

Technical Data
Communications Server
(DTC 72MX)

Product Numbers
J2070A, J2076A, J2077A, J2079A, J2080A
Introduction

The DTC 72MX is part of HP's family of LAN-based Datacommunication and Terminal Servers, HP's solution to connect asynchronous devices (terminals, printers, modems) over Local and Wide Area networks to single or multiple HP 3000/900, HP 9000 and other platforms running the

DTC72MXA.PLT;4.353";3";HPGL

standard Telnet-TCP/IP protocols. The DTC 72MX is the high-end of the DTC family and is optimal for environments with the following requirements:

- + high port count centralized connectivity to HP 3000/900 systems
- + high port count centralized connectivity to multiple HP systems (HP 3000/900, HP 9000, HP1000) and non-HP systems running Telnet-TCP/IP.
- + HP 3000/900 X.25 system to system communication.
- + Remote PAD access to HP 3000/900, HP 9000 and other systems running Telnet-TCP/IP (PAD support).
- + HP 3000/900 environments requiring end-user access via the standard Telnet-TCP/IP protocol.

For information on other DTC products, refer to the DTC family datasheet (which presents the complete DTC family, the target environments, and supported devices) and to the individual product datasheets:

DTC 16TN:	HP J2060A
DTC 16iX:	HP J2062A
DTC16:	HP 2340A
DTC48:	HP 2345A

— DTC Management: HP D2355A
HP J2120A
X.25 iX Network Link: HP J2079A
HP 3000 Telnet Access: HP J2080A

(also included in the Networking Communications Specification Guide).

DTC 72MX Key features

- † LAN-based communication server supporting the standard Telnet-TCP/IP protocols plus HP optimized high performance protocols for demanding OLTP applications in HP 3000/900 and HP 9000 environments.
- † Systems are accessed directly through system LAN links or through system asynchronous ports (via the extended switching configuration or back-to-back) for systems which do not implement Telnet-TCP/IP or the HP 3000/900 protocol.
- † Modular chassis compliant with the industry standard EIA 19-inch form factor
- † Supports a mix of Asynchronous, X.25 and HP 3000 Telnet Access interfaces.
- † Provides up to 72 RS-232 direct or modem ports, or RS-423 direct ports.
- † Provides compatible API with HP 9000 system asynchronous multiplexers.
- † Provides printer sharing and multisessions per port.
- † Up to three X.25 links (line speed up to 64 kbps) and 256 virtual circuits per card.
- † Supports remote X.25-PAD access to HP 3000/900 systems and other systems running Telnet-TCP/IP.
- † Supports X.25 communications for HP 3000/900 systems (HP-NS services, ARPA-FTP, OSI-FTAM, SNA).
- † Supports Telnet Access for HP 3000/900 systems (up to 80 concurrent sessions).
- † Managed under HP OpenView Windows environment, or from an HP system (HP 3000/900 or HP 9000/800)
- † Supports an SNMP agent (delivery Mid 93).
- † Provides comprehensive support tools for increased supportability and uptime.

Product highlights

High Performance

Built upon a powerful architecture, the DTC 72MX delivers a high throughput to the end-users. In addition, the DTCs support high performance protocols for demanding commercial applications:

- † AFCP, an optimized protocol for OLTP applications running under the HP 3000/900,
- † Telnet/OLTP, a standard based High Performance Telnet (running concurrently with the standard Telnet) which significantly reduces the

HP 9000 CPU usage and network traffic thus delivering an unsurpassed performance for HP 9000 transaction oriented applications in networked environment.

Note: Requires Telnet/OLTP software to be installed on the HP 9000 system.

Extended Direct Connect plus Full Modem support

The DTC 72MX provides either direct connect or Modem ports. The direct connect ports support RTS/CTS signals for hardware flow-control eliminating the need for Modem ports when printer connectivity is required. The Modem connect ports provide full modem control for operation over leased lines or the telephone network.

Compact, flexible package

The DTC 72MX uses a standard 19-inch chassis. It can be located on a tabletop or in rack-mounted configurations such as HP systems cabinets. It comes with 19-inch RJ-45 distribution panels for use with simple and low-cost cabling. The RJ-45 pin-out is ATT356 compliant to allow future migration from asynchronous devices to 10-Base-T LAN devices without change of cabling.

Application interface compatible with HP 9000 system multiplexers.

The DTC products use standard systems calls to access and control the DTC ports. This presents HP-UX applications with a programmatic interface that is almost identical to the interface to asynchronous systems MUX ports, thus allowing an easy migration from MUX to network environment.

This includes:

- DTC port identification
- Host initiated sessions (printing, programmatic access) to DTC ports via standard device files

Location-independent access

The DTC 72MX provides location-independent access for end-users. This means that most of the services provided to local users connected on a DTC ports are also available to remote users accessing the DTC via the X.25 network. (See details in the "X.25 services" below.)

HP 3000 Telnet Access

The DTC 72MX supports a protocol converter, the HP 3000 Telnet Access Board, which allows end-users connected on Telnet Terminal Servers, PC workstations and systems running Telnet-TCP/IP to access the HP 3000/900 applications (including VPlus, user block mode) over the same LAN or over bridged or routed LAN networks.

DTC 72MX management

The DTC 72MX is configured and managed with the use of a DTC Manager application that can run on three different platforms: HP 3000/900, HP 9000/800, or PC OpenView Windows.

‡ With the DTC host-based management, a simple terminal connected locally or remotely to the HP 3000/900 or HP 9000/800 system is used to manage DTCs. It provides a user interface similar to other system administration tools.

- The HP 3000/900-based DTC management software provides a means to configure DTCs for use in HP 3000/900 standalone environments.

- The HP 9000/800-based DTC management software provides a means to configure DTCs in HP 9000 standalone or multisystem Telnet-TCP/IP environments.

‡ The HP OpenView (PC-based) DTC Manager software provides an easy-to-use graphical user interface, to manage DTCs. It is possible to integrate other management applications of network elements (such as HP X.25 Switches & PADs) on the same OpenView Windows workstation. HP OpenView DTC Manager provides a means to configure DTCs for use to connect to HP 3000/900 or HP 9000/800 systems and to other systems in Multivendor environments. It provides powerful network management features for complex network topologies.

In both host-based and PC-based environments, the DTC software is downloaded from the management platform, allowing easy distribution and control of the DTC software.

DTC SNMP agent

Besides the services provided by the DTC management platforms, the DTC-based SNMP agent (delivery Mid 93) will allow customers to take advantage of SNMP-based management applications such as the HP OpenView Network Node Manager.

The following features are available with Node Manager:

‡ Automatic discovery of DTCs.

‡ Status/Colors management. The DTCs are automatically polled on a regular basis and the status color is reflected on the map.

‡ MIB loader/browser. It provides display of MIB values in text or graphical form and the capability to modify them if permitted by the DTC

‡ MIB application builder. It enables users to build applications dealing with DTC MIB objects

‡ Historical data reporting for troubleshooting and network planning.

The DTC SNMP agent will be supported on all DTC hardware and

configurable from all the DTC management platforms.

DTC 72MX Product specifications

The DTC 72MX has a 4-slot chassis compliant with the industry-standard EIA 19-inch form factor. One slot is always used for the LAN interface. The 3 other slots are available for installing a combination of asynchronous, X.25 and HP 3000 Telnet Access Boards.

The following picture shows a DTC 72MX configured with one asynchronous processor board (24-ports), one X.25 board, and the HP 3000 Telnet access card.

DTC72MXB.PLT;4.353";3.2";HPGL

LAN interface

Two standard connectors are provided:

Connector:	LAN supported
BNC	ThinLAN (10Base-2)
802.3 AUI 15-pin	ThickLAN
	EtherTwist
	10Base-T,
	Fiber Optic
	Broadband, FDDI connectivity through
	IEEE 802.3/Ethernet external adapters

The DTC 72MX automatically recognizes the type of LAN connected (ThinLAN or AUI)

LAN services

Protocols supported	AFCP: HP 3000's high performance
	protocol
	TCP/IP Telnet
	Telnet/OLTP: HP 9000's high performance extension to
	Telnet protocol
Addressing	Symbolic addressing (DNS and HP-NS)
	IP addressing

Asynchronous Processor Boards

The DTC 72MX chassis supports up to 3 Asynchronous Processor Boards.

Two types of boards are available, with 24 ports each:

24-port RS-232-C (Direct or Modem or mixed, with a modularity of 8 ports)

- Direct connect with hardware flow-control
Signals: RX, TX, ground, RTS, CTS
Connectors: female RJ-45 (or optional female DB-25)
Line speed: from 300 to 38,400 bps
- Modem connect with FULL-MODEM control
Signals: RX, TX, DCD, DTR, RTS, RI, DSR, CTS, DRS, shield and signal ground
Connectors: female DB-25
Line speed: from 300 to 19,200 bps

24-port RS-423 Direct connect with hardware flow-control

- Signals: RX, TX, ground, RTS, CTS
- Connectors: female RJ-45 (or optional female DB-25)
- Line speed: from 300 to 38,400 bps
- Cable length: 300m (with a crosstalk of 1 Volt)
1200m (with a crosstalk of 2 Volts)

Common characteristics

Flow control: Xon/Xoff, HP Enq/Ack, RTS/CTS
Speed sensing: yes
Parity sensing: yes
Sessions/port: up to 5 sessions
Sessions/DTC: up to 192 sessions
Printer sharing: yes

X.25 boards

The DTC 72MX chassis supports up to 3 X.25 boards.

Two types of boards are available:

Interface/maximum line speed RS-232-C/19.2 kbps
Interface/maximum line speed V.35/64 kbps
- Number of Virtual Circuits (VCs) per interface: up to 256

X.25 services

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- System-to-system communications for HP 3000/900 systems (HP-NS services, ARPA-FTP, OSI-FTAM, SNA)
 - Remote PAD access (incoming calls) to HP 3000/900, HP 9000 and systems running TCP/IP Telnet through one single X.25 interface
 - Selectable PAD support profiles
 - Closed User Group Utility
 - Restricted access to predefined systems based on calling address for PAD users
 - Support of character mode applications through VideoPAD (tested in France through Minitel 3613)

Limitations applying to remote X.25 users compared to DTC local users are:

- PAD printers are only supported for system access via a LAN (no back-to-back)
- Only character mode and VPlus Block mode applications are supported with PAD functionality
- Multisession is not available for remote PAD users
- X.25 characteristics cannot be reconfigured online.

X.25 specific characteristics are described in the "X.25/iX Network link" datasheet.

HP 3000 Telnet Access

The DTC 72MX can support one board which supports up to 80 concurrent Telnet sessions accessing one or multiple HP 3000/900 applications.

(For detailed specifications, see the HP 3000 Telnet Access datasheet)

HP 3000 specific capabilities

Powerfail recovery
Typeahead facility
Field-mode support
Device type managed by the system

System release requirement

HP 3000/900: MPE/iX 4.5 or later (an update tape is available for systems running MPE/iX 4.0)
HP 9000: HP-UX 7.0 or later (for Telnet access)
HP-UX 8.0 or later to run DTC Manager/UX or Telnet/OLTP

DTC 72MX Rack installation

The DTC 72MX can be easily installed in industry-standard 19-inch EIA racks. When racked in an HP computer cabinet such as the C2785A and C2786A, the DTC 72MX should be ordered with the "system front panel" (option #1AC of the J2070A). An optional rail kit (C2788A) can be used to facilitate the installation of the DTC 72MX chassis. The DTC 72MX chassis (delivered with mounting brackets) is racked at the front of the rack and takes 3 EIA height units. Racking of the asynchronous distribution panels:

- ┌ 24-port RJ-45 distribution panels:
- standard 19-inch EIA compliant
- takes 1 EIA height unit
- no rack-mount kit required
- attached to the rear columns of the rack

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- † 8-port direct connect DB-25 distribution panels (DDP):
 - standard 19-inch EIA compliant
 - takes 1 EIA height unit
 - no rack-mount kit required
 - attached to the rear or front columns of the rack
 - (use filler panel C2791A = 6 * 1 EIA unit if front side installation)
 - † 8-port Modem connect DB-25 distribution panels (MDP):
 - NOT 19-inch EIA compliant
 - requires a rack-mount kit
 - for rear side installation:
 - use the C2792A kit to install up to 5 MDPs
 - takes 5 EIA units of height
 - for front side installation:
 - use the J2084A kit to install up to 5 MDPs (includes the filler panels)
 - takes 7 EIA height units

Hardware platform

Physical specifications

Height: 123 mm (5.12 in) = 3 EIA Units

Depth: 273 mm (11.37 in)

Width: 425 mm (16.8 in) = 19 inch compliant

Weight: 6.5 kg (15 lbs)

Operating environment

Temperature: 0 β to 55 β C

Relative humidity: 5% to 95% at 40 β C

Altitude: 4600m

Static discharge: 15kV - no data loss

Electrical specifications

Current consumption:

Typical: 1.8A/0.9A(115/220V)

Maximum: 2.2A/1.1A(115/220V)

Line frequency: 50/60Hz

Typical AC Input Voltage: 115V/230V (autorange power supply)

Regulatory classifications

Emissions:

- FTZ 1046/84,
- FCC part 15 class A
- EN55022 Class A
- VCCI Class 1
- SABS

Safety: UL, CSA, EN60950, SASO, BS6301

* For more details and configuration examples, refer to the DTC Racking & Cabling Guide available with the DTC 72MX Installation Guide (P/N 52070-90001).

Standards supported

TCP/IP standards supported

Ethernet/IEEE802.3, ping	
Subnet Addressing	RFC-950
ARP	RFC-826
ICMP	RFC-792
IP and options	RFC-791, MIL-STD 1777
TCP and options	RFC-793, MIL-STD 1778

UDP	RFC-768
Domain Name Services	RFC-1034-1035
SNMP agent	RFC-1157
Standard MIB services	RFC-1156
Structure of Management Information	RFC-1155
Telnet and options	RFC-854, MIL-STD 1782

X.25 standards supported

X.25 CCITT 1980,1984
X.3/X.28/X.29 1980,1984
Closed User Group (CUG) CCITT 1980
Defense Data Network (DDN) specifications

Ordering Information

Ordering the DTC 72MX products

J2070A Main product: DTC 72MX:

Includes:

- | The DTC 72MX with racking hardware
- | One "table-top" front panel
- | One LAN interface
- | A LAN accessories kit
- | Installation manuals
- | A software tape for HP 3000/900 systems

Front panel option

1AC Replaces the table-top front panel with an HP system cabinet front-panel:

Interface options (no asynchronous option is mandatory)

‡ RS-232-C Asynchronous Processor Boards:
- (comes standard with 19-inch RJ-45 distribution panel(s), 1 EIA unit/24 ports)

001 24 RS-232-C direct connect ports (one board) (consumes one slot)

002 48 RS-232-C direct connect ports (two boards) (consumes two slots)

003 72 RS-232-C direct connect ports (three boards) (consumes three slots)

For each RS-232-C board, MODEM ports can be substituted for direct ports (8, 16 or 24 on one board) with the following options:

UG5 Replace 8 direct ports with 8 MODEM (DB-25) ports (it comes then with 8-port female DB-25 distribution panels)

UG4 RS-423 Asynchronous Processor Board: 24 RS-423 direct connect ports (consumes one slot) (comes standard with 19-inch RJ-45 distribution panel, 1 EIA unit)

X.25 boards:

1CW X.25 board with RS-232 interface (consumes one slot)

1CX X.25 board with V.35 interface (consumes one slot)

HP 3000 Telnet Access:

004 TCP/IP-Telnet Access card (consumes one slot)

Ordering the DTC 72MX add-on products:

J2076A 24 RS-232 direct connect ports for DTC 72MX (consumes one slot)

UG5 replaces 8 direct ports with 8 modem ports

J2077A 24 RS-423 direct connect ports for DTC 72MX (consumes one slot)

J2079A X.25 board for DTC 72MX (consumes one slot)

1CW RS-232 interface

1CX V.35 interface

J2080A HP 3000 Telnet Access (consumes one slot)

Ordering the DTC related software for HP 9000 systems:

J2123A ARPA Extensions - Telnet/OLTP:

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- 001** DTC Device File Access utility upgrade. Provides printer support and nailed ports (required for upgrade to systems running HP-UX 9.0)
 - 002** High Performance Telnet/OLTP for HP 9000 server Tier 1
 - 003** High Performance Telnet/OLTP for HP 9000 server Tier 2
 - 004** High Performance Telnet/OLTP for HP 9000 server Tier 3
 - AA1** software on 1/2" MAGTAPE 1600 BPI
 - AAH** software on DAT cartridge tape
 - AA4** software on QIC cartridge tape
 - AAU** software on CD-ROM

Ordering the Connection accessory products:

J2085A The DTC 72MX comes standard with RJ-45 distribution panels (for direct connect) but connection accessories are available for upgrades or to accomodate existing cablings.

- 101** 8-port MODEM distribution panel: DB-25. Used to upgrade RS-232 direct connect ports to Modem ports. Includes one panel (MDP) with DB-25 connectors and a link cable for DTC connection.
- 102** 8-port Direct connect distribution panel:DB-25. Used for DB-25 cabling, compatible with DTC16 (HP 2340A) connectors. Includes one 19" (1EIA - rack-mountable) panel with DB-25 connectors and a link cable for DTC connection.
- 103** 24-port Direct Connect Distribution panel: RJ-45. Used for rack installation. This accessory is the default distribution panel of a 24-port asynchronous processor board. Includes one 19" (1EIA - rack-mountable) panel with RJ-45 connectors and 3 link cables for DTC connection.
- 104** 8-port multiport cable (3-pin connectors). Used for compatibility with existing DTC48 (HP 2345A) and ATPs connectors.

Ordering the DTC manager application:

DTC manager running on an HP 3000/900:

Nothing to order

Integrated with the MPE/iX operating system (FOS)

DTC manager running on an HP 9000/800:

- J2120A** HP DTC Manager/UX
- AA0** Software on 1/4" cartridge

AA1 Software on 1/2" MAGTAPE 1600 BPI
AAH Software on DAT cartridge tape
AA4 Software on QIC cartridge tape
AAU Software on CD-ROM
OCC - Update to latest version

DTC manager running on the HP OpenView Windows platform:

HP 32054D opt. 201 HP OpenView Windows Workstation (PC)
preconfigured with the DTC Manager application software

ABA --> ABZ Localization options (must order one)

Network connection options (must order one)

101 ThinLAN connection
102 ThickLAN connection
103 Ethertwist connection

D2355A DTC manager application software for an HP OpenView
Windows (PC) workstation

D1824D opt. 201 Update of an existing HP OpenView Windows
Workstation with the latest revision of software and DTC manager
application

† The HP OpenView Windows workstation (HP 32054D) is an
especially configured HP Vectra, with PC software already installed. It
includes 2Mb of additional memory, HP thinkjet printer, and MS-DOS,
MS-Windows, HP ARPA & Network Services /DOS, HP OpenView
Windows, HP AdvanceLink for Windows