Series 9x7LX and 9x7 Systems

General System Configuration Information

Maximum Supported Hardware Configuration

	917LX	927LX	937LX	937	947LX	947	957LX	957	967LX	967	977	987
MPE/iX Release Support	3.1/4.0											
User license: (UL=unlimited) - standard - optional	8	20	32 40/64	32 40/64	100 UL	100 UL	64 100/UL	64 100/UL	100 160/UL	100 160/UL	100 160/UL	100 160/UL
Typical users	8	16	24	24	48	64-100	64-100	64-160	64-100	96-250	96-300	96-380
Maximum connected workstations	64	64	152	152	410	410	655	655	655	850	1050	1300
Performance relative to 917LX	1.0	1.0	1.0	1.0	1.0	1.0	1.6	1.6	2.0	2.0	2.6	3.2
HP-PB Slots	2	2	2	12	2	12	2	12	2	12	12	12
Memory (MB): Standard/Maximum	24/192	24/192	32/192	32/384	48/192	64/384	64/192	64/384	64/192	64/512[5]	96/768[5]	96/768[5]
Maximum disk storage (GB)	24	24	24	66	24	66	24	66	24	66	66	66
Maximum disks: Total - HP-FL - SCSI - HP-IB[4]	18 8 18 6	18 8 18 6	18 8 18 6	49 24 25 12	18 8 18 6	49 24 25 12	18 8 18 6	49 24 25 12	18 8 18 6	49 24 25 12	49 24 25 12	49 24 25 12
Maximum tape drives	6	6	6	8	6	8	6	8	6	8	8	8
Maximum printers - system - serial	6 32	6 32	6 32	8 48	6 32	8 48	6 32	8 64	6 32	8 64	8 64	8 64
Maximum DTCs	4	4	6	6	12	12	24	24	24	24	24	24
Max. # devices per I/O card - SCSI - PBA-IB (HP-IB)[4] - PB-FL (HP-FL) 28616A - PBA-FL (HP-FL) A1748A	7 6 8 8	7 6 8 8	7 6 8 8	7 6 8 8	7 6 8 8	7 6 8 8	7 6 8 8	7 6 8 8	7 6 8 8	7 6 8 8	7 6 8 8	7 6 8 8
Maximum number of cards - PBA-IB cards[4] - PB-FL cards (28616A) - SCSI cards - PBA-FL (A1748A) - Maximum combined PB/PBAs	1 1 2 0 1	1 1 2 0 1	1 1 2 0 1	2 3 10 3 3	1 1 2 0 1	2 3 10 3 3	1 1 2 0 1	2 3 10 3 3	1 1 2 0 1	2 3 10 3 3	2 3 10 3 3	2 3 10 3 3
Max. network links per system - 802.3 LANIC[2] - 802.5 Token Ring	2 1	2 1	2 1	2 1	2 1	2 1	2 1	2 1	2 1	2 1	2 1	2 1
Floating point coprocessor	N/A	N/A	opt	opt	opt	opt	opt	opt	opt	opt	opt	std
Maximum PSI cards	2	2	2	5[6]	2	5[6]	2	5[6]	2	5[6]	5[6]	5[6]
Supplied Manual Set[3]	9x7LX Core	9x7LX Core	9x7LX Core	Sys Mgmt Core	9x7LX Core	Sys Mgmt Core	9x7LX Core	Sys Mgmt Core & Core Plus	9x7LX Core	Sys Mgmt Core & Core Plus		

[1] Add-on cards, does not include integrated SCSI interface
[2] First card standard on multi-function I/O card
[3] See Chapter 8 for description of manual sets
[4] Six disks are physically supported per PBA-IB. Four disks per PBA-IB are recommended for optimum performance.
[5] Effective with MPE/iX Release 4.5
[6] If three PBA-FL cards (A1784A) are installed, maximum PSI cards are four

Unique Supplied Hardware

■ One Multi-Function I/O card (MFIO) containing 802.3 LANIC, two RS-232 C ports (for console and remote support connections), SCSI interface, integrated ThinLAN Transceiver, and AUI connector
■ One 2 meter ThinLAN cable and a pair of ThinLAN terminators
■ Integrated SCSI disk drive: 673 MB (917LX), 1355 MB (927LX, 937LX, 937, 947LX, 947, 957LX, 957, 967LX, 967, 977, 987)
■ Integrated SCSI DDS format tape drive with 2.0 Gbytes capacity per cassette, 1 DDS cleaning cassette, 1 blank DDS cassette
■ One 700/92 terminal (console) and cable

Unique Supplied Software

■ HP Easytime/XL system management interface (Series 9x7LX only)

Packaging

The Series 9x7LX and 9x7 systems are offered in two different package types:

■ The Series 9x7LX package is a small, integrated deskside package offering two I/O expansion slots, space for one 3 1/2-inch DDS format tape drive, and one internal 5 1/4-inch disk mechanism.
■ The Series 9x7 package is a larger deskside package offering twelve I/O expansion slots and space for one internal 3 1/2-inch DDS format tape drive, and up to three 5 1/4-inch disk mechanisms.

Upgrades from the small package to the large package are available. Also, both packages are rack mountable in a 1.1 or 1.6 meter cabinet (P/Ns A1883A, A1884A). Option 1CM under the system product number provides the necessary hardware to rack mount the systems in a 1.1 meter or 1.6 meter cabinet. *See page 2-8 to 2-12 for more information on cabinet solutions.*

Memory Expansion

Error correcting memory is supplied with each SPU. Additional memory can be obtained by ordering options 503-519 with the system, or by ordering the stand-alone products: A2230A (8 Mbytes), A2231A (16 Mbytes), A2232A (32 Mbytes), A2511A (64 Mbytes), or A2516A (128 Mbytes).

Memory consists of memory modules of 4, 8, 16, 32, and 64 Mbytes which must be installed in pairs of identical size. Add-on memory products consist of an identical pair of memory modules. For example, the 32 Mbyte add-on memory product (A2232A) contains two 16 Mbyte modules.

The systems have the capacity to support a total combination of six pairs of memory modules. On all 9x7LX systems, maximum memory of 192 Mbytes can be achieved through the use of six pairs of 16 Mbyte memory modules. For 9x7 systems, maximum memory of 384 Mbytes is provided by six pairs of 32 Mbyte memory modules. Adding memory in smaller increments will reduce the maximum amount of memory possible.

| **Note** | Maximum memory on the Series 967 is 512 Mbytes, and on the Series 977 and 987 is 768 Mbytes, effective with MPE/iX Release 4.5. |

Memory modules are installed on the private memory bus and do not use HP Precision Bus expansion slots.

Floating Point Coprocessor

An IEEE floating point coprocessor is available as an option (8Z7) to Series 937LX, 937, 947LX, 947, 957LX, 957, 967LX, 967, and 977 systems for high performance in numerical applications. The coprocessor is built into the SPU so no installation is required. Floating point is standard on the Series 987 by combining the CPU and floating point coprocessor onto one chip.

Due to the tremendous performance of the 917LX and 927LX, a separate floating point coprocessor is not deemed necessary. Floating point operations for these systems are adequately handled via the system processor and high speed system software routines.

| **Note** | Several HP 3000 third party applications and tools require the floating point coprocessor for optimal performance. Consult your third party software supplier for the floating point requirements of their specific application. |

HP EasyTime/XL

HP EasyTime/XL is an easy-to-use interface for commonly performed system management functions on Series 9x7LX systems. HP EasyTime/XL must be ordered separately. Part number B1940A will preload HP EasyTime/XL on the system disk at the factory and provide future updates on Series 9x7LX systems.

Based upon an easy-to-use user interface, HP EasyTime/XL provides novice system managers and end users with limited computer experience access to commonly used system management utilities while shielding the user from the complexity of MPE/iX.

Factory Software Pre-loading

Factory pre-loading of HP 3000 FOS and standard subsystem software is available with HP 3000 9x7LX and 9x7 systems. This software will be factory installed on the standard integrated disk provided with each system. In order to have all HP subsystem software pre-installed at the factory, order MPE/iX media product (51453A option 0D1) on the same order section as the system and specify a coordinated shipment.

User Licenses

All Series 9x7LX and 9x7 systems are supplied with a software class/concurrent license specifying the maximum number of users. Some systems are available with options to increase the maximum number of users. The practical number of concurrent users is dependent on the application mix and response time/throughput requirements.

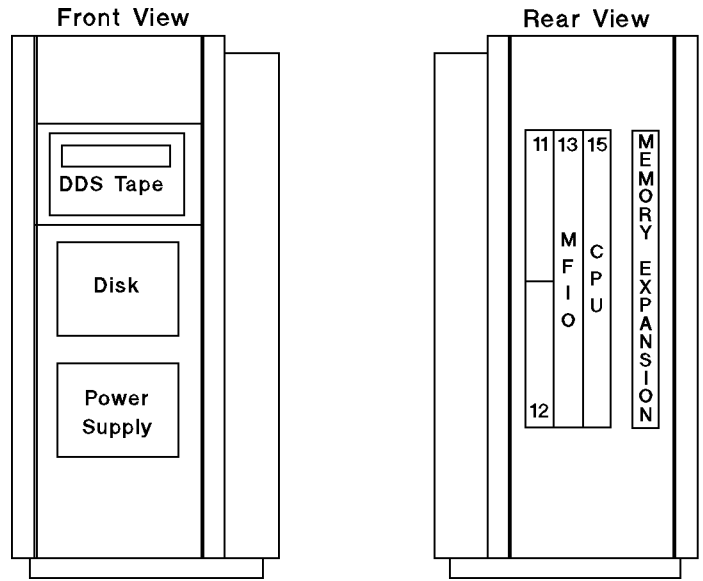# I/O Channel Configuration Information

HP Precision Bus (HP-PB)

HP 3000 Series 9x7LX and 9x7 systems connect to peripheral devices and data communication networks via the HP Precision Bus (HP-PB). In compliance with the Eurocard standard, the HP Precision Bus supports both single-high and double-high I/O cards. Single-high I/O cards use one Precision Bus slot each and double-high I/O cards use two slots each. Single-high Precision Bus cards include SCSI, PSI, second 802.3 LANIC, and 802.5 Token Ring cards. Double-high Precision Bus cards include PBA-IB and PBA-FL interfaces. The table below illustrates the slot usage for the various adapter cards supported on the Series 9x7LX and 9x7 systems.
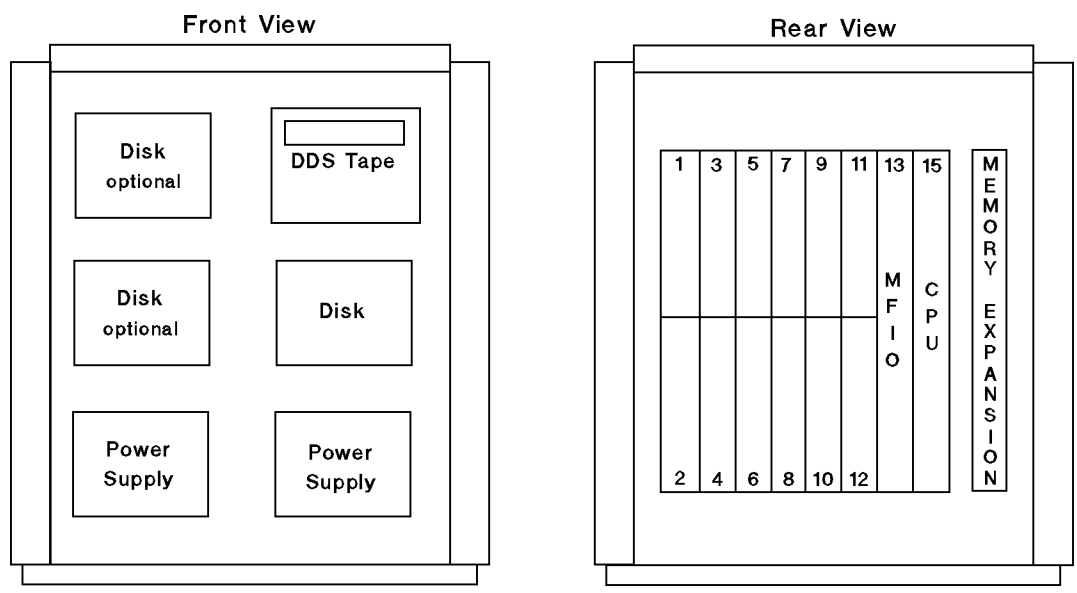
Adapter Card	Size	HP-PB slots used per card
SCSI	Single-high	1
802.3 LANIC	Single-high	1
802.5 Token Ring	Single-high	1
PSI	Single-high	1
PBA-IB (HP-IB)	Double-high	2
PBA-FL (HP-FL)[1]	Double-high	2
PB-FL (HP-FL)[2]	Double-high	2
[1]The PBA-FL card is supported on Release 3.1 and 4.0. PB-FL replaces the PBA-FL. [2]The PB-FL card is supported on Release 4.0 and later		

The Series 9x7LX systems support up to two SCSI or PSI cards, one PBA-IB card, or one PB-FL card (28616A). The Series 9x7 systems support up to twelve single-high cards (such as SCSI or PSI), or two double-high PBA-IB cards, or three double-high cards (PBA-FL, PB-FL) or a combination thereof.

Front View

DDS Tape

Disk

Power
Supply

Rear View

11	13	15	M
			E
			M
			O
M	C		R
F	P		Y
I	U		
O			E
			X
			P
			A
			N
			S
			I
12			O
			N

Series 9x7LX System Layout

Front View

Disk
optional

DDS Tape

Disk
optional

Disk

Power
Supply

Power
Supply

Rear View

| 1 | 3 | 5 | 7 | 9 | 11 | 13 | 15 | M E M O R Y |
| | | | | | | M F I O | C P U | E X P A N S I O N |
| 2 | 4 | 6 | 8 | 10 | 12 | | | |

Series 9x7 System Layout

Note

Installing double-high cards will impact the number of available single wide slots available for single-high cards. Use the table below to determine slot availability.

System	HP-PB Slots Available	Double-High Cards Used	HP-PB Slots Remaining
Series 9x7LX	2	0	2
		1	0
Series 9x7	12	0	12
		1	10
		2	8
		3	6

For example, if a customer has one HP-IB printer or HP-IB back-up device on a Series 9x7LX system, no HP-PB slot remains. Consequently, a Series 9x7 package with its expanded I/O slots may need to be purchased.

I/O Block Diagram
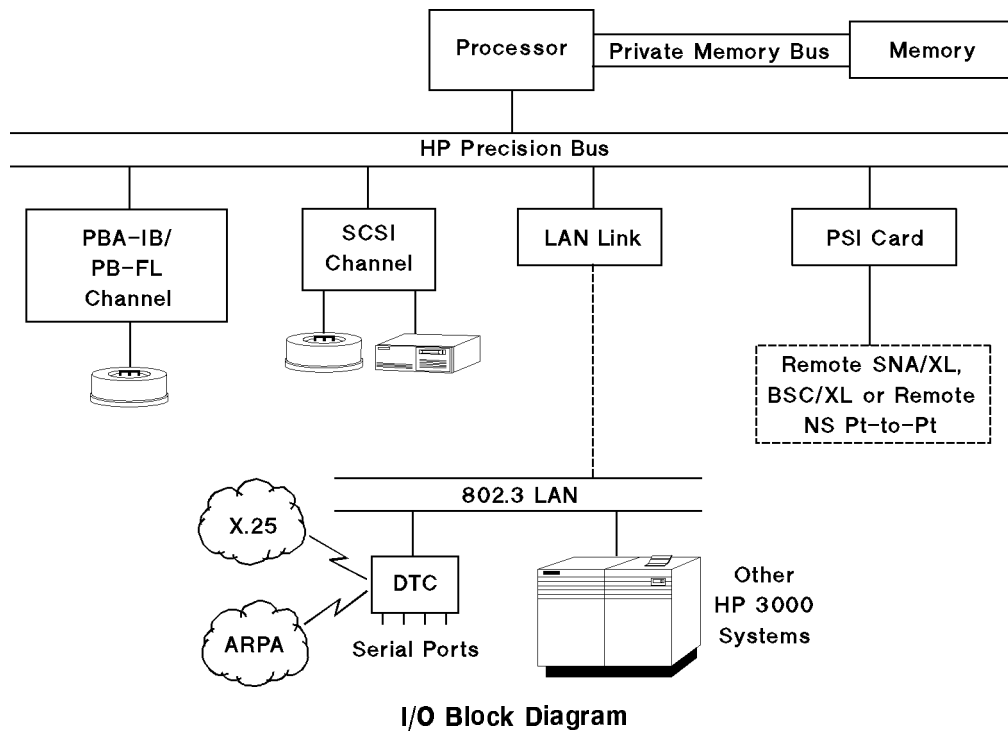
Multi-Function I/O Card (MFIO)

One MFIO card is supplied standard with each Series 9x7LX and 9x7 system. This card provides:

■ 802.3 LAN connection for use with both DTC and system-to-system LAN traffic (integrated ThinLAN Transceiver and AUI connector)
■ two RS-232-C ports for console and remote support connections
■ one SCSI interface which provides connection for five SCSI devices

Note	The MFIO card does not utilize any Precision Bus slots.
	External 2.0 GB DDS tape drives are supported on the integrated SCSI interface, but 1.3 GB DDS drives are not. An add-on SCSI interface card is required to support external 1.3 GB DDS tape drives.

Precision Bus Adapter (PBA)

The Precision Bus Adapter (PBA) is supported in the Series 9x7LX and 9x7 systems to provide connectivity to CIB HP-IB. The Precision Bus Adapter (PBA) is supported on the Series 9x7 systems to provide connectivity to CIB HP-FL. The PBA combines the functionality of a CIB adapter and physical bus adapter into a single card. Only one CIB HP-IB or CIB HP-FL can be connected to each PBA.

The Series 9x7LX systems support one PBA-IB (PBA with HP-IB) while the Series 9x7 systems support a maximum of two PBAs. *Consult page 2-1 for PBA-IB maximums.*

The Series 9x7LX systems support zero PBA-FLs, while the Series 9x7 systems support a maximum of three PBAs. The PB-FL (28616A) replaces the PBA-FL (A1748A).

Integrated Peripherals

The Series 9x7LX systems come standard with and support two embedded SCSI peripherals:

- one DDS format tape drive
- one 5 1/4-inch disk mechanism (673 Mbyte or 1.3 Gbyte capacity)

For additional disk storage or tape backup, external peripherals are required.

The Series 9x7 systems come standard with two embedded SCSI peripherals:

- one DDS format tape drive
- one 1.3 Gbyte capacity 5 1/4-inch disk mechanism

Up to two additional 1.3 Gbyte SCSI disk mechanisms are supported inside the package, providing up to 4 Gbytes of internal disk storage.

Refer to pages 2-4 and 2-5 for a diagram of the system layout.

Note	C2463 (5 1/4-inch SCSI DDS) is ONLY supported on the Series 9x7LX and 9x7 systems. It is NOT supported on other platforms.

Customer Installability

Everything the customer needs for easy SPU installation is included on the Series 917LX, 927LX, and 937LX systems. Installation by the HP Customer Engineer is available at an extra cost for these systems. The remaining 9x7LX systems and all Series 9x7 systems include CE installation.

Many add-on products to Series 9x7LX systems will include HP CE installation. Some of the most common are networking products, additional I/O products, DTC48s (2345A), and large disk configurations. Customers purchasing Series 9x7LX systems with these CE installable products are expected to perform the routine system set-up and complete minimum site preparation activities prior to HP CE arrival. Cabinets with systems and peripherals racked at the factory include HP CE installation.

All Series 9x7LX systems come from the factory with CPU, memory, base I/O, and integrated mass storage devices. In addition, the MPE/iX operating system and HP subsystem software comes pre-installed on the internal disk. Special easy-to-understand learning products are shipped with the system to assist the novice customer through the initial startup.

The 917LX, 927LX, and 937LX systems are customer-installable if the configuration is limited to the following:

■ SPU and memory
■ Multi-Function I/O card (LAN/Console connection/SCSI)
■ system console
■ DTC16 (option 0DG – 6 modem/8 direct connect ports, ThinLAN)

The SPU, memory, and base I/O come preinstalled at the factory. Default configurations for up to three 14 port (6 modem/8 direct) DTC16s are preloaded on the system at the factory as well. Customers are expected to connect the system console and DTC16 only.

Many peripherals are customer installable. Some of the most common are:

■ additional workstations
■ RS-232 printers
■ external peripheral package (up to 1 Series 6000 multi-mechanism package)
■ additional DTC16s (up to 3 total in 14 port configurations)

While not included in the system price, installation and site services can be purchased for these "customer installable" components from HP's Professional Services and Systems Support organizations. Since larger configurations increase the installation time and complexity, there is a limit to customer installable configurations. The limits are one external peripheral package only and up to three DTC16s.

Many peripherals, networking, and I/O include HP CE installation. They are:

- HP-IB interfaces/devices
- PB-FL interfaces/devices
- additional SCSI interfaces
- 802.3 LAN
- 802.5 Token Ring
- Remote communication products based on PSI
- X.25
- DTC16 in configurations other than 14 ports (6 remote, 8 local)
- DTC48
- add-on memory not ordered as an option to the system

Note In Europe, HP CE installation is bundled into the system price for all Series 9x7LX and 9x7 systems.

Cabinets

Product Overview

Two cabinets are available for racking HP 3000 Series 9x7LX and 9x7 systems as well as associated peripherals and DTCs. Both a 1.1 meter cabinet, providing 21 EIA units (1 EIA unit = 1.75 in.) of usable rack height, and a 1.6 meter cabinet, with 32 EIA units of rack space, are available.

How to Order Cabinets and Peripherals

Cabinets may be ordered as a total integrated solution assembled at the factory or as stand-alone products where the system and peripherals are rack mounted in the cabinet at the customer site. The cabinets support a variety of combinations of HP 3000 systems, disk drives, tape drives, and DTCs. Combinations of supported products are limited only by space inside the cabinet.

Cabinet Overview

Product Number	Factory Integrated	Racking Space Available (EIA units)	Power Distribution	Maximum Current	Height	Width	Depth
C2785A	No	21	100-120V/200-240V	16A	1.1 m	.48 m	.9 m
A1883A	Yes	21	100-120V/200-240V	16A	1.1 m	.48 m	.9 m
C2786A	No	32	200-240V	16A	1.6 m	.48 m	.9 m
A1884A	Yes	32	200-240V	16A	1.6 m	.48 m	.9 m

Supported Racked Components

The Series 9x7LX and 9x7 cabinets support a variety of HP 3000 9x7LX and 9x7 SPUs, disk drives, tape drives, and DTCs. Combinations of supported products are limited only by space inside the cabinet and the 16-amp maximum 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 the 16-amp maximum current limit.

Components Supported in the 1.1 and 1.6 Meter Cabinets

Product Number	Description	EIA Units	Required Mounting Hardware	Current Consumption	
				120 VAC	208 - 240 VAC
SPUs					
A1770A	Series 917LX	6	C2797A for standalone rack Option 1CM for factory installed rack	6.5 A	3.5 A
A1771B	Series 927LX	6	C2797A for standalone rack Option 1CM for factory installed rack	6.5 A	3.5 A
A1758A	Series 937LX	6	C2797A for standalone rack Option 1CM for factory installed rack	6.5 A	3.5 A
A1772A	Series 937	10	C2798A for standalone rack Option 1CM for factory installed rack	12 A	6 A
A1752A	Series 947LX	6	C2797A for standalone rack Option 1CM for factory installed rack	6.5 A	3.5 A
A1708A	Series 947	10	C2798A for standalone rack Option 1CM for factory installed rack	12 A	6 A
A1707A	Series 957LX	6	C2797A for standalone rack Option 1CM for fctory installed rack	6.5 A	3.5 A
A1709A	Series 957	10	C2798A for standalone rack Option 1CM for factory installed rack	12 A	6 A
A1757A	Series 967LX	6	C2797A for standalone rack Option 1CM for factory installed rack	6.5 A	3.5 A
A1710A	Series 967	10	C2798A for standalone rack Option 1CM for factory installed rack	12 A	6 A
A2300A	Series 977	10	C2798A for standalone rack Option 1CM for factory installed rack	12 A	6 A
A2317A	Series 987	10	C2798A for standalone rack Option 1CM for factory installed rack	12 A	6 A

Continued on next page.

Components Supported in the 1.1 and 1.6 Meter Cabinets (cont.)

Product Number	Description	EIA Units	Required Mounting Hardware	Current Consumption	
				120 VAC	208 - 240 VAC
Tape Drives[1]					
7979A	1/2-inch tape drive	5	opt. 1A4 and three C2790A ballasts	2.81 A	1.46 A
7980A	1/2-inch tape drive	5	opt. 1A4 and three C2790A ballasts	2.81 A	1.46 A
7980XC	1/2-inch tape drive	5	opt. 1A4 and three C2790A ballasts	2.81 A	1.46A
Series 6000 SCSI Multi-Mechanism Package (also available as integrated cabinet option)					
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
HP-FL Disk Array[2]					
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
Data Terminal Connects					
2340A	DTC16	6	35199E	2 A	1 A
2345A	DTC48	6	C2799A	2 A	1 A
Filler Panels					
40101A/2A/3A/4A/5A/6A/7A - 1 to 7 filler panels					

[1] *Three anti-tip ballasts (C2790A) are required for one or more 1/2-inch tape drive mechanism.*
[2] *If HP-FL disk is the bottom-most racked deviced in the cabinet, add two EIA space units. This will allow ample space for cables coming into the bottom of the cabinet.*

Integrated System Solution (A1883A and A1884A)

To ease ordering and speed installation, integrated cabinet products are the preferred choice for customers desiring a racked system solution. These products contain options for disk storage, DTCs, and a DDS tape drive. When the system and racking options are ordered together, the entire system (including SPU, disk, tape, and DTC) will be pre-installed in the cabinet prior to shipment from the factory.

Customers desiring to have peripheral only configurations (DTC48, disk, DDS) can use these products to meet their racking needs as well. Add-on DTC48, Series 6000 multi-mechanism products (disk and DDS), and 7980/7980XC tape drives not in the Integrated Cabinet product structure will need to be installed at the customer site. *Refer to table on page 2-11 for the necessary hardware to rack these components.*

| Note | Customers requiring DTC configurations not provided by the Integrated Cabinet product can either order a stand-alone DTC48 (2345A) with the appropriate rack mount kit or select one of the configurations offered in the Integrated Cabinet product and order additional DTC Connector cards (X.25 etc.) for installation in the field. |

Integrated Cabinet Product Structure

Product Number	Description
A1883A	1.1m 21U cabinet
A1884A	1.6m 32U cabinet
Options	
ABA	(A1883A) U.S. 100-120V power
ABA	(A1884A) U.S. 200-240V power
ABB	European 200-240V power
201	Add 1.3 Gbyte disk
202	Add 2.7 Gbyte disk
203	Add 4 Gbyte disk
212	Add 2.6 Gbyte disk and 2.0 Gbyte DDS
316	Add DTC48 with 16 local RS-232 ports
324	Add DTC48 with 24 local RS-232 ports
331	Add DTC48 with 24 local, 6 remote RS-232 ports
346	Add DTC48 with 40 local, 6 remote RS-232 ports
348	Add DTC48 with 48 local RS-232 ports

Use the Factory-Integrated Cabinet selection worksheet on the following page to choose the cabinet that best meets the customer's needs. Simply fill in the desired quantities of each component to determine the appropriate cabinet product for the configuration. Filler panels to cover unused space will be installed automatically at the factory and do not need to be ordered for the integrated cabinet products.

Factory Integrated Cabinet Selection Worksheet

Component	Quantity	EIA Units	Vertical Space Required (EIA units)
I. SPU (select SPU to be racked) *Option 1CM must be ordered for factory racking – factory racking recommended. Factory Integrated Cabinets have been structured so that all orderable configurations will not exceed the 16-amp maximum current limit.*			
= a. 917LX,927LX,937LX,947LX,957LX,967LX	_____ X	6	= _____
b. 937,947,957,967,977,987	_____ X	10	= _____
II. Cabinet options (available on A1883A and A1884A) A1883A − 1.1 meter cabinet A1884A − 1.6 meter cabinet			
a. Option 201 - 1.3 Gbyte disk	_____ X	4	= _____
b. Option 202 - 2.7 Gbyte disk	_____ X	4	= _____
c. Option 203 - 4 Gbyte disk	_____ X	4	= _____
d. Option 212 - 2.7 Gbyte disk + DDS	_____ X	4	= _____
e. Option 316 - DTC48 with 16 local ports	_____ X	6	= _____
f. Option 324 - DTC48 with 24 local ports	_____ X	6	= _____
g. Option 331 - DTC48 with 24 local, 6 remote ports	_____ X	6	= _____
h. Option 346 - DTC48 with 40 local, 6 remote ports	_____ X	6	= _____
i. Option 348 - DTC48 with 48 local ports	_____ X	6	= _____
III. Add-on peripherals (not factory-racked and requiring racking kits – *see page 2-12 for details*)			
1. 2345A - DTC48	_____ X	6	= _____
2. Series 6000 multi-mechanism	_____ X	4	= _____
3. 7980A/7980XC tape drives	_____ X	5	= _____
IV. Total EIA units required (Sum of Total EIA column)		=	_____

V. Integrated cabinet selection

If line IV is less than or equal to 21, order cabinet A1883A with appropriate power, disk, DDS, and DTC48 options.

If line IV is less than or equal to 32, order cabinet A1884A with appropriate disk, DDS, and DTC48 options.

If line IV is greater than 32, more than one cabinet is required.

Cables connecting the SPU and peripherals within the A1883A or A1884A cabinet are factory-installed and are free of charge. Cables connecting a cabinet with another cabinet or separate peripheral must be ordered separately.

Field-Installed Cabinets

Standalone cabinets are also available for customers who decide to rack their system components after the initial system installation. Care must be exercised when configuring these cabinets to ensure that all appropriate cabinet components (filler panels, peripheral mounting kits, etc) are ordered to successfully rack the system, and that the configuration does not exceed the 16-amp current limit of the cabinet. Refer to page 2-11 for a table of supported racked components. Component racking for these cabinets is performed at the customer site.

For each of the components that need to be racked, the appropriate racking hardware must be ordered. Order filler panels to cover unused cabinet space.

Rack Mounting Information

Product Structure

| Product/Option	Description
C2785A	1.1 meter cabinet (21 EIA units)
ABA	100-120V with U.S. power cord
ABB	200-240V with European power cord
0E3	Substitute 200-240V for U.S.
1F9	Add six 1-unit filler panels
1FA	Extractor fan (compatible with cabinet voltage)
1FC	Front door (can be locked for security purposes)
C2786A	1.6 meter cabinet (32 EIA units)
ABA	200-240V with U.S. power cord
ABB	200-240V with European power cord
0E2	100-120V with U.S. power cord
1F9	Add six 1-unit filler panels
1FC	Front door (can be locked for security purposes)

1.1 Meter Cabinet (A1883A)

Example 1:
Series 947LX with 4 Gbyte, 46 ports

Series 947LX —
2.7 Gbyte Disk —
DTC48 —
Unused —
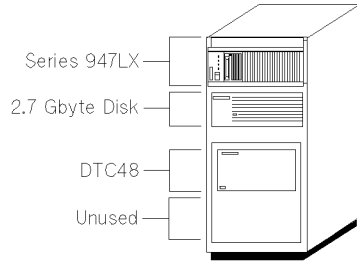
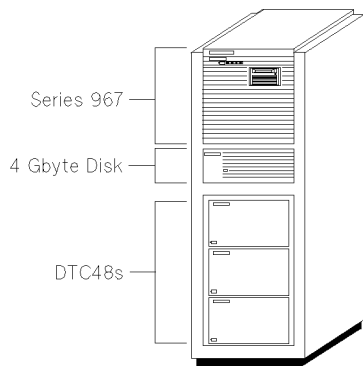| Quantity	Part Number	Description
1	A1752B	Series 947LX with 1.3 Gb disk, 48 Mb memory
1	option 1CM	Add racking hardware
1	opiton UBD	100 user license
1	A1883A	1.1 meter cabinet
1	option 202	2.7 Gbyte disk
1	option 346	46 port DTC48

Example 2:
Peripherals only – 4 Gbyte disk, DDS, 72 ports

Disk/DAT —
1.3 Gbyte Disk —
DTC48s —
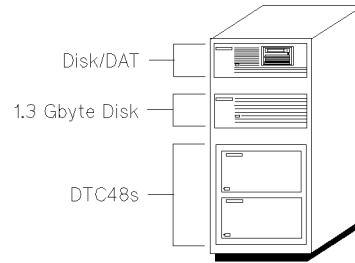
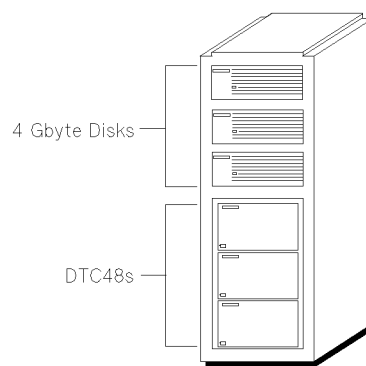| Quantity	Part Number	Description
1	A1883A	1.1 meter cabinet
1	option 201	1.3 Gb disk
1	option 202	2.7 Gb disk, 2.0 Gb DDS
1	option 324	24 port DTC48
1	option 348	48 port DTC48

1.6 Meter Cabinet (A1884A)

Example 3:
Series 967 with 8 Gbyte, 142 ports

Series 967 —
4 Gbyte Disk —
DTC48s —

Quantity	Part Number	Description
1	A1710A	Series 967 with 1.3 Gb disk, 64 Mb memory
1	option 1CM	Add racking hardware
1	option 011	Increase disk to 4 Gb
1	A1884A	1.6 meter cabinet
1	option 203	4 Gb disk
1	option 346	46 port DTC48
2	option 348	48 port DTC48

Example 4:
Peripherals only – 12 Gbyte disk, 144 ports

4 Gbyte Disks —
DTC48s —

Quantity	Part Number	Description
1	A1884A	1.6 meter cabinet
3	option 203	4 Gb disk
3	option 348	48 port DTC48

Factory Integrated Cabinet Ordering Examples

Product Summary

The Series 9x7LX and 9x7 systems share a common product option structure. The following tables represent information for all of the products and should be used with the specific configuration rules. They are intended as a general reference for configuring systems and some caution should be used, because not all options are available on all systems. Please consult the HP 3000 Computer Systems Price Guide for the latest product structure.

Product Structure

Product Number	Description *	Standard Memory	Standard Disk	Standard User License
A1770A	Series 917LX	24 MB	670 MB	1-8
A1771B	Series 927LX	24 MB	1.3 MB	1-20
A1758A	Series 937LX	32 MB	1.3 GB	1-32
A1772A	Series 937	32 MB	1.3 GB	1-32
A1752B	Series 947LX	48 MB	1.3 GB	1-100
A1708B	Series 947	64 MB	1.3 GB	1-100
A1707A	Series 957LX	64 MB	1.3 GB	1-64
A1709A	Series 957	64 MB	1.3 GB	1-64
A1757A	Series 967LX	64 MB	1.3 GB	1-100
A1710A	Series 967	64 MB	1.3 GB	1-100
A2300A	Series 977	96 MB	1.3 GB	1-100
A2317A	Series 987	96 MB	1.3 GB	1-100

* All preconfigured systems include 2.0 Gbytes DDS format tape drive, MPE/iX FOS, TurboIMAGE, and ALLBASE/SQL in addition to the standard memory, disk, and user licenses indicated above.

Option Structure

Option Structure
(not all options available on all systems)

Option	Description
1B6	Delete 700/92 console
1CM	Add cabinet racking hardware (must order with A1883A or A1884A)
8Z7	Add floating point coprocessor
0E4	Delete battery backup unit
UCY	40 user license
UA9	64 user license
UBD	100 user license
UCN	160 user license
UAT	Unrestricted user license
007	Increase disk to 1.3 GB
009	Increase disk to 2.7 GB
011	Increase disk to 4 GB
100	Server version
401	Add SCSI interface card
405	Add PBA-IB (PBA with HP-IB) adapter
407	Add PBA-FL (PBA with HP-FL) adapter (PB-FL replaces the PBA-FL)
410	Add PB-FL card
503	Increase memory to 32 MB
504	Increase memory to 40 MB
505	Increase memory to 48 MB
506	Increase memory to 64 MB
508	Increase memory to 96 MB
509	Increase memory to 128 MB
511	Increase memory to 160 MB
513	Increase memory to 192 MB
514	Increase memory to 224 MB
515	Increase memory to 256 MB
517	Increase memory to 320 MB
519	Increase memory to 384 MB
910	SQL only system (deletes TurboIMAGE)
915	TurboIMAGE only system (deletes ALLBASE/SQL)
920	MPE/iX only system (deletes TurboIMAGE, SQL)
930	Hardware only (deletes TurboIMAGE, SQL, MPE/iX) ICON only

Upgrade Structure

Option	Description
704	Return MICRO 3000, 3000LX with 2 MB
705	Return MICRO 3000GX, RX with 2 MB
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 with 2 MB
712	Return Series 70 with 2 or 4 MB
713	Return Series 920 with 24 MB
714	Return Series 925LX with 24 MB
715	Return Series 922LX with 24 MB
716	Return Series 922RX, 922, 925 with 32 MB
717	Return Series 932, 935 with 32 MB
718	Return Series 949, 948 with 64 MB
719	Return Series 955 with 96 MB
720	Return Series 958 with 96 MB, 960 with 128 MB
721	Return Series 950 with 64 MB

Note

HP's policy for upgrading HP 3000 systems mandates that systems must be returned for credit and must have been installed at the customer's site at least 6 months. Customers must provide documentation of installation date or proof of support for at least 6 months.

Field Upgrades

Field Upgrade Structure

Product	Description
A1789A	Field Upgrade to Series 927LX
A1791A	Field Upgrade to Series 937LX
A1790A	Field upgrade to Series 937
A1759B	Field Upgrade to Series 947LX
A1792B	Field Upgrade to Series 947
A1760A	Field upgrade to Series 957LX
A1761A	Field Upgrade to Series 957
A1763A	Field Upgrade to Series 967LX
A1762A	Field upgrade to Series 967
A2301A	Field upgrade to Series 977
A2318A	Field upgrade to Series 987
Option	
516	Add 16 MB memory
532	Add 32 MB memory
8Z7	Add floating point coprocessor
UBD	1-100 user license
UCN	1-160 user license
UAT	Unrestricted user license
UCC	Credit for 100 user license on 947LX
UCD	Credit for unlimited user license on 947LX
UCE	Credit for 100 user license on 947
UCF	Credit for unlimited user license on 947
UCG	Credit for 100 user license on 957LX
UCH	Credit for unlimited user license on 957LX
UCJ	Credit for 100 user license on 957
UCK	Credit for unlimited user license on 957
UDA	Credit for 160 user license on 967LX
UDB	Credit for unlimited user license on 967LX
UDC	Credit for 160 user license on 967
UDD	Credit for unlimited user license on 967
UDL	Credit for 160 user license on 977
UDM	Credit for unlimited user license on 977

Field Upgrade Structure (continued)

Option	Description
851	From Server 917LX
852	From Server 927LX
853	From Server 937LX
854	From Server 937
855	From Server 947LX
856	From Server 947
857	From Server 957LX
858	From Server 957
859	From Server 967LX
860	From Server 967
871	From Server 977
861	From Series 917LX
862	From Series 927LX
863	From Series 937LX
864	From Series 937
865	From Series 947LX
866	From Series 947
867	From Series 957LX
868	From Series 957
869	From Series 967LX
870	From Series 967
872	From Series 977

Note

HP 3000 board and/or chassis upgrades require return of original processor board and/or chassis to HP.

Configuration Worksheet

The worksheet below will help in configuring a basic multiuser Series 9x7LX or 9x7 system. Use it as a guideline, but note that particular customer needs (performance, etc) may dictate different configuration choices.

STEP 1 - Select a system

Select the HP 3000 that best fits the customer's performance and user needs.

System	Standard Memory	Standard Disk	Expansion Slots
Series 917LX	24 MB	670 MB	2
Series 927LX	24 MB	1.3 GB	2
Series 937LX	32 MB	1.3 GB	2
Series 937	32 MB	1.3 GB	12
Series 947LX	48 MB	1.3 GB	2
Series 957LX, 967LX	64 MB	1.3 GB	2
Series 947, 957, 967	64 MB	1.3 GB	12
Series 977	96 MB	1.3 GB	12
Series 987	96 MB	1.3 GB	12

STEP 2 - Determine memory requirements

Memory requirements will vary depending on the specific applications running on the system. If there is not information available on the memory requirements of the customer's applications, the following rule of thumb may be used:

■ Memory = 16 Mbytes + (0.5 to 1.0 x number of concurrent users)

Note 1 MB per user should be used at the low end of the 9x7LX/9x7 family.

Note that the maximum supported memory is 192 Mbytes for all 9x7LX systems and 384 Mbytes for all 9x7 systems. The 967 has a maximum memory of 512 Mbytes and the 977 and 987 have a maximum memory of 768 Mbytes at MPE/iX Release 4.5.

The following table illustrates the ordering recommendation for the typical memory configurations.

System	Memory (Mbytes)												
	24	32	40	48	64	96	128	160	192	224	256	320	384
917LX	Std	Opt 503	Opt 504										
927LX	Std	Opt 503	Opt 504	Opt 505									
937LX	N/A	Std	Opt 504	Opt 505	Opt 506								
937	N/A	Std	Opt 504	Opt 505	Opt 506								
947LX	N/A	N/A	N/A	Std	Opt 506	Opt 508							
947	N/A	N/A	N/A	N/A	Std	Opt 508	Opt 509	Opt 511	Opt 513				
957LX, 967LX	N/A	N/A	N/A	N/A	Std	Opt 508	Opt 509	Opt 511	Opt 513				
957	N/A	N/A	N/A	N/A	Std	Opt 508	Opt 509	Opt 511	Opt 513	Opt 514			
967	N/A	N/A	N/A	N/A	Std	Opt 508	Opt 509	Opt 511	Opt 513	Opt 514	Opt 515		
977	N/A	N/A	N/A	N/A	N/A	Std	Opt 509	Opt 511	Opt 513		Opt 515	Opt 517	Opt 519
987	N/A	N/A	N/A	N/A	N/A	Std	Opt 509	Opt 511	Opt 513		Opt 515	Opt 517	Opt 519

Note

For memory requirements beyond available options, standalone memory must be ordered: 8 Mbytes (A2230A), 16 Mbytes (A2231A), 32 Mbytes (A2232A), 64 Mbytes (A2511A), and 128 Mbytes (A2516A) at MPE/iX Release 4.5. Please be aware of possible slot limitations due to existing memory modules.

STEP 3 - Determine disk storage needs

Disk requirements will vary with the number of active users and the nature of the customer's application. As a general rule of thumb the following formula can be used:

■ Disk Storage = 400 Mbytes + (40 Mbytes x Number of Concurrent Users)

For disk storage beyond what is supported internal to the system package, external disks will need to be ordered as stand-alone products. *Refer to Chapter 6 for more information on external add-on SCSI, HP-FL, and HP-IB disk drives.*

System	Standard Disk (SCSI)	Internal Disk Options (SCSI only)	Maximum Disk (internal and external)
917LX	.67 GB	1.3 GB	24 GB
927LX, 937LX, 947LX, 957LX, 967LX	1.3 GB	N/A	24 GB
937, 947, 957, 967, 977, 987	1.3 GB	2.7 GB / 4 GB	66 GB

Enter the number of SCSI disks required (including internal)   _____

Enter the number of HP-IB disks required   _____

Enter the number of HP-FL disks required
(Note: LX versions do not support HP-FL)   _____

STEP 4 - Choose a tape backup solution

Every Series 9x7LX and 9x7 system comes standard with a 2.0 GB DDS format tape drive capable of backing up data at 11 MB/minute. The chart below can be used as a guide for selecting an appropriate backup solution. *See Chapter 6 for more detailed information on back-up solutions.*

Tape Back-Up Recommendation

Type of Back-Up	Disk Storage to be backed up (Gbytes)				
	2.5	2.5 - 4	4 - 6	6 -10	> 10
Unattended (with TurboSTORE/XL II)	1 DDS	1 DDS	1 DDS	2 DDS	≥ 3 DDS
On-line (with TurboSTORE/XL II)	1 DDS	1 DDS	2 DDS	3 DDS	≥ 4 DDS

Enter the number of SCSI DDS drives required (including internal)   _____

STEP 5 - Select a printer

Both system and serial printers are supported on the 9x7LX and 9x7 systems. *Consult chapter 6 for supported printers.*

Note	HP-IB system printers require a PBA-IB card (A1747A) which uses two HP-PB slots (Series 9x7LX systems have only two slots). Consequently, having an HP-IB printer or HP-IB back-up device may require the purchase of a Series 9x7 package with its expanded number of slots.

Record the number of HP-IB printers required   _____

Record the number of serial printers required   _____

STEP 6 - Network link products

For MPE/iX systems, NS 3000 Point-to-point and IBM (SNA, BSC) communications require a PSI card. Each PSI card occupies one HP-PB slot.

Record the number of PSI cards required   _____

Second 802.3 HP-PB LANIC card occupies one HP-PB slot   _____

802.5 Token Ring LAN card occupies one HP-PB slot   _____

STEP 7 - I/O interface cards

I/O interface cards allow the system to communicate with peripheral devices. The number of each card required depends on the number and type of peripheral devices that will be connected to the system. Use the configuration rules in Chapter 5 to determine the number of SCSI, PBA-IB, and PB-FL interfaces required.

To verify that the number of cards required do not exceed the capacity of the system package enter the quantity of each interface card required in the slot worksheet below.

I/O Interface Cards	Quantity				Number of Slots
Enter number of SCSI interfaces (not including integrated SCSI on MFIO) (9x7LX maximum = 2) (9x7 maximum = 10)	_____	X	1	=	_____
Enter number of PBA-IB interfaces (9x7LX maximum = 1) (9x7 maximum = 2)	_____	X	2	=	_____
Enter number of PBA-FL interfaces (PBA-FL is obsolete. Replace with PB-FL) (9x7LX maximum = 0) (9x7 maximum = 3)	_____	X	2	=	_____
Enter number of PB-FL interfaces (9x7LX maximum = 1) (9x7 maximum = 3)	_____	X	2	=	_____
Enter number of network link cards (from Step 6) (9x7LX maximum = 2) (9x7 maximum = 5) *Note: If 3 PBA-FL cards selected on 9x7, maximum network link cards = 4.*	_____	X	1	=	_____
Total slots required (9x7LX maximum = 2) (9x7 maximum = 12)				=	_____

STEP 8 - Terminal connect (DTC16 and DTC48)

DTCs are used to connect HP 3000s to local terminals, remote terminals (via modems), serial printers, and provide access to X.25 and ARPA networks. The number of DTCs required will depend on the number of ports needed to connect users, printers etcetera and the mode of network distribution.

The table below illustrates the recommended solution for various port configurations. *For further detail on DTC16 or DTC48 or information on X.25 or Telnet connections, consult Chapter 7.*

DTC Recommendations

	Number of ports required	
	1-32	**> than 32**
9x7LX or 9x7 - Unracked - Racked *	2340A A1883A/A1884A	2345A A1883A/A1884A
* Provides a factory integrated solution with SPU, DTC48, and external disk racked in a 1.1 or 1.6 meter cabinet. See pages 2-8 to 2-12 for more details on these integrated solutions.		

STEP 9 - LAN cabling

A 2 meter 802.3 LAN cable is included with each Series 9x7LX and 9x7 system for attaching the DTC. Distributed DTC configurations will need longer cables which are orderable from CPO.

STEP 10 - Console/terminals

Each Series 9x7LX and 9x7 system is supplied with one 700/92 terminal as the system console. All necessary console attachment hardware is included.

Several high-quality terminals are available for the HP 3000:

Product	Description	Memory	Additional Features
700/43	Multipersonality ASCII	4 pages	Supports 12 popular compatibility modes
700/92	Blockmode VPLUS	8 pages	
700/94	High performance blockmode VPLUS	16 pages	Local forms cache, edit checks, modified data tag
700/96	Blockmode VPLUS	8 pages	High-quality display; EC 92 regulations (EN 55022B)
700/98	High performance blockmode VPLUS	16 pages	High-quality display local forms cache, edit checks, modified data tag; EC 92 regulations (EN 55022B)
700/96ES	Blockmode VPLUS	8 pages	Compliant with Swedish MPR 1990:10 guidelines
700/98ES	High performance blockmode VPLUS	16 pages	Compliant with Swedish MPR 1990:10 guidelines
Note: VPLUS requires a 700/92 or 700/94 terminal. Oracle's SQL*Forms, INGRES forms, and JAM will run on any 700 series terminal. JAM also runs on a block mode terminal, giving the user optimal performance.			