

Cabling Specifications for the Cisco 2524 and Cisco 2525 Routers

This appendix provides the following pinout information:

- Console and Auxiliary Port Signals and Pinouts
- Ethernet Cable Assembly and Pinouts
- Token Ring Port Pinouts
- 2-Wire Switched 56-kbps DSU/CSU Module Port Pinouts
- 4-Wire 56/64-kbps DSU/CSU Module Port Pinouts
- Fractional T1/T1 DSU/CSU Module Port Pinouts
- Synchronous Serial Cable Assemblies and Pinouts
- ISDN BRI Port and Cable Pinouts

Note All pins not listed in the tables in this appendix are not connected.

Console and Auxiliary Port Signals and Pinouts

Your router comes with a console and auxiliary cable kit, which contains the cable and adapters you need to connect a console (an ASCII terminal or PC running terminal emulation software) or modem to your router. The console and auxiliary cable kit includes the following items:

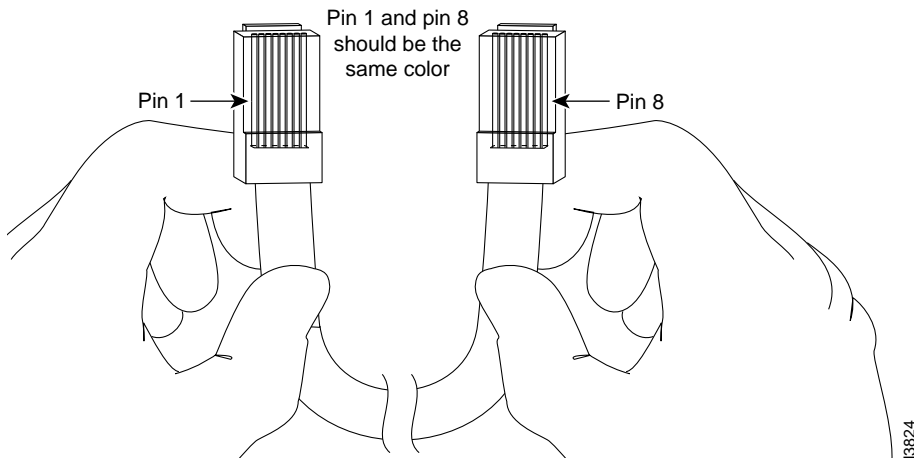
- RJ-45-to-RJ-45 roll-over cable. (See the next section, “Identifying a Roll-Over Cable,” for more information.)
- RJ-45-to-DB-9 female DTE adapter (labeled Terminal).
- RJ-45-to-DB-25 female DTE adapter (labeled Terminal).
- RJ-45-to-DB-25 male DCE adapter (labeled Modem).

For console connections, proceed to the section “Console Port Signals and Pinouts” later in this appendix; for modem connections, proceed to the section “Auxiliary Port Signals and Pinouts” later in this appendix.

Identifying a Roll-Over Cable

You can identify a roll-over cable by comparing the two modular ends of the cable. Holding the cables side-by-side, with the tab at the back, the wire connected to the pin on the outside of the left plug should be the same color as the wire connected to the pin on the outside of the right plug. (See Figure C-1.) If your cable was purchased from Cisco Systems, pin 1 will be white on one connector, and pin 8 will be white on the other (a roll-over cable reverses pins 1 and 8, 2 and 7, 3 and 6, and 4 and 5).

Figure C-1 Identifying a Roll-Over Cable



Console Port Signals and Pinouts

Use the RJ-45-to-RJ-45 roll-over cable and RJ-45-to-DB-9 female DTE adapter (labeled Terminal) to connect the console port to a PC running terminal emulation software. Figure C-2 shows how to connect the console port to a PC. Table C-1 lists the pinouts for the asynchronous serial console port, the RJ-45-to-RJ-45 roll-over cable, and the RJ-45-to-DB-9 female DTE adapter (labeled Terminal).

Figure C-2 Connecting the Console Port to a PC

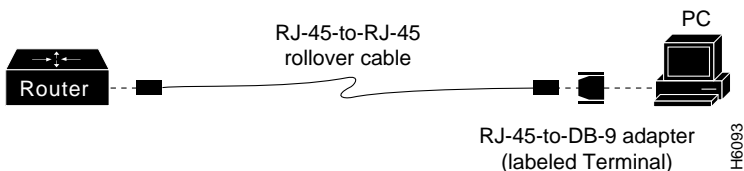


Table C-1 Console Port Signaling and Cabling Using a DB-9 Adapter

Console Port (DTE)	RJ-45-to-RJ-45 Roll-Over Cable		RJ-45-to-DB-9 Terminal Adapter	Console Device
	RJ-45 Pin	RJ-45 Pin	DB-9 Pin	
RTS	1 ¹	8	8	CTS
DTR	2	7	6	DSR
TxD	3	6	2	RxD
GND	4	5	5	GND
GND	5	4	5	GND
RxD	6	3	3	TxD
DSR	7	3	4	DTR
CTS	8 ¹	1	7	RTS

1. Pin 1 is connected internally to Pin 8.

Use the RJ-45-to-RJ-45 roll-over cable and RJ-45-to-DB-25 female DTE adapter (labeled Terminal) to connect the console port to a terminal. Figure C-3 shows how to connect the console port to a terminal. Table C-2 lists the pinouts for the asynchronous serial console port, the RJ-45-to-RJ-45 roll-over cable, and the RJ-45-to-DB-25 female DTE adapter (labeled Terminal).

Figure C-3 Connecting a the Console Port to a Terminal

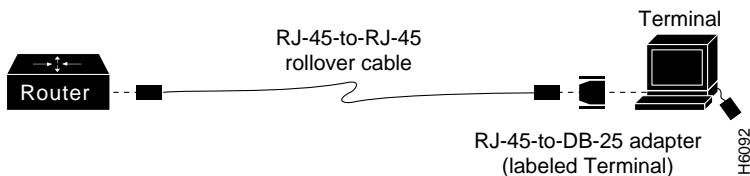


Table C-2 Console Port Signaling and Cabling Using a DB-25 Adapter

Console Port (DTE) ¹	RJ-45-to-RJ-45 Roll-Over Cable		RJ-45-to-DB-25 Terminal Adapter	Console Device Signal
	RJ-45 Pin	RJ-45 Pin	DB-25 Pin	
RTS	1 ²	8	5	CTS
DTR	2	7	6	DSR
TxD	3	6	3	RxD
GND	4	5	7	GND
GND	5	4	7	GND
RxD	6	3	2	TxD
DSR	7	3	20	DTR
CTS	8 ¹	1	4	RTS

1. You can use the same cabling to connect a console to the auxiliary port.
2. Pin 1 is connected internally to Pin 8.

Auxiliary Port Signals and Pinouts

Use the RJ-45-to-RJ-45 roll-over cable and RJ-45-to-DB-25 male DCE adapter (labeled Modem) to connect the auxiliary port to a modem. Figure C-4 shows how to connect the auxiliary port to a modem. Table C-3 lists the pinouts for the asynchronous serial auxiliary port, the RJ-45-to-RJ-45 roll-over cable, and the RJ-45-to-DB-25 male DCE adapter (labeled Modem).

Figure C-4 Connecting the Auxiliary Port to a Modem

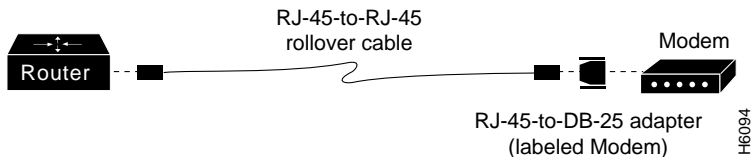


Table C-3 Auxiliary Port Signaling and Cabling Using a DB-25 Adapter

AUX Port (DTE)	RJ-45-to-RJ-45 Roll-Over Cable		RJ-45-to-DB-25 Modem Adapter	Modem
Signal	RJ-45 Pin	RJ-45 Pin	DB-25 Pin	Signal
RTS	1 ¹	8	4	RTS
DTR	2	7	20	DTR
TxD	3	6	3	TxD
GND	4	5	7	GND
GND	5	4	7	GND
RxD	6	3	2	RxD
DSR	7	3	8	DCD
CTS	8 ¹	1	5	CTS

1. Pin 1 is connected internally to Pin 8.

Ethernet Cable Assembly and Pinouts

This section describes the pinouts for the Ethernet ports and cables.

Figure C-5 shows an Ethernet (AUI) cable assembly, and Table C-4 lists an AUI cable pinout.

Figure C-5 Ethernet (AUI) Cable Assembly

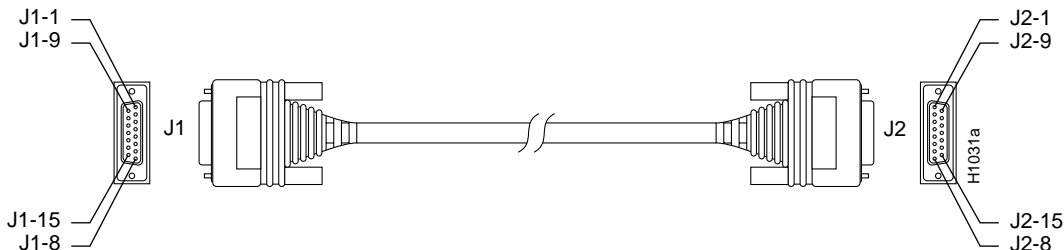


Table C-4 Ethernet (AUI) Cable Pinouts (DB-15)

Pin	Ethernet Circuit	Signal
3	DO-A	Data Out Circuit A
10	DO-B	Data Out Circuit B
11	DO-S	Data Out Circuit Shield
5	DI-A	Data In Circuit A
12	DI-B	Data In Circuit B
4	DI-S	Data In Circuit Shield
2	CI-A	Control In Circuit A
9	CI-B	Control In Circuit B
1	CI-S	Control In Circuit Shield
6	VC	Voltage Common
13	VP	Voltage Plus
14	VS	Voltage Shield (L25 and M25)
Shell	PG	Protective Ground

Table C-5 lists the pinouts for the 10BaseT port. Table C-6 and Table C-7 list the pinouts for the cables you can use with the 10BaseT port.

Table C-5 10BaseT Ethernet Port (RJ-45) Pinouts

Pin	Description
1	TX+
2	TX-
3	RX+
4	-
5	-
6	RX-

Pin	Description
7	–
8	–

Table C-6 RJ-45-to-RJ-45 Straight-Through Ethernet Cable Pinouts

RJ-45 Pin	Signal	Direction	RJ-45 Pin
1	TX+	→	1
2	TX–	→	2
3	RX+	←	3
4	–	–	4
5	–	–	5
6	RX–	←	6
7	–	–	7
8	–	–	8

Table C-7 RJ-45-to-RJ-45 Crossover Ethernet Cable Pinouts

RJ-45 Pin	Signal	Direction	RJ-45 Pin	Signal
1	TX+	→	3	RX+
2	TX–	→	6	RX–
3	RX+	←	1	TX+
4	–	–	4	–
5	–	–	5	–
6	RX–	←	2	TX–
7	–	–	7	–
8	–	–	8	–

Token Ring Port Pinouts

Table C-8 lists the Token Ring port pinouts. Use a Token Ring lobe cable to connect the Token Ring port to a MAU.

Table C-8 Token Ring Port (DB-9) Pinouts

9 Pin¹	Signal
1	Receive
3	+5V ²
5	Transmit
6	Receive
9	Transmit

1. Pins 2, 4, 7, and 8 are ground.
2. 600 mA maximum.

2-Wire Switched 56-kbps DSU/CSU Module Port Pinouts

Table C-9 lists the port pinouts for the 2-wire switched 56 DSU/CSU module. Use a straight-through RJ-11-to-RJ-11 cable to connect the 2-wire switched 56 port to an RJ-11 jack.

Table C-9 2-Wire Switched 56-kbps DSU/CSU Module Port (RJ-11) Pinouts

RJ-11 6 Pin¹	Signal
3	Tip
4	Ring

1. Pins 1, 2, 5, and 6 are not used.

4-Wire 56/64-kbps DSU/CSU Module Port Pinouts

Table C-10 lists the port pinouts for the 4-wire 56/64-kbps DSU/CSU module. Use a straight-through RJ-48S-to-RJ-48S cable to connect the RJ-48S port to an RJ-48S jack.

Table C-10 **4-Wire 56/64-kbps DSU/CSU Module Port (RJ-48S) Pinouts**

RJ-48S 8 Pin¹	Signal
1	Receive ring
2	Receive tip
7	Ring
8	Tip

1. Pins 3, 4, 5, and 6 are not used.

Fractional T1/T1 DSU/CSU Module Port Pinouts

Table C-11 lists the fractional T1/T1 DSU/CSU module port pinouts. Use a straight-through RJ-48C-to-RJ-48C cable to connect the fractional T1/T1 port to an RJ-48C jack.

Table C-11 **Fractional T1/T1 DSU/CSU Module Port (RJ-48C) Pinouts**

RJ-48C 8 Pin¹	Description
1	Receive ring
2	Receive tip
4	Ring
5	Tip

1. Pins 3, 6, 7, and 8 are not used.

Synchronous Serial Cable Assemblies and Pinouts

The illustrations and tables in this section provide assembly drawings and pinouts for the EIA-530 DCE, EIA/TIA-232, EIA/TIA-449, V.35, and X.21 DTE and DCE cables, which are used with the five-in-one synchronous serial WAN module.

EIA-530

Figure C-6 shows the EIA-530 serial cable assembly, and Table C-12 lists the pinouts. Arrows indicate signal direction: —> indicates DTE to DCE, and <— indicates DCE to DTE.

Figure C-6 EIA-530 Serial Cable Assembly

Table C-12 EIA-530 DTE Cable Pinouts (DB-60 to DB-25)

60 Pin	Signal	25 Pin	Signal	Direction	
				DTE	DCE ¹
J1-11	TxD/RxD+	J2-2	BA(A), TxD+	—>	
J1-12	TxD/RxD–	J2-14	BA(B), TxD–	—>	
J1-28	RxD/TxD+	J2-3	BB(A), RxD+	<—	
J1-27	RxD/TxD–	J2-16	BB(B), RxD–	<—	

Synchronous Serial Cable Assemblies and Pinouts

60 Pin	Signal	25 Pin	Signal	Direction	
				DTE	DCE ¹
J1-9	RTS/CTS+	J2-4	CA(A), RTS+	—>	
J1-10	RTS/CTS-	J2-19	CA(B), RTS-	—>	
J1-1	CTS/RTS+	J2-5	CB(A), CTS+	<—	
J1-2	CTS/RTS-	J2-13	CB(B), CTS-	<—	
J1-3	DSR/DTR+	J2-6	CC(A), DSR+	<—	
J1-4	DSR/DTR-	J2-22	CC(B), DSR-	<—	
J1-46	Shield_GND	J2-1	Shield		Shorted
J1-47	MODE_2	-	-		
J1-48	GND	-	-		Shorted
J1-49	MODE_1	-	-		
J1-5	DCD/DCD+	J2-8	CF(A), DCD+	<—	
J1-6	DCD/DCD-	J2-10	CF(B), DCD-	<—	
J1-24	TxC/RxC+	J2-15	DB(A), TxC+	<—	
J1-23	TxC/RxC-	J2-12	DB(B), TxC-	<—	
J1-26	RxC/TxCE+	J2-17	DD(A), RxC+	<—	
J1-25	RxC/TxCE-	J2-9	DD(B), RxC-	<—	
J1-44	LL/DCD	J2-18	LL	—>	
J1-45	Circuit_GN D	J2-7	Circuit_GND	-	
J1-7	DTR/DSR+	J2-20	CD(A), DTR+	—>	
J1-8	DTR/DSR-	J2-23	CD(B), DTR-	—>	
J1-13	TxCE/TxC+	J2-24	DA(A),	—>	
J1-14	TxCE/TxC-	J2-11	TxCE+ DA(B), TxCE-	—>	

1. The EIA-530 interface cannot be operated in DCE mode. A DCE cable is not available for the EIA-530 interface.

EIA/TIA-232

Figure C-7 shows the EIA/TIA-232 cable assembly. Table C-13 lists the DTE pinouts. Table C-14 lists the DCE pinouts. Arrows indicate signal direction: —> indicates DTE to DCE, and <— indicates DCE to DTE.

Figure C-7 EIA/TIA-232 Cable Assembly

Table C-13 EIA/TIA-232 DTE Cable Pinouts (DB-60 to DB-25)

60 Pin	Signal	Description	Direction	25 Pin	Signal
J1-50	MODE_0	Shorting group	—	—	—
J1-51	GND				
J1-52	MODE_DCE				
J1-46	Shield GND	Single	—	J2-1	Shield GND
J1-41	TxD/RxD	Twisted pair no. 5	—>	J2-2	TxD
Shield	—		—	Shield	—
J1-36	RxD/TxD	Twisted pair no. 9	<—	J2-3	RxD
Shield	—		—	Shield	—
J1-42	RTS/CTS	Twisted pair no. 4	—>	J2-4	RTS
Shield	—		—	Shield	—

Synchronous Serial Cable Assemblies and Pinouts

60 Pin	Signal	Description	Direction	25 Pin	Signal
J1-35 Shield	CTS/RTS –	Twisted pair no. 10	<— –	J2-5 Shield	CTS –
J1-34 Shield	DSR/DTR –	Twisted pair no. 11	<— –	J2-6 Shield	DSR –
J1-45 Shield	Circuit GND –	Twisted pair no. 1	– –	J2-7 Shield	Circuit GND –
J1-33 Shield	DCD/LL –	Twisted pair no. 12	<— –	J2-8 Shield	DCD –
J1-37 Shield	TxC/NIL –	Twisted pair no. 8	<— –	J2-15 Shield	TxC –
J1-38 Shield	RxC/TxCE –	Twisted pair no. 7	<— –	J2-17 Shield	RxC –
J1-44 Shield	LL/DCD –	Twisted pair no. 2	—> –	J2-18 Shield	LTST –
J1-43 Shield	DTR/DSR –	Twisted pair no. 3	—> –	J2-20 Shield	DTR –
J1-39 Shield	TxCE/TxC –	Twisted pair no. 6	—> –	J2-24 Shield	TxCE –

Table C-14 EIA/TIA-232 DCE Cable Pinouts (DB-60 to DB-25)

60 Pin	Signal	Description	Direction	25 Pin	Signal
J1-50 J1-51	MODE_0 GND	Shorting group	–	–	–
J1-46	Shield GND	Single	–	J2-1	Shield GND
J1-36 Shield	RxD/TxD –	Twisted pair no. 9	<— –	J2-2 Shield	TxD –
J1-41 Shield	TxD/RxD –	Twisted pair no. 5	—> –	J2-3 Shield	RxD –
J1-35 Shield	CTS/RTS –	Twisted pair no. 10	<— –	J2-4 Shield	RTS –

60 Pin	Signal	Description	Direction	25 Pin	Signal
J1-42 Shield	RTS/CTS –	Twisted pair no. 4	—> –	J2-5 Shield	CTS –
J1-43 Shield	DTR/DSR –	Twisted pair no. 3	—> –	J2-6 Shield	DSR –
J1-45 Shield	Circuit GND –	Twisted pair no. 1	– –	J2-7 Shield	Circuit GND
J1-44 Shield	LL/DCD –	Twisted pair no. 2	—> –	J2-8 Shield	DCD –
J1-39 Shield	TxCE/TxC –	Twisted pair no. 7	—> –	J2-15 Shield	TxC –
J1-40 Shield	NIL/RxC –	Twisted pair no. 6	—> –	J2-17 Shield	RxC –
J1-33 Shield	DCD/LL –	Twisted pair no. 12	<— –	J2-18 Shield	LTST –
J1-34 Shield	DSR/DTR –	Twisted pair no. 11	<— –	J2-20 Shield	DTR –
J1-38 Shield	RxC/TxCE –	Twisted pair no. 8	<— –	J2-24 Shield	TxCE –

EIA/TIA-449

Figure C-8 shows the EIA/TIA-449 cable assembly. Table C-15 lists the DTE pinouts. Table C-16 lists the DCE pinouts. Arrows indicate signal direction: —> indicates DTE to DCE, and <— indicates DCE to DTE.

Figure C-8 EIA/TIA-449 Cable Assembly

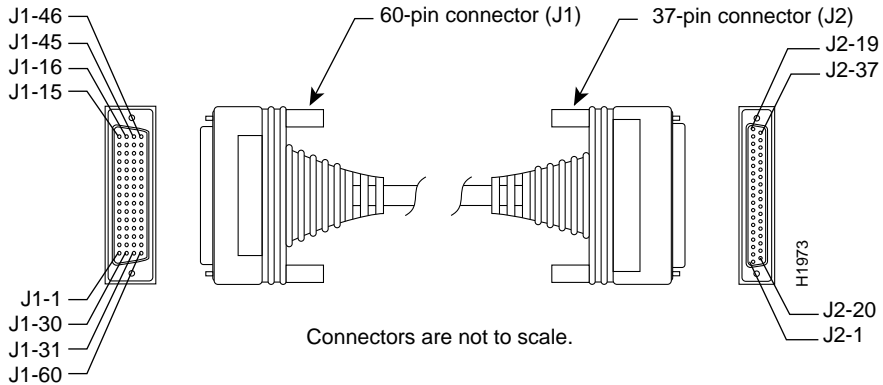


Table C-15 EIA/TIA-449 DTE Cable Pinouts (DB-60 to DB-37)

60 Pin	Signal	Description	Direction	37 Pin	Signal
J1-49	MODE_1	Shorting group	–	–	–
J1-48	GND				
J1-51	GND	Shorting group	–	–	–
J1-52	MODE_DCE				
J1-46	Shield_GND	Single	–	J2-1	Shield GND
J1-11	TxD/RxD+	Twisted pair no. 6	→	J2-4	SD+
J1-12	TxD/RxD–		→	J2-22	SD–
J1-24	TxC/RxC+	Twisted pair no. 9	←	J2-5	ST+
J1-23	TxC/RxC–		←	J2-23	ST–
J1-28	RxD/TxD+	Twisted pair no. 11	←	J2-6	RD+
J1-27	RxD/TxD–		←	J2-24	RD–
J1-9	RTS/CTS+	Twisted pair no. 5	→	J2-7	RS+
J1-10	RTS/CTS–		→	J2-25	RS–
J1-26	RxC/TxCE+	Twisted pair no. 10	←	J2-8	RT+
J1-25	RxC/TxCE–		←	J2-26	RT–

Synchronous Serial Cable Assemblies and Pinouts

60 Pin	Signal	Description	Direction	37 Pin	Signal
J1-1	CTS/RTS+	Twisted pair no. 1	←	J2-9	CS+
J1-2	CTS/RTS-		←	J2-27	CS-
J1-44	LL/DCD	Twisted pair no. 12	→	J2-10	LL
J1-45	Circuit_GND		-	J2-37	SC
J1-3	DSR/DTR+	Twisted pair no. 2	←	J2-11	DM+
J1-4	DSR/DTR-		←	J2-29	DM-
J1-7	DTR/DSR+	Twisted pair no. 4	→	J2-12	TR+
J1-8	DTR/DSR-		→	J2-30	TR-
J1-5	DCD/DCD+	Twisted pair no. 3	←	J2-13	RR+
J1-6	DCD/DCD-		←	J2-31	RR-
J1-13	TxCE/TxC+	Twisted pair no. 7	→	J2-17	TT+
J1-14	TxCE/TxC-		→	J2-35	TT-
J1-15	Circuit_GND	Twisted pair no. 9	-	J2-19	SG
J1-16	Circuit_GND		-	J2-20	RC

Table C-16 EIA/TIA-449 DCE Cable Pinouts (DB-60 to DB-37)

60 Pin	Signal	Description	Direction	37 Pin	Signal
J1-49	MODE_1	Shorting group	-	-	-
J1-48	GND				
J1-46	Shield_GND	Single	-	J2-1	Shield GND
J1-28	RxD/TxD+	Twisted pair no. 11	←	J2-4	SD+
J1-27	RxD/TxD-		←	J2-22	SD-
J1-13	TxCE/TxC+	Twisted pair no. 7	→	J2-5	ST+
J1-14	TxCE/TxC-		→	J2-23	ST-
J1-11	TxD/RxD+	Twisted pair no. 6	→	J2-6	RD+
J1-12	TxD/RxD-		→	J2-24	RD-
J1-1	CTS/RTS+	Twisted pair no. 1	←	J2-7	RS+
J1-2	CTS/RTS-		←	J2-25	RS-
J1-24	TxC/RxC+	Twisted pair no. 9	→	J2-8	RT+
J1-23	TxC/RxC-		→	J2-26	RT-

Synchronous Serial Cable Assemblies and Pinouts

60 Pin	Signal	Description	Direction	37 Pin	Signal
J1-9	RTS/CTS+	Twisted pair no. 5	—>	J2-9	CS+
J1-10	RTS/CTS-		—>	J2-27	CS-
J1-29	NIL/LL	Twisted pair no. 12	—>	J2-10	LL
J1-30	Circuit_GND		-	J2-37	SC
J1-7	DTR/DSR+	Twisted pair no. 4	—>	J2-11	DM+
J1-8	DTR/DSR-		—>	J2-29	DM-
J1-3	DSR/DTR+	Twisted pair no. 2	<—	J2-12	TR+
J1-4	DSR/DTR-		<—	J2-30	TR-
J1-5	DCD/DCD+	Twisted pair no. 3	—>	J2-13	RR+
J1-6	DCD/DCD-		—>	J2-31	RR-
J1-26	RxC/TxCE+	Twisted pair no. 10	<—	J2-17	TT+
J1-25	RxC/TxCE-		<—	J2-35	TT-
J1-15	Circuit_GND	Twisted pair no. 8	-	J2-19	SG
J1-16	Circuit_GND		-	J2-20	RC

V.35

Figure C-9 shows the V.35 cable assembly. Table C-17 lists the DTE pinouts. Table C-18 lists the DCE pinouts. Arrows indicate signal direction: —> indicates DTE to DCE, and <— indicates DCE to DTE.

Figure C-9 V.35 Cable Assembly

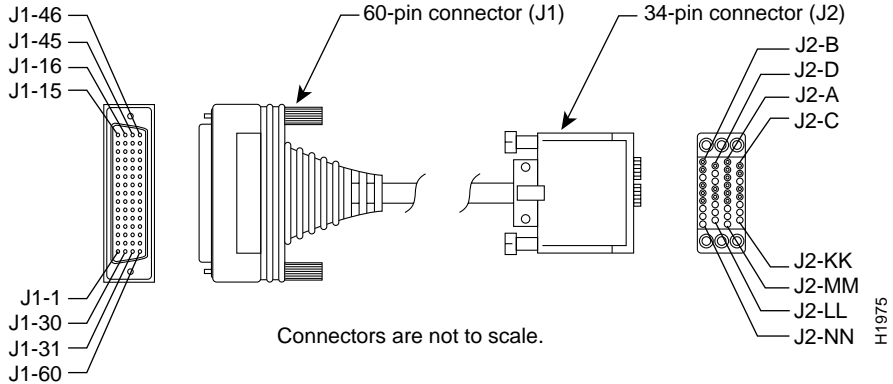


Table C-17 V.35 DTE Cable Pinouts (DB-60 to 34-Pin)

60 Pin	Signal	Description	Direction	34 Pin	Signal
J1-49 J1-48	MODE_1 GND	Shorting group	—	—	—
J1-50 J1-51 J1-52	MODE_0 GND MODE_DCE	Shorting group	—	—	—
J1-53 J1-54 J1-55 J1-56	TxC/NIL RxC_TxCE RxD/TxD GND	Shorting group	—	—	—
J1-46	Shield_GND	Single	—	J2-A	Frame GND
J1-45 Shield	Circuit_GND —	Twisted pair no. 12	— —	J2-B Shield	Circuit GND —
J1-42 Shield	RTS/CTS —	Twisted pair no. 9	—> —	J2-C Shield	RTS —
J1-35 Shield	CTS/RTS —	Twisted pair no. 8	<— —	J2-D Shield	CTS —

Synchronous Serial Cable Assemblies and Pinouts

60 Pin	Signal	Description	Direction	34 Pin	Signal
J1-34 Shield	DSR/DTR –	Twisted pair no. 7	<— –	J2-E Shield	DSR –
J1-33 Shield	DCD/LL –	Twisted pair no. 6	<— –	J2-F Shield	RLSD –
J1-43 Shield	DTR/DSR –	Twisted pair no. 10	—> –	J2-H Shield	DTR –
J1-44 Shield	LL/DCD –	Twisted pair no. 11	—> –	J2-K Shield	LT –
J1-18 J1-17	TxD/RxD+ TxD/RxD–	Twisted pair no. 1	—> —>	J2-P J2-S	SD+ SD–
J1-28 J1-27	RxD/TxD+ RxD/TxD–	Twisted pair no. 5	<— <—	J2-R J2-T	RD+ RD–
J1-20 J1-19	TxCE/TxC+ TxCE/TxC–	Twisted pair no. 2	—> —>	J2-U J2-W	SCTE+ SCTE–
J1-26 J1-25	RxC/TxCE+ RxC/TxCE–	Twisted pair no. 4	<— <—	J2-V J2-X	SCR+ SCR–
J1-24 J1-23	TxC/RxC+ TxC/RxC–	Twisted pair no. 3	<— <—	J2-Y J2-AA	SCT+ SCT–

Table C-18 V.35 DCE Cable Pinouts (DB-60 to 34-Pin)

60 Pin	Signal	Description	Direction	34 Pin	Signal
J1-49 J1-48	MODE_1 GND	Shorting group	–	–	–
J1-50 J1-51	MODE_0 GND	Shorting group	–	–	–
J1-53 J1-54 J1-55 J1-56	TxC/NIL RxC_TxCE RxD/TxD GND	Shorting group	–	–	–
J1-46	Shield_GND	Single	–	J2-A	Frame GND

60 Pin	Signal	Description	Direction	34 Pin	Signal
J1-45 Shield	Circuit_GND –	Twisted pair no. 12	– –	J2-B Shield	Circuit GND –
J1-35 Shield	CTS/RTS –	Twisted pair no. 8	<— –	J2-C Shield	RTS –
J1-42 Shield	RTS/CTS –	Twisted pair no. 9	—> –	J2-D Shield	CTS –
J1-43 Shield	DTR/DSR –	Twisted pair no. 10	—> –	J2-E Shield	DSR –
J1-44 Shield	LL/DCD –	Twisted pair no. 11	—> –	J2-F Shield	RLSD –
J1-34 Shield	DSR/DTR –	Twisted pair no. 7	<— –	J2-H Shield	DTR –
J1-33 Shield	DCD/LL –	Twisted pair no. 6	<— –	J2-K Shield	LT –
J1-28 J1-27	RxD/TxD+ RxD/TxD–	Twisted pair no. 5	<— <—	J2-P J2-S	SD+ SD–
J1-18 J1-17	TxD/RxD+ TxD/RxD–	Twisted pair no. 1	—> —>	J2-R J2-T	RD+ RD–
J1-26 J1-25	RxC/TxCE+ RxC/TxCE–	Twisted pair no. 4	<— <—	J2-U J2-W	SCTE+ SCTE–
J1-22 J1-21	NIL/RxC+ NIL/RxC–	Twisted pair no. 3	—> —>	J2-V J2-X	SCR+ SCR–
J1-20 J1-19	TxCE/TxC+ TxCE/TxC–	Twisted pair no. 2	—> —>	J2-Y J2-AA	SCT+ SCT–

X.21

Figure C-10 shows the X.21 cable assembly. Table C-19 lists the DTE pinouts. Table C-20 lists the DCE pinouts. Arrows indicate signal direction: —> indicates DTE to DCE, and <— indicates DCE to DTE.

Figure C-10 X.21 Cable Assembly

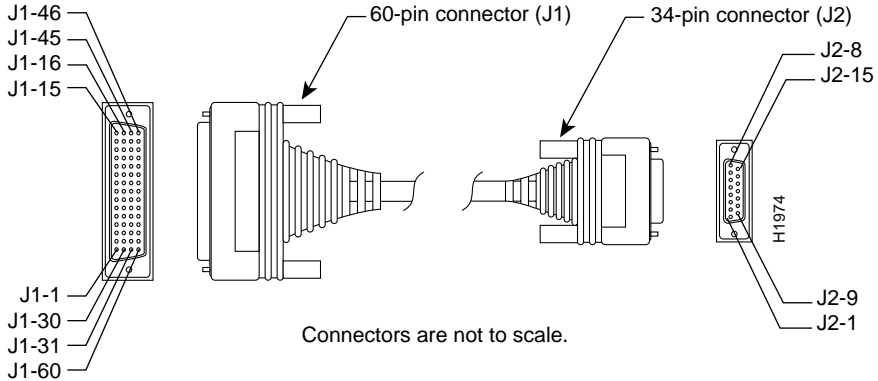


Table C-19 X.21 DTE Cable Pinouts (DB-60 to DB-15)

60 Pin	Signal	Description	Direction	15 Pin	Signal
J1-48 J1-47	GND MODE_2	Shorting group	—	—	—
J1-51 J1-52	GND MODE_DCE	Shorting group	—	—	—
J1-46	Shield_GND	Single	—	J2-1	Shield GND
J1-11 J1-12	TxD/RxD+ TxD/RxD-	Twisted pair no. 3	—>	J2-2 J2-9	Transmit+ Transmit-
J1-9 J1-10	RTS/CTS+ RTS/CTS-	Twisted pair no. 2	—>	J2-3 J2-10	Control+ Control-
J1-28 J1-27	RxD/TxD+ RxD/TxD-	Twisted pair no. 6	<—	J2-4 J2-11	Receive+ Receive-
J1-1 J1-2	CTS/RTS+ CTS/RTS-	Twisted pair no. 1	<—	J2-5 J2-12	Indication+ Indication-

60 Pin	Signal	Description	Direction	15 Pin	Signal
J1-26	RxC/TxCE+	Twisted pair no. 5	<—	J2-6	Timing+
J1-25	RxC/TxCE-		<—	J2-13	Timing-
J1-15	Control_GND	Twisted pair no. 4	-	J2-8	Control GND
Shield	-		-	Shield	-

Table C-20 X.21 DCE Cable Pinouts (DB-60 to DB-15)

60 Pin	Signal	Description	Direction	15 Pin	Signal
J1-48	GND	Shorting group	-	-	-
J1-47	MODE_2		-	-	-
J1-46	Shield_GND	Single	-	J2-1	Shield GND
J1-28	RxD/TxD+	Twisted pair no. 6	<—	J2-2	Transmit+
J1-27	RxD/TxD-		<—	J2-9	Transmit-
J1-1	CTS/RTS+	Twisted pair no. 1	<—	J2-3	Control+
J1-2	CTS/RTS-		<—	J2-10	Control-
J1-11	TxD/RxD+	Twisted pair no. 3	—>	J2-4	Receive+
J1-12	TxD/RxD-		—>	J2-11	Receive-
J1-9	RTS/CTS+	Twisted pair no. 2	—>	J2-5	Indication+
J1-10	RTS/CTS-		—>	J2-12	Indication-
J1-24	TxC/RxC+	Twisted pair no. 4	—>	J2-6	Timing+
J1-23	TxC/RxC-		—>	J2-13	Timing-
J1-15	Control_GND	Twisted pair no. 5	-	J2-8	Control GND
Shield	-		-	Shield	-

ISDN BRI Port and Cable Pinouts

Table C-21 lists the port pinouts for the ISDN WAN module (without integrated NT1). Table C-22 lists the BRI port and cable pinouts for the ISDN WAN module with an integrated NT1 device.

Table C-21 BRI Port (RJ-45) Pinouts

RJ-45 8 Pin¹	TE²	NT³	Polarity
3	Transmit	Receive	+
4	Receive	Transmit	+
5	Receive	Transmit	-
6	Transmit	Receive	-

1. Pins 1, 2, 7, and 8 are not used.
2. TE refers to terminal terminating layer 1 aspects of TE1, TA, and NT2 functional groups.
3. NT refers to network terminating layer 1 aspects of NT1 and NT2 functional groups.

Table C-22 BRI Cable (RJ-45-to-RJ-45) Pinouts

NT¹ RJ-45 (8 Pin)²	Wire	LT³ RJ-45 (8 Pin)
4	Tip	4
5	Ring	5

1. NT refers to the network terminating layer 1 aspects of NT1 and NT2 functional groups.
2. Pins 1, 2, 3, 6, 7, and 8 are not used.
3. LT refers to the line termination point (i.e., at the wall jack).