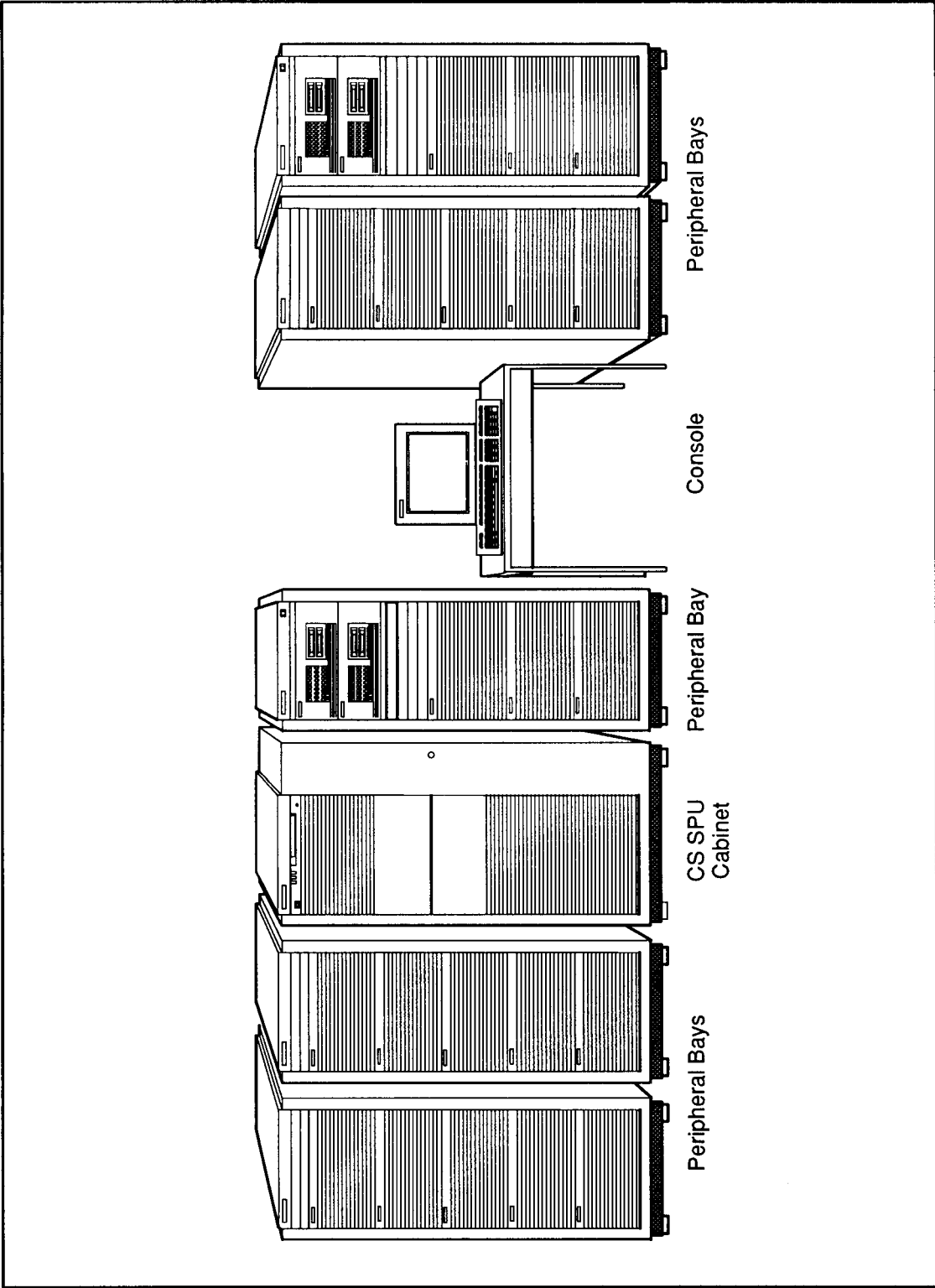


## HP 3000 Corporate Business Systems

### General System Configuration Information

#### Maximum Supported Hardware Configuration\*

	000 DX, 002/100 DX 000, 002/100	002/200 DX, 002/200	002/300 DX, 002/300	002/400 DX, 002/400
MPE/iX Release Support	Rel. 4.0	Rel. 4.0	Rel. 4.0	Rel. 4.0
User license: (UL=unlimited) Standard/Optional	160/UL	UL/UL	UL/UL	UL/UL
Typical users	200 - 580	325 - 775	425 - 945	500 - 1000
Maximum connected workstations	2300	2300	2300	2300
Maximum memory card per SPU <sup>3</sup>	8	8	8	8
Maximum dual bus-converter cards	4	4	4	4
HP-PB I/O card cages <sup>2</sup> : Internal/External	1/7	1/7	1/7	1/7
HP-PB Slots per HP-PB I/O card cage	14	14	14	14
Memory (MB): Minimum/Maximum	192/2048	256/2048	256/2048	256/2048
Maximum disk storage: Total = 691 GB - PB-FL - 128 spindles x 5.4 GB	691	691	691	691
Maximum disks: Total = 128 <sup>4</sup> - PB-FL - SCSI - PBA-IB	128 128 48	128 128 48	128 128 48	128 128 48
Maximum backup devices - SCSI (DDS) - PBA-IB (HP-IB) (tape drive) - Optical SCSI - 1/2-inch cartridge (3480 compatible)	8 8 3 8 transports	8 8 3 8 transports	8 8 3 8 transports	8 8 3 8 transports
Maximum printers - system PBA-IB (HP-IB) - serial - system SCSI - line	8 250 4 16	8 250 4 16	8 250 4 16	8 250 4 16
Maximum number of devices per I/O card - per PBA-IB (HP-IB) - per PB-FL - per SCSI	6 8 7	6 8 7	6 8 7	6 8 7
Maximum DTCs	120	120	120	120
Maximum cards per HP-PB I/O card cage - PBA-IB (HP-IB) cards - PB-FL (HP-FL) cards - SCSI cards	2 5 5	2 5 5	2 5 5	2 5 5
Maximum network links per system - 802.3 LANIC <sup>1</sup> - 802.5 Token Ring	2 1	2 1	2 1	2 1
Maximum PSI cards per system	8	8	8	8
<sup>1</sup> First 802.3 LANIC standard on LAN/Console card <sup>2</sup> First HP-PB I/O card cage is internal to the SPU cabinet, seven additional card cages can be added to the 1.6 m Expansion Cabinet <sup>3</sup> Memory cards available: 64 MB, 128 MB, 256 MB <sup>4</sup> Configurations exceeding 96 disks must be factory approved * For recommended configurations to optimize system performance, refer to "HP-PB I/O Card Cage Performance Guidelines" section of this chapter.				



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HP 3000 Corporate Business System

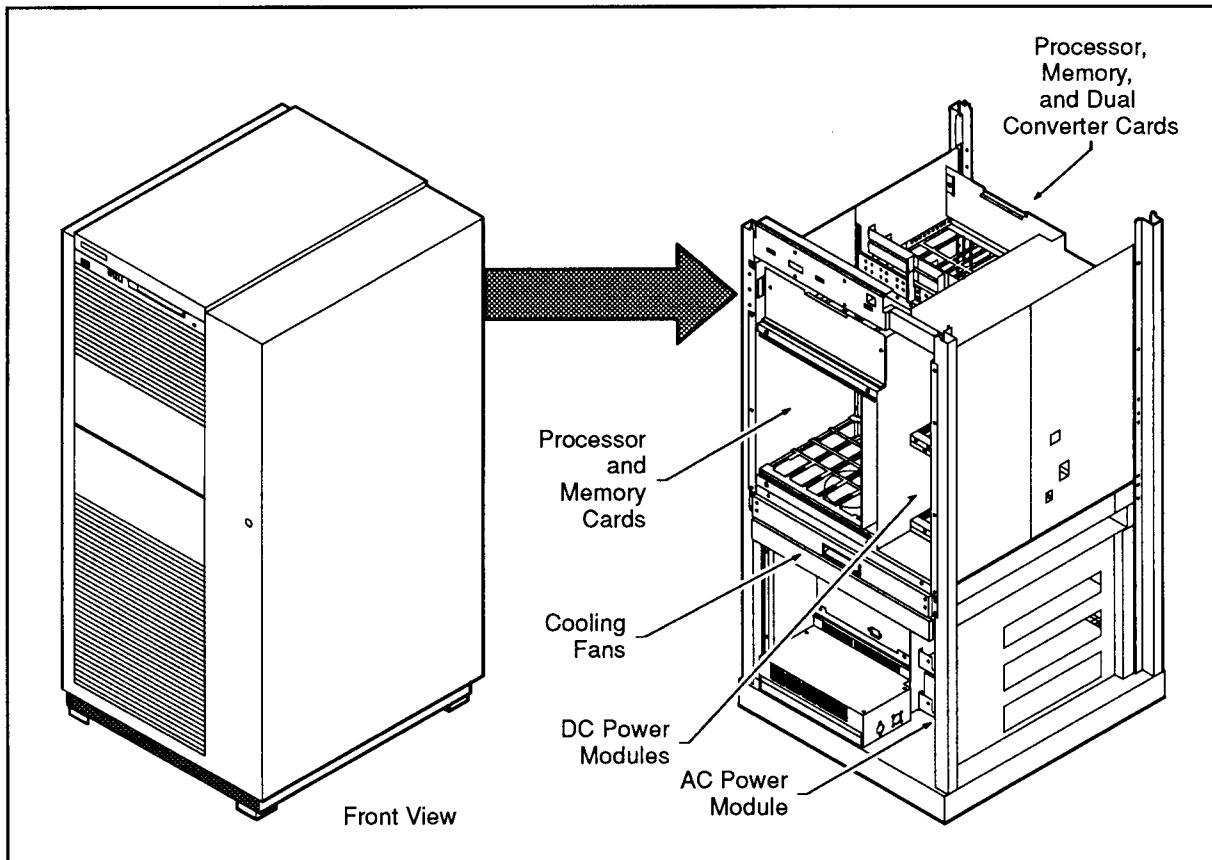
## Product Description

The HP 3000 Corporate Business Systems (CS) are highly expandable, high-performance computers which feature a tightly coupled, symmetrical multiprocessing architecture. Multiprocessing of up to four processors allows for economical modular growth as system performance requirements increase. The CS can be configured with up to 2 Gigabytes of main memory, 690 Gigabytes of online disk storage, and support of up to 2300 online users in an OLTP environment. The base configuration consists of one CPU, 192 MB of ECC memory, and 14 HP-PB interface card slots for connection to peripherals, networks, and terminals. The base configuration can be expanded by adding additional processors, memory, and I/O for a broad range of system configurations.

The CS is a standalone System Processing Unit (SPU) in a 1.6 meter high system cabinet. All rack-mounted peripherals are separately installed in one or more 1.6 meter Expansion Cabinets.

The five performance levels of the HP 3000 Corporate Business System are available in two solution choices, each of which has its own product number. (Therefore, there are ten HP 3000 Corporate Business System models to choose from in total.) The customers' desired performance and/or multiprocessor level is then designated via the option selected within that product number. Product number A1809A (signified by "DX") offers standard software for systems and performance management, and a OpenView console PC. The A1811A product does not include the systems and performance management software and comes with a terminal console instead of a PC.

<b>A1809A</b>	<b>A1811A</b>
CS 990 DX (uniprocessor)	CS 990 (uniprocessor)
CS 992/100 DX (uniprocessor)	CS 992/100 (uniprocessor)
CS 992/200 DX (2-way multiprocessor)	CS 992/200 (2-way multiprocessor)
CS 992/300 DX (3-way multiprocessor)	CS 992/300 (3-way multiprocessor)
CS 992/400 DX (4-way multiprocessor)	CS 992/400 (4-way multiprocessor)



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### SPU Frame, Cards, and Power Module Locations

#### Base Configuration

The base CS 990 and 992/100 SPU configuration contains the following hardware components:

- one processor card with floating-point coprocessor
- service processor (SP) card
- 192 MB ECC memory (one 64 MB and one 128 MB ECC memory cards with onboard memory controller)
- one Upper Dual Bus Converter
- internal HP-PB (HP Precision Bus) I/O card cage which includes the following base configuration cards:
  - LAN/console card (multi-purpose card with connections for 802.3 LAN, internal ThinLAN Transceiver and AUI port, serial link for console terminal, and modem link for remote access)
  - one PB-FL fiber link interface card
  - one SCSI interface card
  - one PBA-IB card
  - one Bus Converter (lower)
- modular power supply subsystem and integrated powerfail battery backup system
- OpenView PC console (included only with the Corporate Business System DX)
- HP 700/96 console terminal and interconnect cable (not included with the Corporate Business System DX)

## Unique Supplied Software for the CS DX

In addition to the preconfigured software standard with every preconfigured HP 3000 system, all CS DX systems come standard with the following additional software.

### Systems Management Software Group

- OpenView console and software preloaded on the OpenView console PC. *See OpenView console PC discussion on page 4-6 for a complete listing of the PC software included.*
- TurboSTORE/iX II with on-line backup for rewritable optical disk, 1/2-inch tape or DDS
- AutoRestart/iX
- ThinLAN 3000/iX
- OpenView System Manager Management Node software for the OpenView console

### Performance Management Software Group

- GlancePLUS
- LaserRX/MPE
- RXForecast

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#### Note



Of the unique supplied CS DX software, only a complete group can be deleted. Individual pieces of software can not be deleted. See A1809A product structure on page 4-32.

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## OpenView Console PC

HP 3000 Corporate Business System DX systems are shipped standard with the OpenView console PC as the system console. The OpenView console is a Vectra 386/20 based OpenView Workstation supplied with the necessary software to act as the system console. The OpenView console provides a windows based, PC environment which allows system operators to manage the Corporate Business System via user friendly screen icons.

### PC Hardware and Software

The OpenView console PC consists of the following hardware and PC software. The PC software is preloaded on the internal hard disk at the factory prior to shipment. Software versions are subject to change more frequently than revisions of this document. Please contact your HP representative for the current revision number. Revision numbers shown are current as of the date of this publication.

#### **Vectra 386/20 PC with:**

8 Mbytes memory  
120 Mbyte hard disk  
3.5-inch floppy drive  
20-inch color monitor  
color monitor VGA card  
ThinLAN adapter card

#### **OpenView Windows Workstation software:**

MS-DOS 5.0\*  
MS Windows 3.0\*  
OpenView Windows A.05.01\*  
OpenView Sysman A.00.03\*  
Advancelink for Windows A.03.02\*  
Network Services B.02.00\*  
ARPA Services

*\* Or later version.*

### Required Hardware Ordered Separately

HP 3000 Corporate Business System DX systems (A1809A) are provided standard with the OpenView console PC as the system console. To ensure maximum availability of the OpenView console in the event of power fluctuation or interruption, a continuous power source is required for the OpenView console PC.

The HP 3000 Corporate Business Systems (A1811A) are shipped with a 700/96 terminal and do not require a continuous power source for the 700/96 terminal.

## Factory Software Pre-Loading

Factory pre-loading of HP 3000 FOS, standard subsystem software, customized subsystem software, GlancePLUS\* and Systems Management Software\* is available with HP 3000 Corporate Business Systems. Software will be factory installed on disk drives contained within add-on 1.6 meter Integrated Expansion Cabinets (A1884A). Only Corporate Business Systems ordered with this cabinet are eligible to have FOS and subsystem software installed at the factory prior to shipment.

The steps below should be followed when ordering a Corporate Business System to ensure pre-installation of software:

1. On the same section of the order as the SPU, order:
  - a. one Integrated Expansion Cabinet (A1884A) with at least one disk option (HP-FL or SCSI)
  - b. MPE/iX media product 51454A with option 0D1
2. Specify a coordinated shipment
3. Order any additional Integrated Expansion Cabinets on other sections of the order

*\* DX version only. Other Performance Management software and PC software (LaserRX/MPE and RXForecast) are always shipped separately and never pre-loaded. OpenView console software (and its supporting PC software) is pre-loaded on the Vectra PC order.*

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### Note



Since the 5.4 GB HP-FL disk drives are not supported as LDEV1, the only HP-FL disk drive that can be used for factory software installation is the 2.7 GB version.

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## Hardware and Software Support

### HP 3000 Premier Account Support Program

The HP 3000 Premier Account Support Program is designed for the CS and CS DX systems and includes the following:

- 24 x 7 hardware support service level with immediate response
- An enhanced level of software support with expanded 24 x 7 software coverage
- An Account-assigned Response Center Engineer who handles daily technical problems as well as ensuring that the customer receives the highest level of remote support possible
- An enhanced level of 24 x 7 network support for the system
- Two person weeks of customer training
- An account containing on-site consulting time, so that the customer gets consulting activities focused on meeting their unique business needs. For example, a customer can receive one day every other week for account planning and general consulting, or a combination of general consulting and specialist activities over a number of days.

*Refer to Chapter 9 for details regarding the Premier Account Support.*

## Expansion Capabilities

Expansion of the CS 990 and 992 SPU is done by adding processor, memory and Dual Bus-Converter cards. These cards plug into a common backplane referred to as the Processor Memory Bus (PMB). The PMB consists of sixteen slots. Slot location rules are shown in the slot availability section of this chapter.

### Processor Expansion

The base configuration for the CS 990 and 992/100 contains one processor card. Up to three additional processor cards can be added as options or as a field upgrade. *Refer to the Product Summary section of this chapter for a list of processor options and field upgrade option structure.*

### Memory Expansion

Memory Array cards use 4 Mbit RAMs and are available in increments of 64 MB, 128 MB, and 256 MB. Up to seven additional memory cards can be added for a maximum of eight memory array cards per SPU. Interleaving is automatically achieved internally to each memory card, therefore any size memory card can be configured without having to consider memory interleaving rules. Each Memory array contains its own on board Memory Controller chip, which eliminates the need to balance memory arrays per memory controller.

The maximum memory supported is 2 GB. To achieve this memory capacity, all eight cards must be 256 MB cards. The base configuration memory supplied with the CS 990 and CS 992/100 is 192 MB (supplied as one 64 MB card and one 128 MB card). The remainder of the CS systems include 256 MB of memory (supplied with one 256 MB card).

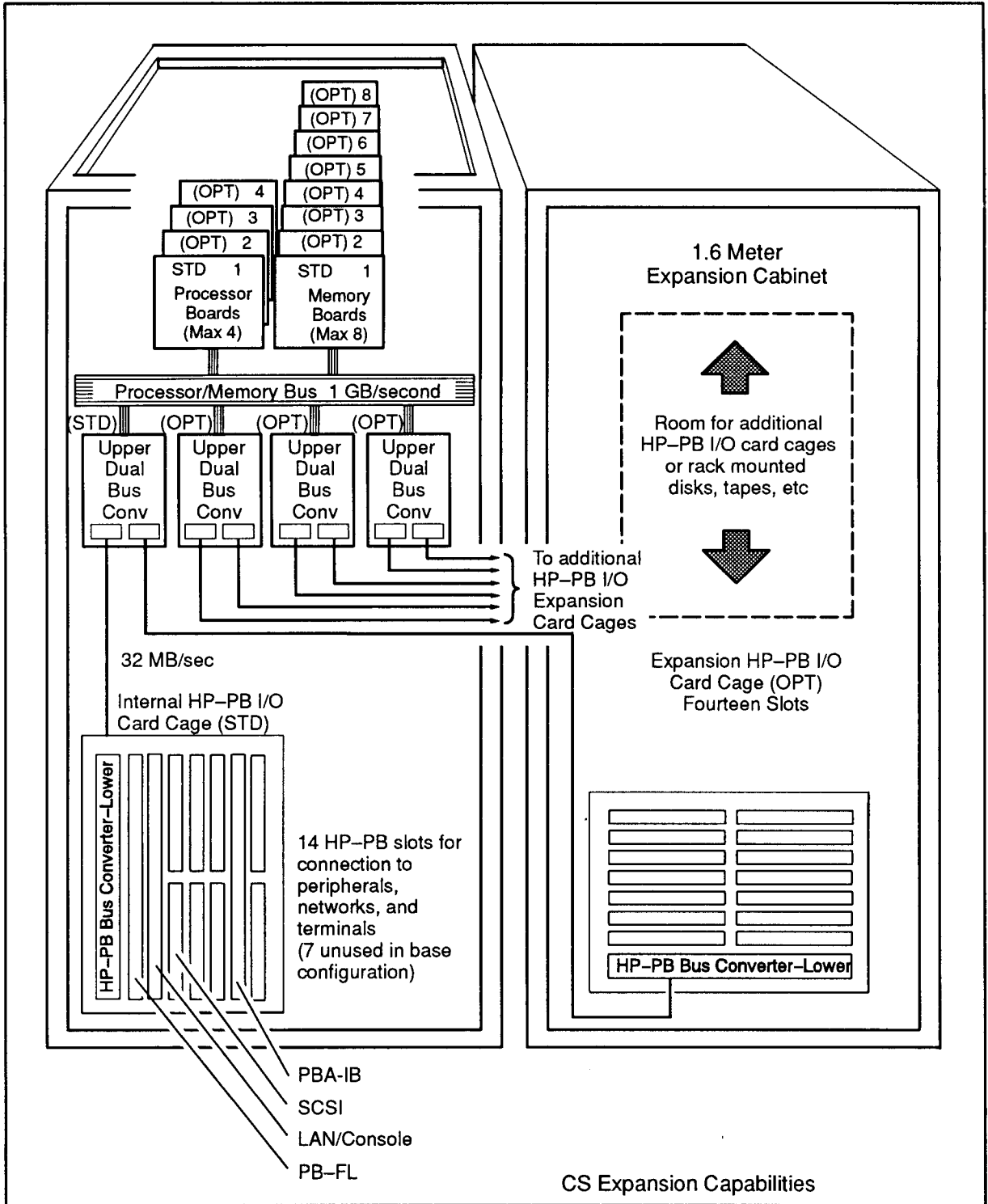
### I/O Expansion

The bus converter is a communication link between the processor/memory bus (PMB) and the HP-PB (HP Precision Bus) I/O card cages. The bus converter consists of an upper portion in the main SPU cabinet linked to a lower portion in each HP-PB I/O card cage. A maximum of four upper dual bus converters are supported by the SPU cabinet for a maximum of eight I/O card cages (one internal and seven external to the SPU cabinet). Each HP-PB I/O card cage consists of 14 HP-PB slots, therefore the CS 990 and 992 can be expanded to 112 I/O slots (eight card cages x 14 slots per card cage = 112 single-high slots).

The base SPU configuration has one HP-PB I/O card cage located at the bottom of the SPU cabinet. Seven slots are already used for base configuration I/O cards, leaving seven of the 14 slots for expansion. The base configuration I/O cards for peripheral device support consist of the following cards:

- LAN/console (multi-purpose card with connection for 802.3 LAN, internal ThinLAN Transceiver and AUI ports, serial link for console terminal, and modem link for remote access)
- one PB-FL card
- one SCSI card
- one PBA-IB card





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Seven additional HP-PB I/O card cages can be installed external to the SPU system cabinet in one or more 1.6 meter expansion cabinet units. The dual cable connecting the lower bus converter in each HP-PB I/O card cage in the 1.6 meter Expansion Cabinet and the Upper Dual Bus Converter in the SPU cabinet is 10 meters in length to allow flexibility in the placement of the expansion rack cabinets. The 10 meter HP-PB dual cable comes standard with each HP-PB I/O card cage ordered.

The first HP-PB I/O card cage added in the 1.6 meter Expansion Cabinet can be connected to the unused link port on the Dual Bus Converter Card supplied in the base configuration. The next HP-PB I/O card cage added (third total including SPU HP-PB I/O card cage) will require that an additional Dual Bus Converter Card also be ordered. That new Dual Bus Converter Card will then support the third and fourth HP-PB I/O card cages. Similarly, additional Dual Bus Converter Cards must be ordered when adding the fifth and sixth HP-PB I/O card cages.

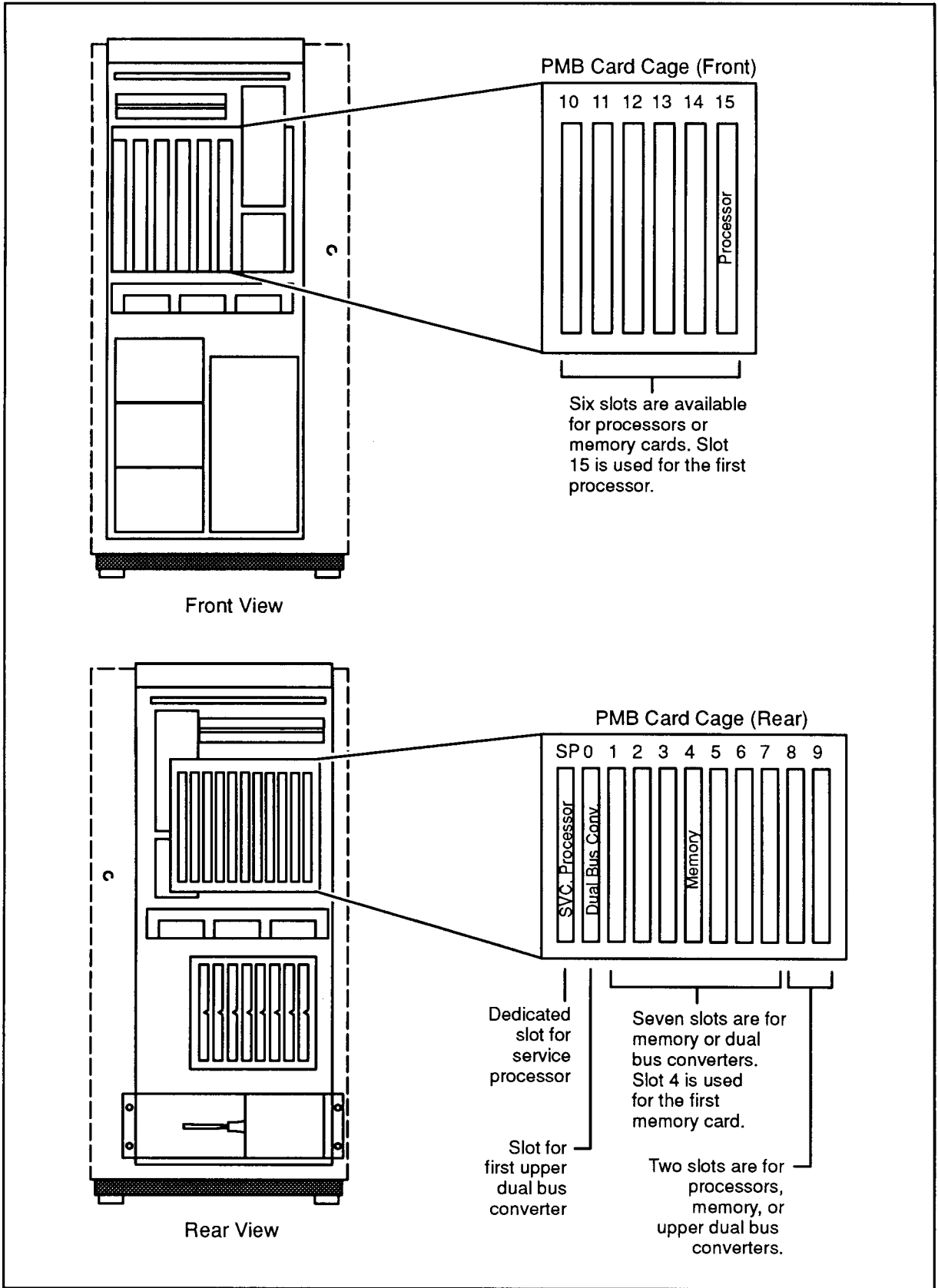
Dual Bus Converter cards are available as a standalone add-on product, product number A1829A. HP-PB I/O card cages (with Lower Bus Converter and 10 meter HP-PB dual cable) are available either as an option to the 1.6 meter Factory Integrated Expansion Cabinet (A1884A Option 250) or as a standalone add-on product (A1828A).

## **Slot Availability**

### **Processor/Memory Bus (PMB) Card Slot Availability**

There is a front and a rear PMB card cage in the upper section of the SPU system cabinet. Refer to the PMB card cage slot illustration on page 4-11. The processor, memory, and Dual Bus Converter Cards must be added in a slot priority sequence when installing cards in the Processor Card Cage. The slot priority sequence is required to maximize cooling efficiency. The front PMB card cage contains six slots (10 through 15) for installation of memory and processor cards. The first Processor Card is installed in slot 15. The rear PMB card cage contains a dedicated service processor (SP) slot and ten slots (0 through 9) are available for memory, Dual Bus Converters, or Processors. The first Memory Card is installed in slot 4 and the first Dual Bus Converter Card is in slot 0. The following maximum PMB cards are supported:

- four processor cards
- eight memory cards
- four dual bus converter cards

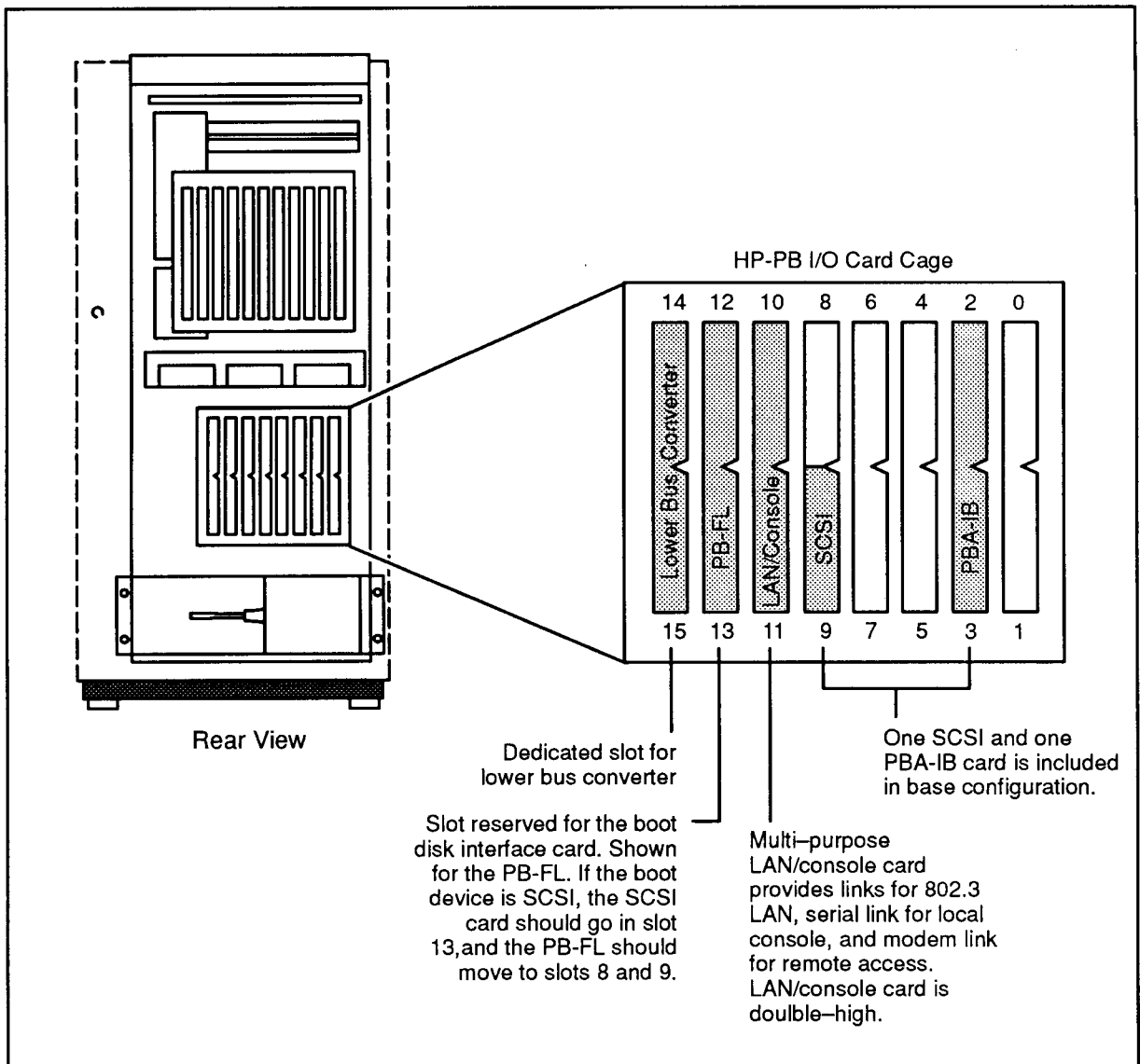


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Processor/Memory Bus (PMB) Card Cage Slots

## HP-PB I/O Card Slot Availability

One HP-PB I/O card cage is located in the base of the SPU system cabinet and includes one Lower Bus Converter Card in slots 15 and 14, leaving a total of seven double-high or 14 single-high HP-PB slots. Four I/O cards included in the base configuration occupy 7 single-high slots. Slot 13 (single-high) or 13 and 12 (double-high) should be used as the primary boot device slot (PB-FL or SCSI). The Multi-Purpose LAN/Console card is located in slots 11 and 10. The Multi-Purpose LAN/Console card provides links for the 802.3 LAN, Serial link for the local console, and a modem link for remote access. The SCSI and PBA-IB cards are also included in the base configuration in slot 9 and in slots 3 and 2. The higher the slot number the higher the priority on the HP Precision Bus.



HP-PB I/O Card Cage Slots

Up to seven additional HP-PB I/O card cages can be located in one or more 1.6 Meter Expansion Cabinet(s) (maximum of four per cabinet). It is recommended that HP-PB I/O card cages be racked starting at the base of the Expansion Cabinet working upwards. Each external HP-PB Card Cage includes one Lower Bus Converter (double-high), leaving 14 HP-PB card slots for expansion. This allows expansion of HP-PB slots from the base of fourteen slots to a maximum of 112 slots in fourteen slot increments.

### **LAN/Console Card**

One LAN/Console card is supplied standard with each Corporate Business System. This card provides:

- 802.3 LAN connection for use with both DTC and system-to-system LAN traffic
- External ThinLAN Transceiver and AUI port
- Serial link for console terminal
- Modem link for remote access

The LAN/Console card is not orderable as a separate product and is supported only in the HP-PB I/O Card Cage in the SPU. The LAN/Console card has the 802.3 LANIC and ThinLAN Transceiver built onto it. In addition, the LAN/Console card has an external Attachment Unit Interface (AUI) connector for customers who want a connection to either a ThickLAN Transceiver (30241A) or Ethertwist Transceiver (28685B). These products must be ordered separately. If a second 802.3 LANIC is needed, the HP-PB 802.3 LAN card (36923A Option 002) must be ordered.

## HP Precision Bus and Adapter

The Precision Bus (HP-PB) is used in the CS 990 and 992 systems to connect peripheral devices and data communication networks.

All supported I/O cards (connecting to peripherals) are Precision Bus (PB) cards with the exception of the HP-IB card which is a CIB card. In order to support the CIB HP-IB card on the Precision Bus, a Precision Bus Adapter (PBA) must be used. The PBA combines the CIB adapter and physical bus adapter into a single, double-high card. Only one CIB HP-IB can be connected to each PBA. The following ordering information should be used to order a PBA with or without an HP-IB card.

- PBA with CIB HP-IB card = PBA-IB (P/N A1747A)

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### Note



Customers with HP-IB cards who are interested in moving these forward should order a PBA-IB with option 001. This provides a Precision Bus Adapter. The CS 990 and 992 require a new version of PBA. Only PBAs with a revision C or later will work in the Corporate Business Systems.

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HP-PB Cards	Product Number
PB-FL	28616A
SCSI	28642A
802.5 Token Ring	J2167A
802.3 LAN	36923A opt. 002
PSI	36922A opt. 002 (NS point-to-point) 30291A opt. 002 (SNA/SDLC link) 32007A opt. 002 (BSC link)

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### Note



The PBA-FL is not supported on the Corporate Business Systems.

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## HP-PB I/O Card Cage Performance Guidelines

The maximums stated in this table are to optimize system performance. These values should not be confused with the maximum number of cards supported on page 4-1. To optimize system performance, the following HP-PB I/O guidelines are recommended:

I/O Card	Slot Height	Maximum I/O Cards per HP-PB Card Cage	Maximum Devices per I/O Card	Maximum I/O Cards per System
PB-FL	double-high	5 <sup>1</sup>	5	Refer to "Power Budget Worksheet"
SCSI	single-high	5 <sup>1</sup>	5	Refer to "Power Budget Worksheet"
PBA-IB	double-high	2	4	Refer to "Power Budget Worksheet"
802.3 LANIC	single-high	N/A	N/A	2 <sup>2</sup>
802.5 Token Ring	single-high	N/A	N/A	1
LAN/Console	double-high	N/A	N/A	1
PSI	single-high	N/A	N/A	8

<sup>1</sup>A maximum of 5 connections for SCSI and a maximum of 5 connections for PB-FL. Remaining slots can be used for any other non-disk activity as long as power limits are not violated. This limit applies to single disks as well as disk arrays.

<sup>2</sup> First 802.3 LANIC standard on LAN/Console card.

*Boot disk - system performance may be enhanced by separating system software and user data on separate disk arrays.*

## HP-PB I/O Card Cage Power and Space Budgeting

The HP-PB I/O Power Budgeting Worksheet on the following page will determine the supportability of a proposed HP-PB I/O configuration. The worksheet will ensure that the proposed total power consumption of all the cards in the I/O card cage does **not** exceed the total power available and that the available slots have not been exceeded. Use the worksheet as follows:

1. Enter the proposed configuration in the quantity column and multiply the quantity entered in each row by the value given in each of the three “Power Req./Card” columns. Put the result in the appropriate “Total Power Required” column.
2. Sum each column and compare the results with the three voltage power limits for each HP-PB I/O being used.
3. The total power used for all three voltages must not exceed 222.82 watts.

---

### Caution



It is possible to configure a combination of cards that is within the power limits per a specific voltage, yet exceed the total available from the card cage power supply.

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### HP-PB I/O Card Cage Power and Space Budgeting Worksheet

I/O Card	Qty	Power Requirements per I/O Card (watts)			Total Power Required (watts)			Slots/ Card	Total Slots Used
		+12V	+5V	-12V	+12V	+5V	-12V		
LAN/Console <sup>1,2</sup> (ThinLAN)		0.40	14.20	0.40				2	
LAN/Console <sup>2</sup> (Ethernut or ThickLAN)		6.60	14.20	0.40				2	
PB-FL <sup>1</sup>		0.48	19.65	0.60				2	
SCSI <sup>1</sup>		0.00	4.50	0.00				1	
PBA-IB <sup>1</sup> (HP-IB)		1.13	27.50	0.66				2	
802.3 LAN		6.00	10.65	0.00				1	
802.5 Token Ring		0.00	8.30	0.00				1	
PSI		.98	12.00	1.07				1	
Sum of power used per voltage: (Must not exceed total below)								Total slots used <hr style="width: 50px; margin: 0 auto;"/> (Must not exceed 14)	
Maximum power available per voltage in HP-PB I/O card cage					71.64	161.58	23.64		
Total power used for +12V, +5V, -12V (Must be less or equal to 222.82 watts)									
<p><sup>1</sup>I/O cards included in base configuration.</p> <p><sup>2</sup>Refer to page 4-13 for a description of the LAN/Console card</p> <p>Note: The total rating of the power supply includes the bus converter card.</p>									

## Expansion Cabinet Racking

The HP 3000 Corporate Business System (CS) 99x supports the 1.6 Meter Expansion Cabinet for racking disks, tapes, Distributed Terminal Controllers (DTCs) and additional HP-PB I/O card cages. This is the same 1.6 Meter Cabinet that is supported on the 9x7 systems. The 1.6 Meter Cabinet provides 32 EIA (Electronic Industries Association) units of rack space (one EIA unit = 1.75 inches). Each component occupies a specific number of EIA units.

### How to Order Cabinets and Peripherals

Cabinets can be ordered as a Factory Integrated product or as a Standalone product. The Factory Integrated Cabinet provides a choice of peripherals as options to the cabinet which are rack-mounted at the factory. Additional separate peripherals can be ordered as add-on products to the cabinet and rack-mounted at the customer site by a Customer Engineer (CE). The Standalone Cabinet and peripherals are both ordered as separate products. The Standalone Cabinet arrives unracked and all peripherals are rack-mounted into the cabinet at the customer site by a Customer Engineer.

### Supported Racked Components

The Corporate Business System cabinet supports a variety of disk drives, tape drives, DTCs and the HP-PB I/O Card Cage. Combinations of supported products are limited only by space inside the cabinet and 16-amp maximum current limit. Factory Integrated Cabinets have been structured so that all orderable configurations will not exceed the 16-amp maximum current limit. When configuring cabinets to be installed in the field the configuration should be checked to ensure it does not exceed 16-amp maximum current limit.

#### Components Supported in the 1.6 Meter Cabinets

Product Number	Description	EIA Units	Required Mounting Hardware	Current Consumption	
				120 VAC	208 - 240 VAC
<b>Tape Drives</b>					
7979A <sup>1</sup>	1/2-inch tape drive	5	opt. 1A4 and three C2790A ballasts	2.81 A	1.46 A
7980A <sup>1</sup>	1/2-inch tape drive	5	opt. 1A4 and three C2790A ballasts	2.81 A	1.46 A
7980XC <sup>1</sup>	1/2-inch tape drive	5	opt. 1A4 and three C2790A ballasts	2.81 A	1.46A
4280 <sup>2</sup>	1/2-inch cartridge tape (Model A02)	6	Included	4.1 A	2.08 A
<b>Series 6000 SCSI Multi-Mechanism Package (also available as integrated cabinet option)</b>					
C2462R	1.3 GB disk	4	Included	2.6 A	1.5 A
C2464R	2 GB DDS	4	Included	2.6 A	1.5 A
C2465R	Two SCSI 2 GB DDS	4	Included	2.6 A	1.5 A
<sup>1</sup> Three anti-tip ballasts (C2790A) are required for one or more 1/2-inch tape drive mechanism <sup>2</sup> Stacker requires ten inch clearance above and below tape drive. Therefore, any devices racked above or below the 4280 must not have front panel accessibility.					

### Components Supported in the 1.6 Meter Cabinets (cont.)

Product Number	Description	EIA Units	Required Mounting Hardware	Current Consumption	
				120 VAC	208 - 240 VAC
<b>HP-FL Disk Array<sup>3</sup></b>					
C2252HA	2.72 GB high availability disk array	6	Included	4.0 A	2.0 A
C2254HA	5.44 GB high availability disk array	6	Included	4.0 A	2.0 A
C2252B	2.72 GB disk array with 2 disks	6	Included	4.0 A	2.0 A
C2254B	5.44 GB disk array with 4 disks	6	Included	4.0 A	2.0 A
<b>Data Terminal Connects</b>					
2340A	DTC16	6	35199E	2 A	1 A
2345A	DTC48	6	C2799A	2 A	1 A
<b>Expansion Modules</b>					
A1828A	HP-PB I/O Expansion Module	7	Included	N/A	3.0 A
<b>Filler Panels</b>					
40101A/2A/3A/4A/5A/6A/7A - 1 to 7 filler panels					
<sup>3</sup> If HP-FL disk is the bottom-most racked device in the cabinet, add two EIA space units. This will allow ample space for cables coming into the bottom of the cabinet.					

### Factory Integrated Expansion Cabinet

For quick, easy ordering, and installation, the Factory Integrated Expansion Cabinet (A1884A) is the desired racking choice. The integrated cabinet contains options for SCSI disk or SCSI disk/tape, PB-FL disk, DTCs, and HP-PB I/O Card Cages. An integrated cabinet with an option for a disk allows software and subsystem software to be pre-loaded at the factory.

Certain add-on peripherals NOT in the Integrated Expansion Cabinet product structure can be installed at the customer site. (These include Series 6000 SCSI DDS, 7980, 7980XC tape drives, and 4280 cartridge tape drives.) Peripherals that are part of the Integrated Expansion Cabinet can also be ordered later as standalone and installed at the customer site. Refer for page 4-23 for a list of orderable products. Refer to the "Factory Integrated Expansion Cabinet Racking Configuration Worksheet" for a list of supported options and add-on peripherals and their EIA units.

## Product Structure

### Integrated Expansion Cabinet Product Structure

Product Number	Description
A1884A	1.6 meter cabinet (32 EIA units) same as for 9x7 family
ABA	U.S. 200V - 240V power
ABB	European 200V - 240V power
201	Add 1.3 GB Series 6000 SCSI disk
202	Add 2.7 GB Series 6000 SCSI disk
203	Add 4.0 GB Series 6000 SCSI disk
212	Add 2.7 GB Series 6000 SCSI disk and one DDS tape drive
230	Add high availability 5.4 GB HP-FL disk array
231	Add 5.4 GB HP-FL disk array without parity
232	Add high availability 2.7 GB HP-FL disk array
233	Add 2.7 GB HP-FL disk array without parity
250	HP-PB I/O Card Cage
316	DTC with 16 direct connect ports
324	DTC 48 with 24 direct connect ports
331	DTC 48 with 24 direct and 6 modem connect ports
346	DTC 48 with 40 direct and 6 modem connect ports
348	DTC 48 with 48 direct connect ports

### Integrated Cabinet Racking Configuration Worksheet

The Factory Integrated Expansion Cabinet Racking Configuration Worksheet (following page) illustrates the integrated expansion cabinet options and add-on products. Use the worksheet to determine supportability of the proposed peripheral and HP-PB I/O Card Cage Racking Configuration. Use the worksheet as follows:

1. After entering the proposed configuration in the quantity column, multiply the quantity entered for each peripheral and card cage by the EIA number given for each component.
2. Sum all of the components to ensure that the total EIA units are less than or equal to 32. If more than 32 EIA units an additional Expansion cabinet must be ordered.

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#### Note



If add-on peripherals are ordered with the Factory Integrated Expansion Cabinet, ensure that enough unracked space is left to install additional peripherals.

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## Factory Integrated Expansion Cabinet Racking Configuration Worksheet

	Component	Quantity		EIA Units		Vertical Space Required (EIA units)
I.	<p>A1884A 1.6 meter cabinet The A1883A 1.1 meter cabinet is not available for the CS 990 and 992 systems. Filler panels to cover unused space will be installed automatically at the factory for integrated cabinet products.</p> <p><b>Power Options:</b> ABA - Adds U.S. 200V - 240V power ABB - Add European 200V - 240V power</p> <p><b>Disk Options:</b> Option 201 - Adds 1.3 GB Series 6000 SCSI disk _____ X 4 = _____ Option 202 - Adds 2.7 GB Series 6000 SCSI disk _____ X 4 = _____ Option 203 - Adds 4.0 GB Series 6000 SCSI disk _____ X 4 = _____ Option 212 - Adds 2.7 GB Series 6000 SCSI disk and one DDS tape drive _____ X 4 = _____ Option 230 - Adds 5.4 GB HP-FL high availability disk _____ X 6 = _____ Option 231 - Adds 5.4 GB HP-FL disk without parity _____ X 6 = _____ Option 232 - Adds 2.7 GB HP-FL high availability disk _____ X 6 = _____ Option 233 - Adds 2.7 GB HP-FL disk without parity _____ X 6 = _____</p> <p><b>DTC Options:</b> Option 316 - Adds DTC 48 with 16 local ports _____ X 6 = _____ Option 324 - Adds DTC 48 with 24 local ports _____ X 6 = _____ Option 330 - Adds DTC 48 with 24 local, 6 remote ports _____ X 6 = _____ Option 346 - Adds DTC 48 with 40 local, 6 remote ports _____ X 6 = _____ Option 348 - Adds DTC 48 with 48 local ports _____ X 6 = _____</p> <p><b>HP-PB I/O Card Cage:</b> Option 250 - Adds HP-PB I/O card cage with 14 single-high card slots, 10 meter HP-PB Dual Cable, and lower bus converter _____ X 7 = _____</p>					
II.	<p>Add-on peripherals Not factory racked. Filler panels and rackmount kits must be ordered for add-on products. See following page for details.</p> <p>7980/7980XC tape drives<sup>1,3</sup> _____ X 5 = _____ Series 6000 SCSI DDS and disk _____ X 4 = _____ HP-FL disk arrays _____ X 6 = _____ 4280<sup>2</sup> - Cartridge Tape Drive (without stacker) _____ X 6 = _____</p>					
III.	<p>Total EIA Units (must be ≤32) _____ = _____</p> <p>If number of EIA units is greater than 32, more than one cabinet is required</p>					
<p><sup>1</sup>Refer to the Peripheral section for information on these devices <sup>2</sup>Stacker requires ten inch clearance above and below tape drives, therefore devices racked above or below the 4280 must not have front panel accessibility <sup>3</sup>Three anti-tip ballasts (C2790A) are required for one or more 1/2-inch tape drive mechanisms</p>						

## Standalone Expansion Cabinet

A Standalone Expansion Cabinet (C2786A) is available for customers who decide to order all peripherals and HP-PB I/O Card Cages separately. When configuring an expansion cabinet, ensure that all appropriate components (filler panels and peripheral rack mounting kits) are ordered to successfully complete racking and that the configuration does not exceed the 16-amp current limit of the cabinet. *Refer to page 4-18 for a table of supported components.* The Standalone Cabinet arrives unracked and all peripherals are rack-mounted into the cabinet at the customer site by a Customer Engineer. Refer to the “Standalone Expansion Cabinet Configuration Worksheet” for a list of supported components along with their EIA space units.

### Standalone Expansion Cabinet Product Structure

Product Number	Description
C2786A	1.6 meter cabinet (32 EIA units) same as for 9x7 family
ABA	200V - 240V with U.S. power cord
ABB	200V - 240V with European power cord
1F9	Add six 1-unit filler panels
1FC	Front door (can be locked for security purposes)

### Standalone Cabinet Racking Configuration Worksheet

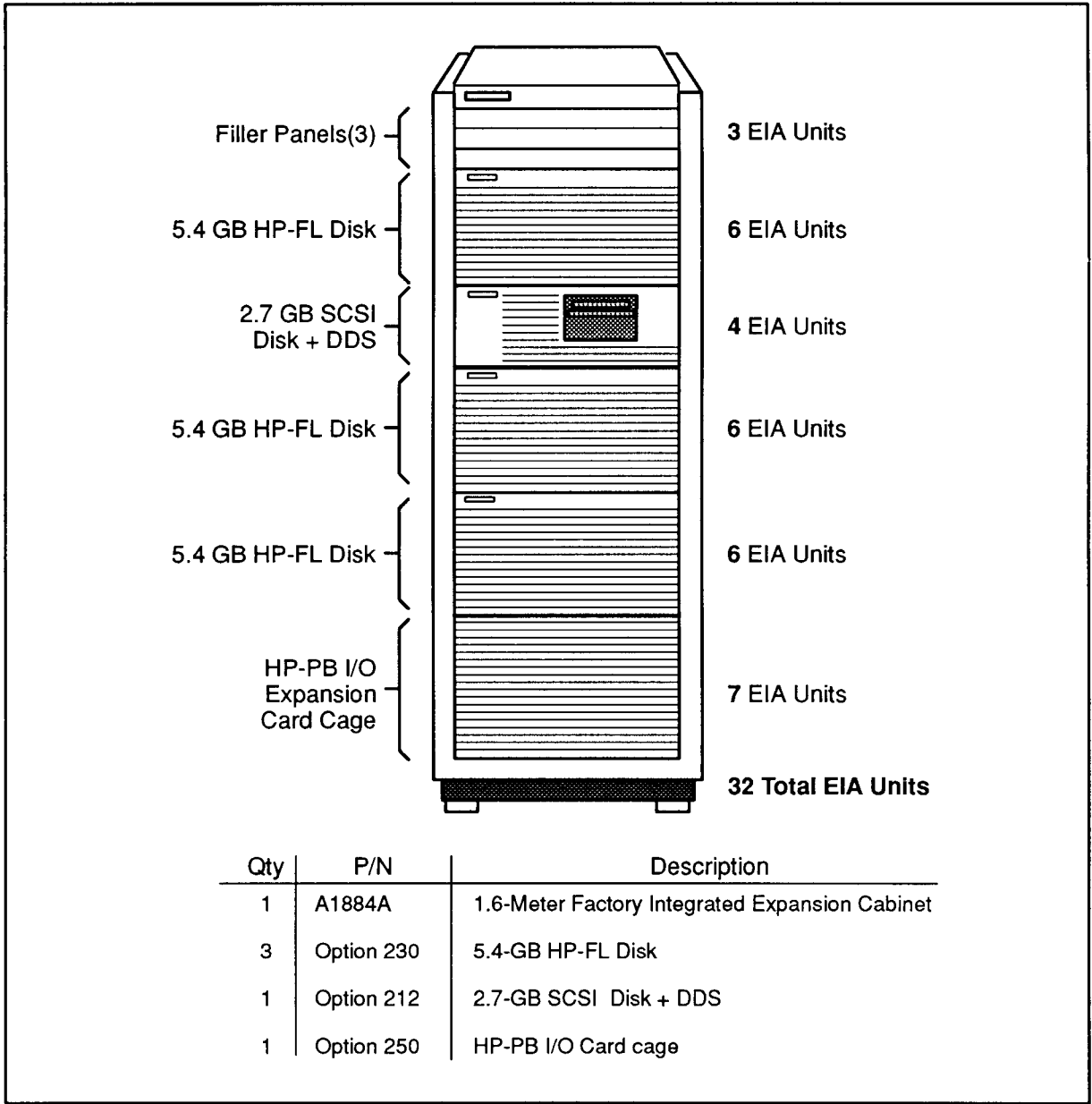
Use the racking configuration worksheet on the following page to determine supportability of the proposed peripheral and HP-PB I/O Card Cage Configuration. Use the worksheet as follows:

1. After entering the proposed configuration in the quantity column, multiply the quantity entered for each peripheral and card cage by the EIA number given for each component.
2. Sum all the components to ensure that the total EIA units are less than or equal to 32. If more than 32 EIA units an additional Expansion Cabinet must be ordered.
3. Sum the current requirements of all components to ensure the 16-amp current limit is not exceeded. Refer to page 4-18 for a table of components supported and their current consumption.

The Standalone Expansion Cabinet Racking Configuration Worksheet illustrates the standalone cabinet products.

## Standalone Expansion Cabinet Racking Configuration Worksheet

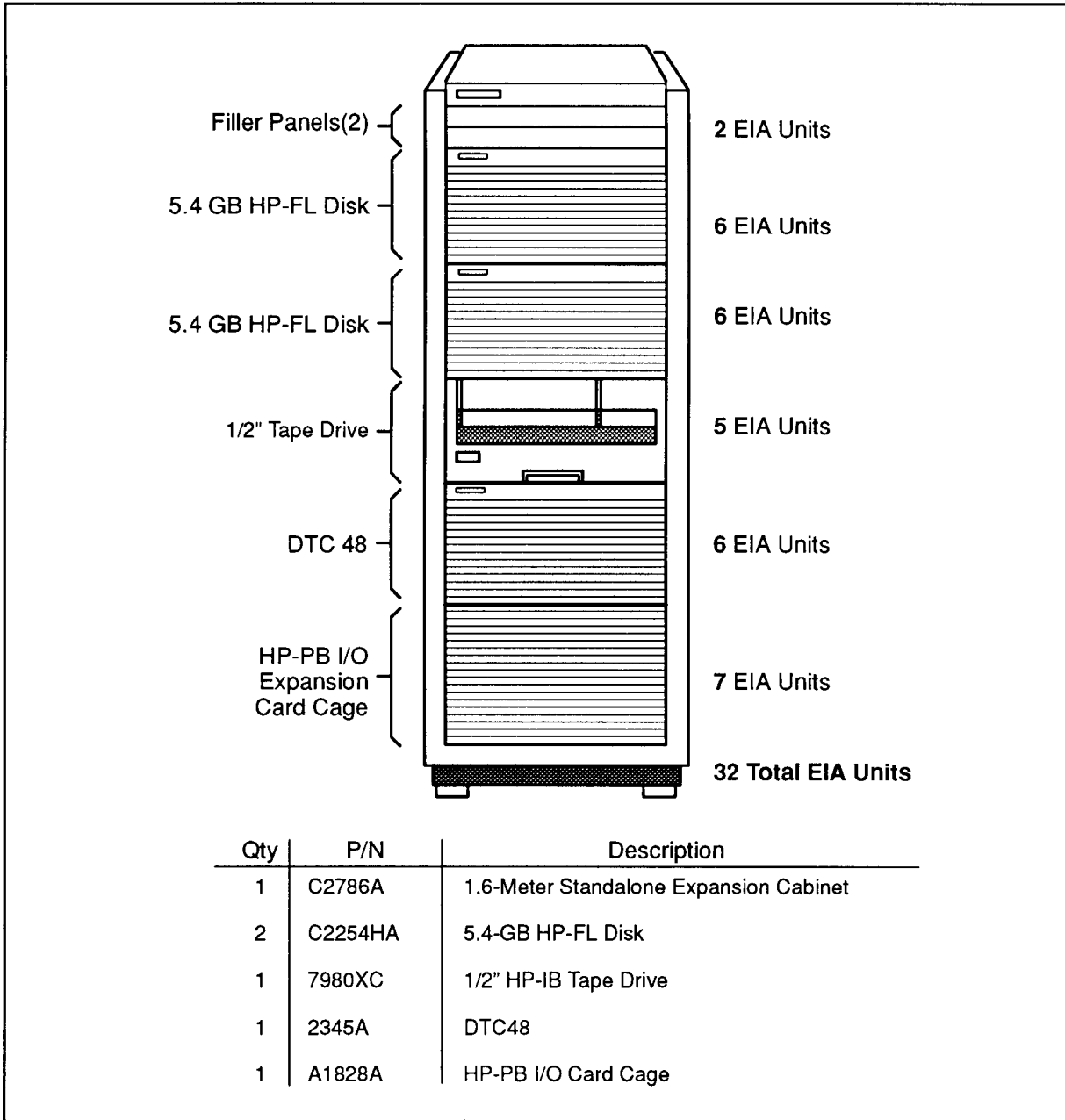
	Component	Quantity		EIA Units		Vertical Space Required (EIA units)
I.	C2786A 1.6 meter racking cabinet The C2785A 1.1 meter cabinet is not available for the CS 990 and CS 992 systems. Filler panels to cover unused space must be ordered separately.					
	<b>Power Cords:</b>					
	ABA - Adds U.S. 200V - 240V power cord					
	ABB - Adds European 200V - 240V power cord					
	<b>Disk Products:</b>					
	C2462R - Adds 1.3 GB Series 6000 SCSI disk	_____	X	4	=	_____
	C2464R - Adds SCSI 2 GB DDS	_____	X	4	=	_____
	C2465R - Adds two SCSI 2 GB DDS	_____	X	4	=	_____
	C2252HA,B - Adds 2.7 GB HP-FL array	_____	X	6	=	_____
	C2254HA,B - Add 5.4 GB HP-FL array	_____	X	6	=	_____
	Add two EIA unit panels if HP-FL disk is the bottom-most racked device in cabinet. (Allows room for cables.)					
	Racking hardware for ALL disks is included.					
	<b>Tape Drives:</b>					
	7980A <sup>1</sup> - Adds 1/2-inch HP-IB tape drive	_____	X	5	=	_____
	7980XC <sup>1</sup> - Adds 1/2-inch HP-IB tape drive data compression	_____	X	5	=	_____
	Racking hardware for ALL 7980/7980XC tapes is 1A4.					
	4280 <sup>2</sup> - 1/2-inch Cartridge Tape Drive without stacker (Racking hardware for 4280 is included)	_____	X	6	=	_____
	<b>DTC Products:</b>					
	2345A - Adds DTC 48 with 16 local ports	_____	X	6	=	_____
	Racking hardware for DTC 48 is C2799A.					
	<b>HP-PB I/O Card Cage:</b>	_____	X	7	=	_____
	A1828A - Adds HP-PB I/O Card Cage with 14 single-high card slots, 10 meter HP-PB dual cable, and lower bus converter					
	Racking hardware for HP-PB I/O card cage is included.					
II.	Total EIA Units (must be $\leq 32$ )				=	_____
	If number of EIA Units is greater than 32, more than one cabinet is required					
III.	Filler Panels					
	1F9 - Adds six 1 EIA unit filler panels					
	A40101A - A40107A - Adds up to 7 filler panels					
	Racking hardware for DDS is included.					
	<sup>1</sup> Three anti-tip ballasts (C2790A) are required for one or more 1/2-inch tape drive mechanisms					
	<sup>2</sup> Stacker requires ten inch clearance above and below tape drive, therefore devices racked above or below the 4280 must not have front panel accessibility					



LG200205\_013

1.6 Meter Factory Integrated Expansion Cabinet Configuration Example





LG200205\_014

### 1.6 Meter Standalone Expansion Cabinet Configuration Example

#### Note



This configuration requires the following racking hardware:

- C2799A - DTC
- 7980XC option 1A4

## **Cabling and Racking Configuration Guidelines**

To ensure that peripheral devices and corresponding 1.6 Meter Expansion Cabinets are configured correctly, interconnect cable length limits must be adhered to.

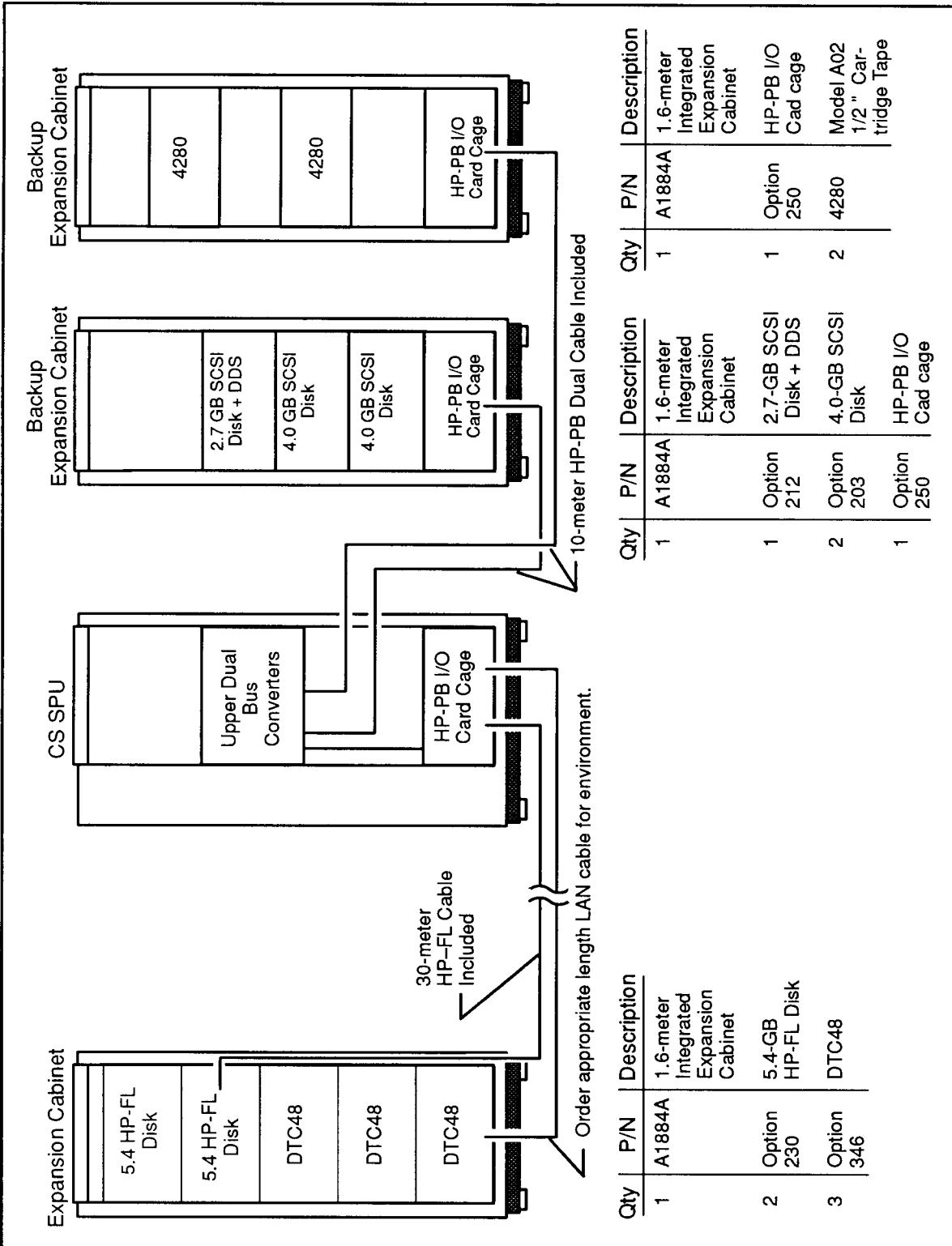
### **CS Illustrated Racking Configuration Example**

The illustrated configuration on page 4-27 is an example of a CS 990/992 system racking arrangement as dictated by cable length limits. The system consists of one SPU cabinet and one cabinet for disk drives and DTCs, and two backup cabinets.

The SPU cabinet houses the HP-PB I/O Card Cage for the Expansion Cabinet to the left of the SPU in the illustration. The racked components in the cabinet are HP-FL 5.4 GB disks and DTC48s. The Fiber Link interface card ships standard with a 30 meter cable. A custom length cable of up to 500 meters can be ordered if required. The cable for connection of the LAN card to the DTC ships standard with a length of 4 meters. A custom length DTC cable can be ordered for extended lengths. The custom length cables for the HP-FL and DTC mentioned above allow flexible racking configurations and distances between Expansion Cabinets.

The two cabinets to the right of the SPU cabinet (each containing SCSI devices) house their own HP-PB I/O Card Cage. The card cages are racked in each Expansion Cabinet to bypass the limited cable length of 2.5 meters between the SCSI card and the first SCSI device. The SCSI cable provided with the base CS SPU is 2.5 meters. To resolve the distance restriction, an HP-PB I/O Card Cage can be mounted in each expansion cabinet (as shown in the illustration) to allow the use of a 10 meter HP-PB Dual Cable.

A SCSI Bus has a maximum supported cable length of 6 meters, including internal, interconnect, and external cables of SCSI devices. In order to connect a SCSI card housed in the Expansion Cabinet, no more than a maximum of 2 Series 6000 multi-mechanism packages can be racked and still remain within the 6 meter length (each Series 6000 package utilizes 1.5 meters internal cable length and .5 meters of interconnect cabling for “daisy chaining” of SCSI packages). If a greater separation distance is required between the SPU and the expansion cabinet housing the SCSI devices, then the HP-PB I/O Card Cage containing the SCSI should be in the same cabinet as the SCSI device. Refer to the “SCSI Racking Examples” in this section for additional racking examples.



Qty	P/N	Description
1	A1884A	1.6-meter Integrated Expansion Cabinet
2	Option 230	5.4-GB HP-FL Disk
3	Option 346	DTC48

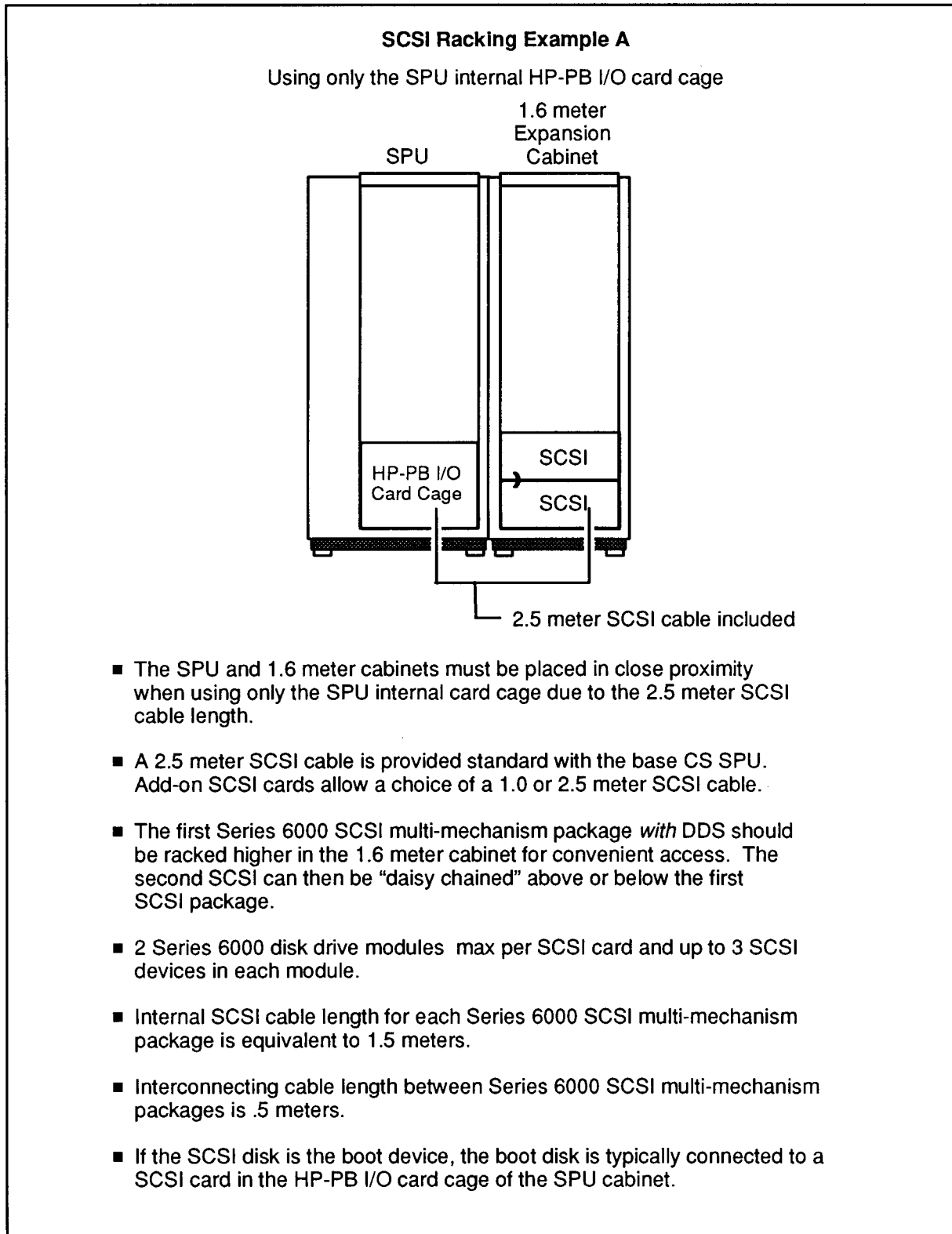
Qty	P/N	Description
1	A1884A	1.6-meter Integrated Expansion Cabinet
1	Option 212	2.7-GB SCSI Disk + DDS
2	Option 203	4.0-GB SCSI Disk
1	Option 250	HP-PB I/O

Qty	P/N	Description
1	A1884A	1.6-meter Integrated Expansion Cabinet
1	Option 250	HP-PB I/O Cad cage
2	4280	Model A02 1/2" Cartridge Tape

LG200205\_012

CS 990/992 Illustrated Racking Configuration Example

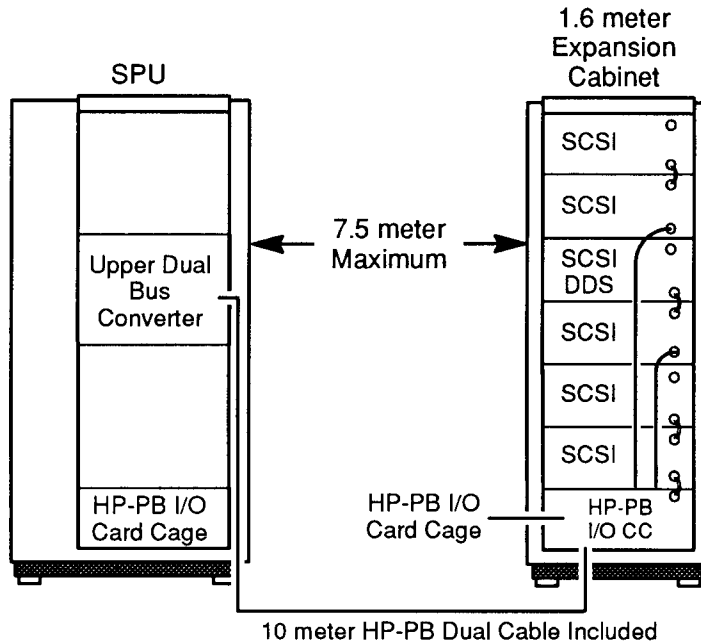
## SCSI Racking Examples



LG200205\_010

### SCSI Racking Example B

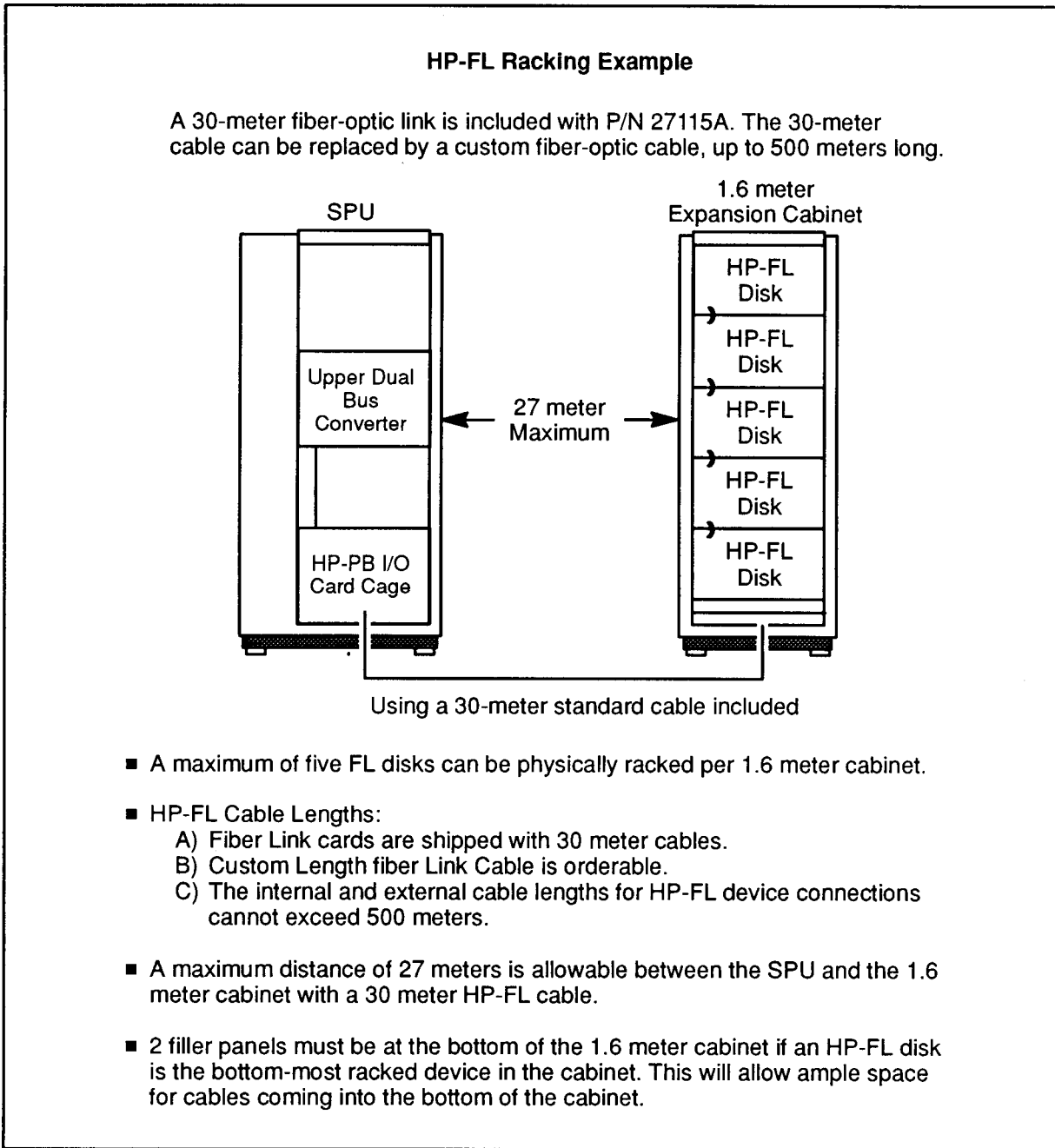
Using the expansion cabinet HP-PB I/O card cage at the bottom of the 1.6 meter expansion cabinet.



- A maximum distance of 7.5 meters is allowable between the SPU and 1.6 meter cabinet when using an HP-PB I/O card cage at the bottom of the 1.6 meter cabinet.
- A 2.5 meter SCSI cable is provided standard with the base CS SPU. Add-on SCSI cards allow a choice of a 1.0 or 2.5 meter SCSI cable.
- SCSI devices, such as DDS, should be racked higher in the 1.6 meter cabinet for convenient access. The second SCSI can then be "daisy chained" above or below the first SCSI device.
- Multiple SCSI interface cards can be installed to connect up to 6 SCSI modules per expansion cabinet.
- Internal SCSI cable length for each Series 6000 SCSI multi-mechanism package is equivalent to 1.5 meters.
- Interconnecting cable length between Series 6000 SCSI multi-mechanism packages is .5 meters.

LG200205\_011

## HP-FL Racking Example



LG200205\_008

### **SCSI Extender Guidelines**

The SCSI extender (P/N 28643A) is only recommended for customers who must have greater cabling flexibility than the 6-meter SCSI cable length provides.

The SCSI extender is supported for use with the Rewriteable Optical Autochangers and the HP 5000 High End Printer only. The extender is available in 50-meter and 100-meter cable lengths. The SCSI extender has performance implications when used with SCSI devices that are asynchronous. The Optical Autochangers have asynchronous interfaces and therefore performance can be impacted by as much as 50%. The F100 printer has a synchronous interface and therefore should see little performance degradation when connected to the extender.

## Product Summary

### A1809A Product Structure

#### A1809A Product Structure

Product Number	Description
A1809A	<p>HP 3000 Corporate Business System DX with MPE/iX Fundamental Operating Software, TurboIMAGE/XL, ALLBASE/SQL</p> <p>Additional Standard System Software includes: Systems Management Software</p> <ul style="list-style-type: none"> <li>■ TurboSTORE/XL II with on-line backup for Rewritable Optical Disk, 1/2-inch tape and DDS</li> <li>■ AutoRestart/XL</li> <li>■ HP OpenView console software</li> <li>■ ThinLAN 3000/XL</li> <li>■ Management Node Software for the OpenView console</li> </ul> <p>Performance Management Software</p> <ul style="list-style-type: none"> <li>■ HP LaserRX/MPE</li> <li>■ RX Forecast</li> <li>■ GlancePLUS/XL</li> </ul> <p>Standard Integrated Hardware includes:</p> <ul style="list-style-type: none"> <li>■ Central processing unit and SPU cabinet</li> <li>■ Error correcting memory with on-board memory controllers</li> <li>■ LAN/Console card (multi-purpose card with connections for 802.3 LAN, integrated ThinLAN Transceivers and AUI port, serial link for console terminal, and modem link for remote access)</li> <li>■ Power supplies</li> <li>■ Integrated powerfail battery backup system</li> <li>■ Small computer system interface (SCSI) card cable and terminator</li> <li>■ HP-IB interface with precision bus adapter (PBA-IB)</li> <li>■ PB-FL fiber-optic link peripheral interface card</li> <li>■ Internal HP-PB (Precision Bus) I/O card cage with 7 remaining single-high card slots available (of 14 available slots, SCSI uses 1, PB-FL uses 2, PBA-IB uses 2, and LAN/Console uses 2)</li> <li>■ Floating-point coprocessor on each processor card</li> <li>■ OpenView console PC</li> </ul>



## A1809A Option Structure

### A1809A Option Structure

Option Number	Description
<b>Processor</b> (Must order one)	
880	HP 3000 Corporate Business System 990 DX with 192 MB Main Memory with a Class/Concurrent License to use MPE/iX on HP 3000 CS 990 by 1-160 users
881	HP 3000 Corporate Business System 992/100 with 192 MB Main Memory with a Class/Concurrent License to use MPE/iX on HP 3000 CS 992/100 DX by 1-160 users
882	HP 3000 Corporate Business System 992/200 with 256 MB Main Memory with a Class/Concurrent License to use MPE/iX on HP 3000 CS 992/200 DX
883	HP 3000 Corporate Business System 992/300 with 256 MB Main Memory with a Class/Concurrent License to use MPE/iX on HP 3000 CS 992/300 DX
884	HP 3000 Corporate Business System 992/400 with 256 MB Main Memory with a Class/Concurrent License to use MPE/iX on HP 3000 CS 992/400 DX
<b>Memory</b>	
502	Replace 192 MB with 256 MB
503	Add 64 MB
504	Add 128 MB
505	Add 256 MB
506	Add 384 MB
507	Add 512 MB
508	Add 640 MB
509	Add 768 MB
<b>Power</b> (Must order one)	
017	200-240 VAC (L-N) / 346-416 VAC (L-L) 50/60 Hz
018	200-220 VAC 50/60 Hz

### A1809A Option Structure (continued)

Option Number	Description
<b>Box Swap Upgrade</b>	
704	Return MICRO 3000, 3000LX
705	Return MICRO 3000GX, 3000RX
706	Return MICRO 3000XE
707	Return Series II, III, 30, 33, 37, 37XE
708	Return HP 250/260
709	Return Series 39, 40, 42, 44, 48
710	Return Series 42XP, 52, 58
711	Return Series 64, 68
712	Return Series 70
713	Return Series 920 or 917LX
714	Return Series 925LX
715	Return Series 922LX or 927LX
716	Return Series 925, 922RX, 922, or 937LX
717	Return Series 935, 932, 947LX, or 937
718	Return Series 949, 948
719	Return Series 955, 967LX
720	Return Series 960, 958
721	Return Series 950, 947, or 957LX
722	Return Series 957
723	Return Series 967
724	Return Series 977
725	Return Series 980/100
726	Return Series 980/200
727	Return Series 980/300
728	Return Series 980/400

**A1809A Option Structure (continued)**

Option Number	Description
<b>Console Localization</b>	
ABA	U.S. English localized keyboard, power cord
ABB	English/Europe localized keyboard, power cord
ABD	German localized keyboard, power cord, manuals
ABE	Spanish localized keyboard, power cord
ABF	French localized keyboard, power cord, manuals
ABG	Australian power cord, US keyboard, English manuals
ABH	Dutch localized keyboard, power cord, English manuals
ABM	Spanish-Latin American localized keyboard, US power cord
ABN	Norwegian localized keyboard, power cord, English manuals
ABP	Swiss-German localized keyboard, power cord
ABQ	Swiss-French localized keyboard, power cord
ABS	Swedish localized keyboard, power cord
ABU	English (UK) localized keyboard, power cord
ABW	Flemish localized keyboard, power cord
ABX	Finnish localized keyboard, power cord, English manuals
ABY	Danish localized keyboard, power cord, English manuals
ABZ	Italian localized keyboard, power cord
<b>Software Delete</b>	
910	Delete TurboIMAGE
915	Delete SQL
920	MPE only
931	Delete Systems Management Software and OpenView PC console
932	Delete Performance Management Software
<b>User License</b>	
UAT	Upgrade to Unlimited User License on CS 990 DX and CS 992/100 DX

## A1811A Product Structure

### A1811A Product Structure

Product Number	Description
A1811A	<p>HP 3000 Corporate Business System with MPE/iX Fundamental Operating Software, TurboIMAGE/XL, ALLBASE/SQL</p> <p>Standard integrated hardware includes:</p> <ul style="list-style-type: none"> <li>■ Central processing unit and SPU cabinet</li> <li>■ Error correcting memory with on-board memory controllers</li> <li>■ LAN/Console card (multi-purpose card with connections for 802.3 LAN, integrated ThinLAN Transceivers and AUI port, serial link for console terminal, and modem link for remote access)</li> <li>■ Power supplies</li> <li>■ Integrated powerfail battery backup system</li> <li>■ Small computer system interface (SCSI) card cable and terminator</li> <li>■ HP-IB interface with precision bus adapter (PBA-IB)</li> <li>■ PB-FL fiber-optic link peripheral interface card</li> <li>■ Internal HP-PB (Precision Bus) I/O card cage with 7 remaining single-high card slots available (of 14 available slots, SCSI uses 1, PB-FL uses 2, PBA-IB uses 2, and LAN/Console uses 2)</li> <li>■ Floating-point coprocessor on each processor card</li> <li>■ HP 700/96 console display with interconnect cable and software phosphor</li> </ul>

## A1811A Option Structure

### A1811A Option Structure

Option Number	Description
<b>Processor</b> (Must order one)	
880	HP 3000 Corporate Business System 990 with 192 MB Main Memory with a Class/Concurrent License to use MPE/iX on HP 3000 CS 990 by 1-160 users
881	HP 3000 Corporate Business System 992/100 with 192 MB Main Memory with a Class/Concurrent License to use MPE/iX on HP 3000 CS 992/100 by 1-160 users
882	HP 3000 Corporate Business System 992/200 with 256 MB Main Memory with a Class/Concurrent License to use MPE/iX on HP 3000 CS 992/200
883	HP 3000 Corporate Business System 992/300 with 256 MB Main Memory with a Class/Concurrent License to use MPE/iX on HP 3000 CS 992/300
884	HP 3000 Corporate Business System 992/400 with 256 MB Main Memory with a Class/Concurrent License to use MPE/iX on HP 3000 CS 992/400
<b>Memory</b>	
502	Replace 192 MB with 256 MB
503	Add 64 MB
504	Add 128 MB
505	Add 256 MB
506	Add 384 MB
507	Add 512 MB
508	Add 640 MB
509	Add 768 MB
<b>Power</b> (Must order one)	
017	200-240 VAC (L-N) / 346-416 VAC (L-L) 50/60 Hz
018	200-220 VAC 50/60 Hz

### A1811A Option Structure (continued)

Option Number	Description
<b>Box Swap Upgrade</b>	
704	Return MICRO 3000, 3000LX
705	Return MICRO 3000GX, 3000RX
706	Return MICRO 3000XE
707	Return Series II, III, 30, 33, 37, 37XE
708	Return HP 250/260
709	Return Series 39, 40, 42, 44, 48
710	Return Series 42XP, 52, 58
711	Return Series 64, 68
712	Return Series 70
713	Return Series 920 or 917LX
714	Return Series 925LX
715	Return Series 922LX or 927LX
716	Return Series 925, 922RX, 922, or 937LX
717	Return Series 935, 932, 947LX, or 937
718	Return Series 949, 948
719	Return Series 955, 967LX
720	Return Series 960, 958
721	Return Series 950, 947, or 957LX
722	Return Series 957
723	Return Series 967
724	Return Series 977
725	Return Series 980/100
726	Return Series 980/200
727	Return Series 980/300
728	Return Series 980/400

**A1811A Option Structure (continued)**

Option Number	Description
<b>Console Localization</b>	
ABA	U.S. English localized keyboard, power cord
ABB	English/Europe localized keyboard, power cord
ABC	French-Canadian localized keyboard, North American power cord, French manuals
ABD	German localized keyboard, power cord, manuals
ABE	Spanish localized keyboard, power cord
ABF	French localized keyboard, power cord, manuals
ABG	Australian power cord, US keyboard, English manuals
ABH	Dutch localized keyboard, power cord, English manuals
ABL	Canadian-English localized keyboard, US power cord, English manuals
ABM	Spanish-Latin American localized keyboard, US power cord
ABN	Norwegian localized keyboard, power cord, English manuals
ABP	Swiss-German localized keyboard, power cord
ABQ	Swiss-French localized keyboard, power cord
ABR	US keyboard, South African power cord, English manuals
ABS	Swedish localized keyboard, power cord, English manuals
ABU	English (UK) localized keyboard, power cord
ABW	Flemish localized keyboard, power cord
ABX	Finnish localized keyboard, power cord, English manuals
ABY	Danish localized keyboard, power cord, English manuals
ABZ	Italian localized keyboard, power cord
ACC	US keyboard, United Kingdom power cord
ACD	Swiss power cord, US keyboard, English manuals
ACE	Danish power cord, US keyboard, English manuals
ACF	Japan power cord, US keyboard and manual
<b>Software Delete</b>	
910	Delete TurboIMAGE
915	Delete SQL
920	MPE only
<b>User License</b>	
UAT	Upgrade to Unlimited User License on CS 990 and CS 992/100
<b>Hardware Delete</b>	
1B6	Delete system console

## Field Upgrade Option Structure for A1809A and A1811A

### Field Upgrade Option Structure

Product Number	Description
A1810A	HP 3000 Corporate Business System Upgrade
opt. 514	Delete 64 MB
opt. 528	Add 128 MB
opt. 556	Add 256 MB
opt. 881	CS 990 to CS 992/100
opt. 882	CS 992/100 to 992/200 (includes 64 MB)
opt. 883	CS 992/200 to 992/300
opt. 884	CS 992/300 to 992/400 (includes power module)
opt. UAT	Unlimited User License
opt. UBP	Credit for purchase of Unlimited User License on CS 990 and CS 992/100

## Factory Integrated Expansion Cabinet Option Structure for A1809A and A1811A

### Factory Integrated Expansion Cabinet Option Structure

Product Number	Description
<b>Integrated Expansion Cabinet</b>	
A1884A	1.6 meter 19-inch computer rack (same as for 9x7 family)
<b>Options</b>	
ABA	U.S. 200V - 240V power
ABB	European 200V - 240V power
201	Add 1.3 GB SCSI disk
202	Add 2.7 GB SCSI disk
203	Add 4.0 GB SCSI disk
212	Add 2.7 GB SCSI disk and one DDS tape drive
316	DTC with 16 direct connect ports
324	DTC48 with 24 direct connect ports
331	DTC48 with 24 direct and 6 modem connect ports
346	DTC48 with 40 direct and 6 modem connect ports
348	DTC48 with 48 direct connect ports
230	Add high availability 5.4 GB HP-FL disk array
231	Add 5.4 GB HP-FL disk array without parity
232	Add high availability 2.7 GB HP-FL disk array
233	Add 2.7 GB HP-FL disk array without parity
250	Add HP-PB I/O card cage with 14 single-high card slots, 10 meter HP-PB dual cable, and lower bus converter



## Corporate Business Systems Standalone Products

### Standalone Product Structure

Product Number	Description
A1828A	HP 3000 CS 99x HP-PB I/O card cage set.  Includes: Lower Bus Converter Card and HP-PB Dual Cable with HP-PB I/O card cage with 14 single-high card slots
A1829A	HP 3000 CS 99x Upper Bus Converter Card (two bus converters per card)
A2570A	64 MB memory card
A2233A	128 MB memory card
A2234A	256 MB memory card
A1747A	PBA-IB (chan-span with HP-IB device adapter)
opt. 001	Delete HP-IB card
28616A	PB-FL card
28642A	SCSI card
J2167A	Token Ring 3000/iX network link
36923A opt. 002	802.3 LAN <sup>1</sup> (second LAN card)
<sup>1</sup> First 802.3 LAN is supplied on the LAN/Console card.	

