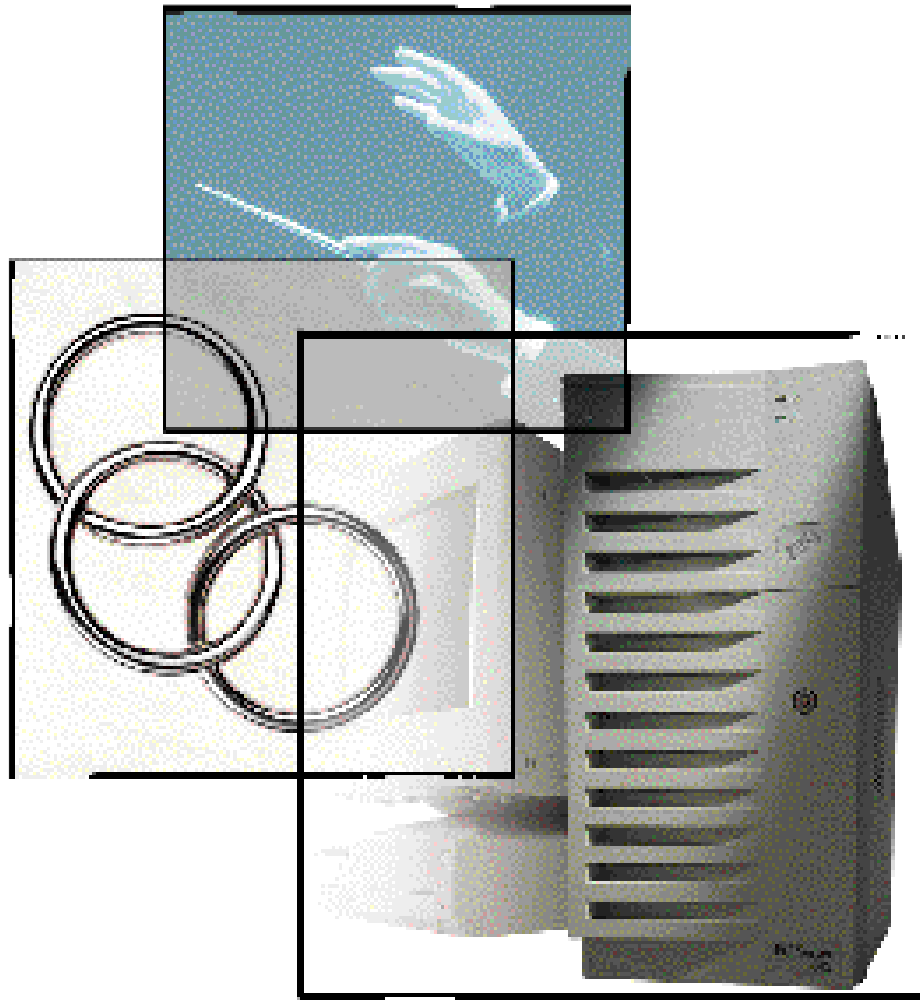




IBM PC Server Configuration Aid



May 1997

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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.

Maximum internal hard disk drive capacities assume the replacement of any standard 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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Note: Future editions of the Configuration Aid will include racks, enclosures, and additional information.

IBM PC Server 310 Configurator

Part Number Processor Type/Speed (MHz)* L2 Cache: std./max (KB) Memory: std./max (MB), speed (ns) Memory Type Hard Drive: std. size, speed (ms) Internal Hard Disk Drive Maximum Capacity (GB)** Hard Drive Controller Type Slots: total, avail. Bays: total, avail. Hot-swappable Bays: std., opt. Ethernet(Mbps)

8639-0E0	Pentium 166	256/512	16/160,60	ECC	-	18.12	Wide Ultra SCSI	5, 4	5, 3	-	
8639-0EV	Pentium 166	256/512	16/160,60	ECC	2.16GB, 8.5	15.77	Wide Ultra SCSI	5, 3	5, 2	-	10
8639-0E5	Pentium 200	512/512	32/160,60	ECC	-	18.12	Wide Ultra SCSI	5, 4	5, 3	-	
8639-0E4	Pentium 200	512/512	32/160,60	ECC	2.16GB, 8.5	15.77	Wide Ultra SCSI	5, 3	5, 2	-	10

Processor Upgrades & Cache

Processor Upgrade

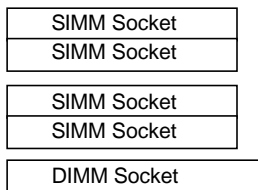
8639-0E0, 8639-0EV (166 MHz models)
PC Server 310 200MHz Upgrade....94G6496

L2 Cache Upgrade

8639-0E0, 8639-0EV (166 MHz models)
512KB Synchronous L2 Cache.....92G7336

Memory Configurator

8639-0E0, 8639-0EV (166 MHz models)



Total Memory	Part Number(s) Required
16MB	16MB DIMM Standard on Base Models 0E0, 0EV
32MB	1 x 92G7310
64MB	1 x 92G7310, 1 x 92G7312
96MB	1 x 92G7310, 1 x 92G7317
144MB	2 x 92G7317
160MB(max)	2 x 92G7317, 1 x 92G7339 (Note 1)

Note 1: Replace standard DIMM

8639-0E4, 8639-0E5 (200 MHz models)

Total Memory	Part Number(s) Required
32MB	32MB DIMM Standard on Base Models 0E4, 0E5
64MB	1 x 92G7312
96MB	1 x 92G7317
128MB	1 x 92G7317, 1 x 92G7312
160MB(max)	2 x 92G7317

These tables do not represent all possible memory configurations

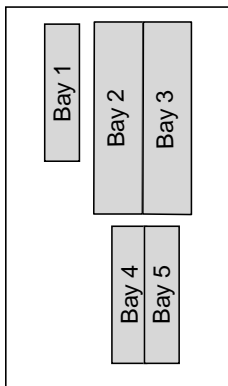
SIMM

16MB Parity SIMM Kit (2 x 8MB) Tin-Lead 72-pin 60ns92G7310
32MB Parity SIMM Kit (2 x 16MB) Tin-Lead 72-pin 60ns.....92G7312
64MB Parity SIMM Kit (2 x 32MB) Tin-Lead 72-pin 60ns..... 92G7317

DIMM

32MB Parity DIMM Gold Plated 5V 168-pin 60ns.....92G7339

Hard Disk Drive Configurator



8639-0E0, 8639-0E5 (Diskless models)

Total Disk Capacity	Part Number(s) Required
0GB (Note 2)	Open Bay Standard - Base Models 0E0, 0E5
2.16GB	1 x 76H5809
4.33GB	1 x 76H5811
6.49GB	1 x 76H5811, 1 x 76H5809
8.66GB	2 x 76H5811
10.82GB	1 x 76H5809, 2 x 76H5811, 1 x 70G8165
18.12 (Max)	2 x 76H2687, 1 x 76H2689, 1 x 70G8165 1 x 60H7826

8639-0EV, 8639-0E4 (Disk models)

Total Disk Capacity	Part Number(s) Required
2.16GB	2.16GB Standard - Base Models 0EV, 0E4
4.32GB	1 x 76H5809
6.49GB	1 x 76H5811
8.65GB	1 x 76H5809, 1 x 76H5811, 1 x 70G8165
15.77 (Max)	1 x 76H2687, 1 x 76H2689, 1 x 70G8165 1 x 60H7826

Note 2: If no internal Disk drives are installed then 94G7587 must be installed to provide SCSI termination.

These tables do not represent all Hard Drive Configurations

Bay	Form Factor	Height	Front Access	Usage	Part Number	Description	Bays Supported	Qty Supported
1	3.5"	SL	yes	diskette	76H2687	Ultrastar 2XP 4.51GB Wide Ultra SCSI Hard Disk Drive	2,4,5	3
2	5.25"	HH	yes	open	76H2689	Ultrastar 2XP 9.1GB Wide Ultra SCSI Hard Disk Drive	2	1
3	5.25"	HH	yes	SCSI CD-ROM	76H5809	Ultrastar 2ES 2.16GB Ultra SCSI Hard Disk Drive	2,4,5	3
4	3.5"	SL	no	HDD on 8639-OEV, OE4	76H5811	Ultrastar 2ES 4.33GB Ultra SCSI Hard Disk Drive	2,4,5	3
5	3.5"	SL	no	open	70G8165	5.25" to 3.5" Bay Conversion Kit	2	1
					60H7826	PC Server Four-Drop Wide SCSI Internal Cable	2,4,5	1
					94G7587	PC Server SCSI Terminator		

The 5.25" to 3.5" Bay Conversion Kit is needed to install any of the above Hard Disk Drives in Bay 2

IBM PC Server 310 Configurator

Adapter Slots

ISA -Half Length	
Ethernet -ISA (0EV,0E4)	PCI/ISA - Full Length
Wide Ultra SCSI - PCI	PCI/ISA - Full Length
	PCI/ISA - Full Length
	PCI/ISA - Full Length

Tape

TR4 (4.0/8.0GB) Internal SCSI Tape Drive	06H9716
TR4 (4.0/8.0GB) External SCSI Tape Drive.....	3502900
PC Server F/W to Fast External SCSI Cable.....	70G9858
Attaching an External Tape Drive requires Cable 70G9858	
Internal Tape Drives can only be installed in Bay 2.	

UPS

PC Smart UPS 700.....(22 min. runtime at 280VA).....	94G3134
PC Smart UPS 1000....(40 min. runtime at 280VA).....	94G3135

Networking

Ethernet

IBM 10MBps EtherJet ISA Adapter..... (Note 1).....	04H6550
IBM 100/10 PCI Ethernet Adapter.....	25H4374
Note 1: Std on 8639-0EV and 8639-0E4	

Token Ring

Models 0E0, 0EV (166MHz models)

IBM Auto LANStreamer PCI Token-Ring Adapter.....	04H8095
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Models 0E4, 0E5 (200MHz models)

IBM PCI Token Ring Adapter.....	41H8900
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Monitors

Models 0E0, 0EV (166MHz models)

G40 Color Monitor 14" (12.3" Viewable Image Size).....	6542103
P50 Color Monitor 15" (13.6" Viewable Image Size).....	6553503
G70 Color Monitor 17" (15.7" Viewable Image Size).....	6544403

Models 0E4, 0E5 (200MHz models)

G42 Color Monitor 14" (13.2" Viewable Image Size).....	65400xx
G52 Color Monitor 15" (13.6" Viewable Image Size), pearl-white...	654600x
G52 Color Monitor 15" (13.6" Viewable Image Size), stealth-gray...	654640x
G72 Color Monitor 17" (15.7" Viewable Image Size), pearl-white...	654701x
G72 Color Monitor 17" (15.7" Viewable Image Size), stealth-gray...	654741x

Other Selected Options

Note : For the options below, check out the latest operating system compatibility information on the IBM PC Company Server Compatibility Home Page at <http://www.pc.ibm.com/compat/compat.html>

Video Memory

1MB DRAM EDO.....	76H0238
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Systems Management

Advanced Systems Management Adapter (310 & 315)...	94G7578
Advanced Systems Management Power Unit.....	94G6970

Cables

PC Server Four drop SCSI Internal Cable.....	60H7826
SCSI Converter Wide (68 pin) to Narrow (50 pin).....	32G3925
PC Server F/W to F/W External SCSI Cable.....	70G9857
PC Server F/W to Fast External SCSI Cable.....	70G9858

CD-ROM Drives

Internal 8X SCSI CD-ROM Drive.....	76H3215
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External Storage Enclosures

SCSI Multi Storage Enclosure.....	3517001
PC Server Enterprise Expansion Enclosure.....	3518001
PC Server 3519 Rack Storage Expansion Enclosure.....	3519R01

IBM PC Server 310 Configurator

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 representative for assistance with your specific configuration requirements.

Small Business/Workgroup Server

Part Number	Amount Required	Description
86390E5	1	IBM PC Server 310 (P200/32MB/CD)
92G7317	1	64MB Parity SIMM Kit Tin-Lead 72-Pin 60NS
76H5811	1	Ultrastar ES 4.33GB Ultra SCSI HDD
25H4374	1	100/10 PCI Ethernet Adapter
06H9716	1	TR4 (4.0/8.0GB) Internal SCSI Tape Drive
654000N	1	G42 Color Monitor 14" (13.2" Viewable Image Size)
94G3134	1	APC Smart UPS 700

A Small Business or Departmental Server is usually required to perform all typical server functions while servicing up to 15 users in a normal Workgroup Computing environment, but doesn't require the high-end performance and Fault Tolerance properties of larger servers.

This sample configuration consists of a Server 310 with 96MB of ECC Memory and 4.33GB of Hard Disk Space. It has enough processor power and memory to run most current Network Operating Systems comfortably and enough Hard Disk Space to store a significant amount of data with additional internal expansion available. The Network Interface Card can handle demanding network traffic effectively.

This configuration also includes an industry standard Tape Backup solution, monitor and a UPS to keep the system protected from power surges and outages.

Print Server

Part Number	Amount Required	Description
86390EV	1	IBM PC Server 310 (P166/16MB/2.16GB/CD/Ether)
92G7310	1	16MB Parity SIMM Kit Tin-Lead 72-Pin 60NS
6542103	1	G40 Color Monitor 14" (12.3" Viewable Image Size)
94G3134	1	APC Smart UPS 700

A Print Server's job is to receive print files, spool them to the hard disk and then send them to the printer at the proper time. This work does not require much processor power or memory, because the CPU only redirects data from one component in the server to another.

If the Print Server is servicing many Network Printers (recommended maximum is about 20), additional Network Interface Cards should be considered in order to increase the overall throughput of the system. In such an environment, the NIC will be the performance bottleneck.

To complete the configuration, a monitor and a small UPS for power protection have been added.

IBM PC Server 315 Configurator

Part Number Processor Type/Speed (MHz)* L2 Cache: std./max (KB) Memory: std./max (MB), speed (ns) Memory Type Hard Drive: std. size, speed (ms)** Hard Drive: max. (GB) Hard Drive Controller Type Slots: total, avail. Bays: total, avail. Hot-swappable Bays: std., opt. Ethernet(Mbps)

8638-PJ0	Pentium Pro /180	256/256	32/512,60	ECC	-	22.63	Wide Ultra SCSI	7, 5	6, 4	-	-
8638-PS0	Pentium Pro /200	256/256	32/512,60	ECC	-	22.63	Wide Ultra SCSI	7, 5	6, 4	-	-
8638-PSV	Pentium Pro /200	256/256	32/512,60	ECC	2.16GB, 8.5	20.28	Wide Ultra SCSI	7, 4	6, 3	-	100/10

Processor Upgrades

Processor Upgrade
 8638-PJ0 (180 MHz models)
 PC Server SMP 200-256KB Processor Upgrade.....94G7175

Memory Configurator

DIMM Socket
DIMM Socket
DIMM Socket
DIMM Socket

Total Memory	Part Number(s) Required
32MB Std.	32MB Standard on all Base Models
64MB	1 x 76H0279
96MB	1 x 76H0280
128MB	1 x 76H0279, 1 x 76H0280
224MB	3 x 76H0280
256MB	1 x 76H0279, 1 x 76H0280, 1 x 76H0281
288MB	2 x 76H0281
512MB (Max)	4 x 76H0281 (Note 1)

DIMM
 32MB EDO ECC, Gold, 60ns, 3.3V.....76H0279
 64MB EDO ECC, Gold, 60ns, 3.3V.....76H0280
 128MB EDO ECC, Gold, 60ns, 3.3V.....76H0281

Note 1: Replace standard DIMM
 This table does not represent all possible memory configurations

Hard Disk Drive Configurator

8638-PJ0, 8638-PS0 (Diskless models)

8638-PSV (Disk model)

Bay 1
Bay 2
Bay 3
Bay 4
Bay 5
Bay 6

Total Disk Capacity	Part Number(s) Required
0GB (Note 2)	Open Bay Standard - Base Models PJ0, PS0
2.16GB	1 x 76H5809
4.33GB	1 x 76H5811
6.49GB	1 x 76H5811, 1 x 76H5809
8.66GB	2 x 76H5811
10.82GB	1 x 76H5809, 2 x 76H5811
12.99GB	3 x 76H5811
17.32GB	4 x 76H5811
22.63GB (Max)	1 x 76H2689, 3 x 76H2687, 1 x 94G7524

Total Disk Capacity	Part Number(s) Required
2.16GB	2.16GB Standard - Base Model PSV
4.26GB	1 x 76H5809
6.49GB	1 x 76H5811
8.65GB	1 x 76H5809, 1 x 76H5811
10.82GB	2 x 76H5811
15.15GB	3 x 76H5811
20.28GB (Max)	1 x 76H2689, 2 x 76H2687, 1 x 94G7524

Note 2: If no internal Disk drives are installed then 94G7587 must be installed to provide SCSI termination.

These tables do not represent all Hard Drive Configurations

Bay	Form Factor	Height	Front Access	Usage	Part Number	Description	Bays Supported	Qty Supported
1	3.5"	SL	yes	diskette	76H5809	Ultrastar 2ES 2.16GB Ultra SCSI Hard Disk Drive	3 to 6	4
2	5.25"	HH	yes	SCSI CD-ROM	76H5811	Ultrastar 2ES 4.33GB Ultra SCSI Hard Disk Drive	3 to 6	4
3	5.25"	HH	yes	open	76H2687	Ultrastar 2XP 4.51GB Wide Ultra SCSI Hard Disk Drive	3 to 6	4
4	3.5"	SL	no	open	76H2689	Ultrastar 2XP 9.1GB Wide Ultra SCSI Hard Disk Drive	3	1
5	3.5"	SL	no	open	94G7524	PC Server Five Drop F/W Internal Cable		
6	3.5"	SL	no	HDD on 8639-PSV	94G7587	PC Server SCSI Terminator		

IBM PC Server 315 Configurator

Adapter Slots

PCI - Half Length	SVGA - PCI
PCI/ISA - Half Length	
ISA - Full Length	
ISA - Full Length	
PCI - Full Length	
PCI - Full Length	Wide Ultra SCSI - PCI
PCI - Full Length	100/10 Ethernet - PCI

Tape

TR4 (4.0/8.0GB) Internal SCSI Tape Drive	06H9716
TR4 (4.0/8.0GB) External SCSI Tape Drive.....	3502900
PC Server F/W to Fast External SCSI Cable.....	70G9858
Attaching an External Tape Drive requires Cable 70G9858	
Internal Tape Drives can only be installed in Bay 3.	

UPS

PC Smart UPS 700...(38 min. runtime at 200VA).....	94G3134
PC Smart UPS 1000...(58 min. runtime at 200VA).....	94G3135

Networking

Ethernet

IBM 100/10 PCI Ethernet Adapter.....	25H4374
This Adapter comes standard on 8638-PSV	

Token Ring

IBM PCI Token Ring Adapter II.....	41H8900
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Monitors

G42 Color Monitor 14" (13.2" Viewable Image Size).....	65400xx
G52 Color Monitor 15" (13.6" Viewable Image Size), pearl-white...	654600x
G52 Color Monitor 15" (13.6" Viewable Image Size), stealth-gray...	654640x
G72 Color Monitor 17" (15.7" Viewable Image Size), pearl-white...	654701x
G72 Color Monitor 17" (15.7" Viewable Image Size), stealth-gray...	654741x

Other Selected Options

Note : For the options below, check out the latest operating system compatibility information on the IBM PC Company Server Compatibility Home Page at <http://www.pc.ibm.com/compat/compat.html>

Systems Management

Advanced Systems Management Adapter (310 & 315)..	94G7578
Advanced Systems Management Power Unit.....	94G6970

Cables

PC Server Five drop F/W SCSI Internal Cable.....	94G7524
Ships with two 68- to 50-pin converters, Part #32G3925 for attachment of the CD-ROM and an additional narrow device.	
SCSI Converter Wide (68 pin) to Narrow (50 pin).....	32G3925
PC Server F/W to F/W External SCSI Cable.....	70G9857
PC Server F/W to Fast External SCSI Cable.....	70G9858

Wide SCSI

Ultrastar ES 4.33GB Ultra Wide SCSI HDD.....	76H5815
Attaching Wide SCSI Devices requires wide SCSI cable, Part # 95G7524 to be installed in addition to, or in conjunction with, the standard narrow cable. Part #95G7524 ships with two 68- to 50-pin converters, Part #32G3925 for attachment of the CD-ROM and an additional narrow device.	

CD-ROM

Internal 8X SCSI CD-ROM Drive.....	76H3215
The Internal CD-ROM Drive can only be installed in Bay 3	

External Storage

SCSI Multi Storage Enclosure.....	3517001
PC Server Enterprise Expansion Enclosure.....	3518001
PC Server 3519 Rack Storage Expansion Enclosure.....	3519R01
An external enclosure attachment requires an external cable.	

IBM PC Server 315 Configurator

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 representative for assistance with your specific configuration requirements.

Small Business/Workgroup Server

Part Number	Amount Required	Description
8638PS0	1	IBM PC Server 315 (PPro200/32MB/CD)
76H0280	1	64MB EDO ECC, Gold, 60ns, 3.3V
76H5811	2	Ultrastar ES 4.33GB Ultra SCSI HDD
25H4374	1	100/10 PCI Ethernet Adapter
06H9716	1	TR4 (4.0/8.0GB) Internal SCSI Tape Drive
654000N	1	G42 Color Monitor 14" (13.2" Viewable Image Size)
94G3135	1	APC Smart UPS 1000

A Small Business or Departmental Server is usually required to perform all typical server functions while servicing up to 25 users in a normal Workgroup Computing environment, but doesn't require the high-end performance and Fault Tolerance properties of larger servers.

This sample configuration consists of a Server 315 with 96MB of ECC 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 Space to store a significant amount of data with additional internal expansion available, if and when it may be required. The Network Interface Card can handle demanding network traffic effectively.

This configuration also includes an industry standard Tape Backup solution, monitor and a UPS to keep the system protected from power surges and outages.

Domain Controller / Master Browser

Part Number	Amount Required	Description
8638PJ0	1	IBM PC Server 315 (PPro180/32MB/CD)
76H0279	1	32MB EDO ECC, Gold, 60ns, 3.3V
76H5809	1	Ultrastar ES 2.16GB Ultra SCSI HDD
25H4374	2	100/10 PCI Ethernet Adapter
654000N	1	G42 Color Monitor 14" (13.2" Viewable Image Size)
94G3134	1	APC Smart UPS 700

A Domain Controller or Master Browser is a server that controls access to network resources, user resources and network connections. Usually, it does not provide any resource to the network. Its job consists of maintaining lists of who's connected to what at a certain time, check requests from users to access certain network resources, and provide users with lists of what network resources are available at any given moment. In a Large Business environment these tasks take up enough processing power to justify installing a separate server to perform these tasks only. In such situations, one of the other servers in the domain is appointed as Backup Domain Controller or Backup Master Browser.

The Server 315 is the perfect machine for this kind of work. It has enough processing power and expansion capabilities to handle most large and complex domain's. The listed sample configuration has 2 Ethernet adapters, because the server will have to deal with a lot of network traffic.

To complete the configuration, a monitor and a small UPS for power protection are added.

IBM PC Server 325 Configurator

Part Number Processor Type/Speed (MHz)* L2 Cache: std./max (KB) Memory: std./max (MB), speed (ns) Memory Type Hard Drive: std. size, speed (ms)** Hard Drive: max. (GB)***** Slots: total, avail. Bays: total, avail. Hot-swappable Bays: std., opt. Ethernet (Mbps)

8639-EJ0	Pentium Pro/180	256/256	32/1024, 60	ECC	-	22.71	Wide Ultra SCSI	6, 6	7, 5	-	10
8639-ES0	Pentium Pro/200	256/256	32/1024, 60	ECC	-	22.71	Wide Ultra SCSI	6, 6	7, 5	-	10
8639-RS0	Pentium Pro/200	256/256	32/1024, 60	ECC	-	22.71	Wide Ultra SCSI	6, 6	7, 5	-	10
8639-ESV	Pentium Pro/200	256/256	32/1024, 60	ECC	2.25GB, 8	20.45	Wide Ultra SCSI	6, 6	7, 4	-	10

8639-RS0 is housed in a 19" Rack Mountable drawer and ships standard without a keyboard and mouse

Processor Upgrades

- PC Server SMP 166-512KB Processor Upgrade.....94G4908
- PC Server SMP 180-256KB Processor Upgrade.....94G7082
- PC Server SMP 200-256KB Processor Upgrade.....94G6175
- PC Server SMP 200-512KB Processor Upgrade.....94G6463

A maximum of two processors may be installed in this server. If two processors are installed, both must be the same kind. It is not possible to mix processor speeds and/or L2 cache sizes.

Memory Configurator

DIMM Socket
DIMM Socket
DIMM Socket
DIMM Socket

Total Memory	Part Number(s) Required
32MB	32MB DIMM Standard on all Base Models
64MB	1 x 94G6473
96MB	1 x 94G6474
128MB	1 x 94G6473, 1 x 94G6474
224MB	3 x 94G6474
256MB	1 x 94G6473, 1 x 94G6474, 1 x 94G6475
288MB	2 x 94G6475
512MB	4 x 94G6475 (Note 1)
1GB(max)	4 x 94G7079 (Note 1)

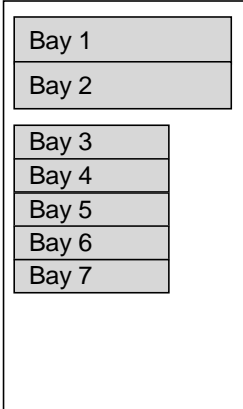
DIMM

- 32MB EDO 60ns 3.3V.....94G6473
- 64MB EDO 60ns 3.3V.....94G6474
- 128MB EDO 60ns 3.3V.....94G6475
- 256MB EDO 60ns 3.3V.....94G7079

Note 1: Replace standard DIMM

This table does not represent all possible memory configurations

Hard Disk Drive Configurator



8639-ES0, 8639-RS0, 8639-EJ0 (Diskless models)

Total Disk Capacity	Part Number(s) Required
0GB (Note 2)	Open Bay Standard on Base Models ES0, RS0, EJ0
2.16GB	1 x 76H5813
4.33GB	1 x 76H5815
8.66GB	2 x 76H5815
10.82GB	2 x 76H5815, 1 x 76H5813
15.55GB	3 x 76H5815, 1 x 76H5813
21.65GB	5 x 76H5815
22.71 (Max)	2 x 76H2687, 1 x 94G3057

8639-ESV (Disk model)

Total Disk Capacity	Part Number(s) Required
2.25GB	None
4.41GB	1 x 76H5813
6.76GB	1 x 76H2687
11.27GB	2 x 76H2687
15.78GB	3 x 76H2687
20.29GB	3 x 76H2687, 1 x 94G3057
20.45 (Max)	2 x 76H2689

Note 2: If no internal Disk drives are installed then 94G7587 must be installed to provide SCSI termination

These tables do not represent all Hard Drive Configurations

Bay	Form	Height	Access	Usage	Part Number Supported	Description	Bays	Qty Supported
5.25"	HH	yes	open					
2	5.25"	HH	yes	SCSI CD-ROM	76H5813	IBM Ultrastar 2ES 2.16GB Wide Ultra SCSI Hard Disk Drive	1,4,5,6,7	5
3	3.5"	SL	yes	diskette	76H5815	IBM Ultrastar 2ES 4.33GB Wide Ultra SCSI Hard Disk Drive	1,4,5,6,7	5
4	3.5"	SL	yes	open	76H2687	IBM Ultrastar 2XP 4.51GB Wide Ultra SCSI SL	4,5,6,7	4
5	3.5"	SL	yes	open	76H2689	IBM Ultrastar 2XP 9.1GB Wide Ultra SCSI SL	4/5,6/7	2
6	3.5"	SL	yes	open	94G3057	IBM Ultrastar XP 4.51GB F/W SCSI-2 Hard Disk Drive	1	1
7	3.5"	SL	yes	HDD on 8639-ESV	94G7587	PC Server SCSI Terminator		

IBM PC Server 325 Configurator

Adapter Slots

EISA -Half Length
PCI/EISA - Half Length
PCI/EISA - Full Length
PCI/EISA - Full Length
PCI/EISA - Full Length
PCI - Full Length

Tape

IBM 20/40GB 8-mm SCSI Tape Drive.....	76H0485
TR4 (4.0/8.0GB) Internal SCSI Tape Drive	06H9716
TR4 (4.0/8.0GB) External SCSI Tape Drive.....	3502900

Attaching an External Tape Drive requires Cable 70G9858

Networking

Ethernet

IBM 100/10 PCI Ethernet Adapter.....	25H4374
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The Server 325 comes standard with a 10 Mbps Ethernet Controller

Token Ring

IBM PCI Token Ring Adapter.....	41H8900
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Monitors

G42 Color Monitor 14" (13.2" Viewable Image Size).....	65400xx
G52 Color Monitor 15" (13.6" Viewable Image Size), pearl-white...	654600x
G52 Color Monitor 15" (13.6" Viewable Image Size), stealth-gray...	654640x
G72 Color Monitor 17" (15.7" Viewable Image Size), pearl-white....	654701x
G72 Color Monitor 17" (15.7" Viewable Image Size), stealth-gray...	654741x

UPS

APC Smart UPS 700....(17 min. runtime at 350VA).....	94G3134
APC Smart UPS 1000..(28 min. runtime at 350VA).....	94G3135
APC Smart UPS 1400..(49 min. runtime at 350VA).....	94G3136

Other Selected Options

Note : For the options below, check out the latest operating system compatibility information on the IBM PC Company Server Compatibility Home Page at <http://www.pc.ibm.com/compat/compat.html>

Other Communications Adapters

Ethernet Quad-BT PeerMaster PCI Server Adapter....	07H0450
Triple LANStreamer PCI Token-Ring Adapter.....	25H6304

Systems Management

Advanced Systems Management Adapter.....	94G5570
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Rack Related

PC Server 325 Rack Upgrade kit.....	94G5695
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Install rack models in a 19" rack cabinet meeting EIA-310-D standards with a depth of at least 28 inches.

C2 Security

PC Server 325 Security Cable kit.....	94G6398
PC Server 325 Security Cover.....	94G6471

RAID Adapters

IBM SSA RAID Adapter for PC Servers.....	32H3811
PC ServeRAID Adapter	70G8489

CD-ROM

Internal 8X SCSI CD-ROM Drive.....	76H3215
External 8X SCSI CD-ROM Drive.....	3509709

The Internal CD-ROM Drive can only be installed in Bay 1 Attaching the External CD-ROM Drive requires Cable 70G9858

External Storage

SCSI Multi Storage Enclosure.....	3517001
PC Server Enterprise Expansion Enclosure.....	3518001
PC Server 3519 Rack Storage Expansion Enclosure.....	3519R01
SSA Entry Storage Subsystem for PC Servers.....	3527001

An external enclosure attachment requires an external cable. See the enclosure section for cable details.

Cables

PC Server F/W to F/W External SCSI Cable.....	70G9857
PC Server F/W to Fast External SCSI Cable.....	70G9858

IBM PC Server 325 Configurator

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 representative for assistance with your specific configuration requirements.

Internet Server

Part Number	Amount Required	Description
8639ESV	1	IBM PC Server 325 (PPro200/32MB/2.25GB/CD)
94G6474	1	64MB EDO 60ns 3.3V
76H5815	1	IBM Ultrastar 2ES 4.33GB Wide Ultra SCSI Hard Disk Drive
25H4374	2	100/10 PCI Ethernet Adapter
06H9716	1	TR4 (4.0/8.0GB) Internal SCSI Tape Drive
654600N	1	G52 Color Monitor 15" (13.6" Viewable Image Size), pearl-white
94G3135	1	APC Smart UPS 1000

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

This sample configuration consists of a Server 325 with 96MB of Memory and almost 7GB of Hard Drive Space. It has enough processor power and memory to run most current Network Operating Systems comfortably and enough Hard Disk Space to store a significant amount of data with additional expansion available for memory, processor and storage, if and when it may be required. The Network Interface Adapters can handle demanding network traffic effectively. This configuration has 2 Fast Ethernet adapters to more efficiently communicate to the Internet connection point. 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, replace the 2 100/10 PCI Ethernet adapters in this sample configuration with other appropriate adapters.

The configuration also includes an industry standard Tape Backup solution, a small monitor and a UPS to keep the system protected from power surges and outages.

IBM PC Server 325 Configurator

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 representative for assistance with your specific configuration requirements.

Hot-Swap RAID File Servers

Description	Qty	Large SSA Rack	Large SSA Tower	Medium SSA Tower	Medium SCSI Rack
SERVER - DISPLAY					
IBM PC Server 325 Rack Drawer (PPro200/32MB/CD/Ether)	1	8639RSO			8639RSO
IBM PC Server 325 (PPro200/32MB/CD/Ether)	1		8639ES0	8639ES0	
128MB EDO 60ns 3.3V	1	94G6475	94G6475	94G6475	94G6475
100/10 PCI Ethernet Adapter	2	25H4374	25H4374	25H4374	25H4374
PC Server Wide SCSI Terminator	1	94G7587	94G7587	94G7587	94G7587
G42 Color Monitor 14" (13.2" Viewable Image Size)	1	654000N	654000N	654000N	654000N
RAID ADAPTER					
IBM SSA RAID Adapter for PC Servers	1	32H3811	32H3811	32H3811	
PC ServeRAID SCSI Adapter	1				70G8489
EXTERNAL STORAGE ENCLOSURES					
IBM Serial Storage Architecture Disk Subsystem	1	7133020 (1)	7133600 (1)		
IBM Entry Storage Subsystem for PC Servers	1			3527001	
IBM PC Server 3519 Rack Storage Expansion Enclosure	1				3519R01
HARD DISK DRIVES					
4.51 GB SSA Hot-Swap Disk Drive	5	(1)	(1)	05J6414	
IBM PC Server 9.1GB Wide Ultra SCSI Hot-Swap	3				94G7492
TAPE BACKUP					
IBM 20/40GB 8-mm SCSI Tape Drive	1	76H0485	76H0485	76H0485	76H0485
CABLES					
Cable, SSA external pair, 1.0-Meter	1	(1)	(1)	59H7220	
PC Server 4.3SCSI-2 F/W Rack Cable	1				94G5566
UPS					
APC Smart UPS 1400 (17 min. runtime @ 800 VA to 36 min. @ 450 VA)		94G3136	94G3136	94G3136	94G3136
RACK Example (requires 19" EIA-310-D with a depth of at least 28")					
APC NetShelter 42U Cabinet w/side panels	1	AR1000			AR1000
APC NetShelter Blanking Panel Kit	1	AR8101			AR8101
APC NetShelter Fixed Shelf (110# capacity)	1	AR8102			AR8102
APC NetShelter Keyboard Drawer	1	AR8106			AR8106

A Large File Server provides many GigaBytes of Data Storage. This requires the server to use a storage solution that allows the creation of very large and very fast Logical Hard Disk Drives. Currently, SSA is the best industry standard PC Server storage solution that can deliver both the capacity and performance needed for Large File Servers. SSA is two times faster than Ultra SCSI, and is able to address 48 Hard Disk Drives per loop versus 15 per channel for Ultra SCSI. In addition, SSA does not have the cable length limitations that Ultra SCSI has.

These sample configurations utilize RAID and Hot-Swap for Large and Medium sized installations. In addition, you can choose between Rack or Tower configurations. Each configuration provides the appropriate storage subsystems, tape backup and necessary cabling. There are a number of variations to these examples possible.

Another important property for Large File Servers is the ability to move all the data stored on the File Server through the Local Area Network. This requires several LAN adapters. The PC Server 325 has enough PCI slots available to host an ample quantity of LAN Adapters. Its CPU and memory capabilities also allow for significant expansion.

(1) The 7133 IBM Serial Storage Architecture Disk Subsystem is not an IBM PC Company product, for further information contact your IBM Representative.

IBM PC Server 330 Configurator

Part Number Processor Type/Speed (MHz)* L2 Cache: std./max (KB) Memory: std./max (MB), speed (ns) Memory Type Hard Drive: std. size, speed (ms)** Hard Drive: max. (GB)***** Hard Drive Controller Type Slots: total, avail. Bays: total, avail. Hot-swappable Bays: std., opt. Ethernet (Mbps)

8640-ES0	Pentium Pro/200	256/256	32/1024, 60	ECC	-	31.81	Wide Ultra SCSI	9, 9	9, 7		10
8640-ES2	Pentium Pro/200	256/256	32/1024, 60	ECC	-	31.81	Wide Ultra SCSI	9, 9	10, 8	6	10
8640-EM2	Pentium Pro/200	512/512	32/1024, 60	ECC	-	31.81	Wide Ultra SCSI	9, 9	10, 8	6	10
8640-ESS	Pentium Pro/200	256/256	32/1024, 60	ECC	2x2.25GB, 8	27.21	Wide Ultra SCSI PCI ServeRAID	9, 8	10, 6	6	10

Processor Upgrades

PC Server SMP 166-512KB Processor Upgrade.....94G4908
 PC Server SMP 200-256KB Processor Upgrade.....94G6175
 PC Server SMP 200-512KB Processor Upgrade.....94G6463

A maximum of two processors may be installed in this server.
 If two processors are installed, both must be the same kind. It is not possible to mix processor speeds and/or L2 cache sizes.

Memory Configurator

DIMM Socket
DIMM Socket
DIMM Socket
DIMM Socket

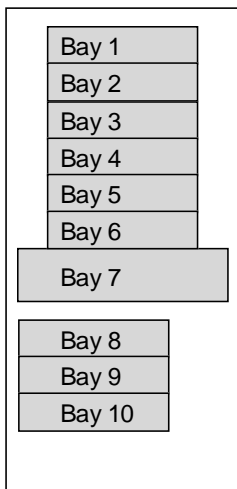
Total Memory	Part Number(s) Required
32MB	32MB DIMM Standard on all Base Models
64MB	1 x 94G6473
96MB	1 x 94G6474
128MB	1 x 94G6473, 1 x 94G6474
224MB	3 x 94G6474
256MB	1 x 94G6473, 1 x 94G6474, 1 x 94G6475
288MB	2 x 94G6475
512MB	4 x 94G6475 (Note 1)
1GB(max)	4 x 94G7079 (Note 1)

DIMM
 32MB EDO 60ns 3.3V.....94G6473
 64MB EDO 60ns 3.3V.....94G6474
 128MB EDO 60ns 3.3V.....94G6475
 256MB EDO 60ns 3.3V.....94G7079

Note 1: Replace standard DIMM

This table does not represent all possible memory configurations

Hard Disk Drive Configurator (HotSwap)



Models ES2, EM2 (Diskless models)

Total Disk Capacity	Part Number(s) Required
0GB	Open Bay Standard on Base Models ES2, EM2
2.25GB	1 x 70G9862
4.51GB	1 x 94G6494
9.02GB	2 x 94G6494
13.53GB	3 x 94G6494
18.04GB	4 x 94G6494
22.55GB	5 x 94G6494
27.06GB	6 x 94G6494
31.81 (Max)	3 x 94G7492, 1 x 94G3057

Model ESS (Disk model)

Total Disk Capacity	Part Number(s) Required
4.5GB	Two 2.25GB drives Standard on Base Model ESS
6.75GB	1 x 70G9862
13.5GB	4 x 70G9862
13.52GB	2 x 94G6494
22.54GB	4 x 94G6494
27.21GB	2 x 94G7492, 1 x 94G3057

These tables do not represent all Hard Drive Configurations

Part Number	Description	Bays Supported	Qty Supported
70G9862	2.25GB SCSI-2 F/W HotSwap Drive III	1..6	6
94G6494	4.51GB SCSI-2 F/W HotSwap Drive III	1..6	6
94G7491	IBM PC Server 4.51GB Wide Ultra SCSI Hot-Swap Hard Disk Drive	1..6	6
94G7492	IBM PC Server 9.1GB Wide Ultra SCSI Hot-Swap Hard Disk Drive	1/2,3/4,5/6	3
94G3057	IBM Ultrastar XP 4.51GB F/W SCSI-2 HDD	9/10	1

Bay	Form	Height	Access	Usage
1..6	HS	SL	yes	2 x HDDs on 8640-ESS
7	5.25"	HH	yes	SCSI CD-ROM
8	3.5"	SL	yes	diskette
9	3.5"	SL	yes	open
10	3.5"	SL	yes	open

IBM PC Server 330 Configurator

Hard Disk Drive Configurator (non-HotSwap)

Bay 1
Bay 2
Bay 3
Bay 4
Bay 5
Bay 6
Bay 7
Bay 8
Bay 9

Bay	Form	Height	Access	Usage
1..5	5.25"	HH	yes	open
6	5.25"	HH	yes	SCSI CD-ROM
7	3.5"	SL	yes	diskette
8	3.5"	SL	yes	open
9	3.5"	SL	yes	open

Note 1: If no internal Disk drives are installed then 94G7587 must be installed to provide SCSI termination.

Note 2: Open bays must separate 76H2689 and other hard disk drives.

These tables do not represent all Hard Drive Configurations

Part Number	Description
76H5813	IBM Ultrastar 2ES 2.16GB Wide Ultra SCSI Hard Disk Drive
94G3057	IBM Ultrastar XP 4.51GB F/W SCSI-2 Hard Disk Drive
76H2687	IBM Ultrastar 2XP 4.51GB Wide Ultra SCSI SL
76H2689	IBM Ultrastar 2XP 9.1GB Wide Ultra SCSI SL
94G7587	PC Server SCSI Terminator

Model ES0 (Diskless model)

Total Disk Capacity	Part Number(s) Required
0GB (Note 1)	Open Bay Standard on Base Model ES0
2.16GB	1 x 76H5813
4.51GB	1 x 76H2687
9.02GB	2 x 76H2687
13.53GB	3 x 76H2687
18.04GB	4 x 76H2687
22.55GB	5 x 76H2687
31.81 (Max)	3 x 76H2689(Note 2), 1 x 94G3057

Bays Supported	Qty Supported
1..5, 9	6
8/9	1
1..5	5
1,3,5(Note 2)	3

EISA -Half Length
EISA -Half Length
EISA - Half Length
EISA - Full Length
PCI/EISA - Full Length
PCI/EISA - Full Length
PCI/EISA - Full Length
PCI/EISA - Full Length
PCI - Full Length

Adapter Slots

Networking

Ethernet

IBM 100/10 PCI Ethernet Adapter.....25H4374
The Server 330 comes standard with a 10 Mbps Ethernet Controller

Token Ring

IBM PCI Token Ring Adapter.....41H8900

Monitors

G42 Color Monitor 14" (13.2" Viewable Image Size).....65400xx
G52 Color Monitor 15" (13.6" Viewable Image Size), pearl-white...654600x
G52 Color Monitor 15" (13.6" Viewable Image Size), stealth-gray...654640x
G72 Color Monitor 17" (15.7" Viewable Image Size), pearl-white...654701x
G72 Color Monitor 17" (15.7" Viewable Image Size), stealth-gray...654741x

UPS

APC Smart UPS 1000.....(20 min. runtime at 450VA).....94G3135
APC Smart UPS 1400.....(36 min. runtime at 450VA).....94G3136

Tape

IBM 20/40GB 8-mm SCSI Tape Drive.....76H0485
On Models ES2, EM2, ESS, 76H0485 Tape Drive requires removal of the standard CD-ROM drive

TR4 (4.0/8.0GB) Internal SCSI Tape Drive06H9716
On Models ES2, EM2, ESS , 06H9716 Tape Drive can only be installed in Bays 8/9

TR4 (4.0/8.0GB) External SCSI Tape Drive.....3502900
Attaching an External Tape Drive requires Cable 70G9858

Other Selected Options

Note : For the options below, check out the latest operating system compatibility information on the IBM PC Company Server Compatibility Home Page at <http://www.pc.ibm.com/compat/compat.html>

Other Communications Adapters

Ethernet Quad-BT PeerMaster PCI Server Adapter....07H0450
Triple LANStreamer PCI Token-Ring Adapter.....25H6304

Systems Management

Advanced Systems Management Adapter.....94G5570

C2 Security

PC Server 330 Security Cable kit.....94G6399
PC Server 330 Security Cover.....94G4606

CD-ROM

Internal 8X SCSI CD-ROM Drive.....76H3215
External 8X SCSI CD-ROM Drive.....3509709
The Internal CD-ROM Drive can only be installed in Model ES0.
Attaching the External CD-ROM Drive requires Cable 70G9858

RAID Adapters

IBM SSA RAID Adapter for PC Servers.....32H3811
PC ServeRAID Adapter ..(Standard on Model ESS).....70G8489

External Storage

SCSI Multi Storage Enclosure.....3517001
PC Server Enterprise Expansion Enclosure.....3518001
PC Server 3519 Rack Storage Expansion Enclosure.....3519R01
SSA Entry Storage Subsystem for PC Servers.....3527001
An external enclosure attachment requires an external cable.
See the enclosure section for cable details.

Cables

PC Server F/W to F/W External SCSI Cable.....70G9857
PC Server F/W to Fast External SCSI Cable.....70G9858

IBM PC Server 330 Configurator

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 representative for assistance with your specific configuration requirements.

Lotus Notes Server

Part Number	Amount Required	Description
8640EM2	1	IBM PC Server 330 (PPro200/512KB/32MB/CD)
94G6475	1	128MB EDO 60ns 3.3V
70G8489	1	PC ServeRAID PCI Adapter
94G7491	3	IBM PC Server 4.51GB Wide Ultra SCSI Hot-Swap Hard Disk Drive
25H4374	2	100/10 PCI Ethernet Adapter
06H9716	1	TR4 Internal SCSI Tape Drive
654600N	1	G52 Color Monitor 15" (13.6" Viewable Image Size), pearl-white
94G3136	1	APC Smart UPS 1400

A Lotus Notes server needs to offer high performance to give acceptable response times to end users and fault tolerance features to minimize downtime should hardware failure occur. The suggested configuration was selected to show the components needed to build a small to medium size Lotus Notes Server. This sample configuration achieves high performance and fault-tolerance in a number of ways :

- The processor employs a larger-than-usual Level 2 cache to increase CPU Performance
- 160MB of system memory
- Use of multiple high-speed network interface cards improves the average data transfer rate between the server and the client
- A RAID Adapter improves the disk subsystem performance (particularly for data reads) and offers protection against failure of a single disk drive
- The TR4 Tape Drive allows unattended backup of data.
- The APC UPS will allow graceful shutdown without loss of data in the case of problems with the power

Hot Swap Disk Drives combined with the RAID adapter will allow easy replacement of a failing Hard Disk Drive without having to shutdown the Network Operating System.

A Lotus Notes Server also needs to be able to grow when the need arises. This sample configuration has plenty room for expansion. Another CPU , additional memory, lots of adapters and internal storage can be added to accommodate future requirements.

File Server

Part Number	Amount Required	Description
8640ES2	1	IBM PC Server 330 (PPro200/256KB/32MB/CD)
94G6474	1	64MB EDO 60ns 3.3V
70G8489	1	PC ServeRAID PCI Adapter
94G7491	3	IBM PC Server 4.51GB Wide Ultra SCSI Hot-Swap Hard Disk Drive
25H4374	2	100/10 PCI Ethernet Adapter
06H9716	1	TR4 Internal SCSI Tape Drive
654600N	1	G52 Color Monitor 15" (13.6" Viewable Image Size), pearl-white
94G3136	1	APC Smart UPS 1400

A File Server usually does nothing more than provide a place for users to store their data in a protected environment. To provide this function, a File Server doesn't need much horsepower, but it does need fast Disk and Network subsystems, as well as enough internal memory to act as buffers for both these subsystems. In addition to these performance features, the server needs to have a high availability, because many users depend on it.

This sample File Server configuration provides a RAID disk controller, which improves the disk subsystem performance (particularly for data reads) and also offers protection against failure of a single disk. Further protection against data loss due to failure or user error should also be an integral part of a server in such an important role - the TR4 Tape Drive allows unattended backup for large amounts of data. Finally, the APC UPS will allow graceful shutdown without loss of data in case of problems with the power.

The PC ServeRAID Adapter is based on Ultra SCSI technology, the most current variety of parallel SCSI on the market today. Together with two fast Ethernet adapters, the performance of the Disk and Networking subsystems in this configuration are sufficient for many situations.

A File Server also needs to be able to grow when the need arises. This sample configuration has plenty room for expansion. Another CPU, additional memory, lots of adapters and internal storage can be added to accommodate future requirements.

IBM PC Server 704 Configurator

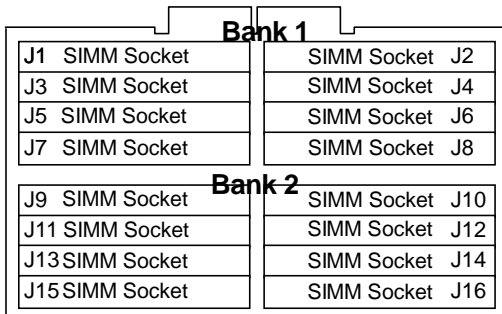
Part Number	Processor Type/ Speed (MHz)*	L2 Cache: std./max (KB)	Memory: std./max (MB), speed (ns)	Memory Type	Hard Drive: std. size, speed (ms)**	Hard Drive: max. (GB)*****	Hard Drive Controller Type	Slots: total, avail.	Bays: total, avail.	Hot-swappable Bays: std., opt.
8650-4MO	Pentium Pro /200	512/512	128/2048,60	ECC	-	109.2	2 x SCSI-2 F/W	10,10	17,15	12,12
8650-5MO	Pentium Pro /200	512/512	256/2048,60	ECC	-	109.2	2 x Wide Ultra SCSI	10,10	17,15	12,12
8650-6MM	Pentium Pro /200	512/512	256/2048,60	ECC	-	109.2	2 x Wide Ultra SCSI PCI ServeRAID	10,10	17,15	12,12

SMP Processor Upgrade

PC Server 704 SMP 200MHz Upgrade.....94G6678

Note : Up to 4 processors are supported in a SMP configuration

Memory Configurator



Total Memory	Part Number(s) Required
256MB	4 x 64MB SIMMS Standard on Base Model 4M0
512MB	4 x 94G5879
1024MB	12 x 94G5879
1024MB	8 x 94G6682 (note 1)
2048MB(max)	16 x 94G6682 (note 1)

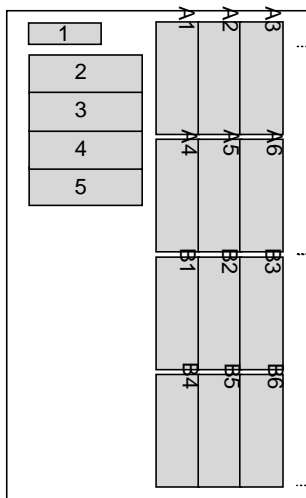
Note 1: Replace standard SIMMs

These tables do not represent all possible memory configurations. For other configurations, consult "Memory Rules" under "Other Selected Options"

SIMM

- PCServer 704 32MB Memory Option.....94G5878
- PCServer 704 64MB Memory Option.....94G5879
- PCServer 704 128MB Memory Option.....94G6682

Hard Disk Drive Configurator



Bay	Form Factor	Height	Front Access	Usage
1	3.5"	SL	yes	Diskette
2	5.25"	HH	yes	SCSI CD-ROM (4M0) IDE CD-ROM (5M0/6MM)
3..5	5.25"	HH	yes	open
A1-6	HS	HH	yes	open
B1-6	HS	HH	yes	open

Total Disk Capacity	Part Number(s) Required
0GB	Open Bay Standard on all Base Models
6.42GB	3 x 94G7519
12.84GB	6 x 94G7519
13.53GB	3 x 94G7098
27.06GB	6 x 94G7098
27.30GB	3 x 94G7099
54.6GB	6 x 94G7099
81.9GB	9 x 94G7099
109.2GB (max)	12 x 94G7099

These tables do not represent all valid Hard Drive Configurations

Part Number	Description	Bays Supported	Qty Supported
94G7519	PC Server 704 2.14GB Wide Ultra SCSI Hot-Swap Hard Disk Drive	All	12
94G7098	PC Server 704 4.51GB Wide Ultra SCSI Hot-Swap Hard Disk Drive	All	12
94G7099	PC Server 704 9.1GB Wide Ultra SCSI Hot-Swap Hard Disk Drive	All	12

IBM PC Server 704 Configurator

Adapter Slots

PCI - Full Length	1
PCI - Full Length	2
PCI - Full Length	3
PCI - Full Length	4
SCSI-2 RAID (6MM) PCI - Full Length	5
PCI - Full Length	6
EISA - Full Length	1
EISA - Full Length	2
EISA - Full Length	3
EISA - Full Length	4

Tape

IBM 20/40GB 8-mm SCSI Tape Drive.....76H0485
 Install in Bay 2/3 or Bay 4/5 only
 Must be attached to the integrated SCSI controller or a supported SCSI adapter (76H5407). Not supported when attached to RAID adapters or daisy-chained from hot-swap backplane. Requires PC Server Four Drop Wide Cable, 60H7826.
 PC Server Four Drop Wide Cable.....60H7826

Networking

Ethernet

IBM 100/10 PCI Ethernet Adapter.....25H4374

Token Ring

IBM PCI Token Ring Adapter.....41H8900

Monitors

G41 Color Monitor 14", (12.3" Viewable Image Size)Touch....6542313
 G40 Color Monitor 14" (12.3" Viewable Image Size).....6542103
 P50 Color Monitor 15" (13.6" Viewable Image Size).....6553503
 G70 Color Monitor 17" (15.7" Viewable Image Size).....6544403

Fault Tolerance

PC Server 704 420W Redundant Power Option.....94G7490
 Model 8650-6MM comes standard with this option

UPS

APC Smart UPS 1400...(17 min. runtime at 800VA).....94G3136

Other Selected Options

Note : For the options below, check out the latest operating system compatibility information on the IBM PC Company Server Compatibility Home Page at <http://www.pc.ibm.com/compat/compat.html>

Other Communications Adapters

Triple LANstreamer PCI Token-Ring Adapter.....25H6304

Systems Management

PC Server Advanced Systems Management Adapter.....94G5570
 Requires 94G5571 to support monitoring/control when system power is unavailable.
 Requires 94G6970.

Adv. Systems Management Power Unit.....94G5571
 Systems Management Cable.....94G6970

Processor Upgrades for 166 MHz models

PC Server 704 166MHz Processor Upgrade.....94G5881
 PC Server 704 200MHz Processor Card.....94G6681
 NOT required if the FRU # on the current processor board is 76H4887.
 This option is only required when you are installing a 200MHZ processor on the card and not required if the original processor card is to remain empty.

Memory Rules

Only configurations with a total of 4, 8 or 16 SIMMS are allowed.

- * All SIMMs within a Bank must be of the same size
- * Bank 1 must be fully populated prior to installing memory in Bank 2

Additional Rules for Model 4M0 (and earlier Models 4BW and 7AX)

- * 16MB and 32MB SIMMs can co-exist in separate Banks
- * 64MB and 128MB SIMMs can co-exist in separate Banks
- * 16MB or 32MB SIMMs CANNOT co-exist with 64MB or 128MB SIMMs

SCSI Adapters

PC Server Ultra Wide SCSI PCI Adapter.....70G8489

RAID Adapters

IBM SSA RAID Adapter for PC Servers.....32H3811
 PC ServeRAID Adapter70G8489

CD-ROM

Internal 8X SCSI CD-ROM Drive.....76H3215
 The Internal CD-ROM Drive can only be installed in Bays 3..5

External Storage

SCSI Multi Storage Enclosure.....3517001
 PC Server Enterprise Expansion Enclosure.....3518001
 PC Server 3519 Rack Storage Expansion Enclosure.....3519R01
 SSA Entry Storage Subsystem for PC Servers.....3527001
 An external enclosure attachment requires an external cable.
 See the enclosure section for cable details.

Cables

PC Server F/W to F/W External SCSI Cable.....70G9857
 PC Server F/W to Fast External SCSI Cable.....70G9858
 Internal Bulkhead Cable.....76H2675
 PC Server 704 4-Drop SCSI Cable..(8 bit).....94G5883
 PC Server .8mm to 68-pin HD External SCSI Cable.....94G6276

IBM PC Server 704 Configurator

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 representative for assistance with your specific configuration requirements.

Enterprise Lotus Notes Server

<u>Part Number</u>	<u>Amount Required</u>	<u>Description</u>
86506MM	1	IBM PC Server 704 (PPro200/256MB/CD)
94G6678	1	PC server 704 SMP 200MHz Upgrade
94G5879	4	PC Server 704 64MB Memory Option
94G7099	6	PC Server 704 9.1GB Wide Ultra SCSI
25H4374	2	100/10 PCI Ethernet Adapter
76H0485	1	IBM 20/40GB 8-mm SCSI Tape Drive
60H7826	1	PC Server Four Drop Wide Cable
6542103	1	G40 Color Monitor 14" (12.3" Viewable Image Size)
94G3136	1	APC Smart UPS 1400

A Lotus Notes server supporting many hundreds of users needs to offer high performance to give acceptable response times to end users and fault tolerance features to minimize downtime should a hardware failure occur. The suggested configuration achieves these aims in a number of ways :

- Performance features include a second CPU to boost raw processing power (requires an SMP-enabled operating system such as OS/2 Warp Server SMP or Windows NT)
- 512MB of system memory
- Use of multiple high-speed network interface cards improves the average data transfer rate between the server and the client.

This system provides a RAID disk controller as standard. RAID improves the disk subsystem performance (particularly for data reads) and also offers protection against failure of a single disk. Further protection against data loss due to failure or user error should also be an integral part of any server in such an important role - the 20/40GB tape drive allows unattended backup for large amounts of data. Finally, the APC UPS will allow graceful shutdown without loss of data in the case of problems with the incoming main power supply.

SAP Application Server

<u>Part Number</u>	<u>Amount Required</u>	<u>Description</u>
86506MM	1	IBM PC Server 704 (PPro200/256MB/CD)
94G6678	3	PC server 704 SMP 200MHz Upgrade
94G6682	8	PC Server 704 128MB Memory Option (original 64MB SIMMs must be removed - see Additional Comments below)
94G7099	12	PC Server 704 9.1GB Wide Ultra SCSI
25H4374	4	100/10 PCI Ethernet Adapter
76H0485	1	IBM 20/40GB 8-mm SCSI Tape Drive
60H7826	1	PC Server Four Drop Wide Cable
6542103	1	G40 Color Monitor 14" (12.3" Viewable Image Size)
94G3136	1	APC Smart UPS 1400

A SAP server supporting many hundreds of users needs to offer high performance to give acceptable response times to end users and fault tolerance features to minimize downtime should a hardware failure occur. The suggested configuration achieves these aims in a number of ways.

Performance features include four CPUs to boost raw processing power (requires an SMP-enabled operating system such as OS/2 Warp Server SMP or Windows NT) and 1GB of system memory. Use of multiple high-speed network interface cards improves the average data transfer rate from the server to the user.

This system provides a RAID disk controller as standard. RAID improves the disk subsystem performance (particularly for data reads) and also offers protection against failure of a single disk. Further protection against data loss due to failure or user error should also be an integral part of any server in such an important role - the 20/40GB tape drive allows unattended backup for large amounts of data. Finally, the APC UPS will allow graceful shutdown without loss of data in the case of problems with the incoming main power supply.

Additional comments:

- 1GB of system memory could also be configured by purchasing 12 x 64MB SIMMs to add to the standard 4 x 64MB SIMMs supplied with the system. Advantages of this approach are that the existing SIMMs are not discarded and additional cost saving potential as 2 x 64MB SIMMs are generally cheaper than a single 128MB SIMM at this time. The major disadvantage is that further expansion is made considerably less cost-effective since at least eight 64MB SIMMs would have to be discarded.
- If the "discarded" 64MB SIMMs cannot be used in another system, purchasing a further 4 x 64MB SIMMs would allow configuration of the system to provide 1.5GB of memory (8 x 128MB + 8 x 64MB).