

Cable Pinouts

This appendix lists the pinouts for the cables you can use with Cisco 1600 series routers, and includes the following pinouts:

- 10BaseT Port Pinouts
- Straight-Through 10BaseT Cable (RJ-45 to RJ-45)
- Console Cable and Adapter Pinouts
- 56-kbps CSU/DSU (RJ-48S) Pinouts
- ISDN BRI S/T Port Pinouts (RJ-45)
- ISDN BRI U Port Pinouts (RJ-45)
- EIA/TIA-232 DTE Cable Pinouts (DB-60 to DB-25)
- EIA/TIA-449 DTE Cable Pinouts (DB-60 to DB-37)
- X.21 DTE Cable Pinouts (DB-60 to DB-15)
- V.35 Cable Pinouts (DB-60 to 34-Pin)
- EIA-530 DTE Cable Pinouts (DB-60 to DB-25)

Table D-1 lists the pinouts for the 10BaseT port.

Table D-1 10BaseT Port Pinouts

8 Pin¹	Description
1	TX+
2	TX–
3	RX+
6	RX–

1. Pins 4, 5, 7, and 8 are not used.

Table D-2 lists the pinouts for a straight-through 10BaseT cable, which is used to connect the router to an Ethernet hub.

Table D-2 Straight-Through 10BaseT Cable (RJ-45 to RJ-45)

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

The EIA/TIA-232 console port is configured as data terminal equipment (DTE) and uses an RJ-45 connector. A console cable kit is provided with your router to connect a console (an ASCII terminal or PC running terminal emulation software) to the console port. The

console cable kit contains an RJ-45-to-RJ-45 roll-over cable and a RJ-45-to-DB-25 female DTE adapter (labeled “Terminal”). Table D-3 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.

Table D-3 Console Cable and Adapter Pinouts

Console Port (DTE)		RJ-45-to-RJ-45 Roll-Over Cable			
Signal	RJ-45 Pin	RJ-45 Pin	DB-9 Pin	DB-25 Pin	Signal
–	1	8	7	4	–
DTR	2	7	4	20	DSR
TxD	3	6	3	2	RxD
GND	4	5	5	7	GND
GND	5	4	5	7	GND
RxD	6	3	2	3	TxD
DSR	7	2	6	6	DTR
–	8	1	8	5	–

You can identify a roll-over cable by comparing the two modular ends of the cable. (See Figure D-1.) Holding the cables in your hand, side-by-side, with the tab at the back, the wire connected to the pin on the outside of the left connector (pin 1) should be the same color as the pin on the outside of the right connector (pin 8). On Cisco cables, pin 1 is white on one connector, and pin 8 is white on the other connector.

Figure D-1 Identifying a Roll-Over Cable

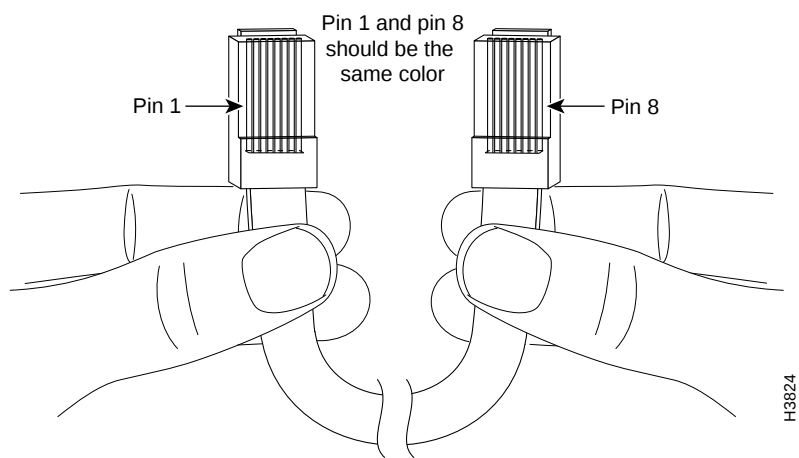


Table D-4 lists the pinouts for an RJ48S-to-RJ48S cable, which is used to connect the Cisco 1602 to the 56-kbps wall jack.

Table D-4 56-kbps CSU/DSU (RJ-48S) Pinouts

8 Pin ¹	Description
1	Transmit
2	Transmit
7	Receive
8	Receive

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

Table D-5 ISDN BRI S/T Port Pinouts (RJ-45)

8 Pin ¹	TE ²	NT ³	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 NT functional groups. This applies to the Cijisco 1603 and the ISDN BRI S/T WAN interface card.
3. NT refers to network terminating layer 1 aspects of NT1 and NT2 functional groups. This applies to the Cisco 1604 ISDN S/T port.

Table D-6 ISDN BRI U Port Pinouts (RJ-45)

8 Pin ¹	Function
3	No connection
4	Signal—Tip or Ring
5	Signal—Tip or Ring
6	No connection

1. Pins 1, 2, 7, and 8 are not used.

Shielded Serial Transition Cable Pinouts

The serial port on the router uses a universal port, a 60-pin receptacle that supports the following serial interfaces: EIA/TIA-232, EIA/TIA-449, X.21, V.35, and EIA-530. The shielded serial transition cable determines the electrical interface type. The router end of all of the cables is a 60-pin connector.

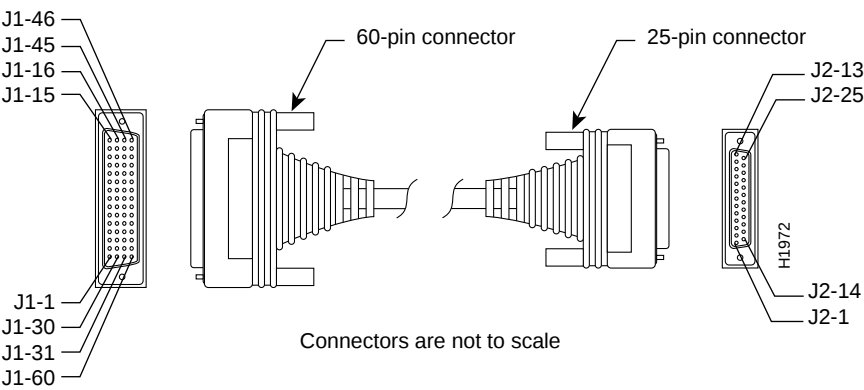
DTE connectors have a plug connector at the network end. (DCE connectors have a receptacle at the network end.) However, V.35 is available in DTE mode with a connector of either gender at the network end. The serial port operates in DTE and DCE modes.

Shielded Serial Transition Cable Pinouts

The tables that follow list the signal pinouts for the DTE mode serial transition cables for each router interface type.

Figure D-2 shows the EIA/TIA-232 serial cable assembly, and Table D-7 lists the EIA/TIA-232 cable pinouts.

Figure D-2 EIA/TIA-232 Serial Cable Assembly



Shielded Serial Transition Cable Pinouts

Table D-7 EIA/TIA-232 DTE Cable Pinouts (DB-60 to DB-25)

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

1. Any pin not referenced is not connected.

Shielded Serial Transition Cable Pinouts

Figure D-3 shows the EIA/TIA-449 serial cable assembly, and Table D-8 lists the EIA/TIA-449 cable pinouts.

Figure D-3 EIA/TIA-449 Serial Cable Assembly

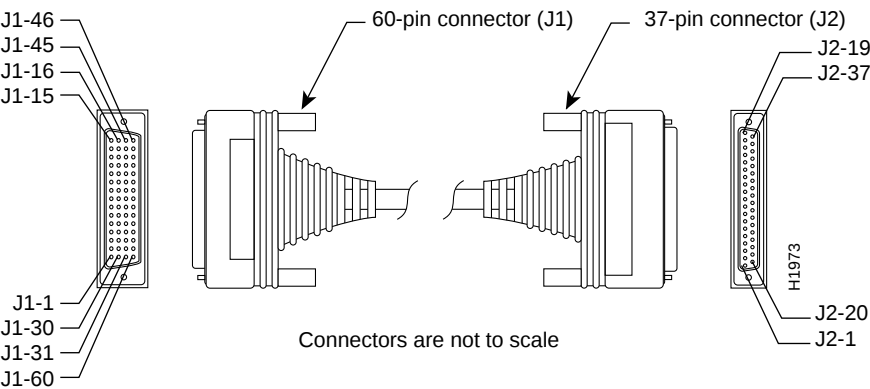


Table D-8 EIA/TIA-449 DTE Cable Pinouts (DB-60 to DB-37)

60 Pin ¹	Signal	Description	Direction	37 Pin	Signal
J1-49 J1-48	MODE_1 GND	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. 6	—> —>	J2-4 J2-22	SD+ SD—
J1-24 J1-23	TxC/RxC+ TxC/RxC—	Twisted pair no. 9	<— <—	J2-5 J2-23	ST+ ST—
J1-28 J1-27	RxD/TxD+ RxD/TxD—	Twisted pair no. 11	<— <—	J2-6 J2-24	RD+ RD—
J1-9 J1-10	RTS/CTS+ RTS/CTS—	Twisted pair no. 5	—> —>	J2-7 J2-25	RS+ RS—
J1-26 J1-25	RxC/TxCE+ RxC/TxCE—	Twisted pair no. 10	<— <—	J2-8 J2-26	RT+ RT—
J1-1 J1-2	CTS/RTS+ CTS/RTS—	Twisted pair no. 1	<— <—	J2-9 J2-27	CS+ CS—
J1-44 J1-45	LL/DCD Circuit_GND	Twisted pair no. 12	—> —	J2-10 J2-37	LL SC
J1-3 J1-4	DSR/DTR+ DSR/DTR—	Twisted pair no. 2	<— <—	J2-11 J2-29	DM+ DM—
J1-7 J1-8	DTR/DSR+ DTR/DSR—	Twisted pair no. 4	—> —>	J2-12 J2-30	TR+ TR—
J1-5 J1-6	DCD/DCD+ DCD/DCD—	Twisted pair no. 3	<— <—	J2-13 J2-31	RR+ RR—
J1-13 J1-14	TxCE/TxC+ TxCE/TxC—	Twisted pair no. 7	—> —>	J2-17 J2-35	TT+ TT—
J1-15 J1-16	Circuit_GND Circuit_GND	Twisted pair no. 9	— —	J2-19 J2-20	SG RC

1. Any pin not referenced is not connected.

Shielded Serial Transition Cable Pinouts

Figure D-4 shows the X.21 cable assembly, and Table D-9 lists the X.21 cable pinouts.

Figure D-4 X.21 Cable Assembly

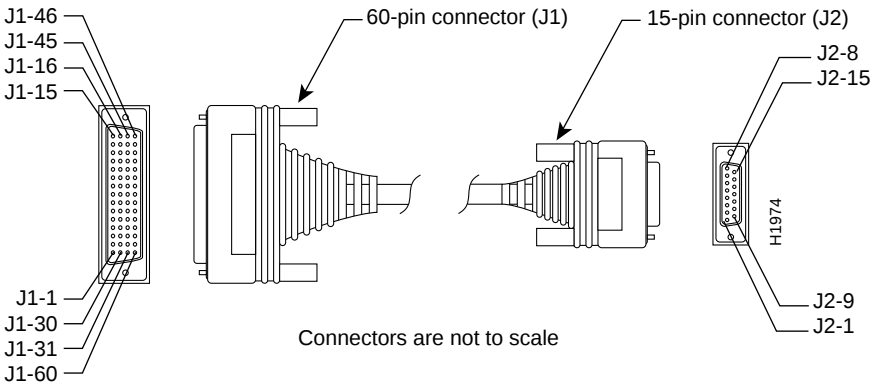


Table D-9 X.21 DTE Cable Pinouts (DB-60 to DB-15)

60 Pin ¹	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—
J1-26 J1-25	RxC/TxCE+ RxC/TxCE—	Twisted pair no. 5	<— <—	J2-6 J2-13	Timing+ Timing—
J1-15 Shield	Control_GND —	Twisted pair no. 4	— —	J2-8 Shield	Control GND —

1. Any pin not referenced is not connected.

Shielded Serial Transition Cable Pinouts

Figure D-5 shows the V.35 cable assembly and Table D-10 lists the V.35 cable pinouts.

Figure D-5 V.35 Cable Assembly

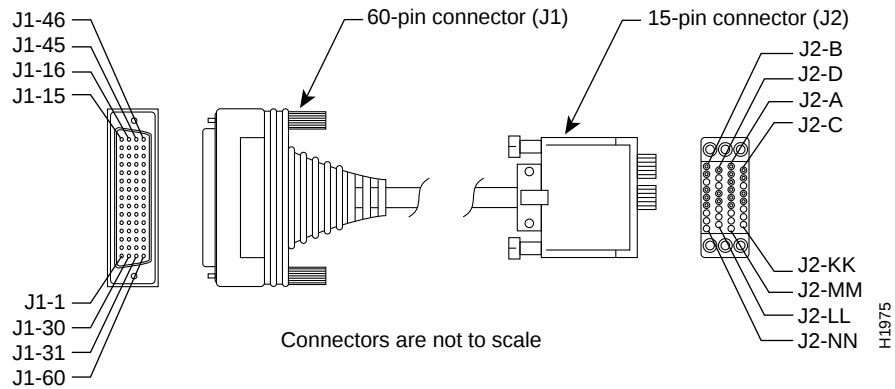


Table D-10 V.35 Cable Pinouts (DB-60 to 34-Pin)

60 Pin ¹	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 —

Shielded Serial Transition Cable Pinouts

60 Pin ¹	Signal	Description	Direction	34 Pin	Signal
J1-35 Shield	CTS/RTS –	Twisted pair no. 8	<— –	J2-D Shield	CTS –
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–

1. Any pin not referenced is not connected.

Shielded Serial Transition Cable Pinouts

Figure D-6 shows the EIA-530 cable assembly, and Table D-11 lists the EIA-530 DTE cable pinouts.

Figure D-6 EIA-530 Cable Assembly

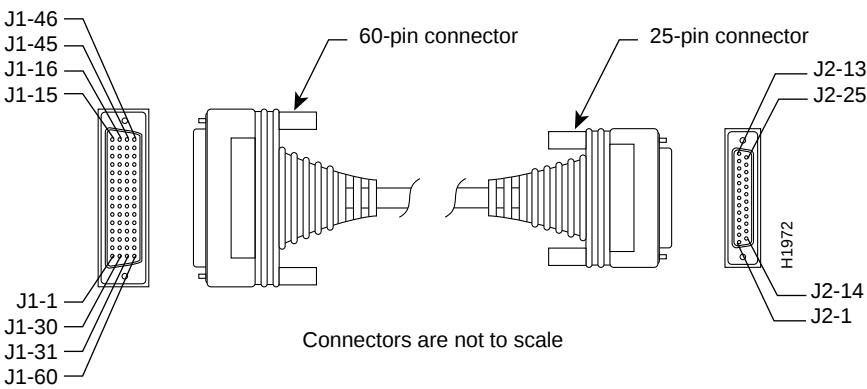


Table D-11 EIA-530 DTE Cable Pinouts (DB-60 to DB-25)

60 Pin ¹	Signal	25 Pin	Signal	Direction DTE DCE ²
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–	<—
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_GND	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), TxCE+	—>
J1-14	TxCE/TxC–	J2-11	DA(B), TxCE–	—>

1. Any pin not referenced is not connected.

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

Shielded Serial Transition Cable Pinouts
