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SL-1

# Circuit card installation and testing

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## About this document

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This document provides:

- a list of compatible slots for circuit cards used in options 21A, 21, 21E, 51, 61, 71, and 81
- a general procedure for initially installing a circuit card
- acceptance tests for circuit cards that provide service functions, network control, and line and trunk connections
- option settings for the PBX circuit cards currently supported by Northern Telecom

**Note:** For information on equipment used with system option 11, see the appropriate documentation for that product.

- sample option settings for system configurations with NT8D22 System Monitors

For detailed procedures for removing a specific circuit card and installing a replacement, see *Hardware replacement* (553-3001-520).

For option settings on telephones, attendant consoles, or add-on modules, see the appropriate document for that equipment.

For a description of all administration programs, maintenance programs, and system messages see the *X11 input/output guide* (553-3001-400).

## 2 About this document

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## Circuit card installation

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### Card slots-System options 21A, 21, 21E, 51, 61, 71, 81

This chapter identifies card slot compatibility in the following modules:

- NT6D39 CPU/Network Module  
required for options 51 and 61
- NT6D60 Core Module  
required for option 81
- NT8D11 Common/Peripheral Equipment (CE/PE) Module  
required for options 21A, 21, and 21E
- NT8D13 Peripheral Equipment (PE) Module  
optional for options 21, 21E, 51, 61, 71, and 81
- NT8D34 CPU Module  
required for option 71
- NT8D35 Network Module  
required for options 71 and 81, optional for options 21, 21E, 51, and 61
- NT8D36 InterGroup Module  
required for options 71 and 81
- NT8D37 Intelligent Peripheral Equipment (IPE) Module  
required for options 51, 61, 71, and 81, optional for options 21 and 21E
- NT8D47 Remote Peripheral Equipment (RPE) Module  
optional for options 21, 21E, 51, 61, 71, and 81

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**Table 1**  
**System option 21A, 21, 21E, 51, 61, 71, 81 card slots (Part 1 of 8)**

	21A	21	21E	51	61	71	81
NT6D003 Core Bus Terminator Card	-	-	-	-	-	-	Core: 13
NT6D63 I/O Processor Card	-	-	-	-	-	-	Core: 16 & 17*
NT6D64 Core Multi Drive Unit	-	-	-	-	-	-	Core: 18
NT6D65 Core to Network Interface Card	-	-	-	-	-	-	Core: 8-12**
NT6D66 Call Processor Card	-	-	-	-	-	-	Core: 14 & 15*
NT6D70 S/T Interface Line Card	-	-	CE/PE: 0-9 (PE) IPE: any slot but Cont	IPE: any slot but Cont			
NT6D71 U Interface Line Card	-	-	CE/PE: 0-9 (PE) IPE: any slot but Cont	IPE: any slot but Cont			
NT6D73 Multi-purpose ISDN Signaling Processor Card	-	-	CE/PE: 4-9 (Net)	CPU/Net: 1-8	CPU/Net: 1-8	Net: 5-12	Net: 5-12
NT6D80 Multi-purpose Serial Data Link Card	-	-	CE/PE: 4-9 (Net)	CPU/Net: 1-8, 13	CPU/Net: 1-8, 13	Net: 5-12	Net: 5-12
* The card occupies two slots. ** A CNI card must be installed in slot 8.							

**Table 1**  
**System option 21A, 21, 21E, 51, 61, 71, 81 card slots (Part 2 of 8)**

	21A	21	21E	51	61	71	81
NT7D16 Data Access Card	CE/PE: 0*	CE/PE: 0*	CE/PE: 0*	IPE: 0, 4, 8, 12**			
NT8D01 Controller Card	-	IPE: Cont	IPE: Cont	IPE: Cont	IPE: Cont	IPE: Cont	IPE: Cont
NT8D02 Digital Line Card	CE/PE: 0-9 (PE)	CE/PE: 0-9 (PE) IPE: any slot but Cont	CE/PE: 0-9 (PE) IPE: any slot but Cont	IPE: any slot but Cont			
NT8D03 Analog Line Card	CE/PE: 0-9 (PE)	CE/PE: 0-9 (PE) IPE: any slot but Cont	CE/PE: 0-9 (PE) IPE: any slot but Cont	IPE: any slot but Cont			
NT8D04 Superloop Network Card	CE/PE: 4-9 (Net)	CE/PE: 4-9 (Net)	CE/PE: 4-9 (Net)	CPU/Net: 1-8	CPU/Net: 1-8	Net: 5-12	Net: 5-12
NT8D09 Analog Message Waiting Line Card	CE/PE: 0-9 (PE)	CE/PE: 0-9 (PE) IPE: any slot but Cont	CE/PE: 0-9 (PE) IPE: any slot but Cont	IPE: any slot but Cont			
NT8D14 Universal Trunk Card	CE/PE: 0-9 (PE)	CE/PE: 0-9 (PE) IPE: any slot but Cont	CE/PE: 0-9 (PE) IPE: any slot but Cont	IPE: any slot but Cont			
<p>* This applies to NT8D11AC or NT8D11DC CE/PE Modules. In NT8D11BC or NT8D11EC Modules, any IPE slot is compatible.</p> <p>** This applies to NT8D37AA or NT8D37DC IPE Modules. In NT8D37BA or NT8D37EC Modules, any slot but Cont is compatible.</p>							

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**Table 1**  
**System option 21A, 21, 21E, 51, 61, 71, 81 card slots (Part 3 of 8)**

	21A	21	21E	51	61	71	81
NT8D15 E&M Trunk Card	CE/PE: 0-9 (PE)	CE/PE: 0-9 (PE) IPE: any slot but Cont	CE/PE: 0-9 (PE) IPE: any slot but Cont	IPE: any slot but Cont	IPE: any slot but Cont	IPE: any slot but Cont	IPE: any slot but Cont
NT8D16 Digitone Receiver Card	-	IPE: any slot but Cont	IPE: any slot but Cont	IPE: any slot but Cont	IPE: any slot but Cont	IPE: any slot but Cont	IPE: any slot but Cont
NT8D17 Conference/TDS Card	CE/PE: 4 (Net)	CE/PE: 4 (Net)	CE/PE: 4 (Net)	CPU/Net: 1-8	CPU/Net: 1-8	Net: 5-12	Net: 5-12
NT8D18 Network/DTR Card	CE/PE: 10 (Net)	CE/PE: 10 (Net)	CE/PE: 10 (Net)	-	-	-	-
NT8D19 Memory/Peripheral Signaling Card	CE/PE: 3 (CPU/Mem)	CE/PE: (CPU/Mem)	-	-	-	-	-
NT8D41 Dual Port SDI Paddle Board	CE/PE: any rear bkplane slot	CE/PE: any rear bkplane slot	CE/PE: any rear bkplane slot	CPU/Net: rear bkplane 7, 8, 12	CPU/Net: rear bkplane 7, 8, 12	-	-
NT8D68 Floppy Disk Unit	CE/PE: any 2 slots	CE/PE: any 2 slots	-	CPU/Net: 18*	CPU/Net: 18*	-	-
NT8D69 Multi Disk Unit	-	-	-	CPU/Net: 18**	CPU/Net: 18**	CPU: 15-17**	-
NTND01 Integrated CPU/Memory Card	-	-	CE/PE: 2 (CPU/Mem)	-	-	-	-
NTND02 Misc/SDI/Peripheral Signaling Card	-	-	CE/PE: 3 (CPU/Mem)	-	-	-	-
* Requires two slots. ** Requires three slots.							

**Table 1**  
**System option 21A, 21, 21E, 51, 61, 71, 81 card slots (Part 4 of 8)**

	21A	21	21E	51	61	71	81
NTND09Bx 6 Mbyte Memory Card	-	-	-	CPU/Net: 17	CPU/Net: 17	CPU: 1-2*	-
NTND09 Cx 12 Mbyte Memory Card	-	-	-	CPU/Net: 17	CPU/Net: 17	CPU: 2	-
NTND10 Changeover Memory Arbitrator Card	-	-	-	CPU/Net: 16	CPU/Net: 16	CPU: 3	-
NTND15 Floppy Disk Unit	-	-	CE/PE: any 2 slots	-	-	-	-
NTND16 Multi Disk Unit	-	-	-	CPU/Net: 18**	CPU/Net: 18**	CPU: 15-17**	-
QPC43 Peripheral Signaling Card	-	-	-	CPU/Net: 10	CPU/Net: 10	Net: 4	Net: 4
QPC62 1.5 Mbyte Converter Card	-	RPE: 2 and 9	RPE: 2 and 9	RPE: 2 and 9	RPE: 2 and 9	RPE: 2 and 9	RPE: 2 and 9
QPC63 Local Carrier Buffer Card	-	RPE: 5-6	RPE: 5-6	RPE: 5-6	RPE: 5-6	RPE: 5-6	RPE: 5-6
QPC65 Remote Peripheral Switch Card	-	RPE: 5-6	RPE: 5-6	RPE: 5-6	RPE: 5-6	RPE: 5-6	RPE: 5-6
QPC66 2 Mbyte Converter Card	-	RPE: 3 and 8	RPE: 3 and 8	RPE: 3 and 8	RPE: 3 and 8	RPE: 3 and 8	RPE: 3 and 8
QPC67 Carrier Maintenance Card	-	RPE: 10	RPE: 10	RPE: 10	RPE: 10	RPE: 10	RPE: 10
<p>* If only one NTND09 card is used, install it in slot 2 (next to the CMA card).  ** Requires three slots.</p>							

**Table 1**  
**System option 21A, 21, 21E, 51, 61, 71, 81 card slots (Part 5 of 8)**

	21A	21	21E	51	61	71	81
QPC71 E&M/DX Trunk Card	-	PE: any slot but DLB					
QPC99 Carrier Interface Card	-	RPE: 4 and 7					
QPC192 Off-Premises Extension Card	-	PE: any slot but DLB					
QPC215 Segmented Bus Extender Card	-	-	-	-	-	CPU: 8-12	-
QPC237 4-Wire E&M/DX Trunk Card	-	PE: any slot but DLB					
QPC250 Release Line Trunk Card	-	PE: any slot but DLB					
QPC297 Attendant Console Monitor Card	-	PE: any slot but DLB					
QPC412 InterGroup Switch Card	-	-	-	-	-	Net: 2-3	Net: 2-3
QPC414 Network Card	CE/PE 4-9 (Net)	CE/PE: 4-9 (Net)	CE/PE: 4-9 (Net)	CPU/Net: 1-8	CPU/Net: 1-8	Net: 5-12	Net: 5-12
QPC422 Tone Detector Card	-	PE: any slot but DLB					
QPC430 Asynchronous Interface Line Card	-	PE: any slot but DLB					

**Table 1**  
**System option 21A, 21, 21E, 51, 61, 71, 81 card slots (Part 6 of 8)**

	21A	21	21E	51	61	71	81
QPC432 4-Port Data Line Card	-	PE: any slot but DLB	PE: any slot but DLB				
QPC441 3-Port Extender Card	-	-	-	CPU/Net: 11	CPU/Net: 11	Net: 1	Core: 7 Net: 1
QPC449 Loop Signaling Trunk Card	-	PE: any slot but DLB	PE: any slot but DLB				
QPC450 CO/FX/WATS Trunk Card	-	PE: any slot but DLB	PE: any slot but DLB				
QPC471 Clock Controller Card	CE/PE: 4-7 (Net)	CE/PE: 4-7 (Net)	CE/PE: 4-7 (Net)	CPU/Net: 9	CPU/Net: 9	CPU: 14	Core: 6
QPC477 Bus Terminating Units: QPC477A9	-	-	-	CPU/Net: 2/3	CPU/Net: 2/3	Net: 11/12	Core: 4/5 Net: 11/12
QPC477B10 (replaces A10)	-	-	-	CPU/Net: 1/2	CPU/Net: 1/2	Net: 12/13	Core: 5/6 Net: 12/13
QPC477A20 (CPU 0)	-	-	-	-	-	CPU: 13/14	-
QPC477A21 (CPU 1)	-	-	-	-	-	CPU: 13/14	-
QPC477A22	-	-	-	CPU/Net: 12/13	CPU/Net: 12/13	-	-
QPC513 Enhanced Serial Data Interface Card	CE/PE: 4-9 (Net)	CE/PE: 4-9 (Net)	CE/PE: 4-9 (Net)	CPU/Net: 1-9	CPU/Net: 1-9, 13	CPU: 6, 13 Net: 5-13	Core: 6, 13 Net: 5-13

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**Table 1**  
**System option 21A, 21, 21E, 51, 61, 71, 81 card slots (Part 7 of 8)**

	21A	21	21E	51	61	71	81
QPC578 Integrated Services Digital Line Card	-	PE: any slot but DLB	PE: any slot but DLB	PE: any slot but DLB	PE: any slot but DLB	PE: any slot but DLB	PE: any slot but DLB
QPC579 CPU Function Card	-	-	-	CPU/Net: 14	CPU/Net: 14	CPU: 5	-
QPC580 CPU Interface Card	-	-	-	CPU/Net: 15	CPU/Net: 15	CPU: 4	-
QPC581 Changeover Memory Arbitrator Card	-	-	-	CPU/Net: 16	CPU/Net: 16	CPU: 3	-
QPC583 Memory Card	-	-	-	CPU/Net: 17	CPU/Net: 17	CPU: 1-2	-
QPC584 Mass Storage Interface Card	-	-	-	CPU/Net: 12	CPU/Net: 12	CPU: 7	-
QPC594 16-Port 500/2500 Line Card	-	PE: any slot but DLB	PE: any slot but DLB	PE: any slot but DLB	PE: any slot but DLB	PE: any slot but DLB	PE: any slot but DLB
QPC659 Dual Loop Peripheral Buffer Card	-	PE: DLB	PE: DLB	PE: DLB	PE: DLB	PE: DLB	PE: DLB
QPC687 CPU Card	CE/PE: 2 (CPU/Mem)	CE/PE: 2 (CPU/Mem)	-	-	-	-	-
QPC720 Primary Rate Interface Card	CE/PE: 4-8 (Net)	CE/PE: 4-8 (Net) RPE: 1, 11-12	CE/PE: 4-8 (Net) RPE: 1, 11-12	CPU/Net: 3-7 RPE: 1, 11-12	CPU/Net: 3-7 RPE: 1, 11-12	CPU: 8-12, 15-16 Net: 5-9, 13-14 RPE: 1, 11-12	Core: 0-3 Net: 5-9, 13-14 RPE: 1, 11-12
QPC723 RS-232 4-Port Interface Line Card	-	PE: any slot but DLB	PE: any slot but DLB	PE: any slot but DLB	PE: any slot but DLB	PE: any slot but DLB	PE: any slot but DLB

**Table 1**  
**System option 21A, 21, 21E, 51, 61, 71, 81 card slots (Part 8 of 8)**

	<b>21A</b>	<b>21</b>	<b>21E</b>	<b>51</b>	<b>61</b>	<b>71</b>	<b>81</b>
QPC742 Floppy Disk Interface Card	CE/PE: 1 (CPU/Mem)	CE/PE: 1 (CPU/Mem)	CE/PE: 1 (CPU/Mem)	CPU/Net: 12	CPU/Net: 12	-	-
QPC757 D-Channel Handler Interface Card	-	CE/PE: 4-9 (Net)	CE/PE: 4-9 (Net)	CPU/Net: 1-9, 13	CPU/Net: 1-9, 13	Net: 5-13	Net: 5-13
QPC789 16-Port 500/2500 (Message Waiting) Line Card	-	PE: any slot but DLB	PE: any slot but DLB				
QPC841 4-Port Serial Data Interface Card	CE/PE: 4-9 (Net)	CE/PE: 4-9 (Net)	CE/PE: 4-9 (Net)	CPU/Net: 1-9	CPU/Net: 1-9, 13	CPU: 6, 13 Net: 5-13	CPU: 6, 13 Net: 5-13
QPC918 High-Speed Data Card	-	PE: any slot but DLB	PE: any slot but DLB				

## Precautions

To avoid personal injury and equipment damage, review the following guidelines before handling Meridian 1 equipment.

**WARNING**

Module covers are not hinged; do not let go of the covers. Lift covers away from the module and set them out of your work area.

**WARNING**

Circuit cards may contain a lithium battery. There is a danger of explosion if the battery is incorrectly replaced. Do not replace components on any circuit card; you must replace the entire card.

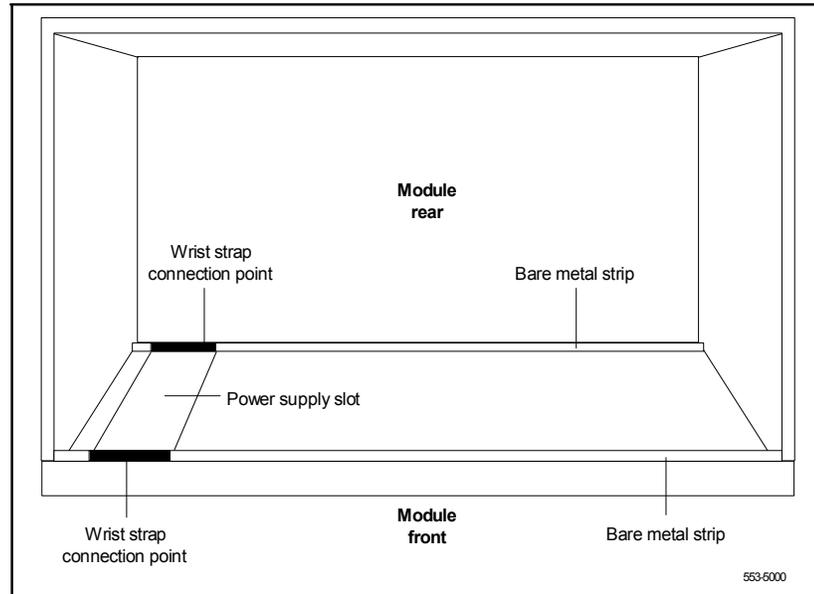
Dispose of circuit cards according to the manufacturer's instructions.

To avoid damage to circuit cards from static discharge, wear a properly connected antistatic wrist strap when you work on Meridian 1 equipment. If a wrist strap is not available, regularly touch one of the bare metal strips in a module to discharge static. Figure 1 shows the recommended connection points for the wrist strap and the bare metal strips you should touch.

Handle circuit cards as follows:

- Unpack or handle cards away from electric motors, transformers, or similar machinery.
- Handle cards by the edges only. Do not touch the contacts or components.
- Set cards on a protective antistatic bag. If an antistatic bag is not available, hand-hold the card, or set it in a card cage unseated from the connectors.
- Store cards in protective packing. Do not stack cards on top of each other unless they are packaged.
- Keep cards installed in the system as much as possible to avoid dirty contacts and unnecessary wear.
- Store cards in a cool, dry, dust-free area.

**Figure 1**  
**Static discharge points**



During repair and maintenance procedures:

- Turn off the circuit breaker or switch for a module power supply before the power supply is removed or inserted.

**Note:** In AC-powered systems, capacitors in the power supply must discharge. Wait five full minutes between turning off the circuit breaker and removing the power supply from the module.

- Software disable cards, if applicable, before they are removed or inserted.
- Hardware disable cards, whenever there is an enable/disable switch, before they are removed or inserted.
- Return defective or heavily contaminated cards to a repair center. Do not try to repair or clean them.

## Installing a circuit card

This procedure provides detailed installation instructions for Meridian 1 circuit cards.

### **WARNING**

To avoid personal injury and equipment damage, read all of the guidelines in *Precautions* on page 12 before you begin installation and follow all guidelines throughout the procedure.

### **Installation procedure**

- 1 Open the protective carton and remove the circuit card from the antistatic bag. Return the antistatic bag to the carton and store it for future use.
- 2 Inspect the card components, faceplate, locking devices, and connectors for damage. If damaged, tag the card with a description of the problem and package it for return to a repair center.
- 3 Refer to the work order to determine the module and slot location for the card.
- 4 If there is an enable/disable (Enb/Dis) switch on the faceplate, set it to Dis.
- 5 If there are option switches or jumpers on the card, set them according to the work order (see *Option settings* on page 31).

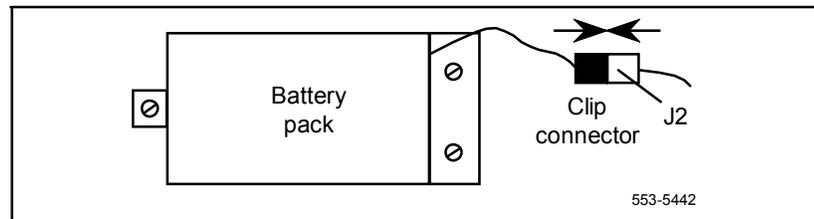
### **CAUTION**

Incorrectly set switches on common equipment circuit cards may cause a system failure.

- 6 If you are installing an NTND02 Misc/SDI/Peripheral Signaling (MSPS) Card, the A0378252 Battery Pack Assembly must be attached:
- Position the battery pack on the component side of the MSPS card. From the back of the card, install the screws that secure the battery pack.
  - On the component side of the MSPS card, plug in the clip connector wired to the battery pack. Make sure the connector key is centered on J2 (see Figure 2).

**Note:** The battery will not be fully charged until 24 hours after installation in a powered system.

**Figure 2**  
**Connector for the battery pack assembly**



- 7 If you are installing one of the following cards, the QMM42 Security Data Cartridge must be attached:

NT6D63 I/O Processor (IOP) Card  
QPC584 Mass Storage Interface (MSI) Card  
QPC742 Floppy Disk Interface (FDI) Card

To install a data cartridge, plug it into the connectors on the component side of the host card and install the screw that secures the data cartridge.

**CAUTION**

To avoid system failure, the ID number on the data cartridge must match the ID number of the system.

- 8 If you are installing one of the following cards, the associated ROM card must be attached:

NTND01 Integrated CPU/Memory (ICM) Card-NTND31 ROM  
QPC579 CPU Function (FN) Card-NTND08 or QPC939 ROM  
QPC687 CPU Card-QPC940 ROM

To install a ROM card, plug it into the connectors on the component side of the host card.

**Note:** For the NTND31 ROM Card, you must also install a screw and washer at each corner of the ROM card.

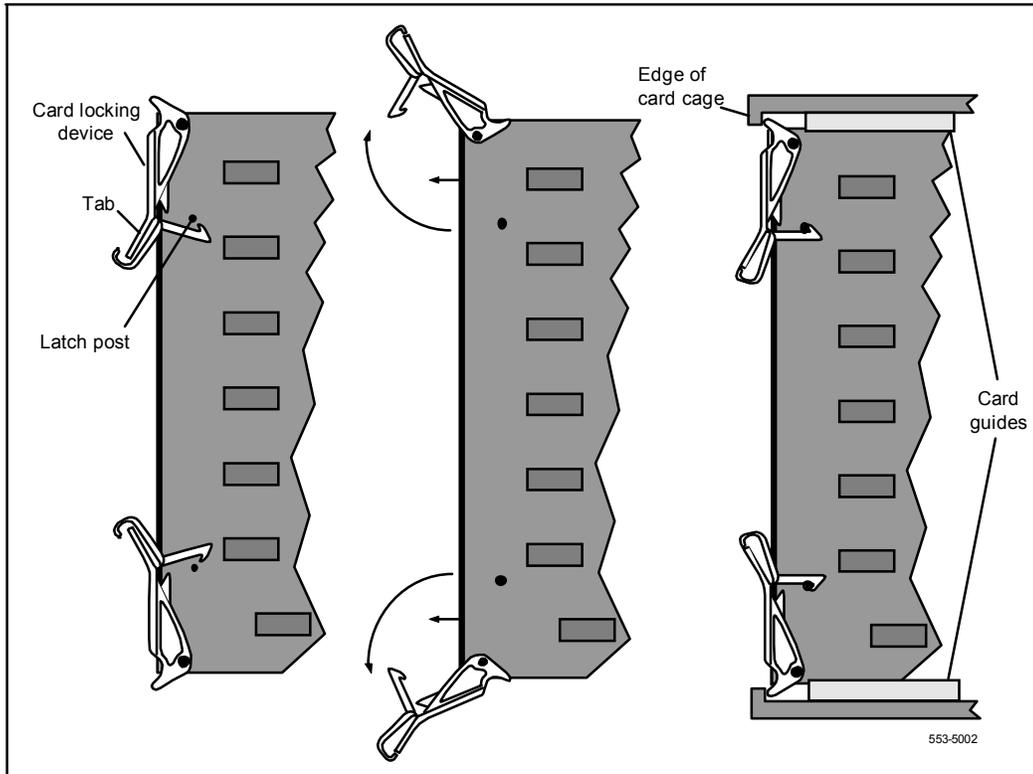
**CAUTION**

When you install a ROM card, do not touch other components on the host card.

- 9 Squeeze the ends of the locking devices on the card and pull the tabs away from the latch posts and faceplate (see Figure 3).
- 10 Insert the card into the card aligning guides in the card cage. Gently push the card into the slot until you feel resistance. The tip of the locking device must be behind the edge of the card cage (see Figure 3).
- 11 Lock the card into position by simultaneously pushing the ends of the locking devices against the faceplate.

**Note:** When IPE cards are installed, the red LED on the faceplate remains lit for two to five seconds as a self-test runs. If the self-test completes successfully, the LED flashes three times and remains lit until the card is configured and enabled in software, then the LED goes out. If the LED does not follow the pattern described or operates in any other manner (such as continually flashing or remaining weakly lit), replace the card.

**Figure 3**  
Installing the circuit card in the card cage



- 12 If there is an enable/disable switch, set it to Enb.

**Note:** Do not enable the switch on an NT8D04 Superloop Network Card or QPC414 Network Card until network loop cables are installed.

- 13 If you are adding a voice, conference, or tone and digit loop, press the manual initialize (Man Int) button if the card is associated with the active CPU:

- In options 21A and 21, the manual initialize button is on the NT8D19 Memory/Peripheral Signaling Card.
- In option 21E, the manual initialize button is on the NTND01 Integrated CPU/Memory (ICM) Card.
- In options 51, 61, and 71, the manual initialize button is on the QPC580 CPU Interface Card.
- In option 81, the manual initialize button is on the NT6D66 Call Processor (CP) Card.

**Note:** An initialization causes a momentary interruption in call processing.

- 14 If you are installing the card in a working system, refer to the work order and the *X11 input/output guide* (553-3001-400) to add the required office data to the system memory.

- 15 Go to the appropriate test procedure in *Acceptance tests* on page 19.

---

## Acceptance tests

---

Test procedures for most circuit cards require that internal and external cabling be installed. See the appropriate installation document for your system and *Telephone and attendant console installation (553-3001-215)* for cabling procedures.

### Conference cards

Use this procedure to test a conference card or to test the conference function of an NT8D17 Conference/TDS Card.

- 1 Log into the system:  
**LOGI** (password)
- 2 Request the status of a loop on the conference card:  
**LD 38**  
**STAT loop**

Conference status is formatted as follows:

CNFC n DSBL n BUSY

n represents the number of conference groups disabled and busy

CHAN n DSBL n BUSY

n represents the number of channels disabled and busy

UNEQ

card is not equipped in the system

DSBL

card is disabled in software

- 3 If the conference card loop is disabled, enable it.

For an NT8D17 Conference/TDS Card, enter:

**ENLX loop**

(the conference loop is the odd loop of the conference/TDS loop pair)

*Note:* The conference/TDS card is not enabled automatically when it is inserted. You must enable the card with the command ENLX (this command is used in LD34 and LD46 to address even loops, LD38 to address odd loops). Enabling the loops with the command ENLL does not enable the hardware for the card.

For other than an NT8D17 Conference/TDS Card, enter:

**ENLL loop**

(the conference loop must be an even loop for cards other than the NT8D17)

If the system response is other than **OK**, see the *X11 input/output guide* (553-3001-400) to analyze the messages.

- 4 Test the conference loop for channel, group, and switching faults:

**CNFC loop**

If the conference loop passes the tests, the output is **OK**.

If the system response is other than **OK**, see the *X11 input/output guide* to analyze the messages.

- 5 Prepare the system for a manual conference call on a specified loop:

**CNFC MAN loop c** c is the manual conference group (1-15)

A manual conference test is performed by stepping through conference channels and groups, listening for noise that indicates a faulty card.

The manual conference test can be performed through a system terminal or BCS maintenance telephone. If commands are entered from a maintenance telephone, this telephone automatically becomes part of the manual conference call.

Only one manual conference call is allowed at one time. A manual conference consists of only two telephones, where one telephone acts as a signal source while the other acts as a listening monitor.

After you enter the CNFC command, any two telephones (one may already be the maintenance telephone) dialing the special service prefix code (SPRE) and the digits 93 will enter the manual conference call. The prime directory number (PDN) indicator, if equipped, will light on each telephone.

Going on-hook takes the telephone out of the manual conference call, and the test must be restarted.

See LD38 in the *X11 input/output guide* for more detailed information on using this command.

**6 Test various channels and conference groups audibly:  
CNFC STEP**

When stepping through channels and groups, a clicking followed by silence is normal. Any distortion or other noises indicates a faulty card.

Once the CNFC STEP command has been entered, entering **C** on the system terminal or maintenance telephone steps through the conference channels. Entering **G** steps through the conference groups. There are 15 channels per group and 15 groups per conference card.

Entering an asterisk (\*) and END stops the test.

Again, see LD38 in the *X11 input/output guide* for detailed information on using this command.

**7 End the session in LD38:  
\*\*\*\***

## Digitone receiver cards

Use this procedure to test a Digitone receiver (DTR) card, a DTR daughterboard, or the DTR function on the NT8D18 Network/DTR Card.

**Note:** The DTR daughterboard connected to a QPC659 Dual Loop Peripheral Buffer Card cannot be assigned when the peripheral equipment (PE) shelf is used in single loop mode.

- 1 Log into the system:  
**LOGI** (password)
- 2 See if the Digitone receiver to be tested is disabled:  
**LD 34**  
**STAT**

The system responds with the terminal number (TN), or numbers, of any disabled Digitone receivers.

- 3 If the Digitone receiver is disabled, enable it:  
**ENLR l s c u**                      loop, shelf, card, and unit numbers
- 4 Test the Digitone receiver:  
**DTR l s c u**                      loop, shelf, card, and unit numbers

If the system response is other than **OK**, see the *X11 input/output guide* (553-3001-400) to analyze the messages.

- 5 End the session in LD34:  
\*\*\*\*

## Line cards

Use this procedure to test a line card.

- 1 Log into the system:  
**LOGI** (password)
- 2 Perform a network memory test, continuity test, and signaling test on a specific loop and shelf:  
**LD 30**  
**SHLF l s**                      loop and shelf numbers

If the system response is other than **OK**, see the *X11 input/output guide* (553-3001-400) to analyze the messages.

- 3 For a line card on a superloop, perform a signaling test on a specific card or unit:  
**UNTT l s c**                      loop, shelf, and card numbers

For the NT8D02 Digital Line Card, enter:

**UNTT l s c u**                      loop, shelf, card, and unit numbers

If the system response is other than **OK**, see the *X11 input/output guide* (553-3001-400) to analyze the messages.

- 4 End the session in LD30:  
\*\*\*\*

## Multifrequency sender cards

Use this procedure to test a multifrequency sender (MFS) card or the MFS function of an NT8D17 Conference/TDS Card.

- 1 Log into the system:  
**LOGI** (password)

- 2 Test and enable an MFS loop:  
**LD 46**

### **MFS loop**

(on the NT8D17 Conference/TDS Card, the TDS/MFS loop is the even loop of the conference/TDS loop pair)

**Note:** The conference/TDS card is not enabled automatically when it is inserted. You must enable the card with the command ENLX (this command is used in LD34 and LD46 to address even loops, LD38 to address odd loops). Enabling the loops with the command ENLL does not enable the hardware for the card.

If the system response is other than **OK**, see the *X11 input/output guide* (553-3001-400) to analyze the messages.

- 3 Access the system from a maintenance telephone; then enter:  
**LD 46**

**Note:** Give the system approximately 20 seconds to load the program.

See Communicating with the Meridian 1 in the *X11 input/output guide* (553-3001-400) for details on accessing the system from a maintenance telephone.

- 4 Obtain 10-second bursts of digits 1 to 9, 0, and 11 to 15 (in that order) for all digits on the specified loop:  
**TONE loop ALL**

Each burst should sound different. If the bursts do not sound different, replace the card.

- 5 End the session in LD46:  
\*\*\*\*

## Multifrequency signaling cards

Use this procedure to test a multifrequency signaling card.

- 1 Log into the system:

**LOGI** (password)

- 2 Test and enable the specified unit:

**LD 54**

**ATST l s c u**                    loop, shelf, card, and unit numbers

If the system response is other than **OK**, see the *X11 input/output guide* (553-3001-400) to analyze the messages.

- 3 End the session in LD54:

\*\*\*\*

## Network cards

Use this procedure to test a network card.

- 1 Log into the system:  
**LOGI** (password)
- 2 Perform a network memory test, continuity test, and signaling test:

**LD 30**

**LOOP loop** can be a specific loop number or ALL

If ALL is specified, all enabled loops (except attendant console loops) and all shelves on each loop are tested.

If only one loop is being tested and it is disabled, enter **ENLL loop** to enable and test a network card associated with the specified loop. (This command cannot enable network cards disabled by LD32.)

If the system response is other than **OK**, see the *X11 input/output guide* (553-3001-400) to analyze the messages.

- 3 End the session in LD30:  
\*\*\*\*

## Trunk cards

Use the following procedures to test a trunk card.

### Test procedure using a maintenance telephone

- 1 Access the system from a maintenance telephone.  
See *Communicating with the Meridian 1* in the *X11 input/output guide* (553-3001-400) for details on accessing the system from a maintenance telephone.
- 2 Test the trunk unit:  
**LD 36**  
**TRK l s c u**                      loop, shelf, card, and unit numbers
- 3 If the maintenance telephone is hooked up to a monitor and the system response is other than **OK**, see the *X11 input/output guide* (553-3001-400) to analyze the messages.

### Test procedure using a system terminal

- 1 Log into the system:  
**LOGI** (password)
- 2 Enter:  
**LD 36**
- 3 To test a trunk from a remote test center, seize a central office (CO) monitor trunk:  
**CALL**  
or  
**CALL l s c u**

Seize the automatic number identification (ANI) trunk:  
**TRK l s c u**                      loop, shelf, card, and unit numbers

**Note:** When you see the **DN?** prompt, enter the directory number (DN) you want the system to dial.

If the system response is other than **OK**, see the *X11 input/output guide* to analyze the messages.

4 End the session in LD36:  
\*\*\*\*

5 Test an automatically identified outward dialing (AIOD) trunk card:  
**LD 41**  
**AIOD 1 s c**                      loop, shelf, and card numbers

If the system response is other than **OK**, see the *X11 input/output guide* to analyze the messages.

6 End the session in LD41:  
\*\*\*\*

## Tone and digit switch cards

Use this procedure to test a tone and digit switch (TDS) card or to test the TDS function of an NT8D17 Conference/TDS Card.

1 Log into the system:  
**LOGI** (password)

2 Obtain a list of terminal numbers (TNs) for disabled TDS cards:  
**LD 34**  
**STAD**

3 If the TDS loop to be tested is disabled, enable it.

For an NT8D17 Conference/TDS Card, enter:

**ENLX loop**

(the TDS/MFS loop is the even loop of the conference/TDS loop pair)

*Note:* The conference/TDS card is not enabled automatically when it is inserted. You must enable the card with the command ENLX (this command is used in LD34 and LD46 to address even loops, LD38 to address odd loops). Enabling the loops with the command ENLL does not enable the hardware for the card.

For other than an NT8D17 Conference/TDS Card, enter:

**ENLL loop**

4 Test the TDS loop:  
**TDS loop**

If the system response is other than **OK**, see the *X11 input/output guide* (553-3001-400) to analyze the messages.

5 End the session in LD34:  
\*\*\*\*

- 6 Using a maintenance telephone, log into the system.

See Communicating with the Meridian 1 in the *X11 input/output guide* (553-3001-400) for details on accessing the system using a maintenance telephone.

- 7 From the maintenance telephone, enter:  
**LD#34##**

To test outputers and channels for the TDS loop, see Table 2 for a sample of the input commands used with the maintenance telephone. See the *X11 input/output guide* for all tones that can be tested.

- 8 Exit LD34 from the maintenance telephone:  
\*\*\*\*

**Table 2**  
**TDS tone tests**

<b>Input command</b>	<b>Dial pad equivalent</b>	<b>Description</b>
BSY#loop##	279#loop##	Provides busy tone from TDS loop specified.
C##	2##	Removes any active tone.
DIA#loop##	342#loop##	Provides dial tone from TDS loop specified.
OVF#loop##	683#loop##	Provides overflow tone from TDS loop specified.
RBK#loop##	725#loop##	Provides ringback tone from TDS loop specified.
RNG#loop##	764#loop##	Provides ring tone from TDS loop specified.
****		Exits TDS test program.

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## Option settings

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### Circuit card grid

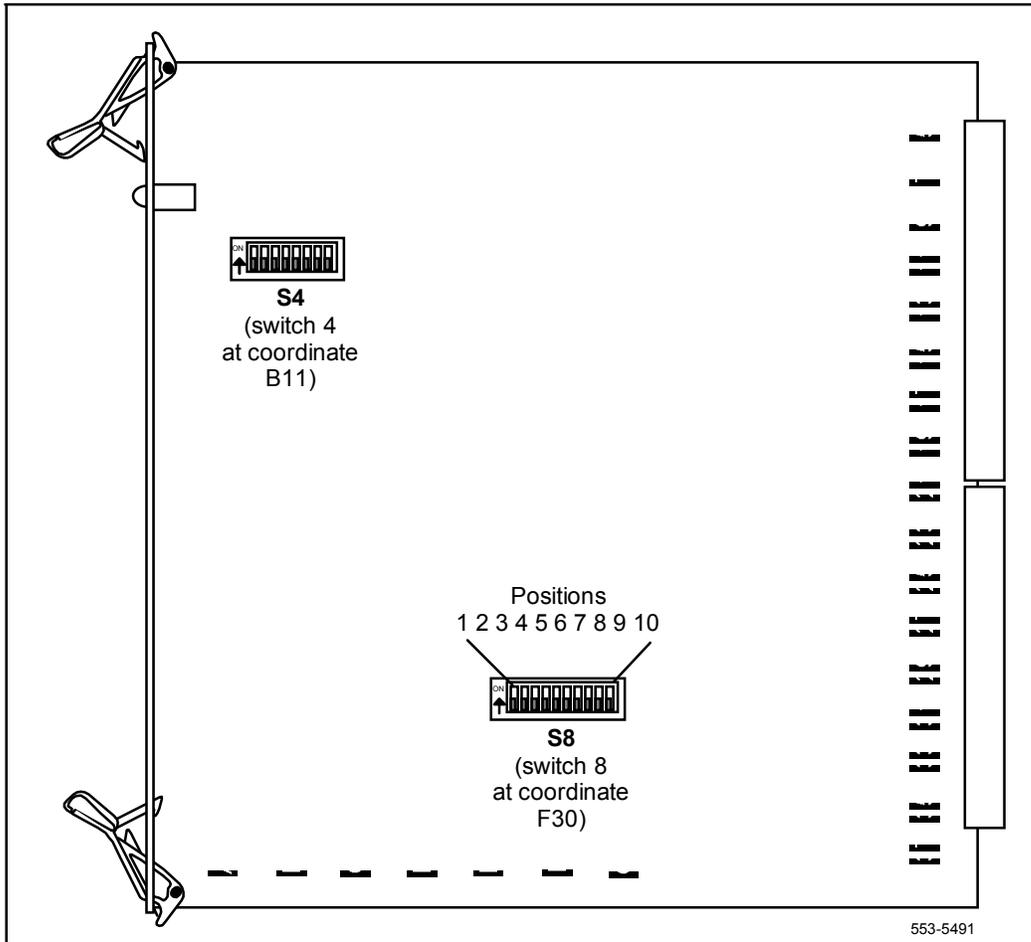
Some circuit cards contain option switches or jumpers, or both, that define specific functions. A switch or jumper may be identified by an alphanumeric coordinate (such as D29) that indicates a location on the card, or by a switch number (such as SW2) printed on the circuit board (see Figure 4). Positions on a switch (for example, positions 1, 2, 3, and 4 on SW2) are labeled on the switch block.

On a circuit card:

- ON may be indicated by the word on, the word up, the word •closed, the number 1, an arrow pointing up, or a solid dot (•).
- OFF may be indicated by the word down, the word open, the number 0, or an arrow pointing down.

Throughout this document, if neither ON nor OFF is given (there is a blank space) for a position on a switch, that position may be set to either ON or OFF because it has no function for the option described.

**Figure 4**  
**Circuit card grid**



## NT6D11 D-Channel Interface Card

The next three tables list option settings for the NT6D11 DCHI Card.

### NT6D11 jumper settings and group selection

Jumper settings				Address selection			
Option	Port	Socket number		Group number	Switch		
					1	2	3
DTE (terminal)	0	UA10	UA12	0	off	off	off
	1	UA17	UA19	1	off	off	on
DCE (modem)	0	UA9	UA11	2	off	on	off
	1	UA16	UA18	3	off	on	on
RS-232-C interface	0	UB9	UB11	4	on	off	off
	1	UB16	UB18	5	on	off	on
High-speed interface	0	UB10	UB12	6	on	on	off
	1	UB17	UB19	7	on	on	on

**Note:** Group and port numbers combine to define a complete port address (the following two tables define port numbers). There are 8 groups and 16 port numbers, for a total of 128 possible ports. Group 0 is the only group supported by Generic X11 Supplementary Features Group F (Phase 6). Therefore, when using Group F software set switches 1, 2, and 3 to OFF.

**NT6D11 port address settings for single port operation**

Port number SDI/DCHI (J1/J2)	Switch						
	4	5	6	7	8	9	0
0	off	off	off	off	on	*	off
1	off	off	off	on	on	*	off
2	off	off	on	off	on	*	off
3	off	off	on	on	on	*	off
4	off	on	off	off	on	*	off
5	off	on	off	on	on	*	off
6	off	on	on	off	on	*	off
7	off	on	no	on	on	*	off
8	on	off	off	off	on	*	off
9	on	off	off	on	on	*	off
10	on	off	on	off	on	*	off
11	on	off	on	on	on	*	off
12	on	on	off	off	on	*	off
13	on	on	off	on	on	*	off
14	on	on	on	off	on	*	off
15	on	on	on	on	on	*	off

\* Set switch 9 to ON (1) to enable the SDI port and disable the DCHI port. Set switch 9 to OFF (0) to disable the SDI port and enable the DCHI port.

**NT6D11 port settings for dual port operation**

Port number		Switch						
SDI (J1)	DCHI (J2)	4	5	6	7	8	9	0
0	1	off	off	off	*	off	*	off
2	3	off	off	on	*	off	*	off
4	5	off	on	off	*	off	*	off
6	7	off	on	on	*	off	*	off
8	9	on	off	off	*	off	*	off
10	11	on	off	on	*	off	*	off
12	13	on	on	off	*	off	*	off
14	15	on	on	on	*	off	*	off

\* Switches 7 and 9 do not affect dual port operation; they may be set to ON or OFF.

## NT6D42 Ringing Generator DC

The next six tables list option settings for the NT6D42 Ringing Generator.

### NT6D42 recommended options for North American and British Telecom

Application	Ring frequency	Ring voltage	Jumper locations	Ring output
North America	20 Hz	86 V ac	P5 High voltage message waiting	Low impedance
British Telecom	20 Hz	80 V ac	P4 No high voltage message waiting	Low impedance

### NT6D42 jumper locations P4 and P5

High voltage message waiting	Pin location
Enabled	Jumper in P4
Disabled	Jumper in P5
<b>Note:</b> There must be one jumper installed.	

### NT6D42 jumper location J7

Ring output	Jumper location J7
Low impedance (normal)	Connect pins 1 and 2
High impedance (Australia)	Connect pins 2 and 3

### NT6D42 SW1

Ring frequency (Hz)	Position SW1
20	1
25	2
50	3

**NT6D42CB SW2**

Ringing voltage	Message waiting voltage	SW2			
		1	2	3	4
86 V ac	-120 V dc	off	off	off	off
86 V ac	-150 V dc	off	off	off	on
80 V ac	-120 V dc	on	off	off	off
80 V ac	-150 V dc	on	off	off	on
75 V ac	-120 V dc	off	on	off	off
75 V ac	-150 V dc	off	on	off	on
70 V ac	-120 V dc	off	off	on	off
70 V ac	-150 V dc	off	off	on	on

**NT6D42CC SW2**

Ringing voltage	Message waiting voltage	SW2			
		1	2	3	4
86 V ac	-100 V dc	off	off	off	off
86 V ac	-150 V dc	off	off	off	on
80 V ac	-100 V dc	on	off	off	off
80 V ac	-150 V dc	on	off	off	on
75 V ac	-100 V dc	off	on	off	off
75 V ac	-150 V dc	off	on	off	on
70 V ac	-100 V dc	off	off	on	off
70 V ac	-150 V dc	off	off	on	on

## NT6D43 CE/PE Power Supply DC

The next five tables list options settings for the NT6D43 Power Supply.

**Note:** For installations outside of North America, a jumper on the motherboard (at J5) and switches on the daughterboard must be set to select the ringing frequency or voltage, and to enable or disable Message Waiting lamps. The daughterboard must be removed to access the switches. To remove the daughterboard, remove the screws on either side of the motherboard and carefully slide out the daughterboard.

### NT6D43 recommended options for North America and British Telecom

Application	Ringing frequency	Ringing voltage	Message Waiting	Ringing output
North America	20 Hz	86 V ac	Enabled (-150 V dc)	Low impedance
British Telecom	20 Hz	80 V ac	Disabled	Low impedance

### NT6D43 jumper locations P4 and P5

Message Waiting lamp	Pin location
Enabled	Jumper in E1
Disabled	Jumper in E2

**Note:** There must be one jumper installed.

### NT6D43 jumper location J5

Ringing output	Jumper location J5 (motherboard)
Low impedance (normal)	Connect pins 1 and 2
High impedance (Australia)	Connect pins 2 and 3

**NT6D43 SW1**

Ringing frequency (Hz)	SW1		
	1	2	3
20	on	off	off
25	off	on	off
50	off	off	on

**NT6D43 SW2**

Ringing voltage	Message waiting voltage	SW2			
		1	2	3	4
86 V ac	-120 V dc	off	off	off	off
86 V ac	-150 V dc	on	off	off	off
80 V ac	-120 V dc	off	off	off	on
80 V ac	-150 V dc	on	off	off	on
75 V ac	-120 V dc	off	off	on	off
75 V ac	-150 V dc	on	off	on	off
70 V ac	-120 V dc	off	on	off	off
70 V ac	-150 V dc	on	on	off	off

### NT6D68 Core Module Backplane

Jumper	Location (between slots)	Core 1	Core 0
JB4	9 / 10	Jumper plug not installed	Plug installed
JB3	10 / 11	Plug installed	Plug installed
JB2	11 / 12	Plug installed	Plug installed
JB1	12 / 13	Plug installed	Plug installed

**Note:** Berg jumpers are located along the bottom of the primary side of the backplane (this is inside the card cage assembly).

### NT6D6003 Core Bus Terminator Card

Jumper	Location	Core 1	Core 0
J5	A21	Jumper plug not installed	Jumper plug not installed
J4	A25	Jumper plug not installed	Jumper plug not installed
J3	A28	Jumper plug not installed	Jumper plug not installed
J2	A30	Jumper plug not installed	Jumper plug not installed
J1	A35	Jumper plug not installed	Jumper plug not installed

**Note 1:** All jumpers are preset to open (the two pins are not connected together by a jumper plug) and must be left open. There may, however, be a jumper plug over one pin. The plugs are provided as extras that may be required on some other card or for future requirements.

**Note 2:** Jumper J5 may not be present.

**Note 3:** There are four LEDs on the component side (not on the faceplate) of the card. In Core 0, all of the LEDs should be lit. In Core 1, the top LED should be off and the other three should be lit. The pattern of the LEDs matches the jumper settings on the Core Module backplane.

---

**NT6D80 Multi-purpose Serial Data Link Card**

RS-232-D DTE or DCE* RS-422-A DTE (terminal) RS-422-A DCE (modem)	<b>Port 0-SW4</b>  all off all off all on	<b>Port 0-SW8</b>  all off all on all off
RS-232-D DTE or DCE* RS-422-A DTE RS-422-A DCE	<b>Port 1-SW3</b>  all off all off all on	<b>Port 1-SW7</b>  all off all on all off
RS-232-D DTE or DCE* RS-422-A DTE RS-422-A DCE	<b>Port 2-SW2</b>  all off all off all on	<b>Port 2-SW6</b>  all off all on all off
RS-232-D DTE or DCE* RS-422-A DTE RS-422-A DCE	<b>Port 3-SW1</b>  all off all off all on	<b>Port 3-SW5</b>  all off all on all off
<p>* RS-232-D DTE and DCE modes are software configured. RS-422-A DTE and DEC modes are switch configured.</p> <p><b>Note:</b> The device number for the MSDL card is configured in LD17 at the prompt DNUM. You must also set the device number, using switches S9 and S10, on the MSDL card. S9 designates ones and S10 designates tens. To set the device number as 14, for example, set S9 to 1 and S10 to 4.</p>		

**NT7D03 Ringing Generator DC**

Frequency Hz	Volts RMS	Switch S300			
		1	2	3	4
20	86	off	off	off	off
20	80	off	off	off	on
25	86	on	off	off	off
25	80	on	off	off	on
25	70	off	on	off	off
50	86	off	on	off	on
50	80	off	off	on	off
50	70	off	off	on	on

**NT7D04 CE/PE Power Supply DC**

Frequency Hz	Volts RMS	Switch S300			
		1	2	3	4
20	86	off	off	off	*
20	80	on	off	off	*
25	86	off	on	off	*
25	80	on	on	off	*
25	70	off	off	on	*
50	86	on	off	on	*
50	80	off	on	on	*
50	70	on	on	on	*

\* Not applicable, can be ON or OFF.

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**NT8D14 Universal Trunk Card**

The next five tables list option settings for the NT8D14 Universal Trunk Card.

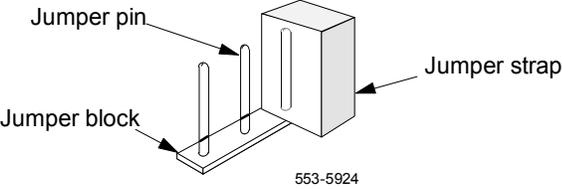
**NT8D14 vintage AA jumper strap settings**

Modes	Location	Jumper strap
Central Office (CO)	J1, J2	off
2-way tie trunk (loop dial repeat)	J1, J2	off
2-way tie trunk (outgoing/incoming dial)	J1, J2	off
Recorded announcement (RAN)	J1, J2	off
Paging trunk	J1, J2	off
Japan CO/DID operation	J1, J2	off
DID operation: loop length $\geq 2000 \Omega$	J1, J2	on
DID operation: loop length $< 2000 \Omega$	J1, J2	off
<b>Note 1:</b> off = no strap present.		
<b>Note 2:</b> Locations (J1, J2) apply to all eight units.		

## NT8D14 vintage BA jumper strap settings-factory standard

Trunk types	Loop length	Jumper strap settings			
		J1.X	J2.X	J3.X	J4.X
CO/FX/WATS	Zero-1524 m (5000 ft)	Off	Off	1-2	1-2
2-way tie (LDR)					
2-way tie (OAID)					
DID	Zero-600 ohms				
RAN: continuous operation mode					
Paging					

**Note:** Jumper strap settings J1.X, J2.X, J3.X, and J4.X apply to all eight units; X indicates the unit number, 0-7. Off indicates that no jumper strap is installed on a jumper block. Store unused straps on the universal trunk card by installing them on a single jumper pin as shown below :



553-5924

## NT8D14 vintage BA jumper strap settings-extended range

Trunk types	Loop length	Jumper strap settings							
		J1.X	J2.X	J3.X	J4.X				
CO/FX/WATS	> 1524 m (5000 ft)	Off	Off	1-2	2-3				
2-way tie (LDR)									
2-way tie (OAID)									
DID	> 600 ohms					On	On	1-2	2-3
RAN: pulse start or level start modes						Off	Off	2-3	1-2

**Note:** Jumper strap settings J1.X, J2.X, J3.X, and J4.X apply to all eight units; X indicates the unit number, 0-7. Off indicates that no jumper strap is installed on a jumper block.

**NT8D14 vintage BA trunk types-termination impedance and balance network**

Trunk types	Terminating impedance (Note 1)	Balance network for loop lengths (Note 2)		
		Zero-915 m (zero-3000 ft)	915-1524 m (3000-5000 ft)	> 1524 m (> 5000 ft)
CO/FX/WATS	600 ohms	600 ohms	3COM1	3COM2
2-way tie (LDR)	600 ohms	600 ohms	3COM1	3COM2
2-way tie (OAID)	600 ohms	600 ohms	3COM1	3COM2
DID (loop < 600 ohms)	600 ohms	600 ohms	3COM1	3COM2
DID (loop ≥ 600 ohms)	600 ohms	600 ohms	N/A	3COM2
RAN: continuous operation mode	600 or 900 ohms	600 or 900 ohms	N/A	N/A
Paging	600 ohms	600 ohms	N/A	N/A

**Note 1:** The terminating impedance of each trunk unit is software selectable in LD14 and should match the nominal impedance of the connecting equipment.

**Note 2:** The balance network of each trunk unit is software selectable between resistive 600 or 900 ohms or 3COM and jumper selectable between 3COM1 and 3COM2.

**NT8D14 vintage BA cable loop resistance and loss**

Cable length	Cable loop resistance (ohms)			Cable loop loss (dB) (non-loaded at 1kHz)		
	22 AWG	24 AWG	26 AWG	22 AWG	24 AWG	26 AWG
915 m (3000 ft)	97	155	251	0.9	1.2	1.5
1524 m (5000 ft)	162	260	417	1.6	2.0	2.5
2225 m (7300 ft)	236	378	609	2.3	3.0	3.7
3566 m (11700 ft)	379	607	977	3.7	4.8	6.0
5639 m (18500 ft)	600	960	1544	5.9	7.6	9.4

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**NT8D15 E&M Trunk Card**

Mode of operation	Jumper settings	
	J2	J9
4W-Type I	on	connect pins 2-3
4W-Type II	on	connect pins 2-3
2W-Type I	on	connect pins 2-3
Paging trunk	on	connect pins 2-3

### NT8D17 Conference/TDS Card

Switch and jumper settings are used to select the companding law and change the conference attenuation PAD levels. These PAD levels are used if prompt CPAD = 1 in LD97. The J1 connector on the faceplate is reserved for future use.

You can enable or disable a warning tone for conference calls. When the option is enabled, the tone lets callers know they are entering a conference call. The switch for this option is preset to disable the warning tone.

Companding law	Jumper at J3		
$\mu$ -law (North America)	connect pins 2 and 3		
A-law	connect pins 1 and 2		
Attenuation levels	SW2 (see Note)		
	1	2	3
12.2 db	on	on	on
10.4 db	on	on	off
8.2 db	off	on	on
7.2 db	off	on	off
5.4 db	on	off	on
4.0 db	on	off	off
1.2 db	off	off	on
0 db	off	off	off
<b>Note:</b> Set position 4 to ON to disable the warning tone option. When the warning tone is enabled, select the warning tone level as shown below.			
<b>Level</b>	<b>Jumper at J2</b>		
24 db	connect pins 1 and 2		
30 db	connect pins 2 and 3		

**NT8D21 Ringing Generator AC**

Frequency	Amplitude	Settings		
		P1	P2	P3
20 Hz	86 V ac	open	open	2-5 8-11
25 Hz	70 V ac	open	1-4 7-10	open
25 Hz	80 V ac	open	3-6 9-12	open
25 Hz	86 V ac	open	2-5 8-11	open
50 Hz	70 V ac	1-4 7-10	open	open
50 Hz	80 V ac	3-6 9-12	open	open



**NT8D22 SW2**

SW2 indication	Position							
	1	2	3	4	5	6	7	8
Master system monitor Slave system monitor	on off							
Operation with ST, STE, or RT All other operation		on off						
For master, indicates total number of slaves			Set 3 - 8 according to the table titled NT8D22 settings for total number of slaves-SW2 on master.					
For each slave, indicates the slave address			Set 3 - 8 according to the table titled NT8D22 slave address-SW2 on slave.					

**NT8D22 SW3**

SW3 indication		Position			
		1	2	3	4
CTA	master slave	on off			
CTR	master slave		on off		
FAIL	master slave			on off	
MAJOR	master slave				on off

## NT8D22 settings for total number of slaves-SW2 on master

How many slave units	Switch position						How many slave units	Switch position					
	3	4	5	6	7	8		3	4	5	6	7	8
0	on	on	on	on	on	on	32	off	on	on	on	on	on
1	on	on	on	on	on	off	33	off	on	on	on	on	off
2	on	on	on	on	off	on	34	off	on	on	on	off	on
3	on	on	on	on	off	off	35	off	on	on	on	off	off
4	on	on	on	off	on	on	36	off	on	on	off	on	on
5	on	on	on	off	on	off	37	off	on	on	off	on	off
6	on	on	on	off	off	on	38	off	on	on	off	off	on
7	on	on	on	off	off	off	39	off	on	on	off	off	off
8	on	on	off	on	on	on	40	off	on	off	on	on	on
9	on	on	off	on	on	off	41	off	on	off	on	on	off
10	on	on	off	on	off	on	42	off	on	off	on	off	on
11	on	on	off	on	off	off	43	off	on	off	on	off	off
12	on	on	off	off	on	on	44	off	on	off	off	on	on
13	on	on	off	off	on	off	45	off	on	off	off	on	off
14	on	on	off	off	off	on	46	off	on	off	off	off	on
15	on	on	off	off	off	off	47	off	on	off	off	off	off
16	on	off	on	on	on	on	48	off	off	on	on	on	on
17	on	off	on	on	on	off	49	off	off	on	on	on	off
18	on	off	on	on	off	on	50	off	off	on	on	off	on
19	on	off	on	on	off	off	51	off	off	on	on	off	off
20	on	off	on	off	on	on	52	off	off	on	off	on	on
21	on	off	on	off	on	off	53	off	off	on	off	on	off
22	on	off	on	off	off	on	54	off	off	on	off	off	on
23	on	off	on	off	off	off	55	off	off	on	off	off	off
24	on	off	off	on	on	on	56	off	off	off	on	on	on
25	on	off	off	on	on	off	57	off	off	off	on	on	off
26	on	off	off	on	off	on	58	off	off	off	on	off	on
27	on	off	off	on	off	off	59	off	off	off	on	off	off
28	on	off	off	off	on	on	60	off	off	off	off	on	on
29	on	off	off	off	on	off	61	off	off	off	off	on	off
30	on	off	off	off	off	on	62	off	off	off	off	off	on
31	on	off	off	off	off	off	63	off	off	off	off	off	off

## NT8D22 slave address-SW2 on slave

Slave unit address	Position						Slave unit address	Position					
	3	4	5	6	7	8		3	4	5	6	7	8
1	on	on	on	on	on	off	33	off	on	on	on	on	off
2	on	on	on	on	off	on	34	off	on	on	on	off	on
3	on	on	on	on	off	off	35	off	on	on	on	off	off
4	on	on	on	off	on	on	36	off	on	on	off	on	on
5	on	on	on	off	on	off	37	off	on	on	off	on	off
6	on	on	on	off	off	on	38	off	on	on	off	off	on
7	on	on	on	off	off	off	39	off	on	on	off	off	off
8	on	on	off	on	on	on	40	off	on	off	on	on	on
9	on	on	off	on	on	off	41	off	on	off	on	on	off
10	on	on	off	on	off	on	42	off	on	off	on	off	on
11	on	on	off	on	off	off	43	off	on	off	on	off	off
12	on	on	off	off	on	on	44	off	on	off	off	on	on
13	on	on	off	off	on	off	45	off	on	off	off	on	off
14	on	on	off	off	off	on	46	off	on	off	off	off	on
15	on	on	off	off	off	off	47	off	on	off	off	off	off
16	on	off	on	on	on	on	48	off	off	on	on	on	on
17	on	off	on	on	on	off	49	off	off	on	on	on	off
18	on	off	on	on	off	on	50	off	off	on	on	off	on
19	on	off	on	on	off	off	51	off	off	on	on	off	off
20	on	off	on	off	on	on	52	off	off	on	off	on	on
21	on	off	on	off	on	off	53	off	off	on	off	on	off
22	on	off	on	off	off	on	54	off	off	on	off	off	on
23	on	off	on	off	off	off	55	off	off	on	off	off	off
24	on	off	off	on	on	on	56	off	off	off	on	on	on
25	on	off	off	on	on	off	57	off	off	off	on	on	off
26	on	off	off	on	off	on	58	off	off	off	on	off	on
27	on	off	off	on	off	off	59	off	off	off	on	off	off
28	on	off	off	off	on	on	60	off	off	off	off	on	on
29	on	off	off	off	on	off	61	off	off	off	off	on	off
30	on	off	off	off	off	on	62	off	off	off	off	off	on
31	on	off	off	off	off	off	63	off	off	off	off	off	off
32	off	on	on	on	on	on							

## NT8D41 Dual Port Serial Data Interface Paddle Board

The next three tables list option settings for the NT8D41 SDI Paddle Board.

### NT8D41 port addresses

Device number		SW4			
Port 1	Port 2	1	2	3	4
0	1	off	on	on	on
2	3	off	on	on	off
4	5	off	on	off	on
6	7	off	on	off	off
8	9	off	off	on	on
10	11	off	off	on	off
12	13	off	off	off	on
14	15	off	off	off	off

### NT8D41 baud rate

Baud rate	Port 1-SW2				Port 2-SW3			
	1	2	3	4	1	2	3	4
150	off	off	on	on	off	off	on	on
300	off	on	off	on	off	on	off	on
600	off	off	off	on	off	off	off	on
1200	off	on	on	off	off	on	on	off
2400	off	off	on	off	off	off	on	off
4800	off	on	off	off	off	on	off	off
9600	off	off	off	off	off	off	off	off

**NT8D41 DTE or DCE selection**

Mode	Port 1-SW5						Port 1-SW6					
	1	2	3	4	5	6	1	2	3	4	5	6
DTE (terminal)	on	on	on	on	on	on	off	off	off	off	off	off
DCE (modem)	off	off	off	off	off	off	on	off	on	on	on	on
	Port 2-SW7						Port 2-SW8					
DTE	on	on	on	on	on	on	off	off	off	off	off	off
DCE	off	off	off	off	off	off	on	off	on	on	on	on

**NTND02 Misc/SDI/Peripheral Signaling Card**

The next four tables list option settings for the NTND02 MSPS Card.

**NTND02 port addresses**

Device Number		Even port SW8				Odd port SW9					
		1	2	3	4	1	2	3	4	5	6
0	1	*	off	off	off	off	off	off	on	on	on
2	3	*	off	off	off	off	off	off	on	on	off
4	5	*	off	off	off	off	off	off	on	off	on
6	7	*	off	off	off	off	off	off	on	off	off
8	9	*	off	off	off	off	off	off	off	on	on
10	11	*	off	off	off	off	off	off	off	on	off
12	13	*	off	off	off	off	off	off	off	off	on
14	15	*	off	off	off	off	off	off	off	off	off

\* Switch does not affect operation; it may be set to ON or OFF.

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**NTND02 baud rates-switch settings**

Baud rate	Even port-SW10				Odd port-SW11			
	1	2	3	4	1	2	3	4
150	*	off	on	on	*	off	on	on
300	*	on	off	on	*	on	off	on
600	*	off	off	on	*	off	off	on
1200	*	on	on	off	*	on	on	off
2400	*	off	on	off	*	off	on	off
4800	*	on	off	off	*	on	off	off
9600	*	off	off	off	*	off	off	off

\* Switch does not affect operation; it may be set to ON or OFF.

**NTND02 DTE or DCE selection**

Mode	Even port-SW4						Even port-SW5					
	1	2	3	4	5	6	1	2	3	4	5	6
DTE (terminal)	off	off	off	off	off	off	on	on	on	on	on	on
DCE (modem)	on	on	on	on	on	on	off	off	off	off	off	off

	Odd port-SW2						Odd port-SW3					
DTE	off	off	off	off	off	off	on	on	on	on	on	on
DCE	on	on	on	on	on	on	off	off	off	off	off	off

**NTND02 data format selection**

Format	Even port-SW6				Odd port-SW7			
	1	2	3	4	1	2	3	4
7 bits/character		off	on			off	on	
8 bits/character		off	off			off	off	
Odd parity	on			on	on			on
Even parity	on			off	on			off
No parity	off			*	off			*

\* Switch does not affect operation; it may be set to ON or OFF.

**NTND10 Changeover and Memory Arbitrator Card**

Options	Jumper at J3
1 Mbyte to 4 Mbyte memory	connect pins 1 and 2
768 K memory	connect pins 2 and 3

**QMT8 Add-on Data Module**

The next five tables list options settings for the QMT8 ADM.

**QMT8 jumper plugs**

Mode	Pin location
ADM connected to DTE (terminal)	Jumpers in U6 and U7
ADM connected to DCE (modem)	Jumpers in U4 and U5

**QMT8 SW1 (slide switch)**

SW1 function	SW1 settings
Set the voice frequency DN (VFDN) for modem pooling only*	Set the required 3- or 4-digit VFDN (example: 2406)
ADM is not connected to any modem	Set the switch to 0000
* The VFDN cannot be set unless jumpers U4 and U6 are plugged. The VFDN must be left-justified on the switch (example: if you select 234 as the VFDN, the switch must be set to 2340).	

**QMT8 SW2 (rotary dial)**

Transmission mode	Transmission speed
Asynchronous	50 to 19200
Synchronous	1.2 K to 56 K

**QMT8 SW3 (DIP switch)**

Transmission mode	Switch settings
Asynchronous	1-inhibit or enable parity 2-even or odd parity 3-HDX or FDX 4-7- or 8-bit code (Note 1) 5-1 or 2 stop bits (Note 2) 6-echo or no echo 7-manual or auto-answer 8-OFF for normal operation, or LOOPBACK test mode (Note 3)
Synchronous	1-not used 2-not used 3-HDX or FDX 4-modem or network (clock) 5-external or internal clock (Note 4) 6-echo or no echo 7-manual or auto-answer 8-OFF for normal operation, or LOOPBACK test mode (Note 3)
<p><b>Note 1:</b> This setting is overridden when switch SW4 positions 5 and 6 are ON. Use 8 bits/character and no parity for all ASCII terminals.</p> <p><b>Note 2:</b> This setting is overridden when switch SW4 position 1 is ON.</p> <p><b>Note 3:</b> See <i>Meridian Data Services operation and tests</i> (553-2731-300) for information on the use of the LOOPBACK setting.</p> <p><b>Note 4:</b> If the synchronous ADM (SADM) is connected to a synchronous terminal (DTE):</p> <ul style="list-style-type: none"> <li>- internal clock indicates that the SADM transmits clock to the DTE</li> <li>- external clock indicates that the SADM receives clock from the DTE</li> </ul> <p>If the synchronous ADM (SADM) is connected to a synchronous modem (DCE):</p> <ul style="list-style-type: none"> <li>- internal clock indicates that the SADM receives clock from the DCE</li> <li>- external clock indicates that the SADM transmits clock to the DCE</li> </ul>	

**QMT8 SW4 (DIP switch)**

Configuration option	Switch settings			
	1	2	3	4
Normal 7- or 8-bit operation or keyboard dialing	off	off		
Five-bit code (Note 1)	off	on		
Six-bit code (Note 1)	on	off		
Data hotline	on	on		
Digitone receiver required (Note 2)			off (Note 3)	
Digitone receiver not required (Note 2)			on (Note 3)	
Synchronous (Note 4)				on
Asynchronous (Note 4)				off

**Note 1:** 1.5 stop bits are not supported. These switch positions are not used for synchronous operation.

**Note 2:**

- If positions 1-3 and the terminal are ON, a carriage return invokes the auto dial operation.
- If positions 1 and 2 are ON with position 3 and the terminal OFF, turning the terminal on invokes hotline.
- If positions 1 and 2 are OFF and position 3 is ON or OFF, a carriage return invokes keyboard dialing. There is no auto-dialing with this mode.
- If position 3 is OFF, a call is terminated if DTR is dropped.

**Note 3:** Position 3 permits compatibility with a wide range of modems. Position 3 is OFF if the modem is controlled by level type MI/MIC leads. Position 3 is ON if the modem is controlled by pulse type leads.

**Note 4:** Both ASCII and EBCDIC codes are supported in the asynchronous mode. The synchronous mode operation is code independent. Use the reset button when an installed ADM is switched from asynchronous to synchronous mode.

### QMT11 Asynchronous/Synchronous Interface Module

Hot line	on*
Forced DTR (data terminal ready)	on**
FDX (full duplex)	on
SYNC	on
INTernal CLK	on
Modem/Network	modem
Auto Answer	on
Loopback	off

\* Only one side of the interface should be set to originate the hot line.  
 \*\* Forced DTR automatically reinitiates a dropped hot line call.

### QPA62 Call Detail Recording 32 K RAM Card

Card vintage	Switch location	Switch settings							
		1	2	3	4	5	6	7	8
C, E, and G	E1	off	off	on	off	off	off	off	off
	G5	off	off	on	off	off	off	off	off
	F18	off	off	on	off	on	off	on	off
D	F5	off	off	on	off	off	off	off	off
	G5	off	off	off	off	off	off	off	off
F and H	F5	off	off	off	off	off	off	off	off
	G5	off	off	off	on	off	off	off	off

## QPC30 4 K RAM Card

Device number	E5 switch						Device number	E5 switch					
	2	3	4	5	6	7		2	3	4	5	6	7
0	off	off	off	off	off	off	24	off	off	off	on	on	off
1	on	off	off	off	off	off	25	on	off	off	on	on	off
2	off	on	off	off	off	off	26	off	on	off	on	on	off
3	on	on	off	off	off	off	27	on	on	off	on	on	off
4	off	off	on	off	off	off	28	off	off	on	on	on	off
5	on	off	on	off	off	off	29	on	off	on	on	on	off
6	off	on	on	off	off	off	30	off	on	on	on	on	off
7	on	on	on	off	off	off	31	on	on	on	on	on	off
8	off	off	off	on	off	off	32	off	off	off	off	off	on
9	on	off	off	on	off	off	33	on	off	off	off	off	on
10	off	on	off	on	off	off	34	off	on	off	off	off	on
11	on	on	off	on	off	off	35	on	on	off	off	off	on
12	off	off	on	on	off	off	36	off	off	on	off	off	on
13	on	off	on	on	off	off	37	on	off	on	off	off	on
14	off	on	on	on	off	off	38	off	on	on	off	off	on
15	on	on	on	on	off	off	39	on	on	on	off	off	on
16	off	off	off	off	on	off	40	off	off	off	on	off	on
17	on	off	off	off	on	off	41	on	off	off	on	off	on
18	off	on	off	off	on	off	42	off	on	off	on	off	on
19	on	on	off	off	on	off	43	on	on	off	on	off	on
20	off	off	on	off	on	off	44	off	off	on	on	off	on
21	on	off	on	off	on	off	45	on	off	on	on	off	on
22	off	on	on	off	on	off	46	off	on	on	on	off	on
23	on	on	on	off	on	off	47	on	on	on	on	off	on

**Note:** Switch 1 is set to OFF for normal operation and set to ON for card debugging. Switch 8 is set to ON only when the card is used as the spare.

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**QPC31 8 K RAM Card**

Device number	E5 switch						Device number	E5 switch					
	2	3	4	5	6	7		2	3	4	5	6	7
0	off	off	off	off	off	off	12	off	off	off	on	on	off
1	off	on	off	off	off	off	13	off	on	off	on	on	off
2	off	off	on	off	off	off	14	off	off	on	on	on	off
3	off	on	on	off	off	off	15	off	on	on	on	on	off
4	off	off	off	on	off	off	16	off	off	off	off	off	on
5	off	on	off	on	off	off	17	off	on	off	off	off	on
6	off	off	on	on	off	off	18	off	off	on	off	off	on
7	off	on	on	on	off	off	19	off	on	on	off	off	on
8	off	off	off	off	on	off	20	off	off	off	on	off	on
9	off	on	off	off	on	off	21	off	on	off	on	off	on
10	off	off	on	off	on	off	22	off	off	on	on	off	on
11	off	on	on	off	on	off	23	off	on	on	on	off	on

**Note:** Switch 1 is set to OFF for normal operation and set to ON for card debugging. Switch 8 is set to ON only when the card is used as the spare.

### QPC33 Tape Interface Card

Tape unit	E8 switch (address selection)		
0	off	on	on
1	on	off	on
2	on	on	off
3	off	off	off

**Note 1:** Main system tape units are assigned as tape unit 0. In dual CPU systems, both QPC33 cards are assigned as tape unit 0.

**Note 2:** Use tape unit 1 for Mini-Call Detail Recording (CDR) feature.

### QPC41 Miscellaneous Card

System type	B5 switch (memory configuration)			
	1	2	3	4
S, MS	on	off	off	on
A with split mode	off	off	on	off
All other systems	off	off	off	on

### QPC43 Peripheral Signaling Card

Options (minimum vintage N)	Plug location
QSD39, QSD40, QSP31, QSP32 network shelves NT6D39 CPU/Network Module NT8D35 Network Module	F13
Other network shelves	F9

**QPC45 Serial Data Interface Card**

Address selection				Speed selection				Output device plug location	
Device number	C15 switch			Baud rate	B15 switch				
	4	5	6		1	2	3		
0	on	on	on	110	on	off	off	TTY	A15
1	off	on	on	300	off	off	off		
2	on	off	on	1200	off	off	on	Modem	B5
3	off	off	on	2400	off	on	off		
4	on	on	off	4800	off	on	on	RS-232 data terminal	B10
5	off	on	off						
6	on	off	off						
7	off	off	off						

**QPC46, QPC155 Common Equipment Bus Extender Cards**

Application	QPC46 A35 switch						QPC155 A35 switch					
	1	2	3	4	5	6	1	2	3	4	5	6
CPU located at extension end of bus	off	off	off	off	off	off	off		off	off	off	off
CPU not located at extension end of bus	off	off	off	off	off	on	on		off	off	off	off
Basic system (QPC155)		on										
Expanded system (QPC155)		off										

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**QPC62 1.5 Mbyte Baud Converter Card**

Carrier A & B options* distance to office repeater bay (ORB)		Switch settings** SW1 and SW2								SW3
(Feet)	(Meters)	1	2	3	4	5	6	7	8	
0 - 150***	0 - 45	off	off	on	on	off	on	on	off	6 V
151 - 450	46 - 147	off	on	on	off	on	on	off	on	12 V
451 - 750	148 - 229	on	off	off	on	on	off	on	on	12 V

\* If both cards provided are minimum vintage E, insert the plug-in jumper (U-link) between header pins 1 and 2 (located at B25). If any card provided is vintage D, or an earlier vintage, insert the plug-in jumper (U-link) between header pins 2 and 3. On systems equipped with dual network cards, minimum vintage E must be used.

\*\* Switch 1 (SW1) is set for carrier A, switch 2 (SW2) is set for carrier B. SW3 refers to the faceplate toggle switch.

\*\*\* Set to the 0 - 150 ft range when interfacing directly with the carrier (without going through an ORB).

### QPC66 2 Mbyte Baud Converter Card

With vintage C, insert the plug-in jumper (U-link) between header pins 2 and 3. On systems with dual network cards, you must use minimum vintage D; insert the plug-in jumper (U-link) between header pins 1 and 2 (located at B35).

### QPC70, QPC217, QPC293 CO/FX/WATS Trunk Cards

Application	Unit 0 E35 switch						Unit 1 E5 switch					
	1	2	3	4	5	6	1	2	3	4	5	6
Loop start, 24 V CO battery	off	on	on	on	off	on	off	on	on	on	on	off
Loop start, 48 V CO battery	off	off	on	off	off	on	off	on	off	off	on	off
Ground start, 24 V CO battery	on	on	off	on	off	off	on	off	on	on	off	off
Ground start, 48 V CO battery	on	off	off	off	off	off	on	off	off	off	off	off

## QPC71 E&M Trunk Cards

Application	Unit 0 E35 switch								Unit 1 E5 switch							
	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
E&M	off	off	off	on	off	off	on	off	off	off	off	on	off	off	on	off
Paging	off	off	off	off	off	off	off	off	off	off	off	off	off	off	off	off
DX 2-wire (conductor loop < 2.5 K $\Omega$ )	on	on	off	off	off	on	off	on	on	on	off	off	off	on	off	on
DX 2-wire (conductor loop > 2.5 K $\Omega$ )	on	on	on	on	off	on	off	on	on	on	on	on	off	on	off	on
DX 4-wire (conductor loop < 2.5 K $\Omega$ )	off	off	off	off	on	on	off	on	off	off	off	off	on	on	off	on
DX 4-wire (conductor loop > 2.5 K $\Omega$ )	off	off	on	on	on	on	off	on	off	off	on	on	on	on	off	on
<p><b>Note:</b> DX trunks must be balanced correctly. If the loop is &lt;2.5 K <math>\Omega</math>, far-end balancing is standard. If the loop is &gt;2.5 K <math>\Omega</math>, far end balancing requires standard plus 2.5 K <math>\Omega</math>. To connect PBX to PBX, switches should be arranged for loops to be &gt;2.5 K <math>\Omega</math> at one end and &lt;2.5 K <math>\Omega</math> at the other. Apply similar treatment when connecting to Pulse QPJ69 trunks.</p>																

## QPC72, QPC288, QPC449, QPC559, QPC560 Loop Signaling Trunk Cards

The next two tables list option settings for loop signaling trunk cards.

### QPC72, QPC288, QPC449, QPC559, QPC560 single density

Application	Single density-Unit 0/1 F30/F8* switch					
	1	2	3	4	5	6
Outgoing ANI only:						
loop pulsing	off	off	off	off	off	off
battery and ground pulsing	off	off	off	off	on	off
Other than outgoing ANI	on	off	on	off	on	off
	Jumpers (QPC560) Units 0/1/2/3					
600 $\Omega$ resistive impedance	connect pins 1 and 2					
3-component complex impedance	connect pins 2 and 3					
* On QPC7 vintage 2M (CSA SDT C22.2), the switch location is E27/E11.						

**QPC72, QPC288, QPC449, QPC559, QPC560 double density**

Application	Double density-Unit 0/1/2/3 H17/H3/A17/A3 switch					
	1	2	3	4	5	6
Outgoing ANI only:						
loop pulsing	off	off	off	off	off	off
battery and ground pulsing	off	off	off	off	on	off
Other than outgoing ANI	on	off	on	off	on	off
	Jumpers (QPC560) Units 0/1/2/3					
600 $\Omega$ resistive impedance	connect pins 1 and 2					
3-component complex impedance	connect pins 2 and 3					

**QPC73, QPC289 Recorded Telephone Dictation Cards**

Application	Unit 0 D35 switch				Unit 1 D5 switch			
	1	2	3	4	1	2	3	4
External resistance < 430 $\Omega$	off	off	off	off	on	off	off	off
External resistance > 430 $\Omega$	off	off	off	off	on	off	off	off

---

**QPC74, QPC290 Recorded Announcement Trunk Cards**

Application	Unit 0-C35 switch				Unit 1-F35 switch			
	1	2	3	4	1	2	3	4
Audichron	off	off	on	off	off	off	on	off
Code-A-Phone	off	on	off	off	off	on	off	off
Cook Digital Announcer (continuous run)	off	off	on	off	off	off	on	off
Cook Digital Announcer (start/stop)	off	on	off	off	off	on	off	off
Test or music (600 $\Omega$ source Z)	on	off	off	on	on	off	off	on
	Unit 2-C5 switch				Unit 3-F5 switch			
Audichron	off	off	on	off	off	off	on	off
Code-A-Phone	off	on	off	off	off	on	off	off
Cook Digital Announcer (continuous run)	off	off	on	off	off	off	on	off
Cook Digital Announcer (start/stop)	off	on	off	off	off	on	off	off
Test or music (600 $\Omega$ source Z)	on	off	off	on	on	off	off	on

## QPC84 Power Monitor

The next four tables list option settings for the QPC84 Power Monitor.

### QPC84 vintage R and S-switch A4

Options	A4 switch							
	1	2	3	4	5	6	7	8
Option A*	on	off	on					
Option B*	off	on	off					
Monitor FAIL and CTR signal**								
- Defeat monitoring (XN/QCA108 cabinet)								on
- Allow monitoring (all other systems)								off
* Options A and B apply to vintage R only. Switch A4 is set based on the cabinet type and vintage suffix. See the following table for option selection.								
** For vintage S, A4 switch 8 must be ON when CTR signal monitoring is required.								

**QPC84 vintage R-options A and B**

<b>Cabinet type</b>	<b>Vintage</b>	<b>Option A</b>	<b>Option B</b>
QCA6	all vintages		X
QCA7	all vintages		X
QCA8	all vintages		X
QCA23	all vintages		X
QCA28	all vintages		X
QCA37	all vintages		X
QCA58	vintages A thru E		X
QCA58*	vintage E1 only	X	
QCA58	vintage F1 and later		X
QCA60	all vintages		X
QCA74	vintages A thru E		X
QCA74*	vintage E1 only	X	
QCA74	vintage F1 and later		X
QCA96	all vintages		X
QCA108**	vintages A thru E		X
QCA108*/**	vintage E1 only	X	
QCA108**	vintage F1 and later		X
QCA109	vintage A and later		X

\* If a vintage A QSP43 or QSP44 converter shelf is equipped, the switch must be set in Option B mode.

\*\* C11 switch 1 must be ON for QCA108 cabinets.

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**QPC84 vintage A to L-switch A5 or D18 (Part 1 of 2)**

Options	A5 or D18* switch							
	1	2	3	4	5	6	7	8
86 V ringing generator fails								
Allow alarm and line transfer	on	off						
Allow alarm but defeat transfer	off	off						
Defeat alarm and transfer	off	on						
48 V regulator fails								
Allow alarm and line transfer			off				on	
Allow alarm but defeat transfer			off				off	
Defeat alarm and line transfer			on				off	
With reserve battery								
Allow trip input				on				
<p>* Switch locations depend on card vintages: for vintages A to K the switch is located at A5 for vintage L the switch is located at D18</p> <p><b>Note 1:</b> Alarm refers to QPC84 LEDs, cabinet LEDs, remote alarm, and CE alarm (initiate internal diagnostics).</p> <p><b>Note 2:</b> Power, fan, and temperature LEDs are not functional when QPC84 is located in a PE cabinet.</p>								

## QPC84 vintage A to L-switch A5 or D18 (Part 2 of 2)

Options	A5 or D18* switch							
	1	2	3	4	5	6	7	8
Defeat trip input				off				
±10 V fails (CONV 1)								
Allow line transfer					on			
Defeat line transfer					off			
±10 V fails (CONV 2)								
Allow line transfer						on		
Defeat line transfer						off		
Reset button								
Allow reset function								on
Defeat reset function								off
<p>* Switch locations depend on card vintages: for vintages A to K the switch is located at A5 for vintage L the switch is located at D18</p> <p><b>Note 1:</b> Alarm refers to QPC84 LEDs, cabinet LEDs, remote alarm, and CE alarm (initiate internal diagnostics).</p> <p><b>Note 2:</b> Power, fan, and temperature LEDs are not functional when QPC84 is located in a PE cabinet.</p>								

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**QPC84 vintage P to S-switches D29 and C11 (Part 1 of 2)**

Options	D29 switch								C11 switch						
	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7
86 V ringing generator fails															
Allow alarm/line transfer	on	off													
Allow alarm, defeat transfer	off	off													
Defeat alarm/line transfer	off	on													
48 V regulator fails															
Allow alarm/line transfer				on				on							
Allow alarm, defeat transfer				on				off							
Defeat alarm/line transfer				off				off							
With reserve battery															
Allow trip input				on											
Defeat trip input				off											
±10 V fails (QSP43/44 shelf)															
Allow line transfer				on	on						on	on	off	off	
Defeat line transfer				off	off						off	off	off	off	
±10 V fails (CONV 1)															
Allow line transfer				on							off	off	on		
Defeat line transfer				off							off	off	off		
±10 V fails (CONV 2)															
Allow line transfer						on					off	off		on	
Defeat line transfer						off					off	off		off	
Reset button															
Allow reset								on							
Defeat reset								off							
<p><b>Note 1:</b> Alarm refers to QPC84 LEDs, cabinet LEDs, remote alarm, and CE alarm (initiate internal diagnostics).</p> <p><b>Note 2:</b> Power, fan, and temperature LEDs are not functional when QPC84 is located in a PE cabinet.</p> <p><b>Note 3:</b> C11 switch 1 must be ON for QCA108 cabinets.</p>															

## QPC84 vintage P to S-switches D29 and C11 (Part 2 of 2)

Options	D29 switch								C11 switch						
	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7
CE power failure ( <b>Note 3</b> )															
Allow remote alarm and SYSLTOUT signal										on					
Defeat remote alarm and SYSLTOUT signal										off					
Monitor FAIL/CTR signal															
Defeat monitoring (XN/QCA108 cabinet)											on				
Allow monitoring (all other systems)											off				
Monitor cooling unit failure															
Defeat monitoring (N/QCA58 or QCA108, MS/QCA109 cabinet with half-group configuration)															on
Allow monitoring (all other configurations)															off
<p><b>Note 1:</b> Alarm refers to QPC84 LEDs, cabinet LEDs, remote alarm, and CE alarm (initiate internal diagnostics).</p> <p><b>Note 2:</b> Power, fan, and temperature LEDs are not functional when QPC84 is located in a PE cabinet.</p> <p><b>Note 3:</b> C11 switch 1 must be ON for QCA108 cabinets.</p>															

## QPC99 Carrier Interface Card

The next two tables list option settings for the QPC99 Carrier Interface Card.

### QPC99 A20 switch and F25 pad switch

Carrier location	Interface equipment	A20 switch						F25 pad switch					
		1	2	3	4	5	6	7	8	9	10	11	12
Local	ORB at local end (pads in)	off	off	off	on	off	on	on	on	on	on	off	off
	Direct to LD-1 or GTE carrier (no ORB at local end) (pads out)	off	off	off	on	on	on	off	off	off	off	on	on
Remote	ORB at remote end (pads in)	on	off	on	off	off	on	on	on	on	on	off	off
	Direct to LD-1 or GTE carrier (no ORB at remote end) (pads out)	on	off	on	off	on	on	off	off	off	off	on	on

**Note:** Consult manufacturer for switch settings if card interfaces with other type of carrier equipment.

### QPC99 S2 switch

Carrier location	Interface equipment	SW2					
		1	2	3	4	5	6
Local	ORB at local end (pads in)	off	off	off	off	on	on
	Direct to LD-1 or GTE carrier (no ORB at local end) (pads out)	on	on	on	on	off	off
Remote	ORB at remote end (pads in)	off	off	off	off	on	on
	Direct to LD-1 or GTE carrier (no ORB at remote end) (pads out)	on	on	on	on	off	off

## QPC139 Serial Data Interface Card

The next two tables list option settings for the QPC139 SDI Card.

### QPC139 address and output device selection

Address selection					Output device		
Device number	F7 switch					Port 1 plug location	Port 2 plug location
	1	2	3	4			
0-1	off	on	on	on	Modem	A13	A25
2-3	off	on	on	off	RS-232 data terminal	A16	A22
4-5	off	on	off	on			
6-7	off	on	off	off			
8-9	off	off	on	on			
10-11	off	off	on	off			
12-13	off	off	off	on			
14-15	off	off	off	off			

**Note:** Switches at D22 and D31 are not used and set to OFF.

### QPC139 baud rate selection

Baud rate	Port 1 C34 switch				Port 2 C22 switch			
	1	2	3	4	1	2	3	4
110	off	on	on	on	off	on	on	on
150	off	off	on	on	off	off	on	on
300	off	on	off	on	off	on	off	on
600	off	off	off	on	off	off	off	on
1200	off	on	on	off	off	on	on	off
2400	off	off	on	off	off	off	on	off
4800	off	on	off	off	off	on	off	off
9600	off	off	off	off	off	off	off	off

**Note:** Switches at D22 and D31 are not used and set to OFF.

## QPC173 Power Monitor

The next two tables list option settings for the QPC173 Power Monitor.

### QPC173 vintages A to D

Options Vintages A to D	A31 switch							
	1	2	3	4	5	6	7	8
Option A*	on	off	on					
Option B*	off	on	off					
Allow reset button function (VL only)					on			
Defeat reset button function (VLE/XL/XN)					off			
Allow trip input**						on		
Defeat trip input						off		
Systems with one QCA25 (QCA14) cabinet or QCA55 cabinet equipped with one group							on	on
Systems with two QCA25 (QCA14) cabinets or QCA55 cabinet equipped with two or three groups							on	off
<p>* Options A and B apply to vintage D only. Switch A31 is set based on the cabinet type and vintage suffix. See the following table for option selection.</p> <p>** Switch 5- Applies to C and later vintages only.  Switch 6- If trip input is required, must be ON to allow the -48 V cabinet input switches of QCA24 (QCA10), QCA25 (QCA14), QCA8, and QCA55 cabinets to trip when battery voltage is &lt; 43.5 V. If trip input is not required, switch 6 should be OFF.  Switch 7- Must be ON for temperature monitoring even in a system with two or three groups.  Switch 8- Must be OFF for fan alarm monitoring in a system with more than one group.</p>								

**QPC173 vintage D-options A and B**

Cabinet type	Vintage	Option A	Option B
QCA10	all vintages		X
QCA24	all vintages		X
QCA55	vintages A thru E		X
QCA55*	vintage E1 only	X	
QCA55	vintages F1 and later		X

\* If a vintage A QBL21 distribution shelf is equipped, the switch must be set in the Option B mode.

**QPC197 Tone Detector Switch Card**

Options (minimum vintage C)	Jumper plug locations
SL-1 telephone ringing: Audible ringing of 533/666 Hz modulated at: 10 Hz - connect pins 1 and 2 20 Hz - connect pins 2 and 3	B5 B5
Dial tone level: Low dial tone level, 23 dB below overflow level: connect pins 1 and 2 High dial tone level, 19 dB below overflow level: connect pins 2 and 3	B10 B10

### QPC214 Memory Controller Card

Memory option	QPC214A, B, or C A35 switch								QPC214D A35 switch			
	1	2	3	4	5	6	7	8	1	2	3	4
A standard	off	on	off	off	off	on	off	off	off	off	on	off
A split store	on	off	off	off	off	on	off	off	on	off	on	off
LE standard	off	off	off	off	off	off	off	off	off	off	off	off
LE split store	on	off	on	off	off	off						
VLE, XL standard	off	off	off	off	off	off	off	off	off	off	off	off
M standard									on	on	off	off

### QPC215 Segmented Bus Extender Card

Network group	D3 switch					Memory access	D3 switch
	2	3	4	5	6		1
0	off	on	on	on	on	Page 3 access	on
1	off	on	on	on	off	Page 7 access	off
2	off	on	on	off	on		
3	off	on	on	off	off		
4	off	on	off	on	on		
To MGC	off	off	off	off	off		

**QPC216 3-Port Extender Card**

Application	A20 switch			
	1	2	3	4
Half network group	on	off		
Full network group	off	off		
Page 3 address			on	
Page 7 address			off	
Multi-group systems				on
Single-group systems				off

**QPC218, QPC272 CO/FX/WATS Trunk Cards**

The next two tables option settings for the QPC128 and QPC272 trunk cards.

**QPC218 (other than vintage F) and QPC272 switch settings**

Application	Unit 0 E35 switch						Unit 1 E5 switch					
	1	2	3	4	5	6	1	2	3	4	5	6
Loop start	off	off	off	off	off	off	off	off	off	off	off	off
Loop start with automatic guard detection	off	off	on	off	off	off	off	off	on	off	off	off
Ground start	on	off	on	off	off	off	on	off	on	off	off	off

---

**QPC218 vintage F**

Application	Unit 0 F27 switch								Unit 1 F9 switch							
	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
Loop start	off	on	off	off	off	off	off	on	off	on	off	off	off	off	off	on
Loop start with automatic guard detection	off	on	on	off	off	off	off	on	off	on	off	off	off	off	off	on
Ground start	off	on	on	off	off	on	off	on	off	on	off	off	off	on	off	on

### QPC219, QPC295 CO/FX/WATS Trunk Cards

Application	Unit 0 E35 switch								Unit 1 E5 switch																							
	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8																
Loop start:																																
Third wire battery on M lead	off	off	off	off	on	off			off	off	off	off	on	off																		
Third wire ground on M lead	off	off	off	off	off	on			off	off	off	off	off	on																		
Second pair (M & MM)	off	off	off	off	off	off			off	off	off	off	off	off																		
Automatic guard detection	off	off	on						off	off	on																					
Ground Start:																																
Third wire battery on M lead	on	off	on	off	on	off			on	off	on	off	on	off																		
Third wire ground on M lead	on	off	on	off	off	on			on	off	on	off	off	on																		
Second pair (M & MM)	on	off	on	off	off	off			on	off	on	off	off	off																		
900 $\Omega$ termination*							on	on							on	on																
600 $\Omega$ termination*							off	off							off	off																
<p>* Minimum vintage E. Vintage J has a third switch that must be set as follows:</p> <table style="margin-left: 40px;"> <tr> <td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td> </tr> <tr> <td>on</td><td>off</td><td>off</td><td>off</td><td>on</td><td>off</td><td>on</td><td>off</td> </tr> </table>																	1	2	3	4	5	6	7	8	on	off	off	off	on	off	on	off
1	2	3	4	5	6	7	8																									
on	off	off	off	on	off	on	off																									

## QPC237A, QPC237B, QPC296A, QPC296B 4-Wire E&M/DX Signaling Trunk Cards

The next three tables show option settings for the trunk cards listed above.

### QPC237 vintage A, QPC237 vintage B, QPC296 vintage A, QPC296 vintage B

Unit 0: Unit 1:	S1 (E34) S3 (E4)						S2 (F20) S4 (F7)					
Application	1	2	3	4	5	6	1	2	3	4	5	6
E&M Type I	off	off	on	on	off	off	on	off	on	on	off	on
E&M Type II	off	off	on	off	off	off	on	on	off	off	on	off
DX 4-wire lead A1 to T1, T1 to T2:												
conductor loop < 2.5 K $\Omega$	off	on	off	on	on	off	off	off	off	on	off	off
conductor loop > 2.5 K $\Omega$	on	on	off	on	on	off	on	off	off	on	off	off
DX 4-wire lead A1 to T2, B1 to T1:												
conductor loop < 2.5 K $\Omega$	off	on	off	on	on	off	off	off	off	on	off	off
conductor loop > 2.5 K $\Omega$	on	on	off	on	on	off	on	off	off	on	off	off
Unit 0: Unit 1:	S6 (D31) S5 (D3)											
Application	1	2	3	4	5	6						
E&M Type I	off	off	off	off								
E&M Type II	off	off	off	off								
DX 4-wire lead A1 to T1, T1 to T2:												
conductor loop < 2.5 K $\Omega$	off	on	off	on								
conductor loop > 2.5 K $\Omega$	off	on	off	on								
DX 4-wire lead A1 to T2, B1 to T1:												
conductor loop < 2.5 K $\Omega$	on	off	on	off								
conductor loop > 2.5 K $\Omega$	on	off	on	off								
Interface:												
carrier interface									on		on	
public network									off		off	

## QPC237 vintage C

Unit 0: Unit 1:	S1 (D28) S3 (D10)						S2 (D31) S4 (D7)					
	1	2	3	4	5	6	1	2	3	4	5	6
<b>Application</b>												
E&M Type I	off	off	off	on	off	on	off	off	on	on	off	off
E&M Type II	off	off	off	off	off	on	off	on	off	off	on	off
British Telecom	off	off	off	off	on	on	off	off	on	off	off	off
DX 4-wire lead A1 to T1, B1 to T2		on	on	on	off	off	on	off	on	on	off	off
DX 4-wire lead A1 to T2, B1 to T1		on	on	on	off	off	on	off	on	on	off	off
conductor loop > 2.5 K $\Omega$	on											
conductor loop < 2.5 K $\Omega$	off											
Unit 0: Unit 1:	S6 (E26) S5 (E12)				S8 (F33) S7 (S4)							
Application	1	2	3	4	1	2	3	4				
E&M Type I	off	off	off	off								
E&M Type II	off	off	off	off								
British Telecom	off	off	off	off								
DX 4-wire lead A1 to T1, B1 to T2	off	on	off	on	on	on						
DX 4-wire lead A1 to T2, B1 to T1	on	off	on	off	on	on						
Interface:												
carrier interface					on		on					
public network						off		off				

## QPC237 vintage D, QPC237 vintage E, QPC296 vintage C

Unit 0: Unit 1:	S1 (D33) S2 (D5)											
Application	1	2	3	4	5	6	7	8	9	10		
E&M Type I	off	off	off	off	off	off	off	off	on	off		
E&M Type II	off	off	off	off	off	off	off	off	on	off		
British Telecom	off	off	off	off	off	off	off	off	on	off		
DX 4-wire lead M to T1, E to T2	off	on	off	on			on	on	off	on		
DX 4-wire lead M to T2, E to T1	on	off	on	off			on	on	off	on		
conductor loop > 2.5 K $\Omega$					on	on						
conductor loop < 2.5 K $\Omega$					off	off						
Unit 0: Unit 1:	S3 (E25) S5 (E13)						S4 (B33) S6 (B5)					
Application	1	2	3	4	5	6	1	2	3	4	5	6
E&M Type I		on		on	on	on	off	off	on	on	off	off
E&M Type II		on		on	on	off	off	on	off	off	on	off
British Telecom		on		on	on	off	on	off	off	on	off	off
DX 4-Wire lead M to T1, E to T2		on		on	off	on	off	off	on	on	off	off
DX 4-wire lead M to T2, E to T1		on		on	off	on	off	off	on	on	off	off
Interface:												
carrier interface	on		on									
public network		off		off								

**QPC239 Recorded Telephone Dictation Trunk Card**

Transmission during dialing	Unit 0 D33 switch				Unit 1 D8 switch			
	1	2	3	4	1	2	3	4
Yes	off	off	off	off	off	off	off	off
No	on	off	off	off	on	off	off	off

**QPC327 Multifrequency Sender/Receiver Card**

Options	Jumper plug location
A-Law operation-connect pins 2 and 3	A35
$\mu$ -Law operation-connect pins 1 and 2	A35

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**QPC330, QPC331 Buffered Message Register Trunk Cards**

Application	Unit 0 E35 switch						Unit 1 E5 switch					
	1	2	3	4	5	6	1	2	3	4	5	6
Loop start (accumulated pulsing):												
Third wire battery on M lead	off	off	off	off	on	off	off	off	off	off	on	off
Third wire ground on M lead	off	off	off	off	off	on	off	off	off	off	off	on
Second pair (M & MM)	off	off	off	off	off	off	off	off	off	off	off	off
Ground start (accumulating):												
Third wire battery on M lead	on	off	on	off	on	off	on	off	on	off	on	off
Third wire ground on M lead	on	off	on	off	off	on	on	off	on	off	off	on
Second pair (M & MM)	on	off	on	off	off	off	on	off	on	off	off	off
Regular CO trunk (same as QPC219)	off	on	off	on	off	off	off	on	off	on	off	off

**QPC377, QPC379 Conference Cards**

Options	Strap location
Enable warning tone-insert strap from E20 to ENB	D1
Disable warning tone-insert strap from E19 to DIS	D1

**QPC387 Peripheral Buffer Card**

Ringing voltage	A35 switch			
	5	6	7	8
16 Hz, 86 Vrms superimposed on -48 V	on	off	off	off
20 Hz, 86 Vrms superimposed on -48 V	off	on	off	off
25 Hz, 75 Vrms superimposed on -48 V	off	off	on	off
50 Hz, 70 Vrms superimposed on -48 V	off	off	off	on

**QPC390, QPC391 Pulsed E&M Trunk Cards** (Part 1 of 2)

Unit 0: Unit 1:	S1 (D30) S3 (D30)						S2 (D25) S4 (D15)					
Application	1	2	3	4	5	6	1	2	3	4	5	6
Pulsed E&M Type I:												
North America	off	off	off	on	off	off	off	off	on	on	off	off
Norway	off	off	on	off	on	off	off	off	on	off	off	off
British Post Office	off	off	off	on	off	on	off	off	on	off	off	off
Pulsed E&M Type II:												
North America	off	off	off	off	off	off	off	on	off	off	on	off
Norway	off	off	on	off	off	off	off	on	off	off	on	off
British Post Office	off	off	off	off	off	off	off	on	off	off	on	off
DX 4-wire lead M to T1, lead E to T2:												
Norway		on	on	off	on	off		off	off	off	off	
British Post Office		on	off	off	on	on		off	off	off	off	
DX 4-wire lead M to T2, lead E to T1:												
Norway		on	on	off	on	off		off	off	off	off	
British Post Office		on	off	off	on	on		off	off	off	off	
DX 4-wire:												
conductor loop < 2.5 K Ω	off						off					
conductor loop > 2.5 K Ω	on						on					
Carrier failure alarm:												
enabled												on
disabled												off
<b>Note:</b> Set all positions on S7 (at B37) to OFF.												

**QPC390, QPC391 Pulsed E&M Trunk Cards (Part 2 of 2)**

Unit 0: Unit 1:	S6 (F35) S5 (F5)					
	1	2	3	4	5	6
<b>Application</b>						
Pulsed E&M Type I:						
North America	off	off	off	off	off	off
Norway	off	off	off	off	off	off
British Post Office	off	off	off	off	off	off
Pulsed E&M Type II:						
North America	off	off	off	off	off	off
Norway	off	off	off	off	off	off
British Post Office	off	off	off	off	off	off
DX 4-wire lead M to T1, lead E to T2:						
Norway	off	on	off	on	on	on
British Post Office	off	on	off	on	on	on
DX 4-wire lead M to T2, lead E to T1:						
Norway	on	off	on	off	on	on
British Post Office	on	off	on	off	on	on
<b>Note:</b> Set all positions on S7 (at B37) to OFF.						

## QPC414 Network Card

Application	Pin connection J3/S2 and J4/S1
Option A: In-house remote peripheral equipment (RPE), microwave, fiber optics	connect pins 2 and 3 (pin 1 is next to the white dot)
Option B: T-1 facilities (including PRI/DTI)*, channel service unit	connect pins 1 and 2 (pin 1 is next to the white dot)
<p>* To connect 1.5M RPE to T-1 through Channel Service Unit, select option B. For 2M RPE, jumper plugs are not used.</p> <p><b>Note 1:</b> Possible jumper locations for vintage B (for different styles/series):            J3-E11 or H11            J4-H17 or E7            S1 and S2-E33</p> <p><b>Note 2:</b> Possible jumper locations for vintage A (for different styles/series). These cards do not have the option selection and can only be used in the option A setting:            J3-H5 or E11            J4-H17 or E7            S1 and S2-E33</p> <p><b>Note 3:</b> Connectors and loop relations:            Even loop: J1 faceplate connector, jumper at J4 or S1            Odd loop: J2 faceplate connector, jumper at J3 or S2</p>	

## QPC417 Junctor Board

All unused connectors must be terminated with QPF36A Junctor Terminating Plugs. Any group not used requires four of these plugs.

**QPC422 Tone Detector Card**

Options	Jumper plug connection
A-Law operation	connect center pin to top pin
$\mu$ -Law operation	connect center pin to lower pin

**QPC423 192 K RAM Card**

Application	Memory page	Range	F11 switch (memory configuration)								
			1	2	3	4	5	6	7	8	
Single memory card	0	0-32K	off	on	off	on	off	off	off	on	
	1	0-64 K									
	2	32-64 K									
	5	0-64 K									
Dual memory card: Module 0	0	0-32 K	on	on	off	off	off	off	off	on	
	1	0-64 K									
	2	32-64 K									
	Module 1*	5	0-64 K	on	on	off	on	off	off	off	on
		6	0-64 K								

\* Module 1 can be either a QPC423 or QPC478 RAM Card.

## QPC425 CPU Card

The next two tables list option settings for the QPC425 CPU Card.

### QPC425 address and output device selection

SDI address selection										Output device Plug location	
Device number	A1 switch				Device number	A1 switch					
	1	2	3	4		1	2	3	4		
0	on	on	on	on	8	on	on	on	off	Modem	A7
1	off	on	on	on	9	off	on	on	off		
2	on	off	on	on	10	on	off	on	off	Data terminal	A5
3	off	off	on	on	11	off	off	on	off		
4	off	on	off	on	12	off	on	off	off		
5	on	on	off	on	13	on	on	off	off		
6	on	off	off	on	14	on	off	off	off		
7	off	off	off	on	15	off	off	off	off		

**Note:** Switches 9 and 10 are available on vintage D.

### QPC425 baud rate selection

Baud rate	A1 switch					
	5	6	7	8	9	10
300	off	off	on	off	on	off
600	off	on	off	on	on	off
1200	on	off	on	on	on	off
1800	off	on	on	on	on	off
2400	off	off	on	off	off	on
4800	off	on	off	on	off	on
9600	on	off	on	on	off	on

**Note:** Baud rates 2400 and up are available on vintage D.

**QPC426 192 K RAM Card**

Application	Memory page	Range	F11 switch (memory configuration)							
			1	2	3	4	5	6	7	8
N, XN	0	0-64 K	off	off	off	off	off	off	off	on
	1	0-64 K								
	2	0-64 K								
N, XN	4	0-64 K	off	off	off	on	off	off	off	on
	5	0-64 K								
	6	0-64 K								
XN	8	0-64 K	off	off	on	off	off	off	off	on
	9	0-64 K								
	10	0-64 K								
XN	12	0-64 K	off	off	on	on	off	off	off	on
	13	0-64 K								
	14	0-64 K								

**QPC432 4-Port Data Line Card**

	Jumper plugs			
	B6	B10	B24	B27
Inside PVC (24 AWG) Outside PIC (22 AWG)	E1-E2	E4-E5	E7-E8	E10-E11
Inside PVC (26 AWG) Outside PIC (24 and 26 AWG)	E2-E3	E5-E6	E8-E9	E11-E12

## QPC441 3-Port Extender Card

					Shelf and group										
System type	D20 switch				Shelf	Group	D20 switch								
	1	2	3	4			5	6	7	8					
LE half group, RT (see Note 1)	on	off	on	off	0	0	on	on	on	on					
LE full group	off	off	on	off		1	on	on	off	on					
N, NT, 51, 61 (see Note 1)	off	off	on	off		2	on	off	on	on					
VLE, XL, XN (QCA97)	off	off	on	on		3	on	off	off	on					
XN, XT, 71, 81 (see Note 2)	off	on	on	on		4	off	on	on	on					
					1	0	on	on	on	off					
						1	on	on	off	off					
						2	on	off	on	off					
						3	on	off	off	off					
						4	off	on	on	off					
<b>Note 1:</b> If clock controllers are installed in an N, NT, or RT, position 2 must also be set to ON.															
<b>Note 2:</b> Option 81 requires minimum vintage F for the Core Module.															
<b>QPC441F-D20 switch in NT6D60 Core Module (option 81):</b>															
Core 1								Core 0							
1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
off	on	on	off	off	on	off	off	off	on	on	off	off	on	off	on
<b>QPC441F-RN27 jumper at E35 (address range checking):</b>															
NT6D60 Core Module				set to A											
All other modules				set to B											

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**QPC446, QPC447 Conference Cards**

Options	Strap location
Enable warning tone-insert strap from E8 to ENB	A37
Disable warning tone-insert strap from E8 to DIS	A37
Low-tone level (30 dB below digital overload)-insert strap from E7 to LOW	A37
High-tone level (24 dB below digital overload)-insert strap from E7 to HIGH	A37

**QPC450, QPC528 CO/FX/WATS Trunk Cards (Part 1 of 2)**

QPC450A, B, QPC528		Switch (location) S1 (A23)	1 on	2 off	3 on	4 off	5 on	6 off	7 on	8 off	
	Unit switch (location)	0 S2 (E29)	1 S3 (E9)		2 S4 (A28)			3 S5 (A10)			
		1	2	3	4	5	6	7	8	9 10	
Loop start		off	on	off	off	on	off			off off	
Ground start		off	on	on	on	on	off			off off	
Metering:											
Second pair (M, MM)							off	off			
Third wire, battery on M							off	on			
Third wire, ground on M							on	off			
Jumpers (for above)	Unit (location)	0 (E27)		1 (E11)		2 (D29)			3 (D9)		
600 $\Omega$ resistive impedance		Pin 1 to 2									
3-component complex impedance		Pin 2 to 3									
QPC450C		Units switch (location)	0 S2 (E29)		1 S3 (E9)			2 S4 (A28)		3 S5 (A10)	
			1	2	3	4	5	6	7	8	
Loop start		off	on	off	off	on				off	
Ground start		off	on	on	on	on				off	
Metering:											
Second pair (M, MM)							off	off			
Third wire, battery on M							off	on			
Third wire, ground on M							on	off			
QPC450C1, D		Unit switch (location)	0 S4 (F28)		1 S3 (F10)			2 S1 (C27)		3 S2 (B10)	
			1	2	3	4	5	6	7	8	
Loop start		off	on	off				off	off	on	
Ground start		off	on	on				on	off	on	
Metering:											
Second pair (M, MM)						off	off				
Third wire, battery on M						off	on				
Third wire, ground on M						on	off				

**QPC450, QPC528 CO/FX/WATS Trunk Cards (Part 2 of 2)**

QPC450E, F	Unit switch (location)	0 S4 (F25)	1 S3 (F11)	2 S1 (B25)	3 S2 (B13)		
		1	2	3	4		
Loop start		off	off				
Ground start		on	on				
Metering:							
Second pair (M, MM)				off	off		
Third wire, battery on M				off	on		
Third wire, ground on M				on	on		
Illustrated DIP switch settings:	on	(closed)	on				
	off	(open)	off				
QPC450G	Unit switch (location)	0 S4 (F25)	1 S3 (F11)	2 S1 (B25)	3 S2 (B13)		
		1	2	3	4	5	6
Loop start		off	off				
Ground start		on	on				
Short loops (600 $\Omega$ compromise impedance network)					on	off	
Long loop (EIA recommended impedance network)					off	on	

**QPC464 Peripheral Buffer Card**

Ringing voltage	D13 or B12 switch					
	1	2	3	4	5	6
16 Hz, 86 Vrms superimposed on -48 V	on	off	off	off		off
20 Hz, 86 Vrms superimposed on -48 V	off	on	off	off		off
25 Hz, 75 Vrms superimposed on -48 V	off	off	on	off		off
50 Hz, 70 Vrms superimposed on -48 V	off	off	off	on		off
Dual density loops					off	
Quad density loops					on	

### QPC471 Clock Controller Card

The next two tables list option settings for the QPC471 Clock Controller Card.

#### QPC471 vintages A through G

Vintage	Switch	MS	ST, STE 21A, 21	N, NT, RT, 51, 61	XN, XT, 71, 81
QPC471A	SW2	not applicable	not applicable	on	off
QPC471B through G	SW1 SW2 Jumper F38 Jumper G38	on on TP9-TP10 TP12-TP13	on off TP8-TP9 TP11-TP12	on off TP8-TP9 TP11-TP12	off off TP8-TP9 TP11-TP12

#### QPC471 vintage H

System	SW1				SW2				SW4			
	1	2	3	4	1	2	3	4	1	2	3	4
ST, STE, 21A, 21, 21E	on	on	on	on	off							
MS, SN	on	off	off	off	off							
RT, N, NT, 51, 61	on	on	on	on	off	off	off	off	off	on	*	*
XN, XT, 71, 81	off	on	*	*								
Cable length between the J3 faceplate connectors:												
0-4.3 m (0-14 ft)											off	off
4.6-6.1 m (15-20 ft)											off	on
6.4-10.1 m (21-33 ft)											on	off
10.4-15.2 m (34-50 ft)											on	on
* If there is only one clock controller card in the system, set to OFF. If there are two clock controller cards, set to match the cable length between the J3 faceplate connectors. Determine the total cable length (no single cable can exceed 25 ft) between the J3 connectors. Both cards must have the same setting.												

### QPC472 Digital Trunk Interface Card

Switch setting (transmission equalization)	To repeatered facility	To cross-connect point
5 on	0-45 m (0-150 ft)	0-15 m (0-55 ft)
2, 4, 6 on	45-135 m (150-450 ft)	15-100 m (56-355 ft)
1, 3, 7 on	135-225 m (450-750 ft)	100-200 m (355-655 ft)

**Note:** All switch positions should be OFF except those shown under the switch setting column.

### QPC478 128 K RAM Card

System type	Memory page	Range	F11 switch (memory configuration)							
			1	2	3	4	5	6	7	8
M, MS, S    Module 0	0	0-32 K	on	on	off	off	off	off	off	on
	1	0-64 K								
	2	32-64 K								
M, MS, S    Module 1	5	0-64 K	on	on	off	on	off	off	off	on
	6	0-64 K								

**Note:** Module 1 can be either a QPC478 RAM or a QPC423 RAM.

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**QPC479 128 K RAM Card**

System type	Memory page	Range	F11 switch (memory configuration)							
			1	2	3	4	5	6	7	8
LE, N	0	0-64 K	on	off	off	off	off	off	off	on
	1	0-64 K								
LE, N	5	0-64 K	on	off	on	off	off	off	off	on
	6	0-64 K								
LE, N	2	0-64 K	on	off	on	on	off	off	off	on
	6	0-64 K								
LE, N	0	0-32 K	on	off	off	on	off	off	off	on
	1	0-32 K								
	2	0-64 K								

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**QPC503 Common Equipment Backplane**

Application	Pin connections		
	P1	P5	P6
Main CE shelf without remote CE shelf	1-8 3-6	1-8 3-6	1-8 4-5
Main CE shelf with remote CE shelf	1-8 4-5	2-7 4-5	1-8 4-5
Remote CE shelf	1-8 3-6	2-7 4-5	1-8 4-5
<b>Note 1:</b> The option plugs P1, P5, and P6 are 8-pin sockets. To set the required option, connect the pins indicated with the metal straps provided.			
<b>Note 2:</b> Option plugs P2, P3, and P4 are set during manufacture and should not be changed.			

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**QPC513 Enhanced Serial Data Interface Card**

Program socket selection				Switch S2-Address selection								
Option	Port	Socket number		Device number	Style A				Style B			
					1	2	3	4	1	2	3	4
DTE (terminal)	1	UA10	UA12	0-1	off	off	off	*	off	off	off	*
	2	UA17	UA19	2-3	on	off	off	*	off	off	on	*
DCE (modem)	1	UA9	UA11	4-5	off	on	off	*	off	on	off	*
	2	UA16	UA18	6-7	on	on	off	*	off	on	on	*
RS-232-C interface	1	UB9	UB11	8-9	off	off	on	*	on	off	off	*
	2	UB16	UB18	10-11	on	off	on	*	on	off	on	*
High-speed interface	1	UB10	UB12	12-13	off	on	on	*	on	on	off	*
	2	UB17	UB19	14-15	on	on	on	*	on	on	on	*

\* ON defaults to synchronous mode. OFF defaults to asynchronous mode. (Support for asynchronous mode is not design intent. However, before X11 release 18 asynchronous mode may work in some applications. With Release 18 and later, asynchronous mode will not function.)

**QPC525, QPC526, QPC527 CO Trunk Card**

Application	Switches at E29/E9/A29/A11 Units 0/1/2/3							
	1	2	3	4	5	6	7	8
0 $\Omega$ outpulsing	on	off						off
Standard outpulsing	off	on						off
Ground start			on	on				off
Loop start			off	off				off
Loop start, automatic guard detection			off	on				off
QPC524 not installed					on			off
QPC524 installed					off			off
Battery on M operation						off	on	off
Ground on M operation						on	off	off
Second pair M&MM						off	off	off

**QPC550 Direct Inward Dial Trunk Card**

The next five tables give the option settings for the QPC550 DID Trunk Card.

**QPC550 vintages A and B-real/complex balance impedance selection**

Device location	Device designation	Switch number	Unit number	Impedance type	
				Real	Complex
F31	S4.0	1	0	on	off
F24	S4.1	1	1	on	off
F16	S4.2	1	2	on	off
F11	S4.3	1	3	on	off

**QPC550 vintage A-600/900 Ohm impedance selection**

Device location	Device designation	Unit number	Switch number								Impedance (ohms)
			1	2	3	4	5	6	7	8	
G29(a)	S3.0	0	off	on	on	off	off	on	on	off	600
			on	off	off	on	on	off	off	on	900
G29(b)	S3.1	1	off	on	on	off	off	on	on	off	600
			on	off	off	on	on	off	off	on	900
G8(a)	S3.2	2	off	on	on	off	off	on	on	off	600
			on	off	off	on	on	off	off	on	900
G8(b)	S3.3	3	off	on	on	off	off	on	on	off	600
			on	off	off	on	on	off	off	on	900

**QPC550 vintage A-software/hardware control for 2dB pad**

Device location	Device designation	Unit number	Switch number	S/W	2 dB pad control H/W	
					(pad in)	(pad out)
F38	S1	0	1	off	off	on
			2	on	off	off
			3	on	off	off
			4	off	off	on
F1	S2	0	1	off	off	on
			2	on	off	off
			3	on	off	off
			4	off	off	on

**QPC550 vintage B-attenuation level control**

Device location	Device designation	Unit number	Switch number								2 dB option
			1	2	3	4	5	6	7	8	
D39	S2.0/1	0	on		on		on		on		on
		1		off		off		off		off	
D1	S2.2/3	2	on		on		on		on		on
		3		off		off		off		off	

**QPC550 vintage B-hardware control for 2dB pad**

Device location	Device designation	Unit number	Switch number	2 dB pad control H/W	
				(pad in)	(pad out)
F38	S1.0/1	1	1	on	off
			2	off	off
			3	off	off
			4	on	off
F1	S1.2/3	3	1	on	off
			2	off	off
			3	off	off
			4	on	off
		2	1	on	off
			2	off	off
			3	off	off
			4	on	off

## QPC551 Radio Paging Trunk Card

<b>Signal duration on the 18-pair faceplate</b>			<b>S1 (F33)</b>									
	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>						
Binary value (.1 second)	1	2	4	8	16	32						
<p><b>Note:</b> This switch determines the length of time a signal stays on the 18-pair data bus. The time is set in binary to the nearest tenth second. For example, to keep data on the bus for 5 seconds, the switch settings total 50 by closing S1.2, S1.5, and S1.6.</p>												
<b>Signal duration and pause time</b>			<b>S2 (G33)</b>									
	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>					
Binary value (.1 second)	1	2	4	8	16	32	64					
<p><b>Note:</b> This switch determines the time data must stay on the 18-pair data bus plus the pause time between the removal of data and the reappearance of subsequent data. The time is set in binary to the nearest tenth second. For example, to keep data on the bus for 5 seconds and have a pause time of 3.2 seconds, the switch settings should total 82 by closing S2.2, S2.5, and S2.7.</p>												
<b>Application</b>	<b>S3 (E2) S4 (F2) Unit 0, Unit 1</b>											
	<b>1</b>	<b>2</b>	<b>Address</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>Address</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>
Paging			0	off	off	off	off	8	off	off	off	on
single	on		1	on	off	off	off	9	on	off	off	on
multiple	off		2	off	on	off	off	10	off	on	off	on
			3	on	on	off	off	11	on	on	off	on
Timer*			4	on	off	on	off	12	on	off	on	on
enabled		on	5	on	on	on	off	13	on	off	on	on
disabled		off	6	off	on	on	off	14	off	on	on	on
			7	on	on	on	off	15	on	on	on	on
<p>* When enabled, this switch prevents a signal from being sent from a paging unit until 5 seconds have elapsed since the beginning of the previous signal on that same unit.</p>												
	<b>S5 (E38) Unit 0</b>						<b>S6 (D1) Unit 1</b>					
Impedance termination							1					
Real							on					
Complex							off					

**QPC574, QPC595 Digitone Receiver Cards**

	Location	Connection
12 DTMF tones	E9	Center to E3
16 DTMF tones	E9	Center to E2

**QPC577, QPC596 Digitone Receiver Daughterboards**

16/12 tone options jumper	Jumper at P1
16 tone (4 x 4)	connect pins 1 and 2
12 tone (3 x 4)	connect pins 2 and 3

**Note:** When a DTR daughterboard is installed, check YES on the faceplate of the QPC659 Dual Loop Peripheral Buffer.

**QPC584 Mass Storage Interface Card**

Options	Switch S3							
	1	2	3	4	5	6	7	8
5.25-inch disk drives only	on	off	off	off	off	off	off	off
5.25-inch disk drives and 5.25-inch hard drive	on	off	off	on	off	off*	off	off
3.5-inch disk drives only	on	off	off	off	on	off	**	off
3.5-inch disk drives and 3.5-inch hard drive	on	off	off	on	on	off	**	off

**Note:** Minimum vintage E is required for 3.5 inch drives. Minimum vintage L is required for X11 release 18.

\* When a QMM38 MSU is replaced, set switch 6 to ON before the faulty QMM38 is powered down so the disk head will retract (shipping mode). After the replacement MSU is installed, set switch 6 to OFF.

\*\* For 4 Mbyte set to ON.  
For 2 Mbyte set to OFF.

**QPC650, QPC651 Music Trunk Cards**

Channel	Switch location	Switch settings*			
		1	2	3	4
0	F31	x		x	
1	F31		x		x
2	F9	x		x	
3	F9		x		x
4	C31	x		x	
5	C31		x		x
6	C9	x		x	
7	C9		x		x

\* Set x to OFF if the impedance of announcement source is 2 or 4  $\Omega$ .  
Set x to ON if the impedance of the announcement source is 600  $\Omega$ .

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**QPC659 Dual Loop Peripheral Buffer Card**

Options	Switch settings								
	U25				U3	U9	U10	U14	U22
	1	2	3	4	(all)	(all)	(all)	(all)	(all)
± 10 V monitor disables circuit enables circuit	off on								
Ring select 20 Hz and 25 Hz 50 Hz		off on							
Quad double density quad density			off on						
Loop dual single				on off	off on	off on	off on	on off	off on

### QPC672 512 K Memory Card

System type	Memory page	Range	F11 switch (memory configuration)							
			1	2	3	4	5	6	7	8
N, XN, LE, VLE, XL, N(QCA96) and XN(QCA97)	0	0-64 K	off	off	on	off	off	off	off	on
	1	0-64 K								
	2	8-64 K								
	4	0-64 K								
	5	0-64 K								
	6	0-64 K								
	8	0-64 K								
	9	0-64 K								
	<b>Note:</b> Switch 8 must be OFF for non-CE shelf.									

### QPC673 512 K Memory Card

System type	Memory page	Range	F11 switch (memory configuration)							
			1	2	3	4	5	6	7	8
MS, S, ST	0	0-64 K	off	off	on	off	off	off	off	on
	1	0-64 K								
	2	8-64 K								
	4	0-64 K								
	5	0-64 K								
	6	0-64 K								
	8	0-64 K								
	9	0-64 K								
	<b>Note:</b> Switch 8 must be OFF for non-CE shelf.									

## QPC674 256 K Memory Card

System type	Memory page	Range	F11 switch (memory configuration)							
			1	2	3	4	5	6	7	8
MS, S	0	0-32 K	off	off	off	off	off	off	off	on
	1	0-64 K								
	2	32-64 K								
	5	0-64 K								
	6	0-64 K								
<p><b>Note 1:</b> This card responds to both module 0 and module 1 in existing software.</p> <p><b>Note 2:</b> No software change is required if configuration for two 128 K modules was used.</p>										

**QPC687 CPU Card**

Address selection B1 switch					Speed selection B1 switch *							Output device	
Device number	1	2	3	4	Baud rate	5	6	7	8	9	10		
0	on	on	on	on	300	off	off	on	off	on	off	QPC687A Port	Plug location
1	off	on	on	on	600	off	on	off	on	on	off		
2	on	off	on	on	1200	on	off	on	on	on	off	Modem	A7
3	off	off	on	on	1800	off	on	on	on	on	off	EIA data terminal	A5
4	on	on	off	on	2400	off	off	on	off	off	on		
5	off	on	off	on	4800	off	on	off	on	off	on	QPC687B Port	Switch location
6	on	off	off	on	9600	on	off	on	on	off	on		
7	off	off	off	on									A23    B23
8	on	on	on	off									S1    S2
9	off	on	on	off								Modem	All on    All off
10	on	off	on	off								EIA data terminal	All off    All on
11	off	off	on	off									
12	on	on	off	off									
13	off	on	off	off									
14	on	off	off	off									
15	off	off	off	off									

\* On vintage B, the option plug has been replaced with two switches (S1 and S2) in locations A23 and B23.

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**QPC699 Common Equipment Backplane**

Application	Pin connections		
	P1	P5	P6
Network slot	1-8 3-6	1-8 3-6	1-8 4-5
Segmented bus extender-main shelf	1-8 4-5	2-7 4-5	1-8 4-5
Segmented bus extender-remote shelf	1-8 3-6 4-5	2-7 4-5	1-8

**Note 1:** The option plugs P1, P5, and P6 are 8-pin sockets. To set the required option, connect the pins indicated with the metal straps provided.

**Note 2:** Option plugs P2, P3, and P4 are set during manufacture and should not be changed.

## QPC720 Primary Rate Interface Card

Switch S2 settings	To repeatered facility	To cross-connect point
5 on	0-45 m (0-150 ft)	0-30 m (0-100 ft)
2, 4, 6 on	46-135 m (151-450 ft)	31-100 m (101-355 ft)
1, 3, 7 on	136-225 m (451-750 ft)	101-200 m (356-655 ft)
<b>Switch 3 option for DTI with ESF</b>		
SW3-1    on = extended superframe format (ESF) off = superframe format (SF)		
<p><b>Note 1:</b> All positions on S2 (location B22) are OFF except as shown under the column labeled Switch S2 settings.</p> <p><b>Note 2:</b> The switch 3 option for DTI with ESF applies to only X11 releases 16, 17, and 18. All other positions on the 8-pole SW3 (location E37) should be OFF.</p> <p><b>Note 3:</b> Prior to X11 release 19 (releases 16, 17, and 18), you must set the framing format as ESF with the DLOP prompt in LD17 before you set SW3-1 on the card for the DTI with ESF option.</p> <p><b>Note 4:</b> Beginning with X11 release 19, framing format, line encoding, and method of yellow alarm are selectable for both DTI and PRI in LD17 with the DLOP, LCMT, and YALM prompts. All SW3 switch positions should be OFF.</p>		

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**QPC742 Floppy Disk Interface Card**

Options	SW3							
	1	2	3	4	5	6	7	8
5.25-inch disk drives	on	off						
3.5-inch disk drives	on	off	off	off	on	off	*	**

**Note:** Minimum vintage D is required for 3.5 inch drives. Minimum vintage F is required for X11 release 18.

\* For 4 Mbyte set to ON.  
For 2 Mbyte set to OFF.

\*\* For STE or 21E, set to ON when the NTND01 Integrated CPU/Memory (ICM) Card is installed.  
For all other systems, set to OFF.

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**QPC757 D-Channel Interface Card**

Vintage A socket selection				Address selection				
Option	Port	Socket number		Device number	S2 switch			
					1	2	3	4
Data terminal equipment (DTE)	0	UA10	UA12	0-1	off	off	off	off
	1	UA17	UA19	2-3	off	off	on	off
Data communication equipment (DCE)	0	UA9	UA11	4-5	off	on	off	off
	1	UA16	UA18	6-7	off	on	on	off
RS-232-C interface	0	UB9	UB11	8-9	on	off	off	off
	1	UB16	UB18	10-11	on	off	on	off
High-speed interface	0	UB10	UB12	12-13	on	on	off	off
	1	UB17	UB19	14-15	on	on	on	off
Vintage C socket selection				Address selection				
DTE	0	U11	U9	0-1	off	off	off	off
	1	U5	U3	2-3	off	off	on	off
DCE	0	U12	U10	4-5	off	on	off	off
	1	U6	U4	6-7	off	on	on	off
RS-232-C interface	0	U31	U29	8-9	on	off	off	off
	1	U25	U23	10-11	on	off	on	off
High-speed interface	0	U30	U28	12-13	on	on	off	off
	1	U24	U22	14-15	on	on	on	on

### QPC775 Clock Controller Card

	SW2				SW3				SW4			
	1	2	3	4	1	2	3	4	1	2	3	4
XN, XT, 71, 81	off	on	on	on	on							
N, NT, RT, ST*, 21*, 51, 61	on	on	on	on	off	off	off	off	on	on	on	on
MS, SN	on	off	off	off	off							

\* Also applies to STE, 21A, and 21E.

### QPC841 4-Port Serial Data Interface Card

The next four tables list option settings for the QPC841 4-Port SDI Card.

#### QPC841 port 1 and 2 address selection

Device number		SW14							
Port 1	Port 2	1	2	3	4	5	6	7	8
0	1	off	off	off	off	off	on	on	on
2	3	off	off	off	off	off	on	on	off
4	5	off	off	off	off	off	on	off	on
6	7	off	off	off	off	off	on	off	off
8	9	off	off	off	off	off	off	on	on
10	11	off	off	off	off	off	off	on	off
12	13	off	off	off	off	off	off	off	on
14	15	off	off	off	off	off	off	off	off

**Note 1:** On SW16, positions 1, 2, 3, and 4 must be OFF.

**Note 2:** To avoid address conflicts, SW 14 and SW15 can never have identical setting.

**Note 3:** To disable ports 1 and 2, set SW 14 position 1 to ON.

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**QPC841 port 3 and 4 address selection**

Device number		SW15							
Port 3	Port 4	1	2	3	4	5	6	7	8
0	1	off	off	off	off	off	on	on	on
2	3	off	off	off	off	off	on	on	off
4	5	off	off	off	off	off	on	off	on
6	7	off	off	off	off	off	on	off	off
8	9	off	off	off	off	off	off	on	on
10	11	off	off	off	off	off	off	on	off
12	13	off	off	off	off	off	off	off	on
14	15	off	off	off	off	off	off	off	off

**Note 1:** On SW16, positions 1, 2, 3, and 4 must be OFF.  
**Note 2:** To avoid address conflicts, SW 14 and SW 15 can never have identical setting.  
**Note 3:** To disable ports 3 and 4, set SW 15 position 1 to ON.

**QPC841 baud rate**

Baud rate	Port 1 SW10				Port 2 SW11				Port 3 SW12				Port 4 SW13			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
150	off	off	on	on												
300	off	on	off	on												
600	off	off	off	on												
1200	off	on	on	off												
2400	off	off	on	off												
4800	off	on	off	off												
9600	off	off	off	off												

**QPC841 DTE or DCE selection**

Mode	Port 1-SW8						Port 1-SW9					
	1	2	3	4	5	6	1	2	3	4	5	6
DTE (terminal)	on	on	on	on	on	on	off	off	off	off	off	off
DCE (modem)	off	off	off	off	off	off	on	on	on	on	on	on
	Port 2-SW6						Port 2-SW7					
DTE	on	on	on	on	on	on	off	off	off	off	off	off
DCE	off	off	off	off	off	off	on	on	on	on	on	on
	Port 3-SW4						Port 3-SW5					
DTE	on	on	on	on	on	on	off	off	off	off	off	off
DCE	off	off	off	off	off	off	on	on	on	on	on	on
	Port 4-SW2						Port 4-SW3					
DTE	on	on	on	on	on	on	off	off	off	off	off	off
DCE	off	off	off	off	off	off	on	on	on	on	on	on



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## Sample settings for NT8D22 System Monitors

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This chapter gives examples of system monitor option settings for basic system configurations. These configurations are only samples; you may have a variety of complex configurations. See NT8D22 System Monitor on page 48 for detailed information.

### Meridian 1 systems

The master system monitor must be configured in the CPU column. In options 71 and 81, the master must be configured in the column containing CPU 0 and slave unit 1 must be configured in the column containing CPU 1. Any other system monitors are slaves.

**Table 3**  
**Master system monitor switch settings**

Switch	1	2	3	4	5	6	7	8
SW1	off	off	*	on**	off	off	off	off
SW2	on	off	(For 3-8, see NT8D22 settings for total number of slaves-SW2 on master in option settings)					
SW3	on	on	on	on				
* Set to ON for DC-powered systems, OFF for AC-powered systems.								
** PFTU enabled due to over-temperature in column with master system monitor.								

**Table 4**  
**Slave system monitor switch settings**

Switch	1	2	3	4	5	6	7	8
SW1	off	off	*	**	off	off	off	off
SW2	off	off	(For 3-8, see NT8D22 slave address-SW2 on slave in option settings)					
SW3	off	off	off	off				
<p>* Set to ON for DC-powered systems, OFF for AC-powered systems.</p> <p>** Set to ON to enable PFTU during over-temperature condition.                      Set to OFF to disable PFTU during over-temperature condition.</p>								

### ST, STE, and RT systems with Meridian 1 upgrades

The following tables give examples of option settings for:

- ST, STE, or RT with peripheral equipment (PE) upgrade
- ST, STE, or RT with common equipment (CE) upgrade

**ST, STE, or RT with PE upgrade**

Configure the system monitor in one PE column as the master. Configure any other system monitors as slaves. If there are CE *and* PE modules, use the option settings for CE upgrades.

**Table 5**  
**Master system monitor switch settings**

Switch	1	2	3	4	5	6	7	8
SW1	on	off	*	**	on	on	on	on
SW2	on	on	(For 3-8, see NT8D22 settings for total number of slaves-SW2 on master in option settings)					
SW3	on	on	on	on				
* Set to ON for DC-powered systems, OFF for AC-powered systems. ** Set to ON to enable PFTU during over-temperature condition. Set to OFF to disable PFTU during over-temperature condition.								

**Table 6**  
**Slave system monitor switch settings**

Switch	1	2	3	4	5	6	7	8
SW1	on	off	*	**	on	on	on	on
SW2	off	on	(For 3-8, see NT8D22 slave address-SW2 on slave in option settings)					
SW3	off	off	off	off				
* Set to ON for DC-powered systems, OFF for AC-powered systems. ** Set to ON to enable PFTU during over-temperature condition. Set to OFF to disable PFTU during over-temperature condition.								

## ST, STE, RT with CE upgrade

Configure the system monitor in the CPU column as the master. Configure any other system monitors as slaves.

**Table 7**  
**Master system monitor switch settings**

Switch	1	2	3	4	5	6	7	8
SW1	on	on	*	on**	on	on	off	on
SW2	on	on	(For 3-8, see NT8D22 settings for total number of slaves-SW2 on master in option settings)					
SW3	on	on	on	on				
* Set to ON for DC-powered systems, OFF for AC-powered systems.								
** PFTU enabled due to over-temperature in column with master system monitor.								

**Table 8**  
**Slave system monitor switch settings**

Switch	1	2	3	4	5	6	7	8
SW1	on	off	*	**	on	on	off	on
SW2	off	on	(For 3-8, see NT8D22 slave address-SW2 on slave in option settings)					
SW3	off	off	off	off				
* Set to ON for DC-powered systems, OFF for AC-powered systems.								
** Set to ON to enable PFTU during over-temperature condition. Set to OFF to disable PFTU during over-temperature condition.								

## NT and XT systems with Meridian 1 upgrades

The following tables give examples of option settings for

- NT or XT with PE upgrade
- NT or XT with CE upgrade

### NT or XT with PE upgrade

Configure the system monitor in one PE column as the master. Configure any other system monitors as slaves. If there are CE *and* PE modules, use the option settings for CE upgrades.

**Table 9**  
**Master system monitor switch settings**

Switch	1	2	3	4	5	6	7	8
SW1	on	off	*	**	off	off	on	off
SW2	on	off	(For 3-8, see NT8D22 settings for total number of slaves-SW2 on master in option settings)					
SW3	on	on	on	on				
<p>* Set to ON for DC-powered systems, OFF for AC-powered systems.</p> <p>** Set to ON to enable PFTU during over-temperature condition. Set to OFF to disable PFTU during over-temperature condition.</p>								

**Table 10**  
**Slave system monitor switch settings**

Switch	1	2	3	4	5	6	7	8
SW1	on	off	*	**	off	off	on	off
SW2	off	off	(For 3-8, see NT8D22 slave address-SW2 on slave in option settings)					
SW3	off	off	off	off				
<p>* Set to ON for DC-powered systems, OFF for AC-powered systems.</p> <p>** Set to ON to enable PFTU during over-temperature condition. Set to OFF to disable PFTU during over-temperature condition.</p>								

### NT or XT with CE upgrade

Configure the master system monitor in the column containing CPU 0.  
Configure the system monitor in the column containing CPU 1 as slave unit 1.  
Configure any other system monitors as slaves.

**Table 11**  
**Master system monitor switch settings**

Switch	1	2	3	4	5	6	7	8
SW1	on	on	*	on**	off	off	off	on
SW2	on	off	(For 3-8, see NT8D22 settings for total number of slaves-SW2 on master in option settings)					
SW3	on	on	on	on				
<p>* Set to ON for DC-powered systems, off for AC-powered systems.</p> <p>** PFTU enabled due to over-temperature in column with master system monitor.</p>								

**Table 12**  
**Slave system monitor switch settings**

Switch	1	2	3	4	5	6	7	8
SW1	on	off	*	**	off	off	off	on
SW2	off	off	(For 3-8, see NT8D22 slave address-SW2 on slave in option settings)					
SW3	off	off	off	off				
<p>* Set to ON for DC-powered systems, off for AC-powered systems.</p> <p>** Set to ON to enable PFTU during over-temperature condition.            Set to OFF to disable PFTU during over-temperature condition.</p>								

SL-1

## **Circuit card installation and testing**

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