

IPC-586VDNH (GX)
586 Half-Size CPU Card
with CPU and VGA/LCD/LAN/SSD

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CHAPTER 1: INTRODUCTION

INTRODUCTION

IPC-586VDNH(GX) is a Half-size ISA bus CPU CARD with an on-board, embedded low 1.6V 200MHz to 2.0V 300MHz NS GX1 processor. Other on-board features include a VGA/LCD controller with Universal Memory architecture, 18-bit LCD TFT display, 10/100Mbps PCI Ethernet interface. A PC/104 expansion connector is provided and DiskOnChip 2000 support. Watch dog timer and RS-232,RS-422,RS-485 serial port support.

With this board, system engineers will now be able to upgrade their 486-based systems to 586 level without many worries, partially because a 586 level NS GX processor is mounted directly on board. Mounting CPUs directly on board eases the configuration and installation process because there is no need to set any jumpers for speed or voltage differences between various CPUs. In addition to ease of configuration, the NS GX1 CPU has been specially designed to work well in environments with temperatures up to 60°C without need of a fan. Eliminating the CPU fan from a system significantly reduces MTBF worries and increases application possibilities.

For safety and reliability, we have designed ESD protection components on board for every port (such as serial ports, Parallel port, USB port, PS/2 keyboard and PS/2 mouse port).

Features

- On-board NS GX1 200MHZ to 300MHZ low-power processor (fan less)
- On-board VGA/LCD display controller and 18-bit LCD TFT display
- Support DiskOnChip® 2000
- Pc/104 connector supports

SPECIFICATIONS

- Processor : On-board NS GX1 200MHz to 300MHz
low-power processor (fan less)
- Chipset : NS CS5530A
- System Memory : One 168-pin DIMM socket up to 128MB SDRAM
- BIOS : 2Mbit Flash BIOS, supports Plug & Play, APM 1.2
 - Supports Ethernet Boot ROM
 - Supports boot from CD-ROM
 - Supports boot from LS-120 ZIP™ Drive
 - Optional Customer icon can be supplied
- Display memory : 1.5~4MB shared with system memory
- Display type : Simultaneous supports for CRT and 18-bit TFT
LCD display
- display resolution : Non-interlaced CRT monitor resolution up to
1024×768 @256 colors, Panel resolutions up to
1024×768@256 colors TFT panel
- Solid state disk : Supports DiskOnChip® 2000
- IDE Interface : One Enhanced IDE interface Supports 2 IDE
derives PIO mode 3,4 with bus mastering up to
14 MB/sec. Ultra DMA model up to 33 MB/sec.
- FDD Interface : Supports up to FDDs
(360KB/1.2MB/720KB/1.44MB/2.88MB)
- Serial Port : 2 serial ports COM1:RS-232, COM2:RS-

232/422/485, 15KV ESD protection.

- Parallel Port : One parallel port, supports EPP/ECP,8KV ESD protection.
- Keyboard/mouse connector :6-pin Mini-Din header connector for keyboard and PS/2 mouse. 4KV ESD protection for these two ports.
- Ethernet interface : RealTek™ RTL 8139C
 - PCI Ethernet controller, IEEE 802.3 protocol compatible
 - Supports 10/100Mbps Ethernet
 - Wake on LAN (via ATX power supply)
 - RJ-45 connector equipped.
- Infrared port : One 115kbps IrDA compliant serial infrared
- Operating Temperature : 0°C~60°C
- Power Requirements : ○ typical: 1.6A@ +5V with 128 MB SDRAM
 - MAX : 4A @ +5V
- Dimensions : 185 mm X 122mm

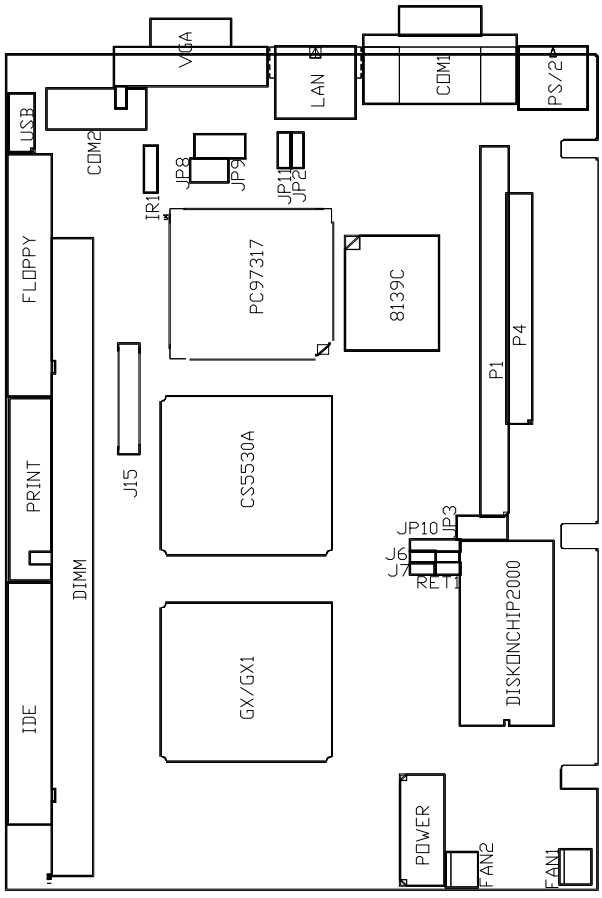
PACKING CHECK LIST

Before you begin to install your card, please make sure that you received the following materials as listed below:

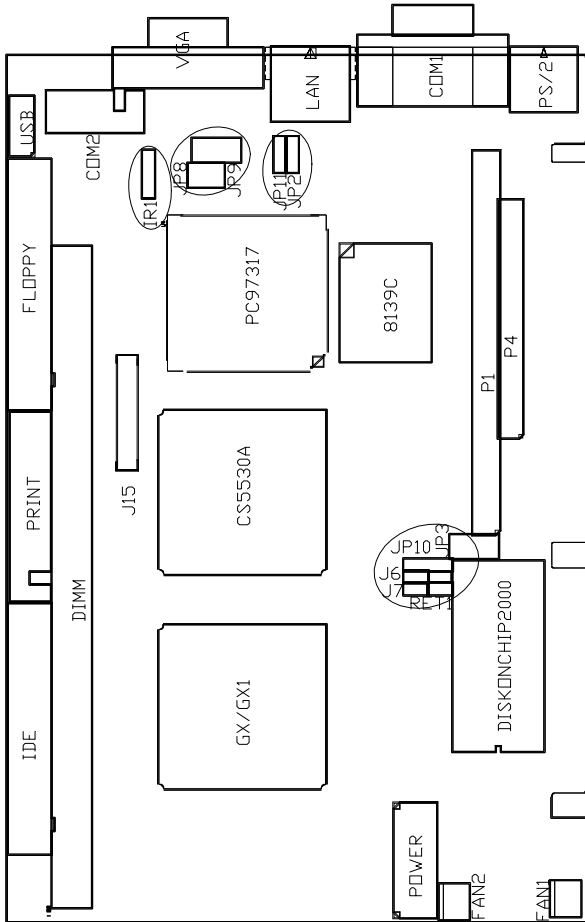
Item	Qty	Remark
IPC-586VDNH(GX)CPU Card	1pc.	
Keyboard adapter cable	1 set	Two in one PS/2 cable
IDE/Floppy cable	1pcs . Each	40-pin standard header to 40-pin standard header 34-pin standard header to 34-pin standard header
NS CS5530A Driver	1 set	NS CS5530A IDE & VGA driver. 2 diskettes / 1 CD
User's manual	1pc.	IPC-586VDNH(GX)

CHAPTER 2: JUMPER SETTINGS AND CONNECTOR

The Figure below shows the jumpers and connectors location on the IPC-586VDNH(GX):



2.1 JUMPER LOCATION FOR IPC-586VDNH(GX)





2.2 JUMPER SETTINGS SUMMARY FOR IPC-586VDNH(GX)


JUMPERS	
LOCATION	FUNCTION
JP2	Clear CMOS Content
JP3	DOC BIOS Expansion Address Select
JP5	On board LAN enabled/disabled
Jp6,JP12	LCD Jumper setting
JP7,JP8,JP9	RS232/422/485(COM)Selection

2.3 JUMPER SETTINGS FOR IPC-586VDNH(GX)


JP2:Clear CMOS Content

JP2	Setting	Function
	Pin 1-2 Short/Closed	Normal Operation
	Pin 2-3 Short/Closed	Clear CMOS Content

JP3 : DOC Address Select

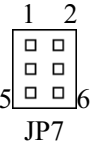
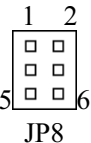
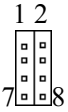
Jumper	Setting	Function
	1-2, 5-6	D000H-D1FFH
	1-2, 7-8	D400H-D5FFH
	3-4, 5-6	D800H-D9FFH
	3-4, 7-8	DC00H-DDFFH

JP5: On board LAN enabled/disabled



Jumper	Setting	Function
	Open	Disabled
	Close	Enabled

JP7,JP8,JP9: RS232/422/485(COM2)Selection.

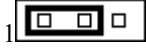

The following table describes the jumper settings of this connector.

jumper	function		
	RS-232	RS-422	RS-485
	3-5,4-6	1-3,2-4	1-3,2-4
	3-5,4-6	1-3,2-4	1-3,2-4
	1-2	3-4	5-6,7-8

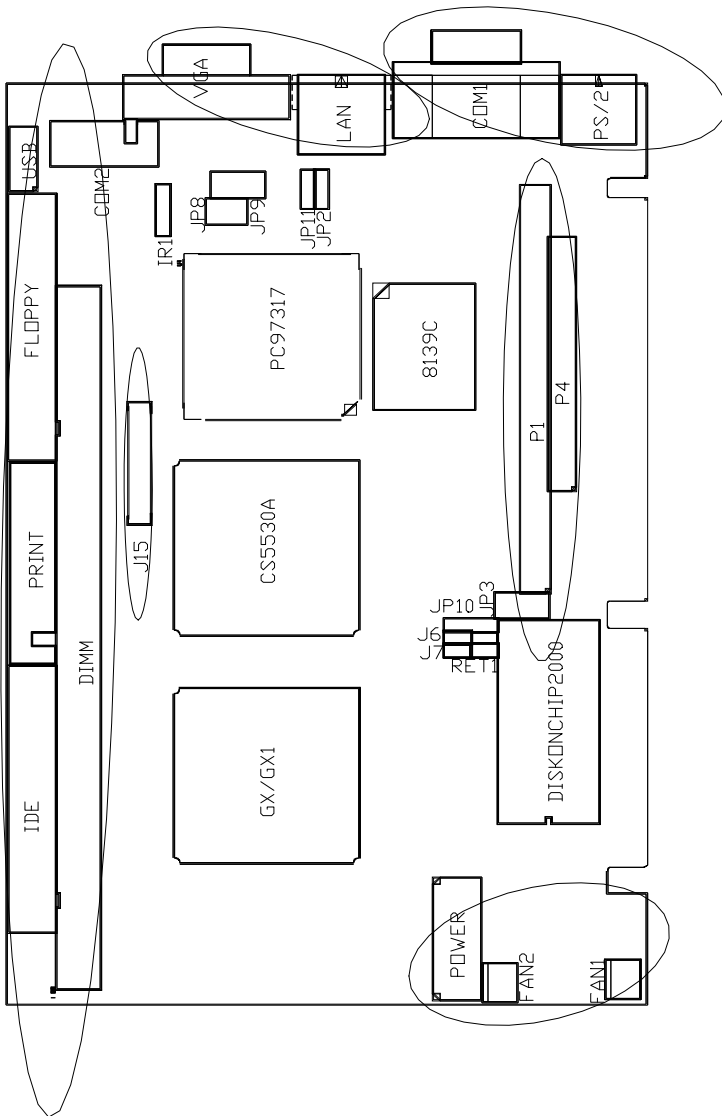
JP6,JP12: LCD Jumper setting

JP6	Setting	Function
	Pin 1-2 Short/Closed	3V voltage LCD Panel
	Pin 2-3 Short/Closed	5V voltage LCD Panel

**JP12:setting the voltage provided by JP13(USE JP13 as Panel power supply.
Ignore this jumper when Panel use other power supply)**

JP12	Setting	Function
	Pin 1-2 Short/Closed	5V Panel backlight voltage
	Pin 2-3 Short/Closed	12V Panel backlight voltage

2.4 I/O CONNECTORS LOCATION FOR IPC-586VDNH(GX)

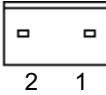


2.5 I/O CONNECTORS SUMMARY FOR IPC-586VDNH(GX)

CONNECTOR	FUNCTION
JP1	IDE LED Connector
J13	Internal Keyboard Connector
J11	PS/2 keyboard and mouse connector
FAN1, FAN2	FAN Connector
J10	Com2 connector
J9	Com1 connector
J8	VGA connector
J7	Green LED Connector
IR1	IrDA Connector
J6	Power LED Connector
RESET1	Reset Switch
JP10	Speaker
J4	USB connector
J3	Floppy Drive Connector
J2	IDE Connector
J15	LCD Connector
PRINT1	Parallel Port Connector
JP13	Backlight Voltage Connector
U11	DiskOnChip 2000 socket

2.6 I/O CONNECTORS DESCRIPTION

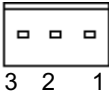
JP1: IDE LED Connector



Pin #	Signal Name
2	Ground
1	Signal +

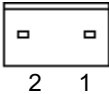
FAN1,FAN2: FAN CONNECTOR

This is a 3-pin header for the CPU fan. The fan must be a 12V fan.



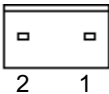
Pin #	Signal Name
1	Ground
2	+12V
3	NC

J6: Green LED Connector



Pin #	Signal Name
2	Ground
1	Signal +

J7: Power LED Connector



Pin #	Signal Name
2	Ground
1	Signal +

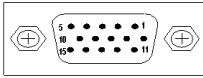
J10: Speaker

Pin #	Signal Name
1	Speak out
2	NC
3	NC

4	Ground
---	--------

J8: VGA Connector

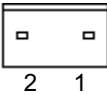
The pin assignments of J8 VGA CRT connector are as follows:



J8

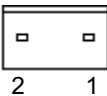
Signal Name	Pin	Pin	Signal Name
Red	1	2	Green
Blue	3	4	VCC
GND	5	6	GND
GND	7	8	GND
VCC	9	10	GND
VCC.	11	12	DDCSDA
HSYNC	13	14	VSYNC
DDCSCL	15		

J13: Backlight Voltage Connector



Pin #	Signal Name
2	GND
1	Signal +

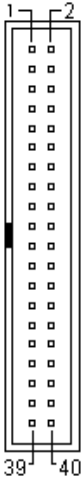
RESET1



Pin #	Signal Name
2	GND
1	Signal

J2: IDE Connector

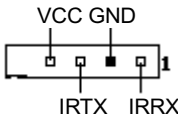
Primary IDE Connector



Signal Name	Pin #	Pin #	Signal Name
Reset IDE	1	2	Ground
Host data 7	3	4	Host data 8
Host data 6	5	6	Host data 9
Host data 5	7	8	Host data 10
Host data 4	9	10	Host data 11
Host data 3	11	12	Host data 12
Host data 2	13	14	Host data 13
Host data 1	15	16	Host data 14
Host data 0	17	18	Host data 15
Ground	19	20	NC
DRQ0	21	22	Ground
Host IOW	23	24	Ground
Host IOR	25	26	Ground
IOCHRDY	27	28	Ground
DACK0	29	30	Ground
IRQ14	31	32	No connect
Address 1	33	34	No connect
Address 0	35	36	Address 2
Chip select 0	37	38	Chip select 1
Activity	39	40	Ground

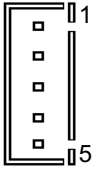
IR1: Infrared (IrDA) Header

This connector is used for an IrDA connector for wireless communication.



Pin #	Signal Name
1	IRRX
2	GND
3	IRTX
4	VCC

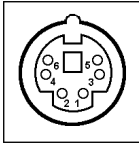
J13: Internal Keyboard Connector



J13

Pin #	Signal Name
5	VCC5V
4	GND
3	NC
2	Keyboard data
1	Keyboard clock

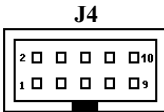
J11:PS/2 Keyboard Connector and mouse connector



Pin #	Signal Name
1	Keyboard data
2	Mouse data
3	GND
4	VCC
5	Keyboard clock
6	Mouse clock

J4: USB Connectors

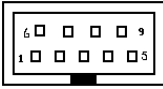
The following table shows the pin assignments of the USB connectors.



J4

J4 Pin #	Signal Name	J4 Pin #	Signal Name
1	Vcc	10	Vcc
2	USB1-	9	USB0-
3	USB1+	8	USB0+
4	GND	7	GND
5	GND	6	GND

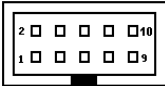
J9: COM1 connector



J9 COM1

Pin #	Signal Name
1	DCD
2	RX
3	TX
4	DTR
5	GND
6	DSR
7	RTS
8	CTS
9	RI
10	GND

J10: COM2 connector

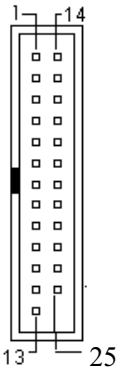


J10: COM2

Pin #	Signal Name		
	RS-232	R2-422	RS-485
1	DCD	TX-	DATA-
2	DSR	NC	NC
3	RX	TX+	DATA+
4	RTS	NC	NC
5	TX	RX+	NC
6	CTS	NC	NC
7	DTR	RX-	NC
8	RI	NC	NC
9	GND	GND	NC
10	GND	GND	GND

PRINT1: Parallel Port Connector

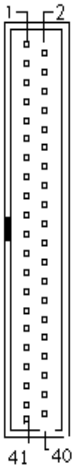
The following table describes the pin assignments of this connector.



Signal Name	Pin #	Pin #	Signal Name
T STB#	1	14	Auto Feed
PD0, parallel data 0	2	15	Error
PD1, parallel data 1	3	16	Initialize
PD2, parallel data 2	4	17	Select
PD3, parallel data 3	5	18	Ground
PD4, parallel data 4	6	19	Ground
PD5, parallel data 5	7	20	Ground
PD6, parallel data 6	8	21	Ground
PD7, parallel data 7	9	22	Ground
ACK, acknowledge	10	23	Ground
Busy	11	24	Ground
Paper empty	12	25	Ground
Select	13		

J15: LCD INTERFACE

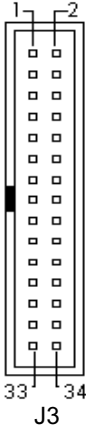
The following table describes the pin assignments of this connector



Signal Name	Pin #	Pin #	Signal Name
CLK	1	2	GND
GND	3	4	D5
D17	5	6	D4
D16	7	8	D3
D15	9	10	BKLENR
D14	11	12	NC
GND	13	14	D2
D13	15	16	D1
D12	17	18	D0
D11	19	20	GND
D10	21	22	DISPEN
GND	23	24	LCD VCC
D9	25	26	LCD VCC
D8	27	28	VSYN
D7	29	30	GND
D6	31	32	HSYN
GND	33	34	LCD VCC
GND	35	36	LCD VCC
GND	37	38	GND
GND	39	40	GND
NC	41		

J3: Floppy Drive Connector

J3 is a 34-pin header and supports up to 2.88MB floppy drives.

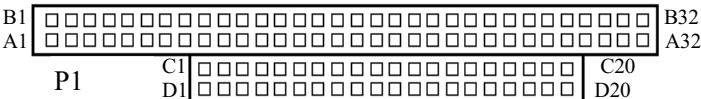


Signal Name	Pin #	Pin #	Signal Name
Ground	1	2	RM/LC0
Ground	3	4	No connect
Ground	5	6	RM/LC1
Ground	7	8	Index
Ground	9	10	Motor enable 0
Ground	11	12	Drive select 1
Ground	13	14	Drive select 0
Ground	15	16	Motor enable 1
Ground	17	18	Direction
Ground	19	20	Step
Ground	21	22	Write data
Ground	23	24	Write gate
Ground	25	26	Track 00
Ground	27	28	Write protect
Ground	29	30	Read data
Ground	31	32	Side 1 select
Ground	33	34	Diskette change

P1,P4: PC-104 Connector

P1 and P4 are dual-in-line pin headers that support PC-104 modules. P1 consists of 64 pins and P4 has 40 pins. The following table shows their pin assignments.

P1				P4			
Pin	Signal Name	Pin	Signal Name	Pin	Signal Name	Pin	Signal Name
A1	IOCHK	B1	GND	C1	GND	D1	GND
A2	D7	B2	REST	C2	SBHE	D2	MEMCS16
A3	D6	B3	VCC	C3	LA23	D3	IOCS16
A4	D5	B4	IRQ9	C4	LA22	D4	IRQ10
A5	D4	B5	-5V	C5	LA21	D5	IRQ11
A6	D3	B6	DRQ2	C6	LA20	D6	IRQ12
A7	D2	B7	-12V	C7	LA19	D7	IRQ15
A8	D1	B8	OWS	C8	LA18	D8	IRQ14
A9	D0	B9	+12V	C9	LA17	D9	DACK0
A10	IOCHRDY	B10	GND	C10	MEMR	D10	DRQ0
A11	AEN	B11	SMEMW	C11	MEMW	D11	DACK5
A12	A19	B12	SMEMR	C12	D8	D12	DRQ5
A13	A18	B13	IOW	C13	D9	D13	DACK6
A14	A17	B14	IOR	C14	D10	D14	DRQ6
ZA15	A16	B15	DACK3	C15	D11	D15	DACK7
A16	A15	B16	DRQ3	C16	D12	D16	DRQ7
A17	A14	B17	DACK1	C17	D13	D17	VCC
A18	A13	B18	DRQ1	C18	D14	D18	MASTER
A19	A12	B19	REFRESH	C19	D15	D19	GND
A20	A11	B20	CLK	C20	KEY PIN	D20	GND
A21	A10	B21	IRQ7				
A22	A9	B22	IRQ6				
A23	A8	B23	IRQ5				
A24	A7	B24	IRQ4				
A25	A6	B25	IRQ3				
A26	A5	B26	DACK2				
A27	A4	B27	TC				
A28	A3	B28	BALE				
A29	A2	B29	VCC				
A30	A1	B30	OSC				
A31	A0	B31	GND				
A32	GND	B32	GND				



P4

CHAPTER 3: Award BIOS Configuration

3.1 BIOS Introduction

The Award BIOS (Basic Input/Output System) provides critical low-level support for a standard device such as disk drives, serial ports and parallel ports. It also features virus and password protection as well as special support for detailed fine-tuning of the chipset controlling the entire system.

3.2 BIOS Setup

The Award BIOS provides a Setup utility program for specifying the system configurations and settings. The BIOS ROM of the system stores the Setup utility. When you turn on the computer, the Award BIOS is immediately activated. Pressing the key immediately allows you to enter the Setup utility. If you are a little bit late pressing the key, POST (Power On Self Test) will continue with its test routines, thus preventing you from invoking the Setup. If you still wish to enter Setup, restart the system by pressing the "Reset" button or simultaneously pressing the <Ctrl>, <Alt> and <Delete> keys. You can also restart by turning the system Off and back On again. The following message will appear on the screen:

```
Press <DEL> to Enter Setup
```

In general, you press the arrow keys to highlight items, <Enter> to select, the <PgUp> and <PgDn> keys to change entries, <F1> for help and <Esc> to quit.

When you enter the Setup utility, the Main Menu screen will appear on the screen. The Main Menu allows you to select from various setup functions and exit

choices.

ROM PCI/ISA BIOS (2A434EJ9)
CMOS SETUP UTILITY
AWARD SOFTWARE, INC.

STANDARD CMOS SETUP	INTEGRATED PERIPHERALS
BIOS FEATURES SETUP	SUPERVISOR PASSWORD
CHIPSET FEATURES SETUP	USER PASSWORD
POWER MANAGEMENT SETUP	IDE HDD AUTO DETECTION
PNP/PCI CONFIGURATION	SAVE & EXIT SETUP
LOAD BIOS DEFAULTS	EXIT WITHOUT SAVING
LOAD SETUP DEFAULTS	
ESC : Quit	↑ ↓ → ← : Select Item
F10 : Save & Exit Setup	(Shift) F2 : Change Color
Time, Date, Hard Disk Type	

The section below the setup items of the Main Menu displays the control keys for this menu. At the bottom of the Main Menu just below the control keys section, there is another section which displays information on the currently highlighted item in the list.

NOTE: *If your computer cannot boot after making and saving system changes with Setup, the Award BIOS supports an override to the CMOS settings that resets your system to its default.*

We strongly recommend that you avoid making any changes to the chipset defaults. These defaults have been carefully chosen by both Award and your system manufacturer to provide the absolute maximum performance and reliability.

3.3 Standard CMOS Setup

The “Standard CMOS Setup” choice allows you to record some basic hardware configurations in your computer system and set the system clock and error handling. If the motherboard is already installed in a working system, you will not need to select this option. You will need to run the Standard CMOS option, however, if you change your system hardware configurations, the onboard battery fails, or the configuration stored in the CMOS memory was lost or damaged.

ROM PCI/ISA BIOS (2A434EJ9)
 STANDARD CMOS SETUP
 AWARD SOFTWARE, INC.

Date (mm:dd:yy) : Wed, Mar 12 2001								
Time (hh:mm:ss) : 00 : 00 : 00								
HARD DISKS	TYPE	SIZE	CYLS	HEAD	PRECOMP	LANDZ	SECTOR	MODE
Drive C	User	6399M	778	255	0	13227	63	LBA
Drive D	Auto	0	0	0	0	0	0	Auto
Drive A	: 1.44M, 3.5in				Base Memory		:	640K
Drive B	: None				Extended Memory		:	30720K
Video	: EGA / VGA				Other Memory		:	384K
Halt On	: All Errors				Total Memory		:	31744K
ESC : Quit					↑ ↓ → ← : PU / PD / + / - : Modify			
F1 : Help					Select Item			
					(Shift) F2 : Change Color			

At the bottom of the menu are the control keys for use on this menu. If you need any help in each item field, you can press the <F1> key. It will display the relevant information to help you. The memory display at the lower right-hand side of the menu is read-only. It will adjust automatically according to the memory changed. The following describes each item of this menu.

Date

The date format is:

Day : Sun to Sat
Month : 1 to 12
Date : 1 to 31
Year : 1994 to 2079

To set the date, highlight the “Date” field and use the Page Up/ Page Down or +/- keys to set the current time.

Time

The time format is: **Hour : 00 to 23**
Minute : 00 to 59
Second : 00 to 59

To set the time, highlight the “Time” field and use the <PgUp>/ <PgDn> or +/- keys to set the current time.

Primary HDDs / Secondary HDDs

The onboard PCI IDE connectors provide Primary and Secondary channels for connecting up to four IDE hard disks or other IDE devices. Each channel can support up to two hard disks; the first is the “Master” and the second is the “Slave”.

To enter the specifications for a hard disk drive, you must select first a “Type”. There are 45 predefined types and 4 user definable types are for Enhanced IDE BIOS. Type 1 to 45 are predefined. Type “User” is user-definable. For the Primary Master/Slave as well as Secondary Master/Slave, you can select “Auto” under the TYPE and MODE fields. This will enable auto detection of your IDE drives and CD-ROM drive during POST.

Press <PgUp>/<PgDn> to select a numbered hard disk type or type the number and press the <Enter> key. The hard disk will not work properly if you enter incorrect information for this field. If your hard disk drive type is not matched or listed, you can use Type User to define your own drive type manually. If you select Type User, related information is asked to be entered to the following items.

- CYLS :** Number of cylinders
- HEAD :** Number of read/write heads
- PRECOMP :** Write precompensation
- LANDZ :** Landing zone
- SECTOR :** Number of sectors
- SIZE :** Automatically adjust according to the configuration
- MODE (for IDE HDD only) :** Auto
 - Normal (HD < 528MB)
 - Large (for MS-DOS only)
 - LBA (HD > 528MB and supports Logical Block Addressing)

***NOTE:** The specifications of your drive must match with the drive table. The hard disk will not work properly if you enter incorrect information in these fields. If your hard disk drive type is not matched or listed, you can use Type User to define your own drive type manually.*

Drive A / Drive B

These fields identify the types of floppy disk drive A or drive B that has been installed in the computer. The available specifications are:

- 360KB 1.2MB 720KB 1.44MB 2.88MB
- 5.25 in. 5.25 in. 3.5 in. 3.5 in. 3.5 in.

Video

This field selects the type of video display card installed in your system. You can choose the following video display cards:

- EGA/VGA For EGA, VGA, SEGA, SVGA or PGA monitor adapters. (default)
- CGA 40 Power up in 40 column mode.
- CGA 80 Power up in 80 column mode.
- MONO For Hercules or MDA adapters.

Halt On

This field determines whether the system will halt if an error is detected during power up.

No errors	The system boot will not be halted for any error that may be detected. (default)
All errors	Whenever the BIOS detects a non-fatal error, the system will stop and you will be prompted.
All, But Keyboard	The system boot will not be halted for a keyboard error; it will stop for all other errors
All, But Diskette	The system boot will not be halted for a disk error; it will stop for all other errors.
All, But Disk/Key	The system boot will not be halted for a key- board or disk error; it will stop for all others.

3.4 BIOS Features Setup

This section allows you to configure and improve your system and allows you to set up some system features according to your preference.

ROM / PCI ISA BIOS (2A434EJ9)
 BIOS FEATURES SETUP
 AWARD SOFTWARE, INC.

Virus Warning : Disabled CPU Internal Cache : Enabled Quick Power On Self Test : Disabled Boot Sequence : A, C, SCSI Swap Floppy Drive : Disabled Boot Up Floppy Seek : Disabled Boot Up NumLock Status : On Boot Up System Speed : High Gate A20 Option : Fast Memory Parity Check : Disabled Typematic Rate Setting : Disabled Typematic Rate (chars/Sec) : 6 Typematic Delay (Msec) : 250 Security Option : Setup PCI/VGA Palette Snoop : Disabled OS Select For DRAM>64MB : Non-OS2	Video BIOS Shadow : Enabled C8000-CBFFF Shadow : Disabled D0000-D3FFF Shadow : Disabled D4000-D7FFF Shadow : Disabled D8000-DBFFF Shadow : Disabled DC000-DFFF Shadow : Disabled Cyrix 6x86/MII CPUID : Enabled ESC : Quit ↑ ↓ → ← : Select Item F1 : Help PU/PD/+/- : Modify F5 : Old Values (Shift) F2 : Color F6 : Load BIOS Defaults F7 : Load Setup Defaults
--	---

Virus Warning

This item protects the boot sector and partition table of your hard disk against accidental modifications. If an attempt is made, the BIOS will halt the system and display a warning message. If this occurs, you can either allow the operation to continue or run an anti-virus program to locate and remove the problem.

NOTE: *Many disk diagnostic programs, which attempt to access the boot sector table, can cause the virus warning. If you will run such a program, disable the Virus Warning feature.*

CPU Internal Cache

Cache memory is additional memory that is much faster than conventional DRAM (system memory). CPUs from 486-type on up contain internal cache memory, and most, but not all, modern PCs have additional (external) cache memory. When the CPU requests data, the system transfers the requested data from the main DRAM into cache memory, for even faster access by the CPU. These items allow you to enable (speed up memory access) or disable the cache function. By default, these items are **Enabled**.

Quick Power On Self Test

When enabled, this field speeds up the Power On Self Test (POST) after the system is turned on. If it is set to **Enabled**, BIOS will skip some items.

Boot Sequence

This field determines the drive that the system searches first for an operating system. The options are:

A, C, SCSI	D, A, SCSI	SCSI, C, A
C, A, SCSI	E, A, SCSI	C only
C, CDROM, A	F, A, SCSI	LS120, C
CDROM, C, A	SCSI, A, C	

The default value is **A, C, SCSI**.

Swap Floppy Drive

This item allows you to determine whether or not to enable Swap Floppy Drive. When enabled, the BIOS swaps floppy drive assignments so that Drive A becomes Drive B, and Drive B becomes Drive A. By default, this field is set to *Disabled*.

Boot Up Floppy Seek

When enabled, the BIOS will seek whether or not the floppy drive installed has 40 or 80 tracks. 360K type has 40 tracks while 760K, 1.2M and 1.44M all have 80 tracks. By default, this field is set to *Enabled*.

Boot Up NumLock Status

This allows you to activate the NumLock function after you power up the system. By default, the system boots up with *NumLock* On.

Boot Up System Speed

This has no function and selects the default system speed (*High*).

Gate A20 Option

This field allows you to select how Gate A20 is worked. Gate A20 is a device used to address memory above 1 MB. The default setting is *Fast*.

Typematic Rate Setting

When disabled, continually holding down a key on your keyboard will generate only one instance. When enabled, you can set the two typematic controls listed next. By default, this field is set to *Disabled*.

Typematic Rate (Chars/Sec)

When the typematic rate is enabled, the system registers repeated keystrokes speeds. You can select speed range from 6 to 30 characters per second. By default, this item is set to **6**.

Typematic Delay (Msec)

When the typematic rate is enabled, this item allows you to set the time interval for displaying the first and second characters. By default, this item is set to *250msec*.

Security Option

This field allows you to limit access to the System and Setup. The default value is *Setup*. When you select *System*, the system prompts for the User Password every time you boot up. When you select *Setup*, the system always boots up and prompts for the Supervisor Password only when the Setup utility is called up.

PCI/VGA Palette Snoop

Some non-standard VGA display cards may not show colors properly. This field allows you to set whether or not MPEG ISA/VESA VGA Cards can work with PCI/VGA. When this field is enabled, a PCI/VGA can work with an MPEG ISA/VESA VGA card. When this field is disabled, a PCI/VGA cannot work with an MPEG ISA/VESA Card.

OS Select for DRAM > 64MB

This option allows the system to access greater than 64MB of DRAM memory when used with OS/2 that depends on certain BIOS calls to access memory. The default setting is *Non-OS/2*.

Video BIOS Shadow

This item allows you to change the Video BIOS location from ROM to RAM. Video Shadow will increase the video speed.

C8000 - CBFFF Shadow/DC000 - DFFFF Shadow

Shadowing a ROM reduces the memory available between 640KB to 1024KB. These fields determine whether or not optional ROM will be copied to RAM.

3.6 Power Management Setup

The Power Management Setup allows you to save energy of your system effectively. It will shut down the hard disk and turn off video display after a period of inactivity.

ROM PCI/ISA BIOS (2A434EJ9)
POWER MANAGEMENT SETUP
AWARD SOFTWARE, INC.

Power Management	: Disable	IRQ1 (Keyboard)	: ON
		IRQ3 (COM 2)	: OFF
** PM Timers **		IRQ4 (COM 1)	: OFF
Doze Mode	: Disable	IRQ5 (LPT 2)	: OFF
Standby Mode	: Disable	IRQ6 (Floppy Disk)	: OFF
HDD Power Down	: Disabled	IRQ7 (LPT 1)	: OFF
Modem Use IRQ	: NA	IRQ9 (IRQ2 Redir)	: OFF
Throttle duty Cycle	: 33.3%	IRQ10 (Reserved)	: OFF
		IRQ11 (Reserved)	: OFF
		IRQ12 (PS/2 Mouse)	: OFF
		IRQ13 (Coprocessor)	: OFF
		IRQ14 (Hard Disk)	: OFF
		IRQ15 (Reserved)	: OFF
		ESC : Quit	↑ ↓ → ← : Select Item
		F1 : Help	PU/PD/+/- : Modify
		F5 : Old Values	(Shift) F2 : Color
		F6 : Load BIOS Defaults	
		F7 : Load Setup Defaults	

Power Management

This field allows you to select the type of power saving management modes.

There are four selections for Power Management.

Min. Power Saving	Minimum power management
Max. Power saving	Maximum power management.
User Define	Each of the ranges is from 1 min.to 1hr.Except for HDD Power Down which ranges from 1min. to 15 min. (Default)

NOTE:	<i>In order to enable the CPU overheat protection feature, the Power Management field should not be set to Disabled.</i>
--------------	--

Doze Mode

When enabled, and after the set time of system inactivity, the CPU clock will run at a slower speed while all other devices still operate at full speed.

Standby Mode

After the selected period of system inactivity, the fixed disk drive and the video shut off while all other devices still operate at full speed.

3.7 PNP/PCI Configuration

This option configures the PCI bus system. All PCI bus systems on the system use INT#, thus all installed PCI cards must be set to this value.

ROM PCI/ISA BIOS (2A434EJ9)

PNP/PCI CONFIGURATION

AWARD SOFTWARE INC.

PNP OS Installed	: NO	PCI IRQ Activated By	: Edge
Resources Controlled By	: AUTO		
Reset Configuration Data	: Disabled		
		ESC : Quit ↑ ↓ ← : Select Item	
		F1 : Help PU/PD/+/- : Modify	
		F5 : Old Values (Shift) F2 : Color	
		F6 : Load BIOS Defaults	
		F7 : Load Setup Defaults	

Resources Controlled by

This PnP BIOS can configure all of the boot and compatible devices automatically. However, this capability needs you to use a PnP operating system such as Windows 95. The default value is *Manual*.

Reset Configuration Data

This field allows you to determine whether or not to reset the configuration data. The default value is *Disabled*.

3.8 Load BIOS Defaults

This option allows you to load the troubleshooting default values permanently stored in the BIOS ROM. These default settings are non-optimal and disable all high-performance features.

ROM PCI/ISA BIOS (2A434EJ9)
 CMOS SETUP UTILITY
 AWARD SOFTWARE, INC.

STANDARD CMOS SETUP	INTEGRATED PERIPHERALS
BIOS FEATURES SETUP	SUPERVISOR PASSWORD
CHIPSET FEATURES SETUP	USER PASSWORD
POWER MANAGEMENT S	
PNP/PCI CONFIGURATIO	
LOAD BIOS DEFAULTS	Load BIOS Defaults (Y/N)? N
LOAD SETUP DEFAULTS	
ESC : Quit	↑ ↓ → ← : Select Item
F10 : Save & Exit Setup	(Shift) F2 : Change Color
Load BIOS Defaults except Standard CMOS Setup	

To load BIOS defaults value to CMOS SRAM, enter “Y”. If not, enter “N”.

Load Setup Defaults

This option allows you to load the default values to your system configuration. These default settings are optimal and enable all high performance features.

ROM PCI/ISA BIOS (2A434EJ9)
 CMOS SETUP UTILITY
 AWARD SOFTWARE, INC.

STANDARD CMOS SETUP	INTEGRATED PERIPHERALS
BIOS FEATURES SETUP	SUPERVISOR PASSWORD
CHIPSET FEATURES SETUP	USER PASSWORD
POWER MANAGEMENT S	
PNP/PCI CONFIGURATIO	
LOAD BIOS DEFAULTS	Load Setup Defaults (Y/N)? N
LOAD SETUP DEFAULTS	
ESC : Quit	↑ ↓ → ← : Select Item
F10 : Save & Exit Setup	(Shift) F2 : Change Color
Load BIOS Defaults except Standard CMOS Setup	

To load SETUP defaults value to CMOS SRAM, enter “Y”. If not, enter “N”.

3.9 Integrated Peripherals

This option sets your hard disk configuration, mode and port.

ROM PCI/ISA BIOS (2A434EJ9)
 INTEGRATED PERIPHERALS
 AWARD SOFTWARE INC.

IDE HDD Block Mode : Enabled Primary IDE Channel : Enabled Master Drive PIO Mode : Auto Slave Drive PIO Mode : Auto IDE Primary Master UDMA : Auto IDE Primary Slave UDMA : Auto KBC input clock : 12MHZ Onboard FDC controller : Enabled Onboard Serial Port 1 : 2F8/IRQ4 Onboard Serial Port 2 : 2F8/IRQ3 UR2 Mode : Standed Onboard Paralle port : 378/IRQ7 Parallel Port Mode : Ecp+Epp ECP Mode Use DMA : 3 Build In CPU Audio : Disabled 	Multiple Monitor Support : No onboard Video size : 2.5m Display status : CRT Multiple Monitor Support : 800 x600 ESC : Quit ↑ ↓ ← : Select Item F1 : Help PU/PD/+/- : Modify F5 : Old Values (Shift) F2 : Color F6 : Load BIOS Defaults F7 : Load Setup Defaults
--	--

IDE Primary/Secondary Master/Slave PIO

These fields allow your system hard disk controller to work faster. Rather than have the BIOS issue a series of commands that transfer to or from the disk drive, PIO (Programmed Input/Output) allows the BIOS to communicate with the controller and CPU directly.

The system supports five modes, numbered from 0 (default) to 4, which primarily differ in timing. When Auto is selected, the BIOS will select the best available mode.

IDE HDD Block Mode

This field allows your hard disk controller to use the fast block mode to transfer data to and from your hard disk drive.

Onboard FDC Controller

Select *Enabled* if your system has a floppy disk controller (FDC) installed on the system board and you wish to use it. If you install an add-in FDC or the system has no floppy drive, select *Disabled* in this field. This option allows you to select the onboard FDD port.

Onboard Serial/Parallel Port

These fields allow you to select the onboard serial and parallel ports and their addresses. The default values for these ports are:

Serial Port 1 3F8H

USB Controller

Select *Enabled* if your system contains a Universal Serial Bus (USB) controller and you have a USB device.

3.10 Supervisor / User Password

These two options set the system password. Supervisor Password sets a password that Will be used to protect the system and Setup utility. User Password sets a password that will be used exclusively on the system. To specify a password, highlight the type you want and press <Enter>. The Enter Password: message prompts on the screen. Type the password, up to eight characters in length, and press <Enter>. The system confirms your password by asking you to type it again. After setting a password, the screen automatically returns to the main screen.

To disable a password, just press the <Enter> key when you are prompted to enter the password. A message will confirm the password to be disabled. Once the password is disabled, the system will boot and you can enter Setup freely.

ROM PCI/ISA BIOS (2A434EJ9)

CMOS SETUP UTILITY

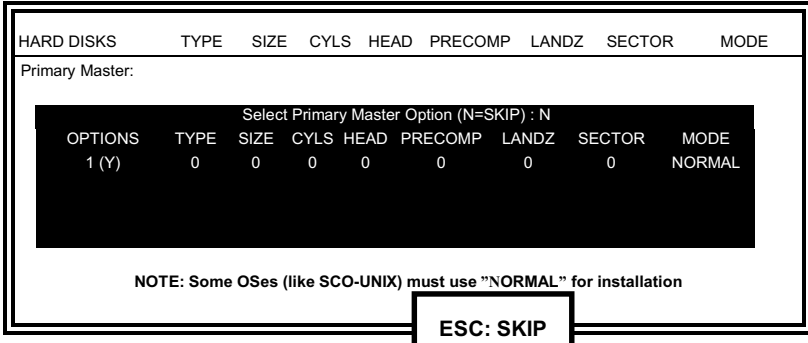
AWARD SOFTWARE, INC.

STANDARD CMOS SETUP	INTEGRATED PERIPHERALS
BIOS FEATURES SETUP	SUPERVISOR PASSWORD
CHIPSET FEATURES SETUP	USER PASSWORD
POWER MANAGEMENT SETUP	Enter Password:
PNP/PCI CONFIGURATION	
LOAD BIOS DEFAULTS	
LOAD SETUP DEFAULTS	
ESC : Quit	↑ ↓ → ← : Select Item
F10 : Save & Exit Setup	(Shift) F2 : Change Color
Change / Set / Disable Password	

3.11 IDE HDD Auto Detection

This option detects the parameters of an IDE hard disk drive, and automatically enters them into the Standard CMOS Setup screen.

ROM PCI/ISA BIOS (2A434EJ9)
STANDARD CMOS SETUP
AWARD SOFTWARE, INC.



Up to four IDE drives can be detected, with parameters for each appearing in sequence inside a box. To accept the displayed entries, press the “Y” key; to skip to the next drive, press the “N” key. If you accept the values, the parameters will appear listed beside the drive letter on the screen.

3.12 Save & Exit Setup

This option allows you to determine whether to accept the modifications or not. If you type “Y”, you will quit the setup utility and save all changes into the CMOS memory. If you type “N”, you will return to Setup utility.

ROM PCI/ISA BIOS (2A434EJ9)
CMOS SETUP UTILITY
AWARD SOFTWARE, INC.

STANDARD CMOS SETUP	INTEGRATED PERIPHERALS
BIOS FEATURES SETUP	SUPERVISOR PASSWORD
CHIPSET FEATURES SETUP	USER PASSWORD
POWER MANAGEMENT S	
PNP/PCI CONFIGURATIO	
LOAD BIOS DEFAULTS	
LOAD SETUP DEFAULTS	
ESC : Quit	↑ ↓ → ← : Select Item
F10 : Save & Exit Setup	(Shift) F2 : Change Color
Save Data to CMOS & Exit Setup	

3.13 Exit Without Saving

Select this option to exit the Setup utility without saving the changes you have made in this session. Typing “Y” will quit the Setup utility without saving the modifications. Typing “N” will return you to Setup utility.

ROM PCI/ISA BIOS (2A434EJ9)
CMOS SETUP UTILITY
AWARD SOFTWARE, INC.

STANDARD CMOS SETUP	INTEGRATED PERIPHERALS
BIOS FEATURES SETUP	SUPERVISOR PASSWORD
CHIPSET FEATURES SETUP	USER PASSWORD
POWER MANAGEMENT S	
PNP/PCI CONFIGURATIO	
LOAD BIOS DEFAULTS	
LOAD SETUP DEFAULTS	
ESC : Quit	↑ ↓ → ← : Select Item
F10 : Save & Exit Setup	(Shift) F2 : Change Color
Abandon all Data & Exit Setup	

VGA Driver Installation

Step1: under windows , click the right button of mouse, select attribute
Then select setting, click advanced



Step2:select adapter, click update.



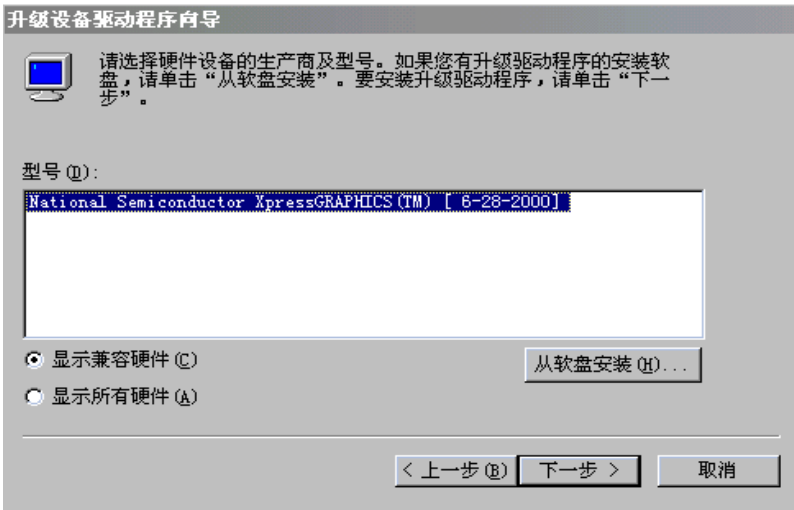
Step3:click next.



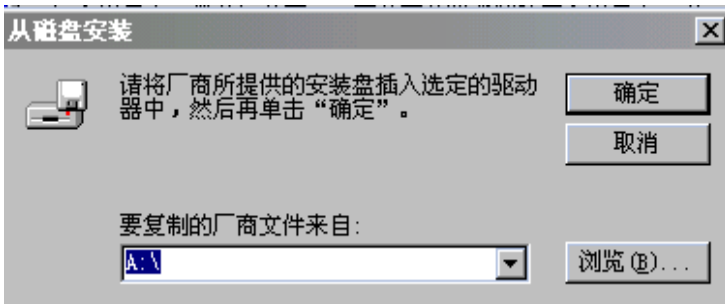
Step4:click next.



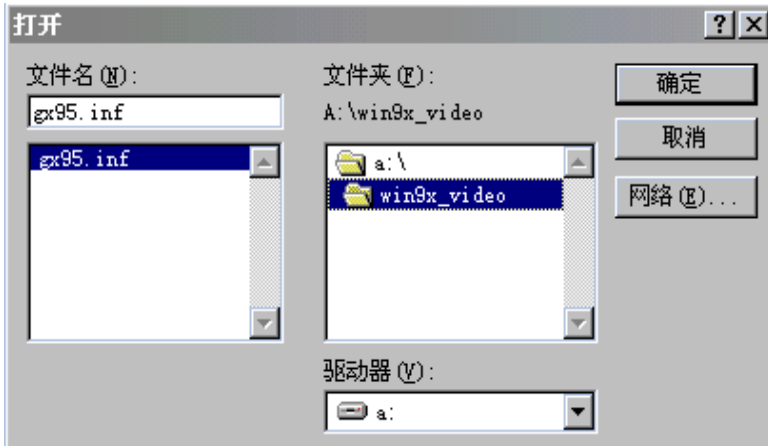
Step5:select update from floppy.



setp6:click overview.



Setp7:select win9x_video,click back.



Setp8:click next.



Setp9:finish.



APPENDIX B.

TECHNICAL REFERENCE

I/O PORT ADDRESS MAP

Address	Function
000 - 01F	DMA Controller #1
020 - 03F	Interrupt Controller #1
040 - 05F	Timer Chip
060 - 06F	Keyboard Controller
070 - 07F	Read Time Clock/NMI Mask
080 - 09F	DMA Page Register
0A0 - 0BF	Interrupt Controller #2
0C0 - 0DF	DMA Controller #2
0F0 - 0F1	Clear/Reset Math Coprocessor
1F0 - 1F7	Hard Disk Controller
200 - 210	Game Port
278 - 27F	Parallel Port #2
2E8 - 2EF	Serial Port #4 (COM 4)
2F8 - 2FF	Serial Port #2 (COM 2)
300 - 31F	prototype Card/Streaming Tape Adapter
360 - 36F	PC Network
378 - 3FF	Parallel Port #1
380 - 38F	SDLC #2
3A0 - 3AF	SDLC #1
3B0 - 3BF	MDA Video Card (Including LPT0)
3C0 - 3CF	EGA Card
3D0 - 3DF	CGA Card
3E8 - 3EF	Serial Port #3 (COM 3)
3F0 - 3F7	Floppy Disk Controller
3F8 - 3FF	Serial Port #1 (COM 1)

MEMORY ADDRESS MAP

Address Range (Hex)	Description
000000H - 09FFFFH	640 KB of Conventional RAM
0A0000H - 0BFFFFH	128 KB of Video RAM
0C0000H - 0EFFFFH	256 KB of I/O Expansion ROM
0F0000H - 0FFFFFFH	64 KB of System BIOS ROM
0100000H - 7FFFFFFFH	1 MB ~ 128MB of User RAM

DMA CHANNELS

CHANNEL	Function
DMA 0	Reserved
DMA 1	Reserved
DMA 2	Floppy Disk Controller
DMA 3	ECP Parallel Port
DMA 4	Cascade for DMA #1
DMA 5	Reserved
DMA 6	Reserved
DMA 7	Reserved

INTERRUPT CONTROLLER

IRQ	Function
IRQ 0	System timer output
IRQ 1	Keyboard
IRQ 2	Cascade for INTC #2
IRQ 3	Serial port #2
IRQ 4	Serial port #1
IRQ 5	Parallel port #2
IRQ 6	Floppy disk controller
IRQ 7	Parallel port #1
IRQ 8	Real time clock
IRQ 9	Software redirected to INT 0AH (IRQ 2)
IRQ 10	Reserved
IRQ 11	Reserved
IRQ 12	PS/2 Mouse
IRQ 13	Math Coprocessor (CPU Internal)
IRQ 14	Primary Hard disk
IRQ 15	Secondary Hard Disk
NMI	Parity Check Error

GLOSSARY

8-Bit Bus – Data is transmitted to expansion slots and other components on the bus only along 8 parallel data line.

10Base-T – It is a 10Mbps IEEE 802.3/Ethernet standard that uses unshielded twisted pair cable specification. 10Base-T supports network configuration using the CSMA/CD access method over a twisted pair transmission system up to 100 meters in length without the use of repeater.

16-Bit Bus or ISA Bus – Data is transmitted along either 8 or 16 data lines, depending on what kind of adapter card is used in an expansion slot. ISA is the abbreviation of Industry Standard Architecture.

100Base-TX – It is a 100Mbps IEEE 802.3/Ethernet standard that uses UTP cable. Also called Fast Ethernet, it uses RJ-45 connectors and EIA/TIA T568B pinning. Maximum cable length from hub to node is 100 meters without a repeater.

Adapter – It is also called an expansion board, expansion card, or adapter card. It is a small circuit board that is installed in the expansion slots on the motherboard. You can install a particular adapter that connects a new device such as internal modem, sound card, and scanner.

AGP (Advanced Graphic Port) – is a new 32-bit interface, with external clock rate of 66MHz that transmit a maximum of 528MB of data. It has a clock speed of 133MHz, which is four times the speed of PCI interface.

bps – Bits per second. Also often preceded by K (kilo/thousands), **Kbps** – Kilobytes per second, and M (mega/million), **Mbps** – Mega bytes per second.

BIOS (Basic Input /Output System) – This is a chip on the motherboard that contains the instructions for starting up, or booting, the computer, and more.

Bus – Data that travels in a computer along the circuits on the motherboard are called buses. Although three main buses (data bus, address bus, and control bus) manage the computer’s operation, often these are collectively called the bus. The bus carries instructions back and forth between the CPU and other devices in the system. ISA, EISA, VL-Bus, PCI and SCSI are examples of PC buses.

Bus Mastering – A method of transferring data through a bus in which the device takes over the bus and directly controls the transfer of data to the computer’s memory. Bus mastering is a method of Direct Memory Access (**DMA**) transfer.

Cache – Cache RAM is an extra holding area for program instructions that need to be frequently used by the CPU or swapped in and out of RAM. Your CPU can usually access those instructions from the cache more quickly than it could from a hard disk or even RAM, so a cache helps the system work more efficiently. Most systems sold today offer either 256K or 512K cache.

CPU (Central Processing Unit) – executes all commands and controls the flow of data, providing the “ brain ” that enables the PC to calculate and perform the operations like sorting information more quickly than a human could. The CPU makes perhaps the greatest contribution to a PC’s speed and power. Note: Any additional information is subject to change without prior revision from the supplier.

Table 1 -- CPU Speeds

Processor type	Speed ratings (MHz)
486DX2	66, 80
486DX4	75, 100, 120

Pentium	90, 100, 120, 133, 166, 200
Pentium MMX	166, 200, 233
Pentium Pro	166, 180, 200
Pentium II	233, 266, 300, 333

EIDE (Enhanced IDE) – It is a hard drive controller that enables your system to be able to handle fast hard disk drives at a speed of 10Mbps.

EISA or MCA Bus – Data is transmitted along 32 data lines to adapter cards designed specifically to work with the 32-bit buses. MCA expansion slots cannot accept 8-bit or 16-bit adapter cards. EISA stands for Extended Industry Standard Architecture, while MCA stands for MicroChannel Architecture. MCA is architecture used in IBM Microcomputer.

Expansion slots – Expansion slots are plug-in connectors that allow you to insert additional circuit boards that attach to the rest of the PC through special circuitry called the **bus**. By inserting the right circuit board -- usually called an **adapter** or an **expansion card** – you can increase the resolution and the number of colors used by the display, or you can transform your PC into a machine for recording and playing music.

Fast SCSI – The common nomenclature associated with SCSI-2, the second generation of SCSI offering mandatory parity checking improvements over SCSI-1.

IDE (Integrated Drive Electronics) – It was developed from ST-506 type hard drive interface, utilizes BIOS INT 13h hard drive secondary software and supports two hard drives (Master and Slave). Do not need extra software to drive since it is directly initiated in the BIOS. Data transfer rate is 4.1 Mbps. Take note that this interface cannot support other drive like CD-ROM drive.

IEEE (Institute of Electrical and Electronic Engineers) – It is an international professional society that issues its own standard, and is a member of ANSI and ISO. Popular known standards is:

IEEE802.3 – is a physical layer standard for 10Base-T, 100Base-T, Ethernet, and StarLAN.

IEEE802.5 – is a physical layer standard for Token Ring.

IEEE802.11 – is a physical layer standard for Wireless LAN/WAN compatibility.

IEEE802.12 – is a physical layer standard for 100VG AnyLAN.

LAN(Local Area Network) – A data communications network spanning a limited area. It provides communications between three or more computers and peripherals, in most cases using a high-speed media as it's backbone.

Keyboard – This is a component that comes in direct contact for you with your PC. The mechanism of keyboard converts a key cap's movement into a signal sent to the computer. The most common key mechanism are “ **capacitate** ” and “ **hard contact** ” . Capacitate keyboard has a spring that causes the plastic and the metal plunger to move nearer to two pads that have large plates (plated in tin, nickel, and copper). These pads are connected to the keyboard's printed circuit board. Hard contact keyboard causes the key cap to collapse a foam rubber dome that presses against a sheet of plastic on the bottom of which is metallic area connected to the rest of the keyboard's circuit board.

LDCM (LANdesk Client Manager) – With the help of LDCM, PCs that are either stand-alone or on a network can not escape the control of a system administrator. Alerts will be sent to the user if an abnormal condition is encountered in a PC. It allows the administrator to give each PC a thorough check-up. Additionally, this feature is available to multiple OS' s on the market today. LDCM Key Features include the following : ❶Health Monitoring,❷ Real-Time Alerting, ❸Remote Accessibility,❹Extensive Instrumentation. This is a product from Intel.

Mouse – The keyboard is a barrier to learn how to use a computer. Xerox Corporation first developed the concept of a pointing device, something a computer user could move with his or her hand, causing a corresponding move on screen. Because of its size and tail like cable, the device was named for the mouse. Apple Computer made the mouse a standard feature of its Macintosh computers, and with the popularity of Windows, a mouse is becoming standard equipment on all PCs, as well. The “ **Trackball** ” have survived more awkward methods of navigating with the keyboard. “ **Digitizing tablets** ” are popular with architects and engineers who must translate precise movements of a pen into lines on the screen. “ Touch screens “ , on which you press either your finger and a special light pen to control the software, are too tiring to use for any length of time.

MMX™ – CPU' s with MMX™ technology are optimized to run multimedia application, and therefore, offer faster multimedia playback than standard CPUs. However, when manufacturers introduce any new hardware technology, the software makers need to catch up. At this time of compilation, most applications can' t yet take advantage of MMX™ capabilities.

Parallel port – Parallel ports (labeled **LPT1**, **LPT2**, and so on) are usually for plugging in printers. It is also often called a **Centronics port** – has been almost synonymous with **printer port**. Although a serial port can also be used to send data from a PC to some models of printers, the parallel port is faster. A serial port

sends data one bit at a time over a single one-way wire; a parallel port can send several bits of data across eight parallel wires simultaneously. Take note that a serial connection sends a single bit, a parallel port send an entire byte. A parallel connection has one drawback.

PCI Bus (Peripheral Component Interconnect) – It is a connection slot in a motherboard that supports 32-bit bus transfer rates. The now standard PCI Local Bus carries data along at least 32 lines, that is, at least 32 bits at a time. Local bus computer designs add special buses so the CPU can communicate directly with key components like the monitor, resulting in much better performance. You should look for PCI local bus capabilities in any system you buy, especially PCI local bus video (which helps the monitor display more quickly).

POST (Power-On Self-Test) – is the first thing your PC does when you turn it on, and it's your first warning of trouble with any of the components. When the POST detects an error from the display, memory, keyboard, or other basic components, it produces an error warning in the form of a message on your display and — in case your display is part of the problem — in the form of a series of beeps.

RAM (Random Access Memory) – consists of a bank of chips that act as “ working memory ” , holding program instructions and data only while your computer's on. Unless the instructions and data are saved to a disk, RAM forgets them when you turn your computer off. RAM is measured in megabytes (M). Most computers today come with 32M of RAM, though some sell with only 16M installed. There are a few different flavors and speeds of RAM, as well. One of the most prominent today is Extended Data Output (EDO) RAM, but an even faster type of RAM that has just hit the market is called **SyncDRAM**.

Serial port – Serial ports are also sometimes called **COM** (short for COMmunications) ports, and are labeled **COM1**, **COM2**, and so on. It is simple in concept: one line to send data, another line to receive data, and a few other lines

to regulate how data is sent over the other two lines – from commonplace modems and printers to plotters and burglar alarms. The most common use for serial port is with a **mouse** or **modem**. The reason for this is that a serial port is not a very efficient way to transfer data, so little data that speed is not crucial, and perfect for modems because. With current technology, phone lines cannot transport more than one signal at a time anyway. The **serial port** is often referred to as an **RS-232 port**.

SCSI (Small Computer System Interface) – An intelligent bus for transmitting data commands between a variety of devices. There are many implementations of SCSI, including Fast SCSI, Wide SCSI, Fast Wide SCSI, Fast-20, and Fast-40.

SCSI-2 – The second generation of SCSI; includes many improvements to SCSI-1, including Fast SCSI, Wide SCSI, and mandatory parity checking.

SCSI-3 – The third generation of SCSI; introduces Fast-20 and Fast-40 as improvements to the parallel bus. The standard also includes a number of specifications for high-speed serial bus architectures such as SSA, Fiber Channel, and IEEE 1394. Also known as Ultra SCSI.

Ultra SCSI – Also known as SCSI-3, is a third generation SCSI standard that introduced parallel bus speed improvements (FAST-20 and FAST-40), an the miniaturized 68-pin micro connector.

USB (Universal Serial Bus) – USB consolidates serial, parallel, keyboard, mouse, and game ports into one asynchronous and isochronous communications port with bandwidth for data transfer speeds up to 12 Mbps without termination. By daisy-chaining USB hubs, up to 127 I/O devices can be connected to one USB port on the PC. USB is completely plug-and play meaning peripherals can be correctly detected and configured automatically as soon as they are connected.

UTP (Unshielded Twisted Pair) – Twisted pair cable with neither individual nor overall shielding. **Twisted Pair** are two wires twisted together to reduce susceptibility to RF crosswalk.

VGA (Video Graphics Array) – A video adapter that supports 640x480 pixels color resolution. The Windows OS provides medium text & graphics standard.

VL-Bus – It is also known as Local Bus; this is an I/O interface that is directly connected and depended of the system CPU. The VL-Bus is an abbreviation of VESA Local Bus.