



VIA Networking Technologies, Inc.

GigaCheck User Guide

Revision 1.60
May 19, 2004

VIA Networking Technologies, INC.

Copyright Notice:

Copyright © 2004, VIA Networking Technologies, Incorporated. All Rights Reserved.

No part of this document may be reproduced, transmitted, transcribed, stored in a retrieval system, or translated into any language, in any form or by any means, electronic, mechanical, magnetic, optical, chemical, manual or otherwise without the prior written permission of VIA Networking Technologies, Incorporated.



is a registered trademark of VIA Networking Technologies, Incorporated.

All trademarks are the properties of their respective owners.

Disclaimer Notice:

No license is granted, implied or otherwise, under any patent or patent rights of VIA Networking Technologies Inc. VIA Networking Technologies Inc. makes no warranties, implied or otherwise, in regard to this document and to the products described in this document. The information provided by this document is believed to be accurate and reliable as of the publication date of this document. However, VIA Networking Technologies Inc. assumes no responsibility for any errors in this document. Furthermore, VIA Networking Technologies Inc. assumes no responsibility for the use or misuse of the information in this document and for any patent infringements that may arise from the use of this document. The information and product specifications within this document are subject to change at any time, without notice and without obligation to notify any person of such change.

Offices:

USA Office:

940 Mission Court
Fremont, CA 94539
USA
Tel: (510) 683-3300
Fax: (510) 683-3301 -or- (510) 687-4654
Web: <http://www.vntek.com>

Taipei Office:

8th Floor, No. 533
Chung-Cheng Road, Hsin-Tien
Taipei, Taiwan ROC
Tel: (886-2) 2218-5452
Fax: (886-2) 2218-5453
Web: <http://www.vntek.com.tw>

Revision History

Document Release	Date	Revision	Initials
1.00	9/15/03	Initial Release.	Checa
1.10	9/15/03	Change product name to GigaCheck. Modify the content of general & statistic page.	Checa
1.20	11/18/03	Update cover.	Checa
1.30	12/31/03	Subtract the content as to MVLAN.	Checa
1.40	2/12/04	1. Correct typo. 2. Update some materials.	Checa
1.50	04/16/04	Remove "VT6121" from product list.	Checa
1.60	05/19/04	Change supported adapter name.	Checa

VIA Networking
 Technologies Inc.
 Confidential
 NDA Required

TABLE OF CONTENTS

TABLE OF CONTENTS.....	4
1 INTRODUCTION.....	5
2 GIGACHECK INSTALLER.....	6
2.1 INSTALL VNT GIGACHECK IN WINDOWS 2000/XP/SERVER 2003	6
2.2 INSTALL VNT GIGACHECK IN WINDOWS 95/98/ME/NT 4.0.....	6
2.3 UPDATE MINIPOPT DRIVER	6
2.4 REMOVE VNT GIGACHECK IN WINDOWS PLATFORM.....	6
3 STARTING GIGACHECK.....	7
3.1 SYSTEM TRAY SHORTCUT.....	7
3.2 CONTROL PANEL SHORTCUT.....	7
3.3 PROGRAM FILE SHORTCUT.....	7
4 BASIC FEATURE.....	9
4.1 GENERAL PAGE.....	9
4.2 SETTING PAGE.....	9
4.3 STATISTICS PAGE.....	10
4.3.1 <i>General OID List</i>	10
4.3.2 <i>IEEE 802.3 OID List</i>	11
4.3.3 <i>Customized OID List</i>	11
4.3.4 <i>Network Traffic Page</i>	12
4.4 ABOUT PAGE.....	13
5 ADVANCE FEATURE.....	14
5.1 DIAGNOSTIC PAGE.....	14
5.1.1 <i>NIC Diagnostic</i>	14
5.1.2 <i>Network Test</i>	15
5.2 WAKE-UP PACKET PAGE.....	16
5.2.1 <i>Magic Packet</i>	16
5.2.2 <i>ARP Packet</i>	17
5.2.3 <i>Direct IP Packet</i>	18
5.2.4 <i>NBT Name Query/Registration for Computer Name</i>	18
6 ANALYTIC FEATURE.....	20
6.1 CABLE ANALYSIS PAGE.....	20
6.2 LINK ANALYSIS PAGE.....	20
6.3 SUMMARY PAGE.....	21

1 Introduction

Welcome to the user guide of GigaCheck.

GigaCheck is a windows based utility which enables you to monitor, test and configure VIA Networking Velocity Family Gigabit Ethernet Adapter on desktop systems and servers. It could be run under Microsoft Windows operation systems such as Windows 95/95OSR2/98/98SE/Me/NT 4.0/2000/XP/Server 2003.

VIA Networking
Technologies Inc.
Confidential
NDA Required

2 GigaCheck Installer

For detail about installing GigaCheck on various Microsoft Windows platform:

2.1 Install VNT GigaCheck in Windows 2000/XP/Server 2003

In Microsoft Windows 2000, XP and Server 2003, VNT GigaCheck installation procedure is listed as the following:

1. In the folder contains VNT GigaCheck package, there are two version of setup program
2. A Self-Extracting EXE and the GigaCheck subfolder contains uncompressed setup program.
3. Double Click on the **Self-Extracting EXE** or the **setup.exe** in the GigaCheck subfolder to launch the setup program,
4. Following the instruction of the setup program, to finish the setup of **VNT GigaCheck**.

Note:

1. You must be logged in as an administrator or a member of the Administrators group in order to complete this procedure.
2. VNT GigaCheck could be effect right after installation.
3. The setup program will prompt you to remove previous installation and to update miniport driver of your network adaptor if needed before installation.

2.2 Install VNT GigaCheck in Windows 95/98/Me/NT 4.0

In Microsoft windows 95/98/Me/NT 4.0, VNT GigaCheck installation procedure is listed as the following:

1. In the folder contains VNT GigaCheck package, there are two version of setup program
2. A Self-Extracting EXE and the GigaCheck subfolder contains uncompressed setup program.
3. Double Click on the **Self-Extracting EXE** or the **setup.exe** in the GigaCheck subfolder to launch the setup program.
4. Following the instruction of the setup program, to finish the setup of **VNT GigaCheck**.

Note:

1. VNT GigaCheck could be effect after system restart.
2. The setup program will prompt you to remove previous installation and to update miniport driver of your network adaptor if needed before installation.

2.3 Update Miniport Driver

In Microsoft windows 95/98/Me/NT 4.0/2000/XP/Server 2003, VNT GigaCheck installation procedure will automatically update driver in your system if necessary. It will be silent while performing driver update.

2.4 Remove VNT GigaCheck in Windows platform

In Microsoft windows 95/98/Me/NT 4.0/2000/XP /Server 2003, VNT GigaCheck installation procedure is listed as the following:

1. Click **Start**, point to **Settings**, and click **Control Panel**. Double-click **Add/Remove Programs**.
2. In the list of installed program, choose **VNT GigaCheck**.
3. Click Add/Remove button to remove VNT GigaCheck.

Or

1. Click **Start**, point to **Program Files**→**VNT GigaCheck**, and click **VNT GigaCheck uninstall**.

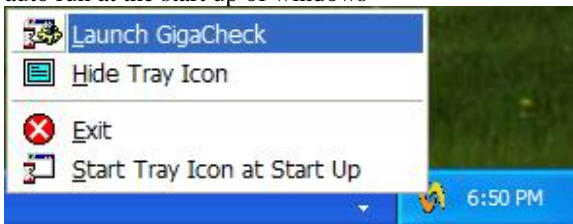
3 Starting GigaCheck

While GigaCheck was installed onto the system, there are several Shortcuts to launch it.

3.1 System Tray Shortcut



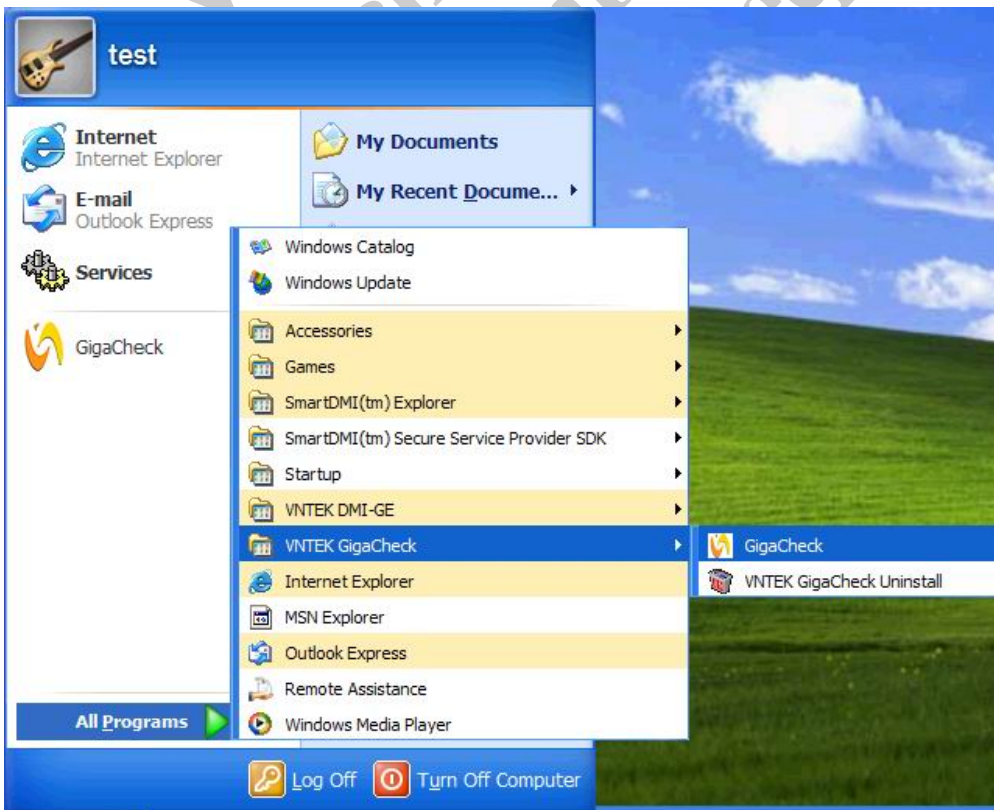
Despite of double click on the icon to launch GigaCheck, GigaCheck also provide a right click menu to launch itself and to enable auto run at the start up of windows



3.2 Control Panel Shortcut



3.3 Program File Shortcut



VIA Networking
Technologies Inc.
Confidential
NDA Required

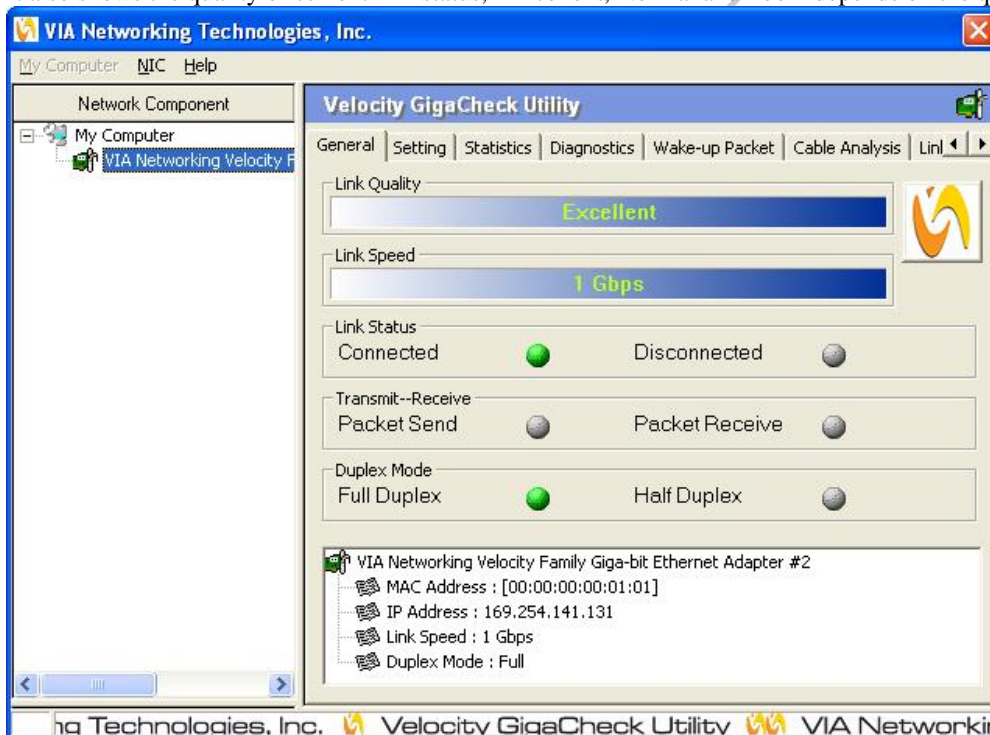
4 Basic Feature

The Basic Feature covered the general information, advance properties setting and historical statistics data of the network adapter.

4.1 General Page

The General Page shows the basic information of the adapter such as IP Address/MAC Address/Link Speed/Duplex Mode. And the current/historical network activities as well.

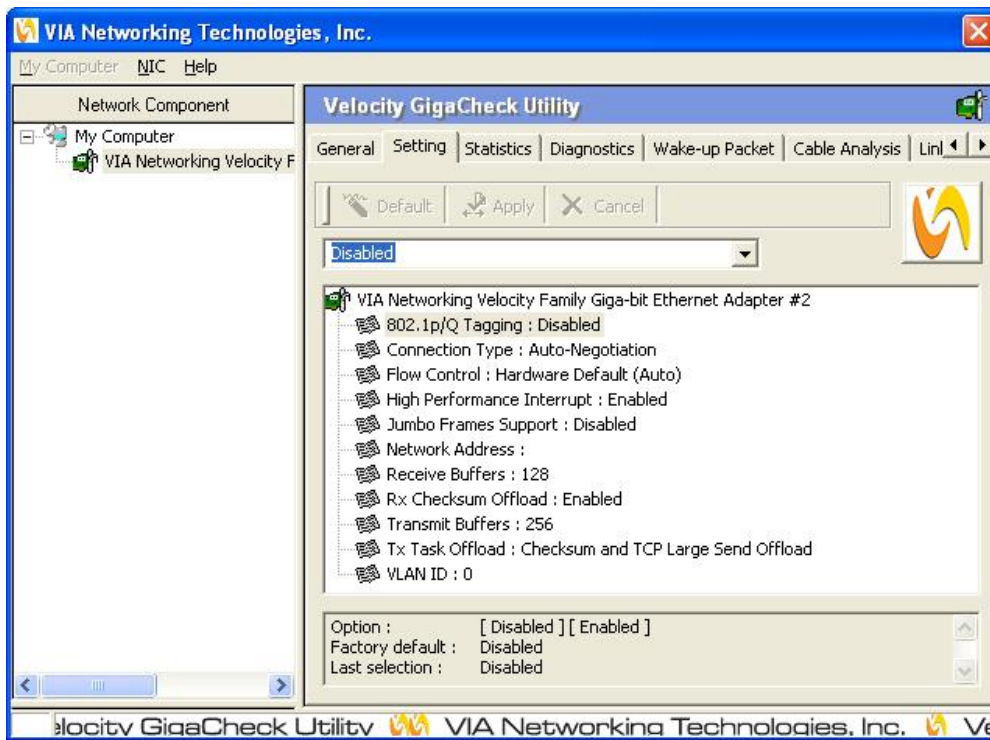
It also shows the quality of current link status, “Excellent, Normal and Poor” depends on the quantity of noise.



4.2 Setting Page

Instead of using Advance Properties Page embedded in Device Manager of Windows, GigaCheck provide a more friendly interface to set value of properties of network adapter.

All possible setting will be listed on the bottom of this page. All of the changed could be done through the one click on button “Apply”, and all default setting could be done through button “Default” as well.



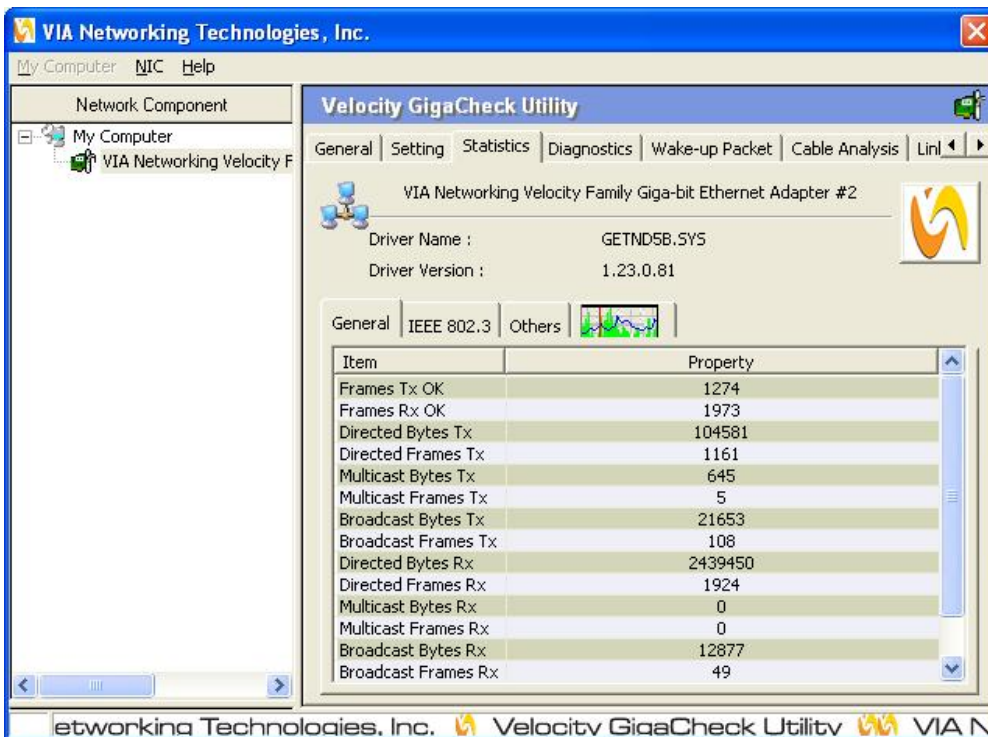
4.3 Statistics Page

Statistics Page contains the information about the current driver loaded for the network adapter. The adapter name, driver name and driver version:

It also contains three set of OID list to store the statistics information of the network adapter.

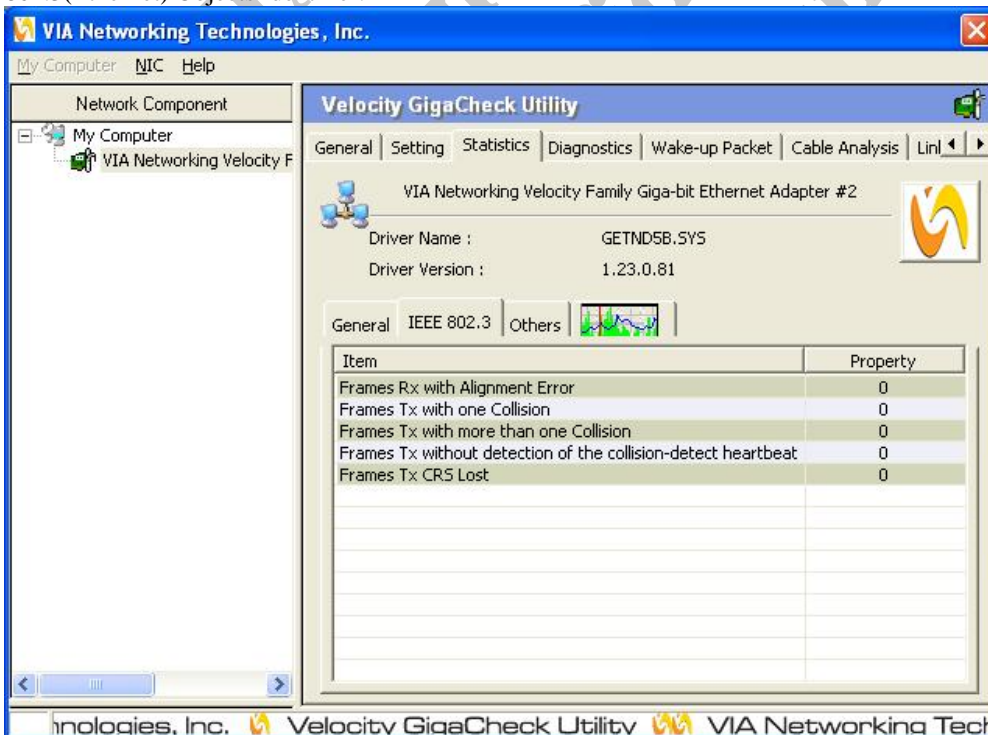
4.3.1 General OID List

General Objects Identifier:



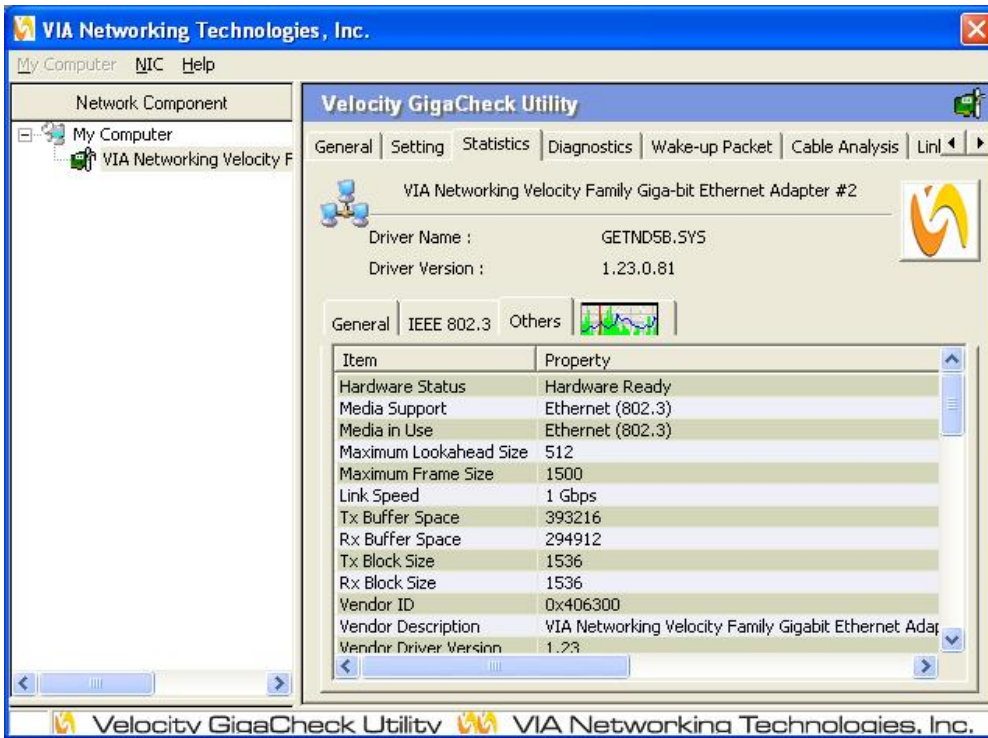
4.3.2 IEEE 802.3 OID List

802.3(Ethernet) Objects Identifier:



4.3.3 Customized OID List

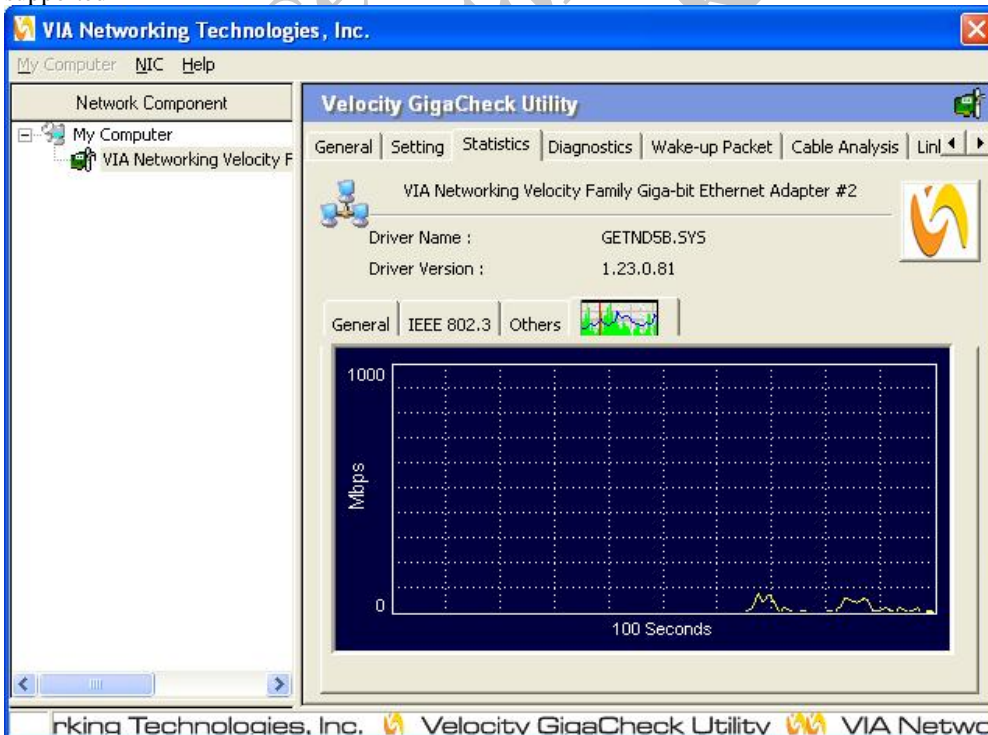
VIA Networking Velocity Family Gigabit Ethernet Adapter customized Objects Identifier:



4.3.4 Network Traffic Page

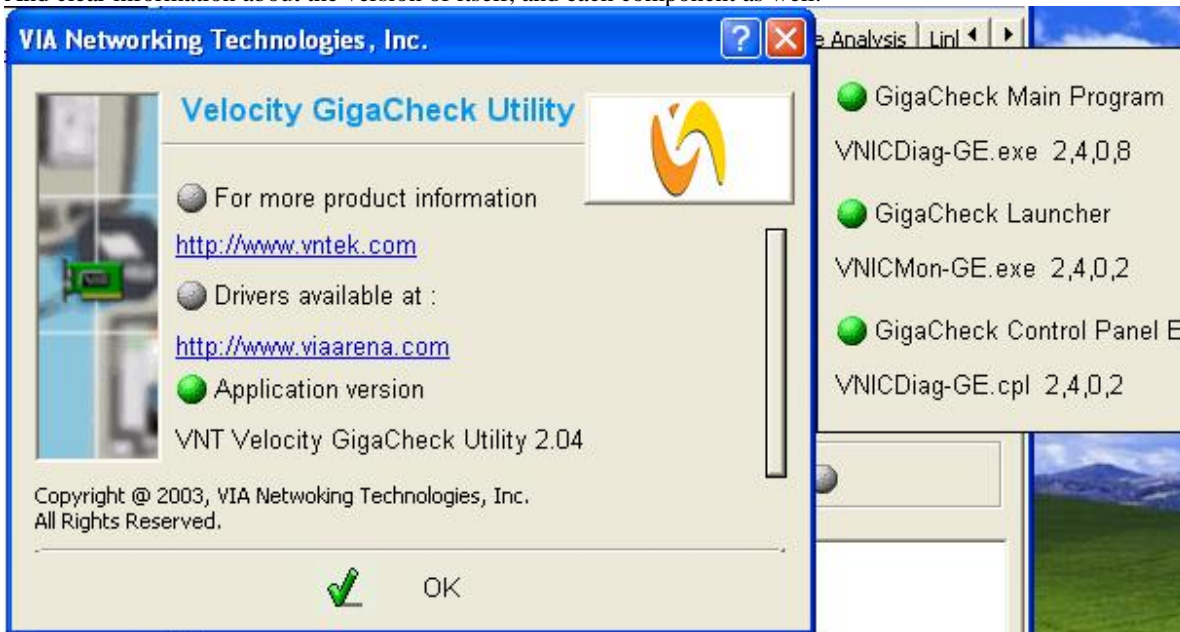
For the network traffic over VIA Networking Velocity Family Gigabit Ethernet Adapter:

The diagram in the below of General Page will show the continuous historical 100 seconds network utilization of Send/Receive in green/yellow line. And the scale/unit of X-axis will change dynamically depended on which speed it ran & specific OID it supported



4.4 About Page

GigaCheck provides information about company, product and driver. The text and bitmap is hyper links to the destination location. And clear information about the version of itself, and each component as well.



VIA Techn
Confid
NDA Requ

5 Advance Feature

The Analytic Feature includes Cable Analysis & Link Analysis to retrieve the status & quality of signal over the cable as well as the physical status of cable.

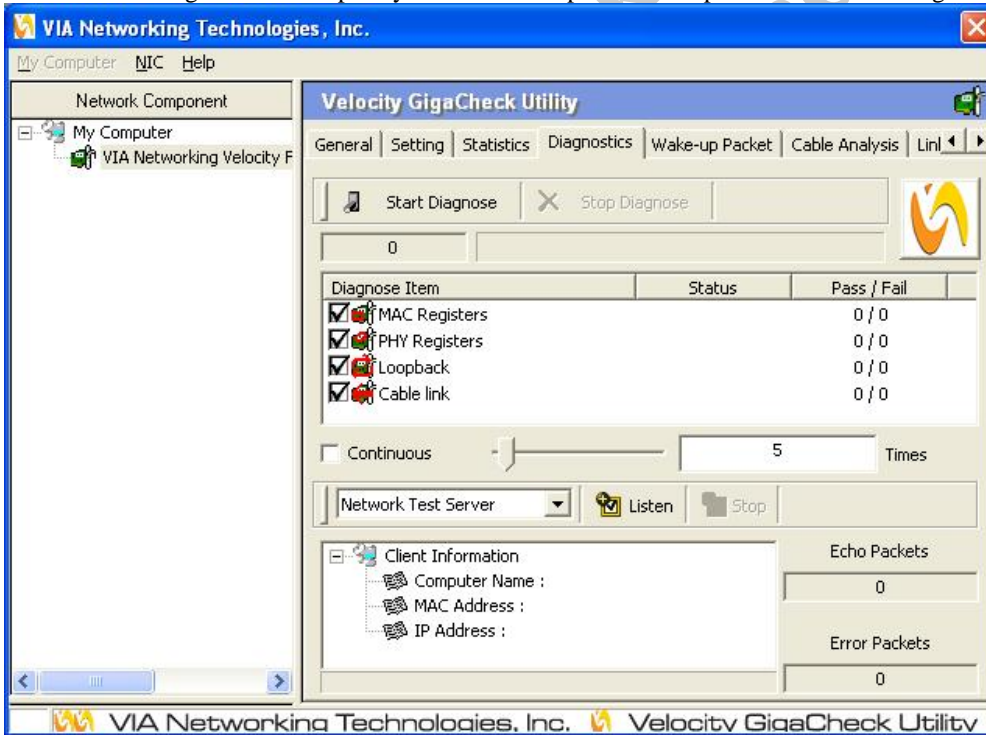
5.1 Diagnostic Page

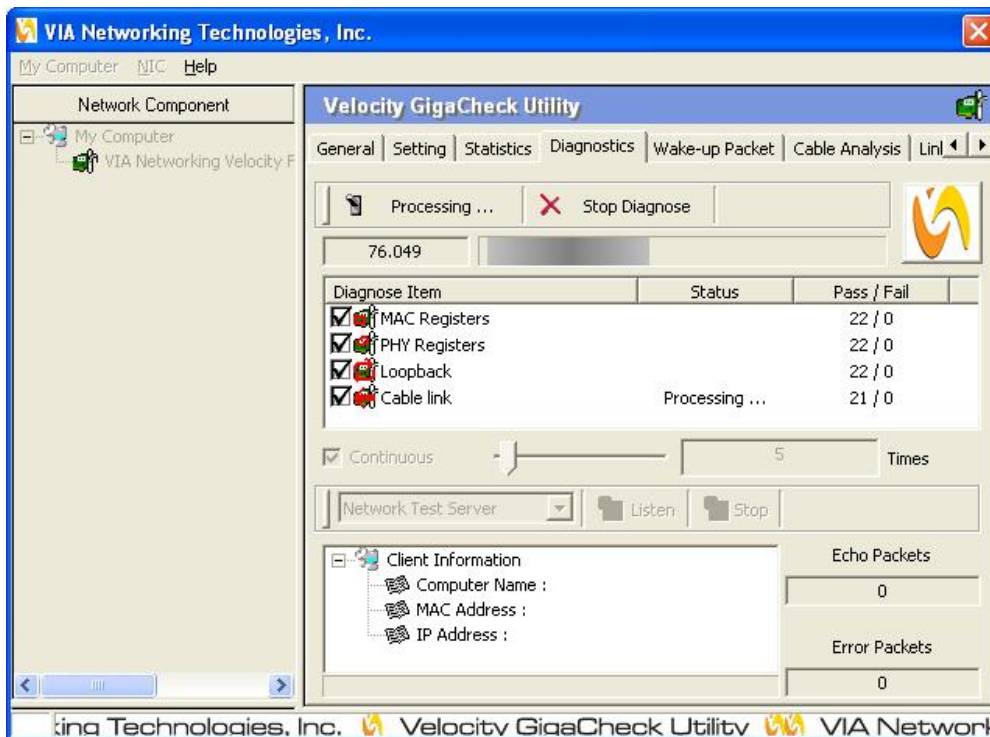
GigaCheck provides some simple but useful test over the adapter and entire network. It can test the register in the adapter, is cable link or not and whether any two node in the network topology is connected or not.

5.1.1 NIC Diagnostic

This will perform overall simple test on the NIC, the test item covered MAC Registers/PHY Register/Loopback/Cable Link. The Continuous option can be set to do an infinite loop of test.

*Perform this diagnose will temporary disable the adapter. The adapter will be enabled right after the test.



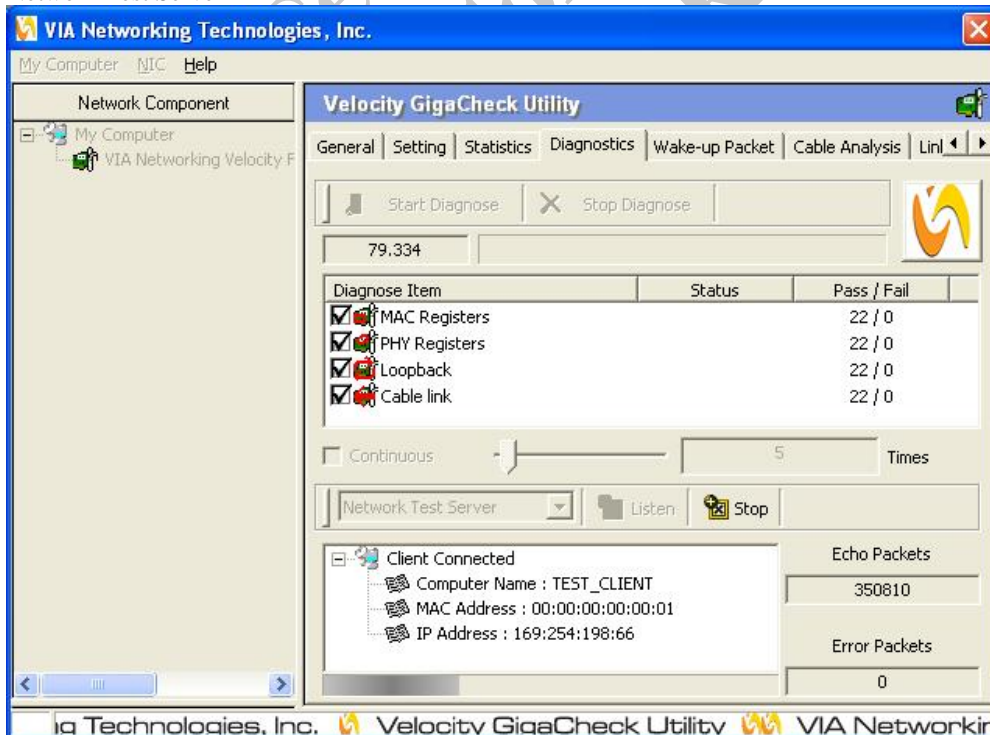


5.1.2 Network Test

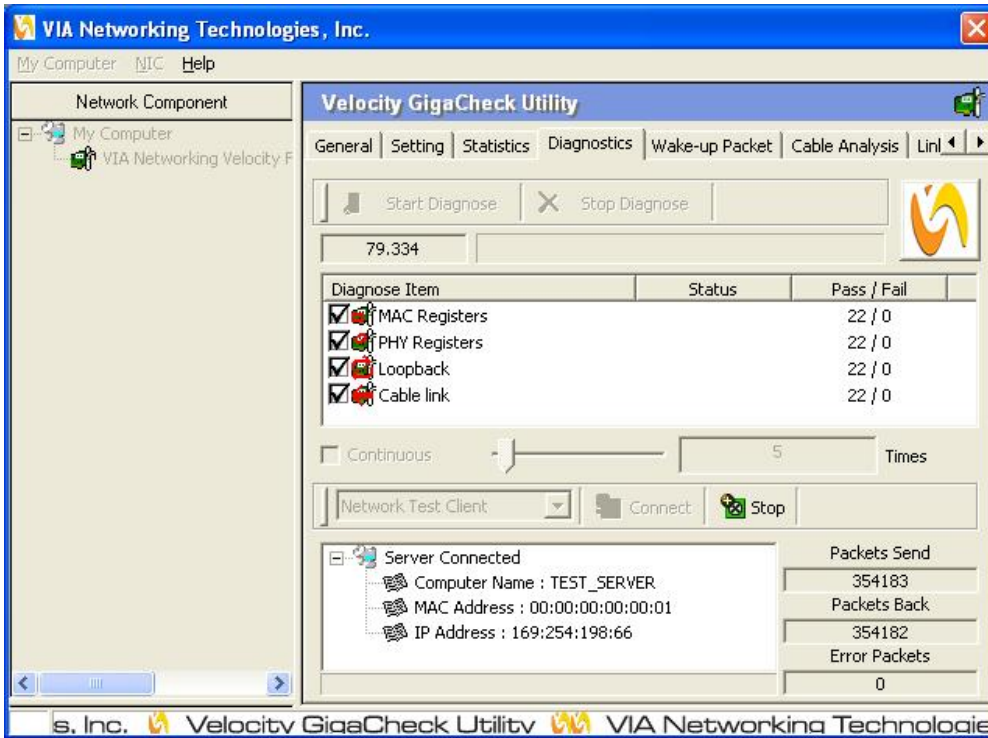
For the test of the link status of entire network, any two of computers on the same subnet can be picked to test the link between those two nodes.

To perform Network Test, GigaCheck should be installed on two machines respectively. Then one played as Server that does listening and another as client that does connecting.

Network Test Server



Network Test Client



5.2 Wake-up Packet Page

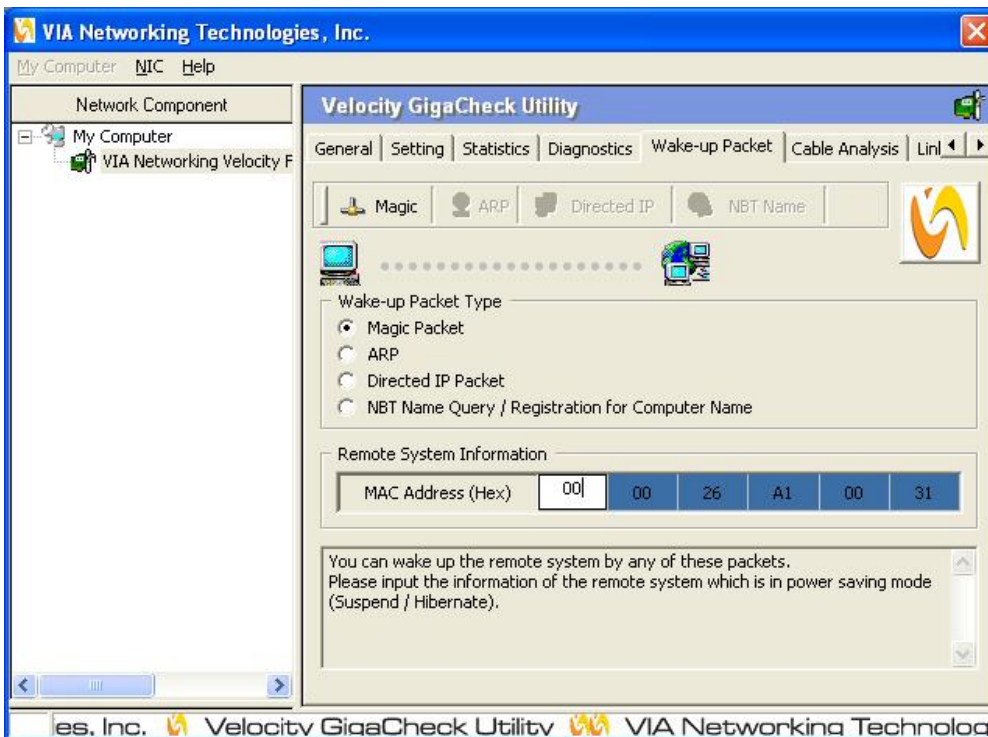
GigaCheck support 4 kind of Wake on LAN method, each is Magic packet, ARP, Direct IP, NBT. Which can bring remote machine up from suspend/hibernate mode if there is WOL support on remote machine.

*For operation system to support Wake in LAN event, the option on advance property page of network adapter to enable adapter to wake up the system should be open.

Network Adapter→Properties→Power Management→Allow this device to bring this computer out of standby.

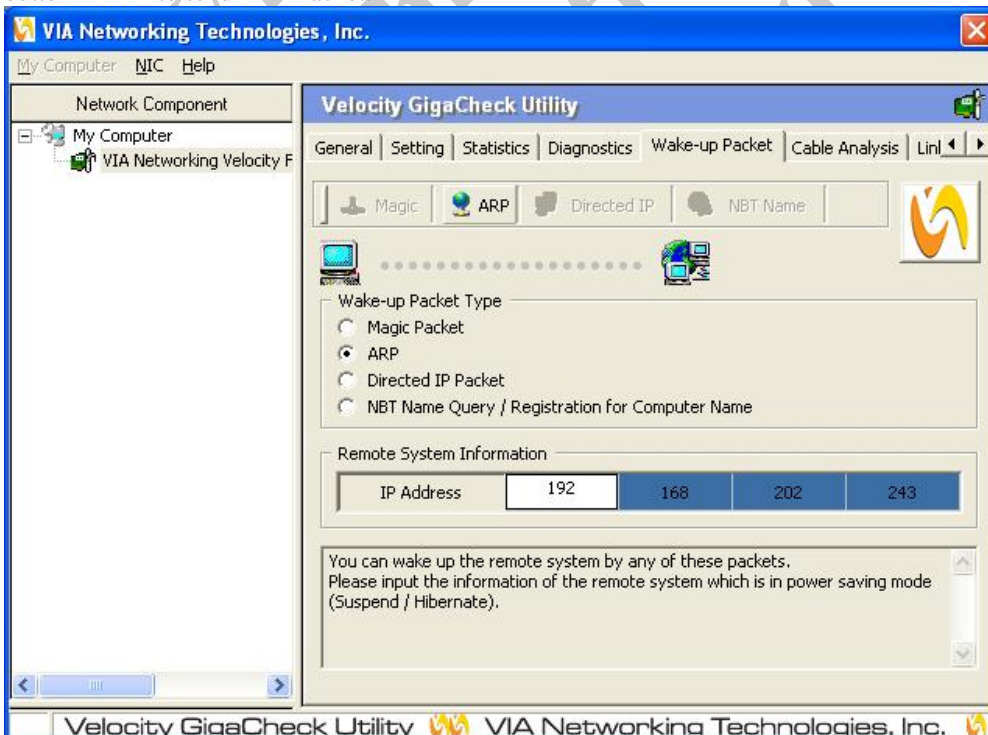
5.2.1 Magic Packet

To wake remote machine by Magic Packet. Click the radio button of Magic Packet, and enter the MAC address of the remote. Then click the button “Magic” to send Magic Packet.



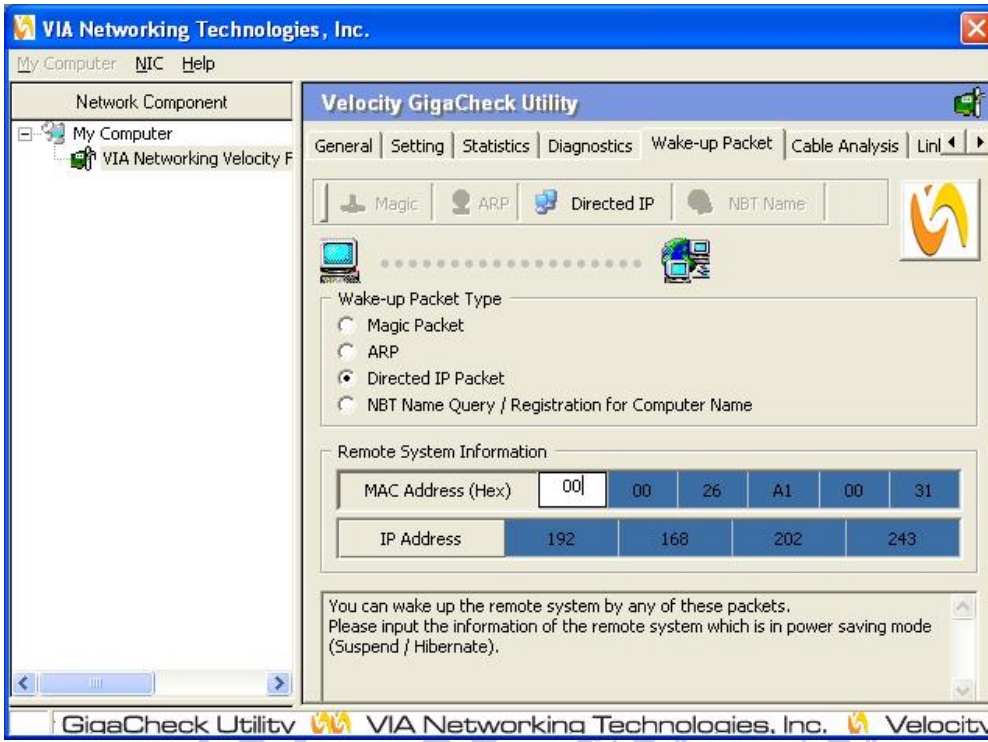
5.2.2 ARP Packet

To wake remote machine by ARP Packet. Click the radio button of ARP, and enter the IP address of the remote. Then click the button “ARP” to send ARP Packet.



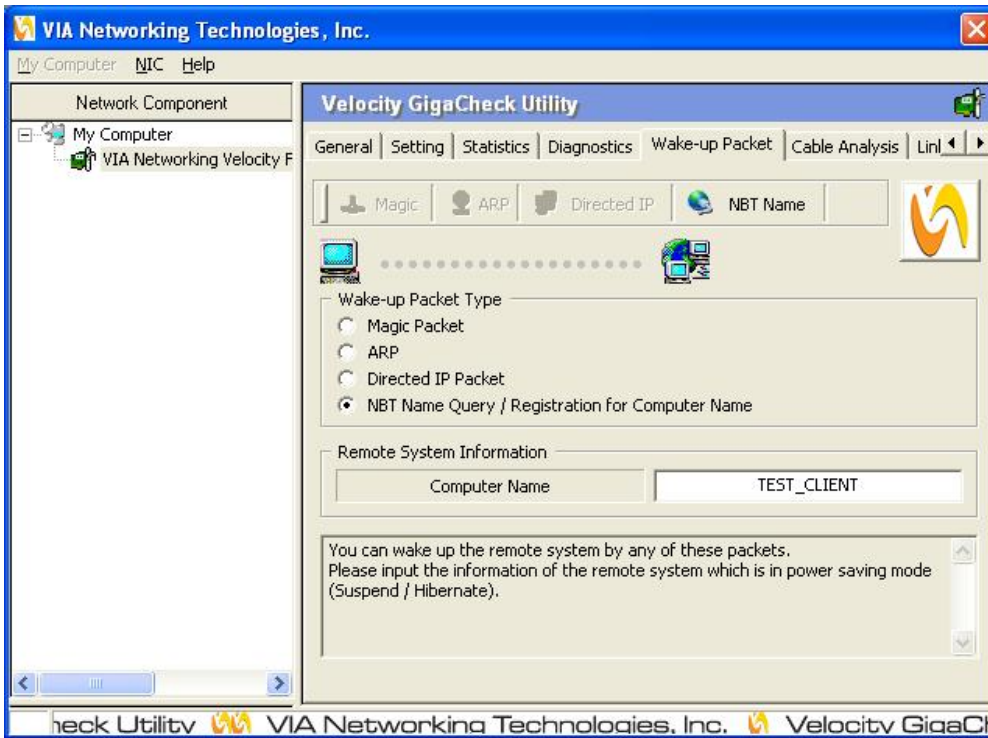
5.2.3 Direct IP Packet

To wake remote machine by Direct IP Packet. Click the radio button of Directed IP Packet, and enter the MAC & IP address of the remote. Then click the button “Direct IP Packet” to send Direct IP Packet.



5.2.4 NBT Name Query/Registration for Computer Name

To wake remote machine by NBT Name Packet. Click the radio button of NBT Name Query/Registration for Computer Name, and enter the computer name of the remote. Then click the button “NBT Name” to send NBT Name packet.



VIA
Technologies, Inc.
Confidential
NDA Required

6 Analytic Feature

The Analytic Feature includes Cable Analysis & Link Analysis to retrieve the status & quality of signal over the cable as well as the physical status of cable.

6.1 Cable Analysis Page

Cable Analysis page can perform three kind analyses on data loss for each wire pair:

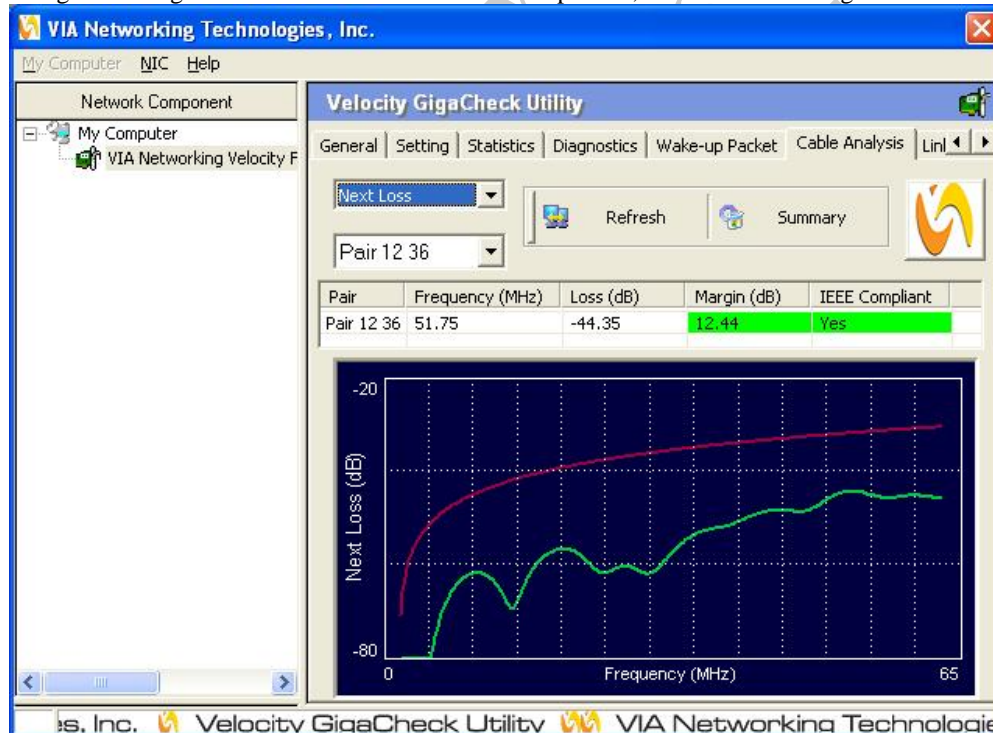
- Cable Loss
- Return Loss
- Next Loss

Light blue Line: Actual measured value.

Pink Line: IEEE Standard Limit.

The data of edge point will be listed on the page which included its Frequency, measured value of data loss, the margin compared to standard limit and if the measured value is IEEE compliant or not.

The green background color means under IEEE compliance, otherwise the background color will be in red.



6.2 Link Analysis Page

Link Analysis page would perform miscellaneous analyses include:

- Link Quality

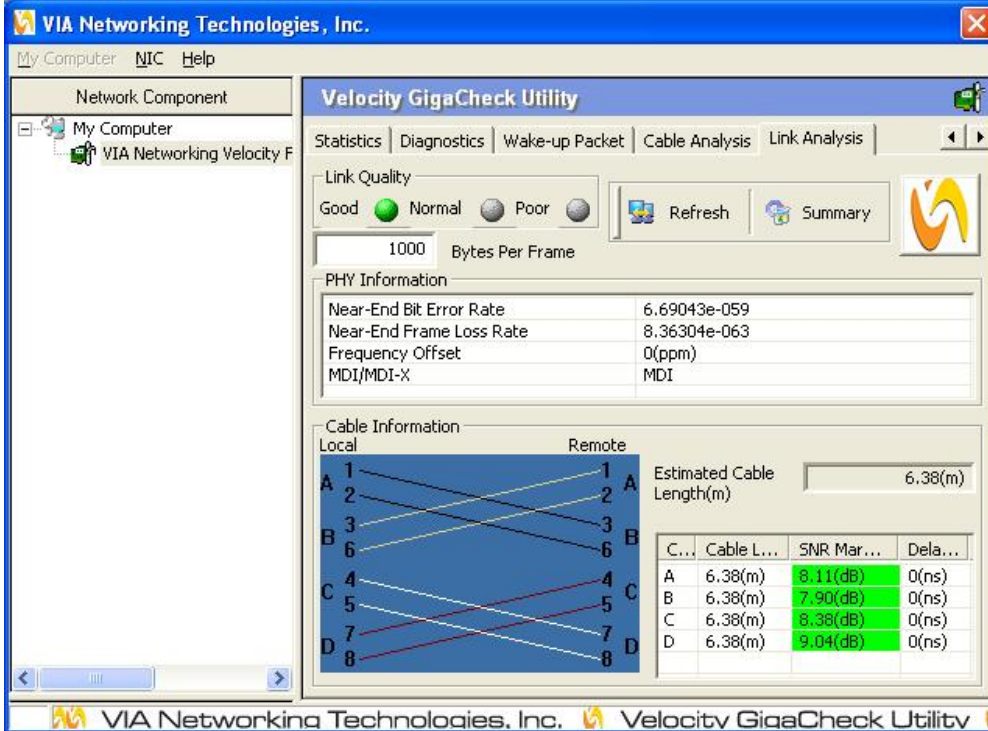
The Green light will detect the quality of network and set the status to Good/Normal/Poor depended on the quality so far.

- PHY Information

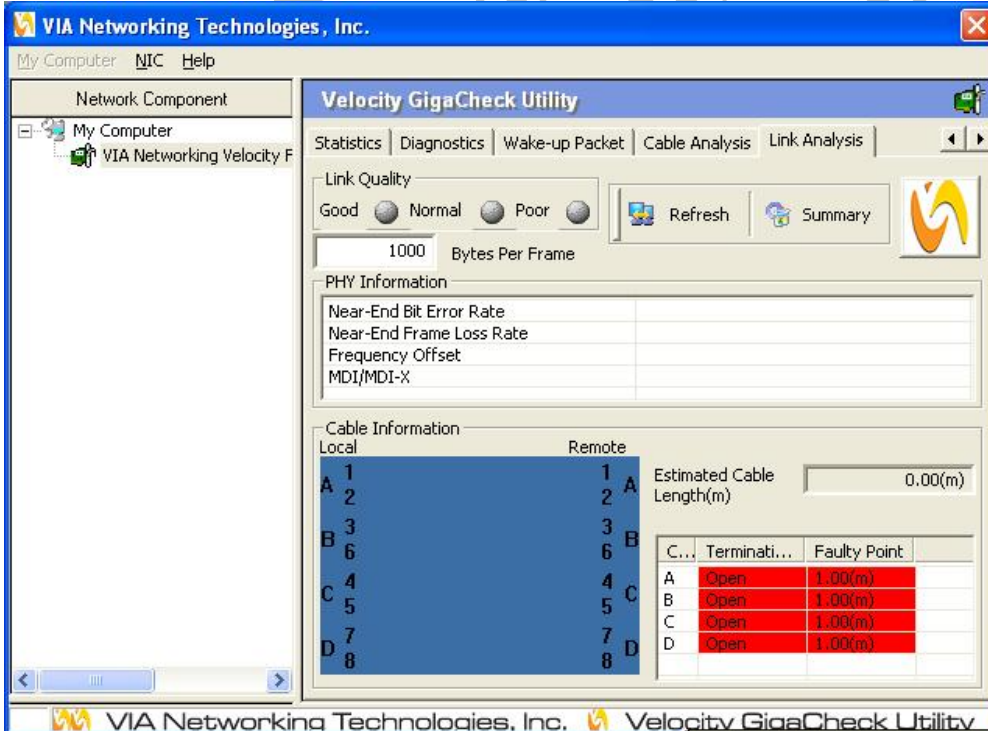
PHY Information gets MDI status and retrieve Near-End Error Rate depended on the number Bytes per Frame.

- Cable Information

Cable Information shows the wired map of each channel, and estimate the current Cable Length.



Cable Information will still function even the link is down, it will show the termination status and the distance of faulty point.



6.3 Summary Page

In order to get the summary data of both Cable & Link Analysis, the summary button in each page can retrieve Cable & Link

diagnostic and show the outline of Analysis

Analysis Summary

Cable Diagnostic

Minimum Cable Loss Margin(dB)	2.26
Minimum Return Loss Margin(dB)	14.54
Minimum Next Loss Margin(dB)	1.72

Link Diagnostic

Near-End Bit Error Rate	5e-072
Estimated Cable Length(m)	1.00
Minimum SNR Margin(dB)	7.44

✓ OK

VIA
Technologies, Inc.
Confidential
NDA Required