

EUT:Voice/FAX/Modem Card

FCC ID:DK4DF1156IVR3

GVC CORPORATION

USER'S MANUAL

Section One - Introduction

This 56 Kbps* Plug and Play FAX/Voice/Data Speakerphone Modem connects your computer to all popular high speed modems available today. The modem incorporates "K56Plus" (56Kbps) technology to provide increased download speeds using regular telephone lines. The modem incorporates Plug and Play for ease of installation.

This manual describes the hardware installation procedures for your new modem. Additional information on AT commands and S-registers is provided so that your system can be customized for a particular operating environment.

**Note: K56Plus is capable of downloading at 56Kbps. However, current FCC regulations limit its speeds to 53Kbps.*

Section Two - Installation

This section will provide step by step instructions on how to install your new 56 Kbps FAX/Voice/Data modem. Installation of this modem product is a three-step process consists of 1) actual hardware installation, 2) plug and play configuration, and 3) communication software installation and configuration.

2.1 Unpacking Your Modem

Be certain that you have all the items listed below. This package contains:

- A modem
- A telephone cable
- User's manual
- Software for the modem
- Software user's manual

2.2 What You Need

You will need:

1. A phillips-head screw driver
2. A) A Plug and Play enabled Operating System (e.g., Windows 95),
or
B) A Plug and Play Revision 1.0a compliant PC.

-
4. Carefully slide the internal modem into the slot you have chosen, applying even pressure until the modem is completely seated in the slot.
 5. Fasten the retaining bracket with the screw from the slot cover. Make sure the modem is properly aligned. Store the slot cover for future use.
 6. Replace the computer cover and plug in your computer.
 7. Connect the telephone cable from the modem's **LINE** connector to the telephone wall jack.
 8. Optionally, connect your telephone to the modem's **PHONE** connector.
 9. Turn your computer on. Your modem is now installed.

2.4 Hardware Configuration (Plug and Play)

Your modem is configured using the Plug and Play (PnP) capabilities of your computer. Plug and Play is a set of specifications that define the ability for the computer hardware and operating system to automatically configure all compliant devices that are installed, relieving the user of the need to determine which addresses and interrupts to use for each device. Consult your PC's owner's manual to determine if it is PnP Revision 1.0a compliant. You most likely have a Plug and Play Revision 1.0a compliant system if it was purchased after June 1994 or if the BIOS is dated after June 1994.

Proceed to one of the following sections, depending on your system's configuration:

- **Section 2.4.1** if you are running Windows 95 (with or without a Plug and Play PC)
- **Section 2.4.2** if you are running Windows 3.1x or DOS on a PnP-compliant PC.
- **Section 2.4.3** if you are running DOS or Windows 3.1x on a non-PnP PC.

2.4.1 Configuring in Windows 95

The version of Windows 95 you have will determine which set of dialog boxes is presented to you when

Windows will now find a second device on the modem. Make sure that the driver disk is still in the disk drive and click "Next." Windows will find the second driver. Click "Finish" to complete the installation.

When all necessary files are copied, the modem is configured. Windows 95 will assign the modem a COM port and IRQ line. **Proceed to Section 2.5.**

2.4.2 Configuring in a Plug and Play System without Windows 95

When this modem is installed in a Plug and Play system without Windows 95, the computer's BIOS will assign a COM port and IRQ line to the modem.

Proceed to Section 2.5, Software Installation/Configuration.

2.4.3 Configuring in a Non-Plug and Play System

Computers without native Plug and Play capabilities require the use of the included modem driver. If you have not already installed this driver, refer to the file README.1ST on the Windows 95 driver disk for installation and configuration instructions. Once the driver is installed the modem is enabled and configured during system boot-up. The COM port and IRQ settings that are assigned to the modem will be displayed on the screen as the driver is loaded.

If the PC is running Windows 3.1x, configure Windows to properly recognize these modem settings by opening **PROGRAM MANAGER|MAIN|CONTROL PANEL**, click on **PORTS** and follow Windows 3.1x user's manual instructions on configuring the installed modem COM port.

Proceed to Section 2.5, Software Installation/Configuration.

2.5 Software Installation and Configuration

You are now ready to install and configure the communication software. Refer to your software manual for installation procedures.

We suggest the following communication parameters when you first use your data communication soft-

2.8 Using Your Modem

The communication software included with your modem product provides a user friendly interface to access the fax, voice and data functions of your modem. ***This software should be sufficient for all of your communication needs.*** There may be times when you need to access the modem manually via modem commands. Read Section 3 for a summary description of the modem command set before manually accessing the modem. You may want to read the software manual first, however, as the software may already provide a user friendly method of accessing the functions you need (i.e. dialing or answering calls).

2.9 Where To Go From Here

You should familiarize yourself with the functions available from the included software by reading its manual. You will be accessing most, if not all, of the modem's functions from this software. You may also use any other commercially available communication software with the modem. Read Section 3 only if you are interested in accessing the modem manually, and not through the included software. Section 4 and 5 contain reference material, and can be skipped. If you have difficulties getting your modem to work, read Section 6 - Troubleshooting to find answers to commonly asked questions and problems.

Section Three - AT Command Set

3.1 Executing Commands

Commands are accepted by the modem while it is in Command Mode. Your modem is automatically in Command Mode until you dial a number and establish a connection. Commands may be sent to your modem from a PC running communication software or any other terminal devices.

Your modem is capable of data communication at rates of: 300, 1200, 2400, 4800, 9600, 14400, 19200, 28800, 38400, 57600, and 115200 bps. Make sure your COM port baud rate settings in your communications software is set to one of the above speeds.

- AudioSpan (simultaneous audio/voice and data)*
 - ITU-T V.61 modulation (4.8 kbps data plus audio)
 - Handset, headset, or half-duplex speakerphone
- ITU-T V.70 DSVD (option)
 - ITU-T G.729 Annex A with interoperable G.729 Annex B
 - SIG (special interest group) DigiTalk DSVD
 - Voice/silence detection and handset echo cancellation
 - Handset, headset, or half-duplex speakerphone
- Full-duplex speakerphone (FDSP) mode
 - Over PSTN or ISDN B channel (option)
 - Switching to/from data, fax, DSVD and VoiceView
 - Microphone gain and muting
 - Speaker volume control and muting
 - Adaptive line and acoustic echo cancellation
 - Loop gain control, transmit and receive path AGC
 - Acoustic echo cancellation concurrent with DSVD
 - Noise suppression
 - Room monitor
- V.80 and Rockwell Video Ready synchronous access modes support host-controlled communication protocols
 - H.324 interface support
- V.8/V.8bis and supporting AT commands (V.25 ter with Annex A)
- Data/Fax/VoiceView/Voice call discrimination
- Voice, telephony, audio, VoiceView
 - Voice (8-bit μ -Law compression/decompression)
 - TIA-695 command set
 - VoiceView alternating voice and data (option)
 - 8-bit linear and 8-bit μ -Law record/playback
 - 8.0 kHz, 11.025 kHz, 22.050 kHz and 44.1 kHz (down sampled to 11.025)
 - Handset, acoustic, line echo cancellation
 - Music on hold from host or analog hardware input
 - TAM support with concurrent DTMF detect, ring detect and caller ID
- World-class operation (option)
 - Call progress, blacklisting, multiple country support
- Integrated internal hybrid
- Caller ID and distinctive ring detect
- Modem and audio paths concurrent across PCI bus
- Single profile stored in host
- System compatibilities
 - Windows 95 and Windows NT operating systems
 - Microsoft's PC 97 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 MDP
 - CardBus support with 512-byte RAM for CIS
 - 33 MHz PCI clock support
- Device packages:
 - Bus Interface in 176-pin TQFP
 - MDP in 144-pin TQFP
- +3.3V operation

-
2. Make sure the correct terminal emulation mode is being used (see communication software manual).
-

High pitch tone is heard whenever you answer the phone.

1. Make sure Auto-Answer is turned off. Your modem is factory configured to NOT auto-answer. Issue **AT&F** to factory reset your modem.
-

Modem experiences errors while communicating with a remote modem.

1. Make sure the DTE speed is the same as the modem connection speed when in Direct Mode.
 2. Make sure the remote system and your modem use the same communication parameters (speed, parity, etc.).
 3. Make sure RTS/CTS hardware flow control is enabled and XON/XOFF software flow control is disabled in the communication software.
 4. Make sure the data speed is not faster than your computer's capability. Most IBM compatibles are capable of 19,200 bps under DOS and Windows 3.X. Operating at higher speeds under Windows requires a 486 or faster CPU or Windows 95.
-

Modem experiences bursts of errors or suddenly disconnects while communicating with a remote modem.

1. Make sure Call Waiting is turned off.
 2. Make sure the phone line does not exhibit excess noise.
-

Modem exhibits poor voice record or playback.

1. Make sure the correct modem type is selected in the Voice/FAX software. Use "Generic Rockwell" or similar selection.
-

Section Seven - Support and Service

In the unlikely event you experience difficulty in the use of this product, we suggest you: (1) consult the Troubleshooting section of this guide and (2) consult with your dealer. To obtain service for this product, follow the Return Merchandise Authorization Procedure as outlined in the Warranty card.

In the event that this equipment should fail to operate properly, disconnect the equipment from the phone line to determine if it is causing the problem. If the problem is with the equipment, discontinue use and contact your dealer or vendor.

The FCC also requires the transmitter of a FAX transmission be properly identified (per FCC Rules Part 68, Sec. 68.381 (c) (3)).

DOC Compliance Information

NOTICE: The Canadian Department of Communications label identifies certified equipment. This certification means that the equipment meets certain telecommunications network protective, operational and safety requirements. The Department does not guarantee the equipment will operate to the user's satisfaction.

Before installing this equipment, users ensure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection. The customer should be aware that compliance with the above conditions may not prevent degradation of service in some situations.



The information contained in this manual has been validated at the time of this manual's production. The manufacturer reserves the right to make any changes and improvements in the product described in this manual at any time and without notice. Consequently the manufacturer assumes no liability for damages incurred directly or indirectly from errors, omissions or discrepancies between the product and the manual.

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D700701

SPORTON LAB.

Certificate No:

CERTIFICATE OF COMPLIANCE

Authorized under Declaration of Conformity
according to

47 CFR, Part 2 and Part 15 of the FCC Rules

Equipment Under Test : PERSONAL COMPUTER

Model No. : P2L97

Applicant : FIRST INTERNATIONAL COMPUTER INC.

6F, Formosa Plastics Rear Building 201,

Tung Hwa N, Rd., Taipei, Taiwan, R.O.C.



CERTIFY THAT:

THE MEASUREMENTS SHOWN IN THIS TEST REPORT WERE MADE IN
ACCORDANCE WITH THE PROCEDURES GIVEN IN ANSI C63.4 - 1992
AND THE ENERGY EMITTED BY THIS EQUIPMENT WAS PASSED BOTH
RADIATED AND CONDUCTED EMISSIONS CLASS B LIMITS. THE TESTING
WAS COMPLETED ON SEP. 02, 1997 AT SPORTON INTERNATIONAL
INC. LAB. IN NEI HWU.

W. L. Huang OCT 08, 97

W. L. Huang

GENERAL MANAGER

EXHIBIT C

Repairs to certified equipment should be made by an authorized Canadian maintenance facility designated by the supplier. Any repairs or alterations made by the user to this equipment, or equipment malfunctions, may give the telecommunications company cause to request the user to disconnect the equipment.

Users should ensure for their own protection that the electrical ground connections of the power utility, telephone lines and internal metallic water pipe system, if present, are connected together. This precaution may be particularly important in rural areas.

Cautions: Users should not attempt to make such connections themselves, but should contact the appropriate electric inspection authority, or electrician, as appropriate.

NOTICE: The Load Number (LN) assigned to each terminal device denotes the percentage of the total load to be connected to a telephone loop which is used by the device, to prevent overloading. The termination on a loop may consist of any combination of devices subject only to the requirement that the sum of the Load Numbers of all the devices does not exceed 100.

UL Notice

Cautions: This internal modem adapter is to be installed in UL Listed computers only. Always disconnect the modem adapter from the telephone system during installation or when the cover is removed from the computer.

First Edition

GZ/DR - Version 1.0

Appendix A - Specifications

Communication Std. K56Plus (56Kbps), V.34, V.32bis, V.32, V.29, V.27ter, V.22bis, V.23, V.22, V.21, V.17, Bell1212/103
 Data Compression: V.42bis/MNP5
 Error Correction: V.42/MNP2-4
 Host Interface: 16 bit PC bus
 COM ports: 1, 2, 3, 4
 IRQ lines: 3, 4, 5, 7, 9, 10, 11, 12, 15
 FAX Group: Group III Send/Receive Standard
 FAX Command set: EIA/TIA-578 Service Class 1
 Transmit level: -1 dBm +/- 1 dB
 Receiver Sensitivity: -39 dBm (V.34), -43 dBm (all other protocols)
 UART: 16550 compatible
 Data format: 300-115200 bps
 Power: 0.75 W
 Temperature: 0 to 55 degrees C (Operating)
 Caller ID: Yes
 PnP: Revision 1.0a
 Speakerphone: Full-duplex with DSP echo cancellation

Appendix C - Notices

FCC Compliance

This equipment complies with Part 68 of the FCC Rules. On this equipment is a label that contains, among other information, the FCC registration number and Ringer Equivalence Number (REN) for this equipment. You must, upon request, provide this information to your telephone company.

If your telephone equipment causes harm to the telephone network, the Telephone Company may discontinue your service temporarily. If possible, they will notify in advance. But, if advance notice is not practical, you will be notified as soon as possible. You will be informed of your right to file a complaint with the FCC.

Your telephone company may make changes in its facilities, equipment, operations, or procedures that could affect proper operation of your equipment. If they do, you will be notified in advance to give you an opportunity to maintain uninterrupted telephone service.

The FCC prohibits this equipment to be connected to party lines or coin telephone service.

Section Six - Troubleshooting

This section describes some of the common problems you may encounter while using your modem. If you can not resolve your difficulty after reading this chapter, contact your dealer or vendor for assistance.

Modem does not respond to commands.

1. Make sure the communication software is configured to "talk" to the modem on the correct COM port and IRQ setting (same COM port and IRQ setting as the modem). Your communication software must know which address your modem is using in the system in order to pass data to it. Similarly, IRQ settings must be set correctly to receive data from the modem.
2. Make sure that your modem is initialized correctly. Your modem may have been initialized to not display responses. You may factory-reset the modem by issuing AT&F and press **ENTER**. The factory default allows the modem to display responses after a command has been executed.

Modem does not dial.

1. Make sure the modem is connected to a working phone line. Replace the modem with a working phone line. Ensure that the phone line is working.
2. Make sure the phone line is connected to the jack marked "LINE." Incorrect connection prevents the modem from operating properly. Refer to Section 2.3 for modem connection instructions.

Modem dials but does not connect.

1. Make sure the IRQ setting is identical on both the modem and the software. Modem and software must be configured identically.
2. Make sure the phone line is working properly. Replace the modem with a regular phone and dial the number. If the line sounds noisy, you may have difficulty connecting to the remote device.

Modem makes a connection but no data

1. Make sure the correct data format (data bits, stop bits, and parity bits) and flow control (RTS/CTS) are being used.

The Rockwell RCV56HC-F-PCI Host-Controlled Modem Device Family supports high speed analog data, high speed fax, ISDN, DSVD, AudioSpan, speakerphone, audio/voice, and VoiceView operation. It operates with PSTN or ISDN telephone lines in the U.S. and world-wide and is offered in several device models (see Table 1-1).

The modem device set consists of PC PCI bus interface (BIF) and modem data pump (MDP) hardware available in two thin quad flat packs (TQFPs). Host-controlled modem software is also provided.

Operating with +3.3V power, this device set supports 32-bit host applications in such designs as embedded motherboards, PCI half cards, and CardBus cards.

Figure 1-1 illustrates the general structure of the RCV56HC-F software and the interface to the RCV56HC-F hardware. Figure 1-2 illustrates the major hardware interfaces supported by each model.

The RCV56HC-F employs a downloadable architecture so that the user can update MDP executable code.

Using K56flex™ technology, the RCV56HC-F can receive data at speeds up to 56 kbps from a digitally connected K56flex-compatible central site modem, such as a Rockwell RCV56CSM modem. K56flex modems take 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. The RCV56HC-F can send data at speeds up to V.34 rates.

In V.34 data mode, the modem operates at line speeds up to 33600 bps. 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.

AudioSpan (analog simultaneous audio/voice and data) operation supports a data rate with audio of 4.8 kbps.

SP modes support position independent, full-duplex speakerphone (FDSP), as well as digital simultaneous voice and data (DSVD) with speech coding per ITU-T G.729 Annex A with interoperable G.729 Annex B, and SIG DigiTta™ DSVD.

The modem supports fax Group 3 send and receive rates up to 28800 bps and T.30 protocol.

V.80 and Rockwell Video Ready compatible synchronous access modes support host-controlled communication protocols, e.g., H.324 video conferencing.

In voice/audio mode, PCM coding and decoding at 8000 Hz sample rate allows efficient digital storage of voice/audio. This mode supports digital telephone answering machine, voice annotation, and audio recording/playback applications.

Accelerator kits and reference designs are available to minimize application design time and costs.

This designer's guide describes the modem hardware capabilities and identifies the supporting commands. Commands and parameters are defined in the RCVHCF Command Reference Manual (Order No. 1118).

FEATURES

- Data modem
 - K56flex, 33.6 kbps, 31.2 kbps, V.34, V.32 bis, V.32, V.22 bis, V.22A/B, 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 602 command set
 - Fax modem send and receive rates up to 28800 bps
 - ITU-T V.34 fax, V.17, V.29, V.27 ter, and V.21 ch 2
 - EIA/TIA 578 Class 1, Class 1.0 (T.31) fax
 - ISDN BRI support (option)
 - PC Bus support 2B+D channels
 - IOM-2 interface to external U or S/T transceiver
 - Simultaneous transfer of B1, B2, D channels (144 kbps; 64 kbps x 2, 16 kbps)
 - V.34, DSVD, FDSP, audio functions over B channel

In order to test your modem you should be familiar with your communication software. Load and set up your communication software and enter into "terminal mode." Make sure that the COM Port and IRQ settings of the modem match the software. Type AT on your terminal screen and press ENTER. You may see "AT", "AAT" or nothing on the screen. In any case, the modem should respond with an OK or 0. If it does not, either the modem may not have been installed properly or the software has not been properly configured. Review Sections 2.2-2.5 and be certain that the modem and the software have been properly installed. If required, refer to Section 6 for additional troubleshooting information.

2.7 Testing Your Modem After Installation

Voice functions include recording and playback of voice prompts (files). You may record or playback voice with your modem by attaching a telephone to the RJ-11 jack marked "PHONE" or by attaching a microphone to the MIC jack and a speaker to the SPK jack located on the back of the modem bracket. Follow instructions in the FAX/Voice/Speakerphone software on recording and playback of voice prompts.

Your modem has built-in advanced FAX, Voice, and Full Duplex Speakerphone functions. Please consult your FAX/Voice/Speakerphone software manual about procedures on using these features.

2.6 Using the Fax, Voice, and Speakerphone Capabilities of the Modem

Note that your software must be configured to communicate with the modem on the same COM port and IRQ line used by the modem.

We suggest that a "Generic Class 1" modem type should be selected in your fax software, and a "Generic Rockwell" modem type should be selected in your Voice software.

string: AT&F

57,600 bps; 8 data bits; no parity; 1 stop bit; RTS/CTS flow control set to "on;" initialization

ware. Consult the software manual for information on using these and other parameters/features.

installing the modem in Windows 95. Proceed to one of the following sections, depending on your Windows 95's dialog box:

- **Section 2.4.1.1** when Windows 95 starts for the first time after card installation, it detects the modem and it displays the **New Hardware Found** dialog box
- **Section 2.4.1.2** when Windows 95 starts for the first time after card installation, it detects the modem and it displays the **Update Device Driver Wizard**.

2.4.1.1 Windows 95 Release 4.00.950

When Windows 95 starts for the first time after card installation, it detects the modem and displays the **New Hardware Found** dialog box.

Under **New Hardware Found**, when asked to "Select which driver you want to install for your new hardware," click on "Driver from disk provided by hardware manufacturer." Click "OK."

The **Install From Disk** dialog box now instructs you to "Insert the manufacturer's installation disk into the drive selected, and then click OK." Insert the modem's driver diskette into the disk drive and type A:\ (or B:\) if inserted in drive B) in the "Copy manufacturer's files from:" box. Click "OK."

Windows 95 may request its own installation disks or CD-ROM for some files. Insert the Windows 95 disks or CD-ROM as required. When all necessary files are copied, the modem is configured. Windows 95 will assign the modem a COM port and IRQ line. Proceed to **Section 2.5**.

2.4.1.2 Windows 95 Release 4.00.950 B

When Windows 95 starts for the first time after card installation, it detects the modem and displays the **Update Device Driver Wizard**.

Insert the driver disk into the disk drive and click "Next." Windows will find the driver on the driver disk. Click "Finish." Windows 95 may request its own installation disks or CD for some files. Insert the Windows 95 disks or CD as required.

Proceed to Section 2.3 now if you have everything required.

If you have neither 2A or 2B above, you have two options to provide Plug and Play functionality to your PC.

1. Install Windows 95

or,

2. If running DOS or Windows 3.x, configure the modem using the included modem driver. Instructions

for installing this driver are included in the text file called README.1ST on the Windows 95 driver disk.

The README.1ST file can be viewed by loading it

into any wordprocessor or any text editor (i.e. DOS EDIT, NOTEPAD). It may also be viewed by using the DOS

TYPE command. Refer to your word processor manual

or DOS/Windows references for information on loading

text files.

2.3 Hardware Installation

Installation of this modem requires opening and

manipulating your PC. Exercise caution at all times when

working with AC powered and static-sensitive equip-

ment. Turn off and unplug your PC before installation.

Discharge any static electricity from your body by touch-

ing any bare metal surface of the PC system, such as its

power supply cover.

1. Turn off and unplug your computer from the AC

outlet.

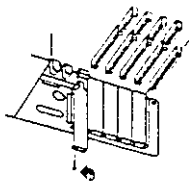
2. Remove your computer's cover (refer to your

computer's owner's manual).

3. Select any available half-card slot, and then remove

the slot cover (refer to Figure 2-1).

Figure 2-1 Expansion Slots



FEDERAL COMMUNICATIONS COMMISSION

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. 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:

- 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.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.