TEM-370B Series

**5.25" Embedded SBC
with VGA and Three-LAN for
Socket370 Pentium III Processor**

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Ver No:1.2

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The new TEM-370B Series embedded SBC is highly configurable with multiple features to suit different types of commercial and industrial needs. Three Ethernet capability of the TEM-370B Series gives network administrators here tool to deal with today's changing application needs. The board that comes with the top-of-the-line Intel 82559 LAN chips, could act as a firewall between the internet and a company's internal network. This applies to Web (HTTP) servers, FTP servers, SMTP (e-mail) servers or DNS servers. The TEM-370B can also be used for an internet-network gateway that connects a number of local networks. Once again, the three Ethernet capability and processing power of the TEM-370B Series gives it the ability to perform these functions.

The new TEM-370B Series is designed with Intel⏚815E chipset ; one 168-DIMM socket support up to 512MB SDRAM and one DiskOnChip socket support up to 288MB flash memory disk which provide full functionality and performance to be used "exactly" where you need it. TEM-370B also features high performance VGA display that support resolutions and color depths up to 1600x1200 x256 color at 85Hz , with VGA 2 x 6 x 2.54mm pin header with housing .

TEM-370B can be expanded with one PCI riser card, other additional devices are connected though one FDD interface support up to two floppy devices ; one IrDA interface ; two PCI/IDE ports that support up to four IDE devices and Ultra ATA/100/66/33 interface helps designers and integrators improve system performance by retrieving and sending data faster.

In addition, it is also equipped with two RS-232 serial ports; four USB ports; one multi-mode parallel port which supports SPP, ECP and EPP modes. It provides more flexible functions to satisfy all users' different application requirements.

Further more the TEM-370B also offers several industrial features such as a 16 -level time-out intervals watchdog timer and health monitoring hardware.   The health monitoring IC keeps an eye on the CPU and releases an audio alarm when abnormal operating voltage & temperature or malfunction of the cooling fans is detected . And with its industrial grade reliability, the TEM-370B can operate continuously at temperatures up to 60° C (140° F).   All these numerous features provide an ideal solution for commercial and industrial applications where stability and reliability are essential.

1.1 SPECIFICATION

- Processor : Intel♣ Pentium III/Celeron⚫ Processor in Socket 370(133 MHz)
- Chipset : Intel♣ 815E chipset, IT8712F I/O Chipset
- System Memory / RAM : One 168-pin DIMM socket, support up to 512MB SDRAM
- BIOS : Award♣ licensed BIOS, before POST could display user define text file (32 ~ 64 byte) by password
- Flash Memory Disk : Reserved socket for DiskOnChip from M-System, support up to 288 MB flash memory disk
- Graphics Controller : Internal graphic controller with Intel's Dynamic Video Memory Technology, resolution up to 1600 x 1200 x 256 colors @ 85 Hz, with VGA 2x6x2.54 mm pin header with housing
- Network Interface : Three Intel 82559 chip support Three-10/100M Base-T Ethernet, three RJ-45 external connectors with ACT LED,LINK LED
- IDE Drive Interface : Two PCI IDE port that support up to four IDE devices and Ultra ATA/100/66/33
- Floppy Drive Interface r : One FDD port, support up to two floppy devices
- Serial Port : Two COM ports, one RS-232 DB-9 connector and one RS-232 2x5x2.54 mm pin header with housing
- Parallel Port : One multi-mode parallel port (SPP / EPP / ECP)
- Bus Interface : PCI bus with one PCI riser card
- RTC : Internal RTC with Li battery
- Keyboard/Mouse Connector : 6-pin PS/2 keyboard/mouse connector
- Watchdog Timer : 16-level time-out intervals
- Universal Serial Bus : Support 4 USB ports (4x4 pin headers)
- IR Interface : Support IrDA header
- Health Monitoring : Enhanced hardware monitor functions with optical sensor
- Operating Temperature : 0 ℃~60 ℃
- Storage Temperature : -20 ℃~70 ℃
- Humidity : 5 ℉~95℉ RH, non-condensing
- Dimensions : 203 x 146 x 25 mm ℉ 0.5 mm
- EMI/EMS : EN 50081-1/1994>EN 55022/1997>EN 61000-3-2/1995 >EN 61000-3-3/1995, EN 50082-1/1994>IEC 1000-4-2/1995, IEC 1000-4-3/1995, IEC 1000-4-4/1995
- REMARK : PCI Rev. 2.2 compliant

1.2 PACKING CHECK LIST

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

Item	Qty	Remarks
5.25"Embedded SBC	1 pcs	Embedded Single Board Computer
Keyboard / Mouse "Y" shape adapter cable	1 set	6-pin Min-Din to one 5-pin keyboard connector & one PS/2 mouse connector
FDD Cable	1 pcs	34p to 34p standard header flat ribbon cable
COM port connector	1 pcs	10 pin 2.54mm for 9 pin D-Sub, two COM port , 50cm
IDE Cable	1 pcs	IDE Cable
CD-ROM	1 pcs	Drivers
VGA Cable	1 pcs	12-pin to DB-15 Cable
User' s manual	1 pcs	TEM-370B

CHAPTER 2.

JUMPER SETTINGS AND CONNECTORS

The figure below shows the jumpers and connectors location:

2.1 BOARD OUTLINE OF TEM-370B
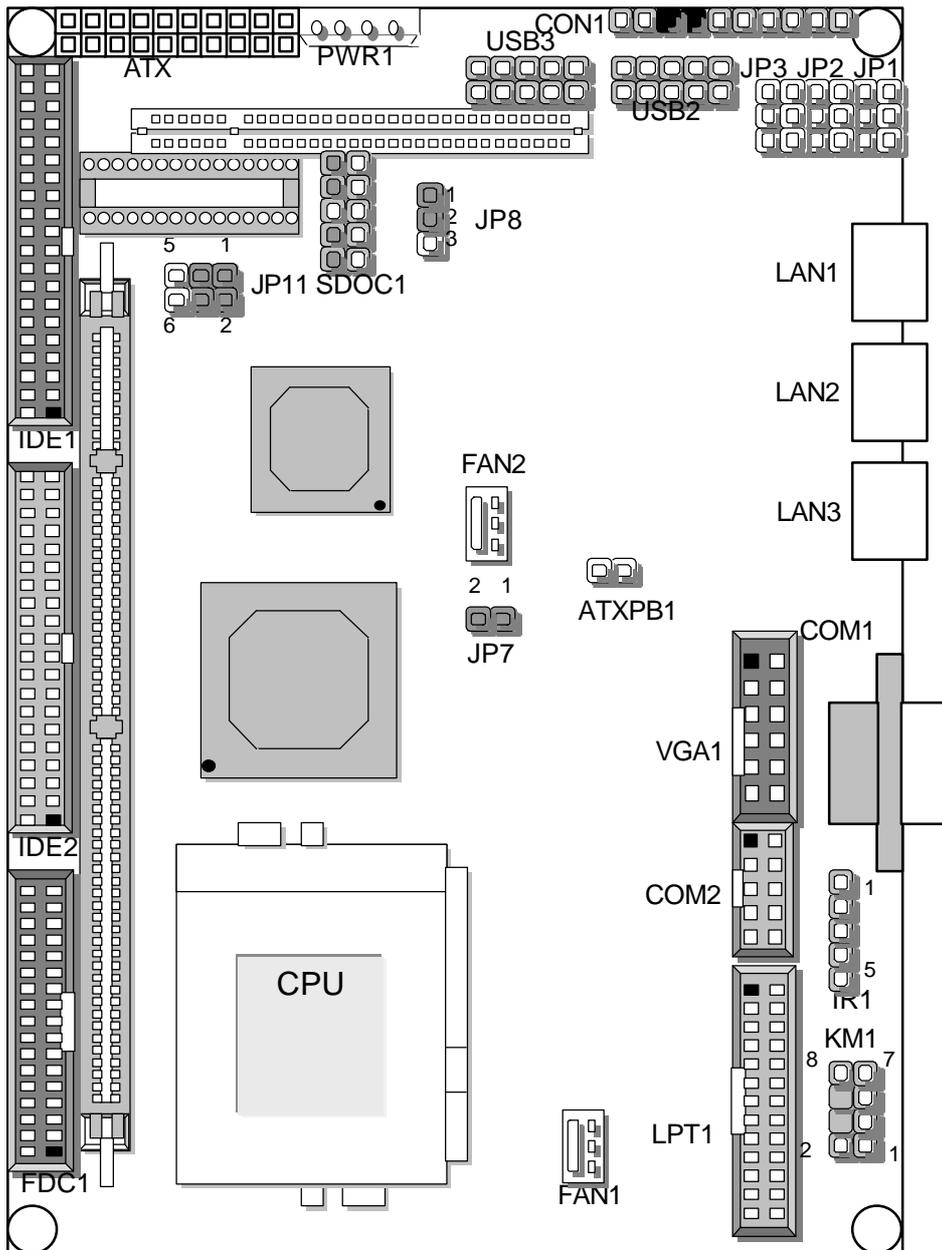
2.2 JUMPER SETTING OVERVIEW

In order to select the operation modes of your system, configure and set the jumpers on your SBC to match the need of your application. To set a jumper, a black plastic cap containing metal contacts is placed over the jumper pins as designated by the required configuration as listed in this section. A jumper is said to be " on " or " 1-2 " when the black cap has been placed on two of its pins, as shown in the figure below:

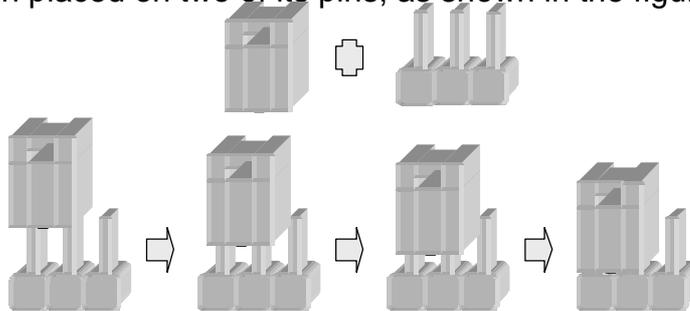A pair of needle-nose pliers is recommended when working with jumpers. If you have any doubts about the best hardware configuration for your application, contact your local sales representative before you make any changes. In general, you simply need a standard cable to make most connections.

2.3 INSTALLING THE DIMM MODULE:

A DIMM module simply snaps into a socket on the system board. Pin1 of the DIMM module must correspond with Pin1 of the socket.
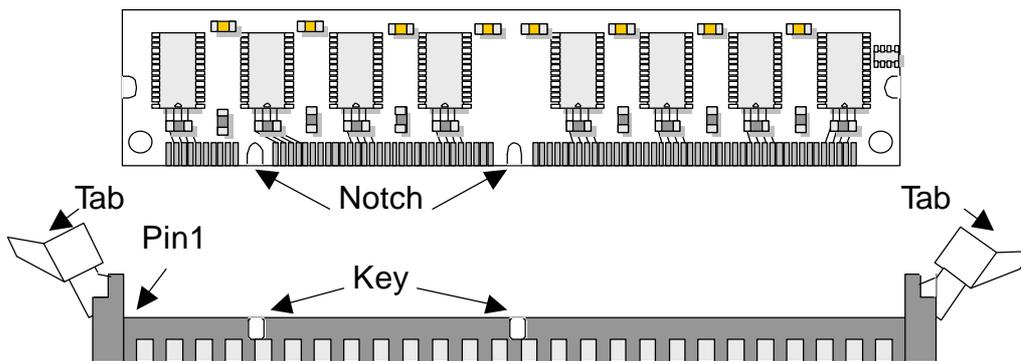
1.Pull the "tabs" which are the ends of the socket to the side.
2.Position the DIMM above the socket with the "notch" in the module aligned with the "key" on the socket.
3. Seat the module vertically into the socket. Make sure it is completely seated. The tabs will hold the DIMM in place .

2.4 JUMPER LOCATION OF TEM-370B
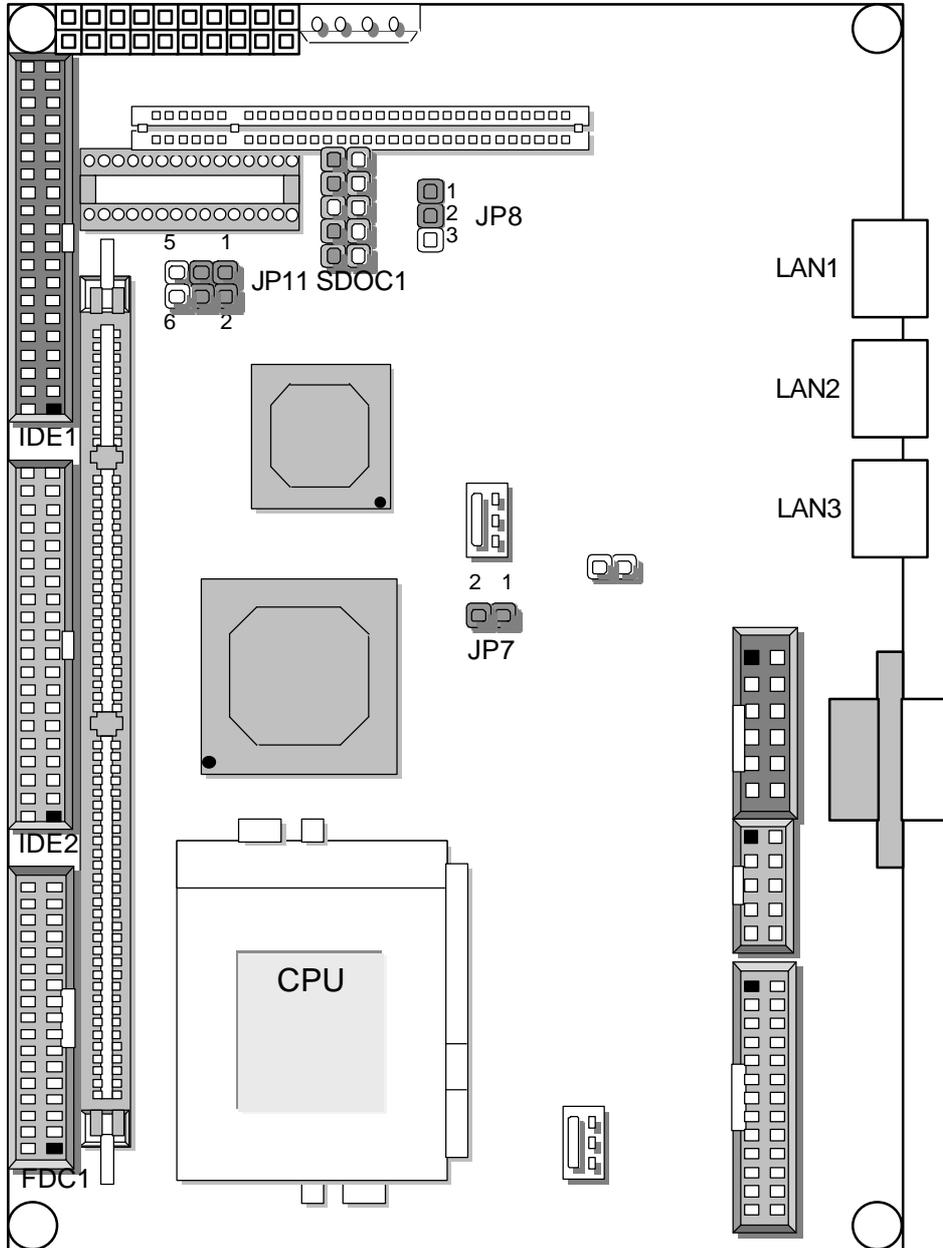
2.5   JUMPER SETTINGS SUMMARY FOR TEM-370B

LOCATION	FUNCTION
JP7	Select Open Case Detect
JP8	Clear CMOS Data
JP11	Select CPU Clock
Sdoc1	Select DiskOnChip(Flash Disk) Address

2.6   JUMPER SETTINGS FOR TEM-370B

✦ **JP8: Clear CMOS Data**

Description	JP8
Normal (Default)	1-2
Clear CMOS	2-3

JP8

✦ **JP11: Select CPU Clock**

CPU Clock Speed	JP11
66MHz	3-5,4-6
100MHz	1-3,4-6
Auto Detect (Default)	1-3,2-4
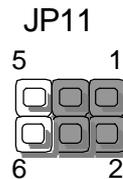
*Auto Detect CPU FSB 66/100/133 MHz

JP11

✦ **Other Jumper Setting**

Jumper	Default
JP5	OFF
JP6	1-2
JP9	OFF
JP10	OFF
JP12	1-2
JP13	1-2
JP14	1-2

✦ **JP7: Select Open Case Detect**

Description	JP7
Open Case Detect	ON
Open Case Detect Disable	OFF

JP7

✦ SDOC1:Select Disk OnChip(Flash Disk)Address

Flash Disk Address	SDOC1
CC00~CDFFH	1-2,9-10
D000~D1FFH	3-4,7-8
D400~D5FFH	3-4,9-10
D800~D9FFH	5-6,7-8
DC00~DDFFH	5-6,9-10
OFF (Default)	2-4,8-10

CC00~CDFFH

D000~D1FFH

D400~D5FFH

D800~D9FFH

DC00~DDFFH

2   10

1   9

Default :
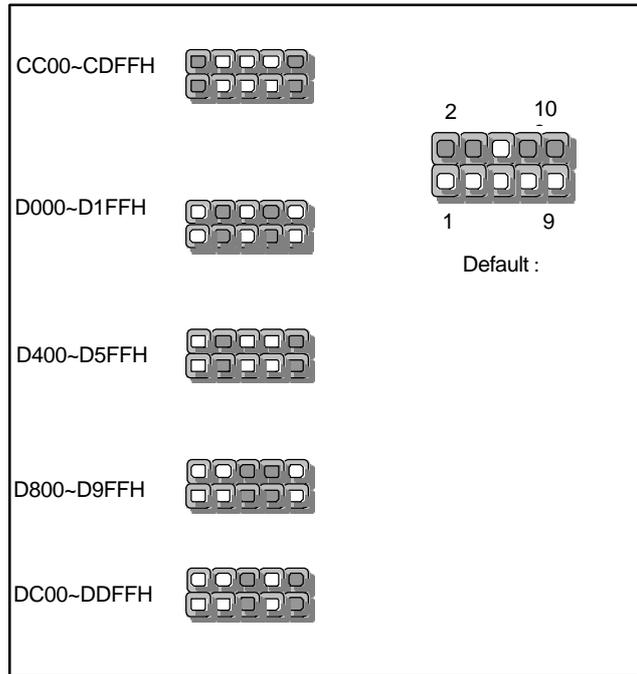
2.7 I/O CONNECTOR LOCATION FOR TEM-370B
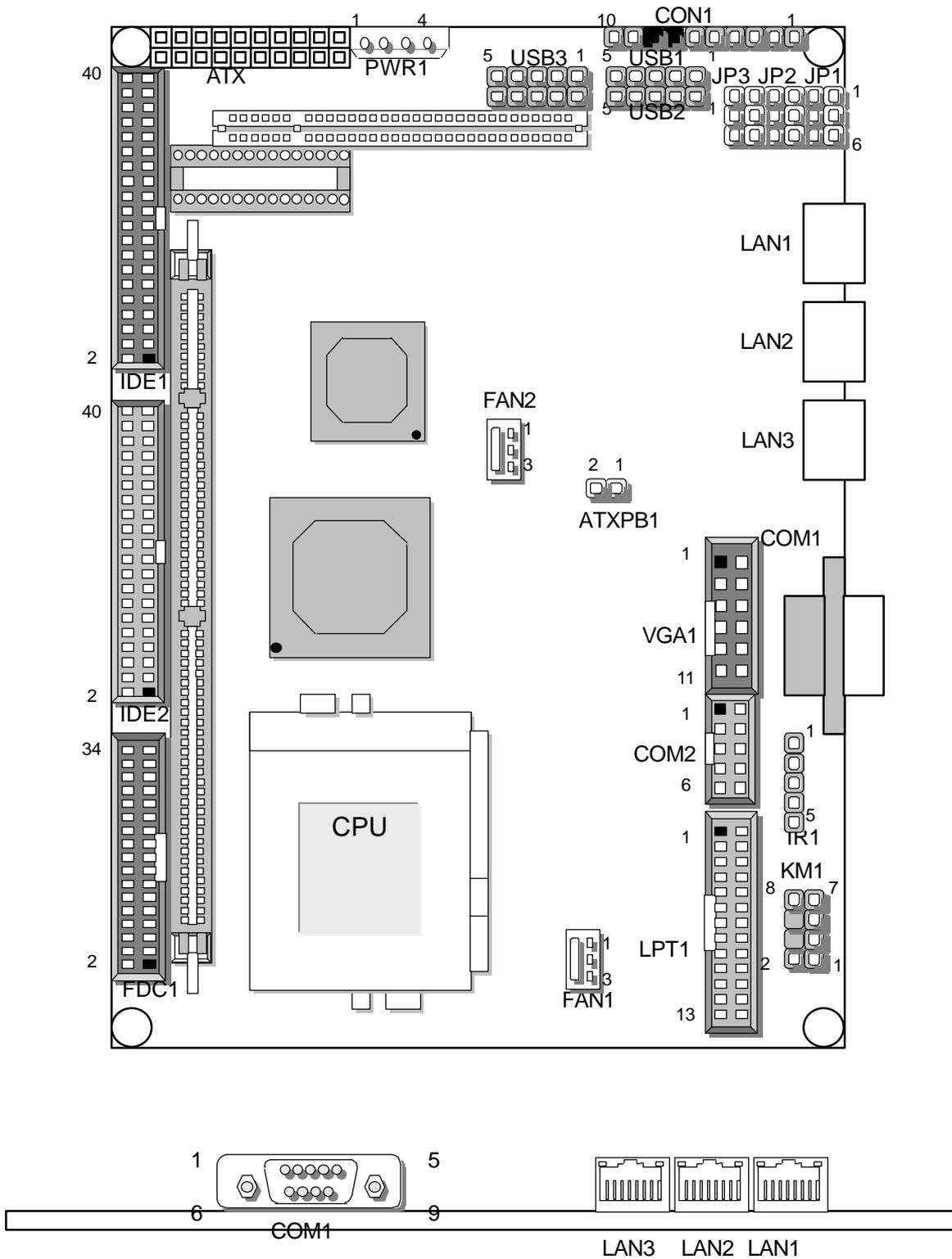
2.8 I/O CONNECTOR SUMMARY FOR TEM-370B

LOCATION	FUNCTION
VGA1	VGA Connector Header
IDE1	Primary IDE Cable Connector (Header)
IDE2	Secondary IDE Cable Connector (Header)
COM1	RS-232 Serial Port#1 Connector (D-Sub)
COM2	Serial Port #2 Connector (Header)
IR1	Alternate IrDA
FAN1	CPU FAN Connector
FAN2	System FAN Connector
LPT1	Parallel Port Connector (Header)
LAN1,2,3	LAN Connector (RJ-45)
FDC1	Floppy Cable Connector (Header)
ATXPS1	ATX Power Connector
PWR1	Power Connector
JP1,2,3	Extension LAN LED
ATXPB1	ATX Power On/Off (Header)
USB1,2,3,4	USB port #1 & 2 & 3 & 4 connector
KM1	PS/2 Keyboard & Mouse Connector
CON1	Power LED, Reset, Speaker Connector
CON2	Manufacturer setting only

2.9 I/O CONNECTOR DESCRIPTION FOR TEM-370B

✦ **VGA1 :VGA Connector (Header)**

Pin No.	Description	Pin No.	Description
1	Red Signal	2	Ground
3	Green Signal	4	Ground
5	Blue Signal	6	Ground
7	H-SYNC	8	Ground
9	V-SYNC	10	Ground
11	DDC-DATA	12	DDCK-Clock

VGA1

✦ **IDE1 : Primary IDE Cable Connector (Header)**

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	Reset #	2	Ground
3	Data 7	4	Data 8
5	Data 6	6	Data 9
7	Data 5	8	Data 10
9	Data 4	10	Data 11
11	Data 3	12	Data 12
13	Data 2	14	Data 13
15	Data 1	16	Data 14
17	Data 0	18	Data 15
19	Ground	20	NC
21	DMA REQ	22	Ground
23	IOW #	24	Ground
25	IOR #	26	Ground
27	IOCHRDY	28	NC
29	DMA ACK #	30	Ground
31	Interrupt	32	IOCS16 #
33	SA1	34	DMA 66 Detect
35	SA0	36	SA2
37	HDC CS0 #	38	HDC CS1 #
39	HDD Active LED #	40	Ground

IDE1

✦ **IDE2: Secondary IDE Cable Connector (Header)**

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	Reset #	2	Ground
3	Data 7	4	Data 8
5	Data 6	6	Data 9
7	Data 5	8	Data 10
9	Data 4	10	Data 11
11	Data 3	12	Data 12
13	Data 2	14	Data 13
15	Data 1	16	Data 14
17	Data 0	18	Data 15
19	Ground	20	NC
21	DMA REQ	22	Ground
23	IOW #	24	Ground
25	IOR #	26	Ground
27	IOCHRDY	28	NC
29	DMA ACK #	30	Ground
31	Interrupt	32	IOCS16 #
33	SA1	34	DMA 66 Detect
35	SA0	36	SA2
37	HDC CS0 #	38	HDC CS1 #
39	HDD Active #	40	Ground

IDE2
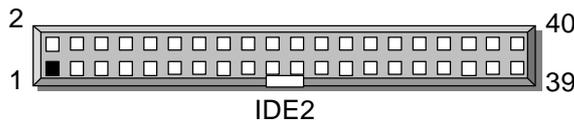
✦ **COM1 : RS-232 Serial Port #1 Connector (D-Sub)**

PIN NO.	DESCRIPTION
1	Data Carrier Detect (DCDA #)
2	Receive Data (RXDA)
3	Transmit Data (TXDA)
4	Data Terminal Ready (DTRA #)
5	Ground (GND)
6	Data Set Ready (DSRA #)
7	Request To Send (RTSA #)
8	Clear To Send (CTSA #)
9	Ring Indicator (RIA #)

COM1
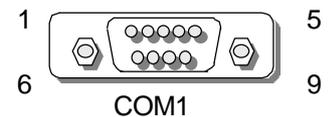
✦ **COM2 : Serial Port #2 Connector (Header)**

PIN NO.	DESCRIPTION
1	Data Carrier Detect (DCDB #)
2	Receive Data (RXDB)
3	Transmit Data (TXDB)
4	Data Terminal Ready (DTRB #)
5	Ground (GND)
6	Data Set Ready (DSRB #)
7	Request To Send (RTSB #)
8	Clear To Send (CTSB #)
9	Ring Indicator (RIB #)
10	NC
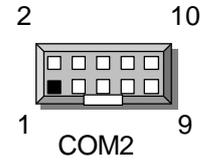
✦ **IR1 : Alternate IrDA**

Pin No.	Description
1	VCC
2	NC
3	IRRX
4	GND
5	IRTX
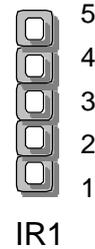
✦ **FAN1:   FAN Connector**

Pin No.	Description
1	Ground
2	+12V
3	FAN Status Signal
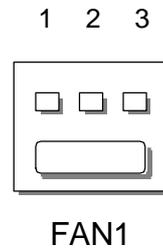
✦ **FAN2: System FAN Connector**

Pin No.	Description
1	Ground
2	+12V
3	FAN Status Signal
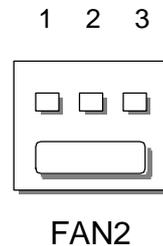
✦ LPT1 Parallel Connector (Header)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	Strobe #	14	Auto Form Feed
2	Data0	15	Error #
3	Data1	16	Initialize #
4	Data2	17	Printer Select IN #
5	Data3	18	Ground
6	Data4	19	Ground
7	Data5	20	Ground
8	Data6	21	Ground
9	Data7	22	Ground
10	Acknowledge #	23	Ground
11	Busy	24	Ground
12	Paper Empty	25	Ground
13	Printer Select	26	NC

14   26
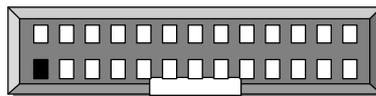
1   LPT1   13

✦ LAN1-3 : LAN Connector

Pin No.	Description
1	TX+
2	TX-
3	RX+
4	T45
5	T45
6	RX-
7	T78
8	T78

8   1
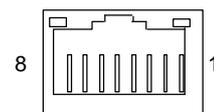
LAN1/2/3

✦ FDC1 : Floppy Cable Connector (Header)

Pin No.	Description	Pin No.	Description
1	Ground	2	Density Select
3	Ground	4	NC
5	Ground	6	NC
7	Ground	8	Index #
9	Ground	10	Motor Enable A #
11	Ground	12	Drive Select B #
13	Ground	14	Drive Select A #
15	Ground	16	Motor Enable B #
17	Ground	18	Direction #
19	Ground	20	Step #
21	Ground	22	Write Data #
23	Ground	24	Write Gate #
25	Ground	26	Track 0 #
27	Ground	28	Write Protect #
29	NC	30	Read Data #
31	Ground	32	Head Side Select #
33	NC	34	Disk Change #

FDC1
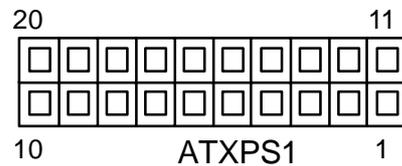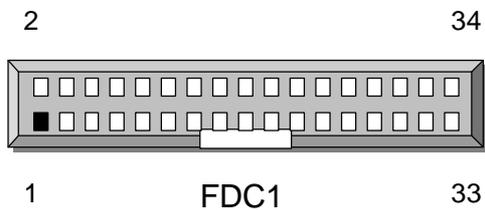
ATXPS1

✦ ATXPS1: ATX Power Connector

Pin No.	Description	Pin No.	Description
1	+3.3V	11	+3.3V
2	+3.3V	12	-12V
3	GND	13	GND
4	+5V	14	PS_ON
5	GND	15	GND
6	+5V	16	GND
7	GND	17	GND
8	PWR_OK	18	-5V
9	5VSB	19	+5V
10	+12V	20	+5V

PWR1 : HDD Power Connector (Big-4P Female)

Pin No.	Description
1	5V
2	Ground
3	Ground
4	12V

1 2 3 4
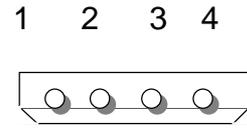
PWR1

✦ ATXPB1:ATX Power ON/OFF (Header)

Pin No.	Description
1	PANSW#
2	GND

ATPBX1

2 1

✦ KM1 : PS/2 Keyboard & Mouse Connector (Mini Din)

PIN NO.	DESCRIPTION
1	Keyboard Data
2	Mouse Data
3	Ground
4	+5V
5	Keyboard Clock
6	Mouse Clock
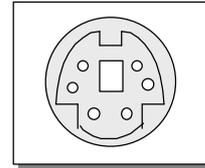
KM1

✦ KM1 : PS/2 Keyboard & Mouse Connector (PIN Header)

PIN NO.	DESCRIPTION
1	+5V
2	Mouse Clock
3	Mouse Data
4	N.C
5	Keyboard Data
6	N.C
7	Ground
8	Keyboard Clock

KM1

8 7

2 1
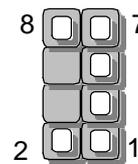
✦ JP1 JP2 JP3:Extemsion LAN LED

Pin No.	Description
1	10/100M LED-
2	10/100M LED+
3	LINK LED-
4	LINK LED+
5	Active LED-
6	Active LED+

JP3 JP2 JP1
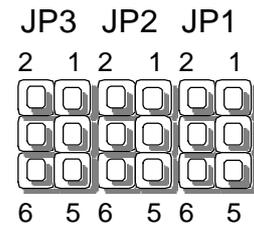
✦ USB1,2,3,4 : USB Port#1 & #2 & #3 & #4 Connector

USB Port	PIN NO.	DESCRIPTION
USB1	1	USB Port#1 V_{CC}
	2	USB D0-
	3	USB D0+
	4	Ground
	5	USB Port#1 Ground
USB2	1	USB Port#2 V_{CC}
	2	USB D1-
	3	USB D1+
	4	Ground
	5	USB Port#2 Ground
USB3	1	USB Port#3 Vcc
	2	USB D2-
	3	USB D2+
	4	Ground
	5	USB Port#3 Ground
USB4	1	USB Port#4 Vcc
	2	USB D3-
	3	USB D3+
	4	Ground
	5	USB Port#4 Ground

USB1
USB2

USB3
USB4
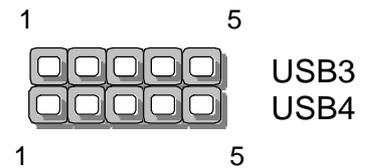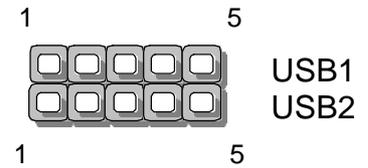
✦ CON1:Power LED, Reset, Speaker Connector

PIN NO.	DESCRIPTION
1	Power LED+
2	GND
3	HDD LED+
4	HDD LED-
5	Reset SW+
6	Reset SW- (GND)
7	External Speaker-
8	Internal Buzzer-
9	NC
10	External Speaker+

CON1

10   1

CHAPTER 3.

AWARD BIOS SETUP

Award's ROM BIOS provides a built-in Setup program that allows user to modify the basic system configuration and settings. The modified data will be stored in a battery-backed CMOS RAM so that these data will be retained even when the power is turned off. In general, the information saved in the CMOS RAM stay unchanged unless there is configuration change in the system, such as hard drive replacement or new equipment is installed.

3.1 RUNNING AWARD BIOS

The Setup Utility is stored in the BIOS ROM. When the power of the computer system is turned on, a screen message appears to give you an opportunity to call up the Setup Utility; while the BIOS will enter the Power On Self Test (POST) routines. The POST routines perform various diagnostic checks while initializing the board hardware. If the routines encounter an error during the tests, the error will be reported in either of the two different ways, hear a series of short beeps or see an error message on the screen display. There are two kinds of error: fatal or non-fatal. The system can usually continue to boot up sequence with the non-fatal errors. Non-fatal error messages usually appear on the screen along with the following instructions:

" Press <F1> to RESUME "

Write down the message and press the F1 key to continue the boot up sequence. After the POST routines are completed, the following message appears:

" Press DEL to enter SETUP "

Entering Setup

Turn on the power of the computer system and press <Del> immediately. If you don't have the chance to respond, reset the system by simultaneously typing the <Ctrl>, <Alt> and <Delete> keys, or by pushing the ' Reset ' button on the system cabinet. You can also restart by turning the system OFF then ON.

3.2 CMOS SETUP UTILITY

To access the AWARD BIOS SETUP program, press the <DEL> key.   The screen display will appears as shown below:

Main Program Screen

CMOS Setup Utility – Copyright ©1984-2000 Award Software

Standard CMOS Features	Frequency/Voltage Control
Advanced BIOS Features	Load Fail-Safe Defaults
Advanced Chipset Features	Load Optimized Defaults
Integrated Peripherals	Set Supervisor Password
Power Management Setup	Set User Password
PnP/ PCI Configurations	Save & Exit Setup
PC Health Status	Exit Without Saving

Esc   : Quit   ↕ ➧ ◖ : Select Item
F10   : Save & Exit Setup

Time, Date, Hard Disk Type....

This screen provides access to the utility' s various functions.

Listed below is explanation of the keys displayed at the bottom of the screen:

<ESC> **:** Exit the utility.

< ↕ ➧ ◖ ⋙ > **:** Use arrow keys ↕ ➧ ◖ ⋙ to move cursor to your desired selection.

<F1> **:** General Help

<F5> **:** Previous Values

<F6> **:** Fail-Safe Defaults

<F7> **:** Optimized Defaults

<F10> **:** Saves all changes made to Setup and exits program.

+/-/PU/PD **:** Change Value

Standard CMOS Setup: Use this menu for basic system configurations.

Advanced BIOS Features: Use this menu to set the Advanced Features available on your system.

Advanced Chipset Features: Use this menu to change the values in the chipset registers and optimizes your system' s performance.

Integrated Peripherals: Use this menu to specify your settings for integrated peripherals.

PnP/PCI Configuration: This entry appears if your system supports PnP/PCI.

PC Health Status: This entry shows your PC health status. If Hardware Monitor Chipset is installed.

Frequency / Voltage Control: Use this menu to specify your settings for frequency / voltage control.

Load Fail-Safe Defaults: Use this menu to load the BIOS default values for the minimal/settings for optimal performance system operations.

Load Optimized Defaults: Use this menu to load the BIOS default values that are factory settings for optimal performance system operations.

Set Supervisor Password: Use this menu to set Supervisor Passwords.

Set User Password: Use this menu to set User Passwords.

Save & Exit Setup: Save CMOS value changes to CMOS and exit setup.

Exit Without Saving: Abandon all CMOS value changes and exit setup.

3.3 STANDARD CMOS SETUP

When you select the "STANDARD CMOS SETUP" on the main program, the screen display will appears as :

Standard CMOS Setup Screen

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Standard CMOS Features

Date (mm:dd:yy)	Mon, Dec 11 2000	Item Help
Time (hh:mm:ss)	15 : 27 :28	Menu Level
IDE Primary Master	None	Change the day, month,
IDE Primary Slave	None	year and century
IDE Secondary Master	None	
IDE Secondary Slave	None	
Drive A	1.44M, 3.5 in.	
Drive B	None	
Video	EGA/VGA	
Halt On	All, Errors	
Base Memory	640K	
Extended Memory	30720K	
Total Memory	31744K	

⬍ ⬌ ☾ Move   Enter: Select   +/-/PU/PD: Value   F10: Save   Esc: Exit   F1: General Help

F5: Previous Values   F6: Fail-Safe Defaults   F7: Optimized Defaults

The Standard CMOS Setup utility is used to configure the following components such as date, time, hard disk drive, floppy drive, display and memory.   Once a field is highlighted, on-line help information is displayed in the left bottom of the Menu screen.

Set Date : Month, Date, Year.

Set Time : Hour, Minute and Second.   Use 24-hour clock format (for p.m. time, add 12 to the hour number, e.g. you would enter 4:30 p.m. as 16:30).   When you select the "STANDARD CMOS SETUP" on the main program, the screen display will appears as:

Primary Master / Primary Slave

Secondary Master / Secondary Slave: Press PgUp / <+> or PgDn / <-> to select Manual, None, Auto type. Note that the specifications of your drive must match with the drive table. The hard disk will not work properly if you enter improper information for this category. If your hard disk drive type is not matched or listed, you can use Manual to define your own drive type manufally.

If you select Manual, related information is asked to be entered to the following items. Enter the information directly from the keyboard. This information should be provided in the documentation from your hard disk vendor or the system manufacturer.

If the controller of HDD interface is SCSI, the selection shall be

<div align="center">

"None"

</div>

If the controller of HDD interface is CD-ROM, the selection shall be

<div align="center">

"None"

</div>

Here is a brief explanation of drive specifications:
- ✦ **Access Mode:** The settings are Auto, Normal, Large, LBA.
- ✦ **Cylinder:** Number of cylinders
- ✦ **Head:** Number of heads
- ✦ **Precomp:** Write precomp
- ✦ **Landing Zone:** Landing Zone
- ✦ **Sector:** Number of sectors

3.4 BIOS Features Setup

When you select the "BIOS FEATURES SETUP" on the main program, the screen display will appears as:

BIOS Features Setup Screen

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Advanced BIOS Features

			Item Help
	Virus Warning	Disabled	
	CPU Internal Cache	Enabled	Menu Level
	External Cache	Enabled	Allows you to choose
	CPU L2 Cache ECC Checking	Enabled	the VIRUS warning
	Quick Power On Self Test	Enabled	feature for IDE Hard
	First Boot Device	Floppy	Disk boot sector
	Second Boot Device	HDD-0	protection. If this
	Third Boot Device	HDD-1	function is enabled and
	Boot Other Device	Enabled	someone attempt to
	Swap Floppy Drive	Disabled	write data into this area,
	Boot Up Floppy Seek	Disabled	BIOS will show a
	Boot Up NumLock Status	On	warning message on
	Gate A20 Option	Fast	screen and alarm beep.
	Typematic Rate Setting	Disabled	
X	Typematic Rate (Chars/Sec)	6	
X	Typematic Delay (Msec)	250	
	Security Option	Setup	
	OS Select For DRAM >64MB	Non-OS2	
	Report No FDD for WIN 95	No	
	Video BIOS Shadow	Enabled	
	C8000 – CBFFF Shadow	Disabled	
	CC000 – CFFFF Shadow	Disabled	
	D0000 – D3FFF Shadow	Disabled	
	D4000 – D7FFF Shadow	Disabled	
	D8000 – DBFFF Shadow	Disabled	
	DC000 – DFFFF Shadow	Disabled	

↕ ↔ ◖ Move Enter: Select +/-/PU/PD: Value F10: Save Esc: Exit F1: General Help

F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

Virus Warning : The default setting of the Virus Warning is "Disabled". When it is enabled, any attempt to write the boot sector and partition table will halt the system and cause a warning message to appear. If this happens, you can use an anti-virus utility on a virus free, bootable floppy diskette to reboot, to clean and to investigate your system.

CPU Internal Cache : The default setting is "Enabled". This setting enables the CPU internal cache.

External Cache : The default setting is "Enabled". This setting enables the external cache.

CPU L2 Cache ECC Checking : The default setting is "Enabled". When you select Enabled, memory checking is enabled when the external cache contains ECC SRAMs.

Quick Power On Self Test : The default setting is "Enabled". This speeds up the Power On Self Test (POST) by skipping some items that are normally checked during the full POST. If your system is functioning normally, you can choose this feature to speed up the booting process.

First / Second / Third / Other Boot Device : The BIOS attempts to load the operating system from the devices in the sequence selected in these items. The settings are Floppy, LS/ZIP, HDD-0/HDD-1/HDD-2/HDD-3, SCSI, CDROM, LAN, and Disabled

Swap Floppy Drive : The default setting is "Disabled". This setting gives you an option to swap A and B floppy disks. Normally, the floppy drive A is the one at the end of the cable and drive B is at the other end. If you set this option to "Enabled", the Drive A will function as Drive B, and vice-versa under the DOS.

Boot Up Floppy Seek : The defaults setting is "Disabled". When enabled, the BIOS will check whether there is a floppy disk drive installed.

Boot Up Numlock Status : The default setting is "On". If set "Off", the cursor controls will function on the numeric keypad.

Gate A20 Option : The default setting is "Fast". This is the optimal setting for the CPU card. The other option is "Normal".

Typematic Rate Setting : The default setting is "Disabled". If enabled, you can set the typematic rate and typematic delay.

Typematic Rate (Chars/Sec) : This setting controls the speed at which the system registers the repeated keystrokes.   The choices range from 6 to 30 Chars/Sec.   The default setting is "6" Chars/Sec.

Typematic Delay (M/Sec) : This setting controls the time between the display of the first and second characters.   There are four delay choices: 250ms, 500ms, 750ms and 1000ms. The default setting is "250" ms.

Security Option : This setting controls the password in the main screen.   The options are "Setup" and "System".   Select "Setup" and it will protect the Setup Utility settings from being tampered with.   Select "System" if you want to use password feature every time the system boots up. The default setting is "Setup". You can create your password by using the "SUPERVISOR/USER PASSWORD" utility on the main program screen.

OS Select For DRAM > 64MB : The default setting is "Non-OS2".   Set to "OS2" if the system memory size is greater than 64MB and the operating system is OS/2.

Report No FDD For WIN95 :
This option allow windows95 to share with other peripherals IRQ6 that is assigned to floppy disk if the drive is not existing. The Default setting is "NO".
Video BIOS Shadow : The default setting is "Enabled" which will copy the VGA display card BIOS into system DRAM to improve performance.

C8000-CBFFF Shadow to DC000-DFFFF Shadow : The default setting for the shadow feature is "Disabled".   When enabled, the ROM with the specific address is copied into system DRAM.   It will also reduce the size of memory available to the system.   After you have made your selection in the BIOS FEATURES SETUP, press the <ESC> key to go back to the main program screen.

3.5 CHIPSET FEATURES SETUP

When you select the "CHIPSET FEATURES SETUP" on the main program, the screen display will appears as:

Chipset Features Setup Screen

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Advanced Chipset Features

SDRAM CAS Latency Time	3	Item Help
SDRAM Cycle Time Tras/Trc	7/9	Menu Level
SDRAM RAS-to -CAS	3	
SDRAM RAS Precharge Time	3	
System BIOS Cacheable	Enabled	
Video BIOS Cacheable	Disabled	
Memory Hole At 15M-16M	Disabled	
CPU Latency Timer	Enabled	
Delayed Transaction	Enabled	
AGP Graphics Aperture Size	64MB	
Use VGA BIOS in VBU Block	Enabled	
Power-Supply Type	AT	
On-Chip Video window size	64MB	

⬧ ⬚ ☾ Move Enter: Select +/-/PU/PD: Value F10: Save Esc: Exit F1: General Help

F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

SDRAM CAS Latency Time: When synchronous DRAM is installed, the number of clock cycles of CAS latency depends on the DRAM timing. Do not reset this field from the default value specified by the system designer.

SDRAM Cycle Time Tras/Trc: This item allows you to select the SCLKs for an access cycle. The settings are 7/9.

SDRAM RAS to CAS Delay: This field lets you insert a timing delay between the CAS and RAS strobe signals, used when DRAM is written to, read from, or refreshed. Fast gives faster performance; and Slow gives more stable performance. This field applies only when synchronous DRAM is installed in the system.

SDRAM RAS Precharge Time: If an insufficient number of cycles is allowed for the RAS to accumulate its charge before DRAM refresh, the refresh may be incomplete and the DRAM may fail to retain data. Fast gives faster performance; and Slow gives more stable

performance. This field applies only when synchronous DRAM is installed in the system.

System BIOS Cacheable : Selecting "Enabled" allows caching of the system BIOS ROM at F0000h – FFFFFh, resulting in better system performance.   However, if any program writes to this memory area, a system error may result.   The settings are "Enabled" and "Disabled".

Video BIOS Cacheable : Selecting "Enabled allows caching of the video BIOS ROM at C0000h – C7FFFh, resulting in better video performance. However, if any program writes to this memory area, a memory error may result.

Memory Hole At 15M-16M :   The default setting is "Disabled". Set to "Enable" when the system memory size is equal to or greater than 16M bytes, then the physical memory address from 15M to 16M will be passed to PCI or ISA. Thus, there will be a 1M Bytes hole in your system memory. This option is designed for some OS with special add-on cards which need 15M-16M memory space.

CPU Latency Timer: Select "Enabled" A deferrable CPU cycle will only be Deferred after it has been in a Snoop Stall for 31 clocks and another ADS# has arrived. Select "Disabled" A deferrable CPU cycle will be Deferred immediately after the GMCH receives another ADS#.

Delayed Transaction: The chipset has an embedded 32-bit posted write buffer to support delay transactions cycles. Select Enabled to support compliance with PCI specification version 2.1. The default setting is Enabled.

AGP Graphics Aperture Size: The field sets aperture size of the graphics. The aperture is a portion of the PCI memory address range dedicated for graphics memory address space. Host cycles that hit the aperture range are forwarded to the AGP without any translation. The options available are 4M, 8M, 16M, 32M, 64M, 128M and 256M. The default setting is 64M.

3.6 INTEGRATED PERIPHERALS

When you select the "INTEGRATED PERIPHERIALS" on the main program, the screen display will appears as:

Integrated Peripheral Setup Screen

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Integrated Peripherals

			Item Help
On-Chip IDE Primary PCI IDE	Enabled		
On-Chip IDE Secondary PCI IDE	Enabled		Menu Level
IDE Primary Master PIO	Auto		
IDE Primary Slave PIO	Auto		
IDE Secondary Master PIO	Auto		
IDE Secondary Slave PIO	Auto		
IDE Primary Master UDMA	Auto		
IDE Primary Slave UDMA	Auto		
IDE Secondary Master UDMA	Auto		
IDE Secondary Slave UDMA	Auto		
USB Controller	Enabled		
USB Keyboard Support	Disabled		
Init Display First	PCI Slot		
IDE HDD Block Mode	Enabled		
Power On Function	Button Only		
X KB Power On Password	Enter		
X Hot Key Power On	Ctrl-F1		
Onboard FDC Controller	Enabled		
Onboard Serial Port 1	3F8/IRQ4		
Onboard Serial Port 2	2F8/IRQ3		
UART Mode Select	Normal		
X UR2 Duplex Mode	Half		
Onboard Parallel Port	378/IRQ7		
Parallel Port Mode	SPP		
X ECP Mode Use DMA	3		
PWRON After PWR-Fail	Off		

↕ ← © Move Enter: Select +/-/PU/PD: Value   F10: Save Esc: Exit F1: General Help

F5: Previous Values F6: Fail-Safe Defaults   F7: Optimized Defaults

On-Chip Primary/Secondary PCI IDE : The integrated peripheral controller contains an IDE interface with support for two IDE channels Select Enabled to activate each channel separately.

Primary / Secondary Master / Slave PIO: The four IDE PIO (Programmed Input/Output) fields let you set a PIO mode (0-4) for each of the four IDE devices that the onboard IDE interface supports. Modes 0 through 4 provide successively increased performance. In Auto mode, the system automatically determines the best mode for each device. The settings are "Auto", "Mode 0", "Mode 1", "Mode 2", "Mode 3", "Mode 4".

Primary / Secondary Master / Slave UMDA: Ultra DMA/66 implementation is possible only if your IDE hard drive supports it and the operating environment includes a DMA driver (Windows 98 OSR2 or a third-party IDE bus master driver). If your hard drive and your system software both support Ultra DMA/66, select Auto to enable BIOS support. The settings are "Auto" and "Disabled".

USB Controller: Select "Enabled " if your system contains a Universal Serial Bus (USB) controller and you have USB peripherals.

USB Keyboard Support: Select "Enabled " if your system contains a Universal Serial Bus(USB) controller and you have a USB keyboard.

Init Display First: This item allows you to decide to active whether PCI Slot of VGA card or AGP first.   The settings are "PCI Slot" and "AGP Slot".

IDE HDD Block Mode: Block mode is also called block transfer, multiple commands, or multiple sector read/write. If your IDE hard drive supports block mode (most new drives do), select Enabled for automatic detection of the optimal number of block read/writes per sector the drive can support.

POWER ON Function: This item allows you to select the item to power on the system. The default setting is "Button Only".

Onboard FDC Controller: Select Enabled if your system has a floppy disk controller (FDC) installed on the system 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 Port1 / port2: Select an address and corresponding interrupt for the first and second serial ports. The settings are "3F8/IRQ4", "2E8/IRQ3", "3E8/IRQ4", "2F8/IRQ3, "Disabled", "Auto".

UART Mode Select: This field determines the UART mode in your computer. The settings are Normal, IrDA and ASKIR. The default value is Normal.

UR2 Duplex Mode: This item allows you to select the URAT2 half/full duplex mode.

Onboard Parallel Mode : Select an operating mode for the onboard parallel (printer) port. Select "Normal", "Compatible", or "SPP" unless you are certain your hardware and software both support one of the other available modes.

Parallel Port Mode: This field allows you to determine parallel port mode function

SPP	Normal Printer Port
EPP	Enhanced Parallel Port
ECP	Extended Capabilities Port

ECP Mode Use DMA: Select a DMA channel for the parallel port for use during ECP mode. The settings are "3" and "1".

PWRON After PWR-FAIL: This option will determine how the system will power on after a power failure.

AWARD BIOS SETUP

3.7 POWER MANAGEMENT SETUP

The "Power Management Setup" controls the CPU card's "Green" features. When you select the "POWER MANAGEMENT SETUP" on the main program, the screen display will appears as:

Power Management Setup Screen

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Power Management Setup

ACPI function	Enabled	Item Help
ACPI Suspend Type	S1 (POS)	
Power Management	User Define	Menu Level
Video Off Method	DPMS	
Video Off In Suspend	No	
Suspend Type	Stop Grant	
MODEM Use IRQ	3	
Suspend Mode	Disabled	
HDD Power On	Disabled	
Soft-Off by PWRBTN	Instant – off	
Power On by Ring	Enabled	
USB KB Wake-Up from S3	Disabled	
Resume by Alarm	Disabled	
X Date (of Month) Alarm	0	
X Time (h:mm:ss)alarm	0 0 0	
** Reload Global timer Events**		
Primary IDE 0	Disabled	
Primary IDE 1	Disabled	
Secondary IDE 0	Disabled	
Secondary IDE 1	Disabled	
FDD, COM, LPT Port	Disabled	
PCI PIRQ [A-D]	Disabled	

↕ ⇆ Ⓒ Move   Enter: Select   +/-/PU/PD: Value   F10: Save Esc: Exit   F1: General Help

F5: Previous Values F6: Fail-Safe Defaults   F7: Optimized Defaults

ACPI Function : This item allows you to enable or disable the Advanced Configuration and Power Management (ACPI).　The settings are "Enabled" and "Disabled".

ACPI Suspend Type : This item will set which ACPI suspend type will be used.

S1 (POS)	The S1 sleeping state is low wake-up latency sleeping state.　In this state, no system context is lost (CPU or chipset) and hardware maintains all system context.

Power Management :

Power Management	User Define	Item Help
HDD Power Down	Disable	Menu Level
Doze Mode	Disable	
Suspend Mode	Disable	

☀ ☄ ☾ Move　Enter: Select +/-/PU/PD: Value　F10: Save　Esc: Exit　F1: General Help

F5: Previous Values　F6: Fail-Safe Defaults　　F7: Optimized Defaults

This category allows you to select the type (or degree) of power saving and is directly related to the following modes:

1. HDD Power Down
2. Doze Mode
3. Suspend Mode

There are four selections for Power Management, three of which have fixed mode setting.

Disable (Default)	No power management.　Disables all four modes.
Min. Power Saving	Minimum power management.　Doze Mode=1hr. Standby Mode =1hr., Suspend Mode=1hr., and HDD Power Down=15min.
Max. Power Saving	Maximum power management. –Only available for SL CPU's. Doze Mode=1min., Standby Mode=1min., Suspend Mode=1min., and HDD Power Down=1min.
User Defined	Allows you to set each mode individually.　When not disabled, each of the ranges are from 1 min. to 1 hr. except for HDD Power Down which ranges from 1 min. to 15 min. and disabled.

Video Off Method : This determines the manner in which the monitor is blanked. The default setting is "V/H SYNC+Blank".

V/H SYNC+Blank	This selection will cause the system to turn off the vertical and horizontal synchronization ports and write blank to the video buffer.
Blank Screen	This option only writes blanks to the video buffer.
DPMS	Initial display power management signaling.

Video Off In Suspend : This determine the manner in which the monitor is blanked. The settings are: Yes and NO.

Suspend Type : Select the "Suspend Type" . The settings are: PWRON Suspend , Stop Grant.

MODEM Use IRQ : Name the interrupt request (IRQ) line assigned to the modem (if any) on your system. Activity of the selected IRQ always awakens the system. The default setting is "3".

Suspend Mode : When enabled and after the set time of system inactivity , all devices except the CPU will be shut off. The settings are: 1/2/4/8/12/20/30/40 Min, 1 Hour ,and Disabled.

HDD Power Down: Options are from "1 Min" "15Min" and "Disable". The IDE hard drive will spin down if it is not accessed within a specified length of time.

Soft-Off by PWRBTN: Pressing the power button for more than 4 seconds forces the system to enter the Soft-Off state.   The settings are: "Delay 4 Sec.", "Instant-Off".

Power On By Ring: Select "Enabled, the system will boot up if there is an incoming all from the modem. Select Disabled, the system will ignore any incoming call from the modem.

USB KB Wake-Up From S3: This option is used to Enable/Disabled USB keyboard wake up with suspend to RAM.

Resume by Alarm: This allows a computer to be turned on automatically through the timer set in the BIOS to make the system more schedulable. By default, this field is set to *Disabled.*

Date(of month)Alarm: You can choose which month the system will boot up.

Time(hh:mm:ss)Alarm: You can choose what hour, minute and second the system will boot up

Reload Global Timer Events: When Enabled, an event occurring on each device listed below restarts the global time for Standby mode.

Primary IDE 0

Primary IDE 1

Secondary IDE 0

Secondary IDE 1

FDD,COM,LPT Port

PCI PIRQ[A-D]#

After you have mode your selection in the POWER MANAGEMENT SETUP, press the<ESC>key to go back to the main program screen.

3.8 PNP/PCI CONFIGURATION

Both the ISA and PCI buses on the CPU card use system IRQs & DMAs. You must set up the IRQ and DMA assignments correctly through the PnP/PCI Configuration Setup utility, otherwise the SBC will not work properly.

When you select the "PnP /PCI CONFIGURATION" on the main program, the screen display will appears as:

PnP/PCI Configuration Setup Screen

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PnP/PCI Configurations

		Item Help
PnP OS Installed	No	
Reset Configuration Data	Disabled	Menu Level
		Select Yes if you are
Resources Controlled By	Manual	using a Plug and Play
IRQ Resources	Press Enter	capable operating
DMA Resources	Press Enter	system. Select No if you
		need the BIOS to
PCI/VGA Palette Snoop	Disabled	configure non-boot
		devices.

♨ 🖊 ☾ Move Enter: Select   +/-/PU/PD: Value   F10: Save Esc: Exit   F1: General Help
F5: Previous Values F6: Fail-Safe Defaults   F7: Optimized Defaults

PnP OS Installed : When set to "Yes", BIOS will only initialize the PnP cards used for booting (VGA, IDE, SCSI). The rest of the cards will be initialized by the PnP operating system like Windows®95 or 98.   When set to "No", BIOS will initialize all the PnP cards. So, for non-PnP operating system (DOS, Netware®), this option must set to "Yes".

Reset Configuration Data : Normally, you leave this field "Disabled", Select "Enabled" to reset Extended System Configuration Data (ESCD) when you exit Setup if you have installed a new add-on and the system reconfiguration has caused such a serious conflict that the operating system cannot boot.
The settings are : "Enabled and Disabled".

Resource Controlled By : The Award Plug and Play BIOS has the capacity to automatically configure all of the boot and Plug and Play compatible devices. However, this capability means absolutely nothing unless you are using a Plug and Play operating system such as Windows⬇98. If you set this field to "Manual" choose specific resources

by going into each of the sub menu that follows this field (a sub menu is proceeded by a " "). The settings are "Auto(ESCD)" , "Manual" .

IRQ Resources : When resources are controlled manually, assign each system interrupt as one of the following types, depending on the type of device using the interrupt.

DMA Resources : The sub menu can let you control the DMA resource.

PCI/VGA Palette Snoop: Leave this filed at "Disabled". The settings are "Enabled" , "Disabled" .

3.9 PC HEALTH STATUS

This section helps you to get more information about your system including CPU temperature, FAN speed and voltages.   It is recommended that you contact your motherboard supplier to get proper value about your setting of the CPU temperature.

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PC Health Status

Shutdown Temperature	75 / 167	Item Help
Voltage 0	1.93V	Menu Level
Voltage 1	3.26V	
Voltage 2	3.21V	
Voltage 3	4.97V	
Voltage 4	12.03V	
Voltage 5	(-)11.95V	
Voltage 6	(-)5.30V	
Voltage 7	1.74V	
Voltage battery	3.12V	
Temperature 1	71	
Temperature 2	21	
Temperature 3	39	
Fan 1 Speed	0 RPM	
Fan 2 Speed	4623 RPM	
Fan 3 Speed	3154 RPM	

Move   Enter: Select   +/-/PU/PD: Value   F10: Save Esc: Exit F1: General Help
F5: Previous Values F6: Fail-Safe Defaults   F7: Optimized Defaults

Shut down Temperature : This item shows the processor reach the temperature (75 /167   ) will shut down the system .

Voltage 1/2/3/4/5/6/7   : This item shows the current CPU1/2/3/4/5/6/7 voltage.

Temperature 1/2/3 : This item shows the current CPU1/2/3 temperature.

FAN 1/2/3 Speed : This item shows the FAN 1/2/3 speed.

3.10 FREQUENCY / VOLTAGE CONTROL

This section is for setting CPU Frequency / Voltage Control.

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Frequency/Voltage Control

		Item Help
Auto Detect DIMM/PCI Clk	Enabled	
Spread Spectrum	Disabled	Menu Level
CPU Host /PCI Clock /PC133	Default	
CPU Clock Ratio	X3	

↕ ⬌ ☾ Move   Enter: Select   +/-/PU/PD: Value   F10: Save Esc: Exit F1: General Help

F5: Previous Values F6: Fail-Safe Defaults   F7: Optimized Defaults

Auto Dect DIMM/PCI Clk : This item allows you to enable / disable auto detect DIMM / PCI Clock.   The settings are "Enabled" and "Disabled".

CPU Host Clock: This item allows you to select the CPU Host / PCI Clock.

CPU Clock Ratio:

3.11 LOAD FAIL-SAFE DEFAULTS

When you press "Enter" on this item, you get a confirmation dialog box with a message similar to :

Load Fail-Safe Defaults (Y/N) ? N

Pressing "Y" loads the BIOS default values for the most stable, minimal-performance system operations.

3.12 LOAD OPTIMIZED DEFAULTS

When you press "Enter" on this item, you get a confirmation dialog box with a message similar to :

Load Optimized Defaults (Y/N) ? N

Pressing "Y" loads the default values that are factory settings for optimal performance system operations.

3.13 SET SUPERVISOR/USER PASSWORD

The "SUPERVISOR/USER PASSWORD" utility sets the password. The SBC is shipped with the password disabled. If you want to change the password, you must first enter the current password, then at the prompt -- enter your new password. The password is case sensitive, and can be up to 8 alphanumeric characters. Press <Enter> after you have finished typing in the password. At the next prompt, confirm the new password by re-typing it and pressing <Enter> again. When you are done, the screen automatically reverts to the main screen. Remember that when you use this feature, the "Security Option" line in BIOS FEATURES SETUP will determine when entering the password will be required.

To disable the password, press the <Enter> key instead of entering a new password when the "Enter Password" in the dialog box appears. A message will appear confirming that the password is disabled.

If you have set both supervisor and user password, only the supervisor password allows you to enter the BIOS SETUP PROGRAM.

Note : If you forget your password, the only way to solve this problem is to discharge the CMOS memory by turning power off and placing a shunt on the S1 (open pad) for 5

seconds, then removing the shunt.

3.14 SAVE & EXIT SETUP

Select this option and press the <Enter> key to save the new setting information in the CMOS memory and continue with the booting process.

3.15 EXIT WITHOUT SAVING

Select this option and press the <Enter > key to exit the Setup Utility without recording any new values or changing old ones

CHAPTER 4.

DRIVERS SUPPORT

4.1 USE YOUR DRIVER CD-ROM

This chapter provides information on how to install the drivers that come in the CD-ROM with the package. Please follow the instructions set forth in chapter carefully.

1. Find the directory for your O/S accordingly.
2. Always read the README.TXT. before installation.
3. Run the *.EXE., and follow the installation prompt step by step.

4.2 FILE DIRECTORY
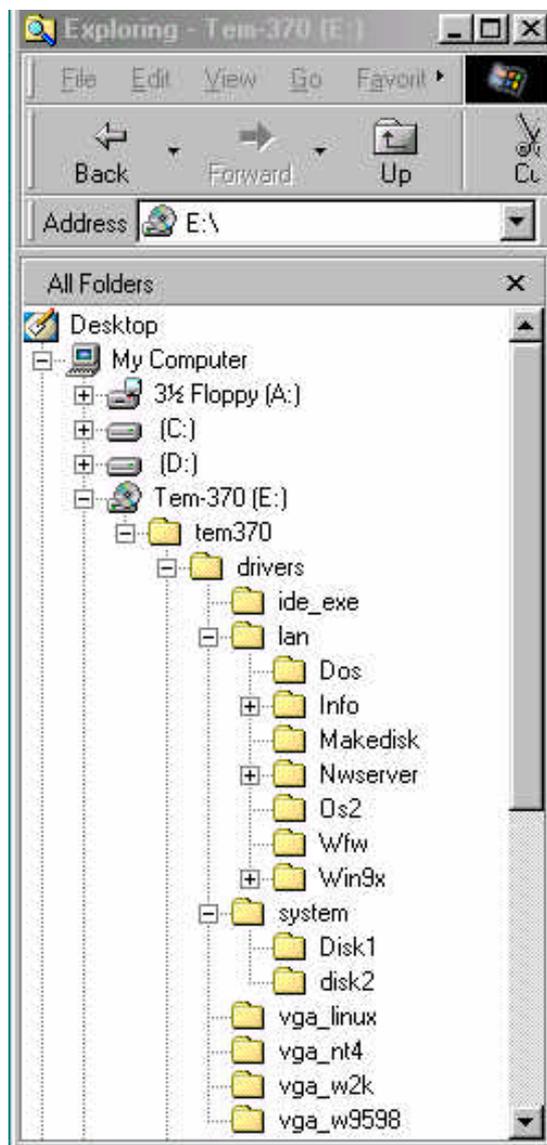
APPENDIX A.

HOW TO USE WATCH-DOG TIMER

You can enable the watch-dog when your application software monitors an unexpected or not responding, so then the timer generates a reset to reboot your system. During the period of enable to reset, you could still cancel reset by disabling the watch-dog.   Decide the way you want to set the period for reset by selecting hardware or software watch-dog (if both of them are available).   For hardware setting period, select period by adjusting jumper.   For software setting period, normally hardware watch-dog timer is set to 16 sec. period.

Software watch-dog using example

EX.1: For DOS

Enable	**Disable**
C:\DOS> DEBUG	**C:\DOS>DEBUG**
-o443F	**-o441F**

EX.2: For assemble Language

Enable :	**Disable :**
MOV DX, 443H	**MOV DX, 441H**
MOV AL, 0FH	**MOV AL, 0FH**
OUT DX, AL	**OUT DX, AL**

Note : "F" is the period setting of software watch-dog timer (normally "F" indicated 0 sec.). 0 to 9 and A to F are used for represent different period.   Normally, the step is 2 sec. That means "E" is 2, "D" is 4, "2" is 26, "1" is 28 and "0" is 30 seconds.

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 LPTO)
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)
443	Enable Watch-dog Timer Operation (read)
441	Disable Watch-Dog Times Operation (Read)

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 - 0FFFFFH	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 (Accelerated Graphic Port) – is a 32-bit, 66MHz data bus that transmit a maximum of 528MB of data.

bps – Bits per second.   Also often preceded by K (kilo/thousands), **Kbps** – Kilo bytes 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 is able to. 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
486DX2	75, 100, 120
Pentium	90, 100, 120, 133, 166, 200, 233
Pentium MMX	166, 200, 233, 266
Pentium Pro	166, 180, 200
Pentium II	233, 266, 300

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, utilizing BIOS INT 13h hard drive with secondary software and supports two hard drives (Master and Slave). This device does not need extra software to run it since it is directly initiated in the BIOS. Data transfer rate is 4.1 Mbps. Take note that this interface cannot support other drives like a 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 its 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 mechanisms 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 :
▪Health Monitoring   ▪Real-Time Alerting   ✎Remote Accessibility   ♫ Extensive 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. " **Trackballs** " 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 applications, 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 cannot 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.

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 a warning error 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 is turned 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.

Terms and Conditions

Warranty Policy

1. All products are warranted against defects in materials and workmanship for a period of two years from the date of purchase by the customer.

2. The buyer will bear the return freight charges for goods that are returned for repair within the warranty period whereas manufacturer will bear the other way after repair.

3. The buyer will pay for repair (for the replaced materials plus service time) and transportation charges (both ways) for items after the expiration of the warranty period.

4. If the RMA Service Request Form does not meet the stated requirement as listed on "RMA Service ", RMA goods will be returned at the customer expense.

5. The following conditions are excluded from this warranty

    A. Improper or inadequate maintenance by the customer.

    B. Unauthorized modification or misuse.

    C. Operation outside of the environmental specifications for the product.

RMA Service

1. *Request a RMA# :*

    Complete and fax to Supplier the "RMA Request Form" to obtain a RMA number.

2. *Shipping:*

    A. The customer is requested to fill up the problem code as listed . If none of the code is selected, please write the symptom description on the remark.

    B. Ship the defective units with freight prepaid.

    C. Mark the RMA # clearly on the box.

    D. Shipping damage as a result of inadequate packing is the customer's responsibility.

    E. Use the original packing materials whenever possible .

3. *All RMA# are valid for 30 days only:*

    When RMA goods are received after valid RMA# period , the goods will be rejected.

RMA Service Request Form

When requesting RMA service, please fill out this **"RMA Service Request Form"**.

Without this form your RMA will be REJECTED!!!

RMA No:	Reasons to Return: Repair(Please include failure details)
	Testing Purpose

Company:	Contact Person:
Phone No.	Purchased Date:
Fax No.:	Applied Date:

Return Shipping Address:_____

Shipping by: Air Freight   Sea   Express :_____   Others:_____

Item	Model Name	Serial Number	Configuration

Item	Problem Code	Failure Status

*****Problem Code**:

01:D.O.A.	07: BIOS Problem	13: SCSI	19: DIO
02: Second Time R.M.A.	08: Keyboard Controller Fail	14: LPT Port	20: Buzzer
03: CMOS Data Lost	09: Cache RMA Problem	15: PS2	21: Shut Down
04: FDC Fail	10: Memory Socket Bad	16: LAN	22: Panel Fail
05: HDC Fail	11: Hang Up Software	17: COM Port	23: CRT Fail
06: Bad Slot	12: Out Look Damage	18: Watchdog Timer	24: Others (Pls specify)

Request Party   *Confirmed By Supplier*

_____   _____

Authorized Signatures / Date   **Authorized Signatures / Date**