI HVD PCI-X	609-00434		
FC controller	LSI FC Controller (for connecting external FC RAID)	609-00416	PCI slot 2	PCI slot 3
Serial interface	Digi AccelePort 4P + adapter cable	94-3287A	PCI slot 2	PCI slot 3
	Digi AccelePort 2P	609-00376		

PE2900 Back



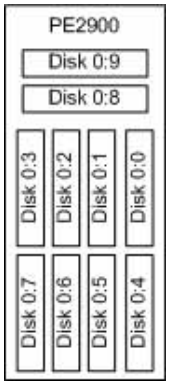
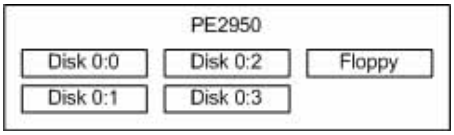
Only 2x PCI-X cards are supported at a time

PE2950



Only 2x PCI-X cards are supported at a time

3) Install the Hard Drives as described in the table below:

All Workflows have 2 disk mirror for OS.			
System	RAID1	Disk 0:8, 0:9	Disk 0:0, 0:1
Data (1x disk)	RAID0	Disk 0:0	Disk 0:2
Data (2x disks)	RAID1	Disk 0:0, 0:1	Disk 0:2, 0:3
Data (3+ disks)	RAID5	Disk 0:0 ... 0:7	n/a

4) Install the following external devices. Connect all but the last two to the UPS:
   - Server
   - Monitor
   - Modem to COM 1. Note: in a Rack only the 1st Server of the UPS uses a modem on COM1. Each other Server will leave COM1 available for the UPS.
   - Tape library or Single AIT-3 tape drive (if one is installed)
   - UPS (use the appropriate power cord to meet the specific country requirements at the customer site.). Connect the UPS Monitor Port to the USB Port of the Server for the 1st Server. If more then 1 Server is connected to the UPS connect the UPS to COM1 of those servers.
   - USB Dongle.
5) Power on the server. Go on to configure the SCSI controllers, setup the hard drives, and configure the BIOS.

3.2 Setting Up the SCSI Controller

We will be using these SCSI controllers for these following configurations:

609-00404 Adaptec 39U320	LVD SCSI Connections to non Output devices. Can be used for SCSI RAID or Tape Drive / Libraries.
94-3220 Adaptec 39U160	LVD SCSI Controller to MCE Output Devices only.
609-00434 LSI 8751D	HVD SCSI Controller for MPE Output Device, or ATL or ADIC Tape Libraries.
94-3291 Adaptec 2944UW	Not supported since there are no PCI 5v slots available in the PE2900 class Servers.

Of all these above adapters ONLY the 39U160 needs to be configured as per the following step:

3.2.1 Configuring the PCI Adaptec 39U160 for MCE Connectivity

1) Ensure the 39u160 BIOS is at a rev listed in the Last Known Good spreadsheet or from Tech Planet / Server / Downloads page. At the time of this writing v3.10 is the current supported rev. Download the update from Tech Planet if requiring an update.

2) Press **CTRL +A** (if appears) during the Adaptec 39160 SCSI BIOS boot up prompt to run the Adaptec SCSI Select Utility.

3) For **both** 39160s found do the following.

   a) From the Main Menu screen, select Configure/View Host Adapter Settings.

b) Select <**F6**> / **Yes** to Reset options to default.

c) Select Advanced Configuration.

Domain Validation	Disabled
BIOS support for bootable CD	Disabled

i) All other items left at default.

ii) Press ESC, ESC and then select **Yes** to save the changes (if changes has been made).

iii) Press ESC to the controller A/B select and repeat for controller B.

d) Press ESC and select **Yes** to exit the utility.

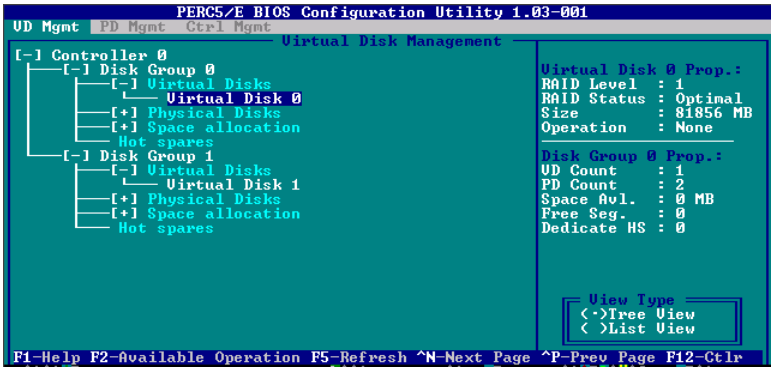
3.3 Setting up Disks

Summary of RAID settings

Number of Disks	VD	RAID settings	Advanced RAID settings
2 System Disks	00	RAID = 1	Stripe Size = **128 KB** Write Policy = **WRBACK** Read Policy = **READAHEAD**
1 internal data disk	01	RAID = 0	
2 internal data disks (both 73GB)	01	RAID = 1	
3+ internal data disks (all 73GB)	01	RAID = 5, SIZE = (NumDisks-1) * 73GB	
2 data disks, different sizes	01 + 02	Each RAID = 0	
3+ internal data disks (all = size)	01	RAID = 5, SIZE = (NumDisks-1) * DiskSize	

Instructions

1) Press <**CTRL**>**+R** during the Dell PowerEdge Expandable Raid Controller boot up prompt to run the DELL PERC 5i Controller Configuration Utility. You will see the following:



2) Delete any existing RAID sets from the controller
   a) If not already there hit <**Ctrl**>**N** to get to the **VD Mgmt** tab.
   b) For each **Disk Group** select the disk group and hit <**F2**>.
   c) Select **Delete Disk Group** > **OK**.
   d) Repeat until you have **No Configuration Present** under **Controller 0**.
3) Create the System Mirror.
   a) Highlight **Controller 0**, hit **F2** and select **Create New VD**.
   b) At the highlighted **Raid Level** hit <**Enter**> and choose **RAID1**.
   c) <**Tab**> to the **Physical Disks** table. Hit <**space**> to select the top 2 disks (01:00, 01:01).

d) <**Tab**> to the **VD Name** and type **System**.

e) <**Tab**> to **Advanced Settings** and hit <**space**> to enable it. Enter the following:

Element Size	128KB
Read Policy	Read Ahead
Write Policy	Write Back
Initialize	Selected (assuming you wish to overwrite the existing data)

f) <**Tab**> to **OK** and hit <**Enter**>.

4) Create your Data Volume. You will create a new Disk Group for your data volume depending upon the number of disks in the system. Choose from the following:

Number of Data Disks	RAID level
1x Data HardDisk	RAID 0
2x Data HardDisks	RAID 1
3+ Data HardDisks	RAID 5

a) Highlight **Controller 0**, hit **F2** and select **Create New VD**.

b) At the highlighted **Raid Level** hit <**Enter**> and choose the RAID level based on your number of available data disks as shown above.

c) <**Tab**> to the **Physical Disks** table. Hit <**space**> to select all of the available disks.

d) <**Tab**> to the **VD Name** and type **Data**.

e) <**Tab**> to **Advanced Settings** and hit <**space**> to enable it. Enter the following:

Element Size	128KB
Read Policy	Read Ahead
Write Policy	Write Back
Initialize	Selected (assuming you wish to overwrite the existing data)

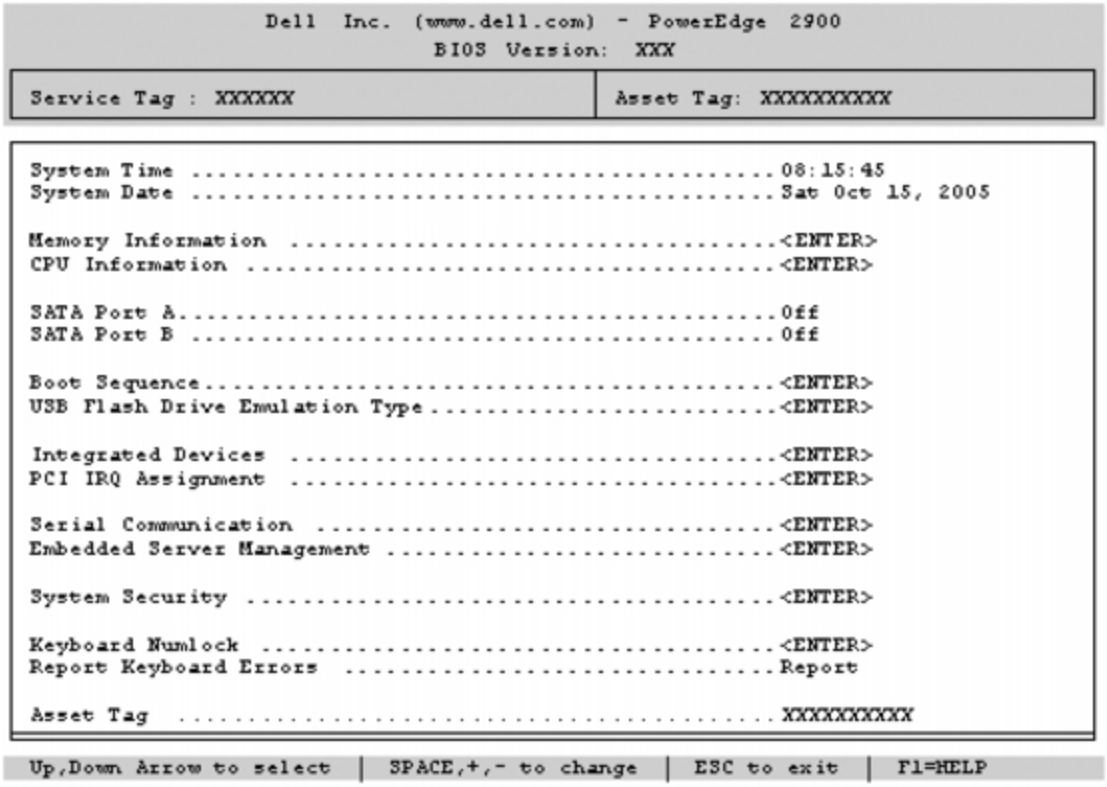
f) <**Tab**> to **OK** and hit <**Enter**>.

5) Hit <**Esc**> until you are prompted to reboot. Press <**Ctrl**><**Alt**><**Del**> to reboot. The disks will be initialized in the background, but you can continue on at this point.

3.4 Configuring BIOS Settings

The BIOS settings are the same for the PE2900 and PE2950. There are a few changes from Dell default that are **highlighted** below.

1) Press the <F2> key whenever prompted to get to the BIOS setup screen shown below:



2) The following options or information fields appear on the main System Setup screen. Anything **highlighted** are changes from default:

Bios Settings

Bios Setting	Value	
System time and date	**Set to current values**	
Memory Information	System Memory Size System Memory Type System Memory Speed Video Memory System Memory Testing Redundant Memory Snoop Filter	4GB DDR2 FB-DIMM 533Mhz 16MB Enabled Disabled Disabled
CPU information	64-Bit Core Speed Bus speed: Virtualization Technology Adjacent Cache Line Prefetch Hardware Prefetcher Demand-Based Power Management Processor 1 ID: Intel(R) Xeon(R) CPU 5140 @ 2.33Ghz Level 2 Cache: Number of Cores Processor 2 ID: Intel(R) Xeon(R) CPU 5140 @ 2.33Ghz Level 2 Cache: Number of Cores	Yes 2.33Ghz 1333 MHz Disabled Enabled Enabled Disabled 6F6 4MB 2 6F6 4MB 2
SATA Port A	Off	
SATA Port B	Off	
Boot Sequence	√ **1. Diskette drive A:**	

Bios Setting	Value
	√ **2. IDE CD-ROM Device** √ **3. Hard drive C:** √ **4. Embedded NIC**
Integrated Devices	
Integrated RAID Controller	Enabled
Embedded SATA	Off
IDE CD-ROM Controller	Auto
Diskette Controller	Auto
User Accessible USB Ports	All Ports On
Embedded Gb NIC1 MAC Address TOE Technology	**Enabled without PXE** as displayed Enabled
Embedded Gb NIC2 MAC Address TOE Technology	**Disabled** as displayed Enabled
PCI IRQ assignment	Let the Server determine the best assignments. For diagnostic reference only a sample follows: Embedded Video — IRQ 5 Embedded USB UHCI Controller 1 — IRQ 11 Embedded USB UHCI Controller 2 — IRQ 10 Embedded USB UHCI Controller 3 — IRQ 11 Embedded USB EHCI Controller — IRQ 11 Integrated RAID — IRQ 5 Embedded NIC 1 — IRQ 11 Embedded NIC 2 — IRQ 11 Slot 1: Adaptec SCSI adapter — IRQ 11 Slot 1: Adaptec SCSI adapter — IRQ 10 Slot 2: Digi International comm adapter — IRQ 11
Serial Communication	Serial Communication: On Without Console Redirection External Serial Contoller: **COM1** Failsafe baud rate: 115200 Remote Terminal Type: VT100/VT220 Redirection After Boot: Enabled
Embedded Server Mgmt	Front Panel LCD Options: **User-Defined String** User Defined LCD String: **kodak Premium Workflow**
System Security	System Password: Not Enabled Setup Password: Not Enabled Password Status: Unlocked Power Button: Enabled NMI Button: Enabled AC Power Recovery: Last
Keyboard Numlock	On
Report Keyboard Error	Report

3) Press ESC, and select "**Save Changes and Exit**" <**ENTER**> to exit and reboot the system. You are now ready to install the Ghost Image.

1) FLASHING THE SYSTEM BIOS / ESM

Motherboard BIOS and ESM Firmware are updated from the Windows Desktop using Dell's Server Update Utility (SUU) or a Desktop Update utility downloaded from TechPlanet or Dell.