InterChange™ Thin Server
Hardware Documentation

What This Document Contains

This document contains information on the following topics:

- Brief product overview
- Parts list for the InterChange Thin Server
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- [Installing the hardware](#)
- [Building an Ethernet crossover cable](#)
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See the InterChange Thin Server *Software Installation* documentation for information about installing and configuring the software.

Product Overview

The Thin Server is a self-contained embedded system that contains:

- PowerPC® processor (33 MHz)
- 4 MB of EDO DRAM
- 1.5 MB FLASH memory
- Ethernet port (10BASE-T)
- Eight serial device ports (RS-232) with RJ45 connectors

    Note: *Although you can use any serial port (L0 - L7) for a serial connection to the host system as a alternative to an Ethernet connection, many applications use L0. You may want to verify this before installation.*

- DB9 serial female console port for local monitoring, maintenance, and administration of the InterChange Thin Server

Parts List

The InterChange Thin Server kit contains the following items.

- InterChange Thin Server unit

Front View

Back View

- 5V power supply with cord

- DB25 female-RJ45 DCE adapters (four) and DB25 male-RJ45 DTE adapters (four)

    Note: *The DB25 to RJ45 adapters eliminate the need for null-modem connectors.*

- Eight RJ45 cables which connect the Thin Server serial device ports to the adapters and then to the serial devices.

Installation Prerequisites

To install the InterChange Thin Server, you will need to supply the following:

- If using an Ethernet connection, the appropriate cable.

    - If connecting to a hub, use a straight-through cable.
    - If connecting to a NIC, use a crossover cable. If necessary, see *Building an Ethernet Crossover Cable*.

Note: *The Thin Server will **not** work with 100Base-T networks. You will need to connect the Thin Server unit into a 100/10Base-T mini-hub in order to communicate on 100Base-T networks.*

- If using a serial connection (RS-232), the appropriate cable from your machine to the L0 port on the Thin Server. See *DB25 to RJ45 Connectors* for the RJ45 information.

Installing the Hardware

Use the following procedure to install the Thin Server hardware:

1. Connect the power supply to the Thin Server.

    Warning *Do not connect the power supply to a power source at this time.*

2. If using an Ethernet connection, connect the appropriate cable from the Thin Server into one of the following:

    - Straight-through Ethernet cable if using a 10Base-T hub

    - Ethernet crossover cable if using a PC network adapter (NIC)

3. If using a serial connection, connect the appropriate cable from L0 to a PC COM port.

    Note: *Although you can use any serial port (L0 - L7) for a serial connection to the host system as a alternative to an Ethernet connection, many applications use L0. You may want to verify this before installation.*

4. Connect an appropriate serial cable from a COM port on the PC to the DB9 port labelled **Console** on the back of the unit

5. Connect the power cable to a power source.

    Note: *You may want to use an uninterruptible power supply (UPS).*

6. Attach the power cable to the power supply and verify that the hardware goes through the proper power-on process:

    - PWR LED lights.

    - ACTIVE LED begins blinking after a few seconds, which indicates that the unit is booting or running at BIOS level.

    - ACTIVE LED light stops blinking and is fully lit after 30 seconds, which indicated that the Thin Server is ready to install the software.

Note: *If the ACTIVE LED continues to blink after 30 seconds passes, contact Technical Support.*

7. If you are using an Ethernet connection, verify that the LINK LED on the back of the unit lights, which establishes that you have a valid Ethernet connection.

After installing the hardware, use the *Connecting Devices* discussion to connect your serial devices.

Building an Ethernet Crossover Cable

If you are connecting from the 10Base-T connector on the InterChange Thin Server directly to the NIC card in the server, you need a crossover cable. Use the following information to build or purchase a cable.

Receptacle

Pin 1

Pin 1   Pin 6

| Pin	Connects to Pin
1	3
2	6
3	1
6	2
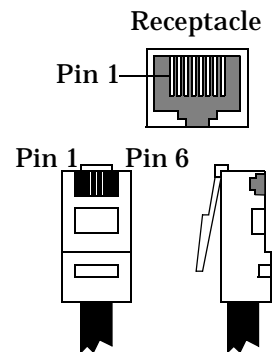
Connecting Devices

Use the following procedure to connect serial devices to the InterChange Thin Server.

1. Disconnect the power cable from the power supply of the Thin Server.

    Warning *Verify that the power is not applied while connecting the serial device cables and adapters to the Thin Server unit.*

2. Connect the RJ45 cable to the appropriate port (L0 through L7) on the Thin Server.

3. Connect the appropriate DB25M/F-RJ45 adapter to the corresponding serial device port and attach the other end of the RJ45 cable. See *DB25 to RJ45 Connectors* for more information.

DCE Device

DTE Adapter

Thin Server

DCE Adapter

DTE Device

Serial Devices
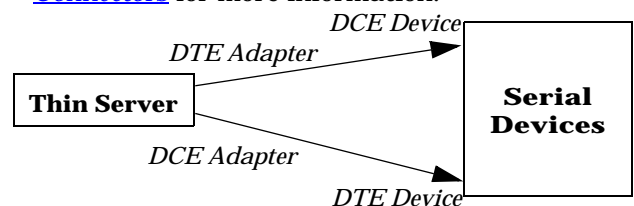
The adapter is dependent upon the device type you are connecting.

- Use the DTE adapter (DB25 male) to connect DCE devices.

- Use the DCE adapter (DB25 female) to connect to DTE devices.

Note: *Use the device manufacturer's installation documentation if you need help with connector pinouts or cabling for their devices.*

4. Use the *Quick Start Card* or the *Software Installation* documentation for information about downloading and installing the software.
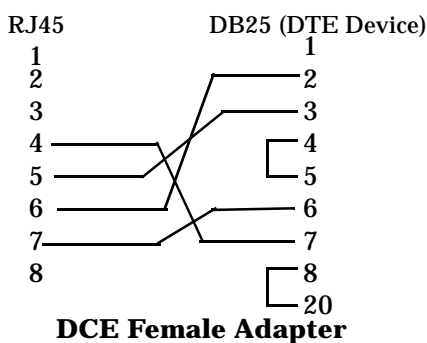
DB25 to RJ45 Connectors

The following provides pin out and signal information for DTE and DCE devices.

RJ45 Connector Pinouts

L0 - L7 (RJ45) Pins	Signal
1 - 3	Not used
4	GND
5	Tx
6	Rx
7	RTS
8	CTS

DCE Female Adapter

DB25 Pins	Signal
1	Not used
2	Rx
3	Tx
4	RTS
5	CTS
6	DSR
7	GND
8	DCD
20	DTR

RJ45   DB25 (DTE Device)
```
1                        1
2                        2
3                        3
4                        4
5                        5
6                        6
7                        7
8                        8
                        20
```
DCE Female Adapter

Adapter

DTE Male Adapter

DB25 Pins	Signal
1	Not used
2	Tx
3	Rx
4	RTS
5	CTS
6	DSR
7	GND
8	DCD
20	DTR

RJ45   DB25 (DCE Device)
```
1                        1
2                        2
3                        3
4                        4
5                        5
6                        6
7                        7
8                        8
                        20
```
DTE Male Adapter
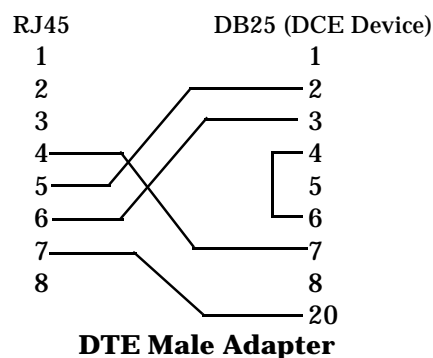
Hardware Specifications

This table illustrates environmental conditions.

Environmental Conditions	Value

Air temperature:
  System on
  System off
	0 to 40°C
	-20 to 65°C

Altitude	0 to 10,000 feet
Mean Time between Failures	7.99 years
Relative humidity (non-condensing)	10% to 95%

The following table lists electromagnetic compliance certifications.

Electromagnetic Compliances	Status

Emission:
  Canadian EMC requirements
  CISPR-22/EN55022 Class A
  FCC Part 15 Class A
	Yes

Immunity: EN50082 (801-2 ESD, 801-3 RF, and 801-4 FT)	Yes

Safety:
  EN60950
  UL 1950
	Yes

The following table illustrates hardware specifications.

Topic	Hardware Specifications
Console port (Thin Server)	DB9
Current consumption	1.75A at 5V
Dimensions (LxWxH)	4.75" x 9" x 1.25"
Ethernet host interface	10Base-T (10 Mbps)
Heat output	34.2 BTU/Hr
Line frequency	47 - 63 Hz
Line voltage	100 - 250 VAC
Maximum baud rate	115.2K bps
Number of ports	4 or 8
Power consumption (max)	8.75 W
Weight	1.3 pounds

Notices

Radio Frequency Interference (RFI) (FCC 15.105)

This equipment has been tested and found to comply with the limits for Class A digital devices pursuant to Part 15 of the FCC Rules.

This equipment generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try and correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Labeling Requirements (FCC 15.19)

This equipment complies with Part 15 of FCC rules. Operation is subject to the following two conditions:

- This device may not cause harmful interference, and
- This device must accept any interference received, including interference that may cause undesired operation.

Modifications (FCC 15.21)

Changes or modifications to this equipment not expressly approved by Comtrol Corporation may void the user's authority to operate this equipment.

Serial Cables (FCC 15.27)

This equipment is certified for Class A operation when used with unshielded cables.

Underwriters Laboratory

This equipment is Underwriters Laboratory "UL" listed.

Important Safety Information

To avoid contact with electrical current:

- Never install electrical wiring during an electrical storm.
- Never install the power plug in wet locations.
- Use a screwdriver and other tools with insulated handles.

Warning

Technical Support

If you need technical support, contact Comtrol using one of the following methods.

Corporate Headquarters:

- email: HPDsupport@comtrol.com
- Web Site: http://HPD.comtrol.com
- Phone: (888) 400-5854

Comtrol has a staff of technical support representatives to help you.

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