IBM

Series/1 System Selection Guide

*Series/1
System
Selection
Guide*

Configuring Your Series/1

The Series/1 is a modular system; you choose only the equipment required to support your computing needs. With the modular approach, you have the ability to configure or add to your Series/1 from an extensive product catalog of unit, feature, and software options. These options include a choice of:

- Processors and storage sizes
- Matrix and line printers
- Disk and diskette units
- Magnetic tape units
- Standard and custom display stations
- System/370 channel attachment device
- Series/1 to Series/1 local connection via a data loop (up to 16 processors)
- Series/1 to Series/1 communications
- Two-channel switch for switching I/O devices between processors
- General purpose interface bus (GPIB) and teletypewriter adapter for OEM devices
- Communications features—SDLC, asynchronous, binary synchronous, synchronous communications single-line control, and the programmable communications subsystem for mixed line discipline
- Sensor I/O—covering analog and digital interfaces
- Separately licensed programs for software support
- Series/1 to Personal Computer.

IBM Series/1 System Units

The IBM Series/1 System Units and their features do not have selection cards nor do they appear on the selection cards as an IBM Series/1 System Unit selection. When you choose the 5170, you are selecting a self-contained unit.

Related Publications

To complete the set of Series/1 reference information, refer to:

- *IBM Series/1 Digest*, G360-0061
- *IBM Series/1 Pocket Digest*, GX34-0104
- *IBM Series/1 Customer Site Preparation Manual*, GA34-0050
- *IBM Series/1 Realtime Programming System Version 7: Concepts and Facilities*, GC34-0614
- *IBM Series/1 Event Driven Executive Library Guide and Common Index*, SC34-0645.

To obtain copies of these publications, contact your IBM representative.

Configuring a System—Software

This publication includes a brief comparison of two operating systems for the Series/1 and examples of some Series/1 configurations.

When selecting the operating system to use with your Series/1, consider the following factors concerning your application and the environment of the system:

- Processing mode
  - Batch
  - Realtime
  - Interactive
- Number and type of users
- Remote locations
  - Transmission time
  - Ease of use factors
- Compatibility
  - Existing equipment
- Programming resource
- Dedicated systems
  - Development
  - Production
  - Combined.

Configuring a System—Hardware

This publication contains a list of Series/1 hardware products and their associated features. To aid you in configuring your Series/1 system, the features are listed in two categories:

- Unit features

  These features enhance the unit's capabilities and do not occupy a data channel socket.

- Channel features

  These features are unit attachment feature cards that connect to a data channel socket in a processor or I/O expansion unit.

  You must total the number of data channel features selected, and subtract the number of data channel sockets available on your processor to determine if you need an I/O expansion unit.

To configure your Series/1 system, read Chapters 1 through 9 and select the appropriate combinations of units, unit features, and data channel features.

After selecting your basic system, see the worksheet in Chapter 10, "System Assembly," to help you put it together.

How to Use Hardware Selection Cards

Photocopy all the selection card pages and write on the copy to mark up your order.

Selection cards are at the end of each chapter in this publication. You and your IBM marketing representative can use these cards to develop your Series/1 configuration.

The white areas on the matrix, on the left side of the hardware cards, show unit and feature compatibility.

Use the right side of the card to mark up your configuration. Mark the unit and unit features you selected in the white boxes. Select your data channel features and mark them in the shaded boxes. Add the data channel features (marked in shaded boxes) and write the total in the larger box at the bottom of the card.

It is important to keep an accurate total of (data) channel features because they occupy one or more sockets in a processor or I/O expansion unit. Ultimately, the size of processor and number of expansion units you select depend upon how many channel sockets your system requires. Refer to Chapter 10, "System Assembly," for more information.

The terms "channel" and "data channel" are synonymous with the term "I/O feature location" used in the *IBM Series/1 Digest,* G360-0061.

How to Use Software Selection Cards

Photocopy all the selection card pages and write on the copy to mark up your order.

The software selection cards contain a list of programs available. Mark your selections in the blank box next to the program number.

If you require multiple systems, record each processor and associated units/features on separate Series/1 selection cards.

Contents

Chapter 1. Series/1 Software

Series/1 operating systems

The IBM Series/1 is a general purpose system. Its broad range of hardware is complemented by a comprehensive set of resource management programs, programming languages, and packages that can meet both simple and complex requirements.

The operating systems available for Series/1 are:

- Event Driven Executive

- Realtime Programming System.

Event Driven Executive

Event Driven Executive is an easy to use operating system, allowing multi-user interface program development (customized system generation) to run concurrently with the execution of application programs. The system works efficiently on a small Series/1 dedicated to a single application, or on multiple large Series/1s, each serving several realtime applications.

System generation and operation do not require extensive programming background. Event Driven Executive allows you to write application programs with limited concern for, or knowledge of, either the supervisor program or other application programs sharing the system. It also lets you start quickly on application development because it can later be modified with little impact to existing programs.

Good terminal response time, a high level of system availability, and a simple remote user interface make this system appropriate in applications that require a central development site with less skilled operators at remote locations.

The system can be disk, diskette, or storage resident. A diskette-based system provides a small, stand-alone system capability. COBOL, PL/I, FORTRAN, Pascal, Assembler, and the Event Driven Language provide a wide range of language capabilities.

Realtime Programming System

Realtime Programming System is a full-function, general purpose operating system, designed for full device support and functional breadth. Realtime Programming System provides an environment to do program development and execute programs online while executing other realtime programs. It can be used to implement realtime, batch, distributed, interactive, and transaction processing applications.

Program Preparation Subsystem is used for generating customized systems and to perform program preparation functions for application programs, such as compile or assemble, and build.

A standard pre-built operating system allows for application development and testing while supporting a broad range of processing functions and device support. If the standard system does not satisfy your requirements, an experienced system programmer can tailor Realtime Programming System to your needs while maintaining room for growth. Realtime Programming System can be applied to multiple large Series/1s, each serving many terminals and several applications.

The system can be disk or diskette based. COBOL, PL/I, FORTRAN, Pascal, and Assembler provide a wide range of language capabilities.

Programming Capabilities

The following figures refer to the capabilities of the operating systems and their associated programs. Contact your marketing representative for latest versions of information for Series/1 software. The operating systems offer similar capabilities although they differ in the packaging of program products. Some of the features that are built into one operating system require separate program products for the other operating system. The tables on the following pages summarize the capabilities of the operating system, and indicate whether or not a separate program is required. (The program number is given when a separate program product is required.)

Local attachment support	EDX	RPS
3161 ASCII Display Terminal	YES	YES
3163 ASCII Display Terminal	YES	YES
3164 ASCII Display Terminal	YES	YES
4201 Proprinter	YES	YES[1]
4224 Printer	YES	YES
4962 Disk Storage Unit	YES	YES
4963 Disk Subsystem	YES	YES
4964 Diskette Unit	YES	YES
4965 Storage and I/O Expansion Unit	YES	YES
4966 Diskette Magazine Unit	YES	YES
4967 High Performance Disk Subsystem	YES	YES
4968 Autoload Streaming Magnetic Tape Unit	YES	YES
4969 Magnetic Tape Unit	YES	YES
4973 Line Printer	YES	YES
4974 Printer	YES	YES
4975 Printer	YES	YES
4978 Display Station	YES	YES
4980 Display Station	YES	YES
5219 Printer	YES	YES
5224 Line Printer	YES	YES
5225 Line Printer	YES	YES
5230 Data Collection	5799-TDE	YES
5262 Line Printer	YES	YES
Local Communications Controller	YES	YES
Graphics Terminal (Tektronix 4013 or equivalent)	YES	YES
System/370 Channel Attachment	5719-CX1	5719-CA1
Timer	YES	YES
Series 1/Series 1 (RPQ D02241 and D02242)	YES	NO
Series/1 to PC Channel Attachment	YES	YES

[1]Series/1 System Unit only.

Communication attachment support	EDX	RPS
Asynchronous	YES	YES
Bisynchronous	YES	YES
SDLC (SNA data flow control interface)	NO	YES
SDLC (SNA application program interface)	5719-SX1 5719-XX9 5719-XT4	YES
Programmable Communication Subsystem	NO	5719-CS2
Remote Job Entry	5719-XS5 5719-RJ1	5719-RJ6
Remote Job Entry	5719-SX2	5719-RJ6
Remote Management Utility (BSC)	YES	YES
Remote Management Utility (SNA)	5719-RM1	5799-TEF
X25 Network Interface Support	5719-HD2	5719-HD1
Interactive Message Processing	5719-CF2	YES
3270 Emulation (BSC)	5719-CF2	YES
3270 Emulation (SNA)	5719-CF2 5719-SX1	5799-TEF
3270 Emulation (channel attach)	5719-CF2 5719-CX1	5719-RJ6
3270 Emulation (Series/1 to Series/1 bisynchronous)	YES	YES 5719-CA1
Line Concentration	5719-CF2	YES
Network Definition Utility	5719-XT5	NO
Manufacturing Automation Protocol (MAP)	5719-XT1	5719-XT2

Remote device attachment support	EDX	RPS
2741 Communications Terminal	YES	YES
3161 ASCII Display Terminal	YES	YES
3163 ASCII Display Terminal	YES	YES
3164 ASCII Display Terminal	YES	YES
4975 Printer	YES	YES
Graphics Terminal (TEKTRONIX 4013 or equivalent)	YES	NO
3270 Information Display System	5719-CF2	YES

Data management support	EDX	RPS
Spooling	YES	YES
Sort/Merge	5719-SM2	YES
Sequential access	YES	YES
Direct access	YES	YES
Indexed access method	5719-AM4	YES
Keyed direct access	5719-AM4	YES
Fixed records	YES	YES
Variable records	NO	YES
Blocked records	NO	YES
Spanned records	NO	YES
Sensor I/O	YES	YES

Application development and execution support	EDX	RPS
Transaction Driven Application (Development/Execution)	5719-MS2 5719-TR1	5719-MT1 5719-TR6
Screen Formatting (Development/Execution)	5719-XX6 5719-TR1	5719-MT1 5719-TR6
General Program Development Support	5719-XX6	5719-AS7
Job Stream Processor	5719-XS5	5799-TEC
Series/1 Event Driven Language Assembler	5719-XX6	NO
Series/1 Event Driven Language Macro Library	5719-LM9	NO
Series/1 Assembler (Series/1 Assemble)	5719-ASA and 5719-LM9	5719-AS7
Series/1 Assembler (System/370 Assemble)	5799-BNA and 5740-LM6	5799-BNA
Series/1 to Systems/370 Program Transfer	5719-XS5	5798-RBR
Series/1 Event Driven Language (System/370 Assemble)	5799-BNA and 5740-LM6	5719-XR1
Series/1 Query Facility	5719-XR1	5719-XR2

High level languages support	EDX	RPS
COBOL (Series/1 Compile)	5719-CB5	5719-CB7
COBOL (System/370 Compile)	5799-TEL	5799-TEP
COBOL (Series/1 Execute)	5719-CB6	5719-CB8
PL/1 (Series/1 Execute)	5719-PL5	5719-PL2
PL/1 (System/370 Compile)	5798-NZK	5798-NZJ
PL/1 (Series/1 Execute)	5719-PL6	5719-PL4
FORTRAN IV (Series/1 Compile)	5719-FO2	5719-FO2
FORTRAN Mathematical and Functional Subroutines	5719-LM3	5719-LM2
FORTRAN Realtime Subroutines	NO	5719-FO4
Pascal (Series/1 Compile and Execute)	5799-TER	5799-TEQ

Event Driven Executive Software Selection Card (1)

Program	Program number	
Basic Supervisor and Emulator Version 4	5719-XS4	
Basic Supervisor and Emulator Version 5	5719-XS5	
EDX for the Series/1 System Unit	5719-XJ5	

Program development

Program	Program number	
Program Preparation Facility Version 4	5719-XX5	
Program Preparation Facility Version 5	5719-XX6	
Macro Assembler	5719-ASA	
Macro Library Version 4	5719-LM8	
Macro Library Version 5	5719-LM9	
Host Preparation Facility for the Series/1[1]	5799-BNA	
Macro Library/Host Version 4[1]	5740-LM5	
Macro Library/Host Version 5[1]	5740-LM6	
Transaction Processing System for EDX	5719-TR1	

[1]System 370 program.

Communications support

Program	Program number	
Communications Facility Version 1	5719-CF1	
Communications Facility Version 2	5719-CF2	
Systems Network Architecture Version 1	5719-SX1	
Systems Network Architecture Version 2	5719-XX9	
Primary System Network Architecture	5719-XT4	
Systems Network Architecture RJE	5719-SX2	
Advanced Remote Job Entry	5719-RJ1	
Remote Manager	5719-RM1	
Network Definition Utility	5719-XT5	
MAP Application Server	5719-XT1	

Event Driven Executive Software Selection Card (2)

Device support

Program	Program number	
System/370 Channel Attach Program	5719-CX1	
Series/1 Data Collection Interactive	5799-TDE	

Commercial support

Program	Program number	
Transaction Processing System	5719-TR1	
Multiple Terminal Manager Version 2	5719-MS2	
Indexed Access Method Version 2	5719-AM4	
Sort/Merge	5719-SM2	

Additional support

Program	Program number	
Series/1 Intelligent Work Station Support	5799-TGC	

High-level language support

Program	Program number	
COBOL Transient Library Version 1	5719-CB4	
COBOL Transient Library Version 2	5719-CB6	
PL/1 Compiler and Resident Library	5719-PL5	
PL/1 Transient Library	5719-PL6	
Host PL/1 for Event Driven Executive[1]	5798-NZK	
FORTRAN IV Compiler and Object Support Library	5719-FO2	
Mathematical and Functional Subroutine Library	5719-LM3	
Pascal Compiler	5799-TER	

[1]System 370 program.

Event Driven Executive Software Selection Card (3)

Application programming

Note: The following programs are supported by EDX Version 3.

Program	Program number	
General Purpose Automation Executive	5798-RCZ	
Text Entry and Edit Facility	5798-RAR	
Chain Pharmacy System	5798-RGD	
Telephone Listing Management System	5798-NZZ	
X-Ray Analysis Automation Automated Instrument Control	5798-NYJ	
X-Ray Analysis Automation Fluorescence Analysis	5798-NYK	
X-Ray Analysis Automation Polycrystalline Diffraction	5798-NYL	
X-Ray Analysis Automation Search/Match	5798-RCG	
Air Quality Monitoring System	5798-RDQ	
Audio Support for Touch-Tone[1] Telephone	5798-NXX	
Point-of-Sale Data Collection and Distribution System	5798-NYA	
Data Collection Interactive Edit and Transmit	5798-RCX	
Program Executive System Preparation Support	5796-REE	
Program Executive System Operation Application Support	5796-REF	
File Creation and Maintenance Utilities	5798-RBL	
Yale ASCII Terminal Communications System	5796-RBT	
Videotex	5799-TFN	

[1]Trademark of AT&T.

Realtime Programming System Software Selection Card (1)

Program	Program number	
Realtime Programming System Version 7	5719-PC7	
Realtime Programming System Version 7 for Series/1 System Unit	5719-PJ7	

Program development

Program	Program number	
Program Preparation Subsystem Version 7	5719-AS7	
Job Stream Processor	5799-TEC	
Host Preparation Facility for the Series/1[1]	5799-BNA	
Native Application Load Facility Version 2	5798-RBR	
Transaction Processing System	5719-TR6	

[1]System 370 program.

Communications support

Program	Program number	
X.25/HDLC Communications Support	5719-HD1	
Advanced Remote Job Entry	5719-RJ6	
SNA Remote Management Utility	5799-TEF	
Programmable Communications Subsystem Preparation Facility	5719-CS0	
Programmable Communications Subsystem Extended Execution Support	5719-CS2	
MAP Communications Server	5719-XT2	
Series/1 Office Connect	5719-XT3	

Device support

Program	Program number	
System/370 Channel Attach Support	5719-CA1	
Series/1-to-PC Connect	5719-CN1	

Realtime Programming System Software Selection Card (2)

Commercial support

Program	Program number	
Multiple Terminal Manager Version 3	5719-MT1	
Transaction Processing System	5719-TR6	

Local Area Network support

Program	Program number	
Series/1-to-PC Connect	5719-CN1	

High-Level Language support

Program	Program number	
COBOL Compiler and Resident Library Version 2	5719-CB7	
COBOL Transient Library Version 2	5719-CB8	
Host COBOL for Realtime Programming System	5799-TEP	
PL/1 Compiler and Resident Library Version 2	5719-PL2	
PL/1 Transient Library Version 2	5719-PL4	
Host PL/1 for Realtime Programming System[1]	5798-NZJ	
FORTRAN IV Compiler and Object Support Library Version 2	5719-FO2	
Mathematical and Functional Subroutine Library Version 2	5719-LM2	
Realtime Subroutine Library Version 2	5719-FO4	
Pascal Compiler and Object Library Programming RPQ P82659	5799-TEQ	

[1]System 370 program.

Application programming

Program	Program number	
Series/1 Office Connect	5719-XT3	

Energy Management Software Selection Card

Program	Program number	
Facility Control/Power Management 1	5719-U11	
Facility Control/Power Management 2	5719-U12	
Facility Control/Power Management 2M	5719-U14	
Facility Control/Power Management 3	5719-U12 (#6000 or #6001)	
Facility Control/Power Management 4	5719-U13	
Facility Control/Power Management 4M	5719-U15	
Event Driven Executive Energy Conservation System	5798-RAB	
Event Driven Executive Supermarket Energy Management	5798-NTH	

Chapter 2. Processors and I/O Expansion Units

4956 Processor Model B10

The 4956-B10 has 1024KB of basic storage with error checking and correcting. 512KB are directly addressable. It is a full-width unit with up to 13 card sockets available for data channel features, depending on storage size. The storage address translator, communications power, and a clock/comparator are standard features.

Unit Features

#2000   Communications Indicator Panel—provides visual display for communication line status information and modem control line settings.

#3925   Floating-Point—provides floating-point instruction set.

#5655   Programmer Console—provides data entry/data display console.

Channel Features

#1565   Channel Repower—required when connecting to a 4959 or 4965.

Processor Requirements

A maximum of five channel repower features can be driven by each processor in a single or multiple processor system. (The limit is three for any processor that has the Two-Channel Switch feature included on its data channel.)

Model Upgrade Information

A field-installed upgrade is available to convert a Model B10 to a Model E10. See your IBM representative for details.

Card socket assignment

A B C D E F G H J K L M N P Q

Power supply

Processor

Basic storage

Any data channel feature or repower card.*

*If a repower card is used, it must be to the left of and adjacent to the leftmost I/O card.

4956 Processor Model 31D

The 4956-31D has 1024KB of basic storage with error checking and correcting. 512KB are directly addressable. A 30MB disk is provided. A 1.2MB diskette drive and 64KB cache are optional. It is a full-width unit with up to six card sockets available for data channel features. The storage address translator, communications power, and a clock/comparator are standard features.

Unit Features

#2000   Communications Indicator Panel—provides visual display for communication line status information and modem control line settings.

#3925   Floating-Point—provides floating-point instruction set.

#4100   Diskette Drive—provides a single 1.2MB diskette drive.

#4520   Stand-Alone Enclosure—provides an alternative enclosure that allows the processor to be installed without a rack enclosure. It can be field installed. Due to internal cable limitations, not all features are supported in the stand-alone enclosure (#4520). Refer to the selection card at the end of this chapter.

#5655   Programmer Console—provides data entry/data display console.

#6400   Cache—provides a 64KB cache where most-used data sectors are pre-fetched and stored. Test cases have shown improvements in disk throughput ranging from 50% to above 200%. Results are, however, application-dependent. Cache does not require a feature location and is not field-installable.

Channel Features

#1565   Channel Repower—required when connecting to a 4959 or 4965.

Card socket assignment

A B C D E F G H J

- 30M-byte disk
- Optional diskette drive
- Processor
- Basic storage
- Any data channel feature, disk and diskette attachment card*, or repower card**

*The disk and diskette attachment card should be the rightmost I/O card installed.

**If a repower card is used, it must be to the left of and adjacent to the leftmost I/O card.
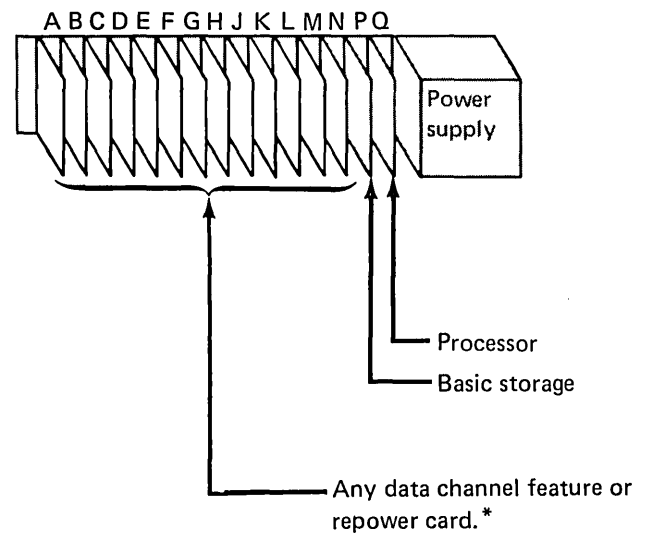
Processor Requirements

A maximum of five channel repower features can be driven by each processor in a single or multiple processor system. (The limit is three for any processor that has the Two-Channel Switch feature included on its data channel.)

Model Upgrade Information

Field-installed upgrades are available to convert a 31D to a 61D or E70. See your IBM representative for details.

4956 Processor Model 61D

The 4956-61D has 1024KB of basic storage with error checking and correcting. 512KB are directly addressable. A 60MB disk is provided. A 1.2MB diskette drive and 64KB cache are optional. It is a full-width unit with up to six card sockets available for data channel features. The storage address translator, communications power, and a clock/comparator are standard features.
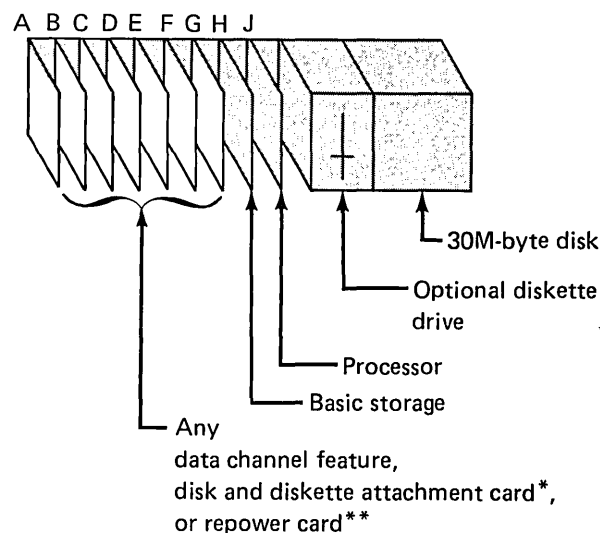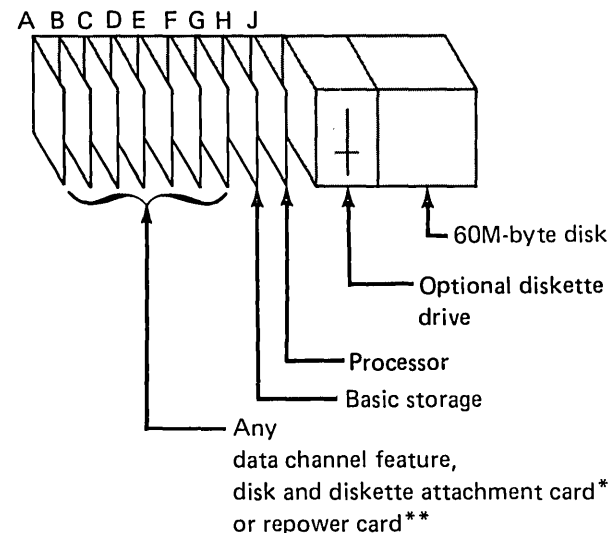
Unit Features

#2000   Communications Indicator Panel—provides visual display for communication line status information and modem control line settings.

#3925   Floating-Point—provides floating-point instruction set.

#4100   Diskette Drive—provides a single 1.2MB diskette drive.

#4520   Stand-Alone Enclosure—provides an alternative enclosure that allows the processor to be installed without a rack enclosure. It can be field installed. Due to internal cable limitations, not all features are supported in the stand-alone enclosure (#4520). Refer to the selection card at the end of this chapter.

#5655   Programmer Console—provides data entry/data display console.

#6400   Cache—provides a 64KB cache where most-used data sectors are pre-fetched and stored. Test cases have shown improvements in disk throughput ranging from 50% to above 200%. Results are, however, application-dependent. Cache does not require a feature location and is not field-installable.

Channel Features

#1565   Channel Repower—required when connecting to a 4959 or 4965.

Card socket assignment

A B C D E F G H J

— 60M-byte disk

— Optional diskette drive

— Processor

— Basic storage

— Any data channel feature, disk and diskette attachment card* or repower card**

*The disk and diskette attachment card should be the rightmost I/O card installed.

**If a repower card is used, it must be to the left of and adjacent to the leftmost I/O card.

Processor Requirements

A maximum of five channel repower features can be driven by each processor in a single or multiple processor system. (The limit is three for any processor that has the Two-Channel Switch feature included on its data channel.)

Model Upgrade Information

A field-installed model upgrade is available to convert a 61D to a E70. See your IBM representative for details.

4956 Processor Model E10

The 4956-E10 has 1024KB of basic storage with error checking and correcting, expandable to 2048KB in 256KB, 512KB, or 1024KB increments. 1024KB are directly mappable. It is a full-width unit with up to 13 card sockets available for data channel features, depending on storage size. The storage address translator, communications power, and a clock/comparator are standard features.
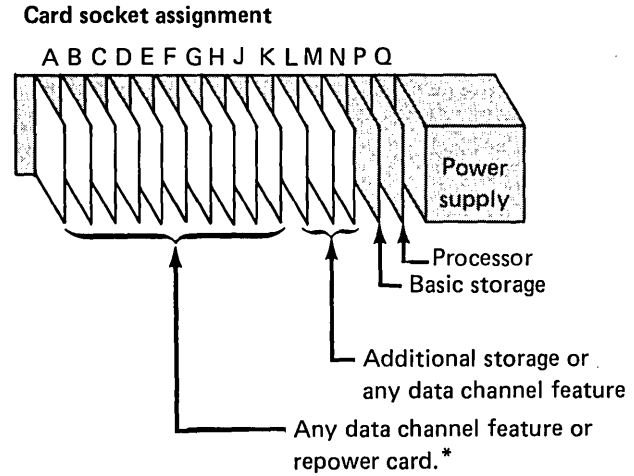
Unit Features

#2000   Communications Indicator Panel—provides visual display for communication line status information and modem control line settings.

#3926   Floating-Point—provides floating-point instruction set.

#5655   Programmer Console—provides data entry/data display console.

Channel Features

#1565   Channel Repower—required when connecting to a 4959 or 4965.

#6330   Storage Addition—provides additional processor storage in 256KB increments (maximum of three).

#6331   Storage Addition—provides an additional 512KB of processor storage (maximum of two).

#6334   Storage Addition—provides an additional 1024KB of processor storage (maximum of one).

Processor Requirements

A maximum of five channel repower features can be driven by each processor in a single or multiple processor system. (The limit is three for any processor that has the Two-Channel Switch feature included on its data channel.)

Card socket assignment

A B C D E F G H J K L M N P Q

Power supply

—Processor
— Basic storage

— Additional storage or any data channel feature

— Any data channel feature or repower card.*

*If a repower card is used, it must be to the left of and adjacent to the leftmost I/O card.

4956 Processor Model E70

The 4956-E70 has 1024KB of basic storage with error checking and correcting, expandable to 2048KB in 256KB, 512KB, or 1024KB increments. 1024KB are directly mappable. A 60MB disk is provided. A 1.2MB diskette drive and 64KB cache are optional. It is a full-width unit with up to six card sockets available for data channel features, depending on storage size. The storage address translator, communications power, and a clock/comparator are standard features.
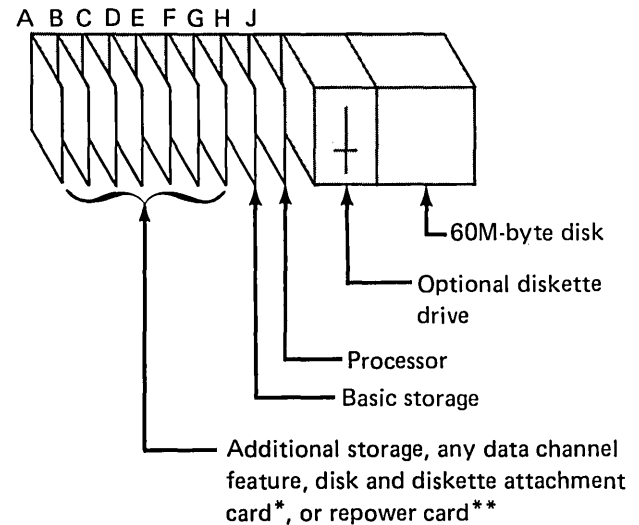
Unit Features

#2000 Communications Indicator Panel—provides visual display for communication line status information and modem control line settings.
#3926 Floating-Point—provides floating-point instruction set.
#4100 Diskette Drive—provides a single 1.2MB diskette drive.
#4520 Stand-Alone Enclosure—provides a field-installed table-top enclosure for nonrack installations. Due to internal cable limitations, not all features are supported in the stand-alone enclosure (#4520). Refer to the selection card at the end of this chapter.
#5655 Programmer Console—provides data entry/data display console.
#6400 Cache—provides a 64KB cache where most-used data sectors are pre-fetched and stored. Test cases have shown improvements in disk throughput ranging from 50% to above 200%. Results are, however, application-dependent. Cache does not require a feature location and is not field-installable.

Channel Features

#1565 Channel Repower—required when connecting to a 4959 or 4965.
#6330 Storage Addition—provides additional processor storage in 256KB increments (maximum of three).
#6331 Storage Addition—provides additional processor storage in 512KB increments (maximum of two).
#6334 Storage Addition—provides an additional 1024KB of processor storage (maximum of one).

Card socket assignment

A B C D E F G H J

60M-byte disk
Optional diskette drive
Processor
Basic storage
Additional storage, any data channel feature, disk and diskette attachment card*, or repower card**

*The disk and diskette attachment card should be the rightmost I/O card installed.

**If a repower card is used, it must be to the left of and adjacent to the leftmost I/O card.

Processor Requirements

A maximum of five channel repower features can be driven by each processor in a single or multiple processor system. (The limit is three for any processor that has the Two-Channel Switch feature included on its data channel.)

4956 Processor Model G10

The 4956-G10 has 1024KB of basic storage with error checking and correcting. 512KB are directly mappable. A 40MB disk, 1.2MB diskette drive, and 400KB cache are provided. It is a full-width unit with up to six card sockets available for data channel features. The storage address translator, communications power, and a clock/comparator are standard features.

Unit Features

#2000 Communications Indicator Panel—provides visual display for communication line status information and modem control line settings.

#3925 Floating-Point—provides floating-point instruction set.

#4110 Second Diskette Drive—provides a single 1.2MB diskette drive.

#4115 Second Disk Drive—provides a single 40MB disk drive.

#4116 Third Disk Drive—provides a single 40MB disk drive.

#4521 Stand-Alone Enclosure—provides a field-installed table-top enclosure for nonrack installations. Due to internal cable limitations, not all features are supported in the stand-alone enclosure (#4521). Refer to the selection card at the end of this chapter.

#5655 Programmer Console—provides data entry/data display console.

Channel Features

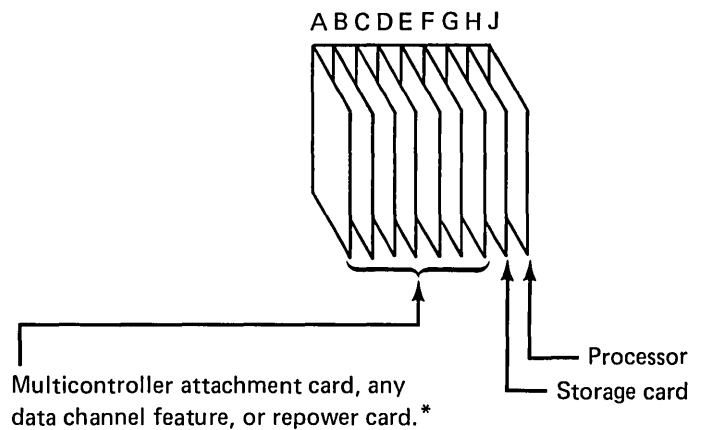#1565 Channel Repower—required when connecting to a 4959 or 4965.

Processor Requirements

A maximum of five channel repower features can be driven by each processor in a single or multiple processor system. (The limit is three for any processor that has the Two-Channel Switch feature included on its data channel.)

Model Upgrade Information

A field-installed model upgrade is available to convert a G10 to a H10. See your IBM representative for details.

Card socket assignment

Multicontroller attachment card, any data channel feature, or repower card.*

— Processor
— Storage card

*If a repower card is used, it must be to the left of and adjacent to the leftmost I/O card.

4956 Processor Model H10

The 4956-H10 has 1024KB of basic storage with error checking and correcting, expandable to 2048KB in 1024KB increments. 1024KB are directly mappable. A 40MB disk, 1.2MB diskette drive, and 400KB cache are provided. It is a full-width unit with up to six card sockets available for data channel features, depending on storage size. The storage address translator, communications power, and a clock/comparator are standard features.

Unit Features

#2000 Communications Indicator Panel—provides visual display for communication line status information and modem control line settings.
#3925 Floating-Point—provides floating-point instruction set.
#4110 Second Diskette Drive—provides a single 1.2MB diskette drive.
#4115 Second Disk Drive—provides a single 40MB disk drive.
#4116 Third Disk Drive—provides a single 40MB disk drive.
#4521 Stand-Alone Enclosure—provides a field-installed table-top enclosure for nonrack installations. Due to internal cable limitations, not all features are supported in the stand-alone enclosure (#4521). Refer to the selection card at the end of this chapter.
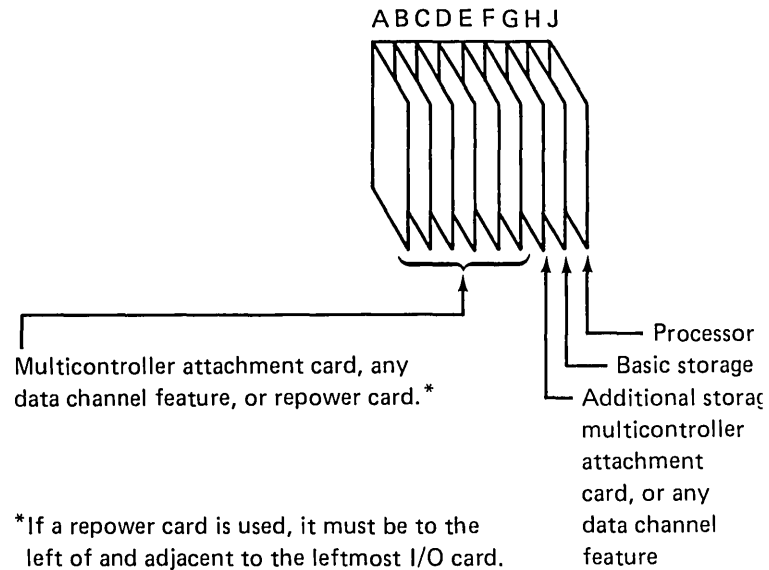#5655 Programmer Console—provides data entry/data display console.

Channel Features

#1565 Channel Repower—required when connecting to a 4959 or 4965.
#6334 Storage Addition—provides an additional 1024KB of processor storage (maximum of one).

Processor Requirements

A maximum of five channel repower features can be driven by each processor in a single or multiple processor system. (The limit is three for any processor that has the Two-Channel Switch feature included on its data channel.)

Card socket assignment

ABCDEFGHJ

Multicontroller attachment card, any data channel feature, or repower card.*

— Processor
— Basic storage
— Additional storage multicontroller attachment card, or any data channel feature

*If a repower card is used, it must be to the left of and adjacent to the leftmost I/O card.

4959 I/O Expansion Unit

The 4959 provides space for up to 14 channel feature attachment cards. The optional Two-Channel Switch feature enables I/O devices to be switched between a primary and a secondary processor to provide backup.
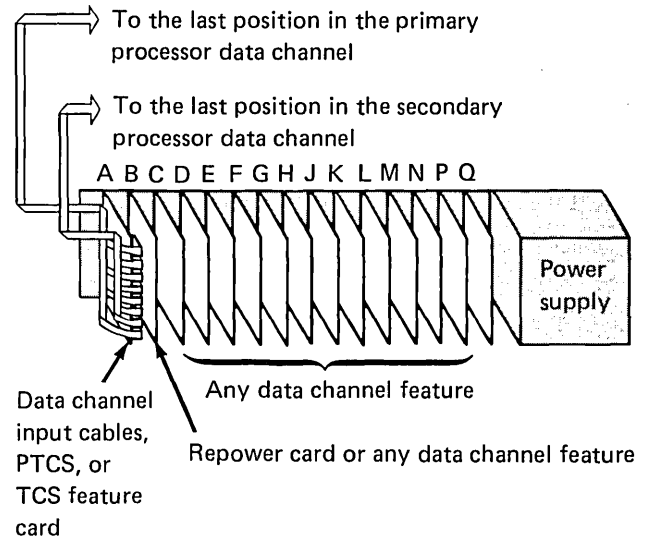
Unit Features

#7777   Programmable Two-Channel Switch— provides capability to automatically switch data channel features between two processors.

#7900   Two-Channel Switch—provides capability to manually switch data channel features between two processors.

Channel Features

#1565   Channel Repower—required when connecting another 4959 or a 4965.

Expansion Unit Requirements

4959 card socket A is reserved for the data channel input cables, the Two-Channel Switch (#7900), or the Programmable Two-Channel Switch (#7777).

To the last position in the primary processor data channel

To the last position in the secondary processor data channel

A B C D E F G H J K L M N P Q

Power supply

Data channel input cables, PTCS, or TCS feature card

Any data channel feature

Repower card or any data channel feature

System Unit 5170, Model 495

The System Unit 5170, Model 495, is a desk-top, entry-level Series/1 computer. It has 256KB of storage that is expandable to 512KB. Features include:

- IBM Personal Computer AT microprocessor (6 megahertz) that controls I/O devices

- 20MB fixed-disk drive

- One high-capacity diskette drive

- IBM Personal Computer keyboard

- Six-port Terminal/Host Attachment card:

  - Four RS-422 (local) ports

  - Two RS-232-C asynchronous ports (one port may be used for bisynchronous).

- Three I/O feature slots available for additional functions

- Performs Series/1 floating-point instructions

- Serial/Parallel adapter

- Up to two 4201 Proprinters may be attached.

Features

#0205	20MB Fixed-Disk Drive—provides a second fixed-disk drive.
#0206	High-capacity Diskette Drive—provides a second diskette drive
#0207	Dual-sided Diskette Drive—permits the exchange of 320/360KB diskette media between the IBM PC, IBM Portable PC, IBM Personal Computer AT, and IBM Personal Computer XT.
#0215	Serial/Parallel Adapter
#1204	Binary Synchronous Communications Adapter — mutually exclusive with SDLC
#1205	SDLC Communications Adapter
#3629	Second 6-port Terminal Host Attachment Card
#4900	Monochrome Display and Printer Adapter
#4910	Color/graphics monitor adapter.

System Unit 5170, Model 496

The System Unit 5170, Model 496, is a desk-top, entry-level Series/1 computer. It has 1024KB of storage standard. Features include:

- IBM Personal Computer AT microprocessor (8 megahertz) that controls I/O devices

- 30MB fixed-disk drive

- One high-capacity diskette drive

- IBM Personal Computer Enhanced keyboard

- Six-port Terminal/Host Attachment card:

  - Four RS-422 (local) ports

  - Two RS-232-C asynchronous ports (one port may be used for bisynchronous).

- Three I/O feature slots available for additional functions

- Performs Series/1 floating-point instructions

- Serial/Parallel adapter

- Up to two 4201 Proprinters may be attached.

Features

#0210	30MB Fixed-Disk Drive—provides a second fixed-disk drive.
#0206	High-capacity Diskette Drive—provides a second diskette drive
#0207	Dual-sided Diskette Drive—permits the exchange of 320/360KB diskette media between the IBM PC, IBM Portable PC, IBM Personal Computer AT, and IBM Personal Computer XT.
#0215	Serial/Parallel Adapter
#1204	Binary Synchronous Communications Adapter — mutually exclusive with SDLC
#1205	SDLC Communications Adapter
#3629	Second 6-port Terminal Host Attachment Card
#4900	Monochrome Display and Printer Adapter
#4910	Color/graphics monitor adapter.

Processor and I/O Expansion Selection Card

IBM Series/1

Processor and I/O Expansion Selection Card

Feature	4956							4959
	B10	31D	61D	E10	E70	G10	H10	
1565								
2000								
3925								
3926								
4100								
4110								
4115								
4116								
4520								
4521								
5655								
6330								
6331								
6334								
6400								
7777								
7900								

Customer: _____

Processor Units

4956 Model   B10 ☐

E10 ☐   31D ☐   61D ☐

H10 ☐   E70 ☐   G10 ☐

4959 Model ☐

Unit Features

2000 Communications indicator panel ☐

3925 Floating-point ☐

3926 Floating-point ☐

4100 Diskette drive ☐

4110 Second 5¼" diskette drive ☐

4115 Second 40M disk drive ☐

4116 Third 40M disk drive ☐

4520 Stand-alone enclosure ☐

4521 Stand-alone enclosure ☐

5655 Programmer console ☐

6400 Cache (64K) ☐

7777 Programmable two-channel switch ☐

7900 Two-channel switch ☐

Data Channel Features

1565 Channel repower ☐

6330 Storage addition (256K) ☐

6331 Storage addition (512K) ☐

6334 Storage addition (1024K) ☐

Total data channel features selected ☐

Chapter 3. Data Storage

4963 Disk Subsystem

The 4963 Disk Subsystem features multiple microprocessors to both off-load the Series/1 processor and optimize disk performance. Each subsystem has one primary drive and may have up to three expansion drives—models may be intermixed. Multiple subsystems may be attached—one attachment feature (#3590) is required for each. This unit provides automatic retries on soft error, automatic seek to alternate sector, automatic seek overlap with read or write, and automatic error handling under subsystem microprocessor control.

4963-58A Primary Disk Storage Unit: 58MB plus 131 KB under fixed heads.

4963-64A Primary Disk Storage Unit: 64MB

4963-64B Expansion Disk Storage Unit: 64MB

Channel Features

#3590   4963 Disk Subsystem Attachment

Note: Each 4963 Disk Subsystem has one primary disk storage unit and up to three expansion storage units per #3590.

Processor
Data
Channel

#3590

1st Disk Unit
Primary (Model A)
units only

2nd Disk Unit
Expansion (Model B)
units only

3rd Disk Unit
Expansion (Model B)
units only

4th Disk Unit
Expansion (Model B)
units only
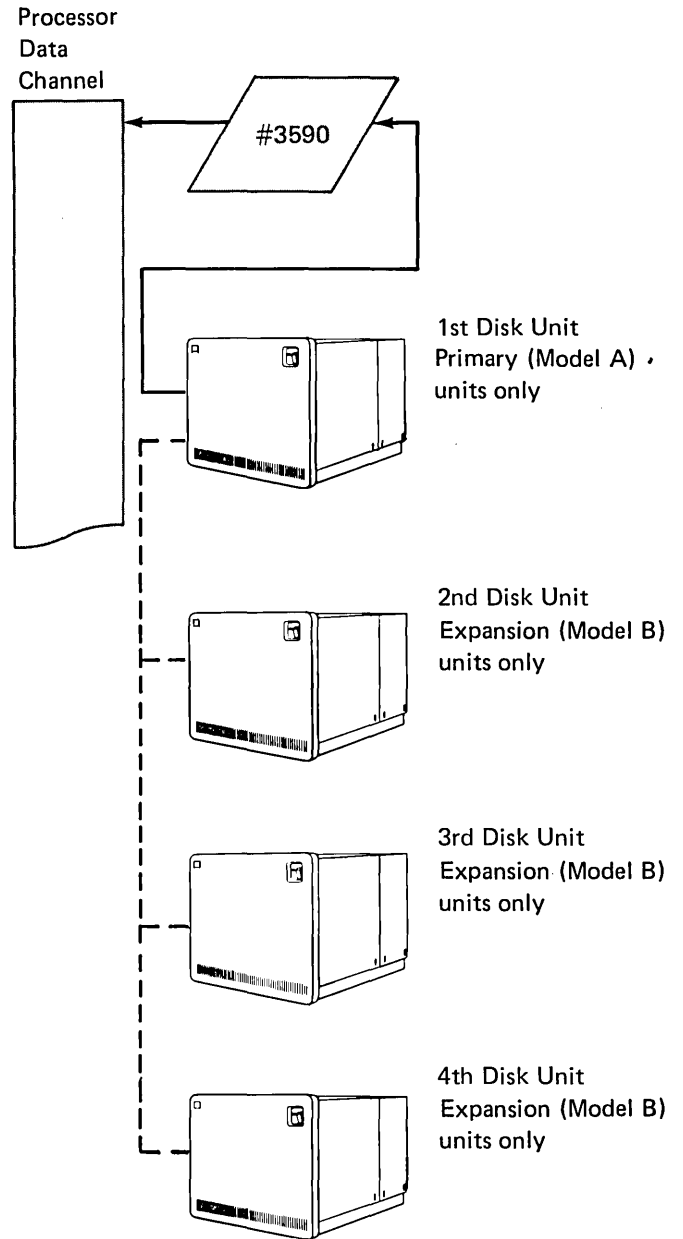
4964-1 Diskette Unit

This unit features a removable, two-sided flexible diskette that can be used to transfer data or to load programs into the system. The 4964 can also be used for data transfer between Series/1 and other IBM diskette devices. It uses dual-head recording and has a capacity of 246K to 606KB, depending on diskette type and format. Track-to-track access time is 40 milliseconds with 5 milliseconds required for each additional track crossed. Instantaneous data transfer rate is 31,250 bytes per second. The attachment operates in cycle-steal mode.

Channel Features

#3581   4964 Diskette Unit Attachment

Diskette Unit Requirements

This unit requires feature #4540 rack-mounting fixture.

Processor
Data
Channel

#3581
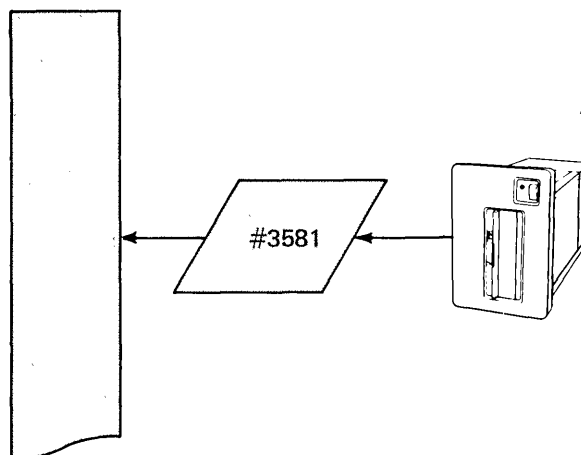
4965 Storage and I/O Expansion Unit Model 1

This unit is a direct-access, data-exchange storage device that has one 1.2MB diskette drive unit and four card sockets for channel features. A second 1.2MB diskette drive unit is optional. Diskettes recorded in the double density format with 1024 bytes per sector provide data storage of 1.2MB per diskette. Diskette capacity is from 246KB to 1.2MB, depending on diskette type and format.
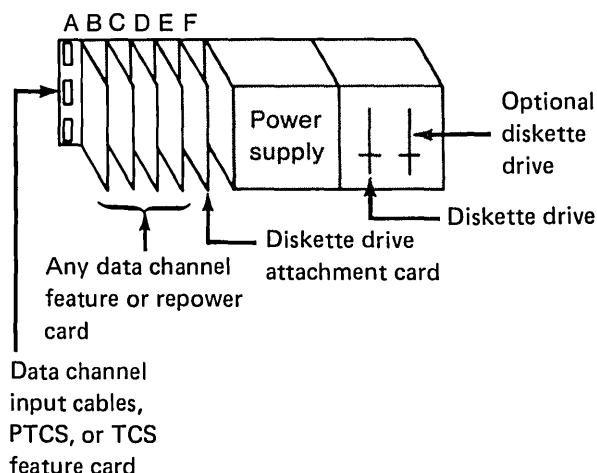
Unit Features

#4100   Diskette Drive—provides a second 1.2MB diskette drive.

#4520   Stand-Alone Enclosure—provides removable front, rear, top and bottom decorative covers. See limitations under processor requirements.

#4525   Stand-Alone Enclosure Cable—provides a 3.1-meter (10-foot) cable for connecting any two stand-alone enclosures (#4520). Requires a channel repower (#1565) in the processor.

#7777   Programmable Two-Channel Switch (PTCS)— provides capability to automatically switch data channel features between two processors.

#7900   Two-Channel Switch (TCS)— provides capability to manually switch data channel features between two processors.

Channel Features

#1565   Channel Repower—required when connecting a processor, a 4959, or another 4965.

Card socket assignment

A B C D E F

Power supply

Optional diskette drive

Diskette drive

Diskette drive attachment card

Any data channel feature or repower card

Data channel input cables, PTCS, or TCS feature card

4965 Storage and I/O Expansion Unit Model 60D

This unit is a direct-access, data-exchange storage device that has a 60MB fixed disk and seven card sockets for channel features. A 1.2MB diskette drive and 64KB cache are optional.
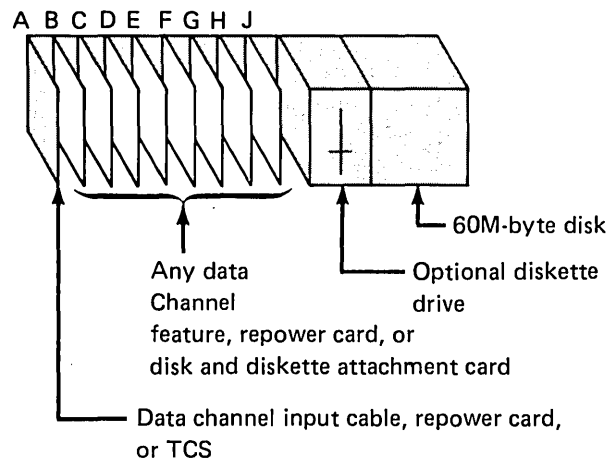
Unit Features

#2000 Communications Indicator Panel—provides visual display for communication line status information and modem control line settings.

#4100 Diskette Drive—provides a single 1.2MB diskette drive.

#4520 Stand-Alone Enclosure—provides removable front, rear, top, and bottom decorative covers. See limitations under Processor Requirements.

#4525 Stand-Alone Enclosure Cable—provides a 3.1-meter (10-foot) cable for connecting any two stand-alone enclosures (#4520). Requires a channel repower (#1565) in the processor.

#6400 Cache—provides a 64KB cache, microprocessor controlled, and can improve system performance. Selected data sectors are pre-fetched and stored in cache. Performance improvements are application dependent— ranging from 50% to above 200%.

#7900 Two-Channel Switch (TCS)—provides capability to manually switch data channel features between two processors.

Channel Features

#1565 Channel Repower—required when connecting to a processor, 4959, or another 4965.

Card socket assignment

A B C D E F G H J

60M-byte disk

Any data Channel feature, repower card, or disk and diskette attachment card

Optional diskette drive

Data channel input cable, repower card, or TCS

4967 High-Performance Disk Subsystem Model 2CA and 2CB

The High-Performance Disk Subsystem features multiple microprocessors to off-load the Series/1 processor and to optimize disk performance. Each subsystem has one primary drive and may have up to three expansion drives.

The 384KB cache is microprocessor controlled and has the potential to significantly improve system performance. Selected data sectors, determined by the cache control algorithm to be probable candidates for system read request, are pre-fetched and stored in cache. During a write operation, data is placed in cache after being written to the disk. Performance improvements are application dependent—test cases from a variety of applications thought to be typical have shown improvements in disk throughput ranging from 50% to above 200%. No guarantee of results can be made, however.

Applications that are truly random (test cases found none) or that are heavily write oriented may experience little or no improvement from the cache function. In such cases, the standard performance parameters of 25 milliseconds average access time and 10.1 milliseconds latency are seen.

Cache functions are transparent to programming.

Further 4967 features include automatic retries on soft error, automatic seek to alternate sector (always on same cylinder), and automatic seek overlap with read or write. Error-correction code mechanism corrects the most common form of disk read errors and detects all uncorrectable forms.
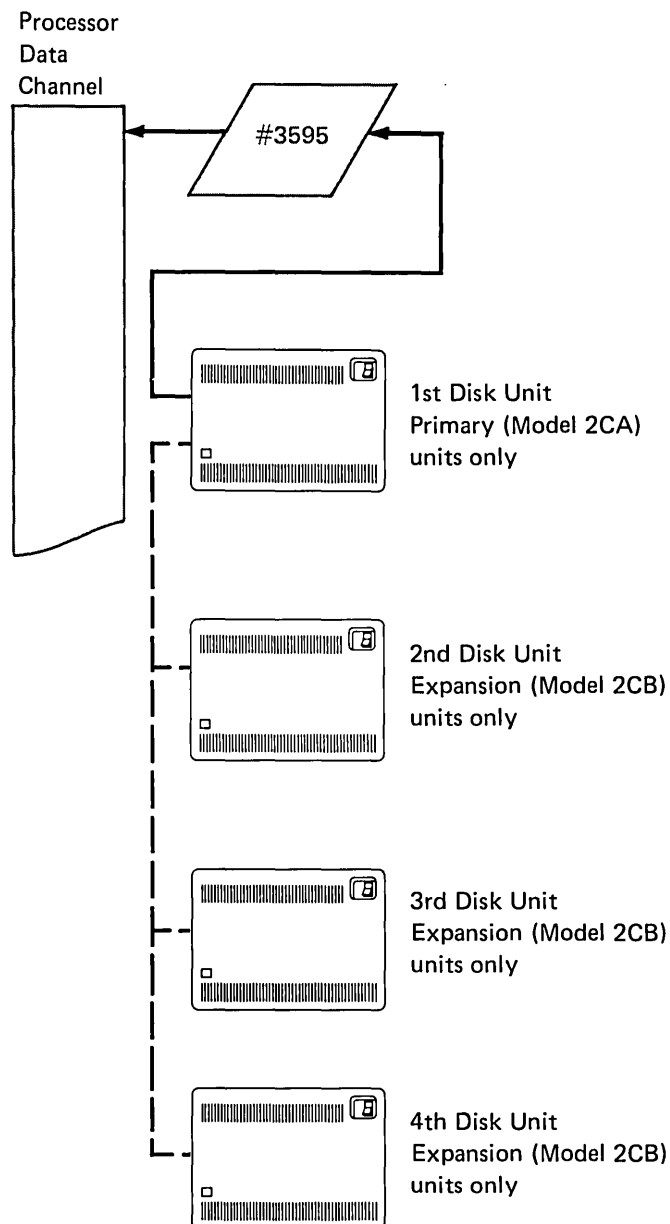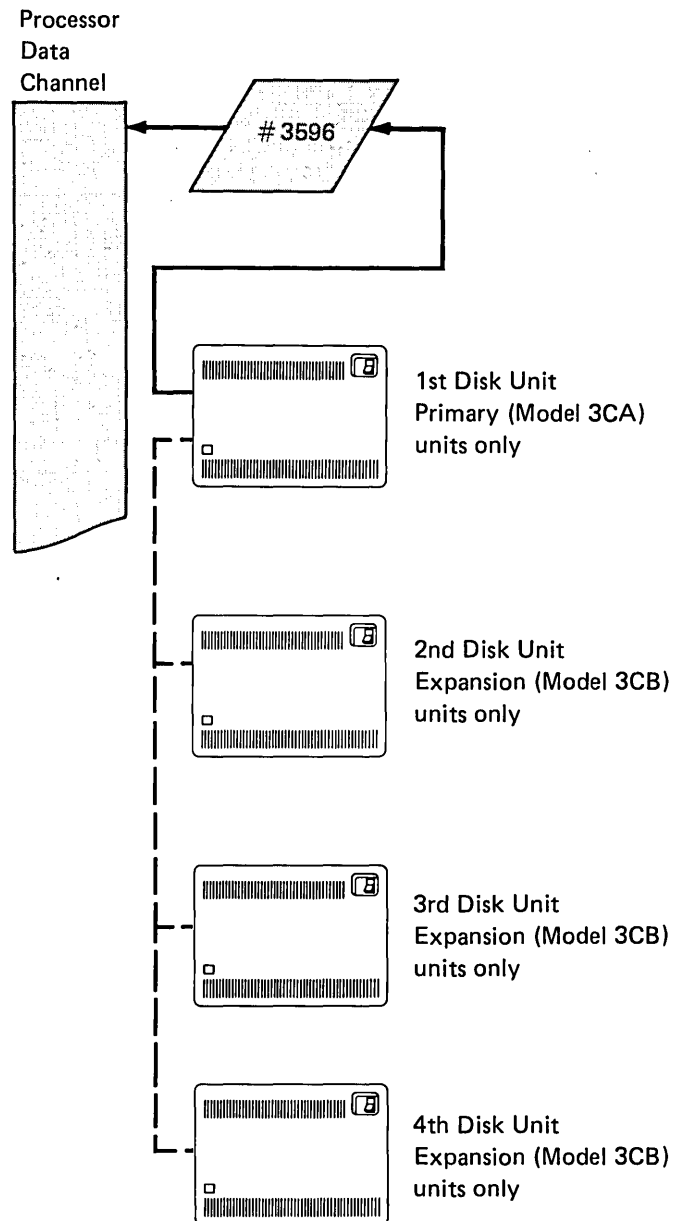
Each subsystem can have up to four drives (800MB).

4967-2CA Primary Disk Storage Unit: 200MB and controller

4967-2CB Expansion Disk Storage Unit: 200MB

Channel Features

#3595   4967 High-Performance Disk Subsystem Attachment

Note: Each 4967 Disk Subsystem has one primary disk storage unit and up to three expansion storage units per #3595.

Processor Data Channel

#3595

1st Disk Unit
Primary (Model 2CA)
units only

2nd Disk Unit
Expansion (Model 2CB)
units only

3rd Disk Unit
Expansion (Model 2CB)
units only

4th Disk Unit
Expansion (Model 2CB)
units only

4967 High-Performance Disk Subsystem Model 3CA and 3CB

The High-Performance Disk Subsystem features multiple microprocessors to off-load the Series/1 processor and to optimize disk performance. Each subsystem has one primary drive and may have up to three expansion drives.

The 384KB cache is microprocessor controlled and has the potential to significantly improve system performance. Selected data sectors, determined by the cache control algorithm to be probable candidates for system read request, are pre-fetched and stored in cache. During a write operation, data is placed in cache after being written to the disk. Performance improvements are application dependent—test cases from a variety of applications thought to be typical have shown improvements in disk throughput ranging from 50% to above 200%. No guarantee of results can be made, however.

Applications that are truly random (test cases found none) or that are heavily write oriented may experience little or no improvement from the cache function. In such cases, the standard performance parameters of 25 milliseconds average access time and 10.1 milliseconds latency are seen.

Cache functions are transparent to programming.

Further 4967 features include automatic retries on soft error, automatic seek to alternate sector (always on same cylinder), and automatic seek overlap with read or write. Error-correction code mechanism corrects the most common form of disk read errors and detects all uncorrectable forms.

Each subsystem can have up to four drives (1432MB).

4967-3CA Primary Disk Storage Unit: 358MB and controller

4967-3CB Expansion Disk Storage Unit: 358MB

Channel Features

#3596   4967 High-Performance Disk Subsystem Attachment

Note: Each 4967 Disk Subsystem has one primary disk storage unit and up to three expansion storage units per #3596.

Processor
Data
Channel

3596

1st Disk Unit
Primary (Model 3CA)
units only

2nd Disk Unit
Expansion (Model 3CB)
units only

3rd Disk Unit
Expansion (Model 3CB)
units only

4th Disk Unit
Expansion (Model 3CB)
units only

4968 Autoload Streaming Magnetic Tape Unit Model 1AS

The 4968 Autoload Streaming Magnetic Tape Unit primarily provides fast, convenient save/restore for medium-to-large disk subsystems, such as the IBM 4963 or the IBM 4967. In streaming mode, it can save 64MB in less than 10 minutes—one reel; it can save 200MB in approximately 30 minutes—three reels. The unit has an automatic restart on save/restore operations requiring multiple reels and the autoload eliminates tape threading by the operator.

Tape speeds are 25, 50, and 100 ips in streaming mode and up to 25 ips in limited-use start/stop operations. Reel capacity is 1600 bpi (ANSI standard) at 25 and 100 ips and 3200 bpi at 50 ips.

Event Driven Executive and Realtime Programming System support save operations in streaming mode.

Channel Features

#1220   4968 Autoload Streaming Magnetic Tape Unit Attachment

Magnetic Tape Unit Requirements

One channel feature (#1220) is required for each 4968 Magnetic Tape Unit.

Processor
Data
Channel

#1220

Data Storage Selection Card

IBM Series/1

	Units					
Feature	4963	4964 1	4965 60D	4967 2CA, 2CB	4967 3CA, 3CB	4968
4100						
4520						
4525						
6400						
7777						
7900						
1220						
1565						
3581						
3590						
3595						
3596						

Customer: _____

Disk Storage Units

4963 Model   58A ☐   64A ☐   64B ☐

4967 Model   2CA ☐   2CB ☐   3CA ☐   3CB ☐

Diskette Unit

4964 Model   1 ☐

Storage and I/O Expansion Unit

4965 Model   1 ☐ 60D ☐

Tape Storage Subsystem

4968 Model   1AS ☐

Unit Features

4100 Diskette drive

4520 Stand-alone enclosure

4525 Stand-alone enclosure cable

6400 Cache (64K)

7777 Programmable two-channel switch

7900 Two-channel switch

Data Channel Features

1220 4968 Autoload streaming magnetic tape unit attachment

1565 Channel repower

3581 4964 Diskette unit attachment

3590 4963 Disk subsystem attachment

3595 4967 Disk subsystem attachment

3596 4967 Disk subsystem attachment

Total data channel features selected

Chapter 4. Printers

4201 Proprinter

The 4201 is a compact, table-top, matrix printer. It provides data processing (DP) printing at normal speed, emphasized printing at half-speed, and correspondence quality at one-fifth speed.

The 4201 also offers the following:

- IBM Personal Computer character sets 1 and 2
- Printing at 5, 6, 8.5, 10, 12, and 17 characters per inch
- 80 characters per line in normal mode
- 137 characters per line in compressed mode.

Processor
Data
Channel
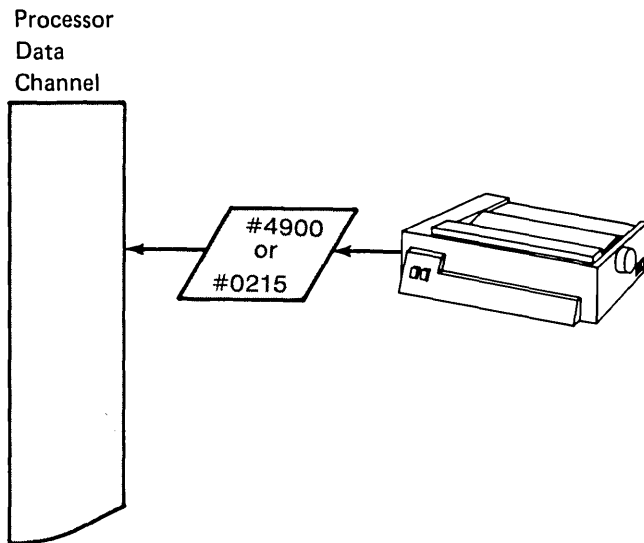
System Unit Features

#0215 Serial/Parallel Adapter Card

#4900 Monochrome Display and Printer Adapter

Unit Features

#5612 Communications Adapter Cable

Note: Only XON/XOFF pacing is supported when attaching to the Series/1. Additionally, feature number 1310 will support baud rates up to 4800 bps.

Processor
Data
Channel
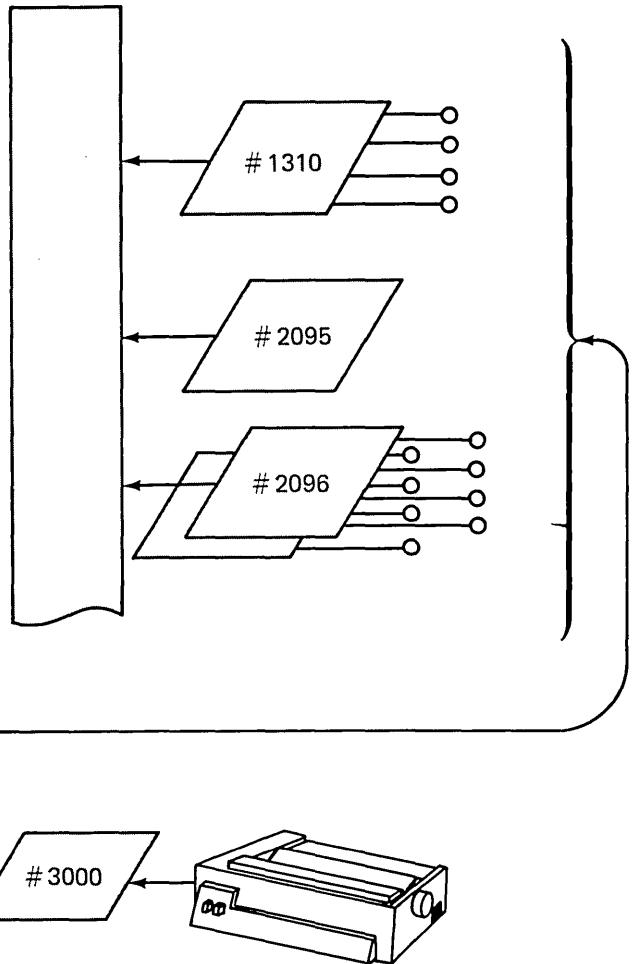
Unit Features

#2056 Communications Cable plus 5640736
#3000 Serial Module
#4000 5K Print Buffer

Channel Features

#1310	Multifunction Attachment—1310 is a multi-device attachment, refer to Series/1 Attachment Features for additional information.
#2095	Feature-Programmable Communications 8-Line Control— controls a maximum of two #2096 adapters. Refer to Series/1 Attachment Features for additional information.
#2096	Feature-Programmable Communications 4-Line Adapter— 2096 is a multi-device attachment, refer to Series/1 Attachment Features for additional information.

4224 Printer

The 4224 is a tabletop wire matrix printer that produces characters printed by a pattern of dots. Three models are available:

- Model 301 (maximum speed 200 characters per second)
- Model 302 (maximum speed 400 characters per second)
- Model 3C2 (maximum speed 400 characters per second; 8 color capability)

The 4224 printer also offers the following:

- Data Processing (DP), Data Processing Text (DPT), and Near Letter Quality (NLQ) print modes
- Printing up to six-part forms
- Printing at 10, 12, or 15 characters per inch
- Vertical spacing at 6 to 8 lines per inch
- Choice of four-color or eight-color ribbons on Model 3C2.

Unit Features

#2056   Communications Cable plus 5640736

Channel Features

#1310   Multifunction Attachment—1310 is a multi-device attachment, refer to Series/1 Attachment Features for additional information.

#2095   Feature-Programmable Communications 8-Line Control— controls a maximum of two #2096 adapters. Refer to Series/1 Attachment Features for additional information.

#2096   Feature-Programmable Communications 4-Line Adapter— 2096 is a multi-device attachment, refer to Series/1 Attachment Features for additional information.

Note: Only XON/XOFF pacing is supported when attaching to the Series/1.
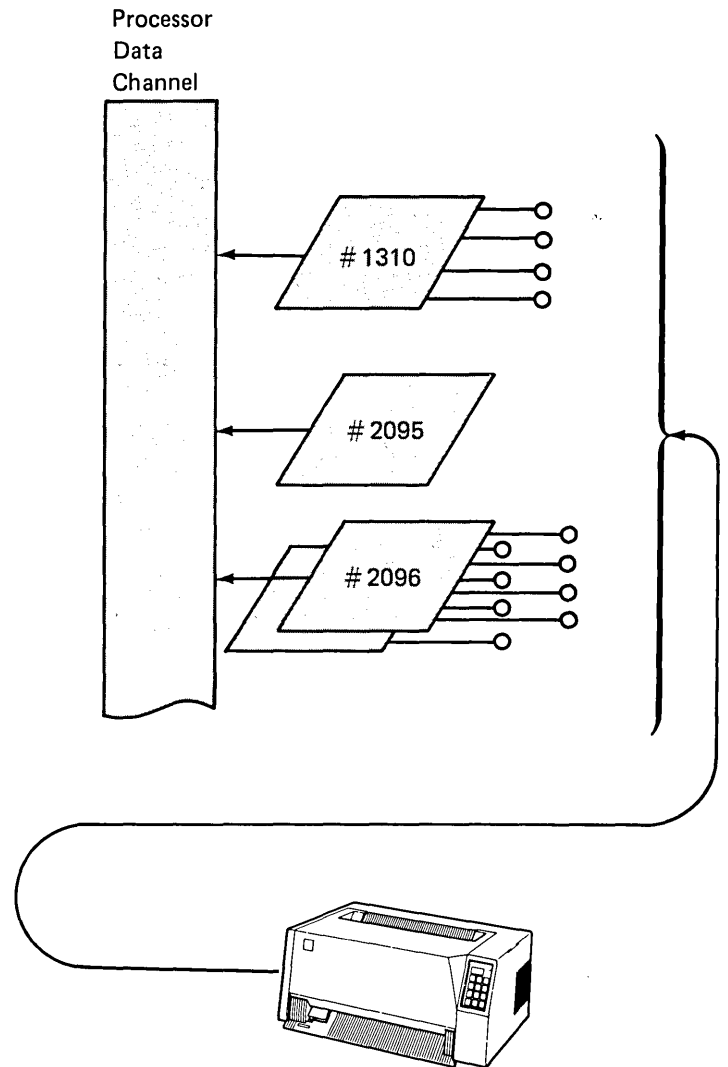
4975 Printer

The 4975 is a tabletop printer that provides medium- to high-speed hard copy output for the Series/1 on either cut or continuous forms. It is available in five models that can be connected directly (Models 01L and 02L), remotely (Models 01R and 02R), or as an auxiliary ASCII printer attached to a display terminal (Model 01A).

The 4975 Printer Models 01A, 01L, and 01R print 80 characters per second.

The 4975 Printer Models 02L and 02R are printers with both data processing (draft mode) and text processing (text mode) print capabilities. Models 02L and 02R print 160 characters per second in draft mode, and 40 characters per second in text mode. The 4975 Models 01R and 02R provide a cable for attachment to an RS-232-C interface.

An optional Special Printing Cartridge provides bar-code, large-character, and OCR-A printing.

Unit Features

#1601   Special Printing Cartridge (field installed)

#1610   Special Printing Cartridge (factory installed)

#4450   Forms Stand

#6100   Rear Document Insertion Device

Channel Features

#1310   Multifunction Attachment—1310 is a multi-device attachment, refer to Series/1 Attachment Features for additional information.

Note: Attachment cables for the 4975 can be ordered with feature #1310. RS-422-A cables must **not** be installed outdoors.

Processor
Data
Channel

#1310
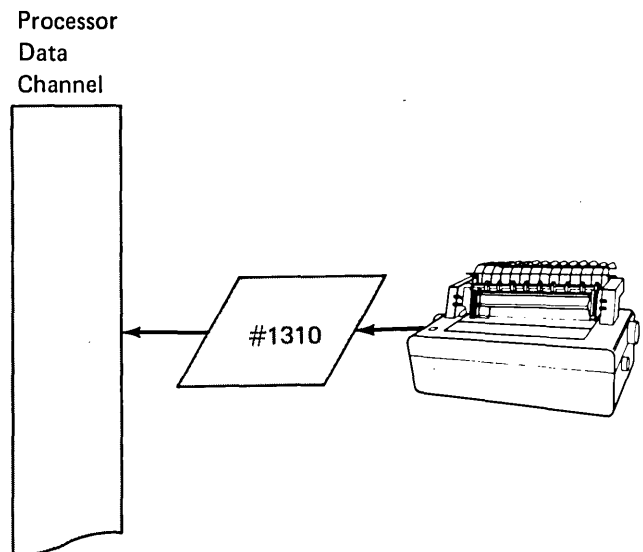
5219 Printer

The 5219 is a tabletop, bidirectional, serial-impact printer that provides high-quality, hard-copy output on continuous or cut form paper.

Interchangeable print wheels are available in 10, 12 and 15-pitch and proportional spacing. The print line is 132 characters wide at 10 characters per inch (cpi), 158 characters at 12 cpi, and 198 characters at 15 cpi. The pin-feed carriage handles up to 6-part forms, and the carriage moves forms at either 4, 5.3, 6, 8, 9.6, or 12 lines per inch vertically, under program control. The forms skip speed is 6 inches per second.

The 5219 is available in two models that differ in print speed.

5219-D01: 40 characters per second

5219-D02: 60 characters per second

Processor Data Channel

#5640

Unit Features

#1200   Auto Paper Handling
Prerequisite—provides paper path sensors and an electrical connector for Continuous Forms Feed Device (feature number #7850) or Cut-Sheet Feed Device (feature number #7860).

#4450   Forms Stand—provides a one-shelf, floor-standing forms stand for stacking continuous forms after printing.

#7850   Continuous Forms Feed Device—provides a variable width tractor for feeding continuous forms.

#7860   Cut-Sheet Feed Attachment—provides cut sheets (under system control) from two source trays, a paper transport, and an output tray.

Channel Features

#5640   Printer Attachment—5200 Series

Note: Feature #5780 provides a 6.1-meter (20-foot) twinaxial cable that can be used to connect the printer to the attachment card.
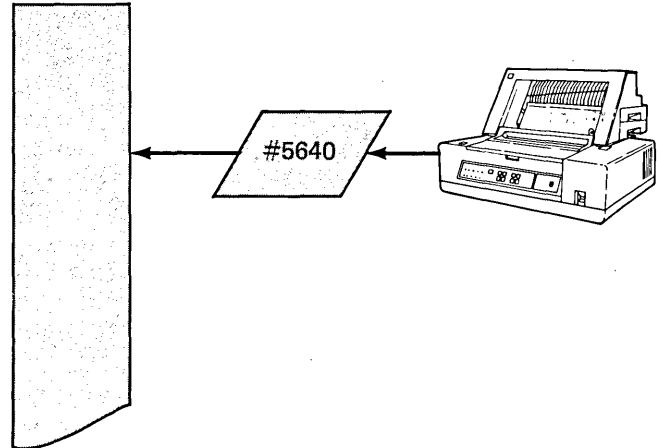
5224 Line Printer

The 5224 is a wire-matrix, tabletop, line printer that provides medium-speed output on continuous forms. The print line is 132 characters wide at 10 characters per inch, or 198 characters wide at 15 characters per inch. The pin-feed carriage handles up to 6-part forms, and the carriage moves forms at either 6, 8, or 9 lines per inch vertically, under program control. The forms skip speed is 12 inches per second.

The 5224 Printer is available in two models that differ in print speed. The print speed is based on 7.4-inch nominal lines at 10 characters per inch spacing.

5224-1 Line Printer: 140 lines-per-minute maximum

5224-2 Line Printer: 240 lines-per-minute maximum

Cable-thru and audible alarm are standard features.

Unit Features

#4450   Forms Stand—provides a one-shelf, floor-standing forms stand for stacking continuous forms after printing.

Channel Features

#5640   Printer Attachment—5200 Series

Note: Feature #5780 provides a 6.1-meter (20-foot) twinaxial cable that can be used to connect the printer to the attachment card.

Processor
Data
Channel

#5640
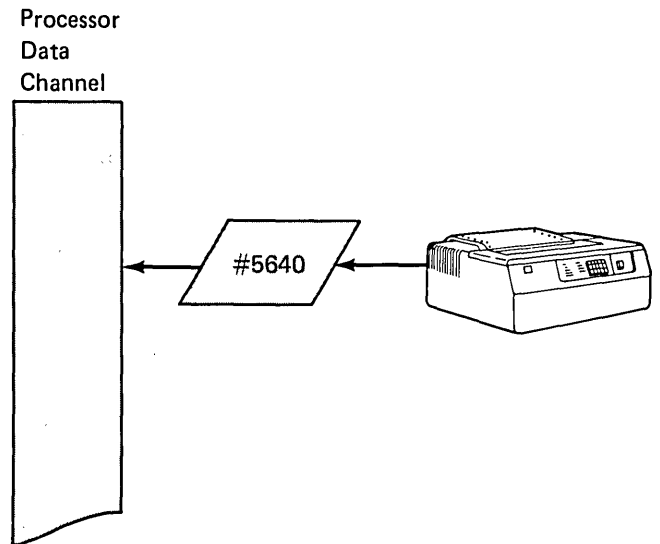
5225 Line Printer

The 5225 is a wire-matrix, floor-standing, line printer that provides high-speed output on continuous forms. The print line is 132 characters wide at 10 characters per inch (cpi), or 198 characters wide at 15 cpi. The pin-feed carriage handles up to 6-part forms, and the carriage moves forms at either 6, 8, or 9 lines per inch vertically, under program control. The forms skip speed is 12 inches per second.

The 5225 Printer is available in four models that differ in print speed.

5225-1 Line Printer: 280 lines-per-minute maximum (7.4-inch nominal lines at 10 cpi)

5225-2 Line Printer: 400 lines-per-minute maximum (9.8-inch nominal lines at 10 cpi)

5225-3 Line Printer: 490 lines-per-minute maximum (11.8-inch nominal lines at 10 cpi)

5225-4 Line Printer: 560 lines-per-minute maximum (13-inch nominal lines at 10 cpi)

Unit Features

#1470   Audible Alarm—provides an indication to the operator that intervention is required.

#2680   Cable-Thru—allows connection of additional printers on the interface cable.

Channel Features

#5640   Printer Attachment—5200 Series

Note: Feature #5780 provides a 6.1-meter (20-foot) twinaxial cable that can be used to connect the printer to the attachment card.

Processor
Data
Channel

#5640
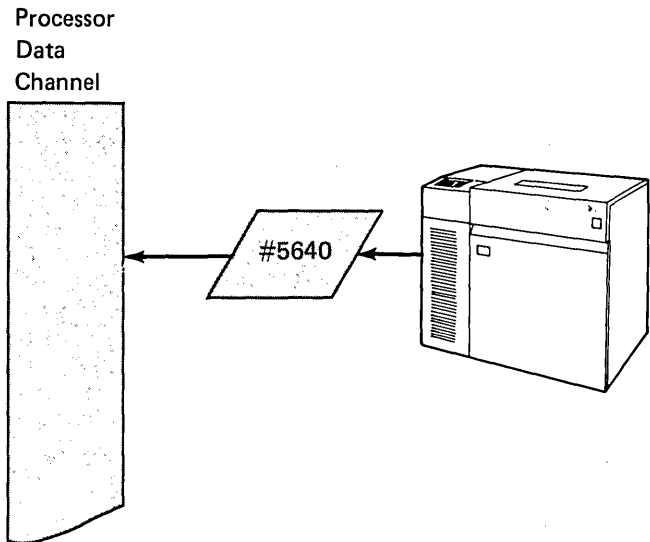
5262 Line Printer

The 5262 is a print band, floor-standing, line printer
that provides high-speed output on continuous
forms. The print line is 132 characters wide at 10
characters per inch (cpi). The pin-feed carriage
handles up to 6-part forms, and the carriage moves
forms at either 6 or 8 lines per inch, vertically, under
program control. The forms skip speed is 20 inches
per second.

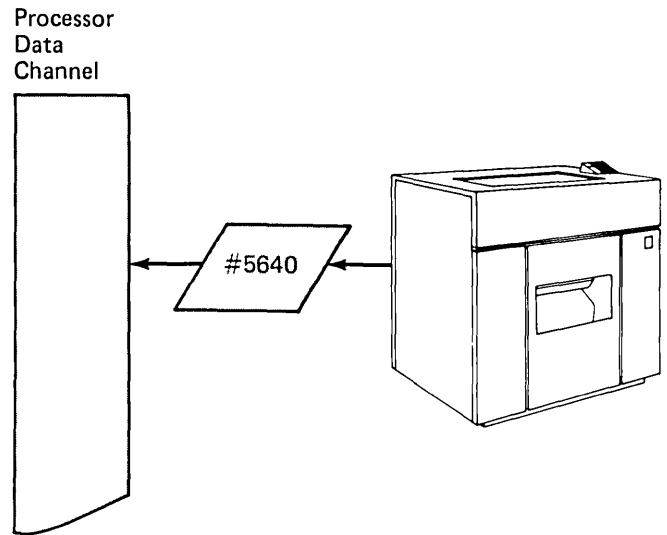The 5262 model 1 has a maximum print speed of
650 lines per minute when using a 48 character print
belt.

Unit Features

#5450   Optical Character Recognition

Channel Features

#5640   Printer Attachment—5200 Series

Note: Feature #5780 provides a 6.1 meter
(20-foot) twinaxial cable that can be used to
connect the printer to the attachment card.

Processor
Data
Channel

#5640

IBM Series/1

Printer Selection Card

Customer: _____

Printers

4201 Model	1 ☐	
4224 Model	301 ☐ 302 ☐ 3C2 ☐	
4975 Model	ALL ☐	
5219 Model	D01 ☐ D02 ☐	
5224 Model	1 ☐ 2 ☐	
5225 Model	1 ☐ 2 ☐ 3 ☐ 4 ☐	
5262 Model	1 ☐	

Unit Features

1200 Auto paper handling prerequisite ☐

1470 Audible alarm ☐

2680 Cable - thru ☐

3000 Serial Module ☐

4000 5KB Print Buffer ☐

4450 Forms stand ☐

6100 Rear document insertion device ☐

7850 Continuous forms feed device ☐

7860 Cut-sheet feed attachment ☐

Data Channel Features

1310 Multifunction attachment (see Series/1 Attachment Features) ☐

2095 Feature-Programmable 8-Line Communications Control ☐

2096 Feature-Programmable 4-Line Communications Adapter ☐

5640 Printer attachment — 5200 Series ☐

Total data channel features selected ☐

Feature

Feature	4201	4224 All	4975 All	5219 All	5224 All	5225 All	5262
1200							
1470							
2680							
3000							
4000							
4450							
6100							
7850							
7860							
1310							
2095							
2096							
5640							

Chapter 5. Display Stations

4978 Display Station

The 4978 Model 2 is a tabletop display with a separate keyboard. The character graphics (up to 256 characters) and keyboard operation can be user-defined.

Several keyboard layouts that incorporate program function keys, numeric keypad, and cursor control keys are available.

The screen can accommodate 80 characters per line and up to 24 lines.

The 4978 (RPQ D02055) is available in two base heights—1 inch and 3 inches. The 1-inch base is recommended for shelf mounting and the 3-inch base is recommended for the keyboard and display on the same level.

Processor
Data
Channel

D02038

Unit Features

D02032 Attachment Cable Increments
DO2034 Cable Basic (Model 2)
D02056 Extended Keyboard
D02057 Basic Keyboard
D02060 Audible Tone Alarm
D02064 Keyboard DAS/C 2-Meter
D02065 Keyboard DAS/C 1-Meter
D02222 Video Monitor Attachment
D02275 Keyboard—Data Entry Large
D02276 Keyboard—Data Entry Small
D02375 Keyboard—Text Entry/Edit

Channel Features

D02038   4978 Display Station Attachment
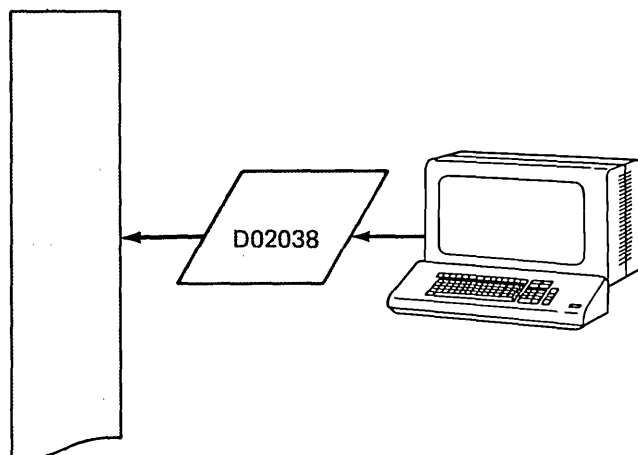
4980 Display Station

The 4980 is a tabletop display with a separate, low-profile keyboard. A 127-key keyboard is comprised of 87 alphanumeric keys, a separate numeric key pad, program function keys, cursor control keys, and terminal control keys. The screen can accommodate 80 characters per line and up to 24 lines. A 25th line is reserved for status information.

Cable-thru is a standard feature.

Channel Features

#1250   Multidrop Work Station Attachment—this attachment provides two ports with each port having twinaxial cable connectors. A maximum of eight 4980s can be attached to this feature. See the section on "Series/1 Attachment Features" for additional information.

Note: Feature #5780 provides a 6.1-meter (20-foot) twinaxial cable that can be used to connect the first display station to the attachment card.

Processor
Data
Channel

#1250
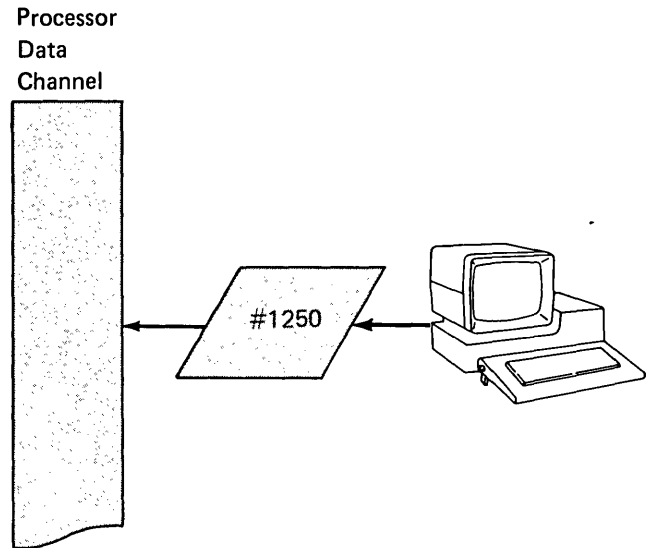
3161, 3163, and 3164 ASCII Display Stations

The 3161, 3163, and 3164 are tabletop keyboard displays with Teletype[1] compatible interfaces. They have an ASCII character set with 96 alphanumeric and special characters and 32 control characters. They also have an alternate character set that has line drawing, subscript, superscript, and special characters. The 3164 has a color display. The 3163 and 3164 have a loadable character set. The units include separate keyboards with 58 alphanumeric keys, a separate 18-key numeric keypad, 12 program function keys, and 14 cursor and terminal control keys.

The screen can accommodate 80 characters per line and up to 25 lines. One line is reserved for operator messages. An auxilary port is provided to attach a printer.

The 3161, 3163, and 3164 have two models available:

- Model 11, EIA RS-232-C modem interface only

- Model 12, EIA RS-232-C modem interface and EIA RS-422-A local interface.

Unit Features

#5770   Local Attachment Cable

D02352   RPQ Cable Series/1 (RS-422-A interface)

#2064   Teletypewriter Adapter Cable with EIA male connector

Channel Features

#1310   Multifunction Attachment

#1610   Asynchronous Communications Single-Line Control

#2091   Asynchronous Communications 8-Line Control

#2092   Asynchronous Communications 4-Line Adapter

#2095   Feature-Programmable Communications 8-Line Control

#2096   Feature-Programmable Communications 4-Line Adapter

#7850   Teletypewriter Adapter

D02350   RS-422 Asynchronous Terminal 8-Line Adapter

For 316X ordering information, contact your IBM representative.

Note: Attachment cables for the RS-422-A can be ordered with the #1310 feature.

---

[1]   Trademark of the Teletype Corporation.

Display Station Selection Card

Display Station
Selection Card

Feature	Units 4978 2	4980	3161 3163 3164
2064			
5770			
D02032			
D02034			
D02056			
D02057			
D02060			
D02064			
D02065			
D02222			
D02275			
D02276			
D02352			
D02375			
1250			
1310			
1610			
2091			
2092			
2095			
2096			
7850			
D02038			
D02350			

Customer: _____

Display Stations

3161	☐		3164	☐
3163	☐		4980 Model	1 ☐
4978 Model	2 ☐			

Unit Features

2064	Teletypewriter Adapter Cable with EIA male connector	☐
5770	Local Attachment Cable	☐
D02032	4978 Display Station Cable Increment	☐
D02034	4978 Display Station Cable Basic	☐
D02056	4978 Extended Keyboard	☐
D02057	4978 Basic Keyboard	☐
D02060	4978 Audible Tone Alarm	☐
D02064	Keyboard DAS/C 2-Meter	☐
D02065	Keyboard DAS/C 1-Meter	☐
D02222	4978 Video Monitor Attachment	☐
D02275	4978 Keyboard-Data Entry Large	☐
D02276	4978 Keyboard-Data Entry Small	☐
D02352	RPQ Cable Series/1 (RS-422-A interface)	☐
D02375	4978 Keyboard-Text Entry/Edit	☐

Data Channel Features

1250	Multidrop Work Station Attachment	☐
1310	Multifunction Attachment	☐
1610	Asynchronous Communications Single-Line Control	☐
2091	Asynchronous Communications 8-Line Control	☐
2092	Asynchronous Communications 4-Line Adapter	☐
2095	Feature-Programmable Communications 8-Line Control	☐
2096	Feature-Programmable Communications 4-Line Adapter	☐
7850	Teletypewriter Adapter	☐
D02038	4978 Display Station Attachment	☐
D02350	RS-422 Asynchronous Terminal 8-Line Adapter	☐
Total data channel features selected		☐

Chapter 6. Communications

Integrated Communications Features

Integrated communications features are card mounted, and plug into the processor data channel.

Channel Features

#1310   Multifunction Attachment—refer to Chapter 7, "Series/1 Attachment Features," for feature and cable information.

#1610   Asynchronous Communications Single Line Control. One line per feature—provides a cycle-steal attachment and control for a single communications line. Supports half-duplex, start/stop operation only.

   #2056   Asynchronous Local Attachment Cable

   #2057   EIA Data Set Cable

   #2724   U.K. Modem Adapter Cable[1]

   #2944   Japan EIA Data Set Cable[2]

   #2946   Self-Test Wrap Back Cable[3]

   D02101   Shielded EIA Data Set Cable

Processor
Data
Channel

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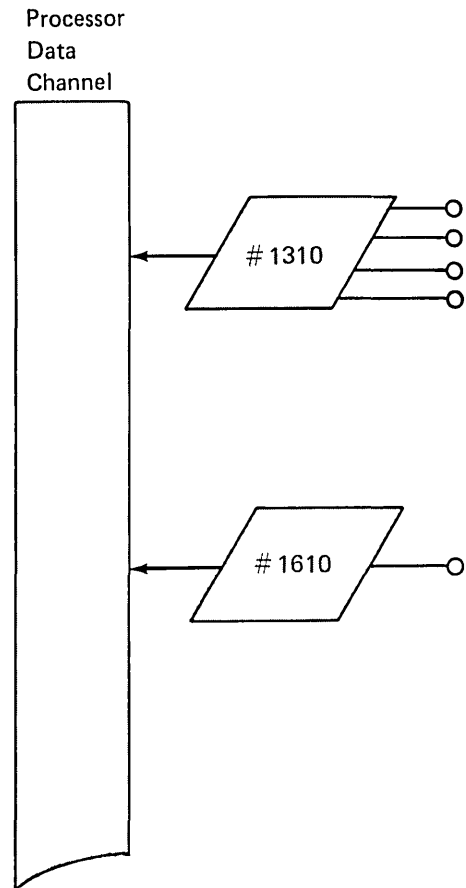
[1]   Installations using modems manufactured in the U.K., and using EIA Data Set Cable (#2057), also need the Modem Adapter Cable (#2724).

[2]   For use in Japan to meet Japanese PTT requirements in place of EIA Data Set Cables (#2057).

[3]   For use in Japan to meet Japanese PTT requirements and is used with the Japan EIA Data Set Cable (#2944).

#2074   Binary Synchronous Communications Single-Line Control. One line per feature—provides a half-duplex single BSC communications line capability. Supports point-to-point (switched and nonswitched) and multipoint (control and tributary station) operation. IPL is supported.
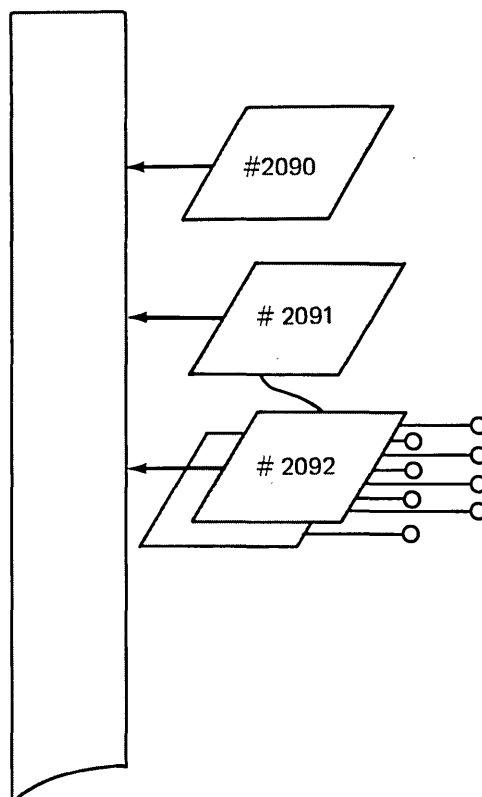
> #2057   EIA Data Set Cable
> #2062   EIA Data Set Cable FDX
> #2724   U.K.Modem Adapter Cable[4]
> #2944   Japan EIA Data Set Cable[5]
> #2946   Self-Test Wrap Back Cable[6]
> D02101   Shielded EIA Data Set Cable

#2075   Binary Synchronous Communications Single-Line Control High Speed. One line per feature—provides a half-duplex single BSC communications line capability. Supports EBCDIC and ASCII codes.

> #2058   BSC/High Speed Cable (for 303 Data Set or equivalent)
> #2060   BSC V.35/HS DDN Cable (for CCITT V.35 Interface)

#2080   Synchronous Communications Single-Line Control/High Speed. Provides X.21, V.35, or local connect data communications capability for Series/1. Lowers communication costs, due to network tariff structures. Operates in duplex mode using SDLC/HDLC protocol, and in half-duplex mode for SDLC/HDLC or BSC.

> #2060   BSC V.35/High Speed DDN Cable
> #2067   X.21 DCE Cable

Processor
Data
Channel

2074

2075

#2080

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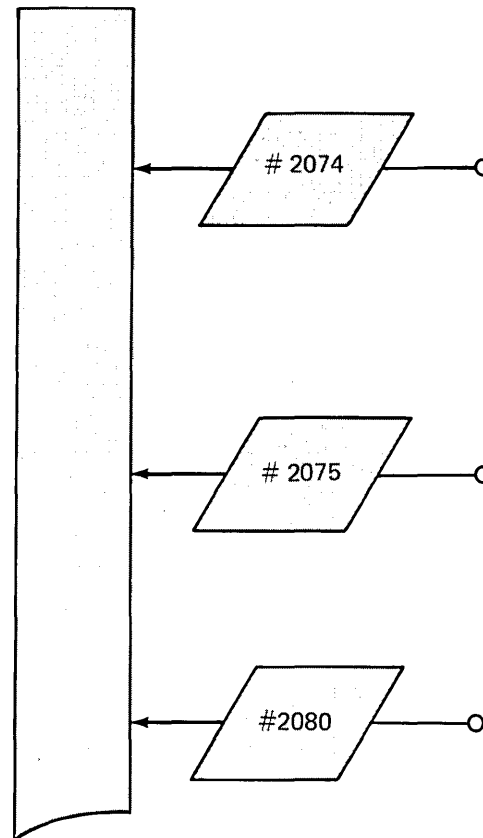
[4]   Installations using modems manufactured in the U.K., and using EIA Data Set Cable (#2057), also need the Modem Adapter Cable (#2724).

[5]   For use in Japan to meet Japanese PTT requirements in place of EIA Data Set Cables (#2057).

[6]   For use in Japan to meet Japanese PTT requirements and is used with the Japan EIA Data Set Cable (#2944).
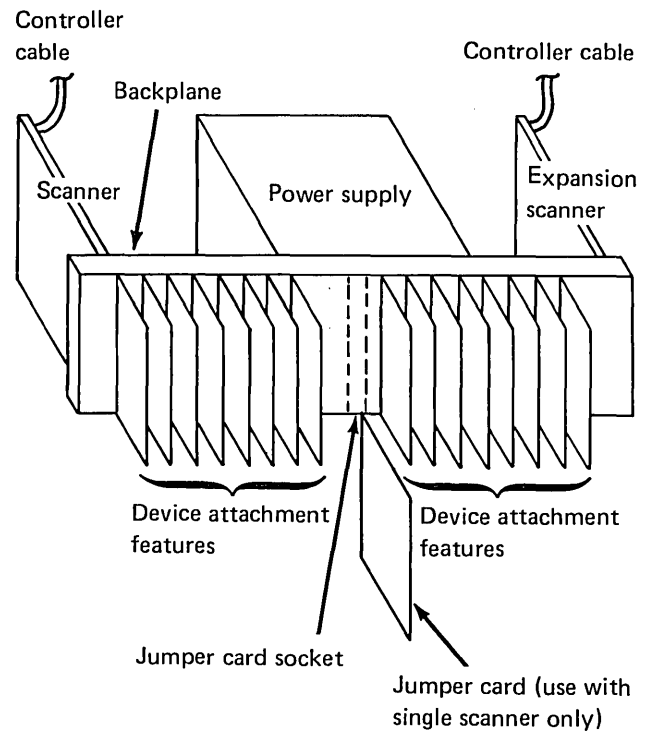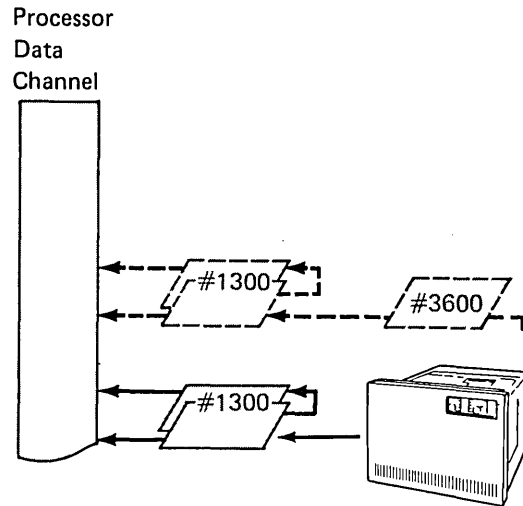
#2090   Synchronous Communications Single-Line Control. One line per feature—provides a cycle-stealing attachment and control for a single communications line operating under SDLC protocol. One #2090 supports half-duplex operations only. Two #2090, installed in adjacent feature locations, provides a duplex interface.

#2057	EIA Data Set Cable
#2062	EIA Data Set Cable FDX
#2724	U.K. Modem Adapter Cable[7]
#2944	Japan EIA Data Set Cable[8]
#2946	Self-Test Wrap Back Cable[9]
D02101	Shielded EIA Data Set Cable

#2091   Asynchronous Communications 8-Line Control. Controls up to two #2092 Adapters—provides support for a maximum of eight lines.

#2092   Asynchronous Communications 4-Line Adapter. Up to four lines per feature—provides for attachment of up to four half-duplex communications lines.

#2056	Asynchronous Local Attachment Cable
#2057	EIA Data Set Cable
#2724	U.K. Modem Adapter Cable[7]
#2944	Japan EIA Data Set Cable[8]
#2946	Self-Test Wrap Back Cable[9]
D02101	Shielded EIA Data Set Cable

Processor
Data
Channel

#2090

2091

2092

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[7]   Installations using modems manufactured in the U.K., and using EIA Data Set Cable (#2057), also need the Modem Adapter Cable (#2724).

[8]   For use in Japan to meet Japanese PTT requirements in place of EIA Data Set Cables (#2057).

[9]   For use in Japan to meet Japanese PTT requirements and is used with the Japan EIA Data Set Cable (#2944).

#2093   Binary Synchronous Communications 8-Line Control (Controls up to two #2094 Adapters).

#2094   Binary Synchronous Communications 4-Line Adapter. Up to four lines per feature—provides for attachment of up to four half-duplex BSC communications lines.

#2057	EIA Data Set Cable
#2062	EIA Data Set Cable FDX
#2724	U.K. Modem Adapter Cable[10]
#2944	Japan EIA Data Set Cable[11]
#2946	Self-Test Wrap Back Cable[12]
D02101	Shielded EIA Data Set Cable

#2095   Feature-Programmable 8-Line Communications Control (Controls up to two #2096 or one D02350 adapter).

#2096   Feature-Programmable 4-Line Communications Adapter. Up to four lines per feature—provides for attachment of up to four half-duplex communications lines.

#2056	Asynchronous Local Attachment Cable
#2057	EIA Data Set Cable
#2061	Current-Loop Cable
#2062	EIA Data Set Cable FDX
#2724	U.K. Modem Adapter Cable[10]
#2944	Japan EIA Data Set Cable[11]
#2946	Self-Test Wrap Back Cable[12]
D02101	Shielded EIA Data Set Cable

D02350   Asynchronous Direct 8-Line RS-422-A Adapter. Up to eight lines per feature—provides for attachment of up to eight half-duplex communications lines.

     D02352 Cable

Processor Data Channel

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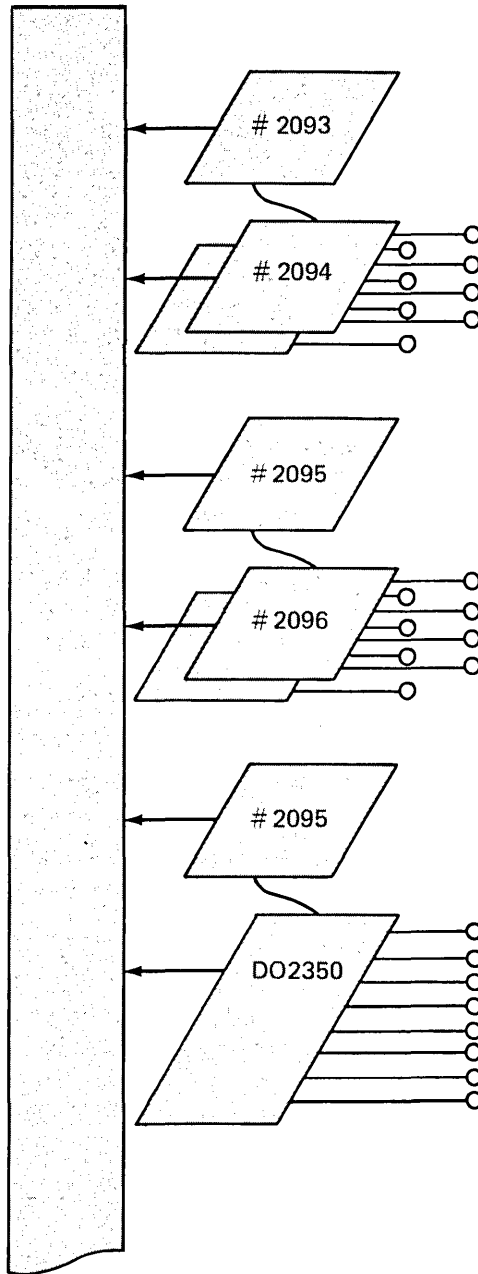
[10]   Installations using modems manufactured in the U.K., and using EIA Data Set Cable (#2057), also need the Modem Adapter Cable (#2724).

[11]   For use in Japan to meet Japanese PTT requirements in place of EIA Data Set Cables (#2057).

[12]   For use in Japan to meet Japanese PTT requirements and is used with the Japan EIA Data Set Cable (#2944).

4987 Programmable Communications Subsystem

This unit is a fully programmable communications multiplexer that allows the use of Series/1 in a wide range of communications applications. The 4987 provides attachment and control facilities for up to 32 lines per unit. Multiple units can be contained in a single Series/1 system. A special communications oriented instruction set is included with the unit allowing for the following functions to be performed remotely from the Series/1 processor:

- Protocol handling
- Control character generation and recognition
- Chaining of I/O operations
- Timer functions
- Auto-polling of multipoint lines
- Error retry functions
- Break signal processing
- Uppercase/lowercase character recognition and generation
- Auto-calling.

The 4987 Programmable Communications Subsystem consists of controllers, scanners, subsystem units and device attachment features. An optional console is also available that enables the user to display the status of communications lines and to display and/or alter the following:

- Line interface information
- Controller random access memory
- Data or order trace (a diagnostic function)
  Additionally, the console can be used to initiate diagnostic programs.

The 4987 has the capacity for up to 16 programmable communications features.

Processor
Data
Channel

Controller cable

Controller cable

Backplane

Scanner

Power supply

Expansion scanner

Device attachment features

Device attachment features

Jumper card socket

Jumper card (use with single scanner only)

#3600   Expansion Scanner—divides the 4987 sixteen feature locations into two 8-feature groups with 16 lines in each group.

#4730   Half-Duplex DCE Attachment. Two lines per feature—provides attachment of two independent switched or nonswitched, synchronous or asynchronous external data sets.

#4731   Duplex DCE Attachment. One line per feature—provides one duplex line.

#4734   TTY Current Attachment. Two lines per feature—provides two DC current-loop attachments for teletypewriters or equivalent devices. Supports two or four-wire half-duplex operation.

#4739   Asynchronous Local Attachment. Two lines per feature—provides two interfaces for asynchronous transmission to Systems or Terminals without the use of modems. Operates in half-duplex mode only.

#4740   Synchronous Local Attachment. Two lines per feature—provides two interfaces for synchronous transmission to Systems or Terminals without the use of modems. Operates in half-duplex mode only.

#4743   Autocall Attachment. One line per feature—provides for one half-duplex DCE attachment and one E1A RS366 Autocall attachment.

4987 Unit

#4730

#4731

#4734

#4739

#4740

#4743

Integrated Communications Selection Card

IBM Series/1

Integrated Communications Selection Card

Integrated Communications

Data Channel Features

1610	Asynchronous Communication Single-Line Control	☐
	2056 ☐ 2057 ☐ 2724 ☐	
	2944 ☐ 2946 ☐ D02102 ☐	
2074	BSC Single-Line Control	☐
	2057 ☐ 2062 ☐ 2724 ☐	
	2944 ☐ 2946 ☐ D02101 ☐	
2075	BSC Single-Line Control	☐
	2058 ☐ 2060 ☐	
2080	Synchronous Communications Single-Line Control H/S	☐
	2060 ☐ 2067 ☐	
2090	SDLC Single-Line Control	☐
	2057 ☐ 2062 ☐ 2724 ☐	
	2944 ☐ 2946 ☐ D02101 ☐	
2091	Asynchronous Communication 8-Line Control	☐
2092	Asynchronous Communication 4-Line Adapter	☐
	2056 ☐ 2057 ☐ 2724 ☐	
	2944 ☐ 2946 ☐ D02101 ☐	
2093	BSC 8-Line Control	☐
2094	BSC 4-Line Adapter	☐
	2057 ☐ 2062 ☐ 2724 ☐	
	2944 ☐ 2946 ☐	
2095	Feature-Programmable 8-Line Communications Control	☐
2096	Feature-Programmable 4-Line Communications Adapter	☐
	2056 ☐ 2057 ☐ 2061 ☐	
	2062 ☐ 2724 ☐ 2944 ☐	
	2946 ☐	
D02350	Asynchronous Direct 8-Line RS-422-A Adapter	☐
	D02352 ☐	

Total data channel features selected   ☐

Data channel features — Cables: 2056, 2057, 2058, 2060, 2061, 2062, 2067, 2724, 2944, 2946, D02101, D02352. Columns: 1610, 2074, 2075, 2080, 2090, 2092, 2094, 2096, D02350.

Programmable Communications Subsystem Selection Card

IBM Series/1

Programmable Communications Subsystem Selection Card

```
        ┌─────────────┐
       / Data channel /
      /  features    /
     /╱╱╱╱╱╱/
    /4730/4731/4734/4739/4740/4743/
Cables┌──┬──┬──┬──┬──┬──┐
 2100 │  │  │  │  │  │  │
      ├──┼──┼──┼──┼──┼──┤
 2130 │  │  │  │  │  │  │
      ├──┼──┼──┼──┼──┼──┤
 2131 │  │  │  │  │  │  │
      ├──┼──┼──┼──┼──┼──┤
 2132 │  │  │  │  │  │  │
      ├──┼──┼──┼──┼──┼──┤
 2133 │  │  │  │  │  │  │
      └──┴──┴──┴──┴──┴──┘
```

Customer: _____

Programmable Communications Subsystem

4987-1 Programmable Communications Subsystem ☐

Unit Features

4730 Half-Duplex DCE Attachment ☐

4731 Full-Duplex DCE Attachment ☐

4734 TTY Current Attachment ☐

4739 Asynchronous Local Attachment ☐

4740 Synchronous Local Attachment ☐

4743 Autocall Attachment ☐

Data Channel Features

1300 Programmable Communications Subsystem
Controller ☐

D02722 Programmable Channel Subsystem
Advanced Function Controller

Each #1300 I/O or D02722 channel feature requires
two adjacent I/O card sockets.

Total data channel features selected -

*Trademark of the Bell Telephone System

Chapter 7. Series/1 Attachment Features

Multifunction Attachment Feature

The Multifunction attachment Feature #1310 provides four independent attachment addresses. Three addresses allow local attachment capability. The first address allows local or remote attachment capability.

Supports local attachment of:

- 316X Models 11 and 12
- 4201 Proprinter
- 4224 Printer
- 4975 Models 01L and 02L.

Supports remote attachment of:

- Binary synchronous communications system or terminal, or asynchronous communications system or terminal
- 316X Models 11 and 12
- 4975 Models 01R or 02R.
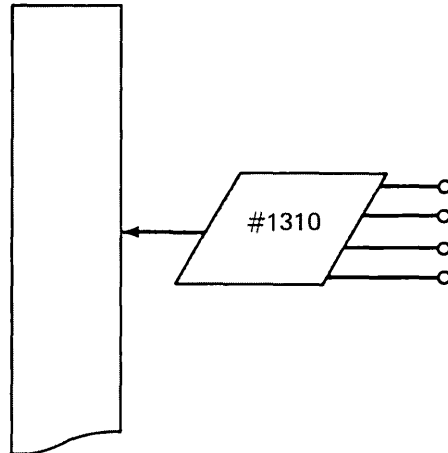
Channel Features

#1310   Multifunction Attachment

Unit Features

#2056   Asynchronous Local Communication cable
        (4975 Models 01R, 02R; 316X Model 12)
#2057   EIA Dataset Cable (4975 Models 01R, 02R; 316X Model 12)
#2724   U.K Modem Adapter cable
#2944   Japan EIA Data Set cable
#2946   Self-Test Wrap Back Cable
#5770   Multifunction Local Attachment cable (4975 Models 01L, 02L; 3161 and 3163 Model 12)
#5790   Attachment cable.

Note: RS-422-A cables must **not** be installed outdoors.

Processor
Data
Channel

Multidrop Work Station Attachment Feature

The Multidrop Work Station Attachment Feature #1250 provides four cable ports for attaching up to eight 4980 display stations in a multidrop configuration. Each port provides an interface up to 1220 meters (4000 feet) at 100K bps, 488 meters (1600 feet) at 250K bps, or 244 meters (800 feet) at 500K bps.

The attachment can transfer data to and from Series/1 storage via cycle-steal and direct program control.

Channel Features

#1250   Multidrop Work Station Attachment

*Note:* Feature #5780 provides a 6.1-meter (20-foot) twinaxial cable that can be used to connect a display station to the attachment card. A maximum of four feature #5780 may be used for each feature #1250. The twinaxial cable must **not** be installed outdoors.

Processor
Data
Channel
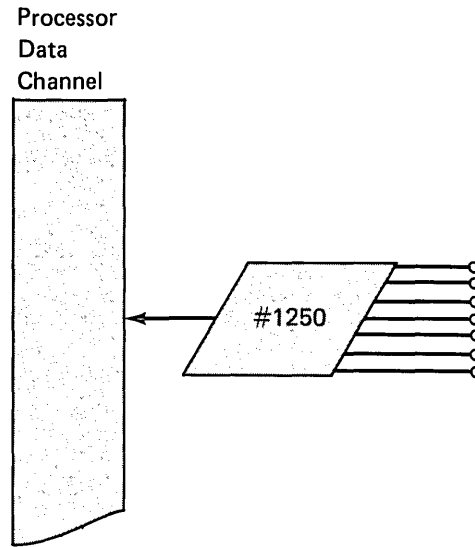
Printer Attachment Feature — 5200 Series

The Printer Attachment — 5200 Series (feature #5640), makes it possible to attach to the Series/1 up to eight 5219 Models D01 and D02 Printwheel Printers, or up to eight 5224 Models 1 and 2 Line Printers, or up to four 5225 Models 1, 2, 3, and 4 Line Printers, or up to two 5262 Model 1 printers, or combinations of the printers listed below. The attachment physically connects and logically adapts the printers to the processor I/O channel and permits data to be transmitted and received up to a distance of 1524 meters (5000 feet). The attachment has two cable ports. You can attach up to seven printers to either port. The printers are connected to the attachment by twinaxial cable (feature number 5780 or customer supplied).

The attachment supports the transfer of data in data stream or emulation mode.

Possible configurations are:

- Any mix of 5219s and 5224s up to eight printers, or
- One 5225 and a mix, up to seven printers, of 5219s and 5224s, or
- Two 5225s and a mix, up to five printers, of 5219s and 5224s, or
- Three 5225s and a mix, up to three printers, of 5219s and 5224s, or
- Four 5225s and one 5219 or 5224 printer
- Two 5262s and up to five 5219s
- One 5262 and up to three 5219s.

Notes:

1. *All printers within a physical distance of 100 feet of the attachment card (feature 5640) must be the same machine type, regardless of the port they are attached to. Printer machine types can be mixed only at distances of at least 100 feet from the attachment card. At the 100-foot distance or more, there are no restrictions on distances between printer machine types.*

2. *5262s and 5224/5225s are not supported on the same attachment feature.*
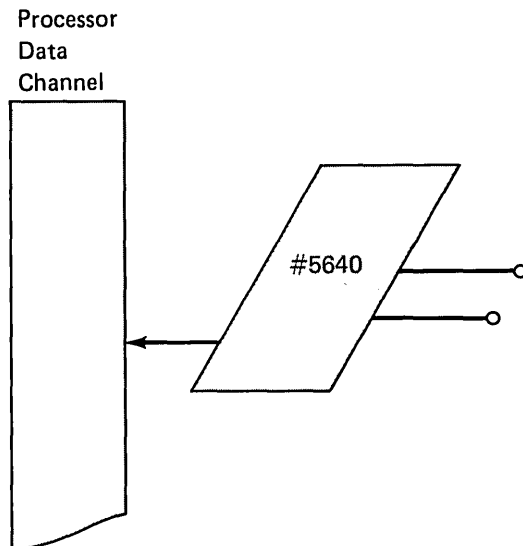
Processor
Data
Channel

#5640

Channel Features

#5640   Printer Attachment—5200 Series

Note: Feature #5780 provides a 6.1-meter (20-foot) twinaxial cable that can be used to connect a printer to the attachment card.

Series/1 Local Communications Controller

The Series/1 Local Communications Controller #1400 provides a ring connection between Series/1 processors (up to 16 processors can be attached on the ring). The attachment consists of controllers and logic that directs the transfer of commands, addresses, and data between the #1400 feature and the Series/1 processors, using peer-to-peer, duplex protocol between multiple features in a data loop. Each processor attached to the ring requires the #1400 feature.

Channel Features

#1400   Series/1 Local Communications
         Controller
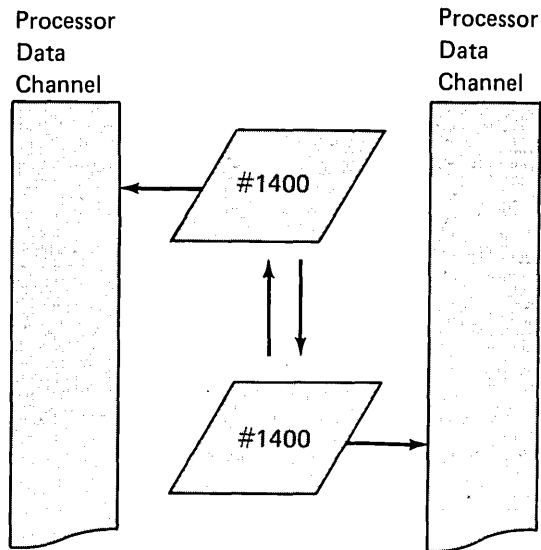
Telephone Communications Attachment Features

The Series/1 Telephone Communication Attachment Features are:

Channel Features

#7880   Telephone Communications Controller
#7881   Telephone Communications Adapter

Unit Features

#2070   Telephone Communications Attachment
         Cable (DAA)
#2071   Telephone Communications Attachment
         Cable (VCA)
8D0036   EMA Attachment Cable

The controller feature performs the channel interface function and transfers digitized voice between the channel and up to four adapters.

The adapter features connect through one of the two cable types to switched telephone networks, using either a Data Access Arrangement (DAA) or a Voice Connecting Arrangement (VCA), both customer-supplied.

The features normally operate with the IBM licensed program 5719-U20, a computer-based store and forward voice message system.

Please see your Marketing Representative for ordering information.

Series/1-to-Personal Computer Channel Attachment

The IBM Series/1 to Personal Computer Channel Attachment (feature #4000) is an attachment card that makes it possible to attach the IBM Personal Computer, Personal Computer XT, or Personal Computer AT to the Series/1. It plugs into a Series/1 processor or I/O expansion unit and provides 64KB of storage to be shared by the Personal Computer for exchanging data.

Channel Features

#4000   Channel Attachment

Unit Features

#4001   Interconnect Cable

Processor Data Channel | Series/1

Series/1 — Personal Computer channel attachment card

Interconnect cable

Personal Computer Extender Card

IBM Personal Computer

Feature number 4000 | Feature number 4001 | Included with feature number 4000
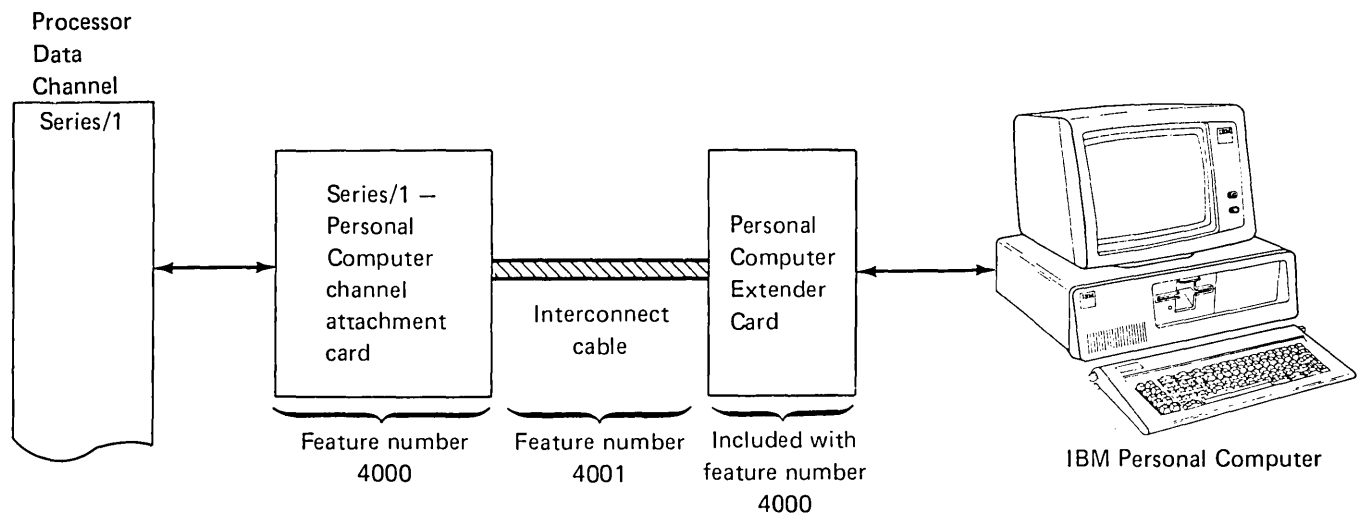
IBM   Series/1

Customer: _____

Series/1 Attachment Features Selection Card

Auxiliary feature \ I/O Channel feature	1250	1310	4000	7881	5640
1400					
2056					
2057					
2070					
2071					
2724					
2944					
2946					
4001					
5770					
5780					
5790					
8D0036					
7880					
7881					

Series/1 Attachment Features

Auxiliary Features

2056	Asynchronous Local Communication Cable	
2057	EIA Dataset Cable	☐
2070	Telephone Communications Attachment Cable (DAA)	☐
2071	Telephone Communications Attachment Cable (VCA)	☐
2724	UK Modem Adapter Cable	☐
2944	Japan EIA Data Set Cable	☐
2946	Self-Test Wrap Back Cable	☐
4001	Interconnect Cable	☐
5770	Multifunction Local Attachment Cable	☐
5780	Attachment Cable	☐
5790	Attachment Cable	☐
8D0036	EMA Attachment Cable	☐

I/O Channel Features

1250	Multidrop Workstation Attachment	☐
1310	Multifunction Attachment	☐
1400	Series/1 Local Communication Controller	☐
4000	Series/1-to-PC Channel Attachment	☐
5640	Printer Attachment 5200 series	☐
7880	Telephone Communications Controller	☐
7881	Telephone Communications Adapter	☐

Total I/O channel features selected ☐

Chapter 8. User Attachment Features

Integrated Digital Input/Output (non-isolated)

This feature provides 32 points of digital input/process interrupt and 32 points of digital output. It attaches directly to the processor data channel and operates under direct program control.

Channel Feature

#1560   Integrated DI/DO Non-isolated

Auxiliary Features*

#1590   Customer Accessory Panel—provides quick disconnect type Assembly and cables. A maximum of four #1593 or 1594 cables can be terminated in the feature.

#1593   Customer Access Panel—Integrated DI/DO Cable—provide internal cable to connect the 1560 feature with the Customer Access Panel (1590).
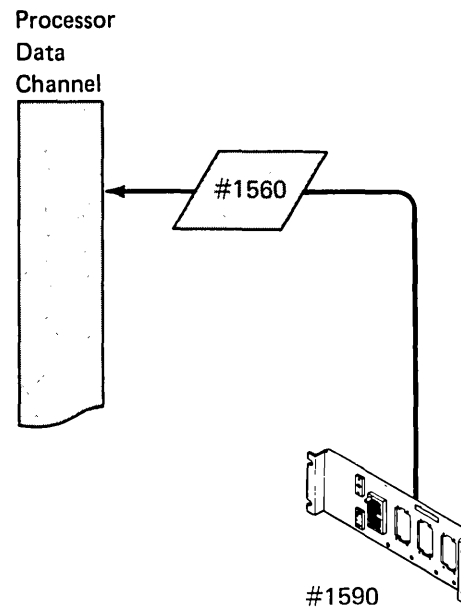
*The auxiliary features cannot be used with the stand-alone enclosure (feature #4520).

Processor
Data
Channel

#1560

#1590

Customer Direct Program Control Adapter

This feature provides for attaching up to 16 addressable customer devices under direct program control. Interrupt capability is provided for each device. Provides 16-bit parallel input and output data transfers and has a parity option.

Auxiliary Features*

#1590   Customer Access Panel—provides quick disconnect type Assembly and cables. A maximum of four #1593 or 1594 cables can be terminated in the feature.

#1594   Customer Access Panel—DPC Adapter Cable—provides internal cable to connect to the Customer Access Panel (1590).

Processor
Data
Channel

#1560
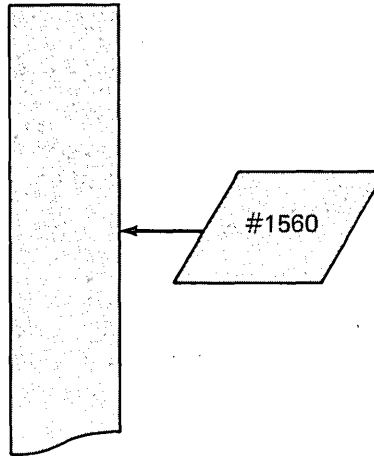
*The auxiliary features cannot be used with the stand-alone enclosure (feature #4520).

Timers

Provides two 16-bit timers per feature. Five frequency options per timer (1, 5, 25, and 50 microseconds internal time base, and one user-selectable external time base). Timers operate independently under direct program control and can be used to measure pulse duration or as pulse counters.

Channel Feature

#7840   Timers

Auxiliary Features

#1590   Customer Access Panel—provides internal cables for connecting one 7840 feature.

Note: This feature cannot be used with the stand-alone enclosure (feature #4520).

GPIB Adapter

Provides an interface to attach many of the OEM devices, instrumentation, and subsystems that conform to IEEE Standard 488.

Channel Features

D02118 GPIB Adapter

Auxiliary Features

D02119 GPIB Adapter Cable—provides a 4-meter (13-foot) cable.

5230 Data Collection

Allows attachment of 5230 data collection units to Series/1.

Channel Features

D02312 One master scheduler card and one loop multiplexer card.
D02313 One loop multiplexer card
D02314 One master scheduler card and one loop multiplexer card.
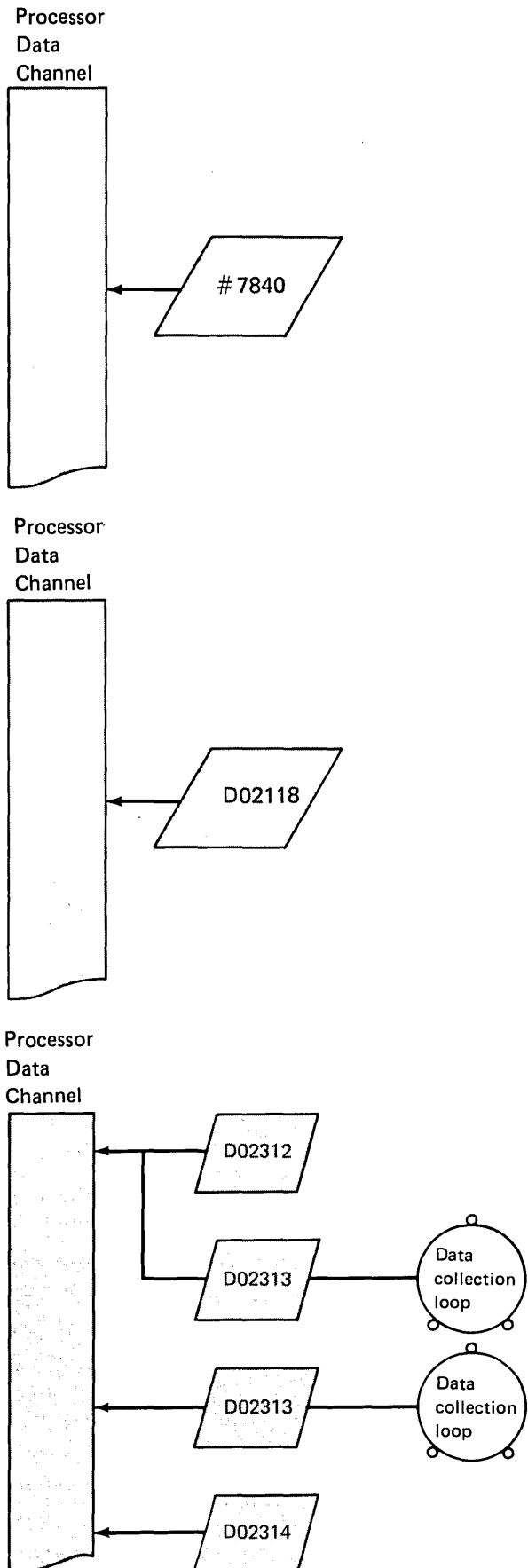
Teletypewriter Adapter

Provides a means to attach an I/O device Teletype[1] Models 33/35, or equivalent device, to the processor. The adapter operates in duplex mode at speeds up to 9600 bps.

Channel Features

#7850   Teletypewriter Adapter

Auxiliary Features

#1590   Customer Access Panel—provides internal cables for connecting one 7850 feature.
#2055   Teletypewriter Cable
#2059   Teletypewriter—Customer Access Panel Cable.
#2064   Teletypewriter Cable EIA Male—required for EIA duplex operation.
#2065   Teletypewriter Cable EIA Female—required for EIA full-duplex operation.
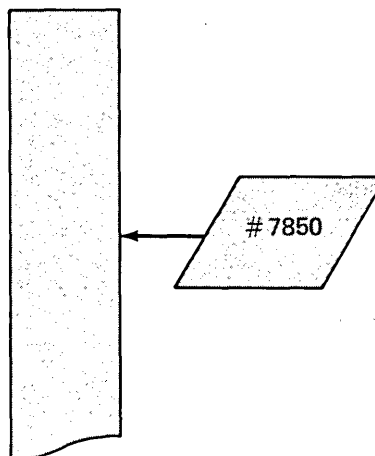
Notes:

1. *Feature #1590 cannot be used with feature #4520, the stand-alone enclosure.*

2. *#2010 Communications Power feature is required when using the EIA voltage interface or when power is taken from the adapter for current loop mode of operation, requires the Communications Power Feature in the 4959-A (below serial #22499).*

Processor
Data
Channel

#7850

---

1   Trademark of the Teletype Corporation.

User Attachment Features
Selection Card

IBM Series/1

User Attachment
Features Selection Card

	Data channel features			
Auxiliary feature	1560	7840	7850	D02118
1590				
1593				
1594				
2055				
2059				
2064				
2065				
D02219				

User Attachment Features

Auxiliary Features

1590 Customer Access Panel ☐

1593 Customer Access Panel - Integrated DI/DO Cable ☐

1594 Customer Access Panel - DPC Adapter Cable ☐

2055 Teletypewriter Cable ☐

2059 Teletypewriter - Customer Access Panel Cable ☐

2064 Teletypewriter Cable EIA Male ☐

2065 Teletypewriter Cable EIA Female ☐

D02119 GPIB Adapter Cable ☐

Data Channel Features

1560 Integrated DI/DO Non-isolated ☐

7840 Timers ☐

7850 Teletypewriter Adapter ☐

D02118 GPIB Adapter ☐

D02312 Master Scheduler and Loop Multiplexer Card ☐

D02313 Loop Multiplexer Card ☐

D02314 Master Scheduler and Loop Multiplexer Card ☐

Total data channel features selected ☐

Chapter 9. System Support Units

IBM 4982 Sensor Input/Output Unit

The 4982 Sensor I/O unit consists of a power supply, terminator card, and sockets for eight sensor I/O feature cards mounted in a one-half width unit. Sensor I/O provides a flexible, modular approach to attaching process I/O applications to the Series/1.

Channel Features

#6305   4982 Sensor I/O Unit Attachment

Unit Features

#1060   Analog Input Control (required for #1070, one per sensor I/O unit)
#1065   Analog Output (two per card)
#1070   Amplifier Multirange (one per sensor I/O unit)
#3525   DI/PI Non-isolated (16 points per card)
#3532   DI/PI Isolated (16 points per card)
#3535   DO Non-isolated (16 points per card)
#4940   Multiplexer/Reed Relay (eight channels AI per card)
#4950   Multiplexer/Solid State (16 channels AI per card)
D02358   Multiplexer/Mercury Relay—same as the #4940, except D02358 cannot be installed with the #4950

Sensor I/O Requirements

The 4982 requires #4540 Rack Mounting Fixture.
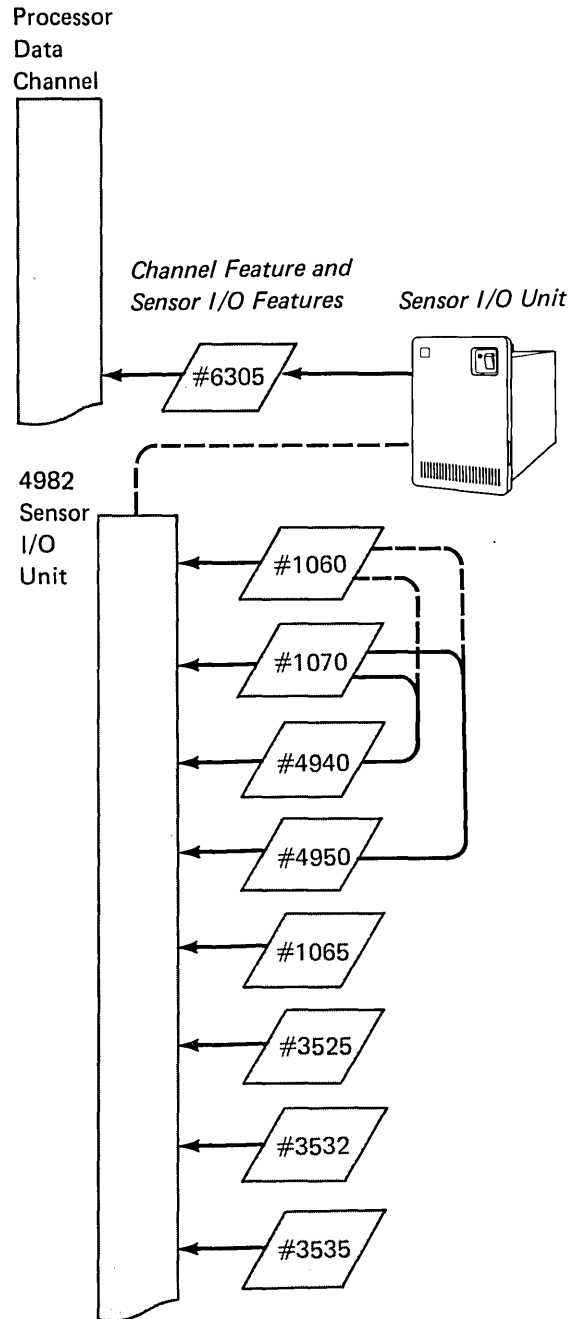
IBM 4993-1 Series/1—IBM System/370 Termination Enclosure

The Series/1—IBM System/370 termination enclosure unit provides storage-to-storage communication between a Series/1 and IBM System/370, Models 135—168, an IBM 3031, 3032, or 3033, 3081, or an IBM 4331, 4341 at speeds up to 300,000 bytes per second. Data is transferred under control of both processors. The unit is attached to a Series/1 channel using Series/1—IBM System/370 Channel Attachment Feature (#1200), and connected to a System/370 selector or block multiplexer (except 2870) channel where it functions as a control unit with 32 device addresses. A maximum of eight Series/1 attachments can be connected to any System/370 selector (except 2870) or block multiplexer channel. This unit and its attachment feature function as a cycle-steal I/O device to the Series/1 processor.
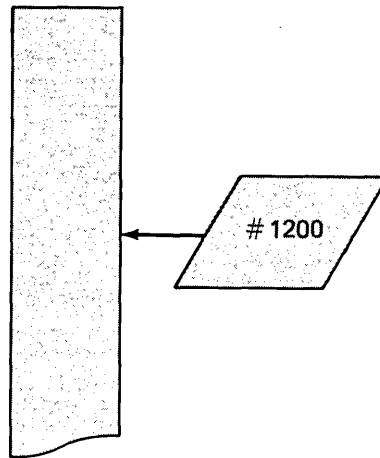
Channel Features

#1200   Series/1—IBM S/370 Channel Attachment.

Processor
Data
Channel

1200

System Support Selection Card

Series/1

System Support Selection Card

Customer: _____

System Support Units

4982-1	Sensor I/O unit	☐
4993-1	Series/1-System/370 Termination enclosure	☐

Units		
Features	4982	4993
1060		
1065		
1070		
3525		
3532		
3535		
4940		
4950		
D02358		
1200		
6305		

Unit Features

1060	Analog Input Control	☐
1065	Analog Output	☐
1070	Amplifier Multirange	☐
3525	DI/PI Non-isolated	☐
3532	DI/PI Isolated	☐
3535	DO Non-isolated	☐
4940	Multiplexer/Reed Relay	☐
4950	Multiplexer/Solid State	☐
D02358	Multiplexer/Mercury Relay	☐

Data Channel Features

1200	Series/1-System/370 Channel Attachment	☐
6305	Sensor I/O Unit Attachment	☐

Total data Channel Features selected ☐

Chapter 10. System Assembly

To assemble your Series/1 system:

1. Total all data channel features marked on the selection cards from Chapters 1 through 9.

2. Enter this number on Line 1 of the system selection guide worksheet (Figure 10-1 on page 10-3).

   Note: Refer to the figure on the following page for a summary of data channel features and the number of data channel sockets they occupy.

3. Enter the number of sockets available on Line 2.

4. Subtract the number of sockets available from the number of sockets required.

5. If the result exceeds the available channel sockets on your processor, then consider a processor with more channel sockets, a 4959 I/O Expansion Unit, or a 4965 Storage and I/O Expansion Unit.

Note: The number of available channel sockets is reduced by 1 when you add the 4959 I/O Expansion Unit or the 4965 Storage and I/O Expansion Unit. See the following example. (Channel and data channel are the same.)

First I/O expansion unit

A B C D E F G H J K L M N P Q

Power supply

Note 1

Note 2

Second I/O expansion unit

A B C D E F G H J K L M N P Q

Power supply

Note 1
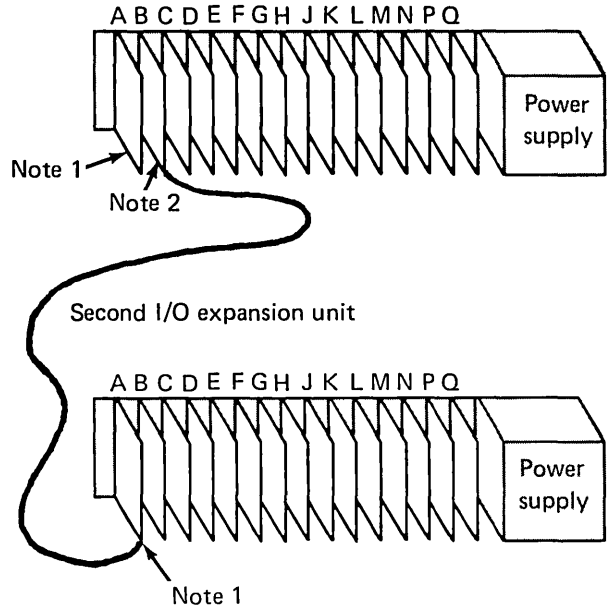
Notes:

1. *Slot A (4959-A) is reserved for the Two-Channel Switch (7900) or Programmable Two-Channel Switch (7777).*

2. *The channel repower feature is required to connect from the processor to the 4965 or 4959 I/O expansion unit, or from one I/O expansion unit to the next.*

Data Channel Feature Summary

The following data channel features require one data channel card socket unless otherwise noted. Use this figure to help find the total number of card slots used.

Notes	Data channel features	Notes	Data channel features
1	#1200	1	#3590
1	#1220	1	#3595
	#1250	1	#3596
1,2,3	#1330		#4000
	#1310		#5640
	#1400	1	#6305
	#1560	5	#6330
	#1565	5	#6331
	#1610	5	#6334
	#2074		#7840
	#2075		#7850
	#2080		#7880
	#2090	4	#7881
	#2091		D02038
4	#2092		D02118
	#2093		
4	#2094		
	#2095		
4	#2096		
1	#3581		

Notes:

1. *Not supported in the Stand-Alone Enclosure (#4520 and #4521).*

2. *Requires two data channel card sockets.*

3. *Must be in contiguous data channel card sockets.*

4. *Must be in contiguous data channel card sockets with its associated controller.*

5. *4956 only.*

System Selection Guide Worksheet

Unit	I/O Sockets Available
4956-B10	13
4956-31D	6
4956-61D	6
4956-E10	13
4956-E70	6
4956-G10	6
4956-H10	6
4959	14
4965-1	4
4965-60D	7

Line 1. Total I/O Sockets Required	
Line 2. Total I/O Sockets Available	
Line 3. Spare I/O Sockets	

Figure 10-1.

Note: See Chapter 11 if you want to configure a rack enclosure for your system.

Chapter 11. Rack Enclosures

Introduction

This chapter provides information for the following IBM Series/1 rack enclosures:

- 4997-1A and 1B 1-meter (39.37-inch) high Rack Enclosure

- 4997-2A and 2B 1.8-meter (70.87-inch) high Rack Enclosure

- #4540 Rack Mounting Fixture

The rack enclosures provide mounting space for standard 483-mm (19-inch) wide rack units. Each rack enclosure has side covers, a back door, and a top, and includes a single-power distribution bus and an instant power off switch. Blank filler panels are supplied for unused mounting space.

Series/1 Rack Enclosure Selection

Use the rack enclosure selection card at the end of this chapter to calculate the number of rack enclosures required to accommodate your Series/1 system.

From the completed selection cards, transfer the number of units you selected into the corresponding box on the rack enclosure selection card.

Add the number of full-width units, double the sum, and put the amount into the left subtotal box. Add the number of half-width units and put the amount in the right subtotal box. Add the two subtotals together and put the sum into the total box.

If you decide to accommodate your system in 4997-1A or 1B racks, then divide the amount in the total box by 4, rounding up to the nearest whole number. This is the number of rack enclosures you need.

If you decide to use 4997-2A or 2B racks, then divide the amount in the total box by 8, rounding up to the nearest whole number. This is the number of rack enclosures you need.

After you calculate how many rack enclosures you need, record the number in the appropriate boxes on the right side of the selection card. You have completed your Series/1 configuration.

Notes:

1. *4997-1A or 1B racks cannot be intermixed with 4997-2A or 2B racks.*

2. *The 4997 enclosure is limited to 16 amperes. The power consumption in a 4997 enclosure for U.S. installation may not exceed 1800 VA at the lower voltages (100-127.5 Vac) or 3600 VA at the higher voltages (200-250 Vac).*
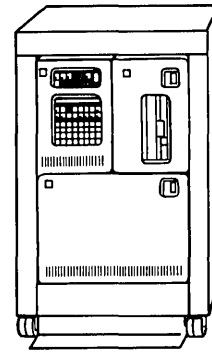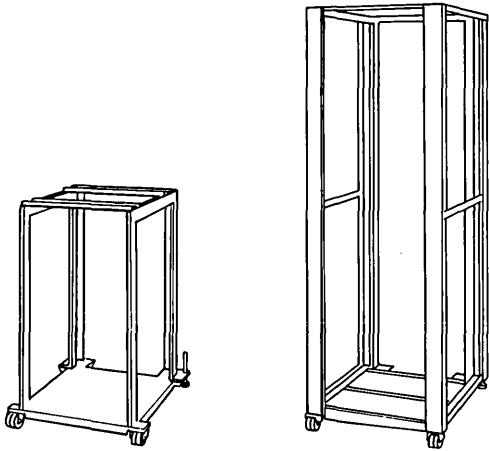
With one
full-width
unit and two
half-width units
(see 4540)

4997-1A and 1B Rack Enclosure Unit

This unit is 1 meter (39.37 inches) high. It provides mounting space and support for two full-width units or four half-width units. All unused locations are covered with plain metal cover panels. The 4968 and 4969 Magnetic Tape Units cannot be installed in a 4997 Model 1A or 1B. Model 1B provides decorative filler panels.

4997-2A and 2B Rack Enclosure Unit

This unit is 1.8 meters (70.87 inches) high. It provides mounting space and support for four full-width units, eight half-width units, or two full-width units and one 4969 Magnetic Tape Unit. All unused locations are covered with plain metal cover panels. Model 2B provides decorative filler panels.

4997-2A and 2B

or
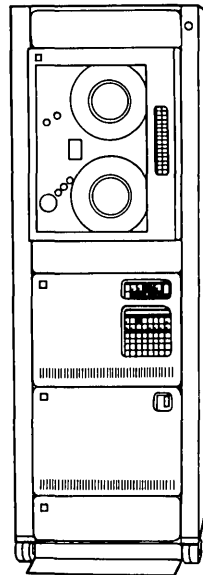
With 4969
and two
full-width
units
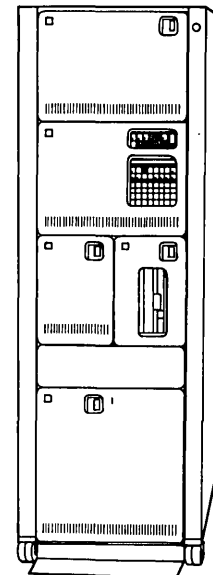
With three
full-width units
and two half-width
units
(see 4540)

Rack Mounting Fixture #4540

Required for all half-width units (capacity for two half-width units).
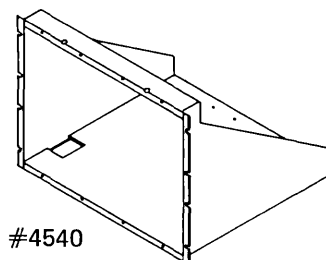
#4540

IBM Series/1

Customer: _____

Rack Enclosure Selection Card

Units	Full width	Half width
4956 All	☐	
4959 A	☐	
4963	☐	
4964		☐
4965 1,60D	☐	
4967	☐	
4968	☐	
4982		☐
4987	☐	
4993 (see note 2)		

Subtotal   2x ☐   ☐ (see note 1)

Add

Total   ☐

4 ┌─   8 ┌─

☐   ☐

4997-1A,   4997-2A,
1B   2B

Rack Enclosures   Qty.

4997-1 A	☐
4997-1 B	☐
4997-2 A	☐
4997-2 B	☐
#4540 Rack Mounting Fixture	☐

Notes:

1. Half-width units require the #4540 rack mounting fixtures. Two half-width units can fit into the fixture.
2. The 4993 can be installed in place of a 5" filler panel.

Appendix A. Example Configurations

This section contains sample configurations (no functional or system performance characteristics are assumed or inferred). The examples consist of five different Series/1 configurations. The fifth example includes samples showing how to complete the selection cards for a small Energy Management configuration.

This figure shows two simple Series/1 configurations.
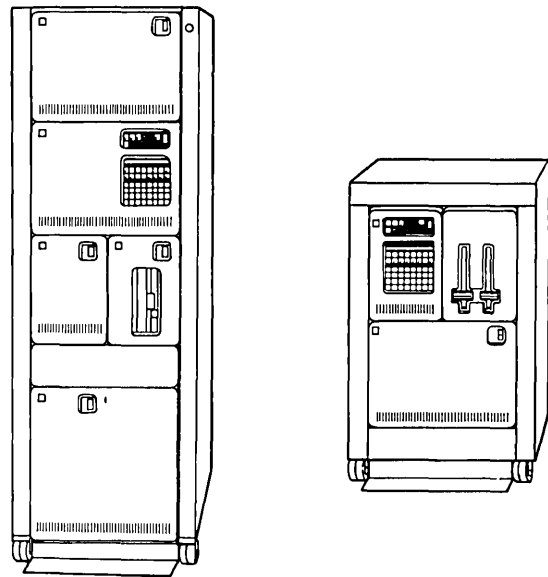
Sample Small Distributed Commercial System

Software	
5719-XS5	Event Driven Executive Basic Supervisor and Emulator

Hardware	
4956	Model G10 Processor, 1024KB of storage, and 40MB disk 4521 Stand-Alone Enclosure
3161	(2) Model 12 ASCII Display Stations 1310 Multifunction Attachment 2057 (2) EIA Dataset Cable
4201	Proprinter 5770 (3) Multifunction Local Attachment Cables

Sample Multifunction Work Station Application

Software	
5719-XS5	Event Driven Executive Basic Supervisor and Emulator
5719-CB5	Event Driven Executive COBOL Compiler and Resident Library
5719-CB6	Event Driven Executive COBOL Transient Library
5719-MS2	Event Driven Executive Multiple Terminal Manager
5719-AM4	Event Driven Executive Indexed Access Method
5719-SM2	Event Driven Executive Sort/Merge

Hardware	
4956	Model H10 Processor 1024KB of storage, and 40MB disk 5655 Programmer Console
3161	(6) Model 12 ASCII Display Stations 1310 (2) Multifunction Attachments 5770 (5) Multifunction Local Attachment Cables 2057 EIA Dataset Cable
4967	Model 3CA Disk Subsystem (358MB) 3596 4967 Disk Subsystem Attachment
4224	Model 302 Printer (400lpm)
4997	Model 2B Rack Enclosure

Sample Multifunction Work Station Application—High Speed

Software	
5719-XS5	Event Driven Executive Basic Supervisor and Emulator
5719-CB5	Event Driven Executive COBOL Compiler and Resident Library
5719-CB6	Event Driven Executive COBOL Transient Library
5719-MS2	Event Driven Executive Multiple Terminal Manager
5719-AM4	Event Driven Executive Indexed Access Method
5719-SM2	Event Driven Executive Sort/Merge

Hardware	
4956	Model B10 Processor 1024KB of storage 5655 Programmer Console 2074 Binary Synchronous Communications Single-Line Control 2057 EIA Data Set Cable
3161	(8) Model 11 Display Stations 1310 (2) Multifunction Attachments 5770 (5) Multifunction Local Attachment Cables 2057 (2) EIA Dataset Cable
4967	Model 2CA Disk Subsystem (200MB) 3595 4967 Disk Subsystem Attachment
4968	Autoload Streaming Magnetic Tape Unit 1220 Autoload Streaming Magnetic Tape Unit Attachment
5262	Model 1 Printer (650 lpm) 5640 Printer Attachment—5200 Series 5780 Attachment Cable (20 feet)
4997	Model 2B Rack Enclosure

Sample Communications Concentrator Application

Software	
5719-PC7	Realtime Programming System
5719-CA1	Realtime Programming System System/370 Channel Attach Support
5719-CS2	Realtime Programming System Programmable Communications Subsystem Extended Execution Support

Hardware	
4956	Model 61D Processor 1024KB of storage, and 60MB disk 4100 Diskette Drive
4987	Programmable Communications Subsystem 1300 Programmable Communications Subsystem Controller 4730 (4) Half Duplex Digital Communications Equipment Attachments 4746 (4) 1200 bps Integrated Modems for Asynchronous Switched Network 4751 (4) 1200 bps Integrated Modems with Clock for Synchronous Switched Network 2130 (4) Dataset Attachment Cables 2134 (8) Integrated Modem Switched Network Cables
4993	Series/1-System/370 Termination Enclosure 1200 Series/1-System/370 Channel Attachment
4997	Model 2A Rack Enclosure

Sample Small Energy Management System

Software	
5719-U12	Facility Control/Power Management 2

Hardware	
4956	Model B10 Processor 1024KB of storage
4964	Diskette Unit 3581 4964 Diskette Unit Attachment
3161	Model 11 ASCII Display Stations 7850 Teletypewriter Adapter 2064 Teletypewriter Adapter Cable with EIA Male Connector
1560	Integrated Digital Input/Output Non-Isolated
1590	Customer Access Panel 1593 Customer Access Panel-Integrated Digital I/O Cable
4997	Model 1-B Rack Enclosure 4540 Rack Mounting Fixture

The following pages show how selection cards would be completed for this Small Energy Management System configuration.

Example Energy Management
Software Selection Card

Program	Program number	
Facility Control/Power Management 1	5719-U11	
Facility Control/Power Management 2	5719-U12	✓
Facility Control/Power Management 2M	5719-U14	
Facility Control/Power Management 3	5719-U12 (#6000 or #6001)	
Facility Control/Power Management 4	5719-U13	
Facility Control/Power Management 4M	5719-U15	
Event Driven Executive Energy Conservation System	5798-RAB	
Event Driven Executive Supermarket Energy Management	5798-NTH	

IBM Series/1

Processor and I/O Expansion Selection Card

Processor Units

4956 Model B10 ☐I

E10 ☐   31D ☐   61D ☐

H10 ☐   E70 ☐   G10 ☐

4959 Model ☐

| Feature | 4956 | | | | | | | 4959 |
	B10	31D	61D	E10	E70	G10	H10	
1565								
2000								
3925								
3926								
4100								
4110								
4115								
4116								
4520								
4521								
5655								
6330								
6331								
6334								
6400								
7777								
7900								

Unit Features

2000 Communications indicator panel ☐

3925 Floating-point ☐

3926 Floating-point ☐

4100 Diskette drive ☐

4110 Second 5¼" diskette drive ☐

4115 Second 40M disk drive ☐

4116 Third 40M disk drive ☐

4520 Stand-alone enclosure ◯

4521 Stand-alone enclosure ☐

5655 Programmer console ☐

6400 Cache (64K) ☐

7777 Programmable two-channel switch ☐

7900 Two-channel switch ☐

Data Channel Features

1565 Channel repower ☐

6330 Storage addition (256K) ☐

6331 Storage addition (512K) ☐

6334 Storage addition (1024K) ☐

Total data channel features selected ☐

IBM Series/1

Data Storage Selection Card

Disk Storage Units

4963 Model   58A ☐ 64A ☐ 64B ☐

4967 Model   2CA ☐ 2CB ☐ 3CA ☐ 3CB ☐

Diskette Unit

4964 Model   1 ☒

Storage and I/O Expansion Unit

4965 Model   1 ☐ 60D ☐

Tape Storage Subsystem

4968 Model   1AS ☐

Unit Features

4100 Diskette drive   ☐

4520 Stand-alone enclosure   ☐

4525 Stand-alone enclosure cable   ☐

6400 Cache (64K)   ☐

7777 Programmable two-channel switch   ☐

7900 Two-channel switch   ☐

Data Channel Features

1220 4968 Autoload streaming magnetic tape unit attachment   ☐

1565 Channel repower   ☐

3581 4964 Diskette unit attachment   ☒

3590 4963 Disk subsystem attachment   ☐

3595 4967 Disk subsystem attachment   ☐

3596 4967 Disk subsystem attachment   ☐

Total data channel features selected   ☒

Feature	Units						
	4963	4964	4965	4965	4967	4967	4968
		1	60D	2CA, 2CB	3CA, 3CB		
4100							
4520							
4525							
6400							
7777							
7900							
1220							
1565							
3581	1						
3590							
3595							
3596							

Example Display Station Selection Card

IBM Series/1

Display Station Selection Card

Feature	Units 4978 2	4980	3161 3163 3164
2064			/
5770			
D02032			
D02034			
D02056			
D02057			
D02060			
D02064			
D02065			
D02222			
D02275			
D02276			
D02352			
D02375			
1250			
1310			
1610			
2091			
2092			
2095			
2096			
7850			/
D02038			
D02350			

Customer: _example_

Display Stations

3161	☑	3164	☐
3163	☐	4980 Model 1	☐
4978 Model 2	☐		

Unit Features

2064	Teletypewriter Adapter Cable with EIA male connector	☑
5770	Local Attachment Cable	☐
D02032	4978 Display Station Cable Increment	☐
D02034	4978 Display Station Cable Basic	☐
D02056	4978 Extended Keyboard	☐
D02057	4978 Basic Keyboard	☐
D02060	4978 Audible Tone Alarm	☐
D02064	Keyboard DAS/C 2-Meter	☐
D02065	Keyboard DAS/C 1-Meter	☐
D02222	4978 Video Monitor Attachment	☐
D02275	4978 Keyboard-Data Entry Large	☐
D02276	4978 Keyboard-Data Entry Small	☐
D02352	RPQ Cable Series/1 (RS-422-A interface)	☐
D02375	4978 Keyboard-Text Entry/Edit	☐

Data Channel Features

1250	Multidrop Work Station Attachment	☐
1310	Multifunction Attachment	☐
1610	Asynchronous Communications Single-Line Control	☐
2091	Asynchronous Communications 8-Line Control	☐
2092	Asynchronous Communications 4-Line Adapter	☐
2095	Feature-Programmable Communications 8-Line Control	☐
2096	Feature-Programmable Communications 4-Line Adapter	☐
7850	Teletypewriter Adapter	☑
D02038	4978 Display Station Attachment	☐
D02350	RS-422 Asynchronous Terminal 8-Line Adapter	☐
Total data channel features selected		☑

Example User Attachment Features Selection Card

IBM Series/1

Customer: _example_

User Attachment Features Selection Card

Auxiliary feature	Data Channel features			
	1560	7840	7850	D02118
1590	/			
1593	/			
1594				
2055				
2059				
2064				
2065				
D02219				

User Attachment Features

Auxiliary Features

1590	Customer Access Panel	/
1593	Customer Access Panel - Integrated DI/DO Cable	/
1594	Customer Access Panel - DPC Adapter Cable	
2055	Teletypewriter Cable	
2059	Teletypewriter - Customer Access Panel Cable	
2064	Teletypewriter Cable EIA Male	
2065	Teletypewriter Cable EIA Female	
D02119	GPIB Adapter Cable	

Data Channel Features

1560	Integrated DI/DO Non-isolated	/
7840	Timers	
7850	Teletypewriter Adapter	
D02118	GPIB Adapter	
D02312	Master Scheduler and Loop Multiplexer Card	
D02313	Loop Multiplexer Card	
D02314	Master Scheduler and Loop Multiplexer Card	
	Total data channel features selected	/

System Selection Guide Worksheet

Unit	I/O Sockets Available
4956-B10	13
4956-31D	6
4956-61D	6
4956-E10	13
4956-E70	6
4956-G10	6
4956-H10	6
4959	14
4965-1	4
4965-60D	7

Line 1. Total I/O Sockets Required	3
Line 2. Total I/O Sockets Available	13
Line 3. Spare I/O Sockets	10

Figure 10-1.

Note: See Chapter 11 if you want to configure a rack enclosure for your system.

Example Rack Enclosure
Selection Card

IBM Series/1

Customer: _Example_

Rack Enclosure
Selection Card

Rack Enclosures   **Qty.**

Units	Full width	Half width
4956 All	☒	
4959 A	☐	
4963	☐	
4964		☒
4965 1,60D	☐	
4967	☐	
4968	☐	
4982		☐
4987	☐	
4993 (see note 2)		

4997-1 A   ☐

4997-1 B   ☒

4997-2 A   ☐

Subtotal   2x ☒   ☒ (see note 1)

Add
Total   **3**

4 ⌐   8 ⌐
☒   ☐
4997-1A, 4997-2A,
1B   2B

4997-2 B   ☐

#4540 Rack Mounting Fixture   ☒

Notes:

1. Half-width units require the #4540 rack mounting fixtures. Two half-width units can fit into the fixture.
2. The 4993 can be installed in place of a 5" filler panel.

Appendix A. Example Configurations A-13

Index

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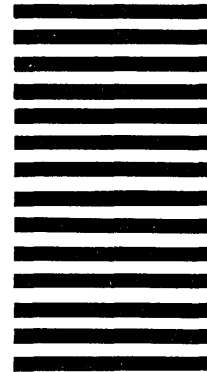**Reader's Comment Form**

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