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# Installing High-Speed Serial Interface (HSSI) Cables

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**Product Numbers: CAB-HSI1=, CAB-HNUL=**

**Customer Order Number: DOC-784260=**

This document describes how to install High-Speed Serial Interface (HSSI) cables for Cisco 7000 series, Cisco 7200 series (including a Cisco 7206 as a router shelf in a Cisco AS5800 Universal Access Server), Cisco 7401ASR, Cisco 7500 series, and Cisco 4000 series routers; and Cisco uBR7200 series universal broadband routers.

These cables connect directly to the following hardware:

- HSSI Interface Processor (HIP)—An interface processor used in Cisco 7000 series and Cisco 7500 series routers
- PA-H and PA-2H port adapters—Used in the Cisco uBR7200 series universal broadband routers and the following Cisco 7000 family routers:
  - Cisco 7000 series
  - Cisco 7200 series (including a Cisco 7206 as a router shelf in a Cisco AS5800 Universal Access Server)
  - Cisco 7401ASR router
  - Cisco 7500 series
- NP-1HSSI—A network processor module used in Cisco 4500, Cisco 4500-M, Cisco 4700, and Cisco 4700-M routers

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**Note** The Cisco 7200 series routers consist of the 4-slot Cisco 7204 and the 6-slot Cisco 7206. The Cisco 7206 can be used as a router shelf in a Cisco AS5800 Universal Access Server. The steps for installing HSSI cables on a Cisco 7200 series router and a Cisco 7206 router shelf are the same; therefore, the procedures in this document that reference the Cisco 7200 series also apply to the Cisco 7206 router shelf, unless noted otherwise.

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Use this publication in conjunction with the following publications:

- “HSSI Interface Processor” *chapter of the Interface Processor Installation and Configuration Guide*
- *PA-H HSSI Port Adapter Installation and Configuration.*
- *PA-2H Dual-Port HSSI Port Adapter Installation and Configuration.*
- *Installing and Configuring HSSI Network Processor Modules in Cisco 4000 Series Routers and Cisco 4000 Series Public Network Certification* publication

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Sections in this publication include the following:

- Product Description, page 3
  - HSSI Interface Cable (CAB-HSI1=), page 3
  - Null Modem Cable (CAB-HNUL=), page 4
- Connecting the HSSI Cable, page 5
- Connecting the Null Modem Cable, page 7
- Obtaining Documentation, page 8
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## Product Description

Each HSSI port on the HIP, PA-H, PA-2H, or NP-1HSSI uses a female, 50-pin, SCSI-II-type connector.



**Caution** Although the HSSI connector and the HSSI cable are similar to SCSI-II format, they are not identical. The HSSI cable specification is more stringent than that for SCSI-II. If you use a SCSI-II cable instead of an HSSI cable, proper operation cannot be guaranteed.

Two types of cables are available for use with a HSSI ports:

- CAB-HSI1=, an HSSI cable used to connect your router to an external DSU (and the HSSI network)
- CAB-HNUL=, a null-modem HSSI cable used to connect two routers back-to-back

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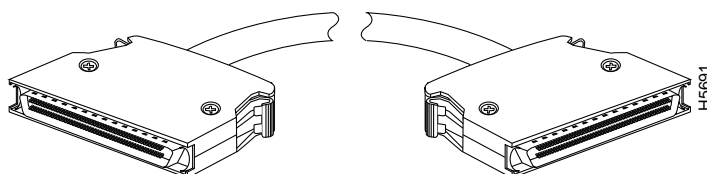
**Note** For information on how to enable two routers for back-to-back operation, refer to the configuration note that shipped with the HIP, PA-H, PA-2H, or NP-1HSSI. You can also access configuration notes on the Documentation CD or the web.

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## HSSI Interface Cable (CAB-HSI1=)

Figure 1 shows the HSSI cable CAB-HSI1= (Part Number 72-0710-xx). Table 1 provides pinouts. The cable has a male DB-50 (SCSI) connector on each end. Refer to “Connecting the HSSI Cable” on page 5 for connection instructions.

**Figure 1** HSSI Interface Cable Connectors



**Table 1 HSSI Interface Cable Pinouts**

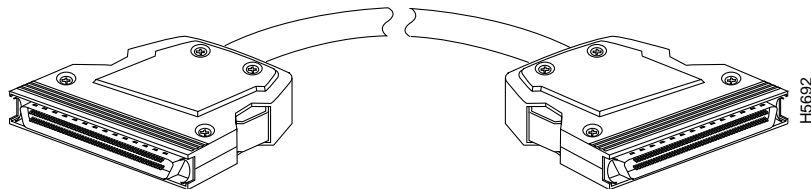
Signal Name	From Pins	Direction <sup>1</sup>	To Pins	Signal Name
RT (Receive Timing)	2, 27	—>	9, 34	TT (Terminal Timing)
CA (DCE Available)	3, 28	—>	8, 33	TA (DTE Available)
RD (Receive Data)	4, 29	—>	11, 36	SD (Send Data)
LC (Loopback C)	5, 30	—>	10, 35	LA (Loopback A)
ST (Send Timing)	6, 31	—>	6, 31	ST (Send Timing)
TA (DTE Available)	8, 33	—>	3, 28	CA (DCE Available)
TT (Terminal Timing)	9, 34	—>	2, 27	RT (Receive Timing)
LA (Loopback A)	10, 35	—>	5, 30	LC (Loopback C)
SD (Send Data)	11, 36	—>	4, 29	RD (Receive Data)
GND (Ground)	1, 26, 7, 32, 13, 38, 19, 44, 25, 50		1, 26, 7, 32, 13, 38, 19, 44, 25, 50	GND (Ground)
Loopback (not connected)	12, 37		12, 37	Loopback (not connected)
Not used	14–18, 20–24, 39–43, 45–49		14–18, 20–24, 39–43, 45–49	Not used

<sup>1</sup> Router is + side (DTE). DSU is – side (DCE).

## Null Modem Cable (CAB-HNUL=)

Figure 2 shows the HSSI null-modem cable CAB-HNUL= (Part Number 72-0727-xx). Table 2 provides pinouts. The cable has a male DB-50 (SCSI) connector on each end. Refer to “Connecting the HSSI Cable” on page 5 for connection instructions.

**Figure 2 Null Modem Cable Connectors**



**Table 2 Null Modem Cable Pinouts**

Signal Name	Pin No. + Side (Router End)	Direction <sup>1</sup>	Pin No. – Side (DSU End)
SG (Signal Ground)	1	—	26
RT (Receive Timing)	2	←	27
CA (DCE Available)	3	←	28
RD (Receive Data Reserved)	4	←	29
LC (Loopback circuit C)	5	←	30
ST (Send Timing)	6	←	31
SG (Signal Ground)	7	—	32
TA (DTE Available)	8	→	33
TT (Terminal Timing)	9	→	34
LA (Loopback Circuit A)	10	→	35
SD (Send Data)	11	→	36
LB (Loopback Circuit B)	12	→	37
SG (Signal Ground)	13	—	38
5 (Ancillary to DCE)	14–18	→	39–43
SG (Signal Ground)	19	—	44
5 (Ancillary from DCE)	20–24	←	45–49
SG (Signal Ground)	25	—	50

<sup>1</sup> Router is + side (DTE). DSU is – side (DCE).

## Connecting the HSSI Cable

Connect the HSSI cable between the router and a T3, E3, or SONET DSU as shown in Figure 3 (HIP), Figure 4 (PA-H), or Figure 5 (NP-1HSSI).

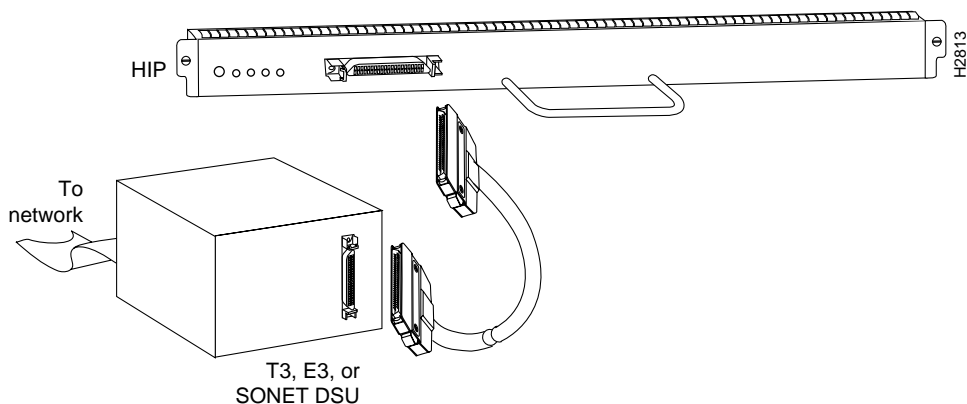
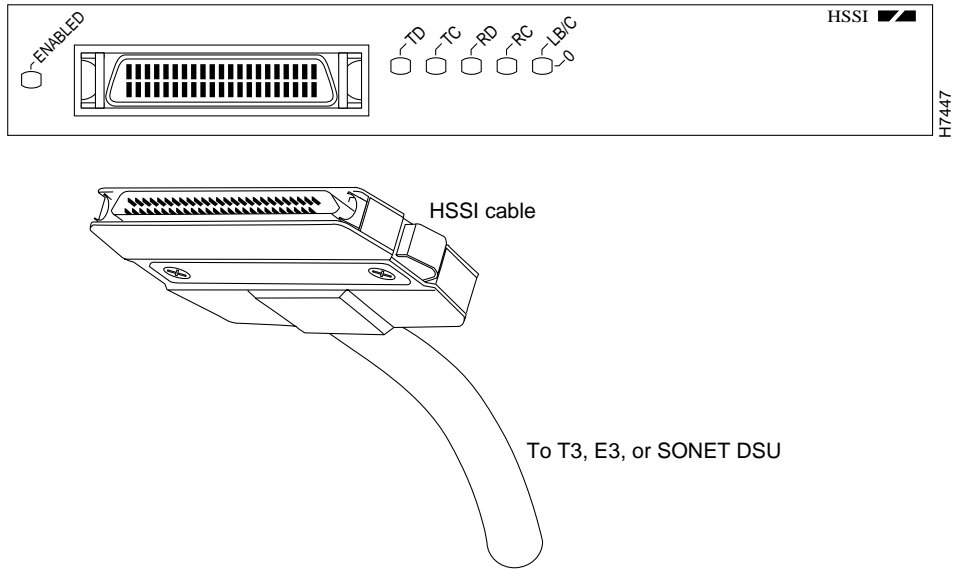
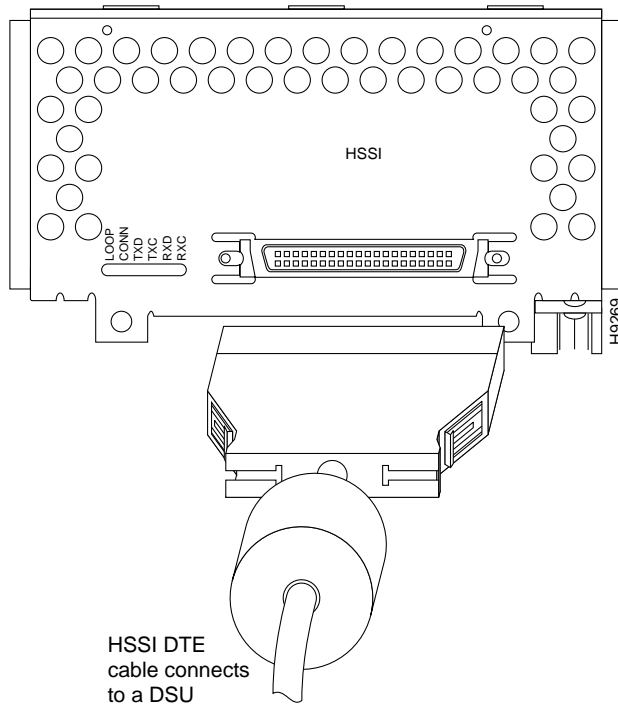
**Figure 3 Connecting an HSSI Cable to the HIP**

Figure 4 Connecting an HSSI Cable to PA-H (Shown without Handle)



**Note** PA-2H (not shown) has two HSSI ports and is otherwise identical to PA-H.

Figure 5 Connecting an HSSI Cable to NP-1HSSI



For additional information, such as how to configure the interface, refer to the configuration note that shipped with your HIP, PA-H, PA-2H, or NP-1HSSI.

- “HSSI Interface Processor” *chapter of the Interface Processor Installation and Configuration Guide*
- *PA-H HSSI Port Adapter Installation and Configuration.*
- *PA-2H Dual-Port HSSI Port Adapter Installation and Configuration.*
- *Installing and Configuring HSSI Network Processor Modules in Cisco 4000 Series Routers*

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## Connecting the Null Modem Cable

To connect two routers directly, back-to-back, connect the null modem cable between the HSSI ports in two separate routers. The two routers must be in the same location and can be two Cisco 4000 series routers, two Cisco 7000 series routers, two Cisco 7200 series routers, two Cisco 7500 series, two Cisco uBR7200 series universal broadband routers, or any two routers of each router series listed. A null modem connection allows you to verify the operation of the HSSI or to link the routers directly in order to build a larger node.

Figure 6 shows cable connection for two HIP boards, and Figure 7 shows cable connection for two NP-1HSSI network processor modules.

**Figure 6** Connecting a Null-Modem Cable to the HIP

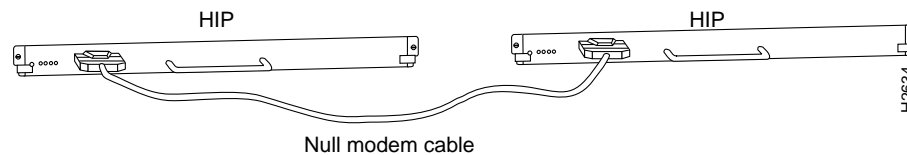
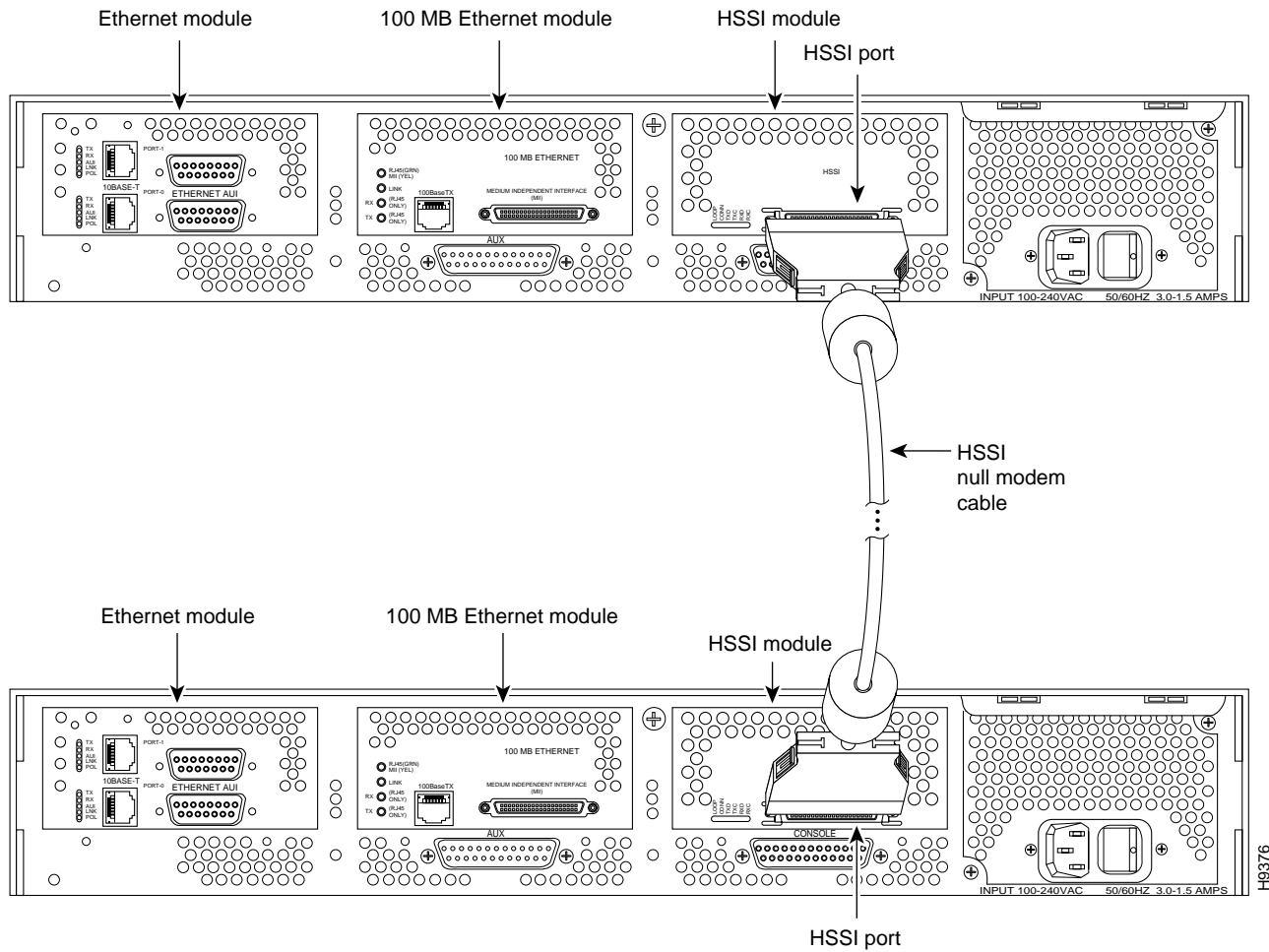


Figure 7 Connecting a Null-Modem Cable to the NP-1HSSI



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- Priority level 4 (P4)—You need information or assistance concerning Cisco product capabilities, product installation, or basic product configuration.
- Priority level 3 (P3)—Your network performance is degraded. Network functionality is noticeably impaired, but most business operations continue.
- Priority level 2 (P2)—Your production network is severely degraded, affecting significant aspects of business operations. No workaround is available.
- Priority level 1 (P1)—Your production network is down, and a critical impact to business operations will occur if service is not restored quickly. No workaround is available.

Which Cisco TAC resource you choose is based on the priority of the problem and the conditions of service contracts, when applicable.

### Cisco TAC Web Site

The Cisco TAC Web Site allows you to resolve P3 and P4 issues yourself, saving both cost and time. The site provides around-the-clock access to online tools, knowledge bases, and software. To access the Cisco TAC Web Site, go to the following URL:

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<http://www.cisco.com/register/>

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<http://www.cisco.com/tac/caseopen>

If you have Internet access, it is recommended that you open P3 and P4 cases through the Cisco TAC Web Site.

## Cisco TAC Escalation Center

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Before calling, please check with your network operations center to determine the level of Cisco support services to which your company is entitled; for example, SMARTnet, SMARTnet Onsite, or Network Supported Accounts (NSA). In addition, please have available your service agreement number and your product serial number.

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