

***EXHIBIT C***

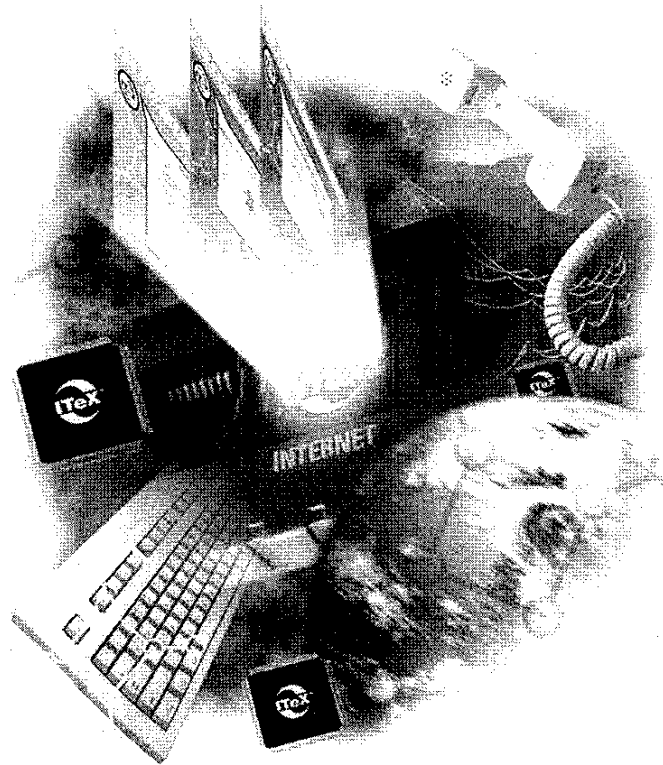
***User Manual***

# **SAM**

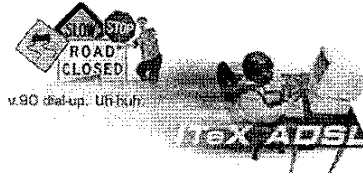
## **Scaleable ADSL Modem**

### **Users Guide**

Windows 98, NT4.0 -- Multi-Mode V2.0.0 -- February 18, 2000



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## Before you Start!

The SAM Installation Guide tells you everything you need to know to install and use the SAM ADSL modem card. This guide is designed to walk you through the installation of the SAM card and drivers, and then through the establishment of an Internet service connection. This is a (3) step process.

### Step 1 – Gather system and service connection information

### Step 2 – Install the ADSL modem card

### Step 3 – Install the drivers and establish an Internet service connection

- **If you're a beginner to the Internet** – or if you're experienced but have never installed an ADSL PCI card before – Start at the beginning and work your way carefully through the instructions. It is important to gather all the information required before you actually install the PCI card and ADSL drivers.
- **If you're familiar with installing PCI cards and drivers** - you may be able to browse the chapters to get the basics - However, it is still important to gather all the information required before you actually install the PCI card and ADSL drivers.

## Step 1 – Gather system and service connection information

### SYSTEM REQUIREMENTS

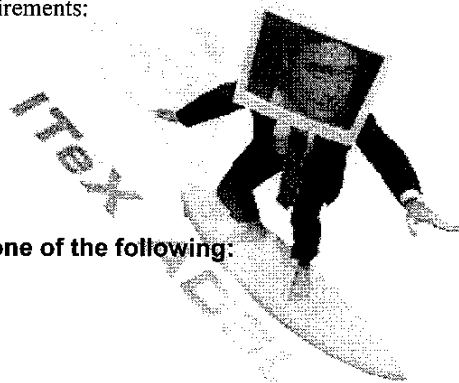
Make sure your PC system meets **ALL** of the following requirements:

#### Hardware:

- IBM PC/AT or compatible
- Pentium 100Mhz or faster
- 30Mbytes available hard disk space or more
- 2x CD-ROM drive or better
- 32Mbyte available system memory or more

#### Software: Your Operating System must be one of the following:

- ✓ Microsoft Windows 98.x – 98, 98A
- ✓ Microsoft NT – NT 4.0 Service Pack 3



### DETERMINING YOUR OPERATING SYSTEM

You will need to know the exact version of Microsoft Windows installed in your computer. If you do not know or are unsure, please proceed as follows to determine your version of the Microsoft Operating System. On the desktop, right click **My Computer**. Then select **Properties**. The version number of the Microsoft Windows Operating System installed in your computer will be displayed on the **General** tab. Refer to the following table for more detailed information.

<u>Version</u>	<u>System Description</u>	<u>Release Name</u>
Win 98	4.10.1998	Window 98
Win 98A	4.10.2222A 2 <sup>nd</sup> Edition	Windows 98 2 <sup>nd</sup> Edition
Win NT	4.00.1381	Windows NT 4.0

**DETERMINING YOUR INTERNET SERVICE PROTOCOL**

Your Internet service protocol will be one of the following. Contact your ADSL service provider if you are unsure of your service type.

- RFC 1483** ⇒ **Bridged Ethernet over ATM**
- RFC 2364** ⇒ **Point-to-Point Protocol over ATM**
- RFC 1577** ⇒ **Classical Internet Protocol over ATM**

**DETERMINING YOUR CONNECTION ADDRESS AND CONFIGURATION**

You will need to know the connection address and configuration for your Internet service. Find your Internet Service Protocol below and proceed gathering the connection address and configuration. If you are unsure or do not have all the information, please contact your ADSL service provider.

- **RFC1483 - Bridged Ethernet over ATM** service requires the following information:

<u>IP Address</u>	_____
<u>Subnet Mask</u>	_____
<u>Gateway</u>	_____
<u>(Domain Name Service) DNS Host</u>	_____
<u>DNS Domain</u>	_____
<u>DNS Server</u>	_____
<u>VPI value</u>	VPI = ____ (Default VPI=0)
<u>VCI value</u>	VCI = ____ (Default VCI=35)
<u>ADSL Mode Type</u>	<input type="checkbox"/> ANSI T1.413 Issue 2 <input type="checkbox"/> ITU G.992.2 Annex A (G.lite) <input type="checkbox"/> ITU G.992.1 Annex A (G.dmt)

- **RFC2364 – Point-to-Point Protocol over ATM**
  - **RFC1577 – Classical Internet Protocol over ATM**
- } services require the following information:

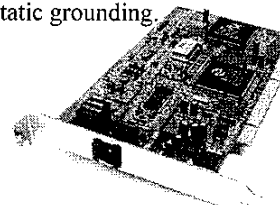
<u>User Name</u>	_____
<u>Password</u>	_____
<u>Logon Domain</u>	_____
<u>VPI value</u>	VPI = ____ (Default VPI=0)
<u>VCI value</u>	VCI = ____ (Default VCI=35)
<u>ADSL Mode Type</u>	<input type="checkbox"/> ANSI T1.413 Issue 2 <input type="checkbox"/> ITU G.992.2 Annex A (G.lite) <input type="checkbox"/> ITU G.992.1 Annex A (G.dmt)

## **Step 2 – Install the ADSL modem card**

### **HARDWARE INSTALLATION**

**WARNING!** To avoid possible damage to your SAM card you need to use an anti-static grounding device or hold onto the metal chassis of the PC to provide anti-static grounding.

1. Shut down the system and switch the power off.
2. Unplug the AC power cable from the PC.
3. Remove the cover from the PC chassis.
4. Unscrew the “slot cover bracket” from an unused PCI slot.
5. Insert the card into an empty PCI slot.
6. Firmly press the SAM card into the slot and secure the card to the chassis with the chassis bracket screw.
7. Connect one end of a phone cable to the RJ-11 port on the SAM card and plug the other end of the cable into the ADSL data service.
8. Replace the cover of the PC chassis.



- Before you plug the power cable back into the PC system and turn the power on, go to Step 3 and determine the section/page you need to be on to install the drivers.

## **Step 3 – Install the drivers and establish an Internet service connection**

### **ADSL CONNECTION MODE SELECTION**

The SAM Multi-Mode Drivers will automatically determine the ADSL connection mode supplied by your ADSL service provider. If for any reason you require a mode setting different from the automatic default setting, you can manually set the mode as required. Please refer to **Appendix E – ADSL Configuration – Select Protocol/Mode**. The connection mode is one of the following:

- ITU G.992.1 (G.dmt) .....referred to as **G.dmt**
- ITU G.992.2 (G.lite).....referred to as **G.lite**
- ANSI T1.413 .....referred to as **ANSI**

### **DRIVER INSTALLATION AND INTERNET SERVICE CONNECTION**

Refer to the following chart and locate your connection protocol with your corresponding Operating System (OS). Then proceed to the appropriate section/page.

<u>PROTOCOL</u>	<u>PROTOCOL NAME</u>	<u>WINDOWS OS</u>	<u>PAGE</u>
<b>RFC 2364</b>	<b>Point-to-Point Protocol over ATM</b>	<b>Windows 98, 98A</b>	<i>Go to page 4</i>
		<b>Windows NT 4.0</b>	<i>Go to page 6</i>
<b>RFC 1577</b>	<b>Classical Internet Protocol over ATM</b>	<b>Windows -</b>	
		<b>98 2<sup>nd</sup> Edition</b>	<i>Go to page 8</i>
<b>RFC1483</b>	<b>Bridged Ethernet over ATM</b>	<b>Windows 98, 98A</b>	<i>Go to page 10</i>
		<b>Windows NT 4.0</b>	<i>Go to page 12</i>

- **NOTE:** You may need the Microsoft Windows Operating System installation files (CAB files) to complete the installation. The CAB files are contained in the Microsoft’s system CD-ROM. Some systems may have already installed the CAB files to the hard drive, but you should have the Microsoft Windows CD-ROM handy just in case.

## RFC 2364 – POINT TO POINT PROTOCOL OVER ATM – WINDOWS 98, 98A

After installing the ITeX SAM card, plug the power cable back into the PC system and turn the power on.

1. The **Add New Hardware Wizard** window will automatically appear and indicate that a new **PCI Network Controller** has been found. Click **Next**.
2. Still in the **Add New Hardware Wizard**. You will be asked “**What do you want Windows to do?**” Select “**Search for the best driver for your device**”, then click **Next**.
3. Insert the CD labeled **ITeX SAM Drivers** into your systems CD-ROM drive.
4. Then select **Specify a location** and in the text entry bar type in your systems CD drive location letter ( **D** for example ), followed by a colon ( **:** ), then a back slash ( **\** ), followed by the RFC 2364 driver for Windows 98 (**2364w9x**). For example, type in: **D:\2364w9x** Then click **Next**.
5. The **Add New Hardware Wizard** will appear and indicate the **ITeX ADSL PCI NIC**. Click **Next**.
6. When the **Service Option** window appears, click **Advanced**.
7. The **Service Options** window now displays the **Connection Address**. Enter in the **VPI** and **VCI** values provided by your ADSL service provider. Make sure the **Framing** is set to **VC MUX**. Click **OK**.  
**NOTE:** The default **Framing** setting is **VC MUX**. However, some ADSL service providers require **LLC/SNAP**. ITeX drivers also support **LLC/SNAP**. Please consult you ADSL service provider if you are unsure of the **Framing** setting or require more information.
8. The previous **Service Option** window will appear, click **Next**.
9. If prompted to insert your Windows CD do so at this time then click **OK**. Enter the <CD drive Letter> and then **:\Win98** (e.g. **D:\Win98**) and click **OK**.
10. At the conclusion of the **ITeX SAM** driver installation, the **Add New Hardware Wizard** window appears and displays you new **ITeX ADSL PCI NIC**. Click **Finish**.
11. The **System Settings Change** window appears. For the PC system to set up the **ITeX SAM Drivers**, a system **Restart** is required. Click **Yes**.  
**NOTE:** After restarting the system, the **Diagnostic Tool** icon (See Appendix D) is active and monitoring connectivity.
12. You must now make a dial-up network connection. At the **Task bar**, click on **Start**, and then select **Programs, Accessories, Communications**, followed by **Dial-Up Networking**.
13. The **Dial-Up Networking** window appears. **Double-click** the **Make New Connection** icon.
14. The **Make New Connection** window appears. The default name for the computer you are dialing is **My Connection**. However, You can name the connection anything you wish. In the **Select a device** bar, use the scroll down menu to locate the **ITeX ADSL PCI NIC**, then click **Next**.
15. A new **Make New Connection** window appears. Enter in the **Host Name or IP Address** provided by your ADSL service provider, otherwise enter (0) zero, and click **Next**.
16. Another **Make New Connection** window appears. It will indicate that **You have successfully created a new Dial-Up Networking connection called “My Connection”**. Click **Finish**.

 **SAM Installation Guide**

17. The new **"My Connection"** will appear in the **Dial-Up Networking** window. Double-click the new **"My Connection"** icon to begin a Dial-Up session.
18. The **Connect To** window appears indicating **"My Connection"**. Type in the **User name** and **Password** supplied by your Internet Service Provider (ISP). Click **Connect**.
19. The **Connection Established** window will appear indicating **You are connected to "My Computer"**. Click **Close** and the **Diagnostic tool** icon appears on the task bar.

**Congratulations, you are done. Your "SAM" to the Internet is established!**



## **RFC 2364 – POINT TO POINT PROTOCOL OVER ATM – WINDOWS NT 4.0**

**NOTE:** To perform the installation, logon as **Administrator**. TCP/IP protocol must be installed prior to the driver installation. At the **Network** window select the **Protocols** tab and verify that the TCP/IP is present.

1. On the Desktop, double-click **My Computer**, and then double-click **Control Panel**.
2. In the **Control Panel** window, double-click the **Network** icon then select the **Adapters** tab. Click **Add**.
3. The **Select Network Adapter** window appears. Click **Have Disk**.
4. Insert the CD labeled **ITeX SAM Drivers** into your systems CD drive.
5. The **Insert Disk** window appears. In the text entry bar type in your systems CD drive location letter ( **D** for example ), followed by a colon ( **:** ), then a back slash ( **\** ), followed by the RFC2364 driver for Windows NT 4.0 (**2364NT4**). For example, type in: **D:\2364NT4** Then click **OK**.
6. The **Select OEM Option** window will find the **ITeX ADSL PCI NIC**, Click **OK**.
7. When the **Service Option** window appears, click **Advanced**.
8. The **Service Options** window now displays the **Connection Address**. Enter in the **VPI** and **VCI** values provided by your ADSL service provider. Make sure the **Framing** is set to **VC MUX**. Click **OK**.

**NOTE:** The default **Framing** setting is **VC MUX**. However, some ADSL service providers require **LLC/SNAP**. ITeX drivers also support **LLC/SNAP**. Please consult you ADSL service provider if you are unsure of the **Framing** setting or require more information.

9. The previous **Service Option** window will appear, click **Next**.
10. The **Setup message** window appears. It prompts **Remote Access Services (RAS)** will now be installed. Click **OK**.

**NOTE:** You may be asked to insert your Windows NT CD. Insert the **Windows NT CD** into the CD drive and click **OK**. The **Windows NT Setup** window will appear. Enter the path **<CD Drive letter>** and **:\i386** (e.g. **D:\i386**). Click **Continue**.

11. The **Add RAS Device** window appears. Click **OK**
12. The **Remote Access Setup** window appears showing **ITeX1 itexwana ...**. Click **Network**.
13. The **Network Configuration** window appears showing the **Dial out Protocols**: Select and check (✓) the **TCP/IP** protocol. Click **OK**.
14. The **Network** window will appear. Click the **Adapters** tab to verify that the **ITeX ADSL PC NIC** has been found. Click on the **Protocols** tab and verify that the **ADSL Management and Monitor Interface** is present. Click on the **Services** tab to verify that the **Remote Access Service** is present. Then click **Close**.

**NOTE:** To review the Network window properties at any time, right-click the **Network Neighborhood** icon and select **Properties**.

**NOTE:** If no previous network devices have been installed, then the Network Neighborhood icon will not be present on the desktop. To open the Network window, double-click **My Computer** then **Control Panel** then **Network**.

15. The **Network Settings Change** window appears. It prompts **Do you want to restart your computer now?** Click **Yes**

**NOTE:** After the system restarts the **Diagnostic Tools** icon will appear on the task bar. Both panels of the **Diagnostic Tool** icon should appear black signifying a good connection.

16. You must now make a dial-up network connection. To begin a dial-up connection, double-click **My Computer**, then double-click **Dial-Up Networking**.

**NOTE:** If this is the first dial-up connection created, the **Location Information** window will appear. Enter in an area code (e.g. 408) for your region, then click **Close**. The **Dial-Up Networking** window appears, Click **OK** to add an entry. Enter a name for the New phonebook entry (e.g. **MyDialUpServer**) and click **Next**. When the **Server** window appears click **Next**.

17. The **Dial-Up Networking** window prompts for the phone number of the dial-up server. Unless instructed to enter a phone number by the ADSL service provider, enter zero "0" Still at the **Dial-Up Networking** window, click **More**.

18. The **Edit Phonebook Entry** window appears. Select the **Security** tab and verify that **Accept only Microsoft encrypted authentication** is selected. Click **OK**. The previous **Dial-Up Networking** window appears, click **Dial**.

19. The **Connect to MyDialUpServer** window appears. Enter the **User name**, **Password** and **Domain** supplied by your ADSL service provider. Click **OK**.

**NOTE:** If this screen persists and a connection logon error is reported, confirm that the correct User name and Password are entered and try the connection again. Also verify that the connection address is correct.

20. The **Connection Complete** window is displayed at the completion of a successful Dial-Up logon. Choose a display behavior and click **OK** to close.

**Congratulations, you are done. Your "SAM" to the Internet is established!**

## **RFC 1577 – CLASSICAL INTERNET PROTOCOL OVER ATM – WIN 98 2<sup>ND</sup> EDITION**

**NOTE:** This section is for Windows 98 2<sup>nd</sup> Edition only.

After installing the **ITeX SAM** card, plug the power cable back into the PC system and turn the power on.

1. The **Add New Hardware Wizard** window will automatically appear and indicate that a new **PCI Network Controller** has been found. Click **Next**.
2. Then select **Search for the best driver for your device. (Recommended)**, click **Next**.
3. Insert the CD labeled **ITeX SAM Drivers** into your CD drive.
4. Then select **Specify a location** and in the text entry bar type in your systems CD drive location letter ( **D** for example ), followed by a colon ( : ), then a back slash ( \ ), followed by the RFC 1577 driver for Windows 98 2<sup>nd</sup> Edition (**NDS5w98**). For example, type in: **D:\NDS5w98** Then click **Next**.
5. The **Add New Hardware Wizard** will appear and indicate the **ITeX ADSL PCI NIC**. Click **Next**.
6. The **Service Option** window appears, click **Advanced**.
7. The **Service Options** window now displays the **Connection Address**. Enter in the **VPI** and **VCI** values provided by your ADSL service provider.
8. The previous **Service Option** window will appear, click **Next**
9. If prompted to insert the CD do so at this time then click **OK**. Enter the <CD drive Letter> and then **:\Win98** (e.g. **D:\Win98**) and click **OK**.
10. At the conclusion of the **ITeX SAM** driver installation, click **Finish**.
11. For the PC system to set up the **ITeX SAM**, a system **Restart** is required. Click **Yes**.

**NOTE:** After restarting the system, the **Diagnostic Tool** icon (See Appendix D page 22) is active and monitoring connectivity.

12. You must now make a network connection. From the **Start** menu on the tool bar, select **Settings, Control Panel**, and then double click on the **Network** icon.
13. The **Network** window appears. Select the **Configuration** tab, scroll the installed network component window and find **ITeX ADSL PCI NIC**. If the **ITeX ADSL PCI NIC** is present go to step 19. If the **ITeX ADSL PCI NIC** is not present, click **Add**.
14. The **Select Network Component Type** window appears. Select **Protocol**, and click **Add**. The **Select Network Protocol** window appears. In the **Manufactures** section, select **Microsoft**. In the **Network Protocols** section, select **TCP/IP** then click **OK**.
15. When the **Network** window appears select the **Configuration** tab, scroll the installed network component window and select **TCP/IP → ITeX ADSL PCI NIC**.
16. Still in the **Network** window, with the **TCP/IP → ITeX ADSL PCI NIC** selected, click **Properties**. Select the **Advanced** tab. The Binding to ATM value should be set to **YES**.

**NOTE:** If the **TCP/IP → ITeX ADSL PCI NIC** is not found, click **Add**, select **Adapter**, click **Add**, select **Microsoft** from the manufacturer window, select **Dial up Adapter** from the network adapter window, click **OK**.

17. Still at the **Network** window, click the **Configuration** tab, select **TCP/IP → ITeX ADSL PCI NIC**. Then click the **Properties** button.
  18. The **TCP/IP Properties** window will appear. Select the **IP Address** tab and then select the **Specify an IP Address** option. Enter the **IP Address** and **Subnet Mask** settings.
  19. To setup a new gateway, select the **Gateway** tab enter, the setting in the **New Gateway** section and click **Add**.
  20. To configure the Domain Name Server, select the **Enable DNS** option. Enter the Host and Domain settings. Enter the DNS Server Search Order and click **Add**.
  21. Once all the TCP/IP properties have been set, click **OK** to return to the Network window.
  22. Click **OK** to close the Network window.
  23. When prompted "Do you want to restart your computer now?" Click **No**
- Congratulations, you are done. Your "SAM" to the Internet is established!**

## RFC 1483 – BRIDGED ETHERNET OVER ATM – WINDOWS 98, 98A

After installing the ITeX SAM card, plug the power cable back into the PC system and turn the power on.

1. The **Add New Hardware Wizard** will detect the ITeX SAM as a **PCI Network Controller**, click **Next**.
2. Still in the **Add New Hardware Wizard** you will be prompted **What do you want Windows to do?** Select the **Search for the best driver for your device**. Click **Next**.
3. Again in the **Add New Hardware Wizard**, select the **Specify a location** option and then type in your systems CD drive location letter ( **D** for example ), followed by a colon ( **:** ), then a back slash ( **\** ), followed by the RFC1483 driver for Windows 98 (**1483w9x**). For example, type in: **D:\1483w9x** Then click **Next**.
4. The **Add New Hardware Wizard** will then find the **ITeX ADSL PC NIC**, click **Next**.
5. When the **Service Option** window appears, click **Advanced**.
6. The **Service Options** window now displays the **Connection Address**. Enter in the **VPI** and **VCI** values provided by your ADSL service provider. Make sure the **Framing** is set to **LLC/SNAP**. Click **OK**.

**NOTE:** The default **Framing** setting is **LLC/SNAP**. However, some ADSL service providers require **VC MUX**. ITeX drivers also support **VC MUX**. Please consult you ADSL service provider if you are unsure of the **Framing** setting or require more information.

7. The previous **Service Option** window will appear, click **Next**.

**NOTE:** During the installation process you may be asked to insert your Windows 98 CD. Insert the **Windows 98 CD** into your systems CD drive and click **OK**. If during the file copying process a file is reported as “not found” enter the path <CD Drive letter> and **\Win98** (e.g. **D:\Win98**)

8. The **Add New Hardware Wizard** appears, click **Finish**.
9. When the **System Settings Change** window appears and asks; **Do you want to restart your computer now?** Click **Yes**.
10. Proceed to Making an Internet connection for Bridged Ethernet. **Go to page 11**.

## **MAKING AN INTERNET CONNECTION FOR BRIDGED ETHERNET ON WIN 95, 98**

This section describes how to configure the ADSL network service when your PC is running Microsoft Windows 95A, 95B, 98, 98A.

1. Double click **My Computer**, **Control Panel**, and then **Network**.
2. In the **Network** window, select the **Configuration** tab.
3. Scroll through the installed network components list. Highlight the **TCP/IP-> ITeX ADSL PCI NIC** and click **Properties**.
4. The **TCP/IP Properties** window appears. Select **IP Address** tab. Select **Specify an IP address**. The **IP address** and **Subnet Mask** will turn from gray to clear. Enter your **IP Address** and **Subnet Mask** provided by your ADSL service provider.
5. Select the **Gateway** tab. Enter your gateway information provided by your ADSL service provider into the **New gateway** box and click **Add**. If you have more than one gateway number, repeat this step
6. Select **DNS Configuration** tab. Select the **Enable DNS** option.  
  
**NOTE:** You now need to have available the **Host**, **Domain** and **DNS** settings provided by your ADSL service provider.
7. Enter your host name into **Host:** box.
8. Enter your domain name into **Domain:** box.
9. Enter **DNS** number into **DNS Server Search Order** box and click **Add**. If you have more than one **DNS** numbers, repeat this step.
10. After setting all the necessary TCP/IP properties, click **OK**.
11. The **Network** window appears. Click **OK**.
12. The **System Setting Change** window appears. You will be asked if you want to restart your computer. Click **Yes**.

**Congratulations, you are done. Your "SAM" to the Internet is established!**

## **RFC 1483 – BRIDGED ETHERNET OVER ATM – WINDOWS NT 4.0**

**NOTE:** To perform the installation, logon as **Administrator**. TCP/IP protocol must be installed prior to the driver installation. At the **Network** window select the **Protocols** tab and verify that the TCP/IP is present.

1. At the desktop, double click **My Computer**, double click **Control Panel**, double click **Network** and then select the **Adapters** tab and click **Add** (to add new adapters).
2. In the **Select Network Adapter** window click **Have Disk**.
3. Insert the **ITeX SAM Drivers** CD into your computers CD drive.
4. The **Insert Disk** window appears. In the text entry bar type in your systems CD drive location letter ( **D** for example ), followed by a colon ( : ), then a back slash ( \ ), followed by the RFC1483 driver for Windows NT 4.0 (**1483NT4**). For example, type in: **D:\1483NT4** Then click **OK**.
5. The **Select OEM Option** window will find the **ITeX ADSL PCI NIC**. Click **OK**.
6. When the **Service Option** window appears, click **Advanced**.
7. The **Service Options** window now displays the **Connection Address**. Enter in the **VPI** and **VCI** values provided by your ADSL service provider. Make sure the **Framing** is set to **LLC/SNAP**. Click **OK**.

**NOTE:** The default **Framing** setting is **LLC/SNAP**. However, some ADSL service providers require **VC MUX**. ITeX drivers also support **VC MUX**. Please consult you ADSL service provider if you are unsure of the **Framing** setting or require more information.

8. The previous **Service Option** window will appear, click **Next**.
9. Then the **Network** window will appear, click **Close**.
10. The **TCP/IP Properties** window will appear and prompt the user for information. When not connecting to a DHCP server, enter the **IP address** provided by ADSL service provider.
11. Enter the **Subnet Mask** provided by your ADSL service provider.
12. Enter the **Default Gateway** address.

**NOTE:** Consult your ADSL service provider for the TCP/IP Properties.

13. Select the **DNS Configuration** tab and enter the **Host Name** (e.g. **SAM**)
14. Then enter the **Domain Name** (e.g. **pacbell.net**)

**NOTE:** Use the **DNS Service Search** and **Domain Suffix Search** to locate the **Host Name** and **Domain**. Click **Add** to save the address. Repeat the process for additional DNS entries.

15. Click **OK** to update the changes.
16. The system must be restarted for the changes to take effect. Click **Yes** to restart.

**Congratulations, you are done. Your "SAM" to the Internet is established!**

## APPENDIX A - EDITING RFC 2364 OR RFC 1577 INTERNET SERVICE CONNECTION

1. To view or edit the ADSL connection service address, Right-click the **Diagnostic Tool** icon (located on the Taskbar), and select the **Configuration** option.
2. The **PVC Setup** (Permanent Virtual Connection) window displays the connection service address. Click **Close** to exit window.
3. To edit the **connection service address**, select and enter the VPI and VCI address in the field shown and click **PVC Setting**.
4. To accept a **Connection Address** that has been changed (**Restart** the PC system) click **Yes**.



## APPENDIX B - EDITING RFC 1483 INTERNET SERVICE CONNECTION

**NOTE:** This section includes the IP configuration specifics for Windows NT4.0. The NT 4.0 windows are slightly different from those of Windows 98. Other than minor screen differences, the process for editing the IP address settings is the same for Windows NT 4.0 and Windows 98.

1. At the desktop, double click **My Computer**, then double click **Control Panel** to view the contents of the control panel. In the **Control Panel** window, double click the **Network** icon.

**NOTE:** The Network window shortcut is a right-click the **Network Neighborhood** on your desktop then left-click **Properties**.

2. Select the **Protocols** tab of the network window. Select **TCP/IP Protocol** and click **Properties**.
3. Select the **IP address** option and note that the IP Address and Subnet Mask regions will turn from gray to active.
4. Enter the IP Address (e.g. 192.168.4.39) and subnet mask (e.g. 255.255.255.0).
5. The Default Gateway is also entered in this window.

**NOTE:** Please refer to your ADSL service provider and enter (or edit) the following fields:

6. Enter the **Host Name** (e.g. SAM) and **Domain** (e.g. pacbell.net).

**NOTE:** To enter the Domain search (DNS) entries, click **Add** then enter the address. Click **Add** to save the address. Repeat the process for additional DNS entries.

7. Click **OK** to update the changes.

## APPENDIX C – REMOVING DRIVERS

### WINDOWS 98

1. To Delete ITeX SAM drivers; on the desktop, right-click on **My Computer**, then select **Properties**, then click on the **Device Manager** tab, then double click **Network adapters**.
2. Select the **ITeX ADSL PCI NIC**, then click on the **Remove** button.
3. A warning message “You are about to remove this device from your system” will appear. Click **OK** to remove drivers or click **Cancel** to abort the driver removal.
4. The PC system must be restarted for the changes to take effect. Click **Yes**.

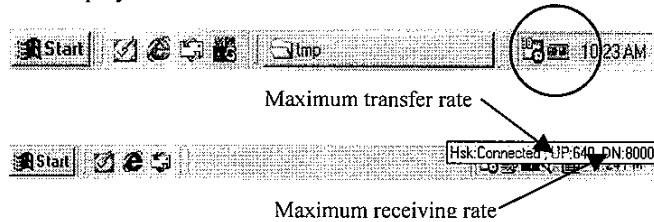
### WINDOWS NT4.0

**NOTE:** For driver removal, you need to logon as **Administrator**.

1. On the desktop; double click **My Computer**, double click **Control Panel**, double click the **Network** icon and select the **Adapters** tab.
2. Select the **ITeX ADSL PCI NIC**, then click **Remove**.
3. A warning message will inform you that a component is about to be removed. Click **Yes**.
4. Once the **ITeX ADSL PCI NIC** is removed from the adapter list, click **Close**.
5. The PC system must be restarted for the changes to take effect. Click **Yes**.

**APPENDIX D - DIAGNOSTIC TOOLS**

**ACCESSING THE DIAGNOSTIC TOOLS:** The diagnostic tools allow the user to monitor the ADSL connectivity, setup the service connection address, and run diagnostic tests. The Diagnostic Tools icon is displayed on the task bar as shown.



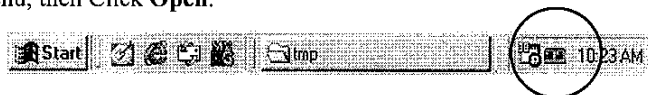
By positioning the mouse cursor over the icon, the upstream and downstream line rates of the ADSL connection are displayed.

The Diagnostic Tools icon consists of two lights side by side. The left light indicates data is being transmitted whereas the right light indicates data is being received. The state of the connection can be determined as follows:

COLOR CODE	DESCRIPTION
Red, Red	No ADSL connection and or handshaking. Check your cable connections.
Black/Yellow flashing	ADSL Handshaking – Connection not established.
Black, Black	ADSL connection established – no data traffic or idle connection
Black, Green	ADSL connection established – receiving data (TX/off, RX/on)
Green, Black	ADSL connection established – transmitting data (TX/on, RX/off)
Green, Green	Connection established – transmitting and receiving data (TX/on, RX/on)
Ø	Disconnected or a driver problem exists. Try using <b>Connect</b> command in Diagnostic Tools. If persists, <b>restart</b> the PC system and/or last reload drivers.

**ADVANCED DIAGNOSTICS TOOLS**

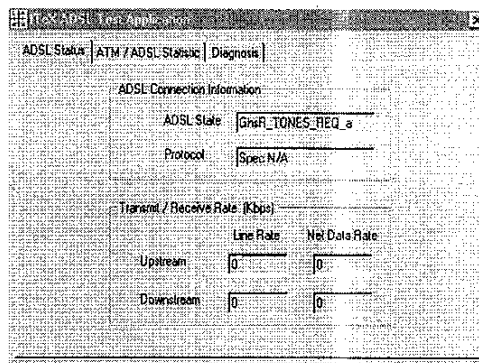
On the **Diagnostic Tools** icon on the right hand side of the status bar. Right-click the icon to display the menu, then Click **Open**.



The **ADSL Diagnostic Tools** window appears on the desktop. The three tabs of the Diagnostic Tools are **ADSL Status**, **ATM / ADSL Statistics** and **Diagnosis**.

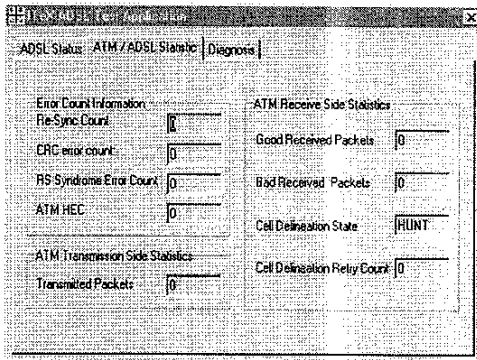
- **ADSL STATUS** window displays the current state of the ITeX ADSL connection, including current ADSL State, ADSL protocol in use and the net data rates for upstream and downstream data.

**NOTE:** ADSL protocols supported by the ITeX drivers are T1.413, G.dmt and G.lite. The protocol must be supported also by the ADSL equipment located at the central office. The ITeX drives use the protocol that results in the most efficient ADSL connection.



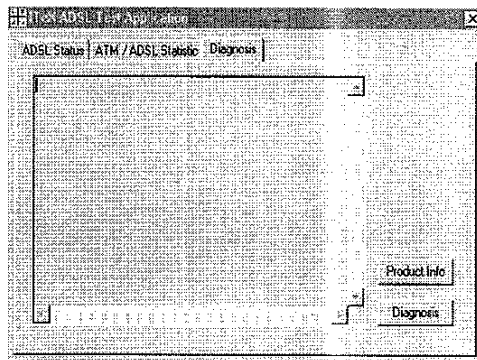
➤ **ATM / ADSL STATISTIC** window keeps tabs on errors that might affect overall system performance. The counts are reset whenever the PC system is restarted.

- ◆ **Re-training Count** tracks the number of ADSL connections performed. Due to unexpected line condition changes, the ITeX drivers can retrain the connection causing the **Re-training Count** total to increment. The Diagnostic Tool icon will flash yellow while reconnecting.



- ◆ **ADSL** implements Reed Solomon (RS) error checking:
- ◆ **FEC Count** tracks the forward error correction count.
- ◆ **CRC Count** tracks the accuracy of correcting data errors over each 17msec.
- ◆ **ATM HEC Count** (header error check) errors are recorded as an indication of ATM packet accuracy.
- ◆ As a measure of packet transfer performance, the **Packet Errors** are counted and tracked against the total number of **Packets Received**. An error rate of less than 0.1% is reasonable under clean ADSL line conditions.
- ◆ If you have Bad Received Packets and are concerned about your service, multiply the **Bad Received Packets** count by 1000 and compare the result with the total **Packets Received** count. If the number is smaller than the total **Packets Received** count, then the board is operating normally.

➤ **DIAGNOSIS** window is used to verify the SAM card functionality. Running the Diagnosis program will disconnect the NIC from the ADSL line. Close all Dial-up sessions and close all files before running the Diagnostic program. Right-click the Diagnosis Tool icon (located on the Taskbar), then select the Diagnosis option. Product Information, e.g. driver revisions, are displayed by clicking the Product Info tab.



- ◆ **Product Information** lists the versions of the Diagnostic Tools (e.g. version 2.1) and the protocol Drivers installed (e.g. Version 1.3). The DLL version describes the software being used by both the drivers and Diagnostic Tools software.

**NOTE:** This information is helpful whenever making a technical support call. Click **Close** and exit the product information window.

- ◆ Click **Run Diagnostics** to run the diagnostic program that will test PC functionality and report the status. A warning message pops up that the ADSL service will disconnect before performing the Diagnostic test. If connected to the Internet at this time, disconnect any Dial-up sessions. Click **Yes** to begin the **diagnostic** program or click **No** to exit diagnostic program. The Diagnostic program performs a brief hardware check and displays the hardware status.

If the SAM fails the Diagnostic tests (shown below), then record the test result and contact customer support.

<b>ADSL bridge - PCI I/O Test</b>	I90188 chip test	→	Pass
<b>I90135 Register Test</b>	I90135 chip test	→	Pass
<b>I90135 Memory Test</b>	I90135 chip test	→	Pass
<b>ADSL Bridge - Loopback</b>	I90188 Fast datapath	→	Trial 20, Pass 20
	...Interleave datapath	→	Trial 20, Pass 20
<b>90135 Utopia Loopback</b>	I90135 Fast datapath	→	Trial 20, Pass 20
	...Interleave datapath	→	Trial 20, Pass 20

**NOTE:** For all loopback tests, both Trial and Pass counts equal 20 for success.

- ◆ Click **Close** to exit the Diagnostic program. The modem is disconnected for these diagnostic tests. To SAM card is functioning properly, it will automatically reconnect.

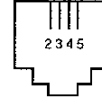
### TROUBLE SHOOTING

Refer to the following guidelines for assistance in getting your ADSL modem connection running.

Description of Problem	
1	<b>Is there a Diagnostic ICON on the Taskbar?</b> <input type="checkbox"/> Try <b>Restarting</b> the PC system. <input type="checkbox"/> Are the correct drivers installed for the Operating system used? <input type="checkbox"/> Have you deleted the drivers and tried the installation again?
2	<b>Is the NIC achieving ADSL connection?</b> <input type="checkbox"/> Try using the Diagnostic Tools <b>Connect</b> option <input type="checkbox"/> Is the cable installed between the SAM and the ADSL service? <input type="checkbox"/> Try <b>Restarting</b> the PC system. <input type="checkbox"/> Has any cabling adapter or wiring converter been removed?
3	<b>Is the NIC constantly trying to negotiate a connection – with blinking yellow panels ?</b> <input type="checkbox"/> Select <b>Disconnect</b> from the Diagnostic Tools then try to reconnect. <input type="checkbox"/> Restart the PC system and try to reconnect. <input type="checkbox"/> Examine the RJ-11 connectors and cable for any deterioration. <input type="checkbox"/> Has the wiring for your ADSL service been altered recently? <input type="checkbox"/> Does condition change with time of day? (a possible problem with line noise) <input type="checkbox"/> Are appliances near the PC system introducing noise into your ADSL service? <input type="checkbox"/> Power down the PC system and re-seat the SAM card.
4	<b>Is the NIC achieving ADSL connection - but you can't reach the Internet?</b> <input type="checkbox"/> Is the service connection address correct? <input type="checkbox"/> Can you PING the Internet? To run the PING command, Open DOS and type: <C:\Windows\PING Gateway_Addr (e.g. C:\Windows\Ping www.microsoft.com) <input type="checkbox"/> Ping Connects? If Yes then upgrade the Internet Browser or check the Option settings for the Internet Browser. <input type="checkbox"/> Bridged Ethernet – Are the TCP/IP, Gateway and DNS addresses correct (refer to your ADSL or ISP provider documentation) <input type="checkbox"/> Win NT4.0 – Is service Pack 3.0 installed? <input type="checkbox"/> Browser configured correctly – check your browser documentation.
5	<b>How can I determine the TCP/IP address for Point-to-Point?</b> <input type="checkbox"/> For Windows 98, run the program Ipconfig from the DOS prompt (e.g. C:\Windows\IPCONFIG) All network devices will list their TCP/IP and Gateway Address. By knowing what network hardware is installed and configured in your PC system, any unusual TCP/IP address belongs to Point-to-Point.
6	<b>How do I tell if Service Pack 3.0 is installed on my Windows NT4.0?</b> <input type="checkbox"/> Click on the Start menu at the tool bar, select <b>Programs, Administrative Tools</b> and then <b>Windows NT Diagnostics</b> . Verify that Service Pack 3.0 is installed. <input type="checkbox"/> When the system is restarting, <b>service pack 3</b> is displayed at the beginning of the driver loading sequence.
7	<b>How do I resolve confusion about which protocol to install?</b> <input type="checkbox"/> Refer to your ADSL or ISP provider documentation
8	<b>Can I determine which protocol is installed?</b> <input type="checkbox"/> Windows 98 – Yes. In the <b>Network</b> window (in the <b>Control Panel</b> ) select the <b>Configuration</b> tab and look for TCP/IP → SAM If found, then the Bridged Ethernet drivers are installed. <input type="checkbox"/> Point-to-Point for Windows 98 or NT4.0 – No.
10	<b>Must TCP/IP be loaded for both Point-to-Point and Bridged Ethernet protocols?</b> <input type="checkbox"/> Yes. Please carry out the TCP/IP installation procedure before loading the SAM driver.
11	<b>Driver installation resulted in unexpected errors or warnings, and you can't connect.</b> <input type="checkbox"/> Perform the driver removal procedure. <input type="checkbox"/> Verify which version of Microsoft Windows is loaded in the PC system. <input type="checkbox"/> Perform the SAM driver removal procedure <input type="checkbox"/> Install the SAM driver again.

### CONNECTOR PIN-OUT

The ITeX SAM card is equipped with a RJ-11 jack for connection to the ADSL data port. The center two pins, pins 3 and 4, are used for ADSL data. For the SAM card to make a proper ADSL connection, the installed ADSL data port should also use pins 3 and 4 for data. If the ADSL data port installation uses pins 2 and 5 for data, then a wiring converter will be required. Do not alter or remove the wiring converter if present. Consult with your ADSL provider before attempting any wiring changes.



**APPENDIX E – ADSL CONFIGURATION**

1. On the task bar on the right hand side locate the **ITeX ADSL Diagnostic Tool** icon. Right click on the **Diagnostic Tool** icon, then click **Configuration**.

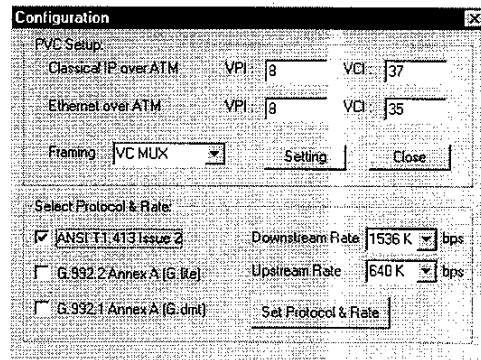


2. The **Configuration** window appears. From the Configuration window the **PVC Setup**, **Protocol /Mode** and **Rate** can all be set as required by your ADSL service provider.

➤ **PVC SETUP**

**NOTE:** Your ADSL PVC settings are typically set through the **Systems Options** window of the driver installation wizard. However, the values can easily be changed as follows:

1. Enter in the **VPI** and **VCI** and **Framing** values provided by your ADSL service provider, then click the **Setting** button.
2. Verify that the **Protocol/Mode** and **Rate** settings are correct and the click **Close**.



➤ **SELECT PROTOCOL/MODE**

**NOTE:** The SAM Multi-Mode Drivers will automatically determine the ADSL connection mode supplied by your ADSL service provider. The priority of selection is G.lite, G.dmt, and T1.413. If for any reason you require a mode setting different from the automatic default setting, you can manually set the mode(s) as required. To change the ADSL connection mode setting proceed as follows:

1. In the **Select Protocol & Rate** section you shall find the ADSL Mode selection options. Select the ADSL mode(s) you require, by clicking in the selection box(s).
  - ITU G.992.1 (G.dmt) .....referred to as **G.dmt**
  - ITU G.992.2 (G.lite).....referred to as **G.lite**
  - ANSI T1.413 .....referred to as **ANSI**
2. After you select and check (✓) the mode(s) you require, Click **Set Protocol & Rate**. Your new ADSL Mode settings are now in effect.
3. Verify that the **PVC** and **Rate** settings are correct and the click **Close**.

➤ **SELECT RATE**

**NOTE:** The default downstream rate of 1.5Mbps is recommended, as the majority of service providers today supply 1.5Mbps. This allows for video streaming of about 1Mbps resulting in A CPU utilization of under 30% @ 300 MHz. However, for higher speed ADSL service and /or CPU's, the rate can be increased. The rates can be easily be changed as follows:

1. To change the rate settings enter in the **Downstream Rate** and **Upstream Rate** required, then click the **Set Protocol & Rate** button.
2. Verify that the **Protocol/Mode** and **PVC** settings are correct and the click **Close**.

## **APPENDIX F - SYSTEM REQUIREMENTS & COMPLIANCE INFORMATION**

### **Power Requirements**

- 0.75A Max @ +5V  $\pm$  5%, 0.1A max @  $\pm$  12V,  $\pm$  5%

### **Environmental Requirements**

- Operating Temperature: 0 °C to 70°C with airflow
- Non-operating Temperature: -10 °C to 85 °C
- Operating Humidity: 10% to 90% non-condensing
- Non-operating storage humidity: 5% to 95% non-condensing

### **Compliance Certification**

- UL 1950
- CE approved
- FCC Part 15 Class B



## **APPENDIX G – COPYRIGHT & REGULATORY INFORMATION**

**Copyright © 1999, Integrated Telecom Express, Inc. All rights reserved.**

This manual and software described in it are copyrighted with all rights reserved. This manual may not be copied, in whole or in part, without the written consent of Integrated Telecom Express, Inc. SAM is a trademark of ITeX. All other product names are trademarks and or registered trademarks of their respective companies.

### **FCC Statement**

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 measure:

- ◆ Reorient or relocated the receiving antenna.
- ◆ Increase the separation between the equipment and receiver.
- ◆ Connect the equipment into an outlet circuit different from that to which the receiver is connected.
- ◆ Consult the dealer or an experienced radio/TV technician for help.
- ◆ Shielded cables must be used to comply with FCC regulations.