NT8D41BA Quad Serial Data Interface Paddle Board

Contents

This section contains information on the following topics:

Introduction

The NT8D41BA Quad Serial Data Interface (QSDI) paddle board provides four RS-232-C serial ports. These ports allow communication between the system and four external devices, either DTE or DCE. The QSDI paddle board is normally used to connect the system to the system administration and maintenance terminal. It can also be used to connect the system to a background terminal (used in the hotel/motel environment), a modem, or to the Automatic Call Distribution (ACD) or Call Detail Recording (CDR) features.

The QSDI paddle board mounts to a special socket on the rear of the backplane of the following modules:

- NT5D21 Core/Network module
- NT6D39 CPU/Network module
- NT9D11 Core/Network module

The QSDI paddle board is compatible with all existing system software, but can only be used with the system options listed above. It does not support the 110 baud rate or the 20 mA current loop interface.

Physical description

The NT8D41BA Quad Serial Data Interface paddle board is a printed circuit board measuring 31.12 by 12.7 cm (12.25 by 5.0 in.). See Figure 237 "NT8D41BA QSDI paddle board" (page 705).

The QSDI paddle board can be used in a system backplane for a total of four serial ports. Up to 12 other serial ports can be added by plugging standard serial cards into standard system slots. The serial ports on the card are addressed as a pair of consecutive addresses (0 and 1, 2 and 3, up to 14 and 15), using switches SW15 and SW16.

The front edge of the card has four serial port connectors, an Enable/Disable switch (ENB DIS), and a red LED. The LED indicates the card status. It is lit when the following occurs:

- the ENB DIS switch is set to disable

- all four ports are disabled in software

- all four ports are not configured in the configuration record

Functional description

The NT8D41BA QSDI paddle board has four asynchronous serial ports. These serial ports are connected to the I/O panel in the back of the shelf using special adapter cables. The serial ports can be used to connect the system to a terminal, a printer, a modem, or to an other system processor.

The QSDI paddle board design contains four Universal Asynchronous Receiver/Transmitters (UARTs) and the logic necessary to connect the UARTs to the system processor bus. See Figure 238 "NT8D41BA QSDI paddle board block diagram" (page 706).

Figure 237
NT8D41BA QSDI paddle board
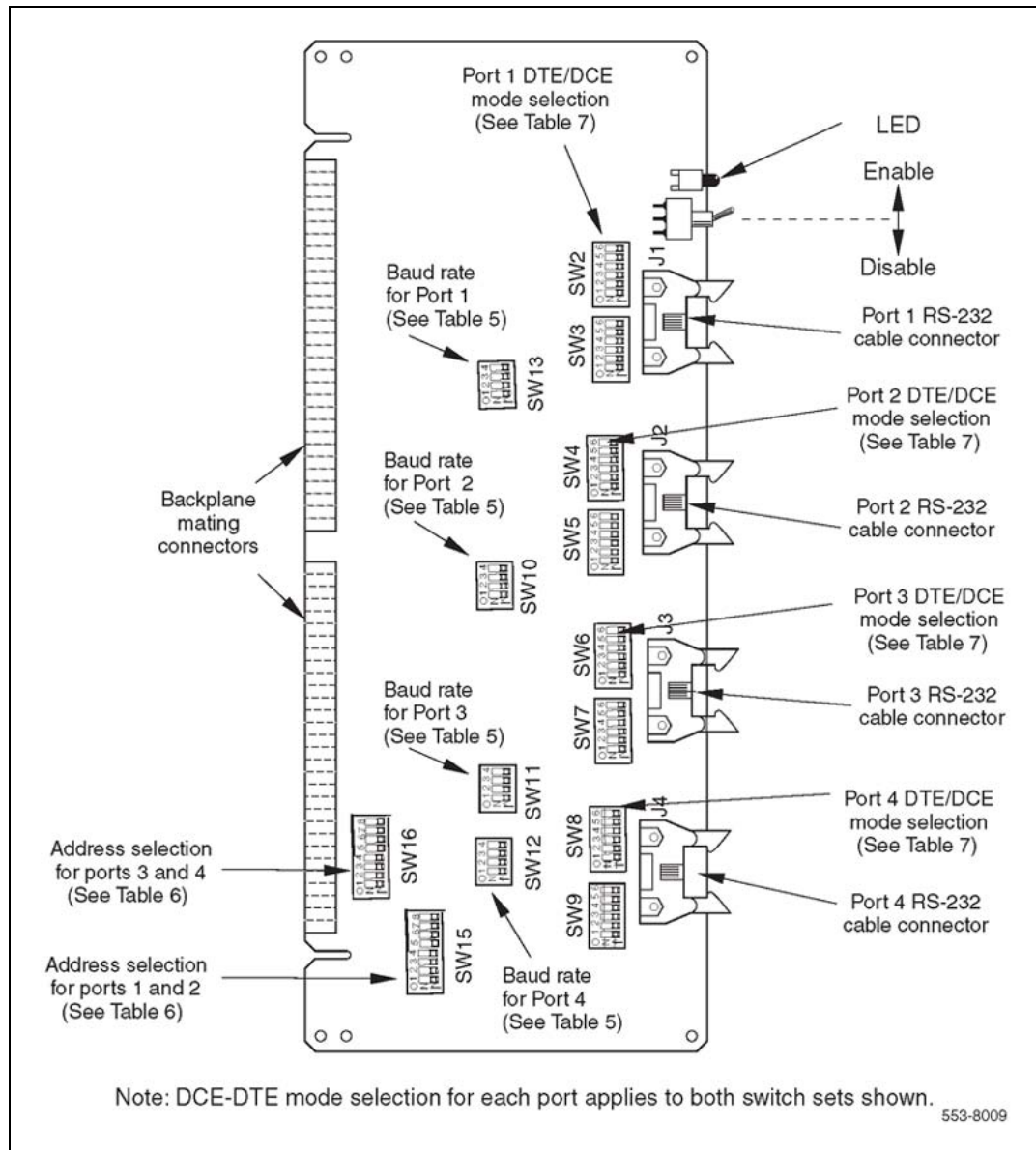
Other logic on the card includes baud rate generators, RS-232-C driver/receiver pairs, and the switches and logic needed to configure each UART.

Figure 238
NT8D41BA QSDI paddle board block diagram
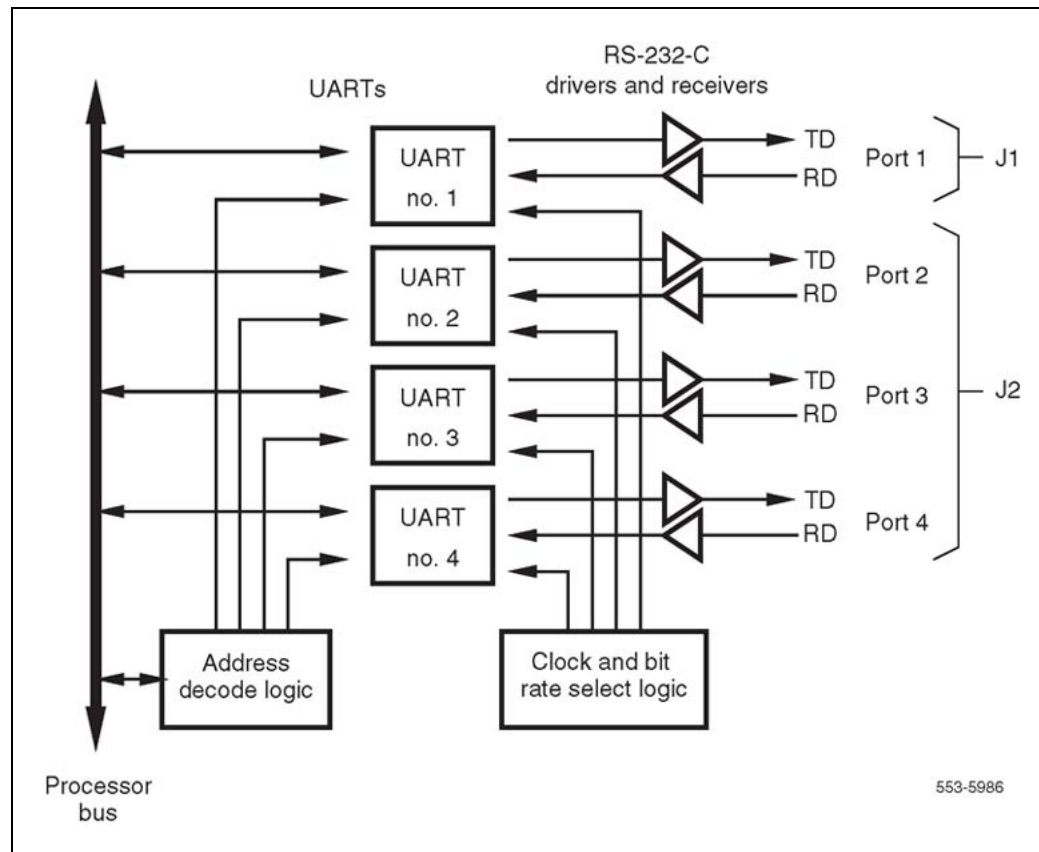
System considerations

For CS 1000 4.5 and 5.0, in dual-processor systems, the 2 card slots on the back of a CoreNet shelf supporting CP PII and CP PIV function regardless of which CPU is active. On Release 5.0 only the CP PII and CP PIV are supported. In Options 61C and 81C, CS 1000SG, and CS 1000MG, four NT8D41BB can be provisioned for a total of 16 SDI ports. One port is used for power monitoring, leaving 15 for customer use.

Connector pin assignments

The RS-232-C signals for port 1 through port 4 are brought out on connector J1 through J4 respectively. The pinouts for each port are identical to those for each of the other three ports. Table 280 "Connectors J1, J2, J3, and J4 pin assignments" (page 707) shows the pin assignment that applies to each connector.

Table 280
Connectors J1, J2, J3, and J4 pin assignments

Pin #	Signal	Purpose in DTE mode	Purpose in DCE mode
1	DCD	Data Carrier detect (Note 1)	Data Carrier detect (Not used)
2	RD	Transmitted data	Received data
3	TD	Received data	Transmitted data
4	DTR	Data terminal ready	Data terminal ready (Note 2)
5	GND	Signal Ground	Signal Ground
6	DSR	Data set ready (Note 1)	Data set ready
7	RTS	Request to send (Not Used)	Request to send (Note 2)
8	CTS	Clear to send (Note 1)	Clear to send

Note 1: In DTE mode the signals CD, DSR, and CTS are tied to +12 volts to signify that the port on the QSDI paddle board is always ready to transmit and receive data. This mode is set to connect to a terminal device (DTE).

Note 2: In DCE mode the signals DTR and RTS are tied to +12 volts to signify that the port on the QSDI paddle board is always ready to transmit and receive data. This mode is set to connect to a modem device (DCE).

Configuring the QSDI paddle board

Configuring the QSDI paddle board to work in a system consists of setting these option switches for each serial port:

- Baud rate

- Port address

- DTE/DCE mode

The QSDI paddle board has fourteen option switches, SW2–13, SW15-16. Figure 237 "NT8D41BA QSDI paddle board" (page 705) identifies the location of option switches on the QSDI paddle board. Learn how to set these switches in the following sections.

Once the board has been installed, the system software must be configured to recognize it. Instructions for doing this are found in the section titled "Software service changes" (page 710).

Option switch settings
Baud rate
Switches SW13, SW10, SW11, and SW12 determine the baud rate for ports 1, 2, 3, and 4, respectively. See the settings for these switches in Table 281 "NT8D41BA baud rate switch settings" (page 708).

Table 281
NT8D41BA baud rate switch settings

Baud rate	Baud Clock (kHz)	SW13 (port 1), SW10 (port 2), SW11 (port 3), SW12 (port 4)			
		1	**2**	**3**	**4**
150	2.40	on	off	on	on
300	4.80	on	on	off	on
600	9.60	on	off	off	on
1,200	19.20	on	on	on	off
2,400	38.40	on	off	on	off
4,800	76.80	on	on	off	off
9,600	153.60	on	off	off	off
19,200*	307.20	on	on	on	on
* For future use.					

Table 282
NT8D41BA address switch settings

SW15	Port 1	Port 2	Switch settings							
SW16	**Port 3**	**Port 4**	**1***	**2+**	**3**	**4**	**5**	**6**	**7**	**8**
Device	0	1	E	X	off	off	off	off	off	off
	2	3	E	X	off	off	off	off	off	on
	4	5	E	X	off	off	off	off	on	off
pair	6	7	E	X	off	off	off	off	on	on
	8	9	E	X	off	off	off	on	off	off
addresses	10	11	E	X	off	off	off	on	off	on
	12	13	E	X	off	off	off	on	on	off
	14	15	E	X	off	off	off	on	on	on

* To enable ports 1 and 2, set SW15 position 1 to ON. To enable ports 3 and 4, set SW16 position 1 to ON.
+ For each X, the setting for this switch makes no difference, because it is not used.

Address
Switch SW15 or SW16 and logic on the card always address the four UARTs using a pair of addresses: 0 and 1, 2 and 3 through 14 and 15. The settings for both switches are shown in Table 283 "NT8D41BA address switch settings" (page 709). To avoid system problems, switches SW15 and SW16 must not be configured identically. Figure 237 "NT8D41BA QSDI paddle board" (page 705) displays SW15 and SW16.

Table 283
NT8D41BA address switch settings

SW15	Port 1	Port 2	Switch settings							
SW16	Port 3	Port 4	1*	2+	3	4	5	6	7	8
Device	0	1	E	X	off	off	off	off	off	off
	2	3	E	X	off	off	off	off	off	on
	4	5	E	X	off	off	off	off	on	off
pair	6	7	E	X	off	off	off	off	on	on
	8	9	E	X	off	off	off	on	off	off
addresses	10	11	E	X	off	off	off	on	off	on
	12	13	E	X	off	off	off	on	on	off
	14	15	E	X	off	off	off	on	on	on

* To enable ports 1 and 2, set SW15 position 1 to ON. To enable ports 3 and 4, set SW16 position 1 to ON.
+ For each X, the setting for this switch makes no difference, because it is not used.

DTE/DCE/Fiber mode

Each serial port can be configured to connect to a terminal (DTE equipment), a modem (DCE equipment), or a Fiber Superloop Network card. Instructions for setting the switches SW2, SW3, SW4, SW5, SW6, SW7, SW8, and SW9 are shown in Table 284 "NT8D41BA DTE/DCE/Fiber switch settings" (page 709). Figure 237 "NT8D41BA QSDI paddle board" (page 705) shows the location of these switches on the paddleboard.

Table 284
NT8D41BA DTE/DCE/Fiber switch settings

Mode	Port 1 — SW 3						Port 1 — SW 2					
	1	2	3	4	5	6	1	2	3	4	5	6
DTE (terminal)	on	on	on	off	on	off	off	on	off	on	off	on
DCE (modem)	off	off	off	on	off	on	on	off	on	off	on	off
NT1P61 (Fiber)	on	on	on	on	on	off	on	on	on	off	on	off
	Port 2 — SW 5						Port 2 — SW4					
DTE (terminal)	on	on	on	off	on	off	off	on	off	on	off	on
DCE (modem)	off	off	off	on	off	on	on	off	on	off	on	off
NT1P61 (Fiber)	on	on	on	on	on	off	on	on	on	off	on	off
	Port 3 — SW 7						Port 3 — SW 6					
DTE (terminal)	on	on	on	off	on	off	off	on	off	on	off	on
DCE (modem)	off	off	off	on	off	on	on	off	on	off	on	off

Mode	Port 1 — SW 3						Port 1 — SW 2					
	1	**2**	**3**	**4**	**5**	**6**	**1**	**2**	**3**	**4**	**5**	**6**
NT1P61 (Fiber)	on	on	on	on	on	off	on	on	on	off	on	off
	Port 4 — SW 9						Port 4 — SW 8					
DTE (terminal)	on	on	on	off	on	off	off	on	off	on	off	on
DCE (modem)	off	off	off	on	off	on	on	off	on	off	on	off
NT1P61 (Fiber)	on	on	on	on	on	off	on	on	on	off	on	off

Software service changes

Once the NT8D841BA QSDI paddle board has been installed in the system, the system software needs to be configured to recognize it, using the Configuration Record program LD 17. Instructions for running this program are found in *Software Input/Output Reference — Administration* (NN43001-611).

Some of the prompts that are commonly used when running the Configuration Record program LD 17 are shown in Table 285 "LD 17 - Prompts to configure the NT8D841Ba paddle board." (page 710) These parameters must be set for each port if both ports are being used.

Table 285
LD 17 - Prompts to configure the NT8D841Ba paddle board.

Prompt	Response	Description
REQ:	CHG	Change configuration
TYPE:	ADAN	Configuration type
ADAN	NEW TTY x NEW PRT x	Define a new system terminal (printer) port as device x, where x = 0 to 15.
CTYPE	SDI4	Quad port card
DES	XQSDI	Quad density QSDI paddle board.
USER	xxx	Enter the user of port x. The values that can be entered depend on the software being used. See the *Software Input/Output Reference — Administration* (NN43001-611) for details.
XSM	(NO) YES	Port is used for the system monitor.

Applications

The NT8D41BA Quad Serial Data Interface paddle board is used to connect the switch to a variety of communication devices, printers, and peripherals. Any RS-232-C compatible device can be connected to either of the card's two serial ports.

The standard application for the paddle board is to connect the switch to the system console. This can be either a direct connection if the console is located near the switch, or through a modem for remote maintenance.

Bell 103/212 compatible dumb modems are recommended to connect a remote data terminal. If a smart modem (such as a Hayes modem) is used, configure the modem for the dumb mode of operation (Command Recognition OFF, Command Echo OFF) before connecting the modem to the asynchronous port.

The serial data interface connectors on the paddle board are not RS-232-C standard DB-25 connectors. The NT8D84AA interface cable is used to adapt the paddle board to a non-standard pinout DB-9 connector (normally located on the I/O panel). The NT8D93 cable is then used to connect the non-standard DB-9 connector to a peripheral that uses a RS-232-C standard DB-25 connector. See Figure 239 "NT8D41BA QSDI paddle board cabling" (page 712).

The NT8D41BA Quad Serial Data Interface (QSDI) paddle board provides four RS-232-C serial ports. These ports allow communication between the Meridian 1 system and four external devices, either DTE or DCE. The QSDI paddle board is normally used to connect the Meridian 1 system to the system administration and maintenance terminal. It can also be used to connect the system to a background terminal (used in the hotel/motel environment), a modem, or to the Automatic Call Distribution (ACD) or Call Detail Recording (CDR) features.

The QSDI paddle board mounts to a special socket on the rear of the backplane of the following modules:

- NT5D21 Core/Network Module for system Options 51C, 61C, and 81C
- NT6D39 CPU/Network Module for system Options 51 and 61
- NT9D11 Core/Network Module for system Option 61C

Figure 239
NT8D41BA QSDI paddle board cabling
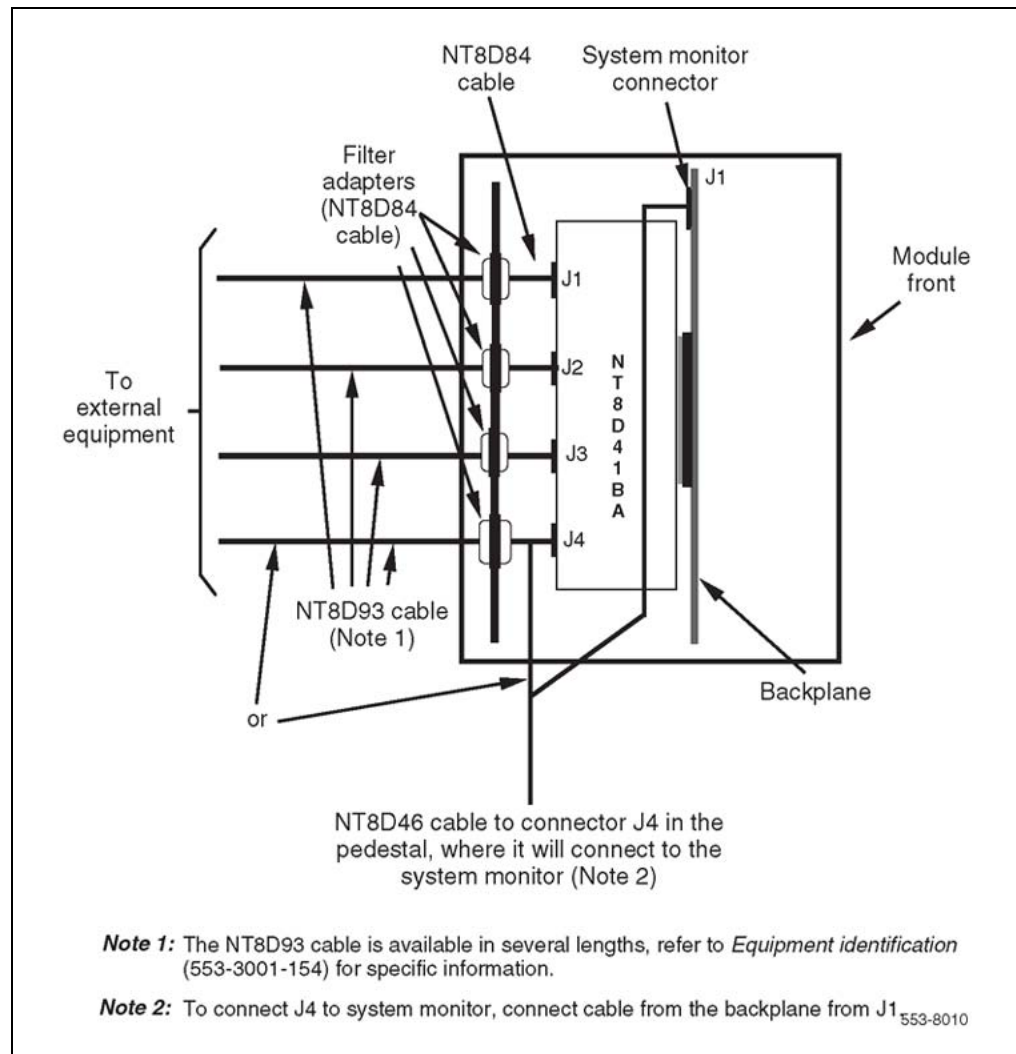
The QSDI paddle board is compatible with all existing system software, but can only be used with the Meridian 1 system options listed above. It does not support the 110 baud rate or the 20 mA current loop interface.
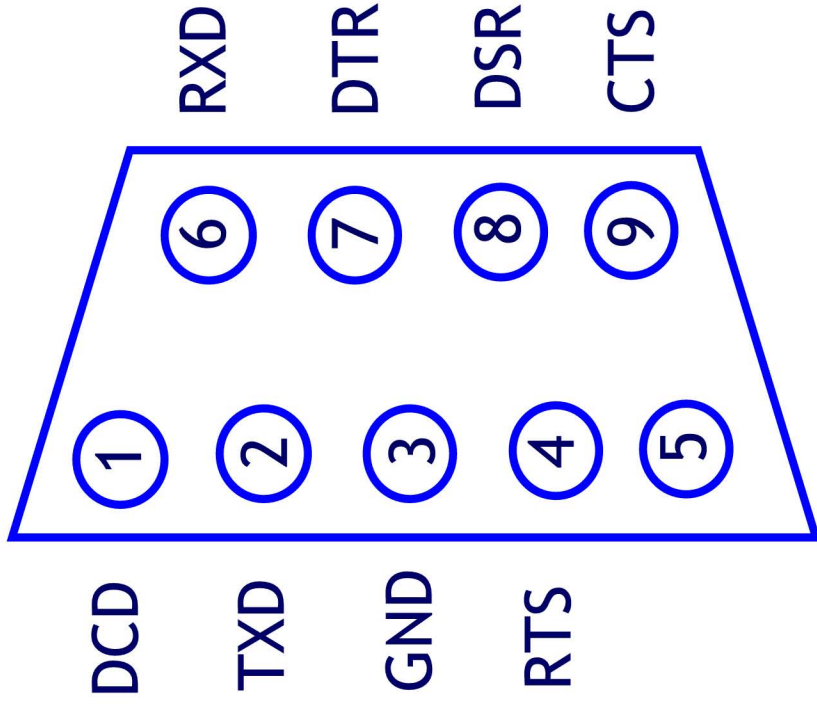
Physical description

The NT8D41BA Quad Serial Data Interface paddle board is a printed circuit board measuring 31.12 by 12.7 cm (12.25 by 5.0 in.). See Figure 240 "NT8D41BA QSDI paddle board" (page 714).

The QSDI paddle board can be used in a system backplane for a total of four serial ports. Up to 12 other serial ports can be added by plugging standard serial cards into standard system slots. The serial ports on the card are addressed as a pair of consecutive addresses (0 and 1, 2 and 3, up to 14 and 15), using switches SW15 and SW16.

The front edge of the card has four serial port connectors, an Enable/Disable switch (ENB/DIS), and a red LED. The LED indicates the card status. It is lit when the following occurs:

- the ENB/DIS switch is set to disable

- all four ports are disabled in software

- all four ports are not configured in the configuration record

Paddle Board
(Female DB9 on I/O Panel)
NOT NORMAL RS232

Pin	Signal
1	DCD
2	TXD
3	GND
4	RTS
5	CTS
6	RXD
7	DTR
8	DSR
9	CTS

Normal RS232

Pin	Signal
1	DCD
2	RXD
3	TXD
4	DTR
5	GND
6	DSR
7	RTS
8	CTS
9	RI

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