January 1999

Server Paper Configurator

EMEA

IBM Netfinity

Racks

Fibre Channel

Storage Enclosures

Clustering

Cables

Options

IBM Netfinity ServerProven

e business tools

IBM
Netfinity 3000

IBM
Netfinity 3500

IBM
Netfinity 5000

IBM
Netfinity 5500

IBM
Netfinity 5500 M10

IBM
Netfinity 7000 M10

IBM 3517
Storage Enclosure

IBM 3518
Storage Enclosure

IBM 3527
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IBM EXP15
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Positioning of Configurator Aids

There are several sources of configuration assistance available which complement one another by providing aid at different levels and with different deliverables. Always verify your hardware configurations with Network Operating System compatibility by accessing the ServerProven™ compatibility pages on the World Wide Web at URL http://www.pc.ibm.com/us/compat

ConfigXprt***, is a software based configurator supporting servers and the various compatible options available. It allows the most flexibility in selecting and combining options in order to provide a customized solution to the customer. In addition, a priced quotation*** can be generated for printing, faxing, or exporting to another application.

This document provides information on currently marketed IBM Netfinity and IBM PC Server systems and selected options. It provides pre-selected combinations of memory and hard disk storage along with prerequisite part numbers in order to speed selection and configuration of most basic configurations. A major benefit of this aid is having all the selected part numbers in one place for quick reference.

Using the paper configurator provides quick, yet basic configuration capability without an automatic deliverable to the customer. ConfigXpert has the capability to create all possible supported configurations and provides a priced quotation*** as a deliverable. The same person could use one or both configurators depending on the situation.

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The sample configurations contained within this document are for illustration only and may not be suitable for any specific customer installation. Contact your IBM Business Partner or IBM Marketing Representative for assistance with your specific configuration requirements.

Distribution:

IBM Netfinity and IBM PC Server Configuration Aid:

IBM ConfigXprt

IBM Netfinity Rack Configurator

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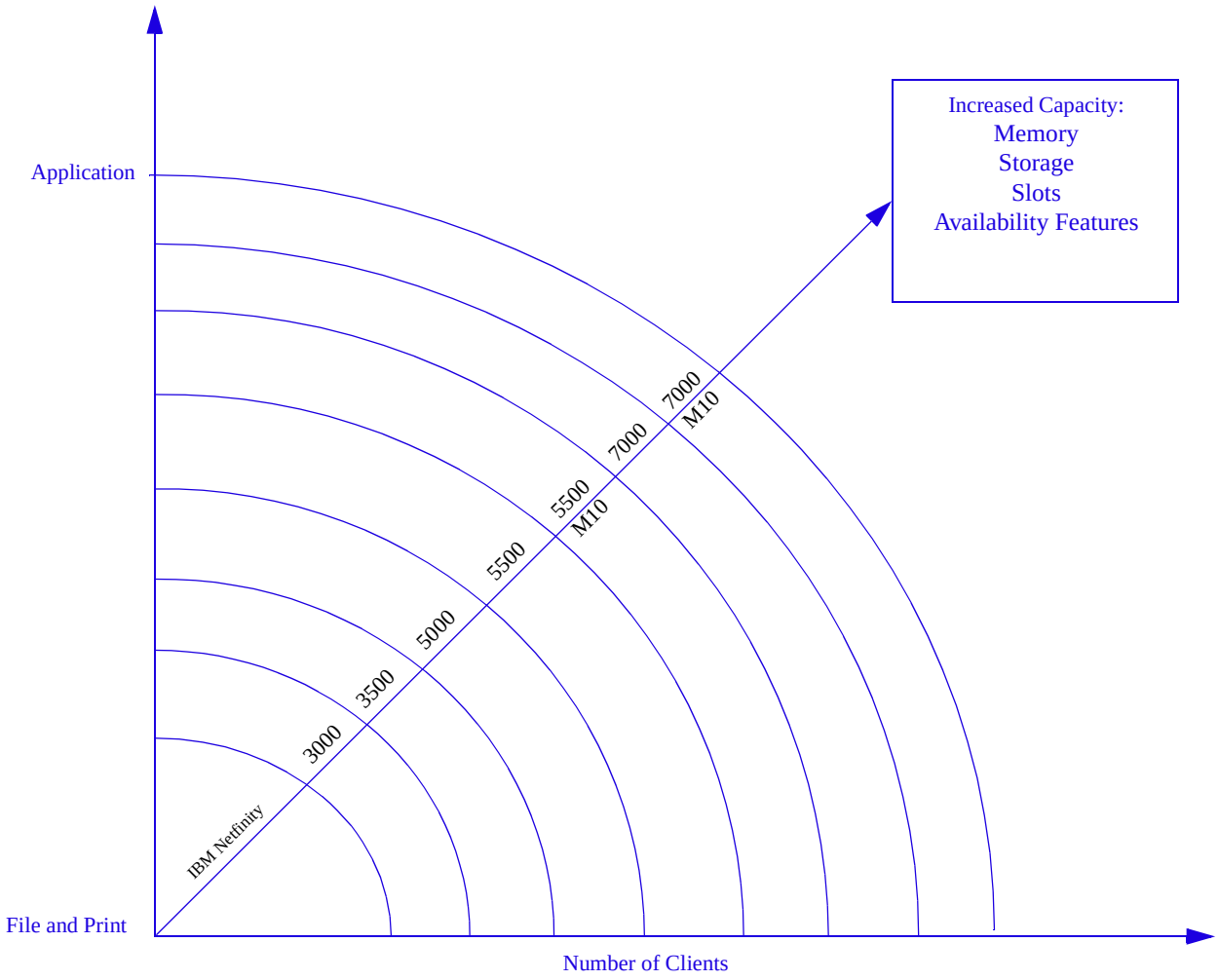
Server Product Positioning



When in a competitive situation, this table suggests the appropriate IBM PC Server to bid against other vendors' equipment. However, as an IBM business partner, you may determine that customer specific requirements may make an alternative IBM solution a better choice.

Relative Competitive Positioning	Entry		Mainstream			High End
IBM 1st choice	Netfinity 3000	Netfinity 3500	Netfinity 5000	Netfinity 5500	Netfinity 5500 M10	Netfinity 7000 M10
IBM 2nd choice	Netfinity 3500	Netfinity 5000	Netfinity 5500	Netfinity 5500 M10	Netfinity 7000 M10	RS/6000 AS/400
Compaq	ProSignia200, 720	ProLiant 800	ProLiant 1850R, 1600, 1600R	ProLiant 3000, 3000R	ProLiant 3000, 3000R, 5500, 5500R	ProLiant 6500/ 7000
HP	NetServer E50	NetServer E50	NetServer LHII, LH Pro, LC3	NetServer LH3	NetServer LH3, LH4	NetServer LXr, LXr Pro
Dell	PowerEdge 2200	PowerEdge 2200	PowerEdge 2300	PowerEdge 4300, 4350	PowerEdge 4300	PowerEdge 6300

Server Selection Guidance

This graph represents general guidelines for selecting the appropriate server based on the number of users that can be supported in a particular application environment. This chart is for general guidance since each customer environment is unique and is unlikely to be precisely represented by any of the specific applications in the chart, but by using the chart, a reasonable approximation can be derived. External Storage Units are utilized when internal capacities are exceeded. Utilize the chart by following the steps outlined on the following page.
These are not published benchmark results. Access http://www.ibm.com/pc/us/techlink/srvperf.html to obtain benchmark data
.

Application/ Expectation of Maximum # of Users		IBM Netfinity 3000 Uni-Pentium II 450 MHz/512KB	IBM Netfinity 3500 Dual Pentium II 333MHz/512KB	IBM Netfinity 5000 Dual Pentium II 450MHz/512KB	IBM Netfinity 5500 Dual Pentium II 450MHz/512KB	IBM Netfinity 5500 M10 Dual Pentium II Xeon 450MHz/1024KB	IBM Netfinity 7000 M10 Quad Pentium II Xeon 450MHz/ 1024KB
DB Transaction Processing Select, Update and Delete; Does not include image or Decision Support	# of Users	900	1200	2200	2300	2875	4875
	# of processors	1	2	2	2	2	4
	Memory (MB)	384	512	1GB	1GB	2GB	4GB
	# Hard Disk Drives	4 to 8	20 to 26	24 to 36	24 to 36	24 to 36	80 to 140
	# RAID Adapters	≥ 1 SCSI	≥ 2	≥3	≥ 3	≥3	≥5
	#Network Connections	1	1	1	1	1	2 to 3
File and Print Application is stored Locally. (For server stored applications - cut number of users in half).	# of Users	1000	1200	2000	2000	2400	5000
	# of Processors	1	2	2	2	2	2
	Memory (MB)	512	768	1GB	1GB	1 to 2GB	3 to 4GB
	# Hard Disk Drives	3 to 4	8 to 10	16 to 24	16 to 24	20 to 30	50 to 90
	# RAID Adapters	≥ 1 SCSI	1	2	2	2	≥4
	# 100Mbps Ethernet Connections	≥ 2	3	4	4	4	8
Lotus Notes 10% Power Users 40% Mail 50% Mail & DB	# of Users	500	800	1200	1350	1900	3200
	# of Processors	1	2	2	2	2	4
	Memory (MB)	384	512	1GB	1GB	2GB	3GB
	# Hard Disk Drives	3 to 4	12	18	18	10 to 20	20 to 30
	# RAID Adapters	≥ 1 SCSI	1	1	1	2	2
	# Network Connections	≥ 1	≥ 1	≥2	≥ 2	≥1	≥1
SAP Distributed Processing Sales and Distribution Application (Minimum of 16-20 Servers)	# of Users	-	-	-	-	1275	2800
	# of Processors					2	4
	Memory (MB)					1GB	≥4GB
	# Hard Disk Drives	N/A	N/A	N/A	N/A	24 to 36	48 to 60
	# RAID Adapters					≥2	≥3
	# Network Connections					1	1
SAP Central Version 4.x Sales and Distribution Application (One Server)	# Users	-	-	80	85	93	185
	# Processors			2	2	2	4
	Memory (MB)			1GB	1GB	1GB	≥2GB
	# Hard Disk Drives	N/A	N/A	12 to 24	12 to 24	12 to 24	24 to 36
	# RAID Adapters			≥1	≥ 1	≥1	≥2
	# Network Connections			1	1	1	1
High Availability Features	Hot-Swap HDD Bays	-	-	X	X	X	X
	Hot-Plug PCI Slots	-	-	-	X	X	X
	Hot-Swap Power	-	-	X	X	X	X
	Hot-Swap Fans	-	-	-	X	X	X
	RAID	Opt.	Opt.	Opt.	X	X	Opt.
	Clustering Support	-	X	X	X	X	X
	Sys. Mgt. Processor	Opt.	Opt.	X	X	X	X

Other Distinquishing Features	Max # Processors	1	1	2	2	2	4
	Max Memory (MB)	384	512	1GB	1GB	2GB	8GB
	Max Int. Storage (GB)	36.4	36.4	91	109, 473[1]	109, 473[1]	72.8
	Max Int. Storage (GB) with Int. Tape drive	27.3	27.3	91	109, 473[1]	109, 473[1]	N/A
	Available PCI Slots	3	4	6	6	6	12
	19" Rack Models	-	-	X	X	X	X
	NetBAY3 Support	-	-	-	X	X	X[2]

1. With a single Netfinity EXP10 or EXP15 Storage unit installed in the standard NetBAY3.
2. With a Rack-to-Tower Kit installed.

NOTE: See the following page for instructions on how to use this guide.

Procedure for Server Selection Guidance Chart

File and Print numbers are Novell Netware-based with all others based on Microsoft Windows NT. Other Networking Operating System (NOS) results could vary.
Extensive SAP sizings are available from IBM/SAP Competency Centers. Contact your IBM Marketing Representative for additional information**.**
Step 1: Determine which application (row) most closely represents the customer's environment.
Step 2: Move from left to right along the row (chosen in Step 1) noting which columns contain numbers that are equal to or greater than the maximum customer's planned number of users.
Step 3: Move up the columns (chosen in Step 2) to the top row to determine which IBM Netfinity or PC Servers should be considered as possible solutions.
Step 4: Evaluate other features such as storage, memory capacity, high availability components, number of available expansion slots, etc., which are unique to each server, in order to determine which is the most appropriate to recommend.
For your reference, configuration information corresponding to the number of users is also provided.

IBM Netfinity 3000 Configurator

Part Number	Processor Type/Speed/Bus speed (MHz)	L2 ECC Cache. (KB)	Memory: std./max. (MB), speed (MHz)	Form Factor	Hard Disk Drive: std. size, speed (RPM)	Internal Max. Hard Drive Capacity (GB)	Wide Ultra SCSI Controller	CD-ROM (IDE)	Slots: total, available	Bays: total, available	Ethernet (Mbps)	Memory Type
715XExx	Pentium II/300/66	512	32/384, 100	Tower	-	36.4	PCI Adapter	32X/14X[2]	6, 5	6, 4	10/100	ECC SDRAM
716XExx	Pentium II/300/66	512	64/384, 100	Tower	4.51, 7200	36.4[1]	PCI Adapter	32X/14X[2]	6, 5	6, 3	10/100	ECC SDRAM
720XExx	Pentium II350/100	512	64/384, 100	Tower	-	36.4	PCI Adapter	32X/14X[2]	6, 5	6, 4	10/100	ECC SDRAM
721XExx	Pentium II350/100	512	64/384, 100	Tower	4.51, 7200	36.4[1]	PCI Adapter	32X/14X[2]	6, 5	6, 3	10/100	ECC SDRAM
730XExx	Pentium II400/100	512	64/384, 100	Tower	-	36.4	PCI Adapter	32X/14X[2]	6, 5	6, 4	10/100	ECC SDRAM
731XExx	Pentium II400/100	512	64/384, 100	Tower	9.1, 7200	36.4[1].	PCI Adapter	32X/14X[2]	6, 5	6, 3	10/100	ECC SDRAM
740XExx	Pentium II450/100	512	64/384, 100	Tower	-	36.4	PCI Adapter	32X/14X[2]	6, 5	6, 4	10/100	ECC SDRAM
741XExx	Pentium II450/100	512	64/384, 100	Tower	9.1, 7200	36.4[1]	PCI Adapter	32X/14X[2]	6, 5	6, 3	10/100	ECC SDRAM

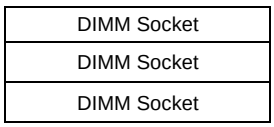
1. Maximum internal capacities assume replacement of standard hard disk drives with the largest supported IBM hard disk drives.
2. Variable read rate. Actual playback speed will vary and is often less than the maximum possible.

Processor Upgrades

Pentium II with 512KB Cache	Part Numbers	Upgrade Support[1]
IBM Netfinity 350MHz Upgrade with Pentium II Processor	10L5883	All 1xX
IBM Netfinity 400/100MHz, 512KB Processor Upgrade	10L5884	All 1xX 2xX
IBM Netfinity 450/100MHz, 512KB Processor Upgrade	10L5900	All 1xX, 2xX, 3xX

1. Requires removal of the standard processor. A maximum of one processor may be installed. Upgrades may require a BIOS update. To obtain the latest FLASH BIOS, access URL http://www.pc.ibm.com/pc/us, select PERSONAL SUPPORT then select IBM SERVER SUPPORT. Choose a machine type then select Downloadable files and choose the category labled “BIOS”..

Memory Configurator

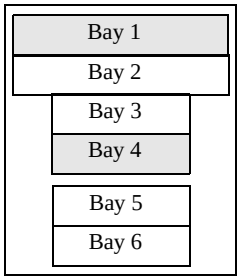


DIMM Description	Part Numbers
32MB 100MHz ECC SDRAM 3.3V	01K1133
64MB 100MHz ECC SDRAM 3.3V	01K1130
128MB 100MHz ECC SDRAM 3.3V	01K1131

Total Memory	Part Number(s) Required Models 15X	Part Number(s) Required Models 16X, 2xX, 3xX, 4xX
32MB	32MB Dimm Standard	N/A
64MB	1 x 01K1133	64MB DIMM Standard
96MB	1 x 01K1130	1 x 01K1133
128MB	1 x 01K1133, 1 x 01K1130	1 x 01K1130
160MB	1 x 01K1131	1 x 01K1133, 1 x 01K1130
192MB	1 x 01K1131, 1 x 01K1133	1 x 01K1131
224MB	1 x 01K1131, 1 x 01K1130	1 x 01K1131, 1 x 01K1133
256MB	-	1 x 01K1131, 1 x 01K1130
288MB	2 x 01K1131	-
320MB	2 x 01K1131, 1 x 01K1130[1]	2 x 01K1131
384MB (Max)	3 x 01K1131[1]	3 x 01K1131[1]

This table does not represent all possible memory configurations.
1. Replace standard DIMMS.

Internal Hard Disk Configurator



Total Internal Disk Storage[1]	Part Number(s) Required, Models 15X, 20X, 30X, 40X	Part Number(s) Required, Models 16X, 21X	Part Number(s) Required, Models 31X, 41X
	7200 RPM HDD	7200 RPM HDD	7200 RPM HDD
0GB[2]	Standard	N/A	N/A
4.5GB	1 x 01K1327	Standard	N/A
9.1GB	1 x 01K1328	1 x 01K1327	Standard
13.6GB	1 x 01K1328, 1 x 01K1327	1 x 01K1328	1 x 01K1327
18.0GB	4 x 01K1327	3 x 01K1327	-
18.2GB	2 x 01K1328	1 x 01K1328, 1 x 01K1327	1 x 01K1328
22.6GB	1 x 01K1328, 3 x 01K1327	1 x 01K1328, 2 x 01K1327	3 x 01K1327
22.7GB	2 x 01K1328, 1 x 01K1327	2 x 01K1328	1 x 01K1328, 1 x 01K1327
27.2GB	2 x 01K1328, 2 x 01K1327	2 x 01K1328, 1 x 01K1327	1 x 01K1328, 2 x 01K1327
27.3GB	3 x 01K1328	-	2 x 01K1328
31.8GB	3 x 01K1328, 1 x 01K1327	3 x 01K1328	2 x 01K1328, 1 x 01K1327
36.4GB	4 x 01K1328	4 x 01K1328[3]	3 x 01K1328

This table does not represent all possible hard drive configurations.
1. Total Internal Storage listed is within +- 0.1GB unless otherwise noted.
2. The standard four drop Wide SCSI cable has active termination which provides the required termination for open bay models.
3. Requires replacement of standard hard disk drive with largest optional supported hard disk drive.

Bays	Form Factor	Height	Front Access	Usage
1	5.25”	HH	yes	32x IDE CD-ROM
2	5.25”[1]	HH	yes	open
3	3.5”	SL	yes	open
4	3.5”	SL	yes	diskette
5	3.5”	SL[2]	no	open
6	3.5”	SL[2]	no	HDD on Drive Models

1. A 3.5” conversion kit is standard in Bay 2 for installation of 3.5” devices.
2. Two slim-line bays can be combined to support a single half-high device.

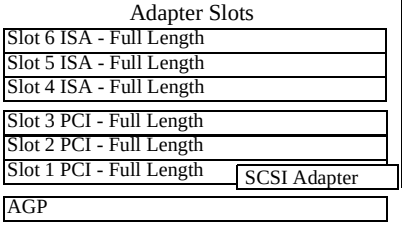
Part Numbers	Description	RPM	Height	Bays Supported	Max. Qty.
01K1327	IBM 4.51GB Wide Ultra SCSI HDD	7200	SL	2,3,5,6	4
01K1328	IBM 9.1GB Wide Ultra SCSI HDD	7200	SL	2,3,5,6	4

Internal SCSI Cabling

Netfinity 3000 systems have an IBM PCI Fast/Wide Ultra SCSI Adapter and support up to four internal SCSI devices through the 16-bit internal connector or 15 external SCSI devices through the 16-bit external 68-pin High Density connector; however, when internal SCSI devices are installed to the internal connector, only one SCSI device can be supported from the external connector. All models are cabled internally with a four-drop, 16-bit wide SCSI cable with a built-in active terminator at one end. The other end is attached to the internal 68-pin single-ended connector of the SCSI adapter. On the drive models, the hard disk drive (HDD) is attached to the cable connector closest to the active terminator. On open bay models the first disk drive installed should be attached in the same manner. If connecting narrow devices to this cable, additional 68-pin to 50-pin converters (P/N 32G3925) must be ordered. Some narrow devices include a converter in their ship group.

Typical Options

Adapter Slots



Part Numbers	Ethernet[1]	Failover Support[3]	Adapter Length	Slots Supported
08L3341	IBM Netfinity10/100 Fault Tolerant Adapter	X	Half	1, 2, 3
34L0301	Netfinity Gigabit Ethernet SX Adapter	X	Half	1, 2, 3
	Token Ring			
34L0501	Token-Ring 100/16/4 High-Speed PCI Adapter	X	Half	1, 2, 3
34L0601	Token-Ring 16/4 PCI Adapter 2	X	Half	1, 2, 3
	UPS[2]	X		
SUP072Y	APC Smart-UPS 700 (25min. runtime at 265VA)			
SUP102Y	APC Smart-UPS 1000 (42min. runtime at 265VA)			

1. Netfinity 3000 has an integrated 10/100 PCI Ethernet controller.
2. Stated runtimes and power are for typical configurations (approximately 70% of maximum capacity). For additional information see Appendix C: UPS Runtime Estimate
3. Requires replacement of standard hard disk drive with largest optional supported hard disk drive

Part Number	Monitors
4002Nxx	G42 Color Monitor 14” (13.2” Viewable Image Size), pearl-white
4102Nxx	G51 Color Monitor 15” (13.6: Viewable Image Size), pearl-white
466BNxx	G54 Color Monitor 15” (13.7” Viewable Image Size), stealth-gray
476BNxx	G74 Color Monitor 17” (15.9” Viewable Image Size), stealth-gray

The x’s should be replaced by a number specified by your geography.

Part Number	Description	Bays Supported	SCSI Interface (bit)	Form Factor	Termination Included	68/50-pin ConverterIncl.	Ext. Tape Enclosures[1]
01K1282	IBM12/24GB DDS/3 4mm Internal Tape Drive	2	8	3.5” HH or 5.25” HH	Y[3]	Y	10L7440
06H9716	IBM 4/8GB TR4 Internal SCSI Tape Drive[2]	2, 3	8	3.5” SL or 5.25” HH	Y[3]	N	10L7440
01K1319	IBM 10/20GB NS Internal SCSI Tape Drive	2, 3	8	3.5” SL or 5.25” HH	Y[3]	Y	10L7440
	Associated Options						
32G3925	SCSI 68-pin to 50-pin Converter	-	8-16	Internal	-	Y	-
	External Tape Enclosures						
10L7440	External Half High SCSI Storage Enclosure[4]	-	8/16	Desktop	-	-	-

1. To determine cable requirements, note the tape drive’s SCSI interface, the appropriate SCSI controller from the system configurator section, and the desired enclosure, then refer to Appendix D: Cables - Storage Units - Controllers.
2. SCSI 68-pin to 50-pin Converter (P/N 32G3925) is required.
3. Tape drive is capable of self termination.
4. Provides a black desktop 5.25” half-high (HH) tape enclosure. Connector is configurable as 50-pin Centronix or 68-pin high density. Requires either tape drive self termination or SCSI-2 16-bit Active Terminator (P/N 32G3918).

NOTE: SCSI support is provided by system unit onboard (standard) controller (no RAID function) or PCI Fast Wide Ultra SCSI Adapter P/N 02K3454. Additional tape attributes can be found in Appendix A: Tape Drive Attributes.

Other Selected Options

Note: For a complete list of all IBM and non-IBM option compatibility with Network Operating Systems and IBM PC Servers, access the ServerProven™ compatibility pages on the Web at URL http://www.pc.ibm.com/us/compat

Part Numbers	Description	Failover Support[7]	Adapter Length	Slots Supported
	Systems Management			
94G7578	PC Server Advanced Systems Management Adapter[1]	-	Full ISA	4, 5, 6
94G5571	Advanced Systems Management Power Unit[2]	-	-	-
	Storage Controllers			
02K3454	PCI Fast/Wide Ultra SCSI Adapter	-	Half PCI	1,2,3
01K7207	IBM Netfinity ServeRAID-3H Ultra2 Adapter SCSI Adapter[3]	X	Full PCI	3
28L1003	IBM Netfinity ServeRAID-3H 32MB Battery-Backup Cache[4]	-	-	-
01K7364	IBM Netfinity ServeRAID-3L Ultra2 SCSI Adapter[5]	X	Full PCI	3
	WAN			
12J2981	IBM PCI Multiprotocol Adapter	-	Half PCI	1,2,3
	External Storage Expansion Units[6]	-		
SMS2xxx	IBM SCSI Multi-Storage Enclosure for IBM PC Servers		-	-
	Cables	-		
SS2C02Y	PC Server F/W to F/W External SCSI Cable	-	-	-
SS2C01Y	PC Server F/W to Fast External SCSI Cable	-	-	-

1. Netfinity 3000 provides the following integrated system management features - Vital Product Data (VPD) plus thermal, voltage, and fan sensors. For additioal functions, optional PC Server Advanced Systems Management Adapter (P/N 94G7578) may be utilized. To enable the adapter's Automated Restart and Alerting as well as Remote Power On/Off features, Advanced Systems Management Power Unit (P/N 94G5571) is required.
2. Provides continuous power to the PC Server Advanced Systems Management Adapter (P/N 94G7578) even when the system is powered off.
3. Netfinity ServeRAID-3H Ultra2 SCSI Adapter (P/N 01K7207) provides one internal and 2 external LVDS SCSI channels. The internal channel can be configured for external usage providing a total of 3 external LVDS SCSI channels.
4. Installs on ServeRAID adapter to help protect against data loss in write-back cache mode in the event of a power outage or adapter maintenance. 32MB (P/N 28L1003) installs on ServeRAID-3H (P/N 01K7207).
5. Netfinity ServeRAID-3L Ultra2 SCSI Adapter (P/N 01K7364) provides either one internal or external LVDS SCSI channel.
6. External storage expansion units require storage controllers and external cables. For specific configuration requirements, see the External Cable Configurator Table.
7. These adapters support failover (without interuption) to a redundant adapter in the event of an adapter failure. For Network Operating system support and limitaions, access URL http//www.ibm.com/pc/us/compat

Sample Configurations

Note: The following sample configurations are for illustration only and may not be suitable for any specific customer installation. Contact your IBM Business Partner or IBM Marketing Representative for assistance with your specific configuration requirements.

Workgroup Intranet Server

Description	Quantity	Part Number
IBM Netfinity 3000 (Pentium II 450/64MB/9.1GB)	1	741XExx
64MB 100MHz ECC SDRAM DIMM 3.3V[1]	1	01K1130
IBM 9.1GB Wide Ultra SCSI HDD 7200RPM	2	01K1328
NS20 10/20GB Internal DAT SCSI Drive	1	01K1319
G54 Color Monitor 15" (13.7" Viewable Image Size), stealth-gray	1	466BNxx
APC Smart-UPS 1000	1	SUP102Y

1. For a total of 128MB of system memory.

An Internet server is a server that handles all requests from the Internet (Intranet or Extranet). Usually, this type of server has the same characteristics as a normal file server. The main difference is that an Internet server talks a different language (TCP/IP vs. NETBEUI or IPX/SPX) and often needs to do an extra security check (Firewall). In the case of an Internet server, the server itself talks mostly to just one client, the Internet Service Provider(ISP), instead of many clients like a file server does.
With this in mind, the IBM Netfinity 3000 was selected to provide an affordable price point for the growing Internet server market with two way Pentium II processing, 128MB of system memory (expandable to 384MB), integrated 100/10 ethernet controller, and high-performance storage, and power protection with an APC Smart-UPS.
The configuration includes a tape backup unit for secure backup of critical data in the event of a system or storage failure.

File & Print Server

Description	Quantity	Part Number
IBM Netfinity 3000 (Pentium II 300/32MB/0GB)	1	715XExx
64MB 100MHz ECC SDRAM DIMM 3.3V[1]	1	01K1130
IBM 4.51GB Wide Ultra SCSI HDD 7200RPM	2	01K1327
NS20 10/20GB Internal DAT SCSI Drive	1	01K1319
G54 Color Monitor 15” (13.7” Viewable Image Size), stealth-gray	1	466BNxx
APC Smart-UPS 700	1	SUP072Y

1. For a total of 96MB of system memory.

A small business or departmental server is usually required to perform all typical server functions while servicing up to 50 users in a normal workgroup computing environment, but doesn’t require the high-end performance and fault tolerance properties of larger servers.
The sample configuration above consists of an IBM Netfinity 3000 with 96MB of memory and 9GB of hard disk space. It has enough processor power and memory to run most current network operating systems comfortably and enough hard disk drive space to store a significant amount of data with additional internal storage expansion still available. Demanding network traffic is effectively handled by the standard 100Mbps Ethernet connection.
This configuration also includes a tape backup unit, monitor, and a UPS to keep the system protected from power surges and outages.

IBM Netfinity 3500 Configurator

Part Number	Withdrawal Date (ddmmyy)[1]	Processor Type/Speed (MHz)	L2 ECC Cache. (KB)	Memory: std./max. (MB), speed (MHz)	Hard Disk Drive: std. size, speed (RPM)	Internal Max. Hard Drive Capacity (GB)	Hard Drive Controller Type	Slots: total, available	Bays: total, available	Ethernet (Mbps)	Memory Type
430XExx	26/02/99-	Pentium II/333	512	64/512, 66	-	36.4	Dual Channel Wide Ultra SCSI	6, 5	6, 4	10/100	ECC SDRAM

1. Not available from IBM after this date. Business Partner inventory may be available.
2. Maximum internal capacities assume replacement of standard hard disk drive with the largest supported IBM hard disk drives.

Processor Upgrades

Pentium II with 512KB Cache	Part Number	SMP Support[1]	Upgrade & SMP Support[2]
IBM Netfinity 233MHz Upgrade with Pentium II Processor	01K6599	10X	-
IBM Netfinity 266 MHz Upgrade with Pentium II Processor	01K6600	20X, 21X	10X
IBM Netfinity 333MHz Upgrade with Pentium II Processor	01K8025	30X	10X[3], 20X[3], 21X[3]

1. One additional processor may be installed, providing a maximum of two.
2. Requires removal of the standard processor. A maximum of two processors may be installed. Upgrades may require a BIOS update.To obtain the latest flash BIOS, access URL http://www.ibm.com/pc/us, select PERSONAL SUPPORT then select IBM SERVER SUPPORT. Choose a machine-type model, then select Downloadable files and choose the category labeled “BIOS”.
3. Contact your IBM authorized dealer for additional information if your system board FRU# is 93H7269.

Memory Configurator

DIMM Socket
DIMM Socket
DIMM Socket
DIMM Socket

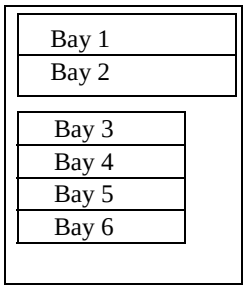
DIMM Description	Part Number
32MB 66MHz ECC SDRAM DIMM 3.3V	04K0073
64MB 66MHz ECC SDRAM DIMM 3.3V	04K0074
128 MB 66MHz ECC SDRAM DIMM 3.3V	04K0075

Total Memory	Part Number(s) Required Models 30X
64MB	64 MB DIMM standard
96MB	1 x 04K0073
128MB	1 x 04K0074
224MB	1 x 04K0073, 1 x 04K0075
256MB	1 x 04K0074, 1 x 04K0075
288MB	1 x 04K0073, 1 x 04K0074, 1 x 04K0075
512MB max	4 x 04K0075[1]

This table does not represent all possible memory configurations.

1. Replace standard DIMMS.

Internal Hard Disk Configurator



Internal Disk Storage[1]	Part Number(s) Required Models 30X
	7200 RPM HDD
0GB[2]	Standard
4.5GB	1 x 01K1327
9.1GB	1 x 01K1328
13.6GB	1 x 01K1328, 1 x 01K1327
18.0GB	4 x 01K1327
18.2GB	2 x 01K1328
22.6GB	1 x 01K1328,. 3 x 01K1327
22.7GB	2 x 01K1328, 1 x 01K1327
27.2GB	2 x 01K1328, 2x 01K1327
27.3GB	3 x 01K1328
31.8GB	3 x 01K1328, 1 x 01K1327
36.4GB	4 x 01K1328

This table does not represent all possible hard drive configurations.
1. Total Internal Storage listed is within +- 0.2GB unless otherwise noted.
2. The standard four drop Wide SCSI cable has active termination which provides the required termination for open bay models.

Bay	Form Factor	Height	Front Access	Usage
1	5.25”	HH	yes	24X IDE CD-ROM
2	5.25”[1]	HH	yes	open
3	3.5”	SL	yes	open
4	3.5”	SL	yes	diskette
5	3.5”	SL[2]	no	open
6	3.5”	SL[2]	no	open

1. A 3.5” conversion kit is standard in Bay 2 for installation of 3.5” devices.
2. Two slim-line bays can be combined to support a single half-high device.

Part Numbers	Description	RPM	Height	Bays Supported	Max. Qty.
01K1327	IBM 4.51GB Wide Ultra SCSI HDD (SL)	7200	SL	2,3,5,6	4
01K1328	IBM 9.1GB Wide Ultra SCSI HDD (SL)	7200	SL	2,3,5,6	4
76H2687	IBM Ultrastar 2XP 4.51GB Wide Ultra SCSI HDD	7200	SL	2,3,5,6	4

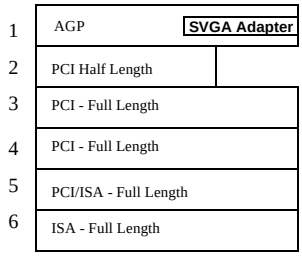
1. A 3.5” conversion kit is standard in Bay 2 for installation of 3.5” devices

Internal SCSI Cabling

Netfinity 3500 systems have a dual channel Wide Ultra SCSI controller supporting up to four internal SCSI devices through the 16-bit internal connector and 15 external SCSI devices through the 16-bit external 68-pin High Density Connector. All Netfinity models are cabled internally with a four-drop, 16-bit wide SCSI cable with a built-in active terminator at one end of the cable. The other end of the cable is attached to the internal 68-pin single-ended connector (channel A) of the 7895 Wide Ultra SCSI controller closest to the active terminator. On open bay models the first disk drive installed should be attached in to the last drop on the cable. If connecting narrow devices to this cable additional 68-pin to 50-pin converters (P/N 32G3925) must be ordered. Some narrow devices include a converter in their ship group.

Typical Options

Adapter Slots



Part Numbers	Ethernet[1]	Adapter Length	Slots Supported
08L3341	IBM Netfinity 10/100 Fault Tolerant Adapter	Half	2,3,4,5
	Token Ring		
75H9802	IBM PCI Token-Ring Adapter	Half	2,3,4,5
	UPS[2]		
SUP072Y	APC Smart-UPS 700 (25min. runtime at 265VA)		
SUP102Y	APC Smart-UPS 1000 (42min. runtime at 265VA)		

1. Netfinity 3500 has an integrated 100/10 PCI Ethernet controller.
2. Stated runtimes and power are for typical configurations (approximately 70% of maximum capacity).

Part Number	Monitors
4002Nxx	G42 Color Monitor 14” (13.2” Viewable Image Size), pearl-white
4102Nxx	G51 Color Monitor 15” (13.6: Viewable Image Size), pearl-white
466BNxx	G54 Color Monitor 15” (13.7” Viewable Image Size), stealth-gray
476BNxx	G74 Color Monitor 17” (15.9” Viewable Image Size), stealth-gray

Part Number	Description	Bays Supported	SCSI Interface (bit)	Form Factor	Termination Included	68/50-pin Converter Incl.	Ext. Tape Enclosures[1]
01K1282	IBM12/24GB DDS/3 4mm Internal Tape Drive	2	8	3.5” HH or 5.25” HH	Y[5]	Y	10L7440
06H9716	IBM 4/8GB TR4 Internal SCSI Tape Drive[2]	2,3	8	3.5” SL or 5.25” HH	Y[5]	N	10L7440
01K1319	IBM 10/20GB NS Internal SCSI Tape Drive	2,3	8	3.5” SL or 5.25” HH	Y[5]	Y	10L7440
01K1325	IBM 20/40GB 8mm SCSI Tape Drive	2	16	5.25”HH	N[6]	-	10L7440[3]
	Associated Options						
32G3918	SCSI-2 16-bit Active Terminator	-	16	External	-		10L7440
32G3925	SCSI 68-pin to 50-pin Converter	-	8-16	Internal	-	Y	-
	External Tape Enclosures						
10L7440	External Half High SCSI Storage Enclosure[4]	-	8/16	Desktop	-	-	-

1. To determine cable requirements, note the tape drive’s SCSI interface, the appropriate SCSI controller from the system configurator section, and the desired enclosure, then refer to Appendix D: Cables-Storage Units-Controllers.
2. SCSI 68-pin to 50-pin Converter (P/N 32G3925) is required.
3. Requires SCSI-2 16-bit Active Terminator (P/N 32G3918).
4. Provides a black desktop 5.25” half-high (HH) tape enclosure. Connector is configurable as 50-pin Centronix or 68-pin high density. Requires either tape drive self termination or SCSI-2 16-bit Active Terminator (P/N 32G3918).
5. Tape drive is capable of self termination.
6. Termination is provided by the system unit’s standard 4-drop SCSI cabling.
NOTE: SCSI support is provided by system unit onboard (standard) controller (no-RAID function) or PCI Fast Wide Ultra SCSI Adapter P/N 02K3454. Additional tape attributes can be found in Appendix A: Tape Drive Attributes.

Other Selected Options

Note: For a complete list of all IBM and non-IBM option compatibility with Network Operating Systems and IBM PC Servers, access the ServerProven™ compatibility pages on the Web at URL http://www.pc.ibm.com/us/compat

Part Number	Description	Adapter Length	Slots Supported
	Systems Management		
94G7578	PC Server Advanced Systems Management Adapter[1]	Full ISA	5,6
94G5571	Advanced Systems Management Power Unit	-	-
	Storage Controllers		
02K3454	PCI Fast/Wide Ultra SCSI Adapter[2]	Half PCI	2,3,4,5
01K7207	IBM Netfinity ServeRAID-3H Ultra2 Adapter SCSI Adapter[3]	Full PCI	2,3,4,5
28L1003	IBM Netfinity ServeRAID-3H 32MB Battery-Backup Cache[4]	-	-
01K7364	IBM Netfinity ServeRAID-3L Ultra2 SCSI Adapter[5]	Full PCI	2,3,4,5
	External Storage Expansion Units[6]		
SMS2xxx	IBM SCSI Multi-Storage Enclosure for IBM PC Servers	-	-
SEEExxx	IBM PC Server Enterprise Expansion Tower	-	-

1. Requires Advanced Systems Management Power Unit (P/N 94G5571) to enable automated restart and alerting as well as remote power on/off, reset.
2. For attachment of external devices only.
3. Netfinity ServeRAID-3H Ultra2 SCSI Adapter (P/N 01K7207) provides one internal and 2 external LVDS SCSI channels. The internal channel can be configured for external usage providing a total of 3 external LVDS SCSI channels.
4. Installs on ServeRAID adapter to help protect against data loss in write-back cache mode in the event of a power outage or adapter maintenance.
5. Netfinity ServeRAID-3L Ultra2 SCSI Adapter (P/N 01K7364) provides either one internal or external LVDS SCSI channel.
6. External storage expansion units require storage controllers and external cables. For specific configuration requirements, see Appendix D: Cables - Storage Units - Controllers

Sample Configurations

Note: The following sample configurations are for illustration only and may not be suitable for any specific customer installation. Contact your IBM Business Partner or IBM Marketing Representative for assistance with your specific configuration requirements.

Application-Internet Server

Description	Quantity	Part Number
IBM Netfinity 3500 (Pentium II 333/64MB/0GB)	1	430XExx
128MB 66MHz ECC SDRAM DIMM 3.3V[1]	2	04K0075
IBM Netfinity 333MHz Upgrade with Pentium II Processor	1	01K8025
IBM 4.51GB Wide Ultra SCSI HDD	1	01K1327
IBM ServeRAID-3L Ultra2 SCSI Adapter (attached to SMS2Xxx)	1	01K7364
IBM 12/24GB DDS3 4mm Internal Tape Drive	1	01K1282
IBM 10/100 Fault Tolerant Adapter	2	08L3341
G54 Color Monitor 15” (13.7” Viewable Image Size), stealth-black	1	466BNxx
APC Smart-UPS 1000	1	SUP102Y
External Storage Expansion Unit		
IBM SCSI Multi-Storage Enclosure for IBM PC Servers	1	SMS2xxx
IBM PC Server 4.51GB Wide Ultra SCSI Hot-Swap HDD[2]	3	94G7491
IBM 1M External 0.8MM SCSI Cable	1	76H3589

1. For a total of 320MB of system memory.
2. For a total of 13.53GB of RAID protected Hot-Swap external storage with capacity to grow.

An Internet server is a server that handles all requests from the Internet (Intranet or Extranet). Usually, this type of server has the same characteristics as a normal file server. The main difference is that an Internet server talks a different language (TCP/IP vs. NETBEUI or IPX/SPX) and often needs to do an extra security check (Firewall). In the case of an Internet server, the server itself talks mostly to just one client, the Internet provider, instead of many clients like a file server does.

With this in mind, the IBM Netfinity 3500 was selected to provide an affordable price point for the growing internet server market with two way Pentium II processing, 320MB of system memory (expandable to 512MB), multiple ethernet adapters, and availability features such as RAID protected external Hot-Swap storage and power protection with an APC Smart-UPS.

The network configuration depends on the method that will be used to connect the server to the internet. Usually fast Ethernet routers are used, but if other methods are used, you can add the appropriate adapter. The configuration includes a tape backup unit for secure backup of critical data in the event of a system or storage failure.

File and Print Server

Description	Quantity	Part Number
IBM Netfinity 3500 (Pentium II 333/64MB/0GB)	1	430XExx
128MB 66MHz ECC SDRAM DIMM 3.3V[1]	1	04K0075
IBM 4/8GB TR4 Internal SCSI Tape Drive[2]	1	06H9716
SCSI 68-pin to 50-pin Converter	1	32G3925
Ultrastar 2ES 4.33GB Wide Ultra SCSI HDD	2	76H5815
G54 Color Monitor 15” (13.7” Viewable Image Size)Stealth-gray	1	466BNxx
APC Smart-UPS 700	1	SUP072Y

1. For a total of 192MB of system memory.
2. Requires SCSI 68-pin to 50-pin converter (P/N 32G3925)

A small business or departmental server is usually required to perform all typical server functions while servicing up to 50 users in a normal workgroup computing environment, but doesn’t require the high-end performance and fault tolerance properties of larger servers.

The sample configuration above consists of an IBM Netfinity 3500 with 192MB of memory and 8.66GB of hard disk space. It has enough processor power and memory to run most current network operating systems comfortably and enough hard disk drive space to store a significant amount of data with additional internal storage expansion still available. Demanding network traffic is effectively handled by the standard 100Mbps Ethernet connection.

This configuration also includes a tape backup unit, monitor, and a UPS to keep the system protected from power surges and outages.

IBM Netfinity 5000 Configurator

Part Number	Pentium II Processor Speed (MHz)[1]	SMP Enabled	L2 ECC Cache. (KB)	Memory: std./max. (MB)	Memory Type: 100 MHz SDRAM[4]	Form Factor	Internal Max. Hard Drive Capacity (GB)	Wide Ultra SCSI Controller	Slots[5] (Total/Avail)	Bays: (Total/Avail)	Available Removable Media Bays[6]	Advanced System Management Processor	Hot-Swap Components[6]	Redundancy	Ethernet (Mbps)	CD-ROM[3]
912YExx	350	2-way	512	64/1024	ECC	Tower	91	Dual Channel	5/5	8, 6	1 x 5.25" HH	Y	5 x HDD Bays	Power	10/100	32X IDE
91SYExx	350	2-way	512	64/1024	ECC	Rack(5U)[2]	91	Dual Channel	5/5	8, 6	1 x 5.25" HH	Y	5 x HDD Bays	Power	10/100	32X IDE
922YExx	400	2-way	512	64/1024	ECC	Tower	91	Dual Channel	5/5	8, 6	1 x 5.25" HH	Y	5 x HDD Bays	Power	10/100	32X IDE
92SYExx	400	2-way	512	64/1024	ECC	Rack(5U)[2]	91	Dual Channel	5/5	8, 6	1 x 5.25" HH	Y	5 x HDD Bays	Power	10/100	32X IDE
931YExx	450	2-way	512	64/1024	ECC	Tower	91	Dual Channel	5/5	8, 6	1 x 5.25" HH	Y	5 x HDD Bays	Power	10/100	32X IDE
93RYExx	450	2-way	512	64/1024	ECC	Rack(5U)[2]	91	Dual Channel	5/5	8, 6	1 x 5.25" HH	Y	5 x HDD Bays	Power	10/100	32X IDE

1. 100 MHz front-side bus.
2. Housed in a 19" Rack mountable drawer and ships standard without a keyboard or mouse. Requires IBM Netfinity Rack (9306900) or industry standard 19" Rack, EIA-310D, with a minimum depth of 28 inches.
3. 32X 14X CD-ROM variable read rate. Actual playback speed will vary and is often less than the maximum possible.
4. Memory modules are Registered DIMMs (RDIMM).
5. Three 32-bit PCI slots and two combination slots (32-bit PCI/16-bit ISA).
6. Definitions: Half High (HH), Hard Disk Drive (HDD).

Processor Upgrades

Pentium II with 512KB Cache	Part Number	SMP Support[1]	Processor Speed Upgrade[2]
IBM Netfinity 350/100MHz, 512KB Processor Upgrade	10L5883	12Y, 1SY	-
IBM Netfinity 400/100MHz, 512KB Processor Upgrade	10L5884	22Y, 2SY	12Y, 1SY
IBM Netfinity 450/100MHz, 512 KB Processor Upgrade	10L5900	31Y, 3RY	12Y, 1SY, 22Y, 2SY

1. One additional processor may be installed, providing a maximum of two.
2. Requires removal of the standard processor. A maximum of two processors may be installed. Upgrades may require a BIOS update. To obtain the latest Flash BIOS, access URL http://www.ibm.com/pc/support, then select IBM SERVER SUPPORT. Choose a machine-type model, then select Downloadable files and choose the category labeled "BIOS".

Memory Configurator

DIMM Socket - J15	Standard RDIMM
DIMM Socket - J16	
DIMM Socket - J17	
DIMM Socket - J22	

RDIMM Description	Part Numbers
Netfinity 64MB SDRAM ECC RDIMM	01K7241
Netfinity 128MB SDRAM ECC RDIMM	01K7262
Netfinity 256MB SDRAM ECC RDIMM	01K8043

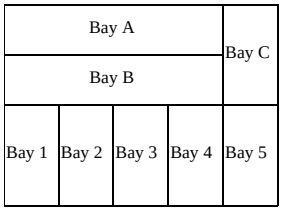
Total Memory	Part Number(s) Required
64MB	Standard on all Models
128MB	1 x 01K7241
192MB	1 x 01K7262
320MB	1 x 01K8043
576MB	2 x 01K8043
832MB	3 x 01K8043
1024MB (max)	4 x 01K8043[1]

This table does not represent all possible memory configurations.
1. Replace standard RDIMMs.

Internal SCSI Cabling

Netfinity 5000 systems contain a backplane supporting five hot-swap drive bays. The backplane has an integrated SCSI terminator and is connected to one of the two integrated dual-channel SCSI controller connectors by a two drop 16-bit SCSI cable. The second drop is available for supporting an internal removable media device. In the event the standard two-drop cable is attached to a RAID controller and a dedicated removable media attachment to the onboard controller is requrired, an optional terminated 16-bit cable is available (Netfinity Two-Drop Internal SCSI Cable P/N 36L9636). The second SCSI channel is available for external device attachment through a rear panel 68-pin high density connector.

Internal Hard Disk Configurator



Total Internal Disk Storage[1]	Part Number(s) Required (7200RPM)				Part Number(s) Required (10,000RPM)		
	4.5GB	9.1GB	18.2GB	36.4GB	4.5GB	9.1GB	18.2GB
0GB	Standard on Base Models				Standard on Base Models		
4.5GB	1 x 94G7429	-	-	-	1 x 01K8009	-	-
9.1GB	2 x 94G7429 or	1 x 01K8053	-	-	2 x 01K8009 or	1 x 01K8054	-
13.5GB	3 x 94G7429	-	-	-	3 x 01K8009	-	-
18.2GB	4 x 94G7429 or	2 x 01K8053 or	1 x 01K8055	-	4 x 01K8009 or	2 x 01K8054 or	1 x 01K8503
22.5GB	5 x 94G7429	-	-	-	5 x 01K8009	-	-
27.2GB	-	3 x 01K8053	-	-	-	3 x 01K8054	-
36.4GB	-	4 x 01K8053 or	2 x 01K8055	1 x 02K0441[3]	-	4 x 01K8054 or	2 x 01K8503
45.5GB	-	5 x 01K8053	-	-	-	5 x 01K8054	-
54.6GB	-	-	3 x 02K0440[2]	-	-	-	-
72.8GB	-	-	3 x 02K0440[2] or	2 x 02K0441[3]	-	-	-
91GB (max)	-	-	5 x 02K0440[2]	-	-	-	-

This table does not represent all possible hard drive configurations.
1. Total Internal Storage listed is within ± 0.2GB unless otherwise noted.
2. Planned availabilty of February 1999
3. Planned availabilty of March 1999

Bay	Form Factor	Height	Front Access	Usage
A	5.25”	HH[1]	Yes	RM[2] Open
B	5.25”	HH[1]	Yes	IDE CD-ROM
C	3.5”	SL	Yes	Diskette
1...5	HS[1]	SL[3]	Yes	Open

1. Definitions: Half High (HH), Slim-Line (SL), Hot-Swap (HS)
2. Removable Media (RM) devices only.
3.Two slim-line (SL) bays can be combined to support a single half-high device.

Part Numbers	Description	RPM	Height	Bays Supported	Max. Qty.
94G7429	4.51GB Wide Ultra SCSI hot-swap Hard Disk Drive	7200	SL	1...5	5
01K8053	IBM Netfinity 9.1GB Wide Ultra SCSI SCA-2 SL HDD	7200	SL	1...5	5
01K8055	IBM Netfinity 18.2GB Wide Ultra SCSI SCA-2 HDD[1]	7200	HH	1/2, 2/3, 3/4, 4/5	2
02K0440	IBM Netfinity 18.2GB Wide Ultra SCSI Hot-Swap SL HDD[2]	7200	SL	1...5	5
02K0441	IBM Netfinity 36.4GB Wide Ultra SCSI Hot-Swap HDD[3]	7200	HH	1/2, 2/3, 3/4, 4/5	2
01K8009	IBM Netfinity 4.51GB 10K Wide Ultra SCSI SCA-2 HDD	10,000	SL	1...5	5
01K8054	IBM Netfinity 9.1GB 10K Wide Ultra SCSI SCA-2 SL HDD	10,000	SL	1...5	5
01K8503	IBM Netfinity 18.2GB 10K Wide Ultra SCSI SCA-2 HDD[1]	10,000	HH	1/2, 2/3, 3/4, 4/5	2

1. Two slim-line (SL) bays can be combined to support a single half-high device.
2. Planned availabilty of February 1999
3. Planned availabilty of March 1999

Typical Options

Adapter Slots

Slot 5 PCI Full Length
Slot 4 PCI Full Length
Slot 3 PCI Full Length
Slot 2 PCI/ISA Full Length
Slot 1 PCI/ISA Full Length

Part Number	Description	Failover Support[2]	PCI Bus Support	Adapter Length	Slots Supported
	Ethernet[1]				
08L3341	IBM Netfinity 10/100 Fault Tolerant Adapter	X[3]	32-bit	Half	1...5
34L0901	Netfinity 10/100 Ethernet Adapter	X	32-bit	Half	1...5
34L0301	Netfinity Gigabit Ethernet SX Adapter	X	32/64-bit	Half	1...5
	Token Ring				
34L0501	Token-Ring 100/16/4 High-Speed PCI Adapter	X	32-bit	Half	1...5
34L0601	Token-Ring 16/4 PCI Adapter 2	X	32-bit	Half	1...5
	Storage Controllers[4]				
02K3454	PCI Fast/Wide Ultra SCSI Adapter	-	32-bit	Half	1...5
01K7207	IBM Netfinity ServeRAID-3H Ultra2 SCSI Adapter[5]	X	64/32-bit	Full	1...5
28L1003	IBM Netfinity ServeRAID-3H 32MB Battery-Backup Cache[6]	-	-	-	-
01K7364	IBM Netfinity ServeRAID-3L Ultra2 SCSI Adapter[7]	X	32-bit	Full	1...5
32H3811	IBM SSA RAID Adapter for PC Servers[8]	-	32-bit	Full	1...5

1. Netfinity 5000 has an integrated 10/100 PCI Ethernet Controller which also supports failover from an IBM Netfinity 10/100 Fault Tolerant Adapter (P/N 08L3341).
2. These adapters support operation failover (without interruption) to a redundant adapter in the event of an adapter failure. For Network Operating System support and limitations, access URL http://www.ibm.com/pc/us/compat
3. Supports failover to onboard 10/100 controller. Up to four fault tolerant controllers are supported (including onboard 10/100). Failover limitations vary based on operating environment. For more information access URL http://www.ibm.com/pc/us/compat
4.Netfinity 5000 has two integrated Wide Ultra SCSI channels. One is internal and the other is external with a 68-pin High Density connector.
5. Netfinity ServeRAID-3H Ultra2 SCSI Adapter (P/N 01K7207) provides one internal and two external LVDS SCSI channels. The internal channel can be configured for external usage, providing a total of three external (0.8 mm VHDCI connectors) LVDS SCSI channels.
6.Installs on ServeRAID-3H P/N 01K7207 to help protect against data loss in write-back cache mode in the event of a power outage or adapter maintenance.
7. Provides one LVDS channel which is configurable for either internal or external (0.8 mm VHDCI connectors) usage.
8. System units with greater than 2 GB of system memory are limited to RAID 5 operation only.

Part Number	UPS[1]
SUP102Y	APC Smart-UPS 1000 (19min. runtime at 330VA)
SUP142Y	APC Smart-UPS 1400 (30min. runtime at 330VA)
14RIxxx	APC Smart-UPS 1400 RMB (23min. runtime at 330VA)
30RIxxx	APC Smart-UPS 3000 RMB (62min. runtime at 330VA)
	Redundant Power[2]
SPSR3xx	Netfinity 175 W Redundant Power Supply

Part Number	Monitors
4002Nxx	G42 Color Monitor 14” (13.2” Viewable Image Size), pearl-white
4102Nxx	G51 Color Monitor 15” (13.6” Viewable Image Size), pearl-white
466BNxx	G54 Color Monitor 15” (13.7” Viewable Image Size), stealth-black
476BNxx	G74 Color Monitor 17” (15.9” Viewable Image Size), stealth-black

1. Stated runtimes and power are for typical configurations (approx. 70% of max. capacity). For additional information see Appendix C UPS Runtime Estimate
2. Netfinity 5000 provides redundant 175W power supplies within a single 350W unit. By adding optional Netfinity 175W Redundant Power Supply (P/N SPSR3xx). N+1 redundancy is provided for up to 350W. See Netfinity 5000 Power Supply Redundancy Requirements table.

Netfinity 5000 Power Supply Redundancy Requirements							
Processor Qty.		**Memory**		**Hard Disk Drives[1]**		**Occupied PCI or ISA Slots**	**Power Supply Redundancy**
Power supply redundancy provided by standard power supplies							
1	and	≤ 512MB	and	≤ 3 SL	and	≤ 2	Standard
2	and	≤ 512MB	and	≤ 3 SL	and	≤ 1	Standard
Additional power supply (P/N SPSR3xx) required for power supply redundancy							
		> 512MB	or	> 3 SL	or	> 2	Optional[2]

1. Optional removable media devices count as either 1 HH or 1 SL hard disk drive.
2. Optional Netfinity 175 W Redundant Power Supply (P/N SPSR3xx) is required for preservation of power supply redundancy in robust configurations.

Part Number	Description	Bays Supported	Interface	Form Factor	Termination Included	68/50-pin Converter Incl.	Ext. Tape Enclosures[1]
01K1282	IBM 12/24GB DDS/3 4mm Internal Tape Drive	A	8	3.5" HH or 5.25" HH	Y[2]	Y	10L7440
01K1319	IBM 10/20GB NS Internal SCSI Tape Drive	A	8	3.5" SL or 5.25" HH	Y[2]	Y	10L7440, 03K8756
01K1325	IBM 20/40GB 8mm SCSI Tape Drive	A	16	5.25" HH	N[3]	-	10L7440[4]
	Associated Options						
32G3918	SCSI-2 16-bit Active Terminator	-	16	External	-	-	10L7440
36L9636	Netfinity Two-Drop Internal SCSI Cable[5]	-	16	Internal	Y	-	-
	External Tape Enclosures						
10L7440	External Half High SCSI Storage Enclosure[6]	-	8/16	Desktop	-	-	-
03K8756	IBM NetMEDIA Storage Expansion Unit EL[7]	-	16	Rack	-	-	-
	External Tape Libraries[8]						
3447xxx	3447 Digital Linear Library (desktop-105, rack-106)	-	16	Desktop or Rack	-	-	-
3449xxx	3449 8mm Tape Library (deskside-355, rack-356)	-	Diff.	Deskside or Rack	-	-	-
08L6xxx[9]	Magstar MP 3570 Tape Subsystem	-	Diff.	Rack	-	-	-

1. To determine cable requirements, note the tape drive's SCSI interface, the appropriate SCSI controller from the system configurator section, and the desired enclosure, then refer to Appendix D: Cables-Storage Units-Controllers.
2. Tape drive is capable of self termination.
3. Termination is provided by the system unit's standard SCSI cabling.
4. Requires SCSI-2 16-bit Active Terminator (P/N 32G3918).
5. Netfinity Two-Drop Internal SCSI Cable (P/N 36L9636) is a wide two-drop terminated cable and is required for attachment of internal tape drives to the onboard SCSI controller of a Netfinity 5000 when the hot-swap backplane is attached to a RAID controller.
6. Provides a black desktop 5.25" half-high (HH) tape enclosure. Connector is configurable as 50-pin Centronix or 68-pin high density. Requires either tape drive self termination or SCSI-2 16-bit Active Terminator (P/N 32G3918)
7. Provides a black 3U, 19" rack or NetBAY3 mountable tape enclosure. Provides two full high (FH) or four half high (HH) extended length 5.25" bays. External connector is 0.8mm VHDCI.
8. Tape library attributes and prerequisites are located in Appendix A: Tape Drive Attributes
9. For individual EMEA P/No's see Appendix B: Tape Library Table

NOTE: SCSI support for tape drives is provided by system unit onboard (standard) controller (no-RAID function) or PCI Fast Wide Ultra SCSI Adapter P/N 02K3454. When standard cabling is connected to a RAID controller, tape drives must utilize terminated Netfinity Two-Drop Internal SCSI Cable (P/N 36L9636), and attach to the onboard or other supported controller.

Other Selected Options

Note: For a complete list of all IBM and non-IBM option compatibility with network operating systems and IBM PC Servers, access the ServerProven™ compatibility pages on the Web at URL http://www.ibm.com/pc/us/compat

Part Number	Other Options
	Rack Related
10L6972	IBM Netfinity 5000 Rack-to-Tower Kit
10L7006	IBM Netfinity 5000 Tower-to-Rack Kit
9306900	IBM Netfinity Rack
9306200	Netfinity NetBAY22
	Keyboard and Mouse
28L364x	Space Saver Keyboard[2]
13H6705	IBM TrackPoint II Keyboard
76H011x	IBM 105-Key Keyboard[1]
12J3615	Black Sleek Mouse

1. x represents country specific code: 3=France, 4=Italy, 5=Germany, 6=Spain, 7=UK.
2. x represents country specific code: 0=US English, 1=UK, 2=France, 3=Germany.

Part Number	Description	Adapter Length
	External Storage Expansion Units[1]	**Form Factor**
SMS2xxx	IBM SCSI Multi-Storage Enclosure for IBM PC Servers	Tower
SEEExxx	IBM PC Server Enterprise Expansion Tower	Tower
SE2RXxx	IBM Netfinity EXP15 Storage Expansion	Rack (3U)
SA71xxx[2]	SSA Entry Storage Subsystem for PC Servers	Tower

1. External Storage Expansion Units require storage controllers and external cables. For specific configuration requirements see the Cables - Storage Units - Controllers section.
2. A preconfigured SA71xxx (3527-PR0) contains five 9.1GB HDDs (P/N 21H8734) and a 5 M cable pair (P/N 59H7222). Order P/N N7PROxx (see SA71 configurator for specific country codes).

Sample Configurations

Note: The following sample configurations are for illustration only and may not be suitable for any specific customer installation. Contact your IBM Business Partner or IBM Marketing Representative for assistance with your specific configuration requirements.

Internet Server

Description	Quantity	Part Number
IBM Netfinity 5000 (Pentium II 400/64MB/Open Bay)	1	922YExx
Netfinity 128MB SDRAM ECC RDIMM[1]	1	01K7262
IBM Netfinity ServeRAID-3L Ultra2 SCSI Adapter	1	01K7364
4.51GB Wide Ultra SCSI hot-swap Hard Disk Drive[2]	4	94G7429
IBM 20/40GB 8mm SCSI Tape Drive	1	01K1325
Netfinity Two-Drop Internal SCSI Cable	1	36L9636
G54 Color Monitor 15” (13.7” Viewable Image Size), stealth-gray	1	466BNxx
APC Smart-UPS 1000	1	SUP102Y
Netfinity 175 W Redundant Power Supply	1	SPSR3xx

1. For a total of 192MB of system memory.
2. For a total of 18.0GB of RAID protected Hot-Swap internal storage.

An internet server is a server that handles all requests from the internet (intranet or extranet). Usually, this type of server has the same characteristics as a file server. The main difference is that an internet server talks a different language (TCP/IP vs. NETBEUI or IPX/SPX) and often needs to do an extra security check (Firewall). In the case of an internet server, the server itself talks mostly to just one client, the Internet Service Provider (ISP), instead of many clients like a file server does.

With this in mind the IBM Netfinity 5000 was selected to provide an affordable price point for the growing internet server market with two way Pentium II processing, 192MB of system memory (expandable to 1GB), and availability features such as RAID protected internal hot-swap storage and APC Smart-UPS power protection.

The network configuration depends on the method that will be used to connect the server to the internet. Usually fast Ethernet routers are used, but if other methods are used, you can add the appropriate adapter. the configuration includes a tape backup unit for secure backup of critical data in the event of a system or storage failure.

File and Print Server

Description	Quantity	Part Number
IBM Netfinity 5000 (Pentium II 350/64MB/Open Bay)	1	912YExx
Netfinity 128MB SDRAM ECC RDIMM[1]	1	01K7262
IBM Netfinity ServeRAID-3L Ultra2 SCSI Adapter	1	01K7364
4.51GB Wide Ultra SCSI hot-swap Hard Disk Drive[2]	5	94G7429
IBM 20/40GB 8mm SCSI Tape Drive	1	01K1325
Netfinity Two-Drop Internal SCSI Cable	1	36L9636
G54 Color Monitor 15” (13.7” Viewable Image Size), stealth-gray	1	466BNxx
APC Smart-UPS 1000	1	SUP102Y

1. For a total of 192MB of system memory.
2. For a total of 22.5GB of RAID protected Hot-Swap internal storage.

A small business or departmental server is usually required to perform all typical server functions while servicing up to 100 users in a normal workgroup computing environment, but doesn’t require the high-end performance and fault tolerance properties of larger servers.
The sample configuration above consists of an IBM Netfinity 5000 with 192MB of memory and 22.5GB of hard disk space. It has enough processor power and memory to run most current network operating systems comfortably and enough hard disk drive space to store a significant amount of data with additional external storage expansion still available. Demanding network traffic is effectively handled by the standard 100 Mbps Ethernet connection.
This configuration also includes a tape backup unit, monitor, and a UPS to keep the system protected during power surges and outages.

Rack Mounted Application Server

Description	Quantity	Part Number
IBM Netfinity 5000 (Pentium II 450/64MB/Open Bay/Rack)	1	93RYExx
IBM 128 MB SDRAM ECC RDIMM[1]	2	01K7262
IBM Netfinity ServeRAID-3H Ultra2 SCSI Adapter	1	01K7207
IBM Netfinity 9.1GB 10K Wide Ultra SCSI SCA-2 SL HDD[2]	5	01K8054
IBM 20/40GB 8 mm SCSI Tape Drive	1	01K1325
Netfinity Two-Drop Internal SCSI Cable	1	36L9636
G54 Color Monitor 15” (13.7” Viewable Image Size), stealth-gray	1	466BNxx
APC Smart-UPS 1400RMB	1	SUP142Y
Netfinity 175 W Redundant Power Supply	1	SPSR3xx
Industry Standard 19” Rack, EIA-310D, Min. depth of 28” (711 mm)		
IBM Netfinity NetBAY22	1	9306200
Space Saver Keyboard	1	28L364x[3]
Blank Filler Kit	2	94G6670

1. For a total of 320MB of system memory.
2. For a total of 36.4GB useable RAID 5 storage (45.5GB total disk).
3. x represents country specific code: 0=US English, 1=UK, 2=France, 3=Germany.

An application server differs from a File and Print server in that it has a higher work load, in providing application serving requirements for users. With this in mind the IBM Netfinity 5000 was selected to provide an affordable price point for an application server, with two way Pentium II processing, 192MB of system memory (expandable to 1GB), and availability features such as RAID protected internal Hot-Swap storage and power protection with an APC Smart-UPS.

IBM Netfinity 5500 Configurator

Part Number	Pentium II Processor Speed (MHz)[6]	SMP Enabled	L2 ECC Cache. (KB)	Memory: std./max. (MB), speed (MHz)[5]	Form Factor	Hard Disk Drive: std. size, speed (RPM)	Internal Max. Hard Drive Capacity (GB)	Wide Ultra SCSI Controller	CD-ROM (IDE)	32 bit PCI Slots (Total/Avail)	16 bit ISA Slots	Advanced System Management Processor	Hot-Swap Components	Redundancy	Bays: (total, avail)	Ethernet (Mbps)
611XExx	350	2-way	512	128/1024	Tower[3]	-	109 (473)[4]	Dual Channel RAID	(32X-14X)[2]	6/6	1	Y	6 x HDD BAY 4 x PCI Slots Power & Fans	Fans, Power (Opt.)	10,8	10/100
61RXExx[1]	350	2-way	512	128/1024	Rack(8U)	-	109 (473)[4]	Dual Channel RAID	(32X-14X)[2]	6/6	1	Y	6 x HDD BAY 4 x PCI Slots Power & Fans	Fans, Power (Opt.)	10,8	10/100
641XExx	400	2-way	512	128/1024	Tower[3]	-	109 (473)[4]	Dual Channel RAID	(32X-14X)[3]	6/6	1	Y	6 x HDD BAY 4 x PCI Slots Power & Fans	Fans, Power (Opt.)	10,8	10/100
64RXExx[1]	400	2-way	512	128/1024	Rack(8U)	-	109 (473)[4]	Dual Channel RAID	(32X-14X)[2]	6/6	1	Y	6 x HDD BAY 4 x PCI Slots Power & Fans	Fans, Power (Opt.)	10,8	10/100
642XExx	400	2-way	512	256/1024[7]	Tower[3]	-	109 (473)[4]	Dual Channel RAID	(32X-14X)[2]	6/6	1	Y	6 x HDD BAY 4 x PCI Slots Power & Fans	Fans, Power (Opt.), LAN (Opt.)	10, 8	10/100
64SXExx[1]	400	2-way	512	256/1024[7]	Rack(8U)	-	109 (473)[4]	Dual Channel RAID	(32X-14X)[2]	6/6	1	Y	6 x HDD BAY 4 x PCI Slots Power & Fans	Fans, Power (Opt.), LAN (Opt.)	10, 8	10/100
651XExx	450	2-way	512	128/1024	Tower[3]		109 (473)[4]	Dual Channel RAID	(32X-14X)[2]	6/6	1	Y	6 x HDD Bay 4 x PCI Slots Power & Fans	Fans, Power (Opt.)	10, 8	10/100
65RXExx[1]	450	2-way	512	128/1024	Rack(8U)	-	109 (473)[4]	Dual Channel RAID	(32X-14X)[2]	6/6	1	Y	6 x HDD Bay 4 x PCI Slots Power & Fans	Fans, Power (Opt.)	10, 8	10/100
652XExx	450	2-way	512	256/1024[7]	Tower[3]	-	109 (473)[4]	Dual Channel RAID	(32X-14X)[2]	6/6	1	Y	6 x HDD BAY 4 x PCI Slots Power & Fans	Fans, Power (Opt.), LAN (Opt.)	10, 8	10/100
65SXExx[1]	450	2-way	512	256/1024[7]	Rack(8U)	-	109 (473)[4]	Dual Channel RAID	(32X-14X)[2]	6/6	1	Y	6 x HDD BAY 4 x PCI Slots Power & Fans	Fans, Power (Opt.), LAN (Opt.)	10, 8	10/100

1. Housed in a 19" Rack mountable drawer and ships standard without a keyboard or mouse. Requires IBM Netfinity Rack (9306900), Netfinity Netbay22 (9306200) or industry standard 19" Rack, EIA-310D, with a minimum depth of 28 inches.
2. Variable read rate. Actual playback speed will vary and is often less than the maximum possible.
3. Tower models come equipped with a single NetBAY3, 3U stackable enclosure. Up to a maximum of three are supported.
4. With a single Netfinity EXP15 Storage Unit installed in the standard NetBAY3.
5. All memory is 100 MHz ECC SDRAM. Netfinity models which have the Netfinity Upgrade for Pentium II Processors (P/N 01K8049) installed have maximum memory capacity of 2 GB
6. Processor access to memory is at 100 MHz.
7. Netfinity 5500 models 642XE, 64SXE, 652XE, and 65SXE contain a single registered DIMM (RDIMM) which is compatible with Netfinity Upgrade for Pentium II Xeon Processors (P/N 01K8049).

Processor Upgrades

Pentium II with 512KB Cache	Part Numbers	SMP Support[1]	Processor Speed/Cache Upgrade[2]
IBM Netfinity 350/100MHz, 512KB Processor Upgrade	10L5883	All 1xX	-
IBM Netfinity 400/100MHz, 512KB Processor Upgrade	10L5884	All 4xX	All 1xX
IBM Netfinity 450/100MHz, 512 KB Processor Upgrade	10L5900	All 5xX	All 1xX, 4xX
IBM Netfinity Upgrade for Pentium II Xeon Processors[3]	01K8049	-	All[3]

1. One additional processor may be installed, providing a max. of two.
2. Requires removal of the standard processor. A maximum of two processors may be installed. Upgrades may require a BIOS update. To obtain the latest Flash BIOS, access URL http://www.ibm.com/pc/support, then select PERSONAL SUPPORT then IBM SERVER SUPPORT. Choose a machine-type model, then select Downloadable files and choose the category labeled "BIOS".
3. Provides required components for upgrading an IBM Netfinity 5500 to a 2-way SMP Pentium II Xeon processor capable system. Key components include: two slot 2 processor sockets, 440Gx Host Bridge Controller, four RDIMM memory sockets, four VRM sockets, and terminator card. Components that are NOT included and must be ordered separately: processors, memory. All Netfinity 5500 models require processor replacement but only models xx1XExx and xxRXExx require memory replacement. Refer to Netfinity 5500 M10 configurator for option compatibility with any 5500 containing upgrade P/N 01K8049. A maximum of two processors may be installed. Upgrades may require a BIOS update. To obtain the latest Flash BIOS, access URL http://www.ibm.com/pc/support, then select PERSONAL SUPPORT, then IBM SERVER SUPPORT. Choose a machine-type model, then select Downloadable files and choose the category labeled "BIOS".

Memory Configurator

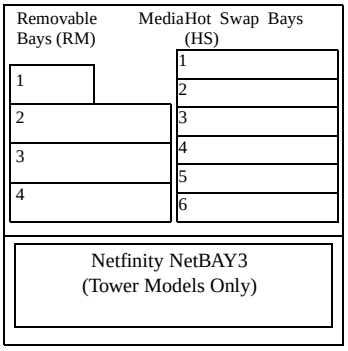
Total Memory	Models 1XE & RXE P/N's Required	Models 2XE & SXE P/N's Required
128MB	Standard	-
192MB	1 x 01K8022	-
256MB	1 x 01K8023	Standard
384MB	2 x 01K8023	-
512MB	3 x 01K8023	1 x 01K8043
768MB	3 x 01K8043[1]	2 x 01K8043
1024MB	4 x 01K8043 (max)[1]	3 x 01K8043(max)
1280MB	-	-
1536MB	-	-
1792MB	-	-
2048MB	-	-

This table does not represent all possible memory configurations.
1. Replace standard DIMMs.

DIMM Description	Part Number	Models 1XE and RXE	Models 2XE and SXE	Models Upgraded to Pentium II Xeon Processors
Netfinity 64MB SDRAM ECC DIMM[1]	01K8022	X	-	-
IBM 128MB SDRAM ECC DIMM[1]	01K8023	X	-	-
RDIMM Description				
Netfinity 128MB SDRAM ECC RDIMM[1,3]	01K7262	-	-	X[3]
Netfinity 256MB SDRAM ECC RDIMM[1]	01K8043	X[2]	X	X[3]
Netfinity 512MB SDRAM ECC RDIMM[1,3]	01K7263	-	-	X[3]

1. DIMMs must be installed in sequence beginning with slot 4 (J1) and ordered from largest to smallest.
2. Requires removal of standard DIMM and cannot co-exist with 64MB (P/N 01K8022) or 128MB (P/N 01K8023) DIMMs.
3. Requires Netfinity Upgrade for Pentium II Xeon Processors (01K8049).

Internal Hard Disk Configurator



Total Internal Disk Storage[1]	Part Number(s) Required (7200 RPM)				Part Number(s) Required (10,000 RPM)		
	4.5GB	9.1GB	18.2GB	36.4GB	4.5GB	9.1GB	18.2GB
0GB	Standard on Base Models				Standard on Base Models		
4.5GB	1 x 94G7429	-	-	-	1 x 01K8009	-	-
9.1GB	2 x 94G7429 or	1 x 01K8053	-	-	2 x 01K8009 or	1 x 01K8054	-
13.5GB	3 x 94G7429	-	-	-	3 x 01K8009	-	-
18.2GB	4 x 94G7429 or	2 x 01K8053 or	1 x 01K8055		4 x 01K8009 or	2 x 01K8054 or	1 x 01K8503
22.5GB	5 x 94G7429	-	-	-	5 x 01K8009	-	-
27.2GB	6 x 94G7429 or	3 x 01K8053	-	-	6 x 01K8009 or	3 x 01K8054	-
36.4GB	-	4 x 01K8053 or	2 x 01K8055 or	1 X 02K0441[3]	-	4 x 01K8054 or	2 x 01K8503
45.5GB	-	5 x 01K8053	-	-	-	5 x 01K8054	-
54.6GB	-	6 x 01K8053 or	3 x 01K8055	-	-	6 x 01K8054 or	3 x 01K8503
72.8GB	-	-	4 X 02K0440[2] or	2 X 02K0441[3]	-	-	-
91GB	-	-	5 X 02K0440[2]	-	-	-	-
109GB(max)	-	-	6 X 02K0440[2] or	3 X 02K0441[3]	-	-	-

This table does not represent all possible hard drive configurations.
1. Total Internal Storage listed is within ± 0.2GB unless otherwise noted.
2. Planned availability of February, 1999.
3. Planned availabilty of March, 1999.

Bay	Form Factor	Height	Front Access	Usage
RM 1	3.5”	SL	Yes	Diskette
RM 2	5.25”	HH	Yes	32X IDE CD-ROM
RM 3	5.25”	HH[1]	Yes	Open
RM 4	5.25”	HH[1]	Yes	Open
HS 1...6	HS	SL[2]	Yes	Open
NetBAY3[3]	19” Rack	3U	Yes	Open

1. Two half-high (HH) bays can be combined to support a single full-high device.
2. Two slim-line (SL) bays can be combined to support a single half-high device.
3. One NetBAY3 is standard and a total of three are supported (Tower Models Only). See IBM Netfinity NetBAY3 Stackable Enclosure section for supported devices.

Part Numbers	Description	RPM	Height	Bays Supported	Max. Qty.
94G7429	4.51GB Wide Ultra SCSI Hot-swap HDD	7200	SL	HS 1...6	6
01K8053	IBM Netfinity 9.1GB Wide Ultra SCSI SCA-2 SL HDD	7200	SL	HS 1...6	6
01K8055	IBM Netfinity 18.2GB Wide Ultra SCSI SCA-2 HDD[1]	7200	HH	HS 1/2, 3/4, 5/6	3
02K0440	IBM Netfinity 18.2GB Wide Ultra SCSI Hot-Swap SL HDD[2]	7200	SL	HS 1...6	6
02K0441	IBM Netfinity 36.4GB Wide Ultra SCSI Hot-Swap HDD[3]	7200	HH	HS 1/2, 3/4, 5/6	3
01K8009	IBM Netfinity 4.51GB 10K Wide Ultra SCSI SCA-2 HDD	10,000	SL	HS 1...6	6
01K8054	IBM Netfinity 9.1GB 10K Wide Ultra SCA-2 SL HDD	10,000	SL	HS 1...6	6
01K8503	IBM Netfinity 18.2GB 10K Wide Ultra SCSI SCA-2 HDD[1,]	10,000	HH	HS 1/2, 3/4, 5/6	3

1. Two slim-line (SL) bays can be combined to support a single half-high device.
2. Planned availability of February 1999
3. Planned availability of March 1999

Internal SCSI Cabling

Netfinity 5500 and 5500 M10 systems contain a backplane supporting six hot-swap drive bays. The backplane is connected to one of the two connectors of the integrated dual-channel ServeRAID controller through a 16-bit SCSI cable. A two-drop, 16-bit SCSI cable, with an integrated terminator, is included with the server to support up to two internal removable media devices connected to the second connector or a supported SCSI adapter. Optional Netfinity SCSI Controller Cable (P/N 03K9131) is a 16-bit cable that can be attached to the second connector and routed to the rear panel cutout providing an external 16-bit VHDCI 0.8mm connector. If internal removable devices are required, in addition to external RAID device attachment, a supported SCSI adapter must be installed using the standard two-drop SCSI cable for device/adapter connection. If connecting narrow devices to this cable, additional 68-pin to 50-pin converters (P/N 32G3925) must be ordered. Some narrow devices include a converter in their ship group.

Typical Options

Adapter Slots

ISA - Full Length
1 Hot Plug PCI Full Length
2 Hot Plug PCI Full Length
3 Hot Plug PCI Full Length
4 Hot Plug PCI Full Length
5 PCI Full Length(Primary Bus)
6 PCI Full Length(Primary Bus)

Part Numbers	Ethernet[1]	Hot-Plug[4] (Y/N)	Failover Support[6]	Adapter Length	Slots Supported[5]
08L3341	IBM Netfinity 10/100 Fault Tolerant Adapter[1, 2]	X	X[2]	Half	1...6
34L0301	IBM Netfinity Gigabit Ethernet SX Adapter[1]	X	X	Half	1...6
34L0901	IBM 100/10 Ethernet PCI Adapter[1]		X	Half	1...6
	Token Ring				
34L0501	Token-Ring 100/16/4 High-Speed PCI Adapter	-	X	Half	1...6
34L0601	Token-Ring 16/4 PCI Adapter 2	-	X	Half	1...6
	UPS[3]				
SUP142Y	APC Smart-UPS 1400 (28min. runtime at 375VA)				
14RIxxx	APC Smart-UPS 1400RMB (21min. runtime at 375VA)				
30RIxxx	APC Smart-UPS 3000RMB (55min. runtime at 375VA)				

1. Netfinity 5500 and 5500 Mxx have an integrated 10/100 PCI Ethernet controller which also supports failover from an IBM Netfinity 10/100 Fault Tolerant Adapter (P/N 08L3341).
2. Supports failover to onboard 10/100 controller. Up to four fault tolerant controllers are supported (including onboard 10/100). Failover limitations vary based on operating environment. For more information access URL http://www.ibm.com/pc/us/compat
3. Stated runtimes and power are for typical configurations (approximately 70% of maximum capacity). For addition information see Appendix C: UPS Runtime Estimate.
4. Hot Plug capable. For Network Operating System support access URL http://www.ibm.com/pc/us/compat
5. PCI Slots 1, 2, 3 and 4 support Hot Plug devices.
6. These adapters support operation failover (without interruption) to a redundant adapter in the event of an adapter failure. For Network Operating System support and limitations, access URL http://www.ibm.com/pc/us/compat
7. A maximum of four 34L0901 adapters are supported.

Part Number	Monitors
4002Nxx	G42 Color Monitor 14” (13.2” Viewable Image Size), pearl-white
4102Nxx	G51 Color Monitor 15” (13.6: Viewable Image Size), pearl-white
466BNxx	G54 Color Monitor 15” (13.7” Viewable Image Size), stealth-gray
476BNxx	G74 Color Monitor 17” (15.9” Viewable Image Size), stealth-gray

Part Number	Description	Bays Supported	SCSI Interface (bit)	Form Factor	Termination Included	68/50- pin Converter Incl.	Ext. Tape Encl.[1]
01K1282	IBM 12/24GB DDS/3 4mm Internal Tape Drive	RM 3, 4	8	3.5” HH or 5.25” HH	Y[6]	Y	10L7440
01K1325	IBM 20/40GB 8mm SCSI Tape Drive	RM 3, 4	16	5.25” HH	N[7]	-	10L7440[2]
01K1320	IBM 20/40GB DLT SCSI Tape Drive	RM 3/4[8]	8	5.25” FH	Y[7]	Y	03K8705[2], 03K8756
04K0149	IBM 35/70GB DLT SCSI Tape Drive	RM 3/4[8]	16	5.25” FH	N[7]	-	03K8705[2], 03K8756
	Associated Options						
32G3918	SCSI-2 16-bit Active Terminator	-	16	External	-	-	10L7440, 03K8705
	External Tape Enclosures						
10L7440	External Half High SCSI Storage Enclosure[3]	-	8/16	Desktop			
03K8756	IBM NetMEDIA Storage Expansion Unit EL[4]	-	16	Rack			
03K8705	IBM DLT External SCSI Enclosure[5]	-	16	Desktop			
	External Tape Libraries[9]						
3447xxx	3447 Digital Linear Library (desktop-105, rack-106)	-	16	Desktop or Rack			
3449xxx	3449 8mm Tape Library (deskside-355, rack-356)	-	Diff.	Deskside or Rack			
08L6xxx[10]	Magstar MP 3570 Tape Subsystem	-	Diff.	Rack			

1. To determine cable requirements, note the tape drive’s SCSI interface, the appropriate SCSI controller from the system configurator section, and the desired enclosure and then refer to Appendix D: Cables - Storage Units - Controllers.
2. Requires SCSI-2 16-bit Active Terminator (P/N 32G3918).
3. Provides a black desktop 5.25” half-high (HH) tape enclosure. Connector is configurable as 50-pin Centronix or 68-pin high density. Requires either tape drive self termination or SCSI-2 16-bit Active Terminator (P/N 32G3918).
4. Provides a black 3U, 19” rack or NetBAY3 mountable tape enclosure. Provides two full high (FH) or four half high (HH) extended length 5.25” bays. External connector is 0.8mm VHDCI.
5. Provides a black desktop DLT tape enclosure. External connector is 68-pin high density. Requires SCSI-2 16-bit Active Terminator (P/N 32G3918)
6. Tape drive is capable of self termination.
7. Termination is provided by the system unit’s standard SCSI cabling.
8. Two Half-High (HH) bays can be combined to support a single Full-High (FH) device..
9. Tape library attributes and prerequisites are located in Appendix A: Tape Drive Attributes
10. For EMEA P/No’s see Appendix: B Tape Library Table

NOTE: SCSI support for tape drives is provided by system unit onboard (standard) controller (no-RAID function) or PCI Fast Wide Ultra SCSI Adapter P/N 02K3454. Additional tape attributes can be found in Appendix A: Tape Drive Attributes.

Other Selected Options

Note: For a complete list of all IBM and non-IBM option compatibility with network operating systems and IBM PC Servers, access the ServerProven™ compatibility pages on the Web at URL http://www.pc.ibm.com/us/compat/

Part Number	Other Options
	Power
SPSR2xx	IBM Netfinity 400 W Hot-Swap Redundant Power Supply II[1]
	Cables
03K9313	IBM Netfinity SCSI Controller Cable (0.8mm)[2]
32G3925	SCSI 68-pin to 50-pin Convertor
	Rack and NetBAY3 Related
01K8021	IBM Netfinity 5500 Rack-to-Tower Kit[3]
01K8020	IBM Netfinity 5500 Tower-to-Rack Kit
9306900	IBM Netfinity Rack[4]
9306200	IBM Netfinity NetBAY22[4]
10L6912	IBM Netfinity NetBAY3[5]
10L6913	IBM Netfinity Caster Set
	Keyboard and Mouse[6]
13H6705	IBM TrackPoint II Keyboard
28L364x	Space Saver Keyboard[7]
84G6537	TrackPoint Caps
76H011x	IBM 105-Key Keyboard[8]
12J3615	Black Sleek Mouse

1. Includes a power cable that requires a additional power source.
2. Used for routing the second internal SCSI RAID channel to an ext. 0.8mm connector. Can be used with IBM .8mm to 68-pin SCSI adapter P/N 01K8017 to provide an ext. 68-pin connector.
3. Includes one Netfinity NetBay3
4.See IBM Netfinity Rack Cabinet and Options section for supported devices.
5. One NetBAY3 is included with tower models and a total of three are supported. See IBM Netfinity NetBAY3 Stackable Enclosure section for supported devices.
6. Tower models include both a mouse and a keyboard.
7. x represents country specific code: 0=US English, 1=UK, 2=France, 3=Germany.
8. x represents country specific code: 3=France, 4=Italy, 5=Germany, 6=Spain, 7=UK.

Part Number	Description	Hot-Plug[1]	Failover Support[9]	PCI Bus Support	Adapter Length	Slots Supported[2]
	Storage Controllers					
02K3454	PCI Fast/Wide Ultra SCSI Adapter	-	-	32-bit	Half	1...6
01K7207	IBM Netfinity ServeRAID-3H Ultra2 SCSI Adapter[3]	X	X	64/32-bit	Full	1...6
28L1003	IBM Netfinity ServeRAID-3H 32MB/Battery-Backup Cache[4]	-	-	-	-	-
01K7364	IBM Netfinity ServeRAID-3L Ultra2 SCSI Adapter[5]	X	X	32-bit	Full	1...6
01K7297	Netfinity Fibre Channel PCI Adapter[6]	-	-	64/32-bit	Half	1...6
32H3811	IBM SSA RAID Adapter for PC Servers[7]	-	-	32-bit	Full	1...4
	External Storage Expansion Units[8]					
SE2RXxx	IBM Netfinity EXP15	-				
SA71xxx[10]	SSA Entry Storage Subsystem for PC Servers	-				
SMS2xxx	IBM SCSI Multi-Storage Enclosure for IBM PC Servers	-				
SEEExxx	IBM PC Server Enterprise Expansion Tower	-				

1. Hot-Plug capable. For Network Operating System support access URL http://www.ibm.com/pc/us/compat
2. PCI Slots 1, 2, 3 and 4 support Hot-Plug devices.
3. Netfinity 5500 and 5500 Mxx have two integrated ServeRAID II channels. Netfinity ServeRAID-3H Ultra2 SCSI Adapter (P/N 01K7207) provides one internal and 2 external LVDS SCSI channels. The internal channel can be configured for external usage providing a total of 3 external LVDS SCSI channels.
4. Installs on ServeRAID-3H P/N01K7207 to help protect against data loss in write-back cache mode in the event of a power outage or adapter maintenance.
5. Netfinity 5500 and 5500 Mxx have two integrated SeveRAID II channels. Netfinity ServeRAID-3L Ultra2 SCSI Adapter (01K7364) provides either one internal or one external LVDS SCSI channel.
6. See Netfinity Fibre Channel Solutions section for additional configuration information.
7. System units with greater than 2GB of system memory are restricted to RAID 5 operation only.
8. External Storage Expansion Units require storage controllers and external cables. For specific configuration requirements, see Appendix D: Cables - Storage Units - Controllers.
9. These adapters support operation failover, without interruption, to a redundant adapter in the event of an adapter failure. For Network Operating System support and limitations, access URL http://www.ibm.com/pc/us/compat
10. A preconfigured SA71xxx (3527-PR0) contains five 9.1GB HDDs (P/N 21H8734) and a 5 M cable pair (P/N 59H7222). Order P/N 34H8388.

Sample Configurations

Note: The following sample configurations are for illustration only and may not be suitable for any specific customer installation. Contact your IBM Business Partner or IBM Marketing Representative for assistance with your specific configuration requirements.

High Availability

Description	Quantity	Part Number	Usage
IBM Netfinity 5500 (Pentium II 350/128MB/0GB, Tower & NetBAY3)	1	611XExx	
4.51GB Wide Ultra SCSI hot-swap HDD	2	94G7429	NOS on mirrored HDD's
IBM Netfinity 9.1GB Wide Ultra SCSI SCA-2 SL HDD	4	01K8053	RAID 5 with Hot-Spare
IBM 20/40GB Digital Linear Tape Internal SCSI Tape Drive, black	1	01K1320	
IBM Netfinity 10/100 Fault Tolerant Adapter	1	08L3341	Failover to Integrated Ether.
External V.34 Data/Fax Modem	1	7852400	Remote Management
IBM Netfinity 400 W Hot-swap Redundant Power Supply	1	SPSR2xx	
APC Smart-UPS 1400 RMB	1	14RIxxx	Installed in NetBAY3
G54 Color Monitor 15" (13.7" Viewable Image Size), stealth-gray	1	466BNxx	

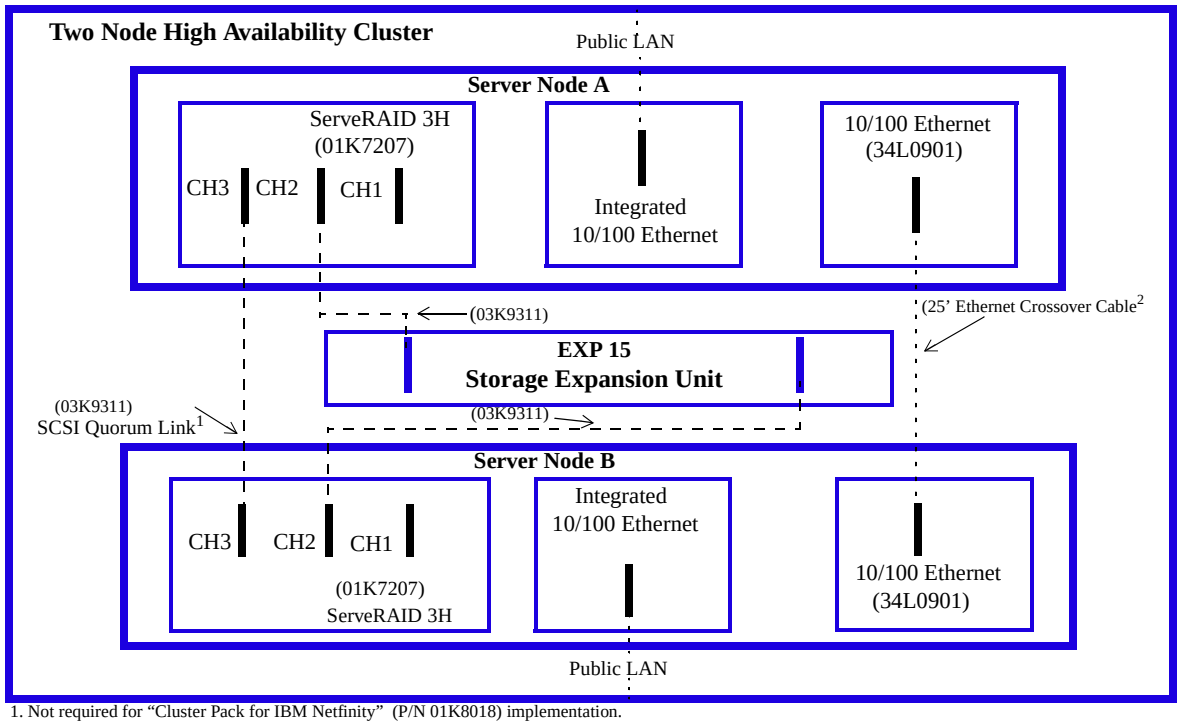
This tower server is configured to act as the foundation for business critical applications, applications your business cannot afford to be without. Configured with enough disk drives to mirror the operating system and provide a standard RAID 5 environment for data, optional hot-swap redundant power, a UPS for power even during a blackout, and an Ethernet adapter that can failover to the onboard Ethernet controller this server represents the leading edge in high availability. An internal tape drive is included to back-up that all important asset..... data, and a modem is included to allow out-of-band (non-Lan) system management utilizing the Advanced Remote Management processor.

WEB Server

Description	Quantity	Part Number	Usage
IBM Netfinity 5500 (Pentium II 350/128MB/0GB, Tower & NetBAY3)	1	611XExx	
IBM 128MB SDRAM ECC DIMM	3	01K8023	Total Memory: 512MB
IBM Netfinity 9.1GB 10K Wide Ultra SCSI SCA-2 SL HDD	6	01K8054	RAID 5 Data Storage
High Speed ISDN connection[1]	1	footnote 1	Connection to WEB
IBM 20/40GB DLT SCSI Tape Drive, black	1	01K1320	
IBM PCI Fast/wide Ultra SCSI Adapter	1	02K3454	Tape Controller
IBM Netfinity SCSI Controller Cable	1	03K9313	Provides external RAID
IBM Netfinity NetBAY3	1	10L6912	Enclosure for EXP15
IBM Netfinity EXP15 Storage Expansion Unit	1	SE2RXxx	Provides additional 10 Bays
IBM Netfinity EXP10 9.1GB 10K Wide Ultra SCSI SL SCA-2 HDD	5	01K8499	RAID 5 Data Storage
Netfinity 2M Ultra2 SCSI Cable	1	03K9310	Attaches EXP15 to 03K9313
IBM Netfinity 400 W Hot-swap Redundant Power Supply II	1	SPSR2xx	
APC Smart-UPS 1400 RMB	1	14RIxxx	Installed in NetBAY3
G54 Color Monitor 15" (13.7" Viewable Image Size), stealth-gray	1	466BNxx	

1. Select from ServerProven options found on the WEB at URL http://www.pc.ibm.com/us/compat

This tower model is configured as the perfect WEB presence for a company ready for eBusiness. With enough disk storage to host a large sales catalog, an optional hot-swap power supply and UPS so that your server is ready when your customers are ready to order, and an ISDN adapter to allow for a speedy connection into the WEB infrastructure, on top of all the integrated high-availability features make this the ideal server for electronic commerce.



1. Not required for "Cluster Pack for IBM Netfinity" (P/N 01K8018) implementation.
2. Included with "Cluster Pack for IBM Netfinity" (P/N 01K8018).

Two Node High Availability Cluster[1]

Description	Qty.	Part Number	Usage
Server Nodes A & B			
IBM Netfinity 5500 (Pentium II 450/128MB/0GB, Rack) (8U)	2	65RXExx	
IBM Netfinity 400/100MHz, 512KB Processor Upgrade	2	10L5900	Dual SMP Processing
IBM 128 MB SDRAM ECC DIMM	2	01K8023	Total Memory: 256MB
4.51GB Wide Ultra SCSI Hot-swap HDD	4	94G7429	NOS on mirrored HDD's
IBM ServeRAID II Ultra SCSI Adapter[4]	2	01K7207	Two channels for EXP10's
IBM 10/100 Ethernet PCI Adapter[3]	2	34L0901	Private Interconnect
IBM 35/70GB DLT SCSI Tape Drive	1	04K0149	
PCI Fast/Wide Ultra SCSI Adapter	1	02K3454	Tape drive controller
External V.34 Data/Fax Modem	2	7852400	Remote Management
IBM Netfinity 400 W Hot-swap Redundant Power Supply II	2	SPSR2xx	
APC Smart-UPS 1400 RMB (3U)	2	14RIxxx	
Storage Expansion Unit			
IBM Netfinity EXP15 Storage Expansion Unit[4]	1	SE2RXxx	
IBM Netfinity EXP10 9.1GB Wide Ultra SCSI SCA-2 HDD[4]	5	01K7959	RAID 5 Shared Storage
Netfinity 4.2M Ultra2 SCSI Cable[4]	2	03K9311	Attach EXP15 to Servers
Shared (or single occurrence) Resources			
G54 Color Monitor 15" (13.7" Viewable Image Size), stealth-gray	1	466BNxx	
Space Saver Keyboard	1	28L3640	
Netfinity 4.2M Ultra2 SCSI Cable	1	03K9311	SCSI Quorum Link[2]
Industry Standard 19" Rack, EIA-310D, Min. depth of 28"			
IBM 9306-900 Netfinity Rack	1	9306900	
Monitor Compartment (9U)	1	94G7444	
Netfinity Rack Keyboard Tray (2U)	1	28L4707	
Console Server Selector Switch	1	94G7445	
Power Cable-Type C12	2	94G7448	
12ft. Console Cable Set	2	94G7447	
Side Panel Kit	1	94G6669	
Blank Filler Kit	1	94G6670	

1. Certified for Microsoft Cluster Server and supported with "Cluster Pack for IBM Netfinity [3]" (P/N 01K8018) running High Availability for Netware and a ServeRAID -3H Ultra2 SCSI Adapter (P/N 01K7207).
2. Not required for "Cluster Pack for IBM Netfinity" (P/N 01K8018) implementation.
3. Requires a Private Interconnect Cable (25ft. Ethernet Crossover Cable) which is included with "Cluster Pack for IBM Netfinity" (P/N 01K8018).
4. By replicating these items, up to a total quantity of four ServeRAID 3H Adapters (plus options) and eleven EXP15's can provide over 2 Terabytes of storage. Additional power and Rack space will be required.

Clustering is a group of interconnected computers used as a single, unified computing resource. Clustering Netfinity servers, like the IBM Netfinity 5500, provides a high availability solution to keep you in touch with the key applications you need to run your business. High availability solutions are available from IBM to support NT, OS/2, and NetWare operating environments. By using the IBM Netfinity Rack, a high availability cluster with scalable storage expansion can be installed in less floor space.

This sample configuration consists of paired IBM Netfinity 5500 cluster nodes equipped with two-way SMP capability and redundant power supplies. Microsoft Cluster Server (MSCS) has been certified on IBM Netfinity 5500 servers, using the IBM ServeRAID-3H with the EXP15 Storage Expansion Unit. MSCS allows two configured servers, referred to as nodes, to be connected together to form a cluster. Providing system redundancy means that a complete server can fail and client access to server resources is largely unaffected. MSCS extends this theme by also allowing software failures at an application level as well as an operating system level. If the operating system fails, all applications and services can be restarted on another server, and if just one application fails, it can be managed by MSCS individually. An additional independent network connection is used to perform monitoring within the cluster. One or more disk subsystems are attached to both nodes. In the above example, an IBM EXP15 was selected and the IBM ServeRAID -3H Ultra2 SCSI Adapters provided the I/O control. MSCS requires a dedicated SCSI channel to act as a "SCSI heartbeat" connection. This connection, between the third channel of the ServeRAID II Adapter in each node, logically attaches the quorum disk which allows arbitration when a failure occurs.

Additional information on IBM Netfinity and IBM PC Server Clustering Solutions may be found on the World Wide Web by accessing URL http://www.ibm.com/us/netfinity/clustering.html

IBM Netfinity 5500 M10 Configurator

Part Number	Pentium II Xeon Processor Speed (MHz)[6]	SMP Enabled	L2 ECC Cache. (KB)	Memory: std./max. (MB), speed (MHz)[5]	Form Factor	Internal Max. Hard Drive Capacity (GB)	Wide Ultra SCSI Controller	CD-ROM (IDE)	32 bit PCI Slots (Total/Avail)	16 bit ISA Slots	Advanced System Management Processor	Hot-Swap Components	Redundancy	HDD Bays: (total, avail)	Ethernet (Mbps)
11RYExx[1]	400	2-way	512	128/ 2048	Rack(8U)	109	Dual Channel RAID	32X-14X[2]	6/6	1	Y	6 x HDD BAY 4 x PCI Slots Power & Fans	Fans, Power(Opt.), LAN (Opt.)	10, 8	10/100
111YExx	400	2-way	512	128/ 2048	Tower[3]	109 (473)[4]	Dual Channel RAID	32X-14X[2]	6/6	1	Y	6 x HDD BAY 4 x PCI Slots Power & Fans	Fans, Power(Opt.), LAN (Opt.)	10, 8	10/100
12RYExx[1]	400	2-way	1024	128/ 2048	Rack(8U)	109	Dual Channel RAID	32X-14X[2]	6/6	1	Y	6 x HDD BAY 4 x PCI Slots Power & Fans	Fans, Power(Opt.), LAN (Opt.)	10, 8	10/100
631YExx	450	2-way	512	128/ 2048	Tower[3]	109, (473)[4]	Dual Channel RAID	32X-14X[2]	6/6	1	Y	6 x HDD Bays 4 x PCI Slots Power & Fans	Fans, Power(Opt.), LAN (Opt.)	10, 8	10/100
63RYExx[1]	450	2-way	512	128/ 2048	Rack(8U)	109	Dual Channel RAID	32X-14X[2]	6/6	1	Y	6 x HDD Bays 4 x PCI Slots Power & Fans	Fans, Power(Opt.), LAN (Opt.)	10, 8	10/100
64RYExx[1]	450	2-way	1024	128/ 2048	Rack(8U)	109	Dual Channel RAID	32X-14X[2]	6/6	1	Y	6 x HDD Bays 4 x PCI Slots Power & Fans	Fans, Power(Opt.), LAN (Opt.)	10, 8	10/100

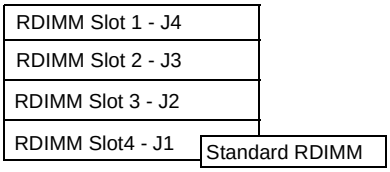
1. Housed in a 19" Rack mountable drawer and ships standard without a keyboard or mouse. Requires IBM Netfinity Rack (9306900), Netfinity NetBAY22 (9306200), or industry standard 19" Rack, EIA-310D, with a minimum depth of 28 inches (711.2 mm) and rack rail to front door clearance of 3 inches (75.4 mm).
2. Variable read rate. Actual playback speed will vary and is often less than the maximum possible.
3. Tower models come equipped with a single NetBAY3, 3U stackable enclosure. Up to a maximum of three are supported.
4. With a single Netfinity EXP15 installed in the standard NetBAY3.
5. All memory is 100 MHz ECC SDRAM.
6. Intel Pentium II Xeon® processors perform external operations to memory and the I/O bus subsystems at 100MHz.

Processor Upgrades

Pentium II Xeon Processors with 512KB or 1MB Cache	Part Number	SMP Support[1]	Processor Speed/Cache Upgrade[2]
Netfinity 5500 400MHz/512KB Upgrade	01K7264	All 1xY	-
Netfinity 5500 400MHz/1MB Upgrade	10L5894	All 2xY	All 1xY
Netfinity 5500 450MHz/ 512KB Upgrade	10L5901	All 3xY	All 1xY, 2xY
Netfinity 5500 450MHz/ 1MB Upgrade	10L5902	All 4xY	All 1xY, 2xY, 3xY

1. One additional processor may be installed, providing a maximum of two. Detailed information about planned four-way SMP support for Pentium II Xeon processors is not yet available and is subject to change.
2. Requires removal of the standard processor. A maximum of two processors may be installed. Upgrades may require a BIOS update. To obtain the latest flash BIOS, access URL http://www.ibm.com/pc/support then select IBM SERVER SUPPORT. Choose a machine-type model, then select Downloadable files and choose the category labeled "BIOS".

Memory Configurator



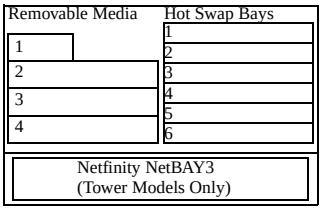
Memory Description	Part Number
Netfinity 128MB SDRAM ECC RDIMM[1]	01K7262
Netfinity 256MB SDRAM ECC RDIMM[1]	01K8043
Netfinity 512MB SDRAM ECC RDIMM[1]	01K7263

1. RDIMMs must be installed in sequence beginning with Slot 4 (J1) and ordered from largest to smallest.

Total Memory	Part Number(s) Required
128MB	Standard on all Models
256MB	1 x 01K7262
384MB	1 x 01K8043
640MB	1 x 01K7263
896MB	1 x 01K8043, 1 x 01K7263
1152MB	2 x 01K7263
1664MB	3 x 01K7263
2048MB (max)	4 x 01K7263[1]

This table does not represent all possible memory configurations.
1. Replace standard RDIMMs.

Hard Disk Configurator



Total Internal Disk Storage[1]	Part Number(s) Required (7200RPM)				Part Number(s) Required (10,000RPM)		
	4.5GB	9.1GB	18.2GB	36.4GB	4.5GB	9.1GB	18.2GB
0GB	Standard on Base Models				Standard on Base Models		
4.5GB	1 x 94G7429	-	-	-	1 x 01K8009	-	-
9.1GB	2 x 94G7429 or	1 x 01K8053	-	-	2 x 01K8009 or	1 x 01K8054	-
13.5GB	3 x 94G7429	-	-	-	3 x 01K8009	-	-
18.2GB	4 x 94G7429 or	2 x 01K8053 or	1 x 01K8055		4 x 01K8009 or	2 x 01K8054 or	1 x 01K8503
22.5GB	5 x 94G7429	-	-	-	5 x 01K8009	-	-
27.2GB	6 x 94G7429 or	3 x 01K8053	-	-	6 x 01K8009 or	3 x 01K8054	-
36.4GB	-	4 x 01K8053 or	2 x 01K8055	1 X 02K0441[3]	-	4 x 01K8054 or	2 x 01K8503
45.5GB	-	5 x 01K8053	-	-	-	5 x 01K8054	-
54.6GB	-	6 x 01K8053 or	3x 01K8055	-	-	6 x 01K8054 or	3 x 01K8503
72.8GB	-	-	4 X 02K0440[2] or	2 X 02K0441[3]	-	-	-
91GB	-	-	5 X 02K0440[2]	-	-	-	-
109GB(max)	-	-	6 X 02K0440[2] or	3 X 02K0441[3]	-	-	-

This table does not represent all possible hard drive configurations.
1. Total internal storage listed is within ± 0.2GB unless otherwise noted.
2. Planned availability of February 1999.
3. Planned availability of March, 1999.

Bay	Form Factor	Height	Front Access	Usage
RM 1	3.5”	SL	Yes	Diskette
RM 2	5.25”	HH	Yes	IDE CD-ROM
RM 3	5.25”	HH[1]	Yes	Open
RM 4	5.25”	HH[1]	Yes	Open
HS 1...6	HS	SL[2]	Yes	Open
NetBAY3[3]	19” Rack	3U	Yes	Open

1. Two half-high (HH) bays can be combined to support a single full-high device.
2. Two slim-line (SL) bays can be combined to support a single half-high device.
3. One NetBAY3 is included with tower models and a total of three are supported. See IBM Netfinity NetBAY3 Stackable Enclosure section for supported devices.

Part Numbers	Description	RPM	Height	Bays Supported	Max. Qty.
94G7429	4.51GB Wide Ultra SCSI Hot-swap HDD	7200	SL	HS 1...6	6
01K8053	IBM Netfinity 9.1GB Wide Ultra SCSI SCA-2 SL HDD	7200	SL	HS 1...6	6
01K8055	IBM Netfinity 18.2GB Wide Ultra SCSI SCA-2 HDD[1]	7200	HH	HS 1/2, 3/4, 5/6	3
02K0440	IBM Netfinity 18.2GB Wide Ultra SCSI Hot-Swap SL HDD[2]	7200	SL	HS 1...6	6
02K0441	IBM Netfinity 36.4GB Wide Ultra SCSI Hot-Swap HDD[3]	7200	HH	HS 1/2, 3/4, 5/6	3
01K8009	IBM Netfinity 4.51GB 10K Wide Ultra SCSI SCA-2 HDD	10,000	SL	HS 1...6	6
01K8054	IBM Netfinity 9.1GB 10K Wide Ultra SCA-2 SL HDD	10,000	SL	HS 1...6	6
01K8503	IBM Netfinity 18.2GB 10K Wide Ultra SCSI SCA-2 HDD[1]	10,000	HH	HS 1/2, 3/4, 5/6	3

1. Two slim-line (SL) bays can be combined to support a single half-high device.
2. Planned availability February 1999
3. Planned availability March 1999

Internal SCSI Cabling

Netfinity 5500 M10 systems contain a backplane supporting six hot-swap drive bays. The backplane is connected to one of the two connectors of the integrated dual-channel ServeRAID controller through a 16-bit SCSI cable. A two-drop, 16-bit SCSI cable, with an integrated terminator, is included with the server to support up to two internal removable media devices connected to the second connector or a supported SCSI adapter. Optional Netfinity SCSI Controller Cable (P/N 03K9313) is a 16-bit cable that can be attached to the second connector and routed to the rear panel cutout providing an external 16-bit VHDCI 0.8mm connector. If internal removable devices are required, in addition to external RAID device attachment, a supported SCSI adapter must be installed using the standard two-drop SCSI cable for device/adapter connection. If connecting narrow devices to this cable, additional 68-pin to 50-pin converters (P/N 32G3925) must be ordered. Some narrow devices include a converter in their ship group.

Typical Options

Part Number	Ethernet[1]	Hot-Plug[4]	Failover Support[6]	Adapter Length	Slots Supported[5]
08L3341	IBM Netfinity 10/100 Fault Tolerant Adapter[1, 2]	X	X[2]	Half	1...6
34L0901	IBM Netfinity 10/100 Ethernet Adapter[1]	X	X	Half	1...6[7]
34L0301	IBM Netfinity Gigabit Ethernet SX Adapter[1]	X	X	Half	1...6
	Token Ring				
34L0501	Token-Ring 100/16/4 High-Speed PCI Adapter	-	X	Half	1...6
34L0601	Token-Ring 16/4 PCI Adapter 2	-	X	Half	1...6
	UPS[3]				
SUP142Y	APC Smart-UPS 1400 (26 min. runtime at 375 VA)				
14RIxxx	APC Smart-UPS 1400RMB (21min. runtime at 375 VA)				
30RIxxx	APC Smart-UPS 3000RMB (55 min. runtime at 375 VA)				

Adapter Slots

ISA - Full Length
1 Hot Plug PCI Full Length
2 Hot Plug PCI Full Length
3 Hot Plug PCI Full Length
4 Hot Plug PCI Full Length
5 PCI Full Length(Primary Bus)
6 PCI Full Length(Primary Bus)

1. Netfinity 5500 and 5500 Mxx has an integrated 10/100 PCI Ethernet controller which also supports failover from an IBM Netfinity 10/100 Fault Tolerant Adapter (P/N 08L3341).
2. Supports failover to onboard 10/100 controller. Up to four fault tolerant controllers are supported (including onboard 10/100). Failover limitations vary based on operating environment. For more information access URL http://www.ibm.com/pc/us/compat
3. Stated runtimes and power are for typical configurations (approximately 70% of maximum capacity). For additional information see Appendix C: UPS Runtime Estimate.
4. Hot Plug capable. For Network Operating System support access URL http://www.ibm.com/pc/us/compat
5. PCI Slots 1, 2, 3 and 4 support Hot Plug devices.
6. These adapters support operation failover (without interruption) to a redundant adapter in the event of an adapter failure. For Network Operating System support and limitations, access URL http://www.ibm.com/pc/us/compat.
7. A maximum of four 34L0901 adapters are supported.

Part Number	Description	Bays Supported	SCSI Interface (bit)	Form Factor	Termination Included	68/50- pin Converter Incl.	Ext. Tape Encl.[1]
01K1282	IBM 12/24GB DDS/3 4mm Internal Tape Drive	RM 3, 4	8	3.5” HH or 5.25” HH	Y[6]	Y	10L7440
01K1325	IBM 20/40GB 8mm SCSI Tape Drive	RM 3, 4	16	5.25” HH	N[7]	-	10L7440[2]
01K1320	IBM 20/40GB DLT SCSI Tape Drive	RM 3/4[8]	8	5.25” FH	Y[7]	Y	03K8705[2], 03K8756
04K0149	IBM 35/70GB DLT SCSI Tape Drive	RM 3/4[8]	16	5.25” FH	N[7]	-	03K8705[2], 03K8756
	Associated Options						
32G3918	SCSI-2 16-bit Active Terminator	-	16	External	-	-	10L7440, 03K8705
	External Tape Enclosures						
10L7440	External Half High SCSI Storage Enclosure[3]	-	8/16	Desktop			
03K8756	IBM NetMEDIA Storage Expansion Unit EL[4]	-	16	Rack			
03K8705	IBM DLT External SCSI Enclosure[5]	-	16	Desktop			
	External Tape Libraries[9]						
3447xxx	3447 Digital Linear Library (desktop-105, rack-106)	-	16	Desktop or Rack			
3449xxx	3449 8mm Tape Library (deskside-355, rack-356)	-	Diff.	Deskside or Rack			
08L6xxx[10]	Magstar MP 3570 Tape Subsystem	-	Diff.	Rack			

1.To determine cable requirements, note the tape drive’s SCSI interface, the appropriate SCSI controller from the system configurator section, and the desired enclosure and then refer to Appendix D: Cables-Storage Units-Controllers.
2.Requires SCSI-2 16-bit Active Terminator (P/N 32G3918).
3.Provides a black desktop 5.25” half-high (HH) tape enclosure. Connector is configurable as 50-pin Centronix or 68-pin high density. Requires either tape drive self termination or SCSI-2 16-bit Active Terminator (P/N 32G3918).
4.Provides a black 3U, 19” rack or NetBAY3 mountable tape enclosure.Provides two full high (FH) or four half high (HH) extended length 5.25” bays.External connector is 0.8mm VHDCI.
5.Provides a black desktop DLT tape enclosure. External connector is 68-pin high density. Requires SCSI-2 16-bit Active Terminator (P/N 32G3918)
6.Tape drive is capable of self termination.
7.Termination is provided by the system unit’s standard SCSI cabling.
8.Two Half-High (HH) bays can be combined to support a single Full-High (FH) device..
9.Tape library attributes and prerequisites are located in Appendix A: Tape Drive Attributes.
10. For Individual EMEA P/no’s see Appendix B: Tape Library Table.
NOTE: SCSI support for tape drives is provided by system unit onboard (standard) controller (no-RAID function) or PCI Fast Wide Ultra SCSI Adapter P/N 02K3454.

Part Number	Monitors
4002Nxx	G42 Color Monitor 14” (13.2” Viewable Image Size), pearl-white
4102Nxx	G51 Color Monitor 15” (13.6” Viewable Image Size), pearl-white
466BNxx	G54 Color Monitor 15” (13.7” Viewable Image Size), stealth-gray
476BNxx	G74 Color Monitor 17” (15.9” Viewable Image Size), stealth-gray

Other Selected Options

Part Number	Other Options
	Power
SPSR2xx	IBM Netfinity 400 W Hot-Swap Redundant Power Supply II
	Cables
03K9313	IBM Netfinity SCSI Controller Cable (0.8mm)[1]
32G3925	SCSI 68-pin to 50-pin Convertor
	Rack and NetBAY3 Related
01K8021	IBM Netfinity 5500 Rack-to-Tower Kit
01K8020	IBM Netfinity 5500 Tower-to-Rack Kit
9306900	IBM Netfinity Rack
9306200	IBM Netfinity NetBAY22[2]
10L6912	IBM Netfinity NetBAY3[3]
10L6913	IBM Netfinity Caster Set
	Keyboard and Mouse
13H6705	IBM TrackPoint II Keyboard
28L364x	Space Saver Keyboard[4]
84G6537	TrackPoint Caps
76H011x	IBM 105-Key Keyboard[5]
12J3615	Black Sleek Mouse

1. Used for routing the second internal SCSI RAID channel to an ext. 0.8mm connector. Can be used with IBM .8mm to 68-pin SCSI adapter (P/N 01K8017) to provide an ext. 68-pin connector.
2. See IBM Netfinity Rack Cabinet and Options section for supported devices.
3. One NetBAY3 is included with tower models and a total of three are supported. See IBM Netfinity NetBAY3 Stackable Enclosure section for supported devices.
4. x represents country specific code: 0=US English, 1=UK, 2=France, 3=Germany.
5. x represents country specific code: 3=France, 4=Italy, 5=Germany, 6=Spain, 7=UK.

Part Number	Description	Hot-Plug[1]	Failover Support[9]	PCI Bus Support	Adapter Length	Slots Supported[2]
	Storage Controllers					
02K3454	PCI Fast/Wide Ultra SCSI Adapter	-	-	32-bit	Half PCI	1...6
01K7207	IBM Netfinity ServeRAID-3H Ultra2 SCSI Adapter[3]	X	X	64/32-bit	Full 64/32-bit PCI	1...6
28L1003	IBM Netfinity ServeRAID-3H 32MB/Battery-Backup Cache[4]	-	-	-	-	-
01K7364	IBM Netfinity ServeRAID-3L Ultra2 SCSI Adapter[5]	X	X	32-bit	Full 32-bit PCI	1...6
01K7297	Netfinity Fibre Channel PCI Adapter[6]	-	-	64/32-bit	Half 64/32-bit PCI	1...6
32H3811	IBM SSA RAID Adapter for PC Servers[7]	-	-	32-bit	Full PCI	1...6
	External Storage Expansion Units[8]					
SE2RXxx	IBM Netfinity EXP15	-	-	-	-	-
SA71xxx[10]	SSA Entry Storage Subsystem for PC Servers	-			-	-
SEEExxx	IBM PC Server Enterprise Expansion Tower					
SMS2xxx	IBM SCSI Multi Storage for IBM PC Server					

1. Hot-Plug capable. For Network Operating System support access URL http://www.ibm.com/pc/us/compat
2. PCI Slots 1, 2, 3 and 4 support Hot-Plug devices.
3. Netfinity 5500 and 5500 Mxx have two integrated ServeRAID II channels. Netfinity ServeRAID-3H Ultra2 SCSI Adapter (P/N 01K7207) provides one internal and 2 external LVDS SCSI channels. The internal channel can be configured for external usage providing a total of 3 external LVDS SCSI channels.
4. Installs on ServeRAID-3H P/N 01K7207 to help protect against data loss in write-back cache mode in the event of a power outage or adapter maintenance.
5. Netfinity 5500 and 5500 Mxx have two integrated SeveRAID II channels. Netfinity ServeRAID-3L Ultra2 SCSI Adapter (01K7364) provides either one internal or one external LVDS SCSI channel.
6. See Netfinity Fibre Channel Solutions section for additional configuration information.
7. System units with greater than 2GB of system memory are restricted to RAID 5 operation only.
8. External Storage Expansion Units require storage controllers and external cables. For specific configuration requirements, see Appendix D: Cables-Storage Units-Controllers section.
9. These adapters support operation failover, without interruption, to a redundant adapter in the event of an adapter failure. For Network Operating System support and limitations, access URL http://www.ibm.com/pc/us/compat
10. A preconfigured SA71xxx (3527-PR0) contains five 9.1GB HDDs (P/N 21H8734) and a 5 M cable pair (P/N 59H7222). Order P/N N7PROxx (see SA71 configurator for specific country codes).

Sample Configurations

Note: The following sample configurations are for illustration only and may not be suitable for any specific customer installation. Contact your IBM Business Partner or IBM Marketing Representative for assistance with your specific configuration requirements.

High Availability

Description	Quantity	Part Number	Usage
IBM Netfinity 5500 M10 (Pentium II 450/128MB/0GB, Tower & NetBAY3)	1	631YExx	-
4.51GB Wide Ultra SCSI hot-swap HDD	2	94G7429	NOS on mirrored HDD's
IBM Netfinity 9.1GB Wide Ultra SCSI SCA-2 SL HDD	4	01K8053	RAID 5 with Hot-Spare
IBM 20/40GB DLT SCSI Tape Drive, black	1	01K1320	-
IBM Netfinity 10/100 Fault Tolerant Adapter	1	08L3341	Failover to Integrated Ether.
IBM Netfinity 400 W Hot-Swap Redundant Power Supply II	1	SPSR2xx	-
APC Smart-UPS 1400 RMB	1	14RIxxx	Installed in NetBAY3
G54 Color Monitor 15" (13.7" Viewable Image Size), stealth-gray	1	466BNxx	-

This tower server is configured to act as the foundation for business critical applications, applications your business cannot afford to be without. Configured with enough disk drives to mirror the operating system and provide a standard RAID 5 environment for data, optional hot-swap redundant power, a UPS for power even during a blackout, and an Ethernet adapter that can failover to the onboard Ethernet controller this server represents the leading edge in high availability. An internal tape drive is included to back-up that all important asset..... data, and a modem is included to allow out-of-band (non-LAN) system management utilizing the Netfinity Advanced System Management Processor.

WEB Server

Description	Quantity	Part Number	Usage
IBM Netfinity 5500 M10 (Pentium II 450/128MB/0GB, Tower & NetBAY3)	1	631YExx	-
Netfinity 512MB SDRAM ECC RDIMM	1	01K7263	Total Memory: 640MB
IBM Netfinity 9.1GB 10K Wide Ultra SCSI SCA-2 SL HDD	6	01K8054	RAID 5 Data Storage
High Speed ISDN connection[1]	1	footnote 1	Connection to WEB
IBM 20/40GB DLT SCSI Tape Drive, black	1	01K1320	-
PCI Fast/Wide Ultra SCSI Adapter	1	02K3454	Tape Controller
IBM Netfinity SCSI Controller Cable	1	03K9313	Provides external RAID
IBM Netfinity NetBAY3	1	10L6912	Enclosure for EXP15
IBM Netfinity EXP15	1	SE2RXxx	Provides additional 10 Bays
IBM Netfinity EXP10 9.1GB 10K Wide Ultra SCSI SL SCA-2 HDD	5	01K8499	RAID 5 Data Storage
Netfinity 2 M Ultra2 SCSI Cable	1	03K9310	Attaches EXP15 to 03K9313
IBM Netfintiy 400 W Hot-Swap Redundant Power Supply II	1	SPSR2xx	-
APC Smart-UPS 1400 RMB	1	14RIxxx	Installed in NetBAY3
G54 Color Monitor 15" (13.7" Viewable Image Size), stealth-gray	1	466BNxx	-

1. Select from ServerProven options found on the WEB at URL http://www.ibm.com/pc/us/compat. Warranty and service for third party ServerProven products is provided for by the manufacturer, not IBM.

This tower model is configured as the perfect WEB presence for a company ready for eBusiness. With enough disk storage to host a large sales catalog, an optional hot-swap power supply and UPS so that your server is ready when your customers are ready to order, and an ISDN adapter to allow for a speedy connection into the WEB infrastructure, on top of all the integrated high-availability features, make this the ideal server for electronic commerce

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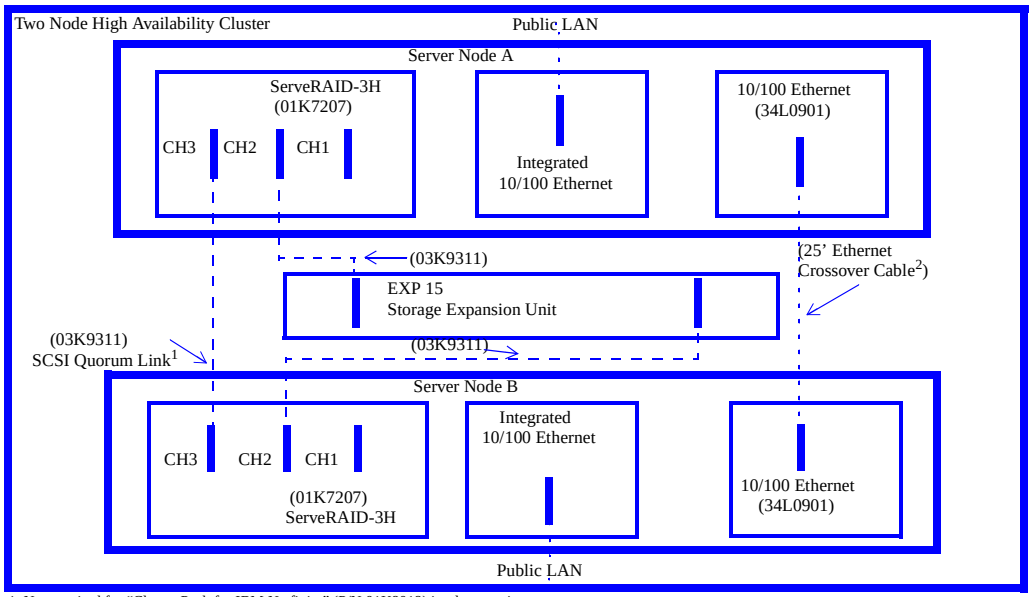

1. Not required for "Cluster Pack for IBM Netfinity" (P/N 01K8018) implementation.
2. Included with "Cluster Pack for IBM Netfinity" (P/N 01K8018).

Two Node High Availability Cluster[1]

Description	Qty.	Part Number	Usage
Server Nodes A & B			
IBM Netfinity 5500 M10 (Pentium II Xeon 450/1MB Cache/128MB/0GB, Rack) (8U)	2	64RYExx	-
IBM Netfinity 5500 450MHz/1MB Upgrade	2	10L5902	Dual SMP Processing
Netfinity 128 MB SDRAM ECC RDIMM	2	01K7262	Total Memory: 256MB (each)
4.51GB Wide Ultra SCSI Hot-Swap HDD	4	94G7429	NOS on mirrored HDD's
IBM Netfinity ServeRAID-3H Ultra2 SCSI Adapter[4]	2	01K7207	Two channels for EXP15's
IBM 10/100 Ethernet PCI Adapter[3]	2	34L0901	Private Interconnect
IBM Netfinity 400 W Hot-Swap Redundant Power Supply II	2	SPSR2xx	-
APC Smart-UPS 1400 RMB (3U)	2	14RIxxx	-
Storage Expansion Unit			
IBM Netfinity EXP15[4]	1	SE2RXxx	-
IBM Netfinity EXP10 9.1GB Wide Ultra SCSI SCA-2 HDD[4]	5	01K7959	RAID 5 Shared Storage
Netfinity 4.2 M Ultra2 SCSI Cable[4]	2	03K9311	Attach EXP15 to Servers
Shared (or single occurrence) Resources			
G54 Color Monitor 15" (13.7" Viewable Image Size), stealth-gray	1	466BNxx	-
Space Saver Keyboard[5]	1	28L364x	-
Netfinity 4.2 M Ultra2 SCSI Cable	1	03K9311	SCSI Quorum Link[2]
Industry Standard 19" Rack, EIA-310D, Min. depth of 28"			
IBM 9306-900 Netfinity Rack	1	9306900	-
Monitor Compartment (9U)	1	94G7444	-
Netfinity Rack Keyboard Tray (2U)	1	28L4707	-
Console Server Selector Switch	1	94G7445	-
Power Cable-Type C12	2	94G7448	-
12ft. Console Cable Set	2	94G7447	-
Side Panel Kit	1	94G6669	-
Blank Filler Kit	1	94G6670	-

1. Certified for Microsoft Cluster Server and supported with "Cluster Pack for IBM Netfinity [3]" (P/N 01K8018) running High Availability for Netware and a ServeRAID-3H Ultra2 SCSI Adapter (P/N 01K7207).
2. Not required for "Cluster Pack for IBM Netfinity" (P/N 01K8018) implementation.
3. Requires a Private Interconnect Cable (25ft. Ethernet Crossover Cable) which is included with "Cluster Pack for IBM Netfinity" (P/N 01K8018).
4. By replicating these items, up to a total quantity of four ServeRAID-3H Adapters (plus options) and eleven EXP15's can provide over 2 Terabytes of storage. Additional power and Rack space will be required
5. x represents country specific code: 0=US English, 1=UK, 2=France, 3=Germany.

Clustering is a group of interconnected computers used as a single, unified computing resource. Clustering Netfinity servers, like the IBM Netfinity 5500 M10, provides a high availability solution to keep you in touch with the key applications you need to run your business. High availability solutions are available from IBM to support NT, OS/2, and NetWare operating environments. By using the IBM Netfinity Rack, a high availability cluster with scalable storage expansion can be installed in less floor space.

This sample configuration consists of paired IBM Netfinity 5500 M10 cluster nodes equipped with two-way SMP capability and redundant power supplies. Microsoft Cluster Server (MSCS) has been certified on IBM Netfinity 5500 M10 servers, using the IBM ServeRAID-3H with the EXP15 Storage Expansion Unit. MSCS allows two configured servers, referred to as nodes, to be connected together to form a cluster. Providing system redundancy means that a complete server can fail and client access to server resources is largely unaffected. MSCS extends this theme by also allowing software failures at an application level as well as an operating system level. If the operating system fails, all applications and services can be restarted on another server, and if just one application fails, it can be managed by MSCS individually. An additional independent network connection is used to perform monitoring within the cluster. One or more disk subsystems are attached to both nodes. In the above example, an IBM EXP15 was selected and the IBM ServeRAID-3H Ultra2 SCSI Adapters provided the I/O control. MSCS requires a dedicated SCSI channel to act as a "SCSI heartbeat" connection. This connection, between the third channel of the ServeRAID-3H Adapter in each node, logically attaches the quorum disk which allows arbitration when a failure occurs.

Additional information on IBM Netfinity and IBM PC Server Clustering Solutions may be found on the World Wide Web by accessing URL http://www.pc.ibm.com/us/netfinity/clustering.html.

IBM Netfinity 7000 M10 Configurator

Part Numbers	Processor Speed (MHz[1])	SMP Processors std/max	L2 ECC Cache (KB)	Memory: Std/max[4]	Form Factor	Hot-Swap Power Supplies Std./max	Int. Hard Drive Storage Std./max(GB)	Wide Ultra SCSI Controller	CD-ROM IDE	32-bit Hot Plug PCI Slots (Total/Avail.)	64-bit Hot Plug PCI Slots (Total/Avail.)	Advanced Sys. Management Processor	Hot Swap Components	Redundancy	HDD Bays: (Tot/Av.)
81RUNxx	400	1-4-way	512	128MB /8GB	Rack (11U)[2]	1/3	0/36.4	Dual Channel	32X-14X[3]	7/7	5/5	Y	4 x HDD Bays 12 x PCI Slots Power & Fans	Std.- Fans Optional - Power, LAN, RAID	6, 4
82RUNxx	400	1-4-way	1024	256MB /8GB	Rack (11U)[2]	2/3	0/36.4	Dual Channel	32X-14X[3]	7/7	5/5	Y	4 x HDD Bays 12 x PCI Slots Power & Fans	Std.- Fans Power[5] Optional - Power, LAN, RAID	6, 4
83RUNxx[2]	450	1/4-way	512	256MB /8GB	Rack (11U)	2/3	0/72.8	Dual Channel	32X-14X[3]	7/7	5/5	Y	4 x HDD Bays 12 x PCI Slots Power & Fans	Std.- Fans Power[5] Opt. - LAN, RAID	6, 4
84RUNxx[2]	450	1/4-way	1024	256MB /8GB	Rack (11U)	2/3	0/72.8	Dual Channel	32X-14X[3]	7/7	5/5	Y	4 x HDD Bays 12 x PCI Slots Power & Fans	Std.- Fans Power[5] Opt. - LAN, RAID	6, 4
85RUNxx[2]	450	1/4-way	2048	256MB /8GB	Rack (11U)	2/3	0/72.8	Dual Channel	32X-14X[3]	7/7	5/5	Y	4 x HDD Bays 12 x PCI Slots Power & Fans	Std.- Fans Power[5] Opt. - LAN, RAID	6, 4

1. Netfinity 7000 M10 systems utilize Pentium II Xeon processors.
2. Housed in a 19" Rack mountable drawer and ships standard without a keyboard or mouse. Requires IBM Netfinity Rack (9306900), Netfinity NetBAY22 (9306200), or industry standard 19" Rack, with a minimum depth of 29.23 inches (743mm).
3. Variable read rate. Actual playback speed will vary and is often less than the maximum possible.
4. Memory is four-way interleaved 50ns, EDO, ECC, 168-pin DIMMs. Properly configured memory options allow eight-way interleaving of more.
5. Fully configured systems may require an optional 3rd power supply for redundancy. See footnote for Nerfinity 400W Hot-Swap Redundant Supply II (P/N 01K7951) for requirements.

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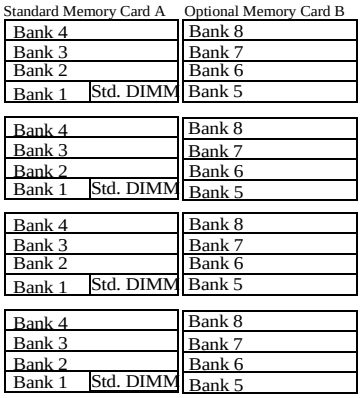
Processor Upgrades

Pentium II Xeon Processors with 512KB, 1MB or 2MB Cache	Part Number	SMP Support[1]	Processor Speed/Cache Upgrade[2]
Netfinity 7000 M10 400MHz/512KB Upgrade	01K8006	1RU	-
Netfinity 7000 M10 400MHz/1MB Upgrade	01K8007	2RU	1RU
Netfinity 7000 M10 450MHz, 512KB Upgrade	10L5895	3RU	1RU, 2RU
Netfinity 7000 M10 450MHz, 1MB Upgrade	10L5896	4RU	1RU, 2RU, 3RU
Netfinity 7000 M10 450MHz, 2MB Upgrade	10L5897	5RU	1RU, 2RU, 3RU, 4RU

1. Up to three additional processors may be installed, providing a maximum of four.
2. Requires removal of the standard processor. A maximum of four processors may be installed. Upgrades may require a BIOS update. To obtain the latest flash BIOS, access URL http://www.ibm.com/pc/support then select IBM SERVER SUPPORT. Choose a machine-type model, then select Downloadable files and choose the category labeled "BIOS". Detailed information about planned 450MHz Pentium II Xeon processor upgrades will be provided at a later date.

Memory Configurator



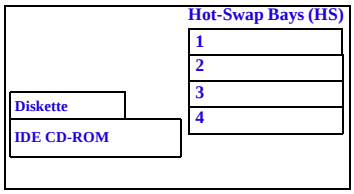
Total Memory	Model 1RU	Model 2RU
128MB	4 x 32MB DIMMs Std.	-
256MB	-	4 x 64MB DIMMs Std.
384MB	1 x 01K8044	-
512MB	-	1 x 01K8044[1]
640MB	1 x 01K8045	-
768MB	-	1 x 01K8045
896MB	3 x 01K8044	-
1024MB	-	3 x 01K8044[2]
1408MB	1 x 01K8044, 2 x 01K8045	-
1536MB	-	1 x 01K8044, 2 x 01K8045[1]
2048MB	4 x 01K8045[2, 3]	4 x 01K8045[2, 3]
3072MB	2 x 01K8045, 2 x 01K8046[1, 3]	2 x 01K8045, 2 x 01K8046[1, 3]
4096MB	4 x 01K8045, 2 x 01K8046, 1 x 01K8004[1, 3]	4 x 01K8045, 2 x 01K8046, 1 x 01K8004[1, 3]
5120MB	4 x 01K8044, 4 x 01K8046, 1 x 01K8004[4, 5]	3 x 01K8044, 4 x 01K8046, 1 x 01K8004[4]
6148MB	4 x 01K8045, 4 x 01K8046, 1 x 01K8004[4, 5]	4 x 01K8045, 4 x 01K8046, 1 x 01K8004[4, 5]
8GB (max)	8 x 01K8046, 1 x 01K8004[4, 5]	8 x 01K8046, 1 x 01K8004[4, 5]

This table does not represent all possible memory configurations.
NOTE: 8-way interleaving can be obtained by installing identical memory in two or more of the following adjacent banks: 1/2, 3/4, 5/6, 7/8 or by installing memory in both the standard and optional (P/N 01K8004) memory cards, both being identically configured. Greater than 8-way interleaving can be obtained by combining both 8-way interleaving methods (adjacent banks and identical memory cards).
Netfinity 7000 M10 will recognize optimized configurations at boot-up and enable appropriate interleaving.
1. Can be configured for 8-way interleaving.
2. Can be configured for 8-way interleaving or greater than 8-way with Netfinity 7000 M10 Memory Expansion Card (P/N 01K8004).
3. Assumes removal of standard memory DIMMs.
4. Can be configured for greater than 8-way interleaving.
5. Requires removal of standard memory DIMMs.

DIMM Description	Part Number
Netfinity 7000 M10 256MB Memory Expansion Kit - 4 x 64[1]	01K8044
Netfinity 7000 M10 512MB Memory Expansion Kit - 4 x 128[1]	01K8045
Netfinity 7000 M10 512MB Advanced Memory Expansion Kit - 4 x 128[1,2]	28L4732
Netfinity 7000 M10 1GB Memory Expansion Kit - 4 x 256[1]	01K8046
Netfinity 7000 M10 Memory Expansion Card[3]	01K8004

1. DIMM size must be consistent within a Bank. DIMM sizes may vary from Bank to Bank.
2. Planned availability of 1Q, 1999. Advanced ECC DIMMs not only detect and correct single 4-bit memory errors, but detect and correct two 4-bit errors as well. These advanced memory DIMMs significantly improve reliability up to 100 times over current ECC technology. In order to provide this increased reliability for all installed memory, co-existence with other Netfinity 7000 M10 memory is not recommended.
3. Required for installation of DIMMs in Banks 5...8.

Internal Hard Disk Configurator



Total Internal Disk Storage[1]	Part Number(s) Required (7200RPM)				Part Number(s) Required (10,000RPM)		
	4.5GB	9.1GB	18.2GB	36.4GB	4.5GB	9.1GB	18.2GB
0GB	Standard on Base Models				Standard on Base Models		
4.5GB	1 x 94G7429	-	-		1 x 01K8009	-	-
9.1GB	2 x 94G7429 or	1 x 01K8053	-		2 x 01K8009 or	1 x 01K8054	-
13.5GB	3 x 94G7429	-	-		3 x 01K8009	-	-
18.2GB	4 x 94G7429 or	2 x 01K8053 or	1 x 01K8055		4 x 01K8009 or	2 x 01K8054 or	1 x 01K8503
27.2GB	-	3 x 01K8053	-		-	3 x 01K8054	-
36.4GB	-	4 x 01K8053 or	2 x 01K8055	1 x 02K0441[3]	-	4 x 01K8054 or	2 x 01K8503
54.6GB	-	-	3 x 02K0440[2]	-	-	-	-
72.8GB (max)	-	-	4 x 02K0440[2] or	2 x 02K0441[3]			

This table does not represent all possible hard drive configurations.
1. Total Internal Storage listed is within ± 0.2GB unless otherwise noted.
2. Planned availability of February, 1999.
3. Planned availability of March, 1999.

Bay	Form Factor	Height	Front Access	Usage
-	3.5”	SL	Yes	Diskette
-	5.25”	HH	Yes	IDE CD-ROM
HS 1...4	HS	SL[1]	Yes	Open
NetBAY3[2]	19” Rack	3U	Yes	Open

1. Two slim-line (SL) bays can be combined to support a single half-high device.
2. A total of three 3U NetBAY3s can be stacked beneath a Netfinity 7000 M10 which has Netfinity 7000 M10 Rack-to-Tower Conversion Kit installed. See IBM Netfinity NetBAY3 Stackable Enclosure section for supported device

Part Number	Description	RPM	Height	Bays Supported	Max Qty.
94G7429	IBM Netfinity 4.51GB Wide Ultra SCSI Hot-Swap HDD	7200	SL	HS 1...4	4
01K8053	IBM Netfinity 9.1GB Wide Ultra SCSI SCA-2 SL HDD	7200	SL	HS 1...4	4
01K8055	IBM Netfinity 18.2GB Wide Ultra SCSI SCA-2 HDD[1]	7200	HH	HS 1/2, 3/4	2
02K0440	IBM Netfinity 18.2GB Wide Ultra SCSI Hot-Swap SL HDD[2]	7200	SL	HS 1...4	4
02K0441	IBM Netfinity 36.4GB Wide Ultra SCSI Hot-Swap HDD[3]	7200	HH	HS 1/2, 3/4	2
01K8054	IBM Netfinity 9.1GB 10K Wide Ultra SCSI SCA-2 SL HDD	10,000	SL	HS 1...4	4
01K8503	IBM Netfinity 18.2GB 10K Wide Ultra SCA-2 HDD[1]	10,000	HH	HS 1/2, 3/4	2
01K8009	IBM Netfinity 4.51GB 10K Wide Ultra SCSI SCA-2 HDD	10,000	SL	HS 1...4	4

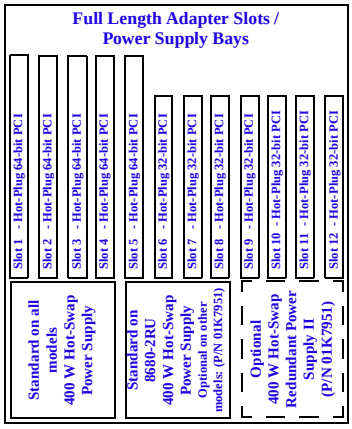
1. Two slim-line bays can be combined to support a single half-high (HH) device.
2. Planned availability of Februrary 1999
3. Planned availability of March 1999

Internal SCSI Cabling

Netfinity 7000 M10 systems contain a backplane supporting four Hot-Swap drive bays. The backplane is connected to one of the two onboard Ultra SCSI controllers through a 16-bit SCSI cable. If a RAID adapter or other supported SCSI adapter is installed for attachment to the internal hard disk drives, the 16-bit SCSI backplane cable is moved from the standard Ultra SCSI controller to the desired controller. The onboard external SCSI port contains a 0.8mm Very High Density Connection Interface (VHDCI) connector and can be used to attach up to 15 SCSI devices with the appropriate SCSI cable.

Typical Options

Part Number	Monitors
4002Nxx	G42 Color Monitor 14” (13.2” Viewable Image Size), pearl-white
4102Nxx	G51 Color Monitor 15” (13.6: Viewable Image Size), pearl-white
466BNxx	G54 Color Monitor 15” (13.7” Viewable Image Size), stealth-gray
476BNxx	G74 Color Monitor 17” (15.9 Viewable Image Size), stealth-gray



Part Number	Description	Hot-Plug Support[1]	Failover Support[2]	PCI Bus Support	Adapter Length	Slots Supported[3]
34L0901	IBM 10/100 EtherNet PCI Adapter	X	X	32-bit	Half	1...12[5]
34L0301	Netfinity Gigabit Ethernet SX Adapter	X	X	32/64-bit	Half	1...12
08L3341	IBM Netfinity 10/100 Fault Tolerant Adapter	X	X	32-bit	Half	1...12
	Token Ring					
34L0501	Token-Ring 100/16/4 High Speed PCI Adapter	-	X	32-bit	Half	1...12
34L0601	Token-Ring 16/4 PCI Adapter 2	-	X	32-bit	Half	1...12
	UPS[4]					
14RIxxx	APC Smart-UPS 1400 RMB (12min. runtime at 525VA)					
30RIxxx	APC Smart-UPS 3000 RMB (35min. runtime at 525VA)					

1. All 12 PCI Slots are Hot-Plug capable. For Network Operating System support and limitations access URL http://www.ibm.com/pc/us/compat
2. These adapters support operation failover, without interruption, to a redundant adapter in the event of an adapter failure. For Network Operating System support and limitations access URL http://www.ibm.com/pc/us/compat
3. PCI Slots 1...5 support 64-bit or 32-bit operations. PCI Slots 6...12 support 32-bit operations
4. Stated runtimes and power are for typical configurations (approximately 70% of maximum capacity).
5. A maximum of 4 34L0901 adapters are supported.

Tape Selection: Netfinity 7000 M10 supports external tape drives only. After selecting a tape drive, take note of the SCSI Interface and supported External Tape Enclosures. Refer to the Cables - Storage Units - Controllers section for configuration of the Tape Enclosure of choice

Part Number	Description	Bays Supported	SCSI Interface (bit)	Form Factor	Termination Included	68/50-pin Converter Incl.	Ext. Tape Encl.[1]
01K1282	IBM 12/24GB DDS/3 4mm Internal Tape Drive	N/A[7]	8	3.5"HH or 5.25"HH	Y[6]	Y	10L7440
01K1319	IBM 10/20GB NS Internal SCSI Tape Drive	N/A[7]	8	3.5"SL or 5.25"HH	Y[6]	Y	10L7440[2]
01K1325	IBM 20/40GB 8mm SCSI Tape Drive	N/A[7]	16	5.25"HH	N	-	03K8705[2], 03K8756
01K1320	IBM 20/40GB DLT SCSI Tape Drive	N/A[7]	8	5.25"FH	Y	Y	03K8705[2], 03K8756
04K0149	IBM 35/70GB DLT SCSI Tape Drive	N/A[7]	16	5.25"FH	N	-	
Associated Options							10L7440, 03K8705
32G3918	SCSI-2 16-bit Active Terminator	-	16	External	-	-	10L7440, 03K8756
External Tape Enclosures		-					
10L7440	External Half High SCSI Storage Enclosure[3]		8/16	Desktop	-	-	-
03K8756	IBM NetMEDIA Storage Expansion Unit EL[4]	-	16	Rack	-	-	-
03K8705	IBM DLT External SCSI Enclosure[5]	-	16	Desktop	-	-	-
External Tape Libraries[8]		-					
3447xxx	3447 Digital Linear Library (desktop-105, rack-106)		16-bit	Desktop or Rack	-	-	-
3449xxx	3449 8mm Tape Library (deskside-355, rack-356)	-	Differential	Deskside or Rack	-	-	-
08L6xxx[9]	Magstar MP 3570 Tape Subsystem	-	Differential	Rack	-	-	-

1. To determine cable requirements, note the tape drive's SCSI interface, the appropriate SCSI controller from the system configurator section and the desired enclosure, then refer to Appendix D: Cables - Storage Units - Controllers.
2. Requires SCSI-2 16-bit Active Terminator (P/N 32G3918).
3. Provides a black desktop 5.25" half-high (HH) tape enclosure. Connector is configurable as 50-pin Centronix or 68-pin high density. Requires either self-termination or SCSI-2 16-bit Active Terminator (P/N 32G3918).
4. Provides a black 3U, LVDS, 19" rack or NetBAY3 mountable tape enclosure. Provides two full high (FH) or four half high (HH) extended length 5.25" bays. External connector is 0.8mm VHDCI.
5. Provides a black desktop DLT tape enclosure. External connector is 68-pin high density. Requires SCSI-2 16-bit Active Terminator (P/N 32G3918).
6.Tape drive is capable of self termination.
7. Netfinity 7000 M10 supports tape drives installed in external enclosures only. See External Tape Enclosure column.
8. Tape library attributes and prerequisites are located in Appendix A: Tape Drive Attributes.
9. For EMEA P/No's see Appendix B: Tape Library Table
NOTE: SCSI support is provided by system unit onboard (standard) controller (no-RAID function) or PCI Fast Wide Ultra SCSI Adapter P/N 02K3454.

Other Selected Options

Note: For a complete list of all IBM and non-IBM option compatibility with network operating systems and IBM PC Servers, access the ServerProven™ compatibility pages on the Web at URL http://www.ibm.com/pc/us/compat

Part Number	Other Options
	Power
SPSR2xx	IBM Netfinity 400 W Hot-Swap Redundant Power Supply II[1]
SDCU1xx	Netfinity 7000 M10 Dual Cord Power Unit[2]
	Rack and NetBAY3 Related
01K8005	Netfinity 7000 M10 Rack-to Tower Conversion Kit[3]
9306900	IBM Netfinity Rack
9306200	IBM Netfinity NetBAY22
10L6912	IBM Netfinity NetBAY3[4]
	Keyboard and Mouse[7]
28L364x	Space Saver Keyboard[6]
84G6537	TrackPoint Caps
76H011x	IBM 105-Key Keyboard[5]
12J3615	Black Sleek Mouse

1. Model 81RUNxx contains a single hot-swap power supply while other models contain two. A maximum of three hot-swap power supplies are supported.
Redundancy Requirements: Two power supplies provide redundancy until a second memory expansion card or third processor or sixth PCI adapter is installed. Three power supplies provide redundancy for full configurations.
No Redundancy: A single power supply provides adaquate power until a second memory expansion card or third processor or sixth PCI adapter is installed. Two power supplies provide adaquate power for full configurations.
2. Provides power cord redundancy for the Netfinity 7000 M10.
3. Includes casters which can also be used with NetBAY3.
4. Up to three NetBAY3's can be stacked beneath models which have Netfinity 7000 M10 Rack-to-Tower Conversion Kit (P/N 01K8005) installed. See IBM Netfinity NetBAY3 Stackable Enclosure section for supported devices.
5. where 'x' represents a country specific code: 3=France, 4=Italy, 5=Germany, 6=Spain, 7=UK
6. where 'x' represents a country specific code: 0=US English, 1=UK, 2=France, 3=Germany.
7. All models ship without a keyboard and mouse.

Part Number	Description	Hot-Plug Support[1]	Failover Support[2]	PCI Bus Support	Adapter Length	Slots Supported[3]
02K3454	PCI Fast Wide Ultra SCSI Adapter[4]	-	-	32-bit	Half PCI	1...12
01K7207	IBM Netfinity ServeRAID-3H Ultra2 SCSI Adapter[5]	X	X	64/32-bit	Full	1...12[3]
28L1003	IBM Netfinity ServeRAID-3H 32MB Battery-Backup Cache[6]	-	-			
01K7364	IBM Netfinity ServeRAID-3L Ultra2 SCSI Adapter[7]	X	X	32-bit	Full	1...12
01K7297	Netfinity Fibre Channel PCI Adapter[8]	-	-	64/32-bit	Half	1...12[3]
32H3811	IBM SSA RAID Adapter for PC Servers	-	-	32-bit	Full PCI	1...12
	External Storage Expansion Units[9]					
SE2RXxx	IBM Netfinity EXP15					
SA71xxx[10]	SSA Entry Storage Subsystem for PC Servers					
SEEExxx	IBM PC Server Enterprise Expansion Tower					
SMS2xxx	IBM SCSI Multi Storage for IBM PC Server					

1. All 12 PCI Slots are Hot Plug capable. For Network Operating System support and limitations, access URL http://www.ibm.com/pc/us/compat
2. These adapters support operation failover, without interruption, to a redundant adapter in the event of an adapter failure. For Network Operating System support and limitations, access URL http://www.ibm.com/pc/us/compat
3. PCI Slots 1...5 support 64-bit or 32-bit operations. PCI Slots 6...12 support 32-bit operations.
4. Netfinity 7000 M10 has an onboard external Ultra SCSI port with an industry-standard 68-pin High Density connector and can be used to attach up to 15 SCSI devices with the appropriate SCSI table.
5. Netfinity ServeRAID-3H Ultra2 Adapter (P/N 01K7207) provides one internal and 2 external LVDS SCSI channels. The internal channel can be configured for external usage providing a total of 3 external (0.8 mm VHDCI connectors) LVDS SCSI channels. Limit of 8 supported.
6. Installs on ServeRAID adapter to help protect against data loss in write-back cache mode in the event of a power outage or adapter maintenance. 32MB (P/N 28L1003) installs on either ServeRAID-3H P/N 01K7207 or ServeRAID II (P/N 76H3584). 8MB (P/N 76H5401) installs on ServeRAID II (P/N 76H3584) only.
7. Provides one LVDS channel which is configurable for either internal or external (0.8mm VHDCI connector) usage. Limit of 8 supported.
8. See Netfinity Fibre Channel Solutions section for additional configuration information.
9. External Storage Expansion Units require storage controllers and external cables. For specific configuration requirements, see the Cables - Storage Units -Controllers section.
10. A preconfigured SA71xxx (3527-PR0) contains five 9.1GB HDDs (P/N 21H8734) and a 5 M cable pair (P/N 59H7222). Order P/N N7PROxx (see SA71 configurator for specific country codes).

Sample Configurations

Note: The following sample configurations are for illustration only and may not be suitable for any specific customer installation. Contact your IBM Business Partner or IBM Marketing Representative for assistance with your specific configuration requirements.

High Availability-Rack

Description	Quantity	Part Number	Usage
IBM Netfinity 7000 M10 (PII Xeon 450-1MB/256MB/Rack)	1	84RUNxx	Power Redundancy standard
Netfinity 7000 M10 450MHz/ 1MB Upgrade	1	10L5896	Total SMP processors: Two
Netfinity 7000 M10 256MB Memory Expansion Kit	1	01K8044	Total: 512 MB, 8-way interleave capable
IBM Netfinity 9.1GB Wide Ultra SCSI SCA-2 SL HDD	4	01K8053	
IBM 10/100 Ethernet PCI Adapter	2	34L0901	LAN Failover Enabled[1]
IBM Netfinity ServeRAID-3H Ultra2 SCSI Adapter	2	01K7207	RAID Controller, Failover Enabled[1]
IBM Netfinity ServeRAID-3H 32MB Battery-Backup Cache	2	28L1003	
G54 Color Monitor 15” (13.7” Viewable Image Size), stealth black	1	466BNxx	
Space Saver Keyboard[2]	1	28L364x[2]	Includes TrackPoint
Netfinity 7000 M10 Dual Cord Power Unit	1	SDCU1xx	Allows redundant power sources
APC Smart-UPS 3000 RMB	1	30RIxxx	
External Storage			
IBM NetMEDIA Storage Expansion Unit EL	1	03K8756	External Tape Drive Enclosure
IBM 35/70GB DLT SCSI Tape Drive	2	04K0149	Installs in 03K8756
IBM Netfinity EXP15	1	SE2RXxx	Provides additional 10 bays
Netfinity 2M Ultra2 SCSI Cable	3	03K9310	EXP15 to ServeRAID-3H, Tape to Onboard
IBM Netfinity EXP10 9.1GB 10K Wide Ultra SCSI SL SCA-2 HDD	6	01K8499	RAID 5 with Hot-Spare in EXP15
Rack Options			
IBM Netfinity NetBAY22	1	9306200	Monitor and Keyboard mount on top
Blank Filler Panel Kit	1	94G6670	

1. These Adapters support hot-plug as well as operation failover (without interruption) to a redundant adapter in the event of an adapter failure. For Network Operating System support and limitations, access URL http://www.ibm.com/pc/us/compat.
2. where ‘x’ represents a country specific code: 0=US English, 1=UK, 2=France, 3=Germany.

This high availability server is configured to act as the foundation for business critical applications, applications your business cannot afford to be without. The configuration includes enough disk drives to mirror the operating system and provide a RAID 5 data environment, power supply redundancy by the server and EXP15, a UPS for power even during a blackout and dual ethernet and RAID adapters which can be configured for failover support. A rack mounted tape drive is included to back-up that all important asset...data. This server represents the leading edge in high availabilty.

Notes/Exchange-Stack

Description	Quantity	Part Number	Usage
IBM Netfinity 7000 M10 (PII Xeon 450-1MB/256MB/Rack	1	84RUNxx	
Netfinity 7000 M10 450MHz/ 1MB Upgrade	3	10L5896	Total SMP processors: Four
Netfinity 7000 M10 256MB Memory Expansion Kit	1	01K8044	Total: 512 MB, 8-way interleave capable
IBM Netfinity 9.1GB 10K Wide Ultra SCSI SCA-2 SL HDD	2	01K8054	
IBM 10/100 Ethernet PCI Adapter	2	34L0901	
IBM Netfinity ServeRAID-3H Ultra2 SCSI Adapter	1	01K7207	RAID Controller
IBM Netfinity ServeRAID-3H 32MB Battery-Backup Cache	1	28L1003	
G54 Color Monitor 15" (13.7" Viewable Image Size), stealth black	1	466BNxx	
Space Saver Keyboard[1]	1	28L364x	Includes TrackPoint
IBM Netfinity 400W Hot-Swap Redundant Power Supply II	1	SPSR2xx	Required to preserve power redundancy
APC Smart-UPS 3000 RMB	1	30RIxxx	
External Storage			
IBM NetMEDIA Storage Expansion Unit EL	1	03K8756	External Tape Drive Enclosure
IBM 35/70GB DLT SCSI Tape Drive	2	04K0149	Installs in 03K8756
IBM Netfinity EXP15	1	SE2RXxx	Provides additional 10 bays
Netfinity 2M Ultra2 SCSI Cable	2	03K9310	EXP15 to ServeRAID-3H, Tape to System
IBM Netfinity EXP10 18.2GB 10K Wide Ultra SCSI SCA-2 HDD	10	01K8500	RAID 5 with Hot-Spare in EXP15
Stack Options			
Netfinity 7000 M10 Rack-to-Tower Conversion Kit	1	01K8005	Monitor and Keyboard mount on top
IBM Netfinity NetBAY3	3	10L6912	Provides space for EXP15, UPS and Tape

1. where 'x' represents a country specific code: 0=US English, 1=UK, 2=France, 3=Germany

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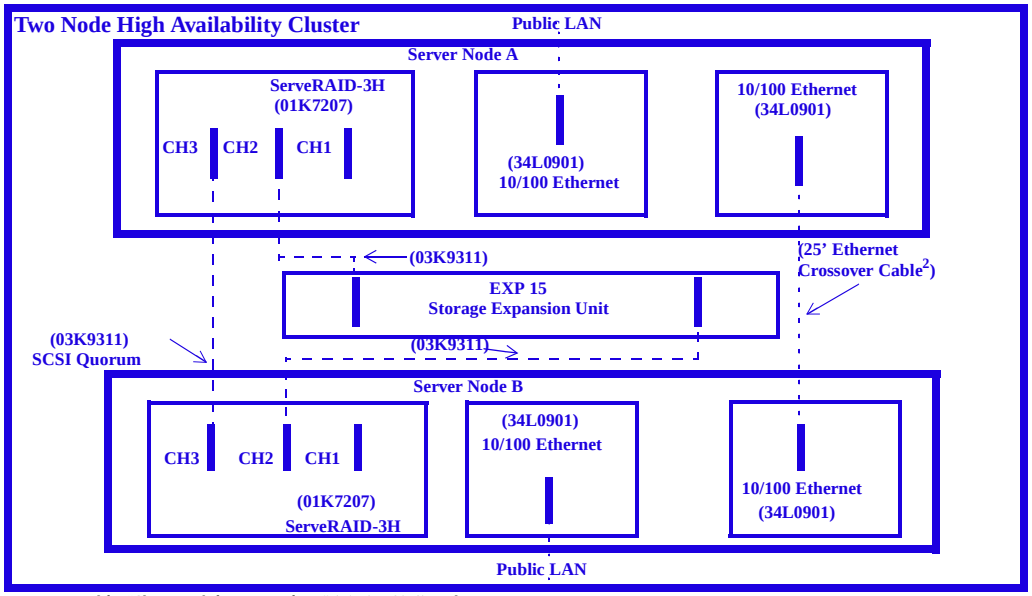


1. Not required for "Cluster Pack for IBM Netfinity" (P/N 01K8018) implementation.
2. Included with "Cluster Pack for IBM Netfinity" (P/N 01K8018).

Two Node High Availability Cluster[1]

Description	Qty.	Part Number	Usage
Server Nodes A & B			
IBM Netfinity 7000 M10 (PII Xeon 450-2MB Cache/256MB/Rack) (11U)	2	85RUNxx	-
Netfinity 7000 M10 450MHz/ 2MB Upgrade	6	10L5897	Total SMP processors: 4 each
Netfinity 7000 M10 256MB Memory Expansion Kit	2	01K8044	-
Netfinity 7000 M10 512MB Memory Expansion Kit	4	01K8046	Total: 1.5 GB, 8-way interleave capable
Netfinity 7000 M10 Memory Expansion Card	2	01K8004	Optimizes 8-way interleaving
IBM Netfinity 9.1GB 10K Wide Ultra SCSI SCA-2 SL HDD	4	01K8054	NOS on Mirrored HDD's
IBM 10/100 Ethernet PCI Adapter[3]	4	34L0901	1 Private Interconnect, 1 public
IBM Netfinity ServeRAID-3H Ultra2 SCSI Adapter[4]	2	01K7207	RAID Controller
IBM Netfinity ServeRAID-3H 32MB Battery-Backup Cache[4]	2	28L1003	-
IBM Netfinity 400W Hot-Swap Redundant Power Supply II	2	SPSR2xx	Required to preserve power redundancy
Netfinity 7000 M10 Dual Power Cord Unit	2	SDCU1xx	Allows redundant power sources
APC Smart-UPS 3000 RMB (3U)	2	30RIxxx	Provides redundant power sources
External Storage			
IBM NetMEDIA Storage Expansion Unit EL (3U)	1	03K8756	External Tape Drive Enclosure
APC Smart-UPS 1400 RMB (3U)	1	14RIxxx	Provides UPS for tape unit
Netfinity 2M Ultra2 SCSI Cable[5]	1	03K9310	Attaches 03K8756 to onboard SCSI
IBM 35/70GB DLT SCSI Tape Drive	2	04K0149	Installs inb 03K8756
IBM Netfinity EXP15 (3U)[4]	1	SE2RXxx	-
IBM Netfinity EXP10 18.2GB 10K Wide Ultra SCSI SCA-2 HDD[4]	10	01K8500	RAID 5 Shared Storage
Netfinity 4.2 M Ultra2 SCSI Cable[4, 5]	2	03K9311	Attach EXP15 to ServeRAID-3H
Shared (or single occurrence) Resources			
G54 Color Monitor 15" (13.7" Viewable Image Size), stealth black	1	466BNxx	-
Space Saver Keyboard[6]	1	28L364x	Includes TrackPoint
Netfinity 4.2 M Ultra2 SCSI Cable	1	03K9311	SCSI Quorum Link[2]
Industry Standard 19" Rack, EIA-310D, Min. depth of 29.23"			
IBM 9306-900 Netfinity Rack	2	9306900	Provides a total of 84U
Rack Attachment Kit	1	94G7446	Attaches the second rack to the first
Monitor Compartment (9U)	1	94G7444	-
Netfinity Rack Keyboard Tray (1U)	1	28L4707	-
4-port Console Server Selector Switch	1	28L0542	-
Power Cable-Type C12[5]	5	94G7448	-
12 ft Console Cable Set	2	94G7447	-
Side Panel Kit	1	94G6669	-
Blank Filler Panel Kit	4	94G6670	-

1. Certified for Microsoft Cluster Server and supported with "Cluster Pack for IBM Netfinity [3]" (P/N 01K8018) running High Availability for Netware and a Netfinity ServeRAID-3H Ultra2 SCSI Adapter (P/N 01K7207).
2. Not required for "Cluster Pack for IBM Netfinity" (P/N 01K8018) implementation.
3. The Private Interconnect requires a 25ft. Ethernet Crossover Cable which is included with "Cluster Pack for IBM Netfinity" (P/N 01K8018).
4. By replicating these items, up to a total quantity of four ServeRAID-3H Adapters (plus options) and eleven EXP15's can provide over 2 Terabytes of storage. Additional power and rack space will be required.
5. Cable length requirements are dependent on component placement within the rack or rack suite. To determine specific configuration requirements use the Netfinity Rack Configurator which is downloadable from Web site http://www.ibm.com/pc/us/products/server/download.html
6. where 'x' represents a country specific code: 0=US English, 1=UK, 2=France, 3=Germany.

Clustering is a group of interconnected computers used as a single, unified computing resource. Clustering Netfinity servers, like the IBM Netfinity 7000 M10, provides a high availability solution to keep you in touch with the key applications you need to run your business. High availability solutions are available from IBM to support NT, OS/2, and NetWare operating environments. By using the IBM Netfinity Rack, a high availability cluster with scalable storage expansion can be installed in less floor space.

This sample configuration consists of paired IBM Netfinity 7000 M10 cluster nodes equipped with 4-way SMP capability and redundant power supplies. Microsoft Cluster Server (MSCS) has been certified on IBM Netfinity 7000 M10 servers, using the Netfinity ServeRAID-3H with the EXP15 Storage Expansion Unit. MSCS allows two configured servers, referred to as nodes, to be connected together to form a cluster. Providing system redundancy means that a complete server can fail and client access to server resources is largely unaffected. MSCS extends this theme by also allowing software failures at an application level as well as an operating system level. If the operating system fails, all applications and services can be restarted on another server, and if just one application fails, it can be managed by MSCS individually. An additional independent network connection is used to perform monitoring within the cluster. One or more disk subsystems are attached to both nodes. In the above example, an Netfinity EXP15 was selected and the Netfinity ServeRAID-3H Ultra2 SCSI Adapters provided the I/O control. MSCS requires a dedicated SCSI channel to act as a "SCSI heartbeat" connection. This connection, between the third channel of the ServeRAID-3H Adapter in each node, logically attaches the quorum disk which allows arbitration when a failure occurs.

Additional information on IBM Netfinity and IBM PC Server Clustering Solutions may be found on the World Wide Web by accessing URL http://www.pc.ibm.com/us/netfinity/clustering.html.

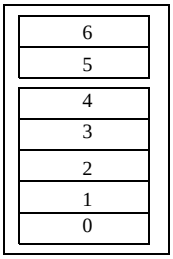
IBM External Storage Expansion Unit Overview

Part Number	Subsystem Type	Total Bays	Hot-Swap Bays: total, available	Maximum Internal Storage Capacity(GB)	Dimensions (in.) (W x D x H)	Form Factor	Max. Cfg. Wt. (lb)	Power Supply
SMS2xxx	SCSI	7	5, 5	45.5	7.75 x 19.0 x 16.0	Tower	-	480 Watts
SEEExxx	SCSI	20	18, 18	182	13.9 x 29.7 x 24.5	Maxi-Tower	119	470 Watts
SE2RXxx Netfinity EXP15	Ultra SCSI[1] LVDS	10	10, 10	182	17.6 x 22.5 x 5.1	Rack Drawer (3U)	92	Redundant 350 Watts
SA71xxx[2]	SSA	5	5, 5	45.5	7.75 x 19.0 x 16.0	Tower	-	480 Watts

To attach a Storage Enclosure to an IBM Netfinity or PC Server, the following is required:
Attachment to an appropriate PC Server SCSI or SSA controller.
External Cable(s) - See Appendix D.
SCSI Enclosures SMS2 and SEEE should be operated at SCSI - 2 speeds.
1. See IBM Netfinity EXP15 Configurator Limitations section for additional information.
2. A preconfigured SA71xxx contains five 9.1GB HDD's (P/N 21H8734) and a 5M cable pair (P/N 59H7222). Order P/N N7PROxx (see SA71xxx Configurator for country specific codes)

IBM SCSI Multi-Storage Enclosure (SMS2xxx) Configurator

SMS2xxx



Bay	Form Factor	Height	Front Access	Usage
6	5.25”	HH	yes	open (removable media only)
5	5.25”	HH	yes	open (removable media only)
4	HS	HH	yes	open
3	HS	HH	yes	open
2	HS	HH	yes	open
1	HS	HH	yes	open
0	HS	HH	yes	open

Total Disk Capacity	Part Number(s) Required
13.5GB	3 x 94G7491[1]
22.5GB	5 x 94G7491[1]
27.3GB	3 x 02K0477[1]
45.5(max)	5 x 02K0477[1]

This table does not represent all possible hard disk configurations.
1. SMS2xxx’s with serial numbers between 01000 and 02499 require the Five-Pack upgrade kit 21H8767.

Part Number	Description[2]	Bays Supported	Qty Supported
94G7491	IBM PC Server 4.51GB Wide Ultra SCSI hot-swap HDD[1]	0-4	5
94G7492	IBM PC Server 9.1GB Wide Ultra SCSI hot-swap HDD[1]	0-4	5
02K0477	IBM 9.1GB Wide Ultra SCSI SL Hot-Swap Hard Disk Drive	0-4	5
21H8767	Five-Pack upgrade kit	-	1

1. SMS2xxx’s with serial numbers between 01000 and 02499 require the Five-Pack upgrade kit 21H8767.
2. Ultra SCSI drives must be operated at SCSI-2 speeds in this enclosure.

UPS[1]	Part Numbers
APC Smart-UPS 700 (20 min. runtime at 210VA)	SUP072Y
APC Smart-UPS1000 (36 min. runtime at 210VA)	SUP102Y

1. Stated runtimes and power are for typical configurations (70% of maximum capacity).

Cables	Part Numbers
See External Cable Configuration Table	
PC Server F/W to F/W External SCSI Cable	SS2C02Y
SCSI 68-pin to 50-pin Converter	32G3925
IBM 1 M External .8mm SCSI Cable	76H3589

Non-US Models require a power cord to be ordered

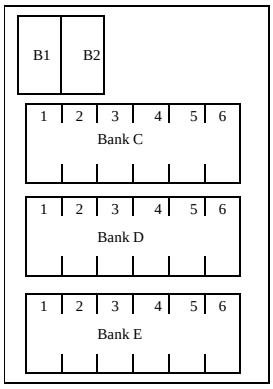
Sample Configurations

The following sample configurations are for illustration only and may not be suitable for any specific customer installation. Contact your IBM Business Partner or IBM Representative for assistance with your specific configuration requirements.

Part Number	Amount Required	Description
SMS2xxx	1	PC Server Multi Storage Enclosure
94G7492	5	IBM PC Server 9.1GB Wide Ultra SCSI hot-swap HDD
SUP072Y	1	APC Smart-UPS 700
SS2C02Y	1	PC Server F/W to F/W External SCSI Cable

The configuration above provides 45.5GB of storage capacity. The APC UPS provides protection against power problems.

IBM Enterprise Expansion Enclosure Configurator (SEEExxx)



Total Disk Storage[3]	Part Number(s) Required
0GB	N/A
13.53GB	3 x94G7491
27.06GB	6 x 94G7491 or 3 x 02K0477
54.6GB	6 x 02K0477
1 Power supply and 1 additional backplane required	
54.12GB[2]	12 x 94G7491, 1 x 94G4701[1], 1 x 76H2670
109.2GB[2]	12 x 02K0477, 1 x 94G4701[1], 1 x 76H2670
1 Power supply and 2 additional backplanes required	
81.18GB[2]	18 x 94G7491, 1 x 94G4701[1], 2 x 76H2670
163.8GB[2] (max. hot-swap)	18 x 02K0477, 1 x 94G4701[1], 2 x 76H2670
182.0GB[2] (max. total capacity)	18 x 02K0477, 2 x 76H26891 x 94G4701[1], 2 x 76H2670

1. Either SPS502Y or 94G4701 is required when installing the first optional 76H2670 backplane.
2. See "CABLING" section in Appendix D for required cables.
3. Total Disk Storage listed is within ± 0.2GB unless otherwise noted.

This table does not represent all possible hard disk configurations.

Bay	Form Factor	Height	Front Access	Usage
B1	5.25"	HH	yes	open
B2	5.25"	HH	yes	open
C1-6	HS	SL	yes	Std. backplane
D1-6	HS	SL	yes	no backplane
E1-6	HS	SL	yes	no backplane

Part Number	Description[2]	Bays Supported	Qty Supported
94G7491	IBM PC Server 4.51GB Wide Ultra SCSI hot-swap HDD	C -D - E (1-6)	18
94G7492	IBM PC Server 9.1GB Wide Ultra SCSI hot-swap HDD	C -D - E (1/2, 3/4, 5/6)	9
02K0477	IBM 9.1GB Wide Ultra SCSI SL Hot-Swap HDD	C-D-E (1-6)	18
76H2670	IBM PC Server hot-swap backplane III	Bank D, E	2
SPS502Y	PC Server Power Supply Upgrade II	Note 1	1
94G4701	780 Watt Redundant Power Option	Note 1	1

1. Either SPS502Y or 94G4701 is required when installing the first optional 76H2670 backplane.
2. Ultra SCSI drives must be operated at SCSI-2 speeds in this enclosure.

Internal Cables / Repeater[3]		
Part Number	**Description**	**Qty supported**
SBPDC1Y	Backplane to Backplane Cable Daisy chains with two backplanes	2
94G7585	PC Server SCSI-2 Fast/Wide Enhanced Repeater	4
SEEBP1Y	Expansion Enclosure Backplane Cable Connects a backplane to a repeater card or rear panel knockout	2
SBPMB1Y	Backplane to Media Bay Cable[1]	1
SEEMB1Y	Expansion Enclosure Media Bay Cable[2]	1
32G3925	68 to 50-pin SCSI converter	2

1. Includes one 68-50-pin converter. Connects 5.25-inch devices in the media bays to a backplane (share the SCSI channel with the hot-swap drives)
2. Includes one 68-50-pin converter 32G3925. Connects 5.25" devices in the media bays to the rear of the enclosure (use a dedicated SCSI channel).
3. See 3518 SCSI Channel Limitations and Example configurations for usage and requirements.

External Cables	
See Appendix D: Cables - Storage Units - Controllers	**Part Number**
Security	
PC Server Security Cover	SSC501Y
UPS[1]	
APC Smart-UPS 1000	SUP102Y
APC Smart-UPS 1400	SUP142Y
Rack Related	
Single Slide Shelf[2]	SSS191Y
Series 500/700 Mounting Plate[2]	SRP571Y

1. Stated runtimes and power are for typical configurations (70% of maximum capacity).
2. For use when installing the SEEExxx tower in IBM Netfinity Rack 9306900(15U). Requires both Single Slide Shelf (P/N SSS191Y) and Series 500/700 Mounting Plate (SRP571Y).

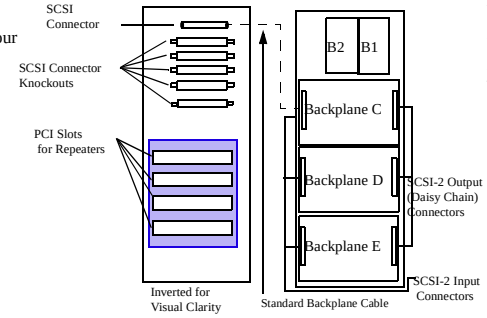
SEEE SCSI Channel Limitations[1]								
Hot-Swap Hard Disk Drives per Single SCSI Channel	**Drive Height[2]**	**Number of Hot-Swap Backplanes Required**	**Non-Hot-Swap Devices**	**Total SCSI Devices**	**SCSI Repeater (94G7585) Required**	**All Supported SCSI Adapters**	**SCSI Cable Length**	**Example**
6	SL	1	0	6	N[6]	Y	≤ 1M	A
3	HH[3]	1	0	6	N[6]	Y	≤ 1M	A, B
5	SL	1	1[5]	6	N[6]	Y	≤ 1M	C, D
4	SL	1	2[5]	6	N[6]	Y	≤ 1M	C, D
0	SL	0	2[8]	2	N[6]	Y	≤ 1M	A
6	SL	1	1[5]	7	Y	Y	≤ 4.3M[6]	F
5	SL	1	2[5]	7	Y	Y	≤ 4.3M[6]	F
12	SL	2[4]	0	12	Y	N[9]	≤ 4.3M[6]	F
9	HH[3]	3[7]	0	9	Y	N[9]	≤ 4.3M[6]	E

1. The SEEExxx supports up to four SCSI channels (one per backplane and one for the Non-Hot-Swap bays) in a non-cluster environment. Cluster limitations are not addressed by this table.
2. Do not mix Slim-Line (SL) and Half-High (HH) Hot-Swap Hard Disk Drives on a SCSI channel.
3. Two Slim-Line (SL) bays are combined to support one Half-High (HH) device.
4. Requires one additional backplane (P/N 76H2670) and backplane to backplane cable (P/N SBPDC1Y). Additional power supply (P/N SPS502Y or P/N 94G4701) is required when two or more hot-swap backplanes are installed.
5. Requires backplane to Media Bay Cable (P/N SBPMB1Y) which includes one 68-pin to 50-pin converter (P/N 32G3925). All narrow (50-pin) devices require a 68-pin to 50-pin Converter (P/N 32G3925).
6. External cable lengths greater than 1 meter require installation of a PC Server SCSI-2 Fast/Wide Enhanced Repeater (P/N 94G7585).
7. Requires two additional backplanes (P/N 76H2670) and two backplane to backplane cables (P/N SBPDC1Y). Additional power supply (P/N SPS502Y or P/N 94G4701) is required when two or more hot-swap backplanes are installed
8. Requires one Expansion Enclosure Media Bay Cable (P/N SEEMB1Y) which includes one 68-pin to 50-pin (P/N 32G3925) . All narrow (50-pin) devices reqyuire a 68-pin to 50-pin Converter (P/N 32G3925).
9. Requires connection from PC Server SCSI-2 Fast/Wide Enhanced Repeater (P/N 94G7585) to either IBM ServeRAID Adapter (P/N 01K7364, 01K7207 or 76H3584) or IBM PC Server Wide Ultra SCSI PCI Adapter (P/N 02K3454, 76H3579, 76H5407).

IBM Enterprise Enclosure (SEEExxx) Non-Repeater Examples

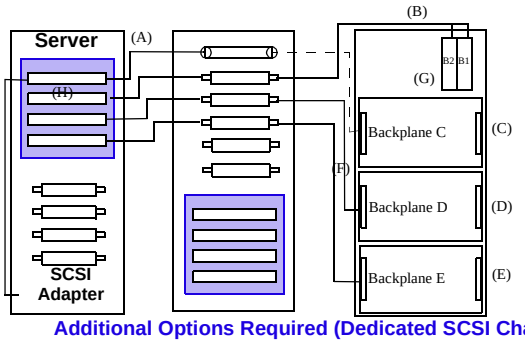
Note: The following sample configurations are for illustration only and may not be suitable for any specific customer installation. Contact your IBM Business Partner or IBM representative for assistance with your specific configuration requirements.

SEEE Standard Components Rear View



These sample configurations include most of the supported cables and their usage. There are many possible combinations which aren't presented here but can be derived from variations or combinations of these samples. Use the external Cable Configuration Table and Server Configuration pages to assure adapter and cable option compatibility.

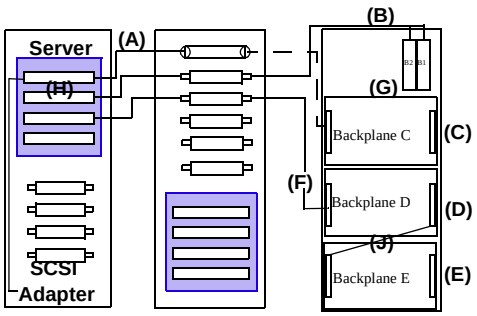
Example A



Additional Options Required (Dedicated SCSI Channels)

(A) 4 x External Cables - no repeater attached ≤ 1 meter long
(see external cable configuration table)
(B) 1 x SEEMB1Y Expansion Enclosure Media Bay Cable. Includes 1 x SCSI 68-pin to 50-pin converter.
Mixing Hot-Swap SL & HH HDD's on a single SCSI Channel is not supported
(C) 1 to 6 (SL) or 3 (HH) hot-swap HDD
(D) 1 to 6 (SL) or 3 (HH) hot-swap HDD
1 x 76H2670 IBM PC Server hot-swap backplane III
1 x SPS502Y or 94G4701 Power Supply
(E) 1 to 6 (SL) or 3 (HH) hot-swap HDD
1 x 76H2670 IBM PC Server hot-swap Backplane III
Additional Power Supply (D) Services both Backplane D and E
(F) 2 x SEEBP1Y Expansion Enclosure Backplane Cable
(G) Up to 2 non-hot-swap HDD and/or Removable Media Options
(H) Appropriate SCSI Adapter
(See External Cable Configuration Table and Specific Server Configuration sections)

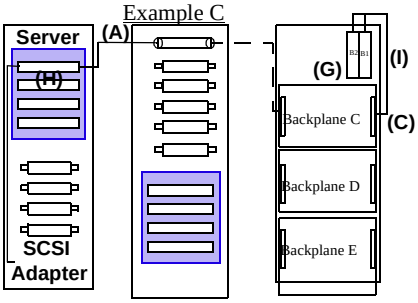
Example B



Additional Options Required (Dedicated and Daisy Chained SCSI Channels)

(A) 3 x External Cables - no repeater attached ≤ 1 meter long
(See External Cable Configuration Table)
(B) 1 x SEEMB1Y Expansion Enclosure Media Bay Cable
Includes 1 x SCSI 68 to 50-pin Converter
Mixing Hot-Swap SL & HH HDD's on a single SCSI channel is not supported
(C) 1 to 6 (SL) or 3 (HH) hot-swap HDD
Maximum of 6 SCSI devices per SCSI channel
(D) 1 to 3 (HH) hot-swap HDD
(E) 1 to 3 (HH) hot-swap HDD
2 x 76H2670 IBM PC Server hot-swap Backplane III
1 x SPS502Y or 94G4701 Power Supply
(F) 1 x SEEBP1Y Expansion Enclosure Backplane Cable
(G) Up to 2 non hot-swap HDD and/or Removable Media Options
(H) Appropriate SCSI Adapter
(See External Cable Configuration Table and Specific Server Configuration Sections)
(J) 1 x SBPDC1Y Backplane to Backplane Cable

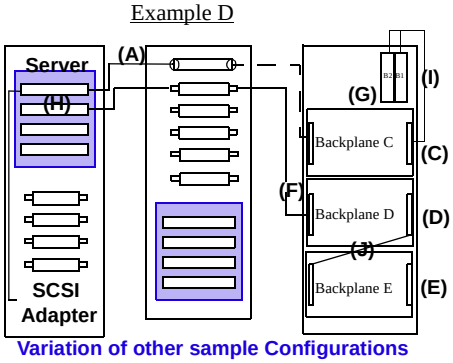
Example C



Additional Options Required (Shared SCSI Channel)

(A) 1 x External Cable - no repeater attached ≤ 1 meter long
(See External Cable Configuration Table)
Maximum of 6 SCSI devices per SCSI Channel
(C) 1 to 6 (SL) or 3 (HH) hot-swap HDD
(G) Up to 2 non-hot-swap HDD and/or removable media options
(H) Appropriate SCSI Adapter
(See External Cable Configuration and specific Server Configuration sections)
(I)1 x SBPMB1Y Backplane to Media Bay Cable
Includes 1 x SCSI 68 to 50-pin Converter
Supported on Backplanes "C" and "D" only

Example D



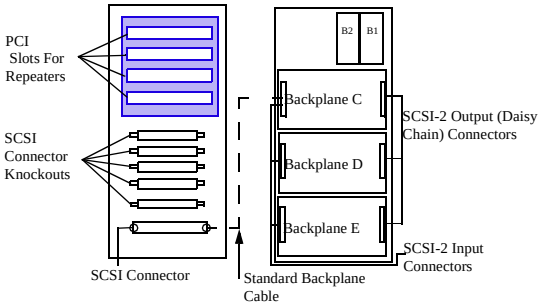
Variation of other sample Configurations

IBM Enterprise Enclosure (SEEExxx) Repeater Examples

SCSI Repeater Examples

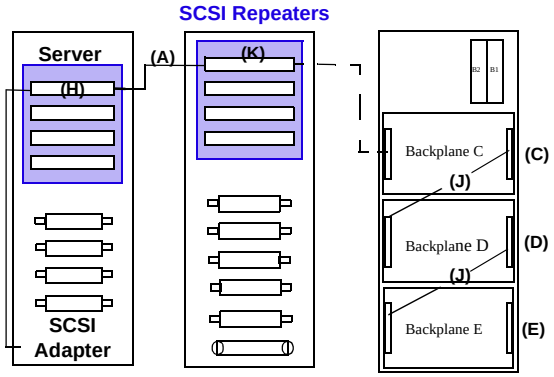
Note: The following sample configurations are for illustration only and may not be suitable for any specific customer installation. Contact your IBM Business Partner or IBM Representative for assistance with your specific configuration requirements.

SEEE Standard Components Rear View



These sample configurations include most of the supported cables and their usage. There are many possible combinations which aren't presented here but can be derived from variations or combinations of these samples. Use the external Cable Configuration Table and Server Configuration pages to assure adapter and cable option compatibility.

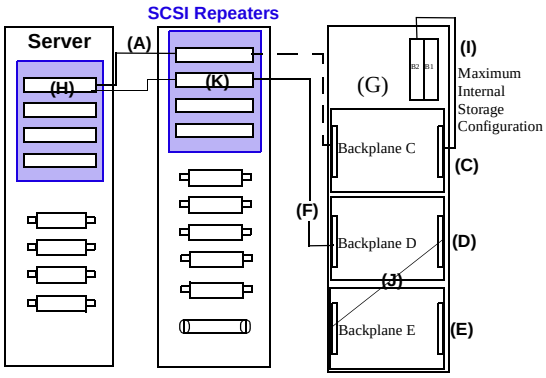
Example E



Additional Options Required

(A) 1 x External Cable- ≤ 4.3 meters long- Repeater Attached
(See External Cable Configuration Table)
Maximum of 12 SL or 9 HH SCSI hot-swap HDDs when attached to
76H3584 PC ServeRAID II or
76H5407 PC Server Wide Ultra SCSI PCI Adapter
Limits: 2 backplanes using SL HDDs
3 backplanes using HH HDDs-Mixing Hot-Swap SL & HH HDD's on a single SCSI channel is not supported.
Maximum of 7 when attached to other SCSI Adapters
Limits: 2 backplanes using HH HDDs
(C) 3 (HH) hot-swap HDD
(D) 3 (HH) hot-swap HDD
1 x 76H2670 IBM PC Server hot-swap Backplane III
1 x SPS502Y or 94G4701 Power Supply
(E) 1 to 3 (HH) hot-swap HDD(All HDD's must be HH).
1 x 76H2670 IBM PC Server hot-swap backplane III
Additional Power Supply (D) Services both Backplanes D and E
(H) Appropriate SCSI Adapter
(See External Cable Configuration and specific Server Configuration sections)
(J) 2 x SBPDC1Y Backplane to Backplane Cable
(K) 1 x 94G7585 IBM SCSI-2 F/W Enhanced Repeater

Example F



Additional Options Required

(A) 2 x External Cables - ≤ 4.3 meters long, Repeater Attached
(See External Cable Configuration Table)
Maximum of 7 SCSI devices when using Repeater 94G7585 and Bay B devices.
Mixing Hot-Swap SL & HH HDD's on a single SCSI channel is not supported.
(C) 1 to 6 (SL) or 3 (HH) hot-swap HDD
(D) 1 to 6 (SL) or 3 (HH) hot-swap HDD
1 x 76H2670 IBM PC Server hot swap Backplane III
1 x SPS502Y or 94G4701 Power Supply
(E) 1 to 6 (SL) or 3 (HH) hot-swap HDD
1 x 76H2670 IBM PC Server hot-swap backplane III
Additional Power Supply (D) Services both Backplanes D and E
(F) 1 x 70H9876 Expansion Enclosure Backplane Cable
(H) 76H3584 PC ServeRAID II Ultra SCSI Adapter
(See External Cable Configuration Table and Specific Server Configuration sections)
(G) Up to 2 non-hot-swap HDD and/or removable media options
(I) 1 x SBPMB1Y Backplane to Media Bay Cable
Includes 1 x SCSI 68 to 50-pin Converter
Supported on Backplanes "C" and "D" only
(J)1 x SBPDC1Y Backplane to Backplane Cable
(K) 2 x 94G7585 IBM SCSI-2 F/W Enhanced Repeaters

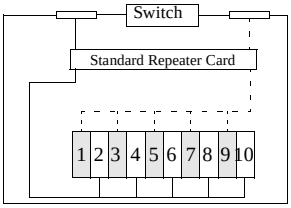
IBM Netfinity EXP15 (SE2RXxx) Configurator

Hard Disk Drive Configurator

Netfinity EXP15 19" Rack Drawer[1]

SE2RXxx

(0.8mm VHDCI Connectors)



Total Disk Capacity	Part Number(s) Required, 7,200 RPM	Part Number(s) Required, 10,000 RPM
0GB	Open Bay Standard on all Base Models	Open Bay Standard on all Base Models
22.5GB	5 x 01K7956	5 x 01K7960
45.1GB	10 x 01K7956	10 x 01K7960
45.5GB	5 x 01K7959	5 x 01K8499
91.0GB	10 x 01K7959	10 x 01K8499
182GB	10 x 01K8501	10 x 01K8500
364GB(max)	10 x 02K0442	-

This table does not represent all valid hard disk drive configurations.
1. Requires installation in an IBM Netfinity Rack (9306900), NetfBAY22 (9306200), NetBAY3 (10L6912) or an Industry Standard 19 inch rack cabinet that meets EIA-310-D and a depth of at least 24 inches.

Bay	BUS	Form Factor	Height	Front Access	Usage
1,3,5,7,9	1	HS	HH	yes	open
2,4,6,8 10	2	HS	HH	yes	open

Part Number	Description	Bays Supported	Qty Supported
01K7956	IBM Netfinity EXP10 4.51GB Wide Ultra SCSI SCA-2 HDD	All	10
01K7959	IBM Netfinity EXP10 9.1GB Wide Ultra SCSI SCA-2 HDD	All	10
01K8501	IBM Netfinity EXP10 18.2GB Wide Ultra SCSI SCA-2 HDD	All	10
02K0442	IBM Netfinity EXP 36.4GB Wide Ultra SCSI Hot-Swap HDD	All	10
01K7960	IBM Netfinity EXP10 4.51GB 10K Wide Ultra SCSI SCA-2 HDD	All	10
01K7968	IBM Netfinity EXP10 9.1GB 10K Wide Ultra SCSI SCA-2 HDD	All	10
01K8499	IBM Netfinity EXP10 9.1GB 10K Wide Ultra SCSI SL SCA-2 HDD	All	10
01K8500	IBM Netfinity EXP10 18.2GB 10K Wide Ultra SCSI SCA-2 HDD	All	10

Limitations

The Netfinity EXP15 is not supported when the SCSI channel of the SCSI adapter to which it is attached is split between internal devices and external devices. Each Netfinity EXP15 must be attached to a dedicated SCSI channel of a supported SCSI adapter. Ultra SCSI mode is not supported when external cables are greater than 2.0 meters in length unless attached to a supported LVDS SCSI adapter. Netfinity EXP15 is supported as a rack drawer and is not currently supported for stacking directly on top of one another. Netfinity EXP15 can be installed in Netfinity NetBAY3 storage units stacked up to three units high with a supported server on top.

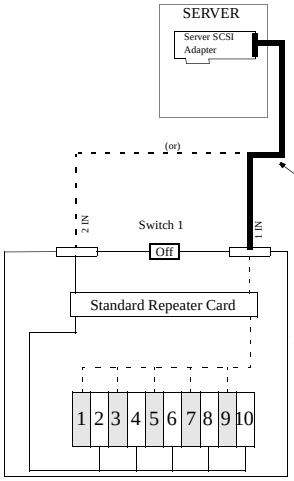
Cables and Controllers:
See Appendix D: Cables - Storage Units - Controllers

Sample Configurations

The following sample configurations are for illustration only and may not be suitable for any specific customer installation. Contact your IBM Business Partner or IBM Marketing Representative for assistance with your specific configuration requirements.

Netfinity EXP15 One Independent SCSI Bus

To configure as a single 10 drive SCSI channel, attach one external cable from the SCSI adapter to either the 1 IN or 2 IN connectors in the EXP15. Set switch 1 to “Off” position.

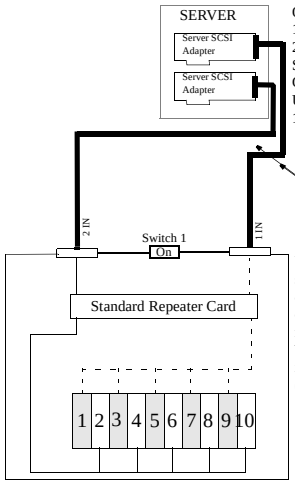


Order:
1 x SE2RXxx
1 x External Cable
See Cables - Storage Units - Controllers section
Up to 10 Disk Drives
19” Rack Space

Ultra SCSI mode is not supported with single ended controllers when external cables are greater than 2 meters in length. SCSI Fast/ Wide modes should be used in these environments. (10MHz or 20MB/s)

Netfinity EXP15 Two Independent SCSI Buses

To configure as two independent 5 drive SCSI channels, attach one external cable from the SCSI adapter to the SCSI bus 1 IN connector in the EXP15. Attach a second External SCSI cable from another SCSI adapter, in the same or separate server, to the 2 IN connector in the unit. Set switch 1 to “On” position.



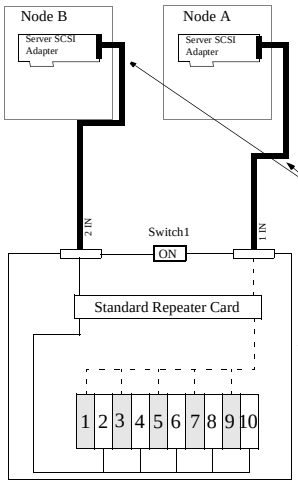
Order:
1 x SE2RXxx
2 x External Cables
See Cables - Storage Units - Controllers section
Up to 10 Disk Drives
19” Rack Space

Ultra SCSI mode is not supported with single ended controllers when external cables are greater than 2 meters in length. SCSI Fast/ Wide modes should be used in these environments. (10MHz or 20MB/s)

Netfinity EXP15 One Independent SCSI Bus

High Availability Configuration

To configure a single 10 drive SCSI channel for clustering, attach one external cable from the SCSI adapter in Node A to the 1 IN connector in the EXP15. Connect a second external cable to a SCSI adapter in Node B and to the 2 IN connector in the EXP15.

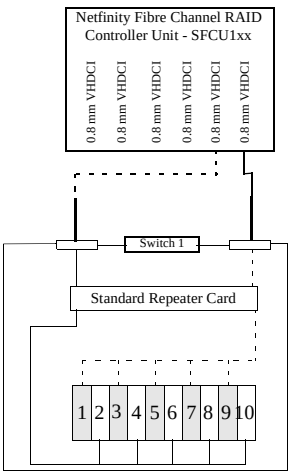


Order:
1 x SE2RXxx
2 x External Cables
See Cables - Storage Units - Controllers section
Up to 10 Disk Drives
19” Rack Space

Ultra SCSI mode is not supported with single ended controllers when external cables are greater than 2 meters in length. SCSI Fast/ Wide modes should be used in these environments. (10MHz or 20MB/s)

Netfinity Fibre Channel Solutions Configuration

To configure the Netfinity EXP15 for either cluster or non-cluster applications using a SFCU1xx, follow the same attachments outline above. Utilising Fibre Solutions provides support for large amounts of high-performance, RAID protected data storage at distances of up to 10 KM (6 miles) from the server.



One Independent Bus
• 1connection only
• Switch 1 off

Two Independent Bus
• 2 connections
• Switch 1 on

All cables are supported to the max speed available to SE2RXxx.

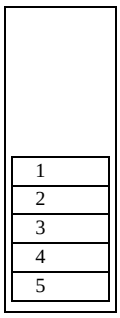
IBM SSA Entry Storage Subsystem for PC Servers (SA71xxx) Configurator

To attach the SA71 SSA Entry Subsystem to an IBM PC Server, the following is required:

- •The SSA RAID Adapter installed in an IBM Netfinity or IBM PC Server
- •SSA Cables

EMEA P/No's Country Codes for N7PROxx:- DK=Denmark, IS=Israel, IT=Italy, SD=Saudi Arabia, SA=South Africa, SE=Switzerland, UK=UK, EU=Europe

SA71-xxx



Slot	Form Factor	Height	Front Access	Usage	Total Disk Capacity	Part Number(s) Required
1	SSA HS	HH	Yes	must contain a HDD	0GB	None[1]
2	SSA HS	HH	Yes	open	13.53GB	3 x 27H1062, 2 x 05J6411
3	SSA HS	HH	Yes	open	22.55GB	5 x 27H1062
4	SSA HS	HH	Yes	open	27.3GB	3 x 21H8734, 2 x 05J6411
5	SSA HS	HH	Yes	must contain a HDD	45.5GB	5 x 21H8734

Part Number	Description	Bays Supported	Qty Supported
27H1062	4.51GB SSA SL hot-swap hard disk drive	1-5	5
21H8734	9.1GB SSA hot-swap hard disk drive	1-5	5
05J6411	Dummy Disk Drive Module	2,3,4	3

1. A minimum of 2 hard disk drives are required. All slots must contain a hard disk drive or dummy module

Note:This table does not represent all possible hard disk drive configurations.

IBM 3527 STORAGE ENCLOSURE

Limitations

All five disk drive slots in a SA71 must be filled with either an SSA disk drive or an SSA dummy disk drive module.
A maximum of three neighboring dummy disk drive modules can be connected in a particular SSA loop.
Hard disk drives must be installed in slots 1 and 5.
The maximum number of drives per RAID adapter 32H3811 loop is 48.
The maximum number of drives per RAID adapter 32H3811 is 96.
Each SSA loop must be connected to a valid pair of SSA adapter connectors (A1 and A2, or B1 and B2).
Only one of the two pairs of connectors on RAID adapter 32H3811 can be connected in a particular SSA loop.
The SA71 can be placed a maximum of 25 meters from the server or adjacent SA71s in a particular loop.

Server RAID Adapters	Part Number
IBM SSA RAID Adapter for PC Servers[1]	32H3811
UPS	
APC Smart-UPS 700	SUP072Y
APC Smart-UPS 1000:	SUP102Y
APC Smart-UPS 1400	SUP142Y

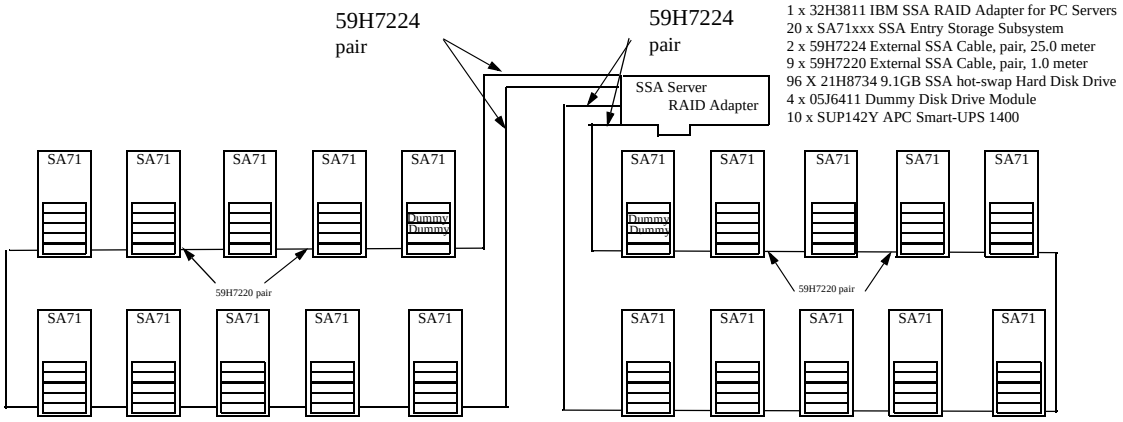
1. System units with greater than 2GB of system memory are restricted to RAID 5 opreration only

External Cables	Part Number
External SSA Cable, pair, 1.0 meter	59H7220
External SSA Cable, pair, 2.5 meter	59H7221
External SSA Cable, pair, 5.0 meter	59H7222[1]
External SSA Cable, pair, 10.0 meter	59H7223
External SSA Cable, pair, 25.0 meter	59H7224

1.A preconfigured SA71xxx contains five 9.1GB HDD's (P/N 21H8734) and 5 M cable pair (P/N 59H7222). Order (P/N N7PROxx)

Maximum Configuration per SSA RAID Adapter

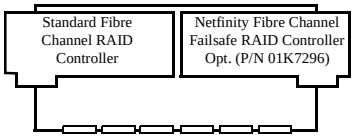
The following sample configurations are for illustration only and may not be suitable for any specific customer installation. Contact your IBM Business Partner or IBM representative for assistance with your specific configuration requirements.



1 x 32H3811 IBM SSA RAID Adapter for PC Servers
20 x SA71xxx SSA Entry Storage Subsystem
2 x 59H7224 External SSA Cable, pair, 25.0 meter
9 x 59H7220 External SSA Cable, pair, 1.0 meter
96 X 21H8734 9.1GB SSA hot-swap Hard Disk Drive
4 x 05J6411 Dummy Disk Drive Module
10 x SUP142Y APC Smart-UPS 1400

IBM Netfinity Fibre Channel Solutions

Netfinity Fibre Channel RAID Controller Unit
SFCU1xx

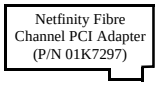


- Contains a single Short-Wave Fibre Connection (use cable group D) and six female 0.8 mm Very High Density Connection Interface (VHDCI) SCSI connectors (EXP15 - use cable group A, EXP10 - use cable group B)
- Hot-Swap Redundant Fans and Power Supplies
- Optional Netfinity Fibre Channel Failsafe RAID Controller (P/N 01K7296) provides a redundant RAID controller and second Short-Wave Fibre Connection (use cable group D).
- Attach directly to Netfinity Fibre Channel PCI Adapter(s) (P/N 01K7297) or indirectly through Netfinity Fibre Channel Hub (P/N SFCH1xx) using cables from cable group D
- Height is 4 U (1 U = 1.75 in or 44.45 mm)
- Requires Netfinity Rack, Netfinity NetBAY22 or 19-inch EIA-D Industry-Standard Rack. Mounting rails are included with the controller.
- For optimum performance no more than two RAID controller units (P/N SFCU1xx) should be attached to a single hub (P/N SFCH1xx).

Netfinity Fibre Channel Hub SFCH1xx

- Seven-port Fibre Channel Hub chassis
- Includes four standard Netfinity Fibre Channel Short-Wave GBIC's (GigaBit Interface Converters)
- GBIC's supported
  - Netfinity Fibre Channel Short-Wave GBIC (P/N 03K9308) supports Cable Group D
  - Netfinity Fibre Channel Long-Wave GBIC (P/N 03K9307) supports Cable Group E
- Supported Attachments (up to seven with available GBIC):
  - Netfinity Fibre Channel PCI Adapter (P/N 01K7297) requires cable group D with short-wave GBIC
  - Second Netfinity Fibre Channel Hub (P/N SFCH1xx) requires cable group D or E with corresponding GBIC
  - Netfinity Fibre Channel RAID Controller Unit SFCU1xx requires cable group D and short-wave GBIC
- Height is 1 U (1 U = 1.75 in or 44.45 mm). Two units can be mounted side-by-side in a 1 U space.
- Requires Netfinity Rack, Netfinity NetBAY22 or 19-inch EIA-D Industry-Standard Rack. Mounting hardware is included with the hub.
- For optimum performance no more than two RAID controller units (P/N SFCU1xx) should be attached to a single hub (P/N SFCH1xx)

Netfinity Fibre Channel PCI Adapter
(P/N 01K7297)



- PCI to FCAL 64/32-bit host adapter
- Supported Attachments (use cable group D):
  - Netfinity Fibre Channel Hub (P/N SFCH1xx), requires available short-wave GBIC in hub
  - Netfinity Fibre Channel RAID Controller Unit SFCU1xx
  - Netfinity Fibre Channel Failsafe RAID Controller (P/N 01K7296)

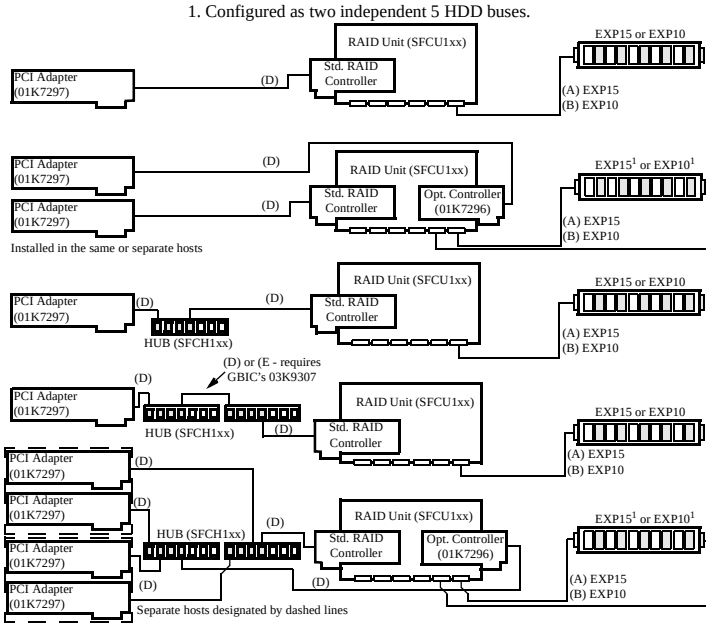
Part Number	Description
SFCU1xx	Netfinity Fibre Channel RAID Controller Unit
SFCH1xx	Netfinity Fibre Channel Hub
01K7296	Netfinity Fibre Channel Failsafe RAID Controller
01K7297	Netfinity Fibre Channel PCI Adapter
03K9305	Netfinity Fibre Channel 25 M Cable
03K9306	Netfinity Fibre Channel 5 M Cable
03K9307	Netfinity Fibre Channel Long-Wave GBIC
03K9308	Netfinity Fibre Channel Short-Wave GBIC

Supported Cable Groups	
Cable Group A (0.8 mm to 0.8 mm)	
03K9310	Netfinity 2 M Ultra2 SCSI Cable
03K9311	Netfinity 4.2 M Ultra2 SCSI Cable
03K9312	Netfinity 12 M Ultra2 SCSI Cable
Cable Group B (68-pin to 0.8 mm)	
76H3589	1 M External .8mm SCSI Cable[1]
01K8027	2 M External .8mm SCSI Cable
03K9352	3 M External Auto-Sensing Cable
01K8029	4.3 M External .8mm SCSI Cable
Cable Group D (Short-Wave Fibre)	
03K9606	Netfinity Fibre Channel 5 M Cable
03K9305	Netfinity Fibre Channel 25 M Cable
Customer supplied short-wave cable of up to 500 meters (0.31 miles)	
Cable Group E (Long-Wave Fibre)	
Customer supplied long-wave cable of up to 10 kilometers (6.2 miles)	
GBIC	
03K9308	Netfinity Fibre Channel Short-Wave GBIC[2]
03K9307	Netfinity Fibre Channel Long-Wave GBIC

1. Rack installation requires a minimum cable length of 2 meters.
2. Four Netfinity Fibre Channel Short-Wave GBIC's (P/N 03K9308) are included with Netfinity Fibre Channel Hub (P/N SFCH1xx).

Configuration Examples - Cable Group ( )

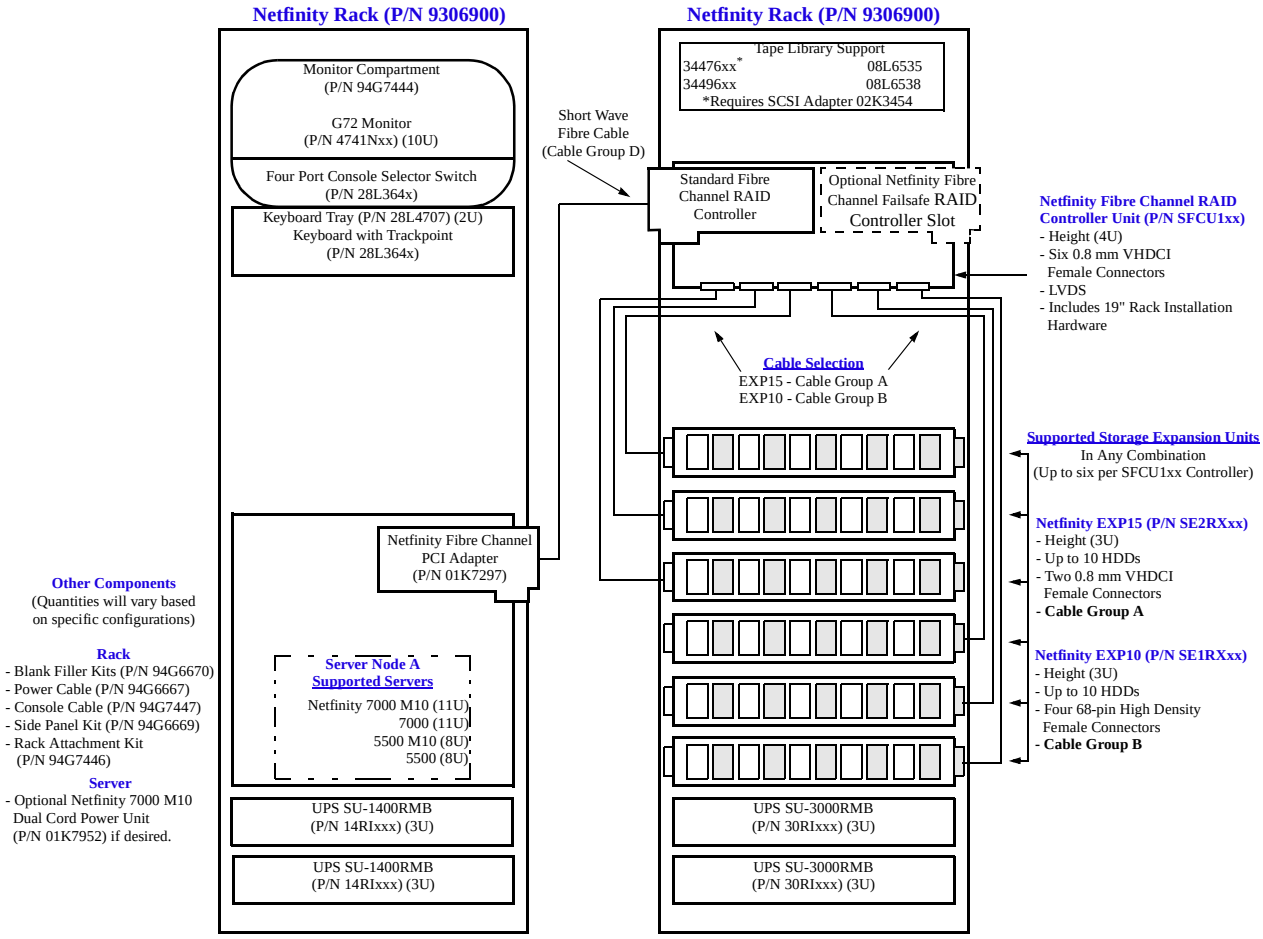
1. Configured as two independent 5 HDD buses.



IBM Netfinity Fibre Channel Solutions

Note: The following sample configurations are for illustration only and may not be suitable for any specific customer installation. Contact your IBM Business Partner or IBM Marketing Representative for assistance with your specific configuration requirements

High-speed single-node Netfinity Fibre Channel Storage configuration offering performance, bandwith & capacity



Additional Information and Configuration Tools Available
Clustering: WEB URL http://www.pc.ibm.com/us/netfinity/clustering.html
Rack Configurator: WEB URL http://www.pc.ibm.com/europe/netfinity_solutions.html
Paper Configurator: http://www.pc.ibm.com/europe/netfinity_solutions.html
ConfigXpert: WEB URL http://www.pc.ibm.com/europe/netfinity_solutions.html

Connector Types
68-pin - High Density Connector
0.8 mm - Very High Density Connection Interface VHDCI

Cable Group A (0.8 mm to 0.8 mm**)**
03K9310 - Netfinity 2 M Ultra2 SCSI Cable
03K9311 - Netfinity 4.2 M Ultra2 SCSI Cable
03K9312 - Netfinity 12 M Ultra2 SCSI Cable

Cable Group B (68-pin to 0.8 mm)
76H3589 - 1 M External .8mm SCSI Cable[1]
01K8027 - 2 M External .8mm SCSI Cable
03K9352 - 3 M External Auto-Sensing Cable
01K8029 - 4.3 M External 0.8mm SCSI Cable

Cable Group D (Short-Wave Fibre)
03K9306 - Netfinity Fibre Channel 5 M Cable
03K9305 - Netfintiy Fibre Channel 25 M Cable
Customer supplied short-wave cable of up to 500 meters (0.31 miles)

Cable Group E (Long-Wave Fibre)
Customer supplied long-wave cable of up to 10 kilometers (6.2 miles)

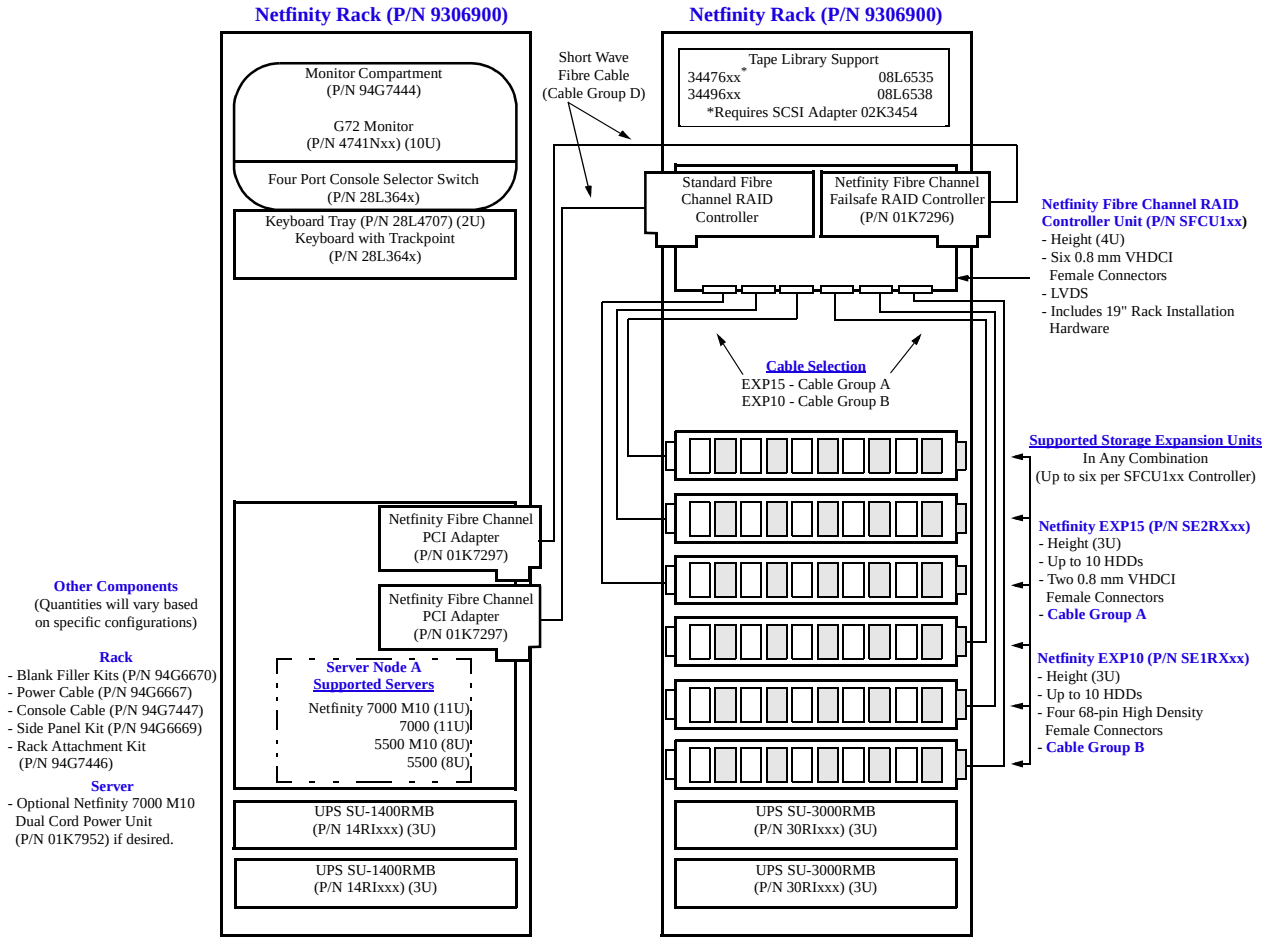
GBIC
03K9308 - Netfinity Fibre Channel Short-Wave GBIC[2]
03K9307 - Netfinity Fibre Channel Long-Wave GBIC

1. Rack installation requires a minimum cable length of 2 meters.
2. Four Netfinity Fibre channel Short-Wave GBIC's (P/N 03K9308) are included with Netfinity Fibre Channel Hub (P/N SFCH1xx)

IBM Netfinity Fibre Channel Solutions

Note: The following sample configurations are for illustration only and may not be suitable for any specific customer installation. Contact your IBM Business Partner or IBM Marketing Representative for assistance with your specific configuration requirements

High-speed single-node Netfinity Fibre Channel Storage configuration with Microsoft NT failover support and RAID redundancy for availability, performance, capacity



Additional Information and Configuration Tools Available
Clustering: WEB URL http://www.pc.ibm.com/us/netfinity/clustering.html
Rack Configurator: WEB URL http://www.pc.ibm.com/europe/netfinity_solutions.html
Paper Configurator: http://www.pc.ibm.com/europe/netfinity_solutions.html
ConfigXpert: WEB URL http://www.pc.ibm.com/europe/netfinity_solutions.html

Connector Types
68-pin - High Density Connector
0.8 mm - Very High Density Connection Interface VHDCI

Cable Group A (0.8 mm to 0.8 mm)
03K9310 - Netfinity 2 M Ultra2 SCSI Cable
03K9311 - Netfinity 4.2 M Ultra2 SCSI Cable
03K9312 - Netfinity 12 M Ultra2 SCSI Cable

Cable Group B (68-pin to 0.8 mm)
76H3589 - 1 M External .8mm SCSI Cable[1]
01K8027 - 2 M External .8mm SCSI Cable
03K9352 - 3 M External Auto-Sensing Cable
01K8029 - 4.3 M External 0.8mm SCSI Cable

Cable Group D (Short-Wave Fibre)
03K9306 - Netfinity Fibre Channel 5 M Cable
03K9305 - Netfintiy Fibre Channel 25 M Cable
Customer supplied short-wave cable of up to 500 meters (0.31 miles)

Cable Group E (Long-Wave Fibre)
Customer supplied long-wave cable of up to 10 kilometers (6.2 miles)

GBIC
03K9308 - Netfinity Fibre Channel Short-Wave GBIC[2]
03K9307 - Netfinity Fibre Channel Long-Wave GBIC

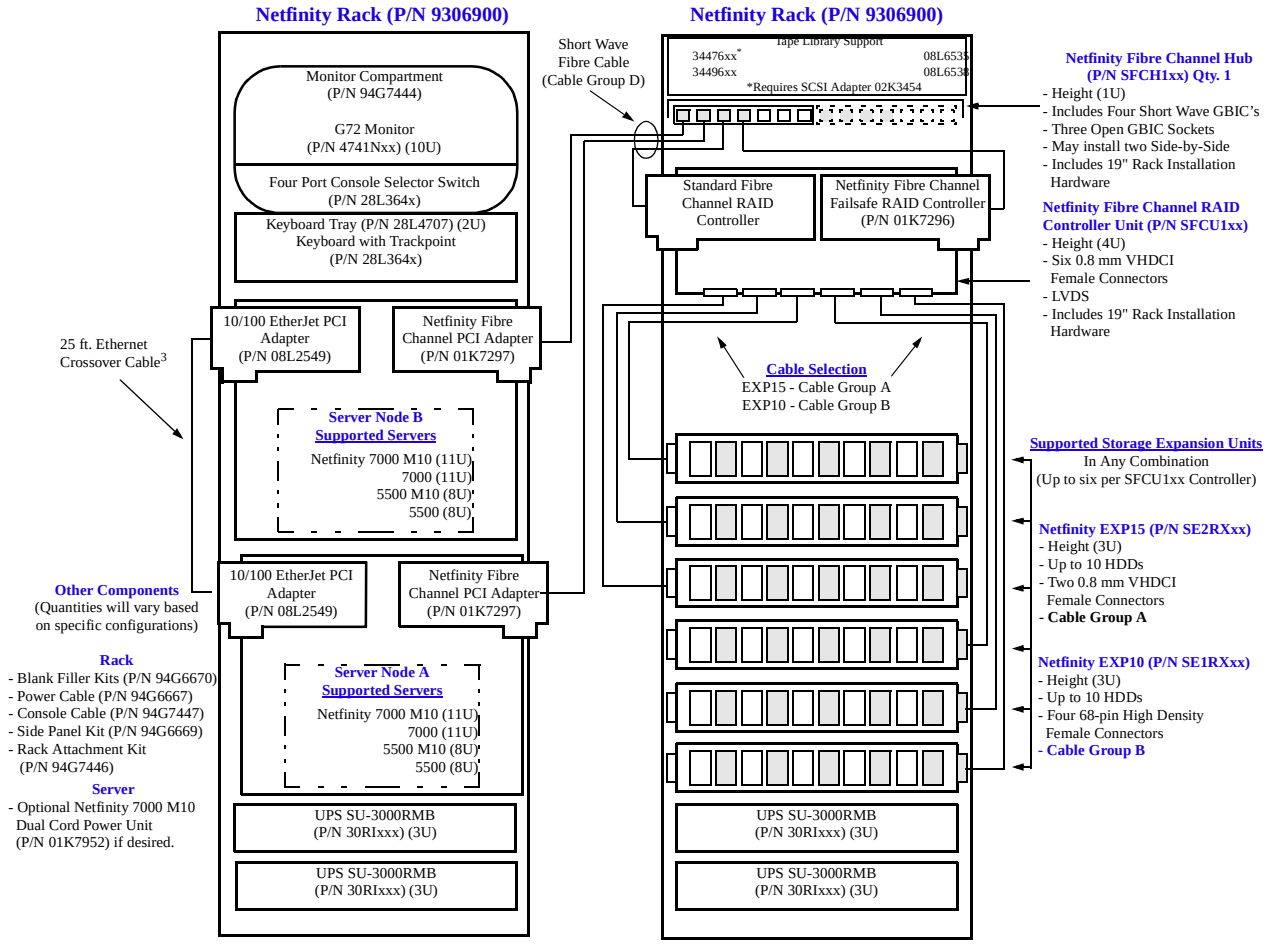
1. Rack installation requires a minimum cable length of 2 meters.
2. Four Netfinity Fibre channel Short-Wave GBIC's (P/N 03K9308) are included with Netfinity Fibre Channel Hub (P/N SFCH1xx)

IBM Netfinity Fibre Channel Solutions

Note: The following sample configurations are for illustration only and may not be suitable for any specific customer installation. Contact your IBM Business Partner or IBM Marketing Representative for assistance with your specific configuration requirements

Cluster Solution

High speed multiple node Microsoft Cluster Server and Netfinity Fibre Channel Storage configuration offering data protection and RAID redundancy.



Additional Information and Configuration Tools Available

Clustering: WEB URL http://www.europe.ibm.com/rs_emea/uk/res/config/netfinity/netconf.html
Rack Configurator: WEB URL http://www.pc.ibm.com/europe/netfinity_solutions.html
Paper Configurator: http://www.pc.ibm.com/europe/netfinity_solutions.html
ConfigXpert: WEB URL http://www.pc.ibm.com/europe/netfinity_solutions.html

Connector Types
68-pin - High Density Connector
0.8 mm - Very High Density Connection Interface VHDCI

Cable Group A (0.8 mm to 0.8 mm**)**
03K9310 - Netfinity 2 M Ultra2 SCSI Cable
03K9311 - Netfinity 4.2 M Ultra2 SCSI Cable
03K9312 - Netfinity 12 M Ultra2 SCSI Cable

Cable Group B (68-pin to 0.8 mm)
76H3589 - 1 M External .8mm SCSI Cable[1]
01K8027 - 2 M External .8mm SCSI Cable
03K9352 - 3 M External Auto-Sensing Cable
01K8029 - 4.3 M External 0.8mm SCSI Cable

Cable Group D (Short-Wave Fibre)
03K9306 - Netfinity Fibre Channel 5 M Cable
03K9305 - Netfintiy Fibre Channel 25 M Cable
Customer supplied short-wave cable of up to 500 meters (0.31 miles)

Cable Group E (Long-Wave Fibre)
Customer supplied long-wave cable of up to 10 kilometers (6.2 miles)

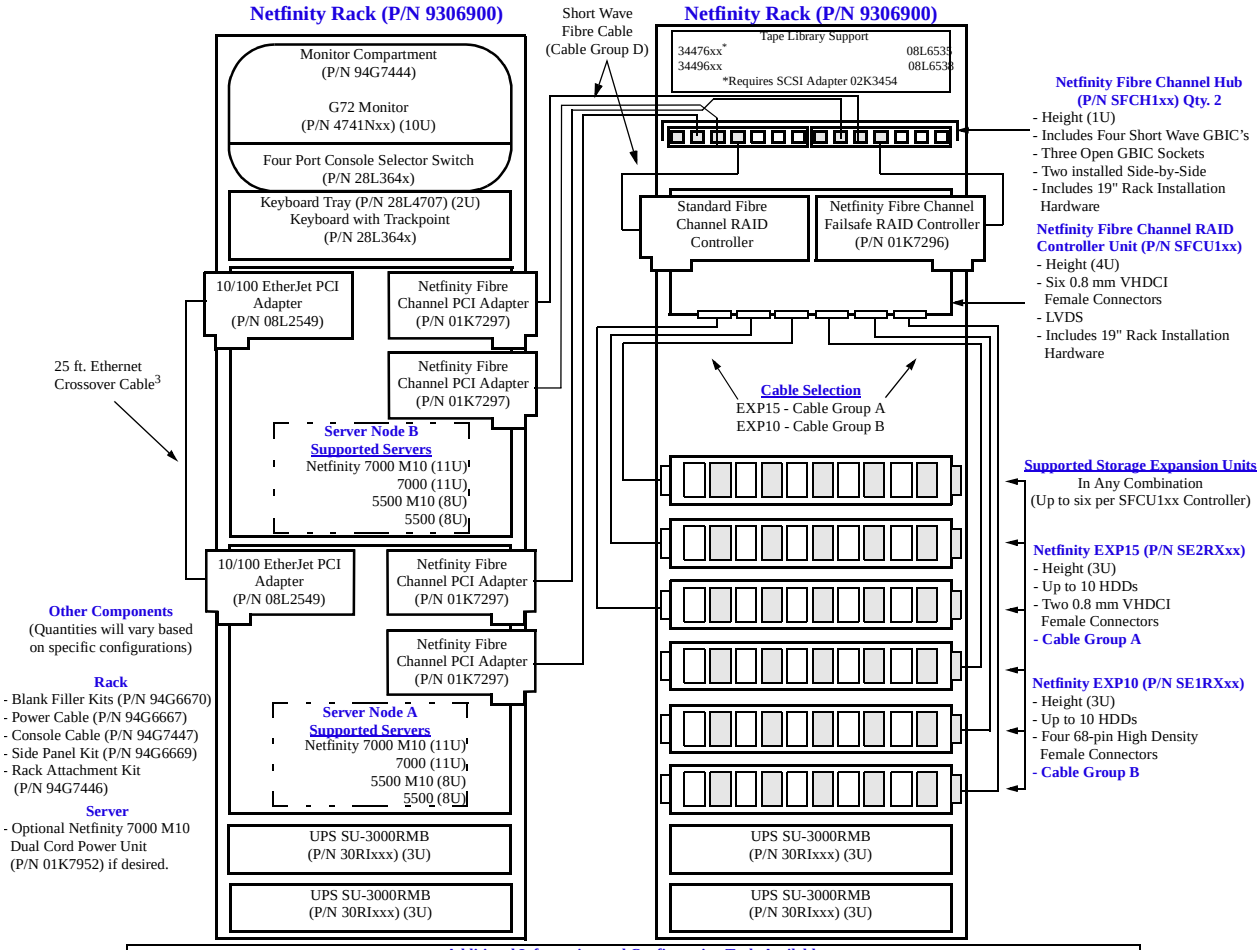
GBIC
03K9308 - Netfinity Fibre Channel Short-Wave GBIC[2]
03K9307 - Netfinity Fibre Channel Long-Wave GBIC

1. Rack installation requires a minimum cable length of 2 meters.
2. Four Netfinity Fibre channel Short-Wave GBIC's (P/N 03K9308) are included with Netfinity Fibre Channel Hub (P/N SFCH1xx)
3. Microsoft Cluster Server (MSCS) requires a private interconnect between clustered nodes. A 25 ft. Ethernet crossover cable is shown but not available from IBM as a seperate option. Contact your IBM Business Partner for assistance.

IBM Netfinity Fibre Channel Solutions

Note: The following sample configurations are for illustration only and may not be suitable for any specific customer installation. Contact your IBM Business Partner or IBM Marketing Representative for assistance with your specific configuration requirements

Advanced high-speed high-availability mulitiple node Microsoft Cluster Server and fully redundant Netfinity Fibre Channel Storage configuration offering the highest levels of data protection and availability and access to data



Additional Information and Configuration Tools Available

Clustering: WEB URL http://www.europe.ibm.com/rs_emea/uk/res/config/netfinity/netconf.html
Rack Configurator: WEB URL http://www.pc.ibm.com/europe/netfinity_solutions.html
Paper Configurator: http://www.pc.ibm.com/europe/netfinity_solutions.html
ConfigXpert: WEB URL http://www.pc.ibm.com/europe/netfinity_solutions.html

Connector Types
68-pin - High Density Connector
0.8 mm - Very High Density Connection Interface VHDCI

Cable Group A (0.8 mm to 0.8 mm)
03K9310 - Netfinity 2 M Ultra2 SCSI Cable
03K9311 - Netfinity 4.2 M Ultra2 SCSI Cable
03K9312 - Netfinity 12 M Ultra2 SCSI Cable

Cable Group B (68-pin to 0.8 mm)
76H3589 - 1 M External .8mm SCSI Cable[1]
01K8027 - 2 M External .8mm SCSI Cable
03K9352 - 3 M External Auto-Sensing Cable
01K8029 - 4.3 M External 0.8mm SCSI Cable

Cable Group D (Short-Wave Fibre)
03K9306 - Netfinity Fibre Channel 5 M Cable
03K9305 - Netfintiy Fibre Channel 25 M Cable
Customer supplied short-wave cable of up to 500 meters (0.31 miles)

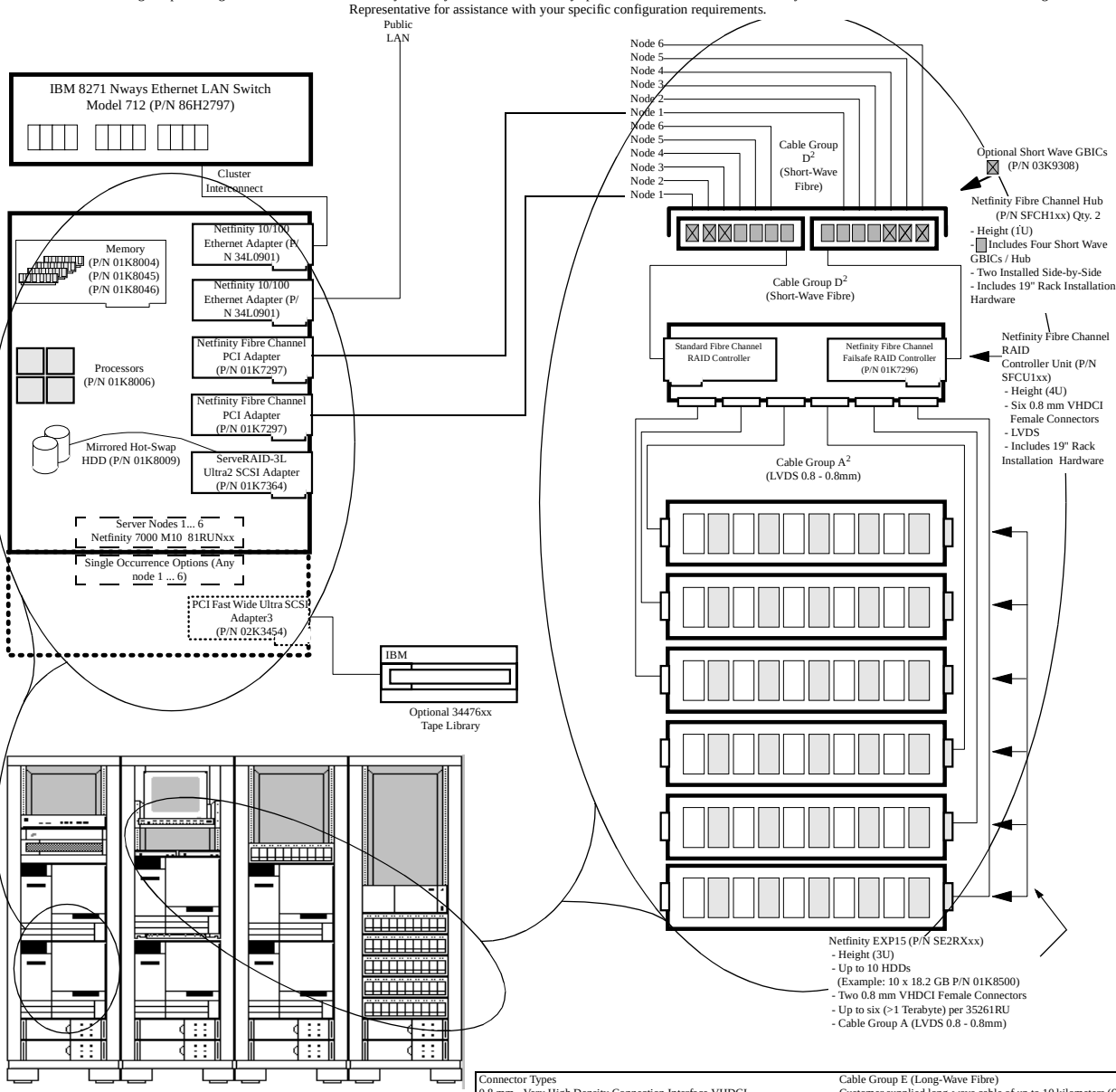
Cable Group E (Long-Wave Fibre)
Customer supplied long-wave cable of up to 10 kilometers (6.2 miles)

GBIC
03K9308 - Netfinity Fibre Channel Short-Wave GBIC[2]
03K9307 - Netfinity Fibre Channel Long-Wave GBIC

1. Rack installation requires a minimum cable length of 2 meters.
2. Four Netfinity Fibre channel Short-Wave GBIC's (P/N 03K9308) are included with Netfinity Fibre Channel Hub (P/N SFCH1xx)
3. Microsoft Cluster Server (MSCS) requires a private interconnect between clustered nodes. A 25 ft. Ethernet crossover cable is shown but not available from IBM as a seperate option. Contact your IBM Business Partner for assistance.

Netfinity Fibre Channel Solution
Six Node Oracle® Parallel Server (OPS)

The following sample configurations are for illustration only and may not be suitable for any specific customer installation. Contact your IBM Business Partner or IBM Marketing Representative for assistance with your specific configuration requirements.



Rack A	Rack B	Rack C	Rack D
8271 Switch	Monitor	EXP15	RAID Controller
3447 Tape Lib.	Console Switch	7000 M10	EXP15
7000 M10	2 x Fibre Hub	7000 M10	EXP15
7000 M10	7000 M10	3000 UPS	EXP15
3000 UPS	Keyboard	3000 UPS	EXP15
3000UPS	7000 M10		EXP15
	3000 UPS		3000 UPS
	3000 UPS		3000 UPS

Connector Types
0.8 mm - Very High Density Connection Interface VHDCI

Cable Group A (0.8 mm to 0.8 mm)
03K9310 - Netfinity 2 M Ultra2 SCSI Cable
03K9311 - Netfinity 4.2 M Ultra2 SCSI Cable
03K9312 - Netfinity 12 M Ultra2 SCSI Cable

Cable Group D (Short-Wave Fibre)
03K9306 - Netfinity Fibre Channel 5 M Cable
03K9305 - Netfinity Fibre Channel 25 M Cable
Customer supplied short-wave cable of up to 500 meters (0.31 miles)

Additional Information and Configuration Tools Available
Clustering: WEB URL http://www.pc.ibm.com/us/netfinity/clustering.html
Rack Configurator: WEB URL http://www.pc.ibm.com/europe/netfinity_solutions.html
Paper Configurator: http://www.pc.ibm.com/europe/netfinity_solutions.html
ConfigXpert: WEB URL http://www.pc.ibm.com/europe/netfinity_solutions.html

Cable Group E (Long-Wave Fibre)
Customer supplied long-wave cable of up to 10 kilometers (6.2 miles)

GBIC
03K9308 - Netfinity Fibre Channel Short-Wave GBIC[1]
03K9307 - Netfinity Fibre Channel Long-Wave GBIC

(1) Four Netfinity Fibre Channel Short-Wave GBICs (P/N 03K9308) are included with Netfinity Fibre Channel Hub (P/N SFCH1xx)
(2) Cable length requirements are dependant on component placement within the rack suite. The parts list for this example reflects requirements for the illustrated configuration only. Cable length requirements for other configurations are best determined by using the Netfinity Rack Configurator which is downloadable from Web site http://www.pc.ibm.com/europe/netfinity_solutions.html
(3) A tape library is optional and attaches to any one of the nodes within the cluster.

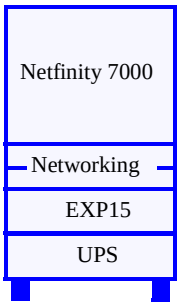
Netfinity Fibre Channel Solution
Six Node OPS Parts List[1]

Part Number	Description	Qty.	Usage
Nodes 1... 6			
81RUNxx	Netfinity 7000 M10	6	Cluster Nodes
01K8004	Netfinity 7000 M10 Memory Expansion Card	6	1 per node, required for memory installation in Banks 5... 8. Enables 8-way interleaving for supported configurations.
01K8045	Netfinity 7000 M10 512 MB Memory Expansion Kit - 4x128	24	4 per node, total of 4 GB
01K8046	Netfinity 7000 M10 1 GB Memory Expansion Kit - 4x256	12	2 per node, total of 4 GB
01K8006	Netfinity 7000 M10 400 MHzm, 512 KB Upgrade	18	3 per node, total of 4 SMP processors per node
01K8009	IBM Netfinity 4.51 GB 10K Wide Ultra SCSI SCA-2 HDD	12	2 per node, mirrored NOS, attached to ServeRAID-3L
01K7364	IBM Netfinity ServeRAID-3L Ultra2 SCSI Adapter	6	1 per node for NOS HDDs
34L0901	Netfinity 10/100 Ethernet Adapter	12	2 per node (1-Cluster Interconnect attachment to 8271 Switch, 1-Public LAN)
01K7297	Netfinity Fibre Channel PCI Adapter	12	2 per node, each attaches to one of the two Fibre Hubs
SPSR2xx	IBM Netfinity 400 W Hot-Swap Redundant Power Supply II	12	2 per node, provides power supply redundancy for each node
SDCU1xx	Netfinity 7000 M10 Dual Cord Power Unit	6	1 per node, provides two power cables per node which are attached to separate UPS's allowing power source redundancy
Storage Subsystems			
SFCH1xx	Netfinity Fibre Channel Hub	2	Short-wave connection between each hub to each of 6 nodes, and two connections to Netfinity Fibre Channel RAID Controller Unit. Each hub includes 4 standard SW GBICs.
03K9308	Netfinity Fibre Channel Short-wave GBIC	6	3 per hub, total of 7 per hub
SFCU1xx	Netfinity Fibre Channel RAID Controller Unit	1	Attaches to six EXP15's, with Failsafe Controller - two attachments to the hubs
01K7296	Netfinity Fibre Channel Failsafe RAID Controller	1	Installs in Controller Unit, provides redundant path to EXP15's
SE2RXxx	Netfinity EXP15	6	One LVDS attachment to RAID Controller Unit per EXP15, max of 60 HDDs
34476xx	3447 Digital Linear Library	1	Tape subsystems are optional. The 3447 includes a 4.5 M cable.
02K3454	PCI Fast/Wide Ultra SCSI Adapter	1	Supports optional 3447 tape drive. May be installed in any of the 6 servers.
30RIxxx	APC Smart-UPS 3000RMB	8	Power connections are intra-rack only
Storage Cables			
03K9306	Netfinity Fibre Channel 5 M Cable	14	12 hub to node, 2 hub to RAID controller
03K9310	Netfinity 2 M Ultra2 SCSI Cable	6	RAID controller to EXP15's
Other Non-rack			
Customer Supplied	**Ethernet Cluster Interconnect Cables**	**6**	**Not connected to Public LAN, provides interconnection between clustered nodes.**
28L364x[2]	Space Saver Keyboard (1U)	1	Includes TrackPoint
466BNxx	G54 Color Monitor 15" (13.7" Viewable Image Size)	1	-
86H2797	IBM 8271 Nways Ethernet LAN Switch Model 712	1	Attaches to Cluster Interconnect Ethernet adapter in each node
Rack / Related			
9306900	IBM Netfinity Rack Cabinet	4	Provides 42U of mounting space per rack
28L4707	Netfinity Rack Keyboard Tray	1	Allows keyboard 28L364x to be stored in a ready to use position
85H6735	Network Products Mounting Kit	1	Required for mounting 8271 switch in a Netfinity rack
94G7444	Monitor Compartment	1	Required for mounting G54 Monitor
94G7445	Console Server Selector Switch - 8 port	1	Connects 6 nodes to monitor and keyboard
94G6669	Side Panel Kit	1	Provides side panels for both ends of the rack suite.
94G7446	Rack Attachment Kit	3	Provides hardware for attaching four racks together in a suite
94G6670	Blank Filler Panel Kit	4	Provides blank panels to fill the remaining rack space within the suite
94G7448	Power Cable - Type C14	9	Provides 14' power cables for UPS attachment to installed components
94G7447	12ft. Console Cable Set	6	Attaches each node to the console switch.

1. Cable, power, cooling and weight are dependent on component placement within the rack and rack suite. This parts list reflects one possible configuration of the listed components. Prior to ordering, you should configure your specific environment using the Netfinity Rack Configurator. The Netfinity Rack Configurator is downloadable from URL http:/www.pc.ibm.com/europe/netfinity_solutions.html
2. x represents country specific code: 0=US English, 1=UK, 2=France, 3=Germany.

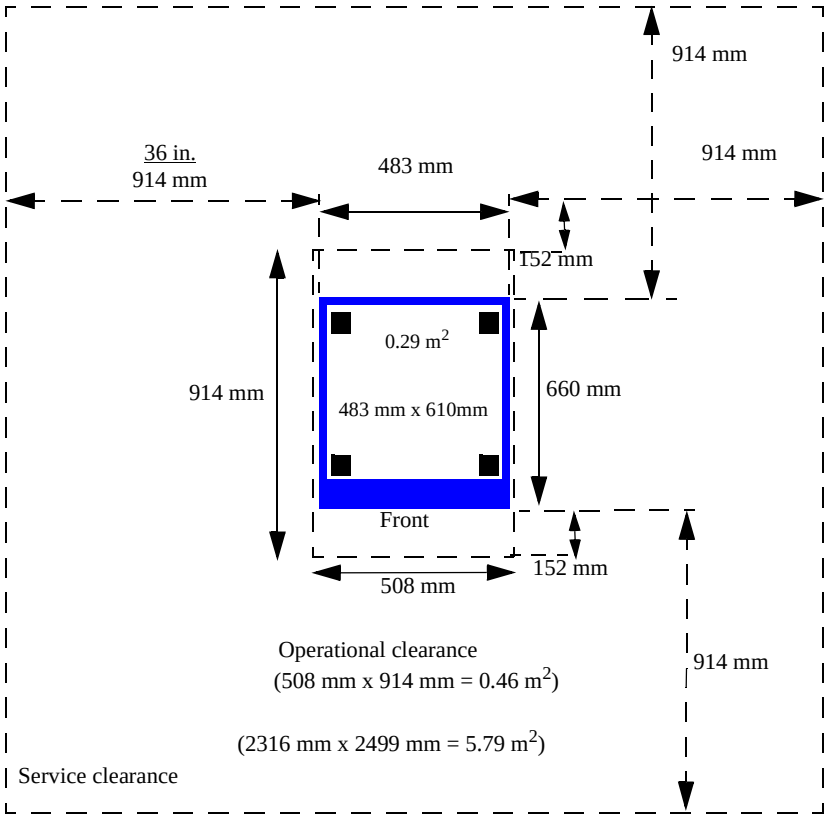
IBM Netfinity NetBAY3 Stackable Enclosure

Sample Configuration



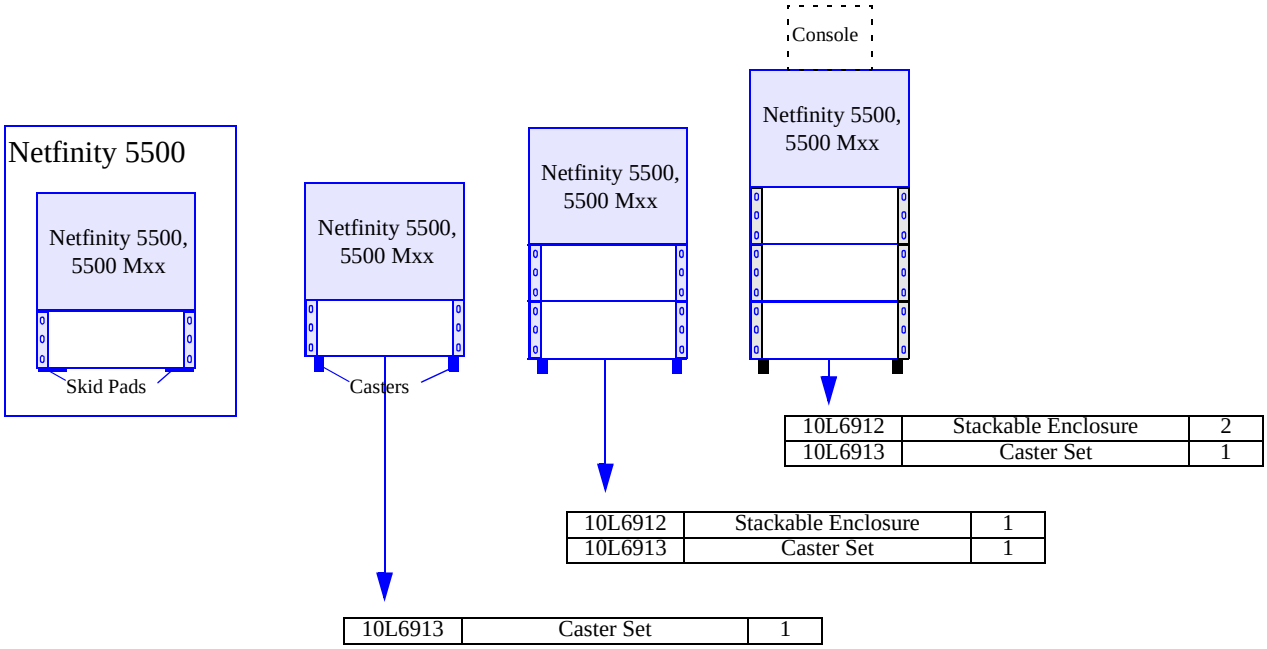
Installation Guidelines:

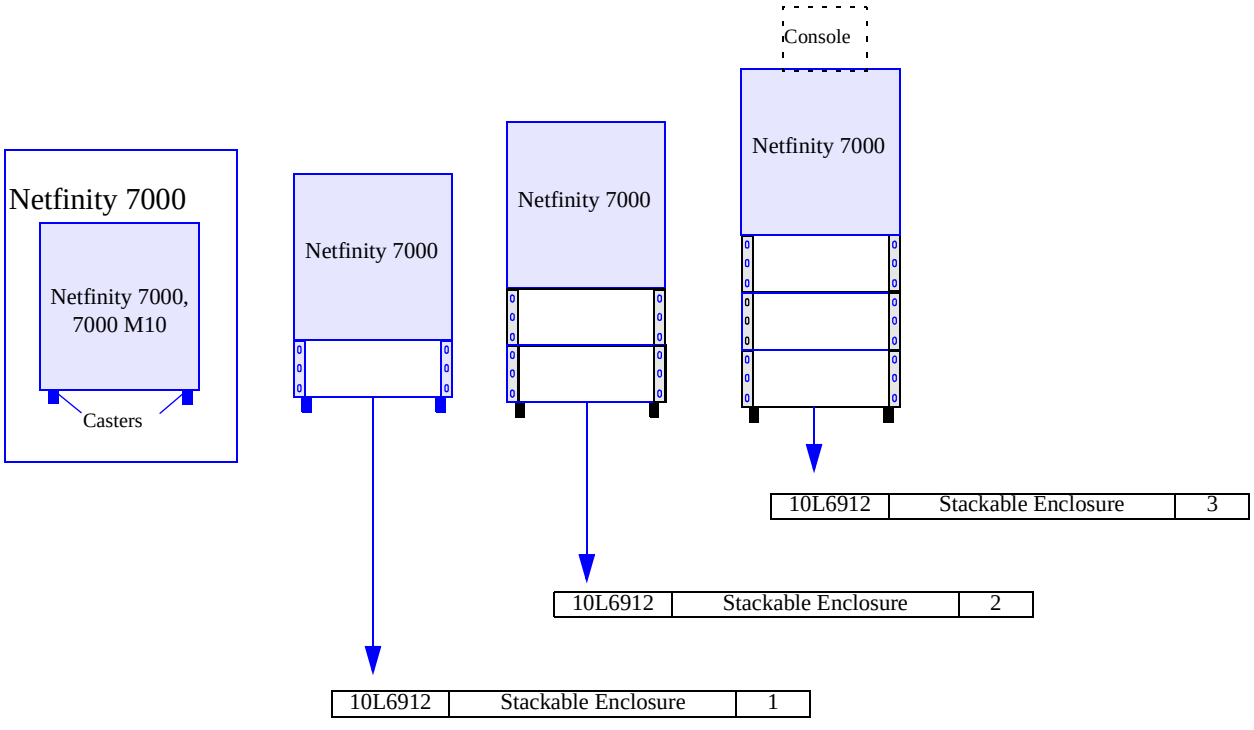
1) Locate power units with line cords in the bottom enclosure.
2) Install components starting from the bottom; start with the heaviest device.
3) If nothing is installed in the enclosure, attach the rear blank panel for stability.



Supported Devices	Size (U)	Weight(lb/kg)	Max/Enclosure	Max/Stack
Servers				
Netfinity 7000	-	160/72.6	n/a	1
Netfinity 7000-M10[1]	-	160/72.6	n/a	1
Netfinity 5500	-	120/54.4	n/a	1
Netfinity 5500-M10	-	123.4/56.0	n/a	1
Expansion				
Netfinity EXP10	3	92/41.7	1	3
Netfinity EXP15	3	107/48.5	1	3
IBM Tape Units				
NetMEDIA	3	37/17	1	3
Power				
APC Smart-UPS 1400RMB	3	55/24.9	1	1
APC Smart-UPS 3000RMB	3	112/50.8	1	1
200-240V PDU	1	8/3.6	1	1
Networking				
2210 Multiprotocol Router	1, 2	7/3.2, 20/9.1	3, 1	9, 3
8230 T-R Controlled Access Unit	2	15/6.8	1	3
8235 Dial-in Access to LANs	1	8/3.6	3	9
8237 Ethernet Hub	2	10/4.5	1	3
8238 Nways T-R Hub	2	11/5.0	1	3
8271 Ethernet Switch	2	16/7.3	1	3
8272 T-R Switch	2	16/7.3	1	3
8285 ATM Switch	3	70/31.8	1	3
Console	-	46/20.9	n/a	1

1. Netfinity 7000-M10 systems are rack mountable and ship without a keyboard. In order to be utilized with NetBAY3 or in a tower configuration, optional Rack-to-Tower Kit (P/N 01K8005) must be installed.





1. Netfinity 7000 M10 systems are rack mountable and ship without a keyboard. In order to be utilized with NetBAY3 or in a tower configuration, optional Rack-to-Tower Kit (P/N 01K8005) must be installed.

IBM Netfinity Rack Cabinet and Options

Note: For a robust rack configurator application access URL http://www.pc.ibm.com/europe/netfinity_solutions.html

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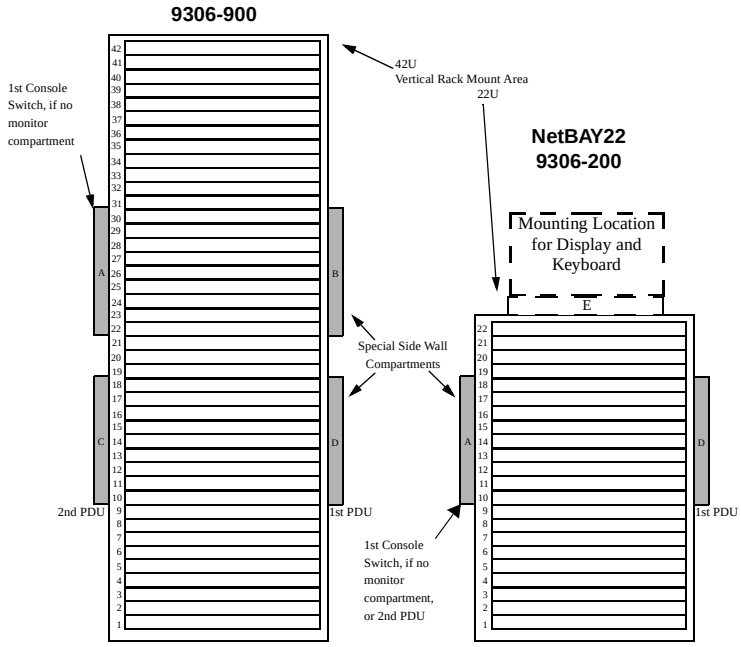


Direct Rack Mount[1]: Units Supported		
IBM Servers		
PC Server 325	Rack Models	5U
Netfinity 5000	Rack Models	5U
Netfinity 5500,5500 Mxx	Rack Models	8U
Netfinity 7000,7000 M10	Rack Models	11U
IBM Storage Expansion Units		
Storage Expansion Enclosure	SR01xxx	5U
Netfinity EXP10	SE1RXxx	3U
Netfinity EXP15	SE2RXxx	3U
IBM 7133 Serial Disk System[2, 3]	7133-020	4U
IBM Tape Units		
NetMEDIA	03K8756	3U
Magstar MP 3570 (B21/B22)	08L6535/ 08L6538	6U
Magstar MP 3570 (C21/C22)	08L6479/ 08L6482	6U
DLT Tape Library	34476xx	5U
8mm Tape Library	34496xx	15U
IBM Networking Products		
Dial-in Access to LANS	8235-03x	1U

1. Mounting hardware provided with product
2. Requires specify code 3093 for rack rails. Black cover specify code is 3020. Other specify codes may be required.
3. The 7133 Serial Disk System is not a IBM Personal Systems Group product. For further information, contact your IBM Marketing Representative

Optional Accessories

Mounting Support	Part Number	Rack Space	Units Supported
Fixed Shelf: width x depth= (439 mm x 663mm) 17.3 in. x 26.1 in max. weight= (45 kg)100lbs.	94G7442	2 to xx U	IBM Networking Products 8222-008, 016 Nways Enet Wkgp Hub 2U 8225-003 Ethernet Hub 2U
Slide Shelf	SSS191Y	12 to 15 U	IBM Servers (towers) Mounting Plate PC Server 300, 320, 330 SR301Y 15U PC Server 325 SR301Y 12U PC Server 500, 520, 720 SRP571Y 15U 3518 Enterprise Expansion Encl.SRP571Y 15U PS/2 Server 85,95 SRP891Y 13U
Network Products Mounting Kit	85H6735	1 to 5 U	IBM Networking Products Ethernet Switch 8271-108, 216 2U Ethernet Hub 8237-00x 2U Token-Ring Switch 8272-108 2U Token-Ring Controlled Access Unit8230-04A, 04P 2U Nways LAN Switch 8270-800 5U Nways Token-Ring Hub 8238-xx1 2U ATM Switch 8285-00B, 00E 3U Multi-Protocol Router 2210-12x 1U Multi-Protocol Router 2210-x4x 2U
Console Support	**Part Number**	**Rack Space**	**Devices Supported**
Monitor compartment supports one monitor, and one Console Server Selector Switch	94G7444	4 to 10 U	IBM Monitors 4707-E01 (6U) G40, G41 (9U) G50, G51, G52, P50 (9U) G70, G72, P70 (10U)
Keyboard tray supports one keyboard, and one mouse or Trackpoint[4]	94G7443	1 to 2 U (dependent on keyboard height)	IBM Keyboards[1] standard keyboard 105 black 76H011x[2] Enhanced Kybd w/TP II 101 black 13H6705 101 key black TrackPoint II 13H6705 (2U) 84 key black Space Saver w/TP 28L364x[3] (1U) Black Sleek Mouse 12J3615 (1U)
Console Server Selector Switch single switch - 8 ports single switch - 4 ports two-level tiering- up to 64 ports	94G7445 28L0542	-	Mounts 1) behind monitor compartment or 2) in rack side wall A, B
Console Cable Set- (3.66 m) 12 ft.	94G7447	-	Connect servers/switches to primary switch

1. Many Netfinity and PC Servers include a keyboard. These keyboards are supported by rack tray 94G7443 and console selector switches.

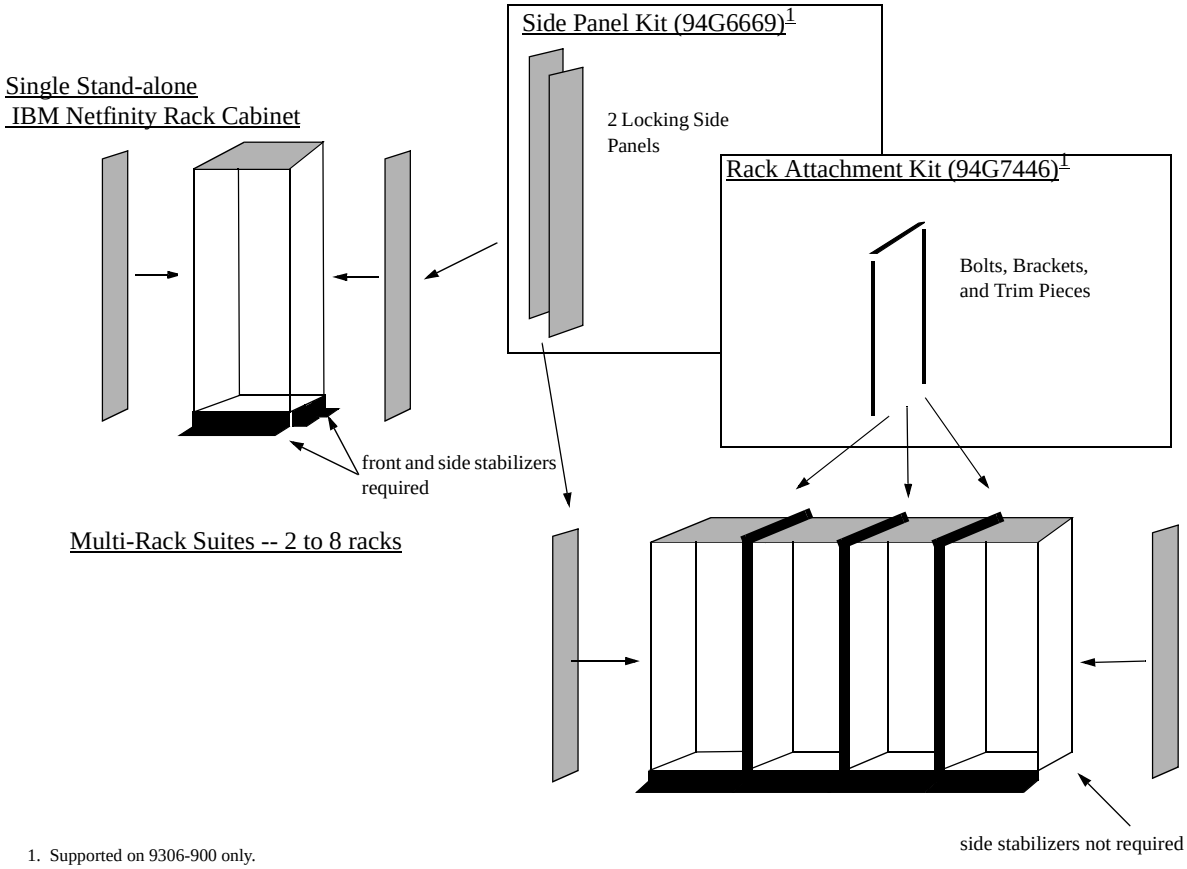
2. where 'x' represents country specific code: 3=France, 4=Italy, 5=Germany, 6=Spain, 7=UK.
3. where 'x' represents country specific code: 0=US English, 1=UK, 2=France, 3=Germany

4. Space Saver Keyboards (P/N 28L3640 and P/N 84G2524) can be stowed in a "ready-to-use" position.

Power Support			Part Number	Rack Space	Comments
200-240V 16a Power Distribution Unit			94G7450	--	10 IEC 320-C13 outlets Mounts in rack side wall D,C
1400VA UPS	220-240V	EMEA/AP	14RIxxx	3U	4 IEC 320-C14 outlets
3000VA UPS	220-240V	EMEA/AP	30RIxxx	3U	8 IEC 320-C14 and 1 C20
Power Cables Type Connectors C12 IEC 320-C13 to IEC 320-C14 D12 IEC 320-C19 to IEC 320-C14			 94G7448 94G7449	 -	 Length 12 ft. 12 ft.
Miscellaneous			**Part Number**	**Rack Space**	**Comments**
Blank Filler Panel Kit 1U panel (qty. = 2) 3U panel (qty. =1) 5U panel (qty. = 1)			94G6670	 1U +1U 3U 5U	 Use as required to fill empty space in the vertical rack mount area.

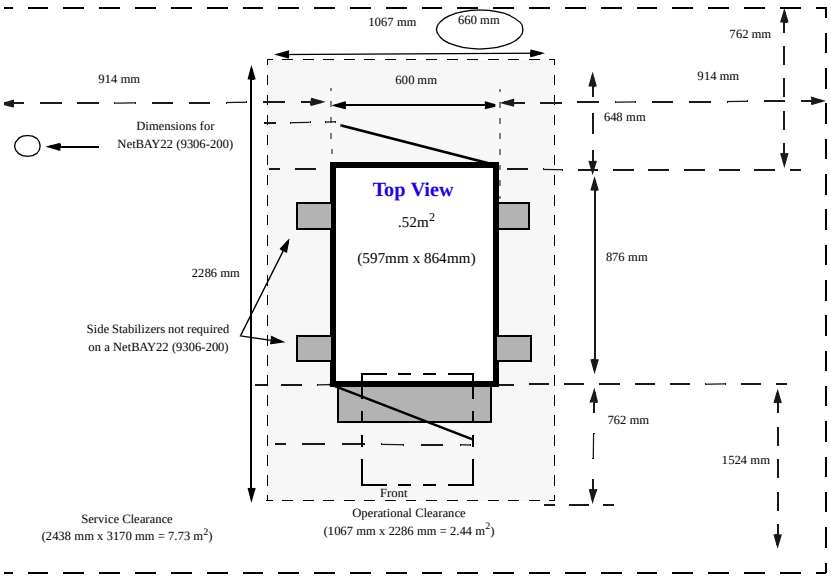
Note: You can select up to two power units per rack. Select the optional Power Cables when the standard cable is not long enough or has incompatible power plug.

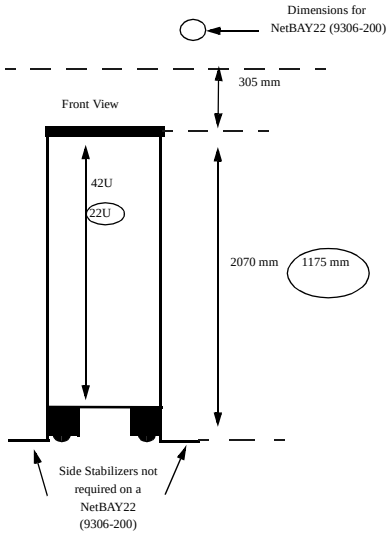
9306-900 Single Cabinet or Multi-Rack Suite Options



1. Supported on 9306-900 only.

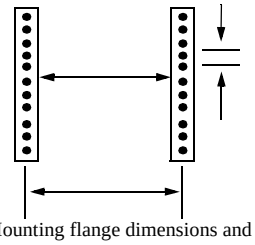
IBM Netfinity Rack - Cabinet and Options Dimensions
9306-900 and NetBAY22 (9306-200)





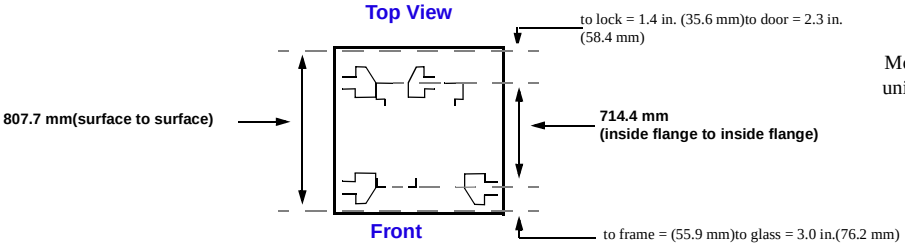
	9306-900		9306-200
Weight (lb/kg)	**Moveable**	**Stationary**	**Moveable or Stationary**
Empty rack	276/125.2	276/125.2	182/82.6
Max load	824/373.8	1424/645.9	746/338.4
Total	1100/499.0	1700/771.1	928/421.0

EIA 310-D standard 19-inch,
type A cabinet
1U = (44.45 mm)1.75 inches

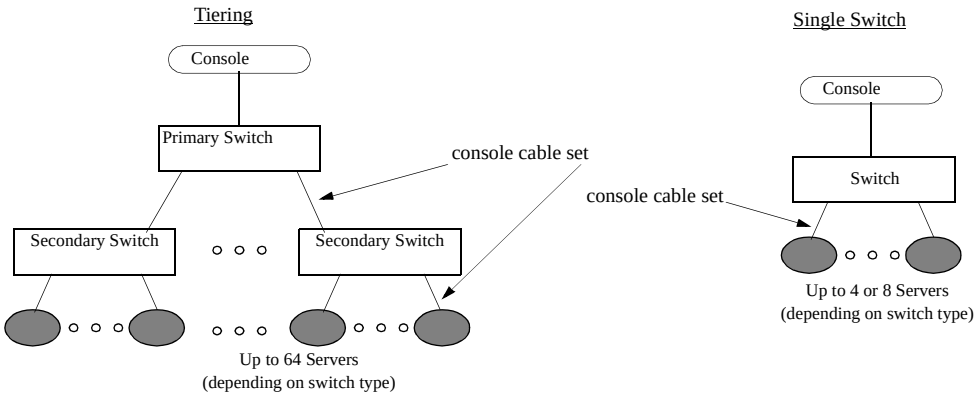


Mounting flange dimensions and
universal hole spacing defined by
EIA 310 for 19-inch racks

Internal Dimensions
Top View



Switch Arrangements



Appendix A: Tape Drive Attributes

Part Number	Description (SCSI Interface; LEGEND: HH: Half High - approx. height of 1.6”; SL: Slim Line - approx. height of 1”)	Bays Supported	SCSI Interface	Form Factor	Bezel - (B)lack	Max GB-Native/Compr.	MB/sec - Native/compr.	Termination Incl.	68/50-pin Converter Incl.	Internal Cables	Data Cartridges[1] std/	Ext. Tape Enclosures[2]
01K1282	IBM 12/24GB DDS/3 4mm Internal Tape Drive	-	8	3.5”HH or 5.25”HH	B/W	12/24	1.1/2.2	Y[9]	Y	-	1	10L7440
06H9716	IBM 4/8GB TR4 Internal SCSI Tape Drive[3]	-	8	3.5”SL or 5.25”HH	B/W	4/8	0.5/1	Y[9]	N	-	1	10L7440
01K1319	IBM 10/20GB NS Internal SCSI Tape Drive	-	8	3.5”SL or 5.25”HH	B/W	10/20	1/2	Y[9]	Y	-	1	10L7440, 03K8756
01K1325	IBM 20/40GB 8mm SCSI Tape Drive	-	16	5.25”HH	B	20/40	3/6	N[10]	-	-	1	10L7440[4]
01K1320	IBM 20/40GB DLT SCSI Tape Drive	-	8	5.25”FH	B	20/40	1.5/3	Y[8]	Y	16-bit, 4 drop	1	03K8705[4], 03K8756
04K0149	IBM 35/70GB DLT SCSI Tape Drive	-	16	5.25”FH	B	35/70	5/10	N[10]	-	16-bit, 4 drop	1	03K8705[4], 03K8756
	Associated Options											
32G3918	SCSI-2 16-bit Active Terminator	-	16	Ext.	-	-	-	-	-	-	-	10L7440, 03K8705
94G7587	PC Server SCSI Terminator Kit	-	8/16	Int.	-	-	-	Y	-	-	-	-
32G3925	SCSI 68-pin to 50-pin Converter	-	8/16	Int.	-	-	-	-	Y	-	-	03K8756
36L9636	Netfinity Two-Drop Internal SCSI Cable[11]	-	16	Int.	-	-	-	Y	-	-	-	-
	External Tape Enclosures											
10L7440	External Half High SCSI Storage Enclosure[5]	-	8/16	Desktop	B							
03K8756	IBM NetMEDIA Storage Expansion Unit EL[6]	-	16	Rack	B							
03K8705	IBM DLT External SCSI Enclosure[7]	-	16	Desktop	B							
	External Tape Libraries[12]											
3447xxx	3447 Digital Tape Library (desktop-105, rack-106)	-	16	Desktop or Rack	B							
3449xxx	3449 8mm Tape Library (desktop-355, rack-356)	-	Diff.	Deskside or Rack	B							
08L6xxx[13]	Magstar MP 3570 Tape Subsystem	-	Diff.	Rack	B							

1. One cleaning and one data cartridge ship with each tape unit.
2. To determine cable requirements, note the tape drive’s SCSI interface, the appropriate SCSI controller from the system configurator section and the desired enclosure then refer to Appendix D: Cables-Storage Units-Controllers.
3. SCSI 68-pin to 50-pin Converter (P/N 32G3925) is required.
4. Requires SCSI-2 16-bit Active Terminator (P/N 32G3918).
5. Provides a black desktop 5.25” half-high (HH) tape enclosure. Connector is configurable as 50-pin Centronix or 68-pin high density. Requires either tape drive self termination or SCSI-2 16-bit Active Termination (P/N 32G3918).
6. Provides a black 3U, 19” rack or NetBAY3 mountable tape enclosure. Provides two full high (FH) or four half-high (HH) extended length 5.25” bays. External connector is 0.8mm VHDCI.
7. Provides a black desktop DLT tape enclosure. External connector is 68-pin high density. Requires SCSI-2 16-bit Active Termination (P/N 32G3918).
8. A 16-bit terminator is included for attachment to an internal cable.
9. Tape Drive is capable of self termination.
10. If installed as the last or only device on a SCSI cable, termination is required. Check system unit SCSI cabling to assure termination is included. Where internal termination is not included, PC Server SCSI Terminator Kit (P/N 94G7587) should be used.
11. Netfinity Two-Drop Internal SCSI Cable (P/N 36L9636) is a wide two-drop terminated cable and is required for attachment of internal tape drives to the onboard SCSI controller of a Netfinity 5000 when the hot-swap backplane is attached to a RAID Controller.
12. Tape library attributes and prerequisites are located in Appendix B: Tape Library Attributes
13. See Appendix B: for EMEA P/No’s

Note: SCSI support for tape drives is provided by system unit onboard (standard) controller (no-RAID function) or PCI Fast Wide Ultra SCSI Adapter P/N 02K3454.

Appendix B: Tape Library Table

SCSI INTERFACE LEGEND
F: Female - External
M: Male - External
I: Internal
68: 16-bit, 68-pin High Density connector
0.8: 16-bit, 68-pin Very High Density Connection Interface (VHDCI) 0.8 mm connector
16: 16-bit, 68-pin connector

Part Number	Description	SCSI Interface	Form Factor	Bezel -	External Termina-	External Cables	SCSI Controllers	Data Cartridges [1] std./	Cartridge Mags std./	Qty. of drives - std./	Max GB-Native/Com-	MB/sec [2] - Native/compr.
34475xx	3447 Digital Linear Library Desktop[11]	F68	Desktop	B	Y	M68-M68, 4.5 m	N[3]	1/15	1	1/2	525/1050	5/10
34476xx	3447 Digital Linear Library Rack Mountable[11]	F68	5U Rack	B	Y	M68-M68, 4.5 m	N[3]	1/15	1	1/2	525/1050	5/10
59H3569	3447 Second Digital Linear Tape Drive Kit[4]	F68	-	-	N[11]	0.4 m[4, 8]	N[11]	-	-	-	-	5/10
59H3558	3447 10-Cartridge Media Magazine	-	-	-	-	-	-	-	-	-	-	-
34495xx	3449 8mm Tape Library Deskside[6]	Differential	deskside	B	Y	4.5 m	Y	1/20	2	1/2	440/880	3/6
34496xx	3449 8mm Tape Library Rack Mountable[6]	Differential	15U Rack	B	Y	4.5 m	Y	1/20	2	1/2	440/880	3/6
59H3391	3449 Second 20 GB Drive[5]	Differential	-	-	-	-	-	-	-	-	-	3/6
59H3900	3449 Adapter Card[6]	Differential	-	-	Y	4.5 m	Y	-	-	-	-	-
87G1728	3449 10-Cartridge Media Magazine	-	-	-	-	-	-	-	-	-	-	-
08L6535	Magstar MP 3570 Tape Subsystem Model B21[7]	Diff	6U Rack	B	Y	4.5 m	Y	1/20	2	1/2	100/300	2.2/6.6
08L6538	Magstar MP 3570 Tape Subsystem Model B22[7]	Diff	6U Rack	B	Y	4.5 m	Y	1/20	2	2/2[8]	100/300	2.2/6.6
08L6479	Magstar MP 3570 Tape Subsystem Model C21[7]	Diff	6U Rack	B	Y	4.5 m	Y	1/20	2	1/2	100/300	7.0/ 15.0
08L6482	Magstar MP 3570 Tape Subsystem Modelc22[7]	Diff	6U Rack	B	Y	4.5 m	Y	1/20	2	2/2[8]	100/300	7.0/ 15.0
08L6517	3570 Adapter Card Kit[12]	Differential	-	-	Y	4.5 m	Y	-	-	-	-	-
08L6541	Second “B” Drive for B21[9]	Differential	-	-	-	-	N	-	-	1	-	2.2/6.6
08L6487	Second “C” Drive for C21[9]	Differential	-	-	-	-	N	-	-	1	-	7.0/ 15.0
	Magstar MP Media											
05H2462	Magstar MP Fast Access Linear Tape Cartridge, B-format[10]	-	-	-	-	-	-	-	-	-	-	-
05H2463	Magstar MP Cleaning Cartridge	-	-	-	-	-	-	-	-	-	-	-
08L6187	Magstar MP Fast Access Linear Tape Cartridge, C-format	-	-	-	-	-	-	-	-	-	-	-

1. One cleaning and one data cartridge ship with each tape unit.
2. Transfer rates are for single SCSI Channel configurations. Tape Libraries utilizing split library or dual host configurations may obtain higher rates.
3. Requires Ultra SCSI adapter P/N 02K3454
4. Includes a 0.4 m SCSI cable for daisy-chaining to the initial drive.
5. No additional cables are required if daisy-chaining to the initial drive.
6. Dual Host or Split Library operation requires 3449 Second 20GB Drive (P/N 59H3391) and 3449 Adapter Card (P/N 59H3900) which includes appropriate adapters, cables and terminators.
7. Include rack mounting hardware and two power cords (120 V and 250 V). Models 08L6538 and 08L6482 include an additional 2 power cords.
8. The two tape drives are daisy-chained on the same SCSI bus with an included 0.5 meter SCSI cable. Dual Host and Split Library configurations require 3570 Adapter Card Kit (P/N 08L6517)
9. Required for either dual host or split library operation. Should be installed by qualified service personnel.
10. B-format tape cartridges can be used in either Magstar MP 3570 Model B or C tape drives.
11. Split Mode operation requires 3447 Second Digital Linear Tape Drive Kit (P/N 59H3569), SCSI-2 16-bit Active Terminator (P/N 32G3918), PC Server 3.0M SCSI-2 F/W Cable (P/N 94G5567), or PC Server 4.3M SCSI-2 F/W Rack Cable (P/N 94G5566), and a second Ultra SCSI adapter (P/N 02K3454). Split mode operation is limited to AUTOLOADER MODE ONLY which processes the cartridges sequentially.
12. Required for Dual Host or Split Library configurations with 08L65xx or 08L64xx containing two drives.

Appendix C: UPS Runtime Estimate (minutes)

				Tower				Rack Mount	
			EMEA Part Number	SU-700iNET SUP072Y	SU-1000iNet SUP102Y	SU-1400iNET SUP144Y	SU-2200iNET SUP222Y	SU-1400RMiB 14RIxxx	SU-3000RMiB 30RIxxx
Servers	# Pwr. Cords Std/Max	VA Load Max./Typ.[1]	Watts Load Max./Typ.[1]	minimum/ typical[4]	minimum/ typical[4]	minimum/ typical[4]	minimum/typical[4]	minimum/typical[4]	minimum/typical[4]
Netfinity 3000[2]	1/1	225/160	225/160	22/32	36/51	57/80	114/156	-	-
Netfinity 3500	1/1	380/265	265/190	15/25	26/42	40/68	98/134	-	-
Netfinity 5000[2]	1/2	475/330	475/330	-	12/19	20/30	47/76	15/23	42/62
Netfinity 5500[2]	1/2	540/375	540/375	-	-	16/26	38/63	12/21	35/55
Netfinity 5500 M10[2]	1/2	540/375	540/375	-	-	16/26	38/63	12/21	35/55
Netfinity 7000 M10[2]	1/2	745/525	745/525	-	-	12/17	26/40	8/12	26/35
Other Devices									
3517 SCSI Multi Storage Enclosure	1/1	190/135	135/100	38/55	58/75	90/118	180/225	-	-
3518 Enterprise Expansion Enclosure	1/1	700/500	500/350	-	11/18	18/28	43/71	13/21	41/67
Netfinity EXP15 (3520)[2]	2/2	400/280	400/280	-	-	-	-	18/27	57/84
SSA Entry Storage Subsystem for PC Servers (3527)[2]	1/1	300/210	300/210	12/20	22/36	34/57	85/121	-	-
3447 Digital Linear Tape Library	1/1	200/140	100/70	38/55	58/75	90/118	170/220	66/91	152/183
3449 8mm Tape Library	1/1	320/225	288/200	14/22	24/38	37/60	112/156	25/44	84/116
Netfinity Fibre Channel RAID Controller Unit (3526)[2]	2/2	160/105	160/105	-	-	-	-	60/91	140/183
UPS Attributes									
Communication Links to Servers	-	-	-	1	1	1	1	1	3
Color	-	-	-	black[3]	black[3]	black[3]	white	black	black
EIA Height	-	-	-	-	-	-	-	3U	3U
EMEA Models	-	-	-						
Receptacles (IEC 320-C13, C19	-	-	-	4	4	4	8, 1	4	8, 1
Live Cord Receptacle (IEC 320-)	-	-	-	C14	C14	C20	C20	C14	C20

1. This table represents general guidelines for selecting the appropriate UPS based on minimum and typical runtime estimates. A 'maximum configuration' load will result in 'minimum' UPS runtime. 'Typical' loads are based on a production system running at approximately 70% of maximum capacity. The 'typical' loads represent a more likely configuration and, therefore, a more likely estimate of runtime. Customer environments are unique and are unlikely to be precisely represented by any of the specific entries in the table.
2. Power-Factor Corrected (PFC) power supply. Runtime estimates have been adjusted accordingly.
3. Early versions were white. US versions currently shipping in cartons clearly marked as "black". EMEA version will be black by end of 1Q99.
4. Data provided by APC.

Note: For runtime estimates of multiple components attached to a single UPS, add the number of Watts for all selected components. Use the total Wattage and Total Configuration Runtime Estimator to determine which UPS provides an acceptable duration of estimated runtime.

To access information on the World Wide Web, use address: http://www.pc.ibm.com

Total Configuration Runtime Estimator (Time in minutes)[1]						
Total Configuration Load (Watts)	Tower				Rack Mount	
	SU-700iNET SUP072Y	SU-1000iNET SUP102Y	SU-1400iNET SUP144Y	SU-2200iNET SUP222Y	SU-1400RMiB 14RIxxx	SU-3000RMiB 30RIxxx
200	22	38	62	130	45	104
250	17	28	43	104	34	84
300	12	22	34	85	25	70
350	9	18	29	71	22	58
400	7	14	23	65	18	52
450	5	12	20	52	15	45
500	-	11	18	43	13	38
550	-	9	16	38	11	35
600	-	8	13	34	10	31
650	-	7	12	31	9	29
700	-	6	11	28	8	26
750	-	-	10	25	8	24
800	-	-	9	23	7	22
850	-	-	8	21	7	20
900	-	-	7	19	6	18
950	-	-	6	18	5	17
1000	-	-	-	17	-	16
1050	-	-	-	16	-	15
1100	-	-	-	15	-	14
1150	-	-	-	14	-	13
1200	-	-	-	13	-	12
1250	-	-	-	12	-	11
1300	-	-	-	11	-	10
1350	-	-	-	10	-	9
1400	-	-	-	10	-	9
1450	-	-	-	9	-	8
1500	-	-	-	9	-	8

1. Data provided by APC.

Step:
1. Identify the devices contained in the configuration.
2. Sum the load of all devices in the configuration. Use either Maximum Load for minimum runtime, or Typical Load for typical runtime.
3. Find the Total Configuration Load in the table above.
4. Select the most appropriate UPS model to achieve the desired runtime.
NOTE: If the Total Configuration Load is greater than the entries above, split the load across two or more UPS units.

Appendix D: Cables - Storage Units - Controllers

F: Female - External
M: Male - External
I: Internal
68: 16-bit, 68-pin High Density connector
50: 8-bit, 50-pin Centronix Connector
0.8: 16-bit, 68-pin Very HighDensity Connection Interface (VHDCI) 0.8 mm connector
16: 16-bit, 68-pin connector
8: 8-bit, 50-pin connector

Instructions: Identify Desired Controller Row and Storage Unit Column. The intersection of row and column contains the cable group letter which supports the connection. Go to the cable group under the corresponding storage unit for specific support. Read all Notes for row, column, and any cable group footnotes.

					Storage Unit	**SMS2xxx**	**SEEExxx**	**Repeater 94G7585**	**SR01xxx**	**SE1RXxx**	**SE2RXxx**	**SA71xxx**	**10L7440**	**03K8705**	**03K8756**
					Max.MB/sec.)[12]	20	20	20	20	40	40	80	-	-	-
					LVDS	-	-	-	-	-	X	-	-	-	X
					Connector Type	F68	F68	F68	F68	F68	F0.8	SSA	F68 or F50	F68	F0.8
Description	**Part Number**	**Max./ Channel (MB/ sec)[12]**	**LVDS**	**Connector Type/ Max**	**Note #**	5	6	16, 17	15, 17	11, 15	15, 23	25-	20, 21	21,22	15, 21
RAID Storage Controllers															
Netfinity Fibre Channel RAID Controller Unit	SFCU1xx	80	X	F0.8/6	19	-	-	-	-	B	A	-	-	-	-
IBM Netfinity ServeRAID-3H Ultra2 SCSI Adapter	01K7207	80	X	F0.8/3	-	-	B	B	B	B	A	-			
IBM Netfinity ServeRAID-3L Ultra2 SCSI Adapter	01K7364	80	X	F0.8/1	-	-	B	B	B	B	A	-			
IBM ServeRAID II Ultra SCSI Adapter	76H3584	40	-	F0.8/3[4]	4	B	B	B	B, G[14]	B	A[10, 11]	-			
IBM Netfinity 5500, 5500 M10 - ServeRAID II	Onboard	40	-	F0.8/1[2]	2	B	B	B	B, G[14]	B	A[10, 11]	-	B, G[24]	B[24]	A[24]
IBM SSA RAID Adapter for PC Servers	32H3811	-	-	-	-	-	-	-	-	-	-	F	-	-	-
Ultra SCSI Controllers															
PCI Fast/Wide Ultra SCSI Adapter	02K3454	40	-	F68/1	-	C	C	C	C, G	C	B[11]	-	C, G	C	B
PC Server Ultra Wide SCSI PCI Adapter	76H5407	40	-	F68/1	-	C	C	C	C, G	C	-	-	C, G	C	B
PC Server Ultra Wide SCSI PCI Adapter	76H3579	40	-	F68/1	-	C	C	C	C, G	C	-	-	C, G	C	B
IBM Netfinity 3000 - Wide Ultra SCSI	Onboard	40	-	F68/1	-	-	-	-	-	-	-	-	C, G	C	-
IBM Netfinity 3500 - Wide Ultra SCSI	Onboard	40	-	F68/1	-	C	-	-	-	-	-	-	C, G	C	-
IBM Netfinity 5000 - Wide Ultra SCSI	Onboard	40	-	F68/1	-	-	-	-	-	-	-	-	C, G	C	B
IBM Netfinity 7000 - Wide Ultra SCSI	Onboard	40	-	F68/1[3]	3	-	-	-	-	-	-	-	C, G	C	B
IBM Netfinity 7000 M10 - Wide Ultra SCSI	Onboard	40	-	F0.8/1	-	-	-	-	-	-	A[10, 11]	-	B, G	B	A
Related Options															
IBM 0.8mm to 68-pin SCSI Adapter	01K8017	-	-	M0.8-F68	1	-	-	-	G	-	-	-	G	-	-
IBM Netfinity SCSI Controller Cable	03K9313	-	-	I16-F0.8	2	B	B	B	B, G	B	A[10, 11]	-	B, G	B	A
Netfinity PCI SCSI Controller to Bulkhead Cable	94G7421	-	-	I16-F68	3	-	-	-	-	-	-	-	C, G	C	B
IBM Third Channel Cable	76H5400	-	-	I16-F0.8	4	B	B	B	B, G	B	A[10, 11]	-	B, G	B	A
IBM SCSI-2 F/W Enhanced Repeater	94G7585	20	-	F68-I16	16, 17	-	X	-	X	-	-	-	-	-	-
Cable Group A (M0.8-M0.8)															
Netfinity 2M Ultra2 SCSI Cable	03K9310	-	X	M0.8-M0.8	9	-	-	-	-	-	X	-	-	-	X
Netfinity 4.2M Ultra2 SCSI Cable	03K9311	-	X	M0.8-M0.8	9	-	-	-	-	-	X	-	-	-	X
Netfinity 12M Ultra2 SCSI Cable	03K9312	-	X	M0.8-M0.8	10	-	-	-	-	-	X[10]	-	-	-	
Cable Group B (M68-M0.8)															
IBM 1M External .8mm SCSI Cable	76H3589	-	-	M68-M0.8	-	X	X	X	-	X	X	-	X	X	X
IBM 2M External .8mm SCSI Cable	01K8027	-	-	M68-M0.8	-	-	X	X	X	X	X	-	X	X	X
Netfinity EXP10 3M External Auto-Sensing Cable	03K9352	-	-	M68-M0.8	8,11	-	X	X	X	X[8]	X	-	-	-	-
IBM 4.3M External .8mm SCSI Cable	01K8029	-	-	M68-M0.8	11	-	X	X	X	X	X	-	-	-	X
Cable Group C (M68-M68)															
PC Server F/W to F/W External SCSI Cable-1m	SS2C02Y	-	-	M68-M68	-	X	X	X	-	X	-	-	X	X	-
PC Server 3.0M SCSI-2 F/W Cable	94G5567	-	-	M68-M68	11	-	X	X	X	X	-	-	-	-	-
PC Server 4.3M SCSI-2 F/W Rack Cable	94G5566	-	-	M68-M68	7,11	-	X	X	X	X	-	-	-	-	-
Cable Group D (Short Wave Fibre)															
Netfinity Fibre Channel 5 M Cable	03K9306	-	n/a	S/W Fibre	-	-	-	-	-	-	-	-	-	-	-
Netfinity Fibre Channel 25 M Cable	03K9305	-	n/a	S/W Fibre	-	-	-	-	-	-	-	-	-	-	-
Customer supplied cables ≤500M (0.31 miles)	**********	-	n/a	S/W Fibre	-	-	-	-	-	-	-	-	-	-	-
Cable Group E (Long Wave Fibre)															

F: Female - External
M: Male - External
I: Internal
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50: 8-bit, 50-pin Centronix Connector
0.8: 16-bit, 68-pin Very HighDensity Connection Interface (VHDCI) 0.8 mm connector
16: 16-bit, 68-pin connector
8: 8-bit, 50-pin connector

Instructions: Identify Desired Controller Row and Storage Unit Column. The intersection of row and column contains the cable group letter which supports the connection. Go to the cable group under the corresponding storage unit for specific support. Read all Notes for row, column, and any cable group footnotes.

					Storage Unit	**SMS2xxx**	**SEEExxx**	**Repeater 94G7585**	**SR01xxx**	**SE1RXxx**	**SE2RXxx**	**SA71xxx**	**10L7440**	**03K8705**	**03K8756**
					Max.MB/sec.)[12]	20	20	20	20	40	40	80	-	-	-
					LVDS	-	-	-	-	-	X	-	-	-	X
					Connector Type	F68	F68	F68	F68	F68	F0.8	SSA	F68 or F50	F68	F0.8
Description	**Part Number**	**Max./ Channel (MB/ sec)[12]**	**LVDS**	**Connector Type/ Max**	**Note #**	5	6	16, 17	15, 17	11, 15	15, 23	25-	20, 21	21,22	15, 21
Customer supplied cables ≤ 10 KM (6.2 miles)	**********	-	n/a	L/W Fibre	-	-	-	-	-	-	-	-	-	-	-
Cable Group F (SSA)															
External SSA Cable, pair 1.0M	59H7220	-	-	SSA		-	-	-	-	-	-	X	-	-	-
External SSA Cable, pair, 2.5M	59H7221	-	-	SSA		-	-	-	-	-	-	X	-	-	-
External SSA Cable, pair, 5.0M	59H7222	-	-	SSA		-	-	-	-	-	-	X	-	-	-
External SSA Cable, pair, 10.0M	59H7223	-	-	SSA		-	-	-	-	-	-	X	-	-	-
External SSA Cable, pair, 25.0M	59H7224	-	-	SSA		-	-	-	-	-	-	X	-	-	-
Cable Group G (Other)															
PC Server F/W to Fast External SCSI Cable-1M	70G9858	-	-	M68-M50		-	-	-	-	-	-	-	X[20]	-	-
SCSI-2 16-bit Active Terminator	32G3918	-	-	M68		-	-	-	-	-	-	-	X	X	-
IBM SCSI Storage Extender Cable-split 6M	94G7594	-	-	3 x M68	14	-	-	X	X	-	-	-	-	-	-
GBIC															
Netfinity Fibre Channel Short-Wave GBIC	03K9308	-	n/a	S/W Fibre	13	-	-	-	-	-	-	-	-	-	-
Netfinity Fibre Channel Long-Wave GBIC	03K9307	-	n/a	L/W Fibre		-	-	-	-	-	-	-	-	-	-

1. Converts a F0.8mm into a F68-pin connector for attachment of an external M68 cable .
2. Netfinity 5500 and 5500 M10 require IBM Netfinity SCSI Controller Cable (P/N 03K9313) to route the internal onboard SCSI RAID connector to an external F0.8 mm connector.
3. Requires IBM Netfinity PCI SCSI Controller to Bulkhead Cable (P/N 94G7421) to route the internal onboard Ultra SCSI connector of a Netfinity 7000 to an external F68-pin connector.
4. IBM Third Channel Cable (P/N 76H5400) routes the third (internal) SCSI RAID connector of IBM ServeRAID II Ultra SCSI Adapter (P/N 76H3584) external to the adapter. This is accomplished by replacing the two connector adapter interface plate with a three connector plate (included with the option).
5. Storage unit SMS2xxx supports attachment of 1 meter cables only.
6. Storage unit SEEExxx requires IBM SCSI-2 F/W Enhanced Repeater (P/N 94G7585) for each attachment when cable lengths exceed 1 meter or in Twin-Tail configurations.
7. PC Server 4.3M SCSI-2 F/W Rack Cable (P/N 94G5566) is supported in rack installations ONLY.
8. Replaces IBM 3M External .8mm SCSI Cable (P/N 01K8028). Required in Twin-Tail configurations using EXP10 (P/N SE1Rxx).
9. Supports attachment in LVDS or single-ended SCSI configurations.
10. Cable lengths exceeding 4.3 meters are NOT supported when attached to non-LVDS controller .
11. Installations with cable lengths greater than 2 meters are limited to SCSI Fast/Wide speed of 20MB/S .
12. Maximum supported speeds may be limited by installation of lower speed devices, controllers or cable lengths greater than 2 meters.
13. Four short wave GBICs are included with Netfinity Fibre Channel Hub (P/N SFCH1xx).
14. IBM SCSI Storage Extender Cable (P/N 94G7594) is used to daisy-chain two SR01xxx storage units to a single SCSI channel. Requires IBM .8mm to 68-pin SCSI Adapter (P/N 01K8017) for attachment to F0.8 controller connectors.
15. Rack installation cable management requires devices to have a minimum cable length of 2 meters. Cable length requirements will vary based on placement within a single or multiple rack suite.
16. Optional IBM SCSI-2 F/W Enhanced Repeater (P/N 94G7585) provides repeater function (required for cable lengths greater than 1 meter) and auto-sensing termination (required for twin-tail configurations) for external storage unit SEEExxx.
17. IBM SCSI-2 F/W Enhanced Repeater (P/N 94G7585) provides SCSI repeater and auto-sensing termination for external storage unit SR01xxx. One is standard and the second is required for Twin-Tail configurations.
18. Twin-Tail configurations with storage unit SE1RXxx require Netfinity EXP10 3M External Auto-Sensing Cables (P/N 03K9352).
19. Connection to either Netfinity Fibre Channel Hub (P/N SFCH1xx) or Netfinity Fibre Channel PCI Adapter (P/N 01K7297) requires short wave fibre cables from Cable Group D.
20. Cable groups B and C are for 16-bit tape drive installation while cable group G's P/N 70G9858 applies to 8-bit drives. External Storage Unit 10L7440 comes equipped with both a F68 connector set for 16-bit tape drives and a F50 connector set for 8-bit drives. Attachment of cable P/N 70G9858 (Cable Group G) to a 0.8mm controller connector requires IBM .8mm to 68-pin SCSI Adapter (P/N 01K8017).
21. RAID support for tape drive is limited to Non-RAID functions and utilization of a dedicated channel. Daisy chaining tape enclosures is not supported. Speeds are limited by cable lengths and installed devices.
22. Requires SCSI-2 16-bit Active Terminator (P/N 32G3918).
23. Attachment to single-ended (non-LVDS) controllers limits operational speeds to Ultra SCSI speeds (40 MB/s) for cables up to 2 meters in length and Fast/Wide SCSI speeds (20 MB/s) for cable lengths between 2 meters and 4.3 meters. LVDS cables allow cable lengths of up to 25 meters at up to 40 MB/s
24. RAID support for tape drives is limited to Non RAID functions and utilisation of a dedicated channel
25. A preconfigured SA71xxx (3527-PR0) contains five 9.1GB HDDs (P/N 21H8734) and a 5 M cable pair (P/N 59H7222). Order P/N N7PROxx (see SA71 configurator for specific country codes).

To access information on the World Wide Web, use address: http://www.pc.ibm.com

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*MHz only measures microprocessor internal clock speed, not application performance. Many factors affect application performance.
**When referring to hard drive capacity, MB stands for million bytes and GB stands for one thousand million bytes.Total user-accessible capacity may vary depending on operating environments.
***The quotation function within ConfigXprt allows reseller specific pricing to be included.
****Tape Drives which utilize data compression technology have storage capacity that will vary depending upon whether the drive is operating in native mode (without compression) or compressed mode. Actual storage capacity will vary based upon many factors and may be less than the maximum possible.
Maximum internal hard disk drive capacities assume the replacement of any hard disk drives and the population of all hard disk drive bays with the largest currently supported drives available from IBM.
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Department 2W6A
3039 Cornwallis Rd.
Research Triangle Park, NC 27709
Printed in the United States of America
01-98
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