Local PC-to-AS/400 and System/3x connections made easy!

IBM 5250 Emulation Family

Highlights

5500 Express IP Control Unit enables both local and remote TCP/IP over twinax

Run TCP/IP applications over existing twinaxial cabling to your AS/400 host

A complete family of products designed to satisfy any PC-to-IBM midrange connectivity need

IBM 5250 Express Adapters for 5250 emulation on all popular PC architectures—ISA, PC Card and PCI

The 5250 Express Data Stream feature provides for nearly 400% more media throughput than on other twinaxial devices

Plug and Play support for easy installation and configuration

Cabling options for a variety of system types

5250 emulation programs for Windows, Windows 95, Windows 98, Windows NT, OS/2 and DOS

IBM 7299 Series hubs for cost savings and network flexibility

Technical support available at no charge

With all the attention on Ethernet, why should I use twinax?

Many IBM midrange customers use the twinaxial protocol to connect their PCs to IBM System/3x and AS/400® hosts—even with the availability of LAN-based solutions. The primary reasons for the popularity of twinaxial-based solutions are their relative ease of implementation, installation, operation and maintenance, as well as their reliability.

Since the availability of TCP/IP over twinax for AS/400-attached devices, twinax-attached PCs have been running applications that would have required a LAN connection. Twinax devices can also use either twinax, unshielded twisted pair cabling and/or fiber optic cabling, typically at longer cable distances without repeaters, compared to other LAN cabling solutions.

The IBM 5250 Emulation Product Family consists of adapters, hubs, a multiplexer and Express IP Control Unit offering all of these advantages as a comprehensive IBM product offering.

TCP/IP support for 5250 Express Adapters

Get the most out of your AS/400 and twinaxial cabling investment! The 5250 Express Adapters now provide TCP/IP support for PCs attached to an AS/400 Twinaxial Workstation Controller.Twinax-attached PCs running Windows® 95, Windows 98 or Windows NT® can now have the same capabilities as if they were using TCP/IP over a LAN connection. With a 5250 Express Adapter installed, they can surf the World Wide Web, share printers, share files and use workgroup applications such as Lotus®Notes—without requiring a separate LAN connection.

The IBM 5250 TCP/IP Transport Driver that enables TCP/IP over twinax for the 5250 Express Adapters is available from IBM on the Internet or IBM Technical Support at no extra charge. The 5250 Express Adapters have many other unique features including nearly four times more throughput with the 5250 Express Data Stream. They also offer Plug and Play, ease of installation and up to seven physcial sessions when using the 5250 Express Program

5250 Express Adapters for every system

IBM 5250 Express Adapters enable PCs designed to today's most popular architecture standards—ISA, PC Card (PCMCIA) and PCI—to be attached to any IBM System/36™, System/38™ or AS/400 host supporting the twinaxial protocol. The adapters are attached to the host either locally,through the host twinaxial workstation controller, or remotely via a 5294, 5394 or 5494 Remote Control Unit or the new IBM 5500 Express IP Controller unit. Adapter cables are available to connect the adapters directly to today's most popular remote cabling systems—STP and UTP as well as traditional twinaxial cabling. If you currently use multiple cables and baluns in series, you should benefit from these integrated cables, which bridge directly from the adapter to the host cabling system.

Increase speed with the 5250 Express Data Stream

While maintaining the compatibility and reliability of previous IBM 5250 emulation adapters, the 5250 Express series sets a new standard for speed with the 5250 Express Data Stream feature. This unique feature incorporates two separate modes: optimized mode and 2-Mbps mode, which, when used together can increase throughput by nearly 400%!

Optimized mode reduces the number of bits required to transmit the same amount of data as the standard 5250 data stream. Using an emulation program such as the IBM 5250 Express Program Version 4.0 and an AS/400 system that supports this feature, users can nearly double throughput.

If all devices on a twinaxial workstation controller port (up to seven per port) are 5250 Express Adapters running software that supports the 5250 Express Data Stream, then the 2-Mbps mode is operational and the line speed doubles from 1 Mbps to 2 Mbps.

The combination of both modes can result in media throughput that is nearly four times greater than that of other twinaxial devices. For more details on 5250 Express Adapter performance, refer to the IBM 5250 Emulation Family Home Page at *www.networking.ibm.com/5250.*

Simplify setup and maximize flexibility

All 5250 Express Adapters offer the convenience of Plug and Play for easier installation and automatic configuration. And they all provide seven display stations or six display stations and one printer station for System/3x and Advanced 36 users. Up to 28 stations are available for AS/400 users when they take advantage of the shared-addressing feature of the IBM 5250 Express Program.

Protect your investments in hardware, software and training

The 5250 Express Adapters are supported by a variety of IBM 5250 emulation programs for Windows, Windows 95, Windows NT, OS/2 and DOS. They are also supported by most of the compatible IBM terminal emulation programs available for previous IBM 5250 emulation adapters. So your company's investments in software and employee training can be re-applied when moving between desktop architectures or operating environments.

Like previous IBM 5250 emulation adapters, all models of the 5250 Express series have been thoroughly tested for compatibility in both IBM and non-IBM PCs. And all 5250 Express Adapters offer the assurance of a lifetime warranty.

1. *5250 Express PCI Adapter*

2. *5250 Express ISA Adapter*

3. *5250 Express PC Card*

4. *AS/400 or System 3x*

5. *5500 Express IP Controll Unit*

6. *5250 Express using TCP/IP*

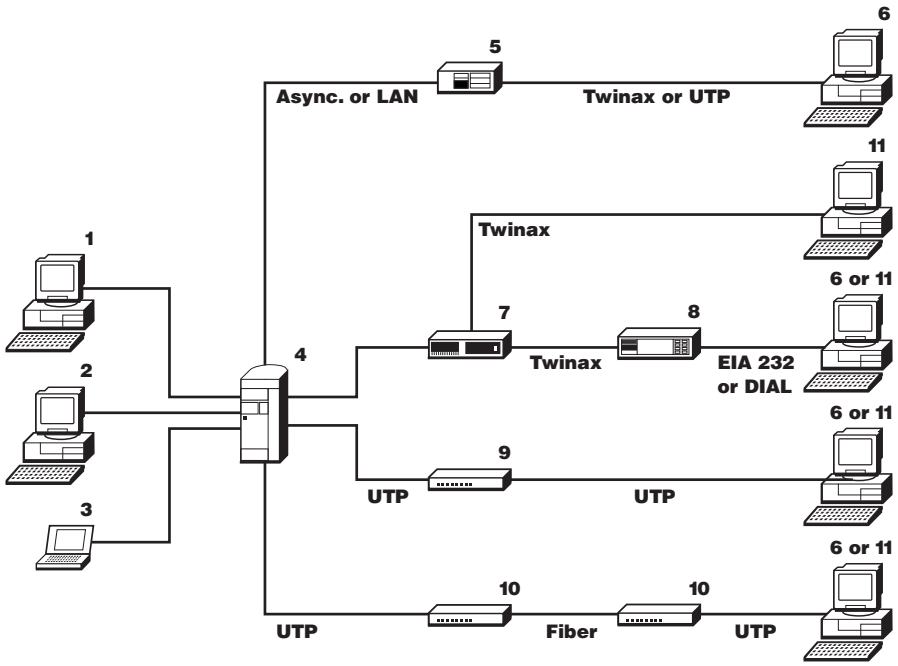
7. *5x94 Remote Controller*

8. *5308*

9. *7299 Express Hub*

10. *7299 Express Multiplexer*

11. *5250 Express using SNA*



7299 Express Hubs and Multiplexers for AS/400 hosts

The 7299 Express Hubs for AS/400 hosts maximize the throughput of 5250 Express Adapters by supporting the 5250 Express Data Stream feature, yet are flexible enough to support your legacy 5250-type devices. This series of star hubs connects twinaxial devices to AS/400, AS/400 Advanced 36 or System/3x hosts using low-cost, Category 5 UTP or FTP cabling.

The 7299 Express Hub for AS/400 Models 2EX and 2FX are 2-port, active star hubs that support up to 14 attached devices. Models 1PA and 2PA are passive UTP hubs useful for connecting all types of 5250-type devices to AS/400 or System/3x hosts over short distances. They support one host port and seven devices or two host ports and 14 devices, respectively.

The new 7299 Express Multiplexer concentrates one or two AS/400 twinax workstation controllers over a single pair of fiber optic cabling. The 7299 Express Multiplexer fully supports all of the enhancements to the new PCI twinax Workstation controllers including the split controller mode and the 5250 Express Data Stream. Up to two twinax hosts can share a single pair of fiber cabling through the 7299, connecting a full 56 devices in a remote location (up to 2012 m [6600 ft] away).

5500 Express IP Control Unit

The new IBM 5500 Express IP Control Unit brings e-business and other networking capabilities to twinax devices in remote and/or local environments. Since the introduction of TCP/IP over twinax, PCs with IBM 5250 Adapters and twinax Network Stations (8361-341) have been able to run e-business and networking applications when directly attached to an AS/400's twinax Workstation Controller. The 5500 Express IP Control Unit enables the same TCP/IP applications over twinax for devices that are remote from the AS/400 or attached to AS/400s that are not configured for TCP/IP over twinax. The 5500 also provides local boot and some application server capability for Network Stations (both LAN and twinax) useful in remote locations or to off load the AS/400 server.

5250 Emulation Program Summary

eNetwork™ Personal Communications AS/400 Version 4.2
This software package provides a variety of connectivity options supporting traditional SNA twinax, TCP/IP over twinax, local area network (LAN) and wide area network (WAN) environments. Whether for terminal emulation, client server applications or connectivity, Personal Communications offers a robust and comprehensive set of communications, networking, administrative and application-integration features. For more information on IBM's eNetwork software, visit our Web site at *www.software.ibm.com/enetwork/pcomm*.

IBM 5250 Emulation for Windows V 1.1
This software package, when used with the 5250 Express ISA Adapter or the 5250 Express PC Card, enables a personal computer running Microsoft Windows V3.1 to attach to an IBM System/3x or AS/400 host. Two windowed 5250 emulation sessions (two displays or one display and one printer) can be run and displayed concurrently with other DOS and Windows applications in the Windows environment.

- Offers 132-column support
- Provides native 3812 printer emulation and 3812 standard character string (SCS) data stream support-text rotation, computer-output reduction, automatic page orientation, increased font selection and other advanced functions
- Provides bidirectional transfer of text and binary files between the personal computer and the host
- Provides recording and replaying of keystroke macros
- Supports DDE between host and PC applications
- Features Windows GUI capabilities such as sizable windows, scalable fonts (including automatic font scaling) and mouse-driven hotspots
- Supports numerous IHV 5250 emulation adapters

5250 Express Program Version 4.0 for complete 5250 Express support
This emulation software package allows you to take advantage of the features available in the 5250 Express Adapters while maintaining compatibility with previous IBM 5250 emulation adapters. The 5250 Express Program functions include:

- 5250 Express Data Stream
- Plug and Play
- Access to seven physical sessions (station addresses) without a router

And the 5250 Express Program supports all of these features on all three 5250 Express Adapters-ISA, PCI and PC Card.

The 5250 Express Program provides reliable, fast 5250 emulation in DOS or an emulated DOS environment when non-graphical display and printer host access are required. The 5250 Express Program provides 5250 Express Adapters and previous IBM 5250 emulation adapters with all the same function as the IBM Enhanced Link for DOS Version 3.0. 1The 5250 Express Program also has a very small memory requirement—as little as 45 KB.

IBM 5250 Express Adapters at a glance

	IBM 5250 Express ISA Adapter	***IBM 5250 Express PCI Adapter***	***IBM 5250 Express PC Card***	***IBM 5250 Programs and Cables***
Part numbers				
5250 Express Networking Kit	05J4590			
Adapter and adapter cable kits				
Adapter	88H0250	82H4708	88H0256	
Adapter with terminating twinax cable	82H4725	82H4719	88H0279	
Adapter 10-pack	82H4706	82H4723	88H0286	
Adapter, program and cable kits				
• Adapter with 5250 Express Program V 4.0 and twinaxial cable	88H0200			
• Adapter with 5250 Emulation for Windows V 1.1 and twinaxial cable	82H4713			
5250 Emulation Programs				
• eNetwork Personal Communications AS/400 for Windows 95, Windows NT Program Package				4107063
• eNetwork Personal Communications AS/400 for Windows 95, Windows NT Upgrade				4110645
• 5250 Express Program V 4.0				88H0190
• 5250 Express Program V 4.0 Upgrade				88H0215
• 5250 Emulation for Windows V 1.1				11H1303
• 5250 Emulation for Windows V 1.1 Upgrade from V 1.0				11H1308
• 5250 Emulation for Windows V 1.1 Upgrade from any IBM 5250 emulation program				11H1340
Adapter Cables				
Twinaxial cable				6403635
Twinaxial cable 10-pack				11H0752
Data connector cable				60G1043
UTP Balun (RJ-11 jack)				60G1042
UTP Balun (RJ-45 jack)				31H5087

IBM 5250 Express Adapters at a glance (continued)

	IBM 5250 Express ISA Adapter	***IBM 5250 Express PCI Adapter***	***IBM 5250 Express PC Card***
Adapter Kits			
English	05J3153	05J3158	05J3163
Italian	05J3154	05J3159	05J3164
Spanish	05J3156	05J3161	05J3166
German	05J3157	05J3162	05J3167
Japanese	82H4707	82H4705	82H4711
Physical specifications			
Width	76 mm (3 in.)	76 mm (3 in.)	86 mm (3.38 in.)
Depth	165 mm (6.5 in.)	121 mm (4.75 in.)	54 mm (2.13 in.)
Operating environment			
Temperature on	10° to 35°C (50° to 95°F)	10° to 35°C (50° to 95°F)	10° to 35°C (50° to 95°F)
Temperature off	10° to 43° C (50° to 110°F)	10° to 43° C (50° to 110°F)	0° to 70° C (30° to 158°F)
Relative humidity on	8% to 85% (non-condensing)	8% to 85% (non-condensing)	8% to 95% (non-condensing)
Relative humidity off	5% to 85% (non-condensing)	5% to 85% (non-condensing)	5% to 95% (non-condensing)
Power requirements			
Voltage	+5 V -5 V	+5 V -12 V	+5 V
Nominal Current	750 mA 42 mA	750 mA 42 mA	850 mA
Maximum Current	1100 mA 65 mA	1100 mA 65 mA	1200 mA
Certifications	FCC Class A EEC EMC Directive (CE Mark) VCCI Class A (0 dB)	FCC Class A EEC EMC Directive (CE Mark) VCCI Class A (0 dB)	FCC Class A EEC EMC Directive (CE Mark) VCCI Class A (0 dB)
Publications	*5250 Express Hardware Manual - English*, S88H-0277 *5250 Express Hardware Manual - Japanese*, S88H-0282 *5250 Express Hardware Manual - Italian*, S05J-3243 *5250 Express Hardware Manual - German*, S05J-3244 *5250 Express Hardware Manual - Spanish*, S05J-3246 *5250 Express Program Version 4.0 User's Guide*, S88H-0191 *5250 Emulation for Windows V 1.1 User's Guide*, G571-0390		
Limited warranty	Lifetime *Note: The limited lifetime warranty is not transferable by the end-user customer. For information regarding the terms and conditions of IBM's limited warranty, please call 1 800 772-2227. Copies of IBM's statement of limited warranty are available upon request.*		

Installation information

Systems

IBM 5250 Express ISA Adapter	Any PC that complies with IBM PC AT®, ISA or EISA specifications
IBM 5250 Express PCI Adapter	Any 33-MHz PCI expansion slot meeting PCI Specification 2.0 or higher
IBM 5250 Express PC Card	Any PC Card Type II or III expansion slot meeting PC Card Standard - February 1995 or later

Software and operating systems

- To use TCP/IP over twinaxial, OS/400® V 4 R2 must be installed in the AS/400.

The PC must be running one of the following operating systems:

- Microsoft Windows 95 Version OSR2, or Service Pack 1 with the latest 'hot fixes' as detailed in the instructions provided.
- Windows 98
- Windows NT V 4.0 operating system.

- IBM 5250 Express Adapters are compatible with the same 5250 terminal emulation programs and the same functions as the IBM emulation adapters they replace. The 5250 Express Adapters are supported by the following IBM 5250 terminal emulation programs in the stated operating system environments (except where noted):

IBM DOS 5.0 or higher

IBM 5250 Express Program V 4.0 or higher
IBM 5250 Enhanced Link V 3.0 or higher
IBM AS/400 Client Access V 3 R1 M1 level or higher

Microsoft Windows 95 or Windows 98

IBM 5250 Emulation for Windows V 1.1[1]
IBM Personal Communications AS/400 for Windows 95 V 4.1 and V 4.2 or higher
IBM AS/400 Client Access V 3 R1 M1, V 3 R1 M2 and V 3 R1 M3 levels or higher

Microsoft Windows 3.x

IBM Personal Communications AS/400 for Windows V 4.1 and V 4.2 or higher
IBM AS/400 Client Access V 3 R1 M1 level or higher

Microsoft Windows NT

IBM Personal Communications AS/400 for Windows NT V 4.1 or higher
IBM AS/400 Client Access V 3 R1 M1, V 3 R1 M2 and V 3 R1 M3 levels or higher
IBM OS/2® Warp V 3 or higher
IBM Personal Communications AS/400 for OS/2 V 4.1 or higher[1]
IBM AS/400 Client Access V 3 R1 M1 level or higher[1]
IBM Communications Manager/2 V 1.1[1,2]
IBM 5250 Emulation for Windows V 1.1[1]
- Up to 2 sessions are supported in the WIN-OS/2 environment of OS/2

- 5250 Express Adapter functions include the 5250 Express Data Stream, Plug and Play and access to 7 physical sessions without requiring a router. Not all 5250 terminal emulation programs fully support the new Express functions at this time. For a current list of 5250 terminal emulation programs that support the 5250 Express functions, refer to the IBM 5250 Emulation Family Home Page at *www.networking.ibm.com/5250*.

Cables and connectors

An adapter cable is required to attach the adapter to the establishment host cabling system. One of the following available cables is recommended:

- 5250 Emulation Integrated Cable Assembly for twinaxial cabling
- 5250 Emulation Data Connector Cable for STP via an IBM Data Connector
- 5250 Emulation UTP Balun for UTP via an industry-standard RJ-45 or RJ-11 jack

Notes

[1] *The 5250 Express PCI Adapter is not supported for this operating system under this emulation program.*

[2] *IBM Communications Manager products support AS/400 attachment only. 5250 Emulation for Windows V 1.1, when running in the WIN-OS/2 environment of OS/2, supports AS/400 attachment only. Under native Windows, 5250 for Windows supports attachment to the IBM System/36, System/38 or AS/400.*

IBM 7299 Express Hub for AS/400 at a glance (For additional information see G224-4535.)

Media Connectors	**Model 2EX**	**Model 2FX**	**Model 1PA**	**Model 2PA**	**Model 2EN**	**Model 8MX**
Part numbers						
RJ-45 (UTP)	05J3360		05J3380	05J3390	05J4545	
RJ-45 (FTP)		05J3370				05J4540
RJ-11 (UTP)	05J3365		05J3385	05J3395		
Physical specifications						
Width	437 mm (17.2 in.)	437 mm (17.2 in.)	229 mm (9 in.)	437 mm (17.2 in.)	437 mm (17.2 in.)	437 mm (17.2 in.)
Depth	222 mm (8.75 in.)	222 mm (8.75 in.)	222 mm (8.75 in.)	222 mm (8.75 in.)	222 mm (8.75 in.)	222 mm (8.75 in.)
Height	42 mm (1.65 in.)	42 mm (1.65 in.)	42 mm (1.65 in.)	42 mm (1.65 in.)	42 mm (1.65 in.)	42 mm (1.65 in.)
Weight	1.9 kg (4.21 lb)	1.9 kg (4.21 lb)	1.5 kg (3.25 lb)	2.1 kg (4.75 lb)	2.8 kg (6.26 lb)	2.7 kg (6.01 lb)
Operating environment						
Temperature	0° to 55°C (32° to 131°F)	0° to 55°C (32° to 131°F)	0° to 55°C (32° to 131°F)	0° to 55°C (32° to 131°F)	0° to 55°C (32° to 131°F)	0° to 55°C (32° to 131°F)
Relative Humidity	10% to 90%	10% to 90%	10% to 90%	10% to 90%	10% to 90%	10% to 90%
Certifications	The 7299 Hub complies with the following safety standards: • UL 1950 • IEC 950 • CSA Standard C22.2 No. 950-M89					
Limited warranty	One year On-Site Repair					

IBM 5500 Express IP Control Units at a glance (For additional information see G224-4595.)

Models	**Model**	**Twinax Ports/ Devices**	**LAN Type**	**LAN Ports**	**WAN Connector**	**WAN Ports**	**Part Number**
	01E	8/56	Ethernet	1	9-Pin EIA 232	2	05J4929
	02E	8/56	Ethernet	2	9-Pin EIA 232	2	05J4930
	01T	8/56	Token-Ring	1	9-Pin EIA 232	2	05J4931
	02T	8/56	Token-Ring	2	9-Pin EIA 232	2	05J4932
Physical specifications	Width: 395 mm (15.5 in.) Depth: 415 mm (16.3 in.) Height: 150 mm (5.9 in.) Weight: 13.8 kg (30 lb)						
Operating environment	Temperature: 10° to 40.6°C (50° to 105°F) Relative humidity: 8% to 80% Wet bulb (Caloric value): 1283 BTU Electrical power: 0.375 kVA Capacity of exhaust: 1.13 m^3/min. (40 ft^3/min.) Noise level: 40 dBA Leakage and starting current: 0.7mA/40 A						
Publications	*5500 Express IP Control Unit Planning, Installation, and Maintenance Guide*, S05J-4934 This publication is shipped with the product.						
Warranty	One Year						
Country of origin	USA						

For more information

To find out more about the IBM 5250 Emulation Family and other high-performance IBM communications and networking products, contact your IBM representative or call IBM Direct at 1 800 IBM-CALL (1 800 426-2255). You can also access the IBM 5250 Emulation Family Home Page at:
www.networking.ibm.com/5250

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