IBM Sales Manual (US) - Document 3172-002

3172-002 IBM INTERCONNECT CONTROLLER MODEL 002

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1 IBM U.S. Product Life Cycle Dates

Type	Model	Announced	Available	Marketing Withdrawn	Replaced By
3172-002		1990/09/05	1991/12/27	1994/07/08	3172-003

2 Abstract

The IBM 3172 Interconnect Controller is a high-speed, channel-attached gateway optimized for attachment of local area networks (LANs), synchronous data link control (SDLC) networks, and Frame-Relay Networks to IBM host processors. In addition, the 3172 can provide the NCP Server function to activate, manage, and complement the 3745 Communication Controller with NCP.

Model Abstract 3172-002

(For IBM US, No Longer Available as of July 8, 1994.)

The IBM 3172 Model 2 is a member of the IBM 3172 Interconnect Controller family. With the inclusion of the new, more powerful, Intel 80486 microprocessor, the 3172 Model 2 provides for improved performance and capacity over the 3172-001. By supporting the 100 Mbps Fiber Data Distributed Interface (FDDI), the 3172 Model 2 provides host gateway connectivity for high function engineering and scientific workstations as well as providing host connectivity for high-speed FDDI backbone networks.

3 Highlights

- Provides connectivity to IBM S/370, S/390, and ES/9000* hosts as a LAN/WAN-to-host gateway.
- Supports SNA or TCP/IP data flows through parallel or IBM Enterprise Systems Connection* (ESCON*) channels to the following LAN types:
  - IBM Token-Ring
  - Ethernet
  - Fiber Data Distributed Interface (FDDI)
  - ATM
- Provides extensions of LAN connectivity to the WAN through multiprotocol Frame-Relay.
- Provides SDLC, Frame-Relay, and LAN connectivity for SNA devices.
- Provides all the functions of a dedicated client/server.
- Offers preloaded software packages available from the factory.

4 Description

The IBM 3172 Interconnect Controller operates as a LAN-to-host gateway. As a LAN-to-host gateway, the 3172 provides host attachment via the Parallel Channel and can be featured for up to four LANs of multiple types. The 3172 was designed to be mounted in an equivalent/compatible EIA 19-inch rack and is available in the 9309 Model 002 Rack Enclosure or can be ordered for installation in any compatible 19-inch rack.

Model Description 3172-002

With the inclusion of the more powerful Intel 80486 microprocessor, the 3172 Model 2 provides improved performance and extended capacity over the 3172-001. It provides the ability to connect to the standard (ISO 9314) 100 Mbps FDDI LAN as a host gateway to S/370 and S/390 Parallel Channel. This product expands network capacity through support of the high-performance FDDI LAN enabling growth as a backbone LAN.

The 3172 Model 2 provides host attachment via the parallel channel and can be featured for FDDI (ISO 9314), IBM Token-Ring (IEEE 802.5) and Ethernet (IEEE 802.3) LAN adapter cards. The protocols supported for the various LANs are: Transmission Control Protocol/Internet Protocol (TCP/IP) for FDDI(ISO 9314), IEEE 802.5, IEEE 802.3, and Ethernet Version 2; Systems Network Architecture (SNA) for FDDI (ISO 9314), Token-Ring (IEEE 802.5), and Ethernet (IEEE 802.3). IBM Token-Ring and Ethernet adapter cards are Micro Channel Busmaster cards and support the Operator Facility. Four LANs and two channel attachments give the 3172 Interconnect Controller the flexibility and performance required in today's heterogeneous networks. There is a new feature code (#9555) for no-charge upgrade from Token-Ring 16/4 Adapter (#2210) to Token-Ring 16/4 Adapter (#2215) when upgrading IBM 3172 Interconnect Controller Program Version (ICP) Version 2 to IBM 3172 ICP Version 3.

The 3172-002 expands network capacity through high-performance LAN backbone attachment to S/370 and S/390 host. In an engineering or scientific environment, the 3172-002 increases bandwidth and decreases response time for numerically intensive applications. It consolidates multiple, separate LANs in a campus environment to a single host connected 100 Mbps backbone LAN. It provides high-speed connectivity via FDDI supporting SNA and TCP/IP data flows improves investment protection.

When the 3172 Model 2 is used as a host gateway for FDDI attached engineering and scientific workstations, this product provides greater bandwidth for improved performance and capacity as well as decreased response times. The result will be improved user productivity.

Consolidation of multiple separate LANs in a campus environment to a single host connected 100 Mbps backbone LAN provides for enhanced system management. In addition, the 3172 Operator Facility can perform on line with the 3172 Model 2 when attached via either the Token-Ring (#2215) or Ethernet (#2225) Operator Facility provides basic function that will assist users in installing, configuring, monitoring and controlling the 3172. The 3172 Operator Facility is shipped with the IBM 3172 Interconnect Controller Program Version 3.

The 3172 Model 2 featured with the FDDI (ISO 9314), IBM Token-Ring (IEEE 802.5) and Ethernet (IEEE 802.3) LAN adapter cards support VTAM/SNA or TCP/IP data flows as a LAN Gateway.

5 Model

5.1 Model Summary Matrix

Model	Micro-Processor	Memory	LAN Attachments min - max	Channel Attachments min - max
002	486 25 MHz	8MB	1 – 4	1 – 2

Note: Configurations will vary depending on software installed.

6 Maximum

Maximum configurations for the 3172-002 as follows:

- With FDDI - One FDDI feature, two channel features.
- Three 3172-002 Interconnect Controllers can be installed in the same 9309-002.
- With one FDDI feature, three of either Token-Ring (#2215) or Ethernet (#2225) or combination of Token-Ring and Ethernet
- Without FDDI feature, four of either Token-Ring (#2215) or Ethernet (#2225) or combination of Token-Ring and Ethernet.

7 Customer Setup (CSU)

No.

8 Devices Supported

Not available.

9 Model Conversions

None.

10 National Language Support

Not available.

11 Technical Description

The 3172, Model 2 is a member of the 3172 Interconnect Controller family of products. The standard components are:

- Micro Channel board capable of supporting a dual bus processor card
- On-board Memory - 8 MB
- Hex Keypad, 4 Digit Hex Display and Indicators
- Diskette Drive - 1.44 MB, 3.5-inch
- Hard Disk Drive - 80 MB
- Power Supply and Cooling
- 80486 pluggable processor card

The 3172, Model 2 feature slots can be occupied with the following feature:

- S/370 Parallel Channel Adapter (#2501) - minimum one and maximum two

- FDDI A Station Adapter (#2250) - minimum zero and maximum one
- IBM Token-Ring 16/4 Mbps Adapter (#2215) - minimum zero and maximum four without FDDI feature or maximum three with one FDDI feature
- Ethernet Adapter (#2225) - minimum zero and maximum four without FDDI feature or maximum three with one FDDI feature
- With one FDDI feature, maximum three of either Token-Ring (#2215) or Ethernet (#2225) or combination of Token-Ring and Ethernet
- Without FDDI feature, maximum four of either Token-Ring (#2215) or Ethernet (#2225) or combination of Token-Ring and Ethernet
- IBM Token-Ring 16/4 Mbps(#2210) - Minimum zero and Maximum one for supporting the Operator Facility only for ICP Version 2

12 Physical Specifications

- Width: 483mm (19 inches)
- Depth: 660mm (26 inches)
- Height: 311mm (12.25 inches)
- Weight: 39kg (86 lbs)
- Power: 200-240V,2.8A,50-60Hz

13 Operating Environment

- Temperature: 10 to 40.6C (50 to 105F)
- Relative Humidity: 8 to 80 percent
- Wet Bulb: 26.7C (80F)

14 Limitations

The IBM 3172 Model 2 Channel Adapter feature supports attachment to the Parallel Channel only. Token-Ring Adapter (#2210) is supported only for online Operator Facility and not as a LAN-to-host gateway when running IBM 3172 Interconnect Controller Program Version 2 and should not be ordered with the IBM 3172 Interconnect Controller Version 3. Customers who have installed Token-Ring 16/4 Adapter (#2210) and are ordering IBM 3172 Interconnect Controller Program Version 3 should order Token-Ring Adapter Upgrade (#9555) to replace its adapter with the Token-Ring 16/4 Adapter (#2215).

Token-Ring Adapter 16/4 (#2215) and Ethernet Adapter (#2225) support host LAN gateway function as well as Operator Facility when running IBM 3172 Interconnect Controller Program Version 3. The 3172 Model 2 can not be ordered in the same 9309 Rack with the 3172 Model 1 or Model 3.

15 Hardware Requirements

The IBM 3172 Model 2 Interconnect Controller is designed to attach to the Parallel Channel of the IBM ES/9021, ES/9121, ES/9221, 4361, 4381, 3090, ES/3090, and ES/9370. Attachment is also supported via the 3044 Model 2 Fiber Optic Channel Extender and the 9034 ES Connection Converter. Cable group 0185 is required for each PCA and must be ordered using the "Cable Order Guide Form"(Z120-2489).

16 Software Requirements

Each 3172 Model 2, requires the IBM Interconnect Controller Program Version 3 (5621-425) which contains all the necessary support to control the data flow from a given LAN to a channel adapter (sub-channel) and/or from a channel adapter (sub-channel) to a LAN adapter. The routes are established from a configuration which was previously loaded. All software necessary to support the LANs is included in the control program.

Host S/370 and S/390 Support

Each channel-attached IBM host will require one of the following to match what is operating in the 3172:

- IBM ACF/VTAM Version 3.4 (or later) for MVS/ESA (5685-085), VM/ESA(5684-095), VM/SP(5664-280), and VSE/ESA(5666-363)
- IBM AIX/ESA* Version 2 Release 1 (5756-112)
- IBM TCP/IP for VM Program Version 2.2 (5735-FAL)
- IBM TCP/IP for MVS Program Version 2.2 (5735-HAL)
- OSI/CS Release 1.1 for MVS (5685-014)
- OSI/CS Release 1.1 for VM (5684-013)

Workstations that support TCP/IP or SNA protocol flows over FDDI, Token-Ring, and Ethernet LANs can be attached and supported through the 3172 Model 2.

17 Electronic Customer Support

Not available.

18 Publications

The following publications are shipped with the product.

- GA27-3921 IBM 3172 Interconnect Controller Model 002 Maintenance Information
- GA27-3922 IBM 3172 Interconnect Controller Model 002 Operator's Guide
- GA27-3951 IBM 3172 Interconnect Controller Status Codes
- S131-0103 IBM Interconnect Controller Parts Catalog

For a current list of publications, refer to the appropriate publications option on your respective HONE system, or contact your local IBM representative.

19 Features – Specify/Special/Exchange

19.1 No Charge Specify Codes

IBM 9309-002 Rack Enclosure for the IBM 3172-002 Interconnect Controllers:

Specify code #9505. Required when ordering 9309-002 Rack Enclosure for the 3172-002. This specify code is a routing code to enable AAS to route the order to the plant of manufacture for the 3172-002.

Specification of languages for the 9309-002 Rack Enclosure is optional. The default language is determined from the country code. To override the default refer to the machine sales pages for the IBM 9309 Rack Enclosure.

Specify for the IBM 9309 Rack Enclosure power cable is required.

For US and Canada, specify #9080 for a cable with a watertight connector and specify #9081 for the nonwatertight connector. Chicago is an exception where specify #9986 is needed in addition to specify #9080 for a 6 foot watertight and in addition to specify #9081 for a 6 foot nonwatertight.

For World Trade countries the defaulted rack power cable is determined by the country code.

Specify the number of 3172-002 units to be installed in the 9309-002 Rack Enclosure at the factory.

- One - Specify #9203
- Two - Specify #9204
- Three - Specify #9205

Note: Now order the individual 3172-002 units with the appropriate features. Order Rack Mounting Feature #2510 with each 3172-002 to be installed in the 9309-002.

IBM 3172-002 Interconnect Controller ordering specifications:

Shipping Group language defaults will be determined by the country code. No specify is required.

Specify #9645 for power cord always.

Specify code #9608. Required when ordering the S/370 Parallel Channel Adapter #2501 for a 3172-002 installed in the first or second position (middle or bottom) of the 9309-002 Rack Enclosure.

Specify code #9609. Required when ordering the S/370 Parallel Channel Adapter #2501 for a 3172-002 installed in the third position (top of rack) of the 9309-002 Rack Enclosure.

19.2 Special Feature Codes – Chargeable

The 3172 Model 2 can be featured as follows:

#2501 - S/370 Parallel Channel Adapter:

(For IBM US, No Longer Available as of July 8, 1994)

This feature interfaces with IBM's Parallel Channel as if it were a 3088. The channel adapter will support speeds up to 4.5MB per second. One channel adapter is always required and shipped with the Model 2. A maximum of two of these features can be installed in a 3172-002. This feature includes the adapter, adapter cable, and the channel cable adapter plate. The cable, which is provided in two lengths, connects the adapter to the channel cable adapter plate in the base of the 9309 Rack Enclosure. For position one (middle of the rack) and position two (bottom of the rack), specify #9608 is required and a six foot cable is provided. For position three (top of the rack), specify #9609 is required and a nine foot cable is provided. Cable group 0185 must be ordered separately for each PCA using the "Cable Order Guide Form"(Z120-2489). This card is field installable.

#2215 - IBM Token-Ring 16/4 Mbps Adapter:

(For IBM US, No Longer Available as of July 8, 1994)

This adapter is a high-performance Micro Channel Busmaster adapter card which attaches to either a 16 Mbps or a 4 Mbps Token-Ring Network that conforms to the IEEE 802.5 architecture. This is the only adapter that is supported on the 3172 Model 2 for Token-Ring LAN to host channel communications and requires IBM 3172 Interconnect Controller Program Version 3. This card is also supported for online Operator Facility of IBM 3172 Interconnect Controller Program Version 3. Attachment cable (P/N 6339098 or equivalent) is required and must be ordered separately. A Minimum of zero and a maximum of four of this feature can be installed without Ethernet and FDDI adapter. With one FDDI feature, maximum three of either Token-Ring (#2215) or Ethernet (#2225) or combination of Token-Ring (#2215) and Ethernet (#2225) can be installed in a 3172-002. This feature is field installable.

#2225 - Ethernet Adapter:

(For IBM US, No Longer Available as of July 8, 1994)

This adapter is a high-performance Micro Channel Busmaster adapter card which attaches to 10 Mbps Ethernet LANs and conforms to the IEEE 802.3 architecture. Connections to both "thin" and "thick" Ethernet LANs are supported. This is the only Ethernet adapter supported on the 3172 Model 2 for Ethernet to host channel communications and which requires IBM 3172 Interconnect Controller Version 3. This card is also supported for online Operator Facility of IBM 3172 Interconnect Controller Version 3. Attachment cables to the transceiver are not provided by IBM. For attachment to the standard Ethernet coaxial cable with 802.3 compatible 15-pin DIX connector with slide latches is required. To support thin Ethernet coaxial cable (RG-58), a BNC T-connect or with connection to the on-board transceiver is required. A minimum of zero and a maximum of four of this feature can be installed in a 3172-002 without Token-Ring (#2215) and FDDI (#2250). With one FDDI, maximum of three of either Token-Ring (#2215) or Ethernet (#2225) or combination of Token-Ring (#2215) and Ethernet (#2225) can be installed in a 3172-002. This feature is field installable.

#2250 - FDDI A Station Adapter:

(For IBM US, No Longer Available as of July 8, 1994)

This adapter is a high-performance FDDI adapter card which supports single as well as dual ring station. This adapter provides FDDI class A connection to an FDDI local area network operating at 100 Mbps. It requires 1 feature slot in the 3172-002. Only one FDDI Adapter can be supported in a 3172-002. Two FDDI jumper cables for connecting the adapter into the FDDI ring are required and are not provided with this feature. A minimum of zero and a maximum of one of this feature can be installed in a 3172-002. This feature is field installable.

Each FDDI card requires two multimode (62.5/125 micron) FDDI optical fiber jumper cables. The FDDI jumper cable is available in five standard lengths of 4 m (12 feet), 7 m (20 feet), 15 m (50 feet), 31 m (100 feet) and 61 m (200 feet) or custom lengths in one foot increments. They are available with FDDI, FC, ST or SC connectors.

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 and 1-800-465-1234 in Canada. For EMEA customers, cables are available from Montpellier through CE offerings. 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."

#2510 - Interconnect Controller Rack Mounting Assembly M2:

(For IBM US, No Longer Available as of July 8, 1994)

This feature allows the 3172 Model 002 to mounted in the 9309-002 Rack Enclosure. The feature includes slides, the channel cable adapter mounting plate, the channel terminators, and the channel wrap blocks.

#2210 - Token-Ring 16/4 Adapter:

(For IBM US, No Longer Available as of July 8, 1994)

This Token-Ring Adapter is required for online Operator Facility when running with IBM 3172 Interconnect Controller Program Version 2 and attaches to either a 16 or 4 Mbps Token-Ring Network that conforms to the 802.5 architecture. Attachment cable, IBM P/N 6339098 or equivalent, is required and must be ordered separately. This card will not be supported with IBM 3172 Interconnect Controller Version 3 with Operator Facility. A minimum of zero and a maximum of one of this feature can be installed in a 3172-002. This card is field installable only. It cannot be ordered in new build machines from the factory.

#9555 - Token-Ring 16/4 Adapter Upgrade:

(For IBM US, No Longer Available as of July 8, 1994)

This feature is a no-charge upgrade feature for customers who have installed Token-Ring 16/4 Adapter (#2210) and are ordering IBM 3172 Interconnect Controller Program Version 3 to replace its adapter (#2210) with Token-Ring 16/4 Adapter (#2215). When ordering #9555 on MES, specify #2210 must be removed on the same MES.

20 Feature Exchanges

Not available.

21 Accessories

None.

22 Customer Replacement Parts

None.

23 Machine Elements

None.

24 Supplies

None.

Diskettes

None.

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