NEAT-575

All-in-One Pentium
w/VGA w/Flash Disk
ISA Half-Size CPU Card

User's Guide

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Check List

Before getting started, please check if your NEAT-575 package includes the following items:

- NEAT-575 All-in-one Pentium CPU board x 1pc
- Driver & Utility diskette x 4 pcs
- Keyboard adapter x 1pc
- FDD cable x 1 pc
- HDD cable x 1 pc
- COM, Printer extension cable with bracket x 1pc
- User’s manual x 1pc

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Chapter 1
Introduction

The NEAT-575 is an industrial grade CPU card with Intel Triton II HX chipsets and enhanced I/O chipset to ensure it can work with ISA bus passive backplanes. This advanced technology and PCI local Bus bring outstanding performance for Windows applications.

Specially designed to work with your CPUs of Intel P54C/P55C and Cyrix 6x86. NEAT-575's 6-layer structure reduces signal noise . It meets all green functions with a built-in power management feature.

The NEAT-575 combines VGA & EIDE using the 32 bit PCI interface. It is designed as such way to utilize the most of PCI system.

NEAT-575 has a video section which features the ability to control most EL, mono/color STN and TFT flat panel display as well as standard VGA. Equipped with 1MB of EDO DRAM, up to 2MB EDO DRAM(optional). The CHIPS 65550 inside can display in 640x480 resolution on commonly used flat panels and true color displays on CRT's.

1.1 Specifications

. CPU:

INTEL P54C/P55C,CYRIX M1/M2 and AMD K5/K6 Processor up to 266MHz

. Cache:

256KB/512KB 2nd level Burst cache memory

. Memory :

Support FPM/EDO DRAMs

Support two 72-pin SIMM sockets, accept 1,2,4,8,16, 32 or 64 MB SIMMs

Support SIMM ECC (error check and correction)

. Chipset :

System Chipset : INTEL TRITON II / HX

I/O Chipset : SMC37C669

. Display:

Chipset: C&T 65550 PCI bus with Windows accelerator and Video

playback

Display memory: on board EDO DRAM 1MB up to 2 MB

Display resolution:

support Flat-panel resolutions up to 640x480, 800x600,1024x768

support non-interlace CRT monitors, 1024x768 64K colors(2MB DRAM)

Display connector: DB-15 VGA connector for CRT monitor and 2x22 pin header for Flat-panel

Support 3.3V and 5V Flat-panel

. S.S.D.:

Socket for M-system Disk on Chip

. IDE :

Supports up to two PCI mode 4 enhance IDE hard disk interfaces

. Floppy :

Supports up to two floppy disk drivers, 3.5" and/or 5.25"

. Parallel port :

Enhanced Bi-directional EPP/ECP parallel port

. Serial port :

One RS-232 port and One RS-232/RS-422/RS-485 port, both with 16C550 UARTs.

. Watchdog Timer :

Can generate a system RESET / The timer interval is 0 - 64 sec (16 level)

. PS/2 Mouse / Keyboard Connector :

Two 6 pin Mini-Din connector is located on the mounting bracket.

And a pin header connector for internal keyboard

. Expansion Bus :

A 16 BIT PC104 connector for expansion modules.

. Power Supply Voltage :

+5V 2.8A

. Operating Temperature :

32 to 140^{o}F (0 to 60^{o}C)

. Board Size :

185mm(L) X 122mm(W)

Chapter 2.

Jumpers and Connectors

Figure below shows the jumpers' and connectors' location on the NEAT-575.

2.1 Jumpers setting

CPU BUS/CORE RATIO (JP10, 1-6)

Bus/Core ratio	JP10
2.5 (P54C/K5/M1)	1-2,3-4
3.0 (P54C/K5/M1)	3-4
2.0 (P54C/K5/M1)	1-2
1.5 (P54C/K5/M1)	OPEN
3.5 (P55C/K6/M2)	OPEN
4.0 (P55C/K6/M2)	1-2,5-6
4.5 (K6/M2)	1-2,3-4,5-6
5.0 (K6/M2)	3-4,5-6
5.5 (K6/M2)	5-6

CPU BASE SPEED SELECT (JP12)

	JP12
50 MHz	1-2, 3-4
55 MHz	OPEN
66 MHz	1-2
60 MHz	3-4

CPU VCC3 Select (JP2, 1-6)

	JP2
P54C	1-3, 2-4
P55C	3-5, 4-6

Watchdog/Power detect (JP1, 17-18)

	JP1
Watchdog time out gen. system reset	17-18

CPU VCORE Select (JP2, 7-14,JP14)

	JP14	JP2		
	1-2	11-12	9-10	7-8
2.0V	OPEN	OPEN	OPEN	OPEN
2.1V	OPEN	OPEN	OPEN	CLOSE
2.2V	OPEN	OPEN	CLOSE	OPEN
2.3V	OPEN	OPEN	CLOSE	CLOSE
2.4V	OPEN	CLOSE	OPEN	OPEN
2.5V	OPEN	CLOSE	OPEN	CLOSE
2.6V	OPEN	CLOSE	CLOSE	OPEN
2.7V	OPEN	CLOSE	CLOSE	CLOSE
2.8V	CLOSE	OPEN	OPEN	OPEN
2.9V	CLOSE	OPEN	OPEN	CLOSE
3.0V	CLOSE	OPEN	CLOSE	OPEN
3.1V	CLOSE	OPEN	CLOSE	CLOSE
3.2V	CLOSE	CLOSE	OPEN	OPEN
3.3V	CLOSE	CLOSE	OPEN	CLOSE
3.4V	CLOSE	CLOSE	CLOSE	OPEN
3.5V	CLOSE	CLOSE	CLOSE	CLOSE

System Clock Speed (JP5)

	JP5
System Clock=PCI Clock/4	1-2 Open
System Clock=PCI Clock/3	1-2 Close

Reset/SMI/LED (JP4, 11-16)

	JP4
System reset switch	13-14
System Management Interrupt	11-12
HDD LED, Pin16+, Pin15-	15-16

External keyboard/Mouse (J4)

	J4
Keyboard clock	1
Keyboard data	2
NC	3
Ground	4
Power	5

USB(JP3)

	JP3
VCC	2
USB -	1
USB+	3
GND	4

Speaker/Keylock (JP4, 1-10)

	JP4
Internal buzzer	1-3
External speaker (remove 1-3)	1-7
Power LED, Pin 2+, Pin6-	2-6
Keylock	8-10

External power connector (J1, J3)

	J1
-12V	1
-5V	2
Ground	3
+12V	4

	J3
+5V	1,2,3
Ground	4,5,6

Disk On Chip(M-System) Address Select (JP1, 1-8)

	JP1
C0000-C7FFF	1-2
C8000-CFFFF	3-4
D0000-D7FFF	5-6
D8000-DFFFF	7-8

CMOS Clear(JP7,1-2)

JP7
POWER OFF AND SHORT JUMPER ON 1-2 OF JP7, REMAINING POWER ON 1MIN. THEN POWER OFF, REMOVE JUMPER ON 1-2 OF JP7

COM2 Type Select (JP9, JP11)

	JP9	JP11
RS232	5-6	3-5,4-6,9-11,10-12
RS422	3-4	1-3, 2-4, 7-9, 8-10
RS485	1-2	1-3, 2-4, 7-9, 8-10

LCD Panel Interface (JP8, JP13)

	JP13	JP8
3.3V LCD Panel	CLOSE	1-2
5V LCD Panel	OPEN	2-3

LCD Panel Type Select (JP1, 11-16)

11-12,13-14, 15-16 three jumpers to select up to 8 types' LCD BIOS

Flat Panel SHFCLK (JP7, 3-5)

	JP7
Clock Inverted	3-4
Clock	4-5

2.2 Connectors

The connectors allow the CPU card to connect with other parts of the system. Some problems encountered with your system may be caused by loose or improper connections. Ensure that all connectors are in place and firmly attached.

Component	Label
HDD (IDE) connector	IDE
FDD connector	FDC
Parallel port	PRN
PC/104 connector	PC104
Keyboard connectors	K/B, J4
Mouse connector	MOUSE
Reset switch connector	JP4 (13-14)
External speaker connector	JP4 (1-7)
HDD LED connector	JP4 (15-16)
External power connector	J1, J3
Serial port1	COM1
Serial port2	COM2
Analog VGA connector	VGA
Flat panel connector	J2
CMOS RAM clear	JP7

Chapter 3
Installation

This chapter describes the procedures for installing the NEAT-575 all-in-one CPU card into your system.

The following is a list of typical peripherals required to build a minimum system:

- Power supply and passive backplane(optional)
- IBM PC/AT keyboard
- Display monitor
- Floppy or hard disk with MS-DOS or Flash Disk emulator

3.1 Installing the SIMMs

You can install from 2MB up to 128 MB memory on board using 1, 2,4,8,16,32 or 64MB 72-pin FPM/EDO SIMMs.

1. Ensure that all power supplies to the system are switched Off.
2. Insert the first SIMM edge connector at a slight angle into the socket of SIMM 1 close to the center of the board. Note that the SIMM is keyed and will only go in one direction.
3. Push the SIMM back into the connector carefully until it snaps into place.
4. Check to make sure the SIMM is inserted securely.
5. Repeat Steps 2-4 for the remaining SIMM in SIMM 2.

3.2 Installing the CPU

1. Match pin one (white dot) on the CPU with pin one of the PGA socket. Note pin one is marked on the board. In addition, the PGA socket has a diagonal corner or may have an arrow marked on the base of the socket denoting the side containing pin one.
2. To complete the installation, gently press the CPU onto place.
3. Double check the insertion and orientation of the CPU before applying power. Improper installation will result in permanent damage to the CPU.

3.3 Completing the Installation

To complete the installation, the following steps should be followed:

1. Make sure the power is off.
2. Set the configuration jumpers in accordance with Chapter 2.
3. Install the NEAT-575CPU card into one of the slots in a passive backplane. Or, just take the NEAT-575 alone as a single board computer.
4. Connect the applicable I/O cables and peripherals, i.e. floppy disk, hard disk, monitor, keyboard, power supply and etc.

   NOTE: the color of pin one is usually red or blue, while others are gray.

5. Turn on the power.

Chapter 4

Award's BIOS Setup

Award's BIOS ROM has a built-in Setup program that allows users to modify the basic system configuration. This type of information is stored in battery-backup RAM (CMOS RAM). When the power is off, it will retain the Setup information.

Entering Setup

Power on the computer and press <Del> immediately will allow you to enter Setup. The other way to enter Setup is to power on the computer, when the message below appears briefly at the bottom of the screen during the POST (Power On Self Test). Press <Del> key or simultaneously press <Ctrl>, <Alt>, and <Esc> Keys.

TO ENTER SETUP BEFORE BOOT PRESS <CTRL-ALT-ESC> OR <DEL> KEY

If this message disappears before you respond and you still wish to enter Setup, restart the system to try again by turning it OFF then ON or pressing the "RESET" button on the system case. You may also restart the system by simultaneously pressing <Ctrl>, <Alt>, and <Delete> keys. If you do not press the keys at the correct time, and the system does not boot up, an error message displays.

PRESS <F1> TO CONTINUE, <CTRL-ALT-ESC> OR <DEL> TO ENTER SETUP

Control Keys

Up arrow	Move to previous item
Down arrow	Move to next item
Left arrow	Move to the item in the left hand
Right arrow	Move to the item in the right hand
Esc key	Main Menu -- Quit and not save changes into CMOS Status Page Setup Menu and Option Page Setup Menu -- Exit current page and return to Main Menu
PgUp / "+" key	Increase the numeric value or make changes
PgDn / "–" key	Decrease the numeric value or make changes
F1 key	General help, only for Status Page Setup Menu and Option Page Setup Menu
(Shift)F2 key	Change color from total 16 colors. F2 to select color forward, (Shift) F2 to select color backward
F3 key	Reserved
F4 key	Reserved
F5 key	Restore the previous CMOS value from CMOS, only for Option Page Setup Menu
F6 key	Load the default CMOS value from BIOS default table, only for Option Page Setup Menu
F7 key	Load the Setup default, only for Option Page Setup Menu
F8 key	Reserved
F9 key	Reserved
F10 key	Save all the CMOS changes, only for Main Menu

Getting Help

Main Menu

The on-line description of the highlighted setup function displays at the bottom of the screen.

Status Page Setup Menu/Option Page Setup Menu

Press F1 to pop up a small help window that describes the appropriate keys to use and the possible selections for the highlighted item. To exit the Help Window, press <F1> or <Esc> key.

The Main Menu

Once you enter Award's BIOS CMOS Setup Utility, the Main Menu will appear on the screen. The Main Menu allows you to select from ten setup functions and two exit choices. Use arrow keys to select among the items and press <Enter> to accept or enter the sub-menu.

ROM PCI/ISA BIOS
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 SETUP	HDD LOW LEVEL FORMAT
LOAD BIOS DEFAULTS	SAVE & EXIT SETUP
LOAD SETUP DEFAULTS	EXIT WITHOUT SAVING
Esc : Quit F10 : Save & Exit Setup	↑↓→← : Select Item (Shift) F2 : Change Color
Time, Date, Hard Disk Type...	

Standard CMOS setup

This setup page includes all the items in a standard compatible BIOS. See Page 4-7 to Page 4-10 for details.

BIOS features setup

This setup page includes all the items of Award special enhanced features. See Page 4-11 to Page 4-15 for details.

Super / User password setting

Changes, sets or disables password. It allows you to limit access to the system and Setup, or just to Setup.

Chipset features setup

This setup page includes all the items of chipset special features. See Page 4-16 to Page 4-22 for details.

Integrated Peripherals

This section includes all the items of IDE hard drive and Programmed Input/Output features. See Page 4-23 to 4-24 for details.

Power Management setup

This category determines the power consumption of system after selecting items below. Default value is Disable. See Page 4-25 to Page 4-28 for details.

PnP/PCI Configuration setup

This category specifies the setup of PNP/PCI related devices. See Page 4-29 to Page 4-30 for details.

Load BIOS defaults

BIOS default indicates the most appropriate value of the system parameter that the system will be in minimum performance.

Load setup defaults

Chipset default indicates the values required by the system for the maximum performance.

Password setting

Changes, sets, or disables password. It allows you to limit access to the system and Setup, or just to Setup. See Page 4-31 for details.

IDE HDD auto detection

Automatically configures hard disk parameters. See Page 4-32 to Page 4-34 for details.

HDD low level format

Hard disk low level format utility. See Page 4-35 to Page 4-36 for details.

Save & exit setup

Saves CMOS value changes to CMOS and exits setup.

Exit without save

Abandons all CMOS value changes and exits setup.

Standard CMOS Setup Menu

The items in Standard CMOS Setup Menu divided into 8 categories. Each category includes one or more than one setup item. Use the arrow keys to highlight the item and then use the <PgUp> or <PgDn> keys to select the value you want in each item.

Standard CMOS Setup Menu (Support Enhanced IDE)

ROM PCI/ISA BIOS
STANDARD CMOS SETUP
AWARD SOFTWARE, INC.

Date (mm:dd:yy) : Fri., Jul 18 1997
Time(hh:mm:ss) : 00:00:00

HARD DISKS	TYPE	SIZE	CYLS	HEAD	PRECOMP	LANDE	SECTOR	MODE
Primary Master	: Auto	0	0	0	0	0	0	Auto
Primary Slave	: None	0	0	0	0	0	0	Auto

Drive A : 1.44M , 3.5 in
Base Memory : 640K
Drive B : None
Extended Memory : 31744K
Video : EGA / VGA
Other Memory : 384K

Halt On : All Errors
Total Memory : 32768K

ESC : Quit ↑ ↓ → ← : Select Item
PU / PD / + / - : Modify
F1 : Help (Shift) F2 : Change Color

Date

The date format is <day>, <date> <month> <year>. Press <F3> to show the calendar.

day	The day of week, from Sun to Sat, determined by the BIOS, is read only
date	The date, from 1 to 31 (or the maximum allowed in the month), can be key in with the numerical / function key
month	The month of the year. Jan. through Dec.
year	The year, depends on the year of BIOS

Time

The time format is <hour> <minute> <second>, which accepts both function key and numeral key. The time calculated is based on the 24-hour military-time clock. For examples, (1 p.m.) is 13:00:00.

Primary Master/Primary Slave

This category identifies the types of one channel that has been installed in the computer. There are 45 predefined types and 4 user definable types of Enhanced IDE BIOS. Type 1 to Type 45 are predefined. Type “User” is user-definable.

Press PgUp/<+> or PgDn/<–> to select a numbered hard disk type or type the number and press <Enter>. 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 unmatched or unlisted, you can use Type User to define your own drive type manually.

If you select User Type, related information must be entered to the following items. Enter the information directly from the keyboard and press <Enter>. This information should have been provided in the documentation from your hard disk vendor or the system manufacturer.

If the controller of HDD interface is ESDI, the selection shall be “Type 1”.

If the controller of HDD interface is SCSI, the selection shall be “None”.

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

“Auto”.

CYLS.	number of cylinders
HEADS	number of heads
PRECOMP	write precom
LANDZONE	landing zone
SECTORS	number of sectors
MODE	HDD access mode

If a hard disk has not be installed, then select NONE and press <Enter>.

Drive A type/Drive B type

This category identifies the type of floppy disk drive A and drive B that are installed in the computer.

None	No floppy drive installed
360K, 5.25 in	5-1/4 inch PC-type standard drive; 360 kilobyte capacity
1.2M, 5.25 in	5-1/4 inch AT-type high-density drive; 1.2 megabyte capacity
720K, 3.5 in	3-1/2 inch double-sided drive; 720 kilobyte capacity
1.44M, 3.5 in	3-1/2 inch double-sided drive; 1.44 megabyte capacity
2.88M, 3.5 in	3-1/2 inch double-sided drive; 2.88 megabyte capacity

Video

This category selects the type of adapter used for the primary system monitor that must match your video display card and monitor. Although secondary monitor can be supported, you do not have to select the type in Setup for secondary monitor.

There are two ways to boot up the system:

1. If the system has two display cards installed, VGA card as primary and monochrome card as secondary, the selection of the display type shall be “VGA Mode".
2. If the system has two display cards installed, monochrome as primary and VGA as secondary, the selection of the video type shall be ”Monochrome mode”.

EGA/VGA	Enhanced Graphics Adapter/video Graphics Array. For EGA, VGA, SEGA, or XGA monitor adapters.
CGA 40	Color Graphics Adapter, power up in 40 column mode
CGA 80	Color Graphics Adapter, power up in 80 column mode
MONO	Monochrome adapter, includes high resolution monochrome adapters

Error halt

This category determines whether the computer will stop if an error is detected during the power up procedure.

No errors	Whenever the BIOS detects a non-fatal error, the system will stop and you will be prompt.
All errors	The system's boot up will not be stopped for any error that may be detect.
All, But Keyboard	The system's boot will not be stopped for a keyboard error; but it will be stopped for all other errors.
All, But Diskette	The system's boot will not be stopped for a disk error; but it will be stopped for all other errors.
All, But Disk/Key	The system's boot will not be stopped for a keyboard or disk error; but it will be stopped for all other errors.

Memory

This category is display-only and determined by POST (Power On Self Test) of the BIOS.

Base Memory

The POST of the BIOS will determine the amount of base (or conventional) memory installed in the system. The value of the base memory typically is 512K for systems with 512K memory installed on the motherboard, or 640K for systems with 640K or more memory installed on the motherboard.

Extended Memory

The BIOS determines how much extended memory is exists in the system during the POST. This is the amount of memory

located above 1MB in the CPU's memory address map.

Other Memory

This refers to the memory located in the 640K to 1024K address space. This memory can be used for different applications. DOS uses this area to load device drivers to keep as much base memory free for application programs. Most use of this area is for Shadow RAM.

Total Memory

System total memory is the sum of basic memory, extended memory and other memory.

BIOS Features Setup Menu

ROM PCI/ISA BIOS
BIOS FEATURES SETUP
AWARD SOFTWARE, INC.

Virus Warning	:	Disabled	Video BIOS Shadow	:	Enabled
CPU Internal Cache	:	Enabled	C8000-CBFFF Shadow	:	Disabled
External Cache	:	Enabled	CC000-CFFFF Shadow	:	Disabled
Quick Power On Self Test	:	Disabled	D0000-D3FFF Shadow	:	Disabled
Boot Sequence	:	C,CDROM,A	D4000-D7FFF Shadow	:	Disabled
Swap Floppy Drive	:	Disabled	D8000-DBFFF Shadow		
Boot Up Floppy Seek	:	Enabled	DC000-DFFFF Shadow		
Boot Up NumLock Status	:	On			
Boot Up System Speed	:	High			
Gate A20 Option	:	Fast			
Typematic Rate Setting	:	Disabled			
TypematicRate(Chars/Sec)	:	6			
Typematic Delay (Msec)	:	250			
Security Option	:	Setup			
PCI/VGA Palette Snoop	:	Disable			
OS Select for DRAM >64MB	:	Non-OS2			

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 category flashes the screen when the system boots up. During and after the system boots up, any attempt to write to the boot sector or partition table of the hard disk drive will halt the system and the following error message will appear. In the mean time, you can run an anti-virus program to locate the problem.

```
! WARNING !
Disk boot sector is to be modified
Type "Y" to accept write or "N" to abort write
Award Software, Inc.
```

Enabled	The virus warning activates automatically and will cause warning message, when any attempt to access the boot sector or hard disk partition table during the system's boot up process.
Disabled	No warning message appears.

Note: Many disk diagnostic programs that attempt to access the boot sector table can cause the above warning message. If you are

going to run such a program, we recommend that you disable the Virus Protection beforehand.

CPU Internal Cache/External Cache

These two categories speed up memory access. However, it depends on CPU/chipset design. The default value is Enable. If your CPU does not have Internal Cache then this item “CPU Internal Cache” will not appear.

Enabled	Enable cache
Disabled	Disable cache

Quick Power On Self Test

This category speeds up Power On Self Test (POST) after you power on the computer. If it is set to Enable, BIOS will shorten or skip some check items during POST.

Enabled	Enable quick POST
Disabled	Normal POST

Boot Sequence

This category determines which drive that the computer searches first for the disk operating system. i.e., DOS. Default value is “C,CDROM,A”.

C,CDROM,A	System will first search the hard disk drive then CDROM, floppy disk drive.
A, C, CDROM	System will first search the floppy disk drive then hard disk drive, CDROM

Boot Up Floppy Seek

During POST, BIOS will determine if the floppy disk drive installed is 40 or 80 tracks. The 360K is 40 tracks, and 720K, 1.2M and 1.44M are all 80 tracks.

Enabled	BIOS searches the floppy disk drive to determine if it is 40 or 80 tracks. Note that the BIOS can not distinguish the difference among 720K, 1.2M or 1.44M drive type. The BIOS considers as an 80 tracks' disk drives.
Disabled	BIOS will not search the type of floppy disk drive by track number. Hence there will not be any warning message if the drive installed is 360K.

Boot Up NumLock Status

The default value is On.

On	Keypad is number keys
Off	Keypad is arrow keys

Boot Up System Speed

It selects the default system speed -- the speed that the system will run immediately after power up process.

High	Set the speed to high
Low	Set the speed to low

Gate A20 Option

Normal	The A20 signal controlled by keyboard controller or chipset hardware.
Fast	Default : Fast. The A20 signal controlled by Port 92 or chipset specific method.

Typematic Rate Setting

This determines the typematic rate.

Enabled	Enable typematic rate and typematic delay programming
Disabled	Disable typematic rate and typematic delay programming. The system BIOS will use default value of these 2 items and the default controlled by keyboard.

Typematic Rate (Chars/Sec)

6	6 characters per second
8	8 characters per second
10	10 characters per second
12	12 characters per second
15	15 characters per second
20	20 characters per second
24	24 characters per second
30	30 characters per second

Typematic Delay (Msec)

When user is holding a key, Typematic Delay means the time delay between the first and second character are displayed.

250	250 msec
500	500 msec
750	750 msec
1000	1000 msec

Security Option

This category allows you to limit access to the system and Setup, or just to Setup.

System	The system will not boot up and access to Setup will deny if the wrong password is entered at the prompt.
Setup	The system will bootup, but access to Setup will deny if the wrong password is entered at the prompt.

Note: To disable security, select PASSWORD SETTING at Main Menu and then you will be asked to enter the password. If you do not type anything and just press <Enter> key, it will disable security. Once the security is disabled, you can boot up the system and access to Setup freely.

OS Select for DRAM >64

This item allows you to access the memory over 64MB in OS/2.

The choice: Non-OS2, OS2.

PCI / VGA palette snoop

It determines whether the MPEG ISA/VESA VGA Cards can work with PCI/VGA or not.

Enabled	PCI/VGA can work with MPEG ISA/VESA VGA Card.
Disabled	PCI/VGA can not work with MPEG ISA/VESA VGA Card.

Video BIOS Shadow

It determines whether video BIOS will be copied to RAM or not. However, it is optional in Chipset design. Video Shadow will increase the video speed.

Enabled	Video shadow is enabled
Disabled	Video shadow is disabled

C8000 - CBFFF Shadow/DC000 - DFFFF Shadow

These categories determine whether optional ROM will be copied to RAM. An example of such optional ROM would be supported. i.e. on-board SCSI.

Enabled	Optional shadow is enabled
Disabled	Optional shadow is disabled

Chipset Features Setup Menu

ROM PCI/ISA BIOS
CHIPSET FEATURES SETUP
AWARD SOFTWARE INC.

Auto Configuration	: Enabled	Memory Parity / ECC Check	: Auto
DRAM Timing	: 70ns	Single Bit Error Report	: Enabled
DRAM RAS# Precharge Time	: 4	L2 Cache Cacheable Size	: 64MB
DRAM R/W Leadoff Timing	: 7/6	Chipset NA# Asserted	: Enabled
Fast RAS# To CAS# Delay	: 3	Pipline Cache Timing	: Faster
DRAM Read Burst(EDO/FPM)	: x333/x444	Passive Release	: Enabled
DRAM Write Burst Timing	: x333	Delayed Transaction	: Disabled
Turbo Read Leadoff	: Disabled		
DRAM Speculative Leadoff	: Enabled		
Turn-Around Insertion	: Disabled		
ISA Clock	: PCICLK/4		
System BIOS Cacheable	: Disabled		
Video BIOS Cacheable	: Disabled		
8 Bit I/O Recovery Time	: 1	ESC : Quit	↑ ↓ → ← : Select Item
16 Bit I/O Recovery Time	: 1	F1 : Help	PU/PD/+/- : Modify
Memory Hole At 15M-16M	: Disabled	F5 : Old Values (Shift)	F2 : Color
Peer Concurrency	: Enabled	F6 : Load BIOS Defaults	
Chipset Special Features	: Enabled	F7 : Load Setup Defaults	
DRAM ECC/PARITY Select	: Parity		

This section allows you to configure the system based on specific features of the installed chipset. This chipset manages bus speeds and access to system memory resources, such as DRAM and the external cache. It also coordinates communications between the conventional ISA bus and the PCI bus. It must be stated that these items should never need to be altered. The default settings have been chosen because they provide the best operating condition for your system. The only time you might consider making any change would be if you discovered data lost while using your system.

DRAM settings

The first chipset setting deals with CPU access to dynamic random access memory (DRAM). The default timings have been careful chosen, and should be altered if data is losing. Such a scenario might occur if your system had mixed speed DRAM chips installed so that a greater delay may be require to preserve the integrity of the data held in the slower memory chips.

Auto Configuration

Values are pre-defined for DRAM and cache. The timing is set according to CPU type & system clock.

The Choice: Enabled, Disabled.

Note: When this item is enabled, the pre-defined items become SHOW-ONLY.

DRAM Timing

The DRAM timing controlled by the DRAM Timing Register inside the chip. Depend on the system design, appropriate timing will de programmed into the register. A slower rate may be required in certain system designs to support loose layout or slower memory.

60ns	DRAM Timing Type.
70ns	DRAM Timing Type.

DRAM RAS# precharge time

DRAM must be refreshed constantly or it will lose its data. Normally, DRAM is refreshed entirely after a single request. This option allows you to determine the number of CPU clock allocated for the **R**ow **A**ddress **S**trobe to accumulate its charge before the DRAM is refreshed. If there is no sufficient time, refresh may be uncompleted and data may lose.

3	Three clocks.
4	Four clocks.

DRAM R/W leadoff timing

This function sets the number of CPU clocks allowed before reads and writes to DRAM.

7/6	Seven clocks leadoff for reads and six clocks leadoff for writes.
6/5	Six clocks leadoff for reads and five clocks leadoff for writes.

Fast RAS# to CAS# delay

When DRAM is accessed, both the rows and the columns are addressed separately. This setup item allows you to determine the timing of the transition from Row Address Strobe (RAS) to Column Address Strobe (CAS).

3	Three CPU clock delay.
2	Two CPU clock delay.

DRAM Read <EDO/FPM>

This function sets the timing for burst mode reads from two different DRAM(EDO/FPM). Burst read and write requests generated by the CPU in four separate parts. The first part provides the location within the DRAM where the read or write takes place while the remaining three parts provide the actual data. The lower the numbers of the timing, the faster the system will address memory.

x222/x333	Read DRAM (EDO/FPM) timings are 2-2-2/3-3-3
x333/x444	Read DRAM (EDO/FPM) timings are 3-3-3/4-4-4
x444/x444	Read DRAM (EDO/FPM) timings are 4-4-4/4-4-4

DRAM write burst timing

This function sets the timing of burst mode writes to DRAM. Burst read and write requests generated by the CPU in four separate parts. The first part provides the location within the DRAM where the read or write takes place while the remaining three parts provide the actual data. The lower the number of the timing, the faster the system will address memory.

x222	Write DRAM timings are 2-2-2-2
x333	Write DRAM timings are 3-3-3-3

x444	Write DRAM timings are 4-4-4-4

Turbo read leadoff

The turbo read leadoff may be required in certain system design to support layouts or faster memories.

The Choice: Enabled, Disabled.

DRAM speculative leadoff

The 430HX chipset allows DRAM's read request to be generated slightly before the address is fully decoded. This can reduce all read latencies.

The CPU will issue a read request that includes the place (address) in memory where the desired data to be found. This request is received by the DRAM controller. When the speculative Leadoff is enabled, the DRAM controller will issue a read command slightly before it finishes determining the address.

The Choice: Enabled, Disabled.

Turn-Around insertion

When this is enabled, the chipset will insert one extra clock to the turn-around of back-to-back DRAM cycles.

The Choice: Enabled, Disabled.

ISA Clock

This item allows you to select the ISA clock speed.

PCI CLK/3	ISA clock =PCI clock/3
PCI CLK/4	ISA clock =PCI clock/4

Cache Features

System BIOS Cacheable

When this function is enabled, the BIOS ROM's addresses at F0000H-FFFFFH will be duplicated into the SRAM. It will work with the cache controller that is enabled.

Enabled	BIOS access cached
Disabled	BIOS access not cached

Video BIOS Cacheable

As with caching the System BIOS above, enabling the Video BIOS cache will cause access to video BIOS addressed at C0000H to C7FFFH to be cached, if the cache controller is also enabled.

Enabled	Video BIOS access cached
Disabled	Video BIOS access not cached

8 Bit I/O recovery time

The recovery time is the length of time which the system delays after the completion of an input/output request. It is measured by the CPU clocks. This delay takes place because the CPU is operating much faster than the input/output bus that the CPU must be delayed to allow for the completion of the I/O.

This item allows you to determine the recovery time allowed for 8 bit I/O. Choices are from NA, 1 to 8 CPU clocks.

16 Bit I/O recovery time

This item allows you to determine the recovery time allowed for 16 bit I/O. Choices are from NA, 1 to 4 CPU clocks.

Memory hole at 15M-16M

In order to improve performance, certain space in memory has been reserved for ISA cards. This memory must be mapped into the memory space less then 16 MB.

Enabled	Memory hole supported.
Disabled	Memory hole not supported.

Peer concurrency

Peer concurrency means that more than one PCI device can be active at a time.

Enabled	Multiple PCI devices can be active.
Disabled	Only one PCI device can be active at a time.

Chipset special features

When this is disabled, the chipset behaves as if it were the earlier version.

The Choice: Enabled, Disabled.

DRAM ECC/Parity select

This item allows you to select between two methods of DRAM error checking, ECC and Parity.

Memory Parity ECC check

This item allows you to select among three methods of memory error checking, Auto, Enabled and Disabled.

Single bit error report

When a single bit error is detected, the offending DRAM row ID is latched. The latched Value is held until the software explicitly clears the error status flag. You can select Enabled or Disabled.

L2 cache cacheable size

This item determines the size of the L2 cacheability: 64MB / 512MB .

Chipset NA# asserted

This item allows you to Enable or Disable the Chipset's NA# assertion, during the CPU writes cycles and CPU line fills cycles.

Pipeline cache timing

This item allows you to select two timings of pipeline cache, Faster and Fastest.

Integrated Peripherals

The Integrated peripherals will appear on your screen like this:

ROM PCI/ISA BIOS
INTEGRATED PERIPHERALS
AWARD SOFTWARE, INC.

IDE HDD Block Mode	: Enabled	
PCI Slot IDE 2nd Channel	: Enabled	
On-Chip Primary PCI IDE	: Enabled	
IDE Primary Master PIO	: Auto	
IDE Primary Slave PIO	: Auto	
Onboard FDC Controller	: Enabled	
Onboard UART 1	: Auto	ESC: Quit ↑↓→←: Select Item
Onboard UART 2	: Auto	F1 : Help PU / PD / + / - : Modify
Onboard Parallel Port	: 378/IRQ7	F5 : Old Values (Shift)F2 : Color
Parallel Port Mode	: Normal	F6 : Load BIOS Defaults F7 : Load Setup Defaults

IDE HDD block mode

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

Enabled	IDE controller uses block mode.
Disabled	IDE controller uses standard mode.

PCI slot IDE 2nd Channel

This item allows you to designate an IDE controller board inserted into one of the physical PCI slots as your secondary IDE controller.

Enabled	External IDE controller designated as the secondary controller
Disabled	No IDE controller occupying any PCI slot.

IDE PIO

IDE hard drive controllers can support up to two separate hard drives. These drives have a master/slave relationship determined by the cabling configuration that is used to attach them to the controller. Your system supports one IDE controller, so the system support up to two separate hard disks.

PIO means Programmed Input/Output. Rather than having the BIOS issues a series of commands to effect a transfer to or from the disk drive. PIO allows the BIOS to communicate with IDE controller, and then lets the controller and the CPU performs a complete task by themselves. This is simpler and more efficient (and faster).

Your system supports five modes, numbered 0 (default) to 4, which stand for five different timings. When *Auto* is selected, the BIOS selects the best available mode.

On-Chip Primary PCI IDE

As stated above, your system includes two built-ins IDE controllers, both of which operate on the PCI bus. This setup item allows you to enable or disable the primary controller. You can choose to disable the controller if you want to add a higher performance or specialized controller.

Enabled	Primary HDD controller used -- Default
Disabled	Primary HDD controller not used.

Power Management Setup

The Power management setup will appear on your screen like this:

ROM PCI/ISA BIOS
POWER MANAGEMENT SETUP
AWARD SOFTWARE, INC.

Power Management	: Disable	** Power Down & Resume Events **	
PM Control by APM	: Yes	IRQ3 (COM2)	: ON
.Video Off Method	: DPMS	IRQ4 (COM1)	: ON
MODEM Use IRQ	: 3	IRQ5 (LPT2))	: ON
		IRQ6 (Floppy Disk)	: OFF
		IRQ7 (LPT1)	: ON
Doze Mode	: Disable	IRQ8 (RTC Alarm)	: OFF
Standby Mode	: Disable	IRQ9 (IRQ2 Redir)	: ON
Suspend Mode	: Disable	IRQ10 (Reserved)	: ON
HDD Power Down	: Disable	IRQ11 (Reserved)	: ON
		IRQ12 (PS/2 Mouse)	: ON
		IRQ13 (Coprocessor)	: ON
** Wake Up Events In Doze & Standby **		IRQ14 (Hard Disk)	: ON
IRQ3 (Wake-Up Event)	: ON	IRQ15 (Reserved)	: ON
IRQ4 (wake-Up Event)	: ON		
IRQ8 (Wake-Up Event)	: ON	ESC: Quit	↑↓→←: Select Item
IRQ12 (Wake-Up Event)	: ON	F1 : Help	PU / PD / + / - : Modify
		F5 : Old Values	
		(Shift)F2 : Color	
		F6 : Load BIOS Defaults	
		F7 : Load Setup Defaults	

Power Management

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

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

There are four selections of the Power Management, three of which have fixed mode settings.

Disable (default)	No power management. Disables all four modes
Min. Power Saving	Minimum power management. Doze Mode = 1 hr. Standby Mode = 1 hr., Suspend Mode = 1 hr., and HDD Power Down = 15 min.
Max.Power Saving	Maximum power management. Doze Mode = 1 min., Standby Mode = 1 min., Suspend Mode = 1 min., and HDD Power Down = 1 min.
User Defined	Allow you to set each mode individually. When not disabled, each of the ranges is from 1 min. to 1 hr. Except for HDD Power Down that ranges from 1 min. to 15 min.

PM control APM

When this is enabled, an Advanced Power Management device will be activated to enhance the Max. Power Saving mode and stop the CPU internal clock.

If the Max. Power Saving is not enabled, this will be preset to *No*.

Video off method

This determines the manner that the monitor is blank.

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

PM Timers

The following four modes are Green PC power saving functions that are user configurable when *User Defined* Power Management selected. See above for available selections.

Doze Mode

When this mode is enabled, after a set time of system being inactive, the CPU clock will run at slower speed while all other devices still operate at full speed.

Standby Mode

When this mode is enabled, after a set time of system being inactive, the fixed disk drive and the video will shout off while all other devices still operate at full speed.

Suspend Mode

When this mode is enabled, after a set time of system being inactive, all devices except the CPU will shutoff.

HDD Power Down

When this mode is enabled, after a set time of system being inactive, the hard disk drive will be powered down while all other devices remain active.

Power Down & Resume Events

Power Down and Resume events are I/O events whose occurrence can prevent the system from entering a power saving mode or can awaken the system from such a mode. In the effect, the system remains alert for anything that occurs to a device that is configured as *On*, even when the system is in a power down mode.

The following is a list of IRQ, **I**nterrupt **R**e**Q**uests, which can be exempted as much as the COM ports and LPT ports above can. When an I/O device wants to get the attention of the operating system, it signals this by

causing an IRQ to occur. When the operating system is ready to respond to the request, it interrupts itself and performs the service.

Same as the above, the choices are *On* and *Off.* *Off* is the default.

When it is set *Off*, this function will neither prevent the system from going into a power management mode nor awake the system.

- **IRQ3 (COM 2)**
- **IRQ4 (COM 1)**
- **IRQ5 (LPT 2)**
- **IRQ6 (Floppy Disk)**
- **IRQ7 (LPT 1)**
- **IRQ8 (RTC Alarm)**
- **IRQ9 (IRQ2 Redir)**
- **IRQ10 (Reserved)**
- **IRQ11 (Reserved)**
- **IRQ12 (PS/2 mouse)**
- **IRQ13 (Coprocessor)**
- **IRQ14 (Hard Disk)**
- **IRQ15 (Reserved)**

PnP/PCI Configuration Setup

This section describes how to configure the PCI bus. PCI, or **P**ersonal **C**omputer **I**nterconnect, is a system that allows I/O devises to operate at a speed close to the speed of the CPU itself when it communicates with its own special components. This section covers several technical items and we strongly recommend that only experienced users should make any change to the default settings.

ROM PCI/ISA BIOS
PNP/PCI CONFIGURATION SETUP
AWARD SOFTWARE, INC.

Resources Controlled By	Manual	PCI IRQ Actived By	: Level
Reset Configuration Data	Disabled	PCI IDE IRQ Map To	: PCI-AUTO
		Primary IDE INT#	: A
IRQ-3 assigned to	: Legacy ISA	Secondary IDE INT#	: B
IRQ-4 assigned to	: Legacy ISA		
IRQ-5 assigned to	: PCI/ISA PnP	Used MEM base addr	: N/A
IRQ-7 assigned to	: PCI/ISA PnP		
IRQ-9 assigned to	: PCI/ISA PnP		
IRQ-10 assigned to	: PCI/ISA PnP		
IRQ-11 assigned to	: PCI/ISA PnP		
IRQ-12 assigned to	: PCI/ISA PnP		
IRQ-14 assigned to	: PCI/ISA PnP		
IRQ-15 assigned to	: PCI/ISA PnP		
DMA-0 assigned to	: PCI/ISA PnP		
DMA-1 assigned to	: PCI/ISA PnP		
DMA-3 assigned to	: PCI/ISA PnP	ESC: Quit	↑↓→←: Select Item
DMA-5 assigned to	: PCI/ISA PnP	F1 : Help	PU / PD / + / - : Modify
DMA-6 assigned to	: PCI/ISA PnP	F5 : Old Values	(Shift)F2 : Color
DMA-7 assigned to	: PCI/ISA PnP	F6 : Load BIOS Defaults	
		F7 : Load Setup Defaults	

Resource Controlled by

The Award Plug and Play BIOS can automatically configure all the boot and Plug and Play compatible devices. However, it only works under a Plug and Play operating system such as Windows® 95.

Choices are *Auto* and Manual.

Reset configuration data

This item allows you to reset the configuration data or not.

Choices are *Enabled* and *Disabled*.

IRQ and DMA assigned to

This item allows you to assign the IRQ / DMA channel to the legacy ISA bus slot or PCI/ISA bus slot (with PnP function on the add on card).

Choices are *Legacy ISA* and *PCI/ISA PnP*.

PCI IRQ activated by

This option allows you to configure the active condition of PCI IRQ signals.

Choices are *Level* and *Edge*.

PCI IDE IRQ map to

This option allows you to configure PCI IDE device. By default, *PCI-AUTO*, the BIOS will scan for PCI IDE devices and determine the location of the PCI IDE device.

If you have equipped your system with a PCI IDE controller and specify the location of *PCI SLOTx*, the BIOS will assign IRQ14 for primary IDE INT#, IRQ 15 for secondary IDE INT#.

If you set this option as *ISA*, the BIOS will not assign any IRQs even if PCI IDE card is found, because some IDE cards connect the IRQ14 and IRQ15 directly from the ISA slot through a cord. (This cord is called Legacy Header).

Password Setting

When you select this function, the following message will appear at the center of your screen to assist you in creating a password.

ENTER PASSWORD:

Type the password, up to eight characters, and press <Enter>. The password typed now will clear any previously entered password from CMOS memory. You should be asked to confirm the password. Type the password again and press <Enter>. You may also press <Esc> to abort the selection and not enter a password.

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

PASSWORD DISABLED.

If you select System at Security Option of BIOS Features Setup Menu, you will be prompted for the password each time when the system is rebooted or any time when you try to enter Setup. If you select Setup at Security Option of BIOS Features Setup Menu, you will be prompted only when you try to enter Setup.

IDE HDD Auto Detection

The Enhance IDE features are included in all Award BIOS. The following is a brief description of this feature.

1. Setup Changes

<I> Auto-detection

BIOS setup will display all possible modes that are supported by the HDD including NORMAL, LBA and LARGE mode.

If the HDD does not support LBA modes, no 'LBA' option will be show.

If the number of cylinders is less than or equal to 1024, no 'LARGE' option will be shown.

Users can select a mode which is appropriate for them.

ROM/PCI/ISA BOPS
CMOS SETUP UTILITY
AWARD SOFTWARE, INC.

HARD DISKS TYPE SIZE CYLS HEAD PRECOMP LANDZ

SECTOR MODE

Pr Select Primary Master Option (N = Skip) : N

OPTION	SIZE	CYLS	HEADS	PRECOMP	LANDZONE	SECTORS	MODE
2 (Y)	2112	1023	64	0	4091	63	LBA
1	2112	4092	16	65535	4091		

<II> Standard CMOS Setup

		CYLS	HEADS	PRECOMP	LANDZONE	SECTOR	MODE
Drive C :	User (516MB)	1120	16	65535	1119		

59	NORMAL				
Drive D :	None (203MB)	684	16	65535	685
38	----------				

When the HDD type is in ‘user’ type, the ”MODE” option is open for users to select their own HDD mode.

(2) HDD Modes

The Award BIOS supports 3 HDD modes: NORMAL, LBA & LARGE

NORMAL mode

This is a generic access mode, neither the BIOS nor the IDE controller can make any transformation during access the HDD.

The maximum numbers of cylinders, head and sectors for NORMAL mode are 1024, 16 & 63.

	no. Cylinder	(1024)
x	no. Head	(16)
x	no. Sector	(63)
x	no. per sector	(512)
		528 Megabytes

If user set his HDD to NORMAL mode, the maximum accessible HDD size will be 528 Megabytes even though its physical size may be greater than that.

LBA (Logical Block Addressing) mode

This is a new HDD accesses method to overcome the 528 Megabytes bottleneck. The number of cylinders, heads & sectors shown in the setup may not be the number physically contained in the HDD.

During the HDD accessing, the IDE controller transforms the logical address described by sector, head & cylinder number into its own physical address inside the HDD.

The maximum HDD size supported by the LBA mode is 8.4 Gigabytes that obtained by the following formula:

no. Cylinder (1024)
x no. Head (255)
x no. Sector (63)
x bytes per sector (512)

8.4 Gigabytes

LARGE mode

This is an Extended HDD access mode supported by Award Software.

Some IDE HDDs contain more than 1024 cylinders without LBA support(in some cases, users do not want LBA). The Award BIOS provides an alternative to support these kinds of HDD.

Example of the LARGE mode:

CYLS.	HEADS	SECTOR	MODE
1120	16	59	NORMAL
560	32	59	LARGE

BIOS tricks the DOS (or other OS) that the number of cylinders is less than1024 by dividing it by 2. At the same time, the number of heads is multiplied by 2. A reverse transformation process is made inside INT13h in order to access the right HDD address.

Maximum HDD size:

no. Cylinder (1024)
x no. Head (32)
x no. Sector (63)
x bytes per sector (512)

1 Gigabytes

(3) Remarks

In order to support the LBA or the LARGE mode of HDDs, some software must be involved in the BIOS. All of the software are located in the Award HDD Service Routine(INT 13h).If your system is under an Operating System that replaces the whole INT 13h, you may not be able to access a HDD with LBA (LARGE) mode.

Hard Disk Low Level Format Utility

The Award Low-Level-Format Utility is designed to save your time when you format your hard disk. This Utility automatically looks for the necessary information of the drive you selected. It also searches for bad tracks and lists them for your reference.

Shown below is the Main Menu when you enter the Award Low-Level-Format Utility.

Hard Disk Low Level Format Utility	BAD TRACKS TABLE NO. CYLS HEAD
SELECT DRIVE BAD TRACKE LIST PREFORMAT	
Current select drive is : C DRIVE: C CYLINDER : 0 HEAD: 0	

		CYLINDERS	HEADS	SECTORS	PRECOMP	LANDZONE
Drive C:	40 Mb	977	5	17	300	977
Drive D:	None	0	0	0	0	0

Up/Down - Select item Enter - Accept ESC-Exit/Abort

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Control Keys

You may use the Up and Down arrow keys to move among the selections displayed on the upper screen. Press <Enter> to set the selection. Press <Esc> to abort the selection or exit the Utility.

SELECT DRIVE

You may select the installed hard disk drive C or D. Listed at the bottom of the screen is the drive automatically detected by the utility.

BAD TRACK LIST

Auto scan bad track

This utility automatically scans bad tracks and lists the bad tracks on the window at the right side of the screen.

Add bad track

You may directly type in the known bad tracks on the window at the right side of the screen.

Modify bad track

You may modify the bad track's information on the window at right side of the screen.

Delete bad track

You may delete the added bad tracks on the window at the right side of the screen.

Clear bad track table

You may clear the whole bad track list on the window at the right side of the screen.

PREFORMAT

Interleave

Select the interleave number of the hard disk drive you wish to perform at low level format. You may select from 1 to 8.Check the documentation that came with the drive for the correct interleave number, or select 0 for utility automatic detection.

Auto scan bad track

This allows the utility to scan first then format each track.

Start

Press <Y> to start low level format.

Power-On Boot

After you made all the changes to the CMOS values, the system cannot boot up with the CMOS values selected in Setup. Restart the system by turning it OFF then ON or Pressing the "RESET" button on the system case. You may also restart by simultaneously press <Ctrl>, <Alt>, and <Delete> keys. Upon restart the system, immediately press <Insert> to load the BIOS default CMOS value for boot up.

BIOS Reference - POST Codes

NOTE: ISA POST codes output to the port address 80h typically.

POST (hex)	Description
C0	1. Turn off OEM specific cache, shadow... 2. Initialize all the standard devices with default values Standard device includes: -DMA controller (8237) -Programmable Interrupt Controller (8259) -Programmable Interval Timer (8254) -RTC chip
C1	Auto-detection of onboard DRAM & Cache
C3	1. Test system BIOS checksum 2. Test the first 256K DRAM 3. Expand the compressed codes into temporary DRAM area including the compressed System BIOS & Option ROMs
C5	Copy the BIOS from ROM into E0000-FFFFF shadow RAM so that POST will go faster
01-02	Reserved
03	Initialize EISA registers (EISA BIOS only)
04	Reserved
05	1. Keyboard Controller Self-Test 2. Enable Keyboard Interface
06	Reserved
07	Verifies CMOS's basic R/W functionality
BE	Program defaults values into chipset according to the MODBINable Chipset Default Table
08	Test the first 256K DRAM
09	1. Program the configuration register of Cyrix CPU according to the MODBINable Cyrix Register Table 2. OEM specific cache initialization (if needed)

POST(hex)	Description
0A	1. Initialize the first 32 interrupt vectors with corresponding Interrupt handlers Initialize INT no from 33-120 with Dummy(Spurious) Interrupt Handler 2. Issue CPUID instruction to identify CPU type 3. Early Power Management initialization (OEM specific)
0B	1. Verify the RTC time is valid or not 2. Detect bad battery 3. Read CMOS data into BIOS stack area 4. PnP initialization include (PnP BIOS only) -Assign CSN to PnP ISA card -Create resource map from ESCD 5. Assign IO & Memory for PCI devices (PCI BIOS only)
0C	Initialization of the BIOS Data Area (40 : 0N – 40:FF)
0D	1. Program some of the Chipset values according to Setup.(Early Setup Value Program) 2. Measure CPU speed for display & decide the system clock speed 3. Video initialization including Monochrome, CGA, EGA/VGA. If no display device is found, the speaker will beep
0E	1. Initialize the APIC (Multi-Processor BIOS only) 2. Test video RAM (If Monochrome display device is found) 3. Shown messages include: -Award Logo, Copyright string, BIOS Date code & Part No. -OEM specific sign on messages -Energy Star Logo (Green BIOS ONLY) -CPU brand, type & speed -Test system BIOS checksum(Non-Compress Version only)
0F	DMA channel 0 test
10	DMA channel 1 test
11	DMA page registers test
12-13	Reserved
14	Test 8254 Timer 0 Counter 2.
15	Test 8259 interrupt mask bits for channel 1
16	Test 8259 interrupt mask bits for channel 2
17	Reserved
19	Test 8259 functionality
1A-1D	Reserved
1E	If EISA NVM checksum is good, then execute EISA initialization (EISA BIOS only)
1F-29	Reserved
30	Detect Base Memory & Extended Memory Size
31	1. Test Base Memory from 256K to 640K 2. Test Extended Memory from 1M to the Max. of the memory

POST(hex)	Description
32	1. Display the Award Plug & Play BIOS Extension message (PnP BIOS only) 2. Program onboard super I/O chip (if any) including COM ports, LPT ports, FDD port.. according to setup value
33-3B	Reserved
3C	Set flag to allow users to enter CMOS Setup Utility
3D	1. Initialize Keyboard 2. Install PS2 mouse
3E	Try to turn on Level 2 cache Note: Some chipset may need to turn on the L2 cache on this stage. But usually, the cache is turned on later in POST 61h
3F-40	Reserved
BF	1.Program the rest of the Chipset value according to Setup. (Later Setup Value Program) 2.If auto-configuration is enabled, programmed the chipset with pre- defined values in the MODBINable Auto-Table
41	Initialize floppy disk drive controller
42	Initialize Hard drive controller
43	If it is a PnP BIOS, initialize serial & parallel ports
44	Reserved
45	Initialize math coprocessor.
46-4D	Reserved
4E	If any error is detected (such as video, kb...), show all the error messages on the screen & wait for user to press <F1> key
4F	1. If a password is needed, ask for the password 2. Clear the Energy Star Logo (Green BIOS only)
50	Write all CMOS values currently in the BIOS stack area back into the CMOS
51	Reserved
52	1. Initialize all ISA ROMs 2. Later PCI initialization (PCI BIOS only) -assign IRQ to PCI devices -initialize all PCI ROMs 3. PnP Initialization (PnP BIOS only) -assign IO, Memory, IRQ & DMA to PnP ISA devices -initialize all PnP ISA ROMs 4. Program shadows RAM according to the Setup settings 5. Program parity according to Setup setting 6. Power Management Initialization -Enable/Disable global PM -APM interface initialization
53	1. If it is NOT a PnP BIOS, initialize serial & parallel ports 2. Initialize time value in the BIOS data area by translating the RTC time value into a timer tick value
60	Setup the Virus Protection (Boot Sector Protection) function according to Setup setting

POST(hex)	Description
61	1. Try to turn on Level 2 cache Note: if L2 cache is already turned on in POST 3E, this part will be skipped 2. Set the boot up speed according to the Setup setting 3. Last chance for Chipset initialization 4. Last chance for Power Management initialization (Green BIOS only) 5. Show the system configuration table
62	1. Setup daylight saving according to Setup value 2. Program the NUM Lock, typematic rate & typematic speed according to the Setup setting
63	1. If there is any change in the hardware configuration, update the ESCD information (PnP BIOS only) 2. Clear the memory that has been used 3. Boot the system via INT 19H
FF	System Booting. This means that the BIOS already pass the control right to the operating system

Unexpected Errors:

POST(hex)	Description
B0	Interrupt occurs in protected mode.
B1	Unclaimed NMI occurs

Chapter 5
Display

The on-board VGA interface of the NEAT-575 supports traditional analog CRT monitors and a wide range of popular LCD, EL, gas plasma flat panel displays. It can drive CRT displays with resolutions up to 1024x768 in 256 colors. It is also capable of driving color panel displays with resolutions of 640x480 in 256K colors.

5.1 Drivers and Utilities

5.1.1 Microsoft Windows 3.1

The graphic installation program, SETUP.EXE, supports a simple installation procedure of the display driver program. You may install these drivers either through Windows or in DOS. To use Setup, follow the steps as below:

1. Ensure that MS Windows 3.1 is up and running properly, using the standard VGA driver. Exit from Windows.
2. Place the *Windows 3.1x display Driver Diskette* in drive A. Type **A:<ENTER>** to make it be the default drive. Type **SETUP <ENTER>** to run the drive SETUP program. Press any key to get to the application list. Using the arrow keys, select ***Windows Version 3.1*** and press **<ENTER>** key. Press <**ENTER>** key to select ***All Resolutions***, then press <**END>** to begin the installation. At this point, you will be asked for the path to your Windows system directory (default C:\ WINDOWS). When the installation is complete, press any key to continue. Press **<ESC>** key followed by **Y** to exit to **DOS**.
3. Change to the directory where you installed Windows (default C:\WINDOWS)
4. Type **SETUP<ENTER>** to run the Windows Setup program. It will show the current Windows configuration. Use the “up” arrow key to move to the Display line and press <**ENTER>**. A list of display drivers will be shown. Use the arrow keys to select one of the drivers starting with an asterisk (*) and press **<ENTER>**.
5. Follow the directions on the screen to complete the setup. In most cases, you may press **<ENTER>** to accept the suggested option. When Setup is done, it will return to **DOS**. Type **<WIN>** to start Windows with the new display driver.

5.1.2 MS Windows 95 / NT Mode Driver Install

1. ENSURE that the MS Windows 95 or NT is up and running properly using the VGA driver that has been detected.
2. OPEN the "*My computer*" program group and SELECT the "*Control Panel*" icon.
3. SELECT the "*Display*" icon and then SELECT the "*Settings*" page.
4. SELECT the "*Change Display Type*" selection bar, and then SELECT the "*Change*" button next to the Adapter Type.
5. On the "*Select Device*" page, SELECT the "*Have Disk*" button to install the display driver from the diskette.
6. After the "*Have Disk*" button selected a "*Install From Disk*" window will appear. SELECT the "*Browse*" button to browse the directory "X:\WIN95" of your diskette drive. (X=A or B)
7. The files ***.INF** will appear under the file name list. SELECT "*OK*" to return to the "*Install From Disk*" window. Under the statement "*Copy manufacturer's files from*" SELECT "*OK*" to start installing the driver files from the FLOPPY drive.
8. "*Select device*" window will appear. Under Models, the driver file name will be listed, SELECT "*OK*" to close "*Select Device*" window and select "*Color Palette*" and "*Desktop Area*" of your choice.
9. Once the desired color palette (the number of colors) and desktop area (resolution) has been chosen, the Windows 95 or NT system will be restarted to load this accelerated driver.

5.1.3 MS Windows 95 Refresh Rate Utility Regulation

1. Open the "*My computer*" program group and SELECT the "*Control panel*" icon.
2. Double click on *DISPLAY* and SELECT "*CHIPS*". There will now be a refresh tab for changing the refresh rate. Click the tab and change the refresh rate.

5.2 Panel Support

The NEAT-575 computers board provides a very convenient way to setup panels that are up to 16 types.

I. For 40K BIOS

If you install a standard 40K BIOS on the board, the NEAT-575 board supports 8 panels as follows:

Panel #	Panel Type
1	1024x768 Dual Scan STN Color Panel
2	1280x1024 TFT Color Panel
3	640x480 Dual Scan Color Panel
4	800x600 Dual Scan Color Panel
5	640x480 Sharp TFT Color Panel
6	640x480 18-bit TFT Color Panel
7	1024x768 TFT Color Panel
8	800x600 TFT Color Panel

Meanwhile, please also set the jumpers on **JP1** as the following:

Panel #	15-16	13-14	11-12	9-10
1	Short	Short	Short	Open
2	Short	Short	Open	Open
3	Short	Open	Short	Open
4	Short	Open	Open	Open
5	Open	Short	Short	Open
6	Open	Short	Open	Open
7	Open	Open	Short	Open
8	Open	Open	Open	Open

II. For 44K BIOS

If you install a standard 44K BIOS on the board, the NEAT-575 board supports 14 panels as the following:

Panel #	Panel Type
1	1024x768 Dual Scan STN Color Panel
2	1280x1024 TFT Color Panel
3	640x480 Dual Scan Color Panel
4	800x600 Dual Scan Color Panel
5	640x480 Sharp TFT Color Panel
6	640x480 18-bit TFT Color Panel
7	1024x768 TFT Color Panel
8	800x600 TFT Color Panel
9	800x600 TFT Color Panel (44K BIOS only)
10	800x600 TFT Color Panel (44K BIOS only)
11	800x600 Dual Scan Color Panel (44K BIOS only)
12	800x600 Dual Scan Color Panel (44K BIOS only)
13	1024x768 TFT Color Panel (44K BIOS only)
14	1024x 768 TFT Color Panel (44K BIOS only)
15	Reserved
16	Reserved

Meanwhile, please also set the jumpers on **JP1** as the following:

Panel #	15-16	13-14	11-12	9-10
1	Short	Short	Short	Short
2	Short	Short	Open	Short
3	Short	Open	Short	Short
4	Short	Open	Open	Short
5	Open	Short	Short	Short
6	Open	Short	Open	Short
7	Open	Open	Short	Short
8	Open	Open	Open	Short
9	Short	Short	Short	Open
10	Short	Short	Open	Open

(to be continued…)

(continued)

Panel #	15-16	13-14	11-12	9-10
11	Short	Open	Short	Open
12	Short	Open	Open	Open
13	Open	Short	Short	Open
14	Open	Short	Open	Open
15	Open	Open	Short	Open
16	Open	Open	Open	Open

5.3 Video Modes

The display chipset C&T 65550 supports all standard VGA modes as well as a wide selection of extended modes. The following table list the modes and vertical refresh rates that this BIOS can support.

Table 1: Standard Video Display Modes

Video Mode	VESA VBE Mode	Pixel Reso-lution	Color Res.	Mode Type	Display Adapter	Font Size	Char. Disp.	Dot Clock (MHz)	Horiz. Freq. (MHz)	Vert Freq (Hz)	Video Mem. (KB)
00h	--	320x200	16(gray)	Text	CGA	8x8	40x25	25	31.5	70	256
		320x350	16(gray)		EGA	8x14	40x25	25	31.5	70	256
		360x400	16		VGA	9x16	40x25	28	31.5	70	256
01h	--	320x200	16	Text	CGA	8x8	40x25	25	31.5	70	256
		320x350	16		EGA	8x14	40x25	25	31.5	70	256
		360x400	16		VGA	9x16	40x25	28	31.5	70	256
02h	--	640x200	16(gray)	Text	CGA	8x8	80x25	25	31.5	70	256
		640x350	16(gray)		EGA	8x14	80x25	25	31.5	70	256
		720x400	16		VGA	9x16	80x25	28	31.5	70	256
03h	--	640x200	16	Text	CGA	8x8	80x25	25	31.5	70	256
		640x350	16		EGA	8x14	80x25	25	31.5	70	256
		720x400	16		VGA	9x16	80x25	28	31.5	70	256
04h	--	320x200	4	Graph	All	8x8	40x25	25	31.5	70	256
05h	--	320x200	4(gray)	Graph	CGA	8x8	40x25	25	31.5	70	256
		320X200	4(gray)		EGA	8x8	40x25	25	31.5	70	256
		320X200	4		VGA	8x8	40x25	25	31.5	70	256
06h	--	640x200	2	Graph	All	8x8	80x25	25	31.5	70	256
07h	--	720x350	Mono	Text	MDA	9x14	80x25	28	31.5	70	256
		720x350	Mono		EGA	9x14	80x25	28	31.5	70	256
		720x400	Mono		VGA	9x16	80x25	28	31.5	70	256

08h-0Ch	--	Reserved			-		-				
0Dh	--	320x200	16	Graph	E/VGA	8x8	40x25	25	31.5	70	256
0Eh	--	640x200	16	Graph	E/VGA	8x8	80x25	25	31.5	70	256
0Fh	--	640x350	Mono	Graph	E/VGA	8x14	80x25	25	31.5	70	256
10h	--	640x350	16	Graph	E/VGA	8x14	80x25	25	31.5	70	256
11h	--	640x480	2	Graph	VGA	8x16	80x30	25	31.5	60	256
12h	--	640x480	16	Graph	VGA	8x16	80x30	25	31.5	60	256
13h	--	320x200	256	Graph	VGA	8x8	40x25	25	31.5	70	256

Table 2: Extended Video Modes

Video Mode	VESA VBE Mode	Pixel Reso-lution	Color Res.	Mode Type	Mem. Org	Font Size	Char. Disp.	Dot Clock (MHz)	Horiz. Freq. (MHz)	Vert Freq (Hz)	Video Mem. (KB)
20h	120	640x480	16	Graph(L)	Pack Pix	8x16	80x30	25.175	31.5	60	256
								31.5	37.5	75	256
								36	43.3	85	256
22h	122	800x600	16	Graph(L)	Pack Pix	8x16	100x37 36		35.1	56	256
								40	37.9	60	256
								49.5	46.9	75	256
								56.25	53.7	85	256
24h	124	1024x768 16		Graph(L)	Pack Pix	8x16	128x48 44.9		35.5	43(I)	384
								65	48.4	60	384
								78.75	60	75	384
								94.5	68.7	85	384
28h	128	1280x1024	16	Graph(L) Pack	Pix	8x16	160x64 78.75		47	43(I)	640
								108	64	60	640
2Ah*	--	1600x1200	16	Graph(L) Pack	Pix	8x16	200x75 -	-	--	--	938
30h	101h	640x480	256	Graph(L) Pack	Pix	8x16	80x30	25.175 31.5		60	300
								31.5	37.5	75	300
								36	43.3	85	300
31h	100h	640x400	256	Graph(L) Pack	Pix	8x16	80x25	25.175 31.5		70	256

32h	103h	800x600	256	Graph(L)	Pack	8x16	100x37		35.1	56	469
					Pix		36				
								40	37.9	60	469
								49.5	46.9	75	469
								56.25	53.7	85	469
34h	105h	1024x768	256	Graph(L)	Pack	8x16	128x48		35.5	43(I)	768
					Pix		44.9				
								65	48.4	60	768
								78.75	60	75	768
								94.5	68.7	85	768
38h	107h	1280x1024		Graph(L)	Pack	8x16	160x64		47	43(I)	1280
		256			Pix		78.75				
								108	64	60	1280

Notes: I = Interlaced L = Linear * =Modes 3Ah is for flat panel only

Table 2: Extended Video Modes (continued)

Video Mode	VESA VBE Mode	Pixel Reso-lution	Color Res.	Mode Type	Mem. Org	Font Size	Char. Disp.	Dot Clock (MHz)	Horiz. Freq. (MHz)	Vert Freq (Hz)	Video Mem. (KB)
3Ah*	--	1600x1200		Graph(L)	Pack	8x16	200x75		--	--	1875
		256			Pix		--				
40h	110h	640x480	32K	Graph(L)	Pack	8x16	80x30	25.175		60	600
					Pix			31.5			
								31.5	37.5	75	600
								36	43.3	85	600
41h	111h	640x480	64K	Graph(L)	Pack	8x16	80x30	25.175		60	600
					Pix			31.5			
								31.5	37.5	75	600
								36	43.3	85	600
42h	113h	800x600	32K	Graph(L)	Pack	8x16	100x37	36	35.1	56	938
					Pix						
								40	37.9	60	938
								49.5	46.9	75	938
								56.25	53.7	85	938
43h	114h	800x600	64K	Graph(L)	Pack	8x16	100x37	36	35.1	56	938
					Pix						

								40	37.9	60	938
								49.5	46.9	75	938
								56.25	53.7	85	938
44h	116h	1024x768	32K	Graph(L) Pack	Pix	8x16	128x48 44.9		35.5	43(I)	1536
								65	48.4	60	1536
45h	117h	1024x768	64K	Graph(L) Pack	Pix	8x16	128x48 44.9		35.5	43(I)	1536
								65	48.4	60	1536
50h	112h	640x480	16M	Graph(L) Pack	Pix	8x16	80x30	25.175 31.5		60	900
								31.5	37.5	75	900
								36	43.3	85	900
52h	115h	800x600	16M	Graph(L) Pack	Pix	8x16	100x37 36		35.1	56	1407
								40	37.9	60	1407
6Ah	102h	800x600	16	Graph	Planar	8x16	100x37 36		35.1	56	256
								40	37.8	60	256
								49.5	46.9	75	256
								56.25	53.7	85	256

Notes: I = Interlaced L = Linear * =Modes 3Ah is for flat panel only

Table 2: Extended Video Modes (continued)

Video Mode	VESA VBE Mode	Pixel Reso-lution	Color Res.	Mode Type	Mem. Org	Font Size	Char. Disp.	Dot Clock (MHz)	Horiz. Freq. (MHz)	Vert Freq (Hz)	Video Mem. (KB)
64h	104h	1024x768	16	Graph	Planar	8x16	128x48	44.9	35.5	43(I)	384
								65	48.4	60	384
								78.75	60	75	384
								94.5	68.7	85	384
68h	106h	1280x1024	16	Graph	Planar	8x16	160x64 78.75		47	43(I)	640
								108	64	60	640
70h	101h	640x480	256	Graph Pack	Pix	8x16	80x30	25.175 31.5		60	300
								31.5	37.5	75	300
								36	43.3	85	300

71h	100h	640x400	256	Graph		8x16	80x25	25.175		70	256
				Pack				31.5			
					Pix						
72h	103h	800x600	256	Graph		8x16	100x37	36	35.1	56	469
				Pack							
					Pix						
								40	37.9	60	469
								49.5	46.9	75	469
								56.25	53.7	85	469
74h	105h	1024x768	256	Graph		8x16	128x48		35.5	43(I)	768
				Pack			44.9				
					Pix						
								65	48.4	60	768
								78.75	60	75	768
								94.5	68.7	85	768
78h	107h	1280x1024		Graph	Pack	8x16	160x64		47	43(I)	1280
		256					78.75				
					Pix						
								108	64	60	1280

Notes: I = Interlaced L = Linear

Appendix A

Watchdog Timer

Watchdog Timer Configuration

The watchdog timer would reset the system automatically if the system program didn't refresh the watchdog timer during the watchdog time out interval. It is defined at I/O port **0443H** and **043H** to enable/disable the watchdog time out function.

Regarding to the watchdog function, user must have a program to set the watchdog time out value, and refresh the watchdog timer cycle. If the system program goes into a dead loop or goes into an abnormal cycle, the watchdog timer cannot be refreshed immediately. Meanwhile, the system will be reset by watchdog timer automatically. The watchdog timer will be refreshed by "disable watchdog output" then "enable watchdog output".

The following flowchart shows the normal structure of system program.

Watchdog timer examples:

(1) **Setup watchdog timer time out value**:

```
        mov al,0ah
        mov dx,70h
        out dx,al
        jmp short $+2
        mov dx,71h
        in al,dx
        jmp short $+2
        and al,0f0h
        add ax,TimeValue          ; TimeValue= 00h..0fh, reference as following
                                                              watchdog time out
table
        out dx,al
        jmp short $+2
                                mov al, 0bh
    mov dx, 70h
    out dx, al
    jmp short $+2
    mov dx, 71h
```

```
in al, dx
jmp short $+2
or al, 08h
out dx, al
jmp short $+2
```

Watchdog Time Out Table:

Time Value	Time Out	Time Value	Time Out
0	None	8	0.5 sec.
1	0.5 sec.	9	1 sec.
2	1 sec.	A	2 sec.
3	0.015 sec.	B	4 sec.
4	0.03 sec.	C	8 sec.
5	0.06 sec.	D	16 sec.
6	0.125 sec.	E	32 sec.
7	0.25 sec.	F	64 sec.

(2) **Enable watchdog output**:

```
mov dx, 443h                    ; SET WATCH DOG ENABLE
in al, dx
jmp short $+2
```

(3) **Disable watchdog output:**

```
mov dx,043h                     ; SET WATCH DOG DISABLE
in al,dx
jmp short $+2
```

Appendix B

Connectors' Pin Assignment

Parallel/Printer connector (PRN)

Pin no.	Signal
1	Strobe
2	Data 0
3	Data 1
4	Data 2
5	Data 3
6	Data 4
7	Data 5
8	Data 6
9	Data 7
10	-Acknowledge
11	Busy
12	Paper Empty
13	+ Select
14	- Auto Feed
15	- Error
16	- INIT Printer
17	- Select Input
18-25	Ground

HDD Connector (IDE)

Pin no.	Signal	Pin no.	Signal
1	- RST	2	GND
3	D7	4	D8
5	D6	6	D9
7	D5	8	D10
9	D4	10	D11
11	D3	12	D12
13	D2	14	D13
15	D1	16	D14
17	D0	18	D15
19	GND	20	N.C.
21	N.C.	22	GND
23	IOW	24	GND
25	IOR	26	GND
27	IORDY	28	BALE
29	N.C.	30	GND
31	IRQ	32	-IO CS16
33	A1	34	N.C.
35	A0	36	A2
37	CS0	38	CS1
39	-ACT	40	GND

FDD Connector (FDD)

Pin no.	Signal
1-33(odd)	GND
2	High Density
4, 6	Unused
8	Index
10	Motor Enable A
12	Driver Select B
14	Driver Select A
16	Motor Enable B
18	Direction
20	Step Pulse
22	Write Data
24	Write Enable
26	Track 0
28	Write Protect
30	Read Data
32	Select Head
34	Disk Change

CRT Display Connector(VGA)

Pin no.	Signal
1	RED
2	GREEN
3	BLUE
4	N/C
5	GND
6	GND
7	GND
8	GND
9	N/C
10	GND
11	N/C
12	N/C
13	H-SYNC
14	V-SYNC
15	N/C

Flat Panel Display Connector mini pin header(J2)

Pin no.	Signal	Pin no.	Signal
1	+12V	2	+12V
3	GND	4	GND
5	VDD	6	VDD
7	ENVEE	8	GND
9	P0	10	P1
11	P2	12	P3
13	P4	14	P5
15	P6	16	P7
17	P8	18	P9
19	P10	20	P11
21	P12	22	P13
23	P14	24	P15
25	P16	26	P17
27	P18	28	P19
29	P20	30	P21
31	P22	32	P23
33	GND	34	GND
35	CLOCK	36	FLM
37	M	38	LP
39	GND	40	EN_BKL
41	GND	42	ENVDD
43	VDD	44	VDD

RS-232 Connector (COM1)

Pin no.	Signal
1	DCD
2	RX
3	TX
4	DTR
5	GND
6	DSR
7	RTS
8	CTS
9	RI

RS-232/422/485 Connector (COM2)

Pin no.	RS232	RS422	RS485
1	DCD	TX-	DATA-
2	DSR	RTS -	N.C.
3	RX	TX+	DATA+
4	RTS	RTS +	N.C.
5	TX	RX+	N.C.
6	CTS	CTS +	N.C.
7	DTR	RX-	N.C.
8	RI	CTS -	N.C.
9	GND	GND	GND
10	N.C.	N.C.	N.C.

Keyboard connector

Pin no.	Signal
1	KB data
2	NC
3	GND
4	VCC
5	KB clock
6	NC

PS/2 mouse

Pin no.	Signal
1	MS data
2	NC
3	GND
4	VCC
5	MS clock
6	NC

PC/104 Connector

Pin no.	A	B	C	D
0	--	--	GND	GND
1	IOCHCHK*	GND	SBHE	MEMCS16*
2	SD7	RESETDRV	LA23	IOSC16*
3	SD6	+5V	LA22	IRQ10
4	SD5	IRQ9	LA21	IRQ11
5	SD4	-5V	LA20	IRQ12
6	SD3	DRQ2	LA19	IRQ15
7	SD2	-12V	LA18	IRQ14
8	SD1	OWS*	LA17*	DACK0*
9	SD0	+12V	MEMR*	DRQ0*
10	IOCHRDY*	GND	MEMW*	DACK5*
11	AEN	SMEMW*	SD8	DRQ5
12	SA19	SMEMR*	SD9	DACK6*
13	SA18	IOW*	SD10	DRQ6
14	SA17	IOR*	SD11	DACK7*
15	SA16	DACK3*	SD12	DRQ7
16	SA15	DRQ3	SD13	+5V
17	SA14	DACK1*	SD14	MASTER*
18	SA13	DRQ1	SD15	GND
19	SA12	REFRESH*	NC	GND
20	SA11	SYSCLK	--	--
21	SA10	IRQ7	--	--
22	SA9	IRQ6	--	--
23	SA8	IRQ5	--	--

PC/104 Connector (continued)

Pin no.	A	B	C	D
24	SA7	IRQ4	--	--
25	SA6	IRQ3	--	--
26	SA5	DACK2*	--	--
27	SA4	TC	--	--
28	SA3	BALE	--	--
29	SA2	+5V	--	--
30	SA1	OSC	--	--
31	SA0	GND	--	--
32	GND	GND	--	--

Remark:

‘ ***** ’ means ‘Low active single’

‘ **--** ' means ‘None’

Appendix C

Installing DiskOnChip of M-systems

On the NEAT-575 board, you can find the socket, location U5, for DiskOnChip of M-systems. Please follow the procedures as below to install the DiskOnChip you bought:

I. For 32-pin DiskOnChip

1. Align the notched end of the chip with the notched end of the socket.
2. Align the chip's pins with the socket holes.
3. Gently press the chip into the socket.

II. For 28-pin DiskOnChip

1. Align the non-notched end of the chip with the non-notched end of the socket.
2. Align the chip's pins with the socket's holes.

(chip's pin28 with the socket's hole32)

3. Gently press the chip into the socket.

For further technical information of DiskOnChip , please see the attached manual in the DiskOnChip package or contact the agent of M-systems.

Appendix D

Updating BIOS

You should find one diskette for updated BIOS program in the package. The updating procedures are as the following:

1. Insert the diskette(There is a file " AWDFLASH.EXE') in drive A or B.
2. Type AWDFLASH under the prompt A or B.
3. The screen will ask you to enter the file name for programming. Please enter the 'filename' for the updating BIOS that is from your agent. Meanwhile, please type 'N' to answer the question 'Do you want to save BIOS (y/n)?' under the bottom of the screen.
4. After that, please type 'Y' to answer the question 'Are you sure to program (y/n)?' on the bottom line of the current screen.
5. Turn off the power after the system updates the BIOS.
6. Turn on the power again.