User's Manual

ACH-573

**Socket 7 Pentium MMX
Industrial PC-based Automation
Half size Single Board Computer
with VGA/LAN/DiskOnChip**

Table of Contents

Introduction

The ACH-573 is a half-size Pentium single board computer that can drive both CRT and Flat Panel Displays.

The board supports the latest high speed socket 7 CPUs making its performance easily compare to Pentium-II or Pentium-III based designs. With its small form factor the board is a cost/effective solution for GUI applications.

8 MB AGP CRT SVGA

The SiS530 incorporates SiS popular 3D solution, SiS6326 2x AGP, that allows 3D acceleration at 133 MHz speed on a 64-bit internal host bus. Its video data transfer rate achieves 800MB/sec, far superior to the conventional 32-bit bus.

Flat Panel / CRT Display

The ACH-573 can optionally be equipped with a C&T69000, a highly integrated graphics/flat panel controller integrating 2MB of SDRAM, graphics, flat panel, and CRT control logic on the same die.

10/100 Mbps Networking

A PCI 10BASE-T/100BASE-TX LAN interface is included for high speed networking.

Enhanced IDE, High-speed I/O

A built-in fast PCI IDE controller supports ATAPI PIO/DMA and Ultra DMA33/66 with transfer rates of up to 66 MB/s. In addition, the ACH-573 has 2 RS-232 ports with 16C550 compatible UARTs with 16-Byte FIFO, and one bi-directional printer port that supports SPP, ECP and EPP modes. For enhanced data transfer, USB and IrDA ports are available.

DiskOnChip®2000

The SSD socket accommodates a DiskOnChip®2000, a new generation of high performance single-chip Solid State Disks, that supports Flash Disks up to 288 MB.

Specifications

- **CPU** : AMD K6-III Processor with 3DNow!™ up to 550 MHz, Intel Pentium P54C/P55C and Cyrix M1/M2 (Socket 7)
- **Chipset** : SIS 530 (Host, PCI, 3D A.G.P. Video/Graphics)
- **BIOS** : AWARD PCI/ISA PnP system BIOS
- **Green Function** : power saving options supported in BIOS. DOZE / STANDBY / SUSPEND modes
- **Secondary Cache** : write Back Cache Mode with Direct Mapped Cache Organization, 512 KB Pipelined Burst SRAM
- **DRAM Memory** : one 168-pin DIMM socket supports up to 512 MB SDRAM
- **Bus Interface** : ISA
- **Data Bus** : 16-bit
- **Bus Speeds** : ISA - 8 MHz
- **DMA Channels** : 7
- **Interrupt Levels** : 15
- **PCI Enhanced IDE with Ultra DMA** : supports two ports and up to four ATAPI devices. Supports PIO Timing Mode 0, 1, 2 ,3 and 4, Multiword DMA Mode 0, 1, 2 and Ultra DMA 33/66
- **Watchdog Timer** : generates an NMI or system RESET when your application loses control over the system. The timer interval is: 1, 2, 10, 20, 110 and 220 seconds .
- **Real-time Clock** : included in SIS-530 with lithium battery backup for 10 years of data retention. CMOS data backup of BIOS setup and BIOS default.
- **Keyboard and Mouse Connectors**: external 6-pin mini DIN connector for PS/2 keyboard on bracket external 6-pin mini DIN connector for PS/2 mouse on bracket Onboard 5-pin box header connector for PC/AT keyboard

High Speed I/O

- **Chipset** : ITE 8661F
- **Serial Ports** : one onboard/external high speed RS-232C port COM1, one onboard high speed RS-232C/485 port COM2 (jumper selectable). Both with 16C550 compatible UART with 16 byte FIFO.
- **USB** : two onboard USB header connectors (12 Mb/s and 1.5 Mb/s)
- **SIR Interface** : 5-pin onboard IrDA TX/RX header connector
- **Floppy Disk Drive Interface** : up to two floppy disk drives, 5¼" (360 KB or 1.2 MB) and 3½" (720 KB, 1.44 MB or 2.88 MB). BIOS enabled/disabled
- **Bi-directional Parallel Port** : supports SPP, EPP and ECP mode.

AGP/PCI 3D graphics accelerator for CRT
- **Chipset** : SIS- 530 AGP, 2x AGP supports up to 133 MHz
- **BIOS** : combined with system BIOS
- **Memory :** up to 8 MB SDRAM shared with system memory
- **Display Type** : CRT (VGA, SVGA, XGA, SXGA)
- **Resolution** : up to 1280x1024 at 16M colors (24 bpp)
- **Connectors** : external 15-pin D-sub female connector on bracket

PCI graphics accelerator for Flat Panel
- **Chipset** : CHIPS C&T 69000 HiQVideo™ Accelerator
- **BIOS** : combined with system BIOS
- **Memory :** 2 MB on-chip SDRAM
- **Display Type** : CRT, TFT, DSTN, SSTN, EL, Plasma
  Quarter VGA (VGA, SVGA, XGA, SXGA)
- **Connectors** : onboard 50-pin box header for Flat Panel display
  and external 15-pin D-sub female connector on bracket for CRT

10BASE-T/100BASE-TX PCI Ethernet
- **Chipset** : Realtek RTL8139A/B
- **Type** : 10BASE-T / 100BASE-TX
- **Connector** : external RJ-45 connector on bracket

Flash Disk DiskOnChip®2000
- **Package** : Single Chip Flash Disk in 32-pin DIP JEDEC
- **Capacity** : 2-288 MByte capacity
- **Data Reliability** : ECC/EDC error correction
- **Memory Window** : 8 KByte

Environmental and Power
- **Power Requirements**: +5 V (4.75 ~5.25 V) @ 3.7A (Intel Pentium 233 MMX
  CPU + 64MB SDRAM), ±12 V
- **System Monitoring and Alarm**: CMOS-based PC hardware monitor,
  monitors CPU and system temperature, fan speeds and power supply
  voltages.
- **Board Dimensions** : 185 (L) x 122 (W) mm.
- **Board Weight** : 0.27 Kg
- **Operating Temperature**: 0°to 55°C (32° to 131° F)

Component Location

P8 Power
Control

CRT
VGA

PS/2
Mouse

LAN
+ LED

PS/2
Keyboard

USB

COM1
RS-232

COM2
RS-232

Flat Panel
Connector

Parallel Port

FDD Port

168-pin
DIMM
Socket

Secondary
IDE

Primary
IDE

IRdA
Interface

DiskOnChip
Socket

ZIF socket
CPU up to
AMD K6-3
at 550 MHz

CPU Fan
Power

Warning

Single Board Computers and their components contain very delicate Integrated Circuits (IC). To protect the Single Board Computer and its components against damage from static electricity, you should always follow the following precautions when handling it :

1. Disconnect your Single Board Computer from the power source when you want to work on it

2. Always hold the board by the edges and try not to touch the IC chips, leads or circuitry

3. Use a grounded wrist strap when handling computer components.

4. Place components on a grounded antistatic pad or on the bag that came with the Single Board Computer, whenever components are separated from the board

Board Layout

PWRCON

VGA

PS2 MS

JLAN

LAN CON

PS2 KB

JRTC

25.0G9P

SIR

JAT

KB

USB

JVOLT1

J1

JP1

RS1

JDOC

JCOM1

LCD

CHIPS
C&T 69000

AWARD
1998
PCI PNP 586

DiskOnChip2000

JCOM2

H14318

FLOPPY

PRINT

SIS
530

RT1

JF1

JF2

JF0

S_IDE

P_IDE

JR1

JR2

JR0

JV0 JV2 JV4

JV1 JV3

CPUFAN

Socket 7

JFRONT

Jumper/Connector Quick Reference

Jumpers

JV0~JV4 CPU Core Voltage

JV0	JV1	JV2	JV3	JV4	Volts
2-3	2-3	1-2	1-2	1-2	1.9 V
2-3	1-2	1-2	1-2	1-2	2.0 V
1-2	2-3	2-3	2-3	2-3	2.1 V
2-3	1-2	2-3	2-3	2-3	2.2 V
1-2	1-2	2-3	2-3	2-3	2.3 V
2-3	2-3	1-2	2-3	2-3	2.4 V
1-2	2-3	1-2	2-3	2-3	2.5 V
2-3	2-3	2-3	1-2	2-3	2.8 V
1-2	2-3	2-3	1-2	2-3	2.9 V
2-3	2-3	1-2	1-2	2-3	3.2 V
1-2	2-3	1-2	1-2	2-3	3.3 V
1-2	1-2	1-2	1-2	2-3	3.5 V

JF0~JF2 CPU FSB Speed

JF0	JF1	JF2	Speed
1-2	1-2	1-2	66.8 MHz
1-2	1-2	2-3	75 MHz
1-2	2-3	1-2	83.3 MHz
1-2	2-3	2-3	95 MHz
2-3	1-2	1-2	100 MHz
2-3	1-2	2-3	112 MHz
2-3	2-3	1-2	124 MHz
2-3	2-3	2-3	133 MHz

JR0~JR2 Core Ratio

JR0	JR1	JR2	ratio
2-3	2-3	2-3	x1.5
1-2	2-3	2-3	×2.0
1-2	1-2	2-3	×2.5
2-3	1-2	2-3	×3.0
2-3	2-3	2-3	×3.5
1-2	2-3	1-2	×4.0
1-2	1-2	1-2	×4.5
2-3	1-2	1-2	×5.0
2-3	2-3	1-2	×5.5

JRTC RTC/CMOS Operation

1-2	->	Clear CMOS
2-3	->	Normal

JDOC DiskOnChip Base Address

1-2	->	D0000h
3-4	->	D8000h

JLAN LAN enable/disable

1-2	->	enabled
2-3	->	disabled

J1 COM1 RS-232/485 selection

1-2	->	RS-232
2-3	->	RS-485

JVOLT1 LCD Voltage

1-2	->	5 V
2-3	->	3.3 V

JP1 Watchdog Active Mode

1-2	->	IOCHK
2-3	->	RESET
off	->	Disabled

SWDT Watchdog Timer Timeout

1	2	3	4	Time
off	off	on	off	1 sec
off	off	on	on	2 sec
off	on	off	off	10 sec
off	on	off	on	20 sec
on	off	off	off	110 sec
on	off	off	on	220 sec

(switch block on rear side of ACH-573 !)

Connectors

CPUFAN	3-pin CPU Fan Power
FLOPPY	34-pin FDD interface
P_IDE	40-pin Primary IDE
S_IDE	40-pin Secondary IDE
PRINT	LPT1, Parallel Port
USB	10-pin USB Port
VGA	15-pin VGA D-type
LCD	50-pin Flat Panel header
PWRCON	6-pin Power Connector
JAT_KB	5-pin AT Keyboard
PS2 KB	Mini DIN PS/2 Keyboard
PS2 MS	Mini DIN PS/2 Mouse
JCOM1	10-pin COM1 RS-232
JCOM2	10-pin COM2 RS-232
RS1	2-pin COM2 RS-485
SIR	5-pin IrDA header

Jumper Colors

Green : CPU Speed Ratio

Red : Voltage Settings

Yellow : General configuration

CPU and CMOS Jumper Settings

CPU Clock Speed (JR0~JR2, JF0~JF2)

CPU type	JR0	JR1	JR2	JF0	JF1	JF2
Intel Pentium 100MHz (3.3V)	2-3	2-3	2-3	1-2	1-2	1-2
Intel Pentium 133MHz (3.3V)	1-2	2-3	2-3	1-2	1-2	1-2
Intel Pentium 166MHz (3.3V)	1-2	1-2	2-3	1-2	1-2	1-2
Intel Pentium 200MHz (3.3V)	2-3	1-2	2-3	1-2	1-2	1-2
Intel P55C MMX 166MHz (2.8V)	1-2	1-2	2-3	1-2	1-2	1-2
Intel P55C MMX 200MHz (2.8V)	2-3	1-2	2-3	1-2	1-2	1-2
Intel P55C MMX 233MHz (2.8V)	2-3	2-3	2-3	1-2	1-2	1-2
Cyrix M2 PR-200 (2.9V)	1-2	1-2	2-3	1-2	1-2	1-2
Cyrix MX PR-233 (2.9V)	2-3	1-2	2-3	1-2	1-2	1-2
IDT C6-180 (3.5V)	2-3	1-2	2-3	1-2	1-2	1-2
IDT C6-200 (3.5V)	2-3	1-2	2-3	1-2	1-2	1-2
AMD K5 PR133 (2.9V)	1-2	2-3	2-3	1-2	1-2	1-2
AMD K5 PR166 (2.9V)	1-2	1-2	2-3	1-2	1-2	1-2
AMD K6 166 (2.9V)	1-2	1-2	2-3	1-2	1-2	1-2
AMD K6 200 (2.9V)	2-3	1-2	2-3	1-2	1-2	1-2
AMD K6 233 (3.2V)	2-3	2-3	2-3	1-2	1-2	1-2
AMD K6-2 266 (2.2 V)	1-2	2-3	1-2	1-2	1-2	1-2
AMD K6-2 300 (2.2 V)	2-3	1-2	2-3	2-3	1-2	1-2
AMD K6-2 350 (2.2 V)	2-3	2-3	2-3	2-3	1-2	1-2
AMD K6-3 400 (2.4 V)	1-2	2-3	1-2	2-3	1-2	1-2
AMD K6-3 450 (2.4 V)	1-2	1-2	1-2	2-3	1-2	1-2
AMD K6-3 500 (2.4 V)	2-3	1-2	1-2	2-3	1-2	1-2

default setting

CPU Core Voltage (JV0~JV4)

CPU Voltage	JV0	JV1	JV2	JV3	JV4
1.9V	2-3	2-3	1-2	1-2	1-2
2.0V	2-3	1-2	1-2	1-2	1-2
2.1V	1-2	2-3	2-3	2-3	2-3
2.2V	2-3	1-2	2-3	2-3	2-3
2.3V	1-2	1-2	2-3	2-3	2-3
2.4V	2-3	2-3	1-2	2-3	2-3
2.5V	1-2	2-3	1-2	2-3	2-3
2.8V	2-3	2-3	2-3	1-2	2-3
2.9V	1-2	2-3	2-3	1-2	2-3
3.2V	2-3	2-3	1-2	1-2	2-3
3.3V	1-2	2-3	1-2	1-2	2-3
3.5V	1-2	1-2	1-2	1-2	2-3

default setting

CMOS Operation (JRTC)

If the ACH-573 refuses to boot due to inappropriate CMOS settings here is how to proceed to clear (reset) the CMOS to its default values

Mode	JRTC
Normal Operation	2-3
Clear CMOS	1-2

default setting

Watchdog Timer

The onboard watchdog timer can be disabled by jumper setting or enabled for either reboot by RESET or invoking an NMI.(non-maskable interrupt).

Even if enabled by jumper setting upon boot the watchdog timer is always inactive. To initialize the watchdog timer reading of port 444H is sufficient. To disable the watchdog timer read port 444H.

After the watchdog timer has been initialized by reading port 444H, it has to be strobed at preconfigured intervals to keep it from issuing a RESET or NMI. Intervals can also be selected by jumper setting. Strobing of the watchdog is done by reading port the same port that initializes the watchdog timer: port 444H. Failure to strobe before the configured period expires, indicating a program halt/abort, resulting in a RESET or NMI.

Mode Setting (JP1)

Watchdog Mode	JP1
Enabled for IOCHK	1-2
Enabled for RESET	2-3
Disable Watchdog timer	OFF

default setting

Time-out Setting (SWDT)

Watchdog Time-out Period	1	2	3	4
1 sec	OFF	OFF	ON	OFF
2 sec	OFF	OFF	ON	ON
10 sec	OFF	ON	OFF	OFF
20 sec	OFF	ON	OFF	ON
110 sec	ON	OFF	OFF	OFF
220 sec	ON	OFF	OFF	ON

default setting

Watchdog Timer Program Control

Function	Requirred Action
Enable/refresh the Watch -Dog	I/O Read 444H
Disable the Watch-Dog Timer.	I/O Read 044H

Programming Example

The following program is an examples of how to enable,
disable and refresh the Watchdog timer:

```
WDT_EN_RF   EQU    0444H

WDT_DIS     EQU    0044H


WT_Enable   PUSH AX          ;save AX DX
            PUSH DX
            MOV  DX,WDT_EN_RF     ;enable the watchdog
            IN   AL,DX
            POP  DX          ;reco AX DX
            POP  AX
            RET


WT_Rresh    PUSH AX          ;save AX DX
            PUSH DX
            MOV  DX,WDT_ET_RF     ;refresh the watchdog
            IN   AL,DX
            POP  DX          ;reco AX, DX
            RET


WT_DISABLE  PUSH AX
            PUSH DX
            MOV  DX,WDT_DIS; disable the watchdog
            IN   AL,DX
            POP  DX          ;reco AX, DX
            POP  AX
            RET
```

DiskOnChip® 2000 Flash Disk

Installation Instructions

1. Make sure the ACH-573 is powered OFF.

2. Plug the DOC (DiskOnChip 2000) device into its socket. Verify the direction is correct (pin 1 of the DiskOnChip 2000 is aligned with pin 1 of the socket)

DiskOnchip Socket

3. Set address

Base Address	JDOC
D0000h	1-2
D8000h	3-4

default setting

4. Power up the system

5. During power up you may observe a message displayed by the DOC when its drivers are automatically loaded into system's memory

6. At this stage the DOC can be accessed as any disk in the system

7. If the DOC is the only disk in the system, it will appear as the first disk (drive C: in DOS)

8. If there are more disks besides the DOC, the DOC will appear by default as the last drive, unless it was programmed as first drive. (please refer to the DOC utilities user manual)

9. If you want the DOC to be bootable:
   a - copy the operating system files into the DOC by using the standard DOS command (for example: sys d:)
   b - The DOC should be the only disk in the systems or should be configured as the first disk in the system (c:) using the DUPDATE utility

For more information on DiskOnChip2000, visit M-Systems Web site at

http:// www.m-sys.com

where you can find Utilities Manual, Data Sheets and Application Notes. In addition, you can find the latest DiskOnChip 2000 S/W Utilities

Ethernet 10Base-T/100-Base-TX

The Realtek RTL8139B(L) is a highly integrated and cost-effective single-chip Fast Ethernet controller that provides 32-bit performance, PCI bus master capability, and full compliance with IEEE 802.3u 100Base-T specifications and IEEE 802.3x Full Duplex Flow Control and n-way auto-negotiation.

Power Management and Wake-up
The RTL8139BL supports Advanced Configuration Power management Interface (ACPI), PCI power management for modern operating systems that is capable of Operating System Directed Power Management (OSPM) to achieve the most efficient power management.

Besides ACPI, the RTL8139B(L) also supports remote wake-up in both ACPI and APM environments. The RTL8139B(L) is capable of generating an internal reset whenever there (auxiliary) power is applied. Once auxiliary power is on whereas the main power still remains off, the RTL8139B(L) is ready and is waiting for the Magic packet or LinkChange to wake the system up.

Supported operating systems :

DOS/Windows	Packet driver for UNIX Client
NDIS2 (DOS, OS/2, Lantastic, WFW3.1.....)	SCO Unix driver
	Linux driver
NDIS3, NDIS4, NDIS5 for Win95, 98, NT 3.51, 4.0, 5.0, WFW3.11	FreeBSD
Netware 16-bit ODI driver for DOS, OS/2 and 32-bit ODI driver for Netware 3.x, 4.x, 5.0 Server	UnixWare 7.0
	QNX (beta)

For latest drivers go to :   **http://www.realtek.com.tw**

Disabling the Ethernet Controller

Connector : **JLAN**
Type : onboard 3-pin header

State	JLAN
Enabled	1-2
Disabled	2-3

default setting

LAN Port Signals

LANCON

Pin	Description	Pin	Description
1	TX+	2	TX-
3	RX+	4	N/C
5	N/C	6	RX-
7	N/C	8	N/C

10
100
ACT

LAN LED Indicator (LED)

Connector: LED

Type: 3 LED

LED	Description
10 (green)	10MB Mode
100 (green)	100MB Mode
ACT (yellow)	Active Transfer

Serial Port COM2 Mode (RS-232/485)

The onboard COM2 port can be configured to operate either in RS-232 or RS-485 mode. Selection of the mode is done by jumper J1.

In RS-232 mode the onboard 10-pin header box JCOM2 is activated.
In RS-485 mode the 2-pin header RS1 should be used.

For pinout descriptions of COM2 and RS1 see page 23

COM RS-232/485 Selection (J1)

Connector : **J1**
Type : onboard 3-pin header

Mode	J1	Active Connector
RS-232	1-2	JCOM2
RS-485	2-3	RS1

default setting

Switches and Indicators

JFRONT

Green LED	ACPI(+)
	GND — (+)Vcc — Power LED
Reset	GND — NC
	Reset — GND
	KBLOCK — Keyboard Lock
IDE LED	Vcc(+) — GND
	Active
	Vcc
Power Switch	PWRBT — NC — Speaker
	GND — NC
SMI Switch	GND — SPKIN
	SMI

Note : (+) means LED anode

Power Connectors

Power Connector (PWRCON)

Connector : **PWRCON**
Type : 6-pin P8

Pin	Description
1	PG (power good)
2	Vcc
3	+12V
4	-12V
5	GND
6	GND

CPUFAN

POWERCON

CPU Fan Connector (CPUFAN)

Connector : **CPUFAN**
Type : 3-pin onboard header box

Pin	Description
1	FanTach
2	+12 V
3	GND

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Floppy Disk Drive (Floppy)

Connector : **Floppy**
Type : Onboard 34-pin header

Floppy

Pin	Description	Pin	Description
1	GROUND	2	REDUCE WRITE
3	GROUND	4	N/C
5	GROUND	6	N/C
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	GROUND	30	READ DATA
31	GROUND	32	HEAD SELECT
33	GROUND	34	DISK CHANGE

Enhanced IDE Connector (P_IDE, S_IDE)

P_IDE , S_IDE

Connector : **P_IDE and S_IDE**
Type : Two onboard 40-pin headers, primary and secondary IDE

Pin	Description	Pin	Description
1	RESET IDE	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	NC
21	REQ	22	GND
23	IOW-	24	GND
25	IOR-	26	GND
27	IORDY	28	IDSEL
29	DACK-	30	GND
31	IRQ	32	NC
33	A1	34	GND
35	A0	36	A2
37	CS0	38	CS1
39	ACT-	40	GND

Peripheral Ports

Parallel Port (Print)

Connector : **Print**
Type : Onboard 26-pin header

Print

Pin	Description	Pin	Description
1	STROBE-	14	AUTOFEED-
2	DATA0	15	ERROR-
3	DATA1	16	INITIALIZE-
4	DATA2	17	SELECT INPUT-
5	DATA3	18	GND
6	DATA4	19	GND
7	DATA5	20	GND
8	DATA6	21	GND
9	DATA7	22	GND
10	ACKNOWLEDGE-	23	GND
11	BUSY	24	GND
12	PAPER EMPTY	25	GND
13	SELECT+	26	NC

USB Port (USB)

Connector : **USB**
Type : onboard 10-pin header for two USB ports

USB

Pin	Description	Pin	Description
1	Vcc	2	Vcc
3	DATA0-	4	DATA1-
5	DATA0+	6	DATA1+
7	GND	8	GND
9	GND	10	GND

Onboard RS-232 Serial Ports (JCOM1 / JCOM2)

Connector : **JCOM1 and JCOM2**
Type : onboard 10-pin box headers (COM1/ COM2)

JCOM2

RS-232	Pin	Description	Pin	Description
	1	DCD	2	RXD
	3	TXD	4	DTR
	5	GND	6	DSR
	7	RTS	8	CTS
	9	RI	10	NC

Onboard RS-485 Serial Ports (RS1)

Connector : **RS1**
Type : onboard 2-pin header (COM2)

RS1 1 2

Pin	1	2
Description	RS-485+	RS-485-

IrDA (SIR)

Connector : **SIR**
Type : onboard 5-pin header

IrDA 1 2 3 4 5

Pin	Description
1	Vcc
2	NC
3	IRRX
4	GND
5	IRTX

Flat Panel VGA (LCD)

Connector : **LCD**
Type : Onboard 50-pin box header

Pin	Description	Pin	Description
1	+12V	2	+12V
3	GND	4	GND
5	Vcc LCD	6	ENAVDD
7	ENAVEE	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	P24	34	P25
35	SHFCLK	36	FLM
37	M	38	LP
39	GND	40	ENABKL
41	P26	42	P27
43	P28	44	P29
45	P30	46	P31
47	P32	48	P33
49	P34	50	P35

CRT SVGA (VGA)

Connector : **VGA**
Type : external 15-pin D-type female VGA connector on bracket

Pin	Description	Pin	Description	Pin	Description
1	RED	6	GND	11	NC
2	GREEN	7	GND	12	VDDAT
3	BLUE	8	GND	13	HSYNC
4	NC	9	NC	14	VSYNC
5	GND	10	GND	15	VDCLK

Keyboard (JAT-KB)

Connector : **JAT-KB**
Type : Onboard 5-pin box header

Pin	Description
1	KBCLK
2	KBDATA
3	N/C
4	GND
5	Vcc

PS/2 Keyboard (PS2-KB)

Connector : **PS2-KB**
Type : external 6-pin Mini DIN connector on bracket

PS/2
Keyboard

Pin	Description	Pin	Description
1	KBDATA	2	NC
3	GND	4	Vcc
5	KBCLK	6	NC

PS/2 Mouse (PS2-MS)

Connector : **PS2-MS**
Type : external 6-pin Mini DIN connector on bracket

PS/2
Mouse

Pin	Description	Pin	Description
1	MSDATA	2	NC
3	GND	4	Vcc
5	MSCLK	6	NC

System Resources

Interrupt Assignment

IRQ Address	Description
0	System Timer
1	Keyboard (KB output buffer full)
2	Programmable Interrupt Controller
3	Serial Port 2
4	Serial Port 1
5	Parallel Port 2
6	Floppy controller
7	Parallel Port 1
8	Real-Time Clock
9	Software Redirected IRQ2
10	Reserved
11	Reserved
12	Reserved
13	Coprocessor
14	Primary IDE Controller
15	Secondary IDE Controller

Memory Mapping

Adress	Size	Description
00000000h-0009FFFFh	640K	Host access map to the main memory
000A0000h-000BFFFFh	128K	Reserved for Video frame buffer
000C0000h-000C3FFFh	16K	Reserved for VGA BIOS
000C4000h-000C7FFFh	16K	Reserved for VGA BIOS
000C8000h-000CBFFFh	16K	Reserved for ROM device
000CC000h-000CFFFFh	16K	Reserved for ROM device
000D0000h-000DFFFFh	64K	Reserved for ROM device

I/O Adress Mapping

IO address	Description Notes
0000h-000Fh	DMA controller 1 registers
0010h-001Ch	Local Bus configuration registers
0020h-0021h	Interrupt controller 1 registers.
0040h-0043h	Timer/Counter registers
0060h-0064h	Keyboard shadow registers
0070h-0071h	NMI Mask control registers
0080h-008Fh	DMA Page registers.
0094h	Mother-board VGA enable
00A0h-00A1h	Interrupt controller 2 registers
00B1h	ISA standard Port B
00C0h-00DFh	DMA controller 2 registers
0102h	VGA setup register.
03B4h,03B5h,03BAh 03D4h,03D5h,03DAh 03C0h-03CFh	VGA registers.
0CF8h	PCI configuration Address register.
0CFCh-0CFFh	PCI configuration Data register.
46E8h	VGA add-in mode enable register.

SIS-530 AGP for CRT

The board's SiS 530 embedded chipset incorporates SiS' popular 3D AGP solution that allows 3D acceleration at 133 MHz on a 64-bit internal host bus. With this architecture, the video data transfer rate achieves 800 MB/sec, far superior to the conventional 32-bit bus at 66 MHz.

Supported Display Modes :

Resolution	Color depth	Refresh Rate
1600x1200	8-, 16-bpp	60 Hz
1280x1024	8-, 16-, 24-bpp	60, 75, 85 Hz
1024x768	8-, 16-, 24-bpp	60, 75, 85 Hz
800x600	8-, 16-, 24-bpp	60, 75, 85 Hz
640x480	8-, 16-, 24-bpp	60, 75, 85 Hz

Memory Assignment

The SIS-530 shared memory architecture lets you assign up to 8 MB of SDRAM. Memory assignment is done in the boards "Integrated Peripherals" setup menu of the Award BIOS.

C&T 69000 Flat Panel Controller

ACH-573VL,ACH-573V only !

The 69000 is the first member of CHIPS's HiQVideo family to integrate high speed SDRAM frame buffer memory into the chip. Using leading edge embedded memory logic technologies, the 69000 integrates 2 MBytes of SDRAM into the chip. By embedding SDRAM and graphics controller logic on the same die, the 69000 delivers uncompromised performance and at the same time consumes much less power than the discrete solution.

The integrated SDRAM supports up to 83MHz operation, which provides up to 664MBytes/second frame buffer bandwidth. The increase in the frame buffer bandwidth enables the 69000 to support high color, high-resolution graphics modes and real-time video acceleration.

Supported Display Modes :

Resolution	Color Depth	Refresh Rate
1280x1024	8-bpp	60 Hz
1024x768	8-, 16-bpp	60,75,85 Hz
800x600	8-, 16-, 24-bpp	60,75,85 Hz
640x480	8-, 16-, 24-bpp	60,75,85 Hz

Flat Panel Connector (LCD)

Pin assignment

The ACH-573's Vcc is configurable as either +3.3 or +5.0 Volt by jumper setting

+12 V	1	2	+12 V
GND	3	4	GND
V_{CC}	5	6	ENA V_{DD}
FPV_{EE}	7	8	GND
P0	9	10	P1
P2	11	12	P3
P4	13	14	P5
P6	15	16	P7
P8	17	18	P9
P10	19	20	P11
P12	21	22	P13
P14	23	24	P15
P16	25	26	P17
P18	27	28	P19
P20	29	30	P21
P22	31	32	P23
P24	33	34	P25
SHFCLK	35	36	FLM
M	37	38	LP
GND	39	40	ENABKL
P26	41	42	P27
P28	43	44	P29
P30	45	46	P31
P32	47	48	P33
P34	49	50	P35

LCD Voltage Selection (JVOLT1)

JVOLT1
1
2
3

Connector : **JVOLT1**
Type : onboard 3-pin header

Vcc	JVOLT1
+5.0	1-2
+3.3	2-3

default setting

PLANAR EL640.480-AA1

Display type : 640 x 480 EL Mono

EL 640.480-AA1/ 34-pin 2.54 pitch / housing		ACH-573 / 50-pin 2.0 pitch / housing	
Pin	Description	Pin	Description
1	GND	39	GND
2	D0	21	PD12
3	GND	39	GND
4	D1	22	PD13
5	GND	39	GND
6	D2	23	PD14
7	N/C		
8	D3	24	PD15
9	N/C		
10	Reserved		
11	N/C		
12	Reserved		
13	N/C		
14	Reserved		
15	GND	39	GND
16	Reserved		
17	GND	3	GND
18	VCLK	35	SHFCLK
19	GND	3	GND
20	_BLANK	40	ENABKL
21	GND	3	GND
22	HS	38	LP
23	N/C		
24	VS	36	FLM
25	N/C		
26	N/C		
27	N/C		
28	ENABLE	6	PVCC
29	VMODE		
30	N/C		
31	N/C		
32	N/C		
33	Reserved		
34	Reserved		
J2(1)	+12Vdc	1	+12V
J2(2)	GND	4	GND
J2(3)	GND	4	GND
J2(4)	+5Vdc	5	VCC
J3(1)	LUM	5	VCC
J3(2)	GND	4	GND

KYOCERA KCB104VG2BA-A01

Display type : 640 x 480 16-bit Color STN

KCB104VG2BA-A01 ACH-573 / 50-pin
Molex 53261-1510 2.0 pitch / housing

Pin	Description	Pin	Description
1	FLM	36	FLM
2	NC	---	---
3	DISP	40	ENABKL
4	LOAD	38	LP
5	VSS	39	GND
6	CP	35	SHFCLK
7	VSS	39	GND
8	HD0	20	P11
9	HD1	19	P10
10	HD2	18	P9
11	HD3	17	P8
12	HD4	12	P3
13	HD5	11	P2
14	HD6	10	P1
15	HD7	9	P0

KCB104VG2BA-A01 ACH573 / 50-pin
Molex 53261-1410 2.0 pitch / housing

Pin	Description	Pin	Description
1	LD0	24	P15
2	LD1	23	P14
3	LD2	22	P13
4	LD3	21	P12
5	LD4	16	P7
6	LD5	15	P6
7	LD6	14	P5
8	LD7	13	P4
9	VDD	5	+5V
10	VSS	3	GND
11	NC	---	---
12	NC	---	---
13	NC	---	---
14	VCONT	---	+0.8~+2.8V

SHARP LQ12S41

Display type : 800 x 600 18-bit Color TFT

LQ12S41   ACH-573 / 50-pin
DF9X-41S-1V/Hirose   2.0 pitch / housing

Pin	Description	Pin	Description
1	GND	39	GND
2	CLK	35	SHFCLK
3	GND	39	GND
4	Hsync	38	LP
5	Vsync	36	FLM
6	GND	39	GND
7	GND	39	GND
8	GND	39	GND
9	R0	27	P18
10	R1	28	P19
11	R2	29	P20
12	GND	4	GND
13	R3	30	P21
14	R4	31	P22
15	R5	32	P23
16	GND	4	GND
17	GND	4	GND
18	GND	4	GND
19	G0	19	P10
20	G1	20	P11
21	G2	21	P12
22	GND	8	GND
23	G3	22	P13
24	G4	23	P14
25	G5	24	P15
26	GND	8	GND
27	GND	8	GND
28	GND	8	GND
29	B0	11	P2
30	B1	12	P3
31	B2	13	P4
32	GND	3	GND
33	B3	14	P5
34	B4	15	P6
35	B5	16	P7
36	GND	3	GND
37	DE	37	M
38	R/L	---	---
39	VCC	5	+3.3V
40	VCC	5	+3.3V
41	U/P	---	---

HITACHI LMG9211XUCC

Display type : 640 x 480 16-bit Color STN

LMG9211XUCC Molex 53261-1510		ACH-573 / 50-pin 2.0 pitch / housing	
Pin	Description	Pin	Description
1	FLM	36	FLM
2	NC	---	---
3	DISP·OFF	40	ENABKL
4	LOAD	38	LP
5	VSS	39	GND
6	CP	35	SHFCLK
7	VSS	39	GND
8	UD0	20	P11
9	UD1	19	P10
10	UD2	18	P9
11	UD3	17	P8
12	UD4	12	P3
13	UD5	11	P2
14	UD6	10	P1
15	UD7	9	P0

LMG9211XUCC Molex 53261-1410		ACH-573 / 50-pin 2.0 pitch / housing	
Pin	Description	Pin	Description
1	LD0	24	P15
2	LD1	23	P14
3	LD2	22	P13
4	LD3	21	P12
5	LD4	16	P7
6	LD5	15	P6
7	LD6	14	P5
8	LD7	13	P4
9	VDD	5	+5V
10	VSS	3	GND
11	VSS	3	GND
12	VEE	---	+27V
13	VEE	---	+27V
14	VO	---	+27V

NAN YA LTBSHT024GC

Display type : 640 x 480 8-bit Mono STN

LTBSHT024GC Molex 53261-1590		ACH-573 / 50-pin 2.0 pitch / housing	
Pin	Description	Pin	Description
1	FLM	36	FLM
2	LOAD	38	LP
3	CP	35	SHFCLK
4	D.OFF	40	ENABKL
5	VDD	5	VCC
6	VSS	39	GND
7	VEE	--	-17V
8	DU0	12	P3
9	DU1	11	P2
10	DU2	10	P1
11	DU3	9	P0
12	DL0	16	P7
13	DL1	15	P6
14	DL2	14	P5
15	DL3	13	P4

TORISAN MXS121022010

Display type : 800 x 600 18-bit Color TFT

MXS121022010 DF9X-41S-1V/Hirose		ACH-573 / 50-pin 2.0 pitch / housing	
Pin	**Description**	**Pin**	**Description**
1	GND	3	GND
2	DCLK	35	SHFCLK
3	GND	3	GND
4	Hsync	38	LP
5	Vsync	36	FLM
6	GND	3	GND
7	GND	3	GND
8	GND	3	GND
9	R0	27	P18
10	R1	28	P19
11	R2	29	P20
12	GND	4	GND
13	R3	30	P21
14	R4	31	P22
15	R5	32	P23
16	GND	4	GND
17	GND	4	GND
18	GND	4	GND
19	G0	19	P10
20	G1	20	P11
21	G2	21	P12
22	GND	8	GND
23	G3	22	P13
24	G4	23	P14
25	G5	24	P15
26	GND	8	GND
27	GND	8	GND
28	GND	8	GND
29	B0	11	P2
30	B1	12	P3
31	B2	13	P4
32	GND	39	GND
33	B3	14	P5
34	B4	15	P6
35	B5	16	P7
36	GND	39	GND
37	DE	37	M
38	TEST	39	GND
39	VCC	5	+3.3V
40	VCC	5	+3.3V
41	MODE	---	---

NEC NL8060AC26-04

Display type : 800 x 600 18-bit Color TFT

NL8060AC26-04   ACH-573 / 50-pin
DF9X-41S-1V/Hirose   2.0 pitch / housing

Pin	Description	Pin	Description
1	GND	39	GND
2	CLK	35	SHFCLK
3	GND	39	GND
4	Hsync	38	LP
5	Vsync	36	FLM
6	GND	39	GND
7	GND	39	GND
8	GND	39	GND
9	R0	27	P18
10	R1	28	P19
11	R2	29	P20
12	GND	4	GND
13	R3	30	P21
14	R4	31	P22
15	R5	32	P23
16	GND	4	GND
17	GND	4	GND
18	GND	4	GND
19	G0	19	P10
20	G1	20	P11
21	G2	21	P12
22	GND	8	GND
23	G3	22	P13
24	G4	23	P14
25	G5	24	P15
26	GND	8	GND
27	GND	8	GND
28	GND	8	GND
29	B0	11	P2
30	B1	12	P3
31	B2	13	P4
32	GND	3	GND
33	B3	14	P5
34	B4	15	P6
35	B5	16	P7
36	GND	3	GND
37	DE	37	M
38	VCC	5	+3.3V/+5V
39	VCC	5	+3.3V/+5V
40	VCC	5	+3.3V/+5V
41	MODE	---	---

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AWARD BIOS Setup

The ACH-573 uses the Award PCI/ISA BIOS for the system configuration. The Award BIOS setup program is designed to provide the maximum flexibility in configuring the system by offering various options which could be selected for end-user requirements. This chapter is written to assist you in the proper usage of these features.

To access AWARD PCI/ISA BIOS Setup program, press <Del> key when booting the system. The Main Menu will be displayed at this time.

```
               ROM PCI/ISA BIOS (2A5IMTPH)
                    CMOS SETUP UTILITY
                   AWARD SOFTWARE, INC.

  STANDARD CMOS SETUP          HARDWARE MONITOR

  BIOS FEATURES SETUP          INTEGRATED PERIPHERALS

  CHIPSET FEATURES SETUP       SUPERVISOR PASSWORD

  POWER MANAGEMENT SETUP       USER PASSWORD

  PNP/PCI CONFIGURATION        IDE HDD AUTO DETECTION

  LOAD BIOS DEFAULTS           SAVE & EXIT SETUP

  LOAD SETUP DEFAULTS          EXIT WITOUT SAVE

  Esc : Quit              ↑↓→←    : Select Item
  F10 : Save & Exit Setup (Shift)F2 : Change Color

               Time, Date, Hard Disk Type
```

Standard CMOS Setup

```
                    ROM PCI/ISA BIOS (2A5IMTPH)
                        STANDARD CMOS SETUP
                       AWARD SOFTWARE, INC.
┌─────────────────────────────────────────────────────────────────────┐
│ Date (mm:dd:yy) : Wen, Apr 12 2000                                    │
│                                                                       │
│ Time (hh:mm:ss) : 17:37:12                                            │
│                                                                       │
│ HARD DISKS          TYPE  SIZE  CYLS  HEAD  PRECOM  LANDE  SECTOR  MODE│
│                                                                       │
│ Primary Master   :  Auto   0     0     0      0       0      0     AUTO│
│ Primary Slave    :  Auto   0     0     0      0       0      0     AUTO│
│ Secondary Master :  Auto   0     0     0      0       0      0     AUTO│
│ Secondary Slave  :  Auto   0     0     0      0       0      0     AUTO│
│ Drive A   : 1.44M , 3.5 in.                                           │
│ Drive B   : None           ┌──────────────────────────────────┐      │
│ Floppy Mode 3 Support : None│   Base Memory :    640K          │      │
│                            │ Extended Memory :  31744K          │      │
│ LCD/CRT   : CRT            │    Other Memory :   384K           │      │
│ Halt On   : All, But Keyboard──────────────────────────────────┘      │
│                                                                       │
│ Esc: Quit              ↑↓→←    : Select Item    PU/PD/+/-  : Modify    │
│ F1 : Help              (Shift)F2  : Change Color                       │
└─────────────────────────────────────────────────────────────────────┘
```

Date
The BIOS determines the day of the week from the other date information; this field is for information only.

Time
The time format is based on the 24-hour military-time clock. For example, 1 p.m. is 13:00:00. Press the ↑↓→← keys to move to the desired field .
Press the PgUp or PgDn key to change the field setting, or type the desired value into the field.

Hard Disks
The BIOS supports up to four ATAPI devices. This section does not show information about other ATAPI devices, such as a CD-ROM drive, or about other hard drive types, such as SCSI drives.
NOTE : *recommend that you select type AUTO for all drives.*

The BIOS can automatically detect the specifications and optimal operating mode of almost all IDE hard drives. When you select type AUTO for a hard drive, the BIOS detects its specifications during POST, every time the system boots. If you do not want to select drive type AUTO than the following method of selecting a drive type is available: .

Select USER and enter values into each drive parameter field.

Here is a brief explanation of drive specifications:

Type: None, AUTO or USER

Size: Disk drive capacity (approximate). Note that this size is usually slightly greater than the size of a formatted disk given by a disk-checking program.

Cyls: Number of cylinders

Head: Number of heads

Precomp: Write precompensation cylinder

Landz: Landing zone

Sector: Number of sectors

Mode: Auto, Normal, large, or LBA

> **Auto**
> The BIOS automatically determines the optimal mode.
>
> **Normal**
> Maximum number of cylinders, heads, and sectors supported are 1023, 16, and 63.
>
> **LBA**
> Logical Block Addressing. During drive accesses, the IDE controller transforms the data address described by sector, head, and cylinder number into a physical block address, significantly improving data transfer rates. For drives with greater than 1024 cylinders.

Drive A, B
Select the correct specifications for the diskette drive(s) installed in the computer.

None	:	No diskette drive installed
360K , 5.25 in	:	5¼" Double Sided, Double Density Drive
1.2M , 5.25 in	:	5¼" Double Sided, High Density Drive
720K , 3.5 in	:	3½" Double Sided, Double Density Drive
1.44M , 3.5 in	:	3½" Double Sided, High Density Drive
2.88M , 3.5 in	:	3½" Double Sided, Extra High Density Drive

Floppy Mode 3 Support
Enables support for 1.2 MB format capacity on 3½" disk drives.
This format is commonly used Japan. (for example NEC 98 Series)

LCD
Select the type of display connected to your computer. Choose between CRT only, LCD only, consecutive use of LCD and CRT

Halt On

During the power-on self-test (POST), the computer stops if the BIOS detects a hardware error. You can tell the BIOS to ignore certain errors during POST and continue the boot-up process. These are the selections:

No errors   POST does not stop for any errors.

All errors   If the BIOS detects any non-fatal error, POST stops and prompts you to take corrective action.

All, But Keyboard   POST does not stop for a keyboard error, but stops for all other errors.

All, But Diskette   POST does not stop for diskette drive errors, but stops for all other errors.

All, But Disk/Key   POST does not stop for a keyboard or disk error, but stops for all other errors.

BIOS Features Setup

```
                    ROM PCI/ISA BIOS (2A5IMTPH)
                        STANDARD CMOS 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              : A,C,SCSI   D4000-D7FFF Shadow    : Disabled
 Swap Floppy Drive          : Disabled   D8000-DBFFF Shadow    : Disabled
 Boot Up Floppy Seek        : Enabled    DC000-DFFFF Shadow    : Disabled
 Boot Up NumLock Status     : On         Cyrix 6x86/MII CPUID  : Enabled
 Memory Parity Check        : Disabled
 Typematic Rate Setting     : Disabled
 Typematic Rate (Char/Sec)  : 6
 Typematic Delay (Msec)     : 250
 Security Option            : Setup
 PCI/VGA Palette Snoop      : Disabled
 Assign IRQ for VGA         : Enabled    Esc: Quit      ↑↓→←  : Select Item
 OS Select for DRAM > 64MB  : Non-OS2    F1 : Help     PU/PD/+/-  : Modify
 Report No FDD For Win95    : Yes        F5 : Old Values (Shift)F2: Color
                                         F6 : Load BIOS Defaults
                                         F7 : Load Setup Defaults
```

Virus Warning
When enabled, you receive a warning message if a program (specifically, a virus) attempts to write to the boot sector or the partition table of the hard disk drive. You should then run an anti-virus program. Keep in mind that this feature protects only the boot sector, not the entire hard drive.

CPU Internal Cache & CPU External Cache
Cache memory is additional memory that is much faster than conventional memory (system memory). CPUs from 486-type on up contain internal cache memory, and most, but not all, modern PCs have additional (external) cache memory. When the CPU requests data, the system transfers the requested data from the system memory into cache memory, for even faster access by the CPU.

Quick Power On Self Test
Select Enabled to reduce the amount of time required to run the power-on self-test (POST). A quick POST skips certain steps. We recommend that you normally disable quick POST. Better to find a problem during POST than lose data during your work.

Boot Sequence

The original IBM PCs loaded the DOS operating system from drive A (floppy disk), so IBM PC-compatible systems are designed to search for an operating system first on drive A, and then on drive C (hard disk). However, modern computers can load the operating system from almost every attached device The following boot devices are supported :

- Drive A: - SCSI
- C: , D: , E: or F: (IDE HDD)   - LS120
- CDROM   - ZIP100

Swap Floppy Drive

Selecting Enabled assigns physical drive B to logical drive A, and physical drive A to logical drive B.

Boot Up Floppy Seek

When Enabled, the BIOS tests (seeks) floppy drives to determine whether they have 40 or 80 tracks. Only 360-KB floppy drives have 40 tracks; drives with 720 KB, 1.2 MB, and 1.44 MB capacity all have 80 tracks.

Boot Up NumLock Status

Toggle between On or Off to control the state of the NumLock key when the system boots. When toggled On, the numeric keypad generates numbers instead of controlling cursor operations.

Memory Parity Check

Parity is a measure of the consistency of your system's RAM, memory chips. Plus, there is both parity and non-parity memory. At boot, the Award BIOS both sizes and tests all memory. Normally, when a parity error is detected, the BIOS will display a message describing the problem as well as the problem's location, if possible. The boot process will then terminate and you will not be able to continue until the bad chip or memory module is located and replaced.

Disabling the Memory Parity Check allows the system to by-pass the test and allow your system to boot. You then have a choice of continuing to operate your system or attempting the remedying the problem.

Typematic Rate Setting

When Disabled, the following two items (Typematic Rate and Typematic Delay) are irrelevant. Keystrokes repeat at a rate determined by the keyboard controller in your system. When Enabled, you can select a typematic rate and typematic delay.

Typematic Rate (Chars/Sec)

When the typematic rate setting is enabled, you can select a typematic rate (the rate at which character repeats when you hold down a key) of 6, 8, 10,12, 15, 20, 24 or 30 characters per second.

Typematic Delay (Msec)

When the typematic rate setting is enabled, you can select a typematic delay (the delay before key strokes begin to repeat) of 250, 500, 750 or 1000 milliseconds.

Security Option
If you have set a password, select whether the password is required every time the System boots, or only when you enter Setup.

System   The system will not boot and access to Setup will be denied if the correct password is not entered at the prompt.

Setup   The system will boot, but access to Setup will be denied if the correct password is not entered at the prompt.

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

PCI/VGA Palette Snoop
Normally this option is always disabled !
Nonstandard VGA display adapters such as overlay cards or MPEG video cards may not show colors properly. Setting "PCI/VGA Palette Snoop" to Enable may correct this problem. If the PCI/VGA Palette Snoop is "Enabled", any I/O access on the ISA-bus to the VGA card's palette registers will be reflected on the PCI bus. This will allow overlay cards to adapt to the changing palette colors.

OS Select for DRAM > 64MB

Non-OS/2   If your operating system is not OS/2

OS/2   If system DRAM is more than 64MB and if your operating system is OS/2.

Report No FDD For WIN 95
Select Yes to release IRQ6 when the system contains no floppy drive, for compatibility with Windows 95 logo certification. In the "Integrated Peripherals" menu screen, select Disabled for the Onboard FDC Controller field.

Video BIOS Shadow
Enabled this copies the video BIOS from ROM to RAM. effectively enhancing performance, and reducing the amount of upper memory available by 32KB (the C0000~C7FFF area of memory between 640 KB and 1 MB is used).

C8000-CBFFF Shadow
Enabling any of the C8000~CBFFF segments allows components to move their firmware into these upper memory segments. However your computer can lock-up doing so, because some devices don't like being shadowed at those particular 16 KB segments of upper memory.

Note - In Windows 95, double click 'Computer' within Device Manager and select 'Memory'. This will tell you what segments (if any) are being shadowed For DOS you can use MSD.EXE to see what segments are claimed.
CC000-CFFFF - D0000-D3FFF - D4000-D7FFF - D8000-DBFFF and DC000-DFFFF - Same as above.

Cyrix 6x86/MII CPUID
When using a Cyrix CPU this option should be enabled to correctly determine the Cyrix CPU type.

Chipset Features Setup

```
                    ROM PCI/ISA BIOS (2A5IMTPH)
                      CHIPSET FEATURES SETUP
                      AWARD SOFTWARE, INC.

Refresh Rate Control      : 15.6us      Video BIOS Cachable       : Enabled
Ref/Act Command delay     : 8T          Memory Hole at 15/16M     : Enabled
Refresh Queue Depth       : 0           PCI Post Write Buffer     : Disabled
RAS Precharge Time        : 2T          PCI Delayed Transaction   : Disabled
RAS to CAS Delay          : 2T
ISA Bus Clock Frequency   : 7.159MHz
Starting Point of Paging  : 1T
NA# Enable                : Disabled
L2 Cache Burst RD Cycle   : Normal
Asyn/Sync Mode CPU DRAM   : Asynchron
SDRAM CAS Latency         : 2T
SDRAM WR Retite Rate      : X-2-2-2
DRAM Opt RAS Precharge    : Disabled
PCI Peer Concurrency      : Disabled
Read Prefetch Memory RD   : Enabled
Assert TRDY After Prefet  : 2 QWs       Esc: Quit      ↑↓→←  : Select Item
CPU to PCI Burst Mem. WR  : Disabled    F1 : Help      PU/PD/+/- : Modify
CPU to PCI Post Write     : Disabled    F5 : Old Values (Shift)F2: Color
AGP Aperture Size         : 64MB        F6 : Load BIOS Defaults
System BIOS Cacheable     : Enabled     F7 : Load Setup Defaults
```

This Chipset Feature Setup screen allows you to configure the system based on the 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 conditions for your system. The only time you might consider making any changes would be if you discovered that data was being lost while using your system. The first chipset settings deal with CPU access to dynamic random access memory (DRAM). The default timings have been carefully chosen and should only be altered if data is being lost. Such a scenario might well occur if your system had mixed speed DRAM chips installed so that greater delays may be required to preserve the integrity of the data held in the slower memory chips.

Refresh Rate Control
Select the period required to refresh the DRAMs, according to DRAM specifications.

Ref / Act Command Delay
Set the DRAM clock of the refresh command to refresh/active command delay.

Refresh Queue Depth
Set the depth of refresh queue.

RAS Precharge Time
The precharge time is the number of cycles it takes for the RAS to accumulate its charge before DRAM refreshes. If insufficient time is allowed, refresh may be incomplete and the DRAM may fail to retain data.
The Choice: 2T, 3T, 4T, 5T.

RAS to CAS Delay
TWhen DRAM is refreshed, both rows and columns are addressed separately. This setup item allows you to determine the timing of the transition from RAS (row address strobe) to CAS (column address strobe).
The choice: 2T, 3T, 4T, 5T.

ISA Bus Clock Frequency
You can set the speed of the AT bus at one-third or one-fourth of the CPU clock speed. The choice: 7.159MHz, PCICLK/3, PCICLK/4.

Starting Point of Paging
This value controls the start timing of memory paging operations.
The choice: 1T, 2T, 4T, 8T.

NA# Enable
Selecting Enabled permits pipelining, in which the chipset signals the CPU for a new memory address before all data transfers for the current cycle are complete, resulting in faster performance. The choice: Enabled, Disabled.

L2 Cache Burst RD Cycle   These timing numbers are the pattern of cycles the CPU uses to read data from the cache. The choice: Normal, Delay 1T.

Asyn/Sync Mode CPU/DRAM
This feature can only be enabled when the frequency of CPU clock and the frequency of DRAM clock are the same and the skew between these two clocks should be zero. The choice: Asynchronous, Synchronous.

SDRAM CAS Latency   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. The choice: 2T, 3T.

SDRAM WR Retire Rate   The system designer must select the correct timing for data transfers from the write buffer to memory, according to DRAM specifications The choice: 0WS, 1WS.

DRAM Opt RAS Precharge The precharge time is the number of cycles it takes for the RAS to accumulate its charge before DRAM refreshes. If insufficient time is allowed, refresh may be incomplete and the DRAM may fail to retain data. The choice: Enabled, Disabled.

PCI Peer Concurrency   Peer concurrency means that more than one PCI device can be active at a time. The choice: Enabled, Disabled.

Read Prefetch Memory RD When this item is Enabled, the system is allowed to prefetch the next read instruction and initiate the next process. The choice: Enabled, Disabled.

Assert TRDY After Prefet When you select 1QWs, SiS530 asserts its first TRDY# for 1 transaction after it prefetched 1 quadword of data from system memory. Otherwise, SiS530 asserts its first TRDY# after 2 quadwords are prefetched. The choice: 1QWs, 2QWs.

CPU to PCI Burst Mem. WR Select enabled permits PCI burst memory write cycles, for faster performance. When disabled, performance is slightly slower, but more reliable. Choices are Enabled, Disabled.

CPU to PCI Post Write Select enabled to use a fast buffer for posting writes to memory. Using a fast buffer releases the CPU before completion of a write cycle to DRAM. The choice: Enabled, Disabled.

AGP Aperture Size (MB) Select the size of the Accelerated Graphics Port (AGP) aperture. 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. See www.agpforum.org for APG information. The choice: 4 MB, 8MB, 16 MB, 32 MB, 64 MB, 128 MB, 256MB.

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 choice: Enabled, Disabled.

Video BIOS Cacheable Selecting Enabled allows caching of the system BIOS ROM at C0000h-F7FFFh, resulting in better system performance. However, if any program writes to this memory area, a system error may result. The choice: Enabled, Disabled.

Memory Hole at 15M-16M You can reserve this area of system memory for ISA adapter ROM. When this area is reserved, it cannot be cached. The user information of peripherals that need to use this area of system memory usually discusses their memory requirements. The choice: Enabled, Disabled.

PCI Post Write Buffer Enable/disable PCI post write buffer.

PCI 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 choice: Enabled, Disabled.

Power Management Setup

```
                    ROM PCI/ISA BIOS (2A5IMTPH)
                      POWER MANAGEMENT SETUP
                       AWARD SOFTWARE, INC.

ACPI Function          : Enabled      VGA Activity          : Disabled
Power Management       : User Define  IRQ [3-7,9-15], NMI   : Disabled
Video Off Option       : Always On    IRQ 8 Break Suspend   : Disabled
Video Off Method       : Blank Screen
Switch Function        : Disabled
Doze Speed (div by)    : 8/8
Stdby Speed (div by)   : 8/8
Modem Use IRQ          : NA
Hot Key Function As    : Disable
      ** PM Timers **
HDD Off After          : Disable
Doze Mode              : Disable
Standby Mode           : Disable
Suspend Mode           : Disable
      ** PM Events **              Esc: Quit      ↑↓→←  : Select Item
HDD Ports Activity     : Disabled  F1 : Help      PU/PD/+/-  : Modify
COM Ports Activity     : Disabled  F5 : Old Values (Shift)F2: Color
LPT Ports Activity     : Disabled  F6 : Load BIOS Defaults
                                   F7 : Load Setup Defaults
```

ACPI Function
Select Enabled only if your computer's operating system supports the Advanced Configuration and Power Interface (ACPI) specification.
Currently, Windows 98 and Windows NT 5.0 (beta) support ACPI.

Power Management
There are 4 selections for Power Management, 3 of which have fixed mode :

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 -- ONLY AVAILABLE FOR SL CPU'S. Doze Mode = 1 min., Standby Mode = 1 min., Suspend Mode = 1 min., and HDD Power Down = 1 min.
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 disable.

Video Off Option
When enabled, this feature allows the VGA adapter to operate in a power saving mode.This determines the manner in which the monitor is blanked.

Always On   Monitor will remain on during power saving modes.

Suspend --> Off   Monitor blanked when the systems enters the Suspend mode.

Susp,Stby --> Off Monitor blanked when the system enters either Suspend or Standby modes.

All Modes --> Off Monitor blanked when the system enters any power saving mode.

Video Off Method
This determines the manner in which the monitor is blanked.

V/H SYNC+Blank causes 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.

Switch Function
You can choose whether or not to permit your system to enter complete Suspend mode. Suspend mode offers greater power savings, with a correspondingly longer awakening period. The choice: Deturbo, Break, Break/ Wake, Disabled.

Doze Speed (div by)
Sets the CPU's speed during Doze mode. The speed is reduced to a fraction of the CPU's normal speed. The divisors range from 1 to 8 The choice: 1~8.

Stdby Speed (div by)
Select a divisor to reduce the CPU speed during Standby mode to a fraction of the full CPU speed. The speed is reduced to a fraction of the CPU's normal speed. The divisors range from 1 to 8-0. The choice: 1~8

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.

Hot Key Function As
Select Enabled if your system has a hot key for soft power off.
The choice: Enabled, Disabled.

PM Timers

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

HDD Off After
By default, this item is Disabled, meaning that no matter the mode the rest of the system, the hard drive will remain ready. Otherwise, you have a range of choices from 1 to 15 minutes or Suspend. This means that you can elect to

have your hard disk drive be turned off after a selected number of minutes or when the rest of the system goes into a Suspend mode.

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

Standby Mode
When enabled and after the set time of system inactivity, the fixed disk drive and the video would be shut off while all other devices still operate at full speed.

Suspend Mode
When enabled and after the set time of system inactivity, all devices except the CPU will be shut off.

PM Events

You may disable activity monitoring of some common I/O events and interrupt requests so they do not wake up the system. The default wake-up event is keyboard activity.

When On (or named, in the case of LPT & COM), any activity from one of the listed system peripheral devices or IRQs wakes up the system.

HDD Ports Activity
When set to On (default), any event occurring at a HDD (serial) port will awaken a system which has been powered down.

COM Port Activity
When set to On (default), any event occurring at a hard or floppy drive port will awaken a system which has been powered down.

LPT Port Activity
When set to On (default), any event occurring at a LPT (printer) port will awaken a system which has been powered down.

VGA Activity
When set to On (default), any event occurring at VGA will awaken a system which has been powered down.

IRQ [3-7, 9-15], NMI
The following is a list of IRQ's, Interrupt ReQuests, which can be exempted much as the COM ports and LPT ports above can. When an I/O device wants to gain 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. As above, the choices are On and Off. When set On, activity will neither prevent the system from going into a power management mode nor awaken it.

IRQ 8 Break Suspend
You can Enable or Disable monitoring of IRQ8 (the Real Time Clock) so it does not awaken the system from Suspend mode.

PNP/PCI Configuration

```
                    ROM PCI/ISA BIOS (2A5IMTPH)
                        PNP/PCI CONFIGURATION
                        AWARD SOFTWARE, INC.

Resources Controlled By      : Manual      PCI IRQ Activated By    : Level
Reset Configuration Data     : Disabled

IRQ-3  assigned to      : PCI/ISA Pnp
IRQ-4  assigned to      : PCI/ISA Pnp
IRQ-5  assigned to      : PCI/ISA Pnp
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     Esc: Quit      ↑↓→←   : Select Item
DMA-3  assigned to      : PCI/ISA Pnp     F1 : Help      PU/PD/+/-  : Modify
DMA-5  assigned to      : PCI/ISA Pnp     F5 : Old Values (Shift)F2: Color
DMA-6  assigned to      : PCI/ISA Pnp     F6 : Load BIOS Defaults
DMA-7  assigned to      : PCI/ISA Pnp     F7 : Load Setup Defaults
```

This section describes configuring the PCI bus system. PCI, or Personal Computer Interconnect, is a system which allows I/O devices to operate at speeds nearing the speed the CPU itself uses when communicating with its own special components.

Resources Controlled By
The Award Plug and Play BIOS can automatically configure all the boot and Plug and Play-compatible devices. If you select Auto, all the interrupt request (IRQ) and DMA assignment fields disappear, as the BIOS automatically assigns them. Choice: Auto and Manual.

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. Choice: Enabled and Disabled.

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

Legacy ISA   Devices compliant with the original PC AT bus specification, requiring a specific interrupt (such as IRQ4 for serial port 1).

PCI/ISA PnP   Devices compliant with the Plug and Play standard, whether designed for PCI or ISA bus architecture.

DMA n Assigned to

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

Legacy ISA   Devices compliant with the original PC AT bus specification, requiring a specific DMA channel

PCI/ISA PnP   Devices compliant with the Plug and Play standard, whether designed for PCI or ISA bus architecture.

PCI IRQ Activated By

This sets the method by which the PCI bus recognizes that an IRQ service is being requested by a device. Under all circumstances, you should retain the default configuration unless advised otherwise by your system's manufacturer. The choice: Level, Edge.

Hardware Monitor

```
                    ROM PCI/ISA BIOS (2A5IMTPH)
                         CPU Feature Setup
                        AWARD SOFTWARE, INC.

 Current CPU Temperature    : 40°C/104°F
 Current CPUFAN Speed       : 0 RPM

 +12(V) : 12.49 V      Vcc(V) : 5.12 V
 Vio(V) :  3.42 V      Vcore(V) 2.22 V




                                     Esc: Quit      ↑↓→←  : Select Item
                                     F1 : Help      PU/PD/+/-  : Modify
                                     F5 : Old Values (Shift)F2: Color
                                     F6 : Load BIOS Defaults
                                     F7 : Load Setup Defaults
```

Current CPU Temperature
A onboard sensor underneath the CPU monitors the current CPU temperature.

Current CPU Fan Speed
When using the onboard CPU Fan power connector the board can deduct the actual rounds per minute (RPM) of the installed CPU Fan

+12(V)
Measured external power for Serial port, FAN etc should be ~ +12 V

V_{CC}(V)
Measured external power supply to board should be ~ +5 V

V_{IO}(V)
Measured power to DIMM, Chipset and Slot 1 Cache, should be ~ 3.5 V

V_{CORE}(V)
Measured power to CPU core, depends on type of CPU and jumper settings

Integrated Peripherals (ACH-573CVL and ACH-573CV)

```
                    ROM PCI/ISA BIOS (2A5IMTPD)
                      INTEGRATED PERIPHERALS
                      AWARD SOFTWARE, INC.

Internal PCI/IDE          : Both      Onboard Parallel Port    : Enabled
IDE Primary Master PIO    : Auto      Onboard Parallel Mode    : ECP
IDE Primary Slave PIO     : Auto       ECP Mode Use DMA        : 3
IDE Secondary Master PIO  : Auto      PS/2 mouse function      : Enabled
IDE Secondary Slave PIO   : Auto      USB Controller           : Enabled
Primary Master UltraDMA   : Auto      USB Keyboard Support     : Disabled
Primary Slave UltraDMA    : Auto      Init Display First       : PCI Slot
Secondary Master UltraDMA : Auto
Secondary Slave UltraDMA  : Auto      VGA Shared Memory Size   : 4 MB
IDE Burst Mode            : Enabled
IDE Data Port Post Write  : Disabled
IDE HDD Block Mode        : Enabled
ACPI Disable Method       : Disabled
Onboard FDD Controller    : Enabled   Esc: Quit      ↑↓→←  : Select Item
Onboard Serial Port 1     : 3F8/IRQ4  F1 : Help      PU/PD/+/- : Modify
Onboard Serial Port 2     : 2F8/IRQ3  F5 : Old Values (Shift)F2: Color
IR Address Select         : 3E8H      F6 : Load BIOS Defaults
  IR Mode                 : ASKIR     F7 : Load Setup Defaults
  IR IRQ Select           : IRQ10
```

Integrated Peripherals (ACH-573VL and ACH-573V)

```
                    ROM PCI/ISA BIOS (2A5IMTPH)
                      INTEGRATED PERIPHERALS
                      AWARD SOFTWARE, INC.

Internal PCI/IDE          : Both      Onboard Parallel Port    : Enabled
IDE Primary Master PIO    : Auto      Onboard Parallel Mode    : ECP
IDE Primary Slave PIO     : Auto       ECP Mode Use DMA        : 3
IDE Secondary Master PIO  : Auto      PS/2 mouse function      : Enabled
IDE Secondary Slave PIO   : Auto      USB Controller           : Enabled
Primary Master UltraDMA   : Auto      USB Keyboard Support     : Disabled
Primary Slave UltraDMA    : Auto      Init Display First       : PCI Slot
Secondary Master UltraDMA : Auto
Secondary Slave UltraDMA  : Auto      LCD Panel Type           : Panel 0
IDE Burst Mode            : Enabled
IDE Data Port Post Write  : Disabled
IDE HDD Block Mode        : Enabled
ACPI Disable Method       : Disabled
Onboard FDD Controller    : Enabled   Esc: Quit      ↑↓→←  : Select Item
Onboard Serial Port 1     : 3F8/IRQ4  F1 : Help      PU/PD/+/- : Modify
Onboard Serial Port 2     : 2F8/IRQ3  F5 : Old Values (Shift)F2: Color
IR Address Select         : 3E8H      F6 : Load BIOS Defaults
  IR Mode                 : ASKIR     F7 : Load Setup Defaults
  IR IRQ Select           : IRQ10
```

Internal PCI / IDE
This chipset contains an internal PCI IDE interface with support for two IDE channels. The choice: Primary, Secondary, Both.

IDE 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 choice: Auto, Mode 0, Mode 1, Mode 2, Mode 3, Mode 4.

IDE Primary/Secondary Master/Slave UDMA
 UDMA (Ultra DMA) is a DMA data transfer protocol that utilizes ATA commands and the ATA bus to allow DMA commands to transfer data at a maximum burst rate of 33 MB/s. When you select Auto in the four IDE UDMA fields (for each of up to four IDE devices that the internal PCI IDE interface supports), the system automatically determines the optimal data transfer rate for each IDE device. The choice: Auto, Mode 0, Mode 1, Mode 2, Mode 3, Mode 4.

IDE Burst Mode
Selecting Enabled reduces latency between each drive read/write cycle, but may cause instability in IDE subsystems that cannot support such fast performance. If you are getting disk drive errors, try setting this value to Disabled. This field does not appear when the Internal PCI/IDE field, above, is Disabled. The choice: Enabled, Disabled.

IDE Data Port Post Write
Selecting Enabled speeds up processing of drive reads and writes, but may cause instability in IDE subsystems that cannot support such fast performance. If you are getting disk drive errors, try setting this value to Disabled
The choice: Enabled, Disabled.

IDE HDD Block Mode
The chipset contains a PCI IDE interface with support for two IDE channels. Select Enabled to activate the primary and/or secondary IDE interface. Select Disabled to deactivate this interface, if you install a primary and/or secondary add-in IDE interface IDE interface. Enabled : Secondary HDD controller used Disabled : Secondary HDD controller not used.

ACPI Disable Method
If you experience serial port problems when enabling ACPI (Advanced Configuration and Power Interface) in the "Power Managment Setup" than enable this option. (Enable means here that you activate the "ACPI Disable Method").
The choice: Enabled, Disabled.

Onboard FDD Controller
This should be enabled if your system has a floppy disk drive (FDD) installed on the system board and you wish to use it. Even when so equipped, if you add a higher performance controller, you will need to disable this feature.
The choice: Enabled, Disabled.

Onboard Serial Port 1/Port 2
This item allows you to determine access onboard serial port 1/port 2 controller with which I/O address. The choice: 3F8/IRQ4, 2E8/IRQ3, 3E8/IRQ4, 2F8/IRQ3, Disabled, Auto.

IR Address Select
This item allows you to determine access onboard IR port controller with which I/O address. The choice: 3F8, 2E8, 3E8, 2F8 and Disabled.

IR Mode
Offers a selection of two different types of infrared ports.
IrDA : Standard Infra Red Port
ASKIR : Amplitude Shift Keyed Infrared Port

IR IRQ Select
Select Interuppt for IR port. Options 3, 4, 10, 11.

Onboard Parallel Port
Select a logical LPT port name and matching address for the physical parallel (printer) port.

Parallel Port Mode
Select an operating mode for the onboard parallel (printer) port. Select SPP unless you are certain your hardware and software both support one of the other available modes. The choice: SPP, EPP, ECP, ECP+EPP.

ECP Mode Use DMA
Select a DMA channel for the parallel port for use during ECP mode.
The choice: 3, 1.

PS/2 mouse function
If your system has a PS/2 mouse port and you install a serial pointing device, select Disabled. The choice: Enabled, Disabled.

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

USB Keyboard Support
Choice enable, disable.

Init Display First
This item allows you to decide to active which bus first (PCI Slot or AGP first). The choice: PCI Slot, AGP.

VGA Shared Memory Size (ACH-573CVL and ACH-573CV!)
Specify the size of system memory to allocate for video memory, from 1 MB to 8 MB. The choice: 1MB, 2MB, 4MB, 8MB.

LCD Panel Type (ACH-573VL and ACH-573V)
This feature is not implemented. For every different LCD panel you will have to obtain a seperate BIOS file.

POST Messages

During the power-on self test (POST), the BIOS either sounds a beep code or displays a message when it detects a an error in the system. An error message may be followed by a prompt to press F1 to continue or press DEL to enter Setup.

Audible Error Messages

Currently the only implemented beep code indicates that a video error has occurred and the BIOS cannot initialize the video screen to display any additional information. This beep code consists of a single long beep followed by two short beeps.

Visible Messages

BIOS ROM checksum error - System halted
The checksum of the BIOS code in the BIOS chip is incorrect, indicating the BIOS code may have become corrupt. Contact your system dealer to replace the BIOS.

CMOS battery failed
CMOS battery is no longer functional. Contact your system dealer for a replacement battery.

CMOS checksum error - Defaults loaded
Checksum of CMOS is incorrect, so the system loads the default equipment configuration. A checksum error may indicate that CMOS has become corrupt. This error may have been caused by a weak battery. Check the battery and replace if necessary or re-setup the BIOS.

CPU at nnnn
Displays the running speed of the CPU.

Display switch is set incorrectly
The display switch on the motherboard can be set to either monochrome or color. This message indicates the switch is set to a different setting than indicated in Setup. Determine which setting is correct, and then either turn off the system and change the jumper, or enter Setup and change the VIDEO selection.

Press ESC to skip memory test
The user may press Esc to skip the full memory test.

Floppy disk(s) fail
Cannot find or initialize the floppy disk controller or the drive. Make sure the controller is installed correctly. If no floppy disk drives are installed, be sure the Diskette Drive selection in Setup is set to NONE or AUTO.

HARD DISK initializing
Please wait a moment...
Some harddisks require extra time to initialize.

HARD DISK INSTALL FAILURE
Cannot find or initialize the hard disk controller or the harddisk. Make sure the controller is installed correctly. If no hard disk drives are installed, be sure the harddisk selection in Setup is set to NONE.

Hard disk(s) diagnosis fail
The system may run specific disk diagnostic routines. This message appears if one or more hard disks return an error when the diagnostics run.

Keyboard error or no keyboard present
Cannot initialize the keyboard. Make sure the keyboard is attached correctly and no keys are pressed during POST. To purposely configure the system without a keyboard, set the error halt condition in Setup to HALT ON ALL, BUT KEYBOARD. The BIOS then ignores the missing keyboard during POST.

Keyboard is locked out - Unlock the key
This message usually indicates that one or more keys have been pressed during the keyboard tests. Be sure no objects are resting on the keyboard.

Memory Test :
This message displays during a full memory test, counting down the memory areas being tested.

Memory test fail
If POST detects an error during memory testing, additional information appears giving specifics about the type and location of the memory error.

Override enabled - Defaults loaded
If the system cannot boot using the current CMOS configuration, the BIOS can override the current configuration is a set of BIOS defaults designed for the most stable, minimal-performance system operations.

Press TAB to show POST screen
System OEMs may replace the Award BIOS POST display with their own proprietary display. Including this message in the OEM display permits the operator to switch between the OEM display and the default POST display.

Primary master hard disk fail
POST detects an error in the primary master hard disk drive.

Primary slave hard disk fail
POST detects an error in the primary slave hard disk drive.

Secondary master hard disk fail
POST detects an error in the secondary master hard disk drive.

Secondary slave hard disk fail
POST detects an error in the secondary slave hard disk drive.

POST Card Error Messages

The following codes are not displayed on the screen. They can only be viewed on the (7-segment) LED display of a so called POST or port 80 card. The codes are listened in the same order as the according functions are executed at PC startup. If you have access to a POST Card reader, you can watch the system perform each test by the value that's displayed. If the system hangs (if there's a problem) the last value displayed will give you a good idea where and what went wrong, or what's bad on the system board.

CODE	CHECK	DESCRIPTION OF CHECK
C0	Turn Off Chipset	OEM Specific-Cache control Cache
01	Processor Test 1	Processor Status (1FLAGS) Verification. Tests the following processor status flags: carry, zero, sign, overflow, The BIOS sets each flag, verifies they are set, then turns each flag off and verifies it is off.
02	Processor Test 2	Read/Write/Verify all CPU registers except SS, SP, and BP with data pattern FF and 00.
03	Initialize Chips	Disable NMI, PIE, AIE, UEI, SQWV Disable video, parity checking, DMA Reset math coprocessor Clear all page registers, CMOS shutdown byte Initialize timer 0, 1, and 2, including set EISA timer to a known state Initialize DMA controllers 0 and 1 Initialize interrupt controllers 0 and 1 Initialize EISA extended registers.
04	Test Memory Refresh Toggle	RAM must be periodically refreshed to keep the memory from decaying. This function ensures that the memory refresh function is working properly.
05	Blank video Initialize keyboard	Keyboard controller initialization
06	Reserved	
07	Test CMOS Interface and Battery Status	Verifies CMOS is working correctly, detects bad battery.
BE	Chipset Default Initialization	Program chipset registers with power on BIOS defaults.
C1	Memory presence	OEM Specific-Test to size on-board

	test	memory
C5	Early Shadow	OEM Specific-Early Shadow enable for fast boot.
C6	Cache presence test	External cache size detection
08	Setup low memory	Early chip set initialization Memory presence test OEM chip set routines Clear low 64K of memory Test first 64K memory.
09	Early Cache Initialization	Cyrix CPU initialization Cache initialization
0A	Setup Interrupt Vector Table	Initialize first 120 interrupt vectors with SPURIOUS_INT_HDLR and initialize INT 00h-1Fh according to INT_TBL
0B	Test CMOS RAM Checksum	Test CMOS RAM Checksum, if bad, or insert key pressed, load defaults.
0C	Initialize keyboard	Detect type of keyboard controller (optional) Set NUM_LOCK status.
0D	Initialize Video Interface	Detect CPU clock. Read CMOS location 14h to find out type of video in use. Detect and Initialize Video Adapter.
0E	Test Video Memory	Test video memory, write sign-on message to screen. Setup shadow RAM - Enable shadow according to Setup.
0F	Test DMA Controller 0	BIOS checksum test. Keyboard detect and initialization
10	Test DMA Controller 1	
11	Test DMA Page Registers	Test DMA Page Registers.
12-13	Reserved	

14	Test Timer Counter 2	Test 8254 Timer 0 Counter 2
15	Test 8259-1 Mask Bits	Verify 8259 Channel 1 masked interrupts by alternately turning off and on the interrupt lines.
16	Test 8259-2 Mask Bits	Verify 8259 Channel 2 masked interrupts by alternately turning off and on the interrupt lines.
17	Test Stuck 8259's Interrupt Bits	Turn off interrupts then verify no interrupt mask register is on.
18	Test 8259 Interrupt Functionality	Force an interrupt and verify the interrupt occurred.
19	Test Stuck NMI Bits (Parity/IO Check)	Verify NMI can be cleared.
1A		Display CPU clock
1B-1E	Reserved	
1F	Set EISA Mode	If EISA non-volatile memory checksum is good, execute EISA initialization. If not, execute ISA tests an clear EISA mode flag. Test EISA Configuration Memory Integrity (checksum & communication interface).
20	Enable Slot 0	Initialize slot 0 (System Board).
21-2F	Enable Slots 1-15	Initialize slots 1 through 15.
30	Size Base and Extended Memory	Size base memory from 256K to 640K and extended memory above 1MB.
31	Test Base and Extended Memory	Test base memory from 256K to 640K and extended memory above 1MB using various patterns. NOTE: This test is skipped in EISA mode and can be skipped with ESC key in ISA mode.
32	Test EISA	If EISA Mode flag is set then test

	Extended Memory	EISA memory found in slots initialization. NOTE: This test is skipped in ISA mode and can be skipped with ESC key in EISA mode.
33-3B	Reserved	
3C		Setup Enabled
3D	Initialize & Install Mouse	Detect if mouse is present, initialize mouse, install interrupt vectors.
3E	Setup Cache Controller	Initialize cache controller.
3F	Reserved	
BF	Chipset Initialization	Program chipset registers with Setup values
40		Display virus protect disable or enable
41	Initialize Floppy Drive & Controller	Initialize floppy disk drive controller and any drives.
42	Initialize Hard Drive & Controller	initialize hard drive controller and any drives.
43	Detect & Initialize Serial/Parallel Ports	Initialize any serial and parallel ports (also game port).
44	Reserved	
45	Detect & Initialize Math Coprocessor	Initialize math coprocessor.
46	Reserved	
47	Reserved	
48-4D	Reserved	
4E	Manufacturing POST Loop Display Messages	Reboot if Manufacturing POST Loop pin or is set. Otherwise display any messages (i.e., any non-fatal errors that were detected during POST) and enter Setup.
4F	Security Check	Ask password security (optional).

50	Write CMOS	Write all CMOS values back to RAM and clear screen.
51	Pre-boot Enable	Enable parity checker Enable NMI, Enable cache before boot.
52	Initialize Option ROMs	Initialize any option ROMs present from C8000h to EFFFFh. NOTE: When FSCAN option is enabled, ROMs initialize from C8000h to F7FFFh.
53	Initialize Time Value	Initialize time value in 40h: BIOS area.
60	Setup Virus Protect	Setup virus protect according to Setup
61	Set Boot Speed	Set system speed for boot
62	Setup NumLock	Setup NumLock status according to Setup
63	Boot Attempt	Set low stack Boot via INT 19h.
B0	Spurious	If interrupt occurs in protected mode.
B1	Unclaimed NMI	If unmasked NMI occurs, display: Press F1 to disable NMI, F2 reboot.
E1-EF	Setup Pages	E1- Page 1, E2 - Page 2, etc.
FF	Boot	

Howto : Flash the BIOS

What do you need:

To flash your BIOS you'll need

1) a xxxxx.bin file that is a file image of the new BIOS

2) AWDFLASH.EXE a utility that can write the data-file into the BIOS chip.

The procedure:

Create a new, clean DOS (6 or higher) bootable floppy with "format a: /s".

Copy flash utility and the BIOS image file to this disk.

Turn your computer off. Insert the floppy you just created and boot the computer. As it boots up, hit the [DEL] key to enter the CMOS setup. Go to "LOAD SETUP (or BIOS) DEFAULTS," and then save and exit the setup program. Continue to boot with the floppy disk.

Type "AWDFLASH" to execute the flash utility. When prompted, enter the name of the new BIOS image and begin the flash procedure. Note: If you reboot now, you may not be able to boot again.

After the flash utility is complete, reboot the system.