Outstanding 5250 Express connectivity and performance

IBM 7299 Express Hub for AS/400 Systems

Highlights

- ***Maximum throughput to 5250 Express adapters***
- ***Support for 5250 Express Data Stream***
- ***Support for legacy 5250-type applications***
- ***Choice of active and passive models with RJ-45 or RJ-11 connectors***
- ***1-Mbps or 2-Mbps line speed***
- ***Advanced dc filtering and transient suppression***
- ***Simple-to-configure connectivity solution***
- ***Low-cost way to connect 5250-type devices over short distances***

Catch the 5250 Express

The IBM 7299 Express Hub for AS/400® Systems can help you maximize throughput to your 5250 Express adapters and still support all of your legacy applications. This star hub offers four models that connect 5250-type devices to AS/400, AS/400 Advanced 36™ or System/3x hosts by using low-cost category 5 UTP or FTP cabling.

When used with an AS/400 host—such as the AS/400 Advanced Entry Model 150—and 5250 Express adapters, the 7299 supports all the features of the 5250 Express Data Stream. That means increased throughput to 5250 Express adapters— up to four times as fast—and increased productivity through reduction of transmission-related delays. The 5250 Express Data Stream has two enhanced modes not found in the legacy 5250 data stream. Optimized mode reduces the number of bits required to transmit the same amount of data compared to the traditional 5250 data stream. 2-Mbps mode doubles overall line speed from 1 Mbps to 2 Mbps. When both optimized and 2-Mbps modes are in use, throughput can increase by up to four times. Of course actual application performance improvements depend on host and PC processor speed and system load.

Say good-bye to twinaxial daisy-chaining

The 7299 provides a superior alternative to twinaxial cabling for connecting to AS/400 and System/3x hosts. Twisted-pair cabling is far less expensive than twinaxial—about one-fifth the cost—and it can be used for other voice and data connections as well. All 7299 models connect one or two twinaxial workstation controller ports to seven or fourteen 5250-type devices, for maximum versatility. Each device is connected directly to the hub using star topology, so you can use a patch panel to connect each user instead of twinaxial daisy-chain topology.

What's the advantage of star topology? It's simple. Devices are individually cabled to an isolated hub port instead of physically daisy-chained together as with twinaxial cabling. Removing a device and its attachment cable from a twinaxial line will break the chain—and bring down everyone else on the line. Star topology allows devices to be dynamically added, moved or deleted without affecting other devices.

Migration made simpler

If you currently use AS/400 Advanced 36 or System/3x and plan to migrate to an AS/400 host, the 7299 can pave the way. It's easier to configure than the IBM 6299 Hub for Midrange Systems, and it supports the connection of all types of IBM-compatible 5250 devices to AS/400 and System/3x hosts. The 7299 supports

Features	*Benefits*
Support for 5250 Express Data Stream	Reduces transmission-related delays
Foiled or unshielded twisted-pair cabling	Saves money over twinax; can be used for other voice or data connections in addition to the 5250 connection
Connection of 5250-type devices to AS/400, AS/400 Advanced 36 and System/3x hosts at the legacy 1-Mbps data rate	Investment protection
4 all-inclusive models	Makes setup easier and quicker
Support for AS/400-to-5250 Express adapter connection	Optimizes transmission capabilities

all models of AS/400, AS/400 Advanced 36 and System/3x, IBM 5394 and 5494 Remote Controllers, and all legacy 5250-type adapters, displays and printers that run at the standard 1-Mbps non-optimized data rate, for maximum investment protection.

If you're planning a new installation or you need the 5250 Express Data Stream's higher performance, choose the 7299. For existing 6299 installations or those where hub modularity is essential, the 6299 is still a good solution. The 7299 is compatible with the 6299 multiplexer, distribution block and baluns.

Active models for noise reduction

7299 Models 2EX and 2FX are 2-port active star hubs that support up to 14 attached devices. Their receiver circuitry provides improved impedance-matching and reduces reflection problems. Advanced dc filtering and transient suppression provide excellent immunity to ac power line noise. These models provide true protocol transparency, for maximum 5250-type device performance and reliability. When used in conjunction with the 6299 Hub for Midrange Systems balun, which filters out noise, these models provide a clear transmission path and prevent noise-related session loss. They also have phase-correcting circuitry that detects reverse twinaxial phase and automatically corrects it, thereby maintaining the correct phase for all connections.

These models have 2 host LEDs per host port and 14 device LEDs. One of the host LEDs and all of the device LEDs indicate host and device port activity—useful for debugging connection problems. The other host port LED indicates when the devices attached are running at the faster 2-Mbps data rate supported by the 5250 Express adapters. This unique feature helps with debugging network problems by indicating when your attached devices are running at the faster rate. Model 2FX has shielded RJ-45 connectors, whereas Model 2EX has either unshielded RJ-45 or RJ-11 connectors.

Passive models for low-cost connectivity

If you're looking for a low-cost solution for connecting 5250-type devices to AS/400, AS/400 Advanced 36 or System/3x systems over short distances using category 5 twisted-pair cabling, here it is. 7299 Models 1PA and 2PA are passive UTP hubs that are an excellent choice for short-distance connections. In fact the 7299 replaces the IBM 5299 Terminal Multiconnector as the IBM passive UTP hub offering. The 7299 Model 2PA supports two host ports and is rack-mountable, unlike the 5299. Model 1PA is functionally identical to the 5299—with a lower price.

Both passive models include true star circuitry, eliminating the need for cable-tuning and preventing interference from shorted or open devices. Model 1PA supports 1 host port and 7 devices, whereas Model 2PA supports 2 host ports and 14 devices. Neither model requires power and can be used in wiring closets with no power available for active devices. Both models split the host signal from each host port and distribute it evenly among attached devices.

For more information

To find out more about the IBM 7299 Express Hub for AS/400 Systems 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 Networking Home Page at http://www.networking.ibm.com/525/525home.html.

Copies of this and other related product specification sheets can be obtained from the IBM FAX Information Service by dialing 1 800 IBM-4-FAX (1 800 426-4329) in the U.S. or Canada or by dialing (415) 855-4329 outside the U.S. and Canada and requesting any of the following document numbers:

7730: *IBM 7299 Express Hub for AS/400 Systems*

2202: *IBM 6299 Hub for Midrange Systems*

5209: *IBM 5250 Express ISA Adapter*

5574: *IBM 5250 Express PCI Adapter*

5210: *IBM 5250 Express PC Card*

1943: *IBM 5250 Emulation Family*

IBM 7299 Express Hub for AS/400 Systems at a glance

Model options

Part number	*Model code*	*Specify ports*	*Host ports*	*Device supply*	*International power included*	*Diagnostic LEDs*	*Connector type*
05J3360	2EX	4545	2	14	Yes	Yes	U RJ-45
05J3365	2EX	1111	2	14	Yes	Yes	U RJ-11
05J3370	2FX	N/A	2	14	Yes	Yes	S RJ-45
05J3477	1PA	4545	1	7	No	No	U RJ-45
05J3478	1PA	1111	1	7	No	No	U RJ-11
05J3479	2PA	4545	2	14	No	No	U RJ-45
05J3480	2PA	1111	2	14	No	No	U RJ-11

Maximum configuration

- The 7299 Models 2EX, 2FX and 2PA support a maximum of 2 host ports and 14 devices each.
- The 7299 Model 1PA supports a maximum of 1 host port and 7 devices.

Physical specifications

Models 2EX 2FX
Width: 437 mm (17.2 in.)
Depth: 222 mm (8.7 in.)
Height: 42 mm (1.65 in.)
Weight: 1.9 kg (4.2 lb)

Model 1PA
Width: 229 mm (9 in.)
Depth: 222 mm (8.7 in.)
Height: 42 mm (1.65 in.)
Weight: 1.7 kg (3.7 lb)

Model 2PA
Width: 437 mm (17.2 in.)
Depth: 222 mm (8.7 in.)
Height: 42 mm (1.65 in.)
Weight: 2.1 kg (4.6 lb)

Operating environment

Temperature: 0° to 55°C (32° to 131°F)
Relative humidity: 10% to 90%
Maximum wet-bulb temperature (caloric value): 26.7°C (80°F)
Capacity of exhaust: None (no fan)
Noise level: None (no fan)
For Models 2EX and 2FX only:

- Electrical power: .023 KVA
- Power consumption in active mode: 14 watts
- Leakage and starting current: .00075/50 Ampere

Compatibility

The IBM 7299 Express Hub for AS/400 Systems is compatible with all AS/400, System/36™ and System/38™ twinax controllers. The 7299 is also compatible with all IBM 5250-type devices and 100% IBM-compatible 5250-type devices.

Distance limitations

Model	*Connection*	*Legacy 1-Mbps transmission speed*	*Enhanced 2-Mbps transmission speed*
2EX	Host to 7299	610 m (2000 ft)	457 m (1500 ft)
2EX	7299 to device	670 m (2200 ft)	503 m (1650 ft)
2FX	Host to 7299	610 m (2000 ft)	457 m (1500 ft)
2FX	7299 to device	670 m (2200 ft)	503 m (1650 ft)
1PA	Host to device	91 m (300 ft)	69 m (225 ft)
2PA	Host to device	91 m (300 ft)	69 m (225 ft)

Warranty

Three years on-site

Installation information

Hardware

The IBM 7299 Express Hub for AS/400 Systems attaches to the Twinaxial Workstation Controller of any model of the AS/400, AS/400 Advanced 36, System/36, System/38, 5394 Remote Controller or 5494 Remote Controller. 5250 Express Data Stream support requires an IBM AS/400 Advanced Entry 9401 Model 150 configured with the Workstation/Communications Adapter (#2720) and the latest PTF applied at the host. The 5250 Express Data Stream also requires an IBM 5250 Express ISA, PCI or PC Card installed in a supported PC.

Software

The host AS/400 must be running OS/400™ V3 R7 with the latest PTF to take advantage of the 5250 Express Data Stream. If an earlier version of OS/400 is being used, the product will operate at the standard 5250 data stream rates. To determine what PC software is required to support the 5250 Express Data Stream on PCs with 5250 Express adapters installed, refer to the IBM 5250 Express ISA, PCI and PC Card Adapter specification sheets.

Publication

IBM 7299 Express Hub Planning, Installation, and Maintenance Guide, S05J-3355, is shipped with the product.

Cables

Compatible with all of the IBM 6299 Hub for Midrange Systems baluns.

The following baluns work on most 5250 devices:

Part number	*Description*
31H5077	Twinax-to-UTP balun, RJ-45 (4/5) with 3-m (10-ft) UTP male-to-male
31H5073	Twinax-to-UTP balun, RJ-11 (2/5) with 3-m (10-ft) UTP male-to-male
31H5074	Twinax-to-UTP balun, RJ-11 (3/4) with 3-m (10-ft) UTP male-to-male
31H5075	Twinax-to-UTP balun, RJ-45 (1/2) with 3-m (10-ft) UTP male-to-male
31H5076	Twinax-to-UTP balun, RJ-45 (3/6) with 3-m (10-ft) UTP male-to-male

The following baluns are for IBM 3179, 3180, 3196 and 3197 displays only:

Part number	*Description*
31H5082	Twinax-to-UTP balun, self-terminating RJ-45 (4/5) with 3-m (10-ft) UTP male-to-male
31H5078	Twinax-to-UTP balun, self-terminating RJ-11 (2/5) with 3-m (10-ft) UTP male-to-male

The following baluns are for IBM 5250 Express Adapters or IBM 5250 Emulation Adapters only:

Part number	*Description*
31H5087	DB-15-to-UTP balun, self-terminating RJ-45 (4/5) with 3-m (10-ft) UTP male-to-male
60G1042	DB-15-to-UTP balun, self-terminating RJ-11 (2/5) with 3-m (10-ft) UTP male-to-male

© International Business Machines Corporation 1997

IBM Corporation
Department NAP, Building 101
8501 IBM Drive
Charlotte NC 28262-8563

Printed in the United States of America
6-97

All Rights Reserved

References in this publication to IBM products or services do not imply that IBM intends to make them available in all countries in which IBM operates.

® AS/400 and IBM are registered trademarks of International Business Machines Corporation.

™ Advanced 36, OS/400, System/36 and System/38 are trademarks of International Business Machines Corporation.

All other company names or products are trademarks or registered trademarks of their respective companies.

Printed on recycled paper

G224-4535-00