5360 SYSTEM UNIT

PURPOSE

Contains main storage, disk storage, diskette drive, communications features, logical processing circuits and control for I/O units on System/36.

MODELS

Model	Main Storage*	Diskette Drive	Disk Storage**
A11	128K	Single	30MB
A21	128K	Magazine	30MB
A12	128K	Single	60MB
A22	128K	Magazine	60MB
B13	256K	Single	200MB
B23	256K	Magazine	200MB
B14	256K	Single	400MB
B24	256K	Magazine	400MB

* Additional main storage (up to a maximum of 256K on AXX models and 512K on BXX models) is available as features.

** The actual capacity of the first disk on each system is reduced by 1.67MB. This area is required for microcode, service aids, error logs, and diagnostics, and is not available to the user.

Disk Storage	Actual Capacity	User Capacity
30MB	30.84MB	29.17MB
60MB	61.69MB	60.02MB
200MB	200.20MB	198.53MB
400MB	400.40MB	398.73MB

Standard Mdls: The 5360 mdls B23 and B24 have been designated as standard mdls for this machine type. The three standard 5360 B24 mdls are comprised of a "Base Configuration" plus one of the three configuration options. A standard 5360 mdl B24 is ordered by simply specifying the three standard mdl configuration options below.

Basic Configuration:

5360 B24 256K, Magazine, 400MB
#1006 Additional 256K Storage
#4900 Workstation Controller Expansion

Configuration Options:

1. #5830 3262 Printer Attachment
#9876 3262 is mdl B01 (Previously Attached to a System/34)
#4500 MLCA
#5301 Line Base Adapter
#9701 Line Position (Line-1) for #5301
#5301 Line Base Adapter
#9702 Line Position (Line-2) for #5301
#3701 EIA RS-232-C Adapter
#9711 Line Position (Line-1) for #3701
**#9111 Network Type (Line-1) Switched
**#9221 Line Speed (Line-1) 4800 bps
**#9014 Remote Device Type - Other IBM
#3701 EIA RS-232-C Adapter
#9712 Line Position (Line-2) for #3701
**#9112 Network Type (Line-2) Switched
**#9222 Line Speed (Line-2) 4800 bps

2. #4500 MLCA
#5301 Line Base Adapter
#9701 Line Position (Line-1) for #5301
#5301 Line Base Adapter
#9702 Line Position (Line-2) for #5301
#3701 EIA RS-232-C Adapter
#9711 Line Position (Line-1) for #3701
**#9111 Network Type (Line-1) Switched
**#9221 Line Speed (Line-1) 4800 bps
**#9014 Remote Device Type - Other IBM
#3701 EIA RS-232-C Adapter
#9712 Line Position (Line-2) for #3701
**#9112 Network Type (Line-2) Switched
**#9222 Line Speed (Line-2) 4800 bps

3. #5830 3262 Printer Attachment
#9876 3262 is mdl B01 (Previously Attached to a System/34)

**Included for record purposes only. On EIA, these can be altered using software procedure at installation time.

A standard 5360 mdl B23 can be ordered by specifying 5360 mdl B23 and selecting the standard mdl option. The base configuration for a mdl B23 is 256K, magazine, and 200MB. There are no additional features on this standard mdl configuration. **Note:** No accessories, special features (other than shown above), RPQs, or other alterations can be ordered or shipped with standard mdls.

Minimum System Configuration: A 5360 System Unit, a system console (5251 mdl 11, 5291, or 5292), and a printer (3262, 5224, 5225, or 5256). A system printer (not a 5219) must be identified to satisfy IBM maintenance requirements when using the System Support Program (5727-SS1).

Customer Setup: The 5360 is designated Customer Setup (CSU) and offers customers ease-of-setup and relocation flexibility. The Customer Setup Allowance is one day. One copy of *Setting Up Your Computer* (SA21-9430), is included with each 5360.

HIGHLIGHTS

- Multiple workstation system with multiprogramming capability provided by the System Support Licensed Program (5727-SS1).
- Extension of System/34 capabilities.
- Local and remote workstation devices (up to 30 Local, 64 Remote):

  Printers:
  5219 - D01, D02
  5224 - 001, 002
  5225 - 001, 002, 003, 004
  5256 - 001, 002, 003

  Displays:
  5150 Personal Computer
  5251 - 011
  5251 - 012 (remote only)
  5291 - 001
  5292 - 001
  5292 - 002

- Other I/O devices:

  1255 Magnetic Character Reader mdls 1,2,3 (available 2Q84)
  3262 Printer mdls B1, C1
  8809 Magnetic Tape Units mdls 1C, 2C (available 2Q84)

- Customer setup to offer earlier availability and relocation flexibility.
- Customer Problem Determination aids are provided to assist users in correcting problems or deciding who to call if service is required.
- High level of system availability
- Data error checking and correction for disk and main storage
- Fixed interval timer
- Storage protection
- Security keylock
- Communications: Communication lines may be attached to System/36 using either a Single Line Communications Adapter or a Multiline Communications Adapter.

  The Single Line Communications Adapter permits half-duplex operation at speeds from 600 bps to 9600 bps. The following interface adapters are available for use with the SLCA.

  - EIA RS-232-C
  - 1200 bps integrated modem (switched and nonswitched)
  - Digital Data Service Adapter
  - X.21 (nonswitched operation only)

  The Multiline Communications Adapter (MLCA) permits attachment of up to four communication lines, each of which is capable of half-duplex operation at speeds from 600 bps to 9600 bps. In addition, one line is capable of operating at speeds up to 57.6K bps in half-duplex mode, provided the aggregate of the remaining three lines does not exceed 9600 bps, or one line can operate at 50K bps in half-duplex mode and the remaining lines (up to three) at speeds up to 4800 bps each, or one line can operate at 19.2K bps and the remaining lines (up to three) at speeds up to 9600 bps each. Operation at speeds greater than 9600 bps is limited to Line-4 of the MLCA. The following interface adapters are available for use with the MLCA. See the communications configurator for possible combinations of adapters.

  - EIA RS-232-C
  - V.35
  - Autocall
  - 1200 bps integrated modem (switched and nonswitched)
  - Digital Data Service
  - X.21 (switched and non-switched)

  Both communications adapters support Binary Synchronous Communications (BSC) and Synchronous Data Link Control (SDLC) protocols. In BSC mode, switched, nonswitched point-to-point and multipoint tributary operation is supported. ASCII, EBCDIC, or EBCDIC Text Transparency is standard and is program selectable by line. In SDLC mode, switched, nonswitched, and multipoint operation is supported. The System/36 can operate as either a

5360 System Unit (cont'd)

primary or a secondary station on a multipoint line. Refer to the M2700 pages for a description of attachment capability.

5360 System Unit Components

Processors: The 5360 has a multiple processor architecture. The main storage processor is an enhanced System/34 instruction processor with 128K, 256K, 384K, or 512K bytes of main storage. A control processor operates in parallel with the main storage processor, and provides microcoded control function for the I/O processors and interfaces. A file processor is added when 8809 Magnetic Tape Attachment (#7960) is installed. This processor will then manage the device-to-device data transfers between disk, diskette, and tape. Additional processors are included to control other I/O functions. The processors use LSI (Large Scale Integration) for the logic circuitry. Storage technology is MOSFET (Metal Oxide Semiconductor Field Effect Transistor). Data and instructions are stored as EBCDIC characters. Each EBCDIC character is stored in an 8-bit byte. ECC (Error Correction Code) is maintained in main storage. Single-bit error correction and double-bit error detection is performed on every two bytes. Parity is added for all data transfers to and from main storage.

Workstation Controller: All displays and printers used as locally attached workstations connect to a controller in the 5360 System Unit via twinaxial cable connectors on the 5360. One cable connector must be dedicated to attachment of a display to be used as the system console. Up to five additional cables can be connected to the 5360 for attachment of additional workstations. Up to seven workstations may be attached to one cable via the Cable-Thru feature on displays and printers. The maximum aggregate length of twinaxial cable attached to one 5360 cable connector is 1,525 meters (5,000 feet). **Maximum:** A maximum of six [30 with Workstation Controller Expansion (#4900)] workstations, including the system console, may be locally attached via twinaxial cable to the 5360. See *Preparing a Place for Your Computer* (SA21-9444), for physical planning information.

Diskette Drive: Mdls X1X of the 5360 have a single diskette drive incorporated. Mdls X2X have a diskette magazine drive incorporated. Both drives can read and write either the Diskette 1 (Basic or Extended format) or the 2-sided double density Diskette 2D (Basic or Extended format).

Diskette Specifications:

	Diskette 1	Diskette 2D
Data Tracks/Diskette	74	148 (74 Cylinders)
Capacity		
Basic Format		
Bytes/Sector	128	256
Sectors/Track	26	26
Tracks/Cylinder	1	2
Data Bytes/Diskette	246,272	985,088
Extended Format		
Bytes/Sector	512	1,024
Sectors/Track	8	8
Tracks/Cylinder	1	2
Data Bytes/Diskette	303,104	1,212,416

The reading, writing, and seek operations of diskettes are overlapped with processing and I/O device operations. The diskette magazine drive can process individual diskettes or magazines. A magazine holds up to ten operator accessible diskettes. The magazine drive can accommodate two magazines and three diskettes. The selection of diskettes within a magazine, and processing from the first magazine to the second, is under program control. The select cycle time (eject diskette, move to next diskette, load diskette) is approximately three seconds. In addition to the two magazines, the magazine drive contains three diskette slots which can be used for loading one to three diskettes. The data transfer rate for the single diskette drive is 62.5K B/sec (using Diskette 2D); and for the diskette magazine drive, it is 125.0K B/sec (using Diskette 2D).

Disk Storage: The 5360 can contain one of four disk storage capacities: 30MB, 60MB, 200MB, or 400MB. Disk storage is high-speed, direct access media and is not physically removable from the system. Programs and data are stored on the disk for processing. Data can be stored offline for security or backup purposes by copying the data to diskettes or magnetic tape.

Disk Storage Specifications:

	30/60MB	200/400MB
Bytes/Sector	256	2x256
Bytes/Cylinder	69,632	351,232
Blocks/Cylinder	27.2	137.2
Cylinders/Drive	443	570
Capacity/Drive(bytes)	30,845,440	200,202,240
Capacity/Two Drives (bytes)	61,690,880	400,404,480
Access Time (ms)		
Cyl-to-Cyl	*7	7
Average	**38	25
Maximum	**75	45
Rotational Speed (rpm)	3,151	2964
Instantaneous Data Rate (MB/sec)	1.25	1.50

Notes:
* Seven or less.
** Less than shown.

System Control Panel: The system control panel contains controls and indicators required for system operation. This panel combines the hardware/programming service representative and operator functions that serve as diagnostic aids for locating hardware and programming problems. The system control panel, in conjunction with the system console, provides the primary interface between the system and the operator or hardware/programming service representative. A 3-position keylock switch, located on the panel, can be used to prevent unauthorized personnel from accessing storage through the panel or turning on the system power.

System Console: The system console is not a component of the 5360 System Unit. The console may be any one of the supported display station devices except the 5150 Personal Computer, that can be locally attached to the 5360 System Unit. For servicing reasons, the primary system console (alternative may be assigned through programming) is required to be located within 6 meters (20 feet) of the System Unit. It is used to facilitate operator control of the system via operator commands and to allow the operator to respond to system messages presented on the display. It can also be used as a data entry/inquiry workstation, interacting with a user-application.

Customer Responsibilities: The customer is responsible for:

- Adequate site and system planning and preparation. Customers who request CSD personnel to perform these activities are subject to a charge.
- Receipt, unpacking, and placement of the 5360.
- Ordering, installation, and maintenance of signal cables and associated parts for attaching devices to the 5360 twinaxial ports.
- Physical setup, connection of cables to communications lines/modems and IBM devices, incorporating protected access areas, and checkout in accordance with instructions supplied by IBM.
- Using and following the System/36 problem determination procedures before calling IBM for service.
- Relocation of the 5360, if required, to allow IBM service access.
- Disconnecting and moving of the 5360 to the customer's shipping dock at the time of discontinuance.

Publications: *Guide to Publications* (GC21-9015).

SPECIFY

Non-Communications Specify Codes

Unless indicated, otherwise, these specify codes are available only at time of manufacture.

- Voltage (180-254V, 1-phase, 3-wire, 60 Hz): 250V locking-type plug provided. No specify code required.
- Color: Pearl White with Pebble Gray accent ... end covers only. No specify code required or permitted.
- Attaching 3262 mdl B1: Specify **#9876** only if attaching a 3262 mdl B1 that was previously attached to a System/34. Do not use this code if attaching a 3262 mdl C1. Also, if attaching a 3262 mdl B1, refer to the M3262 mdl B1 pages for additional ordering information.
- System Character Set: Specify **#2990** for Multinational * Character Set.

  * **Prerequisites:** #4900. Also, all displays and printers must be equipped with the Multinational Character Set.
- Twinaxial cables: Cables for the system console and system printer are *Not* supplied with the 5360 System Unit. See "Accessories" and the 5219, 522X, 525X, or 529X pages for cable ordering information.
- I/O Unit Attachments: Appropriate special features are required to attach any I/O device that does not have twinaxial connection capability. See "Special Features".
- For physical planning information, refer to *Preparing a Place for Your Computer* (SA21-9444).

Mandatory Specify Codes for Communications

- Specify Codes for Remote Device Types: Enter a specify code from the following list for each type of device with which the System/36 communicates. Codes are for record purposes only and do not affect the operation of the communication hardware or programming.

Code	System/Terminal Type

5360 System Unit (cont'd)

#9000	S/370, 303X, 308X, 43XX
#9001	System/34
#9002	System/36
#9003	System/38
#9004	Series/1
#9005	5250
#9006	5260
#9007	5280
#9008	5322 Datamaster
#9009	5520
#9010	6580 Displaywriter
#9011	OS/6, 6670
#9012	3601, 4701
#9013	3694
#9014	Other IBM
#9015	Non-IBM

- Line Position: Use the following table to specify where line interfaces are to be installed. For each line interface, select the desired interface type from the first column of the table. The second column shows the features that need to be ordered for each type of interface, and the third section of the table indicates the specify codes that are required to indicate line position. For example, to order an X.21 adapter on Line-2 of the MLCA, order feature #5301 and feature #5655 and specify **#9702** and **#9782**.

For each line using the interface shown below	Order the Feature Below Note (1)	AND		Specify Line Position with Position Specify Codes			
		SLCA	OR	MLCA Line-1	MLCA Line-2	MLCA Line-3	MLCA Line-4
Interface Note (2)	#5301 #3701	**#9697** **#9711**		**#9701** **#9711**	**#9702** **#9712**	**#9703** **#9713**	**#9704** **#9714**
CCITT V.35 Interface	#5301 #5401						**#9704** **#9804**
Autocall Interface Note (3)	#5301 #5411				**#9702** **#9722**		**#9704** **#9724**
1200 bps Int. Modem Nonswitched Note (4)	#5301 #5500	**#9697** **#9731**		**#9701** **#9731**	**#9702** **#9732**	**#9703** **#9733**	**#9704** **#9734**
1200 bps Int. Modem Switched/AA Note (4)	#5301 #5501	**#9697** **#9741**		**#9701** **#9741**	**#9702** **#9742**	**#9703** **#9743**	**#9704** **#9744**
Digital Data Service Interface	#5301 #5650	**#9697** **#9751**		**#9701** **#9751**	**#9702** **#9752**	**#9703** **#9753**	**#9704** **#9754**
CCITT X.21 Interface Note (5)	#5301 #5655	**#9697** **#9781**		**#9701** **#9781**	**#9702** **#9782**	**#9703** **#9783**	**#9704** **#9784**

Notes:
(1) Maximum quantity of each feature is one.
(2) Interface EIA RS-232-C
(3) Interface EIA RS-366-A
(4) #5321 is a prerequisite.
(5) X.21 switched operation is mutually exclusive with Autocall.

- Internal Clocking: If internal (business machine) clocking is required for use with an external modem, specify the lines which require internal clocking using the following specify codes. The internal clocking specify code applies only to lines using Adapter (#3701). Clocking speed is 1200 bps only. **Prerequisites:** #5321 is a prerequisite for the following codes.

Single Line	OR	MLCA Line-1	MLCA Line-2	MLCA Line-3	MLCA Line-4
#9261		**#9261**	**#9262**	**#9263**	**#9264**

- Network Type: Specify the type of network to which each communication interface attaches. The network type should be described as seen by the System/36. The network type specified will be supplied to the customer on a system description listing that will be shipped with the system.

	Single Line	OR	MLCA Line-1	MLCA Line-2	MLCA Line-3	MLCA Line-4
Point-to-Point Nonswitched	**#9101**		**#9101**	**#9102**	**#9103**	**#9104**
Point-to-Point Switched	**#9111**		**#9111**	**#9112**	**#9113**	**#9114**
Multipoint Tributary	**#9121**		**#9121**	**#9122**	**#9123**	**#9124**
Multipoint Control	**#9131**		**#9131**	**#9132**	**#9133**	**#9134**
Local Attach. via DDSA	**#9141**		**#9141**	**#9142**	**#9143**	**#9144**

- Line Speed: Specify the communication line speed to be used with each communication interface on the System/36. The line speed specified will be supplied to the customer on a system description listing that will be shipped with the system.

Speed (bps)	Single Line	OR	MLCA Line-1	MLCA Line-2	MLCA Line-3	MLCA Line-4
1200	**#9201**		**#9201**	**#9202**	**#9203**	**#9204**
2400	**#9211**		**#9211**	**#9212**	**#9213**	**#9214**
4800	**#9221**		**#9221**	**#9222**	**#9223**	**#9224**
9600	**#9231**		**#9231**	**#9232**	**#9233**	**#9234**
Greater than 9600 bps						**#9244**

SPECIAL FEATURES

Replaced parts from any special feature installation on a purchased 5360 remain the property of the customer.

Non-Communications Features

Add'l Storage - 128K (#1005): Provides an additional 128K bytes of main storage. **Limitations:** Mutually exclusive with Add'l Storage - 256K (#1006). **Maximum:** One. **Field Installation:** Yes.

Add'l Storage - 256K (#1006): Provides an additional 256K bytes of main storage. **Limitations:** BXX mdls only, and mutually exclusive with Add'l Storage - 128K (#1005). **Maximum:** One. **Field Installation:** Yes.

1255 Attachment (#1100): Required to attach 1255 Magnetic Character Reader mdls 1, 2, or 3. **Limitations:** Not available until 2Q84. **Maximum:** One. **Field Installation:** Yes. **Prerequisites:** None on BXX mdls. AXX mdls require #5732. #5733 is required if #5830 is installed.

1255 Attachment Expansion (#1105): Required when using the System/36 Assembler Macros to provide 1255 stacker logic programs. This feature provides an additional 28K of user-programmable storage. **Limitations:** Not available until 2Q84. **Maximum:** One. **Field Installation:** Yes. **Prerequisites:** #1100.

Workstation Controller Expansion (#4900): Required when attaching seven to 30 displays and/or printers locally to the 5360. This feature also supports: Hex Key operation, the 3270 Device Emulation program, the Multinational Character Set (**#2990**) installed on displays or printers, and the Magnetic Stripe Reader on displays. **Maximum:** One. **Field Installation:** Yes.

Processor Unit Expansion A (#5732): This is a feature I/O board required on AXX mdls for the 1255 Attachment (#1100), 3262 Printer Attachment (#5830), or the 8809 Magnetic Tape Attachment (#7960). **Limitations:** AXX mdls only. **Maximum:** One. **Field Installation:** Yes.

Processor Unit Expansion B (#5733): Additional power feature required on AXX mdls for the 8809 Magnetic Tape Attachment (#7960) or if attaching both the 1255 and 3262. **Limitations:** AXX mdls only. **Maximum:** One. **Field Installation:** Yes. **Prerequisites:** #5732.

3262 Printer Attachment (#5830): Required when attaching a 3262 mdl B1 or C1 Printer. **Maximum:** One. **Field Installation:** Yes. **Prerequisites:** None on BXX mdls, AXX mdls require #5732, #5733 if #1110 is installed. **#9876** if 3262 mdl B1 is to be attached.

8809 Magnetic Tape Attachment (#7960): Required when attaching the 8809 mdl 1C Magnetic Tape Unit (8809 mdl 2C attaches to the mdl 1C). **Limitations:** Not available until 2Q84. **Maximum:** One. **Field Installation:** Yes. **Prerequisites:** None on BXX mdls, AXX mdls require #5732 and #5733.

Communications Special Features

Single Line Communications Adapter - SLCA (#2500): Provides for attachment of a single communication line to the System/36. It permits half-duplex operation at speeds from 600 bps to 9600 bps using either BSC or SDLC protocols. Both switched and nonswitched operation is supported. **Note:** Only nonswitched operation is supported when using an X.21 interface. **Limitations:** Cannot be installed with the MLCA (#4500). **Maximum:** One. **Field Installation:** Yes. **Specify:** Network type line speed and remote station type for line attached to SLCA. See "Mandatory Specify Codes for Communications".

EIA Adapter (#3701): Provides a cable and interface for attachment of an IBM modem or a non-IBM modem meeting RS-232-C characteristics. Non-IBM modems may be attached subject to the Multiple Supplier Systems Policy. **Limitations:** Cannot be installed with another EIA Adapter, V.35 Adapter, Autocall Adapter, integrated modem, Digital Data Service Adapter or X.21 Adapter on the same

5360 System Unit (cont'd)

Communications Line Base Adapter (#5301). Maximum speed is 9600 bps. See the "Communications Configurator" for possible combination of features. **Maximum:** One per Communications Line Base Adapter (#5301). **Field Installation:** Yes. **Prerequisites:** #5301 corresponding to the line using the EIA Adapter. This feature may also require #5321 if the external modem does not provide its own 1200 bps clocking. **Specify:** Network type, line speed, line position and remote station type. See "Mandatory Specify Codes for Communications".

Multiline Communications Adapter - MLCA (#4500): Four communication lines can be attached to System/36 using the MLCA. The MLCA is a microprocessor that operates in parallel with the main storage processor and other microprocessors in the system. Each communications line uses either BSC or SDLC protocol. The proper line protocol is loaded into the MLCA microprocessor at program execution time. This feature, in conjunction with stored program control, permits System/36 to function on a switched or nonswitched, public or private communications line. For BSC multipoint tributary operation, an auto-monitoring function is provided that allows the line to be monitored without a user's main storage program being required. In this mode, a negative response is sent to all polls and selects received from the control station. For BSC processing to become active in main storage, the operator must activate BSC data management. An SDLC auto-response mode is implemented in MLCA for secondary SDLC. The MLCA will handle some redundant supervisory responses, thus, eliminating the need to always utilize the SDLC task in main storage for nonproductive activity. The MLCA in a primary SDLC environment offloads from the main storage processor the majority of the work required for nonproductive polling. In either case, a SNA/SDLC task must be active in main storage. **Limitations:** Each line is capable of half-duplex operation at speeds from 600 bps to 9600 bps. In addition, one line may operate at speeds up to 57.6K bps in half-duplex mode provided the aggregate of the remaining three lines does not exceed 9600 bps, or one line can operate at 50K bps and the remaining lines at speeds up to 4800 bps each, or one line can operate at 19.2K bps and the remaining lines at speeds up to 9600 bps each. Operation at speeds greater than 9600 bps is limited to Line-4 of the MLCA. Cannot be installed with SLCA (#2500). **Maximum:** One. **Field Installation:** Yes. **Specify:** Network type, line speed, line position and remote station type for lines attached to MLCA. See "Mandatory Specify Codes for Communications".

Multiline Communications Adapter Expansion (#4501): A storage expansion for the MLCA microprocessor which allows switched operation of X.21 lines attached to the MLCA. **Maximum:** One. **Field Installation:** Yes. **Prerequisites:** #4500.

Communications Line Base Adapter (#5301): Required for attachment of line interface adapters to the MLCA or the SLCA. **Maximum:** One per communication line. Four total when using the MLCA or a total of one when when using the SLCA. **Field Installation:** Yes. **Prerequisites:** #4500 when using multiline attachment option. #2500 when using single line option.

Communications Internal Clock (#5321): Generates synchronizing and timing signals for BSC or SDLC operation when they are not provided by the modem used with Adapter (#3701). #5321 is required for use with the 1200 bps Integrated Modem (#5500, #5501). Clocking speeds available with this feature are 600 and 1200 bps. Selection of full- or half-speed and the appropriate line is indicated via a system utility program. When this feature is installed on System/36, all other BSC or SDLC stations attached to the same data link must also be equipped with a similar IBM Internal Clock feature. **Maximum:** One per system. One clock can control all lines on system. **Field Installation:** Yes. **Prerequisites:** At least one line with #3701 or with #5500 or #5501 installed. **Specify:** Lines for which internal clocking is to be used with external modem. See "Mandatory Specify Codes for Communications".

V.35 Adapter (#5401): Provides a cable and interface for attachment of an external modem meeting CCITT V.35 characteristics. The V.35 Adapter will operate at speeds of 20.4K bps, 24K bps, 40.8K bps, 48K bps, and 56K bps. The adapter will also operate at 57.6K bps for local 3705 attachment. **Limitations:** Restricted to Line-4 of MLCA (#4500). Cannot be installed with another V.35 Adapter, EIA Adapter, integrated modem, Digital Data Service Adapter or X.21 Adapter on the same Communications Line Base Adapter (#5301). **Maximum:** One. **Field Installation:** Yes. **Prerequisites:** #5301 installed on Line-4 of #4500. **Specify:** Network Type, line speed, line position and remote station type. See "Mandatory Specify Codes for Communications".

Autocall Adapter (#5411): Provides a cable and interface for attachment to an external automatic calling unit. This adapter allows automatic dialing under program control. The remote device must have auto answer capability. Automatic calling equipment which complies with EIA RS-266-A may be attached under the provisions of the IBM Multiple Supplier Systems Policy. **Limitations:** Available only on Line-2 and -4 of the MLCA (#4500). An EIA Adapter must be installed on Line-1 for operation with an Autocall Adapter on Line-2 or on Line-3 for operation with an Autocall Adapter on Line-4. Cannot be installed with another Autocall Adapter, EIA Adapter, V.35 Adapter, integrated modem, Digital Data Service Adapter or X.21 Adapter on the same Communications Line Base Adapter (#5301). The Autocall Adapter cannot be used on a System/36 that has X.21 switched lines. See the "Communication Configurator" for possible combination of features. **Maximum:** Two per system. **Field Installation:** Yes. **Prerequisites:** #5301 corresponding to the Line-2 or -4 using the Autocall Adapter. #4500 is required. See "Mandatory Specify Codes for Communications".

1200 bps Integrated Modem (#5500, #5501): A modem integrated into the system for SDLC or BSC data transmission at 1200 bps over nonswitched or switched facilities. Half-speed operation at 600 bps is controlled by a system utility program. It is available in two different versions: #5500--nonswitched and #5501--switched with auto-answer. Attachment to the nonswitched (4-wire) facility is via an IBM-provided cable directly to the line Type 3002. Attachment to the switched facilities is via an IBM-provided cable to an FCC registered protective circuitry of the CBS type (or equivalent) provided by the user. **Note:** The device communicating with System/36 must also be equipped with a 1200 bps integrated modem. **Limitations:** Cannot be installed with another integrated modem, EIA Adapter, V.35 Adapter, Autocall Adapter, Digital Data Service Adapter, or X.21 Adapter on the same Communications Line Base Adapter (#5301). See the "Communication Configurator" for possible combination of features. **Maximum:** Four per system when using MLCA (#4500). One per system when using SLCA (#2500). **Field Installation:** Yes. **Prerequisites:** #5301 corresponding to the line using the integrated modem, Internal Clock (#5321). **Specify:** Network type, line speed, line position, and remote station type. See "Mandatory Specify Codes for Communications".

Digital Data Service Adapter (#5650): An integrated adapter for BSC or SDLC data transmission at speeds of 2400, 4800, 9600, and 56,000 bps over the AT&T nonswitched Data-Phone® digital service network. The Digital Data Service Adapter interfaces to a channel service unit (not a Data Service Unit) which is the customer site termination of the digital network. **Note:** This service is available only in certain cities within the US. The Digital Data Service Adapter may also be used to locally connect a System/36 to another supported device with a Digital Data Service Adapter. This connection requires a special accessory adapter cable and supports point-to-point connections only. No modem or channel service unit is required. See DDS Adapter Connector under "Accessories". **Limitations:** Operation at speeds greater than 9600 bps is limited to Line-4 of the MLCA (#4500). See the "Communication Configurator" for possible combination of features. **Maximum:** Four per system when using MLCA (#4500). One per system when using SLCA (#2500). **Field Installation:** Yes. **Prerequisites:** #5301 corresponding to the line using the Digital Data Service Adapter. **Specify:** Network type, line speed, line position, and remote station type. See "Mandatory Specify Codes for Communications". ® Trademark of AT&T.

X.21 Adapter (#5655): This feature provides an interface for attachment to either an X.21 switched or an X.21 nonswitched network. Both BSC and SDLC communications are supported. The network establishes the data rate and supplies the clock. The System/36 can communicate via the X.21 Adapter with devices that do not have native X.21 Adapters. These devices must be attached to the network via an X.21bis DCE. This method of attachment uses the EIA RS-232-C interface. Refer to Chart K (switched) and Chart M (nonswitched) in the M2700 pages for the list of devices that can be attached via an X.21bis DCE. On switched networks: Communications at 2400, 4800, 9600 and 48K bps are supported. Autocall function is provided for switched lines. On nonswitched networks: Transmission may be at speeds of 2400, 4800, 9600, or 48K bps for point-to-point operations and 2400, 4800, or 9600 bps for multipoint operations. Some X.21 networks may not support multipoint operations. The installation of these features is dependent on the availability of an X.21 network that is compatible with IBM's implementation of X.21 as described in *IBM Implementation of X.21 General Information Manual* (GA27-3287). **Limitations:** The X.21 Adapter cannot be configured to support switched lines on a System/36 that has an Autocall Adapter (#5411) installed. Operation at speeds greater than 9600 bps is limited to Line-4 of the MLCA (#4500). Switched operation is limited to the MLCA. Cannot be installed with another X.21 Adapter, Adapter, V.35 Adapter, Autocall Adapter, integrated modem, or Digital Data Service Adapter on the same Communication Line Base Adapter. See the "Communication Configurator" for possible combination of features. **Maximum:** One per Communications Line Base Adapter (#5301). Four per system when using MLCA (#4500) or one per system when using SLCA (#2500). **Field Installation:** Yes. **Prerequisites:** #5301 corresponding to the line using the X.21 Adapter. #4501 is required for switched operation. **Specify:** Network type, line speed, line position and remote station type. See "Mandatory Specify Codes for Communications".

ADDITIONAL COMMUNICATIONS INFORMATION

IBM Modems: One IBM modem can be attached to each Adapter. **Prerequisites:** #3701 and #5301 used with either #2500 or #4500.

Modem	Speed (bps)
3863	2400
3864	4800
3865	9600
3872	2400/1200

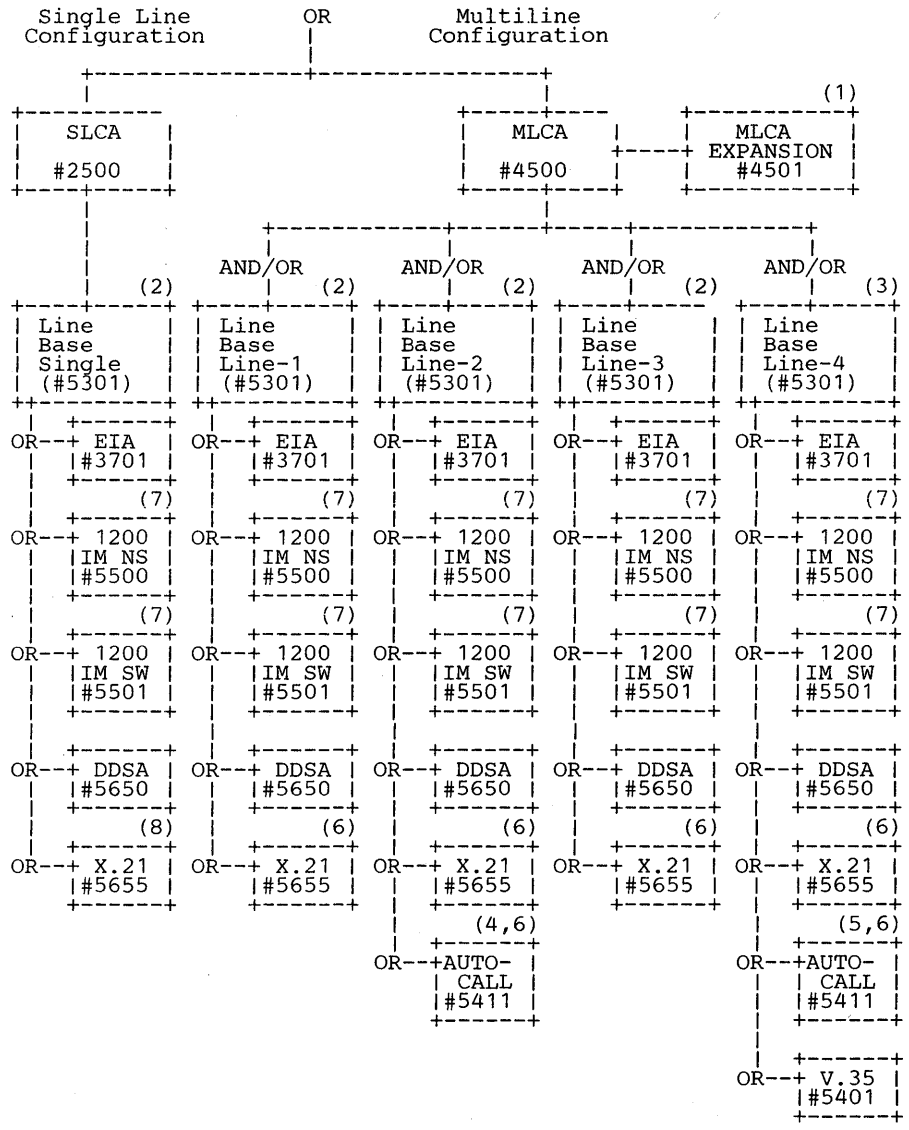
5360 System Unit (cont'd)

IBM Data Encryption Devices: A 3845 or 3846 Data Encryption Device may be attached between the System/36 #3701 Adapter and the external modem. Refer to M2700, 3845, and 3846 pages for information on 3845 or 3846 configuration and communication capability.

References: See the appropriate host system programming pages for possible restrictions. Refer to *Preparing to Receive Your Computer* (SA21-9442) for physical installation requirements. See IBM for additional information concerning modems, communications facilities, machine attachment requirements, terminal intermix, operating capabilities, and customer responsibilities.

5360 System Unit (cont'd)

Communication Configurator:



Notes:

(1) Required for X.21 switched operation.
(2) Half-duplex operation at speeds from 600 bps to 9600 bps allowed.
(3) Half-duplex operation at speeds from 600 bps to 57.6K bps allowed. See MLCA (#4500) description for allowable aggregate data rate considerations.
(4) Must be used in conjunction with EIA Adapter (#3701) on line 1 of MLCA.
(5) Must be used in conjunction with EIA Adapter (#3701) on line 3 of MLCA.
(6) X.21 switched operation is mutually exclusive with Autocall.
(7) Communications Internal Clock (#5321) required.
(8) Nonswitched operation only.

5360 System Unit (cont'd)

MODEL CONVERSIONS

Any model can be converted to another model. All model conversions are field installable. Conversions from model AXX to model BXX require replacement of the base main storage card and the disk storage device(s). Adequate provision must be made for retaining the data contained on the replaced disk storage device(s) and elimination of user-proprietary information. Customer Price quotations and customer order acknowledgment letters for purchased model conversion from model AXX to model BXX or from model X1X to X2X, must state: "Installation of this model upgrade involves the removal of parts which become the property of IBM".

Purchase Considerations: An additional charge has been added to the purchase price for certain model conversions. Users should carefully evaluate their future requirements before final selection of a 5360 System Unit.

ACCESSORIES

Cables: The twinaxial cables and/or associated parts to interconnect the 5360 and components may be purchased from IBM or from a customer-selected source. The customer is responsible for the installation and maintenance of these cables and their associated parts. When cabling is ordered from IBM, specify a shipping date at least four weeks in advance of receiving the machine.

Twinax® Connector Kit (**P/N 7362268**): Includes two connectors. Twinax Wire and one Twinax Connector Kit are required for each attachment cable. Individual connectors **P/N 7362229** are available for replacement.

Twinax Wire (**P/N 7362211**): Order must specify the desired length. Twinax Wire and one Twinax Connector Kit are required for each attachment cable. This is an indoor/outdoor cable.

Twinax Cable Assembly (**P/N 7362267**): Includes a connector kit (two connectors) attached to bulk wire. The required length of wire must be specified on the order. The cost of the wire must be added to the fixed assembly price to obtain the total price of the cable assembly.

Twinax Adapter (**P/N 3762230**): Permits two Twinax Cables Assemblies to be joined together.

Twinax Station Protector Kit (**B/M 7361807**): Two protectors. One is required at each end of each Twinax Attachment Cable installed outdoors (either above or below ground level). Individual Twinax Station Protectors, **P/N 7362426**, are available for replacement purposes.

Twinaxial Cable is available with Teflon® covering. Teflon-covered cable complies with the National Electrical Code requirements for low smoke-producing, plenum-installed cables.

Twinax® Connector Kit: Includes two connectors. Twinax wire and one connector kit are required for each attachment cable. Order **P/N 7362063** for Teflon-covered cable. Individual connectors **P/N 7362229** are available for replacement.

Twinax Wire: Order must specify the desired length. Twinax wire and one connector kit are required for each attachment cable. Order **P/N 7362061** for Teflon-covered cable.

Twinax Cable Assembly: Includes a connector kit (two connectors) attached to bulk wire. The required length of wire must be specified on the order. The cost of the wire must be added to the fixed assembly price to obtain the total price of the cable assembly. Order **P/N 7362062** for Teflon-covered cable assembly.

DDS Adapter Connector: A specially designed connector allows the cables from a System/36 DDS Adapter to be connected to another supported device with a DDS Adapter. This provides for the local connection of two devices without the use of any modems. This is a purchase-only item. Allow eight weeks for delivery. **Maximum:** One per Digital Data Service (DDS) Adapter. **Field Installation:** Yes. **Specify: P/N 4236967.**

Keylock Keys: The 5360 is shipped with two keys. Additional keys may be purchased from IBM. Vendor will supply additional keys only to the original purchaser. A letter of authorization with Key Identification Number must accompany each order. Allow 6-8 weeks for delivery. **Specify: P/N 2546418.**

SUPPLIES

Diskettes and Diskette Magazines: For diskettes and diskette magazines, see IBM.