

## IBM 3270 PERSONAL COMPUTER

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[Announcement Letter Number 183-129 dated October 18, 1983  
US - Last Revised on October 18, 1983](#)

### Brief Description of Announcement, Charges, and Availability

### Customer Letter Section

The IBM 3270 Personal Computer (3270-PC) combines the host-interactive functions of the 3270 Information Display System and the computing power and versatility of the IBM Personal Computer. The 3270-PC can operate with up to seven concurrent sessions: four 3270-type sessions, two local notepad sessions, and one IBM PC DOS 2.0 session. The 3270-PC can display each session or part of a session on the display at any location the user chooses. The 3270-PC can be used in the IBM Information Network.

The IBM PC DOS 2.0 session permits the operation of non-APA graphics IBM Personal Computer applications that use or observe IBM PC DOS 2.0 and BIOS protocols and conventions. (See the Technical Reference Manual for the IBM Personal Computer, PN 6025005.)

The 3270-PC File Transfer licensed programs when installed in VM/SP or MVS/TSO host systems can be used with the 3270-PC Control Program for transferring files to or from the host.

The 3270 Personal Computer is available in several configurations consisting of:

- . 5271 System Unit Model 2, 4, or 6
- . 5151 Monochrome or 5272 Color Display
- . 3270-PC Control Program
- . IBM PC DOS 2.0
- . 5152 Graphics Printer (optional)
  - The 5271 standard models include:
    - 5271 Model 2
- . 256KB RAM (expandable to 640KB)
- . 5151/5272 Display Adapter
- . 5271 keyboard

- . 5271 Model 2 features, plus
- . 64/256KB Memory Expansion Option (with 64KB for 320KB total)
- . Printer Adapter for a 5152 Graphics Printer
- . Second Dual-Sided Diskette Drive
- 5271 Model 6
- . 5271 Model 2 features, plus
- . 64/256KB Memory Expansion Option (with 64KB for 320KB total)
- . One 10MB Fixed Disk and Fixed Disk Adapter
- . Printer adapter for a 5152 Graphics Printer
- The 5272 Color Display includes
- . Line cord
- . Color display stand
- Highlights
- The IBM 5271 using the 3270-PC Control Program and IBM PC DOS 2.0 provides the following:
- . Concurrent operation of up to four host interactive sessions, up to two local notepad sessions, and one IBM PC DOS 2.0 session
- . Base 3270 (four-color) or 3270 extended data stream (eight-color, Distributed Function Terminal mode only) support
- . Two host-interactive modes, set during 3270-PC and 3274 customization
  - Distributed Function Terminal mode: one to four sessions (or LUs) emulating any model 3178, 3278 (except Models 2A and 5), or 3279 (except Model 2C) via a 3274 with configuration support T or D
  - Control Unit Terminal mode: one session (or LU) emulating a 3178, 3278 Model 2, or 3279 Model S2A via either:
    - . 3274, any model and configuration support
    - . 4321, 4331, or 4361 Display/Printer Adapter
- . Advanced screen management, including the ability for the user to
  - Define user-controlled display area (up to 2,000 characters) to allow viewing all or part of a presentation space; a presentation space is a logical representation of a host (up to 3440 characters) or local (2,000 characters) session
  - View through a window on the display screen selected portions or all of the application presentation spaces that have been defined
  - Move the window to any location on the display screen
  - Move the window to any location within the presentation space
  - Alter the size of a window, permitting various combinations of concurrent applications to be seen
  - Define the foreground and background color for host session windows not using extended data stream attributes
  - Define the background color for the 5272 screen
  - Select base-color (3279 four-color) mode
  - Define combinations of windows in up to ten logical screens

- profiles, keystroke recordings, and notepad presentation spaces
  - . File transfer (host to and from a 3270-PC file) in ASCII, binary, or EBCDIC data format
  - . One IBM PC DOS 2.0 session using software which observes IBM PC DOS 2.0 and BIOS protocols and conventions (APA graphics is not available)
  - . One or two local notepad sessions to copy or save data from other sessions, personal notes, or general scratch-pad use
  - . 5271 keyboard
    - 3270 host keytop graphics printed in black
    - Keytops unique to IBM Personal Computer operations printed in blue
    - Thin, coiled cable
    - Adjustable slope
  - . 5272 Color Display Unit: 1,920 characters for host and notepad sessions, 2,000 characters for IBM PC DOS 2.0 session
  - . IBM Personal Computer function in native mode, except APA graphics
  - . Use of other IBM Personal Computer options with IBM PC DOS 2.0 applications
  - . Print to the 3270-PC attached printer or 3274 attached printer
    - Screen copy to the 3270-PC attached printer
    - IBM Personal Computer full screen (presentation space) to the 3270-PC attached printer
    - Host full screen (presentation space) to 3274 attached printer or 4321, 4331, or 4361 Display/Printer Adapter attached terminal printer.
  - . Ease-of-use functions
    - Operator information area (OIA)
    - Message line - user prompt area
    - Help function - displays active workstation control functions and sessions
    - Online Tutorial - explains the capabilities and functions of the 3270-PC and simulates workstation functions. (The tutorial can be run in a standard IBM Personal Computer with a Dual Sided Diskette and IBM PC DOS 2.0.)
  - . Alert function (host sessions only)
  - . Response time monitor (Control Unit Terminal mode only)
  - . Maintenance utilities
    - INDPATCH
    - Hardware diagnostics
    - Trace
    - Error handler service
    - Dump facility
- Schedule  
The 3270-PC will have general availability in first quarter 1984.

#### Description

New screen-management functions are incorporated in the 3270-PC Control Program to allow the user to select screen

(except Model 2C) in alphameric application environments; no programming changes are required of current alphameric applications if the hardware features used on the 3270 are available on the 3270-PC.

The 3270-PC in Control Unit Terminal mode attaches to a 3274, any model and configuration support, or a 4321 with specify code #9843, 4331 with specify code #9843, or 4361 Display/Printer Adapter. In Distributed Function Terminal mode, it attaches to a 3274 with configuration support T or D using one physical port and from one to four logical addresses.

The 3270-PC provides new levels of 3270 usage through the following functions:

**Concurrent multiple screen capability:** The viewing area can be configured to display all or part of up to four host interactive sessions, two local notepad sessions, and one IBM PC

DOS 2.0 session at any location on the display screen. Each session is represented within the 3270-PC as a presentation space.

**Multiple interactive sessions:** The user may log-on to an application, multiple applications, or multiple systems. Each presentation space, configured as any model 3278 (except Models 1, 2A, and 5) or 3279 (except Model 2C), acts like a separate 3270 display station, referred to as a logical terminal. The 3270-PC permits up to four host logical terminals to be operable simultaneously in one 3270-PC using one 3274 port.

**Multiple screen-copy capability:** A portion of a presentation space can be copied into another presentation space, except into the IBM Personal Computer presentation space.

**Screen management:** The 3270-PC brings to the user a new level of screen management using multiple viewing areas. Each session is represented by a presentation space. The user can view through a window on the display screen the portion of an application's presentation space. The size of the window can be any size from one character up to the maximum size of the display screen or presentation space, whichever is smaller. In addition, the user can independently move the window to any location on the display screen or presentation space. The user can define up to ten combinations of windows, configured in any way, and cause any one combination to be displayed on the screen at any time.

When all sessions are operating, the user can interact with only one at a time. The interactive session is defined as the session to which the keyboard is logically connected and is displayed "on top" of the other windows.

In addition, the user can cause the active window to be the sole window displayed, up to either the screen or presentation space size, whichever is smaller.

The multiple-session capabilities of the 3270-PC are transparent to host applications when existing 3270 application formats are used. This transparency allows the 3270-PC to operate as compatible 3270 display(s) without reprogramming host

## Technical Information

## Specified Operating Environment

Compatibility: The 3270-PC is an extension to the IBM 3270 Information Display System. It provides 3270 data stream compatibility (single partition) with the 3270 displays. There are operational differences in terms of the screen management facilities, the new keyboard, methods of highlighting, and peripheral device attachment. For performance information, see the "Performance" section of this announcement.

The following paragraphs briefly describe the compatibility characteristics of the 3270-PC and its companion products.

Hardware Requirements: The 3270-PC attaches to System/370 processors and processor complexes and 30XX processors via a 3274 and to the 4321, 4331, or 4361 systems via a Display/Printer Adapter (Control Unit Terminal mode only) or via a 3274. All attachment environments are supported; i.e., SNA local channel, non-SNA local channel, synchronous data link control (SDLC) remote, and binary synchronous control (BSC) remote. Attachment to the 3274 is by coax cable.

The 3274 models and configuration support: Table A identifies the 3274 models and configuration support required for the 3270-PC.

Table A - 3274 Models and Configuration Support

3274 Model:	1B	1A,C,D	1A,C,D		
	21B	21A,C,D		31A,C,D	31A,C,D
					41A,C,D
		51C		51C	51C
					61C
<Storage>	<64K>	<64K>	<128K>		<192K>
5271 Mode					
Control Unit					
Terminal Mode	A	A,B	A,B,C,T		D
Control Unit					
Terminal or					
Distributed					
Function					
Terminal Mode				T*	D*

\* Configuration support T must be at release level 31 or higher and configuration support D at release level 61 or higher.

The following RPQs in the 3274 Control Unit are not allowed when a 3270-PC operating in Control Unit Terminal mode is attached; they relate to keyboard changes: 8K0809 8K0931 8K0949 8K0988 8K1011 8K1012 8K1013 8K1037 8K1056 8K1057 8K1134 8K1159 8K1160 8K1162 8K1163 8K1169 8K1170 8K1195 8K1198.

The multiple logical terminal facility of the 3270-PC allows the user to designate up to four terminal addresses in a single 3270-PC. This requires one physical and four logical addresses for one physical port in the 3274 Control Unit. When planning installation of the 3270-PC, consideration must be given

Distributed Function Terminal mode, Table B specifies the maximum number of 3270-PC logical terminals that can be attached to the 3274.

Table B - Maximum Number 3270-PC Logical Terminals on a

3274 Model	System Attachment	Max. No. Terminals
1A	Channel, SNA	128
1C	TP SDLC	128
	TP BSC	32
1D	Channel, Non-SNA	32
31A	Channel, SNA	128
31C	TP SDLC	128
	TP BSC	32
31D	Channel, Non-SNA	32
41A	Channel, SNA	128
41C	TP SDLC	128
	TP BSC	32
41D	Channel, Non-SNA	32
51C	TP SDLC	36
	TP BSC	32
61C	TP SDLC	76
	TP BSC	32

Category "B" terminal restrictions: Category "B" terminals (e.g., 3277 Display Stations) cannot be used on the same 3274 when the 3274 is customized to support 3270-PCs operating in Distributed Function Terminal mode.

The 3274 attached printers support the 3270-PC with local copy print capability. Host-initiated copy is in SNA mode only; user-initiated copy is in either SNA or non-SNA mode.

The SNA Character String (SCS), specify #9660, is required in the 3287.

3270-PC Options: The 5271 System Unit when used with IBM PC DOS 2.0 is capable of using many IBM Personal Computer options. The number of expansion slots available for these options are identified in the following table:

Slot	Option	Standard Model		
		2	4	6
1	3270 System adapter	X	X	X
2	64/256KB expansion		X	X
3				
4	Display adapter	X	X	X
5	Fixed Disk adapter			X
6	Diskette Drive adapter	X	X	X
7	Printer adapter		X	X
8	Keyboard adapter	X	X	X

Note: Slots 1 through 6 are long slots; 7 and 8, short.

The following IBM Personal Computer options may be ordered with the 5271:

- . Fixed Disk Adapter (2501, PN 1602501)
- . Dual-Sided Diskette Drive (3810, PN 1503810)

Although the Dual-Sided Diskette Drive and the 10MB Fixed Disk and Fixed Disk Adapter are IBM Personal Computer options that may be ordered with the 3270-PC, it is expected that new-unit orders will be placed for the appropriate configuration.

Software Requirements: The 3270-PC is data stream compatible with today's IBM 3270 displays in alphameric application environments. Existing alphameric applications will run on the 3270-PC unmodified (in their current screen size). No programming changes are required of current alphameric applications unless the program is affected by 3274 Control Unit configuration restrictions (e.g., no category "B" terminals) or required hardware functions not available with the 3270-PC (e.g., magnetic readers, encryption/decryption, programmed symbols, APL/TEXT characters, or unsupported screen sizes).

The 3270-PC will accept 3270 data streams and in Distributed Function Terminal mode supports extended highlighting. The multiple screen facilities of the 3270-PC can be used without any modification of system software.

The following table identifies the storage increments required for the several 3270-PC Control Program functions.

Function	Storage Increment
Choose one	
Control Unit Terminal mode	94,116 bytes
Distributed Function Terminal	
Non-SNA mode	145,828 bytes
SNA mode	156,708 bytes

Add for each session,  
(maximum of four)

1920 characters, base (4-color)	1,968 bytes
1920 characters, EDS (8-color)	3,888 bytes
2560 characters, base (4-color)	2,624 bytes
2560 characters, EDS (8-color)	5,184 bytes
3440 characters, base (4-color)	3,526 bytes
3440 characters, EDS (8-color)	6,966 bytes

Add for each notepad session,  
(maximum of two)

3,840 bytes

For local applications, add

IBM Personal Computer session (maximum of one)	2,000 bytes
IBM PC DOS 2.0	24,000 bytes

The balance of the storage capacity is available for local application use. The 3270-PC applications that run under IBM PC DOS 2.0 have the following application storage requirements:

Save/restore	8,320 bytes
File transfer	15,870 bytes
Patch	6,656 bytes
Tutorial	25,088 bytes

Note: Local applications may require additional storage.

Planning Information

switch settings, and checkout

- . Contacting an IBM customer service coordinator for attachment of the 5271 communication cable to an on-site serviced IBM control unit where customer access area is not provided
- . Customizing the 3270-PC and 3274 (see 3274 Customizing Guide, GA23-0065)
- . Determination of the required number of spares
- . Performing Customer Problem Analysis and Resolution (CPAR)
- . Testing other IBM Personal Computer options not included with the 3270-PC to assure viability; IBM does not accept any responsibility for them

Spare blank diskettes must be ordered by the customer as required.

**Installation:** The 3270-PC is a customer set-up system. It attaches to one terminal port and may have up to four addresses associated with it in the 3274, depending on the application. The 3270-PC is 3270 compatible in alphameric application environments; current alphameric applications will run unmodified.

**Performance:** When a 3270-PC is connected to a local channel control unit (3274-31A, -31D, -41A, -41D) in Control Unit Terminal mode, an increase in system response time of about 100 ms may be experienced when running base data stream applications when compared with a 3278 display.

During file transfers in Control Unit Terminal mode, a noticeable impact on the response times of other terminals connected to the same local-channel control unit may be experienced. The duration of the delays is dependent upon the file size and frequency of transfers. The 3270-PC File Transfer licensed program transfers files in 2000-byte blocks to minimize the impact on the network that large file transfers might have.

**Limitations:** The following 3270 capabilities are not available in the 3270-PC:

- . 3278 Model 5
- . 3270 diagnostic reset dump
- . 3274 Entry Assist feature
- . APL/TEXT character set
- . Base (four-color) color copy to the 3274 attached printer
- . Binary Synchronous Copy Command
- . Explicit partitions
- . Graphics escape
- . Katakana
- . Keyboard clicker
- . Keyboard types
- . Magnetic Reader Control and accessories
- . Monocase switch
- . Numeric lock
- . Port 0 customization function of the 3274 Control Unit
- . Programmed Symbols
- . RPQs
- . Security keylock



- . Encryption/decryption
- . Response time monitor
- . Port 0 operation is permitted only with ALT IML of the 3274

The following IBM Personal Computer features or options are not allowed in the 3270-PC:

- . IBM Personal Computer keyboard
- . Monochrome Display and Printer Adapter
- . Color/Graphics Monitor Adapter

Note: Other IBM Personal Computer options and programs may be usable, but need to be tested by the user to assure viability; IBM does not accept any responsibility for them.

Applications running in the IBM PC DOS 2.0 session must not:

- . Use interrupt vectors X'50' through X'57'
- . Reprogram the 8259 Interrupt Controller
- . Access storage addresses above the interrupt level 12 pointer in BIOS, except to reference the IBM Personal Computer display refresh buffer
- . Disable interrupts, fail to issue an end-of-interrupt or IRET on a hardware interrupt level, or mask selected interrupt levels for more than 100 ms.
- . Issue instructions to an IBM Personal Computer display adapter 6845 CRT Controller; they will be ineffectual.
- . Include APA graphics statements
- . Use IBM PC DOS 2.0 print spooling

Technical Assistance: Customers who have signed a PC Volume Purchase Amendment (VPA) may designate from one to three technical coordinators who may contact the Personal Computing

Assistance Center (PCAC) for usage assistance. The usage assistance is available for the duration of the contract period.

Customer technical coordinators may participate in an education program administered by the PCAC. The education may be self-study or conducted in a classroom at a PCAC selected IBM location.

Customers who purchase less than the VPA minimum quantity of the IBM Personal Computer system units may mail usage questions to:

IBM Personal Computing Assistance Center  
Department 93W/235  
901 Northwest 51st Street  
Boca Raton, Florida 33432

Mail-in assistance will not be withdrawn before June 1985.  
Security, Auditability, and Control

The non-display field control allows the password (or other sensitive data) not to be shown on the command line.

For transmission of sensitive data on public communications facilities, customer management may wish to examine the use of cryptography. Internal encryption/decryption is not available.

The 3270-PC supports the security features of the

The following publications will be available prior to 3270-PC availability:

- . IBM 3274 Control Unit Customizing Guide (GA23-0065)
- . IBM 3274 Control Unit Planning, Setup, and Customizing Guide (GA27-2827)

The availability of the following publications will be announced in a PRL (see your IBM marketing representative):

- . An Introduction to the IBM 3270 Information Display System (GA27-2739)
  - . 3270-PC Guide to Operations (SA23-0101)
  - . 3270-PC Control Program User's Guide and Reference (SC23-0103)
  - . 3270-PC On-Line Tutorial (SA23-0163)
  - . 3270-PC Maintenance Information (SY27-2567)
  - . IBM 3270 Information Display System Installation Manual Physical Planning (GA27-2787)
  - . IBM 3270 Information Display System Library User's Guide (GA23-0058)
  - . IBM 3274 Control Unit Description and Programmer's Guide (GA23-0061)
  - . IBM 3274 Control Unit Planning and Site Preparation (GA23-0064)
  - . IBM 3274 Control Unit Performance Guidelines (ZZ20-4167)
- Charges, Terms, and Conditions  
Charges

Type/Model	Feature Number	Purchase
5271/2 with keyboard		\$4,290
5271/4 with keyboard		5,319
5271/6 with keyboard		7,180
5272		995
	5730 (keyboard)	295+

+ Price if ordered separately.

#### Special Features

	Feature Number	Part Number	Purchase Price
Asynchronous Communications Adapter	2074	1502074	*
Communications Adapter Cable	2067	1502067	*
Printer Adapter	5200	1505200	*
Printer Cable	5612	1525612	*
64/256KB Memory Expansion Option	1013	1501013	*
64KB Memory Module Kit	1003	1500013	*
10MB Fixed Disk	2500	1602500	*
Fixed Disk Adapter	2501	1602501	*
Dual-Sided Diskette Drive	3810	1503810	*

\* See your IBM marketing representative who will refer to the IBM Personal Computer Sales Manual pages on

5271 Model 2 Base unit with keyboard	\$244	\$378	\$184	\$294
5271 Model 4 Base unit with keyboard	\$330	\$511	\$249	\$411
5271 Model 6 Base unit with keyboard	\$466	\$723	\$350	\$598

5272	(A)	(B)	(C)	(D)	(A)	(B)	(C)	(D)
	\$65	\$55	\$70	\$90	\$49	\$41	\$53	\$68
	Repair Center Minimum Use Charge							

5271 Model 2 \$80

Base unit  
with keyboard

5271 Model 4 80

Base unit  
with keyboard

5271 Model 6 80

Base unit  
with keyboard

5272 80

- (A) Customer carry-in repair (#9821)
- (B) Customer carry-in exchange (#9816)
- (C) Customer on-site exchange (#9824)
- (D) IBM on-site exchange (#9830)
- (E) IBM on-site repair (#9797)

Terms and Conditions

Customer Setup: Yes. IBM setup is available at IBM hourly rates and minimum charges.

Purchase only.

Volume purchase agreement (VPA) available for system units or display units:

- . The 5271 is in the same category as the IBM Personal Computer system unit (Category A)
- . The 5272 is in the same category as the IBM Personal Computer display units (Category C)
- . The discount for any mix of units in a category is:

Quantity	Category	Discount
0-19		0%
20-49		12%
50-149		16%
150-249		20%
250-499		24%
500-999		27%
1000+		30%

Additional IBM Personal Computer hardware features incorporated in and ordered with the 5271 receive the same discount as the 5271.

Note: The IBM Personal Computer elements of the workstation may have a different warranty. These warranties may be upgraded to on-site service for an additional charge.

Maintenance offerings:

- . Annual service offerings\* (Amendment for IBM Service/Exchange Center Services and IBM Maintenance Agreement)
  - Customer Carry-In Repair (5271 and 5272) -- The customer will deliver the failing machine to a designated IBM service/exchange center and, when it is repaired, pick up and return the repaired machine to the customer's location, connect it, and verify its operation.
  - Customer Carry-In Exchange (5272) -- IBM will have an exchange machine available for the customer at a designated IBM service/exchange center. The customer will deliver the failing machine to the IBM center, pick up the exchange machine, and take it to the customer's location, connect it, and verify its operation.
  - Customer On-Site Exchange (5272) -- IBM will have an exchange machine delivered to the customer's location. The customer will disconnect the failing machine, connect the exchange machine, and verify its operation. The customer will follow IBM's instructions regarding the return of the failing machine; the return will be at IBM's expense.
  - IBM On-Site Exchange\* (5272) -- IBM will disconnect the failing machine, connect the exchange machine, verify its operation, and remove the failing machine from the customer's location.
  - IBM On-Site Repair\* (5271) -- IBM will repair the failing machine at the customer's location and verify its operation. The 5271 keyboard will be repaired or exchanged

at IBM's option.

- \* Service means exchange or repair at IBM's option. Service is available only during normal IBM business hours at the machine's location. On-site service is available in all areas.

Note: In the above carry-in offerings, the customer, in lieu of delivery, may ship the failing machine prepaid in the original shipping container, or equivalent, to a designated IBM service/exchange center and, upon request, IBM will ship the exchange or repaired machine back prepaid to the customer locations within the United States and Puerto Rico.

- . Time and materials service may be obtained by calling the Service/Exchange Communications Center's toll free number 800-428-2569. From Hawaii or Alaska, call collect (312) 986-7451. The center will direct customer to carry or mail the failing unit to the nearest service/exchange center offering time and material repair.

Employee collegiate program does not apply.

Educational allowance of 20% or the VPA may be selected;