

iMPAct Hardware Configuration and Windows NT 4.0 Installation - Dell

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iMPAct Hardware Configuration and Windows NT 4.0 installation - Dell

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1. SCOPE

This document outlines both basic and optional components used in base hardware configurations for iMPAct systems. It also includes procedures for setting up hardware systems to be iMPAct-ready.

Dell PowerEdge 2600, 4600, 2500, 2400, 4400 and 6400 server lines are the supported platforms. All servers will have common configurations.

2. HARDWARE CONFIGURATIONS

This section describes the current Dell platform configurations; it includes a peripheral connection diagram to help personnel connect the servers and their peripherals. Basic and optional components are outlined in Tables according to their respective platform heading.

The latest platforms supported are:

- PowerEdge 2600 Server (Intel Xeon CPU based) for CreoServer & Allegro Workstation.
- PowerEdge 4600 Server (Intel Xeon CPU based) for Allegro Workstation and high-performance CreoServer
- PowerEdge 2500 Server for Allegro Workstation, TIFF Front End, CRI Workstation, Creo Satellite Server
- PowerEdge 2500V Server as a mid range CreoServer Product line
- PowerEdge 6400 Server as a high end, high-performance CreoServer Product line.
- PowerEdge 2400 and 4400 are end of life.

Each of the server types will have its building block configuration as a base. The user can add options outlined in the configuration tables as needed.

2.1 DELL PowerEdge 2600 (Dual Xeon Server)

This section outlines hardware configurations (Table 2-1) of the Dell PowerEdge 2600 Server—sold by Creo as the iMPAct Allegro Workstation or CreoServer 2600.

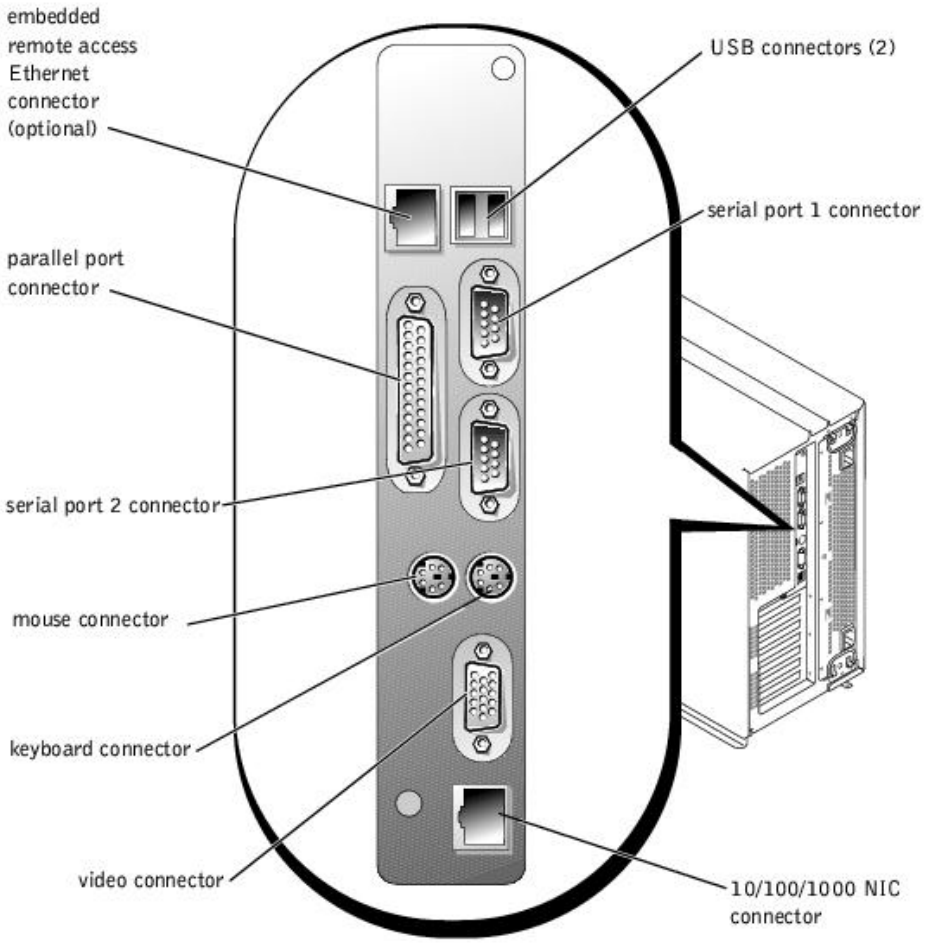


Figure 2-1: PE2600 Server peripheral connection diagram

PCI 7 and 6 – Intel 1000/Gigabit FC NIC

PCI 5 – FC Controller

PCI 4 –Adaptec AHA39160

PCI 2 – Digi AccelePort 4P PCI (If installed)

PCI 1 – Reserved (or AHA2944UW if necessary)

2.1.1 CreoServer/ Allegro Workstation 2600

This server can be fitted with internal RAID storage (up to 6 x 34.4 GB or 68.8 GB or 137.6 GB of added internal disks can be configured).

Please verify the delivered hardware against the sales order and the specifications below.
Table 2-1 Components in CreoServer or Allegro Workstation 2600

Standard System Components for CreoServer/ Allegro Workstation 2600			
Item	**Type**	**Manufacturer**	**Comments**
PC	**2600**, 2 x 2.2 GHz Xeon CPU's, FD, CD	DELL	512 KB L2 cache
RAM	1 GB PC2100 DDR SDRAM	DELL	Replaces Dell default with 2 x 512 MB DIMM
Hard disk	34.4 GB Ultra320 SCSI disk, 10K RPM, SCA	DELL	Assembled as ID 0:0
Hard disk	34.4 GB Ultra320 SCSI disk, 10K RPM, SCA	DELL	Assembled as ID 0:1
Hard disk	34.4 GB Ultra320 SCSI disk, 10K RPM, SCA	DELL	Assembled as ID 0:2
DVD/ CD-ROM/FLPY	EIDE		Assembled in top position
Video	On-board Integrated ATI Rage PRO XL Graphics Controller (8MB)	ATI/Dell	
Network	On-board Integrated Intel 1000XT copper Gigabit NIC Controller	Intel/Dell	
Internal RAID controller	PERC 4/Di PCI RAID Controller	LSI/DELL	Connected to the 6-Bay hot swap cage
SCSI SE/LVD controller	On-board LSI Ultra320 LVD SCSI Controller	LSI/DELL	Support for external SCSI tape drives ONLY
Miscellaneous Components for 2600 servers			
Keyboard	---	DELL	English or GB for International
Mouse	PS/2	DELL	---
External modem	USR or MultiTech External 56K	USR/MultiTech	NA/ROW, connected to COM1
Monitor	15", Flat panel LCD color monitor	DELL	---
Power cord + documents	---	DELL	North America or GB for International
Software + documents	Windows NT 4.0 Server, **10** client licenses	Microsoft	English, NT 4.0 preload
Software + documents	GHOST 6.5	Symantec	English

Install all of the optional hardware, as listed on the sales order. Consult the Last Known Good[1] spreadsheet for current information on slots, IRQs, etc.

Optional system components for 2600 servers			
Item	**Type**	**Manufacturer**	**Comments**

[1] You can find the Last Known Good spreadsheet on the Workflow Production intranet site (navigate from the intranet home page to **Functional Groups > Manufacturing > Production Teams > Workflow > Current Versions**) or on the installation page of any Dell server site on Tech Planet (the new name for Technical Library).

RAM	Optional 1GB (2 x 512MB) DDR SDRAM DIMM U/G	DELL	
Hard disk	Optional of up to 4 x 34.4 GB or 68.8 GB or 137.6 GB U160 or U320 SCSI disks, 10K RPM, SCA	DELL	Assembled as ID 0:2, 3, 4, 5.
Network	Optional Intel PRO/1000 Gigabit Fibre PCI NIC Controller	Intel	Installed in PCI 6 or 7
SCSI LVD controller	Optional Adaptec Dual Ch. 39160, PCI, (for connecting external SCSI SE or LVD Device)	Adaptec/DELL	Installed in PCI 4
SCSI HVD controller	Optional Adaptec AHA2944UW, PCI, (for connecting MPE based CTP devices)	Adaptec	Installed in PCI 1 ONLY

Install the Hard Drives as described in the table below:

Server	**Standard system disks (S)**				**Optional internal data disks (O)**						**System Disks Mirrored?**	**Placement**
	1	**2**			**3**	**4**	**5**	**6**				
2600	S	S			S	O	O	O			Yes	All in 1x 6 bay

Drives are hot swappable installed in the 6-bay drive cage off channel A (0) of the PERC 4/Di Raid controller; starting from top right hand side.

2.2 DELL PowerEdge 4600 (Dual Xeon Server)

This section outlines hardware configurations (Table 2-1) of the Dell PowerEdge 4600 Server—sold by Creo as the iMPAct CreoServer or Allegro Workstation 4600.

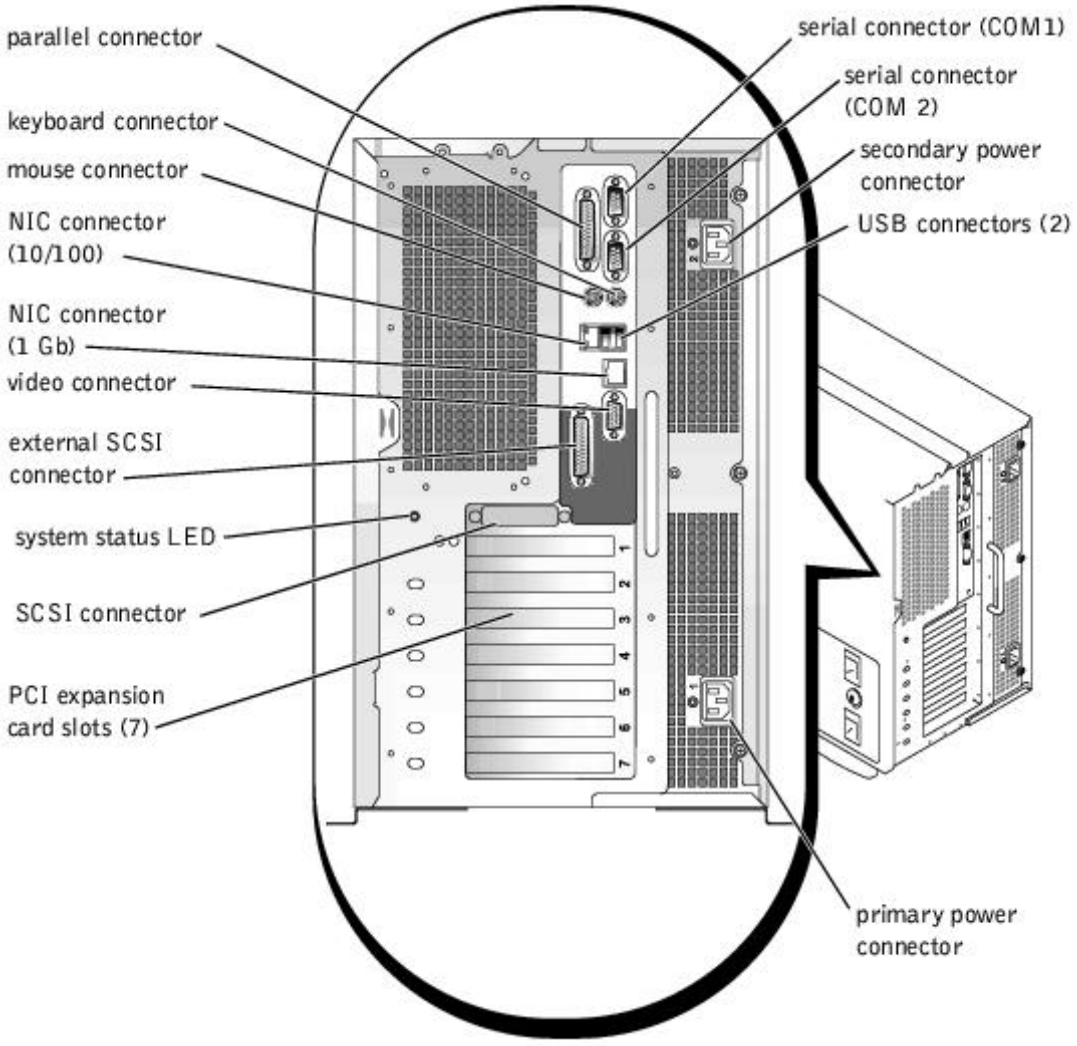


Figure 2-2: PE4600 Server peripheral connection diagram

PCI 7 and 6 – FC Controller, or Intel 1000/Gigabit FC NIC

PCI 5, 4 and 3 –Adaptec AHA39160

PCI 2 – Digi AccelePort 4P PCI (If installed)

PCI 1 – Reserved (or AHA2944UW if necessary)

2.2.1 CreoServer/ Allegro Workstation 4600

This server can be fitted with internal RAID storage (up to 7 x 34.4 GB or 68.8 GB of added internal disks can be configured).

Please verify the delivered hardware against the sales order and the specifications below.
Table 2-2 Components in Allegro Workstation 4600

Standard System Components for CreoServer/ Allegro Workstation 4600			
Item	**Type**	**Manufacturer**	**Comments**
PC	**4600**, 2 x 2.2 GHz Xeon CPU's, FD, CD	DELL	512 KB L2 cache
RAM	3 GB PC1600 DDR SDRAM (with 1 GB redundant memory)	DELL	Replaces Dell default with 12 x 256 MB DIMMs
Hard disk	34.4 GB Ultra160 SCSI disk, 10K RPM, SCA	DELL	Assembled as ID 0:0
Hard disk	34.4 GB Ultra160 SCSI disk, 10K RPM, SCA	DELL	Assembled as ID 0:1
Hard disk	34.4 GB Ultra160 SCSI disk, 10K RPM, SCA	DELL	Assembled as ID 1:0
DVD/ CD-ROM/FLPY	EIDE (ID = 5)		Assembled in top position
Video	On-board Integrated ATI Rage PRO XL Graphics Controller (8MB)	ATI/Dell	
Network	On-board Integrated Intel PRO/100+ NIC Controller	Intel/Dell	
Network	On-board Integrated BroadCom Gigabit NIC Controller	BroadCom/Dell	
Internal RAID controller	On-board PERC 3/Di RAID Controller	Adaptec/DELL	Connected to the hot swap cage (Ch0 to 2-bay, Ch1 to 8-bay)
SCSI SE/LVD controller	On-board Adaptec 7890 Ultra2 LVD SCSI Controller (Factory default setting is disabled)	Adaptec/DELL	Support for internal SCSI devices ONLY
Miscellaneous Components for 4600 servers			
Keyboard	---	DELL	English or GB for International
Mouse	PS/2	DELL	---
External modem	Diamond SupraExpress 56EPKI Pro	Diamond	World wide, connected to COM1
Monitor	15", Flat panel LCD color monitor	DELL	---
Power cord + documents	---	DELL	North America or GB for International
Software + documents	Windows NT 4.0 Server, **10** client licenses	Microsoft	English, NT 4.0 preload
Software + documents	GHOST 6.5	Symantec	English

Install all of the optional hardware, as listed on the sales order. Consult the Last Known Good[2] spreadsheet for current information on slots, IRQs, etc.

[2] You can find the Last Known Good spreadsheet on the Workflow Production intranet site (navigate from the intranet home page to **Functional Groups > Manufacturing > Production Teams > Workflow > Current Versions**) or on the installation page of any Dell server site on Tech Planet (the new name for Technical Library).

Optional system components for 4600 servers			
Item	**Type**	**Manufacturer**	**Comments**
Hard disk	Optional of up to 7 x 34.4 GB or 68.8 GB ultra 160 SCSI disk, 10K RPM, SCA	DELL	Assembled as ID 1:1, 2, 3, 4, 5, 8 & A
Network	Optional Intel PRO/1000 Gigabit Fibre PCI NIC Controller	Intel	Installed in PCI 6 or 7
SCSI LVD controller	Optional Adaptec Dual Ch. AHA39160, PCI, (for connecting external SCSI SE or LVD Device)	Adaptec/DELL	Installed in PCI 2, 3, 4 or 5
FC controller	Optional Emulex LP8000 FC Controller (for connecting external FC RAID)	Emulex/DELL	Installed in PCI 6 or 7
Serial interface	Digi AccelePort 4P + adapter cable	Digi	Installed in PCI 2 or 3

Install the Hard Drives as described in the table below:

Server	**Standard system disks (S)**				**Optional internal data disks (O)**						**System Disks Mirrored?**	**Placement**
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**		
4600	S	S	S	O	O	O	O	O	O	O	Yes	2 in 1x2 bay 1 in 1x8 bay

Drives are hot swappable. SCSI IDs for drives are set to 0:0 & 0:1 in the 2-bay media cage off channel 0 of the PERC 3/Di Raid controller; Channel 1 is connected to drives ID's set from 1:0 to 1:A (ID 1:6 and 1:7 are used by other system SCSI devices) in the bottom 2 x 4-bay cages starting from right hand side.

2.3 DELL PowerEdge 2500

This section outlines hardware configurations (Table 2-2, 2-3 and 2-4) of the Dell PowerEdge 2500 Server—sold by Creo as the iMPAct CreoServer, Allegro Workstation 2500, Allegro 3230, CRI Workstation, TIFF Front End and Creo Satellite Server

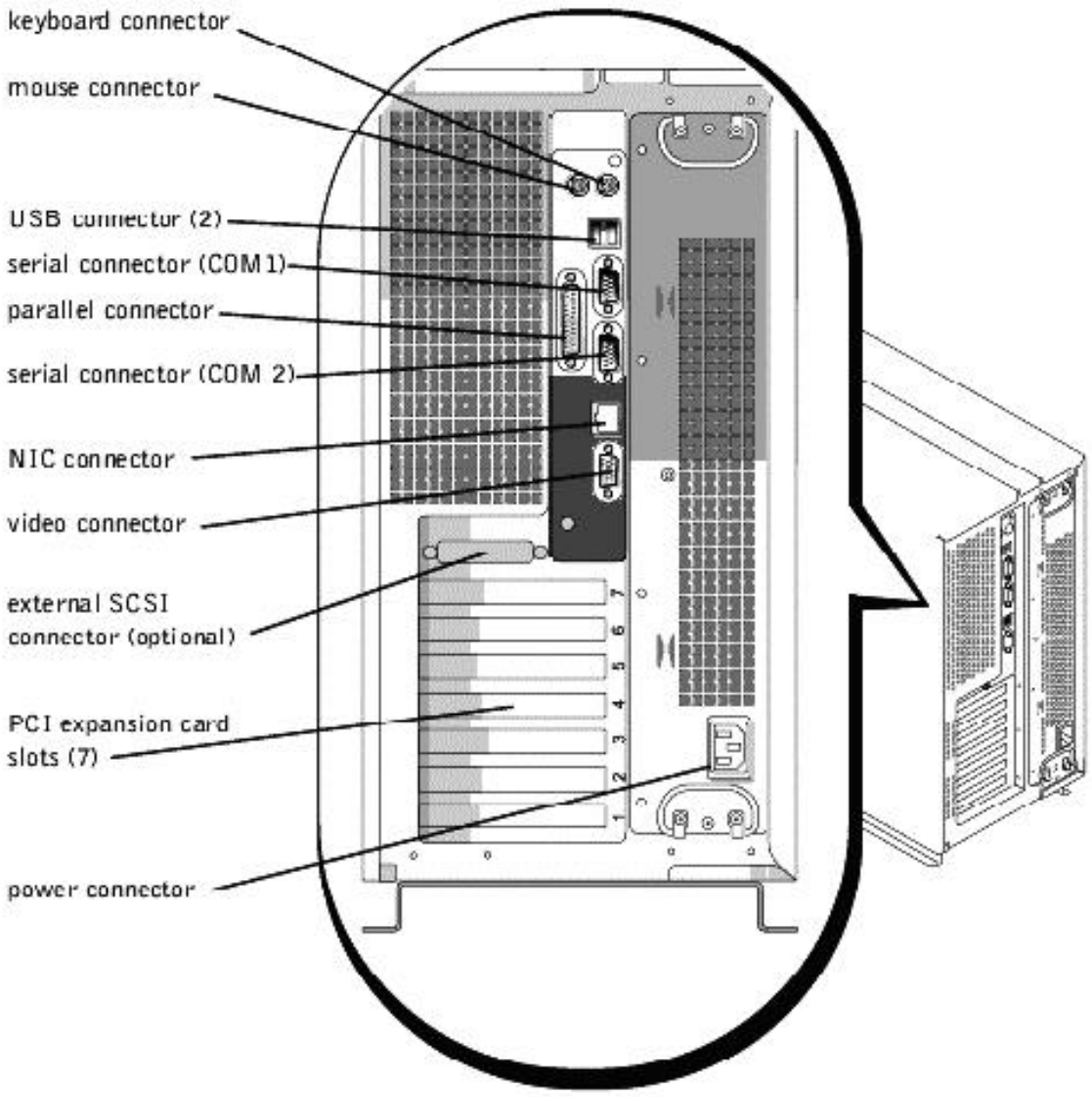


Figure 2-3 PE2500 Server peripheral connection diagram

PCI 1 and 2 – FC Controller, or Intel 1000/Gigabit NIC

PCI 3, 4 and 5 –Adaptec AHA2944UW or AHA39160

PCI 6 – Digi ClassicBoard 4 PCI (If installed)

PCI 7 – Reserved

2.3.1 Allegro Workstation/ TIFF Front End (2500H)

This server can be fitted with internal RAID storage (up to 3 x 34.4 GB or 68.8 GB of added internal disks can be added).

Table 2-3 Components in Allegro Workstation/ TIFF Front End workstation 2500H.

Item	Type	Manufacturer	Model	Comments
PC	**2500**, 2 x 1000 MHz Pentium III, FD, CD	DELL		256 KB cache
RAM	512 MB 133MHz SDRAM DIMM	DELL		Replaces 128MB with 2 x 256 MB assembled
RAM	Optional 512 MB or 1 GB ECC DIMM U/G	DELL		
Hard disk	17.2 GB ultra160 SCSI disk, 10K RPM, SCA	DELL		Assembled as ID 0
Hard disk	17.2 GB ultra160 SCSI disk, 10K RPM, SCA	DELL		Assembled as ID 1
Hard disk	17.2 GB ultra160 SCSI disk, 10K RPM, SCA	DELL		Assembled as ID 2
Hard disk	Optional of up to 3 x 17.2 GB or 34.4 GB or 72 GB ultra 160 SCSI disk, 10K RPM, SCA	DELL		Assembled as ID 3, 4 & 5
CD-ROM/FLPY	EIDE (ID = 5)	NEC	---	Assembled in top position
Video	On-board Integrated ATI Rage XL Graphics Controller	ATI	---	
Network	On-board Integrated Intel PRO/100+ NIC Controller	Intel	---	
Network	Optional Intel PRO/1000 Gigabit PCI NIC Controller	Intel	---	Installed in PCI 1 or 2
Internal RAID controller	On-board PERC 3/Di RAID Controller	Adaptec/DELL	---	Connected to the hot swap cage.
SCSI SE/LVD controller	On-board Adaptec 7899 U160 LVD SCSI Controller	Adaptec/DELL	---	External connector
SCSI Diff controller	Optional Adaptec AHA2944UWD, PCI, (for connecting SCSI Diff Devices)	Adaptec/DELL		Installed in PCI 3/4/5
SCSI SE/LVD controller	Optional Adaptec Dual Ch. AHA39160, PCI, (for connecting external SCSI SE or LVD Device)	Adaptec/DELL		Installed in PCI 3/4/5
FC controller	Optional FC Controller (for connecting external FC RAID)	Qlogic or Emulex/DELL		Installed in PCI 1 or 2
Serial interface	Digi ClassicBoard 4 PCI + adapter cable	DIGI	---	Installed in PCI 6
Keyboard	---	DELL	---	English or GB for International
Mouse	PS/2	DELL	---	---
External modem	Diamond SupraExpress 56EPKI Pro	Diamond	---	World wide, connected to COM1
Monitor	17”, MPR II color monitor, P793	DELL		---
Power cord + documents	---	DELL	---	North America or GB for International
Software + documents	Windows NT Server V 4.0, **10** client licenses	Microsoft		English, NT 4.0 preload
Software + documents	GHOST 5.1C and Higher	Symantec	---	English

2.3.2 Allegro Workstation 3230/ CRI Workstation or Creo Satellite Server

This server has space for internal non-Raid disk storage (up to 4 * 68.8 GB of internal disks can be added).

Table 2-4 Components for Allegro 3230/CRI Workstation or Creo Satellite Server.

Item	Type	Manufacturer	Model	Comments
PC	**2500**, 1 x 1000 MHz Pentium III, FD, CD	DELL		256 KB cache
PC	**2500**, 2 x 1000 MHz Pentium III, FD, CD (Creo Satellite Server)	DELL		256 KB cache
RAM	512 MB 133MHz SDRAM DIMM	DELL		Replaces 128MB with 2 x 256 MB assembled
RAM	Optional 512 MB or 1 GB ECC DIMM U/G	DELL		
Hard disk	17.2 GB ultra160 SCSI disk, 10K RPM, SCA	DELL		Assembled as ID 0
Hard disk	17.2 GB ultra160 SCSI disk, 10K RPM, SCA	DELL		Assembled as ID 1
Hard disk	Optional of up to 4 x 17.2 GB or 34.4 GB or 68.8 GB ultra 160 SCSI disk, 10K RPM, SCA	DELL		Assembled as ID 3, 4 & 5
CD-ROM/FLPY	EIDE (ID = 5)	NEC	---	Assembled in top position
Video	On-board Integrated ATI Rage XL Graphics Controller	ATI	---	
Network	On-board Integrated Intel PRO/100+ NIC Controller	Intel	---	
Network	Optional Intel PRO/1000 Gigabit PCI NIC Controller	Intel	---	Installed in PCI 1 or 2
SCSI SE/LVD controller	On-board 2 x Adaptec 7899 U160 LVD SCSI Controllers	Adaptec/DELL	---	1 for disk cage, 1 for external devices
SCSI Diff controller	Optional Adaptec AHA2944UWD, PCI, (for connecting SCSI Diff Devices)	Adaptec/DELL		Installed in PCI 3/4/5
SCSI SE/LVD controller	Optional Adaptec Dual Ch. AHA39160, PCI, (for connecting external SCSI SE or LVD Device)	Adaptec/DELL		Installed in PCI 3/4/5
FC controller	Optional FC Controller (for connecting external FC RAID)	Qlogic or Emulex/DELL		Installed in PCI 1 or 2
Serial interface	Digi ClassicBoard 4 PCI + adapter cable	DIGI	---	Installed in PCI 6
Keyboard	---	DELL	---	English or GB for International
Mouse	PS/2	DELL	---	---
External modem	Diamond SupraExpress 56EPKI Pro	Diamond	---	World wide, connected to COM1
Monitor	17”, MPR II color monitor, P793	DELL		---
Power cord + documents	---	DELL	---	North America or GB for International
Software + documents	Windows NT Server V 4.0, **10** client licenses	Microsoft		English, NT 4.0 preload
Software + documents	GHOST 5.1C and Higher	Symantec	---	English

2.3.3 CreoServer 2500V

This mid-range server, with an internal RAID or external FC Clariion RAID for job storage, is generally configured as a CreoServer.

Table 2-5 Components for CreoServer 2500V

Item	Type	Manufacturer	Model	Comments
PC	**2500**, 2 x 1000 MHz Pentium III, FD, CD	DELL		256 KB cache
RAM	1 GB 133MHz SDRAM DIMM	DELL		Replaces 128MB with 4 x 256 MB assembled
RAM	Optional 512 MB or 2 GB ECC DIMM U/G	DELL		
Hard disk	17.2 GB ultra160 SCSI disk, 10K RPM, SCA	DELL		Assembled as ID 0 (Ch.0)
Hard disk	17.2 GB ultra160 SCSI disk, 10K RPM, SCA	DELL		Assembled as ID 1 (Ch.0)
Hard disk	17.2 GB ultra160 SCSI disk, 10K RPM, SCA	DELL		Assembled as ID 0 (Ch.1)
Hard disk	Optional of up to 5 x 17.2 GB or 34.4 GB or 68.8 GB ultra 160 SCSI disk, 10K RPM, SCA	DELL		Assembled as in Ch. 1
CD-ROM/FLPY	EIDE (ID = 5)	NEC	---	Assembled in top position
Video	On-board Integrated ATI Rage XL Graphics Controller	ATI	---	
Network	On-board Integrated Intel PRO/100+ NIC Controller	Intel	---	
Network	Optional Intel PRO/1000 Gigabit PCI NIC Controller	Intel	---	Installed in PCI 1 or 2
Internal RAID controller	On-board PERC 3/Di RAID Controller	Adaptec/DELL	---	Connected to the hot swap cage.
SCSI Diff controller	Optional Adaptec AHA2944UWD, PCI, (for connecting SCSI Diff Devices)	Adaptec/DELL		Installed in PCI 3/4/5
SCSI SE/LVD controller	Optional Adaptec Dual Ch. AHA39160, PCI, (for connecting external SCSI SE or LVD Device)	Adaptec/DELL		Installed in PCI 3/4/5
FC controller	Optional FC Controller (for connecting external FC RAID)	Qlogic or Emulex/DELL		Installed in PCI 1 or 2
Serial interface	Digi ClassicBoard 4 PCI + adapter cable	DIGI	---	Installed in PCI 6
Keyboard	---	DELL	---	English or GB for International
Mouse	PS/2	DELL	---	---
External modem	Diamond SupraExpress 56EPKI Pro	Diamond	---	World wide, connected to COM1
Monitor	17", MPR II color monitor, P793	DELL		---
Power cord + documents	---	DELL	---	North America or GB for International
Software + documents	Windows NT Server V 4.0, **10** client licenses	Microsoft		English, NT 4.0 preload
Software + documents	GHOST 5.1C or Higher	Symantec	---	English

2.4 Dell PowerEdge 6400 (Quad Pentium III Xeon Server)

This section outlines hardware configurations of the Dell PowerEdge 6400 Server — sold by CreoScitex as the CreoServer 6400 with processor speed of 700Mhz.

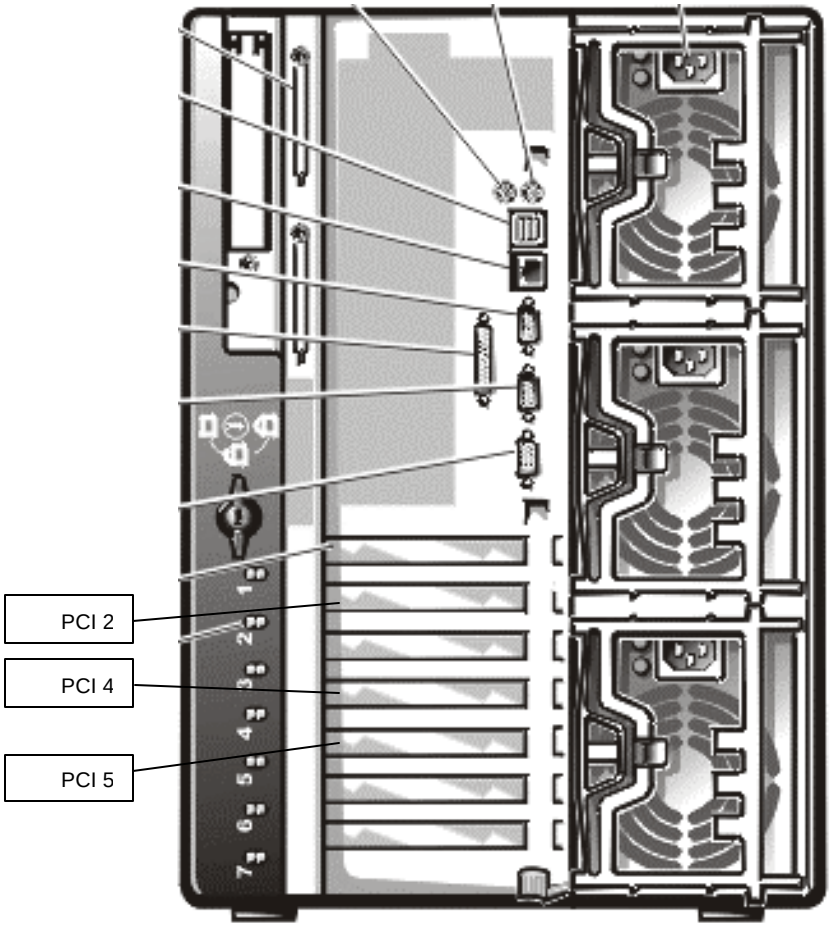


Figure 2-4: CreoServer 6400 peripheral connection diagram

PCI 1 – Reserved

PCI 2: – Digi ClassicBoard 4 PCI (If installed)

PCI 3, 4 and 5 – Adaptec AHA2944UW or AHA39160

PCI 6 and 7 – FC Controller, or Intel 1000/Gigabit NIC

2.4.1 CreoServer 6400

This high-end, high performance server equipped with an internal RAID or an external FC Clariion RAID for job storage.

Table 2-6 Components for CreoServer 6400

Item	Type	Manufacturer	Model	Comments
PC	**6400**, 2 x 700 MHz Pentium III Xeon, FD, CD	DELL		1 MB cache
RAM	2 GB ECC DIMM	DELL		8 x 256 MB assembled
RAM	Optional 256 MB or 512 MB ECC DIMM U/G	DELL		
Hard disk	2 x 17.2 GB ultra 160 SCSI disk, 10K RPM, SCA	DELL		Assembled as ID 0 & 1 (Ch. 0)
Hard disk	1 x 17.2 GB ultra 160 SCSI disk, 10K RPM, SCA	DELL		Assembled as ID 0 (Ch. 1)
Hard disk	Optional 7 x 17.2GB/ 34.4GB/ 68.8 GB Ultra160 SCSI disks, 10K RPM, SCA	DELL		Assembled as ID 1 to 8 (Ch. 1)
CD-ROM	SCSI (ID = 5)	NEC	---	Assembled in position 1 from top
Video	On-board Integrated ATI Rage Pro Graphics Controller	ATI	---	--
Network	On-board Integrated Intel PRO/100+ NIC	Intel		
SCSI LVD/SE controller	On-board Adaptec AIC-7899 U160 SCSI Controller, Ch. A	Adaptec/DELL	---	External connector A
SCSI LVD/SE controller	On-board Adaptec AIC-7899 U160 SCSI Controller, Ch. B	Adaptec/DELL	---	External connector B
SCSI SE controller	On-board Adaptec AIC-7880 SCSI 3/Narrow Controller	Adaptec/DELL	---	Connected to the CD-ROM
PCI RAID controller	DELL PERC 2/DC or 3/DC PCI Raid Controller	AMI/DELL	---	Ch. 0 to upper 2-bay cage Ch. 1 to lower 8-bay cage
Network	Optional Intel PRO/1000 Gigabit NIC	Intel		Assembled in PCI 7 or 6
FC controller	Optional FC Controller (for connecting external FC RAID)	Qlogic or Emulex/DELL		Assembled in PCI 7 or 6
SCSI diff controller	Optional Adaptec AHA2944UWD, PCI, (for connecting SCSI diff devices)	Adaptec/DELL		Assembled in PCI 5/4/3
Serial interface	Optional Digi ClassicBoard 4 PCI + adapter cable	Digi	---	Assembled in PCI 2
KB, power cord + documents	---	DELL	---	English, North America
Mouse	PS/2	Microsoft	---	---
Modem	External Diamond Express 56K Pro	Diamond	---	Connected to COM1
Monitor	17”, MPR II color monitor	DELL		---
Software + documents	Windows NT 4.0 Server, 10 client licenses	Microsoft		English, NT 4.0 CreoServer preload
Software + documents	GHOST 6.5 or Higher	Symantec	---	English

2.5 PowerEdge 4400/2400 (End Of Life Server, For Reference ONLY)

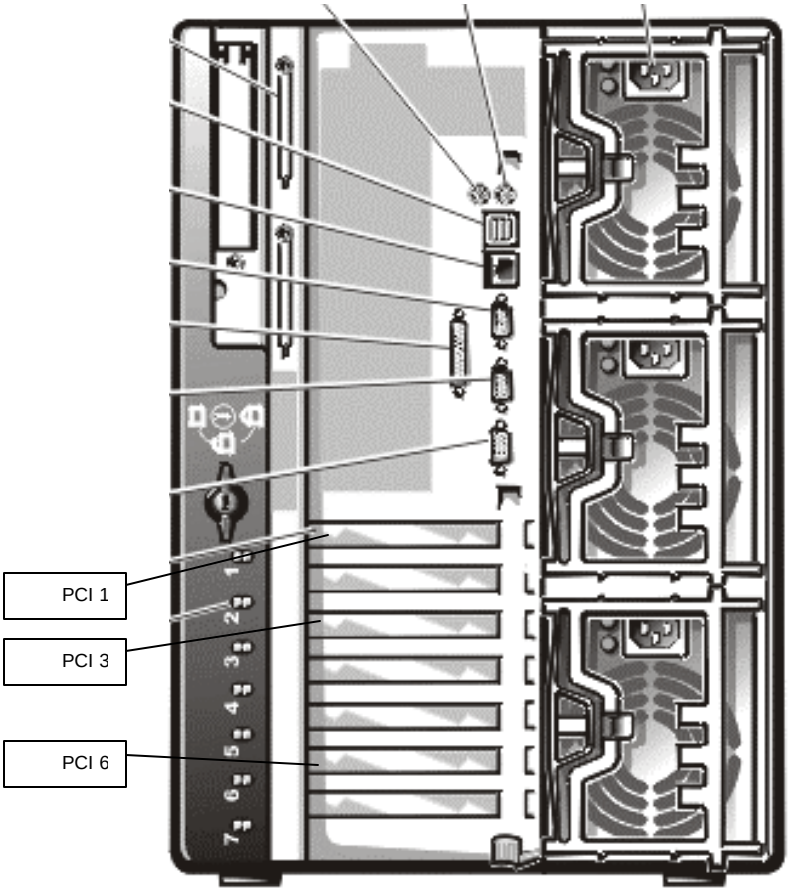


Figure 2-5: CreoServer 4400 peripheral connection diagram

PCI 1 and 2 – FC Controller, or Intel 1000/Gigabit NIC

PCI 3/4/5 – Adaptec AHA2944UW or AHA39160

PCI 6 – Digi ClassicBoard 4 PCI (If installed)

PCI 7 – Reserved

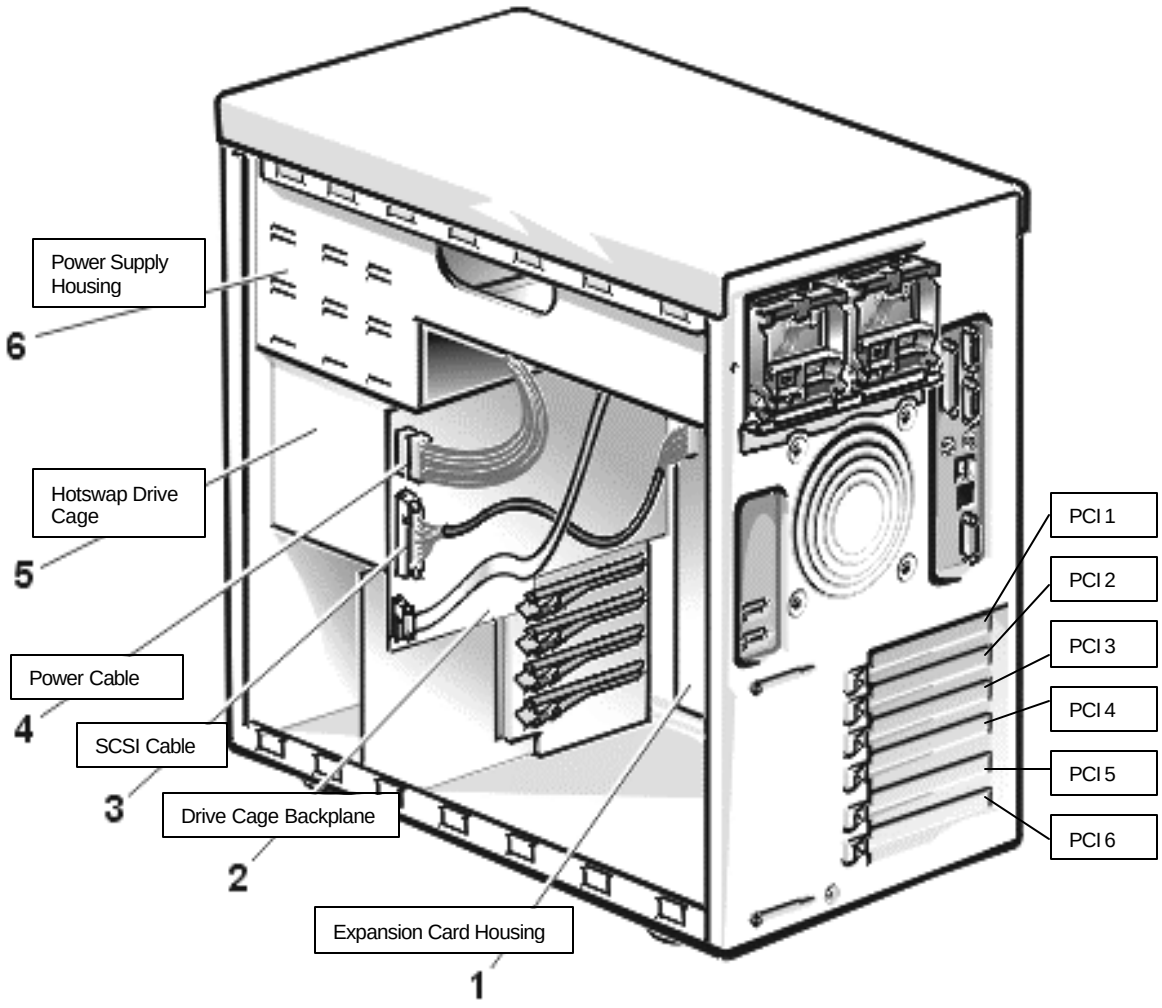


Figure 2-6: AllegroWS/ Tiff Front End 2400 peripheral connection diagram

PCI 1 and 2 – FC Controller, or Intel 1000/Gigabit NIC

PCI 3/4 – Adaptec AHA2944UW or AHA2940U2W

PCI 5 – Digi ClassicBoard 4 PCI (If installed)

PCI 6 – Reserved

2.6 Peripheral Storage Device Kits (RAID)

2.6.1 CLARiiON CL 5200/5300 DPE, Fibre Channel RAID 10 Bay

Item	Type	Manufacturer (Distributor)	Model	Comments
Cabinet	CLARiiON CL 5200/5300 DPE, HA Deskside NT	DELL		Base 10 Bay FC Cabinet
Cabinet	Option of CLARiiON 5000 10 Bay DAE, HA, DS	DELL	79511D	Add-on 10 Bay Expansion cabinet
Memory	1 or 2 x 128 MB DPE Cache Memory, FC5200/5300	DELL		Each SP = 128 MB cache memory
BBU	Battery Backup Unit	DELL		
FC Host Adapter	1 * Qlogic QL2200 or Emulex LP8K FC Adapter	Qlogic or Emulex	-	
FC Disks	Option of 5 * 17.2 GB / 10K rpm	Seagate (DELL)	(79020-HFL)	Set of 9 drives for optimal performance setup
FC Disks	Option of 5 * 34.4 GB / 7200 rpm	Seagate (DELL)		Set of 9 drives for optimal performance setup
FC Cable	FC on Copper cable 5m/16ft	-	-	
Terminal Cable	Terminal Cable	-	-	Comes with NT kit
Software	AviiON NT&NW Attach Kit for FC CLARiiON	DELL	7945	

2.6.2 CLARiiON CL 4500 DPE, Fibre Channel RAID 20 Bay

Item	Type	Manufacturer (Distributor)	Model	Comments
Cabinet	CLARiiON CL 4500 DPE, HA Deskside NT	DELL	-	Base 20 Bay FC Cabinet
Cabinet	Option of CLARiiON 5000 10 Bay DAE, HA, DS	DELL	-	Add-on 10 Bay Expansion cabinet
Memory	512 MB DPE Cache Memory, FC4500	DELL	-	Each SP = 256 MB cache memory
BBU	Battery Backup Unit	DELL	-	
FC Host Adapter	1 * Qlogic QL2200 or Emulex LP8K FC Adapter	Qlogic or Emulex	-	
FC Disks	Option of 9 * 17.2 GB / 10K rpm	Seagate (DELL)	(79020-HFL)	Set of 9 drives for optimal performance setup
FC Disks	Option of 9 * 34.4 GB / 7200 rpm	Seagate (DELL)		Set of 9 drives for optimal performance setup
FC Cable	FC on Copper cable 5m/16ft	-	-	
Terminal Cable	Terminal Cable	-	-	Comes with NT kit
Software	AviiON NT&NW Attach Kit for FC CLARiiON	DELL	7945	

2.7 Output Device Connection Kits

Table 2-7: Creo Platesetter,Trendsetter, TS Spectrum, Proofsetter, PS VLF, TS VLF and Thermoflex

Item	Type	Manufacturer (Distributor)	Model	Comments
Supported				
SCSI diff controller	Adaptec AHA2944UW, PCI, BIOS V2.20	Adaptec (DELL)	94-3155	
Multi port serial card	Digi ClassicBoard 4 PCI or AccelePort 4P + adapter cable	Digi		Expand to 6 serial ports
Serial cable	9 pin D-Sub male/female, length 10m	Creo	16-3460	
Serial cable	9 pin D-Sub male/female, length 10m	Creo	16-3460	
SCSI cable	68pin HD male, 2-56 screws to 68pin HD male, 2-56 screws, length 7,5m	Creo	16-3503	
Software + documents	Impact and Print Console V2.xx	Creo	-	

2.8 DLT Tape Drive Kits

Table 2-8: Single DLT 8000

Item	Type	Manufacturer (Distributor)	Model	Comments
DLT 8000 drive	External DLT 8000	ADIC	-	
SCSI SE terminator	68 pin HD	-	-	Comes with the DLT drive
SCSI SE controller	Optional Adaptec 39160 Ultra160 SCSI (if no on-board SCSI controller available)	Adaptec	-	
SCSI cable	68pin HD male, 2-56 screws to 68 pin HD male, length 1m	ADIC	-	Comes with the DLT drive

2.9 UPS Requirements

Each server type is configured with a different rating of UPS unit. Ensure that the site has the proper outlet for handling the UPS.

The following table lists the different APC UPS plug types:

Table 2-9: APC UPS plug types

UPS Type			Plug Type			
Vendor	**Model**	**Power Type**	**North American**	**Europe**	**Asia**	**Australia**
APC	SmartUPS 1000/ 1400 Desk Side	1K VA / 1.4 KVA 100V – (Japan) SmartUPS xx00J	125V 15A nema 5-15	230V 10A iec320 c14	100V nema 5-15p	240V 10A iec320 c14

APC	SmartUPS 3000 Desk Side	3.0 KVA 220V – (Europe) SmartUPS xx00I	125V 30A nema 5-30	230V 16A iec320 c30	100V nema 5-30p	240V 10A iec320 c30

2.10 Drive Designations

All platforms have a common disk drive configuration. This ensures a common base for all systems and makes software components platform-independent.

Table 2-10: Server's drive letter designation

CreoServer, Creo Satellite	Allegro WS, CRI, TIFF FE	Type	Information
C:	C:	NTFS	NTLoader, Boot .ini files
S:	E:	NTFS	NT Paging, NT OS. PlateMaster/ Allegro RIP executables.Third party executables.
H:	H:	N/A	CD-ROM
K:	K:	NTFS	Transient /Applications and Services Data
No Drive	No Drive	FAT	GHOST + NT OS Images
T:	D:	NTFS	Databases and ITP data files (Note: Allegro has no database)
Does not support	F - Z	NTFS	Databases and ITP data files (Note: Allegro has no database)

3. GETTING STARTED

To ensure that you achieve the ultimate goal of effectively and successfully setting up an iMPAct system in minimum amount of time and as little as possible of making mistakes along the way; please follow the procedure with great care in your very first time. Follow the checklist outlined below.

Before beginning installation, check that you have the following:

- Crosshead screwdriver
- Network cable
- Software (see Table 3-1)

Table 3-1: Necessary software

Disk	Type	Version	Comments	Systems
Windows NT Server	CD	4.0	Operating system	All
iMPAct 2600 Resource CD (P/N: 651-00027A-H)	CD	Revision H	NT image, utilities for impact Allegro WS 2600 system	Creo P/N 651-00027A-H
iMPAct Resources CD (P/N: 21-0107A-F)	CD	Revision F	NT image, utilities for impact system	Creo P/N 21-0107A-F
iMPAct software	CD	2.x	CreoServer/Allegro WS software	All
DELL Server Assistant CD/Floppy kit	CD/Floppy	7.2.2	NT Drivers, Raid/Server Configuration Utilities	All
Workflow Systems Emergency Repair Disk	Floppy	N/A	Repair disk created later for each customer's machine	All
Blank floppies	Floppy	N/A	For creating driver disk off Resources CD if needed	All iMPAct servers
APC PowerChute Plus	CD	5.2	Software Utility for UPS monitoring	All
Service Pack 6a CD	CD	SP6a Creo	Bug fixes for NT 4.0 US or German version	All
Disk Base Cfg.	Floppy	1.0	DiskAdmin configuration before stripe set is made (machine specific)	All iMPAct Servers
Disk Final Cfg.	Floppy	1.0	DiskAdmin configuration after stripe set is made (machine specific)	All iMPAct Servers

3.1 Is My Hardware Connected Correctly?

We are working with Dell and production personnel to pre-configure IMPAct systems before shipping them to the field. In this case, you are not required to configure the System BIOS, load Windows NT, etc.

If the system is not "IMPAct pre-configured", you must start the installation by configuring the hardware as described in *Section 5.2 2600 Fresh System Setup*.

4. HARDWARE CONNECTIONS

Some of the information in this document is platform-dependent. If you see a section heading referring to a specific model, for example, (*For 2500 Server*), skip that section if you are not dealing with that specific model.

4.1 Connecting Server Hardware Components

Complete the following steps before installing Windows NT Server Version 4.0:

1. Connect any external hardware (see *Section 2, Hardware Configurations*).
2. Install additional network cards if requested by the customer.
3. Add additional memory DIMMs as requested by the customer.
4. Connect the Diamond Express 56.6K Pro external modem (if applicable) to COM1.
5. Connect the IMPAct software dongle on the server's LPT1 port.

4.2 Connecting UPS

This applies to all systems.

The following should be connected to the UPS:

- Server(s)
- Monitor
- Modem
- CLARiiON disk array (if one is being used and that the UPS has the correct VA rating)
- Tape library or Single DLT tape drive (if one is installed)

Use the appropriate power cord to meet the specific country requirements at the customer site (see *Table 2-8: APC UPS plug types*).

5. HARDWARE SETUP

5.1 iMPAct Pre-Configured System Setup

This section describes how to set up a 2600, 4600 (2500, 6400, 2400 and 4400 are obsolete) server that has been pre-configured for iMPAct. It provides detailed information to help to do the following:

- Set up additional hard disk drives and other peripheral devices
- Configurations for performance enhancements

Pre-configured systems are loaded with an NT image that has Microsoft System Preparation Tool applied. This tool initializes the System Identification code (SID), Server Name, Product ID, etc., on systems built from a single OS image that's generated by software cloning package such as GHOST.

The first time that the system is booted up, it will startup a mini setup wizard. You will reply to several prompts and then reboot the system to be ready for normal operation.

5.1.1 System Preparation Mini-Setup

1. Power up the system and a Windows NT mini Setup screen will appear. Click **Next** to the setup prompt.
2. Select **I Accept this Agreement** and click **Next**
3. Type in the following input fields and click **Next**:

   Name: **CreoServer (or Allegro Workstation)**

   Organization: **Customer Name**
4. Enter the Product ID code (off the NT media package) and click **Next**
5. Type in the appropriate Computer name and click **Next**
6. Enter and confirm the Password entries and click **Next**, then click **Finish** to reboot the system.

5.1.2 Cleaning Up Old Server Name in the Registry

1. Once the system is booted up, log on to Administrator account, click **Close** to the Welcome prompt.
2. Right-click the **Network Neighborhood** icon on the desktop and select **Properties** to bring up Network Setup window.
3. Select the **Change** button and change the **Workgroup** name to the customer's desired name.
4. Select the **Protocols** tab, then the **Properties…** button of **TCP/IP protocol**
5. Type in the appropriate IP address or select DHCP IP addressing option

6. Select the **DNS** tab, change the Host Name field to the same name in lower case as the computer name entered earlier, Specify the **Domain** name and the **DNS Service Search Order** IP address if desired.
7. Select the **WINS** tab and enter the WINS server IP address if desired.
8. Unchecked the **Enable IP Forwarding** option in the **Routing** tab.
9. Click **OK**, **Close** and select **No** to Restart Your Computer Now
10. Select **Start | Programs | Command Prompt** to open a DOS window
11. Type in **DRIVERS\RESKIT** then press Enter to change to C:\ DRIVERS\RESKIT directory
12. Type in the following based on the type of server (which will replace all old Server name references in the registry with the NEWHOSTNAME):

    For 2600 Server

    "REGFIND BLNT26 –r NEWHOSTNAME" + Enter

    "REGFIND blnt26 –r newhostname" + Enter

    For 4600 Server

    "REGFIND BLNT46 –r NEWHOSTNAME" + Enter

    "REGFIND blnt46 –r newhostname" + Enter

    For 2500 Server

    "REGFIND NT4 –r NEWHOSTNAME" + Enter

    "REGFIND nt4 –r newhostname" + Enter

    For 6400 Server

    "REGFIND BLNT64 –r NEWHOSTNAME" + Enter

    "REGFIND blnt64 –r newhostname" + Enter

    For 4400/2400 Server

    "REGFIND BLNT44 –r NEWHOSTNAME" + Enter

    "REGFIND blnt44 –r newhostname" + Enter

    "REGFIND BLNT24 –r NEWHOSTNAME" + Enter

    "REGFIND blnt24 –r newhostname" + Enter

13. Clear Eventview's log to remove references to the old Server name in System and Application logs
14. Select Start | Settings | Control Panel | System
15. Select the **Startup/Shutdown** tab, select **Show List** and set it to **5 seconds**. Reboot the system.

5.1.3 Set up Digi Multi Serial Port PCI Card (Allegro/CRI/TIFF FE Workstation Only)

If the NT driver for one of the two Digi cards (ClassicBoard 4PCI or AccelePort 4P) has not been installed, then follow the setup procedure described in *Section 6.5.7 Setup ClassicBoard 4 PCI Card (Allegro/CRI and TIFF Front End WS only)*; then proceed to Section 5.1.4 below.

5.1.4 Setting up Internal Disks

For **Allegro 3230/CRI Workstation** and **Creo Satellite**, up to four additional 17.2GB or 34.4GB or 68.8GB Ultra160 SCSI hard disks can be added for internal data storage. You can either configure the disk(s) as a single NTFS volume, or, if more than one disk (of the same size) are added, we recommend that you configure them as an NT stripe set to create a larger volume and improve system performance.

For **Allegro/TIFF Front End Workstation 2600/2500**, up to three additional 34.4 GB or 68.8GB Ultra320/160 SCSI hard disks can be added for internal data storage.

For **Allegro Workstation or CreoServer 4600**, up to seven additional 34.4 GB or 68.8 GB Ultra160 SCSI hard disks can be added for internal data storage.

If 2 or more disks (of the same size) are added to the system, you should combine the new disks with the existing Recovery/Data disk into a single Raid-5 set off the internal integrated PERC 3/Di RAID Controller. Then create two partitions: the first partition should equal 2GB of FAT partition type, and the second partition formatted as an NTFS type for data off the same RAID-5 set. If only one disk is added, then either create another volume with the partition size equal to the entire disk or create a two-disk stripe set using the internal PERC 3/Di RAID Controller.

5.1.4.1 2600/4600/2500 Server

1. Start Disk Administrator by selecting Start | Programs | Administrative Tools | Disk Administrator.

   Important: Make sure that you put an NT signature onto any disks that are mentioned by Disk Administrator.

   The disk layout of Allegro/CRI Workstation & Creo Satellite should look like the following: (create partitions as needed if not present)

Disk 0 17352MB	UNKNOWN DELL UTILITY 31MB	C: BOOT NTFS 32MB (or 200MB for 4600)	E (or S): SYSTEM NTFS 4095MB	K: SERVICES NTFS 13193MB (or 30xxxMB for 4600)
Disk 1 17352MB	RECOVERY FAT 2047MB	D (or T): DATA NTFS 15305MB (or 32xxxMB for 4600)		
CD-ROM 0	CD-ROM			

Figure 5-1: Disk Layout on basic Allegro/CRI Workstation & Creo Satellite 2500 and Allegro Workstation 2600/4600

Disk 0 holds the system and boot files:

- Partition "Unknown" is a 31MB DELL Utility partition (Note: never delete this partition)
- Partition "C" contains the NT loader and boot files.
- Partition "E (or S)" holds the NT Operating System and iMPAct/Applications partition
- Partition "S (or K)" is the iMPAct Services partition.

Disk 1 should has two partitions :

- Partition "Recovery" is a 2GB FAT drive for GHOST Baseline NT OS images
- Partition "D (or T)" is a 15 GB NTFS drive for data

Note: If 3 or 4 internal data disks are installed, Disk1's second partition size will be larger than what is indicated.

The disk layout of TIFF Front End Workstation should look like the following (create partitions as needed):

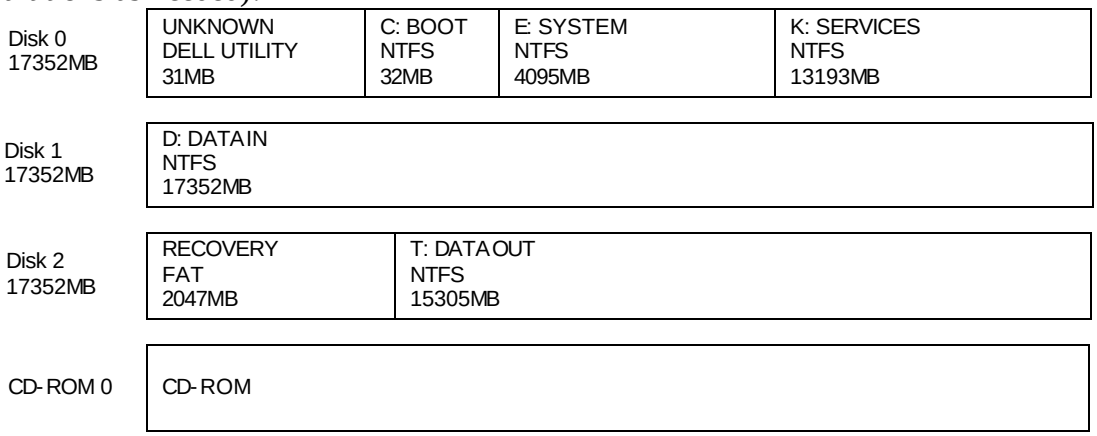


Figure 5-2: Disk Layout on basic TIFF Front End Workstation 2600

Disk0 is where the System and Boot is located:

- Partition "Unknown" is a 31MB DELL Utility partition (Note: never delete this partition)
- Partition "C" contains the NT loader and boot files.
- Partition "E" contains the NT Operating System + iMPAct/Applications
- Partition "S" contains the Tiff Front End Application and Service Data

Disk1 should have two partitions :

- Partition "D" is a 17 GB NTFS drive for TIFF Input data

Disk2 should have one partition:

- Partition "Recover" is a 2GB FAT drive for GHOST Baseline NT OS images
- Partition "T" is a 15 GB NTFS drive for Output data

Note: Disk2 is larger than what is indicated if more than one internal data disks are installed.

2. Exit Disk Administrator if no additional disks have to be configured.

5.1.4.1.1 **Enable Disk Write Cache** (Allegro 3230/CRI WS/ Creo Satellite 2400L/2500L Only)

1. Shut down Windows NT and reboot the server, watch for the Adaptec AIC-7899 SCSI Controller's BIOS boot up prompt. Enter `CTRL-A` when prompted.
2. Verify the version of the Controller BIOS by observing the banner along the top center screen displaying: `Adaptec AIC-7899 <SCSISelect(™)> Utility`
3. Select **Configure/View Host Adapter Settings** and hit ENTER.
4. Select **SCSI Device Configuration** and hit ENTER.
5. Set the **Enable Disk Write Cache** option to **Yes** (by moving the cursor to device ID #0 and hitting ENTER, then selecting **Yes**).
6. Repeat step 5 for device ID #1, and if more disks are installed, set devices 2, 3, 4 and 5 accordingly.
7. Press **Esc**, and select **Yes** to save changes. Press **Esc** again and select **Yes** to exit the SCSI Utility.

5.1.4.2 2600/4600/6400/2500V Server

For **CreoServer 2600/2500V/4600/6400**, up to maximum of six or eight 17.2GB or 34.4GB or 68.8 GB Ultra 320/160 SCSI hard disks can be installed for internal data storage. If you add two or more disks to the system, you should combine the new disks with the existing Recovery/Data disk into a single RAID-5 set off the PERC 3/Di (4600/2500V) or PERC 2 or 3/DC (6400) or PERC 4/Di (2600) RAID Controller. Then create 2 partitions where the first partition is a 2GB FAT drive and the second is a NTFS drive for data off the same RAID-5 set. If only one disk is added, then either create/partition another volume with the partition size equal the entire disk or create a two-disk stripe set using the PERC RAID Controller.

1. Select Start | Programs | Administrative Tools | Disk Administrator to start the Administrator console.

   Important: Make sure that you put an NT signature on any disks mentioned by Disk Administrator.

   The disk layout of ***CreoServer 2600/4600/2500V/6400*** should look like the following (create partitions as needed if not present):

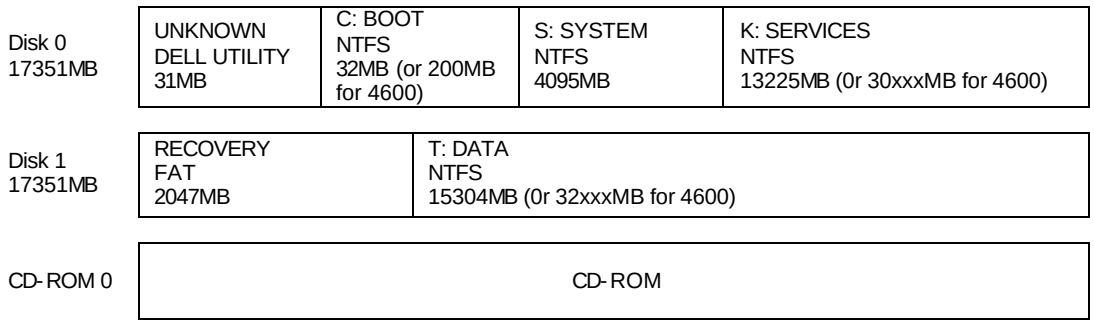


Figure 3: Disk Layout on CreoServer 2600/4600/2500V/6400

Disk0 is holds system and boot files.

- Partition "Unknown" is a Dell proprietary utility partition (No Drive Letter)
- Partition "C" holds the boot files and NT loader
- Partition "S" contains the NT Operating System/Application Software partition
- Partition "K" contains service files

Disk1 should have two partitions:

- 1st = 2GB = FAT, is for storing GHOST Baseline NT OS images
- 2nd = 15.2GB = NTFS, is for ITP/Customer data files

2. Exit Disk Administrator.

5.1.5 Verifying Virtual Memory

1. Select Start | Settings | Control Panel | System | Performance | Change.
2. Select the system drive E: or S:
3. Go to the Initial Size box, Enter 1035 <CR> for system that has < 1GB RAM. Increase this value to the Recommended value for system > 1GB RAM.
4. Go to the Maximum Size box, Enter 1035 <CR> for system that has < 1GB RAM. Increase this value = Initial Size above accordingly. (Note: Setting Initial Size = Maximum Size to minimize Pagefile fragmentation).
5. Press Set and hit OK.
6. Select Close and select Reboot Now if requested.

5.1.6 Installing the Tape Device Driver (if the tape drive is installed)

1. Select Start | Settings | Control Panel | Tape Devices.
2. Select to install the tape driver off a floppy driver diskette.
3. Select Quantum DLT2xxx, 4xxx or DLT8000 V1.9 driver.
4. Click OK to exit Tape Device Setup.
5. Close Control Panel window.

5.1.7 Install UPS software

See *Section 6.5.15 Installing UPS Software (APC Uninterrupted Power Supply)*.

5.1.8 Install Service Pack 4 for Windows NT

See *Section 6.5.16 Installing Service Pack 4 for Windows NT*.

5.1.9 Create GHOST Baseline NT OS (Site Specific) Image

See *Section 6.5.21 Creating GHOST Baseline NT OS Image*.

5.1.10 Create Disk Final Configuration Backup

See *Section 6.5.23 Backing up Disk Final Configuration*.

5.1.11 Creating Emergency Repair Disk

See *Section 6.5.24 Creating Emergency Repair Disk*.

5.1.12 Setting up iMPAct System

See *Section 7 iMPAct System Setup For Disaster Recovery*

5.2 2600 Fresh System Setup

This section describes how to set up a new 2600-based server that has not been pre-configured for IMPAct. It'll show the user how to perform the following:

- Hardware configuration
- BIOS Settings configuration
- Windows NT operating system installation and configuration

5.2.1 Configuring PE2600 Server Hardware

5.2.1.1 Multi Serial Port Card

If a Digi AccelePort 4P Serial port adapter is included, install it in PCI 2 (2nd 32-bit PCI slot).

5.2.1.2 Option Card Locations

See Figure 2-1 to view the option card locations.

5.2.1.3 SCSI Controller BIOS Settings/Hard Disk Drive Setup

5.2.1.3.1 Configuring the PCI Adaptec 39160

PCI Adaptec 39160 SCSI Controller (if installed in PCI slot 4)

Server	Host adapter bios	Bootable CD-ROM
2600	Disabled	Disabled

1. Press CTRL + A (if appears) during the Adaptec 39160 SCSI BIOS boot up prompt to run the Adaptec SCSI Select Utility.
2. From the **Main Menu** screen, select **Configure** >**View Host Adapter Settings**.
3. Select **Advanced Configuration Options**.
4. Set Host Adapter BIOS to **Disabled:Scan bus**
5. Set BIOS Support for Bootable CD-ROM to **Disabled**.
6. Press ESC, ESC and then select **Yes** to save the changes (if changes has been made).
7. Press ESC and select **Yes** to exit the utility.
8. Press ENTER to reboot.

5.2.1.3.2 Configuring the Differential Adaptec 2944UW

WARNING: This controller is running 5V supply, so it's not compatible with the 3.3V based PCI-X bus used in this server. There're ONLY two legacy 5V 32-bit PCI slots in this. Use the same procedure as 4.2.1 above to disable the BIOS.

5.2.1.4 Hard Disk Drive Installation

The PowerEdge 2600 Server features hot-swap drive bays configured from the factory with a minimum of three to a maximum of six disk drives. SCSI IDs for drives are set from 0:0-0:5 starting from the top right hand side of the drive cage as illustrated in picture below.

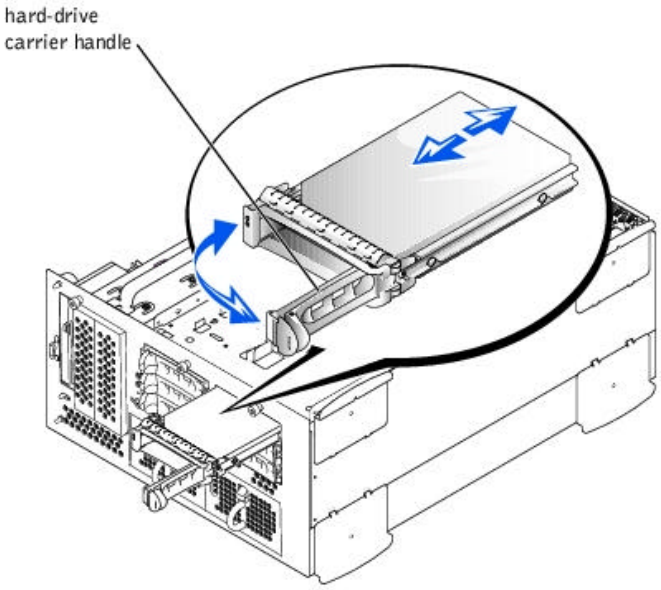


Figure 5-1: Front view of the PE2600 Server

5.2.1.4.1 Systems Without Added Internal Data Disks

The standard system without added internal data disks are configured with **3 * 34.4GB** U320 SCSI hard disks on the **Allegro Workstation** systems.

- **Disk0 (mirror disk-set off the embedded PERC 4/Di RAID controller)**:
  - Partition "Unknown" = 31MB, No drive letter, Dell Proprietary Utility Partition
  - Partition "C" = 203MB NTFS, contains boot files and NT loader
  - Partition "E" = 4095MB NTFS drive for OS Files + Application software
  - Partition "K" = 30225MB NTFS drive for service files
- **Disk1**:
  - Partition "Unknown" = 2047MB FAT, No drive letter, for baseline NT Ghost images
  - Partition "D" = 32345MB NTFS drive for ITP/Customer Data Files.

5.2.1.4.2 Systems with Added Internal Data Disks

For PE2600 server based systems, up to 3 additional 34.4/68.8/137.6GB U320 SCSI hard disks can be added for internal data storage. If you add two or more disks (of the same size) to the system, you should combine the new disks with the existing Recovery/Data disk into a single RAID-5 set off the internal integrated PERC 4/Di RAID Controller. Then create two partitions: the first partition is 4B FAT32, and the second partition is a NTFS drive for data off the same RAID-5 set. If only one disk is added, then either create/partition another volume with the partition size equal the entire disk or create a two-disk stripe set using the internal PERC 4/Di RAID Controller.

5.2.1.4.3 Disk Setup PE2600

Summary of RAID settings

Number of Disks	PERC Channel	RAID settings	Advanced RAID settings
2 System Disks	0	RAID = 1, SIZE = 34556 MB	Stripe Size = 128 KB Write Policy = WRBACK Read Policy = READAHEAD Cache Policy = Cached IO
1 internal data disk	1	RAID = 0, SIZE = 34556 MB	
2 internal data disks	1	Both at RAID = 0, SIZE = 34556 MB	
3 or 4 internal data disks	1	All at RAID = 5, SIZE = 420 GB (for 4 x 137.6 GB ea.)	

Instructions

1. Press CTRL+M during the Dell PowerEdge Expandable Raid Controller boot up prompt to run the DELL PERC 4/Di Controller Configuration Utility. From the PERC BIOS Configuration Utility's Main Menu screen:
2. Select **Configure** (to initiate configuring logical drive(s)).
3. Select **Clear Configuration** to delete any existing pre-defined RAID sets (i.e. containers).
4. Select **New Configuration** and then select **Yes** to go to the Proceed prompt. The New Configuration – ARRAY SELECTION pop-up window will appear.
5. Select the two disks (of channel 0 of the PERC controller) by pressing the space bar for each selected disk. Note that the two selected disks are now shown as Online state.
6. Press ENTER to complete the disk selection step.
7. Press F10 to start configuring the RAID-set for the two disks attached to channel 0.
8. Press ENTER on each of the RAID-set options to select options that match the following settings:
   - `RAID` = `1`
   - `SIZE` = `34556 MB`

   Advanced Menu:
   - `Stripe Size` = `128 KB`
   - `Write Policy` = `WRBACK`
   - `Read Policy` = `READAHEAD`
   - `Cache Policy` = `Cached IO`
9. Press ENTER to accept the drive configuration.
10. Press ESC to get back to the New Configuration – ARRAY SELECTION menu.
11. Repeat the above steps for the disk(s) connected to channel 0 with the appropriate settings, depending on the following:

a) If one to two disk drives are installed, then create one or two RAID-0 disks with the following settings:
   - `RAID` = `0`
   - `SIZE` = `34556 MB`

   Advanced Menu:
   - `Stripe Size` = `128 KB`
   - `Write Policy` = `WRBACK`
   - `Read Policy` = `READAHEAD`
   - `Cache Policy` = `Cached IO`

b) If three or more disk drives are installed, then create a single RAID 5 disk set with the following settings:
   - `RAID` = `5`
   - `SIZE` = `138224 MB` (approximately for 5 disk set)

   Advanced Menu:
   - `Stripe Size` = `128 KB`
   - `Write Policy` = `WRBACK`
   - `Read Policy` = `READAHEAD`
   - `Cache Policy` = `Cached IO`

12. Press ENTER to accept and complete the RAID configuration.

13. Select **`Yes`** to accept the Save Configuration prompt and exit the utility.

14. Press ENTER to reboot.

5.2.1.5 Creating the Dell Utility Partition (skip if loading NT from a ghost image)

- Insert the DELL OPENMANAGE SERVER ASSISTANT Version 7.2.2 (or above) CD into the CD-ROM drive and boot the system off this CD. The Main Menu screen appears (if the system has booted the system off this CD in the past. Otherwise, the "Choose a Language" screen will appear first. Choose **ENGLISH**).
- From the **Main Menu**, select **Setup** then select **Custom Setup**.
- Select **Create Utility Partition** and select **OK** to acknowledge the message that says the system is to be booted into DOS to create the partition.
- Remove the CD and reboot the system after the Utility partition is created.

5.2.1.6 Configuring Hardware System Settings

5.2.1.6.1 Configuring BIOS Settings

1. Power up the system and check the version level of different hardware components. The BIOS levels / ESM should be at least at the following levels for a 2600.
   - BIOS A02
   - ESM A18

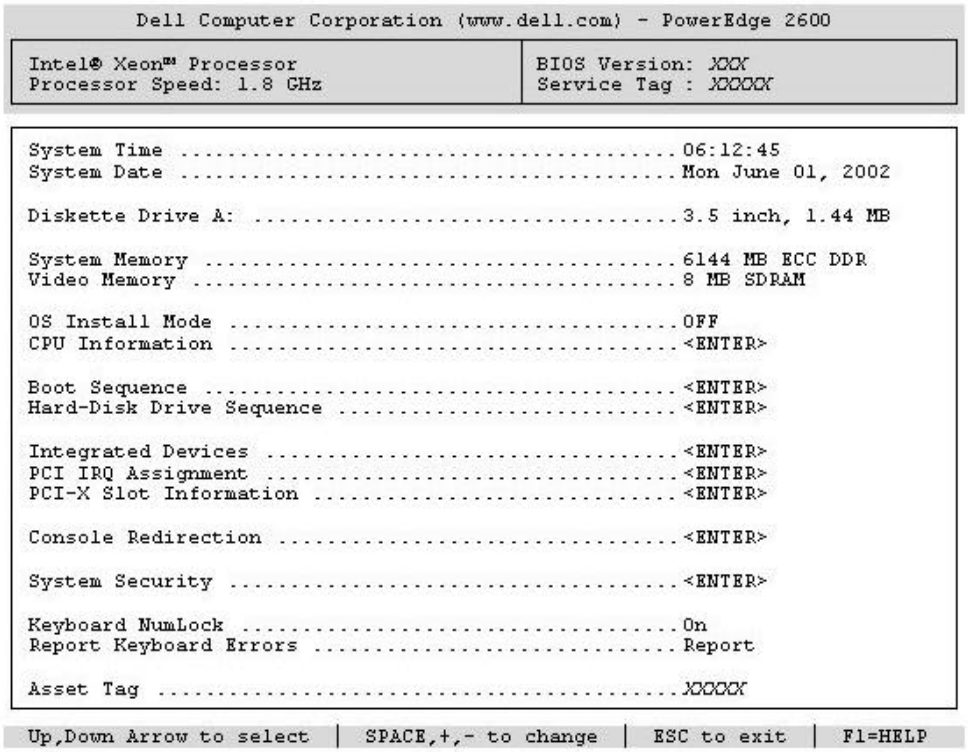
Check the “Last Known Good” listing posted on the workflow production web page for the current versions of BIOS, Embedded Server Management Firmware (ESM), Backplane controller firmware, and PERC Raid controller.

You can find the Last Known Good spreadsheet on the Workflow Production intranet site (navigate from the intranet home page to **Functional Groups > Manufacturing > Production Teams > Workflow > Current Versions**) or on the installation page of any Dell server site on Tech Planet (the new name for Technical Library).

2. Update BIOS or ESM if necessary. See *Section 5.2.1.6.2, Flashing the System BIOS.* for instructions.

Instructions

1. Press the F2 key whenever prompted to get to the BIOS setup screen shown below:



The following options or information fields appear on the main System Setup screen:

Bios Settings

Bios Setting	Value
System time and date	Set to current values
Diskette Drive A:	3.5 inch, 1.44 MB
System Memory	1024 MB ECC DDR
Video Memory	8 MB SDRAM
OS Install Mode	OFF
CPU information	Bus speed: 400 MHz Logical Processor: Enabled Processor 1 ID: F24

Bios Setting	Value
	Clock speed: 2200MHz (or faster) Level 2 Cache: 512 KB Processor 2 ID: F24 Clock speed: 2200MHz Level 2 Cache: 512 KB
Boot Sequence	1. Diskette drive A: 2. CD-ROM Drive 3. Hard drive C:
Hard disk drive sequence	1. System BIOS boot devices 2. Embedded PERC 4/Di Adapter (bus 08 dev 08)
Integrated Devices	See step 2 below for details
PCI IRQ assignment	Embedded Intel Corp NIC – IRQ5 Slot 5: Emulex Corp Fiber channel adapter – IRQ11 (if installed) Slot 4: Adaptec SCSI adapter – IRQ11 (if 39160 installed) Slot 4: Adaptec SCSI adapter – IRQ11 (if 39160 installed) Embedded Dell computer corp RAID adapter-IRQ5 Slot 2: DIGI INTERNATIONAL comm. adapter – IRQ5 (if AccelePort 4P installed) Slot 1: Adaptec SCSI adapter – IRQ11 (if 2944UW installed)
PCI-X Slot Information	Displays information about the hot-plug PCI-X slots such as the operating frequency, whether or not they are occupied, and whether they are in PCI or PCI-X mode. This screen has no user-selectable settings. Total of 4 PCI-X buses: Bus 1: for Slot 2 and 3, Max. Operating Frequency of 100Mhz Bus 2: for Slot 4 and 5, Max. Operating Frequency of 100Mhz Bus 3: for Slot 6, Max. Operating Frequency of 133Mhz Bus 4: for Slot 7, Max. Operating Frequency of 133Mhz
Console Redirection	Console Redirection – Off Remote Terminal Type – VT100/VT200 Redirection After Boot – Enabled
System Security	Configure the system password and setup password features
Keyboard Numlock	On
Report Keyboard Error	Report
Asset Tag	Unique to every system

2. From the Main screen, scroll down the cursor to the Integrated Devices option and press **ENTER** to select and verify the settings to match the list below:

Integrated Devices Options

Integrated Devices Settings	Value
Embedded RAID Controller	RAID Enabled

Integrated Devices Settings	Value
Channel A Channel B	RAID SCSI
IDE CD-ROM controller	AUTO
Diskette controller	AUTO
USB controller	Off
Embedded 10/100/1000 NIC	Enabled without PXE
NIC MAC address	Displays address of MAC of the integrated NIC
Serial Port 1 Serial Port 2	Com 1 Com 2
Parallel Port	378h
Parallel Port Mode	PS/2
Speaker	On

3. Press ESC, and select "**Save Changes and Exit**" <**ENTER**> to exit and reboot the system.

5.2.1.6.2 Flashing the System BIOS

The following procedure assumes you are updating the system bios to version A06, or higher.

1. Create the bootable BIOS floppy off the Resources CD (Creo P/N: 651-00027A-H) by double-clicking on the "**H:\ BIOS_FW\2600\BIOS_A02\R50307-PE2600-BIOSA02.exe**" file, then inserting a blank floppy into the drive as prompted.
2. After the floppy is created successfully, restart the server.
3. The server will automatically boot into the Flash BIOS Update Program – Version A02 prompt. Follow the instructions displayed on the screen by pressing any key to continue.
4. Press Y to accept the prompt to replace lower revision BIOS with A02 BIOS (or higher).
5. The BIOS flash will start. DO NOT disrupt the BIOS flash in progress until it is fully complete.
6. Press any key to reboot the server. Verify that the new revision of BIOS A02 is shown during the boot up screen.
7. If during this boot up process, the system complains that the ESM version is outdated, then proceed to flash a new version of ESM.

5.2.1.6.3 Flashing the System ESM (Embedded Server Management)

1. Create a bootable floppy off the W2K Resources CD using DiskDupe to duplicate the floppy image in the "H:\BOOTDISK\DOSCDB\XX0212AF.IMG" image file.
2. After the floppy is created successfully, edit the two boot files: AUTOEXEC.BAT to AUTOEXEC.KC and CONFIG.SYS to CONFIG.KC, so that the system will boot into DOS without a memory device driver loaded. Restart the server.
3. Press ENTER twice at the Enter Time and Date prompts upon system boot up.

4. Insert the ESM flash floppy (double click the file, **H:\ BIOS_FW\2600\ESM_A18\ A18CUST.EXE**, on the Resource CD to a blank diskette to create the ESM floppy) into the drive.

5. Enter `SMFLSH` <Enter>, and then press `Y` to begin ESM flashing. DO NOT disrupt the flash in progress until the system exits out to the A:\> prompt.

6. Reboot the server and verify the updated version of the system ESM (i.e. no warning messages appear during boot up).

5.3 4600 Fresh System Setup

This section describes how to set up a new 4600-based server that has not been pre-configured for IMPAct. It'll show the user how to perform the following:

- Hardware configuration
- BIOS Settings configuration
- Windows NT operating system installation and configuration

5.3.1 Configuring PE4600 Server Hardware

5.3.1.1 Multi Serial Port Card

If a Digi AccelePort 4P Serial port adapter is included, install it in PCI 2 (next to the 32-bit PCI slot).

5.3.1.2 Option Card Locations

See Figure 2-1 to view the option card locations.

5.3.1.3 SCSI Controller BIOS Settings/Hard Disk Drive Setup

5.3.1.3.1 Integrated Adaptec AIC-7890 SCSI Controller Settings

Note: This internal use ONLY controller should usually be disabled by default because the system come standard with the 2-bay disk cage below the CD-ROM drive (i.e. No room for internal device connections).

5.3.1.3.2 Differential Adaptec 2944UW SCSI Controller Settings (if installed)

Note: This 5V PCI HVD SCSI controller is NOT a standard option for this platform since the server's PCI slots are PCI-X (i.e. 3.3V) except one, PCI slot 1 (top one), which is normally reserved for emergency use such as field server migration scenario where it's a MUST install to allow for a successful complete of the system migration.

5.3.1.4 Hard Disk Drive Installation

The PowerEdge 4600 Server features hot-swap drive bays configured from the factory with a minimum of three to a maximum of ten disk drives. SCSI IDs for drives are set from 0:0-0:1 and 1:0 – 1:9 starting from the right hand side of the drive cage as illustrated in picture below.

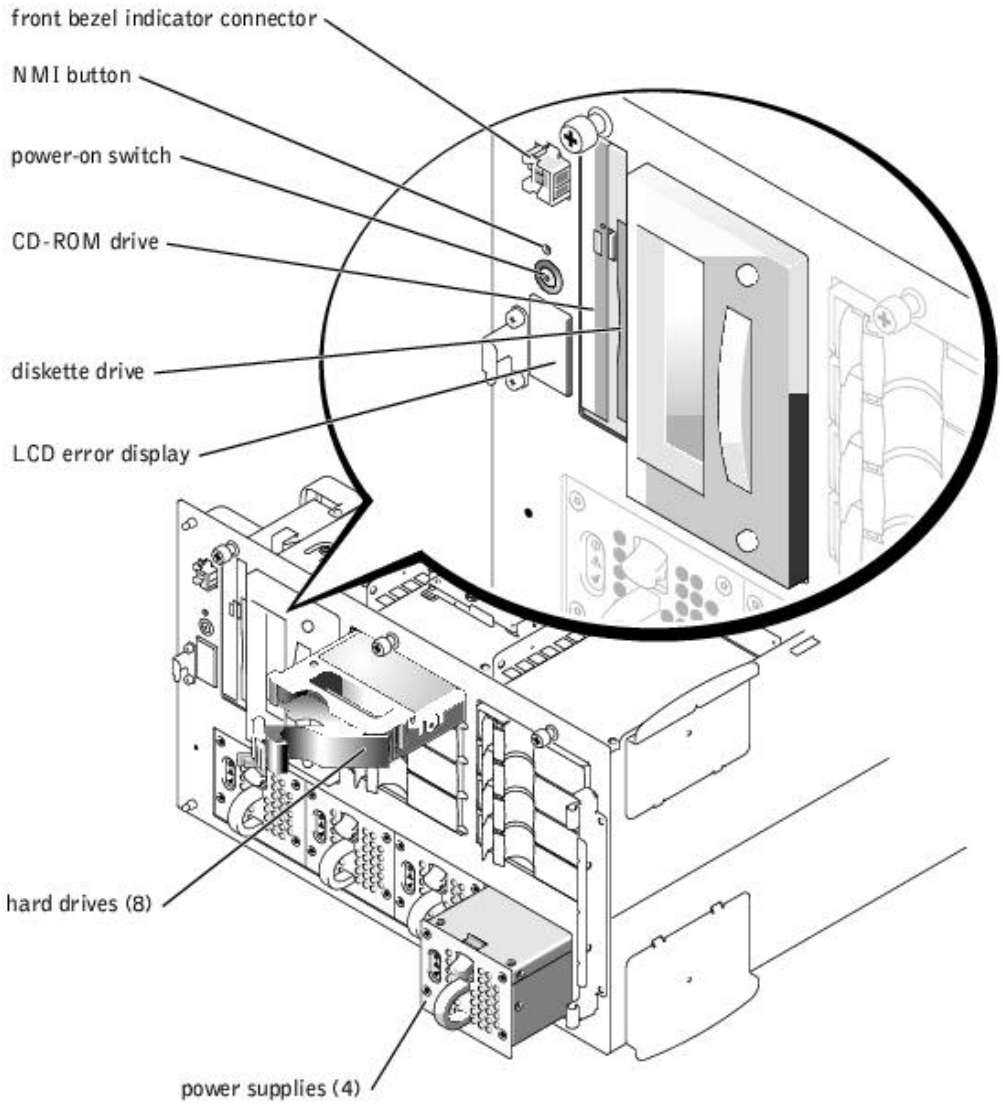


Figure 5-1: Front view of the PE4600 Server

5.3.1.4.1 Systems Without Added Internal Data Disks

The standard system without added internal data disks are configured with **3 * 34.4GB** Ultra 160 SCSI hard disks on the **Allegro Workstation and CreoServer** systems.

- **Disk0 (mirror disk-set off the embedded PERC 3/Di RAID controller)**:
  - Partition "Unknown" = 31MB, No drive letter, Dell Proprietary Utility Partition
  - Partition "C" = 203MB NTFS, contains boot files and NT loader
  - Partition "E" (or S for CreoServer) = 4095MB NTFS drive for OS Files + Application software
  - Partition "K" = 30225MB NTFS drive for service files
- **Disk1**:
  - Partition "Unknown" = 2047MB FAT, No drive letter, for baseline NT Ghost images
  - Partition "D" (or T for CreoServer) = 32345MB NTFS drive for ITP/Customer Data Files.

5.3.1.4.2 Systems with Added Internal Data Disks

For PE4600 server based systems, up to 7 additional 34.4GB/68.8GB Ultra 160 SCSI hard disks can be added for internal data storage. If you add two or more disks (of the same size) to the system, you should combine the new disks with the existing Recovery/Data disk into a single RAID-5 set off the internal integrated PERC 3/Di RAID Controller. Then create two partitions: the first partition is 4B FAT32, and the second partition is a NTFS drive for data off the same RAID-5 set. If only one disk is added, then either create/partition another volume with the partition size equal the entire disk or create a two-disk stripe set using the internal PERC 3/Di RAID Controller.

5.3.1.4.3 Disk Setup PE4600

1. Press **Ctrl + A** during the Dell PowerEdge Expandable Raid Controller… boot up prompt to run the **DELL PERC 3/Di Controller <SCSISelect™> Utility**. From the Main Menu screen:
    1. Select **Container Configuration** Utility
    2. Select **Manage Containers**
    3. Select all containers shown (by highlighting one at a time) and press the **Delete** key to delete all listed containers (i.e. Dell factory configured RAID sets)
    4. Select **Create Container**
        - Select the first two disks (of SCSI ID 0 and 1) by pressing the Insert key for each selected disk (note that the two selected disks are now shown on the right hand side window). Press <Enter> to complete the disk selection step. The **Container Properties** screen is now displayed.
        - Select **Raid 1 (Mirror)** in the Container Type field.
        - Type **MirrorSystem** in the Container Label field and press <Enter>.
        - Press <Enter> twice to accept the default container size of 34.4GB
        - Press <Enter> to enable Read Caching.
        - Press <Enter> to complete creating the first container (**Done** will be highlighted).
        - Repeat the **Create Container** steps to create the second container off the third (or more) disk(s), depending on the following:
            - If 1 to 2 disks are installed, then create 1 to 2 Single Volume Container(s) with the following settings:
                - Type = **Volume (or Raid 0)**
                - Label = **SingleVolume1** (Disk# 2) / **SingleVolume2** (Disk# 3)
            - If 3 or more disk drives installed, then create a Single RAID-5 Container with the following settings:
                - Type = **RAID 5**

- Label = **Raid5Set**
- Press <Enter> several times to accept the default settings and complete creating the second container.

2. Press Esc and select **Yes** to Exit utility.
3. Press <Enter> to reboot.

5.3.1.5 Creating the Dell Utility Partition (skip if loading NT from a ghost image)

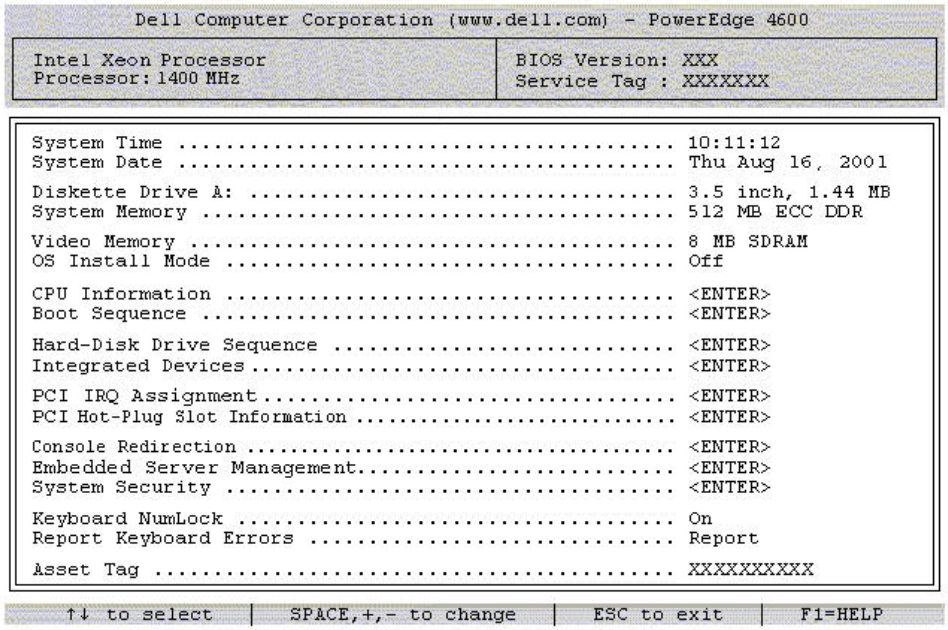
- Insert the DELL OPENMANAGE SERVER ASSISTANT Version 7.1 (or above) CD into the CD-ROM drive and boot the system off this CD. The Main Menu screen appears (if the system has booted the system off this CD in the past. Otherwise, the "Choose a Language" screen will appear first. Choose **ENGLISH**).
- From the **Main Menu**, select **Setup** then select **Custom Setup**.
- Select **Create Utility Partition** and select **OK** to acknowledge the message that says the system is to be booted into DOS to create the partition.
- Remove the CD and reboot the system after the Utility partition is created.

5.3.1.6 Configuring Hardware System Settings

5.3.1.6.1 Configuring BIOS Settings

1. Power up the system and observe for BIOS version level of different hardware components. The following are Windows NT-compatible revisions of a 2500 Server:
   - BIOS Revision A06
   - Embedded Server Management firmware revision 1.35
   - Primary System backplane firmware revision 0.25
   - System Peripheral bay firmware revision 0.25
   - PowerEdge Expandable RAID Controller PERC 3/Di BIOS V2.7-0 (Build 3153)

   Note: If the system BIOS revision is not as the indicated version, then follow the procedure in *Section 5.2.1.6.2, Flashing the System BIOS.*
2. Press the F2 key whenever prompted to get to the BIOS setup screen shown below:



The following options or information fields appear on the main System Setup screen:

Bios Settings

Bios Setting	Value
System time and date	Set to current values
Diskette Drive A:	3.5 inch, 1.44 MB
System Memory	3072 MB ECC DDR
Video Memory	8 MB SDRAM
Redundant Memory	Enabled
OS install mode	Off
CPU information	Bus speed: 400 MHz Logical Processor: Enabled Processor 1 ID: F24 Clock speed: 2200MHz (or faster) Level 2 Cache: 512 KB Processor 2 ID: F24 Clock speed: 2200MHz Level 2 Cache: 512 KB
Boot Sequence	4. Diskette drive A: 5. CD-ROM Drive 6. Hard drive C:
Hard disk drive sequence	3. System BIOS boot devices 4. Dell PERC 3/Di Controller
Integrated Devices	See step 3 below for details
PCI IRQ assignment	Embedded Secondary SCSI Controller – IRQ10 Slot 1: Digi AccelePort 4P – IRQ5 (if installed) Embedded Broadcom Corp (or Intel Corp) NIC – IRQ5 Embedded Dell computer corp RAID adapter-IRQ10

Bios Setting	Value
	Embedded RAID Controller Ch:A – IRQ10 Embedded RAID Controller Ch:B – IRQ10 Slot 6: Emulex Corp Fiber channel adapter – IRQ11 (if installed)
PCI Hot-Plug Slot Information	Displays information about the hot-plug PCI-X slots such as the operating frequency, whether or not they are occupied, and whether they are in PCI or PCI-X mode. This screen has no user-selectable settings.
Console Redirection	Console Redirection – Off Remote Terminal Type – VT100/VT200 Redirection After Boot – Enabled
Embedded Server Management	Front-Bezel Chasis Intrusion – Enabled Front-Panel LCD Options – User-Defined String User-Defined String: Line1 ….. Creo Line 2 …..Prinergy Server (or the desired name during production integration)
System Security	Configure the system password and setup password features
Keyboard Numlock	On
Report Keyboard Error	Report
Asset Tag	Unique to every system

3. From the Main screen, scroll down the cursor to the Integrated Devices option and press **ENTER** to select and verify the settings to match the list below:

Integrated Devices Options

Integrated Devices Settings	Value
Embedded RAID controller	RAID enabled Channel A: RAID Channel B: RAID
Embedded Secondary SCSI Controller	Off
IDE CD-ROM controller	AUTO
Diskette controller	AUTO
USB controller	Off
BIOS USB Support	Off
Embedded 10/100 NIC	Disabled
NIC MAC address	Not Present (or Displays address of MAC used by integrated NIC)
BroadCom Gigabit NIC	Enabled without PXE
NIC MAC address	Displays address of MAC used by integrated NIC (or Not Present)
Mouse Controller	On
Serial Port 1 Serial Port 2	Com 1 Com 2
Parallel Port	378h
Parallel Port Mode	PS/2
Speaker	On

4. Press ESC, and select "**Save Changes and Exit**" <**ENTER**> to exit and reboot the system.

5.3.1.6.2 Flashing the System BIOS

The following procedure assumes you are updating the system bios to version A06, or higher.

8. Create the bootable BIOS floppy off the Resources CD (Creo P/N: 21-0107A-F) by double-clicking on the "**H:\BIOS_FW\PE4600\BIOS_A06\PE4600-BIOSA06.EXE**" file, then inserting a blank floppy into the drive as prompted.
9. After the floppy is created successfully, restart the server.
10. The server will automatically boot into the Flash BIOS Update Program – Version A06 prompt. Follow the instructions displayed on the screen by pressing any key to continue.
11. Press Y to accept the prompt to replace lower revision BIOS with A06 BIOS (or higher).
12. The BIOS flash will start. DO NOT disrupt the BIOS flash in progress until it is fully complete.
13. Press any key to reboot the server. Verify that the new revision of BIOS A06 is shown during the boot up screen.
14. If during this boot up process, the system complains that the ESM version is outdated, then proceed to flash a new version of ESM.

5.3.1.6.3 Flashing the System ESM (Embedded Server Management)

7. Create a bootable floppy off the W2K Resources CD using DiskDupe to duplicate the floppy image in the "H:\BOOTDISK\DOSCDB\XX0212AF.IMG" image file.
8. After the floppy is created successfully, edit the two boot files: AUTOEXEC.BAT to AUTOEXEC.KC and CONFIG.SYS to CONFIG.KC, so that the system will boot into DOS without a memory device driver loaded. Restart the server.
9. Press ENTER twice at the Enter Time and Date prompts upon system boot up.
10. Insert the ESM flash floppy (double click the file, **H:\BIOS_FW\PE4600\ESM_A05\PE4600-ESMA05.EXE**, on the Resources CD to a blank diskette to create the ESM floppy) into the drive.
11. Enter `SMFLSH` <Enter>, and then press Y to begin ESM flashing. DO NOT disrupt the flash in progress until the system exits out to the A:\> prompt.
12. Reboot the server and verify the updated version of the system ESM (i.e. no warning messages appear during boot up).

5.4 2500 Fresh System Setup

This section describes how to set up a new 2500-based server that has not been pre-configured for IMPAct. It'll show the user how to perform the following:

- Hardware configuration
- BIOS Settings configuration
- Windows NT operating system installation and configuration

5.4.1 Configuring the Hardware for the 2500

5.4.1.1 Multi Serial Port Card

If a Digi ClassicBoard 4 PCI Serial port adapter is included, install it in PCI 6 (the lowest 64-bit PCI slot on the server).

5.4.1.2 Option Card Locations

See Figure 2-2 to view the option card locations.

5.4.1.3 SCSI Controller BIOS Settings/Hard Disk Drive Setup

5.4.1.3.1 Integrated Adaptec AIC-7899 SCSI Controller Settings

Note: This Controller is not available for system with the 2-bay disk cage below the CD-ROM drive (i.e. The 2500V configuration on the Prinergy Server product).

- Press CTRL + A during the Adaptec AIC-7899 SCSI BIOS boot up prompt to run the Adaptec SCSI Select Utility. From the **Main Menu** screen:
- Select **Configure** and then select **View Host Adapter Settings**.
- Select **Advanced Configuration Options**.
- Set Host Adapter BIOS to **Disabled (or Enabled** for Allegro 3230/CRI WS or Satellite**).**
- Set BIOS Support for Bootable CD-ROM to **Enabled**.
- Press ESC, ESC and then select **Yes** to save the changes (if changes has been made).
- Press ESC and select **Yes** to exit the utility.
- Press ENTER to reboot.

5.4.1.3.2 Differential Adaptec 2944UW SCSI Controller Settings (if installed)

- Press CTRL+A during the Adaptec 2944UW BIOS boot up prompt to run SCSI Select (if the Adaptec 2944UW controller is installed).
- Select **Configure** and then **View Host Adapter Settings**.
- Select **Advanced Configuration Options**.
- Set Host Adapter BIOS to **Disabled.**

- Press ESC, ESC and select **Yes** to save the changes (if changes has been made).
- Press ESC and select **Yes** to exit the utility.
- Press ENTER to reboot.

5.4.1.4 Hard Disk Drive Installation

The PowerEdge 2500 Server features hot-swap drive bays configured from the factory with a minimum of two to a maximum of six disk drives. SCSI IDs for drives are set from 0-5 starting from the right hand side of the drive cage as illustrated in picture below.

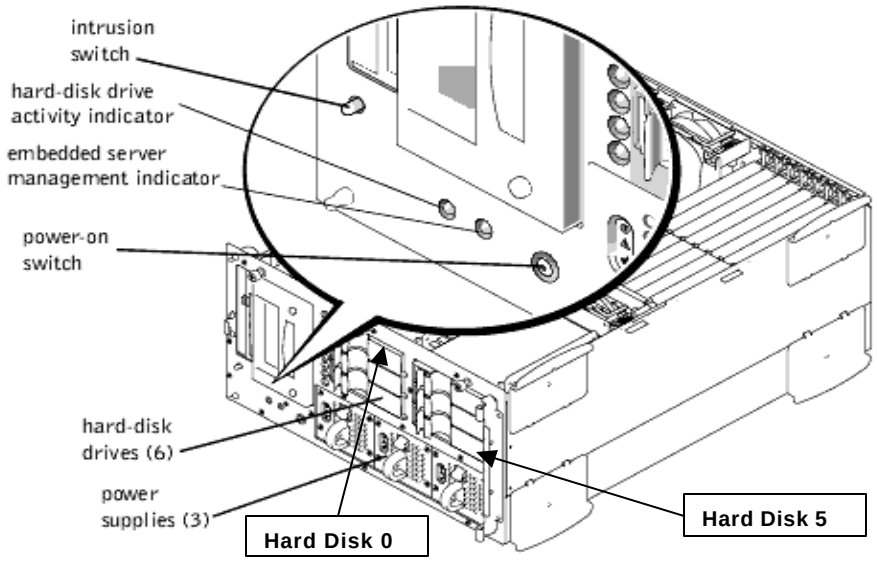


Figure 5-2: Front view of the PE2500 Server

5.4.1.4.1 Systems Without Internal Data Disks

The standard system without internal data disks are configured with **2 * 17.2GB** Ultra 160 SCSI hard disks on the **Allegro 3230/CRI and Creo Satellite** systems.

- **Disk0**:
  - Partition "Unknown" = 31MB, No drive letter, Dell Proprietary Utility Partition
  - Partition "C" = 31MB, contains boot files and NT loader
  - Partition "E" (or S) = 4095MB NTFS drive for Operating System/application software
  - Partition "S" (or K) = 13225MB NTFS drive for service files
- **Disk1**:
  - Partition "Unknown" = 2047MB FAT, No drive letter, for iMPAct baseline NT Ghost images
  - Partition "D" (or T) = 15305MB NTFS drive for iMPAct ITP/Customer Data Files

The standard configuration of **AllegroWorkstation 2500** includes **3 * 17.2GB** Ultra 160 SCSI disks, the 2 x System mirrored disk set and the single volume 3rd disk are controlled by the onboard integrated PERC 3/Di Raid Controller. The disk layout is the same as described above where as **Tiff FrontEnd Workstation 2500** is configured with no mirror system drive for its 3rd disk is used for output data.

5.4.1.4.2 Systems with Internal Data Disks

For Allegro 3230/CRI & Creo Satellite, up to four additional 17.2GB/34.4GB/68.6GB Ultra 160 SCSI hard disks can be added for internal data storage. You can configure the disk(s) as a single NTFS volume, or, if more than one disk (of the same size) is added, we recommend that you configure them as an NT stripe set to create a larger volume and improve system performance.

For Allegro/TIFF Front End Workstation 2500, up to 3 additional 17.2GB/34.4GB/68.8GB Ultra 160 SCSI hard disks can be added for internal data storage. If you add two or more disks (of the same size) to the system, you should combine the new disks with the existing Recovery/Data disk into a single RAID-5 set off the internal integrated PERC 3/Di RAID Controller. Then create two partitions: the first partition is a 2GB FAT drive, and the second partition is a NTFS drive for data off the same RAID-5 set. If only one disk is added, then either create/partition another volume with the partition size equal the entire disk or create a two-disk stripe set using the internal PERC 3/Di RAID Controller.

5.4.1.4.3 Disk Setup For Allegro 3230/CRI & Creo Satellite

1. Press **Ctrl + A** during the **Adaptec AIC-7899 SCSI BIOS** boot up prompt to run Adaptec SCSI Select Utility. From the Main Menu screen:
    1. Select Configure | View Host Adapter Settings.
    2. Select **Advanced Configuration** Options.
    3. Set **Host Adapter BIOS** to **Enabled**.
    4. Set **BIOS Support for Bootable CD-ROM** to **Disabled**
    5. Press Esc, Esc and click **Yes** to save changes (if changes have been made)
    6. Select **SCSI Disk Utilities**
    7. Select all disks shown (by highlighting one at a time), then choose Format Disk to perform low-level formatting of all unknown source of disks.

    Note: This step is to eliminate the potential problem of having different boot sector geometries among different SCSI controllers used in different systems.

    8. Press Esc, Esc and click **Yes** to save changes (if changes have been made)
    9. Press Esc and click **Yes** to Exit utility.
2. Press Enter to reboot (and move on to the **Create Utility Partition** section)

5.4.1.4.4 Disk Setup For Allegro/ TIFF Front End Workstation 2500

1. Press **Ctrl + A** during the Dell PowerEdge Expandable Raid Controller… boot up prompt to run the **DELL PERC 3/Di Controller <SCSISelect™> Utility**. From the Main Menu screen:
    1. Select Container Configuration Utility
    2. Select **Manage Containers**

3. Select all containers shown (by highlighting one at a time) and press the **Delete** key to delete all listed containers (i.e. Dell factory configured RAID sets)

4. Select **Create Container**

For Allegro Workstation 2500

- Select the first two disks (of SCSI ID 0 and 1) by pressing the Insert key for each selected disk (note that the two selected disks are now shown on the right hand side window). Press <Enter> to complete the disk selection step. The **Container Properties** screen is now displayed.
- Select **Raid 1 (Mirror)** in the Container Type field.
- Type **MirrorSystem** in the Container Label field and press <Enter>.
- Press <Enter> twice to accept the default container size of 17.2GB
- Press <Enter> to enable Read Caching.
- Press <Enter> to complete creating the first container (**Done** will be highlighted).
- Repeat the **Create Container** steps to create the second container off the third (or more) disk(s), depending on the following:
  - If 1 to 2 disks are installed, then create 1 to 2 Single Volume Container(s) with the following settings:
    - Type = **Volume**
    - Label = **SingleVolume1** (Disk# 2) / **SingleVolume2** (Disk# 3)
  - If 3 or more disk drives installed, then create a Single RAID-5 Container with the following settings:
    - Type = **RAID 5**
    - Label = **Raid5Set**
    - Press <Enter> several times to accept the default settings and complete creating the second container.
    - Proceed to the step below titled *For ALL Other Products*.

For TIFF Front End Workstation 2500

- Select the first disk (of SCSI ID 0) by pressing the Insert key for each selected disk (note that the selected disk is now shown on the rightmost window). Press <Enter> to complete the disk selection step. The **Container Properties** screen displays.
- Select the **Volume** option in the Container Type field.
- Type **SingleVolume1** in the Container Label field and press <Enter>.
- Press <Enter> twice to accept default container size of 17.2 GB.
- Press <Enter> to enable read caching.

- Press <Enter> to complete creating the first container (**Done** is highlighted).
- Repeat the create container steps to create the second container off the second disk to create "SingleVolume2".
- Repeat the create container steps to create the third container off the third disk (or more) depending on the following:
  - If 1 to 2 disk drives installed, then create a stripe set of 1 or 2 disk container(s) with the following settings:
    - Type = **RAID 0**
    - Label = **StripeSet**
    - Press <Enter> several times to accept the default settings and complete creating the second container.
  - If three or more disk drives installed, then create a Single RAID 5 Container with the following settings:
    - Type = **RAID 5**
    - Label = **Raid5Set**
    - Press <Enter> several times to accept the default settings and complete creating the second container.

2. Press Esc and select **Yes** to Exit utility.
3. Press <Enter> to reboot.

5.4.1.5 Creating the Dell Utility Partition (skip if loading NT from a ghost image)

- Insert the DELL OPENMANAGE SERVER ASSISTANT Version 7.1 (or above) CD into the CD-ROM drive and boot the system off this CD. The Main Menu screen appears (if the system has booted the system off this CD in the past. Otherwise, the "Choose a Language" screen will appear first. Choose **ENGLISH**).
- From the **Main Menu**, select **Setup** then select **Custom Setup**.
- Select **Create Utility Partition** and select **OK** to acknowledge the message that says the system is to be booted into DOS to create the partition.
- Remove the CD and reboot the system after the Utility partition is created.

5.4.1.6 Configuring Hardware System Settings

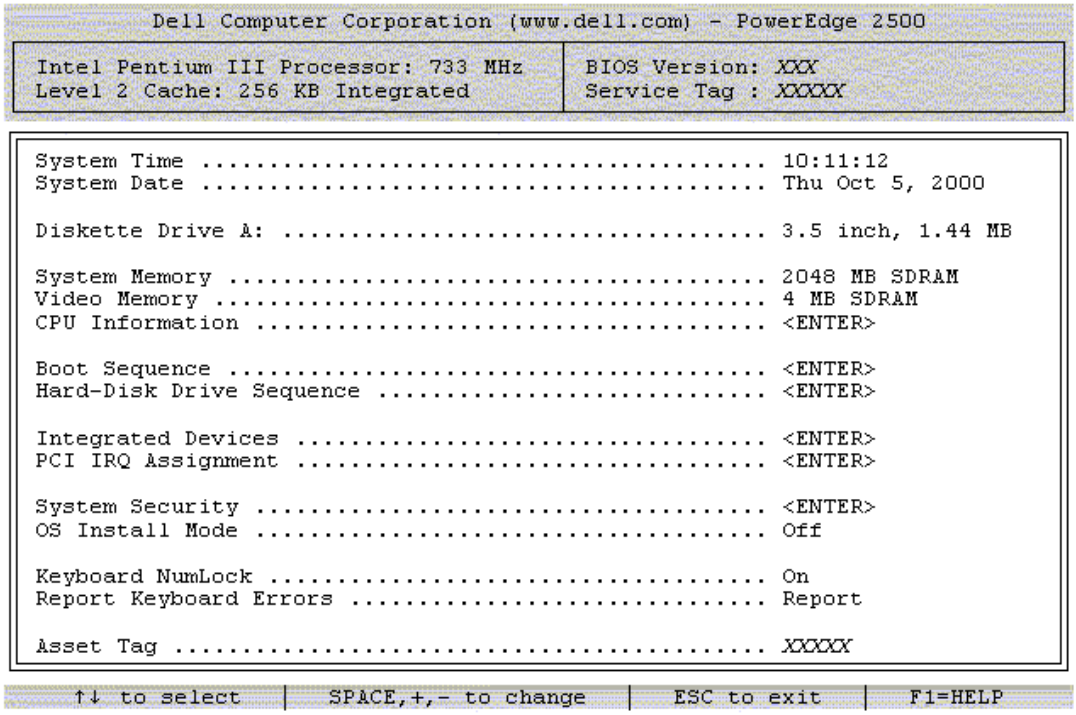
5.4.1.6.1 Configuring BIOS Settings

1. Power up the system and observe for BIOS version level of different hardware components. The following are Windows NT-compatible revisions of a 2500 Server:
   - BIOS Revision A04
   - Embedded Server Management firmware revision 5.43
   - Primary System backplane firmware revision 1.29

- System Peripheral bay firmware revision 5.32 (2500V configuration ONLY)
- PowerEdge Expandable RAID Controller PERC 3/Di BIOS V2.7-0 (Build 3153)

Note: If the system BIOS revision is not as the indicated version, then follow the procedure in *Section 5.2.1.6.2, Flashing the System BIOS.*

2. Press the F2 key whenever prompted to get to the BIOS setup screen shown below:



The following options or information fields appear on the main System Setup screen:

- **System Time** — resets the time on the system's internal clock.
- **System Date** — resets the date on the system's internal calendar.
- **Diskette Drive A:** — **3.5 inch, 1.44 MB.**
- **System Memory** — **1024 or 512 MB ECC SDRAM**
- **Video Memory** — **8MB SDRAM**
- **CPU Information** — **Bus Speed: 133MHz**
  Processor 1 ID: 686 (or 6B1)
  Clock Speed: 1000 MHz (or 1133 MHz)
  Cache Size: 256 KB (or 512 KB)
  Processor 2 ID: 686 (None for Allegro 3230/ CRI WS)
  Clock Speed: 1000 MHz (or 1133 MHz)
  Cache Size: 256 KB (or 512 KB)
- **Boot Sequence** — **1. Diskette Drive A:**
  2. CD-ROM Drive
  3. Hard Drive C:
- **Hard-Disk Drive Sequence** — **1. System BIOS boot devices**

2. Dell PERC 3/Di Controller (None for Allegro 3230/ CRI WS/ Creo Satellite)

- **Integrated Devices** — displays the **Integrated Devices** screen (See step 3 below).
- **PCI IRQ Assignment** — **Embedded Intel Corp NIC - IRQ5**
  Embedded Dell Computer Corp RAID adapter - IRQ10
  Embedded Dell Computer Corp RAID adapter - IRQ10 (2500V)
  Slot 5: Adaptec SCSI adapter – IRQ11
  Slot 6: Digi International Comm. adapter – IRQ5
  Embedded Adaptec SCSI adapter – IRQ10
  Embedded Adaptec SCSI adapter – IRQ10
- **Console Redirection**
  - **Console Redirection: Off**
  - **Remote Terminal Type: ANSI**
  - **Redirection After Boot: Disabled**
- **System Security** — displays a screen, which allows you to configure the system password and setup password features.
- **OS Install Mode** — **Off**
- **System Alert** — **Fault**
- **Keyboard Numlock** — **On**
- **Report Keyboard Error** — **Report**
- **Asset Tag** — **Unique for every system.**

3. From the Main screen, scroll down the cursor to the **Integrated Devices** option and press <**ENTER**> to select and verify the settings to match the list below:
   - **Embedded RAID Controller** — **RAID Enabled or SCSI Enabled (Allegro 3230/ CRI WS/ Creo Satellite)**
     Channel A: RAID (2500V) or SCSI (Allegro 3230/ CRI WS/ Creo Satellite)
     Channel B: SCSI (or RAID for CreoServer 2500V)
   - **Network Interface Controller** — **On without PXE**
   - **NIC MAC Address** — displays the address of the MAC address used by the integrated NIC.
   - **Mouse Controller** — **On**
   - **Serial Port 1, Serial Port 2** — **COM1 & COM2**
   - **Parallel Port** — **378h**
   - **Parallel Port Mode** — **PS/2**
   - **USB Controller** — **Off**
   - **IDE CD-ROM Interface** — **AUTO**
   - **Diskette Controller** — **AUTO**
   - **Speaker -- On**

4. Press ESC, and select "**Save Changes and Exit**" <**ENTER**> to exit and reboot the system.

5.4.1.6.2 Flashing the System BIOS

The following procedure assumes you are updating the system bios to version A04, or higher.

1. Create the bootable BIOS floppy off the Resource CD (Creo P/N: 21-0107A-F) by double-clicking on the "**H:\BIOS_FW\PE2500\BIOS_A04\B87NEK04.EXE**" file, then inserting a blank floppy into the drive as prompted.
2. After the floppy is created successfully, restart the server.
3. The server will automatically boot into the Flash BIOS Update Program – Version A04 prompt. Follow the instructions displayed on the screen by pressing any key to continue.
4. Press Y to accept the prompt to replace lower revision BIOS with A04 BIOS (or higher).
5. The BIOS flash will start. DO NOT disrupt the BIOS flash in progress until it is fully complete.
6. Press any key to reboot the server. Verify that the new revision of BIOS A04 is shown during the boot up screen.
7. If during this boot up process, the system complains that the ESM version is outdated, then proceed to flash a new version of ESM.

5.4.1.6.3 Flashing the System ESM (Embedded Server Management)

1. Create a bootable floppy off the W2K Resources CD using DiskDupe to duplicate the floppy image in the "H:\BOOTDISK\DOSMLTSC" directory.
2. After the floppy is created successfully, edit the two boot files: AUTOEXEC.BAT to AUTOEXEC.KC and CONFIG.SYS to CONFIG.KC, so that the system will boot into DOS without a memory device driver loaded. Restart the server.
3. Press ENTER twice at the Enter Time and Date prompts upon system boot up.
4. Insert the ESM flash floppy (double click the file, **H:\BIOS_FW\PE2500\ESM_A54\A54CUST.EXE**, on the Resource CD to a blank diskette to create the ESM floppy) into the drive.
5. Enter `SMFLSH` <Enter>, and then press Y to begin ESM flashing. DO NOT disrupt the flash in progress until the system exits out to the A:\> prompt.
6. Reboot the server and verify the updated version of the system ESM (i.e. no warning messages appear during boot up).

5.5 6400 Fresh System Setup

This section describes how to set up a 6400-based server that has *not* been pre-configured for iMPAct. It provides detailed information to help to do the following:

- Configure hardware
- Configure BIOS settings
- Install and configure Windows NT operating system

5.5.1 Configuring the Hardware for the 6400

5.5.1.1 Multi Serial Ports Card

If a Digi ClassicBoard 4 PCI Serial port adapter is included, install it in PCI-2 slot.

5.5.1.2 Location of Optional PCI Cards

See Figure 2-3 for option card locations.

5.5.1.3 Hard Disk Drive Installation

The default system mirrored drives are installed in the 2-bay media cage, below the CD-ROM drive and behind the front flip-down bezel, connected to channel 0 of the PERC 2/DC or 3/DC PCI RAID Controller. The third to tenth disk drives are to be installed starting from the right side of the horizontal 8-bay drive cage connected to channel 1 of the PERC 2/DC or 3/DC PCI RAID Controller.

5.5.1.3.1 System with Internal Data Disks

A CreoServer 6400 with an internal data disk option will have the same system mirrored disks installed in the upper 2-bay cage. The 3rd-nth disks are installed in the bottom drive cage starting from the furthest slot on the right side (SCSI ID 0).

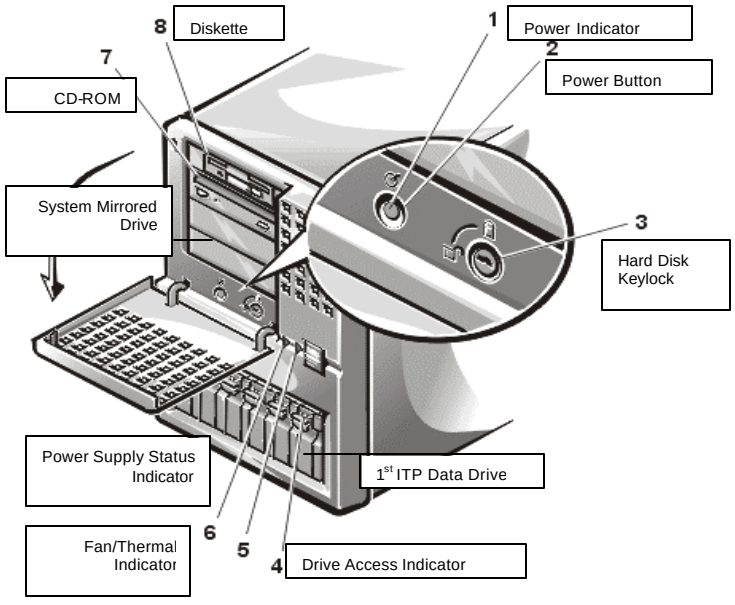


Figure 5-3: 6400 front view

5.5.1.3.2 System with External FC Raid Array

A CreoServer 6400 with an external FC RAID will include 3*17.2GB disks inside the server. Two system-mirrored disks are installed in the upper 2-bay cage and a 3rd is installed in the 1st slot (SCSI ID 0) of the bottom drive cage starting from the right-handed side.

5.5.1.4 SCSI Controller BIOS Settings/Hard Disk Drive Setup

5.5.1.4.1 Integrated Adaptec AIC-7899 Dual channel SCSI Controller settings

- Press CTRL+A during the Adaptec AIC-7899 SCSI BIOS boot up prompt to run the Adaptec SCSI Select Utility. From the **Main Menu** screen:
  - Select **Channel A**.
  - Select **Configure** and then **View Host Adapter Settings**.
  - Select **Advanced Configuration Options**.
  - Set **Host Adapter BIOS** to **Disabled**.
  - Set **BIOS Support for Bootable CD-ROM** to **Disabled**.
  - Press ESC, ESC and select **Yes** to save the changes (if changes has been made).
  - Repeat the steps above for channel B.
  - Press ESC and select **Yes** to exit the utility.
  - Press ENTER to reboot.

5.5.1.4.2 Integrated Adaptec AIC-7880 SCSI Controller settings (Not required if IDE CD-ROM)

- Press CTRL+A during the Adaptec AIC-7880 SCSI BIOS boot up prompt to run the Adaptec SCSI Select Utility. From the **Main Menu** screen:
  - Select **Configure** and then select **View Host Adapter Settings**.
  - Select **Advanced Configuration Options**.
  - Set **Host Adapter BIOS** to **Enabled**.
  - Set **BIOS Support for Bootable CD-ROM** to **Enabled**.
  - Press ESC, ESC and select **Yes** to save the changes (if changes has been made).
  - Press ESC and select **Yes** to exit the utility.
  - Press ENTER to reboot.

5.5.1.4.3 Differential Adaptec 2944UW SCSI Controller Settings (if installed)

- Press CTRL+A during the Adaptec 2944UW BIOS boot up prompt to run SCSI Select (if Adaptec 2944UW controller is installed).

- Select **Configure** and then select **View Host Adapter Settings**.
- Select **Advanced Configuration Options**.
- Set **Host Adapter BIOS** to **Disabled**.
- Press, ESC and select **Yes** to save the changes (if changes has been made).
- Press ESC and select **Yes** to exit the utility.
- Press ENTER to reboot.

5.5.1.4.4 Disk Setup for the 6400

- Press CTRL+M during the Dell PowerEdge Expandable Raid Controller boot up prompt to run the DELL PERC 2/DC or 3/DC Controller Configuration Utility. From the PERC BIOS Configuration Utility's Main Menu screen:
- Select **Configure** (to initiate configuring logical drive(s)).
- Select **Clear Configuration** to delete any existing pre-defined RAID sets (i.e. containers).
- Select **New Configuration** and then select **Yes** to go to the Proceed prompt. The New Configuration – ARRAY SELECTION pop-up window will appear.
- Select the two disks (of channel 0 of the PERC 2/DC or 3/DC controller) by pressing the space bar for each selected disk (note that the two selected disks are now shown as Online state). Press ENTER to complete the disk selection step.
- Repeat the above step for the disk(s) connected to channel 1.
- Move cursor back to Channel0 disk0, then press <F10> to start configuring the RAID-set for the two disks attached to channel 0.
- Press ENTER on each of the RAID-set options to select options that match the following settings:
  - `RAID` = `1`
  - `SIZE` = `17278 MB`

  Advanced Menu:
  - `Stripe Size` = `64 KB`
  - `Write Policy` = `WRBACK`
  - `Read Policy` = `READAHEAD`
  - `Cache Policy` = `Cached IO`
- Press ENTER to accept the drive configuration.
- Move cursor to disk(s) connected to channel 1 with the settings depending on the following:

  If one to two disk drives are installed, then create one or two RAID-0 disks with the following settings:

- `RAID` = `0`
- `SIZE` = `17278 MB`

Advanced Menu:

- `Stripe Size` = `64 KB`
- `Write Policy` = `WRBACK`
- `Read Policy` = `READAHEAD`
- `Cache Policy` = `Cached IO`

If three or more disk drives are installed, then create a single RAID 5 disk set with the following settings:

- `RAID` = `5`
- `SIZE` = `69112 MB` (approximately for 5 disk set)

Advanced Menu:

- `Stripe Size` = `64 KB`
- `Write Policy` = `WRBACK`
- `Read Policy` = `READAHEAD`
- `Cache Policy` = `Cached IO`

- Press ENTER to accept and complete the RAID configuration.
- Select **`Yes`** to accept the Save Configuration prompt and exit the utility.
- Press ENTER to reboot.

5.5.1.5 Creating the Dell Utility Partition (skip if loading NT from a ghost image)

- Insert the DELL OPENMANAGE SERVER ASSISTANT Version 7.1 (or above) CD into the CD-ROM and boot the system off this CD. The Main Menu screen appears (if the system has booted the system off this CD in the past. Otherwise, the Choose a Language screen will appear first. Select **ENGLISH**.)
- From the **Main Menu**, select **Setup**, then select **Custom Setup**.
- Select **Create Utility Partition** and select **OK** to acknowledge the message about the system being booted into DOS to create the partition.
- Remove the CD and reboot the system after the Utility partition is created.

5.5.1.6 Configuring System Settings

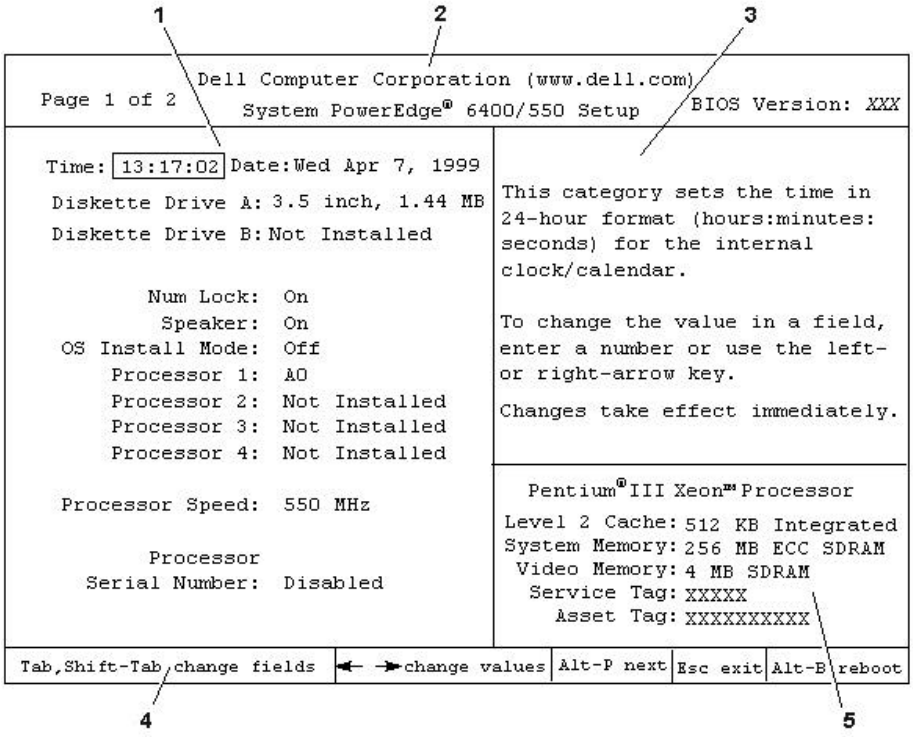
5.5.1.6.1 Configuring BIOS Settings

- Power up the system and verify the BIOS version level of the different hardware components. The following are Windows NT compatible versions of a 6400 Server:
  - BIOS Version A10
  - Embedded Server Management Firmware Revision 5.39
  - System Back plane Firmware Revision 5.47

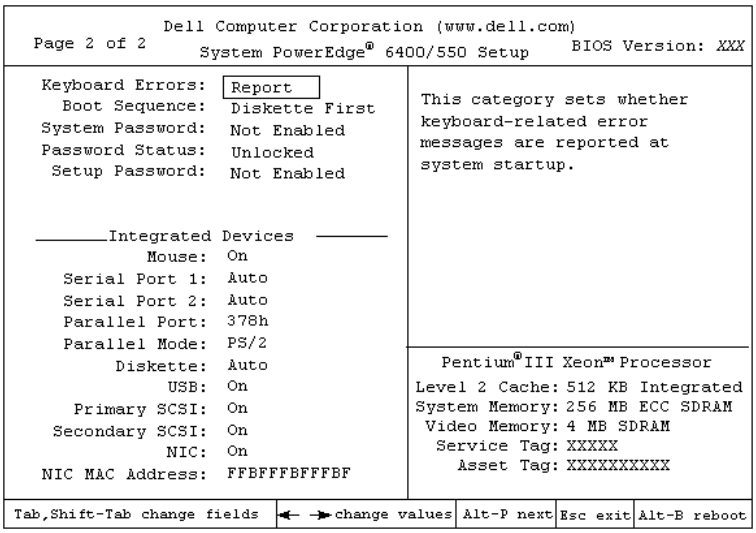
- System Peripheral Bay Firmware Revision 5.47
- Power Supply Paralleling Board Firmware Revision 2.41
- PowerEdge Expandable RAID Controller BIOS1p00 Oct 22, 1999 (American Megatrends Inc.)

Note: If the system BIOS version is not the same as the indicated version, then follow the procedure below.

- Press F2 when prompted to get to the BIOS setup screen shown below:

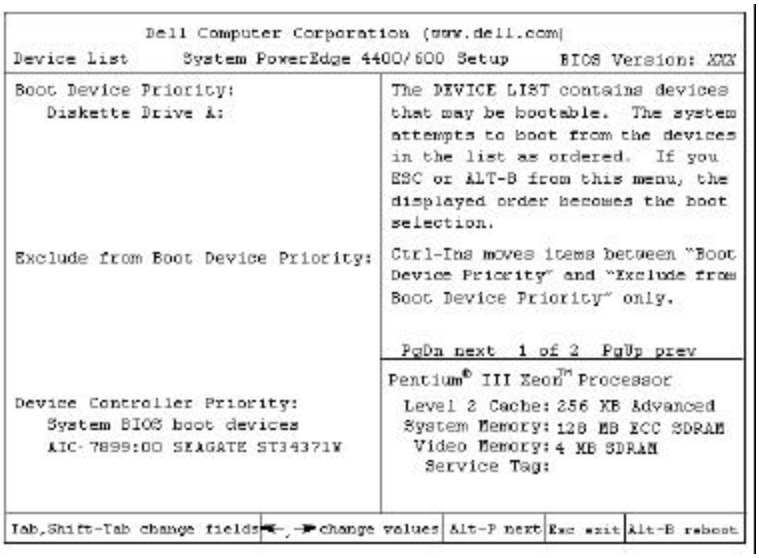


- From the Main screen, verify the server settings and make changes as needed so that the target system settings match the sample screen above with the exception of the following important fields:
  - Correct `Date` and `Time`
  - `Processor Speed` = `700 MHz`
  - `Processor 1 – 4` = `C0`
  - `System Memory` = `1024 MB ECC SDRAM`
  - `Video Memory` = `4 MB SDRAM`
  - `Service Tag` = `SERVER S/N`
- Press ALT+P to enter the Advanced screen as shown below:



- Verify the server settings and make changes as needed so that the target system settings match the sample screen above with the exception of the following important fields:
  - `System Password` = not enabled
  - `Setup Password` = not enabled
  - `Serial Port 1` = `COM1`
  - `Serial Port 2` = `COM2`
  - `USB` = `OFF`
  - `Primary SCSI` = `ON`
  - `Secondary SCSI` = `ON`
  - `MAC Address` (should different for each system)

- Press CTRL+> to enter the boot sequence screen as shown (of a 4400 class server) below:



- Verify the target system settings to match the sample screen above.
- Press ALT+B to exit the screen and reboot the system.

5.5.1.6.2 Flashing the System BIOS

- Create the bootable BIOS floppy off the NT Resource CD (Creo P/N: 21-0107A-F) by double-clicking on the "**H:\BIOS_FW\PE6400\BIOS_A10\B7100T10.EXE**" file, then inserting a blank floppy into drive as prompted.
- After the floppy is created successfully, restart the server.
- The server will automatically boot into the Flash BIOS Update Program – Version A10 prompt.
- Follow the instructions displayed on the screen by pressing any key to continue.
- Press Y to accept the prompt to replace A09 (or lower) BIOS with A10 BIOS.
- The BIOS flash will start. DO NOT disrupt the BIOS flash in progress until it's fully completed.
- Press any key to reboot the server, verifying that the new version of BIOS A10 is shown during the boot up screen.
- If, during this boot up process, the system complains that the ESM version is outdated, then proceed to *Section 5.3.1.6.3 Flashing the System ESM (Embedded Server Management)* to flash the new ESM version; Otherwise proceed to *Section 5.3.1.6.4 Resource Configuration Utility (RCU) Settings*.

5.5.1.6.3 Flashing the System ESM (Embedded Server Management)

- Create a bootable floppy off the NT Resources CD using DiskDupe to duplicate the floppy image in the "H:\BOOTDISK\DOSNETB" directory.
- After the floppy is created successfully, edit the two boot files: AUTOEXEC.BAT to AUTOEXEC.KC and CONFIG.SYS to CONFIG.KC, so that the system will be boot into DOS without a memory device driver loaded. Restart the server.
- Press ENTER twice at the Enter Time and Date prompts upon system boot up.
- Insert the ESM flash floppy (double click the file, **H:\BIOS_FW\PE6400\ESM_A51\A51CUST.EXE**, on the Resource CD to a blank diskette to create the ESM floppy) into the drive.
- Enter `SMFLSH` to start, then press Y to begin ESM flashing. DO NOT disrupt the flash in progress until the system exits out to the A:\> prompt.
- Reboot the server and verify the updated version of the system ESM (i.e. no warning messages appear during boot up).

5.5.1.6.4 Resource Configuration Utility (RCU) Settings

The following steps are used to configure and optimize System Resource usage (IRQs, I/O ports, etc.):

Note: Refer to the Dell Online Documentation CD for details on all usage of this utility and other documentation on all Dell servers.

- Press F10 during initial boot up time to initiate the Run Utility (off the Utility partition).
- When the Welcome screen appears, read the information on the screen and press ENTER. The Main Menu appears:

```
Main Menu

Learn about configuring your computer
Configure computer
Set date
Set time
Maintain system configuration diskette
Exit from this utility
```

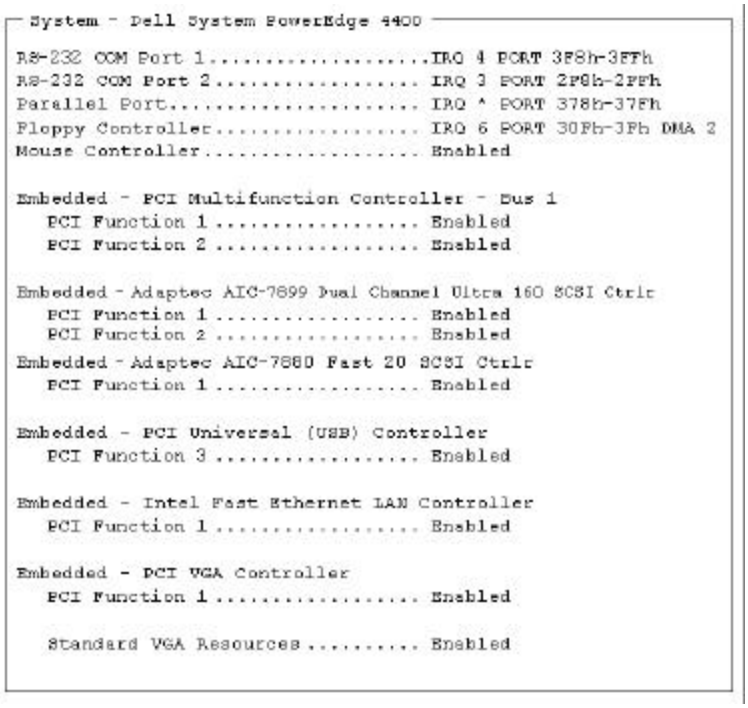
  The first option in the menu is already highlighted.

- Select `Set date & Set time` to verify and make changes to the date and time (zone).
- Select `Configure computer` (for doing system hardware resource verification) and the following menu appears on the screen:

```
Steps in configuring your computer

Step 1: Important resource configuration information
Step 2: Add or remove boards
Step 3: View or edit details
Step 4: Examine switches or print report
Step 5: Save and exit
```

- Select `Step 3: View or edit details` and the following sample screen appears:



- During this stage, press F6 for details about the selected item, or F7 for advanced settings. (Refer to the Dell Online Documentation CD for details on the usage of this utility).
- It is highly recommended that you assign the system IRQ usage as below:
  - IRQ 14 to the PCI based PERC 2/DC or 3/DC controller or
  - IRQ 10 to the PCI based PERC 2/DC or 3/DC controller if System has IDE CD-ROM
  - IRQ 10 to the onboard Dual Channel AIC-7899 SCSI controller
  - IRQ 10 to the FC Controller if installed
  - IRQ 10 to the onboard AIC-7880 Ultra SCSI Controller (Not present if IDE CD-ROM is used)
  - IRQ 10 to the Adaptec AHA39160 Ultra 160 LVD/SE SCSI Controller if installed
  - IRQ 11 to the Adaptec 2944UW Differential SCSI Controller if installed
  - IRQ 5 to the Intel PCI LAN Controller
  - IRQ 5 to the Intel Gigabit NIC if installed
  - IRQ 5 to the Digi Classicboard 4 PCI multi serial port Adapter if installed
- Select `Step 5: Save and exit` to completely exit out of the RCU. Reboot the system when done with the hardware resource verification process.

5.6 4400 Fresh System Setup

This section describes how to set up a 4400-based server that has *not* been pre-configured for iMPAct. It provides detailed information to help to do the following:

- Configure hardware
- Configure BIOS settings
- Install and configure Windows NT operating system

5.6.1 Configuring the Hardware for the 4400

5.6.1.1 Multi Serial Ports Card

If a Digi ClassicBoard 4 PCI Serial port adapter is included, install it in PCI 6 (the lowest 64-bit PCI slot on the server).

5.6.1.2 Location of Optional PCI Cards

See Figure 2-4 to view locations for optional PCI cards.

5.6.1.3 Hard Disk Drive Installation

The default system mirrored drives are installed in the 2-bay media cage, connected to channel 0 of the onboard-integrated PERC 3/Di RAID Controller (below the CD-ROM drive and behind the front flip-down bezel). The third to tenth disk drives are to be installed starting from the right hand side of the horizontal 8-bay drive cage connected to channel 1 of the PERC 3/Di RAID Controller.

5.6.1.3.1 System with Internal Data Disks

CreoServer 4400 with an internal data disk option will have the same system mirrored disks installed in the upper 2-bay cage. The 3rd – nth disks are installed in the bottom drive cage starting from the right-most slot (SCSI ID 0).

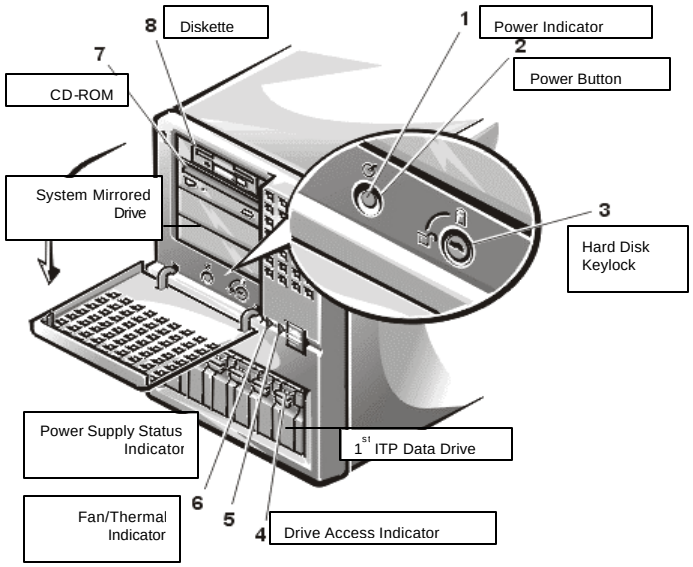


Figure 5-3: 4400 Front View

5.6.1.3.2 System with External FC Raid Array

CreoServer 4400 with an external FC RAID will include three 17.2GB disks. Two system mirrored disks are installed in the upper 2-bay cage and the third is installed in the right-most slot (SCSI ID 0) of the bottom drive cage.

5.6.1.4 SCSI Controller BIOS Settings/Hard Disk Drive Setup

5.6.1.4.1 Integrated Adaptec AIC-7880 SCSI Controller settings (CD-ROM controller)

- Press CTRL+A during the Adaptec AIC-7880 SCSI BIOS boot up prompt to run the Adaptec SCSI Select Utility. From the **Main Menu** screen:
- Select **Configure** and then select **View Host Adapter Settings**.
- Select **Advanced Configuration Options**.
- Set Host Adapter BIOS to **Enabled**.
- Set BIOS Support for Bootable CD-ROM to **Enabled**.
- Press ESC, ESC and select **Yes** to save the changes (if changes has been made).
- Press ESC and select **Yes** to exit the utility.
- Press ENTER to reboot.

5.6.1.4.2 Differential Adaptec 2944UW SCSI Controller Settings (if installed)

- Press CTRL+A during the Adaptec 2944UW BIOS boot up prompt to run SCSI Select (if Adaptec 2944UW controller is installed).
- Select **Configure** and then select **View Host Adapter Settings**.
- Select **Advanced Configuration Options**.
- Set Host Adapter BIOS to **Disabled**.
- Press ESC, ESC and select **Yes** to save the changes (if changes has been made).)
- Press ESC and select **Yes** to exit the utility.
- Press ENTER to reboot.

5.6.1.4.3 Disk Setup For the 4400

- Press CTRL+A during the Dell PowerEdge Expandable Raid Controller boot up prompt to run the DELL PERC 3/Di Controller <SCSISelect™> Utility. From the **Main Menu** screen:
- Select **Container Configuration Utility**.
- Select **Manage Containers**.

- Select all containers shown (by highlighting one at a time) and press the delete key to delete all listed containers (i.e. Pre-configured RAID sets).
    - Select **Create Container**.
    - Select the two disks (of channel 0 of the PERC 3 controller) by pressing the insert key for each selected disk (note that the two selected disks are now shown on the right window). Press ENTER to complete the disk selection step. The Container Properties screen displays.
    - In the **Container Type** field, select **Raid 1** (Mirror).
    - In the **Container Label** field, enter `MirrorSystem`.
    - Press ENTER twice to accept a default Container Size of 17.2GB.
    - Press ENTER to enable Read Caching (Yes).
    - Press ENTER to accept Enable when protected setting for Write Caching.
    - Press ENTER to complete creating the first container ("Done" is highlighted).
    - Repeat the Create Container steps to create the second container off the PERC 3 Controller channel 1's disk drive(s) depending on the following:
        - If one to two disk drives are installed, then create one or two single volume containers with the following settings:
            - **Type** = **Volume (or RAID 0)**
            - **Label** = **SingleVolume1** (Disk 1) and **SingleVolume2** (Disk 2)
            - Press ENTER to accept the default settings and complete creating the second container
        - If three or more disk drives are installed, then create a Single RAID 5 Container with the following settings:
            - **Type** = **RAID 5**
            - **Label** = **Raid5Data**
            - Press ENTER to accept the default settings and complete creating the second container
    - Press ESC and select **Yes** to exit the utility. Press ENTER to reboot.

5.6.1.5 Creating the Dell Utility Partition (skip if Loading NT from a ghost image)

- Insert the DELL OPENMANAGE SERVER ASSISTANT Version 7.1 (or above) CD into the CD-ROM drive and boot the system off this CD. The Main Menu screen appears (if the system has booted the system off this CD in the past. Otherwise, the Choose a Language screen will appear first. Select **ENGLISH.**)
- From the **Main Menu**, select **Setup** then select **Custom Setup**.

- Select **Create Utility Partition** and select **OK** to acknowledge the message about the system being booted into DOS to create the partition.
- Remove the CD and reboot the system after the Utility partition is created.

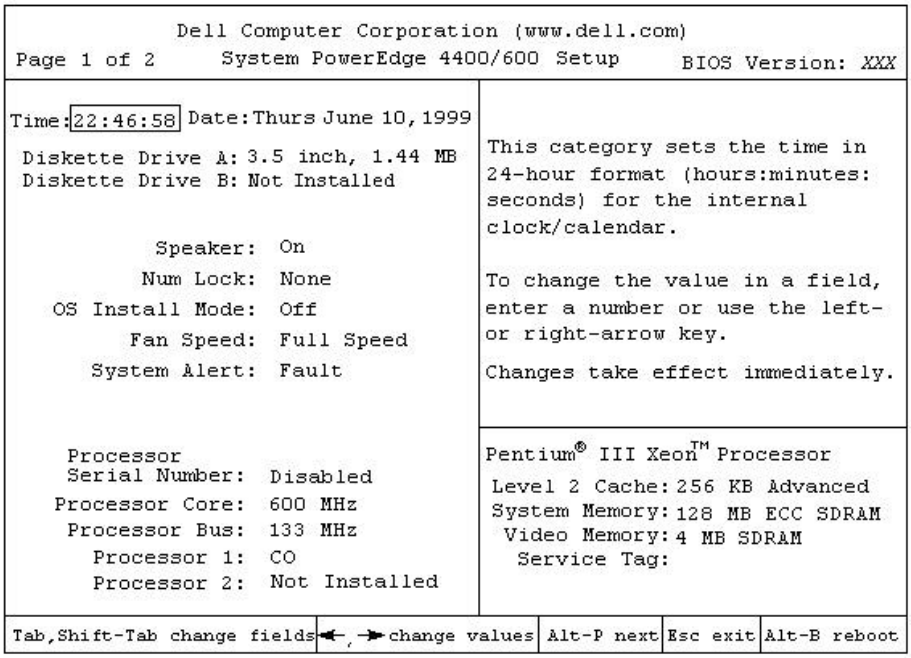
5.6.1.6 Configuring System Settings

5.6.1.6.1 Configuring BIOS Settings

- Power up the system and verify the BIOS version level of the different hardware components. The following are Windows NT compatible versions of a 4400 Server:
  - BIOS Version A09
  - Embedded Server Management Firmware Revision 5.28
  - System Back plane Firmware Revision 5.43
  - System Peripheral Bay Firmware Revision 5.43
  - Power Supply Paralleling Board Firmware Revision 2.41
  - PowerEdge Expandable RAID Controller PERC 3/Di BIOS V2.7-0 (Build 3546)

  Note: If the system BIOS version is not the same as the indicated version, then follow the procedure below.

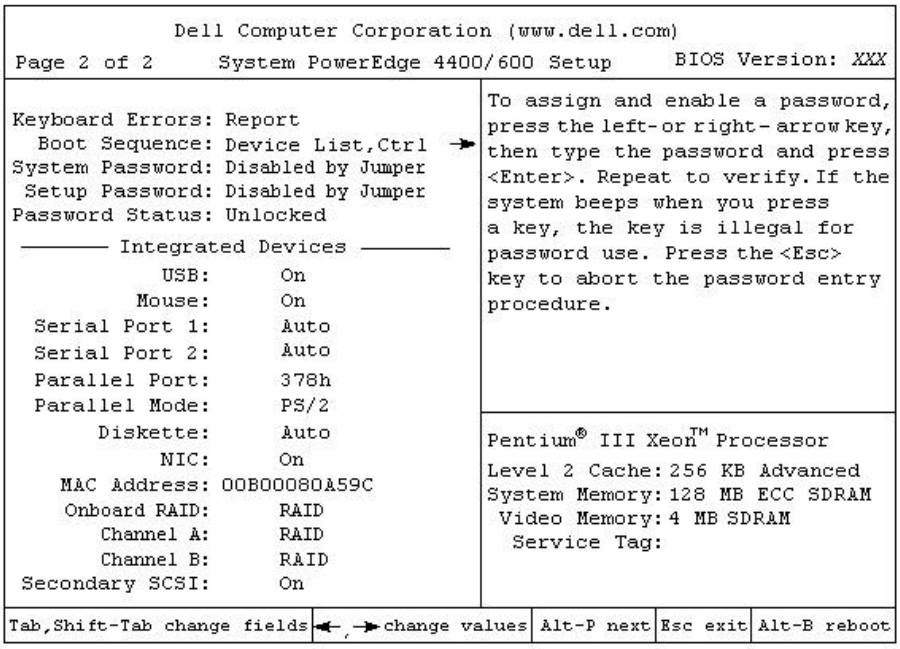
- Press F2 when prompted to get to the BIOS setup screen shown below:



- From the Main screen, verify the server settings and make changes as needed for the target system settings to match the sample screen above with the exception of the following important fields:
  - Correct `Date` and `Time`
  - `CPU Speed` = `733 MHz` or higher
  - `Processor 1` and `Processor 2` = `A2`

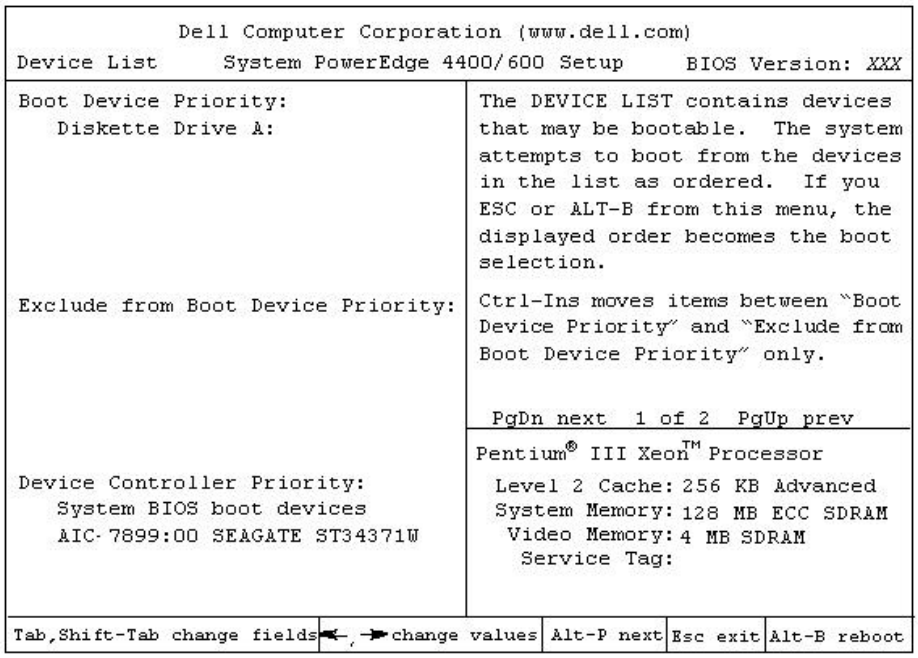
- `Memory` = `1024 MB ECC SDRAM`
- `Video Memory` = `4 MB`
- `Service Tag` = `SERVER S/N`

- Press ALT+P to enter the Advanced screen as shown below:



- Verify the server settings and make changes as needed so that the target system settings match the sample screen above with the exception of the following important fields:
  - `System Password` = Not Enabled
  - `Setup Password` = Not Enabled
  - `USB` = `OFF`
  - `Serial Port 1` = `COM1`
  - `Serial Port 2` = `COM2`
  - `MAC Address` (should different for each system)
  - `Onboard RAID` = `RAID`

- Press CTRL+> to enter the boot sequence screen as shown below:



- Verify that the target system settings match the sample screen above.
- Press ALT+B to exit the screen and reboot the system.

5.6.1.6.2 Flashing the System BIOS

- Create the bootable BIOS floppy off the NT Resource CD (Creo P/N: 21-0107A-F) by double-clicking on the "**H:\BIOS_FW\PE4400\BIOS_A09\B2200T09.EXE**" file, then inserting a blank floppy into the drive as prompted.
- After the floppy is created successfully, restart the server.
- The server will automatically boot into the "Flash BIOS Update Program – Version A09" prompt.
- Follow the instructions displayed on the screen by pressing any key to continue.
- Type Y to accept the prompt to replace A08 (or lower) BIOS with A09 BIOS.
- The BIOS flash will start. DO NOT disrupt the BIOS flash in progress until it's fully completed.
- Press any key to reboot the server, verifying that the new version of BIOS A09 is shown during the boot up screen.
- If, during this boot up process, the system complains that the ESM version is outdated, proceed to *Section 5.4.1.6.3, Flashing the System ERM* to flash the new ESM version. Otherwise proceed to *Section 5.4.1.6.4, Resource Configuration Utility (RCU) Settings*.

5.6.1.6.3 Flashing the System ESM (Embedded Server Management)

- Create a bootable floppy off the NT Resources CD using DiskDupe to duplicate the floppy image in the "H:\BOOTDISK\DOSNETB" directory.

- After the floppy is created successfully, edit the two boot files: AUTOEXEC.BAT to AUTOEXEC.KC and CONFIG.SYS to CONFIG.KC, so that the system will be booted into DOS without a memory device driver loaded. Restart the server.
- Press ENTER twice at the Enter Time and Date prompts upon system boot up.
- Insert the ESM flash floppy (double click the file, **H:\BIOS_FW\PE4400\ESM_A56\A56CUST.EXE**, on the Resource CD to a blank diskette to create the ESM floppy) into the drive.
- Enter `SMFLSH` to start, then enter `Y` to begin ESM flashing. DO NOT disrupt the flash in progress until the system exits out to the A:\> prompt.
- Reboot the server and verify the updated version of system ESM (i.e. no warning messages appear during boot up).

5.6.1.6.4 Resource Configuration Utility (RCU) Settings

The following steps are used to configure and optimize System Resource usage (IRQs, I/O ports, etc.):

Note: Refer to the Dell Online Documentation CD for details on all usage of this utility and other documentation on all Dell servers.

- Press F10 during initial boot up time to initiate Run Utility (off the Utility partition).
- When the Welcome screen appears, read the information on the screen and press ENTER. The Main Menu appears:

```
Main Menu

Learn about configuring your computer
Configure computer
Set date
Set time
Maintain system configuration diskette
Exit from this utility
```

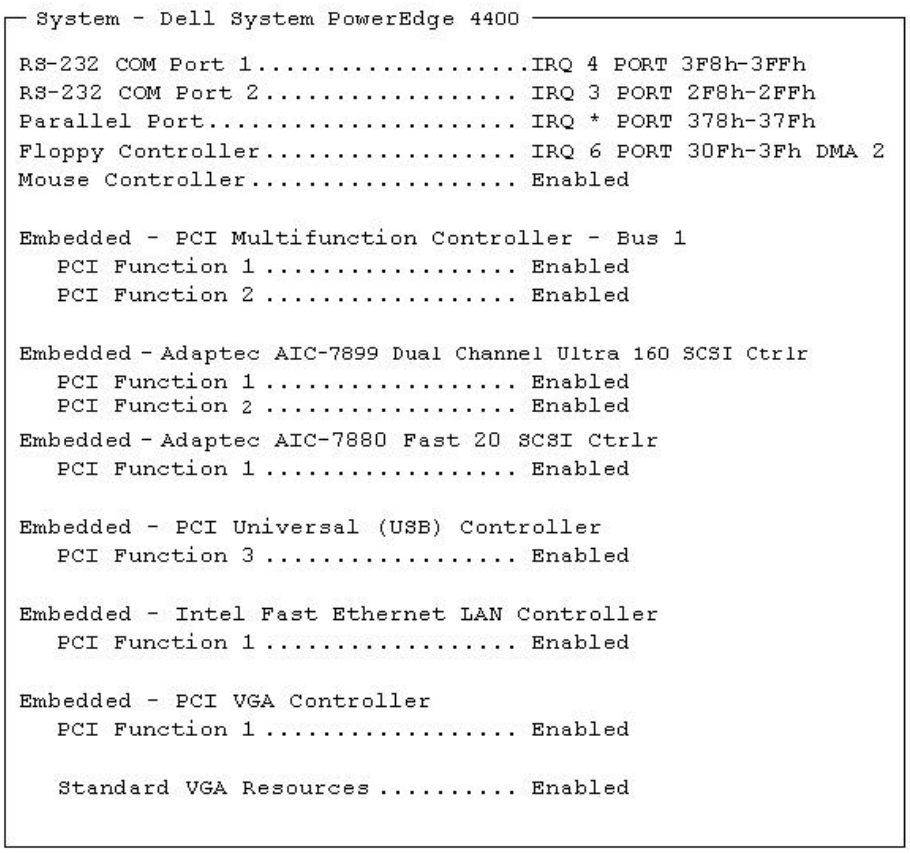
The first option in the menu is already highlighted.

- Select `Set date` and `Set time` to verify and make changes to correct the date and time (zone).
- Select `Configure computer` **(**for doing system hardware resource verification) and the following menu appears on the screen:

```
Steps in configuring your computer

Step 1: Important resource configuration information
Step 2: Add or remove boards
Step 3: View or edit details
Step 4: Examine switches or print report
Step 5: Save and exit
```

- Select `Step 3: View or edit details` and the following sample screen appears:



- During this stage, press F6 for details about the selected item, or F7 for advanced settings. (Refer to the Dell Online Documentation CD for details on the usage of this utility).
- It is highly recommended that you assign the system IRQ usage as below:
  - IRQ 14 to the onboard PERC Raid controller (PCI Multifunction Controller – Bus 1)
  - IRQ 11 to the Adaptec 2944UW/3944AUWD Differential SCSI Controller if installed
  - IRQ 10 to the Adaptec 39160 Ultra 160 LVD/SE SCSI Controller if installed
  - IRQ 10 to the Qlogic or Emulex FC Controller if installed
  - IRQ 10 to the onboard AIC-7880 Ultra SCSI Controller
  - IRQ 5 to the Intel PCI LAN Controller
  - IRQ 5 to the Intel Gigabit Controller if installed
  - IRQ 5 to the Digi Classicboard 4 PCI multi serial port Adapter
- Select `Step 5: Save and exit` to completely exit out of the RCU. Reboot the system when done with the hardware resource verification process.

5.7 2400 Fresh System Setup

This section describes how to set up a new 2400-based server that has not been pre-configured for IMPAct. It'll show the user how to perform the following:

- Hardware configuration
- BIOS Settings configuration
- Windows NT operating system installation and configuration

5.7.1 Configuring the Hardware for the 2400H/L

5.7.1.1 Multi Serial Port Card

If a Digi ClassicBoard 4 PCI Serial port adapter is included, install it in PCI 5 (the lowest 64-bit PCI slot on the server).

5.7.1.2 Option Card Locations

See Figure 2-4 to view locations for optional PCI cards.

5.7.1.3 SCSI Controller BIOS Settings/Hard Disk Drive Setup

5.7.1.3.1 Integrated Adaptec AIC-7880 SCSI Controller Settings (CD-ROM controller)

- Press CTRL + A during the Adaptec AIC-7880 SCSI BIOS boot up prompt to run the Adaptec SCSI Select Utility. From the **Main Menu** screen:
- Select **Configure** and then select **View Host Adapter Settings**.
- Select **Advanced Configuration Options**.
- Set Host Adapter BIOS to **Enabled**.
- Set BIOS Support for Bootable CD-ROM to **Enabled**.
- Press ESC, ESC and then select **Yes** to save the changes (if changes has been made).
- Press ESC and select **Yes** to exit the utility.
- Press ENTER to reboot.

5.7.1.3.2 Differential Adaptec 2944UW SCSI Controller Settings (if installed)

- Press CTRL+A during the Adaptec 2944UW BIOS boot up prompt to run SCSI Select (if the Adaptec 2944UW controller is installed).
- Select **Configure** and then **View Host Adapter Settings**.
- Select **Advanced Configuration Options**.
- Set Host Adapter BIOS to **Disabled**.
- Press ESC, ESC and select **Yes** to save the changes (if changes has been made).
- Press ESC and select **Yes** to exit the utility.

- Press ENTER to reboot.

5.7.1.4 Hard Disk Drive Installation

The PowerEdge 2400 Server features hot-swap drive bays configured from the factory with a minimum of two to a maximum of six disk drives. SCSI IDs for drives are set from 0-5 starting from the right hand side of the drive cage as illustrated in picture below.

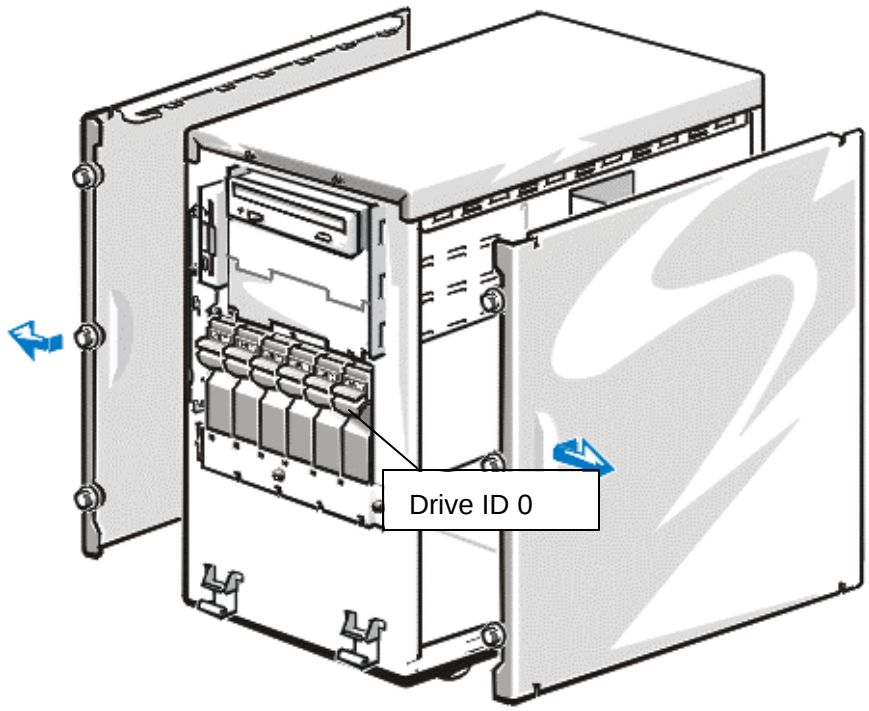


Figure 5-4: Front view of the PE2400 Server

5.7.1.4.1 Systems Without Internal Data Disks

The standard system without internal data disks are configured with **2 * 8.6GB** UltraSCSI hard disks on the **Allegro 3230/CRI and Creo Satellite** systems.

- **Disk0**:
  - Partition "Unknown" = 31MB, No drive letter, Dell Proprietary Utility Partition
  - Partition "C" = 31MB, contains boot files and NT loader
  - Partition "E" (or S) = 4095MB NTFS drive for Operating System/application software
  - Partition "S" (or K) = 4582MB NTFS drive for service files
- **Disk1**:
  - Partition "Unknown" = 2047MB FAT, No drive letter, for baseline NT Ghost images
  - Partition "D" (or T) = 6629MB NTFS drive for iMPAct ITP/Customer Data Files

The standard configuration of **Allegro/ TIFF Front End Workstation 2400** includes **3 * 8.6GB** UltraSCSI disks, controlled by the onboard integrated PERC 2/Si Raid Controller. The disk layout is the same as described above.

5.7.1.4.2 Systems with Internal Data Disks

For Allegro 3230/CRI & Creo Satellite, up to four additional 17.2GB/34.4GB/68.8GB UltraSCSI hard disks can be added for internal data storage. You can configure the disk(s) as a single NTFS volume, or, if more than one disk (of the same size) is added, we recommend that you configure them as an NT stripe set to create a larger volume and improve system performance.

For Allegro/TIFF Front End Workstation 2400, up to three additional 17.2GB/34.4GB/68.8GB UltraSCSI hard disks can be added for internal data storage. If you add two or more disks (of the same size) to the system, you should combine the new disks with the existing Recovery/Data disk into a single RAID-5 set off the internal integrated PERC 2/Si RAID Controller. Then create two partitions: the first partition is a 2GB FAT drive, and the second partition is a NTFS drive for data off the same RAID-5 set. If only one disk is added, then either create/partition another volume with the partition size equal the entire disk or create a two-disk stripe set using the internal PERC 2/Si RAID Controller.

5.7.1.4.3 Disk Setup For Allegro 3230/CRI & Creo Satellite

1. Press **Ctrl + A** during the **Adaptec AIC-7890 SCSI BIOS** boot up prompt to run Adaptec SCSI Select Utility. From the Main Menu screen:
    1. Select Configure | View Host Adapter Settings.
    2. Select **Advanced Configuration** Options.
    3. Set **Host Adapter BIOS** to **Enabled**.
    4. Set **BIOS Support for Bootable CD-ROM** to **Disabled**
    5. Press Esc, Esc and click **Yes** to save changes (if changes have been made)
    6. Select **SCSI Disk Utilities**
    7. Select all disks shown (by highlighting one at a time), then choose Format Disk to perform low-level formatting of all unknown source of disks.

    Note: This step is to eliminate the potential problem of having different boot sector geometries among different SCSI controllers used in different systems.

    8. Press Esc, Esc and click **Yes** to save changes (if changes have been made)
    9. Press Esc and click **Yes** to Exit utility.
2. Press Enter to reboot (and move on to the **Create Utility Partition** section)

WARNING: The Host Adapter BIOS of this controller *must* be **Enabled** for the CD to be bootable on this system.

5.7.1.4.4 Disk Setup For Allegro/ TIFF Front End Workstation 2400

1. Press **Ctrl + A** during the Dell PowerEdge Expandable Raid Controller… boot up prompt to run the **DELL PERC 2/Si Controller <SCSISelect™> Utility**. From the Main Menu screen:

1. Select **SCSISelect** Utility
2. Select **Controller** Configuration
3. Set **Drive Write Cache** to **Enabled**
4. Press **Esc**, **Esc** and click **Yes** to save changes (if changes have been made)
5. Select **Container Configuration Utility**
6. Select **Manage Containers**
7. Select all containers shown (by highlighting one at a time) and press the **Delete** key to delete all listed containers (that is, Pre-configured RAID sets)
8. Select **Create Container**

For Allegro Workstation 2400

- Select the first two disks (of SCSI ID 0 and 1) by pressing the Insert key for each selected disk (note that the two selected disks are now shown on the right hand side window). Press Enter to complete the disk selection step. The **Container Properties** screen is now displayed.
- Select **Raid 1 (Mirror)** in the Container Type field.
- Type **MirrorSystem** in the Container Label field and press Enter.
- Press Enter twice to accept the default container size of 8.6GB
- Press Enter to enable Read Caching.
- Press Enter to complete creating the first container (**Done** will be highlighted).
- Repeat the **Create Container** steps to create the second container off the third (or more) disk(s), depending on the following:
  - If 1 to 2 disks are installed, then create 1 to 2 Single Volume Container(s) with the following settings:
    - Type = **Volume**
    - Label = **SingleVolume1** (Disk# 2) / **SingleVolume2** (Disk# 3)
  - If 3 or more disk drives installed, then create a Single RAID 5 Container with the following settings:
    - Type = **RAID 5**
    - Label = **Raid5Set**
  - Press **Enter** several times to accept the default settings and complete creating the second container.

For TIFF Front End Workstation 2400

- Select the first disk (of SCSI ID 0) by pressing the Insert key for each selected disk (note that the selected disk is now shown on the rightmost window).

- Press Enter to complete the disk selection step. The **Container Properties** screen displays.
- Select the **Volume** option in the Container Type field.
- Type **SingleVolume1** in the Container Label field and press Enter.
- Press Enter twice to accept default container size of 8.6GB.
- Press Enter to enable read caching.
- Press Enter to complete creating the first container (**Done** is highlighted).
- Repeat the create container steps to create the second container off the second disk to create "SingleVolume2".
- Repeat the create container steps to create the third container off the third disk (or more) depending on the following:
- If 1 to 2 disk drives installed, then create a stripe set of 1 or 2 disk container(s) with the following settings:
  - Type = **RAID 0**
  - Label = **StripeSet**
  - Press Enter several times to accept the default settings and complete creating the second container.
- If three or more disk drives installed, then create a Single RAID 5 Container with the following settings:
  - Type = **RAID 5**
  - Label = **Raid5Set**
  - Press Enter several times to accept the default settings and complete creating the second container.

2. Press Esc and select **Yes** to Exit utility.
3. Press Enter to reboot.

5.7.1.5 Creating the Dell Utility Partition (skip if loading NT from a ghost image)

- Insert the DELL OPENMANAGE SERVER ASSISTANT Version 7.1 (or above) CD into the CD-ROM drive and boot the system off this CD. The Main Menu screen appears (if the system has booted the system off this CD in the past. Otherwise, the "Choose a Language" screen will appear first. Choose **ENGLISH**).
- From the **Main Menu**, select **Setup**, then select **Custom Setup**.
- Select **Create Utility Partition** and select **OK** to acknowledge the message that says the system is to be booted into DOS to create the partition.
- Remove the CD and reboot the system after the Utility partition is created.

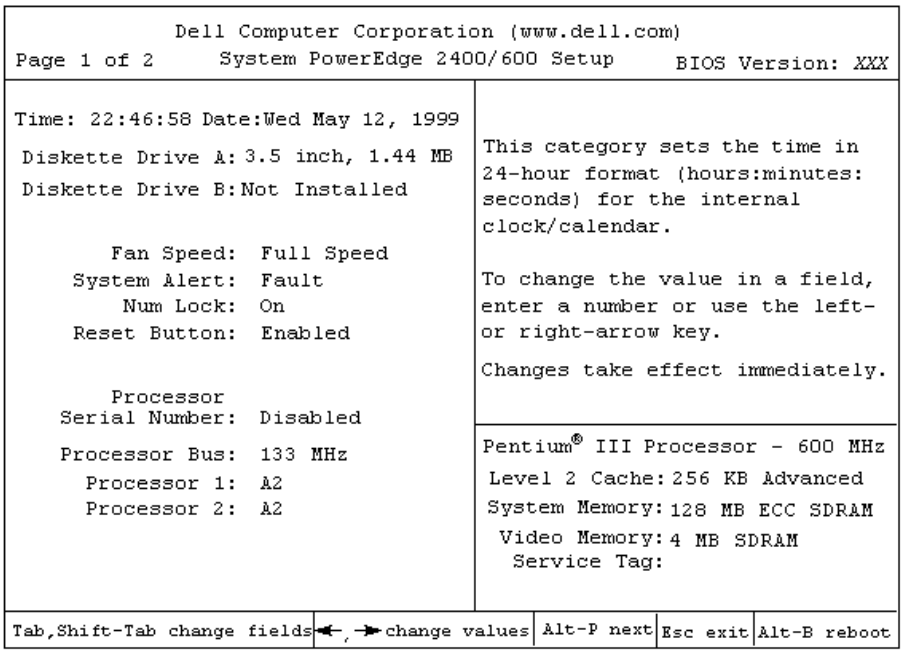
5.7.1.6 Configuring the Hardware System Settings

5.7.1.6.1 Configuring the BIOS Settings

- Power up the system and observe for BIOS version level of different hardware components. The following are Windows NT-compatible revisions of a 2400 Server:
  - BIOS Version A08
  - Embedded Server Management Firmware Revision 5.22
  - System Back plane Firmware Revision 5.35
  - PowerEdge Expandable RAID Controller PERC 2/Si BIOS V2.7-0 (Build 3552)

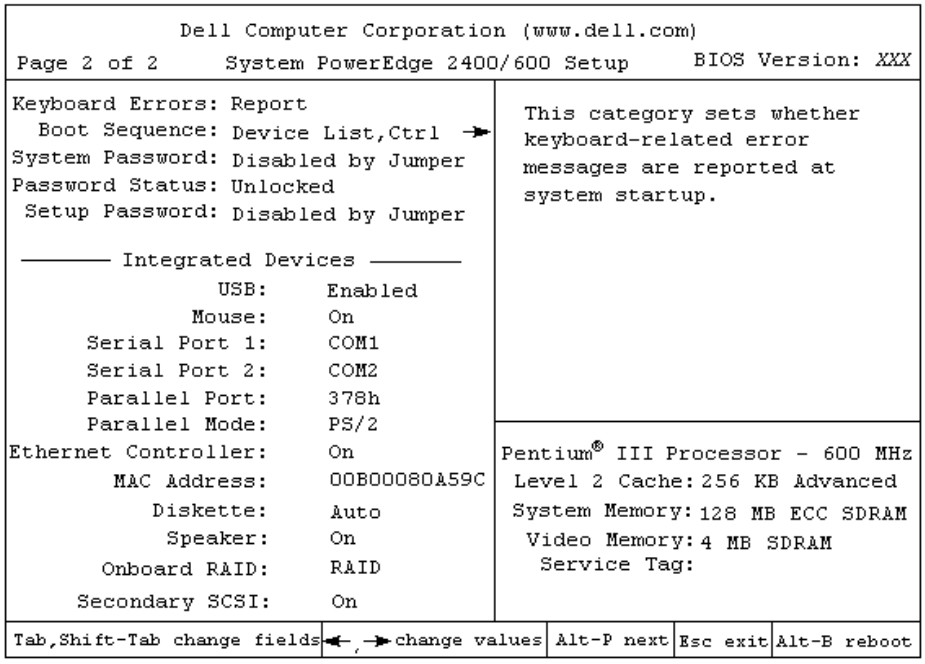
  Note: If the system BIOS revision is not as the indicated version, then follow the procedure in *Section 5.5.1.6.2 Flashing the System BIOS*

- Press the F2 key whenever prompted to get to the BIOS setup screen shown below:



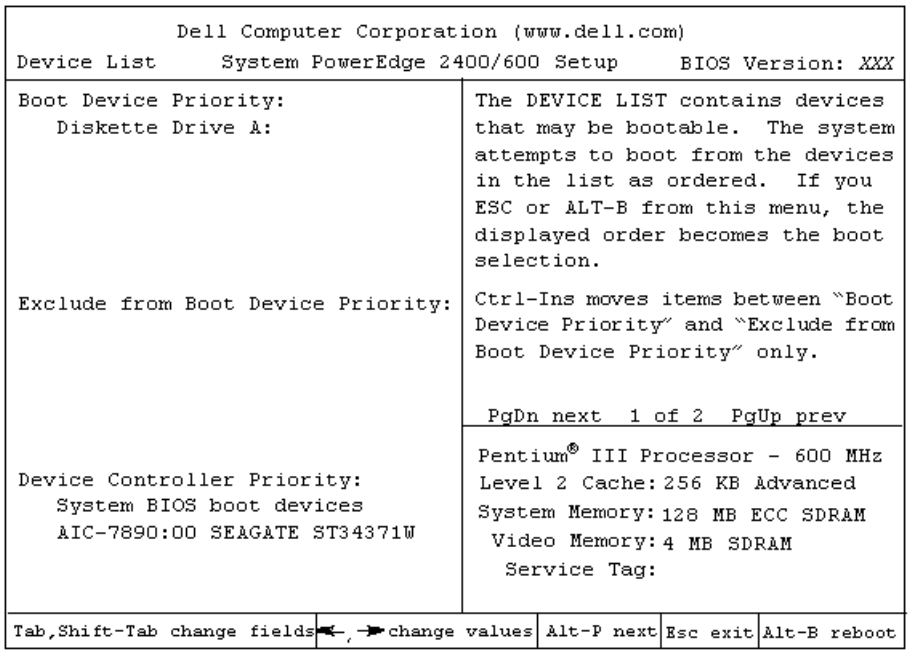
- From the Main screen, verify the target system settings to match the sample screen above with the exception of the following important fields:
  - Correct `Date` and `Time`
  - `Processor 2` = not installed (Allegro 3230/CRI Workstation)
  - `CPU Speed` = `733MHz` or higher
  - `Memory` = `512MB ECC SDRAM` (256MB for CRI Workstation and Creo Satellite)
  - `Video Memory` = `4MB`
  - `Service Tag` = `Unique for each SERVER`

- Press ALT+P to go to the Advanced screen as shown below:



- Verify that the target system settings match the sample screen above with exception of the following important fields:
  - `System Password` = not enabled
  - `Setup Password` = not enabled
  - `USB` = `Disabled`
  - `MAC Address` (should different for each system)
  - `Onboard RAID` = `RAID` (Allegro 2400 and TIFF Front End) or
  - `Primary SCSI` = `SCSI` (All other)

- Press CTRL+> to enter the Boot Sequence screen as sample shown below:



- Verify the target system boot sequence is set to Diskette Drive A:, CD-ROM, then Hard Drive.
- Press ALT+B to exit the screen and reboot the system.

5.7.1.6.2 Flashing the System BIOS

- Create the bootable BIOS floppy off the NT Resource CD (Creo P/N: 21-0107A-F) by double-clicking on the "**H:\BIOS_FW\PE2400\BIOS_A08\B7050T08.EXE**" file, then inserting a blank floppy into the drive as prompted.
- After the floppy is created successfully, restart the server.
- The server will automatically boot into the Flash BIOS Update Program – Version A08 prompt.
- Follow the instructions displayed on the screen by pressing any key to continue.
- Press Y to accept the prompt to replace A07 (or lower) BIOS with A08 BIOS.
- The BIOS flash will start. DO NOT disrupt the BIOS flash in progress until it is fully complete.
- Press any key to reboot the server. Verify that the new revision of BIOS A08 is shown during the boot up screen.
- If during this boot up process, the system complains that the ESM version is outdated, then proceed to *Section 5.5.1.6.3 Flashing the System ESM (Embedded Server Management)* to flash a new version of ESM. Otherwise, proceed to *Section 5.5.1.6.4 Resource Configuration Utility (RCU) Settings*.

5.7.1.6.3 Flashing the System ESM (Embedded Server Management)

- Create a bootable floppy off the NT Resources CD using DiskDupe to duplicate the floppy image in the "H:\BOOTDISK\DOSNETB" directory.
- After the floppy is created successfully, edit the two boot files: AUTOEXEC.BAT to AUTOEXEC.KC and CONFIG.SYS to CONFIG.KC, so that the system will boot into DOS without a memory device driver loaded. Restart the server.
- Press ENTER twice at the Enter Time and Date prompts upon system boot up.
- Insert the ESM flash floppy (double click the file, **H:\BIOS_FW\PE2400\ESM_A51\A51CUST.EXE**, on the Resource CD to a blank diskette to create the ESM floppy) into the drive.
- Enter `SMFLSH` to start, then press Y to begin ESM flashing. DO NOT disrupt the flash in progress until the system exits out to the A:\> prompt.
- Reboot the server and verify the updated version of the system ESM (i.e. no warning messages appear during boot up).

5.7.1.6.4 Resource Configuration Utility (RCU) Settings

Complete the following steps to configure and optimize system resource usage (IRQ's, I/O ports, etc.).

- Press F10 during initial system boot up to initiate Dell Utility (off the Utility partition).
- When the Welcome screen appears, read the information on the screen and press ENTER. The Main Menu appears:

```
Main Menu

Learn about configuring your computer
Configure computer
Set date
Set time
Maintain system configuration diskette
Exit from this utility
```

The first option in the menu is already highlighted.

- Select `Set date` and `Set time` to verify and make changes to correct date and time (zone).
- Select `Configure computer` (for doing system hardware resource verification) and the following menu appears on the screen:

```
Steps in configuring your computer

Step 1: Important resource configuration information
Step 2: Add or remove boards
Step 3: View or edit details
Step 4: Examine switches or print report
Step 5: Save and exit
```

- Select `Step 3: View or edit details` and the following sample screen appears:

```
System - Dell System PowerEdge 2400

RS-232 COM Port 1.....................IRQ 4 PORT 3F8h-3FFh
RS-232 COM Port 2..................... IRQ 3 PORT 2F8h-2FFh
Parallel Port....................... IRQ * PORT 378h-37Fh
Floppy Controller................... IRQ 6 PORT 30Fh-3Fh DMA 2
Mouse Controller.................... Enabled

Embedded - PCI Multifunction Controller - Bus 1
   PCI Function 1 ................... Enabled
   PCI Function 2 ................... Enabled

Bus 1,4 - Adaptec AIC-7890 SCSI Ctrlr
   PCI Function 1 ................... Enabled

Bus 1,6 - Adaptec AIC-7880 Fast 20 SCSI Ctrlr
   PCI Function 1 ................... Enabled

Embedded - PCI Universal (USB) Controller
   PCI Function 3 ................... Enabled

Embedded - Intel Fast Ethernet LAN Controller
   PCI Function 1 ................... Enabled

Embedded - PCI VGA Controller
   PCI Function 1 ................... Enabled

   Standard VGA Resources .......... Enabled
```

- During this stage, press F6 for details of a selected item or F7 for advanced Edit/View settings. (Refer to the Dell Online Documentation CD for details on all subjects on all supported Dell Servers).
- It is highly recommended that you assign the system IRQ usage as follows:
  - IRQ 14 to the onboard PERC Raid controller or the AIC-7899 SCSI controller
  - IRQ 11 to the Adaptec 2944UW/3944AUWD Differential SCSI Controller if installed
  - IRQ 10 to the Adaptec 2940U2W Ultra 2 LVD/SE SCSI Controller if installed
  - IRQ 10 to the onboard AIC-7880 Ultra SCSI Controller
  - IRQ 10 to the Qlogic QL2200 FC Controller if installed
  - IRQ 5 to the Intel PCI LAN Controller
  - IRQ 5 to the Intel Gigabit NIC if installed
  - IRQ 5 to the Digi ClassicBoard 4 PCI multi serial port Adapter
- Select `Step 5: Save and exit` to completely exit out of the RCU. Reboot the system when you are finished the hardware resource verification process.

6. WINDOWS NT SERVER INSTALLATION

This section provides step-by-step procedures for installing and configuring the Windows NT operating systems and utilities. After you complete the steps in this section, your system will be ready for you to install the iMPAct system software.

WARNING: This section assumes that your system hardware has been setup according to the appropriated hardware configuration section outlined in Section 2.

Note: For NT installation from a Ghost Image on Pre-Configured TIFF Front End systems, Please refer to Doc # 73-3344x.

6.1 Create DOS/Win98 Boot Disk

A disk duplication utility (DiskDupe) will be used to create the bootable DOS (or Command Prompt Win98) floppy. The utility must be installed and running from a Windows NT/95/98 system. Follow the steps below to start creating the desired bootable floppy disk:

- Insert the IMPAct System Resource CD into the CD-ROM drive of a working Windows system (i.e. your laptop). Double-click on **CDROM:\BOOTDISK\DISKDUPE\SETUP.EXE** to start installing the Diskdupe utility, accepting the default of all install prompts to complete the utility installation.
- If you need to replace your CD-ROM drive with the floppy drive in your laptop, then copy the following appropriate floppy image files to a temporary directory on the hard drive:
  - **CDROM:\BOOTDISK\DOSCDB\XX0212AF.IMG** for creating a DOS system with multi-platform selection prompted SCSI CD-ROM drive access
  - **CDROM:\BOOTDISK\DOSNETB\XX0214AG.IMG** for creating a DOS system with network drive access
  - **CDROM:\BOOTDISK\XPCDB\XPCDB-C.IMG** for creating a WinXP system with multi-platform selection prompted SCSI CD-ROM drive access
- Once the floppy drive is available, insert a blank floppy disk into drive, and then start the DiskDupe utility from the **Start** menu.
- Select **Source** = ***.IMG file** (shown above) and **Target** = **A: drive** (floppy drive).
- Select **Action** and select **Start Duplication** to begin disk duplication. Once completed, it will prompt you to insert another floppy disk. Select **Cancel** and remove the floppy disk from the drive and label it accordingly.

6.2 Create Primary Partition On Boot Disk

Note: Skip this step if you plan to load Windows NT off a ghost baseline NT image.

This section describes a procedure to create a Primary partition and a dummy extended partition on the boot disk (disk SCSI ID 0). We will use the GDISK.EXE utility from

Symantec's GHOST package to allow NT setup to load NT on a primary partition as its system drive (D: drive).

When NT Setup detects a disk size greater than 8.0GB, and the user tries to create a partition on this disk, Setup will automatically assign the maximum (8.0GB) extended partition on the drive. The reason Setup creates an extended partition is because extended partition will allow the user to create as many logical drives as she/he likes. The partition size that the user is entered at the **Enter Size** prompt is then assigned as a logical partition of the 8.0 GB extended partition.

This assumption results in the user seeing an orphan partition (left over of the 8.6GB or 17.2GB disk drive) at the end of the drive and NT Disk Administrator will show the disk being partitioned into 6 partitions:

- 1st partition = No Drive Letter = 31MB of Dell proprietary System Utility Partition
- 2nd partition = C: = 31MB of NTFS (Dark blue bar), (200MB for 2600/4600)
- 3rd partition = D: = 4095MB of Primary NTFS (Dark blue bar)
- 4th partition = E: = 3905MB of Extended NTFS (Light blue bar)
- 5th partition = Left over of NT extended partition (Not yet created)
- 6th partition = 0.6 GB left over of the 8.6GB or 17.2GB total disk size (Not yet created)

The procedure described in this section works around the wasteful situation described above to create multiple primary partitions on the entire 8.6GB or 17.2GB disk drive.

6.2.1 Create Primary Partitions on the Boot Disk

1. Insert the bootable SCSI floppy disk created in *Section 6.1 Create DOS/Win98 Boot Disk*. Boot the system off the floppy.
2. Type **CD \UTIL** the press <Enter> to change to **A:\UTIL** directory.
3. Type **GDISK 1 /CRE /PRI /SZ:200 /FOR /V:BOOT**, press Enter, then press **Y** to create C: primary partition.
4. Type **GDISK 1 /CRE /PRI /SZ:4094,** press Enter, then press **Y** to create a dummy primary System partition.

6.2.2 Create Extended Partition on Boot Disk

1. Type **GDISK 1 /CRE /EXT** then press Enter to create a dummy extended partition.
2. Type **GDISK 1** then press Enter to verify that three partitions are present on disk 0 as shown below:

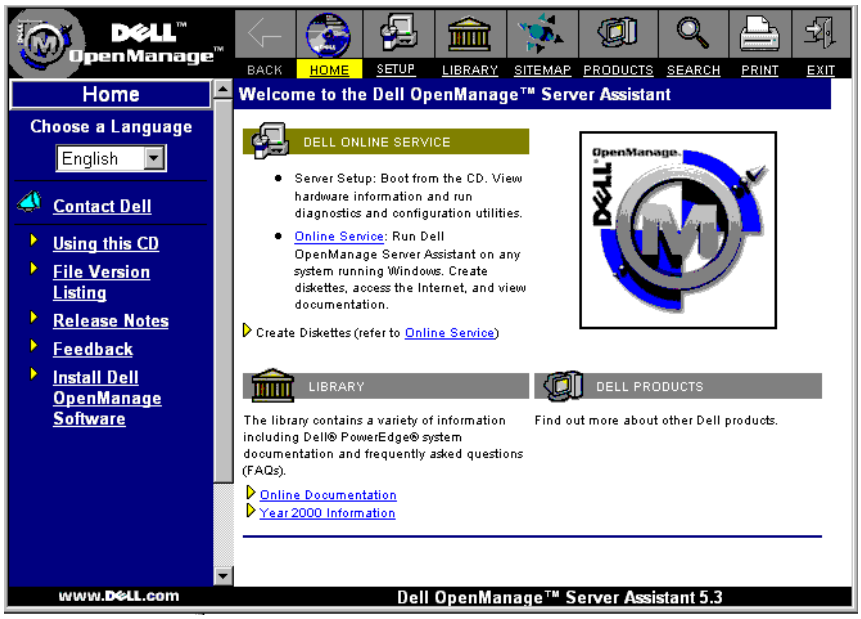
Partition	Status	Type	Volume Label	Mbytes	System	Usage
1		Unknown		31	Dell	3 %
C:	A	PRI DOS	Formatted	200	FAT16	3 %
D:		PRI DOS	Unformatted	4094.7	FAT32	25 %
4		EXT DOS	Unformatted	xxxxx		69%

6.3 Create Windows NT 4.0 Driver Diskettes

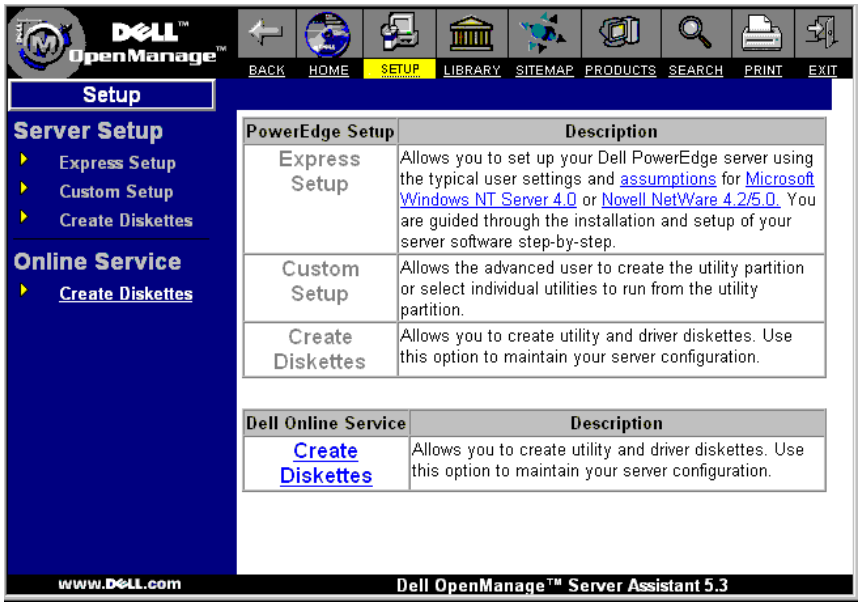
Note: Skip this procedure if you are loading NT from a ghost baseline NT image. Also this section of creating NT driver diskettes is shown as the last resource in which the user has no access to the official Creo Dell Server Resource CD for iMPAct or Creo intranet for downloading the desired driver files, then this procedure of creating driver disk is used. Otherwise, it's strongly recommended that the user use the driver set obtained from the Resource CD or intranet of Creo.

1. Insert the **Dell OpenManage Server Assistant** CD into drive and boot the system from the CD.

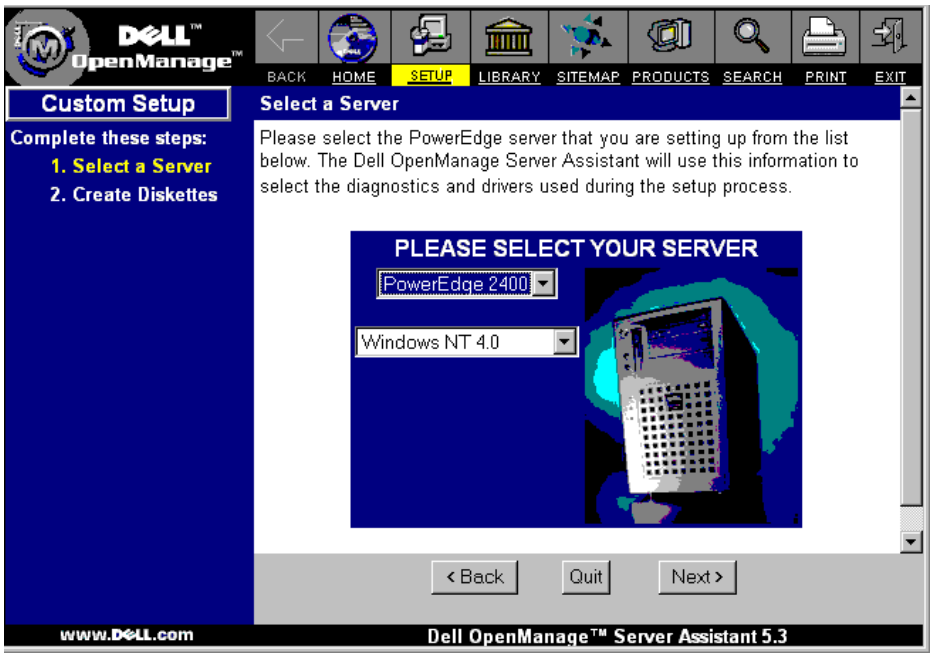
2. If the "**Please Select a Language**" prompt appears, choose "**English**" and the following Main Menu screen will be displayed:



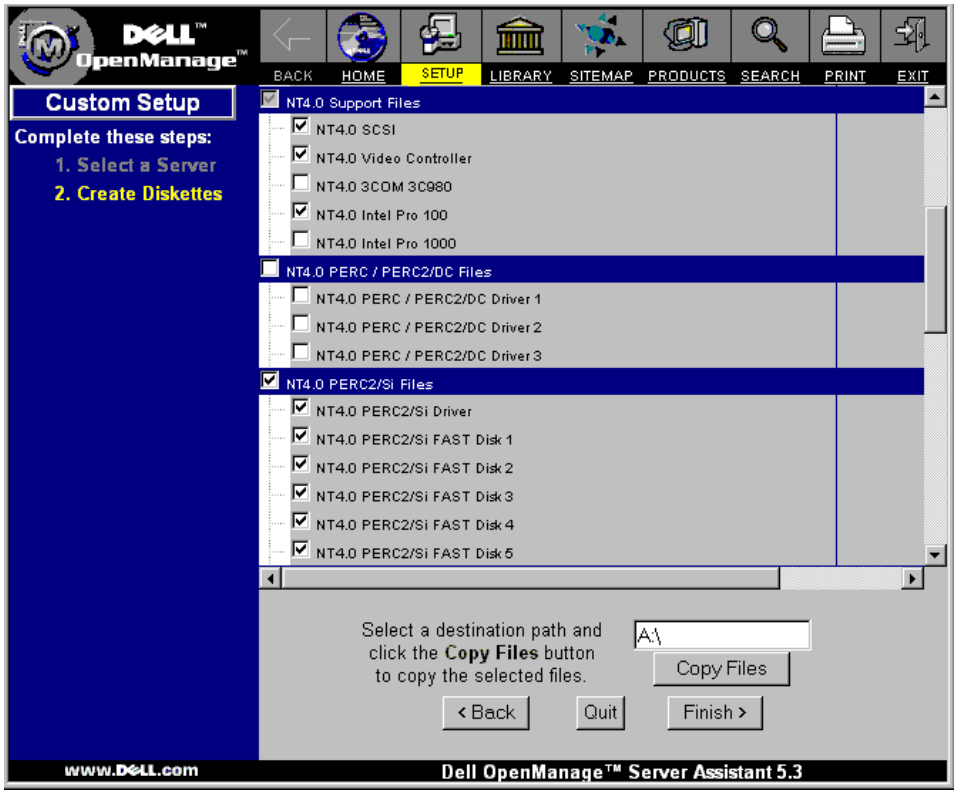
3. Click on **Setup** button from the Main Menu and the following menu appears:



4. Click on PowerEdge Setup | Create Diskettes option and the Select Server menu appears:



5. Select the appropriate **Server type** (of **PowerEdge 2600/4600/2500/6400**) and **Windows NT 4.0** Operating System options and click **Next** button. The following Selection window appears:



6. Check all options that apply to the target **Server** type and click the **Copy Files** button to start copying files to diskettes (the screen above shows NT drivers needed for Allegro/TIFF Front End).

7. All options under the **NT 4.0 Support Files** category apply to both 2600/4600/2500 and 4400 platforms.
   - The 2600 server also requires all options under the **NT 4.0 PERC 4/Di Files** category.
   - The 4600/2500/4400 server also requires all options under the **NT 4.0 PERC 3/Di Files** category.
   - 6400 also requires all options under the **NT 4.0 PERC/PERC 2/DC or 3/DC Files** category.
   - Select the **NT 4.0 BroadCom XtremeNet Gigabit Ethernet** option for 4600's embedded copper gigabit NIC.
   - Select the **NT 4.0 Intel Pro Family Adapter** option for Intel Gigabit or 100BaseT NIC.
8. Insert new diskettes as prompted until all selected driver floppies are created.
9. Click **Finish** to complete and exit the **Create Diskettes** menu screen.
10. Remove the diskette from the floppy drive and click the **Exit** button and **Yes** to exit and reboot the system.

6.4 Install Windows NT Server (from a ghost NT OS image)

To Install Windows NT Server 4.0 from a ghost NT image to a TIFF Front End Server, please see the document *TIFF Front End Server Installation Procedure* (73-3344A-x-PR01).

6.4.1 Loading NT OS Image From a CD or Mapped Network Drive

1. Insert the new bootable Dell NT4 Resource CD into drive and boot the system off the CD
2. Once the system is booted into the DOS prompt "A:\>", then do one of the two following:
   - Type **Z:** and press Enter to log the system to the Z: drive (CD-ROM drive)
3. Type **GHOSTx (where x =5 for V5.1C, 6 for V6.5 of Ghost utility)** and press Enter to start up GHOST. From the main menu, select **Local | Disk | From Image** and press Enter twice.
4. Press the tab key to move the cursor to a desired image file and press Enter.
5. Select (highlight) the first hard disk from the drive list and press Enter. Change the first partition size to 4094MB and second partition = remainder of disk space.

   Warning: You must ensure that the partition sizes are the same between the new size and the old size.
6. Press the tab key until the cursor moves to the **OK** button. Press Enter.
7. Press the tab key to move the cursor to the **Yes** button and press Enter to proceed with the image downloading (takes approximately 5:00 minutes).
8. Remove the floppy from drive and press Enter to accept the **Reset Computer** prompt after the download is completed. Wait for system to boot into the baseline NT operating system.

9. Upon boot up, NT will warn about running the AUTOCHK for repairing possible partition corruption. You can safely ignore the warning message.

Warning: Make sure to **NEVER** interrupt the Autocheck process while it is running.

6.4.2 Changing NT Server Name (System Preparation Mini Setup Wizard)

The System will boot with a Microsoft mini setup wizard. Follow the prompts with the appropriate entries and the system will reboot.

1. Verify that NT is functioning correctly with the correct host name (change the appropriate host name if it's a generic image).
2. Right-click the **Network Neighborhood** icon and select **Properties.** The **Network** setup window opens.
3. Click on the **Change** button and type the new server and/or workgroup name. Click **OK.**
4. Click **Close** to save the server name change. Exit Network Setup.
5. Click **No** to the restart Windows prompt.
6. Select **Start | Programs | Command Prompt** to open a DOS window.
7. Type **CD \RIVERS\RESKIT** then press **Enter** to change to this directory.
8. Type:

   "REGFIND –y blntxy –r newhostname" <CR> and

   "REGFIND –y BLNTxy –r NEWHOSTNAME" <CR> (remember to replace xy with the platform type such as 64, 44, 24, and the NEWHOSTNAME) or

   "REGFIND –y nt4 –r newhostname" <CR> and

   "REGFIND –y NT4 –r NEWHOSTNAME" <CR> (For PE2500 platform)

   This will replace all old Server name references in the registry with the NEWHOSTNAME

9. Clear Eventview's log to remove references to the baseline Server name in System and Application logs.
10. Reboot the system.

6.5 Install Windows NT Server (from the Microsoft CD)

6.5.1 Starting Windows NT Installation (text mode)

- Insert the Windows NT Server CD into the CD-ROM drive and boot the system off the CD-ROM. (If the system does not boot off the CD-ROM, proceed to either the system BIOS or the SCSI controller BIOS to enable the "Bootable CD-ROM support" setting in the BIOS).

  1. Press <F6> immediately after the boot screen switches from black to blue. (This will allow user to specify 3rd party mass storage device drivers that are not included in the NT 4.0 OEM CD released from Microsoft)

  2. Press Enter to the Welcome to Setup message.

  3. Select Mass storage devices according to the following:

     For 2600 Server

     - Press S to skip Mass storage device auto detection by the system, press S again to manually select the following mass storage devices (controllers):
     - Insert Dell PERC 4/Di Controller and Adaptec driver diskette, press Enter, and select:
       - **DELL PERC/PERC 4/Di Controller (LSI/AMI OEM based)**
       - **Adaptec Ultra160/m Family PCI SCSI Controller (NT 4.0)** (This is for 39160 dual channel and AIC7899 Ultra160 SCSI controllers)

     For 4600/2500/4400/2400 Server

     - Press S to skip Mass storage device auto detection by the system, press S again to manually select the following mass storage devices (controllers):
     - Insert Dell PERC 2 or 3/Di V2.7-0 (Build 4933) Controller and NT 4.0 SCSI driver diskettes, press Enter, and select:
       - **DELL PERC 2, 2/Si, 3/Si, 3/Di RAID Controllers** (Allegro/TIFF Front End Workstation 4600/2500 only)
       - **Adaptec AHA-290x/291x/294x/394x/4944/AIC 78xx PCI SCSI Controller (NT 4.0)** (This is for 2944UW and AIC7880 (CD-ROM) controllers)
       - **Adaptec Ultra160/m Family PCI SCSI Controller (NT 4.0)** (This is for 39160 dual channel and AIC7899 Ultra160 SCSI controllers)
       - **Adaptec AHA-294XU2/295XU2/395XU2/AIC-789X PCI SCSI Controller (NT 4.0)** (This is for 2940U2W controller)

     For 6400 Server

     - Press S to skip Mass storage device auto detection by the system, press S again to manually select the following mass storage devices (controllers):

- Insert Dell PERC 2 or 3/DC Controller and Adaptec driver diskette, press Enter, and select:
  - **DELL PERC/PERC 2/DC or 3/DC Controller (AMI OEM based)**
  - **Adaptec AHA-290x/291x/294x/394x/4944/AIC 78xx PCI SCSI Controller (NT 4.0)** (This is for 2944UW and AIC7880 (CD-ROM) controllers)
  - **Adaptec Ultra160/m Family PCI SCSI Controller (NT 4.0)** (This is for 39160 dual channel and AIC7899 Ultra160 SCSI controllers)

4. Press Enter to continue. Press Enter to ignore message about hard disk having more than 1024 cylinders.
5. Press the Page Down key through the License Agreement and press F8 to continue.
6. Verify that the determined hardware and software components match what is installed on the computer. Make changes if necessary.
7. Make sure that Machine Type = **MPS Multiprocessor PC,** and press Enter to continue setup.
8. The initial partition list is shown as below:

   xxxxx MB Disk 0 at ID 0 on bus 0 on PERC 3/Di…
   -- Unknown 31 MB
   C: FAT (Boot) 203 MB
   -- Windows 95 (FAT32) 4095 MB
   Unpartitioned Space 13202 MB (30xxx MB for 4600)

   xxxxx MB Disk 0 at ID 1 on bus 0 on PERC 3/Di…(If the 3rd disk is installed)
   Unpartitioned Space xxxxx MB

9. Select partitions according to the following steps:
   - Select the unpartitioned space (4th partition of 1st disk) and press <**C**> and <**Enter**> to create a new partition (D: partition with the default size of 13202 MB or 30xxx MB for2600/4600).
   - Select the 3rd partition (labeled **Windows 95 FAT32)** from the ***1st*** disk.
   - Press <**D**> to delete the Windows 95 FAT32 partition. Then press <**L**> to confirm deletion.
   - Select **Unpartitioned Space 4095MB** from the ***1st*** disk.
   - Press <**C**> to create a new partition and enter a size of 4095MB. Confirm that the system assigns drive letter **E** to this partition.
   - The partition information should now appear as:

     xxxxx MB Disk 0 at ID 0 on bus 0 on PERC 3/Di…
     -- Unknown 31 MB
     C: FAT (Boot) 203 MB
     E: New (Unformatted) 4095 MB

D: New (Unformatted) 13202 MB

xxxxx MB Disk 0 at ID 1 on bus 0 on PERC 3/Di…(If the 3rd disk is installed)
Unpartitioned Space xxxxx MB

- Select the E**:** drive (4095MB) on which to install NT.

10. Select Format the partition using NTFS
11. Press <**Enter**> to accept the NT path \WINNT name given.
12. Press <**Enter**> to Do Exhaustive Tests. Wait while more files are installed.
13. Press <**Enter**> at the prompt to reboot the machine. Wait for the server to convert your disk to NTFS while booting into graphic mode.
14. Click <**Next**> to Gathering Info prompt at Windows NT Setup screen.
15. At the machine Name and Company prompt:
    - Enter one of the following names: CREOSERVER (or Allegro Workstation/TIFF Front End/CRI, etc.)
    - Enter the *appropriate company name* for the organization. click <**Next**>.
16. Enter the **CD Key** (from the CD case or OEM certificate) and click <**Next**>
17. Choose the licensing mode.
    - Select **Per Server** and set number of connections to 10**.**
    - Click. <**Next**>.
18. Set the machine name to **CWn** (Allegro Workstation) **or PSn** (CreoServer) where
    - n = number of the machine shipping (e.g. CW1500, PS300)
    - Click <**Next**> to accept the new name.
19. Set Server Type to Stand-Alone Server and click <**Next**>.
20. Enter "creo" to the Administration Password prompt and click <**Next**>.
21. Select <**NO>** emergency repair disk and click <**Next**>.
22. Select <**Next**> to the default Install Windows Components.

6.5.2 Setting up Network Selection

1. Click <**Next**> to Install Windows NT Networking.
2. Select Wired Network and click <**Next**>.
3. Uncheck Microsoft Internet Information Server and click <**Next**>.
4. Click on <**Select From List...**> for manually selecting network card.

5. Do NOT allow detection of Network adapters.
   Insert the "**NT 4.0 Intel PRO Family Adapter**" driver diskette and click <**OK**> or the "**NT 4.0 BroadCom NetXtreme Gigabit Ethernet**" driver diskette (for 4600) or the "**NT 4.0 Intel 1000XT Gigabit Ethernet**" driver diskette (for 2600) and click <**OK**>;

   - Select <**Have Disk…**> and type the path **A:** then press <**Enter**> when prompted and the option below is displayed: (select the appropriate network driver accordingly)

     - Intel(R) PRO/100 Family Adapter or
     - Intel® PRO/1000 (or F (for Fiber) or XT (for Copper)) Server Adapter for Intel Gigabit NIC (if installed) or
     - BroadCom NetXtreme Gigabit Ethernet (for PE4600 Server)

6. Select **Next**.
7. At the **Select Network Protocols** menu select only the following and click **Next**;

   - NetBEUI
   - TCP/IP

8. At the **Select Services** Menu, add each following service by clicking **Select from list…** and confirm by clicking **OK**:

   - Microsoft TCP/IP Printing
   - Services for Macintosh
   - SNMP Service

9. Click <**Next**>, <**Next**> to install selected network components.
10. Select **Settings.**
11. Select **100BaseTx or 10BaseT** (**Full Duplex** or **Half Duplex** according to the local network port type) and click <**Continue**>. For 4600's Broadcom Gigabit or Intel 1000XT Gigabit NIC, leave it to AUTOSENSE.
12. Click <**Yes**> to **DHCP** prompt (select <**NO**> if you do NOT have a DHCP server).

    Note: If you do not have a DHCP (Dynamic Host Configuration Protocol) server in your network environment or if you plan to use the local machine as a NFS server then you can't use DHCP and instead have to specify a IP address at this point

13. Wait while files are installed.
14. Click <**OK**> at the **Microsoft SNMP Properties** window.
15. Click <**OK**> to the **AppleTalk Protocol Properties** window.
16. Continue, although there is an empty primary WINS address.

17. Click <**Next**> to the **Bindings** prompt. Expand each **service** and verify that TCP/IP is first in the list of protocols.
18. Click <**Next**> to **Start The Network**.
19. Enter the appropriate **WorkGroup** name and click <**Next**>.
20. Select <**Finish**> to finish the setup.

6.5.3 Configuring NT shell

1. Wait while files are loaded.
2. Update the time:

   In **Time Zone** select the appropriate Time Zone. (Default is Pacific Time for US/Canada).

   - Select the **Date and Time** tab and update the time.
   - Select **Done**.
3. Click <**OK**> to allow automatically detecting video adapter
4. Click <**OK**> to accept default video mode; and <**OK**> to restart the system.
5. Logon the system and click <**Close**> to the Welcome to Windows prompt.

6.5.4 Setting Standard Drive Letters

All iMPAct Systems have adopted a consistent drive lettering as outlined below:

No drive letter: Unknown (1st partition of the 1st drive)

C: is the Boot drive, boot file and NT loader (2nd partition of the 1st drive)

E: (Allegro / TIFF Front End Workstation) **or S:** (Creo Server/Satellite) is the System drive, NT + iMPAct applications (3rd partition of the 1st drive)

K: is the Services drive for Service Support Files (4th partition of the 1st drive)

No drive letter: for the 2 GB FAT partition for GHOST images (1st partition of the 2nd drive)

D: (Allegro / TIFF Front End Workstation) **or T: (**Creo Server/Satellite) is the Data drive for User Data (2nd partition of the 2nd drive)

H: is the CD-ROM

In the following procedure, you will verify/convert some of the drives to this standard. (To begin, make sure that there are no other partitions shown except C: and D: (CD-ROM drive).

1. Start Disk Administrator.
   - Select **Start | Programs | Administrative Tools | Disk Administrator**.
   - Ensure that you put an NT signature on any disks that are mentioned by Disk Administrator.
2. Change the CD-ROM drive letter:

- Right-click the CDROM, select **Assign Drive Letter**, and choose Drive **H:** and hit **OK.**

3. Set the System Disk Drive Volume Label:
   - Right-click the system Disk (second partition of the 1st disk, E: or S:) and select <**Properties**>.
   - Set the **Label** to **SYSTEM** and click <**OK**>.

We will perform the rest of drive letter arrangements at a later stage.

4. Edit REGISTRY to replace CD-ROM drive letter reference from D: to H: using REGFIND.EXE (from **iMPAct Resources** CD):
   - Select **Start | Programs | Command Prompt** to open a command window.
   - Type **MD \DRIVERS\RESKIT** and press Enter to create a directory.
   - Type **CD \DRIVERS\RESKIT** and press Enter.
   - Insert the **iMPAct System Resources CD** into CD-ROM drive and select the DOS window.
   - Type **COPY H:\NTDRIVERS\RESKIT\REGFIND.EXE** and press Enter.
   - Type **REGFIND –y D:\ -r H:** and press Enter.

6.5.5 Verifying Virtual Memory.

1. Select Start | Settings | Control Panel | System | Performance | Change.
2. Select drive E: or S:
3. In the Initial Size box, type 1035 and press Enter for a system that has less than 1GB RAM. Increase this value to the Recommended value for a system with greater than 1GB RAM.
4. In the Maximum Size box, type 1035 and press Enter for a system that has less than 1GB RAM. Increase this value to the Recommended value for a system with greater than 1GB RAM.
5. Click Set and click OK.
6. Select the Startup/Shutdown tab.
7. Check Show List and set this to 5 seconds.
8. Select the Hardware Profiles tab.
9. Check Wait for User Selection for and set to 5 seconds.
10. Select Close and select Do Not Reboot Now.

6.5.6 Adding New User Name

1. Select Start | Programs | Administrative Tools | User Manager for Domains.
2. Select Guest.
3. Uncheck Account Disabled.
4. Select Close.
5. Select Administrator.
6. Select User/Copy.
7. Enter the following;
   - UserName CreoService
   - Password/Confirm pathfinder
   - Unchecked User must change password at next logon.
   - Select **Add**.
   - UserName PlateMaster
   - Password/Confirm creo
   - Unchecked User must change password at next logon.
   - Select **Add**.
   - UserName CreoServer
   - Password/Confirm creo
   - Unchecked User must change password at next logon.
   - Select **Add**.
8. Select **Close**.
9. **Close** User Manager.

6.5.7 Setup ClassicBoard 4 PCI Card (Allegro/CRI and TIFF FE WS only)

Install and set up the multi-serial port PCI add-on card (Digi ClassicBoard 4 PCI or Digi AccelePort 4P) if present with the system hardware kit.

6.5.7.1 New NT COM Port Assignments

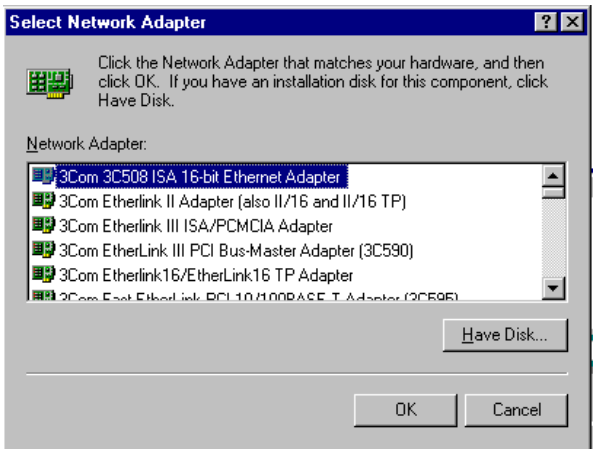
With the server's new default hardware configuration with 2 onboard ports (COM1 and 2), we have come up with the following new port assignments:

	COM1	COM2	COM3(P1)	COM4(P2)	COM5(P3)	COM6(P4)
MODEM	X					
UPS		X				
Workstation Serial Interface			X			
Recorder Diagnostic				X		

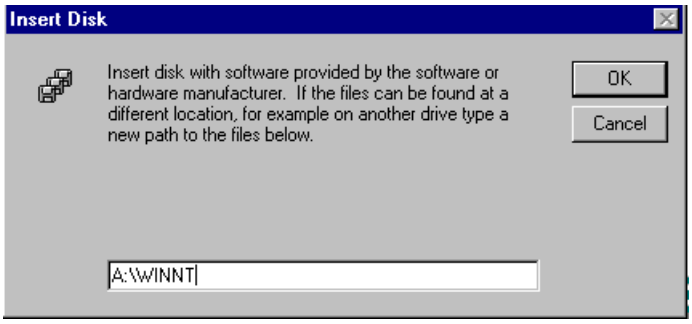
Head Diagnostic	X	
Harmony Densitometer interface		X

6.5.7.2 Set up NT Driver

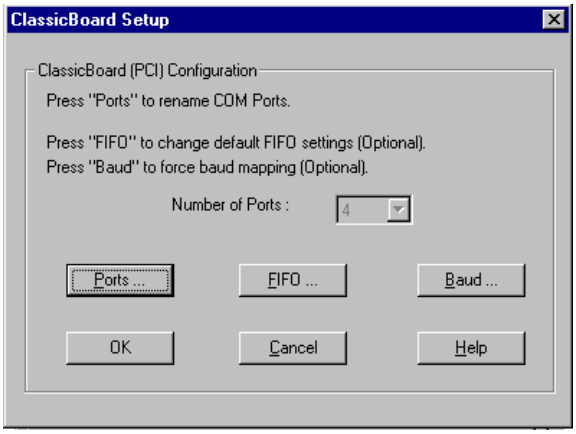
1. Go to **Control Panel | Ports** after NT reboots; there should be 2 ports (COM1 and COM2) created by default. (If you see COM3 and 4 shown, delete them. Then go to the Modem applet and remove the modem connected to COM4 and reboot NT before installing the ClassicBoard 4 driver.)
2. Log onto Windows NT as Administrator.
3. Insert the Windows NT ClassicBoard PCI Device Driver diskette.
4. Go to the **Control Panel | Network** icon.
5. Click on the **Adapters** tab. Click the **Add** button and the **Select Network Adapter** window appears:



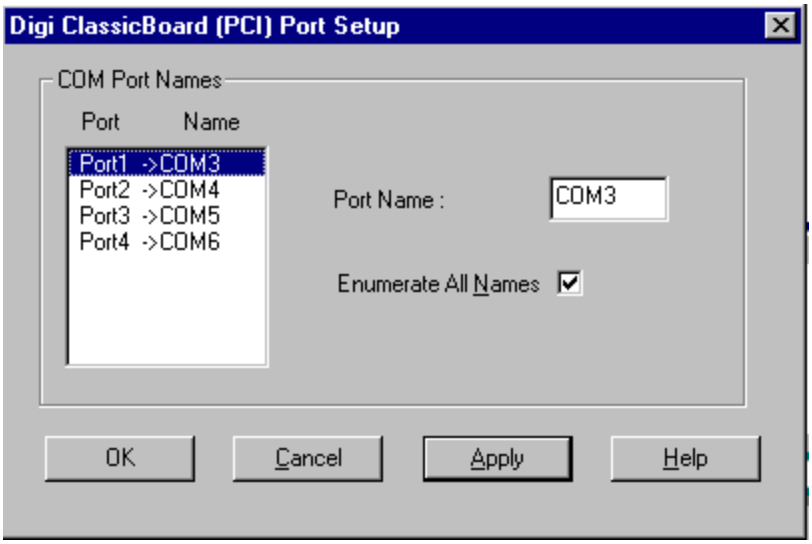
6. Click the **Have Disk** button and the **Insert Disk** window appears



7. Specify the installation path as **A:\WINNT** and click **OK**
8. Select the **Digi ClassicBoard 4 PCI** adapter option and click **OK** and the following window appears: or **Digi AccelePort 4P** option used in the PE4600 (**Note that the setup screens following this steps does not apply to PE2600/4600 AccelePort 4P card, although driver setup procedure is similar**)

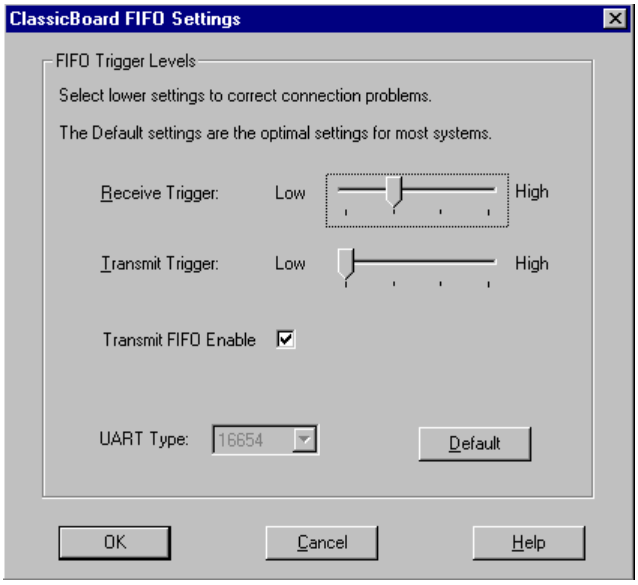


9. Click on **Ports…** button and the following window appears

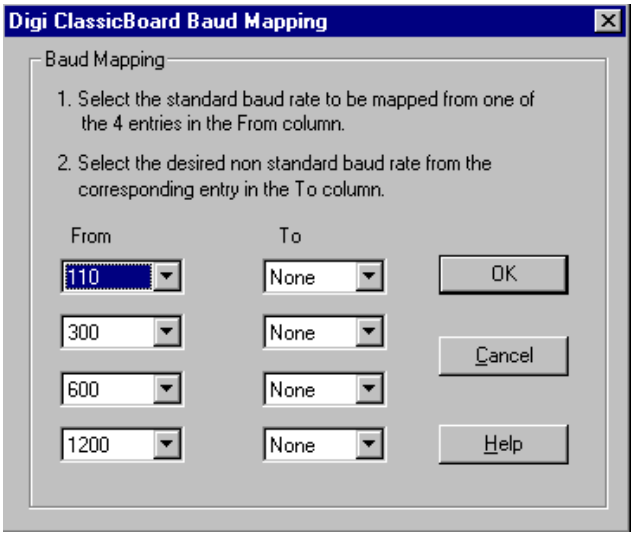


10. Click **OK** with the default settings.

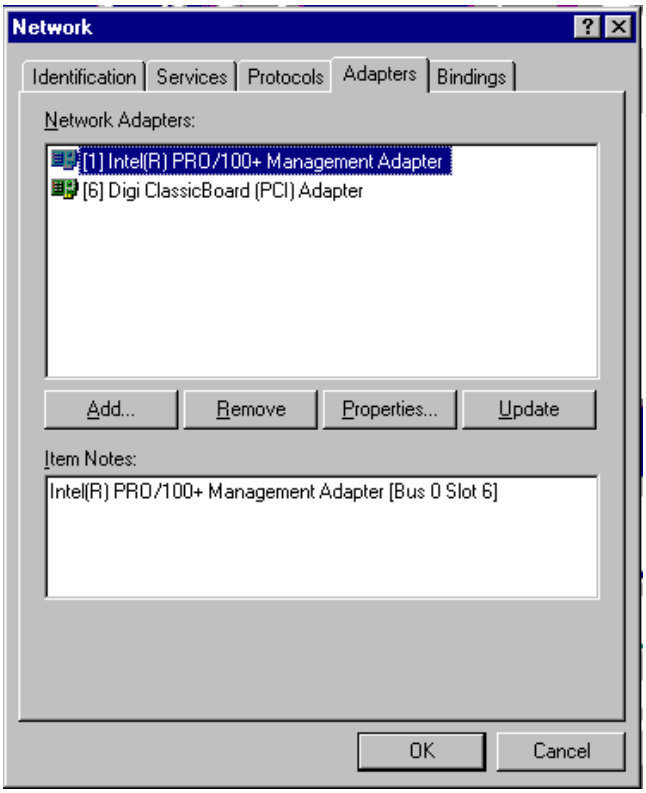
11. Click on the **FIFO** button and the following window appears:



12. Click **OK** with the default settings.
13. Click on the **Baud** button and the following window appears:



14. Click **OK** with the default settings. Click **OK** to exit the **ClassicBoard Setup** window and the complete Network Setup Window appears:



15. Click **OK** to complete the Network Setup and reboot the system.
16. Once NT is rebooted, verify in **Programs | Administrative Tools | Event Viewer** that no errors occurred, and that there are now six COM ports (COM1–COM6) in the **Control Panel | Ports** applet.

6.5.8 Installing Other NT Network Services and Drivers

1. To set Intel 100BaseT NIC's Adaptive Technology option to OFF:
   - Click the **Adapters** tab, then click on the **Properties** button.
   - Click the **Advanced** tab in the Intel(R) PROSet window.
   - Select the **Adaptive Technology** option in the **Settings** window and select the **OFF** option in the **Value** drop-down list and click **OK.**
2. To install Remote Access Services:
   - Connect up the modem and turn the modem off.
   - Click on "Services" tab, and then select Add.
   - Select Remote Access Services and hit OK.
   - Click Continue to default H:\I386 path.
   - Click Yes to invoke modem installer (A modem MUST be installed to allow completing NT RAS installation)
   - Check Don't detect my modem and hit Next.
   - For Creo's North American machines, **Select the following** and hit **Next**;
     - Manufacturer US Robotics.
     - Models USRobotics 56K Fax PnP Modem (External)
   - Select **COM1** and hit **Next**.
   - Select the following and then hit **Next**.
     - Country United States (default)
     - Area 604
   - Click **Finish**.
   - Click **OK** to Add RAS Device window.
   - Click **Configure** in Remote Access Setup window.
   - Select **Dial Out and Receive Calls** and hit **OK**.
   - Click **Continue** in Remote Access Setup window.
   - Accept **Entire Network** and click **OK** for Net BEUI window.
   - Accept **Entire Network** and click **OK** for TCP/IP window.
   - Click **OK** to Remote Access successfully installed.
   - Click Close to Network window.
   - Click **Yes** to restart the computer.
   - Log onto **Administrator** account

3. To set up tape driver (if tape drive is installed):
   - Select **Start | Settings | Control Panel | Tape Devices.**
   - Add DLT driver (V1.9) for Archiver **only if applicable**
     - Select **Start | Settings | Control Panel | Tape Devices**
       - Select to install the tape driver off a floppy driver diskette
       - Select **Quantum DLT2xxx, 4xxx** or **DLT7000/8000 V1.8** driver
     - Accept default path **H:\I386** and click **OK**
     - Click **OK** to exit **Tape Device Setup**
     - Close **Control Panel** window.
4. To set RAS permissions:
   - Select **Start | Programs | Administrative Tools | RemoteAccessAdmin**.
   - Select **Users**
   - Select **Permissions**
   - For each of the below select the User and then Check that the **Grant dialin permission to user** box is enabled.
     - Administrator
     - CreoService
     - PlateMaster or CreoServer
   - Select **OK**
   - Close Remote Access Admin
5. To configure Event Log settings:
   - Select **Start | Programs | Administrative Tools | Event Viewer**
   - Select **Log**
   - Select **Log Settings**
   - Select **System**, **Security**, and **Application** in sequence
   - Change Settings for [ ] log, then click **Overwrite Events as Needed** in the Event log Wrapping group
   - Click **OK** when done with all three selections and exit the utility

6.5.9 Configuring Performance Settings

1. Set Maximize for Networking.

- Select **Start | Settings | Control Panel | Network | Services | Server /Properties**
- Select **Maximize throughput for network applications** and click **OK** and **Close** (for CreoServer, TIFF Front End Workstation)
  or
- Select Option: **Minimize Memory Used** and click **OK** and **Close** (for Allegro/CRI workstation)
- Click **Don't Restart Now**

2. Set Performance Boost for Foreground apps to 0.
   - Select **Start | Settings | Control Panel | System | Performance**.
   - Set **Boost** to **None**
   - Select **OK**
   - Close Control Panel
3. Enable performance- monitoring tool. Note that this does not seem to affect performance but can be used for analysis.
   - Select **Start | Run**
   - Type **DISKPERF -YE** and then press Enter
4. Perform the following network test. (Make sure you are connected to a network!)
   - Open **Window Explorer** by Selecting **Start | Run,** then type in EXPLORER and press Enter
   - Select **Disk**
   - Select **Connect Network Drives**
   - See if all the computers on the network can be seen.
   - Try to connect to a user machine. If this fails, there is a network problem. Consult an expert.
   - Select **Disk**
   - Select **Disconnect Network Drive** and click **OK**

6.5.10 Creating a 2GB FAT Recovery Partition

GHOST will use this partition to store the iMPAct various NT OS images created.

1. Start up Disk Administrator by selecting Start | Programs | Administrative Tools | Disk Administrator.
2. Right-click the un-partitioned **Disk1** (or **Disk2** for Tiff Front End 2500), select **Create** and type **2047** and press Enter to create a 2GB FAT primary partition.
3. Right-click the partition and select **Assign Drive Letter**, choose Drive F: and hit OK.

4. Right-click the partition and select **Commit Changes Now**.
5. Right-click on F: partition and select **Format,** set File System = FAT, Volume Label = RECOVERY, check **Quick Format** and click **Start** to begin. Click **OK** when format is complete.
6. Click **Close**.
7. Right-click F: drive and select **Do Not Assign Drive Letter** and hit OK to remove drive letter off this 2GB FAT partition.

6.5.11 Setting Up Data/Spool Drive(s)

1. Right-click the 2nd partition of the **Disk1**, select **Create** to create a primary partition, Right-click the partition and select **Commit Changes Now**.
2. Right-click the ***same partition***. Select **Assign Drive Letter** and set the drive to **D:** (Allegro/CRI) or **T:** (CreoServer/Creo Satellite). Then select **Format…**

Note: On many CreoServer setups, If a much larger size of Disk2 (off an external Clariion FC RAID) exist, then Disk2 should be set to T for Data and 2nd partition of Disk1 should be setup for transient data usage.

3. Set **File System** = **NTFS**, **Label =** the following according to the products:
   - **Data (Allegro/CRI Workstation, CreoServer)**
4. Check **Quick Format** and click **Start** to begin formatting D: or T: drive, Click **OK** when format is complete.
5. Click **Close**.

6.5.12 Setting Up DATA Drives (TIFF Front End WS 2500H only)

1. Right-click **Disk1**, select **Create** to create a primary partition. Right-click the partition and select **Commit Changes Now**.
2. Right-click the ***same partition***. Select Assign Drive Letter and set the drive to D: and select Format.
3. Set **File System** = **NTFS**, **Label = DATAIN, c**heck **Quick Format** and click **Start** to begin formatting T: drive, Click **OK** when format is complete.
4. Right-click the 2nd partition of the **Disk2**, select **Create** to create a primary partition, Right-click the partition and select **Commit Changes Now**
5. Right-click the ***same partition***. Select **Assign Drive Letter** and set the drive to **T:**. Set **File System** = **NTFS**, **Label = DATAOUT, c**heck **Quick Format** and click **Start** to begin formatting T: drive, Click **OK** when format is complete.
6. Click **Close**.

6.5.13 Setting Up SERVICES Drive

1. Right-click the 3rd partition of the Disk0, select **Create** to create a primary partition, Right-click the partition and select **Commit Changes Now**.
2. Right-click the ***same drive***. This should be the **K:** (select **Assign Drive Letter** if not) partition and select **Format**.
3. Set **File System** = **NTFS**, **Label** =**Services,** check **Quick Format** and click **Start** to begin formatting K: drive. Click **OK** when format is complete.
4. Click **Close**.

6.5.14 Enabling Disk Cache (Allegro 3230/CRI & Creo Satellite 2400L/2500L ONLY)

- Press CTRL+A during the Adaptec AIC-7890 SCSI BIOS boot up prompt to run the Adaptec SCSI Select Utility. From the **Main Menu** screen:
- Select **Configure** and then **View Host Adapter Settings**.
- Select **Advanced Configuration Options**.
- Set Host Adapter BIOS to **Enabled**.
- Set BIOS Support for Bootable CD-ROM to **Disabled**.
- Pres ESC to exit this menu, then select **SCSI Device Configuration** and press ENTER.
- Set **Drive Write Cache** to **Yes** (by moving the cursor to device ID #0 and pressing ENTER, then selecting **Yes**.)
- Repeat for device ID #1, and if more disks are installed, set devices 2, 3, 4 and 5 accordingly.
- Press ESC, and select **Yes** to save changes. Press ESC again, then select **Yes** to exit the SCSI Utility.
- Press ESC, ESC and then select **Yes** to save the changes (if changes has been made).
- Select **SCSI Disk Utilities**.
- Select all disks shown (by highlighting one at a time), then select **Format Disk** to perform low-level formatting of all unknown sources of disks.

  Note: This step is necessary to eliminate the potential problem of having different disks' boot sector geometries among different SCSI controllers used in different systems.
- Press ESC, ESC and select **Yes** to save the changes (if changes has been made).
- Press ESC and select **Yes** to exit the utility.
- Press ENTER to reboot.

6.5.15 Installing UPS Software (APC Uninterrupted Power Supply)

1. To edit **Boot.ini** file for UPS use:
    - Open **File Manager** by Selecting **Start | Run,** then type **Explorer** and press Enter.
    - Right-click on the **C:\Boot.ini** file and select **Properties**.
    - Uncheck **Read Only** and **OK.**
    - Double-click on **BOOT.INI** to open the file in Notepad.
    - Edit these two lines by adding the bold text as follows:

multi(0)disk(0)rdisk(0)partition(X)\WINNT="Windows NT Server Version 4.00" **/NoSerialMice:COM2**

multi(0)disk(0)rdisk(0)partition(X)\WINNT="Windows NT Server Version 4.00 [VGA mode]" /basevideo /sos **/NoSerialMice:COM2**

Where (X) could be 1, 2, 3, depending of the position of the SCSI controller.

- **Save** and **Close** the file.
- Right-click on **C:\Boot.ini** file and select **Properties**
- Check **Read Only** and hit **OK.**

2. Ensure that the black UPS serial cable is plugged into COM port 2 on the computer.
3. Put the **PowerChute Plus** CD in the drive.
    - If a Software Setup greeting screen pops up (Autorun), then click "**No**" at the "Reading the release notes" prompt
    - Select "**APC PowerChute Product Options**" and click "**Next**"
    - Click "**PowerChute Plus for Windows NT**" button, click "**Continue**" at the next prompt to move on to the Install menu where changes are made in step 4 below
4. Change the following in the install menu
    - Change **Install Directory** to **C:\PWRCHUTE**
    - Change **Port Name** to **COM2**
    - Change **Message Interval** to **60**
    - Click **OK** to continue
    - When install is complete, select **Start | Control Panel | Services**
    - Double click **UPS** from services list
    - In **Startup Type**
        - Change Startup to **Automatic** and hit **OK**.

- Verify the Start-up type for **Remote Access Server** and **Schedule** services

- Click **Close** to **Services** window

5. Setup PowerChute user password

   - Select **Start | Programs | Administrative Tools | User Manager Domains**.
   - Double click **PWRChute User**.
   - Change password to **creo** and click **OK**.
   - Close User Manager.
   - Reboot NT.

6. Extend default shutdown delay to 180 seconds.

   - Select **Start | Programs | PowerChute | PowerChute** and choose the current server.
   - Select **Configure | UpsShutdownParameters**.
   - Set the **UpsTurnoffDelay** to **180** and click **OK**.
   - Close PowerChute.

7. Reboot the system.

6.5.16 Installing Service Pack 6a for Windows NT

Note: Remember to re-install Service Pack 6a when you install a new device driver or service.

1. Install the US Service Pack 6a for the US version of Windows NT 4.0
2. Once NT is rebooted, verify in Programs | Administrative Tools | Event Viewer that no errors occurred, and that there are now six COM ports (COM1–COM6) in the Control Panel | Ports applet.

   Note: Do not overwrite files that are identified as OEM-installed files (for example, AIC78xx.SYS).

3. Reboot the server and log back as Administrator.
4. When the server restarts log in as Administrator and close the Internet Explorer window.
5. It will take about 10 to 30 minutes for the Mac Services Database to re-synchronize. During this time the Mac shares will not be fully visible. Do not do any work on these shares until the database has completed synchronization.
6. Update Video Mode (**perform this step after SP6 is applied**):
   - Insert the Video driver diskette #1 (created off the Resource CD for the appropriate platform directories).

- Double-click on SETUP.EXE to start installing the ATI video driver; reboot the system as prompted after driver installation is completed.
- Set VGA mode to the highest supported by the video card. This should be:

Colors	**True Color**
Desktop Area	**1024 x 768**
Font Size	**Small**
Refresh Frequency	**75 Hertz**

  - Click **Test** to check the resolution.
  - Follow the prompts if the settings are acceptable. Save changes as required. (Wait while files are being loaded).
- Select the Plus! Tab, and check the "Smooth Edge of screen fonts" option and click <**OK**>; Click <**Restart Computer**>.

6.5.17 Installing Dell OpenManage Server Agent/Administrator

For PE2600 Server, you MUST use the Dell OpenManage's Systems Management (Version 3.2.2) CD to install the latest revision of Dell Server Administrator agent software.

1. Insert the Dell **NT4 Resource CD, P/N: 21-0107A-F CD** into the CD-ROM drive.
2. Open NT Explorer, select the CD-ROM **(H:)** drive and double-click on the **H:\NT_Util\SAV46\Setup.exe** file, and <**Next**> to start the software installation.
3. Select the **I agree with the above license Agreement** checkbox, and then click **Next.**
4. Click **Change…** to change the install target directory to **D:\Dell** and click **OK, Next**.
5. Click **Install** to start file copying. Click **Yes** to the question: **CIM is installed, would you like to install Dell CIM supporting agent?**
6. At the password selection screen, leave the default **User Name** field as **root**, and enter **pathfinder** in the **Password** and **Re-Enter Password** fields, and then click **Continue**.
7. Click **Finish;** Click **Yes** to the prompt **Do you want to view the README file now?** to read about latest updates on the new Dell Server Agent release.
8. Click **Yes** to the prompt **Yes, I want to restart my computer now** to reboot the server.

6.5.18 Installing Dell OpenManage Array Manager

9. Insert the **Dell NT4 Resource CD** (H:\NT_Util\AM313), Double-click on the **Setup.exe** file to start the software installation
10. Click **Next** at the **Welcome** dialog box.
11. Click **Next** to the **User Information** dialog box.
12. Click No to question of Do you want to view the README file now?
13. Remove the CD; click **Finish** to accept **Yes, I want to restart my computer now** to complete the setup. The system will reboot.

6.5.19 Backing up Disk Base Configuration

Stripes and mirror sets are complex disk configurations. Two backups, **Disk Base Cfg** and **Disk Final Cfg**, are created in case there are problems with the disk sets. Never low-level format or remove the stripe and mirror sets from a machine or NT will malfunction. If this happens, these disks can be used to fix the problem. In this procedure, you will create the **Disk Base Cfg** floppy and the **Disk Final Cfg** floppy after configuring the disk sets.

1. Start Disk Administrator.
2. Put the Disk Base Cfg floppy in.
3. Select Partition | Configuration | Save.
4. Click OK to the prompt.
5. Close Disk Administrator.
6. Mark the date and Machine Serial Number on the floppy.

6.5.20 Creating GHOST Baseline NT OS Image

Boot the system off the DOS floppy created in Section 0.

1. Once the system is booted to the DOS prompt A:\>, type **C:** and press Enter to log on to the C: drive (or the drive that contains the GHOST program).
2. Type **GHOST6** and press Enter to start up GHOST. From the main menu, select **Local | Disk | To Image** option and press Enter twice.
3. Highlight the first hard disk (with 4 partitions) from the list in the **Select local source drive by clicking on the drive number** window and press Enter.
4. Press the tab key to move cursor to the destination drive field and press the down arrow key to scroll through available drives. Select the drive from which GHOST was executed.
5. Press the tab key to move the cursor down to the **File Name** field and type in a file name (such as blnt24 or blnt44) and press Enter.
6. Press the tab key to move the cursor to the **High** button on the **Compress Image** prompt and press Enter.
7. Press the tab key to move the cursor to the **Yes** button on the **Question** prompt and press Enter to start writing the disk image to the 2GB RECOVERY drive.
8. Press Enter at the **Dump Complete** prompt.
9. Select **Quit** from the main menu and press Enter to exit GHOST.

6.5.21 Creating NT logical drive off NT Stripe Set (Allegro 3230/CRI only)

NT's Disk Administrator is used to stripe the user data drives as Raid0

Note: A Logical Stripe Set of plain physical disks is a volume without redundancy. If one disk fails, the entire volume is unrecoverable. Do not have important data archived on the volume. We highly recommend that you perform periodic data backup.

TIFF Front End's DataOut, CreoServer and Creo Satellite's Data drive requires that drive letter be T and TIFF Front End's DataIn, Allegro/CRI Workstation's Data/ Spooling drive letter be D. Make the changes according to the following steps:

1. Select Start | Programs | Administrative Tools | Disk Administrator

Make sure you put an NT signature onto any disks that are mentioned by Disk Administrator.

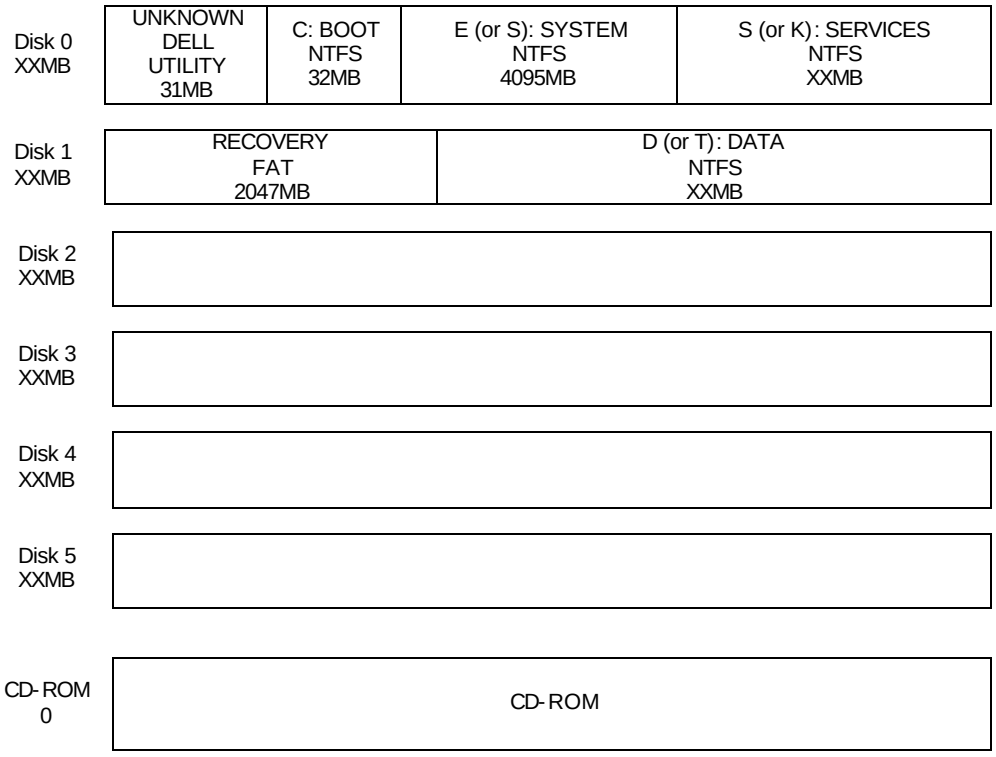


Figure1: Pre Stripe Disk Layout

1. Create a Logical Stripe Set:
    - Select Disk2 and, while holding the Ctrl key, select the other disks.
    - Select **Partition/Create Stripe Set**.
    - Select **Partition/Commit Changes Now**.
    - The system will prompt you to reboot the system. Do this now.
    - Go back into Disk Administrator.
2. Format **Disk 3** to NTFS and name the volume **RAID0:**
    - Right-click the newly created partition and select **format…**

- Set **File System** = **NTFS**, **Label** = **RAID0,** check **Quick Format** and click **OK** to start formatting the drive T: click **OK** when format is complete.

3. Click **OK/YES** until you're back in Disk Administrator.

   Your drive layout should now look like this:

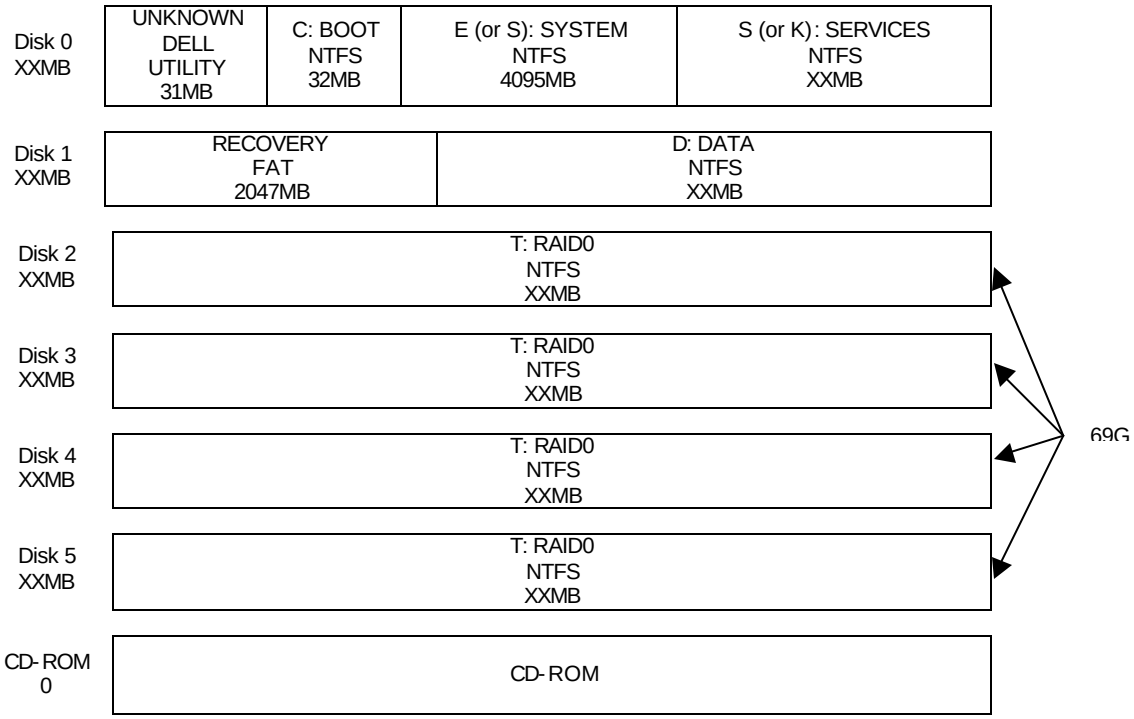


Figure 2: Post Stripe Disk Layout

4. Exit Disk Administrator

6.5.22 Backing up Disk Final Configuration

Stripes and mirror sets are complex disk configurations. Two backups, **Disk Base Cfg** and **Disk Final Cfg** floppies are created in case there are problems with the disk sets. Never low-level format or remove the stripe and mirror sets from a machine or NT will malfunction. If this happens, these disks can be used to help clear up the problem. In this procedure, you will create the **Disk Final Cfg** floppy.

Select Start | Programs | Administrative Tools | Disk Administrator.

1. Put the Disk Final Cfg floppy in.
2. Select Partition | Configuration | Save.
3. Click OK to the prompt.
4. Close Disk Administrator.
5. Mark the date and Machine Serial Number on the floppy.

6.5.23 Creating Emergency Repair Disk

Label a floppy disk **Repair Disk** and put it in A:\

1. Open a command prompt window and type in **rdisk**, then press Enter.
2. At the dialog box choose **Create Repair Disk**; then click **OK.**
3. When done, click **OK** and then **Exit**
4. Take out the diskette and write-protect it
5. Write the system serial number and date on the diskette. Remember to update it every time you change the configuration (prior to shipment). When the system is ready, ship it with the system.

7. iMPACT SYSTEM SETUP FOR DISASTER RECOVERY

This section outlines the steps to take during the course of iMPAct system integration to prepare the system to be fully protected by the new iMPAct backup strategy

The system integration steps for installing and setting up the server for disaster recoverable are outlined below:

Install and setup system hardware and Windows NT Operating System as described in previous sections.

1. Boot the system into DOS off the floppy with the appropriate DOS SCSI driver (for drive with SCSI ID > 1 access), then create the System Baseline NT OS image using the GHOST utility.
2. Install the iMPAct software and verify that the system is functioning (see the appropriate PlateMaster/CreoServer/Allegro Software installation document).
3. Perform System ITP tests to ensure that the system is functioning properly according to the test procedure.
4. Boot the system into DOS off the floppy with the appropriate DOS SCSI driver (for drive with SCSI ID > 1 access), and then create the final fully integrated system backup image using the GHOST utility.

8. SYSTEM DISASTER RECOVERY

All DELL platform-based iMPAct system backup solutions include a system disaster recovery strategy, using GHOST (General Hardware Operation System Transfer) as the server baseline or fully integrated NT Operating System recovering tool. This utility allows user to recover an entire system (to the last known good system settings) within minutes in case of a system crash.

This strategy includes the following process to be taken is a disaster occurs:

1. The system is first booted off a DOS floppy with the appropriate DOS SCSI controller driver.
2. Then execute the GHOST program included on a CD (or the 2GB RECOVERY partition) to download the appropriate Backup NT System image (i.e. Last on-site ghost image generated during the last site visit) to the 1st drive in the system.
3. Reboot and the system should be running Windows NT.

9. SYSTEM DRIVE RECOVERY (OFF A MIRRORED SET)

This section describes how to recover the system with a defective drive in the system-mirrored set and how to break the system mirrored drives before performing any sort of software upgrade to the iMPAct system (NT Service Pack, hot fixes, iMPAct software version upgrade, patches, etc.).

9.1 How to Break the System Mirrored Disk Set

Breaking the system mirrored drives will help for a faster recovery of the last known good system setting if the upgrade is not successful. Please follow the steps described in this section to perform breaking the system mirrored drives:

1. Shut down NT 4.0 and Application software (the power will be turned off automatically after NT is successfully shutdown, switch off the power if it's not already off).

2. On the 2600/2400H/2500H system: Open the Server front bezel by gently pulls away from the server and the hot swappable drive bay is shown. Gently pull the 2nd drive (SCSI ID =1, from the 2nd most right-handed slot) out toward the front so that it's not connected to the drive cage's back plane.

   Note: The 2400L/2500L model does not have a mirrored system drive.

3. On the 4600/4400/6400/2500V systems: the system mirrored disk set is located in the upper 2-bay cage below the CD-ROM. To access the drive bay, flip the server front bezel down to expose the 2-bay cage. Gently pull the second drive (SCSI ID =1, the bottom slot) out toward the front so that it is not connected to the drive cage's backplane.

4. Turn the server power on and allow the system to boot into NT as normal. You should be ready to perform the software upgrade planned.

   Note: During the system power up, the PERC Raid Controller will pop up a warning message about missing the fail-over drive (mirrored drive). You can safely ignore it at this time (Do not press any key, it will time out and continue on) to allow the system complete booting into NT.

9.2 How to Recover the System Mirrored Disk Set

This section describes the procedure for recovering the system mirrored disk set once a defective disk member in the mirrored set is replaced. It will also show the user how to break the system mirrored disk set before performing any software upgrade (NT Service Pack, hot fixes, iMPAct software upgrades, patches, etc.)

Breaking the system mirrored disk set will help for a speedy recovery of the last known good system if any kinds of software or hardware upgrade is not successful. Please follow the steps described in the following sections to perform such a task.

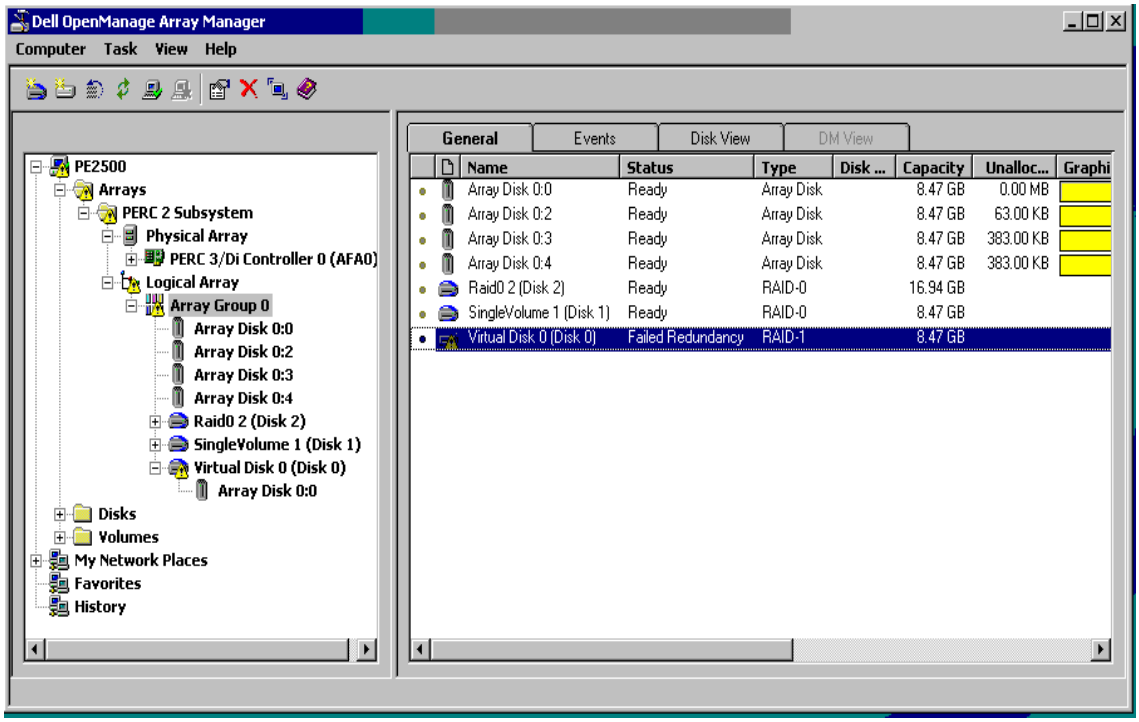
For more detailed information on the operation of PERC Raid Management Software, the Dell OpenManage Array Manager V3.x used in all platforms starting from Revision F of the OS ghost images) please refer to appropriate section on Creo intranet product support pages.

Starting with Revision E of NT 4.0 OS ghost images, all platforms will feature the new same look and feel of Raid Management GUI software called Dell OpenManage Array Manager (V3.1.2 or higher). Therefore, the procedure to recover a disk should be proceeded in the same manor as outlined below.

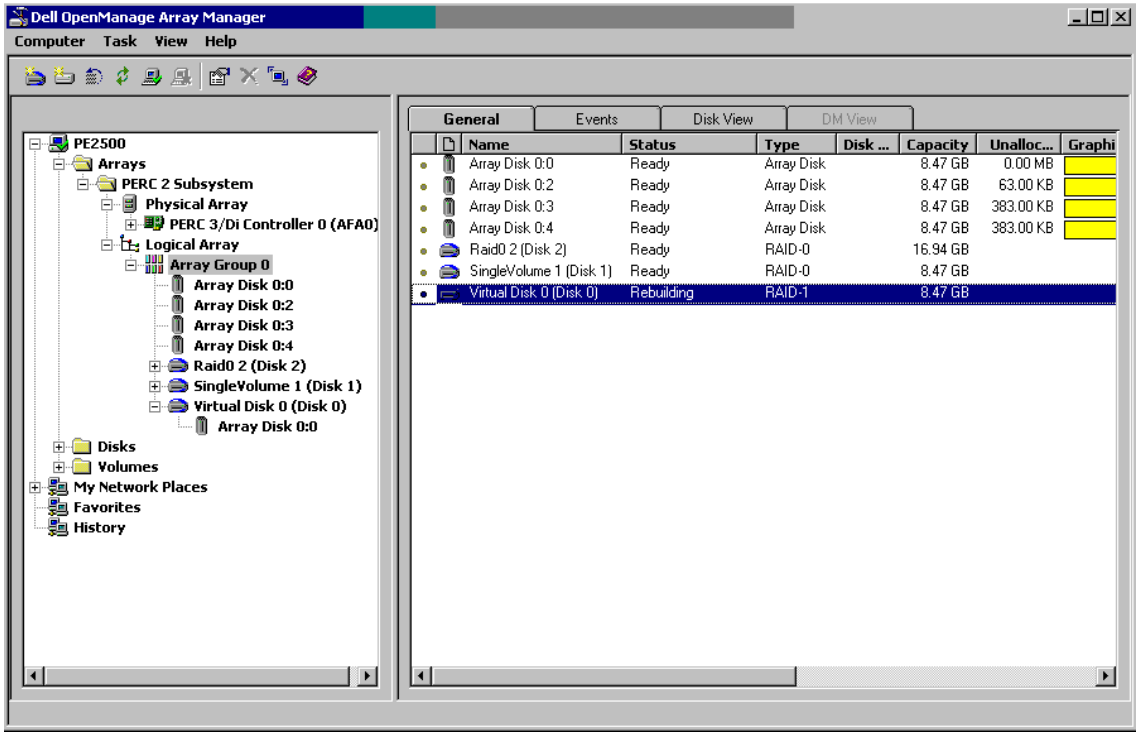
However, there're some differences in the PERC Raid Controller Management/Configuration options between the PERC 2/DC, 3/DC used in the 6400, PERC 4/Di for 2600 and PERC 2/Si, 3/Di used in the 4600, 2500, 4400 and 2400.

9.2.1 Re-establishing The System Mirrored Disk Set After a Software Upgrade

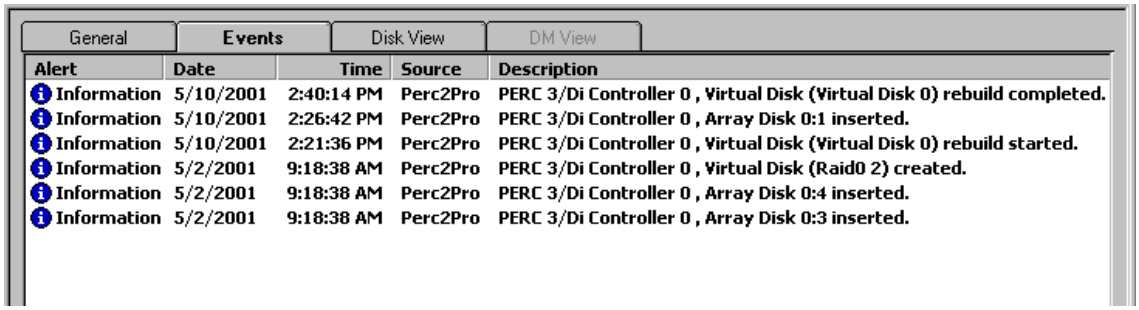
5. Verify that the software upgrade is completed and functioning as expected.
6. Do not shutdown Windows NT 4.0, open the door of the hot-swappable drive bay and gently push the pullout disk back into the drive cage backplane.
7. The rebuilding of the system mirror disk set between Disk0 and Disk1 will be initiated automatically. The process can be monitor by starting the Array Manager console as described below.
8. Select **Start → Programs → Dell OpenManage Applications → Array Manager -> Array Manager** Console to start up the management console and the following window appears:



9. Once the rebuild task has been initiated, the status field should be updated accordingly as seen in the dialog window seen below:



10. Once the rebuild task has been completed, the Events status would be updated accordingly as seen in the Events tab window seen below:



11. Exit the Array Manager Console once everything is satisfactorily checked out.

9.2.2 Recovering The Mirrored Disk Set after the Defective Disk is replaced

12. Once the defective master disk member has been confirmed, open the door of the hot-swappable drive bay. Gently pull the defective drive (right-most slot on the 2600/2400H/2500H or top slot unit on the 4600/2500V/4400/6400) out toward the front. or

13. If it's the defective slave disk member has been confirmed, then open the door of the hot swappable drive bay. Gently pull the defective drive (2nd right-most slot on the 2400H/2500H or second slot from top unit on 4600/2500V/4400/6400) out toward the front.

14. Gently push a replacement drive into the same slot until a good connection is made to the drive backplane.

15. The system mirror disk set rebuild process will be initiated automatically.