
Section 1. System Description

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Description

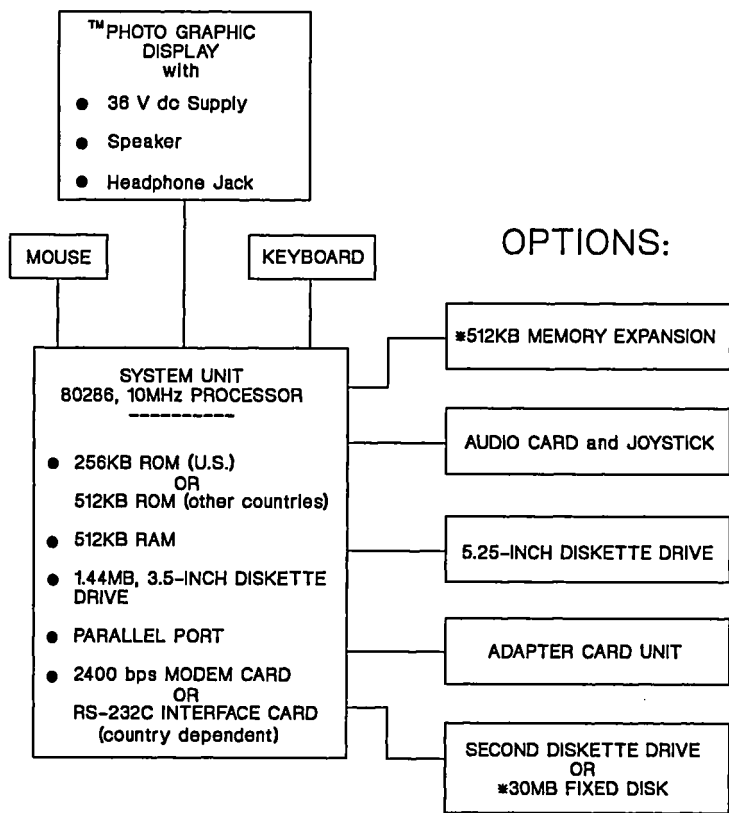
The IBM Personal System/1™ computer is a tabletop 80286 computer system consisting of a system unit, a™PHOTO GRAPHIC Display (VGA), a keyboard, and a mouse. The system unit contains IBM DOS 4.01 in ROM; 512KB RAM; 1.44MB, 3.5-inch diskette drive; and a parallel printer port. Depending on the country where purchased, a 2400 bps modem or a RS-232C interface is included in the system unit. For example, U.S. machines contain a 2400 bps modem. The system unit supports either a second 1.44MB, 3.5-inch diskette drive or a 30MB fixed disk. The 30MB fixed disk is standard on some models.

The display contains the ac power switch for the entire system, a speaker with volume control, and a headphone jack (32 ohms). The system unit obtains a dc supply voltage from the display to support the system unit and its options.

Options include the following:

- 512KB RAM Card provides a total of 1MB RAM within the system unit. This memory card is standard on some models.
- Audio Card and Joystick provides digital audio record and playback, a 3-voice and noise generator, Musical Instrument Digital Interface (MIDI), and joysticks.
- 5.25-inch Diskette Unit provides either a 360KB or a 1.2MB diskette drive. Only one 3.5-inch diskette drive is supported when this option is installed.
- Adapter Card Unit supports two adapter cards up to 280mm (11 inches) long and one card up to 241mm (9.5 inches).

Figure 1-1 on page 1-4 shows a block diagram of the system unit and options.



*Standard on some models

Figure 1-1. IBM Personal System/1 Computer Functional Block Diagram

System Board Features

The system board incorporates very large scale integration (VLSI) modules and surface-mount technology (SMT). The following is a list of the features on the system board:

- 80286 System Microprocessor
- Microprocessor support
 - Seven-channel direct memory access (DMA) controller
 - 15-level interrupt system
 - System clock (10 MHz)
 - Three programmable timers
- ROM, 256KB or 512KB (KB = 1024 bytes) depending on country (U.S. has 256KB)
- RAM, 512KB expandable to 1MB (MB = 1,048,576 bytes)

- 16-bit data bus
- 24-bit address bus
- Real-time clock CMOS RAM
 - Clock
 - Calendar
 - CMOS RAM
- Integrated video graphics array subsystem (VGA)
- Serial port (TTL voltage level) for internal connection to 2400 bps modem card or RS-232C interface card
- Parallel port
- Keyboard/mouse controller and connectors
- Diskette drive controller and connector
- Expansion connector for the adapter card unit
- Fixed disk drive connector
- Audio card connector
- IBM DOS 4.01 in ROM.

System Board Locations

The following shows the connector numbering of the system board.

- Diskette drive connector (J1)
- Serial interface connector (J2)
- Mouse connector (J3)
- Keyboard connector (J4)
- Memory option connector (J5)
- Parallel port connector (J6)
- Audio card connector (J7)
- Adapter card unit connector (J8)
- Power card connector (J9)
- Power/Audio cable connector (J10)
- Fixed disk drive connector (J11)
- Fan connector (J12)
- Display connector (J13)

System Board Block Diagram

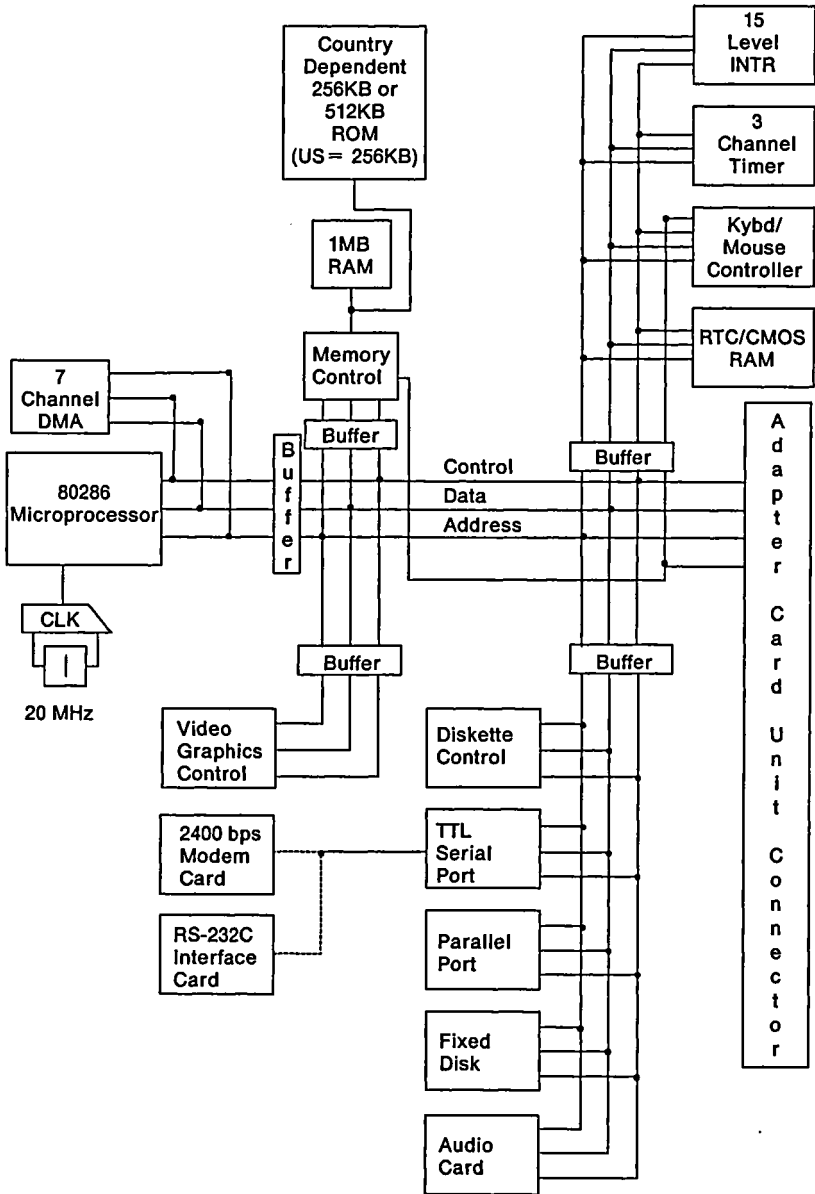


Figure 1-2. System Board Block Diagram

System I/O Address Map

Figure 1-3 shows the hexadecimal addresses for each of the system board I/O functions.

Figure 1-3. System I/O Address Map

Hex Addresses	I/O Function
0000 - 001F	DMA Controller, Channels 0-3
0020, 0021	Interrupt Controller 1
0040 - 0043	System Timers
0060	Keyboard, Mouse
0061 - 006F (odd bytes)	System Control Port B
0064	Keyboard, Mouse
0070, 0071	RTC/CMOS and NMI Mask
0081, 0082, 0083, 0087	DMA Page Registers (0 - 3)
0089, 008A, 008B, 008F	DMA Page Registers (5 - 7)
0090	Central Arbitration Control Port
0091	Card Select Feedback
0092	System Control Port A
0094	System Board Enable/Setup Register
0096	Adapter Enable/Setup Register
00A0 - 00A1	Interrupt Controller 2
00C0 - 00DE (even bytes)	DMA Controller, Channels 4-7
0100 - 0105	Programmable Option Select
x200-x207	Audio Card
0320-032F	Fixed Disk
x330-x331	Audio Card
0278 - 027A	Parallel Port 3
0378 - 037A	Parallel Port 2
03BC - 03BE	Parallel Port 1
03B4 - 03BA	Video Subsystem
03CD - 03EF	Video Subsystem
03F0 - 03F7	Diskette Drive Controller
03F8 - 03FF	Serial Port 1 (2400 bps modem or RS-232C Country dependent - U.S. and Canada have modem)

Specifications

The following are specifications for the system unit.

Size

- Width: 274 millimeters (10.8 inches)
- Depth: 351 millimeters (13.8 inches)
- Height: 82 millimeters (3.3 inches).

Weight

- Single Diskette: 4.2 kilograms (9.25 pounds)
- Fixed Disk: 4.8 kilograms (10.5 pounds).

Cables

- Keyboard: 1.8 meters (6 feet)
- Mouse: 2.1 meters (7 feet)
- Phone: 3 meters (10 feet).

Temperature

- System On: 16 to 32 degrees C (60 to 95 degrees F)
- System Off: 10 to 43 degrees C (50 to 110 degrees F)
- Shipping: -40 to 60 degrees C (-40 to 140 degrees F).

Humidity

- 8% to 80%.

Altitude

- Maximum Altitude: 2133.6 meters (7000 feet).

Heat Output

- 358 BTU/hour.

Acoustical

- Operating: 39 dBA average sound pressure at operator position
- Idling: 4.7 Bels average sound power.

Electrical

- Low Range Voltage Systems: 90 to 137 V
- High Range Voltage Systems: 180 to 265 V.

Electro-Magnetic Compatibility

- FCC Class B.