



TELE LOTUS TECHNOLOGY

GFWT-a FireWire Industrial Hardware Tester

GFWT-a FireWire Industrial Hardware Tester

User's Manual



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1.Overview

This manual applies to the GFWT-a Firewire Software Test Utility as developed by Tele Lotus Technology in accordance to the conformance of the IEEE 1394 a-2000 communications protocol standard, and 1394 Open Host Controller Interface(OHCI) Specification.

The GFWT-a Software Test Utility tool is designed specifically, to be used in production to perform functional and protocol tests required for IEEE 1394 OHCI host controllers and/or chipsets incorporated into host machines.

The GFWT-a Software Test Utility tool environment consists of a DOS application software and is to be used in AT LEAST A PAIR of IEEE 1394 enabled Units Under Test to achieve the desired test functions and results.

1.1 GFWT-a Test Features

GFWT-a Firewire Test Utility features the following:

- DOS based software to verify the functionality and protocol of the Units Under Test.
- A Graphical User Interface makes it easy to configure and control the test process.
- Open (non-vendor-specific) conformity allows workability with all OHCI chipsets.
- Testing of up to 3 ports in approximate 15 seconds. (subject to configuration)

1.2 Port Tests

GFWT-a Firewire Test Utility tests the connected ports for protocol conformity and functionality. The tests available are:

- Connection tests
- Asynchronous and Isochronous Packet tests up to the maximum data rate
- Pattern tests on PCI registers
- Verification link register access
- Verification of PHY register access
- Verification of physical layer via transmission tests



1.3 Required Hardware

Operation of the GFWT-a utility tool requires, at minimum, one IEEE 1394 enabled host machine (whether embedded or add on Host Card) is to be used with the GFWT-a hardware tester unit.

1.4 Package Listing

The GFWT-a tester package includes the following packed items:

- a) One GFWT-a tester hardware unit.
 - b) Three IEEE 1394a (Firewire) cables
 - c) One 230V AC to 9V DC Converter @ 500mA
 - d) One Software diskette containing the FWT-a test operation software
 - e) One user manual
- The front of the GFWT-a has 3 standard Firewire connectors, 2 indicating LEDs and power connector for +9V @ 500mA
 - The rear of the GFWT-a has a Reset switch.

1.5 Software File Listing

The only file in this package is GFWT3.exe, the main application to be run under DOS.

Upon use for the first time, a file Load_Con.cfg will be generated in the same root folder. This is the configuration file saved and will be subsequently used for future tests until modified. The configurations for the tests can only be modified using the GFWT-a GUI.

2. Hardware Description

The following diagrams illustrate the front and back panel views of the GFWT-a tester hardware:

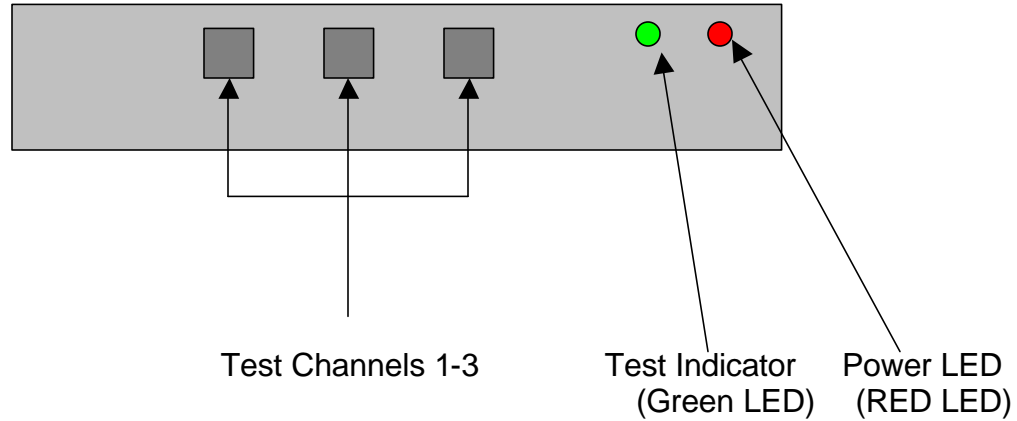


Figure 1 : Front Panel View

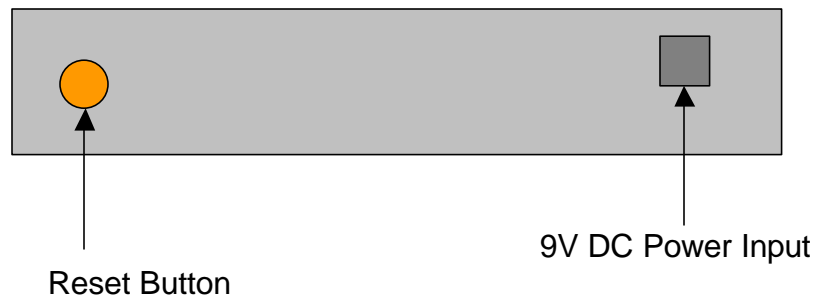


Figure 2 : Back Panel View

Before using the GFWT-a Tester Software Utility, a simple software installation is required.

3.1 Installing the Software

- 1) Create a working directory named FWTEST in your local hard disk of the UUT.
For example: C:\> md FWTEST.
- 2) Place the Firewire Tester Software Utility disk in your floppy disk drive.
- 3) Switch to the floppy disk drive.
For example: C:\ > a:
- 4) Copy the contents of the floppy disk into the working directory you created previously.
For example: A:\> copy *.* c:\FWTEST
- 5) Switch back to your working directory and check if GFWT3.exe have been copied successfully.

***NOTE : Always make backups of the supplied floppy disk before proceeding with any installation procedures.**

3.2 Hardware Setup

The following illustrations shows the setup required to test IEEE 1394 Enabled UUTs

Full testing of up to 3 ports can be tested at any one time. Connect up all the ports of the Transmitter machine to the Echo machine respectively and start the test for complete testing.

Usage of test ports on the tester is totally independent of connection peculiarities. Testing does not require all ports on the tester to be used nor does it require connection to be in any particular sequence.



3.2.1 Testing IEEE 1394 Enabled UUT

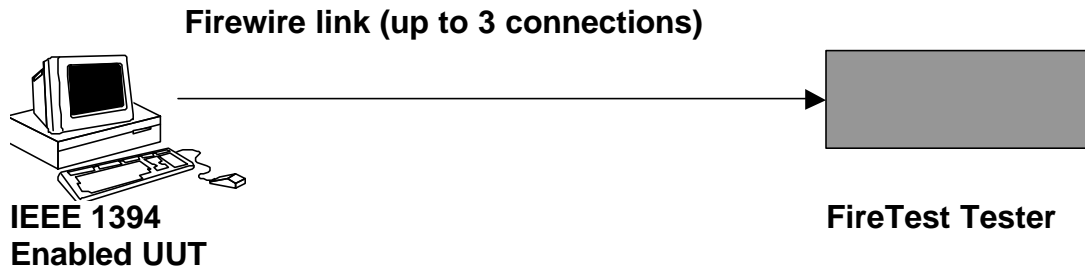


Figure 3 : Hardware Environment Setup

4 Using the application

4.1 User Interface Screen

Upon launching the GFWT-a software application from the command prompt, you will be greeted by the user interface screen as shown above.

There are four panels whereby:

Top Left Panel	Main Menu
Bottom Left Panel	Description and Details
Top Right Panel	Test Progress/Setting Selection
Bottom Right Panel	Application Output Messages

Navigation on the menu screen are as follows:

← → ↑ ↓	Menu Navigation/Settings Selection
Enter	Confirm Selection
Esc	Cancel Selection/Exit from Current Selection

4.2 Main Menu Selections

Run Test (Single Run)	Runs test a single time using the selected settings.
Run Test ...	Runs test continuously with selected settings until stopped with a keypress.
Edit Setting	Sets desired parameters for the test.
Default Setting	Resets the application to use the default settings for the test.
Exit	Stops all tests and return to DOS



4.3 Test Parameter Settings



Use the cursor key to highlight the 'Edit Setting' option and press the 'Enter' key. On the top right panel, the available settings will be shown for selection. Use the cursor keys to navigate each field. Pressing the 'Enter' key on the highlighted field will bring up a drop-down menu for available parameters. Use the cursor keys to select the desired parameter and press the 'Enter' key to confirm your selection. Use the cursor keys to highlight 'OK' and press the 'Enter' key. Successful configuration will be reported with an application output message on the lower right panel.

The parameters available for configuration are :

Port X (where X is the port number)	Enable/Disable the port on the UUT for testing.
Speed	Selects packet transfer speed used for testing. Available options are S100, S200 and S400 speeds.
Transfer Mode	Selects packet transfer modes. Available options are Isochronous Mode and Asynchronous Mode.
Packet Size	Selects packet size of test packets transmitted during test. Available options are 512, 1024, 2048 bits/packet.

****Note :** The 'Enable Port X' here corresponds to the Port on the UUT, and NOT the channel ports on the tester.



4.4 Operating the Software Application

The operation of the test involves setting up the UUT to the GFWT-a hardware. Please refer to Section 3.2.1 for a diagram depicting the hardware set up. (Figure 3)

**** TELE LOTUS OHCI FIREWIRE TESTER **** Version 0.9 Copyright			
Run Test (Single Run)		Async Mode	Isoch Mode
Run Test ...	P0		
Edit Setting	S100	Testing	Waiting
Default Setting	S200	Waiting	Waiting
Exit	S400	Waiting	Waiting
	P1		
	S100	Waiting	Waiting
	S200	Waiting	Waiting
	S400	Waiting	Waiting
	P2		
Async Transmitted:77	S100	Waiting	Waiting
Async Received:76	S200	Waiting	Waiting
Isoch Transmitted:	S400	Waiting	Waiting
Isoch Received:	0%	100%	76 Pkts
Current Test Status	Configuration file load success.		
Port :0 Type :Async	Configuration file load success.		
Speed:100 Size :512	Beginning the test.		
Press any key to stop!	Test complete.		
	Beginning the test.		

On the test software, launch the application from the command prompt. Using the cursor, select either 'Run Test (Single Run)' or 'Run Test ...' from the Main Menu. This will begin the test using the settings set prior to the test.

**** TELE LOTUS OHCI FIREWIRE TESTER **** Version 0.9 Copyright			
Run Test (Single Run)		Async Mode	Isoch Mode
Run Test ...	P0		
Edit Setting	S100	Passing	Failing
Default Setting	S200	Passing	Failing
Exit	S400	Passing	Failing
	P1		
	S100	Waiting	Waiting
	S200	Waiting	Waiting
	S400	Waiting	Waiting
	P2		
Async Transmitted:300	S100	Waiting	Waiting
Async Received:300	S200	Waiting	Waiting
Isoch Transmitted:3	S400	Waiting	Waiting
Isoch Received:	0%	100%	Pkts
Current Test Status	Configuration file load success.		
Port :0 Type :Isoch	Configuration file load success.		
Speed:400 Size :512	Configuration file load success.		
Press any key to stop!	Beginning the test.		
	Test complete.		



The Test Progress Screen will show the current test progress on the current port and signal a pass or a fail result from the test.

The current test settings used are displayed in the lower left panel.

The test result will show a pass/fail on the top right panel with pass in GREEN and fail in RED.

The bottom right panel functions as a log and progress description. Any failure also be shown here in the form of an error message.

4.5 Test Logs

All UUT that fails the tests will be logged to a text file with the filename as the date in which the log was captured e.g. mmddyy.txt. for easy reference.

Log details include:

- Port Number Tested
- Packet Transmission Speed
- Packet Type Sent/Received
- Failure Message
- Date and time stamps
- Results
- Log counter

A new log file will be generated each day for easy archiving of test results and the text format makes logs easily portable between machines.

Appendix

Tester Electrical Specifications

The GFWT- tester is a standalone unit with the following electrical specifications:

- Input DC 9V @ 500mA and 4.5VA

Software Specifications

The GFWT-a software application is a Microsoft DOS application. To install the software on a PC, it should meet the following minimum configuration requirements:

- A PC with Microsoft DOS version 7.0 and above. This application will not work on WinNT/Windows 2000/WinXP. **
- A 3 ½ " floppy drive
- Pentium processor or higher
- 32 Mbytes of RAM
- 2Mbytes of free Hard Disk space

