7012-370 IBM RS/6000 Model 370

IBM United States Sales Manual
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Product life cycle dates

Type Model	Announced	Available	Marketing Withdrawn	Service Discontinued
7012-370	1993-02-02	1993-02-26	1996-05-20	2014-10-31

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Abstract

IBM UNIX systems consist of the IBM eServer pSeries and IBM RS/6000 product lines. Providing unprecedented value, these innovative systems feature IBM's leading-edge technology and run the top-rated UNIX operating system, AIX. This broad product line ranges from powerful workstations ideal for mechanical design; to mission-critical symmetric multiprocessing (SMP) servers for ERP, SCM, CRM, transaction processing, and Web serving; up to parallel RS/6000 SP systems that can handle demanding scientific and technical computing and business intelligence tasks. These platforms provide the power to create change and the flexibility to manage it, with thousands of applications that provide real value. More than 1,000,000 systems have shipped to over 135,000 businesses worldwide.

Model abstract 7012-370

The IBM RS/6000* 370 extends the performance range of the RS/6000 300 series desktop systems and establishes a new plateau in performance for IBM's Superscaler designed POWER Architecture-based high-end desktop workstations. The Model 370 offers a 62-MHz processor, 32-MB to 512-MB memory, 400-MB to 4-GB internal disk, and four Micro Channel Feature Card slots. The Model 370 also offers a wide variety of input/output devices, graphics and communications

features allowing the system to be configured as a powerful RS/6000. The 370 and IBM AIX* Version 3.2 for RS/6000 operating system features support for paging and IPL utilizing LAN dependent capability.

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Highlights

See Model Highlights.

Model highlights 7012-370

Desktop Model with both vertical or horizontal orientation

IBM POWER Architecture

Multiple distributed I/O processors

Memory - 32 MB standard

Internal Disk - 400 MB standard

Integrated SCSI Controller

Integrated Ethernet Interface

Micro Channel* Feature Card Slots (4)

One 3.5-inch 1.44-MB Internal Diskette Drive

Two Serial Ports

One Parallel Printer Port

Processor - 62.5 MHz

Instruction Cache size of up to 32 KB

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Description

The IBM RS/6000 370 is a powerful desktop system for the commercial and scientific environments combining both high function and expansion capabilities. A pedestal is provided for stabilization in the vertical position and is mounted on the bottom of the system unit when in the horizontal position.

The 370 can be used as a dataless LAN dependent attached workstation that can be "booted-up" from an IBM server with AIX/6000, a desktop server system suitable for a variety of file server, compute server and multi-user ASCII terminal applications. With optional 2D or 3D graphics features, this system can be used as a stand-alone graphics workstation.

The 370 CPU contains a 62 MHz microprocessor chip set and 32 MB of memory is standard. The system may be configured up to 512 MB (maximum) of memory. A combination of 8, 16, 32, 64, or 128-MB memory cards (maximum of two cards) may be installed. As a select feature, the base system may be ordered with 64 or 128 MB of memory in place of the first 32 MB of memory. A 400-MB SCSI internal disk drive is standard. Up to two disk drives may be installed internally. (Note: A minimum of 1 GB of disk drive storage is recommended for paging when 256 MB of memory is installed.)

The Model 370 CPU contains an 32-KB two-way set-associative instruction cache and a 32-KB four-way set-associative data cache. It also supports separate 64-bit memory to data cache, 32-bit fixed-point to data cache and 64-bit floating-point to data cache buses for fast data transfer between the CPU and memory for balanced system performance.

Dedicated I/O processors are used on many of the high-performance I/O adapters to enhance overall system performance.

Designed with IBM's POWER Architecture, the system unit contains a Processor Board with an integrated SCSI I/O controller and Ethernet interface, system board, memory board, power supply, cooling fans, clock battery, disk, diskette drive, and operator panel. The integrated SCSI-1 I/O controller supports up to two internal SCSI disk drives and up to five external SCSI devices. The integrated Ethernet interface is compatible with IEEE 802.3 and Ethernet external interfaces. The integrated Ethernet interface is standard with a Thick/Thin cable connecter. A Twisted-Pair cable connector is available by ordering Specify Code #9001 on the initial plant order. Connection to the network is the standard cables supplied by the customer.

Reliability, availability, and serviceability are key considerations in the design of the RS/6000 systems. CPU chips have data parity in their data paths and on internal arrays, CPU chip to chip data buses have parity, and the Micro Channel bus supports parity on some adapters. CPU chips implement a unique built-in self test to detect CPU errors during power up. The memory subsystem is also tested extensively during power up. The memory subsystem provides Error Correction Code (ECC) designed to detect double bit errors and detection and correction of single bit errors. Memory Control also supports hardware assisted memory scrubbing for removal of soft failures.

The Operator Panel contains a Key operated Mode switch, Reset pushbutton, and three 7-segment LED indicators. The LED indicators can be rotated by 90 degrees to provide the proper orientation for the vertical or horizontal position. The key operated Mode switch has three positions and helps to provide logic security to the system. The lock helps to provide physical security and prevent cover removal when in the locked position.

One optional, additional 3.5-inch disk may be installed internally. Additional external media devices may also be attached. For a detailed description of these products reference the "Devices Supported" section of this Sales Manual for those devices.

Standard Features Include:

> 32 MB of memory on the 370
>
> One 1.44-MB 3.5-inch Diskette Drive
>
> One 400-MB 3.5-inch SCSI Disk Drive
>
> One integrated SCSI-1 I/O Controller, supports up to seven devices, two internal and five external
>
> One integrated Ethernet interface
>
> Four Micro Channel Feature Card Slots are available for expansion
>
> Standard Device Ports/Connectors:
> Keyboard/Speaker

        Mouse

        Tablet

        Two Serial Ports

        Parallel Printer Port

Note: MB is 1,048,576 bytes (two to the twentieth power) when referring to memory; in all other cases it is 1,000,000 (ten to the sixth power). GB is 1,073,741,824 bytes (two to the thirtieth power) when referring to memory; in all other cases it is 1,000,000,000 (ten to the ninth power).

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Models

Model summary matrix

```
          CPU In                        Internal      Micro     SCSI
Model     MHz         Memory            Disk          Channel   Controller
-----     ------      -------------     ------------  -------   ----------
 370      62.5        32MB to 512MB     400MB to 4GB  4 Slots   Yes


                                        Std Dev
          Ethernet    Diskette          Ports &       Graphics  Color
Model     Interface   Drive             Connection    Adapter   Display
-----     ---------   --------          -----------   --------  -------
 370      Yes         Yes               Yes           Optional  Optional
```

Customer setup (CSU)

Yes. IBM continues to install and service all MES features and model conversions.

Effective for machines installed after December 31, 1993, customers can initially install their own machines or choose to have IBM perform this service for an additional fee. Customers who want to have IBM initially install their machines must pay an additional fee at the IBM hourly classification.

IBM hourly service may be obtained by calling the IBM service/exchange communications center at 800/IBM-SERV. The IBM hourly service is available at the applicable rate and terms, including element exchange price if applicable.

All other terms and conditions are the same as those applicable to the RS/6000 system in which the feature is installed.

Devices supported

RS/6000 System Rack:

Attachment of the 7015-R00 rack is supported for mounting rack drawers that are supported by this system. The R00 System Rack provides mounting space and power for those drawers. The 1.6 meter rack meets the requirements of the Electronics Industries Standards (EIA) EIA-310C standard. An EIA is a unit measure of vertical mounting space that equals 44.45 mm (1.75 inches). The R00 System Rack has 32 EIA units of vertical mounting space. Each drawer installed in the R00 rack requires a placement code to designate assignment to a particular rack.

External I/O

IBM 3570-B1A Magstar MP Tape Drive

IBM 3494 Model B18 Virtual Tape Server

IBM TotalStorage Virtual Tape Server Model B10

IBM TotalStorage Virtual Tape Server Model B20

IBM Magstar MP Tape Subsystem

IBM Magstar MP 3570 Model C00 Tape Subsystem

IBM Magstar MP 3570 Model C01 Tape Subsystem

IBM Magstar MP 3570 Model C02 Tape Subsystem

IBM Magstar MP 3570 Model C11 Tape Subsystem

IBM Magstar MP 3570 Model C12 Tape Subsystem

IBM Magstar MP 3575 Tape Library Dataserver Model L06

IBM Magstar MP 3575 Tape Library Dataserver Model L12

IBM Magstar MP 3575 Tape Library Dataserver Model L18

IBM Magstar MP 3575 Tape Library Dataserver Model L24

IBM Magstar MP 3575 Tape Library Dataserver Model L32

IBM 3490E Models E01 and E11 Tape Subsystems

IBM 3590 High Performance Tape Subsystem Models B11, B1A

IBM 3590 Model C12 Magstar Silo Compatible Frame

IBM 3995 Model C60 Optical Library

IBM 3995 Model C62 Optical Library

IBM 3995 Model C64 Optical Library

IBM 3995 Model C66 Optical Library

IBM 3995 Model C68 Optical Library

IBM 7131 Model 105 SCSI MultiStorage Tower

IBM 7131 Model 405 SSA MultiStorage Tower

IBM 7133 Serial Storage Architecture Disk Subsystem Model 010*

IBM 7133 Serial Storage Architecture Disk Subsystem Model 500**

IBM 7134 Model 010 High Density SCSI Disk Subsystem

IBM 7135 Model 010 RAIDiant Array

IBM 7135 Model 110 RAIDiant Array

IBM 7202 Model 900 Expansion Rack

IBM 7203 Model 001 Portable Disk Unit

IBM 7204 Model 001 1-GB External Disk Drive

IBM 7204 Model 010 1-GB External Disk Drive

IBM 7204 Model 112 1.1-GB External Disk Drive

IBM 7204 Model 113 2.2-GB External Disk Drive

IBM 7204 Model 114 4.5-GB External Disk Drive

IBM 7204 18.2 GB External Disk Drive Model 118

IBM 7204 Model 139 9.1-GB External Disk Drive

IBM 7204 Model 215 2-GB External Disk Drive

IBM 7204 Model 315 2-GB External Disk Drive

IBM 7204 Model 317 2.2-GB External Disk Drive

IBM 7204 Model 325 4.5-GB External Disk Drive

IBM 7204 Model 339 9.1GB External Disk Drive

IBM 7204 Model 402 2.2GB External Disk Drive

IBM 7204 Model 404 4.5GB External Disk Drive

IBM 7204 18.2 GB External Disk Drive Model 418

IBM 7206 Model 001 2.0GB External 4mm Tape Drive

IBM 7206 Model 005 4.0GB External 4mm Tape Drive

IBM 7206 Model 110 12 GB External 4mm DDS-3 Tape Drive

IBM 7206 Model 220 External 20 GB 4mm DDS-4 Tape Drive

IBM 7207 Model 001 150-MB 1/4-inch Tape Drive

IBM 7207 Model 011 525-MB External 1/4-Inch Cartridge Tape Drive

IBM 7207 Model 012 1.2GB External 1/4-Inch Cartridge Tape Drive

IBM 7207 Model 122 4 GB Ext SLR5 QIC Tape Drive

IBM 7207 Model 315 13GB 1/4-Inch Tape Drive

IBM 7208 Model 001 2.3 GB 8mm Tape Drive

IBM 7208 Model 011 5.0 GB 8mm Tape Drive

IBM 7208 Model 341 20GB External 8mm Tape Drive

IBM 7209 Model 001 Optical Disk Drive

IBM 7209 Model 002 Optical Disk Drive

IBM 7210 Model 001 External CD-ROM Drive

IBM 7210 Model 015 8X CD-ROM Drive

IBM 7209 Model 003 2.6GB Optical Disk Drive

IBM 7210 Model 005 External CD-ROM Drive

IBM 7331 8mm Tape Library Model 205

IBM 7331 Model 305 8mm Tape Library

IBM 7332 Model 110 4mm DDS-3 Tape Cartridge Autoloader

IBM 7336 Model 205 4mm Tape Library

IBM 9333 Model 010 High-Performance Disk Drive Subsystem

IBM 9333 Model 011 High-Performance Disk Drive Subsystem

IBM 9334 Model 010 Drawer Expansion Unit

IBM 9334 Model 011 Drawer Expansion Unit

IBM 9333 Model 500 High-Performance Disk Drive Subsystem (Maximum of four per #6211 adapter.)

IBM 9333 Model 501 High-Performance Disk Drive Subsystem (Maximum of four per #6212 adapter.)

IBM 9334 Model 500 Deskside Expansion Unit (Maximum of two. One may be attached to the integrated SCSI)

IBM 9334 Model 501 Deskside Expansion Unit (Maximum of two per #2420 adapter)

IBM 9348 Model 012 Magnetic Tape Unit (1/2-inch 9-Track) (requires 9348 Specify Code #9994)

* The attaching system must provide 4 EIA units of rack space for the 7133 in the system rack or an expansion rack. It must also provide an attachment to an SSA loop via FC 6214, the SSA adapter.

** The attaching system must provide an attachment to an SSA loop via FC 6214, the SSA adapter.

ASCII Terminals

IBM 3151 Model 310/410 (1)

IBM 3153 Model BA3/BG3/BW3

IBM 3161 (1)

IBM 3162 (1)

IBM 3163 (1)

IBM 3164 (1)

DEC VT100

DEC VT220

DEC VT320

DEC VT330

WYSE 30

WYSE 50

WYSE 60

WYSE 350

(1) National language support is provided through the use of Cartridge 8859/1.2 inserted in the terminal and appropriate keyboard.

X Stations

IBM 7010 Model 120

IBM 7010 Model 130

IBM 7010 Model 150

VISUAL 640 XDS**

Displays

IBM 5081 16-inch Color Display (#1280 is required)

IBM 5081 19-inch Color Display (RPQ 8K1680 is required)

IBM 6091 16-inch Color Monitor

IBM 6091 19-inch Color Display (1280 x 1024 60Hz only)

IBM 6091 19i 19-inch Color Display

IBM 6091 23-inch Color Display (1280 x 1024 60Hz only)

IBM 8508 19-inch Mono Display (1280 x 1024 67Hz only)

The IBM 6091 16-inch monitor has an actual viewable screen size of 14.8 inches when measured diagonally. The IBM 6091 19-inch monitor has an actual viewable screen size of 17.3 inches when measured diagonally. The IBM 6091 23-inch monitor has an actual viewable screen size of 21.4 inches when measured diagonally.

Trunk Processors

IBM 9291 Model 010 Single Digital Trunk Processor

IBM 9295 Models 010 020 Multiple Digital Trunk Processor

Graphic Processors

IBM 5085 All Models

IBM 5086 Model 001

IBM 5086 Model 01i

IBM 5086 Model 002

IBM 7235 Model 001

IBM 7235 Model 002

IBM 7235 Model 01i

IBM 7235 Model 02i

IBM 7250 Model 001

IBM 7250 Model 002

Dials

IBM 6094-010 (requires 6094 cable #4015 for attachment to a Graphics Input Device Adapter #2810) (Requires 6094 feature #4060 for attachment to a standard serial port) (6094 feature #4061 may also be required)

IBM 6094 Model 30 Spaceball

Digitizers

IBM 5084-M1

IBM 5084-M2

IBM 5084-M3

Lighted Program Function Keyboard

IBM 6094-020 (requires 6094 cable #4015) (Requires 6094 feature #4060 for attachment to a standard serial port) (6094 feature #4061 may also be required)

Note: If either standard serial port is configured for attachment of Dials or a Lighted Programmable Function Keyboard, the remaining standard serial port is unavailable for use by devices other than Dials or Lighted Programmable Function Keyboard.
Tablets

IBM 5083 Model 021 (requires 5083 cable feature #4015)

IBM 5083 Model 022 (requires 5083 cable feature #4015)

IBM 6093 Tablet Model 011 (requires 6093 cable feature #4015)

IBM 6093 Tablet Model 012 (requires 6093 cable feature #4015)

Plotters

IBM 6180 M1 Color

       IBM 6182 Color

       IBM 6184 Color

       IBM 6185 Model 1 Color

       IBM 6185 Model 2 Color

       IBM 6186 Color

       IBM 6187

       IBM 7372

Modems

Modem support is provided to allow communication through common carrier telephone networks using dial-up or leased lines with asynchronous protocols or the synchronous half-duplexed SDLC protocols. Not all of the features supported by the listed modems are supported by AIX Version 3.2 for RS/6000.

```
 Modems                       Protocols        Standards
------------------------      ----------------     --------------------
IBM 5822 DSU up to 56K bps          SYNC        CCITT V.35

IBM 5841 1200bps            ASYNC  SYNC       EIA-232D
IBM 5853 2400bps            ASYNC  SYNC       EIA-232D, CCITT V.24



IBM 5865 9600bps                   SYNC       EIA-232D, CCITT V.24
IBM 7855 up to 19.2 Kbps           ASYNC      CCITT v.32, V.22 bis
                                    Bell 103, 212
IBM 7861 up to 19.2 KBps    ASYNC  SYNC       EIA-232D, CCITT V.24
IBM 7868 up to 19.2 KBps    ASYNC  SYNC       EIA-232D, CCITT V.24
Hayes Smartmodem 1200**     ASYNC             EIA-232D
Hayes Smartmodem 2400       ASYNC  SDLC       EIA-232D, CCITT V.24
Hayes V-Series 9600         ASYNC  SDLC       EIA-232D, CCITT V.24
Racal-Vadic 1200PA**        ASYNC             EIA-232D
Racal-Vadic 1200VP          ASYNC             EIA-232D
Racal-Vadic VI2422          ASYNC             EIA-232D
Racal-Vadic 2400PA          ASYNC             EIA-232D
Racal-Vadic 2400VP          ASYNC             EIA-232D
Racal-Vadic VI2222VP        ASYNC             EIA-232D
Telebit Trailblazer Plus    ASYNC             EIA-232D
```

Printers

       IBM 2380-001 Personal Printer II

IBM 2381-001 Personal Printer II

IBM 2390-001 Personal Printer II

IBM 2391-001 Personal Printer II

IBM 2380 Plus Printer, emulating the 2380 Personal Printer for PPDS (IBM ASCII)(Note 8)

IBM 2381 Plus Printer, emulating the 2381 Personal Printer for PPDS (Note 8)

IBM 2390 Plus Printer, emulating the 2390 Personal Printer for PPDS (Note 8)

IBM 2391 Plus Printer, emulating the 2391 Personal Printer for PPDS (Note 8)

* IBM 3112-001 Page Printer

* IBM 3116-001, -002, -003 Page Printers

* HP Color LaserJet

* HP LaserJet 4/4M

* HP LaserJet 4Si/4Si MX

* HP LaserJet 4 Plus/4M Plus

* HP LaserJet 4V/4MV

* Lexmark 4039-10R LaserPrinter Plus 10R

* Lexmark 4039-12L LaserPrinter Plus 12L

* Lexmark 4039-12R LaserPrinter Plus 12R

* Lexmark 4039-16L LaserPrinter Plus 16L

* Lexmark 4047-05E ValueWriter 600

* Lexmark 4076-02C ExecJet IIc

* Lexmark 4079-001 Color JetPrinter Plus

* Lexmark Optra Laser Printer Lxi, Lx, Rx, L, R

    * AIX 4.1.3 or later releases are required for these printers.

IBM 3812-002 Page Printer (Note 1)

IBM 3816-01D and 01S Page Printer (Note 2)

IBM 3930-03D and 03S Page Printer, emulating the HP LaserJet III Si

IBM 4019-001 LaserPrinter (Note 3)

IBM 4019-E01 LaserPrinter E (Note 3)

IBM 4029-010 LaserPrinter 5E

IBM 4029-020 LaserPrinter 6

IBM 4029-022 LaserPrinter (Note 8)

IBM 4029-030 LaserPrinter 10

IBM 4029-042 LaserPrinter

IBM 4029-040 LaserPrinter 10L

IBM 4037 5E Page Printer, emulating the 4029 LaserPrinter for PCL emulation and for PPDS (IBM ASCII) (Note 8)

IBM 4039-10R LaserPrinter 10R (Note 10)

IBM 4039-10D LaserPrinter 10D (Note 10)

IBM 4039-12L LaserPrinter 12L (Note 10)

IBM 4039-12R LaserPrinter 12R (Note 10)

IBM 4039-16L LaserPrinter 16L (Note 10)

IBM LaserPrinter 4039-12R, -12L, and -16L Plus, emulating the IBM 4039 LaserPrinter

Lexmark 4047 5E, emulating the IBM 4039 LaserPrinter

IBM 4070 IJ Printer Model 1

IBM 4072-001 ExecJet* Printer

IBM 4076 ExecJet II Printer (Notes 8, 9)

IBM 4079-001 Color JetPrinter

IBM 4201-002 Proprinter* II

IBM 4201-003 Proprinter III

IBM 4202-002 Proprinter II XL

IBM 4202-003 Proprinter III XL

IBM 4207-002 Proprinter X24E

IBM 4208-002 Proprinter XL24E

IBM 4212-001 Proprinter 24P

IBM 4216-031 Personal Page Printer II

IBM 4224-301, 302, 3C2 and 3E3 Serial Printer

IBM 4226-302 Printer

IBM 4230 Models 4X3 and 5X3 Impact Matrix Printer

IBM 4230 Impact Printer Models 4S3, 4I3, 5S3, and 5I3, emulating the Proprinter III XL

IBM 4232-302 Impact Dot Matrix Printer, emulating the Proprinter II XL

IBM 4232-302 Dot Matrix Printer emulating the IBM 4202

IBM 4234-009 Line Dot Matrix Printer

IBM 4234-13 Line Dot Matrix Printer

IBM 5202-001 Quietwriter* III (Note 4)

IBM 5204-001 Quickwriter* (Note 4)

IBM 6252 Impactwriter AP2* (7012: #2936, #2937, or #3100 required)

IBM 6252-AS2 (7012: #2936, #2937, or #3100 required)

IBM 6252 AP8 Impactwriter* (Note 7)

IBM 6252 AS8 Impactwriter* (Note 7)

IBM 4247-A00 Serial Matrix Printer

IBM 4247-001 Serial Matrix Printer

IBM 4247-002 Serial Matrix Printer

IBM 6262 A12, A14, A22

IBM 6400 Line Matrix Printer All Models

IBM 6408-A00, CTA Line Matrix Printer, emulating the IBM 4234

IBM 6412-A00, CTA Line Matrix Printer, emulating the IBM 4234

IBM 6412 Model CTA Line Matrix Printer, emulating the IBM 4234 Line Dot Matrix Printer

The following non-IBM printers are also supported:

HP LaserJet Series II** (Note 11)

HP LaserJet Series III** (Note 11)

HP LaserJet Series III Si** (Note 11)

Hewlett Packard LaserJet 4 (Note 11)

TI Omnilaser 2115**

DATAPRODUCTS LZR 2665**

PRINTRONIX P9012**

DATAPRODUCTS BP 2000**

QMS** Colorscript 100 Model 20

PRINTER PERIPHERALS

Token Ring for HP JetDirect Network Attachment

Printer notes:

Feature code #3155 for the IBM 3812 printer is required for attachment to the RS/6000 system.

Feature code #7652 for the IBM 3816 printer is required for attachment to the RS/6000 system.

When using the serial ports, the IBM 4019 requires feature code #9143 (System serial interface adapter) for attachment to the RS/6000 system.

The IBM RS/6000 system supports Code Page 850. The Code Page 850 cartridge must be installed on the IBM 5202 printer to fully utilize the full characters sets of the system. For details on available cartridges, refer to the IBM 5202 Sales Manual. Other IBM printers have Code Page 850 resident.

For optimum system performance, high-speed serial printers should be attached to the native ports or the 128-Port Async Controller.

The parallel printer port is provided for the convenience character printer. High-speed printers or applications requiring a large amount of data transfer per page (e.g., high density graphics) should use the serial interface for optimum system performance.

Impactwriter A models emulate the IBM 4202-3 printer for traditional line printing of simple text and numbers. Graphics, all points addressable, and large characters cannot be printed.

For assistance with these printers and for the latest AIX virtual printer files (colon files), call Lexmark Customer Support. Virtual printer files (colon files) for the 4037 and 4076 printers are available from Lexmark. Colon files for these printers are distributed via:

Lexmark Customer support line: (606) 232-3000

Dial-in BBS: (606) 232-5238

VM request machine DRIVERS at LEXCJN1 (for IBM customers, marketing reps, SEs)

Lexmark Internet file server: ftp.lexmark.com

Reader response card for the 4037 and 4076

Use the virtual printer files available from Lexmark for the PCL emulation mode of the 4076 printer. For PPDS (IBM ASCII), select emulation of the 2390 Personal Printer.

AIX support software for the LaserPrinter Integrated Network Option is provided with the Network Option cards (Features 5495, 5496, 5497 on the IBM 4039 LaserPrinter.)

AIX support software for the HP JetDirect Ethernet Card

Printer Peripherals

4033-001 IBM LAN Connection for Printers and Plotters (Token-Ring)

4033-002 IBM LAN Connection for Printers and Plotters (Ethernet, Twisted Pair)

4033-003 IBM LAN Connection for Printers and Plotters (Ethernet, Thick and Thin)

Model conversions

340, 34H, 350, 360, and 370 to 380/390

```
From        To
----        ---
340         380
340         390
34H         380
34H         390
350         380
350         390
360         380
360         390
370         390
```

DESCRIPTIVE / ORDERING INFORMATION

All upgrades are shipped using a new "chassis exchange" process.

The upgrade provides a model conversion for customers with these installed systems and want the RS/6000 Model 380/390 processor capability. This field installable model conversion help provide increased system performance and contribute to the protection of customers' initial investment in the Model 300 series systems. The resultant model conversion retains the serial number of the system prior to the upgrade.

Model conversion offers a high degree of flexibility in increasing the performance level of the system and helping the customers with computation-intensive applications to take advantage of the performance of the new processor while protecting their investment in disks and features.

COMPATIBILITY

The RS/6000 Model 380/390 uses a new SCSI-2 fast/wide interface. All external interfaces are the same as on the Models 340, 34H, 350, 360, and 370. The following cables are required for externally attached devices after the model conversion:

```
Feature    Description
-------    ----------------------------------------------------------
2439        8-bit IBM SCSI-2 Fast/Wide Adapter/A to Single Ported Device
2437        8-bit IBM SCSI-2 Fast/Wide Adapter/A to Dual Ported Device
2435       16-bit IBM SCSI-2 Fast/Wide Adapter/A to Dual Ported Device
```

All Micro Channel cards, external and internal devices currently supported by the RS/6000 Model 380/390 are also supported by the newly converted 380/390.

The SCSI-2 fast/wide interface does NOT support the following devices:

    7206-001 External 4mm Tape Drive

    7210-001 External CD-ROM Drive

    160-MB Disk Drive Features #2120, #2121, #2123, #9240, #9241, and #9242.

Note: Features displaced remain with the customer.
A minimum of 32 MB of memory is required prior to the upgrade. Customers who do not meet the memory minimum must order additional memory features or SIMM kits. This is not included in the price of the model conversion. The upgrade kit provides a one-for-one replacement of the customer's installed memory cards. The existing memory SIMMs are reused on the replacement cards.

For upgraded machines, it may be necessary for 8-MB or 16-MB memory to be replaced or for SIMM kits to be installed to meet the above requirements.

A machine being upgraded must have a minimum of 2 GB of SCSI-2 disks installed or on order. These can be any one or combination of the following:

```
 Feature           Description
 -------           --------------------------------
 2555              1-GB SCSI-2 DRIVE
 2556              400-MB to 1-GB SCSI-2 DRIVE SELECT
(For IBM US, No Longer Available as of October 25, 1996)



 2580              2-GB SCSI-2 DRIVE
 2582              400-MB to 2-GB SCSI-2 DRIVE SELECT
(For IBM US, No Longer Available as of October 25, 1996)
```

Current machine configuration (product topology information) is requested by the plant prior to scheduling the shipment of this upgrade.

PROGRAMMING REQUIREMENTS

AIX Version 3.2.5 for RS/6000 with additional PTFs. These PTFs are included on all 3.2.5 orders shipped after 6/3/94 (labeled AIX/6000 Version 3.2.5.1). Refer to memo to users on installing these PTFs or call the IBM support center and request the PTFs referenced in APAR number IX42623. This level of AIX/6000 be installed and operational PRIOR to beginning the upgrade. This is not included in the price of the model conversion.

AIX/6000* applications written for POWER-based RS/6000s run on the new POWER2*-based models without recompilation and run significantly faster. Additional performance can be achieved by recompiling with the latest versions of the IBM XL compilers to further exploit the POWER2 technology.

Applications compiled using a compiler option to exploit POWER2 technology may not function properly on systems that do not employ the new POWER2 technology. Customers with any combination of POWER-, PowerPC 601*-, and POWER2-based systems may continue to run their applications unmodified. New applications and recompilation of existing applications for use in a mixed processor environment should be compiled using the POWER or common mode options available in the new XL compilers or any other compilers that support those options.

The 340, 34H, 350, 360, or 370 to 380/390 upgrade kit contains some or all of the following:

Base Model 380/390 chassis and covers with the serial number of the original machine

New memory card(s) without SIMMs

Maintenance documentation

CD-ROM

As-required engineering changes

This upgrade is accomplished by transferring the customer's existing media, disks, adapters, and memory SIMMs to the new chassis. The chassis contains the same serial number as the customer's existing machine.

ORDERING INFORMATION

When ordering this model conversion, you must specify the model conversion on the MES order.

SUPPORTED FEATURES INFORMATION

All features announced as supported on the 380/390 are also available on this model conversion.

The following features presently supported on the Model 340, 34H, 350, 360, and 370 are NOT supported on the newly-converted system:

```
 Feature
  Code     Description
 -------   ----------------------------------------------------
  2780     High-Performance 8-bit 3D Color Graphics Processor
  2781     High-Performance 24-bit 3D Color Graphics Processor
  2782     24-bit Z-Buffer Solid Rendering Option
  2783     24-bit Color Graphics Frame Buffer Upgrade
```

Note: Features displaced remain with the customer.
SUPPORTED BUT NOT ORDERABLE FEATURES

The following features presently supported on the Model 340, 34H, 350 360, and 370 are supported but are not orderable on the newly-converted system.

```
 Feature
  Code     Description
 -------   -------------------------------------
  2121     160-MB SCSI Disk Drive
(For IBM US, No Longer Available as of January 6, 1995)
  2390     540-MB SCSI-2 Disk Drive
  2391     400-MB to 540-MB SCSI-2 Disk Drive Select
  2392     160-MB to 540-MB SCSI-2 Disk Drive Select
  2550     1-GB SCSI Disk Drive
  2553     160-MB to 1-GB SCSI Disk Drive Select
```

```
    2556      400-MB to 1-GB SCSI-2 Disk Drive Select
(For IBM US, No Longer Available as of October 25, 1996)
    2558      160-MB to 1-GB SCSI-2 Disk Drive Select
    2560      400-MB SCSI Disk Drive
    2563      160-MB to 400-MB SCSI Disk Drive Select
    2581      160-MB to 2-GB SCSI-2 Disk Drive Select
    2582      400-MB to 2-GB SCSI-2 Disk Drive Select
(For IBM US, No Longer Available as of October 25, 1996)
    2720      Fiber Distributed Data Interface Single-Ring Adapter
    2722      Fiber Distributed Data Interface Dual-Ring Upgrade Kit
    2777      POWER Gt3
    2790      POWER Gt4x 8-bit Feature
    2791      POWER Gt4x 24-bit Feature
    2792      POWER Gt4 8-bit to 24-bit Upgrade
    2794      POWER Gt4 Performance Upgrade
    2795      POWER Gt4 8-bit Feature
    2796      POWER Gt4 24-bit Feature
    2801      5086 Attachment Adapter
    2802      5085 Attachment Adapter
    2914      SCSI-2 Passthrough Terminator Cable (50-Pin)
    2915      SCSI Controller Passthrough Terminator Cable (60-Pin)
    3600      POWERdisplay 16 (1)
    3601      POWERdisplay 19 (2)
    4063      8-MB HD3 Memory Card
    4066      16-MB HD3 Memory Card
    4068      16-MB to 32MB HD3 Memory Select
    4074      16-MB to 64MB HD3 Memory Select
    4091      16-MB to 128MB Memory Select
    4099      16-MB to 256MB Memory Select
    6210      High-Performance Disk Drive Subsystem Adapter (40 MB/Sec)
    6211      High-Performance Disk Drive Subsystem Adapter (80 MB/Sec)
    6306      IBM Speech Accelerator 1
(For IBM US, No Longer Available as of January 6, 1995)
    6307      IBM Speech Accelerator 2
(For IBM US, No Longer Available as of January 6, 1995)
    6400      64-Port Asynchronous Controller
    9234      16-MB HD3 Memory Specify
    9244      400-MB SCSI Disk Drive Specify
```

Note: The displaced chassis and all associated parts removed become the property of IBM.

The POWERdisplay 16 (featuring a Trinitron** CRT) has a fixed image size of 14.8 inches/375mm measured diagonally.

The POWERdisplay 19 (featuring a Trinitron** CRT) has a maximum viewable image size of 17.3 inches/439mm measured diagonally.

All other previously announced features, if installed on the Model 340, 34H, 350, 360, or 370 can be included in the upgrade to the Model 380/390. However, after the upgrade, only those features announced as orderable on the 380/390 are available with the exception of features 6401, 6402, 9115, 9116, 9117, and 9118 which can be ordered provided that feature 6400 is already installed on the previous 300 series model.

PREREQUISITES/LIMITATIONS

HARDWARE PREREQUISITES

Model 340, 34H, 350, 360 or 370

Minimum of 32-MB Memory

Minimum of 2-GB SCSI-2 Disk installed

SOFTWARE PREREQUISITES

AIX Version 3.2.5 for RS/6000 with additional PTFs. These PTFs are included on all 3.2.5 orders shipped after 6/3/94 (labeled AIX/6000 Version 3.2.5.1). Refer to memo to users on installing these PTFs or call the IBM support center and request the PTFs referenced in APAR number IX42623. This level of AIX/6000 be installed and operational PRIOR to beginning the upgrade.

TERMS AND CONDITIONS

WARRANTY PERIOD

The warranty for the original machine (Model 340, 34H, 350, 360, 370) controls the warranty period of the converted machine (Model 380/390) so that any time remaining from the original one year warranty on the model 300 is applied to the Model 380/390 conversion.

Replacement parts assume the remaining warranty of the parts they replaced. Additional new parts, if any, have a one-year warranty.

All 380 to 390 (MES) model conversions are a processor upgrade.

The model conversion MESs contain some or all of the following items and are ordered through the configurator:

Processor replacement

As required engineering changes

Installation instructions

New publications.

Note: Parts removed become the property of IBM.
National language support

The IBM RS/6000 370 support US English and the following National Languages:

Dutch

Danish

French

Finnish

German

Norwegian

Portuguese

Spanish

Swedish

Italian

Canadian French

French/Belgian

Japanese-Kanji

UK English

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Technical description

↓ Physical specifications   ↓ Hardware requirements
↓ Operating environment   ↓ Software requirements
↓ Limitations

Physical specifications

Horizontal:
Width: 456mm (18 inches)
Depth: 523mm (20.6 inches)
Height: 162mm (6.4 inches)
Weight: 12.7-15.4 kg (28-34 lbs)

Vertical:
280mm (11 inches) at pedestal
532 (20.6 inches)

466mm (18.3 inches) with pedestal

Voltage:
100 to 125V, 200 to 240V Nominal
Auto Ranging; 50/60 Hz

Power Supply: 265 Watts output (peak)

Thermal output: 750 BTUs per hour

Power Source loading: 0.34 KVA

Noise level (average at 1 meter position - typical machine):
Desktop position: 41 dBA operating, 41 dBA idle
Floor-standing position: 38 dBA operating, 38 dBA idle

EMC Conformance Classification:
    USA - FCC Class A

    Germany - IOP

    Europe - CISPR 22

    Japan - VCCI-1

Temperature: 16 to 32C (60 to 90F)

Relative Humidity: 8 to 80 (percent)

Maximum Wet Bulb: 23C (73F)

Noise level (average at 1 meter position - typical machine):
    Desktop position: 41 dBA operating, 41 dBA idle

    Floor-standing position: 38 dBA operating, 38 dBA idle

Environmental Impact Assessment Number 617P-3

The RS/6000 Model 370 was developed in compliance with corporate policy letter number 139 (Environmental Affairs).

Environmental Impact Assessment:

Compliance with Corporate Standard C-S 3-0527-002 (1991-06) Control of Chemicals in IBM Facilities, Requirements and Responsibilities.

Product Safety/Country Testing/Certification:

    USA - UL

    Canada - CSA

    Germany - GS Mark (Safety, TUV)

Telecom Environmental Testing (Safety and EMC):

IBM RS/6000s and applicable features meet the environmental testing requirements of the country TELECOM. The testing and approval process is ongoing.

```
                        Environmental   Test
        Country         Safety          EMC
        -------         -------------   ----
        Canada          CSA
        Chile           Telecom
        Finland         EIF
        France          LCIE            LCIE
        Hong Kong       Telecom
        Ireland         Telecom
        Italy           Telecom
        Japan           Telecom
        Korea           Telecom
        Malaysia        SIRIM
        Mexico          Telecom
        Netherlands     Telecom
        New Zealand     Telecom         Telecom
        Norway          NEMKO
        Spain           Ministry of
                         Industry
        Sweden          SEMKO
        Switzerland     SEV
        U.K.            BABT
```

ISO 9000 Certification, IBM Locations:

Santa Palomba, Italy
Havant, England
Supported IBM Monitors Complying to ISO 9241 Part 3.

6091 Model 016
6091 Model 19i
The IBM 6091 16-inch monitor has an actual viewable screen size of 14.8 inches when measured diagonally. The IBM 6091 19-inch monitor has an actual viewable screen size of 17.3 inches when measured diagonally.

Operating environment

Not available.

Limitations

Limits for Disk Storage Adapters and Subsystems Models 3xx

```
        ASSUMPTIONS:
          SCSI-2 SE CONTROLLER  ---------  9334-SE
            9334-SE:  1x2 GB + 3x2.41 GB = 9.23 GB
          SCSI-2 DIFF CONTROLLER  -------  9334-DIFF(1st) + 9334-DIFF(2nd)
            9334-DIFF(1st):  4x2 GB = 8 GB
            9334-DIFF(2nd):  3x2 GB = 6 GB
              (CALCULATE AS 7GB / 9334)
          SCSI-2 DIFF CONTROLLER  -------  7135 + 7135
            RAID7135:  30x2 GB > 48 GB (ASSUME PROTECTED MODE)
            RAID7135:  30x2 GB > 48 GB (ASSUME PROTECTED MODE)
          SERIAL CONTROLLER  ------------  9333
            9333:  4x2 GB = 8 GB


        DESCRIPTION:                    LIMIT VALUES:
         INTEG SCSI - INT DISK            2 - SCSI-2 DIFF CONTROLLERS
         INTEG ETHERNET                   2 - SERIAL CONTROLLERS
         4 I/O SLOTS                      4 - SCSI-2 SE CONTROLLERS
                                          4 - SCSI-2 SE + SCSI-2 DIFF
                                          4 - RAID7135 SUBSYSTEMS

             CALCULATED STORAGE LIMITS:
               MAX W/O RAID       73 GB(B)
               MAX W/RAID        237 GB(B)



             -------------------   --------------------
             CONFIGURATIONS:
               #     CONTROLLERS    INTERNAL & RAID7135   9333 & 9334 DRAWERS
             -------------------   --------------------  --------------------
             BASE + SCSI                                 TOTAL CONFIG >> 50.46 GB
             BASE + SCSI                                 TOTAL CONFIG >> 50.46 GB
               2     SCSI-2 SE     INTERNAL @  4 GB   2 -9334 @  9.23 GB
               2     SCSI-2 DIFF  0 -RAID7135 @ 48 GB  4 -9334 @  7.00 GB
               0     SERIAL                            0 -9333 @  8.00 GB

             BASE + SCSI-SE                              TOTAL CONFIG >> 40.92 GB
             BASE + SCSI-SE                              TOTAL CONFIG >> 40.92 GB
               4     SCSI-2 SE     INTERNAL @  4 GB   4 -9334 @  9.23 GB
               0     SCSI-2 DIFF  0 -RAID7135 @ 48 GB  0 -9334 @  7.00 GB
               0     SERIAL                            0 -9333 @  8.00 GB

             BASE + SCSI-DIFF                            TOTAL CONFIG >> 32.00 GB
             BASE + SCSI-DIFF                            TOTAL CONFIG >> 32.00 GB
               0     SCSI-2 SE     INTERNAL @  4 GB   0 -9334 @  9.23 GB
               2     SCSI-2 DIFF  0 -RAID7135 @ 48 GB  4 -9334 @  7.00 GB
               0     SERIAL                            0 -9333 @  8.00 GB
```

```
        BASE + SERIAL                           TOTAL CONFIG >> 68.00 GB
        BASE + SERIAL                           TOTAL CONFIG >> 68.00 GB
          0     SCSI-2 SE        INTERNAL @  4 GB    0 -9334 @  9.23 GB
          0     SCSI-2 DIFF    0 -RAID7135 @ 48 GB   0 -9334 @  7.00 GB
          2     SERIAL                              8 -9333 @  8.00 GB

        BASE + SCSI + SERIAL                    TOTAL CONFIG >> 73.23 GB(B)
        BASE + SCSI + SERIAL                    TOTAL CONFIG >> 73.23 GB(B)
          1     SCSI-2 SE        INTERNAL @  4 GB    1 -9334 @  9.23 GB
          2     SCSI-2 DIFF    0 -RAID7135 @ 48 GB   4 -9334 @  7.00 GB
          1     SERIAL                              4 -9333 @  8.00 GB

        BASE + RAID                             TOTAL CONFIG >> 196.00 GB
        BASE + RAID                             TOTAL CONFIG >> 196.00 GB
          0     SCSI-2 SE        INTERNAL @  4 GB    0 -9334 @  9.23 GB
          2     SCSI-2 DIFF    4 -RAID7135 @ 48 GB   0 -9334 @  7.00 GB
          0     SERIAL                              0 -9333 @  8.00 GB

        BASE + RAID + SCSI                      TOTAL CONFIG >>  214.46 GB
        BASE + RAID + SCSI                      TOTAL CONFIG >>  214.46 GB
          2     SCSI-2 SE        INTERNAL @  4 GB    2 -9334 @  9.23 GB
          2     SCSI-2 DIFF    4 -RAID7135 @ 48 GB   0 -9334 @  7.00 GB
          0     SERIAL                              0 -9333 @  8.00 GB

        BASE + RAID + SERIAL                    TOTAL CONFIG >> 237.23 GB(B)
        BASE + RAID + SERIAL                    TOTAL CONFIG >> 237.23 GB(B)
          1     SCSI-2 SE        INTERNAL @  4 GB    1 -9334 @  9.23 GB
          2     SCSI-2 DIFF    4 -RAID7135 @ 48 GB   0 -9334 @  7.00 GB
          1     SERIAL                              4 -9333 @  8.00 GB
```

```
(B) Match
```

Hardware requirements

IBM supported ASCII terminal or IBM supported graphics adapter, display, and keyboard.

To support LAN dependent capability, the following hardware features must be installed. One of the following graphics adapters must be installed with the appropriate display:

Grayscale Graphics Display Adapter (#2760)

Power Gt3i Feature (#2768)

Color Graphics Display Adapter (#2770)

Power Gt4e Feature (#2776)

Power Gt3 Feature (#2777) (For IBM US, No Longer Available as of August 18, 1993)

Power Gt4x 8-Bit Feature (#2790)

Power Gt4x 24-Bit Feature (#2791)

Power Gt4 8-Bit Feature (#2795)

Power Gt4 24-Bit Feature (#2796)
OR

IBM supported ASCII terminal or for World Trade, an IBM 3151 or 316x ASYNC terminal with ISO-8859 cartridge installed or non-IBM ASYNC terminals which support the ISO-8859.

The following features are also required for LAN dependent operation.

Only the integrated Ethernet interface is supported for Ethernet.

Token-Ring attachment is provided using the Token-Ring High Performance Adapter (#2970). A maximum of four adapters are supported for LAN dependent attachment.

The LAN dependent function has menu translations in the following languages:
Belgium/Dutch

English

French

German

Italian

Norwegian

Spanish

Swedish

Software requirements

AIX Version 3.2.3 Extended for RS/6000 (5756-030), at the most current level, is a requirement for the operation of the RS/6000 370.

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Publications

The following publications are shipped with the product. Additional copies are available.

SC23-2401 Quick Reference

GC23-2377 System User's Guide

SA23-2690 Customer Support Information

SC23-2456 Documentation Overview

SA23-2623 7012 Operator Guide

SA23-2687 Common Diagnostics and Service Guide

SA23-2624 7012 Installation and Service Guide

SA23-2702 7012 Hardware Setup Guide (English)

SA11-1248 7012 Hardware Setup Guide (French)

SA12-4431 7012 Hardware Setup Guide (German)

SA13-1832 7012 Hardware Setup Guide (Italian)

SA88-6714 7012 Hardware Setup Guide (Japanese)

SA14-2854 7012 Hardware Setup Guide (Swedish)

SA23-2691 Supplemental Service Information for the Environmentally Hardened 7012

SA23-2652 System Unit Safety Information

SC23-2433 AIX Version 3.2 Diskless Workstation Management Guide

For a current list of publications, contact your local IBM representative.

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Features

↓ Features - No charge

↓ Features - Chargeable

↓ Feature descriptions

↓ Feature exchanges

Features - No charge

(#9000) Ethernet Thick/Thin Connector Specify: Defines the standard Thick/Thin connector of the integrated Ethernet interface on the initial plant order.

(#9001) Ethernet Twisted-Pair Connector Specify: Defines the Twisted-Pair connector for the integrated Ethernet interface in place of the standard Thick/Thin connector on the initial plant order.

(#9221) 3.5-inch Diskette Specify: Defines the standard 3.5-inch Diskette. Specify code 9221 must be on the initial plant order. (For IBM US, No Longer Available as of August 15, 2000)

(#9234) 16-MB HD3 Memory Specify: Defines the standard 16-MB memory on the Model 360. Specify code 9234 must be on the initial plant order when standard memory is desired.

(#9235) 32-MB HD3 Memory Specify: Defines the standard 32-MB memory on the Model 370. Specify code 9235 must be on the initial plant order when standard memory is desired.

(#9244) 400-MB Disk Drive Specify:
(For IBM US, No Longer Available as of October 25, 1996) If the first disk drive is the standard 400-MB SCSI Disk Drive, specify code 9244 must be on the initial plant order.

The IBM RS/6000 7012 Model 360/370 uses a universal power supply.

100V to 125V, 200V to 240V Nominal Auto Ranging; 50Hz - 60Hz

Thermal Output: 1200 BTUs per hour

Power Consumption: 0.7 KVA

(#9800) Standard Power Cord

(No longer available as of December 31, 2020)

(#9986) Chicago Power Cord

(No Longer Available as of October 29, 2010)

16-Port Async Concentrator - Power Transformer

(#9116) Wall-mounted transformer 115 to 127 V AC

Language Group

(#9300) English language group for Nomenclature and Standard Publications shipped with the IBM RS/6000 300 series.

IBM RS/6000 7012 Models 360/370 and 64-Port Asynchronous Controller


```
Ordering Country                      Default Option
                                      Feature Code

C/C   Country              Group         Code
----  -------------        -----       --------
```

```
DOM    United States          DOM              9800
```

```
Note: Chicago, #9986
```

16-Port Async Concentrator - Power Transformers

(#9115) Transformer 100 to 110 V AC (For IBM US, No Longer Available as of May 20, 1996)

(#9116) Wall-mounted transformer 115 to 127 V AC (For IBM US, No Longer Available as of May 20, 1996)

(#9117) Transformer 200 to 220 V AC (For IBM US, No Longer Available as of May 20, 1996)

(#9118) Transformer 230 to 240 V AC (For IBM US, No Longer Available as of May 20, 1996)

Note: Transformers (#9115, #9117, #9118) require a separate power cord. See the power cord specify codes in this section.

IBM RS/6000 7012 Model 370 Supported Keyboards

(No Longer Available as of February 6, 1998)

```
Keyboard Type           Country                   Feature Code
------------------      -------------------------  ------------
Soft Touch              U.S. English               1110
101                     United States of America   6010
102                     United Kingdom (English)   6023
                        France                     6015
                        Italy                      6017
                        Germany                    6016
                        Sweden/Finland             6014
                        Portugal                   6020
                        Denmark                    6013
                        Norway                     6019
                        Spain                      6021
                        Switzerland (French/German) 6022
                        Belgium (Dutch/French)     6011
                        Canadian French            6012
                        Iceland (Icelandic)        6024
                        Turkey                     6025
                        Greece                     6026
                        Dutch                      6034
                        Turkish                    6035


104                     Brazil (Portuguese)        6018
```

```
106                     Japan (Kanji)              6030
106                     Korean                     6031
106                     Chinese Traditional-Taiwan 6033
```

IBM RS/6000 7012 Model 370 Language Groups

```
Language Group                   Feature Code
--------------                   ------------
US English                           9300
Dutch                                9700
French                               9703
German                               9704
Norwegian                            9706
Spanish                              9708
Italian                              9711
Canadian French                      9712
French Belgian                       9713
Japanese                             9714
```

Features - Chargeable

Special Features - Plant and/or Field Installable

ADAPTERS

(#2412) - Enhanced SCSI-2 Differential Fast/Wide Adapter/A

(#2756) - ESCON Control Unit Adapter

(#2921) - ARTIC960 Coprocessor (1 MB)

(#2924) - ARTIC960 Coprocessor (4 MB)

(#2928) - ARTIC960 Coprocessor (8 MB)

(#2929) - ARTIC960 Coprocessor, 8-port EIA-232

(#2935) - ARTIC960 Coprocessor, 6-port V.36

(#2938) - ARTIC960 Coprocessor, 8-port X.21

(#2984) - TURBOWAYS 100 ATM Adapter

(#2989) - TURBOWAYS 155 ATM Adapter

(#2992) - Ethernet/FDX 10 Mbps TP/AUI MC Adapter

(#2993) - Ethernet 10Mbps BNC MC Adapter

(#6214) - IBM SSA 4-Port Adapter

(#6216) - Enhanced SSA 4-Port Adapter

(#6217) - IBM SSA 4-Port RAID Adapter

(#6219) - Micro Channel SSA Multi-Initiator/RAID EL Adapter

(#6222) - SSA Fast-Write Cache Option Card

(#6300) - Digital Trunk Adapter

(#6305) - Digital Trunk Dual Adapter

(#7022) - IBM Realtime Interface Co-Processor: Multiport/2 4-Port RS-232 Int

(#7024) - IBM Realtime Interface Co-Processor: Multiport/2 6-Port RS-232-C S

(#7026) - IBM Realtime Interface Co-Processor: Multiport/2 8-Port RS-232 Int

(#7028) - IBM Realtime Interface Co-Processor: Multiport/2 8-Port RS-422-A I

(#7030) - IBM Realtime Interface Co-Processor: Multiport/2 RS-232/RS-422 Int

CABLES

(#2923) - Cable Option EIA 530 RS 422

(#2926) - Cable Option ISO 4902 V.36

(#2927) - Cable Option ISO 4903 X.21

(#2934) - Asynchronous Terminal/Printer Cable EIA-232

(#2939) - ARTIC960 8-port EIA-232 Cable

(#2941) - ARTIC960 6-port V.36 Cable

(#2942) - ARTIC960 8-port X.21 Cable

(#7102) - IBM Realtime Interface Co-Processor: EIA RS-232-C Multiport Interf

(#7104) - IBM Realtime Interface Co-Processor: Synchronous Interface Cable

(#7107) - IBM Realtime Interface Co-Processor: V.35 Network Cable

(#7111) - IBM Realtime Interface Co-Processor: X.21 Network Cable

(#8136) - Rack Mountable Remote Asynchronous Node 16-Port EIA-232

(#8137) - Enhanced Remote Asynchronous Node 16-Port EIA-232

(#8138) - Enhanced Remote Asynchronous Node 16-Port RS-422

KEYBOARDS

(#6599) - Optional Keyboard Cable with Speaker

(#6600) - Quiet Touch Keyboard, US English, #103P

(#6601) - Quiet Touch Keyboard, French, #189

(#6602) - Quiet Touch Keyboard, Italian, #142

(#6603) - Quiet Touch Keyboard, German/Austrian, #129

(#6604) - Quiet Touch Keyboard, UK English, #166

(#6605) - Quiet Touch Keyboard, Spanish, #172

(#6606) - Quiet Touch Keyboard, Japanese, #194

(#6607) - Quiet Touch Keyboard, Brazilian Portuguese, #275

(#6608) - Quiet Touch Keyboard, Canadian French, #058

(#6609) - Quiet Touch Keyboard, Belgian/French, #120

(#6610) - Quiet Touch Keyboard, Belgian/UK-Flemish, #120

(#6611) - Quiet Touch Keyboard, Swedish/Finnish, #153

(#6612) - Quiet Touch Keyboard, Danish, #159

(#6613) - Quiet Touch Keyboard, Bulgarian, #442

(#6614) - Quiet Touch Keyboard, Swiss,French/German, #150f/g

(#6616) - Quiet Touch Keyboard, Norwegian, #155

(#6617) - Quiet Touch Keyboard, Dutch, #143

(#6618) - Quiet Touch Keyboard, Portuguese, #163

(#6619) - Quiet Touch Keyboard, Greek, #319

(#6620) - Quiet Touch Keyboard, Hebrew, #212

(#6621) - Quiet Touch Keyboard, Hungarian, #208

(#6622) - Quiet Touch Keyboard, Icelandic, #197

(#6623) - Quiet Touch Keyboard, Polish, #214

(#6624) - Quiet Touch Keyboard, Romanian, #446

(#6625) - Quiet Touch Keyboard, Slovakian, #245

(#6626) - Quiet Touch Keyboard, Czech, #243

(#6627) - Quiet Touch Keyboard, Turkish, #179

(#6628) - Quiet Touch Keyboard, Turkish, #440

(#6629) - Quiet Touch Keyboard, LA Spanish, #171

(#6630) - Quiet Touch Keyboard, Arabic, #238

(#6632) - Quiet Touch Keyboard, Serbian-Cyrillic, #118

(#6633) - Quiet Touch Keyboard, Korean, #413

(#6634) - Quiet Touch Keyboard, Chinese/US, #467

(#6635) - Quiet Touch Keyboard, French Canadian, #445

(#6636) - Quiet Touch Keyboard, Thailand, #191

(#6638) - Quiet Touch Keyboard, Russian, #443

(#6639) - Quiet Touch Keyboard, Croatian, #105

(#6640) - Quiet Touch Keyboard, US English ISO9995, #103P(EMEA)

DISPLAYS

(#3615) - P201 Color Monitor

Feature descriptions

The following is a list of all feature codes in numeric order for the IBM RS/6000 7013 machine type.

Attributes, as defined in the following feature descriptions, state the interaction of requirements among features.

Minimums and maximums are the absolute limits for a single feature without regard to interaction with other features. The maximum valid quantity for MES orders may be different than for initial orders. The maximums listed below refer to the largest quantity of these two possibilities.

The order type defines if a feature is orderable only on initial orders, only on MES orders, on both initial and MES orders, or if a feature is supported on a model due to a model conversion. Supported features cannot be ordered on the converted model, only left on or removed from the converted model.

(#2934) Asynchronous Terminal/Printer Cable EIA-232

(No longer available as of December 31, 2020)

The Asynchronous Printer/Terminal Cable is used for attaching printers, plotters, and terminals that support the EIA-232 standard to any asynchronous adapter. This cable is the equivalent of the combination of FC 2936 (modem cable) and FC 2937 (printer/terminal interposer) and replaces this method of printer/terminal attachment.

This cable is 3m (9.8 feet) long, uses DB25 connectors and is supported on all RS/6000 systems using any asynchronous ports. It is used in conjunction with :

FC 2995 (8-port fanout box).

FC 2996 (16-port fanout box).

FC 6401 + 6402 (16-port Async Concentrator + RJ45-DB25 converter cable.

FC 8130/8134 + 8133 (16-port Remote Async Node + RJ45-DB25 converter cable.

FC 2931 (8-port Async Adapter EIA232, ISA Bus)

```
Attributes provided: EIA232 device attachment capability
Attributes required: Any RS/6000 Asynchronous port

For 7012-375:
  Minimum required:  0
  Maximum allowed:   No maximum
  AIX level required:
```

```
     Initial Order/MES/Both/Supported:  both

For 7012-37T:
  Minimum required:  0
  Maximum allowed:  1 per port
  AIX level required:  AIX 4.1.3, AIX 3.2.5 with all PTFs installed
  Initial Order/MES/Both/Supported:  both
```

(#2412) Enhanced SCSI-2 Differential Fast/Wide Adapter/A

(For IBM US, No Longer Available as of November 16, 1999)

The IBM Enhanced SCSI-2 Differential Fast/Wide Adapter/A is a dual ported fast (10 MHz) and wide (2 bytes wide) SCSI Micro Channel Adapter that can provide synchronous SCSI bus data rates of up to 20 megabytes per second. The Enhanced SCSI-2 Differential Fast/Wide Adapter/A provides high performance attachment to Differential SCSI disks, disk subsystems, tape devices and read/write optical subsystems. The maximum data rate depends on system and application configurations. The IBM Enhanced SCSI-2 Differential Fast/Wide Adapter/A has one internal single ended port and one external Differential port. The internal port is capable of attaching up to six single ended devices; the external port is capable of addressing up to fifteen differential devices. The number of physical devices attached to each port is limited by SCSI bus cabling restrictions. The internal port of this adapter supports either 8-bit or 16-bit devices via an 8-bit or a 16-bit connector. Only one of these two connectors may be used at one time. (Devices of different bus attachment widths cannot be connected/used at the same time.) The external Differential SCSI bus is capable of supporting cable lengths of 25 meters (82 feet).

Additional system, subsystem and high availability connections are also available with the differential system-to-system and Y-cable features.
Note: System IPL cannot occur from a device attached through this adapter.

Characteristics:

  Controller conforms to ANSI Doc X3T9.2/86-109 rev 10h

  Accepts multiple commands per device from system

  SCSI-2 data rate of up to 20 MB per second (synchronous protocol)

  Up to 1200 operations per second of 4 Kbyte data block transfers; actual performance levels depend on system and application configurations.

  Acts as SCSI initiator (command issuer)

  SCSI parity support

  Micro Channel Interface
      4 byte (32-bit) Bus Master

      Streaming Data Support (40 MB/sec burst)

      Address and Data Parity Support

  Occupies one Micro Channel slot

  Supports Command Tagged Queuing (as SCSI initiator)

```
Attributes provided:  1 SCSI-2 external Differential 16-bit fast/wide
```

```
                                 port AND 1 SCSI-2 internal SE fast/wide port
Attributes required:  1 Micro Channel slot

For 7012-370:
  Minimum required:  0
  Maximum allowed:  2
  AIX level required:  AIX 4.1.3, 3.2.5 with all PTFs installed
  Initial Order/MES/Both/Supported:  both
```

Other Features

(#2391) 540-MB SCSI-2 Disk Drive Select

(For IBM US, No Longer Available as of October 25, 1996)

This disk drive may be ordered in place of the standard disk on the initial plant order.

(#4071) 64-MB HD3 Memory Select Feature

(For IBM US, No Longer Available as of January 30, 1998)

This select feature replaces the standard 32-MB memory on the Model 370 with 64-MB HD3 memory on the initial plant order.

(#4092) 128-MB Memory Select Feature

(For IBM US, No Longer Available as of January 30, 1998)

This select feature replaces the standard 32-MB memory on the Model 370 with 128MB memory on the initial plant order.

The following features may be ordered for plant or field installation.

Memory Options

(#4063) 8-MB HD3 Memory Card

(For IBM US, No Longer Available as of August 18, 1993)

Provides additional memory in 8-MB increments. Each addition of this feature requires one memory card location on the system board.

(#4066) 16-MB HD3 Memory Card

(For IBM US, No Longer Available as of December 21, 1993)

This feature provides additional memory in 16-MB increments. Each addition of this feature requires one memory card location on the system board.

(#4067) 32-MB HD3 Memory Card

(For IBM US, No Longer Available as of January 30, 1998)

Provides additional memory in 32-MB increments. Each addition of this feature requires one memory card slot on the system board.

(#4069) 64-MB HD3 Memory Card

(For IBM US, No Longer Available as of December 31, 1999)

Provides additional memory in 64-MB increments. Each addition of this feature requires one memory card slot on the system board.

(#4090) 128-MB Memory Card

(For IBM US, No Longer Available as of December 1, 2000)

Provides additional memory in 128-MB increments. Each addition of this feature requires one memory card slot on the system board.

Memory SIMM Kits

These features are for field installation (MES) only and are not available for plant installation.

AIX/6000 Version 3.2 with PTF U410257 or later is required for the installation of 128-MB memory.

Determining memory board EC level

Prior to placing an order, an IBM representative must use lscfg -vl mem* |pg on the installed machine to determine the card EC level. This determines if SIMM kits can be used on the installed memory boards.

Acceptable EC levels for memory boards for SIMM Kit installation are:

```
 For 64-MB SIMM Kit:
 00,20,21 or 33
```

If 00, there must be data not equal to 00 in device specific Z3 and Z2 field.

```
For the 32-MB or 128-MB SIMM Kit:
20, 21, or 33
```

Some models require that memory be installed in pairs. For these machines; it is necessary for the total memory on each memory board in the pair be equal after SIMM Kit installation.

Parts removed become the property of IBM and must be returned to IBM.

(#5032) 32-MB Memory SIMM Kit

(For IBM US, No Longer Available as of January 8, 1998)

This provides 32-MB memory on installed boards. Available as MES only.

(#5064) 64-MB Memory SIMM Kit

(For IBM US, No Longer Available as of March 19, 1999)

Available as MES only. This provides 64-MB memory on installed boards.

(#5128) 128-MB Memory SIMM Kit

(For IBM US, No Longer Available as of December 1, 2000)

This provides 128-MB memory on installed boards. Available as MES only. Requires AIX/6000 3.2 or later.

Disk Storage

(#2560) 400-MB SCSI Disk Drive

(For IBM US, No Longer Available as of September 19, 1995)

Provides an additional 400 MB of internal disk drive storage.

Characteristics:

   Formatted Capacity: 400 MB
   Form Factor: 3.5-inch
   Average Seek Time: 11.5 ms

Average Latency: 6.95 ms

Rotational Speed: 4318 RPM

Data Transfer Rate:
Media - 2.0 MB/Sec
SCSI Bus - 5.0 MB/Sec (max)

Interface: SCSI (Single Ended) Synchronous

(#2555) 1-GB SCSI-2 Disk Drive

(For IBM US, No Longer Available as of May 12, 1997)

Provides 1 GB of SCSI-2 disk drive storage. (Operates at SCSI-1 performance when attached to SCSI-1 interface).

Formatted Capacity: 1.00 GB

Form Factor: 3.5-inch

Average Seek Time: 9.8 ms

Average Latency: 6.95 ms

Rotational Speed: 4316 RPM

Data Transfer Rate:
Media - 3.0 MB/Sec

SCSI Bus - 10.0 MB/Sec (max)

Interface: SCSI-2 (Single Ended) Synchronous

Supports Command Reordering

Supports Back to Back Write operation

(#2390) 540-MB SCSI-2 Disk Drive

(For IBM US, No Longer Available as of October 25, 1996)

This feature provides an additional 540-MB of disk drive storage.

Characteristics:

Formatted capacity: 540 MB

Form factor: 3.5-inch

Average seek time: 8.5 ms

Average latency: 4.76 ms

Rotational speed: 6300 rpm

Data transfer rate:
Media: 4.70 MB/sec (maximum)

SCSI bus: 10 MB/sec (maximum)

Interface: SCSI-2 (single ended) synchronous

(#2580) 2-GB SCSI-2 Disk Drive

(For IBM US, No Longer Available as of May 12, 1997)

This feature provides an additional 2 GB of disk drive storage. Characteristics:

Formatted capacity: 2 GB

Form factor: 3.5-inch

Average seek time: 9.5 ms

Average latency: 5.56 ms

Rotational speed: 5400 rpm

Data transfer rate:
Media: 5.22 MB/sec (maximum)

SCSI bus: 10 MB/sec (maximum)

Interface: SCSI-2 (single ended) synchronous

I/O Adapters

For detailed information on adapters and devices, reference the publication: "Hardware Technical Information Options and Devices" (SA23-2646).

(#2404, #2405) IBM Ultimedia Video I/O Adapter

(For IBM US, No Longer Available as of January 8, 1998)

The Ultimedia Video I/O adapter for the RS/6000 provides a broad based solution for video enablement on the RS/6000. The Video I/O adapter is comprised of two cards: a base Micro Channel feature card which provides video in and video out (#2404) and a guest card which provides hardware assisted video data compression or decompression (#2405). Each card is separately orderable; however, it is required to have the base card installed as a prerequisite to the guest card. The Video I/O adapter requires only one Micro Channel slot of space with either the base card or the base and guest card installed.

The Ultimedia Video I/O adapter provides support for numerous multimedia applications requiring video. Support is provided for these application requirements: still or full motion video, NTSC, PAL or S-video standards and YUV or RGB color spaces. A variety of image sizes are supported in the video capture mode and one busmaster DMA channel is offered to enhanced system thruput. A further benefit is the savings obtained through the use of the compression and decompression algorithm provided on the guest card which provides considerable assistance with regards to transporting video data internally in the system or

across the network, as only the compressed data need be sent.. The compression algorithm supported in hardware is M-JPEG, a universal video compression/decompression format. The compression/ decompression hardware is fully programmable to allow the user to select the compression level desired.

The Ultimedia Video I/O adapter provides the required support for applications such as multimedia enabled training, authoring, desktop publishing, video collaboration (still or live), and video distribution.

Details of Supported Functions

Video Formats Supported

Analog Video In: NTSC, PAL or S-video

Analog Video Out NTSC, PAL or S-video

Digital Video YUV 4:2:2 (16 bit) RGB (8 bit) RGB (24 bit)

Base Card Functions (FC2404)

The Ultimedia Video I/O base Adapter directly supports several programmable functions and in addition provides the system level interface for the guest compression/decompression card. The functions provided on the base card include: analog to digital conversion with video capture support, digital to analog conversion with video out support, selectable color space conversion for video in, monitoring of incoming video images with a supported IBM graphics adapter and/or an external video monitor, scaling the size of the incoming video image, and DMA transfer of the digital image data to and from the card.

Video Capture: The adapter will provide video capture on a frame by frame (or field by field) basis of "live" video from a single source. Selection of S-video or CVBS input formats is enabled. The captured video is converted from NTSC (PAL) to YUV. The YUV digital video may be converted to 24 bit RGB, 8 bit dithered RGB or remain YUV.

Video Output: The base adapter supports transfer of digital YUV (4-2-2 16 bit) data. Via the guest card, both digital YUV and compressed M-JPEG data are supported from the system to be output as PAL or NTSC in both S-video or CVBS format. The Video I/O adapter accepts input from the system as 320 x 240 or 640 x 240 pixel fields which are output as full size NTSC (640 x 480) images to a display or recorder. Likewise, PAL images are output as 768 x 576 pixel images from 384 x 288 or 768 x 288 pixel field input. If the compression/decompression card is used, the M-JPEG format is accepted from the system in the same field sizes as above, an output as full size NTSC or PAL images.

Scaling: Captured video input may be scaled down from a maximum NTSC or PAL resolution (640 x 480, 768 x 576) in even increments to the minimum resolution desired.

Video Monitoring: The monitoring of incoming video data is supported with an IBM supported graphics adapter and/or a video monitor. The following image sizes as shown in table #1 are supported for viewing with a supported graphics adapter.

```
8 BIT DITHERED MODE SELECTED ON GRAPHICS ADAPTER AND VIDEO I/O


     NTSC SOURCE                    PAL SOURCE


          640 X 480     FULL SIZE     768 X 576
          320 X 240     CIF SIZE      384 X 288
          160 X 120     QCIF SIZE     192 X 144


24 BIT RGB MODE SELECTED ON GRAPHICS ADAPTER AND VIDEO I/O
```

```
     NTSC SOURCE                         PAL SOURCE

             320 X 240      CIF SIZE        384 X 288
             160 X 120      QSIF SIZE       192 X 144
```

Table #1 Video Monitoring with a supported graphics adapter

Compression/Decompression Guest Card (FC2405)

The compression/decompression of video is supported with the M-JPEG algorithm in either the compression or decompression mode. This card supports full motion video capture and video out utilizing the enablements provided by the base video card mentioned previously. Video monitoring concurrent with M-JPEG compression is supported.

When compression is required, the quality or compression information is provided by the user through a software interface whereas the decompression file sent to the adapter contains the necessary information for software to automatically interpret the necessary command and control information for the user.

Video out images may be accepted as either full size NTSC or PAL or CIF size NTSC or PAL from the system. Scaling of the CIF size images to full size NTSC, PAL or S-video images for video out is featured through support on the base card.

The Video I/O adapter supports M-JPEG compression and capture of video in to CIF or full size frames with concurrent monitoring of the video. The video may be viewed in an X-window in 8 bit dithered or 24 bit RGB on a supported graphics adapter at CIF size (320 x 240 NTSC. 384 x 288 PAL).

External Connections

Four external connectors are provided for video:

    S-VHS mini din jack for video in

    C-VBS RCA type jack for video in

    S-VHS mini din jack for video out

    C-VBS RCA type jack for video out

System Interface

The Video I/O adapter card functions as a 32 bit Micro Channel bus master accepting streaming data and address in 32 bit widths. Parity checking is enabled on both address and data lines. Programmable Option Select (POS) is provided for software initialization.

Cabling

No cabling is supplied with the Video I/O adapter.

Programming Interface

Ultimedia Services for AIX 1.2 or later supplies the necessary device driver API and support GUI interfaces.

Hardware Requirements

IBM Ultimedia Video I/O Adapter

One Micro Channel slot is required for the IBM Ultimedia Video I/O Adapter

One Incremental Cooling Fan (#6506) is required for the IBM Ultimedia Video I/O Adapter (#2404) on machine type 7013.

If the IBM Video I/O compression/decompression Guest Card is attached, only one Micro Channel slot is required for both cards.

POWER GXT155L

One 601 slot is required for the GXT155L Graphics Adapter.

IBM Ultimedia Audio Adapter

One half length Micro Channel slot is required for the IBM Ultimedia Audio Adapter.

Programming Requirements

IBM Ultimedia Video I/O Adapter

AIX/6000* Version 3.2.5 for RS/6000 (5756-030)

AIXwindows Environment/6000 (5601-257) Version 1.2.3.

Ultimedia Services for AIX 5696-709) Version 1.2.1 or later

or

AIX/6000(R) Version 4.1 (5765-393) with AIXwindows 2D and SOMobject Base Tool Kit installed

Ultimedia Services for AIX (5696-906) Version 2.1.1 or later

IBM Ultimedia Audio Adapter Select

AIX/6000* Version 3.2.5 for RS/6000 (5756-030)

AIXwindows Environment/6000 (5601-257) Version 1.2.3.

Ultimedia Services for AIX 5696-709) Version 1.2 or later

or

AIX/6000* Version 4.1 (5765-393) with AIXwindows 2D and SOMobject Base Tool Kit installed

Ultimedia Services for AIX (5696-906) Version 2.1 or later

POWER GXT155L

AIX Version 3.2.5 for RS/6000 enhancement 6, (5756-030)
AIXwindows Environment/6000 Version 1.2.5 (support for X11R5) (5601-257) or higher is required for installation of this graphics adapter. For customers requiring 3D software support for OpenGL, PEX and PHIGS, the AIXwindows 3D feature is required.

OR

IBM AIX Version 4.1.1 or later, at the level, including any updates, that is current at the time these features are available. For customers requiring 3D software support for OpenGL, OpenGL and GL 3.2 Version 4.1 for AIX is required. For customers requiring 3D software support for PEX and PHIGS, PEX and PHIGS Version 4.1 for AIX is required.

Physical Interface Specifications

Key Input Parameters
NTSC composite video, digitized to 4:2:2 YCrCb, 75 ohms

PAL composite video, digitized to 4:2:2 YCrCb, 75 ohms

NTSC S-video input

PAL S-video input

Key Output Parameters
NTSC composite video, 75 ohms, S/N 45db typical

PAL composite video, 75 ohms, S/N 45db typical

NTSC S-video output

PAL S-video output

Connector Type
CVBS In RCA Jack

CVBS Out RCA Jack

S-video In 4 position S-video MINI-DIN Jack

S-video Out 4 position S-video MINI-DIN Jack

(#2835) SCSI High-Performance External I/O Controller

(For IBM US, No Longer Available as of July 6, 1999)

Provides high-performance attachment of single ended SCSI disk drives, CD-ROM and tape devices. This feature and the appropriate cables provides for the attachment of up to seven SCSI devices external to the system unit (6 meters, 19.6 feet maximum). Up to four SCSI controllers (#2835) are supported on the 370.

Characteristics:

The adapter conforms to ANSI Doc X3.131 - 1986

Accepts multiple commands per device at a time from system

SCSI burst data rate 4.0 MB per second (synchronous protocol)

Acts as SCSI initiator (command issuer)

SCSI parity support

Micro Channel Interface:
4 byte (32-bit) Bus Master

Streaming Data Support

Address and Data Parity Support

Standard Micro Channel form factor card

(#2410) SCSI-2 High-Performance External I/O Controller

(For IBM US, No Longer Available as of January 10, 1997)

Provides high-performance attachment of external single ended SCSI and SCSI-2 devices. The SCSI-2 Controller allows up to 10 MB per second data rate for SCSI-2 devices and supports Command Tagged Queuing. This feature provides for the attachment of one IBM 9334 Expansion Unit or up to four external IBM supported SCSI devices with IBM supported cables. Maximum SCSI bus length of 3.75 meters (12.3 feet) with IBM supported cables (#2836 and #3130) or 3.0 meters (9.8 feet) with non-IBM supported cables. Maximum cable length for the attachment of the IBM 9334 Expansion Unit is approximately 6 meters (19.6 feet) with the IBM supported cables. Up to four SCSI controllers (#2410) are supported on the 370.

Characteristics:

Adapter conforms to ANSI Doc X3T9.2/86-109 rev 10h

Accepts multiple commands per device at a time from system

SCSI-2 data rate of up to 10.0 MB per second (synchronous protocol)

Acts as SCSI initiator (command issuer)

Acts as SCSI target to commands from another initiator

SCSI parity support

Standard Micro Channel form factor card

Micro Channel Interface:
4-byte (32-Bit) Bus Master

Streaming Data Support

Address and Data Parity Support

Supports Command Tagged Queuing (as SCSI initiator)

(#2415) IBM SCSI-2 Fast/Wide Adapter/A

(For IBM US, No Longer Available as of November 16, 1999)

The IBM SCSI-2 Fast/Wide Adapter/A is a dual ported fast (10 MHz) and wide (2 bytes wide) SCSI-2 Micro Channel Adapter that can provide synchronous SCSI bus data rates of up to 20 megabytes per second. It provides high performance attachment to single ended (SE) SCSI disks, CD-ROMs, tape devices, read/write (R/W) optical devices, and storage subsystems. The maximum data rate is dependent on the maximum data rate of the devices.

The IBM SCSI-2 Fast/Wide Adapter/A has one internal SE port and one external SE port. Each SE port is capable of addressing up to seven SE SCSI devices. The number of physical devices attached to each port is limited by SCSI bus cabling restrictions. The internal port of this adapter supports either 8-bit or 16-bit devices via a 8-bit or 16-bit connector. Only one of these two connectors may be used at one time. (Devices of different bus attachment widths cannot be connected/used at the same time.) External cabling may be up to 6 meters (19.6 feet) when attached to the 9334-010 or 9334-500, 3 meters when attached to anything else and is supplied by the attaching device.

Characteristics:

Controller conforms to ANSI Doc X3T9.2/86-109 rev 10h

Accepts multiple commands per device from system

SCSI-2 data rate of up to 20 Mb per second (synchronous protocol)

Acts as SCSI initiator (command issuer)

SCSI parity support

Micro Channel Interface
4 byte (32-Bit) Bus Master

Streaming Data Support (40 Mb/sec burst)

Address and Data Parity Support

Occupies one Micro Channel slot

Supports Command Tagged Queuing (as SCSI initiator)

Note: System IPL cannot occur from a device attached through this adapter.

(#2416) IBM SCSI-2 Differential Fast/Wide Adapter/A

(For IBM US, No Longer Available as of January 30, 1998)

The IBM SCSI-2 Differential Fast/Wide Adapter/A is a dual ported fast (10 MHz) and wide (2 bytes wide) SCSI Micro Channel Adapter that can provide synchronous SCSI bus data rates of up to 20 megabytes per second. The SCSI-2 Differential Fast/Wide Adapter/A provides high performance attachment to Differential SCSI disks, disk subsystems, tape devices, and read/write optical subsystems. The maximum data rate is dependent on the maximum data rate of the device. The IBM SCSI-2 Differential Fast/Wide Adapter/A has one internal single ended port and one external Differential port. The internal port is capable of addressing up to seven single ended devices, the external port is capable of addressing up to seven differential devices. The number of physical devices attached to each port is limited by SCSI bus cabling restrictions. The internal port of this adapter supports either 8-bit or 16-bit devices via a 8-bit or 16-bit connector. Only one of these two connectors may be used at one time. (Devices of different bus attachment widths cannot be connected/used at the same time.) The external Differential SCSI bus is capable of supporting cable lengths of 25 meters (82 feet).

Additional system, subsystem, and high availability connections are also now available with the differential system-to-system and Y-cable features.

Characteristics:

Controller conforms to ANSI Doc X3T9.2/86-109 rev 10h

Accepts multiple commands per device from system

SCSI-2 data rate of up to 20 Mb per second (synchronous protocol)

Acts as SCSI initiator (command issuer)

SCSI parity support

Micro Channel Interface
4 byte (32-bit) Bus Master

Streaming Data Support (40 Mb/sec burst)

Address and Data Parity Support

Occupies one Micro Channel slot

Supports Command Tagged Queuing (as SCSI initiator)

Note: System IPL cannot occur from a device attached through this adapter.
(#2420) SCSI-2 Differential High-Performance External I/O Controller

(For IBM US, No Longer Available as of January 10, 1997)

The SCSI-2 Differential High-Performance External I/O Controller provides attachment of external SCSI-2 differential devices and is the recommended SCSI controller for increased availability configurations. The SCSI-2 differential controller features improved SCSI bus signal cable quality over the current SCSI controllers FC #2410 and #2835 and a maximum SCSI bus length of up to 19-meters (62.3 feet). The SCSI-2 Differential Controller supports up to a 10-MB/second data rate for SCSI-2 differential devices and supports Command Tagged Queuing.

Increased storage capacity per adapter of up to 96 GB of user- available protected storage with 2 IBM 7135 RAIDiant Arrays

Provides attachment of up to 7 external SCSI-2 differential devices

Supports attachment of the IBM 3490E models C11 and C22 Tape Drives

Supports attachment of the IBM 3490E models E01 and E11 Tape Drives

Supports attachment of up to 2 IBM 9334-501 differential expansion units per controller

Cabling is ordered with the IBM 9334, IBM 7135, and by also ordering the SCSI-2 Differential Y-Cable (#2422) and SCSI-2 Differential System- to-System Cable (#2423). Up to two SCSI controllers (#2420) are supported on the 370.

Characteristics:

Controller conforms to ANSI Doc X3T9.2/86-109 rev 10h

Accepts multiple commands per device at a time from system

SCSI-2 data rate of up to 10.0 MB/second (synchronous protocol)

Acts as SCSI initiator (command issuer)

Acts as SCSI target to commands from another initiator

SCSI parity support

Occupies one Micro Channel slot

Micro Channel interface:
   4-byte (32-bit) bus master

   Streaming data support

   Address and data parity support

Supports Command Tagged Queuing (as SCSI initiator)

(#6211) High-Performance Disk Drive Subsystem Adapter (80 MB/sec)

(For IBM US, No Longer Available as of October 25, 1996)

The High-Performance Disk Subsystem Adapter supports attachment of the IBM 9333 Model 500 High-Performance Disk Drive Subsystem. Up to four subsystems may be attached to each adapter. Only one adapter (#6211) is supported on the 360/370 systems. Cables for attaching the IBM 9333 Model 500 Subsystem are included with the subsystem. Up to two adapters can be attached to a RS/6000.

(#6212) High-Performance Subsystem Adapter (40/80 MB/sec)

(For IBM US, No Longer Available as of March 19, 1999)

The High-Performance Subsystem Adapter (40/80 MB/sec) allows attachment of four (per adapter) IBM 9333 High-Performance Disk Drive Subsystems to a RS/6000. Maximum storage per subsystem is 8.0 GB, increasing the maximum storage per High-Performance Subsystem Adapter (40/80) to 32 GB. The High-Performance Subsystem Adapter (40/80) supports mixed configurations of new and current models of the IBM 9333 High-Performance Disk Drive Subsystem. This adapter has been designed to minimize data and command processing times. Up to 4 subsystems may be attached to each system adapter without degrading the subsystem performance. Up to two adapters can be attached to a RS/6000.
Note: This adapter can be used in place of the High-Performance Subsystem Disk Adapter (40 MB/sec) (#6211).

(#6214) SSA 4-Port Adapter

(For IBM US, No Longer Available as of July 18, 1997)

Feature Code 6214 provides Serial Storage Architecture (SSA) connections that can be configured to provide two SSA loops. Each loop will support the attachment of up to 48 devices (96 devices per adapter) for a total disk drive capacity of 432 GB, using 4.5 GB disk drives.

The SSA 4-Port Adapter supports mixing of 7133 SSA disk subsystems and 7131 Multi-Storage Towers model 405 on the same loop with AIX Version 4.1.4 software. This adapter (FC 6214) also supports multiple 7131 Multi-Storage Towers model 405 up to a maximum of 48 disks per loop with AIX Version 4.1.4 software.

Note: The 7131 model 405 is not supported on any model of RS/6000 type 7015.

Characteristics:

Standard Micro Channel Type 5 form factor card

Micro Channel Interface:

8 byte Bus Master

Streaming Data Support (40 MB/sec or 80 MB/sec burst)

Address and Data Parity Support
Occupies one Micro Channel Slot

Supports up to 3000 I/O ops/sec

Note: Actual performance levels are dependent on system and application configurations.
Limitation: The SSA 4-Port Adapter only supports boot capability with AIX 4.1.4 on certain RS/6000 systems (models 591 and R21). For all other systems, the SSA 4-Port Adapter (FC 6214) does not provide AIX boot support for an attached SSA disk(s) and as a result, rootvg information cannot be stored on an SSA disk for proper operation.

```
Attributes provided:  2 SSA loops
Attributes required:  1 Micro Channel Slot

For 7012-370:
 Minimum required: 0
  Maximum allowed: 2
  AIX level required: AIX 3.2.5
  Initial Order/MES/Both/Supported: Supported
```

(#6216) Enhanced Serial Storage Architecture (SSA) 4-Port Adapter

(For IBM US, No Longer Available as of October 6, 1999)

Feature Code 6216 provides Serial Storage Architecture (SSA) connections that can be configured to provide two SSA loops. Each loop will support the attachment of up to 8 initiators and up to 48 devices (96 devices per adapter) for a total disk drive capacity of 432GB, using 4.5GB disk drives.

Characteristics:

Standard Micro Channel Type 5 form factor card

Micro Channel Interface:
Streaming Data Support (40 or 80 MB/sec burst)

Address and Data Parity Support

Occupies one Micro Channel Slot

Supports up to 3000 I/O ops/sec

Up to 8 initiators per loop.

Note: Actual performance levels are dependent on system and application configurations.

Attributes provided: 2 SSA loops

Attributes required: 1 Micro Channel Slot

For 7012-370:
Minimum required: 0

Maximum allowed: 2

OS level required: AIX Version 3.2.5, 4.1.4, or 4.2

Initial Order/MES/Both/Supported: Both

(#6217) IBM SSA 4-Port RAID Adapter

(For IBM US, No Longer Available as of July 24, 1998)

The IBM SSA 4-Port RAID Adapter (#6217) is a high-performance RAID 5 Array adapter. The SSA 4-Port RAID adapter offers RAID 5 function (which provides protection to the customer's data in the unlikely event of a disk drive failure) as well as non-RAID SSA (JBOD) attachment to both the 7133 and 7131 SSA disk drive subsystems.

Attributes provided: SSA 4-Port RAID 5 single initiator or non-RAID SSA single initiator.

Attributes required: 1 Micro Channel Slot

For 7012-370:
Minimum required: 0

Maximum allowed: 2 (Initial order maximum: 2)

OS level required: AIX Version 4.1.5 or higher

Initial Order/MES/Both/Supported: Both

(#6219) Micro Channel SSA Multi-Initiator/RAID EL Adapter

(For IBM US, No Longer Available as of October 17, 2001)

The Micro Channel SSA Multi-Initiator/RAID EL Adapter, FC #6219, can be configured as either a two initiator non-RAID, or one initiator RAID adapter. After July 31, 1998, new microcode will allow FC #6219 to be configured as either a eight initiator non-RAID, or two initiator RAID adapter. It also has been enabled to support an optional 4 MByte Fast-Write Cache card that improves write performance in both RAID 5 or Non-RAID (one initiator configurations) operations. The Micro Channel SSA Multi-Initiator/RAID EL Adapter, FC #6219, has four ports, two SSA loops, and a supported configuration of 48 SSA disk drives per loop or 96 SSA disk drives per FC #6219. The adapter supports target mode operations and HACMP.

The Micro Channel SSA Multi-Initiator/RAID EL Adapter, FC #6219, when operated in a RAID 5 configuration will support (2+P) to (15+P) arrays and up to 6 (15+P) arrays. The adapter also supports Hot Spares in RAID 5 mode.

All models of the 7133 are supported as well as the 7131-405 and internal RS/6000 SSA disk drive configurations. The SSA Fiber-Optic Extender is also supported.
Note: After July 31, 1998, all current customers with a PCI or the Micro Channel SSA Multi-Initiator/RAID EL Adapter may obtain the enhancement upgrade microcode by downloading the code from the following Internet URL:

http://www.rs6000.ibm.com/support/micro/download.html
If downloading from the Web is not convenient or available, upgrade microcode on CD-ROM can be obtained after July 31, 1998 by ordering RPQ 8A1096.

> For 7012-370:
>> Minimum required: 0
>>
>> Maximum allowed: _2_ (Initial order maximum: _2_)
>>
>> OS level required: AIX 4.1.5, AIX 4.2.1 or AIX 4.3.0
>>
>> Initial Order/MES/Both/Supported: MES

When performing SSA device or subsystem planning, installation, upgrades, or preventive maintenance, refer to the following Web support pages. They provide access to the latest SSA publications and support code for the system, SSA adapters, and SSA subsystems.

These sites should also be considered during system hardware and/or operating system upgrades if SSA devices are included in the system.

http://www.hursley.ibm.com/ssa/
Contains links to SSA publications and other SSA Web sites, including the one below.

http://www.hursley.ibm.com/ssa/rs6k/
Contains lists of the latest SSA support code and provides code download capability for the RS/6000 and AIX environments.

(#6222) SSA Fast-Write Cache Option Card

(For IBM US, No Longer Available as of October 17, 2001)

The SSA Fast-Write Cache Option Card, FC #6222, is a 4 MByte fast- write optional feature that will plug into either SSA Multi-Initiator/RAID EL Adapter (FC #6215 or FC #6219). It utilizes non- volatile RAM and has a data memory retention of over seven years. During the unlikely event of an SSA Multi-Initiator/RAID EL Adapter failure, a new SSA Multi-Initiator/RAID EL Adapter be installed and the SSA Fast-Write Cache Option Card (FC #6222) can be removed from the failing adapter and installed in the new SSA Multi-Initiator/RAID EL Adapter insuring data integrity.

The SSA Fast-Write Cache Option Card (#6222) can provide as much as as 10-times improvement of data throughput and response time during certain sequence write operations compared to SSA RAID adapters without the SSA Fast-Write Cache. The response time and data transfer improvement using the option card

(#6222), will vary depending upon the data block sizes, the percentage of sequential writes, machine type/model and application parameters.

The SSA Fast-Write Cache Option Card (#6222) plugged into either SSA Multi-Initiator/RAID EL Adapter (#6215 or #6219) will operate in either Non-RAID or RAID 5 mode, in a one initiator configuration.

> Attributes required: Adapter (#6215) or (#6219)
>
> For 7012-370:
>> Minimum required: 0
>>
>> Maximum allowed: _2_ (Initial order maximum: _2_)
>>
>> OS level required: AIX 4.1.5, AIX 4.2.1 or AIX 4.3.0
>>
>> Initial Order/MES/Both/Supported: MES

Cables

(#2424) 0.6m 16-bit SCSI-2 Differential System to System Cable

(No Longer Available as of December 10, 2004)

The 0.6m 16-bit SCSI-2 Differential System to System Cable provides for the connection between two or more RS/6000 processors that each have a SCSI-2 Differential Fast/Wide Adapter/A (#2416) and a SCSI-2 Differential Fast/Wide Y-Cable (#2426) (16-bit). This 68-pin cable is 0.6 meters (22.7 in.) in length.

(#2425) 2.5m 16-bit SCSI-2 Differential System to System Cable

(No Longer Available as of June 23, 2006)

This cable provides for the connection between two or more RS/6000 processors that each have a SCSI-2 Differential Fast/Wide Adapter/A (#2416) and a SCSI-2 Differential Fast/Wide Y-Cable (#2426) (16-bit) installed. This 68-pin cable is 2.5 meters (8.2 feet) in length.

(#2426) 16-bit Y-Cable for IBM SCSI-2 Differential Fast/Wide Adapter/A

(For IBM US, No Longer Available as of December 3, 2001)

This Y-Cable provides attachment and termination of an IBM 16-bit SCSI-2 Differential device/subsystem to two separate RS/6000 systems which each have a SCSI-2 Differential Fast/Wide Adapter/A (#2416) installed. This is particularly desirable in increased availability environments. Each system requires a Y-cable. The Y-cable is attached to the cabling that comes with the 16-bit SCSI-2 Differential device/subsystem. A SCSI-2 Differential Terminator is included. The Y-cable is .940 meters (37 inches) in length.

(#2427) 8-bit Y-Cable for IBM SCSI-2 Differential Fast/Wide Adapter/A

(For IBM US, No Longer Available as of January 30, 1998)

This Y-Cable provides attachment and termination of an IBM 8-bit SCSI-2 differential device/subsystem to two separate RS/6000 systems which each have a SCSI-2 Fast/Wide Differential Adapter/A (#2416) installed. This is particularly desirable in increased availability environments. Each system requires a Y-cable. The Y-cable is attached to the cabling that comes with the 8-bit SCSI-2 Differential device/subsystem. A SCSI-2 Differential Terminator is included. The Y-cable is .765 meters (30 inches) in length.

(#2435) 16-bit IBM SCSI-2 Fast/Wide Adapter/A to Dual Ported Device Cable

(For IBM US, No Longer Available as of December 3, 2001)

The 16-bit IBM SCSI-2 Fast/Wide Adapter/A to Dual Ported Device Cable provides attachment from the IBM SCSI-2 Fast/Wide Adapter/A (#2414, #2415) to the first 16-bit single ended dual ported device on the SCSI bus. The cable is 1.5 meters (59 inches) in length.

(#2436) 16-bit IBM SCSI-2 Differential Fast/Wide Adapter/A to Dual Ported Device Cable

(For IBM US, No Longer Available as of December 3, 2001)

The 16-bit IBM SCSI-2 Differential Fast/Wide Adapter/A to Dual Ported Device Cable provides attachment from the IBM SCSI-2 Differential Fast/Wide Adapter/A (#2413, #2416) to the first 16-bit differential dual ported device on the SCSI bus. The cable is 1.5 meters (59 inches) in length.

(#2437) 8-bit IBM SCSI-2 Fast/Wide Adapter/A to Dual Ported Device Cable

(For IBM US, No Longer Available as of December 3, 2001)

The 8-bit IBM SCSI-2 Fast/Wide Adapter/A to Dual Ported Device Cable provides attachment from the IBM SCSI-2 Fast/Wide Adapter/A (#2414, #2415) to the first 8-bit single ended dual ported device on the SCSI bus. The cable is 1.5 meters (59 inches) in length.

(#2438) 8-bit IBM SCSI-2 Differential Fast/Wide Adapter/A to Dual Ported Device Cable

(For IBM US, No Longer Available as of January 30, 1998)

The 8-bit IBM SCSI-2 Differential Fast/Wide Adapter/A to Dual Ported Device Cable provides attachment from the IBM SCSI-2 Differential Fast/Wide Adapter/A (#2413, #2416) to the first 8-bit differential dual ported device on the SCSI bus. The cable is 1.5 meters (59 inches) in length.

(#2439) 8-bit IBM SCSI-2 Fast/Wide Adapter/A to Single Ported Device Cable

(For IBM US, No Longer Available as of December 3, 2001)

The 8-bit IBM SCSI-2 Fast/Wide Adapter/A to single Ported Device Cable provides attachment from the IBM SCSI-2 Fast/Wide Adapter/A (#2414, #2415) to the first 8-bit single ended single ported device on the SCSI bus. The cable is 1.5 meters (59 inches) in length.

(#2832) SCSI Controller Cable

(For IBM US, No Longer Available as of July 6, 1999)

Required from the SCSI I/O Controller (#2835) to the first external device. The cable is 1.5 meter (5 feet) in length. Includes terminator.

(#2833) Integrated SCSI Controller Cable

(For IBM US, No Longer Available as of December 31, 1999)

The SCSI Controller cable (#2833) connects the 50-pin integrated SCSI controller on a RS/6000 system unit planar board to the first external SCSI device. The cable is 1.48 meters (5 feet) in length. It provides two 50-pin industry-standard connectors on the device end for attachment of SCSI devices having one or two industry standard SCSI signal ports. Includes terminator.

(#2836) SCSI-2 Controller Cable

(For IBM US, No Longer Available as of December 31, 1999)

Connects the 50-pin high density SCSI-2 Controller (#2410) connector to the first external SCSI device. The cable is 1.57 meters (5.2 feet) in length and provides two 50-pin industry-standard connectors on the device end for attachment of SCSI devices having one or two industry standard SCSI Signal ports. Includes SE (single ended) terminator.

(#2914) SCSI-2 Passthrough Terminator Cable

(For IBM US, No Longer Available as of July 13, 1993)

This cable connects the 50-pin high density SCSI-2 Controller (#2410) connector to the first external device and is designed to provide uninterrupted termination of a shared SCSI bus by two host systems. Each system must have the Passthrough Terminator Cable installed as the first device cable. Whenever either one of the host systems is powered off and removed from the SCSI bus for service, the SCSI bus remains terminated and operational for the other host system.

A maximum of three external devices may be attached to a shared SCSI-2 bus, not to exceed 4.5 meters (14.8 feet) in length.

(#2915) SCSI Controller Passthrough Terminator Cable

(For IBM US, No Longer Available as of July 13, 1993)

The SCSI Controller Passthrough Terminator Cable is designed to provide uninterrupted termination of a shared SCSI bus by two host systems. Each system must have the Passthrough Terminator Cable installed on a SCSI High-Performance External I/O Controller (#2835). Whenever either one of the host systems is powered off and removed from the SCSI bus for service, the SCSI bus remains terminated and operational for the other host system.

A maximum of five external devices may be attached to a shared SCSI bus, not to exceed 6 meters (19.6 feet) in length.

(#3130) SCSI Device-to-Device Cable

(For IBM US, No Longer Available as of March 19, 1999)

Required from device to device if more than one external device is attached. This cable is .66 meter (2.2 feet) in length.

(#2422) SCSI-2 Differential Y-Cable

(For IBM US, No Longer Available as of January 30, 1998)

The SCSI-2 Differential Y-Cable provides attachment and termination of an IBM 9334 to 2 separate RS/6000 systems. This is particularly desirable in increased availability environments. Each system requires a Y-cable. The Y-cable is attached to the cabling that comes with the IBM 9334 Differential Terminator which is included with the SCSI-2 Differential Y-Cable feature. The Y-cable is 0.765 meter (30 inches) in length.

(#2423) SCSI-2 Differential System-to-System Cable

(For IBM US, No Longer Available as of January 30, 1998)

The SCSI-2 Differential System-to-System Cable provides for the connection between 2 or more RS/6000 processors that each have a SCSI-2 Differential High-Performance I/O Controller (FC #2420) and a SCSI-2 Differential Y-Cable (FC #2422) installed. This cable can be used in conjunction with the target mode function of the adapter to enable system-to-system communication across the SCSI bus at up to 10 MB. This 50-pin cable is 2.5 meters (8.2 feet) in length.

(#8135) 64-Port to 128-Port Pin-out Converter

(For IBM US, No Longer Available as of July 31, 2001)

The 64-Port to 128-Port Pin-out Converter allows customers with devices attached to 64-Port Concentrators to attach them to a 128-Port Remote Asynchronous Node EIA232.

Asynchronous Communications Adapters

(#2930) 8-Port Async Adapter - EIA-232

(For IBM US, No Longer Available as of December 1, 2000)

This adapter attaches up to eight EIA-232 asynchronous serial devices (terminals, modems, printers, etc.). Multiples (up to four) of this adapter can be installed. The adapter contains all of the electronics required to support eight asynchronous ports and utilizes one I/O card slot. The eight connectors for device attachment are provided in a Multiport Interface Cable (#2995). The 8-Port Async Adapter - EIA-232 is designed to comply with requirements for EIA-232D and CCITT Recommendations V.24/V.28 Series 100 (Start-Stop).

Characteristics:

Standard Micro Channel form factor card

Data rates up to 38.4K bps per port

16 byte buffering on transmit and receive

Single 78-pin output connector (the Multiport Interface Cable assembly attaches to this connector)

Supports the following interface signals: TxD, RxD, RTS, CTS, DSR, DCD, DTR, and RI

Supports cabling up to 61 meters (200 feet)

Full set of modem control lines required for asynchronous communication.

8-bit/16-bit Micro Channel slave interface

(#2940) 8-Port Async Adapter - EIA-422A

(For IBM US, No Longer Available as of March 19, 1999)

This adapter attaches up to eight EIA-422A asynchronous serial devices (terminals, printers, etc.). Multiples (up to four) of this adapter can be installed. The adapter contains all of the electronics required to support eight asynchronous ports and utilizes one I/O card slot. The eight connectors for device attachment are provided in a Multiport Interface Cable (#2995). The 8-Port Async Adapter - EIA-422A is designed to comply with requirements for EIA-422A.

Characteristics:

Standard Micro Channel form factor card

Data rates up to 38.4K bps per port

16 byte buffering on transmit and receive

Single 78-pin output connector (the Multiport Interface Cable assembly attaches to this connector)

Supports the following interface signals: TxD and RxD

Surge protection circuitry

Supports cabling up to 1200 meters (4000 feet)

8-bit/16-bit Micro Channel slave interface

(#2950) 8-Port Async Adapter - MIL-STD 188

(For IBM US, No Longer Available as of May 20, 1996)

This adapter attaches up to eight asynchronous serial devices (terminals, printers, etc.) which meet the requirements of the MIL-STD 188-114 for unbalanced voltage digital interface. Multiples (up to four) of this adapter can be installed. The adapter contains all of the electronics required to support eight asynchronous ports and utilizes one I/O card slot. The eight connectors for device attachment are provided in a Multiport Interface Cable (#2995). The 8-Port Async Adapter - MIL-STD 188 is designed to comply with requirements specified in the military standard MIL-STD 188-114 dated March 24, 1976 (unbalanced voltage digital interface).

Characteristics:

Standard Micro Channel form factor card

Data rates up to 38.4K bps per port

16 byte buffering on transmit and receive

Single 78-pin output connector (the Multiport Interface cable assembly attaches to this connector)

Supports cabling up to 30 meters (100 feet) at 38K bps and 61 meters (200 feet) at 19.2K bps

Supports the following interface signals: TxD, RxD, RTS, CTS, DSR, DCD, DTR, and RI

8-bit/16-bit Micro Channel slave interface

(#2955) 16-Port Async Adapter - EIA-232

This adapter attaches up to sixteen EIA-232 asynchronous serial devices. Multiples (up to four) of this adapter can be installed. The adapter contains all of the electronics required to support sixteen asynchronous ports and utilizes one I/O card slot. The sixteen connectors for device attachment are provided in a 16-Port Interface Cable - EIA-232 (#2996). The 16-Port Async Adapter - EIA-232 is designed to comply with the electrical characteristics requirements for EIA-232D.

Characteristics:

Standard Micro Channel form factor card

Data rates up to 38.4K bps per port

16 byte buffering on transmit and receive

Single 78-pin output connector

Supports the following interface signals: TxD, RxD, DCD, and DTR;

RTS is always high

Supports cabling up to 61 meters (200 feet)

8-bit/16-bit Micro Channel slave interface

(#2957) 16-Port Async Adapter - EIA-422A

(For IBM US, No Longer Available as of March 19, 1999)

This adapter attaches up to 16 EIA-422A asynchronous serial devices (terminals, printers, etc.). Multiples (up to four) of this adapter can be installed. The adapter contains all of the electronics required to support sixteen asynchronous ports and utilizes one I/O card slot. The sixteen connectors for device attachment are provided in a 16-Port Interface Cable - EIA-422A (#2997). The 16-Port Async Adapter - EIA-422A is designed to comply with requirements for EIA-422A.

Characteristics:

Standard Micro Channel form factor card

Data rates up to 38.4K bps per port

16 byte buffering on transmit and receive

Single 78-pin output connector

Supports the following interface signals: TxD and RxD

Surge protection circuitry

Supports cabling up to 1200 meters (4000 feet)

8-bit/16-bit Micro Channel slave interface

(#6400) 64-Port Async Controller

(#6401) 16-Port Async Concentrator

(#6402) RJ-45 to DP-25 Converter Cable

(For IBM US, No Longer Available as of August 18, 1993)

The 64-Port Async Controller provides attachment for a high concentration of asynchronous communication lines (64) from a single I/O slot.

The controller has connectors to attach up to four external 16-Port Async Concentrators (#6401).

A concentrator provides 16 connections for EIA-232 asynchronous devices (RI and DSR signals are not supported). Although application dependent, data rates up to 38.4 Kbps per port are supported.

A 7.6-m (25 ft) controller attachment cable is included with each concentrator (#6401) and cabling distances of up to 762 meters (2500 feet) between controller and concentrator are supported and are customer supplied. EIA-232 cabling of up to 61 meters (200 feet) between concentrator and device is supported

16-Port Async Concentrator (#6401) uses RJ-45 connectors for device attachment. The RJ-45 TO DB-25 Converter Cable (#6402) plugs in to the RJ-45 connector and provides a 25-pin D shell connector for device attachment. Four cables are provided per each #6402 feature order and each concentrator can accept a maximum of 16 cables.

A transformer which supplies power to the 16-Port Async Concentrator (#6401) is included in the price of the (#6401) Concentrator but must be specified as a separate item on the order. For transformers #9115, #9117, and #9118, a power cord must be specified. The following (#6401) transformers and power cords are available:

Transformer 100 to 110 V AC - Specify Code (#9115)

Wall Mounted transformer 115 to 127 V AC - Specify Code (#9116)

Transformer 200 to 220 V AC - Specify Code (#9117)

Transformer 230 to 240 V AC - Specify Code (#9118)

The 911X voltage specify for the 64-port transformer must only be selected once per system.

Characteristics:

Standard Micro Channel form factor card

Maximum of 38.4 Kbps per port

Up to 2500 feet between controller and concentrator

Up to 200 feet from concentrator to device

Surge protection circuitry

Maximum of four per system

Supports the following interface signals: TxD, RxD, DTR, CTS, RTS, and DCD

8-bit/16-bit Micro Channel slave interface

(#8128) 128-Port Async Controller

(For IBM US, No Longer Available as of December 1, 2000)

(#8130) Remote Async Node 16-Port EIA232

(For IBM US, No Longer Available as of September 25, 1998)

The 128-Port Async Controller subsystem provides attachment for a high concentration of asynchronous lines (up to 128) from a single Micro Channel slot. Two synchronous channels link the adapter to a maximum of eight 16-Port Remote Async Nodes (#8130 - US and Canada only; #8134 - AP, EMEA, LA only); up to four 16-Port Remote Async Nodes can be linked to each synchronous channel. This configuration provides the ability to attach up to 128 EIA-232 devices per adapter.

One 4.5-meter (15-foot) cable (#8131 or customer-supplied cables) is available to connect the adapter to the first Remote Async Node on each synchronous channel. Additional Remote Async Nodes may be connected to each synchronous channel in a "daisy chain" configuration, using either the 4.5-meter (15-foot) cable (#8131) or the 23-cm (9-inch) cable (#8132), the shorter cable being recommended when stacking Remote Async Nodes. Customer-supplied cables may also be substituted.

The RJ-45 to DB-25 Converter Cable (#8133--quantity four per order) can be used to attach devices having a DB-25 connector to the Remote Async Nodes. One RJ-45 wrap plug and two Controller Line Terminator plugs are included with each adapter order. Each Remote Async Node order (#8130 or #8134) includes a US/Canadian or World Trade power supply, respectively; power supplies are not separately orderable in this product.

Characteristics:

Supports 128 ports per card

Maximum number of supported 128-Port Async Controller adapters per RS/6000 7012 system is four (depending upon slot availability)

Sustained throughput of 38.4 Kbps per port (half duplex) with 64 ports active and 15 Kbps per port (half duplex) with 128 ports active

Sustained 16-port remote Async node throughput of 38.4 Kbps per port (half duplex) with all ports active

Maximum EIA-232 distance supported is 62 meters (200 feet)

Supports the following interface signals: Tx, Rx, RTS, CTS, DTR, DSR, DCD, RI

Maximum external interface speed is 57.6 Kbps (Note: current AIX operating environment supports a maximum of 38.4 Kbps)

(#7002) IBM Realtime Interface Co-Processor Multiport/2 Adapter (0.5 MB)

(For IBM US, No Longer Available as of May 20, 1996)

The IBM Realtime Interface Co-Processor Multiport/2 adapter has been designed to function as a subsystem to offload tasks such as communications control, data/protocol conversions, and optional device interfaces from the RS/6000. The adapter features 512 KB of user storage, seven selectable interrupt levels, nine programmable hardware timers, watchdog timer, and watchdog timer status-indicator.

With attachment of the appropriate Interface Board, ports 0 and 1 can operate at speeds up to 38,400 bps using Direct Memory Access (DMA). One port can operate at 38,400 bps full duplex while a second is operating at a maximum of 19,200 bps full duplex. All eight ports may be operated concurrently at 9.6 Kbps. The first two ports can be programmed for asynchronous, bit synchronous, and character synchronous protocols, using either DMA or interrupt mode, whereas the remaining ports are asynchronous using interrupt mode.

The Co-Processor's memory is dual-ported. Communications between the Co-Processor and the RS/6000 are done via I/O ports and shared memory. Communications are synchronized by interrupts between the Co-Processor and the system unit (interrupt levels are selectable).

Timer support is also provided. There may be up to 255 software timers set within increments ranging from 5 milliseconds to 327 seconds. The watchdog timer is used to signal an error condition should the Co-Processor fail.

The microcode for the IBM Realtime Interface Co-Processor is included with the Co-Processor feature and is shipped on 3.5-inch program media.

Characteristics:

Advanced high-performance Intel 80186 microprocessor

512 KB dual-ported memory with parity for error detection

Up to eight serial I/O ports available through family of interface boards and cables

19.2 Kbps full duplex async protocols and 38.4 Kbps full duplex HDLC/SDLC protocols supported on the first two ports

Asynchronous, bit synchronous, and character synchronous protocols supported on the first two ports; asynchronous protocols supported on the remaining ports

Nine programmable timers

Related Features:

Multiport/2 4-Port RS-232 Interface Board (#7022)

Multiport/2 6-Port RS-232-C Synchronous Interface Board (#7024)

Multiport/2 8-Port RS-232 Interface Board (#7026)

Multiport/2 8-Port RS-422-A Interface Board (#7028)

Multiport/2 RS-232/RS-422 Interface Board (#7030)

Multiport Interface Cable (#7102)

Synchronous Interface Cable (#7104)

(#7004) IBM Realtime Interface Co-Processor Multiport/2 Adapter (1 MB)

(For IBM US, No Longer Available as of May 20, 1996)

This adapter provides increased memory capacity of 1 megabyte on the IBM Realtime Interface Co-Processor Multiport/2 adapter. The 1 MB memory is dual-ported with parity for error detection.

Related Features:

Multiport/2 4-Port RS-232 Interface Board (#7022)

Multiport/2 6-Port RS-232-C Synchronous Interface Board (#7024)

Multiport/2 8-Port RS-232 Interface Board (#7026)

Multiport/2 8-Port RS-422-A Interface Board (#7028)

Multiport/2 RS-232/RS-422 Interface Board (#7030)

Multiport Interface Cable (#7102)

Synchronous Interface Cable (#7104)

(#7022) IBM Realtime Interface Co-Processor Multiport/2 Four-Port RS-232 Interface Board

(For IBM US, No Longer Available as of May 20, 1996)

This interface board provides four EIA RS-232/CCITT V.24 serial I/O ports for the IBM Realtime Interface Co-Processor family of adapters. The Interface Board attaches to the Co-Processor card and includes a 78-pin connector. Only those pins associated with ports 0 through 3 are electrically connected. Only one 4-Port RS-232 Interface Board can be attached to a Co-Processor card.

Related Features:

(FC 7002) - Multiport/2 Adapter (0.5 MB)

(FC 7004) - Multiport/2 Adapter (1Mb)

(FC 7102) - EIA RS-23C Multiport Interface Cable

```
Attributes provided: 4 EIA-232/CCIT V.24 ports
Attributes required: 1 Multiport/2 adapter EIB slot
```

(#7024) IBM Realtime Interface Co-Processor Multiport/2 Six-Port RS-232C Synchronous Interface Board

(For IBM US, No Longer Available as of May 20, 1996)

This board provides six synchronous EIA RS-232-C/CCITT V.24 serial I/O ports for the IBM Realtime Interface Co-Processor Multiport/2 adapters. The interface board attaches to the Co-Processor adapter and includes a 78-pin connector. Asynchronous, bit synchronous and character synchronous protocol hardware support is provided on all six ports. The interface board can support 38,400 bps full duplex HDLC/SDLC protocols on one of the first two ports. A second port supports speeds up to 19,200 bps full duplex. All six ports can be operated concurrently at 4,800 bps full duplex for HDLC/S DLC protocols or at 9,600 bps full duplex for asynchronous protocols.

Related Features:

> (FC 7002) - Multiport/2 Adapter (0.5 MB)
>
> (FC 7004) - Multiport/2 Adapter (1 Mb)
>
> (FC 7104) - Synchronous Interface Cable

```
Attributes provided: 6 EIA-232-C/CCIT V.24 ports
Attributes required: 1 Multiport/2 adapter EIB slot
```

(#7026) IBM Realtime Interface Co-Processor Multiport/2 Eight-Port RS-232 Interface Board

(For IBM US, No Longer Available as of May 20, 1996)

This board provides eight EIA RS-232/CCITT V.24 serial I/O ports for the IBM Realtime Interface Co-Processor Multiport/2 adapters. The Interface Board attaches to the Co-Processor card and includes a 78-pin connector.

Related Features:

> (FC 7002) - Multiport/2 Adapter (0.5 MB)
>
> (FC 7004) - Multiport/2 Adapter (1 Mb)
>
> (FC 7102) - EIA RS-232-C Multiport Interface Cable

```
Attributes provided: 8 EIA RS-232/CCIT V.24 ports
Attributes required: 1 Multiport/2 adapter EIB slot
```

(#7028) IBM Realtime Interface Co-Processor Multiport/2 Eight-Port RS-422A Interface Board

(For IBM US, No Longer Available as of May 20, 1996)

This interface board provides the hardware facilities for the Realtime Interface Co-Processor Multiport/2 adapter to support eight RS-422-A serial input/output ports. The board attaches to the Co-Processor adapter and includes a 78-pin connector. The interface board provides asynchronous, bit synchronous, and character synchronous protocol hardware support on the first port. Asynchronous hardware support is provided on the remaining ports. The first port can operate at 64,000 bps full duplex. Line speeds in excess of 64,000 bps can be achieved with appropriate adapter resident communication programs. All eight ports may be

operated concurrently at 9,600 bps full duplex.

Related Features:

> (FC 7002) - Multiport/2 Adapter (0.5 MB)
>
> (FC 7004) - Multiport/2 Adapter (1 Mb)
>
> (FC 7102) - EIA RS-232-C Multiport Interface Cable

```
Attributes provided: 8 RS-422-A ports
Attributes required: 1 Multiport/2 adapter EIB slot
```

(#7030) IBM Realtime Interface Co-Processor Multiport/2 RS-232/RS-422 Interface Board

(For IBM US, No Longer Available as of May 20, 1996)

This board provides support for four EIA RS-232/CCITT V.24 serial I/O ports, ports 0 through 3, and four EIA RS-422 serial I/O ports, ports 4 through 7. The Interface Board attaches to the Multiport/2 adapter card and includes a 78-pin connector.

Related Features:

> (FC 7002) - Multiport/2 Adapter (0.5 MB)
>
> (FC 7004) - Multiport/2 Adapter (1 Mb)
>
> (FC 7102) - EIA RS-232-C Multiport Interface Cable

```
Attributes provided: 4 EIA RS-232/CCITT V.24 ports
Attributes required: 1 Multiport/2 adapter EIB slot
```

(#7006) IBM Realtime Interface Co-Processor Portmaster Adapter/A (1 MB)

(For IBM US, No Longer Available as of December 1, 2000)

The IBM Realtime Interface Co-Processor Portmaster Adapter/A is a full-function Micro Channel bus master that complements and extends the capabilities of the IBM Realtime Interface Co-Processor family of adapters. Bus master extensions for the adapter include capabilities and services that address both adapter-to-system and adapter-to-adapter data transfers under Direct Memory Access (DMA) control. The adapter utilizes the multimaster capability of the Micro Channel bus architecture by taking control of the system unit bus and communicating directly with system memory or with other I/O adapters without interrupting the system unit processor.

Throughput speeds vary depending upon the number of ports operating concurrently and the software application. With the selection of the appropriate Interface Board, full-duplex rates of up to 64 Kbps running simultaneously on each of eight ports or up to 2.048 Mbps for a single port can be achieved with the IBM Realtime Interface Co-Processor Portmaster Adapter/A. High-speed data rates for multiple ports rely on the use of DMA; two channels are provided for each port. All ports can be programmed for asynchronous, bit synchronous, or character synchronous protocols, using either DMA or interrupt mode.

Timer support is also provided. There may be up to 255 software timers set with increments ranging from 5 milliseconds to 327 seconds. A watchdog timer is also provided.

Additional software is required to program the adapter, and must be ordered separately. Software support can be provided by IBM Realtime Interface Co-Processor AIX Support for RS/6000 (5696-038).

Cables for connection of I/O devices are also required and are the responsibility of the customer.

Characteristics:

   12.5-MHz Intel 80186 microprocessor

   Adapter-to-adapter and adapter-to-system Micro Channel bus master support

   Up to eight serial I/O ports (asynchronous or synchronous) available through a family of Interface Boards and cables

   Performance up to 64 Kbps full duplex for each of eight ports running concurrently

   Performance of up to 2.048 Mbps full duplex for single port

   Dynamically managed adapter storage

Related Features:

   8-Port RS-232 Interface Board/A (#7042)

   8-Port RS-422 Interface Board/A (#7044)

   6-Port V.35 Interface Board/A (#7046)

   8-Port Cable (#7108)

   6-Port V.35 Cable (#7106)

(#7008) IBM Realtime Interface Co-Processor Portmaster Adapter/A (2 MB)

(For IBM US, No Longer Available as of May 20, 1996)

This adapter provides increased memory capacity of 2 MB on the IBM Realtime Interface Co-Processor Portmaster Adapter/A feature. The 2 MB memory is dynamically-managed in multiples of 16-byte paragraphs.

Related Features:

   8-Port RS-232 Interface Board/A (#7042)

   8-Port RS-422 Interface Board/A (#7044)

6-Port V.35 Interface Board/A (#7046)

8-Port Cable (#7108)

6-Port V.35 Cable (#7106)

(#7026) IBM Realtime Interface Co-Processor Eight-Port RS-232 Interface Board/A

This board provides the appropriate drivers and receivers to support eight serial I/O ports of RS-232-D/CCITT V.24. Protocols for these electrical interfaces are user programmable. The interface board attaches to the Portmaster Adapter/A and includes a 100-pin connector for attachment to the Eight-Port Cable. Asynchronous or synchronous modes may be individually selected for each of the eight ports. All ports are supported at up to 38.4 Kbps full-duplex running concurrently. Actual performance may vary depending on the user's application.

Diagnostics packaged with this board include one 100-pin wrap connector and one copy of "Portmaster Co-Processor Adapters for RS/6000 Installation and Service" (system diagnostics are shipped with AIX/6000 Version 3.2).

Related Features:

Portmaster Adapter/A (1 MB) (#7006)

Portmaster Adapter/A (2 MB) (#7008)

8-Port Cable (#7108)

(#7028) IBM Realtime Interface Co-Processor Eight-Port RS-422 Interface Board/A

This interface board provides support for up to eight serial RS-422A ports. Protocols for these electrical interfaces are user programmable. The interface board attaches to the Portmaster Adapter/A and includes a 100-pin connector for attachment to the Eight-Port Cable. Asynchronous or synchronous modes may be selected individually for each of the eight ports.

The following full-duplex data rates are supported by IBM Realtime Interface Co-Processor Portmaster Adapter/A using this interface board:

One port, running alone
      synchronous, using external clocking at 2.048 Mbps

      asynchronous, using internal clocking at 115.2 Kbps

Eight ports, running concurrently
      synchronous, using external clocking at 64 Kbps

      synchronous, using internal DPLL clocking at 57.6 Kbps

      asynchronous, using internal clocking at 57.6 Kbps

Actual performance may vary depending on the user's application.

Diagnostics packaged with this board include one 100-pin wrap connector and one copy of "Portmaster Co-Processor Adapters for RS/6000 Installation and Service" (system diagnostics are shipped with AIX/6000 Version 3.2).

Related Features:

Portmaster Adapter/A (1 MB) (#7006)

Portmaster Adapter/A (2 MB) (#7008)

8-Port Cable (#7108)

(#7046) IBM Realtime Interface Co-Processor Six-Port V.35 Interface Board/A

(For IBM US, No Longer Available as of December 1, 2000)

This board provides attachment for up to six compatible V.35/V.36 electrical ports in conjunction with the Portmaster Adapter/A base card, and includes a 100-pin connector for attachment to the Six-Port V.35 Cable. The following full-duplex data rates are supported by IBM Realtime Interface Co-Processor Portmaster Adapter/A using this interface board:

One port, running alone
      up to 2.048 Mbps, using external clocking

Six ports, running concurrently
      up to 230 Kbps, using internal clocking

      up to 256 Kbps, using external clocking

Actual performance may vary depending on the user's application.

Diagnostics packaged with this board include one 100-pin wrap connector and one copy of "Portmaster Co-Processor Adapters for RS/6000 Installation and Service" (system diagnostics are shipped with AIX/6000 Version 3.2).

Related Features:

Portmaster Adapter/A (1 MB) (#7006)

Portmaster Adapter/A (2 MB) (#7008)

6-Port V.35 Cable (#7106)

ARTIC960 Coprocessor

The ARTIC960 coprocessor is a **high-speed, high through-put** co-processor adapter with multiple memory options designed to operate in 32-bit Micro Channel* bus compatible systems. The ARTIC960 coprocessor relieves the host from compute-intensive tasks associated with I/O communication applications and protocols. It also provides bus-mastering capabilities for peer to peer transfers across the Micro Channel bus. The ARTIC960 coprocessor's wide bandwidth provides co-processor performance at least 4-6 times that of previously released IBM ARTIC co- processors.

A **high-speed**, 4-Port multi-interface AIB offers either EIA-232D (asynchronous) or EIA-530 (RS422) or ISO 4903 (X.21) or ISO 4902 (V.36) electrical interfaces for communications applications. The selection of the specific interface is achieved by a matching cable (4 ports of 232 or 4 ports of 422 or 4 ports of X.21 or 4 ports of V.36). The AIB will operate all four ports at up to 2.048 megabits per second full duplex.

The ARTIC960 coprocessor and AIB together comprise a feature. There are three features available depending upon memory option (1 MB, 4 MB, or 8 MB). The ARTIC960 coprocessor is designed to operate in any full-slot 32-bit Micro Channel bus system adhering to the IBM Micro Channel architectural guidelines such as the PS/2 computer, RS/6000 computer and the IBM Industrial Computers. The ARTIC960 realtime kernel and on-card operating system and AIX/6000 Version 3.2.5 Operating System development driver are included with the purchase of the adapter.

The application development driver is intended to provide a level of interface to the adapter for those developing applications using the ARTIC960 and is not a full function driver. The application development driver is contained in the diagnostic diskette.

A developer's kit is offered that provides AIB design information, sample programs, a programmer's guide/reference, and a hardware technical reference manual. As part of the developer's kit, a Developer's Assistance Program (DAP) is provided for parties who will be developing their own software applications and/or designing their own application interface board. The ARTIC960 DAP is administered by IBM in Boca Raton, Florida.

It can be reached by telephone at 1-800-3333 ext. ARTIC960.

The DAP, through telephone and E-mail, will provide technical help for software development or additional AIB designs.

The ARTIC960 coprocessor is ideally suited for:

Departments that require high-speed connections from Server to Host (switched or leased)

Telephone applications with V.36/V.24 for higher speed connections to 2 MB

LAN interconnect via leased lines (64 Kb - 2 Mb)

The IBM ARTIC960 coprocessor is a family of high performance WAN communications adapters with a base card with 3 memory options and daughter cards with different interfaces and cables. Each IBM ARTIC960 coprocessor occupies one Micro Channel slot.

INCREASED PROCESSOR PERFORMANCE and COMMUNICATION SPEEDS

The ARTIC960 coprocessor provides a 4-6 times increase in data throughput across the Micro Channel bus when compared to the existing family of IBM ARTIC co-processors. The 4-Port multi-interface Application Interface Board handles four lines of communications data at 2.048 megabits per second.

Prerequisites: None.

Co-requisites: None.

Compatibility Conflicts: None.

Customer Set-up: Yes.

Field Installable: Yes.

Cable Order:

IBM recommends that one of the following cables be ordered with the 4-Port AIB. The cable choice determines the AIB's electrical interface. Other interface cables can be ordered at published prices. Each cable set is 1.8 meters in length and has four connectors in a fanout fashion terminating in a 100-pin connector that plugs into the AIB.

```
      DESCRIPTION                          F/C
      ------------------------------      ------
   Cable Option EIA-232D                   2922
   Cable Option EIA-530 (RS 422)           2924
   Cable Option ISO 4903 (X.21)            2927
   Cable Option ISO 4902 (V.36)            2926
```

(#2921) IBM ARTIC960 Coprocessor (1MB)

(For IBM US, No Longer Available as of May 20, 1996)

This feature includes the following:

Artic960 Coprocessor (1 MB)

4-Port multi-interface Application Interface Board (AIB)

AIB wrap plug

Runtime environment diskette

Standalone diagnostic diskette

Guide to operations

4-port AIB Supplement to the Guide to Operations.

The IBM ARTIC960 Coprocessor is a high-speed, high throughput co- processor adapter with multiple memory options designed to operate in 32-bit Micro Channel compatible systems. The IBM ARTIC960 Coprocessor relieves the host from compute-intensive tasks associated with I/O communication applications and protocols. It also provides bus-mastering capabilities for peer to peer transfers across the Micro Channel. The IBM ARTIC960 Coprocessor's wide bandwidth provides co-processor performance at least 4-6 times that of previously released IBM ARTIC co- processors.

Note: An AIX Developer's Kit, including a daughter card developer's guide, application program information, on line technical assistance, and Q A service is provided by a Developer's Assistance Program which can be reached at artic@vnet.ibm.com (internet) or direct at 1-407-443-7948. Toll free numbers are 1-800-IBM-3333 ext. ARTIC160 (U.S.) or 1-800-465-2222 (Canada).

```
Attributes provided: 4 ports selectable EIA530/V.36/X.21
Attributes required: 1 Micro Channel slot
```

(#2922) Cable Option EIA 232

(For IBM US, No Longer Available as of May 20, 1996)

This feature provides the following:

1.8 meter cable connecting to the 100pin AIB connector, providing 4 connectors of EIA232

EIA232 wrap plug

(#2923) Cable Option EIA 530 RS 422

(For IBM US, No Longer Available as of March 19, 1999)

This feature provides the following:

1.8 meter cable connecting to the 100pin AIB connector, providing 4 connectors with EIA530 physical interface.

EIA530 wrap plug

```
Attributes provided: 4 EIA 530 ports
Attributes required: 4-port AIB from ARTIC960 (2921, 2924, or 2928)
```

(#2924) IBM ARTIC960 Coprocessor (4 MB)

(For IBM US, No Longer Available as of March 19, 1999)

This feature provides the following:

Artic960 Coprocessor (4 MB)

4-Port multi-interface Application Interface Board (AIB)

AIB wrap plug

Runtime environment diskette

Standalone diagnostic diskette

Guide to operations

4-port AIB Supplement to the Guide to Operations.

The IBM ARTIC960 Coprocessor is a high-speed, high throughput co- processor adapter with multiple memory options designed to operate in 32-bit Micro Channel compatible systems. The IBM ARTIC960 Coprocessor relieves the host from compute-intensive tasks associated with I/O communication applications and protocols. It also provides bus-mastering capabilities for peer to peer transfers across the Micro Channel. The IBM ARTIC960 Coprocessor's wide bandwidth provides co-processor performance at least 4-6 times that of previously released IBM ARTIC co- processors.
Note: An AIX Developer's Kit, including a daughter card developer's guide, application program information, on line technical assistance, and Q A service is provided by a Developer's Assistance Program which can be reached at artic@vnet.ibm.com (internet) or direct at 1-407-443-7948. Toll free numbers are 1-800-IBM-3333 ext. ARTIC160 (U.S.) or 1-800-465-2222 (Canada).

```
Attributes provided: 4 ports selectable - EIA530/V.36/X.21
Attributes required: 1 Microchannel slot
```

(#2926) Cable Option ISO 4902 V.36

(For IBM US, No Longer Available as of March 19, 1999)

This feature provides the following:

1.8 meter cable connecting to the 100pin AIB connector, providing 4 connectors with V.36 physical interface.

V.36 wrap plug

```
Attributes provided: 4 ports of V.36
Attributes required: 4 port AIB from ARTIC960 (2921, 2924, 2928)
```

(#2927) Cable Option ISO 4903 X.21

(For IBM US, No Longer Available as of March 19, 1999)

This feature provides the following:

1.8 meter cable connecting to the 100pin AIB connector, providing 4 connectors with X.21 interface.

X.21 wrap plug

```
Attributes provided: None
Attributes required: None
```

(#2928) IBM ARTIC960 Coprocessor (8 MB)

(For IBM US, No Longer Available as of May 20, 1996)

This feature includes the following:

Artic960 Coprocessor (8 MB)

4-Port multi-interface Application Interface Board (AIB)

AIB wrap plug

Runtime environment diskette

Standalone diagnostic diskette

Guide to operations

4-port AIB Supplement to the Guide to Operations.

The IBM ARTIC960 Coprocessor is a high-speed, high through-put co- processor adapter with multiple memory options designed to operate in 32-bit Micro Channel bus compatible systems. The IBM ARTIC960 Coprocessor relieves the host from compute-intensive tasks associated with I/O communication applications and protocols. It also provides bus- mastering capabilities for peer to peer transfers across the Micro Channel bus. The IBM ARTIC960 Coprocessor's wide bandwidth provides co- processor performance at least 4-6 times that of previously released IBM ARTIC co-processors.

Note: An AIX Developer's Kit, including a daughter card developer's guide, application program information, on line technical assistance, and Q A service is provided by a Developer's Assistance Program which can be reached at artic@vnet.ibm.com (internet) or direct at 1-407-443-7948. Toll free numbers are 1-800-IBM-3333 ext. ARTIC160 (U.S.) or 1-800-465-2222 (Canada).

```
Attributes provided: 4 ports selectable – EIA530/V.36/X.21
Attributes required: 1 Micro Channel slot
```

(#2929) ARTIC960 Coprocessor, 8-port EIA-232

(For IBM US, No Longer Available as of March 19, 1999)

The ARTIC960 Co-Processor family of adapters is now expanded beyond the current 4-port Selectable interface with these new features providing increased number of wide area network (WAN) ports at T1/E1 speeds while maintaining the high performance characteristics of the ARTIC960 platform.

The ARTIC960 family supports developers of wide area network (WAN) applications for AIX solutions which offload compute intensive tasks such as protocol processing and network management. The results are WAN communications at link speeds to 2 Mbps while maximizing system performance.

Each feature is made up of a base card (ARTIC960) and associated physical interface (EIA232, V.36, or X.21) on a daughter card and occupies a single Micro Channel slot. Each feature includes 4 MB of memory.

Each cable feature includes a single cable connecting to the daughter card on one side and fanning out to either 6-or 8-ports depending on the physical interface. A wrap plug is provided with each cable.

Note: An AIX Developer's Kit, including a daughter card developer's guide, application program information, on line technical assistance, and Q A service is provided by a Developer's Assistance Program which can be reached at artic@vnet.ibm.com (internet) or direct at 1-407-443-7948. Toll free numbers are 1-800-IBM-3333 ext. ARTIC160 (U.S.) or 1-800-465-2222 (Canada).

Characteristics:

Micro Channel bus form factor, occupying a single slot.

Up to 2 Mbps supported on V.36 or X.21 ports.

Synchronous support on EIA232 ports.

Intel 80960ca 25-MHz processor and 4 MB of memory on card.

Support for DMA 32-bit bus master and peer to peer capability on the Micro Channel.

Performance characteristics at 4-6 times that of previously released Portmaster products.

```
Attributes provided: Multiple high performance WAN ports to 2 Mbps
Attributes required: 1 Micro Channel bus slot


For 7012-370:
  Minimum required:  0
  Maximum allowed: _4_    (Initial order maximum: _4_)
  AIX level required: AIX 3.2.5 - AIX 4.1.4
  Initial Order/MES/Both/Supported: Both
```

(#2935) ARTIC960 Coprocessor, 6-port V.36

(For IBM US, No Longer Available as of March 19, 1999)

The ARTIC960 Co-Processor family of adapters is now expanded beyond the current 4-port Selectable interface with these new features providing increased number of wide area network (WAN) ports at T1/E1 speeds while maintaining the high performance characteristics of the ARTIC960 platform.

The ARTIC960 family supports developers of wide area network (WAN) applications for AIX solutions which offload compute intensive tasks such as protocol processing and network management. The results are WAN communications at link speeds to 2 Mbps while maximizing system performance.

Each feature is made up of a base card (ARTIC960) and associated physical interface (EIA232, V.36, or X.21) on a daughter card and occupies a single Micro Channel slot. Each feature includes 4 MB of memory.

Each cable feature includes a single cable connecting to the daughter card on one side and fanning out to either 6-or 8-ports depending on the physical interface. A wrap plug is provided with each cable.
Note: An AIX Developer's Kit, including a daughter card developer's guide, application program information, on line technical assistance, and Q A service is provided by a Developer's Assistance Program which can be reached at artic@vnet.ibm.com (internet) or direct at 1-407-443-7948. Toll free numbers are 1-800-IBM-3333 ext. ARTIC160 (U.S.) or 1-800-465-2222 (Canada).
Note: The V.36 interface is compatible with V.35 interface but requires a connector change (to DB37). For customers who order this feature but need V.35 interface, FC 7106 (6-port V.35 breakout box for Portmaster) can be used.

Characteristics:

　　　Micro Channel bus form factor, occupying a single slot.

　　　Up to 2 Mbps supported on V.36 or X.21 ports.

　　　Synchronous support on EIA232 ports.

　　　Intel 80960ca 25-MHz processor and 4 MB of memory on card.

　　　Support for DMA 32-bit bus master and peer to peer capability on the Micro Channel.

　　　Performance characteristics at 4-6 times that of previously released Portmaster products.

```
Attributes provided: Multiple high performance WAN ports to 2 Mbps
Attributes required: 1 Micro Channel bus slot
```

```
For 7012-370:
  Minimum required:  0
  Maximum allowed: _4_    (Initial order maximum: _4_)
  AIX level required: AIX 3.2.5 - AIX 4.1.4
  Initial Order/MES/Both/Supported: Both
```

(#2938) ARTIC960 Coprocessor, 8-port X.21

(For IBM US, No Longer Available as of March 19, 1999)

The ARTIC960 Co-Processor family of adapters is now expanded beyond the current 4-port Selectable interface with these new features providing increased number of wide area network (WAN) ports at T1/E1 speeds while maintaining the high performance characteristics of the ARTIC960 platform.

The ARTIC960 family supports developers of wide area network (WAN) applications for AIX solutions which offload compute intensive tasks such as protocol processing and network management. The results are WAN communications at link speeds to 2 Mbps while maximizing system performance.

Each feature is made up of a base card (ARTIC960) and associated physical interface (EIA232, V.36, or X.21) on a daughter card and occupies a single Micro Channel slot. Each feature includes 4 MB of memory.

Each cable feature includes a single cable connecting to the daughter card on one side and fanning out to either 6-or 8-ports depending on the physical interface. A wrap plug is provided with each cable.
Note: An AIX Developer's Kit, including a daughter card developer's guide, application program information, on line technical assistance, and Q A service is provided by a Developer's Assistance Program which can be reached at artic@vnet.ibm.com (internet) or direct at 1-407-443-7948. Toll free numbers are 1-800-IBM-3333 ext. ARTIC160 (U.S.) or 1-800-465-2222 (Canada).

Characteristics:

Micro Channel bus form factor, occupying a single slot.

Up to 2 Mbps supported on V.36 or X.21 ports.

Synchronous support on EIA232 ports.

Intel 80960ca 25-MHz processor and 4 MB of memory on card.

Support for DMA 32-bit bus master and peer to peer capability on the Micro Channel.

Performance characteristics at 4-6 times that of previously released Portmaster products.

```
Attributes provided: Multiple high performance WAN ports to 2 Mbps
Attributes required: 1 Micro Channel bus slot


For 7012-370:
  Minimum required:  0
```

```
Maximum allowed: _4_    (Initial order maximum: _4_)
AIX level required: AIX 3.2.5 - AIX 4.1.4
Initial Order/MES/Both/Supported: Both
```

(#2939) ARTIC960 8-port EIA-232 Cable

(For IBM US, No Longer Available as of March 19, 1999)

See ARTIC960 Coprocessor, 8 Port EIA-232

```
Attributes provided: Fan-out cable 8-ports EIA-232
Attributes required: ARTIC960 Coprocessor, 8 Port EIA-232


For 7012-370:
  Minimum required:  0
  Maximum allowed: _4_    (Initial order maximum: _4_)
  AIX level required: AIX 3.2.5 - AIX 4.1.4
  Initial Order/MES/Both/Supported: Both
```

(#2941) ARTIC960 6-port V.36 Cable

(For IBM US, No Longer Available as of March 19, 1999)

See ARTIC960 Coprocessor, 6 Port V.36

```
Attributes provided: Fan out cable 6 ports V.36
Attributes required: ARTIC960 Coprocessor, 6 Port V.36


For 7012-370:
  Minimum required:  0
  Maximum allowed: _4_    (Initial order maximum: _4_)
  AIX level required: AIX 3.2.5 - AIX 4.1.4
  Initial Order/MES/Both/Supported: Both
```

(#2942) ARTIC960 8-port X.21 Cable

(For IBM US, No Longer Available as of March 19, 1999)

See ARTIC960 Coprocessor, 8 Port X.21

```
Attributes provided: Fan out cable 8 ports X.21
Attributes required: ARTIC960 Coprocessor, 6 Port X.21


For 7012-370:
  Minimum required:  0
  Maximum allowed: _4_    (Initial order maximum: _4_)
  AIX level required: AIX 3.2.5 - AIX 4.1.4
  Initial Order/MES/Both/Supported: Both
```

Cables

(#2936) Async Cable EIA-232/V.24

(No longer available as of December 31, 2020)

Used to attach a modem to the standard I/O ports with the 10-pin to 25-pin converter cable (shipped with the system), 8-port Cable Assembly, 16-Port Cable Assembly, 16-Port Asynchronous Concentrator (with RJ-45 to DB-25 Converter Cable feature #6402) or the 16-Port EIA-232 Remote Async Node (with RJ45 to DB25 Converter Cable feature #8133). The cable is 3 meters (9.8 feet) in length.

(#2937) Printer/Terminal Interposer EIA-232

(For IBM US, No Longer Available as of September 8, 1999)

The Printer/Terminal Interposer EIA-232 is used in conjunction with the Async Cable EIA-232 (#2936) (shipped with the system) to provide the proper wiring for the attachment of IBM terminals, plotters and printers to the async adapters (8, 16, and 64-port, all versions), the 16-Port Async Concentrator (with RJ-45 to DB-25 Converter Cable #6402) and the standard I/O serial ports with the 10-pin to 25-pin converter cable (shipped with the system).

(#2945) Terminal Cable - EIA-422A

(For IBM US, No Longer Available as of July 31, 2001)

Provides a 20 meter (66 feet) interface cable for attaching an EIA-422A terminal to the Multiport Interface Cable.

(#2995) Multiport Interface Cable

(For IBM US, No Longer Available as of December 1, 2000)

The Multiport Interface Cable allows up to eight devices to attach to the 8-Port Async Adapters (EIA-232, EIA-422A) or (MIL-STD 188 - US only) by providing eight 25-pin D shell connectors. The cable is 3 meters (9.8 feet) in length.

(#2996) 16-Port Interface Cable - EIA-232

The 16-Port Interface Cable - EIA-232 allows up to 16 devices to attach to the 16-Port Async Adapter - EIA-232 (#2955) by providing 16 25-pin D shell connectors. The cable is 3 meters (9.8 feet) in length.

(#2997) 16-Port Interface Cable - EIA-422A

(For IBM US, No Longer Available as of September 8, 1999)

Allows up to 16 devices to attach to the 16-Port Async Adapter - EIA-422A (#2957) by providing 16 25-pin D shell connectors. The cable is three meters (9.8 feet) in length.

(#3100) PC Parallel Printer Cable

(For IBM US, No Longer Available as of December 3, 2001)

Allows attachment of a 360/370 supported printer to the system parallel printer port. The cable is 3 meters (9.8 feet) in length.

(#7102) IBM Realtime Interface Co-Processor: EIA RS-232-C Multiport Interface Cable

(For IBM US, No Longer Available as of May 20, 1996)

This cable is used to distribute eight electrical interfaces away from the physical constraints of the back panel of the system. One end of the cable provides for a 78-pin connector to join with the IBM Realtime Interface Co-Processor Multiport/2 adapter card. The other end has eight 25-pin connectors which will connect up to eight EIA RS-232-C/CCITT V.24 devices. A wrap connector is provided to test the cable using the diagnostics supplied with the cable.

Related Features:

    (FC 7002) - Multiport/2 Adapter (0.5 MB)

    (FC 7004) - Multiport/2 Adapter (1 MB)

    (FC 7022) - Multiport/2 4-Port RS-232 Interface Board

    (FC 7026) - Multiport/2 8-Port RS-232 Interface Board

```
Attributes provided: None
Attributes required: None
```

(#7104) IBM Realtime Interface Co-Processor Synchronous Interface Cable

(For IBM US, No Longer Available as of May 20, 1996)

This cable can be used in conjunction with the 6-Port RS-232-C Synchronous Interface Board. One end of the cable connects to the 78-pin connector of the Interface Board. The other end provides six 25-pin connectors for attachment of up to six EIA RS-232-C/CCITT V.24 devices. A wrap connector is provided to test the cable when using the diagnostics supplied.

Related Features:

(FC 7002) - Multiport/2 Adapter (0.5 MB)

(FC 7004) - Multiport/2 Adapter (1 MB)

(FC 7024) - Multiport/2 6-Port RS-232-C Synchronous Interface Board

```
Attributes provided: 6 EIA RS-232-C/CCITT V.24  connections
Attributes required: 1 Multiport/2 6-Port RS-232-C Synchronous
                     Interface Board port
```

(#7106) IBM Realtime Interface Co-Processor Six-port V.35 Cable

(For IBM US, No Longer Available as of December 1, 2000)

This 1.2-meter (4-foot) V.35 cable can be used to connect up to six devices to the Six-Port V.35 Interface Board/A. Additional customer- supplied cables may be required to connect the customer's devices to the distribution block at the end of the V.35 cable. One wrap connector is included for diagnostic testing of the cable.

Related Features:

Portmaster Adapter/A (1 MB) (#7006)

Portmaster Adapter/A (2 MB) (#7008)

6-Port V.35 Interface Board/A (#7046)

(#7107) IBM Realtime Interface Co-Processor: V.35 Network Cable

(For IBM US, No Longer Available as of December 1, 2000)

This cable is used to attach devices supporting the V.35 physical interface standard. It is used in conjunction with the Portmaster base adapters (FC 7006 or 7008) together with a V.35 daughter board (FC 7046) and V.35 breakout cable (FC 7106). The cable uses 25-pin D-shell connector on the daughter board side, and a 34-pin D-shell connector on the device side. It is 2m long.

```
Attributes provided: V.35 device attachment capability
Attributes required: 1 V.35 port from FC 7106
```

(#7108) IBM Realtime Interface Co-Processor Eight-Port Cable

(For IBM US, No Longer Available as of December 1, 2000)

This cable can be used in conjunction with either the Eight-Port RS-232 Interface Board/A or the Eight-Port RS-422 Interface Board/A. The cable connects a 100-pin connector on the interface board to eight 25-pin connectors (RS-232-D/CCITT V.24/ISO 2110 standard) housed in a molded block at the end of this cable. Additional customer-supplied cables may be necessary to connect the devices to the distribution block at the end of the cable. One wrap connector is included for diagnostic testing of the cable.

Related Features:

> Portmaster Adapter/A (1 MB) (#7006)
>
> Portmaster Adapter/A (2 MB) (#7008)
>
> 8-Port RS-232 Interface Board/A (#7042)
>
> 8-Port RS-422 Interface Board/A (#7044)

(#7111) IBM Realtime Interface Co-Processor: X.21 Network Cable

(For IBM US, No Longer Available as of December 1, 2000)

This cable is used to attach devices supporting the X.21 physical interface standard. It is used in conjunction with the Portmaster base adapters (FC 7006 or 7008) together with an X.21 daughter board (FC 7048) and breakout cable (FC 7110). The cable uses 25-pin D-shell connector on the daughter board side, and a 15-pin D-shell connector on the device side. It is 2m long.

```
Attributes provided: X.21 device attachment capability
Attributes required: 1 port from FC 7110
```

(#8131) 128-Port Async Controller Cable, 4.5 meter (15 foot)

(No Longer Available as of June 23, 2006)

This cable provides adapter-to-Remote Async Node or Remote Async Node-to-Remote Async Node attachment in the 128-Port Async subsystem.

(#8132) 128-Port Async Controller Cable, 23 cm (9 inch)

(No Longer Available as of June 23, 2006)

This cable may be substituted for the 4.5 meter (15 foot) async controller cable whenever a customer configuration requires stacked Remote Async Nodes.

(#8133) RJ-45 to DB-25 Converter Cable

(No Longer Available as of November 26, 2010)

This cable can be used to attach EIA-232 devices to the 16 port EIA 232 Remote Async Node (#8130 or #8134) for the 128-Port Async subsystem. This cable provides a 25-pin D shell connector for device attachment. Four cables are provided per each order.

(#8136) Rack Mountable Remote Asynchronous Node 16-Port EIA-232

(No Longer Available as of March 31, 2006)

The Rack Mountable Remote Asynchronous Node 16-Port EIA-232 (RAN) is a modified version of the existing 16-port Remote Async Node (feature #8130 or #8134) in an industry-standard 19-inch rack mount chassis to allow simpler installation and ease-of-use. Like the existing RAN, it can also be configured as a desktop device.

As an additional benefit, the new metal chassis meets FCC Class B/CISPR B when used with similarly rated RS/6000 host to meet the needs of customers with these requirements.

The RANs provide 16 ports of EIA-232 capability with full modem controls on each port and are connected to the 128-port Async Controller (Micro Channel or ISA versions) residing in the host. RANs are connected in daisy-chain fashion up to 8 RANs per 128-port Async Controller (either version).

The new rack-mountable RAN offers these enhanced features:

Industry-standard 19-inch rack mountable chassis (can be configured for stacking on a desktop or mounted in a 19-inch rack).

Meets FCC Class B/CISPR B when used with similarly rated RS/6000 host.

All RJ-45 connectors are now on the front panel, greatly enhancing cable management.

The DB-15 synchronous connectors (cabling from host to RAN and between RANs) and the power cord and switch are located on the rear panel.

Power supply is self contained within the unit.

The new rack-mountable RAN offers these same features as the existing RAN product:

Identical function and support as existing 16-port Remote Async Node (RAN), feature #8130 or #8134.

Operation of 16 to 128 ports by supporting up to 8 RANs (4 per synchronous line) with either a Micro Channel or ISA host adapter.

Ability to monitor individual port operation, synchronous line station, and other diagnostics from front panel.

Built-in diagnostics can test ports independent of RS/6000 host.

Full modem control supports the following interface signals: TxD, RxD, RTS, CTS, DSR, DCD, DTR, RI.

The same RJ-45 to DB-25 Converter Cable (feature #8133 -- quantity four per order) currently used on the existing RANs can be used to attach devices having a DB-25 connector to the Remote Async Nodes.

Individual ports support a maximum EIA-232 distance of 62 meters (200 feet).

Use of the same cabling from host to RAN and RAN to RAN: feature #8131 (4.5 meter), feature #8132 (23 cm) or customer supplied cables.

Location of RAN up to 330 meters from the host using standard shielded 8-wire twisted pair cabling.

Remote operation via synchronous modems or CSU/DSU extends the distance and allows location of RANs at geographically distant location from the host.

```
Attributes provided: 16 RJ-45 EIA-232 ports
Attributes required: (1) 128-P Async. Controller connection or RAN-to-RAN
                     connection in a daisy chain


For 7012-370:
  Minimum required:  0
  Maximum allowed: 32_    (Initial order maximum:32__)
  AIX level required: AIX 3.2.5 - AIX 4.1.4
  Initial Order/MES/Both/Supported: Both
```

(#8137) Enhanced Remote Asynchronous Node 16-Port EIA-232

(No Longer Available as of March 31, 2006)

Provides remote connection of up to 16 EIA-232 devices to a 128-Port Asynchronous Controller.

Each port can be individually programmed to provide a asynchronous connection of 230 Kbaud, but a limited number of ports in a maximum configuration (128 ports) can be supported at this baud rate.

Operation of 16 to 128 ports by supporting up to 8 RANs (4 per synchronous line) with either a Micro Channel, ISA or PCI host adapter.

Ability to monitor individual port operation, synchronous line station, and other diagnostics from front panel.

Built-in diagnostics can test ports independent of RS/6000 host.

Full modem control supports the following interface signals: TxD, RxD, RTS, CTS, DSR, DCD, DTR, RI.

The same RJ-45 to DB-25 Converter Cable (feature #8133 -- quantity four per order) currently used on the existing RANs can be used to attach devices having a DB-25 connector to the Remote Async Nodes.

Individual ports support a maximum EIA-232 distance of up to 31 meters (100 feet), depending on the baud rate.

Use of the same cabling from host to RAN and RAN to RAN: feature #8131 (4.5 meter), feature #8132 (23 cm) or customer supplied cables.

Location of RAN up to 330 meters (sync data rate set at 1.2 Mbps) from host using standard shielded 8-wire twisted pair cabling.

Remote operation via synchronous modems or CSU/DSU extends the distance and allows location of RANs at geographically distant location from the host.

Attributes provided: 16 EIA-232 Async ports

Attributes required: One (#8128) per eight (#8137)s

For 7012-370:
    Minimum required: None

    Maximum allowed: _32 (Initial order maximum: _32)

OS level required: AIX 4.1.5, AIX 4.2.1, AIX 4.3

Initial Order/MES/Both/Supported: MES

(#8138) Enhanced Remote Asynchronous Node 16-Port RS-422

(For IBM US, No Longer Available as of July 31, 2001)

Provides remote connection of up to 16 RS-422 devices to a 128-Port Asynchronous Controller.

Each port can be individually programmed to provide a asynchronous connection of 230 Kbaud, but a limited number of ports in a maximum configuration (128 ports) can be supported at this baud rate.

- Operation of 16 to 128 ports by supporting up to 8 RANs (4 per synchronous line) with either a Micro Channel, ISA or PCI host adapter.
- Ability to monitor individual port operation, synchronous line station, and other diagnostics from front panel.
- Built-in diagnostics can test ports independent of RS/6000 host.
- Supports the following interface signals: +TxD, +RxD, -TxD, -RxD.
- The same RJ-45 to DB-25 Converter Cable (feature #8133 -- quantity four per order) currently used on the existing RANs can be used to attach devices having a DB-25 connector to the Remote Async Nodes.
- Individual ports support a maximum RS-422 distance of up to 1200 meters (3930 feet), depending on the baud rate.
- Use of the same cabling from host to RAN and RAN to RAN: feature #8131 (4.5 meter), feature #8132 (23 cm) or customer supplied cables.
- Location of RAN up to 330 meters (sync data rate set at 1.2 Mbps) from host using standard shielded 8-wire twisted pair cabling.
- Remote operation via synchronous modems or CSU/DSU extends the distance and allows location of RANs at geographically distant location from the host.

Attributes provided: 16 EIA-232 Async ports

Attributes required: One (#8128) per eight (#8138)s

For 7012-370:
   Minimum required: None

   OS level required: AIX 4.1.5, AIX 4.2.1, AIX 4.3

   OS level required: AIX 4.2.1 or AIX 4.3

   Initial Order/MES/Both/Supported: MES

Local Area Network (LAN) Communications Adapters

(#2720) Fiber Distributed Data Interface Adapter

The Fiber Distributed Data Interface adapter uses Fiber Distributed Data Interface (FDDI), a LAN communications technology that uses optical cabling designed for a line speed of up to 100 Megabits/sec.

FDDI is designed to support the TCP/IP protocol, and supports NFS over TCP/IP. The FDDI implementation supports ANSI standard X3T9.5, with the exception that Station Management (SMT) function is limited to Agent support only. A programming interface (API) is provided for the device driver.

Fiber optic cable is designed to be immune to electromagnetic interference (EMI). Therefore, using fiber technology may prevent jamming by high power emissions. Additionally, fiber optics do not emit electromagnetic radiation (EMR). This feature enhances security, since it helps prevent eavesdropping.

The RS/6000 Fiber Distributed Data Interface Single Ring Adapter provides a single attach station (SAS) option and attaches to the FDDI Network's primary ring directly or via an external FDDI Concentrator. Connection via an external FDDI Concentrator isolates the workstations from the primary ring and protects the network from routine station on/off cycles and individual station failures.

Each FDDI adapter requires one Micro Channel card slot. A maximum of two #2720 adapters per system is supported.

The FDDI card requires Multimode (62.5/125 Micron) FDDI optical fiber jumper cables. The FDDI jumper cables are available in five standard lengths of 4 meter (12 feet), 7 meter (20 feet), 15 meter (50 feet), 31 meter (100 feet) and 61 meter (200 feet) or custom lengths in one foot increments. They are available with MIC, FC, ST, or SC connectors.

For more information about the jumper cables, planning, design, and installation of optical fiber cabling systems, refer to IBM publication GA27-3943, "IBM Cabling System Optical Fiber Installation and Planning Guide."

Jumper cables are the responsibility of the customer and may be ordered from your local authorized IBM cabling distributor or by calling 1-800-IBM-2468 in the United States. For EMEA customers, cables are available from Montpellier through CE offerings.

(#2722) Fiber Distributed Data Interface Dual Ring Upgrade Kit

This feature consists of an upgrade kit to be applied to a system with an existing RS/6000 FDDI Adapter (#2720).

The RS/6000 Fiber Distributed Data Interface Dual Ring Upgrade Kit provides a dual attaching station (DAS) option and attaches to both the FDDI Network's primary and secondary ring. In the event of failure, this type of attachment allows the wrapping of the primary to the secondary ring for high network availability and problem isolation. This dual attach (DAS) option can also attach to concentrator ports as a single attached station or a dual homing station.

Each #2722 FDDI adapter requires one Micro Channel card slot. (A #2720 and #2722 requires two card slots.) A maximum of two #2722 adapters per system is supported.

(#2724) FDDI - Fiber Single-Ring Adapter

(For IBM US, No Longer Available as of December 1, 2000)

Single Attach Stations (SAS) using the RS/6000 FDDI - Fiber Single-Ring Adapter allows customers to attach the workstation directly to a primary ring of a FDDI 100 megabits per second (Mbps) network via FDDI 100 Mbps concentrator. The concentrator option offers additional protection by isolating the network from routine on/off activity and individual workstation failures.

Characteristics:

Supports single ring FDDI attachment at 100 Mbps

Requires one Micro Channel slot

Maximum of four FDDI single-ring adapters supported on each RS/6000 machine (depending upon slot availability on each machine type)

Fiber optic cable is required for adapter connectivity, and is the responsibility of the customer.

(#2723) FDDI - Fiber Dual-Ring Upgrade

(For IBM US, No Longer Available as of December 1, 2000)

Dual Attach Stations (DAS) using the RS/6000 FDDI - Fiber Single-Ring Adapter and FDDI - Fiber Dual-Ring Upgrade allows customers to attach to both the primary and secondary FDDI ring. In the event of a failure, this type of attachment allows the wrapping of the primary and the secondary ring for high network availability and problem isolation. The dual-ring upgrade can also attach to concentrator ports as a single- attached station or a dual-homing station. A dual-homing station attaches to two different concentrators with the second concentrator acting as a backup or a standby for the station in the event of a concentrator or port failure.

Characteristics:

Supports dual-ring FDDI attachment at 100 Mbps

Requires two Micro Channel slots (including the single slot required for the FDDI - Single-Ring Adapter)

Maximum of three FDDI dual-ring adapters supported on each RS/6000 machine (depending upon slot availability per machine type)

Fiber optic cables are required for adapter connectivity, and are the responsibility of the customer.

(#2725) FDDI - STP Single-Ring Adapter

(For IBM US, No Longer Available as of January 8, 1998)

Single Attach Stations (SAS) using the RS/6000 FDDI - STP Single-Ring Adapter allows customers to attach the workstation directly to a primary ring of a FDDI 100 megabits per second (Mbps) network via a FDDI 100 Mbps concentrator. The concentrator option offers additional protection by isolating the network from routine on/off activity and individual workstation failures.

Characteristics:

Supports single ring FDDI attachment at 100 Mbps

Requires one Micro Channel slot

Maximum of four FDDI-STP single-ring adapters supported on each RS/6000 machine (depending upon slot availability per machine type)

Shielded twisted-pair wire is required for adapter connectivity, and is the responsibility of the customer.

(#2726) FDDI - STP Dual-Ring Upgrade

(For IBM US, No Longer Available as of January 8, 1998)

Dual Attach Stations (DAS) using the RS/6000 FDDI - STP Single-Ring Adapter and FDDI - STP Dual-Ring Upgrade allows customers to attach to both the primary and secondary FDDI ring. In the event of a failure, this type of attachment allows the wrapping of the primary and the secondary ring for high network availability and problem isolation. The dual-ring upgrade can also attach to concentrator ports as a single- attached station or a dual-homing station. A dual-homing station attaches to two different concentrators with the second concentrator acting as a backup or a standby for the station in the event of a concentrator or port failure.

Characteristics:

Supports dual-ring FDDI attachment at 100 Mbps

Requires two Micro Channel slots (including the single slot required for the FDDI - STP Single-Ring Adapter)

Maximum of three FDDI-STP dual-ring adapters supported on each RS/6000 machine (depending upon slot availability per machine type)

Shielded twisted-pair wiring is required for adapter connectivity, and is the responsibility of the customer.

(#2970) Token-Ring High-Performance Network Adapter

(For IBM US, No Longer Available as of July 25, 1996)

The Token-Ring High-Performance Network Adapter is designed to allow a 7012 Model 3XX to attach to 4 Mbps or 16 Mbps Token-Ring local area networks. This Token-Ring adapter is cable and network compatible with PS/2 and other IBM Token-Ring adapters; no new cables or network components are required. The required cable is included with this adapter and is 3 meters (9.8 feet) in length.

Characteristics:

4 Mbps or 16 Mbps

Compatible with IEEE 802.5 standard

Micro Channel Interface:
2 byte Bus Master

Streaming Data mode

Up to four adapters per system may be installed

Standard Micro Channel form factor card

(#2972) IBM Auto Token-Ring LANStreamer 32 MC Adapter

(For IBM US, No Longer Available as of December 1, 2000)

The IBM Auto Token-Ring LANStreamer MC 32 adapter is designed to allow a RS/6000 system to attach to 4 Mbps or 16 Mbps Token-Ring local area networks. This adapter automatically selects the correct Token-Ring speed (4 or 16 Mbps). It is cable and network compatible with all IBM PS/2 Token-Ring adapters; no new

cables or network components are required. The adapter has one connector, RJ-45. The RJ-45 connector is used to attach to UTP cabling. A 10-inch conversion cable is included with the adapter to attach to STP cabling.

Characteristics:

4 Mbps or 16 Mbps

Compatible with IEEE 802.5 specifications

Micro Channel Interface

32-bit Bus Master

Streaming Data Mode

Up to eight adapters per Micro Channel may be installed

Standard Micro Channel form factor card (Type 3)

(#2980) Ethernet High-Performance LAN Adapter

(For IBM US, No Longer Available as of December 13, 1999)

The Ethernet High-Performance LAN Adapter is a high-performance Micro Channel Architecture Bus Master adapter which attaches the 7012 Model 3XX to Ethernet networks. This adapter is designed to provide connection to a 10 Megabit Carrier Sense Multiple Access/Collision Detection (CSMA/CD) Ethernet network and is compatible with IEEE 802.3 and Ethernet external interfaces. To attach the system to the network, the customer must supply the appropriate cable for connection to the standard 50-ohm or RG-58A/U coaxial cables.

Characteristics:

Micro Channel Interface:

32-bit Bus Master

Compatible with IEEE 802.3 or Ethernet Version 2 Interfaces

Transmission speed of 10 Mbps

16 KB of high-speed RAM for data buffering

Up to three #2980 adapters per system may be installed

Standard Micro Channel form factor card

Thick (DIX) or Thin (BNC) Cable support

(#2402) Network Terminal Accelerator - 256 Session Feature

(For IBM US, No Longer Available as of January 8, 1998)

The Network Terminal Accelerator - 256 Session Feature is an Ethernet adapter which accelerates network performance by offloading the telnet and rlogin daemons, TCP/IP protocol stack and virtual terminal I/O management from the RS/6000 system. The Network adapter buffers the system from frequent CPU

intensive packet interrupts and reduces context switches, dramatically reducing CPU load. Network adapter increases terminal I/O throughput and the number of concurrent on-line user sessions.

The Network adapter software also provides a "pass-through" capability for other Ethernet protocols, which can eliminate the need for a separate Ethernet adapter. For network management adapter supports onboard SNMP.

The Network adapter is a 32 bit bus master Micro Channel card with a 25-Mhz i960 high-performance RISC processor and 2 MB of two-way bank interleaved DRAM memory with parity. It provides one AUI DB-15 Ethernet port for attachment to a user supplied Ethernet transceiver of any Ethernet media type, 10Base-T, 10Base2, or 10Base5. And it supports both 802.3 and DIX 2.

The IBM Network Terminal Accelerator - 256 and 2048 Session Feature for the RS/6000 systems requires AIX Version 3.2.5 for RS/6000, 5756-030, any available updates and the AIX Network Terminal Server-Accelerator/6000,

5765-268 feature #5050.

RS/6000 500 series systems must have the additional cooling fan feature #6506 installed.

Characteristics:

- 32-bit bus master with address and data parity
- Type 3 form factor using one Micro Channel card slot
- 25-Mhz i960 processor
- 2 MB DRAM
- One 10 Mbps Ethernet interface
- IEEE 802.3 AUI interface with DB-15 connector
- Up to seven adapters may be installed per system depending on the number of slots per model and the number of available slots
- Supports up to 256 concurrent login sessions using Telnet or Rlogin

(#2403) Network Terminal Accelerator - 2048 Session Feature

(For IBM US, No Longer Available as of January 8, 1998)

The IBM Network Terminal Accelerator - 2048 Session Feature is an Ethernet adapter which accelerates network performance by offloading the telnet and rlogin daemons, TCP/IP protocol stack and virtual terminal I/O management from the RS/6000 system. The Network adapter buffers the system from frequent CPU intensive packet interrupts and reduces context switches, dramatically reducing CPU load. The adapter-2048 increases terminal I/O throughput and the number of concurrent on-line user sessions by up to 3 times.

The adapter software also provides a "pass-through" capability for other Ethernet protocols, which can eliminate the need for a separate Ethernet adapter. For network management the adapter supports onboard SNMP.

The adapter is a 32 bit bus master Micro Channel card with a 25-Mhz i960 high-performance RISC processor and 8 MB of two-way bank interleaved DRAM memory with parity. It provides one AUI DB-15 Ethernet port for attachment to a user supplied Ethernet transceiver of any Ethernet media type, 10Base-T, 10Base2, or 10Base5. And it supports both 802.3 and DIX 2.

The IBM Network Terminal Accelerator - 256 and 2048 Session Feature for the RS/6000 systems requires AIX Version 3.2.5 for RS/6000, 5756-030, any available updates and the AIX Network Terminal Server-Accelerator/6000,

5765-268 feature #5050.

RS/6000 500 series systems must have the additional cooling fan feature #6506 installed.

Characteristics:

> 32-bit bus master with address and data parity
>
> Type 3 form factor using one Micro Channel card slot
>
> 25-Mhz i960 processor
>
> 8-MB DRAM
>
> One 10-Mbps Ethernet interface
>
> IEEE 802.3 AUI interface with DB-15 connector
>
> Up to seven adapters may be installed per system depending on the number of slots per model and the number of available slots
>
> Supports up to 2048 concurrent login sessions using Telnet or Rlogin

(#2984, P/N 73G9821) TURBOWAYS 100 ATM Adapter

(For IBM US, No Longer Available as of May 23, 1997)

The TURBOWAYS** 100 ATM Adapter provides high speed connectivity for RS/6000s to an Asynchronous Transfer Mode (ATM) Local Area Network (LAN). The TURBOWAYS 100 ATM Adapter supports high bandwidth applications, such as:

> Remote Site Recovery
>
> Multimedia
>
> Visualization
>
> Medical Imaging
>
> Distance Learning
>
> Video Conferencing

Initial market areas are the high-end engineering, scientific computing, education, leading commercial and government market segments. Customer may install ATM because:

> Current LAN is out of bandwidth

Avoid restructuring a larger LAN into multiple smaller LAN segments to decrease bandwidth contention

Improve overall network performance

Enable new, high bandwidth application development

Technical Description

The TURBOWAYS 100 ATM Adapter enables TCP/IP applications to work in an ATM environment. One virtual connection is dedicated to each IP address and a transformation of each IP address to the corresponding virtual connection is performed.

The TURBOWAYS 100 ATM Adapter connects to multimode fiber using an SC connector.

The initial release supports AAL-5 adaptation layer interface and support 1024 active virtual connections. It also supports point-to-point and point-to-multipoint switched virtual connections.

Using an Intel i960 processor and specialized ATM silicon, for handling the segmentation and reassembly (SAR) function, the TURBOWAYS 100 ATM Adapter is optimized for maximum system efficiency.

The product functions include:

Signalling channel set-up

Virtual connection set-up and tear down

Supports PVC's and SVC's concurrently

Supports a maximum of 1024 VCs

Micro channel streaming

Diagnostics

The Simple Network Management Protocol (SNMP) sub-agent performs the following functions:

Retrieves management information from the adapter

Register with the host platform SNMP agent

Communicate management information collected from the adapter to the SNMP agent

The TURBOWAYS 100 adapter supports Permanent Virtual Circuit (PVC) and ATM Forum compliant Switched Virtual Circuit (SVC) UNI 3.0 signalling SVC/PVC interoperability testing has been conducted with the following switches:

IBM 8260 Intelligent Hub

General DataComm Apex System

N.E.T. Adaptive ATMX

Fore System ASX-100

Limitations

A maximum of two (2) TURBOWAYS 100 ATM Adapter may be installed in a RS/6000. (A maximum of 4 adapters may be installed in a system with 2 Micro Channels)

Corequisites

The TURBOWAYS 100 ATM Adapter requires AIX/6000 Version 3.2.5 shipped after 6/3/94 (labeled AIX/6000 Version 3.2.5 3250-01-04). The TURBOWAYS 100 ATM Adapter Device Driver/6000 (feature 5063) is required and must be ordered separately. Also order PTFs (UR43902)

The TURBOWAYS 100 ATM Adapter requires AIX/6000 Version 4.1.4 shipped after 10/20/95. The device driver is part of the AIX Base Operating System.

Cables

The adapter provides 100-Mbps full-duplex connection to an ATM switch using 62.5 micron (plenum rated) multimode fiber, terminated with an SC connector (this is an industry standard connector). Cables are ordered separately using part numbers and are ordered using the administrative system GEMS.

    MIC to SC, Cable ASM, 2 Meter Fiber, P/N 19G6707

    MIC to SC, Cable ASM, 4 Meter Fiber, P/N 19G6797

    MIC to SC, Cable ASM, 6 Meter Fiber, P/N 19G6798

    MIC to SC, Cable ASM, 10 Meter Fiber, P/N 19G4866

    MIC to SC, Cable ASM, 20 Meter Fiber, P/N 19G6800

    MIC to SC, Cable ASM, 40 Meter Fiber, P/N 19G6801

    MIC to SC, Cable ASM, Custom Lengths, P/N 19G6796

    ST to SC, Cable ASM, 2 Meter Fiber, P/N 19G6708

    ST to SC, Cable ASM, 4 Meter Fiber, P/N 19G4817

    ST to SC, Cable ASM, 6 Meter Fiber, P/N 19G6818

    ST to SC, Cable ASM, 10 Meter Fiber, P/N 19G4819

    ST to SC, Cable ASM, 20 Meter Fiber, P/N 19G4820

    ST to SC, Cable ASM, 40 Meter Fiber, P/N 19G6821

    ST to SC, Cable ASM, Custom Lengths, P/N 19G4816

    SC to SC, Cable ASM, 2 Meter Fiber, P/N 19G6706

    SC to SC, Cable ASM, 4 Meter Fiber, P/N 19G4864

    SC to SC, Cable ASM, 6 Meter Fiber, P/N 19G6865

    SC to SC, Cable ASM, 10 Meter Fiber, P/N 19G4866

    SC to SC, Cable ASM, 20 Meter Fiber, P/N 19G4867

    SC to SC, Cable ASM, 40 Meter Fiber, P/N 19G6868

SC to SC, Cable ASM, Custom Lengths, P/N 19G4863

```
Attributes provided: 1 ATM connection
Attributes required: 1 Micro Channel slot
```

(#2989) TURBOWAYS 155 ATM Adapter

(For IBM US, No Longer Available as of December 1, 2000)

The TURBOWAYS(TM) 155 ATM Adapter provides high speed connectivity for RS/6000s to an Asynchronous Transfer Mode (ATM) Local Area Network (LAN). The TURBOWAYS 155 ATM Adapter supports high bandwidth applications, such as:

Remote Site Recovery

Multimedia

Visualization

Medical Imaging

Distance Learning

Video Conferencing

Initial market areas are the high-end engineering, scientific computing, education, leading commercial and government market segments. Customer may install ATM because:

Current LAN is out of bandwidth

Avoid restructuring a larger LAN into multiple smaller LAN segments to decrease bandwidth contention

Improve overall network performance

Enable new, high bandwidth application development

Technical Description

The TURBOWAYS 155 ATM Adapter enables TCP/IP applications to work in an ATM environment. One virtual connection is dedicated to each IP address and a transformation of each IP address to the corresponding virtual connection is performed.

The TURBOWAYS 155 ATM Adapter connects to multimode fiber using an SC connector.

The initial release supports AAL-5 adaptation layer interface and support 1024 active virtual connections. It also supports point-to-point and point-to-multipoint switched virtual connections.

Using an Intel i960 processor and specialized ATM silicon, for handling the segmentation and reassembly (SAR) function, the TURBOWAYS 155 ATM Adapter is optimized for maximum system efficiency.

The product functions include:

Signalling channel set-up

Virtual connection set-up and tear down

Supports PVC's and SVC's concurrently

Supports a maximum of 1024 VCs

Micro channel streaming

Diagnostics

The Simple Network Management Protocol (SNMP) sub-agent performs the following functions:

Retrieves management information from the adapter

Register with the host platform SNMP agent

Communicate management information collected from the adapter to the SNMP agent

The TURBOWAYS 155 ATM Adapter supports Permanent Virtual Circuit (PVC) and ATM Forum compliant Switched Virtual Circuit (SVC) UNI 3.0 signalling. SVC/PVC interoperability testing has been conducted with the following switches:

IBM 8260 Intelligent Hub

General DataComm Apex System

N.E.T. Adaptive ATMX

Fore System ASX-200

Limitations

A maximum of two (2) TURBOWAYS 155 ATM Adapter may be installed in a RS/6000. (A maximum of 4 adapters may be installed in a system with 2 Micro Channels)

Corequisites

The TURBOWAYS 155 ATM Adapter requires AIX/6000 Version 4.1.4 shipped after 10/20/95. The device driver is part of the AIX Base Operating System.

Device Driver support for AIX 3.2.5 is shipped on diskette with the adapter.

Cables

The adapter provides 155-Mbps full-duplex connection to an ATM switch using 62.5 micron (plenum rated) multimode fiber, terminated with an SC connector (this is an industry standard connector). Cables are ordered separately using part numbers and are ordered using the administrative system GEMS.

MIC to SC, Cable ASM, 2 Meter Fiber, P/N 19G6707

MIC to SC, Cable ASM, 4 Meter Fiber, P/N 19G6797

MIC to SC, Cable ASM, 6 Meter Fiber, P/N 19G6798

MIC to SC, Cable ASM, 10 Meter Fiber, P/N 19G4866

MIC to SC, Cable ASM, 20 Meter Fiber, P/N 19G6800

MIC to SC, Cable ASM, 40 Meter Fiber, P/N 19G6801

MIC to SC, Cable ASM, Custom Lengths, P/N 19G6796

ST to SC, Cable ASM, 2 Meter Fiber, P/N 19G6708

ST to SC, Cable ASM, 4 Meter Fiber, P/N 19G4817

ST to SC, Cable ASM, 6 Meter Fiber, P/N 19G6818

ST to SC, Cable ASM, 10 Meter Fiber, P/N 19G4819

ST to SC, Cable ASM, 20 Meter Fiber, P/N 19G4820

ST to SC, Cable ASM, 40 Meter Fiber, P/N 19G6821

ST to SC, Cable ASM, Custom Lengths, P/N 19G4816

SC to SC, Cable ASM, 2 Meter Fiber, P/N 19G6706

SC to SC, Cable ASM, 4 Meter Fiber, P/N 19G4864

SC to SC, Cable ASM, 6 Meter Fiber, P/N 19G6865

SC to SC, Cable ASM, 10 Meter Fiber, P/N 19G4866

SC to SC, Cable ASM, 20 Meter Fiber, P/N 19G4867

SC to SC, Cable ASM, 40 Meter Fiber, P/N 19G6868

SC to SC, Cable ASM, Custom Lengths, P/N 19G4863

```
Attributes provided: 1 ATM connection
Attributes required: 1 Micro Channel slot


For 7012-370:
  Minimum required:  0
  Maximum allowed: _2_   (Initial order maximum: _2_)
  AIX level required: AIX 3.2.5 - AIX 4.1.4
  Initial Order/MES/Both/Supported: Both
```

(#2992) Ethernet/FDX 10 Mbps TP/AUI MC Adapter

(For IBM US, No Longer Available as of December 1, 2000)

The Ethernet/FDX 10 Mbps TP/AUI MC Adapter is designed to allow the RS/6000 to attach the system to 10 Mbps Ethernet networks. Its parallel processing design reduces adapter latency and increases data throughput. It is Ethernet Version 2 and IEEE 802.3 compatible. The adapter has 2 ports (only one active):

10BaseT (Twisted Pair) and 10Base5 (AUI).

Characteristics:

> 32-bit Busmaster Micro Channel Interface
>
> Address and data parity support
>
> Compatible with IEEE 802.3 or Ethernet Version 2 Interfaces
>
> 10BaseT (Twisted Pair) and 10Base5 (AUI) Connectors

```
Attributes provided: 1 Ethernet 10Base5 connection XOR
                     1 Ethernet 10BaseT connection
Attributes required: 1 Micro Channel slot

For 7012-370:
  Minimum required:  0
  Maximum allowed: _2     (Initial order maximum: _2 )
  OS level required:  AIX 4.1.4 or 4.2
  Initial Order/MES/Both/Supported: Both
```

(#2993) Ethernet 10Mbps BNC MC Adapter

(For IBM US, No Longer Available as of December 1, 2000)

The Ethernet 10Mbps BNC MC Adapter is designed to allow the RS/6000 to attach the system to 10Mbps Ethernet networks. Its parallel processing design reduces adapter latency and increases data throughput. It is Ethernet Version 2 and IEEE 802.3 compatible. The adapter has 1 port: 10Base2 (Coaxial).

Characteristics:

> 32-bit Busmaster Micro Channel Interface
>
> Address and data parity support
>
> Compatible with IEEE 802.3 or Ethernet Version 2 Interfaces
>
> 10Base2 (Coaxial) BNC Connector

> Attributes provided: 1 Ethernet 10Base2 connector
>
> Attributes required: 1 Micro Channel slot
>
> For 7012-370:
>> Minimum required: 0
>>
>> Maximum allowed: _4_ (Initial order maximum: _4_)
>>
>> OS level required: AIX 4.1.4 or 4.2

Initial Order/MES/Both/Supported: Both

(#4221) Ethernet Thick/Thin Connector Interface

(For IBM US, No Longer Available as of March 19, 1999)

Provides a riser card/cable/connector assembly from the integrated Ethernet interface to the rear cover for a standard Thick/Thin cable network. This feature is available as a MES only.
Note: This connector is the standard connector shipped with the system on the initial plant order, unless the Twisted-Pair Connector #9001 is specified. Feature #4221 would be ordered when the user desired to change from the Twisted-Pair Connector to a Thick/Thin Connector.

(#4222) Ethernet Twisted-Pair Connector Interface

(For IBM US, No Longer Available as of March 19, 1999)

Provides a riser card/cable/connector assembly from the integrated Ethernet interface to the rear cover for a twisted-pair network. This feature is available as a MES only. This Feature #4222 would be ordered when the user desired to change from the Thick/Thin Connector to a Twisted-Pair Connector.

(#4224) Ethernet 10BaseT Transceiver (twisted pair)

(For IBM US, No Longer Available as of July 31, 2001)

The Ethernet 10BaseT Transceiver provides the complete Attachment Unit Interface (AUI) to a twisted pair LAN connection. It is connected to a 15-pin DIX Ethernet connection via a transceiver (AUI) cable and converts the signal to 10BaseT. The medium connection is made through an RJ-45 receptacle.

Features include:

Selectable Link Test via external toggle switch

Selectable SQE signal via internal jumper

Five LEDs
Transmit

Receive/Link

Collision

Jabber
Dimensions: 2-7/8 inches x 2-1/8 inches

Wide Area Network (WAN) Communications Adapters

(#2700) 4-Port Multiprotocol Communications Controller

(For IBM US, No Longer Available as of December 1, 2000)

The 4-Port Multiprotocol Communications Controller attaches the 7012 Model 3XX systems to synchronous communications networks using EIA-232C, EIA-422A, V.35 and X.21 physical specifications.

The adapter supports SDLC and BSC protocols, prepares all inbound and outbound data, performs address searches, and in general relieves the system processor of many communications tasks. It is designed to support data rates up to 64 KBps per port with appropriate user provided software.

Support for four interfaces: EIA-232C on Ports 0, 1, 2, and 3, EIA-422A on Ports 0 and 2, CCITT V.35 on Ports 0 and 1, CCITT X.21 on Port 0. Surge protection is provided on EIA-422A interfaces. Devices attach to the adapter via a 4-Port Multiprotocol Interface Cable (#2705).

Characteristics:

> 512-KB RAM for data buffering
>
> Supports four ports concurrently
>
> Four physical interfaces (EIA-232C, EIA-422A, V.35, X.21)
>
> CRC generation and checking
>
> Standard Micro Channel form factor card
>
> Micro Channel Interface:
> > 2-byte Bus Master
>
> Maximum four per system

(#2705) 4-Port Multiprotocol Interface Cable

(For IBM US, No Longer Available as of December 1, 2000)

The 4-Port Multiprotocol Interface cable (#2705) is 3 meters (9.8 ft.) in length and allows for connection of the 4-Port Multiprotocol Communications Controller (#2700) to the desired networks via the following cables:

> Multiprotocol Modem Attachment Cable - EIA-232/V.24 (#2706)
> > 3 Meters (9.8 feet) in length
> >
> > Maximum of 4 per 4-Port Multiprotocol Communications Controller (#2700)
>
> Multiprotocol Attachment Cable - X.21 (#2704)
> > 3 Meters (9.8 feet) in length
> >
> > Maximum of one per 4-Port Multiprotocol Communications Controller (#2700)
>
> Multiprotocol Attachment Cable - V.35 (#2702) - Includes wrap plug
> > 2 Meters (6.5 feet) in length
> >
> > Maximum of 2 per 4-Port Multiprotocol Communications Controller (#2700)

(#2959) Multiprotocol Communications Adapter

(For IBM US, No Longer Available as of October 25, 1996)

The Multiprotocol Communications Adapter (MP/A) provides a one-port synchronous EIA-232D connection supporting speeds up to 19.2 Kbps for communications networks. The MP/A supports modems or direct attachment at speeds up to 19.2 Kbps via one 25-pin D-shell connector. Cables required: An EIA-232D industry-standard cable. IBM cable P/N 1502067 may be used with this adapter.

Characteristics:

Supports one port

EIA-232D interface

External interface speed - 19.2 Kbps maximum

Supports the following interface signals: Tx Rx RTS CTS DTR DSR DCD RI TxCLK RxCLK HRSI

Occupies one Micro Channel slot

Maximum of one adapter per system

Requires Multiprotocol Adapter Connectivity feature #5058.

(#2960) X.25 Interface Co-Processor/2

(For IBM US, No Longer Available as of December 1, 2000)

The X.25 Interface Co-Processor/2 attaches the 7012 Model 3XX to an X.25 Packet Switched network. This X.25 adapter provides a single port that accommodates one of three selectable interfaces: X.21, EIA-232-D/V.24 and V.35. This adapter allows the systems to be attached to an X.25 network, and its on-board software is capable of processing inbound and outbound data streams to off-load communications tasks from the system processor. A wrap plug for diagnostics is included.

Characteristics:

Standard Micro Channel form factor card

512-KB RAM for data buffering

Full duplex, synchronous or asynchronous protocol

X.21 bis (V.24) up to 19.2 KBps

X.21 bis (V.35) up to 56 KBps

X.21 (nonswitched) up to 64 KBps

Maximum four per system

Separate cables of 3 meter (9.8 feet) or 6 meter (19.6 feet) are available for the adapter (two lengths for each interface). A wrap plug is included with each.

(#2965) X.25 Attachment Cable X.21 - 3 meter or 9.8 feet

(For IBM US, No Longer Available as of January 8, 1998)

(#2966) X.25 Attachment Cable V.24 - 3 meter or 9.8 feet

(For IBM US, No Longer Available as of January 8, 1998)

(#2967) X.25 Attachment Cable V.35 - 3 meter or 9.8 feet

(For IBM US, No Longer Available as of January 8, 1998)

(#2976) X.25 Attachment Cable X.21 - 6 meter or 19.6 feet

(For IBM US, No Longer Available as of December 1, 2000)

(#2977) X.25 Attachment Cable V.24 - 6 meter or 19.6 feet

(For IBM US, No Longer Available as of December 3, 2001)

(#2978) X.25 Attachment Cable V.35 - 6 meter or 19.6 feet

(For IBM US, No Longer Available as of December 1, 2000)

370 Coax Communication Connection Adapters

(#2990) 3270 Connection Adapter

(For IBM US, No Longer Available as of March 19, 1999)

The 3270 Connection Adapter connects the system to a mainframe and allows the system to respond like an IBM 3278 or 3279 Display Terminal. This adapter allows a coaxial connection between an 3XX system and an:

    IBM 3174/3274 Display Control Unit
    IBM 4331 and 4361 Integrated Display/Printer Adapter
    IBM 4331 and 4361 Integrated Work/Station Adapter
    IBM 9370 Workstation Subsystem Controller.

No host hardware or host system software modifications are required.

Characteristics:

2 Mbps

Support for emulation of IBM 3278 and 3279 Display Stations

Support for CUT and DFT (non-SNA) modes of operation

Physical layer protocol (Handshake) support provided between connected units

Standard Micro Channel form factor card

Up to four adapters per system may be installed

(#1906) IBM Fibre Channel Adapter/266

(For IBM US, No Longer Available as of May 20, 1996)

The IBM Fibre Channel Adapter/266 is installed in a supported RS/6000 processor. The adapter attaches to the Micro Channel bus, and supports attachment of the IBM 7319 Model 100 Fibre Channel Switch 16/266 to the Fibre Channel network; up to two adapters may be installed per processor, providing attachment to up to two Fibre Channel Switches per RS/6000 processor. (Up to four for dual Micro Channel processors.)

(#2755) Block Multiplexer Channel Adapter

(For IBM US, No Longer Available as of December 1, 2000)

This channel connectivity allows the RS/6000 to communicate to a S/370 or S/390 host using the Block Multiplexer Channel. TCP/IP is supported. This enhancement allows the RS/6000 to be used as a gateway between the S/390 host and the downstream networks that consists of LAN or WAN. Therefore, distributed systems can access the resource, such as NFS and the TCP/IP applications resident at the S/370 host.

Highlights:

Supports TCP/IP protocol

Two adapters concurrently connected to the same host or two different hosts

Supports ES/9000, ES/3090, S/390, 308X and 4381 family of processors

Supports VM, MVS, and AIX/ESA environments

Configuration and control using SMIT

Attachment to ESCON networks using the IBM ESCON Converter Model 1

Supports 3044 channel extender Model 2

API support at the device driver level, the API includes normal mode (3088) similar to the Channel-To-Channel (CTC) protocol and the high performance CLAW (Common Link Access to Workstation). The CLAW protocol can improve the performance on the S/370 processor by reducing the number of interrupts. The protocol selection is part of configuration options using SMIT.

Maximum channel speed of 4.5 MB

Requires AIX 3.2 and the separately orderable feature (#5055) as well as any available updates

S/370 or S/390 TCP/IP support is available in:
    IBM TCP/IP V2R2 for VM (5735-FAL)

    IBM TCP/IP V2R2 for MVS (5735-HAL)

    IBM AIX/ESA V2R1 (5756-112)

Wrap plugs are included. One Micro Channel card slot is required per adapter. A maximum of two adapters per system may be installed

SNA is not supported.

Multipath connection is not supported.

The customer must provide the cabling for the S/370 processor: Channel cable group (#0185).

(#2754) S/390 ESCON Channel Emulator

(For IBM US, No Longer Available as of December 1, 2000)

The ESCON Emulator provides attachment capability via the IBM ESCON architecture for selected tapes providing IBM customers with more choices for implementing data access applications by an ESCON Channel attachment of S/390 tapes to RS/6000 systems. Supporting a data transfer rate of up to 17 Mb per second (MBps), the ESCON Emulator adapter allows attachment of ESCON attached tape subsystems. The adapter uses two Micro Channel* slots. A maximum of two adapters may be installed per processor, depending upon slot availability.

Designed to support specifications for ESCON devices, the ESCON Emulator adapter conforms to most of the standard Micro Channel specifications that are required for tape subsystems.

One wrap plug, two diagnostic diskettes (Standalone and runtime), publications, and two device driver diskettes are included with the hardware adapter. Channel cables are also required and should be ordered separately.

The ESCON Emulator adapter supports the following tape devices with appropriate software installed:

IBM 3490 Magnetic Tape Subsystem, all models

IBM 3490E Magnetic Tape Subsystem, all models

IBM TotalStorage Enterprise Automated Tape Library

IBM 3495 Tape Library Dataserver

(#2756) ESCON Control Unit Adapter

(For IBM US, No Longer Available as of December 1, 2000)

This adapter provides the ability to attach the RS/6000 systems to the IBM Enterprise Systems Connection (ESCON) channels of the System/390 mainframe. The

ESCON Control Unit adapter attaches directly to an ESCON channel providing fiber optical links using LED technology, and also attaches to ESCON Directors (fiber optic switches) to allow for large numbers of connections. Host operating systems supported includes VM/ESA, MVS/ESA, and AIX/ESA.

This adapter requires two slots, and a maximum of two adapters are supported per system.

Characteristics:

Supported on AIX Version 3 with separate feature code and AIX Version 4.1.4 with LPP Program Number 5765-603

Supports VM, MVS, and VSE (SNA only environments)

Supports attachment to either 10-MB or 17-MB ESCON channels

Maximum distance supported using a combination of LED and LASER ESCON links is 43 Km

Supported on AIX Version 3 and AIX Version 4.1.4

Requires user-written application programs for CLAW or 3088 methods of attachment

May be used in conjunction with up to 2 Block Multiplexer Channel Adapter

Requires ESCON external cabling

S/390 TCP/IP support is available in:
```
    -   IBM TCP/IP V2R2 or later for VM (5735-FAL)
    -   IBM TCP/IP V2R2.1 or later for MVS (5735-HAL)
```

The following are not supported:

Multipath

```
Attributes provided: 1 ESCON channel
Attributes required: 2 Micro Channel slot
```

(#2757) Block Multiplexer Channel Adapter Cable

(For IBM US, No Longer Available as of December 1, 2000)

The Block Multiplexer Channel Adapter Cable attaches the Block Multiplexer Channel Adapter (#2755) in the RS/6000 to the Block Multiplexer Channel Cable Assembly (#2758).

(#2758) Block Multiplexer Channel Cable Assembly

(For IBM US, No Longer Available as of December 1, 2000)

The Block Multiplexer Channel Cable Assembly provides connection between the Block Multiplexer Channel Adapter Cable (#2757) and the host processor

customer supplied channel cables.

(#2759) S/370 Channel Emulator/A

(For IBM US, No Longer Available as of December 1, 2000)

The S/370 Channel Emulator/A adapter provides parallel channel attachment capability via the Block Multiplexer Channel for selected printers and tape devices, allowing customers to offload parallel I/O workloads from their S/370 host systems to selected RS/6000 systems. Supporting a data transfer rate of up to 4.5 MB per second (MBps), the S/370 Channel Emulator/A adapter allows attachment of either channel- attached printer devices and tape drives. The adapter uses one Micro Channel* slot, and can support up to four control units (either printer or tape) per Block Multiplexer Channel. A maximum of four adapters may be installed per system, depending upon slot availability.

Designed to support industry specifications for channel devices, the S/370 Channel Emulator adapter conforms to most of the standard Micro Channel specifications, as well as most of the 370 OEMI (Original Equipment Manufacturers' Information) specifications, with the following exceptions:

> The adapter supports four control units, instead of the standard eight;

> The adapter supports a Block Multiplexer Channel cable length of 61 meters (200 feet), instead of the standard 122 meters (400 feet);

> The adapter does not support hardware data-chaining;

> The adapter does not support Micro Channel address parity or data parity.

One 2.4-meter (8-foot) adapter cable, wrap plugs, channel cable terminators, and one diagnostic diskette are included with the hardware adapter. Channel cables are also required and should be ordered separately.

The S/370 Channel Emulator/A adapter supports the following printer or tape devices with appropriate software device drivers installed:

> IBM 3825 Page Printer

> IBM 3827 Page Printer

> IBM 3828 Advanced Function Magnetic Ink Character Resolution (MICR) Printer

> IBM 3835-001 Page Printer

> IBM 3835-002 Advanced Function Printer

> IBM 3900 Advanced Function Printer

> IBM 3480 Magnetic Tape Subsystem, all models

> IBM 3490 Magnetic Tape Subsystem, all models

> IBM 3490E Magnetic Tape Subsystem, all models except the E01 and E11 (SCSI models)

> IBM 3495 Tape Library Dataserver

Note: The S/370 Channel Emulator/A adapter supports both printers and tape devices; however, only one type of device (either printer or tape device) can be used with each S/370 Channel Emulator/A adapter. Customers who wish to have support for both tape and printer devices require at least two S/370 Channel Emulator/A adapters.
The S/370 Channel Emulator/A requires the installation of AIX/6000 Version 3.2 (5736-030) or later, as well as the following PTFs applied:

PTF #U405589

PTF #U403146

Software support for printers is required and can be obtained via the following separately-orderable software product from the Pennant Systems Company:

IBM AIX Print Service Facility/6000 (#5765-140)

Software support for tape devices is also required and can be obtained via the following PRPQ (Programming Request for Price Quotation) product supplied by ADSTAR:

PRPQ #83033 (ADSTAR)

Graphics Adapters

(#2650) GXT150M Graphics Adapter

(For IBM US, No Longer Available as of September 8, 1999)

This graphics adapter is designed for superior 2D performance in an AIXwindows 2D environment. When used in conjunction with the AIXwindows 3D feature and Softgraphics it provides cost-effective 3D performance.

The IBM POWER GXT150M Graphics Adapter provides 1280 x 1024 resolution support, multiple color palettes, and hardware window support.

The IBM POWER GXT150M Graphics Adapter is an 8-bit single buffer, 256 color graphics adapter that attach directly to the Micro Channel.

Characteristics are:

Low-cost, high-performance graphical interface accelerator

Bus Master

Hardware acceleration with a 32-bit graphics dedicated processor for:
Points

Lines

Arc

Circle

Rectangles

Font

Bit Block Transfer

Pattern fill

Hardware rectangular clipping

Hardware cursor (Crosshair cursor and Image cursor-64 X 64)

60 to 77Hz CRT Refresh Modes

256 Colors from a palette of 16 million

Meets ISO 9241 Part 3 on appropriate displays

1280 x 1024 resolution support

Multiple color palettes with hardware window support

Prerequisites:

In addition to the POWER GXT150M, a display meeting the ISO 9241 Part 3 requirements is also required to obtain the reduced flicker operation.

Programming Requirements:

AIX/6000* Version 3.2.5 for RS/6000 with APAR IX42626 and the POWER GXT150M Optional Program Product (OPP) or AIX/6000 Version 3.2.5 shipped after June 10, 1994.
Note: The POWER GXT150M OPP is obtained from the AIX/6000 Version 3.2.5 install media that was shipped after June 10, 1994.

AIXwindows* Environment/6000 (5601-257) Version 1.2.5 or later.

If 3D capability is desired, the AIXwindows 3D feature is also required. This feature provides 3D function through software via the Softgraphics included in this feature. Softgraphics is a complete software implementation of OpenGL**, PEX and PHIGS.

(#2760) Grayscale Graphics Display Adapter

(For IBM US, No Longer Available as of June 17, 1994)

The Grayscale Graphics Display Adapter provides support for an IBM 8508 19-inch monochrome, analog noninterlaced; 1280 x 1024 67 Hz graphic display. Sixteen concurrent shades of gray may be displayed from a palette of 256 shades of gray. This adapter occupies one card slot in the Micro Channel. The cable from the adapter to the display is included and is 2.5 meters (8 feet) in length.

Characteristics:

4-bit pixels, 16 concurrent shades of gray

Palette of 256 shades of gray

Programmable 2-plane sprite cursor (3 gray shades out of 256 shades of gray and transparent mode)

1-bit per pixel mask map allows both rectangular and nonrectangular scissoring

1-bit per pixel maps are color expandable to 4-bits per pixel

Integer coordinate system

Maximum of two per system

(#2768) POWER Gt3i

(For IBM US, No Longer Available as of September 19, 1995)

The POWER Gt3i feature supports 256 colors per pixel from a palette of 16.7 million colors. Custom IBM technology and two on-board processors are combined to provide the functional and performance characteristics described below. The Gt3i feature is packaged on a single card and requires one Micro Channel slot. The feature serves as a 32-Bit busmaster and supports busmaster data streaming mode. Cabling for monitor attachment is provided with the feature.

Characteristics:

- 2D Drawing Primitives
    - Point, Lines
    - Filled and Unfilled
        - Spans
        - Rectangles
        - Polygons
        - Arc
    - Raster Text
- Three-color Programmable Hardware Cursor
- Eight Control Planes
    - Two Overlay Planes
    - Four Window ID Planes
    - One Global Masking
    - One Microcode Plane
- One Hardware Colormap (256 x (8,8,8))
- Bit Block Transfer
- 1280 x 1024 Display Mode
- 60Hz and 77Hz Refresh Mode
- Maximum of Two Adapters per System

Prerequisites:

In addition to the POWER Gt3i, a display meeting the ISO 9241 Part 3 requirements is also required to obtain the reduced flicker operation.

(#2770) Color Graphics Display Adapter

(For IBM US, No Longer Available as of January 6, 1995)

The Color Graphics Display Adapter provides support for 16-inch, 19-inch and 23-inch, analog noninterlaced; 1280 x 1024 60 Hz color graphic displays. 256 concurrent colors from a palette of 16.7 million colors may be displayed. This adapter occupies one card slot in the Micro Channel. The cable from the adapter to the display is included and is 2.5 meters (8 feet) in length.

Characteristics:

8-bit pixels, 256 concurrent colors

16.7 million colors palette

Programmable 2-plane cursor (three colors out of 16.7 million colors and transparent mode)

1-bit per pixel mask map allows both rectangular and nonrectangular scissoring

1-bit per pixel maps are color expandable to 4-bits per pixel

Integer coordinate system

Maximum of two per system

(#2776) POWER Gt4e Graphics Subsystem

(For IBM US, No Longer Available as of October 25, 1996)

The POWER Gt4e is an 8 bit color entry-level 3D graphics adapter that requires only one Micro Channel* adapter slot.

The POWER Gt4e supports high resolution 1280 x 1024 displays and provides color from two palettes with a choice of 256 colors per palette from a selection of 16.7 million colors.

Dual 8 bit frame buffers, a 24 bit hardware Z buffer and floating point processors work to make the Gt4e an improved price/performer for 3D applications.

The Gt4e supports a screen refresh rate of 77Hz which allows it to meet the ISO 9241 Part 3 standard. This ISO standard, one of a group that provides for an excellent working environment for the user's comfort and productivity, sets the criteria for reduced screen flicker and character appearance.

(#2777) POWER Gt3 Feature

(For IBM US, No Longer Available as of August 18, 1993)

The POWER Gt3 feature supports 256 colors per pixel from a palette of 16.7 million colors. Custom IBM technology and two on-board processors are combined to provide the functional and performance characteristics described below. The GT3 feature is packaged on a single card and requires one Micro Channel slot. The feature serves as a 32-Bit busmaster and supports busmaster data streaming mode. Cabling for monitor attachment is provided with the feature.

Characteristics:

2D Drawing Primitives
Point, Lines

Filled and Unfilled
Spans

           Rectangles

           Polygons

           Arc

        Raster Text

      Three-color Programmable Hardware Cursor

      Eight Control Planes
           Two Overlay Planes

           Four Window ID Planes

           One Global Masking

           One Microcode Plane

      Two Hardware Colormaps (256 x (8,8,8))

      Bit Block Transfer

      1280 x 1024 Display Mode

      Maximum of Two Adapters per System

Performance:

A summary of the application level graphics benchmarks using these adapters (such as X11-perf and the Graphics Performance Characterization Picture Level Benchmarks) is available. Prerequisites: None.

(#2790) POWER Gt4x 8-Bit Feature

(For IBM US, No Longer Available as of December 21, 1993)

The POWER Gt4x 8-Bit Feature supports 256 colors per pixel from a palette of 16.7 million colors. Custom IBM technology and six on-board processors are combined to provide the functional characteristics described below. The Gt4x 8-Bit Feature is packaged on three cards and requires two Micro Channel slots. The feature serves as a 32-Bit busmaster and supports busmaster data streaming mode. Cabling for monitor attachment is provided with the feature.

Characteristics:

      Double Buffering

      2D Drawing Primitives
           Point, Lines

           Filled and Unfilled
               Spans

           Rectangles

           Polygons

           Arc

Raster Text

3D Solid Surface Modeling
    Shading (Gouraud and flat)

    Lighting
        Up to 8 Multiple Colored Light Sources

        Ambient, Diffuse, Specular

        Back Face Culling

3D Wireframes
    Depth Cueing

    Antialiasing

Hidden Line and Hidden Surface Removal (24-Bit Z-buffer)

Three Color Programmable Hardware Cursor

Eight control planes
    Two Overlay Planes

    Four Window Control Planes

    One Global Masking Plane

    One Micro-Code Plane

Five Hardware Colormaps (256 x (8,8,8))

Advanced Graphics Primitives
    Ellipse/Arc

    Splines

    Trimmed and Untrimmed NURBS Surfaces

    Triangle Strip

    Polygons with/without Vertex Data

    Polyhedron Edge

    Annotation Text

    Line/Marker Grid

Six Plane Clipping and Three Axis Transformation (Scale, Rotate, Translate)

Bit Block Transfer

Integer and Floating-Point Coordinates

1280 x 1024 Display Mode

Maximum of One per System

Performance:

A summary of the application level graphics benchmarks using these adapters (such as X11-perf and the Graphics Performance Characterization Picture Level Benchmarks) is available. Prerequisites: None.

Note: The POWER Gt4xi graphics adapter (feature #2712, described below) has been announced in September 1993 and replaces the POWER Gt4x 8-bit feature (#2790). The POWER Gt4xi primarily improves the 3D performance of the original POWER Gt4x. To obtain these improvements, additional software (shipped with the adapter) must be installed against the AIX/6000 Version 3.2 operating system. In addition, customers need to install the latest PMP available for the AIX/6000 operating system. For the graPHIGS API, GPC Picture Level Benchmark (PLB) results for the PLBsurf93 show significant performance improvements. Based on these results, it is expected that 3D applications will see performance improvements, but the amount of improvement will vary for each application. Since the functionality of the new adapter is the same as the original adapter, applications which run on the POWER Gt4x require no modifications to run on the performance-enhanced POWER Gt4x.

(#2791) POWER Gt4x 24-Bit Feature

(For IBM US, No Longer Available as of December 21, 1993)

The POWER Gt4x 24-Bit feature supports 16.7 million colors per pixel. The Gt4x 24-Bit feature is packaged on four cards and requires three Micro Channel slots. The feature serves as a 32-bit busmaster and supports busmaster data streaming mode. Cabling for monitor attachment is provided with the feature. Characteristics: Same as #2790. Performance: Same as #2790. Prerequisites: None. Programming Requirements: Same as #2790.

Note: The POWER Gt4xi graphics adapter (feature #2712, described below) has been announced in September 1993 and replaces the 24-bit POWER Gt4x (feature #2791). The POWER Gt4xi primarily improves the 3D performance of the original POWER Gt4x. To obtain these improvements, additional supporting software (shipped with the adapter) must be installed against the AIX/6000 Version 3.2 operating system. In addition, customers need to install the latest PMP available for the AIX/6000 operating system. For the graPHIGS API, GPC Picture Level Benchmark (PLB) results for the PLBsurf93 show significant performance improvements. Based on these results, it is expected that 3D applications will see performance improvements, but the amount of improvement will vary for each application. Since the functionality of the new adapter is the same as the original adapter, applications which run on the POWER Gt4x require no modifications to run on the POWER Gt4xi.

(#2711, #2712) POWER Gt4xi

(For IBM US, #2712 No Longer Available as of January 8, 1998)

(For IBM US, #2711 No Longer Available as of October 25, 1996)

The 8-bit and 24-bit POWER Gt4xi graphics adapters provide 3D graphics capabilities for the 3XX (including 3X5) and 5XX systems, along with maximum configuration flexibility. The POWER Gt4xi adapter (8-bit version) provides double 8-bit frame buffers that allow 256 simultaneous colors from a palette of approximately 16.7 million colors; the POWER Gt4xi adapter (24-bit version) provides double 24-bit frame buffers that allow approximately 16.7 million simultaneous colors. Both adapters also include a standard 24-bit Z-Buffer that assists with hidden-line and surface removal.

The POWER Gt4xi adapters support a display resolution of 1280 x 1024, including monitors that comply with Part 3 of the ISO 9241 ergonomic standard. These ergonomic displays provide users with improved viewing and physical comfort, minimized reflections, and sharper images. The POWER Gt4xi 8-bit and 24-bit adapters require two Micro Channel slots each.

Performance differentiates the functionally equivalent POWER Gt4i from the POWER Gt4xi. The POWER Gt4xi has 4 additional processors that boost its performance to meet the requirements of more demanding graphics applications. The POWER Gt4xi is suitable for a larger range of applications including: 3D mechanical CAD, aerospace applications, reservoir simulations, molecular modeling, and geographical mapping.

RS/6000 supported:
3XX, 5XX
Frame buffer:
POWER Gt4xi 8-Bit (#2711) - Double 8-bit (two 8-bit buffers)
POWER Gt4xi 24-Bit (#2712) - Double 24-bit (two 24-bit buffers)

Z-Buffer:
24-bit
Overlay planes:
2
Advanced Hardware functions:
Dithering(8-bit), depth cueing, antialiased lines, Gouraud shading, local lighting, NURBS
API support:
Xlib, GKS, Display PostScript, GL, graPHIGS, PEXlib, OpenGL
Maximum adapters per system:
1

(#2792) POWER Gt4 8-Bit to 24-Bit Upgrade

(For IBM US, No Longer Available as of August 26, 1994.)

The POWER Gt4 8-Bit to 24-Bit Field Upgrade is a field installable feature that provides true color at 16.7 million colors. This feature is installed on either the POWER Gt4x 8-Bit Feature (#2790) or the POWER Gt4 8-Bit Feature (#2795). This feature is packaged on a single card and requires one additional Micro Channel slot (total of three). Prerequisites: #2790 or #2795. Performance: Same as #2790 or #2795 (as appropriate).

(#2794) POWER Gt4 Performance Upgrade

(For IBM US, No Longer Available as of August 26, 1994.)

The POWER Gt4 Performance Upgrade is a field installable feature that boosts the performance level of either the Gt4 8-Bit Feature (#2795) or the POWER Gt4 24-Bit Feature (#2796). When this feature is installed the performance level is equivalent to that of the POWER Gt4x (#2790 or #2791). This feature is packaged on a single card and requires no Micro Channel slot. Prerequisites: #2795 or #2796.

(#2795) POWER Gt4 8-Bit Feature

(For IBM US, No Longer Available as of December 21, 1993)

The POWER Gt4 8-Bit Feature supports 256 colors per pixel from a palette of 16.7 million colors. The Gt4 8-Bit feature is packaged on two cards and requires two Micro Channel slots. The feature serves as a 32-bit busmaster and supports busmaster data streaming mode. Cabling for monitor attachment is provided with the feature. Characteristics: Same as #2790.

(#2796) POWER Gt4 24-Bit Feature

(For IBM US, No Longer Available as of December 21, 1993)

The POWER Gt4 24-Bit feature supports 16.7 million colors per pixel. Custom IBM technology and two on-board processors are combined to provide the functional and performance characteristics described below. The Gt4 24-Bit feature is packaged on three cards and requires three Micro Channel slots. The feature serves as a 32-Bit busmaster and supports busmaster data streaming mode. Cabling for monitor attachment is provided with the feature. Characteristics: Same as #2790. Performance: Same as #2795. Prerequisites: None.
Note: The POWER Gt4i graphics adapter (feature #2713, described below) has been announced in September 1993 and replaces the POWER Gt4 24-bit feature (#2796). Identical in function to the POWER Gt4 (24-bit) adapter, the 24-bit POWER Gt4i primarily improves the 3D performance of the POWER Gt4. To obtain these improvements, additional supporting software (shipped with the adapter) must be installed against the AIX/6000 Version 3.2 operating system. In addition, customers need to install the latest PMP available for the AIX/6000 operating system. For the graPHIGS API, GPC Picture Level Benchmark (PLB) results for the PLBsurf93 show significant performance improvements. Based on these results, it is expected that 3D applications will see performance improvements, but the amount of improvement will vary for each application. Since the functionality of the new adapter is the same as the original adapter, applications which run on the POWER Gt4 24-bit require no modifications to run on the POWER Gt4i.

(#2713) POWER Gt4i

(For IBM US, No Longer Available as of October 25, 1996)

The 24-bit POWER Gt4i graphics adapter provides 3D graphics capability for the 3XX (including all 3X5) and 5XX systems, along with maximum configuration flexibility. The adapter provides double 24-bit frame buffers that allow the display of approximately 16.7 million simultaneous colors. The POWER Gt4i adapter also includes a standard 24-bit Z-Buffer that assists with hidden-line and surface removal.

The POWER Gt4i supports a display resolution of 1280 x 1024, including monitors that comply with Part 3 of the ISO 9241 ergonomic standard. These ergonomic displays provide users with improved viewing and physical comfort, minimized reflections, and sharper images. The POWER Gt4i requires two Micro Channel slots.

Performance differentiates the functionally equivalent POWER Gt4i from the POWER Gt4xi. The POWER Gt4xi has 4 additional processors that boost its performance to meet the requirements of more demanding graphics applications. The POWER Gt4xi is suitable for a larger range of applications including: 3D mechanical CAD, aerospace applications, reservoir simulations, molecular modeling, and geographical mapping.

The POWER Gt4i is suitable for the same types of applications as the POWER Gt4e, though the POWER Gt4i provides 24-bit color function instead of 8-bit color.

RS/6000 supported:
3XX, 5XX
Frame buffer:
Double 24-bit (two 24-bit buffers)
Z-Buffer:
24-bit
Overlay planes:
2
Advanced Hardware functions:
Dithering(8-bit), depth cueing, antialiased lines, Gouraud shading, local lighting, NURBS
API support:
Xlib, GKS, Display PostScript, GL, graPHIGS, PEXlib, OpenGL

Maximum adapters per system:
1

(#2820) 7250 Attachment Adapter

The 7250 Attachment Adapter is a factory or field installed Micro Channel adapter card that must be installed in the supported RS/6000 workstation in order to attach the POWER GXT1000 unit. Quantity allowed per workstation: two on machine type 7012.

(#4350) RS/6000 7235 POWER GTO Accelerator Feature

(For IBM US, No Longer Available as of November 4, 1994)

The POWER GTO Accelerator feature provides for the attachment of the IBM 7235 POWER GTO subsystem. This feature occupies one I/O slot in the Micro Channel. Maximum: One per system.

(#2800) System/370 Host Interface Adapter

(For IBM US, No Longer Available as of January 30, 1998)

The System/370 Host Interface Adapter (HIA) is designed to work as a high-speed connection to the System/370 or System/390 host for high-speed file transfer. The HIA can be used in conjunction with the 5086 Attachment Adapter (#2801) or the 5085 Attachment Adapter (#2802). The HIA provides high-speed file transfer between the RS/6000 processor and the System/370 or System/390 through an IBM 5088 Channel Controller Unit or 6098 Channel Control Unit. Multiple HIAs may be installed on RS/6000 models with multiple card slots to access other host systems/applications.

(#2801) 5086 Attachment Adapter

(For IBM US, No Longer Available as of October 25, 1996)

The 5086 Attachment Adapter provides two functions for the RS/6000 processor. The adapter provides a direct connection to the IBM 5086 Graphics Processor from the RS/6000 processor so that the 5086 can utilize the RS/6000 processor based applications. The adapter also provides a switching capability that allows the 5086 to bypass the RS/6000 processor and utilize the applications that reside on the System/370. One Micro Channel card slot is used by this adapter. Only one 5086 or 5085 Attachment per system is allowed.

(#2802) 5085 Attachment Adapter

(For IBM US, No Longer Available as of October 25, 1996)

The 5085 Attachment Adapter provides two functions for the RS/6000 processor. The adapter provides a direct connection to the IBM 5085 Graphics Processor from the RS/6000 processor so that the 5085 can utilize the RS/6000 based applications. The adapter also provides a switching capability that allows the 5085 to bypass the RS/6000 processor and utilize the applications that reside on the System/370. One Micro Channel card slot is used by this adapter. Only one 5086 or 5085 Attachment per system is allowed.

(#2810) Graphics Input Device Adapter

(For IBM US, No Longer Available as of March 19, 1999)

The Graphics Input Device Adapter provides attachment of the IBM 6094 Model 010 Dials and the IBM 6094 Model 020 Lighted Program Function Keyboard. This two port card provides control lines as well as DC power to the attached devices. This feature occupies one Micro Channel card slot. Only one Graphics Input Device Adapter is allowed per system.

(#2811) Graphics Input Device Cable

(For IBM US, No Longer Available as of March 19, 1999)

This cable is made available for users who have previously purchased the IBM 6094 Dials Model 010 or the IBM 6094 Lighted Program Function Keyboard Model 020 or the IBM 5083 Tablet Models 021 and 022 for other IBM systems and who wish to attach these devices on the 3XX. The cable is 2.1 meters (7 feet) in length.

Displays

(#3608) POWERdisplay 20

(For IBM US, No Longer Available as of September 12, 1995)

Feature 3608 is a full-price feature used to order a POWERdisplay 20 (featuring a Trinitron** CRT with a maximum viewable image size of 486mm (19.1 inches) measured diagonally) for any applicable RS/6000 model.

The POWERdisplay 20 is a high-resolution graphics raster scan color display. It is intended for high-resolution graphics applications and supports an Analog RGB and separate horizontal and vertical sync.

The POWERdisplay 20 provides sharp, bright, realistic colors with minimum distortion. It offers a premium high-contrast anti-reflective multilayer bonded panel that results in strikingly clear images. It virtually eliminates static discharge from the front of the screen. The POWERdisplay 20 adheres to the Video Electronics Standards Association (VESA) display power management signaling (DPMS) process. This function allows the display to reduce power consumption to 10 watts when the workstation power is off, allowing it to meet requirements for the Environmental Protection Agency (EPA) "Energy Star" program. The POWERdisplay 20 meets ISO 9241 Part 3 recommendations for VDT ergonomics and also meets Very Low Frequency Magnetic Field (VLMF), Extremely Low Frequency Magnetic Field (ELMF), Very Low Electrical Field (VLEF), and Extremely Low Electrical Field (ELEF) emission standards. Operator controls for power, brightness, contrast, image tilt, horizontal and vertical static convergence, geometry, vertical and horizontal centering, and indicators are included in a front accessible panel. A tilt swivel base is standard. The display automatically synchronizes with various screen formats.

Voltage/Power Cord: No specify code is required to order the default 6-ft power cord option. High voltage (200-240V 50 Hz) and the appropriate power cord is automatically supplied based on the 3-digit country code.

CRT Size: 20-inch CRT

Stripe Pitch: 0.31 mm

Factory Set Image Size

    350 mm x 280 mm (1280 x 1024)

    360 mm x 270 mm (1024 x 768)

Maximum viewable image size H x V: 388 mm (15.5 in.) x 292 mm (11.5 in.), 19.1 inches measured diagonally.

Maximum resolution: 1600 x 1280 at 60 Hz noninterlaced refresh rate

Optimum Resolution: 1280 x 1024 at 77 Hz noninterlaced refresh rate

Typical Resolutions:

    1280 x 1024 at 77 Hz noninterlaced refresh rate

    1280 x 1024 at 60 Hz noninterlaced refresh rate

    1600 x 1280 at 60 Hz noninterlaced refresh rate

    1024 x 768 at 75 Hz noninterlaced refresh rate

Stereo ready resolutions

    1280 x 496 at 120 Hz screen refresh rate

    900 x 720 at 108 Hz screen refresh rate

Vertical Scan Freq.: 50 to 150 Hz noninterlaced

Horizontal Scan Freq.: 29 - 82 KHz

Adheres to the VESA display power management signaling (DPMS) to reduce energy Consumption and increase product life

Energy Star Program compliant

Meets ISO 9241 Part 3 recommendations for VDT ergonomics

Meets Nordic MPR-II emission standards

Meets Federal Communication Commission (FCC) Class B, VCCI Class 2, and CISPR 22 Class B requirements

Has digital operator controls for power, brightness, contrast, horizontal and vertical static convergence, vertical centering, geometry, and color temperature selection.

Power Source Loading: 0.48 KVA

Maximum Power Consumption: 140 W

Maximum Thermal Output: 480 BTU/Hr.

Maximum Sound Power: <3.5 bels referenced at 1 picoWatt

Maximum Sound Power: <3.5 bels referenced at 1 picoWatt

Voltage: 100/120V AC, 220/240V AC, 50/60 Hz

Operating Environment:

    Temperature: 10 to 40 degrees C (60 to 90 degrees F)

    Relative Humidity: 10 to 80 percent

Tilt/swivel base is included

Note: The POWERdisplay 17 and 20 do not offer video redrive or auxiliary power as did the 6091 displays. The IBM POWERdisplay 17-inch monitor has an actual viewable screen size of 16.1 inches when measured diagonally. The IBM POWERdisplay 20-inch monitor has an actual viewable screen size of 19.1 inches when measured diagonally. There are several options with which to supply power to the 6093/6094 peripherals:

If a Micro Channel expansion slot is available in the RS/6000, please order the Graphics Input Device Adapter (FC 2810) and appropriate signal cables (FC 2811). The Dials and LPFK each need a signal cable. The 6094-030 is not supported on the Graphics Input Device Adapter.
Since the Graphics Input Device Adapter supplies power, no additional power supplies or auxiliary power cables are needed.

If a Micro Channel expansion slot is not available in the RS/6000, separate power supplies are needed. For the 6094-010 Dials and the 6094-020 LPFKs please order from the following feature codes (order one per peripheral):
4063 100 Volt Power Supply
4064 120 Volt Power Supply
4065 220/240 Volt Power Supply

For the 6094-030 Spaceball 3-D Input Device order the following specify codes:
9526 100 Volt Power Supply
9527 120 Volt Power Supply
9529 220/240 Volt Power Supply

If a Micro Channel expansion slot is not available, separate power supplies are not acceptable by the customer, and video redrive is needed, order the 6091-19i display (with a Trinitron CRT that has a fixed image size of 439mm (17.3 inches) measured diagonally).

(#3607) POWERdisplay 17

(For IBM US, No Longer Available as of October 6, 1995)

Summary:

Feature 3607 is a full-price feature used to order a POWERdisplay 17 (featuring a Trinitron** CRT with a maximum viewable image size of 409mm (16.1 inches) measured diagonally) for any applicable RS/6000 model.

Technical Description:

The POWERdisplay 17 is a high-resolution graphics raster scan color display. It is intended for high-resolution graphics applications and supports an Analog RGB and separate horizontal and vertical sync. The POWERdisplay 17 provides sharp, bright, realistic colors with minimum distortion. It offers a premium high-contrast anti-reflective multilayer bonded panel that results in strikingly clear images. It virtually eliminates static discharge from the front of the screen. The POWERdisplay 17 adheres to the Video Electronics Standards Association (VESA) display power management signaling (DPMS) process. This function allows the display to reduce power consumption to 10 watts when the workstation power is off, allowing it to meet requirements for the Environmental Protection Agency (EPA) "Energy Star" program. The POWERdisplay 17 meets ISO 9241 Part 3 recommendations for VDT ergonomics and also meets Very Low Frequency Magnetic Field (VLMF), Extremely Low Frequency Magnetic Field (ELMF), Very Low Electrical Field (VLEF), and Extremely Low Electrical Field (ELEF) emission standards. Operator controls for power, brightness, contrast, image tilt, horizontal and vertical static convergence, geometry, vertical and horizontal centering, and indicators are included in a front accessible panel. A tilt swivel base is standard. The display automatically synchronizes with various screen formats.

Voltage/Power Cord: No specify code is required to order the default 6-fit power cord option. High voltage (200-240V 50 Hz) and the appropriate power cord is automatically supplied based on the 3-digit country code.

CRT Size: 17-inch CRT

Stripe Pitch: 0.31 mm

Factory Set Image Size
193 mm x 234 mm (1280 X 1024)

300 mm x 225 mm (1024 X 768)

Maximum viewable image size H x V: 328 mm (12.9 in.) x 245 mm (9.6 in.), 16.1 inches measured diagonally.

Maximum resolution: 1280 x 1280 at 77 Hz noninterlaced refresh rate

Optimum Resolution: 1280 x 1024 at 77 Hz noninterlaced refresh rate

Typical Resolutions:
1280 x 1024 at 77 Hz noninterlaced refresh rate

1280 x 1024 at 60 Hz noninterlaced refresh rate

1024 x 768 at 75 Hz noninterlaced refresh rate

Stereo ready resolutions
1280 x 496 at 120 Hz screen refresh rate

900 x 720 at 108 Hz screen refresh rate

Vertical Scan Freq.: 50 to 150 Hz noninterlaced

Horizontal Scan Freq.: 29 - 82 KHz

Adheres to the VESA display power management signaling (DPMS) to reduce energy Consumption and increase product life

Energy Star Program compliant

Meets ISO 9241 Part 3 recommendations for VDT ergonomics

Meets Nordic MPR-II emission standards

Meets Federal Communication Commission (FCC) Class B, VCCI Class 2, and CISPR 22 Class B requirements

Has digital operator controls for power, brightness, contrast, horizontal and vertical static convergence, vertical centering, geometry, and color temperature selection.

Power Source Loading: 0.48 KVA

Maximum Power Consumption: 140 W

Maximum Thermal Output: 480 BTU/Hr.

Maximum Sound Power: <3.5 bels referenced at 1 picoWatt

Maximum Sound Power: <3.5 bels referenced at 1 picoWatt

Voltage: 100/120V AC, 220/240V AC, 50/60 Hz

Operating Environment:
Temperature: 10 to 40 degrees C (60 to 90 degrees F)

Relative Humidity: 10 to 80 percent

Tilt/swivel base is included

Note: The POWERdisplay 17 and 20 do not offer video redrive or auxiliary power as did the 6091 displays. The IBM POWERdisplay 17-inch monitor has an actual viewable screen size of 16.1 inches when measured diagonally. The IBM POWERdisplay 20-inch monitor has an actual viewable screen size of 19.1 inches when measured diagonally. There are several options with which to supply power to the 6093/6094 peripherals:

If a Micro Channel expansion slot is available in the RS/6000, please order the Graphics Input Device Adapter (FC 2810) and appropriate signal cables (FC 2811). The Dials and LPFK each need a signal cable. The 6094-030 is not supported on the Graphics Input Device Adapter.
Since the Graphics Input Device Adapter supplies power, no additional power supplies or auxiliary power cables are needed.

If a Micro Channel expansion slot is not available in the RS/6000, separate power supplies are needed. For the 6094-010 Dials and the 6094-020 LPFKs please order from the following feature codes (order one per peripheral):
4063 100 Volt Power Supply
4064 120 Volt Power Supply
4065 220/240 Volt Power Supply

For the 6094-030 Spaceball 3-D Input Device order the following specify codes:
9526 100 Volt Power Supply
9527 120 Volt Power Supply
9529 220/240 Volt Power Supply

If a Micro Channel expansion slot is not available, separate power supplies are not acceptable by the customer, and video redrive is needed, order the 6091-19i display (with a Trinitron CRT that has a fixed image size of 439mm (17.3 inches) measured diagonally).

(#3600) POWERdisplay 16

(For IBM US, No Longer Available as of December 21, 1993)

The POWERdisplay 16 is a 16-inch high resolution graphics raster scan color monitor. The IBM POWERdisplay 16-inch monitor has an actual viewable screen size of 14.8 inches when measured diagonally. The POWERdisplay 16 is intended for high resolution graphic applications and supports an Analog RGB and separate horizontal and vertical sync. The POWERdisplay provides sharp, bright, realistic colors with minimum distortion. Signal redrive is provided for all input signals. The anti- reflective CRT surface treatment virtually eliminates screen reflections while optimizing image quality.

The POWERdisplay 16 meets ISO 9241 Part 3 recommendations for Video Display Terminal (VDT) ergonomics and also meets Very Low Frequency Magnetic Field (VLMF) and Extremely Low Frequency Magnetic Field (ELMF) emission standards and virtually eliminates static discharge from the front of the screen. The IBM POWERdisplay 16-inch monitor has an actual viewable screen size of 14.8 inches when measured diagonally. Operator controls for power, brightness, contrast, selectable screen formats, horizontal and vertical static convergence, vertical centering, and indicators are included in a front accessible panel. A tilt swivel base is standard.

Voltage/Power Cord: No specify code is required to order the default six foot Power Cord option. High voltage (200-240V 50Hz) and the appropriate power cord is automatically supplied based on the 3 digit country code.

Resolution: 1280 x 1024

Vertical Scan Frequency: 77 Hz noninterlaced

Horizontal Scan Frequency: 82 KHz

View Area, H x V: 11.5 x 9.2 inches

(#3601) POWERdisplay 19

(No Longer Available as of February 25, 1994;replaced by POWERdisplay 20)

The POWERdisplay 19 is a 19-inch high resolution graphics raster scan color monitor. The IBM POWERdisplay 19-inch monitor has an actual viewable screen size 19 17.3 inches when measured diagonally. The POWERdisplay 19 is intended for high resolution graphic applications and supports an Analog RGB and separate horizontal and vertical sync. The POWERdisplay provides sharp, bright, realistic colors with minimum distortion. Signal redrive is provided for all input signals. The antireflective CRT surface treatment virtually eliminates screen reflections while optimizing image quality.

The POWERdisplay 19 meets ISO 9241 Part 3 recommendations for Video Display Terminal (VDT) ergonomics and also meets Very Low Frequency Magnetic Field (VLMF) and Extremely Low Frequency Magnetic Field (ELMF) emission standards and virtually eliminates static discharge from the front of the screen. The IBM POWERdisplay 19-inch monitor has an actual viewable screen size of 17.3 inches when measured diagonally. Operator controls for power, brightness, contrast, selectable screen formats, horizontal and vertical static convergence, vertical centering, and indicators are included in a front accessible panel. A tilt swivel base is standard.

Voltage/Power Cord: No specify code is required to order the default six foot Power Cord option. High voltage (200-240V 50Hz) and the appropriate power cord is automatically supplied based on the 3 digit country code.

  Resolution: 1280 x 1024

  Vertical Scan Frequency: 77 Hz noninterlaced

  Horizontal Scan Frequency: 82 KHz

  View Area, H x V: 13.5 x 10.8 inches

(#3612) IBM P50 Color Monitor

(For IBM US, No Longer Available as of July 18, 1997)

The IBM P50 Color Monitor (featuring a Trinitron** CRT) has a maximum image size of 13.6 inches/346mm measured diagonally. This high quality premium monitor is designed to support a wide range of attachment platforms and display modes, utilizing microprocessor-controlled, multifrequency operation.

IBM P50 Color Monitors provide:

  0.26mm Trinitron** CRTs for bright, crisp, high definition images

  Digital user controls

  On Screen Display for ease of operation

  SWEDAC MPR-II emissions compliance

  ISO 9241-3 capability

  Energy Star and NUTEK power management capability

(#3613) IBM P70 Color Monitor

(For IBM US, No Longer Available as of July 21, 1998)

The IBM P70 Color Monitor (featuring a Trinitron** CRT) has a maximum image size of 15.9 inches/403mm measured diagonally. This high quality premium monitor is designed to support a wide range of attachment platforms and display modes, utilizing microprocessor-controlled, multifrequency operation.

IBM P70 Color Monitors provide:

0.26mm Trinitron** CRTs for bright, crisp, high definition images

Digital user controls

On Screen Display for ease of operation

SWEDAC MPR-II emissions compliance

TCO-91 emissions compliance

ISO 9241-3 capability

Energy Star and NUTEK power management capability

(#3615) P201 Color Monitor

(For IBM US, No Longer Available as of July 21, 1998)

The IBM P201 Color Monitor features a 20-inch Trinitron** CRT with a viewable image size of 19.1 inches (486 mm). This high-quality IBM top- of-the-line premium monitor is designed to support a wide range of attachment platforms and display modes, utilizing microprocessor- controlled, multifrequency operation.

IBM P201 Color Monitors provide:

0.26 mm Trinitron CRTs for bright, high-definition images

Digital user controls

SWEDAC MPR-II emissions compliance

TCO-91 emissions compliance

ISO 9241-3 capability

```
Attributes provided:  Color Display
Attributes required:  Graphics adapter and a Display Cable
For 7012-370:
  Minimum required:  0
  Maximum allowed:  1 per graphics adapter (Initial order max: same)
  AIX level required:  Does not apply
  Initial Order/MES/Both/Supported:  Both
```

(#3614) IBM P200 Color Monitor

(For IBM US, No Longer Available as of July 21, 1998)

The IBM P200 Color Monitor (featuring a Trinitron** CRT) has a maximum image size of 19.1 inches/486mm measured diagonally. This high quality premium monitor is designed to support a wide range of attachment platforms and display modes, utilizing microprocessor-controlled, multifrequency operation.

IBM P200 Color Monitors provide:

> 0.31mm Trinitron** CRTs for bright, crisp, high definition images
>
> Digital user controls
>
> On Screen Display for ease of operation
>
> SWEDAC MPR-II emissions compliance
>
> TCO-91 emissions compliance
>
> ISO 9241-3 capability
>
> Energy Star and NUTEK power management capability

(#4234) 13W3 to 13W3 Display Cable

(For IBM US, No Longer Available as of December 3, 2001)

This cable attaches displays with 13W3 video connectors to graphics adapters with 13W3 connectors, that require '1010' ID Bits presented at the monitor interface.

(#4236) 13W3 to 3W3 Display Cable

(For IBM US, No Longer Available as of September 8, 1999)

This cable attaches displays with 13W3 video connectors to graphics adapters with 3W3 connectors.

(#9004) Southern Hemisphere SPECIFY for P50/P70/P200 Color Monitors

(No longer available as of December 31, 2020)

Specifies that a southern hemisphere model of the P50, P70, or P200 color monitor is required on the initial plant order.

Ruggedized Features

(#6532) Rack Mount/Environmentally-Hardened Option

(For IBM US, No Longer Available as of July 18, 1997)

The Rack Mount/Environmentally-Hardened Option is available only with the initial plant order of the 360 or 370 and provides the additional hardware to allow it to be ruggedized and rack mounted into a standard 19 inch equipment rack.

This feature repackages the standard 360 or 370 operating hardware into a metal chassis and covers to allow it to operate in hostile environments. A card retention system and an advanced disk mounting system have been incorporated into the design to withstand increased vibration and shock. A higher capacity fan is used to enhance cooling. The fold down front bezel of the 360 or 370 contains a built-in foam block which fits over the diskette opening to block dust entry. Space is provided in the front bezel for an air filter.

These are the environmental specifications of a 360 or 370 when used with this feature:

```
  VIBRATION/SHOCK:
    Random Vibration:  (Operational), all three axes.
    2.0 g's RMS, 10 Hz to 2.0 KHz, with Power Spectral Density (PSD)
         levels of 0.0027 g**2/Hz
    -6 dB/Oct for 1.0 KHz to 2.0 KHz

    Sine Vibration:  (Operational), all three axes.
    1.0 g's, 10 Hz to 2.0 KHz

    Shock:  (Operational), all three axes.
    12 g's, 1/2 sine, 10 msec.

  TEMPERATURE:   +5 to 32 degrees C - Operational
                 +1 to 43 degrees C - Nonoperational

  HUMIDITY:   8% to 80%, noncondensing.

  ALTITUDE:   -1,000 to  7,000 feet - Operational
              -1,000 to 40,000 feet - Nonoperational

  EMC/EMI:   FCC CLASS A
```

(#6531) 19-Inch Equipment Rack Mounting Hardware

(For IBM US, No Longer Available as of July 18, 1997)

This feature provides mounting hardware to install your Rack Mount/Environmentally-Hardened 360 or 370 in an EMCOR Series 10, EMCOR ESQ, EMCOR 1 or equivalent 19-inch equipment rack. This feature is necessary if you plan to use your system under conditions of extreme vibration and shock. However, if you plan to use your system in a more "typical" office environment this hardware or another 19-inch rail may be used.

Prerequisites: This feature can only be ordered in conjunction with the Rack Mount/Environmentally-Hardened Option (#6532). Also, it is available with the initial plant order only.

Other Adapters

(#6300) Digital Trunk Adapter

(For IBM US, No Longer Available as of July 18, 1997)

The Digital Trunk Adapter attaches one 9291 Single Digital Trunk Processor system or one 9295 Multiple Digital Trunk Processor system to a RS/6000 system. Each Digital Trunk Adapter will allow up to 24 T1 or 30 CEPT telephone channels to be attached to it.

Corequisites: Direct Talk Version 1.6 LPP is required for Device Driver support with AIX 4.1.

```
Attributes provided: 24 T1 telephone channels
          OR
          30 CEPT telephone channels
Attributes required: 1 Micro Channel slot
```

(#6301) M-Audio Capture and Playback Adapter

(For IBM US, No Longer Available as of January 6, 1995)

The RS/6000 M-Audio Capture and Playback Adapter provides the capability to record and playback high-quality sound. The adapter works with standard audio input devices, including microphone, compact disc and cassette players. The sound can be played back through a variety of devices, including headphones, speakers and amplifiers. A maximum of four adapters per system may be installed. Each adapter requires one Micro Channel card slot.

(#6302) IBM Ultimedia Audio Adapter for the RS/6000

(For IBM US, No Longer Available as of March 19, 1999)

The Ultimedia* Audio Adapter for the RS/6000* provides a cost- effective, 16-bit audio adapter suitable for many applications, such as: business audio, multimedia desktop authoring, presentation audio and desktop collaboration.

The Ultimedia Audio Adapter for the RS/6000 is packaged on a single 1/2 length microchannel card and supports 3rd party DMA for data transfer.

A coded chip supports the conversion of data between digital audio formats and analog audio signals. The coded based solution adds to the flexibility of the audio solution in that the RS/6000 RISC based system processor completes the remaining tasks of supporting the audio functionality at a higher level than the more standard hardware intensive audio adapters.

The IBM Ultimedia Audio Adapter for the RS/6000 provides support for standard input/output devices, including audio players, microphones, and speakers through connectors on the card's rear panel.

MACHINE REQUIREMENTS: One Microchannel slot is required (half length).

LIMITATIONS: A maximum of two audio adapters may be installed on R10, R20, and R24 systems. A maximum of one audio adapter may be installed on all other system units.

COMPATIBILITY: This adapter supports audio formats compatible with the M-ACPA, (FC 6301); except IBM ADPCM, 8-bit signed or 2's complement, or 16-bit unsigned.

(#6305) Digital Trunk Dual Adapter

(For IBM US, No Longer Available as of April 26, 1999)

The Digital Trunk Dual Adapter attaches up to two 9291 Single Digital Trunk Processor systems or 9295 Multiple Digital Trunk Processor systems to a RS/6000 system. Each Digital Trunk Dual Adapter will allow up to 48 T1 or 60 CEPT telephone channels to be attached to it.

Corequisites: Direct Talk Version 1.6 LPP is required for Device Driver support with AIX 4.1.

```
Attributes provided: 24 T1 telephone channels
          OR
          30 CEPT telephone channels
Attributes required: 1 Micro Channel slot
```

(#2400) M-Video Capture Adapter

(For IBM US, No Longer Available as of January 6, 1995)

The M-Video Capture Adapter provides the capability to capture, display and digitize high-quality video images for use in presentations and applications.

The adapter accepts video input signals through a multipin connection on the adapter. The on-board processor converts the signal to a digital format that can be manipulated, compressed and stored for later use.

The video adapter also contains output connectors, for attachment to a monitor, which allow the user to view captured images during the capturing process. The adapter display capability is not required to run presentations containing captured images.

The video adapter end-bracket contains a 20-pin connector. The associated cable, included with the adapter, supports input/output jacks for connection to RGB (Red-Green-Blue), NTSC (National Television Standard Code, also known as Composite Video) and Y/C (Luminance/Chrominance) devices. The Y/C capability allows the user to capture a significantly higher quality image than those available from NTSC. Y/C devices, such as Super VHS video cameras and VCRs, are now emerging in the video marketplace. The adapter accepts input from devices that meet the following standards/specifications:

Analog RGB Video Input (EIA RS-170A)

NTSC Composite Video Input (EIA RS-170A)

Luminance/Chrominance Video Input (EIA RS-170A)

The M-Video Capture Adapter outputs to devices with the following output standards/specifications:

Analog RGB Video Output (EIA RS-170A)

NTSC Composite Video Output (EIA RS-170A)

Luminance/Chrominance Video Output (EIA RS-170A)

Input/Output Connectors

Video Connectors:
Adapter cable with ten RCA plugs: two NTSC Input/Output; six RGB Input/Output (two lines are shared for Y/C input); two Composite synchronous input/output

Adapter cable with two RCA plugs -- Y/C Output.

Resolution: 640 x 480 x 16

Full frame capture from motion video in 1/30 seconds

Captures 65,536 colors with a resolution of 640 x 480 x 16 bits

614-KB dual-ported video RAM buffer

Various image display modes (memory, overlay, transparent, pixel)

Each adapter requires one Micro Channel card slot. A maximum of two adapters per system is supported.

Due to mechanical interference, the system unit rear cover cannot be attached to the system unit while the M-VCA primary I/O attachment cable is installed.

Cable Orders: All cables sold by IBM for use with this adapter are included with the product. Cables for input/output device connection are the customer's responsibility.

Keyboards and Mouse

(#6010) Keyboard - 101 Keys

(No Longer Available as of February 6, 1998)

Supports 101 keys, speaker, and double rate typematic default speed for the cursor keys. A detachable 3 meter (9.8 feet) cable is included.

Keyboard - 102 Keys

(No Longer Available as of February 6, 1998)

The 102 keyboard supports 102 keys, speaker, and double rate typematic default speed for cursor keys. A detachable 3 meter (9.8 feet) cable is included.

> Belgium (Dutch-French) (#6011)
> Canadian French (#6012)
> Danish (#6013)
> Finnish (#6014)
> French (#6015)
> German (#6016)
> Icelandic (#6024)
> Italian (#6017)
> Norwegian (#6019)
> Portuguese (#6020)
> Spanish (#6021)
> Swiss (#6022)
> United Kingdom (#6023)
> Turkey (#6025)
> Greece (#6026)
> Dutch (#6034)
> Turkey (TSE) (#6035)

Keyboard - 104 Keys

(No Longer Available as of February 6, 1998)

The 104 keyboard supports 104 keys, speaker, and double rate typematic default speed for cursor keys. A detachable 3 meter (9.8 feet) cable is included.

> Brazil Portuguese (#6018)

Keyboard - 106 Keys

(No Longer Available as of February 6, 1998)

The 106 keyboard supports 106 keys, speaker and double rate typematic default speed for cursor keys. A detachable 3 meter (9.8 feet) cable is included.

> Japanese Kanji (#6030)

Korean (#6031)

Chinese Traditional-Taiwan (#6033)

(#6599) Optional Keyboard Cable with Speaker

(For IBM US, No Longer Available as of March 19, 1999)

Attributes provided:
The Optional Keyboard Cable with Speaker (#6599) is being made available for those systems that require an external source for audible system queues. The Optional Keyboard Cable with Speaker is designed to be placed in-line with the Quiet Touch Keyboard -- it attaches to the system and the Quiet Touch Keyboard then plugs into the speaker assembly. The Optional Keyboard Cable with Speaker is one meter long and has a small speaker box at the end of the cable unit. This feature is available on systems (Micro Channel systems) that depended on an external speaker source in their keyboard. Purchase is recommended with the Quiet Touch Keyboards for those systems needing an external audible queue (see the list of systems supporting #6599). The Quiet Touch Keyboard will work with or without the Optional Keyboard Cable with Speaker, but only when #6599 is connected will a system audible queue be provided.

Attributes required: Available on all current RS/6000 systems supporting AIX Version 4.1.5, 4.2.1, or 4.3.0, or later. Refer to the Feature Availability Matrix.

For 7012-370:
Minimum required: 0

Maximum allowed: No maximum

OS level required: AIX 4.1.5, 4.2.1, or 4.3.0 or later

Initial Order/MES/Both/Supported: MES

(#6600) Quiet Touch Keyboard, US English, #103P

(For IBM, No Longer Available as of March 26, 2004)

Attributes provided: Quiet and soft-touch key depression, 3-meter keyboard cable, removable wrist rest, pearl white color, standard 6-pin mini-DIN connection.

Attributes required: Supported RS/6000 system with proper AIX operating system installed.

For 7012-370:
Minimum required: 0

Maximum allowed: No maximum

OS level required: AIX 4.1.5, 4.2.1, or 4.3.0 or later

Initial Order/MES/Both/Supported: MES

(#6601) Quiet Touch Keyboard, French, #189

(For IBM, No Longer Available as of March 26, 2004)

Attributes provided: Quiet and soft-touch key depression, 3-meter keyboard cable, removable wrist rest, pearl white color, standard 6-pin mini-DIN connection.

Attributes required: Supported RS/6000 system with proper AIX operating system installed.

For 7012-370:
   Minimum required: 0

   Maximum allowed: No maximum

   OS level required: AIX 4.1.5, 4.2.1, or 4.3.0 or later

   Initial Order/MES/Both/Supported: MES

(#6602) Quiet Touch Keyboard, Italian, #142

(For IBM, No Longer Available as of March 26, 2004)

Attributes provided: Quiet and soft-touch key depression, 3-meter keyboard cable, removable wrist rest, pearl white color, standard 6-pin mini-DIN connection.

Attributes required: Supported RS/6000 system with proper AIX operating system installed.

For 7012-370:
   Minimum required: 0

   Maximum allowed: No maximum

   OS level required: AIX 4.1.5, 4.2.1, or 4.3.0 or later

   Initial Order/MES/Both/Supported: MES

(#6603) Quiet Touch Keyboard, German/Austrian, #129

(For IBM, No Longer Available as of March 26, 2004)

Attributes provided: Quiet and soft-touch key depression, 3-meter keyboard cable, removable wrist rest, pearl white color, standard 6-pin mini-DIN connection.

Attributes required: Supported RS/6000 system with proper AIX operating system installed.

For 7012-370:
   Minimum required: 0

   Maximum allowed: No maximum

   OS level required: AIX 4.1.5, 4.2.1, or 4.3.0 or later

   Initial Order/MES/Both/Supported: MES

(#6604) Quiet Touch Keyboard, UK English, #166

(For IBM, No Longer Available as of March 26, 2004)

Attributes provided: Quiet and soft-touch key depression, 3-meter keyboard cable, removable wrist rest, pearl white color, standard 6-pin mini-DIN connection.

Attributes required: Supported RS/6000 system with proper AIX operating system installed.

For 7012-370:
    Minimum required: 0

Maximum allowed: No maximum

OS level required: AIX 4.1.5, 4.2.1, or 4.3.0 or later

Initial Order/MES/Both/Supported: MES

(#6605) Quiet Touch Keyboard, Spanish, #172

(For IBM, No Longer Available as of March 26, 2004)

Attributes provided: Quiet and soft-touch key depression, 3-meter keyboard cable, removable wrist rest, pearl white color, standard 6-pin mini-DIN connection.

Attributes required: Supported RS/6000 system with proper AIX operating system installed.

For 7012-370:
    Minimum required: 0

Maximum allowed: No maximum

OS level required: AIX 4.1.5, 4.2.1, or 4.3.0 or later

Initial Order/MES/Both/Supported: MES

(#6606) Quiet Touch Keyboard, Japanese, #194

(For IBM, No Longer Available as of March 26, 2004)

Attributes provided: Quiet and soft-touch key depression, 3-meter keyboard cable, removable wrist rest, pearl white color, standard 6-pin mini-DIN connection.

Attributes required: Supported RS/6000 system with proper AIX operating system installed.

For 7012-370:
    Minimum required: 0

Maximum allowed: No maximum

OS level required: AIX 4.1.5, 4.2.1, or 4.3.0 or later

Initial Order/MES/Both/Supported: MES

(#6607) Quiet Touch Keyboard, Brazilian Portuguese, #275

(For IBM US, No Longer Available as of March 19, 1999)

Attributes provided: Quiet and soft-touch key depression, 3-meter keyboard cable, removable wrist rest, pearl white color, standard 6-pin mini-DIN connection.

Attributes required: Supported RS/6000 system with proper AIX operating system installed.

For 7012-370:
    Minimum required: 0

    Maximum allowed: No maximum

    OS level required: AIX 4.1.5, 4.2.1, or 4.3.0 or later

    Initial Order/MES/Both/Supported: MES

(#6608) Quiet Touch Keyboard, Canadian French, #058

(For IBM US, No Longer Available as of March 19, 1999)

Attributes provided: Quiet and soft-touch key depression, 3-meter keyboard cable, removable wrist rest, pearl white color, standard 6-pin mini-DIN connection.

Attributes required: Supported RS/6000 system with proper AIX operating system installed.

For 7012-370:
    Minimum required: 0

    Maximum allowed: No maximum

    OS level required: AIX 4.1.5, 4.2.1, or 4.3.0 or later

    Initial Order/MES/Both/Supported: MES

(#6609) Quiet Touch Keyboard, Belgian/French, #120

(For IBM US, No Longer Available as of April 26, 2002)

Attributes provided: Quiet and soft-touch key depression, 3-meter keyboard cable, removable wrist rest, pearl white color, standard 6-pin mini-DIN connection.

Attributes required: Supported RS/6000 system with proper AIX operating system installed.

For 7012-370:
    Minimum required: 0

    Maximum allowed: No maximum

    OS level required: AIX 4.1.5, 4.2.1, or 4.3.0 or later

    Initial Order/MES/Both/Supported: MES

(#6610) Quiet Touch Keyboard, Belgian/UK-Flemish, #120

(For IBM US, No Longer Available as of April 26, 2002)

Attributes provided: Quiet and soft-touch key depression, 3-meter keyboard cable, removable wrist rest, pearl white color, standard 6-pin mini-DIN connection.

Attributes required: Supported RS/6000 system with proper AIX operating system installed.

For 7012-370:

Minimum required: 0

Maximum allowed: No maximum

OS level required: AIX 4.1.5, 4.2.1, or 4.3.0 or later

Initial Order/MES/Both/Supported: MES

(#6611) Quiet Touch Keyboard, Swedish/Finnish, #153

(For IBM US, No Longer Available as of April 26, 2002)

Attributes provided: Quiet and soft-touch key depression, 3-meter keyboard cable, removable wrist rest, pearl white color, standard 6-pin mini-DIN connection.

Attributes required: Supported RS/6000 system with proper AIX operating system installed.

For 7012-370:

Minimum required: 0

Maximum allowed: No maximum

OS level required: AIX 4.1.5, 4.2.1, or 4.3.0 or later

Initial Order/MES/Both/Supported: MES

(#6612) Quiet Touch Keyboard, Danish, #159

(For IBM US, No Longer Available as of April 26, 2002)

Attributes provided: Quiet and soft-touch key depression, 3-meter keyboard cable, removable wrist rest, pearl white color, standard 6-pin mini-DIN connection.

Attributes required: Supported RS/6000 system with proper AIX operating system installed.

For 7012-370:

Minimum required: 0

Maximum allowed: No maximum

OS level required: AIX 4.1.5, 4.2.1, or 4.3.0 or later

Initial Order/MES/Both/Supported: MES

(#6613) Quiet Touch Keyboard, Bulgarian, #442

(For IBM US, No Longer Available as of March 19, 1999)

Attributes provided: Quiet and soft-touch key depression, 3-meter keyboard cable, removable wrist rest, pearl white color, standard 6-pin mini-DIN connection.

Attributes required: Supported RS/6000 system with proper AIX operating system installed.

For 7012-370:

Minimum required: 0

Maximum allowed: No maximum

OS level required: AIX 4.1.5, 4.2.1, or 4.3.0 or later

Initial Order/MES/Both/Supported: MES

(#6614) Quiet Touch Keyboard, Swiss,French/German, #150f/g

(For IBM US, No Longer Available as of April 26, 2002)

Attributes provided: Quiet and soft-touch key depression, 3-meter keyboard cable, removable wrist rest, pearl white color, standard 6-pin mini-DIN connection.

Attributes required: Supported RS/6000 system with proper AIX operating system installed.

For 7012-370:
Minimum required: 0

Maximum allowed: No maximum

OS level required: AIX 4.1.5, 4.2.1, or 4.3.0 or later

Initial Order/MES/Both/Supported: MES

(#6616) Quiet Touch Keyboard, Norwegian, #155

(For IBM US, No Longer Available as of April 26, 2002)

Attributes provided: Quiet and soft-touch key depression, 3-meter keyboard cable, removable wrist rest, pearl white color, standard 6-pin mini-DIN connection.

Attributes required: Supported RS/6000 system with proper AIX operating system installed.

For 7012-370:
Minimum required: 0

Maximum allowed: No maximum

OS level required: AIX 4.1.5, 4.2.1, or 4.3.0 or later

Initial Order/MES/Both/Supported: MES

(#6617) Quiet Touch Keyboard, Dutch, #143

(For IBM US, No Longer Available as of March 19, 1999)

Attributes provided: Quiet and soft-touch key depression, 3-meter keyboard cable, removable wrist rest, pearl white color, standard 6-pin mini-DIN connection.

Attributes required: Supported RS/6000 system with proper AIX operating system installed.

For 7012-370:
Minimum required: 0

Maximum allowed: No maximum

OS level required: AIX 4.1.5, 4.2.1, or 4.3.0 or later

Initial Order/MES/Both/Supported: MES

(#6618) Quiet Touch Keyboard, Portuguese, #163

(For IBM US, No Longer Available as of March 19, 1999)

Attributes provided: Quiet and soft-touch key depression, 3-meter keyboard cable, removable wrist rest, pearl white color, standard 6-pin mini-DIN connection.

Attributes required: Supported RS/6000 system with proper AIX operating system installed.

For 7012-370:
Minimum required: 0

Maximum allowed: No maximum

OS level required: AIX 4.1.5, 4.2.1, or 4.3.0 or later

Initial Order/MES/Both/Supported: MES

(#6619) Quiet Touch Keyboard, Greek, #319

(For IBM US, No Longer Available as of April 26, 2002)

Attributes provided: Quiet and soft-touch key depression, 3-meter keyboard cable, removable wrist rest, pearl white color, standard 6-pin mini-DIN connection.

Attributes required: Supported RS/6000 system with proper AIX operating system installed.

For 7012-370:
Minimum required: 0

Maximum allowed: No maximum

OS level required: AIX 4.1.5, 4.2.1, or 4.3.0 or later

Initial Order/MES/Both/Supported: MES

(#6620) Quiet Touch Keyboard, Hebrew, #212

(For IBM US, No Longer Available as of April 26, 2002)

Attributes provided: Quiet and soft-touch key depression, 3-meter keyboard cable, removable wrist rest, pearl white color, standard 6-pin mini-DIN connection.

Attributes required: Supported RS/6000 system with proper AIX operating system installed.

For 7012-370:
Minimum required: 0

Maximum allowed: No maximum

OS level required: AIX 4.1.5, 4.2.1, or 4.3.0 or later

Initial Order/MES/Both/Supported: MES

(#6621) Quiet Touch Keyboard, Hungarian, #208

(For IBM US, No Longer Available as of March 19, 1999)

Attributes provided: Quiet and soft-touch key depression, 3-meter keyboard cable, removable wrist rest, pearl white color, standard 6-pin mini-DIN connection.

Attributes required: Supported RS/6000 system with proper AIX operating system installed.

For 7012-370:
Minimum required: 0

Maximum allowed: No maximum

OS level required: AIX 4.1.5, 4.2.1, or 4.3.0 or later

Initial Order/MES/Both/Supported: MES

(#6622) Quiet Touch Keyboard, Icelandic, #197

(For IBM US, No Longer Available as of March 19, 1999)

Attributes provided: Quiet and soft-touch key depression, 3-meter keyboard cable, removable wrist rest, pearl white color, standard 6-pin mini-DIN connection.

Attributes required: Supported RS/6000 system with proper AIX operating system installed.

For 7012-370:
Minimum required: 0

Maximum allowed: No maximum

OS level required: AIX 4.1.5, 4.2.1, or 4.3.0 or later

Initial Order/MES/Both/Supported: MES

(#6623) Quiet Touch Keyboard, Polish, #214

(For IBM US, No Longer Available as of March 19, 1999)

Attributes provided: Quiet and soft-touch key depression, 3-meter keyboard cable, removable wrist rest, pearl white color, standard 6-pin mini-DIN connection.

Attributes required: Supported RS/6000 system with proper AIX operating system installed.

For 7012-370:
Minimum required: 0

Maximum allowed: No maximum

OS level required: AIX 4.1.5, 4.2.1, or 4.3.0 or later

Initial Order/MES/Both/Supported: MES

(#6624) Quiet Touch Keyboard, Romanian, #446

(For IBM US, No Longer Available as of March 19, 1999)

Attributes provided: Quiet and soft-touch key depression, 3-meter keyboard cable, removable wrist rest, pearl white color, standard 6-pin mini-DIN connection.

Attributes required: Supported RS/6000 system with proper AIX operating system installed.

For 7012-370:
Minimum required: 0

Maximum allowed: No maximum

OS level required: AIX 4.1.5, 4.2.1, or 4.3.0 or later

Initial Order/MES/Both/Supported: MES

(#6625) Quiet Touch Keyboard, Slovakian, #245

(For IBM US, No Longer Available as of March 19, 1999)

Attributes provided: Quiet and soft-touch key depression, 3-meter keyboard cable, removable wrist rest, pearl white color, standard 6-pin mini-DIN connection.

Attributes required: Supported RS/6000 system with proper AIX operating system installed.

For 7012-370:
Minimum required: 0

Maximum allowed: No maximum

OS level required: AIX 4.1.5, 4.2.1, or 4.3.0 or later

Initial Order/MES/Both/Supported: MES

(#6626) Quiet Touch Keyboard, Czech, #243

(For IBM US, No Longer Available as of March 19, 1999)

Attributes provided: Quiet and soft-touch key depression, 3-meter keyboard cable, removable wrist rest, pearl white color, standard 6-pin mini-DIN connection.

Attributes required: Supported RS/6000 system with proper AIX operating system installed.

For 7012-370:
    Minimum required: 0

    Maximum allowed: No maximum

    OS level required: AIX 4.1.5, 4.2.1, or 4.3.0 or later

    Initial Order/MES/Both/Supported: MES

(#6627) Quiet Touch Keyboard, Turkish, #179

(For IBM US, No Longer Available as of March 19, 1999)

Attributes provided: Quiet and soft-touch key depression, 3-meter keyboard cable, removable wrist rest, pearl white color, standard 6-pin mini-DIN connection.

Attributes required: Supported RS/6000 system with proper AIX operating system installed.

For 7012-370:
    Minimum required: 0

    Maximum allowed: No maximum

    OS level required: AIX 4.1.5, 4.2.1, or 4.3.0 or later

    Initial Order/MES/Both/Supported: MES

(#6628) Quiet Touch Keyboard, Turkish, #440

(For IBM US, No Longer Available as of March 19, 1999)

Attributes provided: Quiet and soft-touch key depression, 3-meter keyboard cable, removable wrist rest, pearl white color, standard 6-pin mini-DIN connection.

Attributes required: Supported RS/6000 system with proper AIX operating system installed.

For 7012-370:
    Minimum required: 0

    Maximum allowed: No maximum

    OS level required: AIX 4.1.5, 4.2.1, or 4.3.0 or later

    Initial Order/MES/Both/Supported: MES

(#6629) Quiet Touch Keyboard, LA Spanish, #171

(For IBM, No Longer Available as of March 26, 2004)

Attributes provided: Quiet and soft-touch key depression, 3-meter keyboard cable, removable wrist rest, pearl white color, standard 6-pin mini-DIN connection.

Attributes required: Supported RS/6000 system with proper AIX operating system installed.

For 7012-370:

Minimum required: 0

Maximum allowed: No maximum

OS level required: AIX 4.1.5, 4.2.1, or 4.3.0 or later

Initial Order/MES/Both/Supported: MES

(#6630) Quiet Touch Keyboard, Arabic, #238

(For IBM US, No Longer Available as of April 26, 2002)

Attributes provided: Quiet and soft-touch key depression, 3-meter keyboard cable, removable wrist rest, pearl white color, standard 6-pin mini-DIN connection.

Attributes required: Supported RS/6000 system with proper AIX operating system installed.

For 7012-370:

Minimum required: 0

Maximum allowed: No maximum

OS level required: AIX 4.1.5, 4.2.1, or 4.3.0 or later

Initial Order/MES/Both/Supported: MES

(#6632) Quiet Touch Keyboard, Serbian-Cyrillic, #118

(For IBM US, No Longer Available as of March 19, 1999)

Attributes provided: Quiet and soft-touch key depression, 3-meter keyboard cable, removable wrist rest, pearl white color, standard 6-pin mini-DIN connection.

Attributes required: Supported RS/6000 system with proper AIX operating system installed.

For 7012-370:

Minimum required: 0

Maximum allowed: No maximum

OS level required: AIX 4.1.5, 4.2.1, or 4.3.0 or later

Initial Order/MES/Both/Supported: MES

(#6633) Quiet Touch Keyboard, Korean, #413

(For IBM US, No Longer Available as of April 26, 2002)

Attributes provided: Quiet and soft-touch key depression, 3-meter keyboard cable, removable wrist rest, pearl white color, standard 6-pin mini-DIN connection.

Attributes required: Supported RS/6000 system with proper AIX operating system installed.

For 7012-370:

Minimum required: 0

Maximum allowed: No maximum

OS level required: AIX 4.1.5, 4.2.1, or 4.3.0 or later

Initial Order/MES/Both/Supported: MES

(#6634) Quiet Touch Keyboard, Chinese/US, #467

(For IBM US, No Longer Available as of April 26, 2002)

Attributes provided: Quiet and soft-touch key depression, 3-meter keyboard cable, removable wrist rest, pearl white color, standard 6-pin mini-DIN connection.

Attributes required: Supported RS/6000 system with proper AIX operating system installed.

For 7012-370:

Minimum required: 0

Maximum allowed: No maximum

OS level required: AIX 4.1.5, 4.2.1, or 4.3.0 or later

Initial Order/MES/Both/Supported: MES

(#6635) Quiet Touch Keyboard, French Canadian, #445

(For IBM US, No Longer Available as of March 19, 1999)

Attributes provided: Quiet and soft-touch key depression, 3-meter keyboard cable, removable wrist rest, pearl white color, standard 6-pin mini-DIN connection.

Attributes required: Supported RS/6000 system with proper AIX operating system installed.

For 7012-370:

Minimum required: 0

Maximum allowed: No maximum

OS level required: AIX 4.3.0

Initial Order/MES/Both/Supported: MES

(#6636) Quiet Touch Keyboard, Thailand, #191

(For IBM US, No Longer Available as of March 19, 1999)

Attributes provided: Quiet and soft-touch key depression, 3-meter keyboard cable, removable wrist rest, pearl white color, standard 6-pin mini-DIN connection.

Attributes required: Supported RS/6000 system with proper AIX operating system installed.

For 7012-370:

Minimum required: 0

Maximum allowed: No maximum

OS level required: AIX 4.3.0 or later

Initial Order/MES/Both/Supported: MES

(#6638) Quiet Touch Keyboard, Russian, #443

(For IBM, No Longer Available as of March 26, 2004)

Attributes provided: Quiet and soft-touch key depression, 3-meter keyboard cable, removable wrist rest, pearl white color, standard 6-pin mini-DIN connection.

Attributes required: Supported RS/6000 system with proper AIX operating system installed.

For 7012-370:
Minimum required: 0

Maximum allowed: No maximum

OS level required: AIX 4.1.5, 4.2.1, or 4.3.0 or later

Initial Order/MES/Both/Supported: MES

(#6639) Quiet Touch Keyboard, Croatian, #105

(For IBM US, No Longer Available as of March 19, 1999)

Attributes provided: Quiet and soft-touch key depression, 3-meter keyboard cable, removable wrist rest, pearl white color, standard 6-pin mini-DIN connection.

Attributes required: Supported RS/6000 system with proper AIX operating system installed.

For 7012-370:
Minimum required: 0

Maximum allowed: No maximum

OS level required: AIX 4.2.1, or 4.3.0 or later

Initial Order/MES/Both/Supported: MES

(#6640) Quiet Touch Keyboard, US English ISO9995, #103P(EMEA)

(For IBM, No Longer Available as of March 26, 2004)

Attributes provided: Quiet and soft-touch key depression, 3-meter keyboard cable, removable wrist rest, pearl white color, standard 6-pin mini-DIN connection.

Attributes required: Supported RS/6000 system with proper AIX operating system installed.

For 7012-370:
Minimum required: 0

Maximum allowed: No maximum

OS level required: AIX 4.1.5, 4.2.1, or 4.3.0 or later

Initial Order/MES/Both/Supported: MES

Other Features

(#6041) 3-Button Mouse

(For IBM, No Longer Available as of March 26, 2004)

The 3-Button Mouse is a dynamic tracking pointing device which utilizes Opto-mechanical technology. Resolution is 320 dpi. A 2.74 meter (8 feet) attachment cord is included.

(#5005) Software Preload

(No longer available as of December 31, 2020)

The most current release of the AIX Version 3 for the RS/6000 operating system is preloaded on the disks when defined on the initial plant order. A minimum of 400 MB of disk is required for preload.

Miscellaneous

(#3750) Diagnostic Wrap Plugs

(For IBM US, No Longer Available as of March 19, 1999)

This feature provides diagnostic wrap plugs for testing the Serial, Parallel, and Ethernet ports. A storage container is included.

Feature exchanges

Not available.

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Accessories

Security Cable (P/N 31F4155)

Assists in the physical security of the IBM RS/6000 370 by providing a cable that attaches to the rear cover of the workstation. The Security Cable consists of a 60

inch long, 1/8-inch plastic-coated hardened stainless steel cable with a hardened stainless steel clip that attaches through a slot in the back of the workstation. A loop is provided on the other end of the cable to attach or lock the cable to a secure fixture in the customer location. A metal plate is also provided to reinforce the rear cover where the clip is inserted. Instructions are included.

Customer replacement parts

Not available.

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Machine elements

Not available.

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Supplies

IBM 8mm Tape Cartridge (P/N 21F8595) (shipped in a 5-pack)

IBM 8mm Cleaning Cartridge (P/N 21F8593) (provides 12 cleanings)

IBM Quarter Inch Data Cartridge (P/N 21F8588) (shipped in a 5-pack)

IBM Quarter Inch Cleaning Cartridge (P/N 21F8570) (provides 50 cleanings)

Supplies can be purchased from LEXMARK International Supplies Dealers.

Supplemental media

Not available.

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