



Dual Nx 56/64 Module User Manual

Part Number 1200311L1




901 Explorer Boulevard
P.O. Box 140000
Huntsville, AL 35814-4000
(256) 963-8000

© 2000 ADTRAN, Inc.
All Rights Reserved.
Printed in U.S.A.

Federal Communications Commission (FCC) Radio Frequency Interference Statement

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio frequencies. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Shielded cables must be used with this unit to ensure compliance with Class A FCC limits.

 CAUTION	<i>Change or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.</i>
--	--

Warranty and Customer Service

ADTRAN will replace or repair this product within five years from the date of shipment if the product does not meet its published specification, or if it fails while in service. For detailed warranty, repair, and return information, refer to the ADTRAN Equipment Warranty and Repair and Return Policy Procedure (see the last page of this manual).

A return material authorization (RMA) is required prior to returning equipment to ADTRAN.

For service, RMA requests, or more information, see the last page of this manual for the toll-free contact number.

Limited Product Warranty

ADTRAN warrants that for five (5) years from the date of shipment to Customer, all products manufactured by ADTRAN will be free from defects in materials and workmanship. ADTRAN also warrants that products will conform to the applicable specifications and drawings for such products, as contained in the Product Manual or in ADTRAN's internal specifications and drawings for such products (which may or may not be reflected in the Product Manual). This warranty only applies if Customer gives ADTRAN written notice of defects during the warranty period. Upon such notice, ADTRAN will, at its option, either repair or replace the defective item. If ADTRAN is unable, in a reasonable time, to repair or replace any equipment to a condition as warranted, Customer is entitled to a full refund of the purchase price upon return of the equipment to ADTRAN. This warranty applies only to the original purchaser and is not transferable without ADTRAN's express written permission. This warranty becomes null and void if Customer modifies or alters the equipment in any way, other than as specifically authorized by ADTRAN.

EXCEPT FOR THE LIMITED WARRANTY DESCRIBED ABOVE, THE FOREGOING CONSTITUTES THE SOLE AND EXCLUSIVE REMEDY OF THE CUSTOMER AND THE EXCLUSIVE LIABILITY OF ADTRAN AND IS IN LIEU OF ANY AND ALL OTHER WARRANTIES (EXPRESSED OR IMPLIED). ADTRAN SPECIFICALLY DISCLAIMS ALL OTHER WARRANTIES, INCLUDING (WITHOUT LIMITATION), ALL WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. SOME STATES DO NOT ALLOW THE EXCLUSION OF IMPLIED WARRANTIES, SO THIS EXCLUSION MAY NOT APPLY TO CUSTOMER.

In no event will ADTRAN or its suppliers be liable to Customer for any incidental, special, punitive, exemplary or consequential damages experienced by either Customer or a third party (including, but not limited to, loss of data or information, loss of profits, or loss of use). ADTRAN is not liable for damages for any cause whatsoever (whether based in contract, tort, or otherwise) in excess of the amount paid for the item. Some states do not allow the limitation or exclusion of liability for incidental or consequential damages, so the above limitation or exclusion may not apply to Customer.

Table of Contents

List of Figures	ix
List of Tables	xi
Chapter 1 Introduction	1-1
Dual Nx 56/64 Module overview	1-1
Features	1-1
Interfaces	1-1
Module Specifications	1-2
DTE Interface.....	1-2
Rates	1-2
Tests	1-2
Test Pattern.....	1-2
1s Density Protection	1-2
Connectors.....	1-2
Physical Description	1-2
Chapter 2 Installation	2-1
Unpack and Inspect	2-1
ADTRAN Shipments Include	2-1
Customer Provides	2-1
Installing the Dual Nx 56/64 Module.....	2-1
Wiring	2-3
Power-Up Testing and Initialization.....	2-4
Chapter 3 Operation	3-1
Overview	3-1
Terminal Menu Structure.....	3-2
Modules Menu	3-4
Slr	3-4
Type	3-4
Menu	3-4
Alarm	3-4
Test	3-4
State	3-4
Status	3-5
Online	3-5
No Response	3-5
Empty	3-5
Offline	3-5
Rev	3-5
Dual Nx 56/64 Module Menu Options	3-5

Info	3-6
Part Number	3-6
Serial Number	3-6
Assembly Revision	3-6
Alarm Status	3-6
Port	3-6
Alarms	3-6
SLIP	3-6
PLL	3-6
ZERO	3-6
NO EXT CLK	3-6
PKT EP ALM	3-6
DTE Status	3-6
Port	3-6
DTE Status	3-7
RTS	3-7
CTS	3-7
DTR	3-7
DSR	3-7
DCD	3-7
RI	3-7
TD	3-7
RD	3-7
EC	3-7
Data Rate	3-7
Inband Stats	3-7
Port	3-7
Rx Frames	3-7
Tx Frames	3-7
Rx Bytes	3-7
Tx Bytes	3-7
Reset Stats	3-7
PLL/Fifo	3-8
Port	3-8
PLL/Fifo	3-8
Lock	3-8
RXE	3-8
RXF	3-8
TXE	3-8
TXF	3-8
Configuration	3-8
Prt	3-8
Name	3-8
Clk +/-	3-8
Data	3-8
CTS	3-8
DCD	3-8
DSR	3-9
DTR	3-9
(Zero Inhibit)	3-9
Inband	3-9
Send Leads	3-9
Dial	3-10
Prt	3-10

Mode	3-10
Dial	3-10
Src Id	3-10
Number	3-10
Test	3-10
Loopback	3-10
No Loopback	3-10
Local Loopback	3-10
Remote Loopback	3-10
Loopback Status	3-11
511	3-11
Off	3-11
On	3-11
511 Result	3-11
Sync:Y	3-11
Sync:N	3-11
*	3-11
ES	3-11
Clr	3-11
Inject	3-11
ATLAS 550 Features Used with the Dual Nx 56/64 Module	3-12
Factory Restore	3-12
Run Self Test	3-12
Mapping	3-12
Appendix A Dial Plan Interface Configuration	A-1
Index	Index-1

List of Figures

Figure 1-1. Dual Nx 56/64 Module	1-2
Figure 2-1. Installing the Dual Nx 56/64 Module	2-2
Figure 3-1. Modules Menu.....	3-2
Figure 3-2. Modules Menu Tree.....	3-3
Figure 3-3. Dual Nx 56/64 Module Menu Options.....	3-5
Figure A-1. Dial Plan Menus	A-1

List of Tables

Table 2-1.	V.35 Winchester Pin Connection.....	2-3
Table 3-1.	Normal Mode Operation (<i>conditions which cause the port control signal to be deactivated</i>)...	3-9

DUAL NX 56/64 MODULE OVERVIEW

The Dual Nx (pronounced “N-by”) 56/64 Module provides two synchronous V.35 DTE ports, each of which can operate at any rate that is a multiple of 56 or 64 kbps, up to 2.048 Mbps. The Dual Nx 56/64 Module can be installed in any option slot of the ATLAS 550 chassis.

Features

- Operates using 1 to 32 DS0s on each port
- Includes an elastic store for absorption of rate variations
- Uses any port as a timing source for the entire system
- Outputs a 50 percent duty-cycle output clock at all rates
- Generates and responds to V.54 looping codes
- Generates and checks 511 test patterns
- Uses bidirectional loopbacks:
 - Port (toward the network)
 - DTE (toward the DTE)

**NOTE**

Loopbacks can be invoked locally or remotely (V.54).

Interfaces

- Two V.35 Winchester connectors

Module Specifications

DTE Interface

- CCITT V.35 Synchronous

Rates

- 56 kbps to 2.048 Mbps in 56k or 64k steps

Tests

- Local Loopback (Bilateral)
- Remote Loopback (V.54)
- Self-Test

Test Pattern

- 511 with errored seconds display and error inject capability

1s Density Protection

- Forces 1s to network after one second of consecutive zeros from DTE

Connectors

- Winchester female connectors

Physical Description

The Dual Nx 56/64 Module can plug into any available option slot in the ATLAS 550 chassis (see Figure 1-1).

NOTE *The four Option slots (labeled 1 — 4) only accept Option Modules, and the Network Interface slots (labeled Network 1 and Network 2) only accept Network Interface Modules. (See the ATLAS 550 in Figure 2-1 on page 2-2.)*

The module has a label over each connector referring to the port on the card.

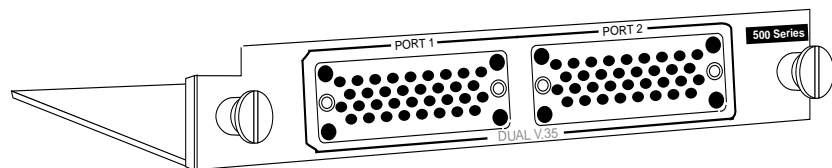


Figure 1-1. Dual Nx 56/64 Module

UNPACK AND INSPECT

Carefully inspect the option module for any shipping damage. If damage is suspected, file a claim immediately with the carrier and contact ADTRAN Technical Support. (See the last page of this manual for information on contacting Technical Support.) If possible, keep the original shipping container for use in returning the option module for repair or for verification of damage during shipment.

ADTRAN Shipments Include

- The Dual Nx 56/64 Module
- The *Dual Nx 56/64 Module User Manual* (to be inserted into the appropriate section of the *ATLAS 550 User Manual*)

Customer Provides

- DTE cables

INSTALLING THE DUAL NX 56/64 MODULE

Figure 2-1 on page 2-2 shows the action required for proper placement of the Dual Nx 56/64 Module. To install the option module, perform the steps as listed in the step/action table on page 2-2.



The four Option slots (labeled 1 — 4) only accept Option Modules, and the Network Interface slots (labeled Network 1 and Network 2) only accept Network Interface Modules. (See the ATLAS 550 in Figure 2-1 on page 2-2.)

Instructions for Installing the Dual Nx 56/64 Module	
Step	Action
1	Remove the cover plate from the appropriate option slot.
2	Slide the Dual Nx 56/64 Module into the ATLAS 550 chassis until the module is firmly seated in the ATLAS 550 unit.
3	Fasten the thumbscrews at both edges of the option module. Tighten with a screwdriver.
4	Connect the cables to the associated device(s).
5	Complete the installation of any remaining modules into the Base Unit, as specified in the <i>Installation</i> chapter of the <i>ATLAS 550 User Manual</i> .

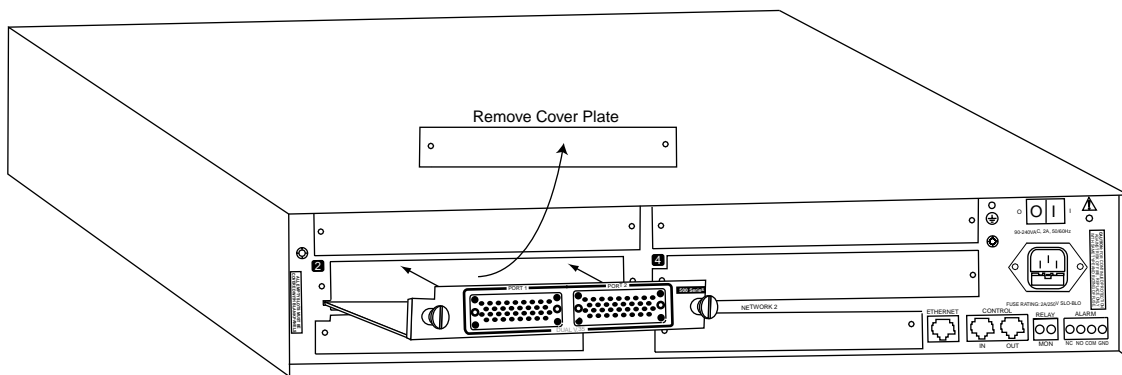


Figure 2-1. Installing the Dual Nx 56/64 Module

WARNING Option modules are intended to be serviced by qualified service personnel only.

WIRING

Each port of the Dual Nx 56/64 Module has a V.35 Winchester-style connection as defined in Table 2-1.

Table 2-1. V.35 Winchester Pin Connection

Pin	CCITT	DESCRIPTION
A	101	Protective ground (PG)
B	102	Signal ground (SG)
C	105	Request to send (RTS) from DTE
D	106	Clear to send (CTS) to DTE
E	107	Data set ready (DSR) to DTE
F	109	Received line signal detector (DCD) to DTE
H	-	Data terminal ready (DTR) from DTE*
J	-	Ring indicator (RI)*
L	-	Local loopback (LL) from DTE*
N	-	Remote loopback (RL) from loopback
R	104	Received data (RD-A) to DTE
T	104	Received data (RD-B) to DTE
V	115	RX clock (RC-A) to DTE
X	115	RX clock (RC-B) to DTE
P	103	Transmitted data (TD-A) from DTE
S	103	Transmitted data (TD-B) from DTE
Y	114	TX clock (TC-A) to DTE
AA	114	TX clock (TC-B) to DTE
U	113	External TX clock (ETC-A) from DTE
W	113	External TX clock (ETC-B) from DTE
NN	-	Test mode (TM) to DTE

*Ignored by Dual Nx 56/64 Module

POWER-UP TESTING AND INITIALIZATION

The Dual Nx 56/64 Module executes a self-test during the power-up sequence, as described in the *ATLAS 550 User Manual*. Upon power-up, any previously configured setting for the Dual Nx 56/64 Module is automatically restored.

If the power-up self-test is not successful, refer to the *Troubleshooting* section of the *ATLAS 550 User Manual* to diagnose and correct the problem.

Return to Chapter 2 (*Installation*) of the *ATLAS 550 User Manual* to continue system set-up.

OVERVIEW

The Dual Nx 56/64 Module can be configured and controlled as follows:

- Terminal menus - used for detailed configuration, status, and diagnostics
- SNMP, used primarily for reporting alarm conditions and system status

The terminal menu is accessed using either a VT-100 terminal attached to the ATLAS 550 Base Unit's control port, or through a Telnet session established through the Base Unit's Ethernet port. Detailed instructions on the operation of each of the supported management approaches are presented in the *ATLAS 550 User Manual*.

**NOTE**

*To edit items in the terminal menus, you must have the appropriate password level. Each menu description in this section indicates the password level required for write and read access. See the section **Access Passwords** in the **ATLAS 550 User Manual** for detailed information on working with passwords. Security level 1 users can view and edit every available field. Security level 5 users can view any field but cannot edit.*

The remainder of this section describes the menu items presented when managing the Dual Nx 56/64 Module using the terminal menus.

TERMINAL MENU STRUCTURE

The ATLAS 550 uses hierarchical menus to access all features. The topmost menu level leads to submenus which are grouped by functionality. All menu items display in the terminal window.



Refer to the ATLAS 550 User Manual for detailed instructions on navigating through the terminal menu.

The ATLAS 550 System Controller automatically detects the presence of the Dual Nx 56/64 Module when it is installed in the system. To view the menus for the Dual Nx 56/64 Module via the terminal menu, use the arrow keys to scroll to the **MODULES** menu and press **Enter** to access the module choices. Figure 3-1 shows the **MODULES** menu. (Also see the menu tree in Figure 3-2.) The following sections describe all the menu options.

ATLAS 550/Modules	Slt	Type	Menu	Alarm	Test	State	Status	Rev
System Info	Slt0	Sys Ctr1	[+]	OK	OFF	ONLINE	Online	A
System Status	Ntw1	T1/PRI-1	[+]	[n/a]	[n/a]	ONLINE	No Response	-
System Config	Ntw2	T1/PRI-1	[+]	[n/a]	[n/a]	ONLINE	No Response	-
System Utility	Slt1	T1/PRI-2	[+]	[n/a]	[n/a]	ONLINE	No Response	-
Modules	Rsc1	EMPTY				ONLINE	Empty	-
Packet Manager	Slt2	Dual Nx-2	[+]	[n/a]	[n/a]	ONLINE	No Response	-
Router	Rsc2	EMPTY				ONLINE	Empty	-
Dedicated Maps	Slt3	EMPTY				ONLINE	Empty	-
Dial Plan	Rsc3	EMPTY				ONLINE	Empty	-
	Slt4	EMPTY				ONLINE	Empty	-
	Rsc4	EMPTY				ONLINE	Empty	-

SYS:ALARM NETWORK1:ALARM NETWORK2:ALARM 1:ALARM 2:ALARM 3: -- 4: --
 Module type ^A=more ^Z=help 20:32

Figure 3-1. Modules Menu

Modules	Slit	V35Nx-2 Menus	Info	Part Number		
	Type			Serial Number		
	Menu	Module Alarms (Shortcut to Alarms)		Assembly Revision		SLIP
	Alarm		Alarm Status		Port	PLL
	Test				Alarms	ZERO
	State					NO EXT CLK
	Status		DTE Status	Prt	RTS	PKT EP ALM
	Rev			DTE Status	CTS	
					DTR	
					DSR	
			Data Rate	Port	DCD	
				Rate	RI	Port
					TD	Rx Frames
					RD	Tx Frames
					EC	Rx Bytes
			Inband Stats			Tx Bytes
						Reset Stats
				PLL/Fifo	Port	Lock
					PLL/Fifo	RXE
						RXF
						TXE
				TXF		
			Prt			
			Name			
			Clk +/-	Normal		
				Inverted		
			Data	Normal		
				Inverted		
			CTS	Forced On		
		Configuration		Normal		
				Normal		
			DCD	Forced On		
			DSR	Remote RTS		
			DTR			
			Zero Inhibit	Normal		
			Inband	Forced On		
			Send Leads	Remote RTS		
			Port			
			Mode			
		Dial	Dial			
			Source ID	Prt		
			Number	Loopback		
				No Loopback		
				Local Loopback		
				Remote Loopback		
				LB Status		
				511		
				On/Off		
				511 Result		
				Sync: Y		
				Sync: N		
			Clr	*		
			Inject	ES		
		Test Activity (Shortcut to Test)	Test			

Figure 3-2. Modules Menu Tree

MODULES MENU

SLT Read security: 5
Displays the number of all the available slots in the ATLAS 550 chassis. Slot 0 refers to the ATLAS 550 base unit. This field is read-only.

TYPE Write security: 3; Read security: 5
Displays the type of module actually installed in the slot or the type of module you plan to install in the slot. If a Dual Nx 56/64 Module is installed, the **TYPE** field automatically defaults to "V.35 Nx -2" (the Dual Nx 56/64 Module). You can use this field to pre-configure a system before actually installing modules simply by specifying the module that you want to install in each slot.



NOTE *TYPE automatically displays the name of an installed module. If you want to preconfigure the slot for a different type of module, you must set this field to **EMPTY** before selecting another module type.*

MENU Displays additional status and configuration menus about the selected module. (To access the submenus for this item, use the arrow keys to scroll to the **MENU** column for the module you want to edit, and press **Enter**.) For detailed information on each submenu item, see the section *Dual Nx 56/64 Module Menu Options on page 3-5*.

ALARM Read security: 5
Displays an alarm condition on the Dual Nx 56/64 Module. Press **Enter** in this field to activate the **ALARM** menu.

TEST Read security: 5
Activates testing of specific data ports, and controls the activation of loop-backs and the initiation of data test patterns. Press **Enter** in this field to activate the **TEST** menu. See also, *Test on page 3-10*.



NOTE *The execution of Port Tests disrupts normal data flow in the port being tested.*

STATE Write security: 3; Read security: 5
Even though a module is physically installed, it must be marked **ONLINE** for it to be considered an available resource. This parameter allows an installed module to be marked **OFFLINE**, which may be useful in system troubleshooting.

STATUS	Read security: 5 This is a read-only field presenting status information on the Dual Nx 56/64 Module. The following messages may display:
ONLINE	The module is enabled, and is responding to the System Controller's status polls. This is the normal response of the system.
NO RESPONSE	The module is enabled, but is not responding to the System Controller's status polls. This response indicates either a problem in the system or that the module is not installed.
EMPTY	The System Controller has not detected the presence of a module in the slot, nor has a module been manually enabled for this option slot.
OFFLINE	The module is installed, but has been taken offline by a user. The module is still responding to controller polls.
REV	Read security: 5 This is a read-only field that displays the assembly revision of the Dual Nx 56/64 Module.

DUAL NX 56/64 MODULE MENU OPTIONS

Figure 3-3 shows the menu options available for the Dual Nx 56/64 Module. The following sections describe these options.

```

ATLAS 550/Modules[Slot21/U35Nx-2] Menu
U35Nx-2 Menu  Info          [+]
Module Alarms Alarm Status  [+]
Test Activity DTE Status  [+]
              Data Rate   [+]
              Inband Stats [+]
              PLL/Fifo     [+]
              Configuration [+]
              Dial         [+]
              Test         [+]

SYS=ALARM  NETWK1=ALARM  NETWK2=ALARM  1=ALARM  2=ALARM  3=ALARM  4=ALARM
Access menus for Dual Nx56/64 module          ?=help 13:48

```

Figure 3-3. Dual Nx 56/64 Module Menu Options

INFO	Read security: 5 The DUAL Nx 56/64 INFO submenu indicates the status of the module.
PART NUMBER	Displays the part number of the module. This field is read-only.
SERIAL NUMBER	Displays the Dual Nx 56/64 Module's serial number. This field is read-only.
ASSEMBLY REVISION	Displays assembly revision number. This field is read-only.

ALARM STATUS	Read security: 5 This option displays any active alarms. These fields are read-only.
PORT	Indicates the operating port.
ALARMS	Displays the following alarms:
SLIP	A rate mismatch exists between the DTE clock and the network-side clock (as set by DS0 assignment).
PLL	The Nx port is not able to lock onto the clock provided by the network interface.
ZERO	The DTE is sending an excessive number of consecutive zeroes to the network interface.
NO EXT CLK	The DTE is not providing an external transmit clock. This alarm displays only if the V.35 Nx port is configured to get its transmit clock from the DTE.
PKT EP ALM	A packet endpoint has detected missing or incorrect framing.

DTE STATUS	Read security: 5 Shows the status of key DTE interface signals. The following signals are monitored (these options are read-only):
PORT	Indicates the operating port.

DTE STATUS The following signals are monitored (these options are read-only):

RTS	Request To Send from DTE
CTS	Clear To Send to DTE
DTR	Data Terminal Ready from DTE
DSR	Data Set Ready to DTE
DCD	Data Carrier Detect to DTE
RI	Ring Indicate to DTE
TD	Transmit Data from the DTE
RD	Receive Data toward the DTE
EC	External clock present

DATA RATE Read security: 5
Displays the data rate at which each Nx port is currently operating. A port's data rate is determined by the number of DS0s assigned to it and the rate per DS0 associated with the active maps.

INBAND STATS Read security: 5
Provides information on the following statistics.

PORT Indicates the operating port.

RX FRAMES Indicates the number of frames received on the operating port since system startup.

TX FRAMES Indicates the number of frames transmitted form the operating port since system startup.

RX BYTES Indicates the number of bytes received form the operating port since system startup.

TX BYTES Indicates the number of bytes transmitted to the operating port since system startup.

RESET STATS Clears inband statistics results.

PLL/FIFO	Read security: 5 Displays the Phase Lock Loop (PLL) and FIFO status.
PORT	Indicates the operating port.
PLL/FIFO	Indicates the state of the port's Phase Lock Loop (PLL) and FIFO systems.
LOCK	Phase Lock Loop is locked. This is required in order to transfer data.
RXE	Receive Data FIFO Empty
RXF	Receive Data FIFO Full
TXE	Transmit Data FIFO Empty
TXF	Transmit Data FIFO Full

CONFIGURATION The **CONFIG** submenu configures the Dual Nx 56/64 Module.

PRT Indicates the operating port.

NAME Write security: 3; Read security: 5
Allows you to enter a descriptive alpha-numeric name for each port.

CLK +/- Write security: 3; Read security: 5
Controls the clock used by the Dual Nx 56/64 Module to accept the transmit (TX) data from the DTE. This is usually set to **NORMAL**. If the interface cable is long, causing a phase shift in the data, the clock can be set to **INVERTED**. This switches the phase of the clock, which compensates for a long cable.

DATA Write security: 3; Read security: 5
Controls the inverting of the DTE data. This inversion can be useful when operating with a high-level data link control (HDLC) protocol (often used as a means to ensure 1s density). Select either **NORMAL** or **INVERTED**.

CTS Write security: 3; Read security: 5
Determines the behavior of the Clear To Send (CTS) signal. If set to **NORMAL**, CTS will follow the value of Request To Send (RTS). If set to **FORCED ON**, CTS will always be asserted. (See Table 3-1 for normal operation of this signal.)

DCD Write security: 3; Read security: 5
Determines the behavior of the Data Carrier Detect (DCD) signal, also called RLSD on V.35 interfaces. If set to **NORMAL**, DCD will generally be asserted when the interface is capable of passing data (consult the ATLAS

550 User Manual for exact conditions.) If set to **FORCED ON**, DCD will always be asserted. If set to **REMOTE RTS**, the value of DCD will track the value of the remote unit's RTS signal. Note that this feature requires the Inband control channel to be **ENABLED**. (See Table 3-1 for normal operation of this signal.)

DSR

Write security: 3; Read security: 5

Determines the behavior of the Data Set Ready (DSR) signal. If set to **NORMAL**, DSR will generally be asserted when the interface is capable of passing data. If set to **FORCED ON**, DSR will always be asserted. If set to **REMOTE DTR**, the value of DSR will track the value of the remote unit's DTR signal. Note that this feature requires the Inband control channel to be **ENABLED**. (See Table 3-1 for normal operation of this signal).

Table 3-1. Normal Mode Operation (conditions which cause the port control signal to be deactivated)

SIGNAL	RTS	V.54 LOOPBACK	511 TEST ON	SELF TEST ACTIVE	NETWORK TEST ACTIVE	NO DS0 MAPPED	NETWORK ALARM
CTS	Follows	Off	Off	Off	Off	Off	Off
DCD	—	—	—	Off	Off	Off	Off
DSR	—	Off	Off	Off	Off	Off	—
— = Do not care							
Force On = On under all conditions							

DTR

Write security: 3; Read security: 5

Determines whether the ATLAS 550 treats a connection as permanent (**IGNORE**) or connects only when Data Terminal Ready (DTR) is active (**CONNECT ON DTR**). Select either **IGNORE** or **CONNECT ON DTR**.

(ZERO INHIBIT)

Write security: 3; Read security: 5

When the port detects an uninterrupted string of 0s being transmitted for more than one second, setting this parameter to **ON** will cause the ATLAS 550 to send 1s toward the network.

INBAND

Creates an inband management channel by robbing 8 kbps bandwidth from the port's allocated bandwidth. This channel can be used for management for ADTRAN products that are not co-located with the ATLAS. Consult the manual for ADTRAN T1 equipment for details on using this feature.

SEND LEADS

Sends the state of the DTE leads to the remote unit whenever any of the leads change state. If any leads on the remote unit are set to track a remote signal, this option must be enabled. The DTE lead states are conveyed using the Inband control channel, which must be enabled.

DIAL	Read security: 5 Dials an Nx port that is configured to ignore DTR.
PRT	Indicates the operating port.
MODE	Indicates the dialing mode: PERSISTENT or ONE TIME . PERSISTENT dialing specifies that the Nx endpoint should redial whenever the call is cleared or if the call fails. ONE TIME dialing specifies that the Nx endpoint should attempt the call only once. If the call fails or is cleared, the call is not redialed.
DIAL	If the Nx module is set to DTR/IGNORE (see DTR on page 3-10), the user can manually place a call, <CONNECT> , and manually disconnect a call, <CLEAR ATTEMPT> , via this menu item.
SRC ID	Indicates the SOURCE ID of the number to be dialed. Configure this field in the Nx INTERFACE CONFIGURATION section of the DIAL PLAN .
NUMBER	Indicates the number to be dialed. Configure this field in the Nx INTERFACE CONFIGURATION section of the DIAL PLAN .

TEST

LOOPBACK	Write security: 4; Read security: 5 Controls the activation and deactivation of loopbacks.
NO LOOPBACK	The loop is deactivated.
LOCAL LOOPBACK	The Nx port activates both a local loopback (back toward the DTE) and a port loopback when invoked.
REMOTE LOOPBACK	The remote loopback causes a V.54 loopback code to be sent to the far end. If the device at the far end supports V.54, the device activates a loopback on detection of the V.54 code.

LOOPBACK STATUS	<p>Read security: 5</p> <p>This read-only option indicates a port's current loopback status by displaying any of the following status messages:</p> <ul style="list-style-type: none"> • No loopback active • Looping up remote unit • Remote unit looped back • Looping down remote unit • Remote loop-up failed • Port looped from remote source • Port loopback active
511	<p>Write security: 4; Read security: 5</p> <p>Controls the activation of the 511 test pattern generator and detector.</p>
OFF	Turns off the 511 test pattern generator and detector.
ON	Turns on the 511 test pattern generator and detector.
511 RESULT	<p>Read security: 5</p> <p>Displays the results of the 511 test. This option is read-only. Clear these results by pressing Enter when CLR is selected.</p>
SYNC:Y	511 Pattern Sync detected.
SYNC:N	511 Pattern Sync not detected.
*	511 Pattern Sync lost.
ES	Detects the current errored seconds (ES); that is, the number of seconds (after Pattern Sync) that have contained at least one error.
CLR	<p>Write security: 4; Read security: 5</p> <p>Clears test results for the selected port.</p>
INJECT	<p>Write security: 4; Read security: 5</p> <p>Injects a 511 pattern error.</p>

ATLAS 550 FEATURES USED WITH THE DUAL NX 56/64 MODULE

In addition to the Dual Nx 56/64 Module menu items, two additional ATLAS 550 menu items may be operated in conjunction with the Dual Nx 56/64 Module. These are **FACTORY RESTORE** and **RUN SELF TEST**.

FACTORY RESTORE

FACTORY RESTORE restores the factory-installed default setting for all Dual Nx 56/64 Module parameters. When **FACTORY RESTORE** displays, place the cursor on it and press **Enter**. The unit is restored to preset factory defaults and returns to the main ATLAS 550 menu.

RUN SELF TEST

RUN SELF TEST, a submenu of the ATLAS 550 main menu item **TEST**, executes the ATLAS 550 internal test for the Dual Nx 56/64 Module. For additional information on **SELF TEST** see the *ATLAS 550 User Manual*.

MAPPING

DSOs are used as defined in the **DEDICATED MAP** or in the **DIAL PLAN** for switched applications. (See the *ATLAS 550 User Manual* for a description.)

DIAL PLAN OVERVIEW

The **DIAL PLAN** menu sets configuration parameters for each switched endpoint. These parameters will vary by the type of port selected. The following section describes the configuration options available for the Dual Nx 56/64 option module. To access these options, select **DIAL PLAN** from the top level menu.

```

ATLAS 550/Dial Plan
System Info      Network Term [+]  

System Status   User Term   [+]  

System Config   Global Param [+]  

System Utility  

Modules  

Packet Manager  

Router  

Dedicated Maps  

Dial Plan
  
```

```

SYS=ALARM  NETWK1=ALARM  NETWK2=ALARM  1=ALARM  2=ALARM  3=ALARM  4=ALARM
                                     *Z=help 12:25
  
```

Figure A-1. Dial Plan Menus

Dual Nx 56/64 Option Module Interface Configuration

This section describes the **USER TERMINATION** configuration settings for the Dual Nx 56/64 Module when using the **DIAL PLAN** menus.



*The Dual Nx 56/64 can only serve as a **USER TERMINATION** endpoint.*

Dual Nx 56/64 Option Module (User Termination)

When you are working in the **USER TERM** section of the **DIAL PLAN** menu, and the **SLT** is defined as **V35Nx-2**, the following Interface Configuration options are available:

PORTS AVAILABLE Indicates which of the two ports of the Dual Nx 56/64 Module have already been defined either in another switched endpoint (indicated by **S**) or in a **DEDICATED MAP** (indicated by **N**). This field is read-only.

NUMBER OF PORTS Defines to the ATLAS 550 how many of the ports could be used to answer calls to the number(s) defined in the **INCOMING ACCEPT CALL LIST**. You can enter numbers 1 or 2. The ports are contiguous beginning with the port number selected and the number of ports.

Example: If the port selected (as a part of the **SLOT/PORT** selection) is 2, and the number of ports selected here was 1, then only port 2 would be enabled to receive calls to the numbers listed under the **INCOMING CALL ACCEPT LIST**.

NUMBER TO DIAL Indicates the number to be dialed.

CALL TYPE Indicates whether the call will be **64K** or **56K** data rate: **56K** is intended for use in applications where interoperability with **SWITCHED 56** service is desired. **64K** is the default call type.

DIAL CALL AS Indicates how the call will be handled over the network: **DIGITAL**, **VOICE**, or **AUDIO**.

DIGITAL

Requests a 56 kbps data circuit that is rate-adapted to 56 kbps or an unrestricted 64 kbps data circuit.

VOICE

Requests a Mu-law/A-law speech circuit as the bearer capability for outgoing calls. Use **VOICE** with an ISDN line configured for voice service. In some areas, voice service costs less than data service. A **VOICE** call type does not guarantee an end-to-end digital connection with some local and long distance carriers.

AUDIO

Requests a 3.1 kHz audio circuit as the bearer capability for outgoing calls. Use **AUDIO** with an ISDN line configured for voice service. In some areas audio service is less expensive than data service. An **AUDIO** call type guarantees a digital end-to-end ISDN connection.

SOURCE ID

The Source ID field is used to simplify the creation of a Dial Plan in applications where the criterion for switching calls to a certain endpoint is a function of which endpoint originated the call.

- Default value = 0. The default ID for all endpoints is 0 and for all accept numbers is 0. With default values, all calls are routed based only on dialed number.
- Multiple endpoints can have the same Source ID.
- When creating the Call Accept list, specify a Source ID(s) as well as a dialed number or range of dialed numbers to accept.

Example: An application requires that all calls that originate from Port 1 of the Dual Nx 56/64 Module in Slot 1 be switched to Port 2 of that same module. Assign a unique Source ID (e.g. 7) to Port 1 of the module, and then configure Port 2 to only accept calls from that unique Source ID (7).

Index

A

ADTRAN shipments include 2-1

ATLAS menus and submenus

FACTORY RESTORE 3-12

MODULES 3-4

ALARM 3-4

MENU 3-4

REV 3-5

SLT 3-4

STATE 3-4

STATUS 3-5

EMPTY 3-5

NO RESPONSE 3-5

OFFLINE 3-5

ONLINE 3-5

TEST 3-4

TYPE 3-4

RUN SELF TEST 3-12

See also DIAL PLAN.

C

customer service iii

D

description of product 1-2

DIAL PLAN

INTERFACE CONFIGURATION (USER TERMINATION) A-1, A-2

CALL TYPE A-2

DIAL CALL AS A-2

DIAL CALL AS (AUDIO) A-2

DIAL CALL AS (DIGITAL) A-2

DIAL CALL AS (VOICE) A-2

NUMBER OF PORTS A-2

NUMBER TO DIAL A-2

PORTS AVAILABLE A-2

SOURCE ID A-3

Dual Nx 56/64

features 1-1

installing 2-1

interfaces 1-1

overview 1-1

physical description 1-2

specifications 1-2

Dual Nx 56/64 menus and submenus

ALARM STATUS 3-6

ALARMS 3-6

NO EXT CLOCK 3-6

PKT EP ALM 3-6

PLL 3-6

SLIP 3-6

ZERO 3-6

PORT 3-6

CONFIGURATION 3-8

(ZERO INHIBIT) 3-9

CLK+/- 3-8

CTS 3-8

DATA 3-8

DCD 3-8

DSR 3-9

DTR 3-9

INBAND 3-9

NAME 3-8

PRT 3-8

SEND LEADS 3-9

DATA RATE 3-7

DIAL 3-10

DIAL 3-10

MODE 3-10

NUMBER 3-10

PRT 3-10

SRC ID 3-10

DTE STATUS

CTS 3-7

DCD 3-7

DSR 3-7

DTR 3-7

EC 3-7

RD 3-7

RI 3-7

RTS 3-7

TD 3-7

DTE STATUS 3-6, 3-7

PORT 3-6

INBAND STATS 3-7

- PORT 3-7
- RESET STATS 3-7
- RX BYTES 3-7
- RX FRAMES 3-7
- TX BYTES 3-7
- TX FRAMES 3-7
- INFO 3-6
 - ASSEMBLY REVISION 3-6
 - PART NUMBER 3-6
 - SERIAL NUMBER 3-6
- PLL/FIFO 3-8
- LOCK 3-8
- PORT 3-8
- RXE 3-8
- RXF 3-8
- TXE 3-8
- TXF 3-8
- TEST 3-10
 - 511 3-11
 - OFF 3-11
 - ON 3-11
 - 511 RESULT 3-11
 - * 3-11
 - ES 3-11
 - SYNC:N 3-11
 - SYNC:Y 3-11
 - CLR 3-11
 - INJECT 3-11
 - LOOPBACK 3-10
 - LOCAL LOOPBACK 3-10
 - NO LOOPBACK 3-10
 - REMOTE LOOPBACK 3-10
 - LOOPBACK STATUS 3-11

F

features 1-1

I

initialization 2-4

- inspecting the shipment 2-1
- installation 2-1
- installing the module 2-1
- interfaces 1-1

L

limited product warranty iv

M

- mapping 3-12
- marking module online 3-4
- menu structure 3-2

O

- operation 3-1
- overview 1-1

P

- physical description 1-2
- power-up testing 2-4

R

- returning the module 2-1
- RMA requests iii

S

- service iii
- specifications 1-2
- state 3-4
- status 3-5

W

- warranty iii
- wiring 2-3

Product Support Information

Pre-sales Inquiries and Applications Support

Please contact your local distributor, ADTRAN Applications Engineering, or ADTRAN Sales:

Applications Engineering (800) 615-1176

Sales (800) 827-0807

Post-Sale Support

Please contact your local distributor first. If your local distributor cannot help, please contact ADTRAN Technical Support and have the unit serial number available.

Technical Support (888) 4ADTRAN

Repair and Return

If ADTRAN Technical Support determines that a repair is needed, Technical Support will coordinate with the Custom and Product Service (CAPS) department to issue an RMA number. For information regarding equipment currently in house or possible fees associated with repair, contact CAPS directly at the following number:

CAPS Department (256) 963-8722

Identify the RMA number clearly on the package (below address), and return to the following address:

ADTRAN Customer and Product Service
6767 Old Madison Pike
Building #6 Suite 690
Huntsville, Alabama 35807

RMA # _____

