

AMD Alchemy[™] Solutions Am1772[™] Terminal User's Manual

A Development Application for the

Am1772[™] Mini PCI Reference Design Kit

Version 1.03

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Contacts

www.amd.com wlan.support@amd.com

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Federal Communication Commission Interference Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of 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:

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

FCC Caution: To assure continued compliance. (example-use only shielded interface cables when connecting to computer or peripheral devices). Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the Following two conditions: (1) This device may not cause harmful interference, and (2) this Device must accept any interference received, including interference that may cause undesired operation.

Any changes or modifications not expressly approved by the party responsible for compliance could void the authority to operate equipment.

Federal Communication Commission Interference Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of 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:

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

FCC Caution

This equipment must be installed and operated in accordance with provided instructions and a minimum 20 cm spacing must be provided between computer mounted antenna and person's body (excluding extremities of hands, wrist and feet) during wireless modes of operation.

This card cannot be used in laptop computers or other portable configurations and is authorized only for use in devices where the antenna may be installed such that 20 cm may be maintained between the antenna and users.

Any changes or modifications not expressly approved by the party responsible for compliance could void the authority to operate equipment.

Federal Communication Commission (FCC) Radiation Exposure Statement

This equipment complies with FCC radiation exposure set forth for an uncontrolled environment. In order to avoid the possibility of exceeding the FCC radio frequency exposure limits, human proximity to the antenna shall not be less than 20cm (8 inches) during normal operation.

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1 Document History

Version/Date	Modification
V1.0: 10/15/02	Initial version
V1.01: 10/23/02	Updates for RDK
V1.02: 10/31/02	Non-technical edits
V1.03: 11/13/02	Added EEPROM configuration option

2 Preface

This document describes the Am1772TM Terminal user interface for the Mini PCI reference design featuring the Am1772 wireless LAN chipset from AMD. The Am1772 Terminal utility may contain or reveal AMD proprietary information and should not be distributed without the proper license agreement from AMD.

3 Overview

The Am1772 Terminal is a Windows® application provided to development and test engineers to configure, execute and troubleshoot experiments with the Mini PCI reference design provided by AMD.

Please note that the Am1772 Terminal application is not an end-customer utility.

Using Am1772[™] Terminal 4

4.1 **Installing Am1772 Terminal**

The driver installation script automatically creates the following desktop shortcut for Am1772 Terminal on the desktop.



Terminal

This desktop shortcut points to the Am1772 Terminal executable, which resides in the Windows base directory (typically C:\WINDOWS or C:\WINNT).

Launching Am1772 Terminal 4.2

Am1772 Terminal can be launched using the desktop shortcut, which was automatically created during driver installation.



Am1772 Terminal

Alternatively, Am1772 Terminal can be started by manually navigating to the Windows base directory (typically C:\WINDOWS or C:\WINNT) and executing the application (Am1772 Terminal.exe) in that directory.

Although not advisable, multiple instances of Am1772 Terminal can be run simultaneously. Care should be taken so that these multiple instances do not issue conflicting commands to the driver.

4.3 Version Information

The Am1772 Terminal application version can be viewed using the "Info about..." dialog box.

Info About		~
Capacity Capacity	Am1772 Wireless LAN Chipset Software Terminal Version 176.1 (Build 0)	
	Advanced Micro Devices Inc.	
	Copyright (C) 2002 Advanced Micro Devices Inc.	
	Thanks for using this application!	
	<u> </u>	

The "Info about..." dialog box can be accessed by clicking on the "<u>A</u>bout..." item in the application system menu (the icon in the top left corner of the application main window).

Please note that the Am1772 Terminal version must match the driver version. If the version numbers do not match, Am1772 Terminal will display an error message and the application will not execute further.

4.4 "General" Page

The "General" property page displays basic information about the various components of the AMD wireless solution, and it allows for selecting a network adapter to be used with the current Am1772 Terminal instance.

💯 Am1772 1	Ferminal		X
General Net	work Stations Frames Performance	l	
	AMD 802.11 Wireless Network Contro Advanced Micro Devices Inc. Release Edition, AMD Confidential	l Utility	
Important Notes:	This software contains confidential and about products currently under develo Devices Inc.	d proprietary information pment at Advanced Micro	
Please sele	This software may not be redistributed from Advanced Micro Devices, Inc. ct a wireless petwork adapter	without written permission	
Am1772(tn	i) Wireless LAN Chipset		
Hardware	Info	<u>P</u> roperties	
-	<mark>∏</mark> Ereeze D	isplay Close	

This page can be displayed by clicking on the "General" tab in the upper region of the Am1772 Terminal main window.

If Am1772 Terminal finds more than one AMD wireless network adapter installed, it allows for choosing one AMD wireless network adapter as the context for all other Am1772 Terminal pages and dialog boxes.

4.4.1 Hardware Information

The "Hardware Info" dialog box displays version numbers of the various hardware components:

Detected Hardwa	ire 🔀	
MAC:	Am1771 B0 (20902197)	
Baseband:	Am1771 B0 (422E 3034)	
Radio Front End:	Am1770 (before C0)	
TX Power Levels:	10.000 mW 1.000 mW 0.100 mW	
Antennas:	1 for RX 1 for TX	
EEPROM	<u>(0K</u>)	

This information can be used for troubleshooting and defect reporting. Please note that the information displayed in the dialog box depends on your actual hardware platform and may be different from the values shown in the figure above.

This dialog box can be displayed by clicking on the "Hardware Info..." button on the "General" page.

Clicking on the "EEPROM" option brings up a "Configuration EEPROM" dialog box.

Configuration EEPR	ЭМ		
EEPROM Status:	An EPROM device w contains valid data.	vas found, and it	
EEPROM <u>S</u> ize:	1024 bits 💌	I	
Hardware Address:	00:12:00:12:00:12	colon separated	
Serial <u>N</u> umber:	0	decimal	
Regulatory <u>D</u> omain:	United States of Ame	erica (FCC) 📃	
Antenna Configuration:	 Antenna <u>B</u> Availal Antenna B is Defa Antenna A/B Divi 	ble ault Antenna arsity	
Maximum TX <u>P</u> ower:	100 mW	anan in colori	
	PCI Subvendor ID	ange its valuej.	Y
0000	PCI Subvendor Model II) 💻	
0000	PCI Programming I/F & F	Revision	
0280	PCI Class Code & Subcl	ass	
2201	Cardbus Offset MSB=01	h, LSB=00h	
<u>W</u> rite <u>L</u>	oad <u>S</u> ave	Close	

The various fields on the page are populated if an EEPROM is present on the card. All the fields can be modified to affect the current configuration of the Am1772 chipset. The "Write" option writes the changes to EEPROM. The EEPROM configuration can also be saved (with the "Save" option) into a binary file. The "Load" option loads a configuration from an existing binary file.

The "EEPROM size" has to be a number between 256 to 16384 bits.

The "Regulatory Domain" indicates the region of operation of WLAN 802.11b system. The options include:

- Canada (IC)
- France
- Japan (MKK)
- Most of Europe (ETSI)
- Spain
- United States of America (FCC)
- Unrestricted (test mode)

The last option "Unrestricted (test mode)" is to test the chipset's operational capability in all the regulatory domains.

The "Hardware Records" can be modified by selecting the appropriate identifier and subsequently depressing function key "F2" to edit the corresponding value.

4.4.2 Driver Build Information

The "Detected Driver Software" dialog box displays version numbers of the installed network driver:

Build Version:	B0.1 (176.1)				
Build Date	Oct 23 2002		— K		
Build Time:	11:38:54			$\mathbf{\nabla}^{\prime}$	
Build User:	gchinnab)	
Build Label:			P	×	
		· · · · · · · · · · · · · · · · · · ·	02		

This information can be used for troubleshooting and defect reporting. Please note that the information displayed in the dialog box depends on your actual driver version and may be different from the values shown in the figure above.

This dialog box can be displayed by clicking on the "Driver Build..." button on the "General" page.

4.4.3 Adapter Properties

The "Adapter Properties" dialog box displays the Windows "Network Adapter Properties" dialog box, which can also be invoked using the Windows Device Manager applet:

Am1772(tm) Wireless	LAN Chipset Properties 🛛 😨 💈	3
General Advanced Am	1772 Driver	
Am1772(tm) Wir	eless LAN Chipset	
Device type:	Network adapters	
Manufacturer:	Advanced Micro Devices	
Location:	PCI Slot 4 (PCI bus 0, device 12, function 0)	
Device status		
This device is working If you are having problestant the troubleshooter	properly. ems with this device, click Troubleshoot to	
	Iroubleshoot	
Device usage:		
Use this device (enable)	×	
	OK Cancel	

For information on how to use this dialog box, please consult the documentation for Windows.

4.5 "Network" Page

The "Network" property page displays information about the wireless connection status of the network adapter associated with the current Am1772 Terminal instance. This page also allows for starting or joining wireless networks.

Connection Status:	Not connect	ed or synchr	onized			\mathcal{S}
LED Indicators:	Activity	Power	Link	Security		Y
Start Naturale	Connect	-1		Baset	-r	

This page can be displayed by clicking on the "Network" tab in the upper region of the Am1772 Terminal main window.

When the network adapter is connected to an access point, the connection status display looks like this:

Connection Status:	Station in infrastructure network (connected)		
Connection orditat.			
Network:	MCS LAB BO LINKSYS	00:06:25:55:36:9F	

If the network adapter has started an ad-hoc network (IBSS), the connection status display would look like this:

Connection Status:	Station in Ad-hoc network (not connected)		
Network:	AMD Adhoc Network	BA:19:C7:91:11:5A	

The buttons in the lower part of the "Network" property page allow for controlling connection status of the wireless network adapter.

Care should be taken to avoid control ambiguity if the Am1772 Terminal application executes in parallel to the wireless zero-configuration utility built into Windows XP, or the AMD Wireless network configuration utility running on Windows XP and other operating systems.

On Windows XP, it is recommended to disable the wireless zero configuration utility when Am1772 Terminal is used to control the AMD wireless network adapter. The AMD Wireless network configuration utility should not be executed when Am1772 Terminal is used to control the AMD wireless network adapter.

.

4.5.1 Starting a Network

The Am1772 Terminal application can be used for starting ad-hoc networks. The "Start Wireless Network" dialog box allows for specifying key parameters of the wireless network to be started.

Start Wireless Network			3
Network Type	S)	C Infrastructure Network	
Network Parameters			
Network <u>N</u> ame (SSID):	AMD Adho	oc Network	
<u>C</u> hannel:	Channel 6	(2437 MHz)	
Beacon Period:	1000	Time Units	
DTIM Period:	1	Beacon Periods	r
ATIM Window:	0	Time Units	
Probe Delay:	0	Time Units	
Short Preamble:	Γ		
Encryption Required:	Г	<u><u> </u></u>	
		Cancel Start	

For details about these parameters, please consult the IEEE 802.11 standard.

The "Rates..." button brings up a separate dialog box, which can be used for specifying operational rates for the network to be started. It is recommended not to change the default values in this dialog box.

4.5.2 Connecting to a Network

The Am1772 Terminal application can be used for connecting to an existing infrastructure or ad-hoc network. The "Connect to Wireless Network" dialog box displays the available wireless networks.

Connect to Wire	ess Network	
The following netwo it from the list, and the Available <u>n</u> etworks:	rk(s) are available. To access a nen click Connect.	a network, select
1234test MCS_LAB MCS_LAB_B0_3C MCS_LAB_B0_DL MCS_LAB_B0_LIN MCS_LAB_B0_B0	ОМ 1000 KSYS Ам	
This network requin this network, type th	is the use of a network key (WI ie key, and then click Connect.	EP) To access
Network key:	Connect	Cancel
	Variation	

The "Rates..." button brings up a separate dialog box to specify the supported rates to be reported for the station. It is recommended to not change the default values in this dialog box.

4.5.3 Disconnecting

When the wireless network adapter is connected to a network, or when the wireless network adapter has started its own network, the "Reset" button on the "Network" tab can be used to close the connection. A warning message will be displayed:

Atlas 80	02.11 Terminal 🛛 🔛
⚠	Do you really want to reset the network adapter?
	<u>Y</u> es <u>N</u> o

Clicking "Yes" disconnects the station from the network; clicking "No" retains the existing connection.

4.6 "Stations" Page

The "Stations" property page displays information about other wireless stations observed by the network adapter associated with the current Am1772 Terminal instance.

Address	State	Ch.	SSID	
00:60:1D:F6:FF:47 00:05:5D:ED:A0:E2 00:04:75:62:5E:B3 00:06:25:55:36:9F 00:40:96:29:9B:C7 00:40:96:34:41:A2 00:60:1D:F0:EF:80 00:40:96:57:95:1A 00:40:96:41:E2:A1 00:00:1A:18:02:99	Ide Ide Ide Ide Ide Ide Ide Ide	6 6 6 6 11 11 6 6	MCS_LAB_B0_ROAM MCS_LAB_B0_DL1000 MCS_LAB_B0_3COM MCS_LAB_B0_LINKSYS MCS_LAB_B0_ROAM NDTESTWEPS MCS_LAB 1234test	
		So	san <u>N</u> ow	

This page can be displayed by clicking on the "Stations" tab in the upper region of the Am1772 Terminal main window.

The buttons below the station list can be used to configure the automatic scan, authentication, and association sequences triggered by Am1772 Terminal.

4.6.1 Station List Settings

The "Station Discovery and Association Settings" dialog box allows for configuring the automatic scan, authentication, and association sequences triggered by Am1772 Terminal.

Station Discovery and Association Settings 🛛 🛛 🔀	
Automatic authentication and association	
Enable open system authentication	
Enable shared key authentication	
Enable association	
Automatic scan procedure	
Execute scan procedure every 5 📑 seconds	
Use passive scan (instead of active scan)	
Cancel OK	
) /

The Am1772 Terminal application displays this dialog box when a user clicks the "Settings..." button on the "Stations" page.

4.6.2 Manual Scanning

If automatic scanning is disabled (see 4.6.1), the "Scan Now" button, which is located on the "Stations" page, allows for manually executing a scan procedure over all channels permitted in the current regulatory domain.

4.7 "Frames" Page

The "Frames" property page allows for displaying frames received or sent through the network adapter associated with the running Am1772 Terminal instance.

Frame	Length	Time 🔨	
l₄ Probe Response	82	69420851435	
+ Probe Response	80	69420857077	
👍 Beacon	102	69420866326	
🗘 Probe Response	67	69420899444	
l∕→ Probe Response	99	69420899567	
ľ→ Beacon	105	69420905643	
l'→ Probe Response	67	69420911594	
l∔ Probe Response	- 99	69420934340	
👍 Probe Response	64	69420935129	
🗘 Probe Response	67	69420936331	
ľ→ Beacon	70	69420937901 📃	
l∔ Beacon	102	69420968690	
ť→ Beacon	85	69420973576	
Í→ Beacon	78	69420984126	
f→ Beacon	69	69421015233 🥃	
()		>	
Enable	<u>C</u> lear	Settings	

This page can be displayed by clicking on the "Frames" tab in the upper region of the Am1772 Terminal main window.

Please note that the "Enable" button must be checked in order to display live frame traces.

The icon in the left column indicates whether a given frame was received (arrow pointing away from the antenna), or transmitted (arrow pointing to the antenna).

4.7.1 Frame Details

Double clicking on a frame entry in the list on the "Frames" property page will display a "Frame Details" dialog box:

eacon at 6	942093	7901	j												X
00000000 00000010 00000020 00000030 00000040	0A 00 0 00 40 9 1F 80 0 00 00 0 00 00 8	00 02 36 41 08 01 00 01 54 73	62 5C 00 04 EC	03 8 D8 0 82 8 E1	0 00 0 40 4 00 4 88	00 96 11 96	00 41 00 03	FF 5C 00	FF D8 07 08	FF C0 00 05	FF 9B 00 04	FF 36 00 00	FF 23 00 02	b.€jijijijiji .@IA\Ø.@IA\ØÀI6# €d. IIII dsìá	5
														Close	

The information presented in the dialog box represents a hexadecimal dump of the frame contents of the received or transmitted frame.

4.7.2 Frame Display Settings

The "Frame Trace Settings" dialog box allows for specifying filter parameters for frames to be included with the frame trace on the "Frames" property page.

Frame Trace Settings	
Filter by data path Display received frames Display transmitted frames	
Filter by frame type ✓ Display <u>d</u> ata frames ✓ Display <u>b</u> eacon frames ✓ Display all other <u>m</u> anagement frames ✓ Display <u>c</u> ontrol frames	
Display settings ✓ Keep most recent frame visible ✓ Limit number of trace entries to 100 frames	
Cancel OK	

This dialog box can be displayed by clicking on the "Settings..." button on the "Frames" property page.

4.7.3 Clearing the Frame List

Clicking on the "Clear" button on the "Frames" property page clears the frame list on the "Frames" property page.

4.8 Page "Performance"

The "Performance" property page allows for displaying information about received or transmitted current or average bit rates, signal quality values and others.

🐓 Am1772 Terminal	
General Network Stations Frames	Performance
Signal Strength, -2.0 dBm	Signal Quality, 100.0 %
Rx Throughput, avg. 23374290002.6	Tx Throughput, avg. 52 Bit/s
Rx Error Rate, 18/s	Tx Error Rate, 0/s
	<u>Clear</u>
	Ereeze Display Close

This page can be displayed by clicking on the "Performance" tab in the upper region of the Am1772 Terminal main window.

4.8.1 **Performance Display Settings**

The "Performance Display Settings" dialog box allows for selecting parameters to be displayed in the various histogram controls on the "Performance" tab.

Р	erformance Di	isplay Settings		
	– Data Sources –			
	<u>T</u> op left:	Signal Strength 💌	Show current value	
	T <u>o</u> p right:	Signal Quality	Show current value	
	Mjddle left:	Rx Throughput	Show average value 💌	
	Mi <u>d</u> dle right:	Tx Throughput	Show average value 💌	
	Botto <u>m</u> left:	Rx Bitrate 🔹	Show current value	
	Bottom rig <u>h</u> t:	Tx Bitrate 🔹	Show current value	Y
			Cancel OK	
				1

Every row in the "Performance Display Settings" dialog box configures one histogram. Within each row, the left dropdown list selects a parameter to display, and the right dropdown list allows for displaying current, average, or maximum parameter values next to the parameter histogram.

Clicking the "Settings..." button on the "Performance" tab pops up this dialog box.

4.8.2 Resetting Histograms

All histograms on the "Performance" tab can be reset by clicking the "Clear" button on the "Performance" tab.



適用機種:WI288P

WLAN CARD WI288P Specifications

- 1. General specification
- 2. Standard test condition
- 3. Electrical specification
- 4. Frequency channel plan

核准:	審查:	製表:	修訂日期:			制定日期:
		莊繐瑄	年	月	日	2003 年 4 月 7 日

N		S	pecifica	ation	_	Tast Mathad/Condition
No.	Item	Condition	Min.	Тур.	Max.	Test Wethou/Condition
1.	General specification	1				
1-1.	Standard	IEEE 802.11	lb	1	1	
1-2.	Frequency Band(MHz)		2400		2483.5	
1-3.	No. of Selectable	11 Channels	(US, Car	nada)		
	Channels	13 Channels	(Europe)			
		14 Channels	(Japan)	T	T	
1-4.	Channel Spacing (MHz)			5		
1-5.	Modulation Technique	DSSS (CCK	, DQPSK	, DBPS	K)	
1-6.	Spreading	11-chip Barl	ker Seque	nce		
1-7.	Media Access Protocol	CSMA/CA(collision .	Avoidan	ce) with	
		ACK				
1-8.	Interface	32-bit PCI				
1-9.	Dimensions	120.0 mm x	39.0 mm	x 4.0 m	m	
1-10.	LED Indicators	Link, Power	•			
1-11.	Antenna Connector	Reverse SM	А			
2.	Standard Test Condi	ition	1	1	T	
2-1.	Supply voltage(V)			3.3		
3.	Electrical					Temperature Range $: 0 \sim 55^{\circ}$ C
	Specification		1	1	T	Humidity: 95 % (Non-condensing)
3-1.	Power Consumption	@+3.3V			150	Receiver Mode
	(mA)				260	Transmit Mode
3-2	Receive Sensitivity		-82	-84		@ 11 Msps
	(dBm)[FER < 8%]		-87			@ 5.5 Msps
			-90			@ 2 Msps
			-92			@ 1 Msps
3-3.	Average Output Power		20	20		@29.5dB difference between the signal
	(dBm)					level at center frequency and higher
						first side lobe
3-4	Frequency Accuracy(ppm)		- 25		+ 25	

4. Freq	uency cha	nnel plan										
- I		Regulation Domains										
Channel_ID	Frequency	FCC	IC	ETSI	Spain	France	MKK					
	(Mhz)	(X '10')	(X '20')	(X '30')	(X '31')	(X '32')	(X '40')					
1	2412	Х	X	Х								
2	2417	Х	Х	X								
3	2422	Х	Х	X								
4	2427	Х	Х	X								
5	2432	Х	Х	X								
6	2437	X	X	X								
7	2442	Х	Х	Х								
8	2447	X	X	Х								
9	2452	Х	Х	Х								
10	2457	X	Х	Х	Х	Х						
11	2462	X	Х	Х	Х	Х						
12	2467			Х		Х						
13	2472			X		X						
14	2484						X					