

User's Guide

For GTM-56KM6 Faxmodem

NOTICE

Information furnished by Garnet Systems Coporation is believed to be accurate and reliable. However, no responsibility is assumed by Garnet Systems Corporation for its use, nor any infringement of patents or other rights of third parties which may result from its use. No license is granted by implication or otherwise under any patent rights of Garnet Systems Corporation other than for circuitry embodied in Garnet Systems products. Garnet Systems reserves the right to change circuitry at any time without notice. This document is subject to change without notice.

MNP is a resistered trademark of Microcom Inc.

Windows is a resistered trademark of Microsoft Corporation.

K56flex is a trademark of Rockwell International and Lucent Technologies.

Garnet Systems Co.,Ltd.

FCC Compliance Statement

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.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

Garnet systems

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

Warning: You are cautioned that any change or modifications to the equipment not expressly approved by the party responsible for compliance could void your authority to operate such equipment.

NOTE: This unit was tested with shielded cables on the peripheral devices. Shielded cables must be used with the unit to insure compliance.

Table of Contents

1. INTRODUCTION	3
2. INSTALLATION.....	5
2.1 INSTALLING THE MODEM.....	5
2.2 PLUG AND PLAY FUNCTION.....	7
2.3 DRIVER INSTALLATION IN WINDOWS 95/98/98SE.....	7
2.4 HOW TO VERIFY MODEM INSTALLATION.....	10
2.5 REMOVAL OF THE MODEM DRIVER.....	12
3. MODEM COMMAND AND S-REGISTER.....	13
3.1 AT COMMAND.....	13
3.2 S-REGISTER.....	15

1. INTRODUCTION

The Garnet Systems GTM-56KM6 Host Software Processed V.90/K56flex Modem Device Family supports high speed analog data, high speed fax operation over the PSTN world-wide and is offered in several device models.

Modem data pump and controller functions, traditionally enabled using dedicated hardware, are ***processed in a Pentium MMX-compatible CPU*** using host-signal processing modem software which is included in the SoftK56 modem. Refer to the Product Release Notice for the feature set available.

In ITU-T V.90/K56flex data mode, the modem can receive data at speeds up to 56 kbps from a digitally connected V.90 or K56flex-compatible central site modem. A V.90/K56flex modem takes advantage of the PSTN which is primarily digital except for the client modem to central office local loop and are ideal for applications such as remote access to an Internet Service Provider (ISP), on-line service, or corporate site. In this mode, the modem can transmit data at speeds up to V.34 rates.

In V.34 data mode, the modem operates at line speeds up to 33.6 kbps. When applicable, error correction (V.42/MNP 2-4) and data compression (V.42 bis/MNP 5) maximize data transfer integrity and boost average data throughput. Non-error-correcting mode is also supported.

Fax Group 3 send and receive rates are supported up to 14.4 kbps, with T.30 protocol.

FEATURES

- Data modem
 - ITU-T V.90, K56flex, V.34 (33.6 kbps), V.32 bis, V.32, V.22 bis, V.22, V.23, and V.21; Bell 212A and 103
 - V.42 LAPM and MNP 2-4 error correction
 - V.42 bis and MNP 5 data compression
 - V.25 ter (Annex A) and EIA/TIA 602 command set
- Fax modem
 - V.17, V.29, V.27 ter, and V.21 ch 2
 - EIA/TIA 578 Class 1 and T.31 Class 1.0 commands
- System compatibilities
 - Windows 95, Windows 95 OSR2, Windows 98, Windows NT 4.0, Windows 2000 operating systems
 - Microsoft's PC 98 Design Initiative compliant
 - Unimodem/V compliant
- 32-bit PCI Local Bus interface
 - Conforms to the PCI Local Bus Specification, Production Version, Revision 2.1
 - PCI Bus Mastering interface to the LVC
 - 33 MHz PCI clock support
- Supports PCI Bus Power Management
 - ACPI Power Management Registers
 - PME# and APM support

2. INSTALLATION

2.1 Installing the Modem

Please follow instructions as follows in order to install modem.

- Turn off your computer and all attached peripheral devices (printer, monitor, etc.) and unplug them from the electrical outlet.

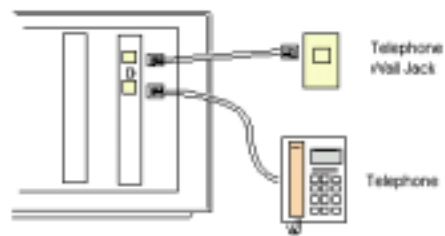
CAUTION: *To avoid risk of electric shock, make sure your computer and all peripheral devices are turned off and unplugged.*

- Remove the cover of your computer. For specific instructions on this procedure, consult your system's user's guide.
- Select one of the PCI expansion bus slots. Remove and save the screw on the slot cover. You will need it to secure the modem in place.
- Hold the modem upright by the metal edge, and carefully slide it into the expansion slot. Gently apply pressure to the upper metal edge only, making sure it snaps into place.
- When the modem is firmly in an expansion slot, fasten the modem into place with the screw that fits into the top notch of the metal bracket.
- Carefully replace the computer cover in accordance with the instructions in your system's user's guide.
- There are two modular telephone jacks on the panel of the modem which connect the modem to a telephone line and to a telephone handset. Because of possible safety hazards due to the ring voltage from the telephone jack, make the cable connections between the modem and the telephone line in the following order.
 - a. Plug one end of your modular telephone cord into the modem's jack marked .
 - b. The cord will snap into place when the connection is made.
 - c. After the cord has been connected to the modem, plug the other end of the cord into the wall jack.

- d. If you want to use a telephone on the same line, plug the cord from the telephone into the modem's jack, marked as .
- Plug in the power cables for the computer and all peripherals.
- Turn ON your computer and verify everything has been reconnected properly.
- Install modem driver provided and test your modem according to the following section.

WARNING

THIS CARD MUST BE USED WITH THE PC SCREW DOWN LID. TELECOMMUNICATIONS NETWORK VOLTAGES EXIST INSIDE THE PC AND TELECOMMUNICATIONS LINE CONNECTION SHALL BE REMOVED BEFORE OPENING THE PC. UNIT SHALL BE CONNECTED TO TELECOMMUNICATION NETWORK THROUGH A LINE CORD APPROVED BY THE NECESSARY AUTHORITIES FOR THE COUNTRY.

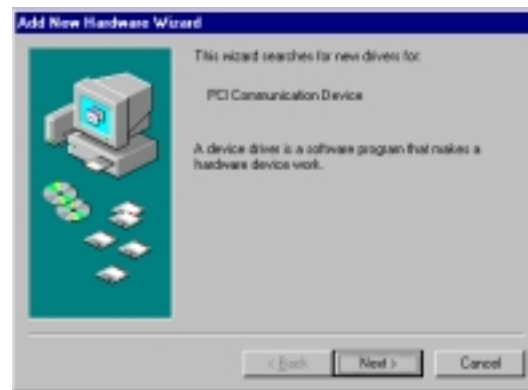


2.2 Plug and Play Function

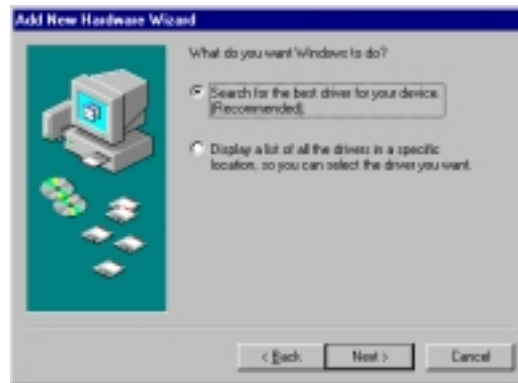
PnP(Plug and Play) Function is designed to easily install modem by a user not to pay any additional care about difficult network compositions such as jumper setting. The PC and installed cards automatically co-work its way to provide and allocate necessary resources for appropriate networking once the card is plugged into the main board of the computer and the power is on.

2.3 Driver Installation in Windows 95/98/98se

- Perform the following to install the GTM-56KM6 Modem card in your IBM PC or compatible computer.
1. Turn on your computer after putting the card into the PCI slot.
 2. The following picture comes out, put the CD-ROM provided on the CD-ROM Drive and click <Next> in the following picture.



3. Select **<Search for the – >** and click **<Next>** in the following picture.



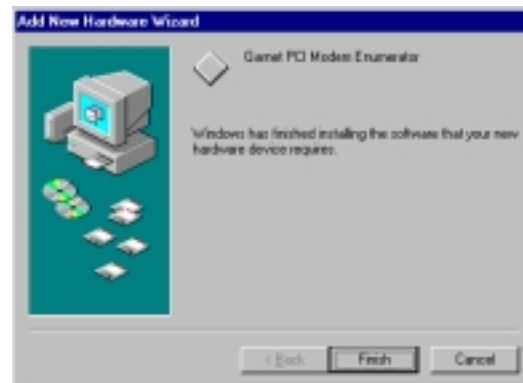
4. Select **<Specify a location>**, direct the path of the CD-ROM inserted and click **<Next>** in the following picture.



5. Click **<Next>** in the following picture.

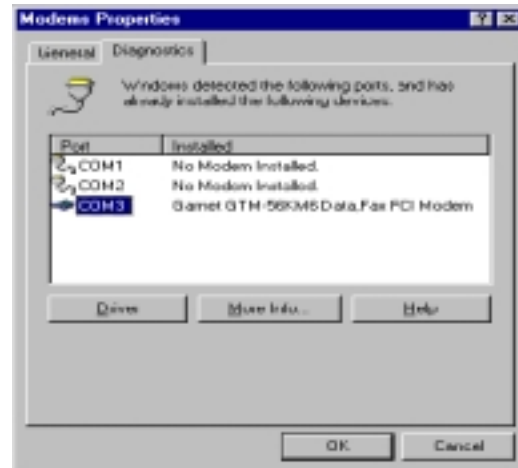


6. Click **<Finish>** to finish the driver installation.

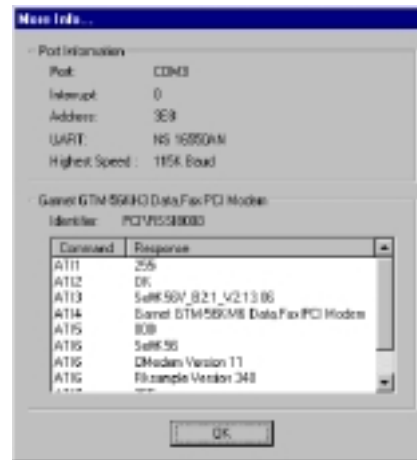


2.4 How to verify the modem is successfully installed

1. You will see the following picture at the last step by clicking the buttons- <My computer>®<Control panel>®<Modem>®<Diagnosis>. At this picture, select the COM Port to which Garnet GTM-56KM6 is set and click <More information> button.



2. The following picture showing the appropriate response to each ATI command verifies that the modem is successfully installed and in normal operating condition. Click <OK> to finish.

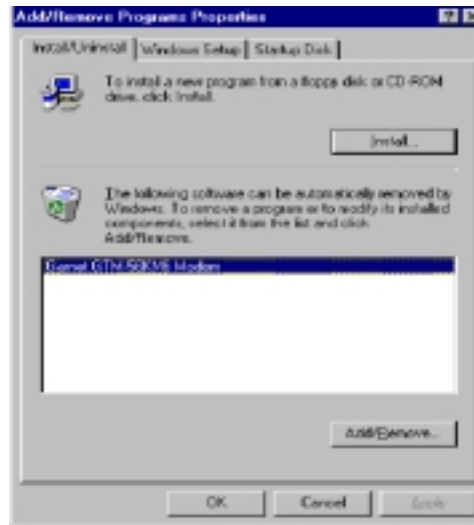


2.5 Removal of the Modem driver

1. Click the buttons in sequence - <My computer> <Control panel> <Add/Remove> <Install/Uninstall>.



2. Select **<Garnet GTM-56KM6 Modem>** and click **<Add/Remove>** button in the following picture to remove the modem driver.



3. MODEM COMMAND AND S-REGISTER

*** indicates the factory default setting.

3.1 AT Command

A/	Repeat the execution of the previous command line
A	Answer promptly
*** B0	Operate in ITU-T V.21, V.22 Standard
Dn	Dial "n" (n = Calling phone no.)
*** T	Select Tone Dialing

P	Select Pulse Dialing
Sn	Dial automatically stored phone no.
W	Waiting for the tone
,	Delay in calling
L	Re-call last phone no.
E0	Do not echo previous command line
*** E1	Echo previous command line
H0	On-Hook
H1	Off-Hook
L0	Lower-level Speaker sound
L1	Low-level Speaker sound
*** L2	Mid-level Speaker sound
L3	High-level Speaker sound
M0	Stop speaker operation
*** M1	Operate speaker until carrier is detected after dialing during connection
M2	Operate speaker always on
M3	Operate speaker after dialing last digit
O0	Changed to on-line status
O1	Changed to on-line status through retrain
Sr=n	Select register value (r=Register No., n=value to be stored)
*** &K1	Automatically enable or disable data compression
*** &N0	Select transmission speed by remote modem

- &Zn=S Save phone no. in the location n of
NVRAM(n=0 - 3)
- &Zn? Display phone no. in the location n
- &ZL? Display the last executed phone no.

3.2 S-Register

The modem is structured to control and manage its operations employing S-register. Followings are frequently-used functions.

S-Resister	Range	Unit	Contents
S0	0 - 255	Rings	Number of Rings to Automatic Answer
S1	0 - 255	Rings	Ring Counter
S2	0 -255	ASCII	Escape Character
S3	0 -127	ASCII	Line Termination Character
S4	0 - 127	ASCII	Command Line Editing Character
S5	0 -255	ASCII	Command Line Editing Character
S6	2 -255	S	Wait Time for Dial Tone
S7	1 -255	S	Wait Time for Carrier
S8	0 -255	S	Pause Time for Dial Delay Modifier

S10	1 -255	0.1S	Carrier Loss Disconnect Time
S11	50 -255	0.001S	DTMF Tone Duration