

IBM PS/2 76 486, 77 486, 77 486DX2; ULTIMEDIA M77 486 AND ULTIMEDIA M77 486DX2; AND PS/2 486-33/66 MICROPROCESSOR UPGRADE OPTION**Contents**

[Announcement Letter Number 192-223 dated September 21, 1992](#)

[US - Last Revised on September 21, 1992](#)

Brief Description of Announcement, Charges, and Availability

The new premier PS/2 (R) 76, 77 and Ultimedia (TM) M77 systems are full 32-bit 486 Micro Channel (R) systems designed to enhance the PS/2 product line at very attractive prices. The models announced today are:

- o PS/2 76 486 (9576-0U6, 0UA)
- o PS/2 77 486 (9577-0UA, 0UF)
- o PS/2 77 486DX2 (9577-0NA, 0NF)
- o PS/2 Ultimedia M77 486 (9577-1UA)
- o PS/2 Ultimedia M77 486DX2 (1NA).

Common Features:

These systems provide a choice of 486 processors: i486DX2-66 (1) (66MHz internal and 33MHz external with 8KB of cache memory and integrated floating-point processor) and i486SX-33 (1) (33MHz with 8KB of cache memory). Other significant features include 8MB of standard memory, small computer system interface (SCSI) busmaster cache controller with larger and faster hard disks -- 104MB (million bytes), 212MB and 400MB), video provided via an XGA (R)-2 adapter designed to meet the International Organization for Standardization (ISO) requirements, two 9-pin serial ports, a high-speed DMA parallel port and an enhanced IBM Mouse. The systems are supported by the Select-a-Keyboard option.

All the systems include OS/2 (R) 2.00.1 preinstalled on the hard disk.

Additional Features:

An IBM PS/2 486-33/66 Microprocessor Upgrade Option is also

announced that allows upgrades of i486SX-33 based systems with the enhancement of an internal processor speed of 66MHz and an integrated floating-point processor. The Ultimedia M77 models include a 212MB fixed disk, a 600MB CD-ROM, built-in audio functions, and a variety of Ultimedia sampler applications.

As a result of IBM's continued commitment to improve product reliability, the new premier PS/2 product line, including all 9576 and 9577 models, has a three-year, on-site warranty. However, an optional one-year warranty is available via special bid.

Planned Availability Dates:

- o September 21, 1992, except for the IBM PS/2 Ultimedia M77, which will be available December 1992
- o November 6, 1992, for the IBM PS/2 486-33/66 Microprocessor Upgrade Option (#3072, 32G3690).

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IN BRIEF . . .

- o High-performance systems with 486DX2-66 (integrated floating-point processor) or 486SX-33 processor with 8KB of internal cache memory
- o 486 33/66 Processor Upgrade Option (xUx) for enhanced performance
- o ISO compliant, faster, higher resolution, industry-standard XGA-2 graphics
- o Three-year, on-site warranty
- o Ready-to-use preinstalled OS/2 2.00.1 on hard disk
- o Standard 8MB 70ns memory with support up to 32MB memory
- o Increased capacity:
 - 2.88MB diskette drive with media sense
 - Faster access, cached SCSI hard disks -- 104MB (0U6), 212MB (0UA, 1UA, 0NA and 1NA) and 400MB (0UF and 0NF)
- o Ultimedia models include an application sampler package on CD-ROM
- o Mechanical package:
 - PS/2 76: 3 slots and 3 bays
 - PS/2 77 and M77: 5 slots and 4 bays

Customer Letter Section

DESCRIPTION

BUSINESS SOLUTIONS

The PS/2 76, 77 and Ultimedia M77 systems support the customer's business objectives by providing a choice of processor performances, best graphics, ranges of memory and hard disk drive capacities tailored to each customer application and environmental need.

The preinstalled OS/2 2.00.1 makes it the ideal platform for desktop, networking, communications and multimedia solutions.

INVESTMENT PROTECTION

The high degree of compatibility between the 76, 77 and Ultimedia M77 and other PS/2 devices protects the customer's investment in PS/2 hardware and software. An extensive list of Micro Channel options is supported.

The IBM PS/2 486-33/66 Microprocessor Upgrade Option provides customers with the capability to upgrade the performance of the system at a minimal expense.

The DOS 5.0, Operating System/2 (R) 2.00.1 and AIX PS/2 1.3 operating systems and compatible software are supported.

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GROWTH ENABLEMENT

The PS/2 76, 77 and M77 systems support application development and growth through expansion features. The microprocessor on the PS/2 76 486 and PS/2 77 486 can be upgraded to the 486DX2-66 through the second processor socket. The standard system memory may be expanded to 32MB on the system board. Available 32-bit Micro Channel slots allow the addition of options for additional applications. Available direct access storage device (DASD) bays provide for the addition of 3.5-inch and 5.25-inch DASD devices (hard disk drive, diskette drives, tape drive, CD-ROM).

The PS/2 486-33/66 Microprocessor Upgrade Option offers PS/2 76, 77 and Ultimedia M77 customers with 486SX 33MHz models a higher level of performance and growth to handle more compute-intensive applications.

USER PRODUCTIVITY

User productivity is significantly enhanced by many of the new features of the PS/2 76 486, PS/2 77 486 and the PS/2 Ultimedia M77.

The new features include:

- o Powerful 486 processors operating at 66/33 or 33MHz for improved computing performance
- o XGA-2 graphics subsystems providing higher refresh rates and significant improvement in device driver performance
- o A 2.88MB diskette drive with media sense that allows for more data to be stored on fewer diskettes
- o Keyboard port and keyboard, pointing device port and mouse, video port, two serial ports, parallel port and SCSI port
- o Preinstalled OS/2 providing a fully configured, ready-to-go system with features that enable the user to manage system configuration easily.

PS/2 Ultimedia M77 provides:

- o An interactive multimedia demonstration to quickly acquaint and educate the user on system features
- o Multimedia application samplers on multiple CD-ROMs for immediate system utilization
- o Several multimedia application runtimes to play presentations created on other systems
- o An interactive navigation program, called System Guide, that helps the user explore the content of the CDs provided with the Ultimedia system.
- o Exceptional resolution and color required for productivity in a graphic windowing environment
- o An audio subsystem integrated into the audio front panel and CD-ROM drive -- users will be able to play or build multimedia titles as soon as the system power on is completed.

The PS/2 486-33/66 Microprocessor Upgrade Option enhances end-user productivity by maintaining hardware and software compatibility with the base system, feature and applications. Common user interface enables significant performance enhancements and increased productivity without new system education, command or unique instructions.

ADDITIONAL PRODUCT INFORMATION

MECHANICAL PACKAGE

The mechanical package design of these new products allows for horizontal or vertical operation via a vertical stand. The mechanical packages allow for expansion of Micro Channel adapters and bays for diskette or SCSI devices. Two of the bays contain a 3.5-inch 2.88MB media sense diskette drive and a SCSI hard disk drive. Additional 5.25-inch and 3.5-inch devices, diskette drives, hard disk drive, tape, CD-ROM drives and similar devices may be installed in the remaining bays.

PS/2 76 486 AND 77 486 MODELS

Two models of the PS/2 76 486 systems are offered. They come with the 486SX-33 microprocessor and a SCSI hard disk drive and memory capacities of 104MB and 8MB of memory (9576-0U6), and 212MB and 8MB of memory (9576-0UA).

Four models of the PS/2 77 486 are offered. Two models come with the 486SX-33 microprocessor and a SCSI hard disk drive and memory capacities of 212MB and 8MB of memory (9577-0UA), and 400MB and 8MB of memory (9577-0UF). The highest level of system performance is offered by two models with the 486DX2-66 microprocessor and SCSI hard disk drive and memory capacities of 212MB and 8MB of memory (9577-0NA), and 400MB and 8MB of memory (9577-0NF).

ULTIMEDIA M77 MODELS

Two Ultimedia M77 models are offered. One model has the 486SX-33 microprocessor (9577-1UA), and one model has the 486DX2-66/33MHz microprocessor (9577-1NA). All the Ultimedia models come with 8MB of memory, a SCSI 212MB hard disk drive, a 600MB CD-ROM, an M-Audio adapter, front-mounted headphone and microphone jacks, a microphone and volume control (9577-1UA and 1NA). The hard disk drive contains three operating environments. A variety of IBM/vendor multimedia applications, application samplers and demonstration software, including an application navigator and an "Introducing Ultimedia" including an application navigator and an "Introducing Ultimedia" demonstration, is provided on CDs.

PS/2 Ultimedia M77 usability features include the additional preinstallation of three independent operating environments -- OS/2 2.00.1 with MMPM/2, DOS 5.0 with ISO support, and Windows (2)

3.1. In addition, an installation diskette is designed to minimize customer involvement with the process of removing or re-installing operating environment software supplied on the Ultimedia System CD.

(2) Trademark of Microsoft Corporation.

Included with each Ultimedia system is a variety of IBM/vendor multimedia applications, application samplers, and demonstration software in CD-ROM format. The application samplers enable the novice, experienced or professional multimedia user to experience multimedia presentations, creation and reference applications. Each sampler, however, has a limitation, such as permanently displayed product identifiers, inability to save output, limited creation size, limited amount of application creation time, or limited product capability. These limitations are described in each of the supplied product publications. The sampler capabilities include use of text, graphics, animation, digitized images and audio for creation of interactive screen presentations, education/training utilities, kiosk presentations, and personalized productivity aids, such as image and voice database.

A general-purpose electric microphone is provided to support voice input applications, including sample programs, provided with the system, that use voice input.

Some of these applications, application samplers and demonstrations are derived from non-IBM products. IBM makes no comments or judgments regarding the functions, quality, performance, technical content and information. The supplier should be contacted directly to verify product functions, accuracy of technical content and information, and availability and suitability for specific purposes. Warranties, and other terms and conditions pertaining to the use of these samplers and demonstration programs, if any, are furnished by the software supplier.

MEMORY

All systems are shipped with one 8MB single in-line memory module (SIMM) located in SIMM socket 1. The systems support up to 32MB of 70ns memory on the planar in four SIMM sockets.

SCSI CONTROLLER

The busmaster cache SCSI controller is integrated in the planar (no slot is required). Up to seven SCSI devices (including the standard

SCSI hard disk drive) may be attached to the system internally or externally via the external SCSI connector.

SELECT-A-KEYBOARD

At time of purchase the customer chooses from a variety of IBM keyboards at no additional charge. If no keyboard is selected, the default is the 'Enhanced Keyboard 101 -- U.S. Language.'
default is the 'Enhanced Keyboard 101 -- U.S. Language.'

This feature provides the customer with the following types of keyboards:

- o Enhanced Keyboard (101 keys)
- o Space Saving Keyboard (84 keys)
- o Host Connected Keyboard (122 keys).

Additionally, these keyboards will be offered in different languages and will be a secondary selection for the customer at time of system purchase. Thus, a Spanish Space Saving Keyboard will be a configuration that could be delivered to the customer if chosen at time of system purchase.

OPERATING SYSTEMS

DOS: The DOS 5.0 customers can use the fonts designed to meet ISO 9241 Part 3 and DIN 66234 on DOS 5.0 by using the file ISO.CPI provided on the DOS ISO Utility Diskette. DOS 5.0 customers can obtain the DOS ISO compliant fonts and associated README files from an IBM fulfillment house (800-426-7282) for a nominal fee (bill of material, shipping, and handling charges) or downloading them electronically from PCTOOLS, DOSCSD, NSCBBS and CompuServe. Refer to NATBOARD and HONE for detailed ordering information or contact your IBM representative.

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION (ISO)

Refer to Product Announcements 192-221 and 192-228, dated September 21, 1992, for details.

PRODUCT POSITIONING

The PS/2 76 486 and PS/2 77 486 are Micro Channel systems designed for computing environments that require high levels of processor performance, high-resolution graphics, large storage capacities and configuration flexibility. These system attributes are desirable in business applications that have multitasking and compute-intensive

requirements.

The PS/2 76 486 and PS/2 77 486 are also suitable for desktop publishing, training, education, public access and merchandising environments. The systems are suitable for customers in small, medium and large companies.

In addition, the PS/2 Ultimedia M77 is a Micro Channel system designed for computing environments requiring multimedia capabilities.

PUBLICATIONS

The following publications are shipped with the product. Additional copies are available immediately, except as noted:

TITLE	ORDER NUMBER	PART NUMBER
PS/2 76 486 System Library	S42G0572	42G0572
PS/2 77 486 System Library	S42G0571	42G0571
PS/2 M77 System Library	S42G0570*	42G0570

*. Available at product availability.

NOTE: The system library contains the following booklets:

- o SETUP provides information about installing the system unit, keyboard, mouse and display.
- o USER'S HANDBOOK contains the basic information needed to use the computer. It provides introductory, using and user-reference information.
- o MICRO CHANNEL COMPUTER REFERENCE contains reference information needed to learn about the base system and its technical capabilities.
- o SOLVING PROBLEMS contains basic information needed to diagnose a failing computer.
- o INSTALLING OPTIONS contains the basic information needed to expand the capabilities of the base computer (adding memory, additional drives, option adapters).
- o XGA-2 DEVICE DRIVER PACKAGE contains a diskette and installation instructions for the XGA-2 device drivers. This may be ordered separately (S42G2928, 42G2928).

The following publications will be available from IBM after planned availability. To order or obtain current prices, contact your IBM representative.

TITLE	ORDER NUMBER	PART NUMBER
Hardware Maintenance Library	S42G-2197	42G2197
Interface Technical Reference System Specific	S84F-9807	84F9807
-- Update	S42G-0558	42G0558
Video Architectures	S42G-2193	42G2193
Architectures	S84F-9808	84F9808
Architectures -- Update	S10G-6466	10G6466
Subsystem Control Block Supplement	S85F-1678	85F1678
Common Interfaces	S84F-9809	84F9809
Common Interfaces -- Update (9/91)	S04G-3281	04G3281
BIOS Technical Reference	S04G-3283	04G3283
-- Update	S10G-6467	10G6467

System Library Subscription Service (SLSS) is available.

DISPLAYABLE SOFTCOPY PUBLICATIONS

The IBM Personal System/2 (R) 76, 77 and M77 User's Handbook is offered in displayable softcopy form. These displayable manuals can be used with the BookManager (R) READ licensed programs in any of the supported environments. Terms and conditions for use of the machine-readable files are shipped with the files.

SOURCE FILE PUBLICATIONS

The IBM Personal System/2 76, 77 and M77 User's Handbook is offered as a no-charge feature. These files can be used with the BookMaster (R) and DCF licensed programs to create unmodified printed copies of the manuals. The source files can also be used with the BookManager BUILD licensed program to create unmodified displayable softcopy manuals. Terms and conditions for use of the machine-readable files are shipped with the files.

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EDUCATION SUPPORT

Details of all classroom and self-study are contained in the Catalog of IBM Education (G320-1244).

Call IBM Direct -- Education at 800-IBM-TEACH (426-8322) for schedules and enrollments.

TECHNICAL INFORMATION

SPECIFIED OPERATING ENVIRONMENT

PHYSICAL SPECIFICATIONS:

Processor:	486SX or 486DX2
Speed (MHz):	33 or 66/33
Memory (70ns):	8MB
Max. memory (70ns):	32MB
Hard disk drive:	104MB, 212MB or 400MB
Diskette drive:	2.88MB

The system is intended for use in either a horizontal or vertical orientation. Vertical orientation must be via the Vertical Stand. The Vertical Stand is shipped with the 9577 system and is optional with the 9576 system.

PS/2 76 486 Physical Specifications:

Size:

Width:	360 mm (14.2 in.)
Depth:	395 mm (15.6 in.)
Height:	115 mm (4.5 in.)

Weight:

Minimum configuration:	11.8 kg (26.0 lb.)
Maximum configuration:	13.6 kg (30.0 lb.)

Cables:

Power cable:	1.8 m (6 ft.)
Keyboard cable:	3.0 m (9 ft.)

Air Temperature:

System on (0 -- 7000 ft)	10.0 to 35.0 (degs)C (50 to 95 (degs)F)
System off:	10.0 to 43.0 (degs)C (50 to 110 (degs)F)

Humidity:

System on:	8% to 85%
System off:	5% to 85%

Maximum Altitude:	2133.6 m (7000 ft.)
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Heat Output:

199 BTU/Hr. (58 watts -- configuration as shipped)

658 BTU/Hr. (192 watts -- maximum configuration)

Electrical:

- o Power supply: 118 watt
- o Input range: Dual voltage controlled automatically by the power supply
- o Low range: 90 (min) -- 137 (max) V ac
- o High range: 180 (min) -- 265 (max) V ac
- o Input frequency: 50/60 +/- 3Hz
- o Maximum current draw:
 - Low range: 3.5 A
 - High range: 1.75 A
- o Input in kilovolt-ampere (kVA):
 - Minimum configuration: 0.06 kVA (as shipped from IBM)
 - Maximum configuration: 0.35 kVA

ACOUSTICAL READINGS: Declared acoustical noise emissions (idle

mode): LWAD = 5.0 bels. The noise emission level stated is the declared (upper limit) sound power level, in bels, for a random sample of machines, typically configured, and operating in idle mode; that is, powered on, but no DASD read/write or other I/O activity.

All measurements made in accordance with ANSI S12.10 and reported in conformance with ISO DIS 9296.

PS/2 77 486 Physical Specifications:

Size:

Width: 440 mm (17.3 in.)

Depth: 394 mm (15.5 in.)

Height: 168 mm (6.6 in.)

Weight:

Minimum configuration: 11.8 kg (26.0 lb.)

Maximum configuration: 15.9 kg (35.0 lb.)

Cables:

Power cable: 1.8 m (6 ft.)

Keyboard cable: 3.0 m (9 ft.)

Air Temperature:

System on (0 -- 7000 ft) 10.0 to 35.0 (degs)C (50 to 95 (degs)F)

System off: 10.0 to 43.0 (degs)C (50 to 110 (degs)F)

Humidity:

System on: 8% to 85%

System off: 5% to 85%

Maximum Altitude: 2133.6 m (7000 ft.)

Heat Output:

158 BTU/Hr (46 watts -- configuration as shipped)

857 BTU/Hr (250 watts -- maximum configuration)

Electrical:

- o Power Supply: 197 watt
- o Input range: Dual voltage controlled by manual switch on back on unit
- o Low range: 90 (min) -- 137 (max) V ac
- o High range: 180 (min) -- 265 (max) V ac
- o Input frequency: 50/60 +/- 3Hz
- o Maximum current draw:
 - Low range: 4.6 A
 - High range: 2.0 A
- o Input in Kilovolt-Ampere (kVA):
 - Minimum configuration: 0.07 kVA (as shipped from IBM)
 - Maximum configuration: 0.50 kVA

ACOUSTICAL READINGS: Declared acoustical noise emissions (idle mode): LWAD = 5.0 bels. The noise emission level stated is the declared (upper limit) sound power level, in bels, for a random sample of machines, typically configured, and operating in idle mode; that is, powered on, but no DASD read/write or other I/O activity. All measurements made in accordance with ANSI S12.10 and reported in conformance with ISO DIS 9296.

EQUIPMENT APPROVALS:

- o FCC -- Certified to comply with, Part 15 FCC Rules, Class B limits
- o UL -- UL 1950, 1st Edition
- o CSA -- CSA22.2 No.220-M1986.

MACHINE REQUIREMENTS: The system requires an analog display (IBM 9515, 9517, 9518, 8504, 8507, 8512, 8513, 8514, 8515, 8516, 8518 or equivalent).

PROGRAMMING REQUIREMENTS: One of the following operating systems is

required:

- o IBM Disk Operating System (DOS) 5.0
- o IBM DOS 5.0 with ISO fonts
- o IBM Operating System/2 2.00.1
- o AIX (R) PS/2 1.3.

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COMPATIBILITY: Refer to the 9576 and 9577 Sales Manual pages, or contact your IBM representative, for a complete list of supported features and options and compatible IBM and vendor software. The Sales Manual is updated periodically.

The system contains licensed System Programs, which include BIOS, set configuration and features, test, copy an option diskette, backup/restore and update system program. These System Programs are stored in a three million byte protected partition on the hard disk drive. The initial machine load (IML) loads the BIOS program from the hard disk drive into system memory. BIOS provides the hardware instructions and interfaces designed to support the standard features of the system and to maintain compatibility with many software programs currently operating under DOS and OS/2 on the Personal Computer XT (TM), Personal Computer AT (R) and the Personal System/2 family.

Due to the high level of integration, features such the PS/2 Micro Channel memory adapter options are not supported.

Because of the recent introduction of the new 2.88MB diskette drive, earlier versions or releases of operating systems or applications may not format diskette media correctly. Use of the proper level of operating system along with the new 2.88MB diskette drive will provide media sense of the 720KB, 1.44MB and 2.88MB diskettes, giving greater ease in formatting, reading and writing diskettes.

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LIMITATIONS: The systems support only 2MB, 4MB and 8MB 70ns single in-line memory modules (SIMM).

With 32-bit addressing, the maximum addressable memory space

is 32MB. The system reserves 128KB of memory when BIOS/POST is copied to RAM for execution in systems with less than 32MB of planar memory.

Refer to the PROGRAMMING REQUIREMENTS section for operating systems limitations.

The licensed System Programs include BIOS, set configuration and features, copy an option diskette, test, backup/restore and update system program. These licensed System Programs are stored in three million bytes of protected partition on the hard disk drive. The formatted capacity is therefore reduced by three million bytes, and the total user accessible capacity may vary slightly based on operating environments. This partition is not affected when the drive is formatted using the FORMAT command provided in DOS or OS/2. The licensed System Programs are also provided on the IBM Personal System/2 76/77 Reference Diskette. High performance BIOS uses 128KB of system memory.

Display adapter cards that use the Auxiliary Video Extension, when installed in a system, require installation in slot 2 (9577) or slot 3 (9576) and attachment of a display to the system video connector during configuration of the system.

The American National Standards Institute (ANSI) SCSI specification for the total SCSI cable length connected to a SCSI interface is six meters (approximately 19.7 feet) maximum. The length of the SCSI cable inside the system is one meter. Therefore, the total length of all SCSI cables for external devices that operate from the external SCSI connector may not exceed a maximum of five meters (approximately 16.5 feet) including the cables inside each SCSI device.

USER GROUP REQUIREMENTS: This announcement satisfies, or partially satisfies, requirements from one or more of the World Wide User Group Communities, which include Australasian SHARE GUIDE (ASG), COMMON, COMMON EUROPE, GUIDE, European G.U.I.D.E., Japan GUIDE SHARE (JGS), Latin American GUIDE (LAG), SHARE EUROPE and SHARE.

PLANNING INFORMATION

CUSTOMER RESPONSIBILITIES: The PS/2 486-33/66 Microprocessor Upgrade Option is installed by IBM or an IBM Authorized Remarketer.

Customers should contact their IBM marketing representative or an IBM

Authorized Remarketer to arrange for installation.

The PS/2 76, 77 and Ultimedia M77 systems built-in support for Processor Vital Product Data (VPD) will be enabled upon installation of an IML update diskette. The IML update diskette, targeted for delivery November 1992, will be sent, free of charge, to customers who complete and return the registration card. Customers also have the option to request the IML update diskette by calling 800-845-4263. The systems built after November 1992, will not require the IML update for the VPD enabling.

CABLE ORDERS: There are no cabling requirements, other than for system power, keyboard and display connections. Cables are provided with the system unit and display, and the instructions are provided as part of the initial setup.

INSTALLABILITY: On the Ultimedia models (9577-1UA and 1NA) three operating environments are preinstalled on the fixed disk drive (DOS 5.0, Windows 3.1 and OS/2 2.00.1 with MMPM/2 1.0) preconfigured with device drivers. A System Guide is provided for easy navigation of the multiple CD-ROMs of application, application samplers and demonstration programs provided with the Ultimedia systems. The PS/2 Ultimedia installation program provides the ability to install, remove and reinstall operating environments. Applications, application samplers and demonstration software will also be packaged

on CDs. They also include runtime versions of the IBM and ISV multimedia applications as well as the product samplers and demonstrations. An "Introducing Ultimedia" interactive demonstration is provided on CD. This demonstration program shows how the multimedia features of the PS/2 Ultimedia M77 might be used.

HELPWARE (TM) SUPPORT:

o PS/2 HelpCenter (TM)

The customer can ask any questions about the preinstalled operating system, including OS/2 or the enclosed mouse, by calling the HelpCenter at 800-PS2-2227 (772-2227). An IBM representative will work with the customer to answer any questions, including how to get started with DOS applications or how to delete modules to free up hard disk drive space and will

provide references to support offerings, education and any other solution necessary to ensure customer satisfaction.

o 30-Day Money Back Guarantee

As with all PS/2 products, IBM has a high level of faith in the capability of the product to meet the end user's needs. Therefore, this product is eligible under the 30-day money back guarantee program. The preinstalled system may be returned to the place of purchase, for any reason, within 30 days. The returned system must include all components, and must be returned following procedures in NDD #92-147 announcement, or contact your IBM representative or IBM Authorized Remarketer.

o 76 and 77 only

However, if the end user finds that specific requirements are best addressed by DOS 5.0, and the user is satisfied with the system overall, the preinstalled system should not be returned. Instead, the PS/2 HelpCenter should be contacted. The PS/2 HelpCenter will assist the customer by providing DOS 5.0 to replace the preinstalled OS/2 on the system and instructing the end user on how to initiate a self-destruct procedure for OS/2 2.00.1.

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PROGRAM SERVICES:

o Installation Support

Installation and technical support is provided by Service, Support and Applications (SSA) in Boca Raton, FL, at 800-241-1620.

o End-User Support

Contact 800-241-1620 for service. End-user support is provided on a call-back basis between the hours of 8:00 a.m. and 6:00 p.m., Eastern time, Monday through Friday. When operating in call-back mode, IBM will provide the end user with telephone assistance in problem diagnosis, as well as status of previously reported problems.

o M/S Support

Technical coordinators and systems engineers have access to a RETAIN (TM) file via IBMLink (TM). The RETAIN file provides product defect information, such as the description of a defect,

the severity of the defect and the current status relative to resolution.

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CUSTOMER RESPONSIBILITIES: Customers are expected to perform problem determination procedures and to seek assistance when required. End users who have access to technical coordinators and registered technical advisors are expected to obtain assistance from those sources before contacting IBM with a problem. Customers are expected to furnish additional data when requested to do so by IBM. Customers are also responsible to install corrective service diskettes using procedures supplied by IBM.

SSA RESPONSIBILITIES: Maintenance support representatives working in support centers will:

- o Determine whether the problem is hardware or software
- o Determine whether the software problem is technical usage or suspected defect
- o Identify which software is causing the problem
- o Work with the Change Team Interface
- o Assist the end user in applying corrective service.

PACKAGING: PS/2 76, 77 and Ultimedia M77 systems:

- o PS/2 76 486 (9576-0U6, 0UA)
- o PS/2 77 486 (9577-0UA, 0UF)
- o PS/2 77 486DX2 (9577-0NA, 0NF)
- o PS/2 Ultimedia M77 486 (9577-1UA)
- o PS/2 Ultimedia M77 486DX2 (1NA).

The contents of the system unit carton are:

- o System Unit (9576 or 9577)
- o Shipment Group.

The contents of the shipment group are:

- o Welcome Letter
- o Vertical Stand
- o PS/2 System Library
- o Mouse
- o OS/2 Preload Documentation Package
- o System unit power cord
- o Keyboard cable.

The following are packaged separately:

- o Keyboard
- o Ultimedia Software and Documentation box (9577-1UA and 1NA only).
 - KEYBOARD CARTON (customer selection dependent*)
 - IBM Space Saving Keyboard
 - or
 - IBM Enhanced Keyboard
 - or
 - IBM Host Connect Keyboard
 - or
 - IBM Enhanced Keyboard -- French Canadian
 - or
 - IBM Space Saving Keyboard -- French Canadian
 - or
 - IBM Enhanced Keyboard -- LA Spanish
 - or
 - IBM Space Saving Keyboard -- LA Spanish

* = 1 Carton each (Select-a-Keyboard)

NOTE: The shipment group is in a separate carton and included in the system unit carton.

ACCESSORIES AND/OR SUPPLIES: The 3.5-inch, 4MB diskettes (72X6111) can be purchased from IBM Authorized Supplies Dealers, IBM Authorized Distributors or from IBM Teleservice and Customer Support (TCS).

Call IBM TCS at 800-IBM-2468 (426-2468). Mail orders should be sent to:

IBM Corporation
IBM Teleservice and Customer Support
One Culver Road
Dayton, NJ 08810

OS/2 2.00.1 BACKUP DISKETTE DRIVE FOR PREINSTALLED SYSTEM (9576 AND 9577)

The backup diskettes can be purchased by calling IBM at 800-3-IBMOS2 (342-6672) or mailing OS/2 2.00.1 preinstalled diskette order form shipped with the system. The price of this package is \$69.95. This package contains the following items:

- o Program License Agreement
- o OS/2 diskette and preinstalled code diskette
- o Publication.

SECURITY, AUDITABILITY AND CONTROL

The following enhanced security functions are standard in these systems except where noted:

- o Cable down capability
- o Lockable covers (key lock)
- o Tamper evident covers (visual evidence only)
- o Power-on password
- o Keyboard password
- o Secured external rear I/O cables (optional).

Software system identification Vital Product Data (VPD) enabled:

- o Unique ID (model/submodel)
- o Type/model/serial number
- o Planar serial number
- o Manufacturing ID
- o Planar FRU number
- o Planar part number.

User management is responsible for evaluation, selection and implementation of security features, administrative procedures and appropriate controls in application systems and communications facilities.

TERMS AND CONDITIONS

VOLUME DISCOUNT: Volume purchasing is available under the Volume Discounts Section of the IBM Customer Agreement (ICA).

The PS/2 76 (9576) and PS/2 77 and M77 (9577) are included in Category A, Discount Group 1, of the Volume Discount Exhibit -- Workstations and Related I/O (WKS2).

NOTE: The PS/2 76 (9576) and PS/2 77 and M77 (9577) are available for commitment attainment only and are not offered for a discount when purchased under a volume commitment to the Volume Discount Exhibit -- Workstations and Related I/O.

Software components do not aggregate to the Exhibit for Personal Computer/Systems Programs (PCS).

For further information regarding volume orders, contact your IBM marketing representative.

IBM CREDIT CORPORATION FINANCING: Term leases and installment payment plans are available for commercial and state and local

government customers.

CUSTOMER FULFILLMENT OPTION APPLIES: Yes.

LICENSING: IBM programs included with the PS/2 76, 77 and M77 are licensed under the terms and conditions of the IBM Program License Agreement and IBM System Programs License Agreement. A copy of these agreements are included in the documentation shipped with the systems.

Non-IBM programs are available from IBM as distributed by the program supplier. Terms and conditions of the supplier apply. They are included in the respective program packages in the documentation shipped with the systems and are passed on to the customer.

WARRANTY PERIOD: System Hardware -- Three years. However, an optional one-year warranty is available via special bid.

Processor Upgrade Option (#3072) -- One year minimum, or the remaining warranty of the system in which the feature is installed.

Media -- Three months.

IBM programs -- Three months.

Non-IBM programs -- Not warranted by IBM. Warranty if any, is as provided by the programs supplier.

WARRANTY SERVICE: System Hardware, IBM On-Site Repair (IOR).

MAINTENANCE SERVICE: IBM On-Site Repair (IOR).

IBM HOURLY SERVICE RATE CLASSIFICATION: One. IBM Warranty Service, Maintenance Service or IBM Hourly Service may be obtained by calling 800-IBM-SERV (426-7378). IBM Hourly Service is available at the applicable rate and terms, including element exchange price if applicable.

VOLUME MAINTENANCE OPTION: The 9576 and 9577 are eligible machines and qualify for the Volume Maintenance Option* of the ICA.

MID-RANGE SYSTEM OPTION: The 9576 and 9577 are eligible machines for the Mid-Range System* Option of the ICA.

ELIGIBLE

DISCOUNT

TYPES

THREE-YEAR

FIVE-YEAR

9576

17%

22%

9577

17%

22%

CORPORATE SERVICE OPTION: The 9576 and 9577 are eligible machines for the Corporate Service Option* of the ICA.

DISCOUNT

OPTION	THREE-YEAR	FIVE-YEAR
Network	25%	30%
System	17%	22%

EXTENDED MAINTENANCE OPTION: The 9576 and 9577 are eligible machines for the Extended Maintenance Option* of the ICA.

CENTRAL FACILITY MAINTENANCE SERVICE OPTION: The 9576 and 9577 are eligible machines for Central Facility Maintenance Service Option* of the ICA.

A minimum of six machines is required to be at the central facility before requesting maintenance service. The Additional Maintenance Charge Factor is currently 0.5 hours. The terms and conditions are stated in the Attachment for Central Facility Maintenance Service Option.

* A revised exhibit will be available at a later date.

PRODUCT AVAILABILITY STATUS: New product available.

CUSTOMER SETUP: Yes.

LICENSED INTERNAL CODE: No.

IBM EDUCATION ORDER CENTER: The 9576 and 9577 are available for ordering through the IBM Education Order Center. Availability through the Education Order Center may not coincide with the product availability dates in other sections of this document.

The IBM Education Order Center is the order processing location for selected personal computers and related hardware/software for eligible education end users. Eligible end users are defined as faculty and staff members of qualified kindergarten through twelfth grade educational institutions and students, faculty and staff members of higher educational institutions that have an Education Product Coordinator.

NATIONAL EDUCATION PRICE (NEP): A National Education Price is available under the terms and conditions of the National Education Price Exhibit. The NEP price, which represents a 25% discount from the single unit purchase price, is not subject to any further discount or allowance. The machines in this announcement are included in the National Education Price Exhibit.

CHARGES

MODEL/

DESCRIPTION	MACHINE TYPE	FEATURE NUMBER	PART NUMBER	PURCHASE PRICE
System Unit	9576	0U6	95760U6	\$2,735
System Unit	9576	0UA	95760UA	3,120
System Unit	9577	0UA	95770UA	3,320
System Unit	9577	0UF	95770UF	4,065
System Unit	9577	0NA	95770NA	3,935
System Unit	9577	0NF	95770NF	4,680
System Unit	9577	1UA	95771UA	4,695
System Unit	9577	1NA	95771NA	5,305

Models 1UA and 1NA include the system unit, keyboard, mouse and Software (environments, demonstrations and samplers) on CD. The install program is on diskette.

MAINTENANCE SERVICE CHARGES: None.

ANNUAL MINIMUM MAINTENANCE CHARGES:

MACHINE TYPE	MODEL	IBM ON-SITE REPAIR (IOR)	CENTRAL FACILITY MAINTENANCE SERVICE (CFMS)
9576	All	\$235	\$223
9577	0UA	410	389
9577	0UF	410	389
9577	0NA	440	418
9577	0NF	440	418
9577	1UA	490	465
9577	1NA	490	465

SPECIFY FEATURE CODES: The following charge applies to features ordered for field installation:

FEATURE	DESCRIPTION	CHARGE
3072	IBM PS/2 486-33/66 Microprocessor Option	\$899