# a

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# **ADSL PCI NIC User Manual**

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# Federal Communications Commission (FCC) Requirements, Part 15

This equipment has been tested and found to comply with the limits for a class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- ---Reorient or relocate the receiving antenna.
- ---Increase the separation between the equipment and receiver.
- ---Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- ---Consult the dealer or an experienced radio/TV technician for help.

CAUTION: Any changes of modifications not expressly approved by the grantee of this device could void the users authority to operate the equipment.

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# Welcome to ADI ADSL PCI NIC !

Introduce yourself to the new world of fast Internet. ADI provides a whole new fast and simple environment for Internet access.

The ADI ADSL board features the following:

- Plug and Play PCI 2.1 interface
- Rate Adaptive ADSL technology that adapts to your connection conditions
- Receive rates up to 10Mbps (downstream) and transmit rates up to 1Mbps (upstream)

## **Document Annotations**

 $\Delta$ 

Important Instruction

0

Special Note

# System Requirements

To use the PCI NIC, you PC must have:

- Pentium 133MHz CPU or faster
- Minimum 5MB free space on your hard drive
- 256 color VGA, or higher resolution
- Microsoft NT4 (with Service Pack 5 or later) or Windows 95 / 9x / 9x (2<sup>nd</sup> Editon) / Me / 2000
- Floppy drive
- CD-ROM drive

# **Hardware Installation**

### Familiarizing yourself with your ADSL Board

Your ADSL board only has one RJ-11 connector for data connection. POTS splitters or microfilters can be plugged outside from the board using multiple port phone jacks.



### Installing the ADSL Board

To install the board:

- 1. Switch off your computer and all attached devices.
- 2. Touch a metal part of your computer to ground yourself.
- 3. Remove the computer cover.
- 4. Locate a free PCI slot on the computer motherboard, remove the metal plate from the slot and put the screw aside.
- 5. Align the ADSL Board with the PCI slot and insert the board as shown.
- 6. Secure the ADSL Board to the PCI slot with the screw which was removed from the metal plate.
- Connect your ADSL Board to your wall's telephone jack which is connected to your ADSL service.
- 8. Replace the computer's cover.
- 9. Plug the power cord into the power outlet and switch on the computer.



Opening your PC



Installing the ADSL board

# **Software Installation**

#### Install from CD-ROM

If you receive a zip file containing all the drivers, please unzip the files and burn them into a CD-ROM. The CD-ROM contains both PPPoEthernet (RFC1483) and PPPoATM (NDISWAN) Windows software drivers. Both drivers support Windows NT4/95/9x/2000/Me.

#### $\triangle$ Install the latest service pack

It is important to remember to install/reinstall latest service pack for Windows whenever you are adding components to your system since older system files may be copied back to Windows during installation. After that you should reboot the machine again.

### PPPoE (RFC1483) Driver Installation for Windows 9x

For some ADSL networks, they provide the PPP over Ethernet dial-up network services. The supplied RFC1483 drivers work with third party PPPoE client software such as WinPoet, NTS. Consult your service provider for the PPPoE client software and its installation guide. This manual only demonstrates the installation for the RFC1483 drivers which work with other networks.

#### Device Driver Installation

1. It is important to have a clean Windows 9x setup. It indicates there should not be any conflicted hardware. The user is encouraged to check:

Start -> Setting -> Control Panel -> System -> Device Manager.

- 2. There should not be any "yellow warning sign" that complains an improper hardware attached to the system.
- 3. Make sure the computer completely power down. Then insert the ADSL PCI NIC card into one of the PCI slots.
- 4. Put the Windows 9x original CD-ROM into the CD drive.
- 5. Power up the system, you should see the following window while system is searching for new hardware.
- 6. Windows 9x will open a window called "Add New Hardware Wizard" to indicate that it found a "PCI ATM Controller" (ADSL) board. Click "Next" to continue.



7. Click "Next" to search for the best driver for your device.

Add New Hardware Wizard		
	<ul> <li>What do you want Windows to do?</li> <li>Search for the best driver for your device. (Recommended).</li> <li>Display a list of all the drivers in a specific location, so you can select the driver you want.</li> </ul>	
	< Back Next Cancel	

8. Select "Specify a location" and browse for the target network protocol and operating system. Then click "Next".

Add New Hardware Wizard		
	Windows will search for new drivers in its driver database on your hard drive, and in any of the following selected locations. Click Next to start the search. Floppy disk drives CD-ROM drive Microsoft Windows Update Specify a Jocation: D:\PPPoE\Win98ME	
	< <u>B</u> ack Next > Cancel	

9. Windows should find the selected ADSL device driver configuration file. Click "Next" to continue.

Add New Hardware Wizard		
	Windows driver file search for the device:	
	ADI AD6481 PCI NIC ADSL Driver	
	Windows is now ready to install the best driver for this device. Click Back to select a different driver, or click Next to continue.	
🗞 🌧	Location of driver:	
	D:\PPPOE\WIN98ME\AD6481XS.INF	
	< Back Next > Cancel	

10. New window will let you select the ADSL network option. Consult your service provider or network administrator for details. Click "OK" when finished.

A	D6481 NIC ADSL	Driver Settings	×
	- <u>A</u> dvanced Setting	s	
	ADSL Line <u>Typ</u> e:	T1.413	•
	PVC_V <u>C</u> I:	32	
	PVC_V <u>P</u> I:	0	
		ОК	Cancel

11. Windows will ask for your Windows CD-ROM to install the necessary files. Click "OK" to continue.



12. Select the location of the CD-ROM drive and click "OK" to continue.

Copying	Copying Files 🗙				
	The file 'choosusr.dll' on Windows 98 Second Edition CD-ROM cannot be found.	ОК			
	Insert Windows 98 Second Edition CD-ROM in the selected drive, and click OK.	Cancel			
		<u>S</u> kip File			
	<u>C</u> opy files from:	<u>D</u> etails			
	<u>d:√</u>	5			

13. Windows has finished the software driver installation, to continue click "Finish".



14. Click "Yes" to restart Windows.

System S	System Settings Change 🛛 🛛 🔀		
?	To finish setting up your new hardware, you must restart your computer.		
	Do you want to restart your computer now?		
	<u>Yes</u> <u>N</u> o		

## **GUI** Configuration

1. From the Windows system icon tray bar (bottom right of the screen), right click to view the ADI DSL Monitor menu. Click on "ADI DSL Monitor" to open the menu.



2. ADSL modem information are shown here. Modem can be reset by clicking on "Reset Modem" icon.

ADI DSL Monit	or	×	
Modem ATM 7	Advanced Info	1	
Line Status:	OPERATION Reset Modem		
Down Stream:	8096 K		
Up Stream:	Up Stream: 896 K		
Line Type			
Туре:	T1.413		
VCI:	32 VPI: 0		
•	OK Cancel Help		

Modem	Description	
Information Field		
Line Status	Status of the modem:	
	(IDLE, OPERATIONAL, INITIALIZING, FAILED)	
Down Stream	Downstream data rate negotiated by DSL link (Kbit/s)	
Up Stream	Upstream data rate negotiated by DSL link (Kbit/s)	
Туре	Choices are ANSI T1.413, G.LITE, G.DMT and Multi-Standard	
VCI	Virtual Channel Identifier field used in the ATM cell header	
VPI	Virtual Path Identifier field used in the ATM cell header	

3. ATM statistics are shown here.

ADI DSL Monit	or		×
Modem ATM	Advanced   Info	1	1
ATM Statistics-			
Cells TX:	0	CRC:	15
Cells RX:	690		
DROP:	0 Cells	HEC:	0 Cells
STAT			
PACKETS:	248 Rx		0 Tx
OSIZE:	0 Pkts		
Packet Loss:	2 Pkts		
		B	eset Status
•	ОК	Cancel	Help

ATM	Description		
Information Field			
Cells TX	Number of (non-IDLE) ATM cells transmitted since start of link		
Cells RX	Number of (non-IDLE) ATM cells received since start of link		
DROP	Number of dropped cells		
CRC	Number of AAL5 packets with checksum errors		
HEC	Number of received ATM cells with errors in the ATM cell header		
	since start of link		
Packets	Number of AAL5 packets received (Rx) and transmitted (Tx) since		
	start of link		
Oversized	Number of oversized packets received		
Packet Loss	Number of AAL5 packets received that are discarded (due to CRC		
	errors and oversize)		

4. Advanced tab is used by advanced users who are familiar with the ADI ADSL modem CMV (configuration and management variable) command set.

ADI DSL Monitor	×
Modem ATM Advanced Ir	nfo
Driver 45	
<u>C</u> MV: INFO	CMV <u>W</u> rite
Offset: 10	CMV <u>R</u> ead
Value: 0x2219BE04	
(R) INFO 10	0x2219BE04
<u>ок</u>	Cancel Help

5. Info tab shows the product information.

ADI DSL Mon	itor	×
Modem ATM	Advanced Info	
_Version		
HARDWARE:	0.0.0	
DRIVER:	1.1.3.20	
FIRMWARE:	0x2219BE04	
•	OK Cancel	Help

Info Information Field	Description
HARDWARE	Board version
DRIVER	Windows device driver version
FIRMWARE	ADSL modem firmware version

6. Return to the tray icon and click "Advanced Settings". ADSL Line Type and PVC settings can be changed from here.

ADI DSL Monitor... Advanced Settings... About ADI DSL Monitor... <u>E</u>xit

A	D6481 NIC ADSL	. Driver Settings 🛛 🔀
	- <u>A</u> dvanced Setting	s
	ADSL Line <u>T</u> ype:	T1.413
	PVC_V <u>C</u> I:	32
	PVC_V <u>P</u> I:	0

7. ADI DSL Monitor version and copyright information can be shown by clicking "About ADI DSL Monitor".



<u>E</u>xit

## Verify the modem

You may want to check the following screens to ensure proper installation of the modem.



Click on the "Network" icon, ADI PCI NIC ADSL Driver can then be shown.

Network ? 🗙				
Configuration   Identification   Access Control				
The following network components are installed:				
🔜 Client for Microsoft Networks				
📇 Microsoft Family Logon				
B ADI AD6481 PCI NIC ADSL Driver				
Bial-Up Adapter				
TCP/IP -> ADI AD6461 PCI NIC ADSE DIIVER				
Add <u>Re</u> move <u>Properties</u>				
Primary Network Logon:				
Microsoft Family Logon				
<u>Eile and Print Sharing</u>				
Description				
A network adapter is a hardware device that physically connects your computer to a network.				
OK Cancel				

Click on Driver "Properties" and its "Binding" tab.

ADI AD6481 PCI NIC ADSL Driver Properties
Driver Type Bindings Advanced
ねず Click the protocols that this adapter will use. Your computer must use the same protocols as other network computers you want to communicate with.
ADI COMMAGNT
TCP/IP -> ADI AD6481 PCI NIC ADSL Driver
OK Cancel

Modem parameters can also be changed from "Advanced" tab. It is recommended to change these parameters from the ADI DSL Monitor GUI.

ADI AD6481 PCI NIC ADSL	Driver Properties	? ×
Driver Type Bindings Advar Click the setting you want to select its new value on the rig	nced change on the left, and then ght.	
Property: ADSL Line Type Card Boot GUI GUI Refresh Rate Modem MTUSize PVC_VCI PVC_VCI PVC_VPI	Value: T1.413	×
	OK Car	ncel

Back to the "Network" panel, ADI Commagent and TCP/IP for the ADI ADSL Driver should also be shown.

Network ? 🗙
Configuration   Identification   Access Control
The following <u>n</u> etwork components are installed:
Client for Microsoft Networks
📇 Microsoft Family Logon
ADI AD 6481 PCI NIC AD SL Driver
TCP/IP -> ADI AD6481 PCI NIC ADSL Driver
Add Remove Properties
Primary Network Logon:
Microsoft Family Logon
<u>F</u> ile and Print Sharing
Description
Analog Devices Comm. Agent Protocol
OK Cancel

Network ? X
Configuration Identification Access Control
The following network components are installed:
Elient for Microsoft Networks
Microsoft Family Logon
B Dial-Up Adapter
TCP/IP -> ADI AD6481 PCI NIC ADSL Driver
Add Remove Properties
Primary Network Logon:
Microsoft Family Logon
<u>File and Print Sharing</u>
Description TCP/IP is the protocol you use to connect to the Internet and wide-area networks.
OK Cancel

Change IP address of the PC, consult your service provider or network adminstrator for the proper IP address.

T	CP/IP Properties				? >	(
	Bindings	) Adv	anced	N	etBIOS	l
	DNS Configuration	Gateway	WINS Config	guration	IP Address	l
	An IP address can If your network dou your network admi the space below.	be automat es not auton histrator for a	ically assigned natically assign an address, ar	d to this c n IP addro nd then ty	computer. esses, ask vpe it in	
	C <u>O</u> btain an IP	address aut	omatically			
	Specify an IF	address				
	IP Address:	169	. 254 . 182	.133		
	S <u>u</u> bnet Mas	k: <b>255</b>	. 255 . 255	. 0		
			OK		Cancel	

Return to Control Panel and click on "System" icon.



ADI AD6481 PCI NIC ADSL Driver should be shown under the "Network adapters" device class.

System P	roperties	? ×
General	Device Manager Hardware Profiles Performance	
• Vie	ew devices by type O View devices by connection	_
	omputer	
	Disk drives	
±	Display adapters	
	Floppy disk controllers	
	Keyboard	
÷	Monitors	
۶	Mouse	
	B ADI AD6481 PCI NIC ADSL Driver	
	Dial-Up Adapter	
	Vuther devices	
E	System devices	
⊡€	🔓 Universal Serial Bus controllers	
, [		
	operates heresh herove frinc	_
		_
	OK Cano	el

#### Uninstall the device driver

Click on Start -> Programs -> ADI AD6481 PCI NIC ADSL Driver to uninstall the device driver.

Uninstall	ADI6481 ADSL Driver	$\times$
⚠	Are you sure to uninstall the "ADI AD6481 PCI NIC ADSL Drive	er"?
	Yes No	
Uninstall	ADI6481 ADSL Driver	
	For complete uninstall the driver, reboot the computer now.	

### PPPoA (RFC2364) Driver Installation for Windows 9x

#### **Device Driver Installation**

1. It is important to have a clean Windows 9x setup. It indicates there should not be any conflicted hardware. The user is encouraged to check:

Start -> Setting -> Control Panel -> System -> Device Manager.

- 2. There should not be any "yellow warning sign" that complains an improper hardware attached to the system.
- 3. Make sure the computer completely power down. Then insert the ADSL PCI NIC card into one of the PCI slots.
- 4. Put the Windows 9x original CD-ROM into the CD drive.
- 5. Power up the system, you should see the following window while system is searching for new hardware.
- 6. Windows 9x will open a window called "Add New Hardware Wizard" to indicate that it found a "PCI ATM Controller" (ADSL) board. Click "Next" to continue.

Add New Hardware Wiz	This wizerd searches for new drivers for
	PCI ATM Controller
	A device driver is a software program that makes a hardware device work.
<b>◆</b>	

7. Click "Next" to search for the best driver for your device.

Add New Hardware Wizard		
	<ul> <li>What do you want Windows to do?</li> <li>Search for the best driver for your device. (Recommended).</li> <li>Display a list of all the drivers in a specific location, so you can select the driver you want.</li> </ul>	
	< Back Next > Cancel	

8. Select "Specify a location" and browse for the target network protocol and operating system. Then click "Next".

Add New Hardware Wizard		
	Windows will search for new drivers in its driver database on your hard drive, and in any of the following selected locations. Click Next to start the search. Eloppy disk drives CD-ROM drive Microsoft Windows Update Specify a Jocation: D:\PPPOA\WIN98ME	
	< <u>B</u> ack Next > Cancel	

9. Windows should find the selected ADSL device driver configuration file. Click "Next" to continue.

Add New Hardware Wizard		
	Windows driver file search for the device:	
	ADI AD6481 NdisWan Driver	
	Windows is now ready to install the best driver for this device. Click Back to select a different driver, or click Next to continue.	
🛛 🗞 😞 🛛	Location of driver:	
	D:\PPPOA\WIN98ME\AD6481XS.INF	
	< <u>B</u> ack Next> Cancel	

10. The ADSL PCI NIC card is introduced as an ISDN card with PPP driver. It enables users to use this NIC card through the Dial-Up Network.



11. Default protocol is "Automatic", click "Next" to continue.

ISDN Configuration	×
	Select the switch protocol that your telephone company uses from the list below. Switch protocol: Automatic
	< <u>B</u> ack <u>N</u> ext > Cancel

12. It is not required to enter phone number because the ADSL PCI NIC card is permanently connected to the Central Office. Click "Next" to continue.

ISDN Configuration		X
	Enter the telephone numbers and the corresponding SPIDs (Service Profile ID). If you have only one telephone number you may leave the second phone number blank. If your telephone company does not require a SPID, leave the SPID fields blank.	
<i>∞</i>	Phone number: SPID:	
1	Phone number: SPID:	
	< Back Next > Cancel	

13. This window confirms the driver being properly configured, Windows 9x still requires to install its network components. Click "Finish" to continue.

ISDN Configuration	×
	The ISDN configuration is complete. To use ISDN, create a new connection using Dial-Up Networking, and select your ISDN adapter as the device to use for the connection. To modify the settings you have just entered, go to the ISDN Tools program group under Accessories on the Start Menu and click on ISDN Configuration Wizard.
	< Back Finish Cancel

14. New window will let you select the ADSL network option. Consult your service provider or network administrator for details. Click "OK" when finished.

A	D6481 NIC ADSL	. Driver Settings	×
	- <u>A</u> dvanced Setting	s	
	ADSL Line <u>T</u> ype:	T1.413	•
	PVC_V <u>C</u> I:	32	
	PVC_V <u>P</u> I:	0	
	Server Type:	non-HDLC	•
		К	Cancel

15. Windows will ask for your Windows CD-ROM to install the necessary files. Click "OK" to continue.

Insert Disk 🛛 🕅		
8	Please insert the disk labeled 'Windows 98 Second Edition CD-ROM', and then click OK.	
	СК	

16. Select the location of the CD-ROM drive and click "OK" to continue.

Copying	Files	×
_	The file 'ATMUI.DLL' on Windows 98 Second Edition CD-ROM cannot be found.	OK
_	Insert Windows 98 Second Edition CD-ROM in the selected drive, and click OK.	Cancel
		<u>S</u> kip File
	Copy files from:	<u>D</u> etails
	d:\	

17. Windows has finished the software driver installation, to continue click "Finish".



18. Windows 9x has finished the installation. It requires system reboot to run the driver the first time.

System Settings Change 🛛 🔀		
?	To finish setting up your new hardware, you must restart your computer.	
	Do you want to restart your computer now?	
	<u>Yes</u> <u>N</u> o	

#### **GUI** Configuration

1. From the Windows system icon tray bar (bottom right of the screen), right click to view the ADI DSL Monitor menu. Click on "ADI DSL Monitor" to open the menu.

ADI DSL <u>M</u> onitor Advanced <u>S</u> ettings
<u>A</u> bout ADI DSL Monitor <u>E</u> xit

2. ADSL modem information are shown here. Modem can be reset by clicking on "Reset Modem" icon.

ADI DSL Monitor	х
Modem ATM Advanced Info	
_ Status	
Line Status: OPERATION Beset Modem	
Down Stream: 8096 K	
Up Stream: 896 K	
Line Type	
Type: T1.413	
VCI: 32 VPI: 0	
OK Cancel Help	

Modem	Description
Information Field	
Line Status Status of the modem:	
	(IDLE, OPERATIONAL, INITIALIZING, FAILED)
Down Stream	Downstream data rate negotiated by DSL link (Kbit/s)
Up Stream	Upstream data rate negotiated by DSL link (Kbit/s)
Туре	Choices are ANSI T1.413, G.LITE, G.DMT and Multi-Standard
VCI	Virtual Channel Identifier field used in the ATM cell header
VPI	Virtual Path Identifier field used in the ATM cell header

3. ATM statistics are shown here.

ADI DSL Monit	or		×
Modem ATM	Advanced   Info	1	
ATM Statistics-			
Cells TX:	0	CRC:	15
Cells RX:	690		
DROP:	0 Cells	HEC:	) Cells
PACKETS:	248 Rx	0 T x	
OSIZE:	0 Pkts		
Packet Loss:	2 Pkts		
		<u>R</u> eset S	tatus
•	OK	Cancel	Help

ATM	Description	
Information Field		
Cells TX	Number of (non-IDLE) ATM cells transmitted since start of link	
Cells RX	Number of (non-IDLE) ATM cells received since start of link	
DROP	Number of dropped cells	
CRC	Number of AAL5 packets with checksum errors	
HEC Number of received ATM cells with errors in the ATM cell		
	since start of link	
Packets Number of AAL5 packets received (Rx) and transmitted (T		
	start of link	
Oversized Number of oversized packets received		
Packet Loss	Number of AAL5 packets received that are discarded (due to CRC	
	errors and oversize)	

4. Advanced tab is used by advanced users who are familiar with the ADI ADSL modem CMV (configuration and management variable) command set.

ADI DSL Monitor	×
Modem ATM Advanced Info	1
	CMV <u>W</u> rite
0ffset: 10	CMV <u>R</u> ead
<u>V</u> alue: 0x2219BE04	
R         INFO         10	0x2219BE04
ОК	Cancel Help

5. Info tab shows the product information.

ADI DSL Moni	tor	×
Modem ATM	Advanced Info	
_ Version	₽	
HABDW/ABE-	000	
	11220	
	0.00100501	
HRMWARE:	Ux2219BE04	
•	OK Cancel	Help

Info Information	Description
Field	
HARDWARE	Board version
DRIVER	Windows device driver version
FIRMWARE	ADSL modem firmware version

6. Return to the tray icon and click "Advanced Settings". ADSL Line Type and PVC settings can be changed from here.



A	06481 NIC ADSL Driver Settings
	Advanced Settings
	ADSL Line Type: T1.413
	PVC_V <u>C</u> I: 32
	PVC_V <u>P</u> I: 0
	Cancel

7. ADI DSL Monitor version and copyright information can be shown by clicking "About ADI DSL Monitor".



### Verify the modem

You may want to check the following screens to ensure proper installation of the modem.



Click on the "Network" icon, ADI PCI NIC ADSL Driver can then be shown.

Network ? 🗙
Configuration   Identification   Access Control
The following network components are installed:
🔜 Client for Microsoft Networks
🗒 ADI AD6481 NdisWan Driver
Bial-Up Adapter
≨ NDISWAN → ADI AD6481 NdisWan Driver
¥ TCP/IP -> Dial-Up Adapter
Add Remove Properties
Primary Network Logon:
Client for Microsoft Networks
Eile and Print Sharing
Description
A network adapter is a hardware device that physically
connects your computer to a network.
OK Cancel

Click on Driver "Properties" and its "Binding" tab.

ADI AD6481 NdisWan Driver Properties	×
Driver Type Bindings Advanced	
<u>k</u>	1
Click the protocols that this adapter will use. Your computer must use the same protocols as other network computers you want to communicate with.	
✓ NDISWAN -> ADI AD6481 NdisWan Driver	
OK Cancel	

Modem parameters can also be changed from "Advanced" tab. It is recommended to change these parameters from the ADI DSL Monitor GUI.

ADI AD6481 NdisWan Drive	r Properties 🛛 🔋 🗙
Driver Type Bindings Advar	nced
Click the setting you want to select its new value on the rig	change on the left, and then ght.
Property:	<u>V</u> alue:
GUI	YES 💌
IDMABoot	NO
LineType MTUSize	
	4
	OK Cancel



Return to the Control Panel and click on "System" icon.

The "ADI AD6481 NdisWan Driver" should be shown under the "Network adapters" device class.

System Properties ?	×
General Device Manager Hardware Profiles Performance	
	1
⊙ View devices by type ○ View devices by connection	
Computer	
Engept disk controllers	
⊕	
🗄 🥶 🚱 Keyboard	
🗄 🖳 🖳 Monitors	
ADI AD6481 Nolswan Driver	
⊕	
, , , , , , , , , , , , , , , , , , ,	
Properties Refresh Remove Print	
Close	

### Uninstall the device driver

Click on Start -> Programs -> ADI AD6481 PCI NIC ADSL Driver to uninstall the device driver.

Uninstall	ADI6481 ADSL Driver 🛛 🕅
	Are you sure to uninstall the "ADI AD6481 NdisWan Driver" ?
	Yes No
Uninstall	ADI6481 ADSL Driver
•	For complete uninstall the driver, reboot the computer now.
	Cancel

### Setup a Connection

1. User is required to set up a dial-up connection before attempting to dial into the server. "Dial-Up Networking" can be found under "My Computer" on the desktop screen. It can also be opened from Start -> Program -> Accessories -> Communications.



2. New user is required to make new connection.



3. Name the connection, and make sure "NicAdsl-Line0" has been chosen for device selection.

Make New Connection	×
	Type a name for the computer you are dialing: test Select a device:  NicAdsI-Line0  Configure
	< Back Next > Cancel

4. Phone entries can be entered with dummy numbers.

Make New Connection	×
	Type the phone number for the computer you want to call: Area code:   416 Ille   6 1234567   Country or region code:   Canada (1)
	< <u>B</u> ack <u>N</u> ext > Cancel

5. Windows 9x will verify whether the connection has successfully been installed. Click "Finish" to continue. If this is the first time to setup a connection on current Windows 9x, it will install Dial-Up Networking components. Make sure Windows 9x CD-ROM is inserted in the CD-ROM drive.



#### Make a Call

1. After installed the device driver and setup the connection, user can now dial-in to the server. Double click on the dialing-in computer.



2. Correct user name and password should be entered for server authorization. Then click "Connect".

	ţ	
User name:	Administrator	
Password:	[	
÷	Save password	
Phone <u>n</u> umber:	1234567	
Dialing <u>f</u> rom:	New Location	Dial Properties

3. User should see the following window showing the PPP dial-up status.



4. The following window displays a successful connection. IP address has been assigned from the server.



# CO Board

For full product evaluation purpose, emulated single channel ADSL CO (central office) PCI NIC card is available. To install the driver, we recommend to use Windows NT4 Server which provides built-in server dial-up services and higher file transfer performance.

### **CO** Driver Installation

The procedures apply to both PPPoE (RFC1483) and PPPoA (RFC2364) drivers.

Same driver installation procedures are used like the RT (remote terminal) card.

Change the following parameters from Windows registry:

For NT4, run "regedit" from Windows Start bar, the registry entry for the ADSL PCI NIC is located in

*HKEY\_LOCAL\_MACHINE -> System -> CurrentControlSet -> Services -> Nicadsl\_? -> Parameters* 

For Win9x, the registry entry for the ADSL PCI NIC is located in

HKEY\_LOCAL\_MACHINE -> System -> CurrentControlSet -> Services -> Class -> Net -> ????

Where ???? are numbers assigned by Windows registry.

## PPPoA (RFC2364) CO Driver Installation for Windows NT4

#### Install the ADSL PCI NIC card, RAS and related services

The following steps show how to install PPPoA driver under Windows NT4 for server (CO board).

1. Open the Control Panel via the Start -> Settings -> Control Panel. Double click on "Network".



2. Select "Adapters" tab. Click "Add" then "Have Disk" to locate the driver directory.

etwork			? ×
Identification Servi	ces Protocols	Adapters Bindir	ngs
Network Adapters:			
<u>A</u> dd	<u>R</u> emove	<u>Properties</u>	<u>U</u> pdate
Item Notes:			
		OK	Cancel

3. Type the driver directory which is located from the CD-ROM. Then click "OK" to continue.

Select I	Network Adapter Click the Network Adapter that matches your hardware	e, and then
sert Dis	L - click ΩK - If μου have an installation disk for this comm k	onent click
F	Insert disk with software provided by the software or hardware manufacturer. If the files can be found at a different location, for example on another drive type a new path to the files below.	OK Cancel
	A:	)
	OK	Cancel

4. Driver name will appear on the following, click "OK" to continue.

Select OEM Option 🛛 🕅
Choose a software supported by this hardware manufacturer's disk.
ADI CPE NicAdsI PCI NDISWAN Adapter
OK Cancel <u>H</u> elp

5. Choose the appropriate encapsulation scheme and click "OK".

ADI CPE NicAds	PCI Adapter Card Setup	×
Protocol:	NULL Encapsulation	ОК
		Cancel
		<u>H</u> elp

6. Driver installation complete message is shown. Windows will continue to install Remote Access Service (RAS) automatically by click "OK".



7. Make sure you see correct name of the device in main page of RAS. Then click "OK".

Add RAS Device	×
RAS Capable <u>D</u> evices:	OK
ISDN1 - NicAdsl_	Cancel
	<u>H</u> elp
	Install <u>M</u> odem
	Install X25 <u>P</u> ad

8. Click "Configure" to setup RAS for dialing out (client), receiving calls or both together (server). Click "OK" after finished selection.

Remote Acce	ess Setup		×
Port	Device	Туре	
ISDN1	NicAdsl_	ISDN	Continue
			Cancel
			Network
			Help
<u>A</u> dd	<u>R</u> emove	QureClone	
Conrigure	Port Usage		
Port:	ISDN1		OK
Device:	NicAdsl_		Cancel
Port Us O Dial O <u>Bec</u> O <u>D</u> ial	age Lout only ceive calls only Lout and Receive ca		<u>H</u> elp

9. Click "Network" icon from "Remote Access Setup" window to configure network for RAS. Click "Configure" to choose your desired TCP/IP configuration for RAS server.

Network Configuration		×
Dial out Protocols:		ОК
□ NetBEUI		Cancel
E IPX		<u>H</u> elp
Server Settings:		
Allow remote clients running:		
□ Net <u>B</u> EUI	<u>C</u> onfigure	
✓ TCP/IP	C <u>o</u> nfigure	
	Configure	
Encryption settings:		
Allow any authentica	tion including clea	ar text
C Require encrypted at	uthentication	
C Require <u>M</u> icrosoft en	crypted authentic	ation
E Require data	a encryption	

10. Enter the TCP/IP addresses, click "OK" to continue.

RAS Server TCP/IP Configuration	×
Allow remote TCP/IP clients to access: © Entire <u>n</u> etwork © This <u>c</u> omputer only	OK Cancel <u>H</u> elp
Choose Cancel if you do not want to allow remote TCP/IP clients to dial in.	
Use <u>D</u> HCP to assign remote TCP/IP client addresses	
Use <u>s</u> tatic address pool:	
<u>B</u> egin: 110.110.110.1 <u>E</u> nd: 110.110.110.4	
Erom:       .         Io:       .         Add >       < Remove	

11. After installing RAS, return to the "Remote Access Setup" windows, then click "Continue".

ort	Device	Туре	
SDN1	NicAdsl_	ISDN	Continue
			Cancel
			<u>N</u> etwork
			<u>H</u> elp

12. Network panel will be displayed again. Select "Services" tab to install Server, Workstation and NetBIOS interface. These services are necessary for PPP driver.

Network ? 🗙
Identification Services Protocols Adapters Bindings
Network Services:
<ul> <li>NetBIOS Interface</li> <li>Remote Access Service</li> <li>Server</li> <li>Workstation</li> </ul>
Add         Bemove         Properties         Update           Description:         Distributed protocol required for running the Computer Browser service.
Close Cancel

13. After installed the ADSL PCI NIC card, RAS and related services, just "Close" the "Network" panel and reboot the machine.

Δ

14. It is important to install/reinstall the latest service pack (SP6 or higher) for Windows NT4 whenever you are adding components to your system since older system files may be copied back to Windows during installation. After that you should reboot machine again.

#### Setting registry

0

After installed the ADSL PCI NIC card, you can set up the desired VPI and VCI in the registry by adding as DWORD, one for VPI which is **PVC\_VPI** and one for VCI which is **PVC\_VCI** in the following path. To edit registry, click "Start" then "Run" and "Open" with "regedt32".

#### HKEY\_LOCAL\_MACHINE -> System -> CurrentControlSet -> Services -> Nicadsl\_? -> Parameters

Be careful about the other items in the registry and do not try to change any of them. VPI and VCI for both CO and RT cards should be the same.

#### Creating new user(s) for server side

After the service pack is installed, you can create your desired user to be able to dial-in to the server. Do the following steps:

- 1. Open "User Manager" via Start -> Programs -> Administrative Tools.
- 2. Create new user from pull down menu.

New User				×
<u>U</u> sername:	ADSL			OK
Full <u>N</u> ame:				Cancel
Description:	This is a tes	t user		Help
Password:	****			
<u>C</u> onfirm Password:	****			
User <u>M</u> us	t Change Pas	sword at Nex	t Logon	
🔲 U <u>s</u> er Car	not Change P	assword		
Password	d Never Expire	s		
C Account	Disa <u>b</u> led			
<b>S</b> <u>G</u> roups	 P <u>r</u> ofile	Pjalin		

3. Give Administrator permission to new user.

Group Memberships				×
User: ADSL				OK Cancel <u>H</u> elp
Member of:		<u>N</u> ot me	ember of:	
Administrators	<- <u>A</u> dd <u>R</u> emove ->		Backup Ope Guests Power Users Replicator	rators

4. Grant dial-in permission to new user.

Dialin Information	×
User: ADSL	OK
	Cancel
Grant dialin permission to user	<u>H</u> elp
Call Back	
No Call Back	
○ Set By Caller	
C Preset To:	

After creating new user on the server side, server setup is completed. Now you can start the server.

#### Starting server

Go to "Administrative Tools" and "Remote Access Admin" and start server for pull down menu. If you cannot see name of server, just click on "Select Domain/Server" and choose Workgroup and type the name of the server.

Start Remote Access Service	×
Server: NATUC	ОК
- ,	Cancel
	<u>H</u> elp

Select Domain	×
	ОК
Domain: ATUC	Cancel
<u>S</u> elect Domain:	<u>H</u> elp
违 TDC	
Low Speed Connection	

0

You should have unique workgroup for both CO and RT. Workgroup can be changed on the "Identification" tab of the "Network" panel. Reboot machine after changing workgroup.

Network		? ×	
Identification Service	s Protocols Adapters Binding	5]	
Windows uses the following information to identify your computer on the network. You may change the name for this computer and the workgroup or domain that it will appear in.			
Computer Name:	ATUC		
Workgroup:	TDC		
		nange	
	ОК	Cancel	

### Create an entry in phone book on the client side

Select the "Dial-Up Networking" via Start -> Programs -> Accessories. Add new entry similar to the following windows with your desired setting.

Edit Phonebook	Entry	? ×
Basic	Server Script Security	×.25
<u>E</u> ntry name: Co <u>m</u> ment:	ATUC	1
Phone <u>n</u> umber:	111111 Use Telephony dialing properties	<u>A</u> lternates
<u>D</u> ial using:	NicAdsL_(ISDN1) ✓ Use another port if busy	Configure
	OK	Cancel

Edit Phoneboo	ok Entry				? ×
Basic	Server	Script	Security	1	×.25
Dial-up <u>s</u> erve	r type:				
PPP: Windo	ws NT, Windov	vs 95 Plus, Inter	net	-	
-Network pr	otocols				
	Р	T <u>C</u> P/IP	9 Settings		
□ <u>I</u> PX/S	PX compatible				
□ <u>N</u> etBE	EUI				
🗖 <u>E</u> nable s	oftware compre:	ssion			
🗖 Enable P	PP <u>L</u> CP extensi	ons			
			ΟΚ		Cancel

Edit Phonebo	ok Entry			?	×
Basic	Server	Script	Security	X.25	1
After dialin None Pop u Run t	g (login) up a <u>t</u> erminal win his <u>s</u> cript: el	dow			
		<u>E</u> dit script	. <u>R</u> efres	sh list	
			<u>B</u> efore c	dialing	
			ОК	Cancel	

PP TCP/IP Settings      Server assigned IP a      Specify an I <u>P</u> addres	iddress					
IP address:	0.0.0.0					
<ul> <li>Server assigned nam</li> <li>Specify name server</li> </ul>	ne server addresses addresses					
Primary <u>D</u> NS:	0.0.0.0					
Secondary D <u>N</u> S:	0.0.0.0					
Primary <u>W</u> INS:	0.0.0.0					
Secondary W[NS:	0.0.0.0					
Use IP header <u>c</u> ompression Use default gateway on remote network						
	OK Cancel					

Edit Phoneb	ook Entry			? ×
Basic	Server	Script	Security	X.25
After diali	ng (login) e up a <u>t</u> erminal win this <u>s</u> cript:	dow		
June	13	<u>E</u> dit script.	<u>R</u> efre:	sh list
			<u>B</u> efore o	dialing
			OK	Cancel

Edit Phonebo	ok Entry			? ×			
Basic	Server	Script	Security	X.25			
Authentication and encryption policy     Accept any authentication including clear text     Accept only encrypted authentication     Accept only Microsoft encrypted authentication							
Require data encryption     Use current usemane and password							
Unsave	password						
			ΟΚ	Cancel			

Edit Phonebook	Entry			? ×	1
Basic	Server	Script	Security	×.25	
Select your X.2 of the remote s	25 network prov erver:	ider and type tł	ne X.25 address		
<u>N</u> etwork:	(none)		<b>-</b>		
<u>A</u> ddress:					
_ Optional				_	
<u>U</u> ser Data:					
<u>F</u> acilities:					
L					
			OK	Cancel	

# **Utility Programs**

There are four utility programs supplied with the hardware:

**6481Diag** is a MS-DOS program that tests different functions of the PCI SAR controller and the NIC board to determine if they are functioning properly. By running this program from both ends (PCI RT NIC and PCI CO NIC), end-to-end protocol testing can be done. You need run this program in DOS mode without Windows operating system loaded.

**AdiCmv** is a Windows-DOS program that allows user to test the access to ADI PCI NIC device driver. ADI CMV modem commands can be entered here for low level modem configuration and monitoring. Windows based **CommAgnt** driver is required to be installed first.

**CMVP** is a MS-DOS program which enables ADSL modem configuration and monitoring without running Windows. It gives fast access to modem when frequent reboot is required during testing.

**BootLoad** is a MS-DOS program which program on-board Flash for modem firmware upgrade without removing existing Flash. If IDMA boot (Flashless) is used on the ADSL PCI NIC RT (Remote Terminal) card, this program will not be used.

All of the above programs can be supplied upon request.

# Troubleshooting

### Checklist

Please use the following checklist to help debugging problems with your ADI PCI NIC product.

#### Determine if ADI PCI NIC driver is installed correctly.

Open the Network panel in the Control Panel. The 'ADI PCI NIC PCI Adapter' entry under the Adapter tab should exist. This shows that ADI PCI NIC driver is correctly installed.

#### Determine if modem is trained.

On your ADI PCI NIC board, when LED (Modem Connect) is constantly ON, it indicates that the modem is correctly linked to the central office modem. If the modem is not trained, please retrain the modem by rebooting the machine. Full LED description is located in Hardware Installation section of this menu. Also make sure CO equipment has same modem line type (T1.413, G.DMT or G.LITE) or multi-mode support.

#### Determine if CRCs are occurring.

On your ADI PCI NIC board, when LED (CRC Errors) is blinking, it indicates that CRCs are occurring over the ADSL link. CRCs can cause a reduction in data flow. To remove CRCs, please reset the modem and check improvement. Modem can be reset from the GUI (ADI ADSL Monitor).

#### Determine if data flow is occurring.

To determine if data flow is occurring, please execute the program **Netstat.exe** (e.g. 'netstat -e' to view Ethernet statistics). If data flow is occurring, the values given by Netstat should be increasing every time it is executed.

Also make sure ATM VC is setup properly. VCI/VPI setting should be matched on both CO and RT devices.

#### Determine if your MAC address is valid.

To determine your MAC address, please execute the program **ipconfig.exe** (e.g. 'ipconfig /all'). The MAC address is located on the line 'Physical Address'. For example:

Physical Address . . . . . : 00-60-F9-01-02-03

Please report your MAC address to your network administrator or service provider to determine if it is valid or not. No duplicated address is allowed for all systems in the same network.

#### Determine if your IP address is valid.

To determine your IP address, please execute the program **ipconfig.exe** (e.g. 'ipconfig /all'). The IP address is located on the line 'IP Address'. For example:

IP Address . . . . . . : 196.168.0.2

Please report your IP address to your network administrator or service provider to determine if it is valid or not.

# **Ordering Information**

Please contact your local ADI sales representatives to purchase the complete ADSL PCI evaluation kit.

Part Number for ADSL PCI NIC (RT): NRE20MSP930EVR-PCI

Part Number for ADSL PCI NIC (CO): NRE20MSP930EVC-PCI

# **Next Release**

- Add driver installation instructions for Windows NT4, 2000 and Me.
- IDMA boot firmware upgrade procedures on the ADSL PCI NIC RT (remote terminal) board.