317

386™- 33/40 ANTI-VIRUS M/B

USER'S MANUAL

TRADEMARKS

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- AMI is a registered trademark of American Megatrends Inc.

NOTICE

Manual Version 2.0

All information, documentation, and specifications contained in this manual are subjuct to change without prior notification by the manufacturer.

The author assumes no responsibility for any errors or omissions which may appear in this document nor does it make a commitment to update the information contained herein.

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1 INTRODUCTION

1 - 1 PREFACE

Welcome to use the HOT-317 P/H Anti-Virus main board. This main board is a Low-Cost Two-Chip solution offering optimal performance for low to mid range 386 PC/AT with system, and is designed for 386DX system running from 25MHz. to 40MHz.

This manual explains how to install the main board for operation, and how to set up your CMOS Configuration with BIOS SETUP program.

1 - 2 SPECIFICATIONS

■ CPU :

Intel 80386DX-25/33, AMD Am386DX-25/33/40 (PQFP or PGA)
Cyrix/TI 486DLC-25/33/40

■ CO-PROCESSOR :

80387DX-25/33/40

■ MEMORY :

Up to 64MB on board 9-bit SIMM × 8 (2 banks)
Uses 256KB, 1MB, 4MB × 9-bit, 16MB × 9-bit SIMM modules

■ CACHE MEMORY :

128KB External Cache (Uses 8K × 8, 32K × 8 DIP SRAM)

■ I/O SLOTS :

ISA BUS 16-BIT × 5
ISA BUS 8-BIT × 1

■ SHADOW RAM :

SYSTEM BIOS, VIDEO BIOS, and ADAPTER BIOS

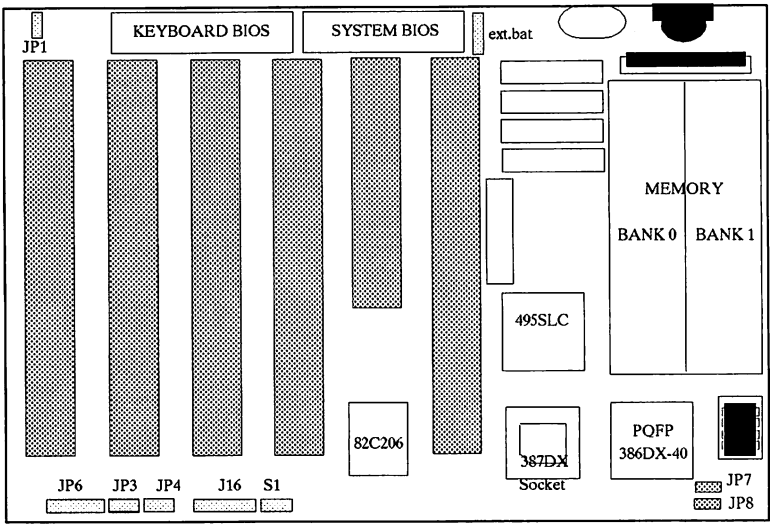
■ BIOS :

AMI BIOS (Single 64KB EPROM Configuration)
ChipAwayVirus feature included

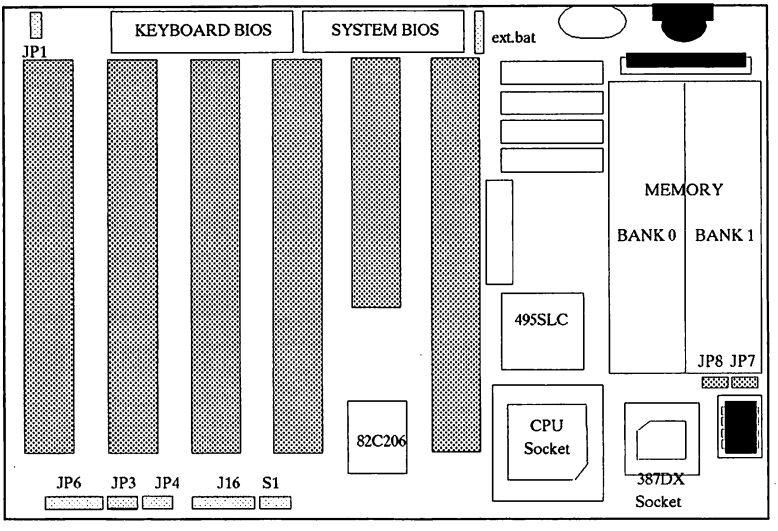
■ SIZE :

COMPACT SIZE 220 mm × 170 mm

1 - 3 PLACEMENT



HOT-317 P



HOT-317 H

2 INSTALLATION

2 - 1 SYSTEM CLOCK SETUP

HOT-317P/H main board provides jumpers for different clock rating from 25 MHz. to 40 MHz. which is drived by a clock generator. *JP7* and *JP8* for above system clock ratings are shown as below.

	80386DX-25	80386DX-33	80386DX-40
JP7	CLOSE	OPEN	OPEN
JP8	OPEN	CLOSE	OPEN

2 - 2 DISPLAY ADAPTER SETUP

JUMPER	SETTING	PIN DESCRIPTION
JP1	OPEN CLOSE	Monochrome Color

2 - 3 KEYLOCK & POWER LED CONNECTOR

CONNECTOR	USAGE	PIN DESCRIPTION
J16	KEYLOCK & Power LED	1 LED power 2 Not used 3 Ground 4 Keyboard inhibiter 5 Ground

2 - 4 SPEAKER CONNECTOR

CONNECTOR	USAGE	PIN DESCRIPTION
JP6	SPEAKER	1 Data out 2 Not used 3 Ground 4 +5V

2 - 5 RESET CONNECTOR

CONNECTOR	USAGE	PIN DESCRIPTION
S1	RESET	1 Ground 2 Reset in

2 - 6 EXTERNAL BATTERY CONNECTOR

CONNECTOR	PIN DESCRIPTION
EXT.BAT	1 External Battery Anode (+) 2, 3 Short if internal battery 3.6V is used 4 Ground

2 - 7 TURBO LED CONNECTOR

CONNECTOR	USAGE	PIN DESCRIPTION
JP3	TURBO LED	1 Anode "+" 2 Cathode "-"

2 - 8 TURBO SWITCH CONNECTOR

CONNECTOR	USAGE	PIN DESCRIPTION
JP4	TURBO SW	1 Select Pin 2 Ground

NOTE :

1 When Hardware turbo switching function is required, please Enable the feature of "Turbo Switch Function" on BIOS SETUP program.

2 When some of EMS Programs (such as EMM386 or QEMM) are used, the hardware turbo switching function may not work probely.

3 HOT-317 also provides turbo switching function by keyboard,

Press "Ctrl", "Alt" and "+" at the same time to select high-speed function,
Press "Ctrl", "Alt" and "-" at the same time to select low-speed function.

2 - 9 KEYBOARD CONNECTOR

CONNECTOR	PIN DESCRIPTION	
J2	1 Keyboard Clock	4 Ground
	2 Keyboard Data	5 +5V
	3 Space	

2 - 10 POWER SUPPLY CONNECTOR

CONNECTOR	PIN DESCRIPTION	
J10	1 Power Good	7 Ground
	2 +5V	8 Ground
	3 +12V	9 -5V
	4 -12V	10 +5V
	5 Ground	11 +5V
	6 Ground	12 +5V

2 - 11 ON-BOARD SIMM INSTALLATION

The HOT-317 main board lets the user increase the system's main memory via on-board SIMM (Single In-line Memory Module) sockets. The main board supports two banks of 256KB, 1MB, 4MB and 16MB SIMM modules. SIMM of at least 70ns or 80ns fast page mode DRAM are required.

Main memory is located in two banks : Bank 0 and Bank 1. Four SIMM sockets are provided in each bank. The user can install either 256KB, 1MB, 4MB or 16MB SIMM in each socket. *The sockets in each bank must be completely filled with the modules of the same type.*

MEMORY CONFIGURATION TABLE			
Option	**Bank 0**	**Bank 1**	**Total**
1	256 K x 4	0	1 M
2	256 K x 4	256 K x 4	2 M
3	1 M x 4	0	4 M
4	256 K x 4	1 M x 4	5 M
5	1 M x 4	1 M x 4	8 M
6	4 M x 4	0	16 M
7	1 M x 4	4 M x 4	20 M
8	4 M x 4	4 M x 4	32 M
9	16M x 4	0	64 M

3 BIOS SETUP

When the user first enter the BIOS SETUP PROGRAM, The BIOS may or may not demand the entrance of password. If it does, please enter the default password "AMI".

BIOS setup reference was written to assist you in the proper usage of BIOS setting, please take a few minutes to review the references prior to using the program.
After you power on the system, the following message on the screen will be displayed :

" Hit < DEL > if you want to run SETUP"

If you press the < DEL > key , the Setup main menu will be displayed :

BIOS SETUP PROGRAM - AMI BIOS SETUP UTILITIES
(C) 1992 American Megatrends Inc., All Rights Reserved

STANDARD CMOS SETUP
ADVANCED CMOS SETUP
ADVANCED CHIP SETUP
BIOS SETUP DEF. AUTO CONFIGURATION OPTION
POWER-ON DEF. AUTO CONFIGURATION OPTION
CHANGE PASSWORD
AUTO DETECT HARD DISK
HARD DISK UTILITY
WRITE TO CMOS AND EXIT
DO NOT WRITE TO CMOS AND EXIT

Advanced CHIPSET Setup for Configuring the CHIPSET Registers

ESC:Exit ⇓ ⇒ ⇑ ⇐: Sel F2/F3:Color F10:Save & Exit

3-1 STANDARD CMOS SETUP

Choose "Standard CMOS Setup" from the Setup main menu and the following screen will be displayed :

BIOS SETUP PROGRAM - STANDARD CMOS SETUP
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Date (mon/date/year) : Mon, Nov, 18, 1991 Base memory : 640 KB
Time (hour/min/sec) : 05 : 54 : 48 Ext. memory : 3712 KB

		Cyln	Head	W/Pcom	LZone	Sect	Size
Hard disk C : Type	: 17	977	5	300	977	17	41MB
Hard disk D : Type	: Not Installed						
Floppy drive A :	: 360 KB, 51/4"						
Floppy drive B :	: Not Installed						
Primary display	: Monochrome						
Keyboard	: Installed						

Month : Jan, Feb, ..., Dec
Date : 01, 02, 03, ..., 31
Year : 1901, 1902, ..., 2009

Sun	Mon	Tue	Wed	Thu	Fri	Sat
27	28	29	30	31	1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31	1	2	3	4	5	6

ESC : Exit ⇐ ⇑ ⇒ ⇓ : Select F2/F3 : Color Pu/Pd : Modify

Making Changes :

These options are used for configuring system. Use "Up/Down/Left/Right Arrow" key to move the cursor and "Page Up/Page Down" key to modify the following options.

* Date : Month, Date and Year.
* Time : Hour, Minute and Second.
* Hard Disk C: and D: The user can choose the "Standard Type" from 1 - 46 or "User Type 47" which the user can enter the hard disk parameters.
* Floppy drive A: and B: 360KB 5 1/4", 1.2MB 5 1/4", 720KB 3 1/2", 1.44MB 3 1/2" or Not Installed.
* Primary Display : Monochrome, Color 40x25, VGA/PGA/EGA, Color 80x25, Not Installed.
* Keyboard : Installed or Not Installed.

3-2 ADVANCED CMOS SETUP

The Advanced CMOS setup is the second option from the main setup menu.
Let the highlighted bar stay at "Advanced CMOS Setup" and press < ENTER >, the following screen will be displayed :

BIOS SETUP PROGRAM - ADVANCED CMOS SETUP
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Above 1 MB Memory test	: Disabled	Adaptor ROM Shadow E400, 16K	: Disabled
Memory Test Tick Sound	: Enabled	Adaptor ROM Shadow E800, 16K	: Disabled
Hard Disk Type 47 RAM Area	: 0 : 300	Adaptor ROM Shadow EC00, 16K	: Disabled
System Boot Up Num Lock	: On	Shadow RAM Option	: Both
Floppy Drive Seek At Boot	: Enabled	ChipAwayVirus	: Enabled
System Boot Up Sequence	: A :, C:		
System Boot Up CPU Speed	: High		
External Cache Memory	: Enabled		
Cyrix/TI CPU Internal Cache	: Disabled		
Turbo Switch Function	: Disabled		
Password Checking Option	: Setup		
Adaptor ROM Shadow C800, 16K	: Disabled		
Adaptor ROM Shadow CC00, 16K	: Disabled		
Adaptor ROM Shaodw D000, 16K	: Disabled		
Adaptor ROM Shaodw D400, 16K	: Disabled		
Adaptor ROM Shadow D800, 16K	: Disabled		
Adaptor ROM Shadow DC00, 16K	: Disabled		
Adaptor ROM Shadow E000, 16K	: Disabled		

ESC : Exit ⇐ ⇑ ⇒ ⇓ : Sel (Crtl) Pu/Pd : Modify F1 : Help F2/F3 : Color
F5 : Old Values F6 : BIOS Setup Defaults F7 : Power-On Defaults

- **Above 1 MB Memory Test** — If there are more than 1 MB of RAM on system board, by enabling this option, will involve the POST memory routines on the RAM above 1 MB. If disabled, the BIOS only check the first 1 MB RAM.

- **Memory Test Tick Sound** — This option will enable or disable the ticking sound during RAM test.

- **Hard Disk Type 47 Data Area** — The BIOS setup features two user-definable hard disk types. Normally, the data for these disk types are stored at 0:300 in lower system RAM. If a problem occurs with other software, this data can be located at the upper limit of the DOS shell (640KB). If the option is set to "DOS 1 KB", the DOS shell is shortened to 639 KB, and the top 1 KB is used for the hard disk data storage.

- **System Boot Up Num Lock** — When this option is turned on, it may allow the user to use the numeric key on the enhanced keyboard numeric keypad when the system is powered on.

- **Floopy Drive Seek At Boot** — This option enable or disable seeking floppy drive A: when the system boots-up. Disable it to allow a fast boot and to decrese the possibility of damage to floppy drive heads.

- **System Boot Up Sequence** — If the option is set to "C:, A:", the system will attempt to boot from hard disk drive C:, and then A:. If the option is setted to "A:, C:", the sequence is reversed. (Note: "A:, C:" must match the enabling of floppy drive seek at boot)

- **System Boot Up CPU Speed** — If the option is high, the system will run in high speed when it boots-up. If the option is low, the system will run in normal speed when it boots-up.

- External Cache Memory — With this features, the user may specify whether the external cache memory is present or absent.

- Cyrix / TI CPU Internal Cache — On Cyrix / TI 486DLC system, the cache memory built inside of CPU is called internal cache memory, with this option, the user may enable the internal cache memory.

- Turbo Switch Function — " Enabled " allows hardware switching of system speed by pressing the Turbo Switch on the system unit housing.

- Password Checking Option — The password checking feature can be used to prevent unauthorized system boot-up or unauthorized use of BIOS SETUP. There are two options in this item, " SETUP " and " ALWAYS ".

- Adaptor ROM Shadow xxxx, 16K — ROM shadow is a procedure in which BIOS code is copied from slower ROM to faster RAM. Each option allows for a segment of 16 KB to be shadowed from ROM to RAM, if these options is enabled.

- Shadow RAM Option — In this item available options are " Disabled ", " Video ", " Main ", " Both ". The same concept applies here as above. If you chose " Both ", then main and video will be shadowed. Setting " Main ", only system BIOS will be shadowed, and " Video " will shadow the video ROM in RAM instead.

- ChipAwayVirus — HOT-317 support this feature for a hardware-based anti-virus to control of the system very early in the boot process before DOS to detect and clean all viruses especially effective against *Boot Viruses.*
  If this feature is enabled, it will occupied about 2KB memory in base memory.

3-3 ADVANCED CHIPSET SETUP

This program of the BIOS Setup is entirely chip set specific, and is used to change the values of chip set registers. These registers control most of the system options in the computer. By using arrow keys you make highlighted bar stay at "Advanced Chipset Setup" then press <ENTER>. The following screen will be displayed :

BIOS SETUP PROGRAM - ADVANCED CHIP SETUP
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Hidden Refresh	: Disabled
Single ALE Enabled	: No
Keyboard Reset Control	: Enabled
AT Bus Clock Selection	: CLKI / 5
Fast Decode Enable	: Disabled
Memory Read Wait State	: 1 W/S
Memory Write Wait State	: 1 W/S
Cache Read Cycle	: 2 - 1 - 1 - 1
Cache Write Wait State	: 1 W/S
Non-Cacheable Block-1 Size	: Disabled
Non-Cacheable Block-1 Base	: 0 KB
Non-Cacheable Block-2 Size	: Disabled
Non-Cacheable Block-2 Base	: 0 KB
Cacheable RAM Address Range	: 16 MB
Video BIOS Area Cacheable	: Yes

ESC : Exit ⇐ ⇑ ⇒ ⇓ : Sel (Crtl) Pu/Pd : Modify F1 : Help F2/F3 : Color
F5 : Old Values F6 : BIOS Setup Deafults F7 : Power-On Defaults

- **Hidden Refresh** — Enabled for hidden refresh and disabled for normal refresh. If it enabled, the AT-bus controller will perform arbitration among the CPU AT cycle, DMA cycle, and refresh cycle.

- **Single ALE Enable** — If enable single ALE (AT-bus Address Latch Enable), it will activate single ALE instead of multiple ALEs during bus conversion cycle.

- **Keyboard Reset Control** — This feature determines whether " HALT " instruction will be executed or not before CPU reset from keyboard reset.

- **AT Bus Clock Selection** — The AT bus clock is an output clock to the I/O channel. This feature is used to select the I/O bus clock used by the system.

  CLKI/5 recommend for 386-40
  CLKI/4 recommend for 386-33
  CLKI/3 recommend for 386-25

- **Fast Decode Enable** — This feature may be enabled in 25 MHz. operation to speed up the DRAM access. But this feature is automatically disabled even when it is set to enabled when external / internal cache memory is enabled.

- **Memory Read Wait State** — This feature allows the user to select whether zero read wait state or one/two read wait state for memory controlled by the chip set.

- **Memory Write Wait State** — This feature allows the user to select whether zero write wait state or one/two/three write wait state for memory controlled by the chip set.

- **Cache Read Cycle** — This feature allows the user to choice the cache burst read wait state. The options are 2-1-1-1, 3-1-1-1, 2-2-2-2, and 3-2-2-2.

- **Cache Write Wait State** — This feature allows the user to select whether zero or one write wait state for cache write wait state control.

- **Non-Cacheable Block - 1/2 Size** — This feature allows the user to set the first/second region of memory where memory caching will not take place. This can be used if user have a option card which requires that memory not be cached.

- **Non-Cacheable Block - 1/2 Base** — This features sets where the first/second region start. This option can only be used if the non-cacheable block-1/2 is enabled.

- **Cacheable RAM Address Range** — This feature allows the user to set the cacheable address range of on-board DRAM size.

- **Video BIOS Area Cacheable** — This feature allows the user to set whether the video BIOS at C0000h ~ C8000h area are cacheable or non-cacheable.

The following table shows the proper setting of "Avcanced Chipset Setup" for different system clock

Feature	386DX-25 486DLC-25	386DX-33 486DLC-33	386DX-40 486DLC-40
AT Bus Clock Selection	CLKI / 3	CLKI / 4	CLKI / 5
Memory Read Wait State	0 W/S	0 W/S	1 W/S
Memory Write Wait State	0 W/S	0 W/S	1 W/S
Cache Read Wait State	2-1-1-1	2-1-1-1	2-1-1-1
Cache Write Wait State	0 W/S	0 W/S	1 W/S

4 CHIPAWAY VIRUS

4 - 1 PREFACE

Welcome to use the HOT-317 P/H main board with the finest computer security solutions available today. ChipAway Virus will easily give you a high-security computing environment for years to come. ChipAway Virus is easy to use and very effective.

4 - 2 WHAT IS CHIPAWAY VIRUS ?

Since you enabled the ChipAway Virus feature on **ADVANCED CMOS SETUP** of System BIOS (Please refer to page 9 of BIOS Setup), you probably already realize the inherent benefits in this hardware-based anti-Virus solution.

The single most important attribute of anti-Virus of HOT-317 is that it features preemptive virus action. This technology, called **JumpLoading** ™ allows Chip-Away Virus to gain control of your system very early in the boot process -- even before DOS. Since all viruses, by their very nature, rely on DOS as their habitat (living environment), they are completely helpless against a system that features **JumpLoading**™.

4 - 3 BOOT VIRUSES

ChipAway Virus of HOT-317 is especially effective against **Boot Viruses**. Some of the most dangerous viruses are Boot Vireses, like **Stoned, Michaelangelo, Disk Killer**, etc.

Boot Viruses are extremely dangerous because of the way they infect computers during the load process. During a normal boot process, the boot sector is loaded long before the user (or the AUTOEXEC.BAT file) gains control of the system. Therefore, even with the best anti-virus software, a boot virus can easily infect the system.

4 - 4 CHIPAWAY VIRUS FEATURES

JumpLoading™ Boot Virus Protection

As mentioned above, this protection method means that ChipAway Virus is protecting your system long before any virus has a chance to load.

Auto-checking of floppy diskettes when they are accessed

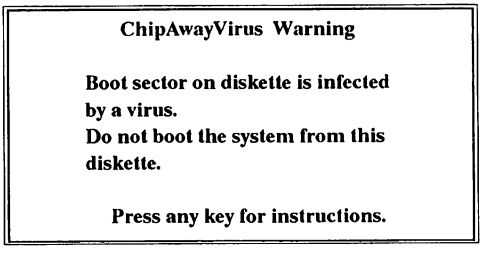
Even when you are using your computer, ChipAway Virus is protecting you by quicklty checking your floppy disks as you access them. Does this slow the system down? Not at all. The few milliseconds that it takes to check a floppy disk boot sector are totally unnoticeable.

Additional anti-virus software included

Just to give you even more peace of mind, HOT-317 main board attached some anti-virus software that you can use to scan for viruses other than boot-sector viruses. With this software, HOT-317 represent a whole solution against every type of virus.

4 - 5 HOW CHIPAWAY VIRUS WORK

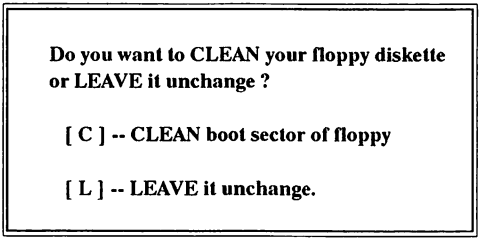
Since ChipAwayVirus is auto-checking of floppy diskettes when they are accessed, and when a virus is found, the warning message will be display.



This means the boot sector on floppy diskette that you are using is infected by a virus and may not boot the system from this diskette.

Then you may take off this floppy diskette from floppy drive and trun off the power to avoid system infected by diskette, or just press any key simply for next

instruction and the following message will be display.



ChipAwayVirus may ask for instruction input by pressing " C " or " L " key.
"C " for clean virus from boot sector of floppy diskette.
" L " for leave it unchange.
Normally, pressing " C " is recommend.

4 - 6 KEEPING YOUR SECURITY HIGH

Keeping your computer free from intruders and viruses isn's alway easy, but it is simple. Now that you have HOT-317 anti-viruses feature, you have taken care of most security issues that can damage your hard drive. However, in any computing environment that you may use today or in the future, it's always a good idea to follow these guidelines :

- » Never boot from floppy disk unless you know they are virus-free.
- » Always scan programs before you install them (this includes from new diskette).
- » Always scan programs that you downloaded before executing them.
- » If you operate in a network environment, get some kind of server-based anti-virus protection.
- » Do not give free access of your computer to other people.
- » Always use a rule-based anti-virus product that is not extremely dependent on pattern updates.

By following these guidelines, and by using HOT-317 anti-virus feature, you should be able to work productively in a virus-free environment.

FCC Notice :

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 properly. In strict accordance with the manufacturer's 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 interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to corrrect 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 qeuipment into an outlet on a circiut different from that to which the receiver is connected.
* Consult the dealer or an experienced radio/television technician for help and for additional suggestions.

The user may find the following booklet prepared by the Federal Communications Commission helpful "How to Identify and Resolve Radio-TV Interference Problems." This booklet is available from the U.S. Government Printing Office. Washington, DC 20402, Stock No. 004-000-00345-4.

FCC Warning

The user is cautioned that changes or modifications not expressly approved by the manufacturer could void the user's authority to operate this equipment.

Note : In order for an installation of this product to maintain compliance with the limits for a Class B device, shielded cables and power cord must be used.

Information Sheet Of User's System Board

To : _____ Attn : _____
From : _____ CC : _____
Date : _____ Page : ___ Of : _____

User's Data

Name : _____ Tel No : _____ FAX No : _____
Address : _____
Contact person : _____

Specification of Main Board

Model No : _____
CPU Type & Brand : _____
On Board Memory : _____ KB
RAM Type : _____ ns ☐ DIP ☐ Module Brand : _____
On Board Cache Memory : _____ KB SRAM Type : _____

Add On-Card

Video : Type _____ Model No : _____ Brand : _____
Adapter : Type _____ Model No : _____ Brand : _____
LAN Card : Type _____ Model No : _____ Brand : _____
Others : _____

Power Supply

Watts : _____ Brand : _____

Application Software

_____

_____

Description of Problem

_____

_____

_____