

# HS-6010

## Pentium®-II Bus-100MHz VGA

Full Size All-in-one PC/104 VGA CRT Interface  
Supports DMA33 WDT DOC USB IrDA  
PICMG Bus Industrial Single Board Computer

# HS-6010P

## BX-LEVEL Pentium®-II I.S.B.

Full Size All-in-one PC/104  
Supports DMA33 WDT DOC USB IrDA  
PICMG Bus Industrial Single Board Computer

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User Manual edition 1.2, Aug.24 2001

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# Chapter-1

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## General Information

The HS-6010 is a bus-100MHz ALi<sup>®</sup> BX-Level chipset design PICMG bus Pentium<sup>®</sup> II Industrial Single Board (I.S.B.) CPU card with features combine together to make it an ideal all-in-one industrial single board computer, enhanced I/O effects with VGA interface on-board.

The HS-6010 also provides one set of PC/104 bus for 8/16-bit industrial application with based on PC/104 standard bus.

With onboard DMA33 of mode 4 to IDE drive interface architecture, the HS-6010 supports with maximum 33.3 MB/sec in data transfer rating to 4 pieces IDE drive connection. Design with ALi<sup>™</sup> M1621 BX-Level core logic chipset supports all series Pentium<sup>®</sup> II operating at 233MHz, 266MHz, 300MHz, 333MHz, 400MHz and 450MHz. The on-board S3<sup>®</sup> 86C375 VGA chipset supports up to 1280 x 1024 256 colors display resolution. And it also provides one extra 10-pin connector for internal VGA connection.

The advanced PICMG bus add-on connection of HS-6010 allows user could easily obtain both ISA's 16-bit and PCI's 32-bit full set signals from a full size PICMG slot for suitable plug into system with 8/16/32-bit ISA and-or PCI slots operating. The HS-6010 provides with three pieces 168-pin DIMM sockets support up to 1.5GBytes of main system memory.

A single Flash chip holds the system BIOS, and you can easy update the Flash BIOS by the Utility Update. Advanced USB and IR ports also provide for faster and easily in data transmission. You can also use the DOS version of the "DiskOnChip? " socket by issuing commands from the DOS prompt without the necessity of other software supports up to 144MB.

If a non-expect program cause halts, the onboard watchdog timer will automatically reset the CPU or generate an interrupt. The watchdog is designed with hardware only and doesn' t need any arithmetical functions of a real-time clock chip. This ensures the reliability in an unmanned or

standalone system.

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## 1.1 Major Features

- ✂✂ PICMG bus supported.
- ✂✂ PC/104 bus connector for 8/16-bit supported.
- ✂✂ One axial-horizontal type Slot-1 socket for Intel™ Pentium® II 233 450 MHz Processors.
- ✂✂ ALi™ M1621 BX-Level chipset.
- ✂✂ Three pieces DIMM sockets supports DRAM up to 768 MB.
- ✂✂ Fast PCI DMA33 controller supports four IDE drives include large hard disks, CD-ROM and tape backup etc.
- ✂✂ PnP I/O address & IRQ selection
- ✂✂ Two high-speed RS-232 serial ports with 16C550 UART 16-byte FIFO.
- ✂✂ One enhanced bi-directional parallel port supports SPP/EPP/ECP.
- ✂✂ On-board PS/2 Keyboard and PS/2 Mouse connector.
- ✂✂ On-board S3® 86C375 SVGA adapter.
- ✂✂ DiskOnChip? Socket supports memory size up to 144 MB.
- ✂✂ On-board two USB ports and one IrDA port.
- ✂✂ Build-in one industrial WDT Watch-Dog-Timer.
- ✂✂ AWARD PnP Y2K Flash BIOS.

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## 1.2 Specifications

- ✎ **CPU:** One piece ALi™ Pentium®II 233/266/300/333/400/450MHz.
- ✎ **Bus interface:** PICMG bus, PC/104 bus.
- ✎ **Chipset:** ALi™ M1621 BX-Level with bus-100MHz facility.
- ✎ **Data bus:** 64-bit
- ✎ **Processing ability:** 64-bit
- ✎ **SVGA Controller:** S3® 86C375 chipset with 2MB memory supports CRT up to 1280x1024 256 colors. Provides internal 10-pin VGA connector.
- ✎ **PCI Enhanced IDE Interfaces:** Supports four IDE drives modes 3&4 with DMA33 function provide data transfer rate up to 33MB/Sec.
- ✎ **RAM memory:** Three pieces 168-pin DIMM sockets provide up to 768 MBytes.
- ✎ **Cache memory:** Slot-1 socket supports Intel's Pentium®II CPU with build-in 512KB Pipeline burst cache memory.
- ✎ **Floppy disk drive interface:** Supports up to two floppy disk drives.
- ✎ **Parallel port:** One bi-directional parallel port. Supports SPP/ECP/EPP.
- ✎ **Serial ports:** Two RS-232 ports. Both use 16C550 UART with 16-byte FIFO.
- ✎ **BIOS:** AWARD PnP Y2K Flash BIOS.
- ✎ **Watchdog timer:** Hardware circuit can be set by 1, 2, 10, 20, 110, or 220 seconds period Reset or NMI were generated when CPU did not periodically trigger the timer.
- ✎ **DMA channels:** 7

- 
- ✎ **Interrupt levels:** 15
  - ✎ **Keyboard:** 6-pin mini DIN connector or 5-pin header supports standard PC/AT keyboard.
  - ✎ **Mouse:** 6-pin mini DIN connector support PS/2 type mouse.
  - ✎ **USB:** Supports 2 USB header.
  - ✎ **IR interface:** Supports one IrDA TX/RX header.
  - ✎ **Flash memory Disk:** Socket for DiskOnChip™ (DOC), support up to 72MB Flash memory disk.
  - ✎ **Extra Power Input:** Provides one 4-PIN extra DC +5V/+12V power input connector.
  - ✎ **CMOS:** Real-time clock/calendar and battery backup by DS12B887 or equivalent device.
  - ✎ **Power supply voltage:** +5V (4.75 to 5.25V), +12V, -12V.
  - ✎ **Max. Power requirement:** +5V @4A(266MHz), +12V@20mA, -12V@20mA.
  - ✎ **Operating temperature:** 0-55°C (CPU need cooler)
  - ✎ **Board size:** 13.26"(L) x 4.8" (W) (337mm x 122mm)

The HS-6010 provides with VGA Interface, supports DMA33, WDT, DOC, USB and IrDA.

The HS-6010P provides with support DMA33/66, WDT, DOC, USB and IrDA. (A design as HS-6010 but without VGA on-board).



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## 1.3 Delivery Package

The delivery package of HS-6010 includes all following items:

- ##** One HS-6010 Industrial Single Board
- ##** One Printer & COM Ports Bracketed Flat Cable
- ##** Two IDE port Flat Cable
- ##** One FDD port Flat Cable
- ##** One PS/2 to Standard DIN type Keyboard Transfer Cable
- ##** Utility Diskette
- ##** User' s Manual

Please contact with your dealer if any of these items are missing or damaged when purchasing. And please keep all parts of the delivery package with packing materials in case of you want to ship or store the product in feature.

# Chapter-2

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## Hardware Installation

This chapter provides the information on how to install the hardware of HS-6010. At first, please follow up sections 1.3, 2.1 and 2.2 in check the delivery package and carefully unpacking. Following after, the jumpers setting of switch, watchdog timer and the DiskOnChip? address selection etc.

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### 2.1 Caution of Static Electricity

The HS-6010 has been well package with an anti-static bag in protect its sensitive computer components and circuitry from the damage of static electric discharge.

**Note: DO NOT TOUCH THE BOARD OR ANY OTHER SENSITIVE COMPONENTS WITHOUT ALL NECESSARY ANTI-STATIC PROTECTION.**

You should follow the steps as following to protect the board in against the static electric discharge whenever you handle the board:

1. Please use a grounding wrist strap on whoever needs to handle the HS-6010. Well clip the ALLIGATOR clip of the strap to the end of the shielded wire lead from a grounded object. Please put on and connect the strap before handle the HS-6010 for harmlessly discharge any static electricity through the strap.
2. Please use anti-static pad for put any components or parts or tools on the pad whenever you work on them outside the computer. You may also in use the anti-static bag instead the pad. Please ask from your local supplier in help up your necessary parts on anti-static requirement.

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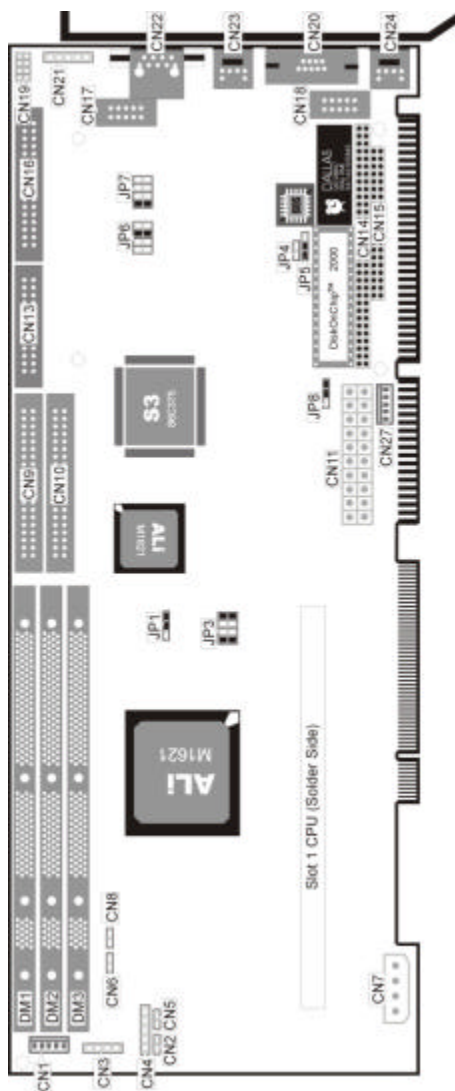
## 2.2 Caution on Unpacking and Before Installation

First of all, please follow with all necessary steps of section 2.1 in protection the HS-6010 from electricity discharge. With refer to section 1.3, please check the delivery package again with following steps:

1. Unpacking the HS-6010, keep well storage of all packing material, manual and diskette etc. if has.
2. Is there any components lose or drop from the board? DO NOT INSTALL IF HAPPENED.
3. Is there any visual damaged of the board? DO NOT INSTALL IF HAPPENED.
4. Well check from your optional parts (i.e. CPU, SRAM, DRAM, ROM-Disk etc.) for completed setting all necessary jumpers setting to jumper pin-set and CMOS setup correctly. Please also reference to all information of jumpers setting in this manual.
5. Well check from your external devices (i.e. Add-On-Card, Driver Type etc.) for completed add-in or connection and CMOS setup correctly. Please also reference to all information of connector connection in this manual.
6. Please keep all necessary manual and diskette in a good condition for your necessary re-installation if you change your Operating System or whatever needs.

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## 2.3 HS-6010's Layout



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## 2.4 Quick Listing of Jumpers

JP1 ( 1-2 ON )	— Bus-Clock Select
JP3 ( 3-4,7-8 ON )	— Frequency Multiplier setting of System Bus to Processor Core
JP4 ( 1-2 OFF )	— RTC Clear Jumper
JP5 ( 1-2 ON )	— WATCHDOG Active Select
JP6 ( 5-6 ON )	— Time scale of Watch-Dog Timer
JP7 ( 1-2 ON )	— DiskOnChip™ Address setting
JP8 ( 2-3 ON )	— ATX/AT Power Select

---

## 2.5 Quick Listing of Connectors

BZ1: ON-BOARD BUZZER  
CN1: INTERNAL 5-PIN KEYBOARD CONNECTOR  
CN2: RESET PIN  
CN3: SPEAKER CONNECTOR  
CN4: KEYLOCK CONNECTOR  
CN5: HDD LED CONNECTOR  
CN6: PS/2 POWER SWITCH CONNECTOR  
CN7: POWER 4-PIN CONNECTOR  
CN9: 1st IDE CONNECTOR  
CN10: 2nd IDE CONNECTOR  
CN13: PARALLEL PORT CONNECTOR  
CN16: FDD CONNECTOR  
CN17: INTERNAL VGA LCD CONNECTOR (HEADER 25x2)  
CN18: COM2 (HEADER 5x2)  
CN19: USB PORTS CONNECTOR  
CN20: EXTERNAL COM1 CONNECTOR (DB9)  
CN21: IR CONNECTOR (6-PIN)  
CN22: EXTERNAL VGA CONNECTOR (DB15)  
CN23: EXTERNAL MINI-DIN PS/2 MOUSE CONNECTOR  
CN24: EXTERNAL MINI-DIN PS/2 KEYBOARD CONNECTOR  
CN26: EXTERNAL COM2 CONNECTOR (DB9) (HS-6010P only)  
CN35: FAN POWER CONNECTOR  
LD1: ON-BOARD POWER-ON LED INDICATOR

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U17: DiskOnChip™ SOCKET

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## 2.6 Jumper Setting Description

A jumper pin-set is **ON** as a shorted circuit with a plastic cap inserted over two pins. A jumper pin-set is **OFF** as an open circuit with a plastic cap inserted over one or no pin(s) between pins. The below figure 2.2 shows the examples of different jumper pin-set settings as **ON** or **OFF** in this manual.

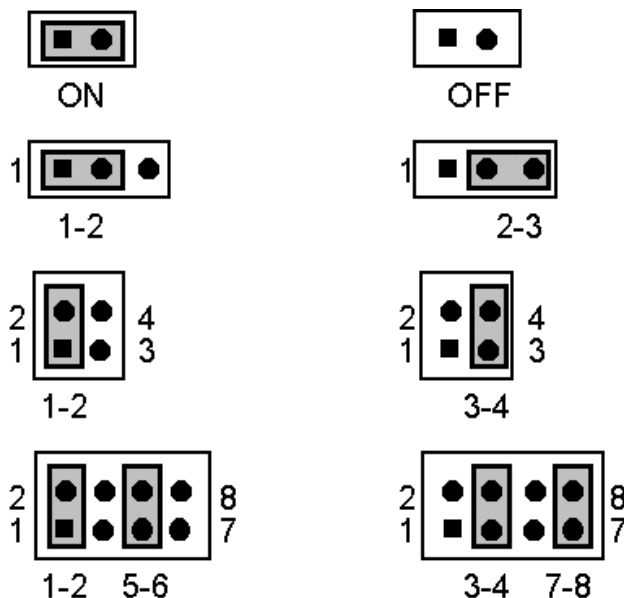


Figure 2.2

All jumper pin-set already has its default setting with the plastic cap inserted as ON, or without the plastic cap inserted as OFF. The default setting may reference in this manual with a "\*" symbol in front of the selected item.

---

## 2.7 Setting the Bus-Clock Frequency

The HS-6010 provides all necessary by jumper setting in using Bus-Clock frequency as the system bus clocking with JP1 setting as following:

☞ **Bus-Clock Frequency Setting of JP1:**

Bus-Clock Frequency	JP1
* 100MHz	1-2
66MHz	2-3

---

## 2.8 Frequency Multiplier Setting

The HS-6010 provides JP3 for define the selection of the Frequency Multiplier value of system bus to processor core in following table:

☞ **Frequency Multiplier Setting of JP3:**

Frequency Multiplier: ( System Bus to Processor Core )	7-8	5-6	3-4	1-2
2x	ON	ON	ON	ON
2.5x	ON	ON	ON	OFF
6x	ON	ON	OFF	ON
6.5x	ON	ON	OFF	OFF
3x	ON	OFF	ON	ON
* 3.5x	ON	OFF	ON	OFF
7x	ON	OFF	OFF	ON
7.5x	ON	OFF	OFF	OFF
4x	OFF	ON	ON	ON
4.5x	OFF	ON	ON	OFF
8x	OFF	ON	OFF	ON
1.5x	OFF	ON	OFF	OFF
5x	OFF	OFF	ON	ON
5.5x	OFF	OFF	ON	OFF
Reserved	OFF	OFF	OFF	ON

The bus-clock is setting by JP1 and JP2 The default setting is for Intel Pentium®II 350MHz processor.



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## 2.9 Setting the RTC Configuration

The HS-6010 provides a setting for the selection of the RTC Clear Jumper by JP4 setting as following:

*///* **CMOS Setting of JP4:**

CMOS Clear Jumper	JP4
Normal	* OFF
Clear CMOS	ON

---

## 2.10 System Memory DRAM

The HS-6010 provides a wide range on-board DRAM memory by three pieces DIMM sockets (DIMM-1, DIMM-2, DIMM-3) request the access time should meet PC-100 standard.. The maximum capacity of the on board memory is 1.5GBytes.

See the figure on section 2.3 for get the identifying the banks.

---

## 2.11 ATX/AT Power Select

The HS-6010 provides a selection by a three-pin jumper JP8 for setting the power supply type in using.

*///* **ATX/AT Power Select Setting of JP8:**

Power Supply In Using	JP8
AT Power Supply	* 2-3
ATX Power Supply	1-2

---

## 2.12 Watch-Dog Timer

There are three access cycles of Watch-Dog Timer as Enable, Refresh and Disable. The Enable cycle should proceed by READ PORT 443H. The Disable cycle should proceed by READ PORT 043H. A continue Enable cycle after a first Enable cycle means Refresh.

Once if the Enable cycle activity, a Refresh cycle is request before the time-out period for restart counting the WDT Timer's period.

Otherwise, it will assume that the program operation is abnormal when the time counting over the period preset of WDT Timer. A System Reset signal to start again or a NMI cycle to the CPU comes if over.

The JP5 is using for select the active function of watch-dog timer in disable the watch-dog timer, or presetting the watch-dog timer activity at the reset trigger, or presetting the watch-dog timer activity at the NMI trigger.

### ☞ JP5 : Watch-Dog Active Type Setting

JP5	DESCRIPTION
*1-2	System Reset
2-3	Active NMI
OFF	disable Watch-dog timer

### ☞ JP6 : WDT Time - Out Period

PERIOD	1-2	3-4	5-6	7-8
*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

---

The Watch-dog timer is disabled after the system Power-On. The watch-dog timer can be enabled by a Enable cycle with reading the control port (443H), a Refresh cycle with reading the control port (443H) and a Disable cycle by reading the Watch-dog timer disable control port (043H). After a Enable cycle of WDT, user must constantly proceed a Refresh cycle to WDT before its period setting comes ending of every 1, 2, 10, 20, 110 or 120 seconds which pre-setting by JP6. If the Refresh cycle does not active before WDT period cycle, the on board WDT architecture will issue a Reset or NMI cycle to the system.

The Watch-Dog Timer is controlled by two I/O ports.

443H	I/O Read	The Enable cycle.
443H	I/O Read	The Refresh cycle.
043H	I/O Read	The Disable cycle.

The following sample programs showing how to Enable, Disable and Refresh the Watch-dog timer:

```

WDT_EN_RF      EQU    0443H
WDT_DIS        EQU    0043H
WT_Enable      PUSH   AX           ; keep AX DX
                PUSH   DX
                MOV    DX,WDT_EN_RF ; enable the watch-dog timer
                IN     AL,DX
                POP    DX           ; get back AX, DX
                POP    AX
                RET
WT_Rresh       PUSH   AX           ; keep AX, DX
                PUSH   DX
                MOV    DX,WDT_ET_RF ; refresh the watch-dog timer
                IN     AL,DX
                POP    DX           ; get back AX, DX
                POP    AX
                RET
WT_DISABLE     PUSH   AX
                PUSH   DX
                MOV    DX,WDT_DIS   ; disable the watch-dog timer
                IN     AL,DX
                POP    DX           ; get back AX, DX
                POP    AX
                RET

```

---

## 2.13 PCI VGA Controller

The HS-6010 has built-in a S3 86C375 VGA Controller with on-board 2 MB memory, support resolutions up to 1280 x 1024 256 colors, reserved internal 10-pin VGA-CRT header connector.

To get more VGA drivers information, please refer to the S3' s internet address: **WWW.S3.COM**

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## 2.14 DiskOnChip? Address Setting

The HS-6010 provides a U17 socket for install the DiskOnChip? module.

A JP7 may select the starting memory address of the DiskOnChip? (D.O.C.) for avoid the mapping area with any other memory devices. If you have another extra memory devices in the system with the same memory, neither the HS-6010 nor the extra memory devices will function normally. Please setting both at different memory address mapping.

### *2.14* JP7 : DiskOnChip? Address

Memory Address Mapping	JP7
D000	* 1-2
D800	3-4
E000	5-6
E800	7-8

\*) : default setting

The D.O.C. function allows the system in using without FDD nor HDD. The D.O.C. may formatting as driver C: or driver A:. User may also easily uses the DOS's commands such as FORMAT, SYS, COPY, XCOPY, DISCOPY and DISKCOMP etc. This is means that the D.O.C. may uses as driver-A if the system without FDD-A for ambient application. Please contact with your supplier for different size D.O.C. module.

# Chapter-3

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## Connection

This chapter gives all necessary information of the peripheral's connections, switches and indicators.

---

### 3.1 Power and FAN Connectors

The HS-6010 provides one 4-pin DC-Power connector as following CN7 pin information. And also provides one 3-pin fan out connector at solder side as following CN35 pin information.

#### ✂ CN7 : 4-PIN POWER CONNECTOR

PIN NO.	DESCRIPTION
1	Vcc
2	GND
3	GND
4	+12V

#### ✂ CN35 : 3-PIN FAN IN/OUT CONNECTOR

PIN NO.	Type	DESCRIPTION	
1	To FAN	GND	
2	To FAN	+12V	
3	From FAN	FAN Activity Indicator	
		Low	High
		FAN Running	FAN Stop

The input pin-2 ( +12V ) is a DC power to FAN. The pin-3 (Indicator) shows out the activity of the FAN - A Low means that the FAN is in running, a High means that the FAN is stop.

---

## 3.2 IDE's LED, Key-Lock and Reset Button

The HS-6010 has one LED ( LD1 ) indicates out power-on status. And the following provides the pin information for IDE's LED indicator, Key-Lock and Reset Button connections from CN5, CN4 and CN2.

*☞* **CN5 : IDE LED connector**

PIN NO.	DESCRIPTION
1	+5V
2	HDD ACTIVE#

*☞* **CN4 : POWER LED & KEYLOCK**

PIN NO.	DESCRIPTION
1	POWER LED ANODE
2	NC
3	GROUND
4	KEYLOCK
5	GROUND

*☞* **CN2 : RESET BUTTON**

PIN NO.	DESCRIPTION
1	EXTERNAL RESET
2	GROUND

---

## 3.3 Extra Speaker Connector

The HS-6010 has an on-board buzzer ( BZ1 ). And it also provides the CN3 in allows user to connecting to the external speaker.

*☞* **CN3 : Speaker Connector**

PIN NO.	DESCRIPTION
1	SPEAKER SIGNAL
2	NC
3	GROUND
4	+5V

---

## 3.4 PCI E-IDE Drive Connector

Two standard 40-pin header daisy-chain driver connectors provide as CN9 and CN10 with following pin assignment. Total four IDE (Integrated Device Electronics) drivers may connect.

### **CN9 (IDE 1) : Primary IDE Connector**

#### **☞ CN9 : IDE Interface Connector**

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	RESET	2	GROUND
3	DATA 7	4	DATA 8
5	DATA 6	6	DATA 9
7	DATA 5	8	DATA 10
9	DATA 4	10	DATA 11
11	DATA 3	12	DATA 12
13	DATA 2	14	DATA 13
15	DATA 1	16	DATA 14
17	DATA 0	18	DATA 15
19	GROUND	20	N/C
21	N/C	22	GROUND
23	IOW#	24	GROUND
25	IOR#	26	GROUND
27	N/C	28	BALE - DEFAULT
29	N/C	30	GROUND# -DEFAULT
31	INTERRUPT	32	IOCS16#-DEFAULT
33	SA1	34	N/C
35	SA0	36	SA2
37	HDC CS0	38	HDC CS1#
39	HDD ACTIVE	40	GROUND

---

## CN10 (IDE 2) : Primary IDE Connector

### ✂ CN10 : IDE Interface Connector

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	RESET	2	GROUND
3	DATA 7	4	DATA 8
5	DATA 6	6	DATA 9
7	DATA 5	8	DATA 10
9	DATA 4	10	DATA 11
11	DATA 3	12	DATA 12
13	DATA 2	14	DATA 13
15	DATA 1	16	DATA 14
17	DATA 0	18	DATA 15
19	GROUND	20	N/C
21	N/C	22	GROUND
23	IOW#	24	GROUND
25	IOR#	26	GROUND
27	N/C	28	BALE - DEFAULT
29	N/C	30	GROUND# -DEFAULT
31	INTERRUPT	32	IOCS16#-DEFAULT
33	SA1	34	N/C
35	SA0	36	SA2
37	HDC CS0	38	HDC CS1#
39	HDD ACTIVE	40	GROUND



---

## 3.5 PS/2 Power ON/OFF Control

The HS-6010 reserved a CN6 for PS/2 Power ON/OFF Control.

☞ **CN6 : PS/2 Power ON/OFF Control**

CN6	DESCRIPTION	
1	LOW	HIGH
	Switch Power OFF	Switch Power ON
2	GND	

---

## 3.6 Parallel Port Connector

A standard 26-pin flat cable driver connector provides as CN13 with following pin assignment for connection to parallel printer.

☞ **CN13 : Parallel Port Connector**

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
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	PRINTER SELECT	14	AUTO FORM FEED
15	ERROR#	16	INITIALIZE
17	PRINTER SELECT LN#	18	GROUND
19	GROUND	20	GROUND
21	GROUND	22	GROUND
23	GROUND	24	GROUND
25	GROUND	26	GROUND

---

## 3.7 The Floppy Disk Drive Connector

A standard 34-pin header daisy-chain driver connector provides as CN16 with following pin assignment. Total two FDD drivers may connect.

*2.2* **CN16 : FDD CONNECTOR**

PIN NO.	DESCRIPTION	PIN NO.	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 DATA#
25	GROUND	26	TRACK 0#
27	GROUND	28	WRITE PROTECT#
29	GROUND	30	READ DATA#
31	GROUND	32	SIDE 1 SELECT
33	GROUND	34	DISK CHANGE#

---

## 3.8 Serial Ports Connectors

The HS-6010 offers two high speeds NS16C550 compatible UARTs with Read/Receive 16 byte FIFO serial ports with one external DB-9 connector CN20 and one internal 10-pin header CN18. The HS-6010P which is with two external DB-9 RS-232 connectors CN20/26 and without VGA on-board. All pin-assignment are listing at below:

*///* **CN20/26 : Serial Port DB-9 Connector (COM1/COM2)**

PIN NO.	DESCRIPTION
1	DATA CARRIER DETECT (DCD)
2	RECEIVE DATA (RXD)
3	TRANSMIT DATA (TXD)
4	DATA TERMINAL READY (DTR)
5	GROUND (GND)
6	DATA SET READY (DSR)
7	REQUEST TO SEND (RTS)
8	CLEAR TO SEND (CTS)
9	RING INDICATOR (RI)

*///* **CN18 : Serial Port 10-pin Header (COM2)**

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	DCD	2	DSR
3	RXD	4	RTX
5	TXD	6	CTX
7	DTR	8	RI
9	GND	10	NC

---

## 3.9 Keyboard Connectors

The HS-6010 offers two possibilities for keyboard connections to external PS/2 type keyboard at CN24 and an internal 5-pin header at CN1.

*☞* **CN1 : 5-pin Header Keyboard Connector**

PIN NO.	DESCRIPTION
1	KEYBOARD CLOCK
2	KEYBOARD DATA
3	N/C
4	GROUND
5	+5V

*☞* **CN24 : 6-pin Mini-DIN Keyboard Connector**

PIN NO.	DESCRIPTION
1	KEYBOARD DATA
2	N/C
3	GROUND
4	+5V
5	KEYBOARD CLOCK
6	N/C

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## 3.10 PS/2 Mouse 6-pin Mini-DIN Connector

The HS-6010 provides an external PS/2 mouse connector at CN23 with following pin information.

*☞* **CN23 : PS/2 Mouse Connector**

PIN NO.	DESCRIPTION
1	DATA
2	NC
3	GROUND
4	+5V
5	CLK
6	NC

---

## 3.11 VGA-CRT Connector

The HS-6010 provides two possible connectives of VGA-CRT connections. One standard DB-15 external VGA connector as following CN22 pin information. Another internal 10-pin header for VRA-CRT connection as following CN17 pin information.

☞ **CN22 : 15-pin DB-15 Female VGA-CRT connector**

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	RED	2	GREEN
3	BLUE	4	NC
5	GROUND	6	GROUND
7	GROUND	8	GROUND
9	NC	10	GROUND
11	NC	12	NC
13	HSYNC	14	VSYNC
15	NC		

☞ **CN17 : 10-pin 5x2 Header VGA-CRT connector**

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	RED	2	GROUND
3	GREEN	4	GROUND
5	BLUE	6	GROUND
7	HSYNC	8	GROUND
9	VSYNC	10	GROUND

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## 3.12 IR Connector

The HS-6010 provides a 6-pin internal IR communication connector as following CN21 pin information.

☞ **CN21 : 6-PIN IR CONNECTOR**

PIN	DESCRIPTION	PIN	DESCRIPTION
1	Vcc	4	GROUND
2	FIRRX	5	IRTX
3	IRRX	6	CVROFF

---

## 3.13 USB Ports Connector

The HS-6010 provides a internal 8-pin header for two USB ports connection. Please refer to the following detail pin information.

☞ **JP19 : 8-pin Header USB Connector**

PIN NO.	JP19	PIN NO.	JP19
1	Vcc	2	Vcc
3	BD0-	4	BD1-
5	BD0+	6	BD1+
7	GROUND	8	GROUND

# ***Chapter-4***

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## **AWARD BIOS Setup**

The HS-6010 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. The Main Menu will be displayed at this time.

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## 4.1 Main Menu

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

ROM PCI/ISA BIOS (2A6KLD29)  
CMOS SETUP UTILITY  
AWARD SOFTWARE, INC.

<b>STANDARD CMOS SETUP</b>	INTEGRATED PERIPHERALS
BIOS FEATURES SETUP	SUPERVISOR PASSWORD
CHIPSET FEATURES SETUP	USER PASSWORD
POWER MANAGEMENT SETUP	IDE HDD AUTO DETECTION
PNP/PCI CONFIGURATION	HDD LOW LEVEL FORMAT
LOAD BIOS DEFAULTS	SAVE & EXIT SETUP
LOAD SETUP DEFAULTS	EXIT WITHOUT SAVING
Esc : Quit	↑ ↓ → ← : Select Item
F10 : Save & Exit Setup	(Shift)F2 : Change Color

Note that a brief description of each highlighted selection appears at the bottom of the screen.



## 4.2 Standard CMOS Setup

The Standard Setup is used for the basic hardware system configuration. The main function is for Data/Time and Floppy/Hard Disk Drive settings. Please refer to the following screen for the setup. When the IDE hard disk drive you are using is larger than 528MB, please set the HDD mode to **LBA** mode. Please use the IDE Setup Utility in BIOS SETUP to install the HDD correctly.

ROM PCI / ISA BIOS <2A6KLD29>  
STANDARD CMOS SETUP  
AWARD SOFTWARE, INC.

Data (mm:dd:yy) : Mon , Dec 27 1999																	
Time (hh:mm:ss) : 15 : 3 : 6																	
<b>HARD DISKS</b>	<b>TYPE</b>	<b>SIZE</b>	<b>CYLS</b>	<b>HEAD</b>	<b>PRECOMP</b>	<b>LANDZ</b>	<b>SECTOR</b>	<b>MODE</b>									
Primary Master	: Auto	0 M	0	0	0	0	0	AUTO									
Primary Slave	: Auto	0 M	0	0	0	0	0	AUTO									
Secondary Master	: Auto	0 M	0	0	0	0	0	AUTO									
Secondary Slave	: Auto	0 M	0	0	0	0	0	AUTO									
<table style="width: 100%; border: none;"> <tr> <td style="width: 50%;">Drive A : 1.44M, 3.5 in</td> <td style="width: 50%; border-left: 1px solid black; padding-left: 10px;">Base Memory : 640k</td> </tr> <tr> <td>Drive B : None</td> <td style="border-left: 1px solid black; padding-left: 10px;">Extended Memory : 31744k</td> </tr> <tr> <td>LCD&amp;CRT : EGA/VGA</td> <td style="border-left: 1px solid black; padding-left: 10px;">Other Memory : 384k</td> </tr> <tr> <td>Halt On : All Errors</td> <td style="border-left: 1px solid black; padding-left: 10px;">Total Memory : 32768k</td> </tr> </table>										Drive A : 1.44M, 3.5 in	Base Memory : 640k	Drive B : None	Extended Memory : 31744k	LCD&CRT : EGA/VGA	Other Memory : 384k	Halt On : All Errors	Total Memory : 32768k
Drive A : 1.44M, 3.5 in	Base Memory : 640k																
Drive B : None	Extended Memory : 31744k																
LCD&CRT : 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														

## 4.3 BIOS Features Setup

This section allows you to configure your system for the basic operation. You have the opportunity to select the system's default speed, boot-up sequence, keyboard operation, shadowing and security.

ROM PCI / ISA BIOS <2A6KLD29>  
 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-CFFF	Shadow	: Disabled
Processor Number Feature	: Enabled	D0000-D3FFF	Shadow	: Disabled
Quick Power On Self Test	: Enabled	D4000-D7FFF	Shadow	: Disabled
Boot Sequence	: CDROM,C,A	D8000-DBFFF	Shadow	: Disabled
Swap Floppy Drive	: Disabled	DC000-DFFFF	Shadow	: Disabled
Boot Up Floppy Seek	: Enabled			
Boot Up NumLock Status	: On			
Boot Up System Speed	: High			
Gate A20 Option	: Normal			
Typematic Rate Setting	: Disabled			
Typematic Rate (Chars/Sec)	: 6			
Typematic Delay (Msec)	: 250			
Security Option	: Setup			
PCI/VGA Palette Snoop	: Enabled	ESC	: Quit	<i>← ← ← ←</i> : Select Item
Assign IRQ For VGA	: Enabled	F1	: Help	PU / PD / +/- : Modify
OS Select For DRAM > 64MB	: Non-OS2	F5	: Old Values	(Shift) F2 : Color
Report No FDD For WIN 95	: No	G6	: Load BIOS Defaults	
		G7	: Load Setup Defaults	

## 4.4 Chipset Features Setup

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

ROM PCI / ISA BIOS <2A6KLD29>  
 CHIPSET FEATURES SETUP  
 AWARD SOFTWARE, INC.

<p>Timing Pack of BANK0 : Slow            SDRAM CAS Latency of BANK0 : 3 clocks            Timing Pack of BANK1 : Slow            SDRAM CAS Latency of BANK1 : 3 clocks            Timing Pack of BANK2 : Slow            SDRAM CAS Latency of BANK2 : 3 clocks            Auto Configuration : Enabled            At Bus Clock : CLK 2/4            ECC/EC Option : No ECC/EC            Local In-Order-Queue Depth : 1            DRAM Date Integrity Mode : Disabled            ISA Line Buffer : Disabled            I/O Recovery Period : 2 us            VGA Frame Buffer : 16 MB            Video BIOS Cacheable : Disabled            Video RAM Cacheable : Disabled</p>	<p>ESC : Quit      <i>←←←←</i> : Select Item            F1 : Help      PU/PD/+/- : Modify            F5 : Old Values (Shift) F2 : Color            F6 : Load BIOS Defaults            F7 : Load Setup Defaults</p>
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## 4.5 Integrated Peripherals

The IDE hard drive controllers can support up to two separate hard drives. These drives have a master/slave relationship which is determined by the cabling configuration used to attach them to the controller. Your system supports two IDE controllers--a primary and a secondary--so you can install up to four separate hard disks.

PIO means Programmed Input /Output. Rather than having the BIOS issue a series of commands to affect the transfer to or from the disk drive, PIO allows the BIOS to tell the controller what it wants and then let the controller and the CPU perform the complete task by them. This is much simpler and more efficient (also faster).

ROM PCI / ISA BIOS <2A6KLD29>  
INTEGRATED PERIPHERALS  
AWARD SOFTWARE, INC.

On-Chip Primary IDE	: Enabled	Onboard Parallel Port	: 378 / IRQ7
Master PIO	: Auto	Parallel Port Mode	: ECP EPP1,9
Slave PIO	: Auto	ECP Mode Use DMA	: 3
Master Ultra UDMA	: Auto	Onboard IrDA Port	: Disabled
Slave Ultra UDMA	: Auto		
On-Chip Secondary PCI IDE	: Auto		
Master PIO	: Auto		
Slave PIO	: Auto		
Master Ultra UDMA	: Auto		
Slave Ultra UDMA	: Auto		
IDE HDD Block Mode	: Disabled		
	:		
	:		
KBC input clock	: 8MHz		
Onboard FDC Controller	: Enabled		
Onboard Serial Port 1	: 3F8/IRQ4	ESC	: Quit <i>Esc Esc Esc</i> : Select Item
Onboard Serial Port 2	: 2F8/IRQ3	F1	: Help      PU/PD/+/- : Modify
		F5	: Old Values (Shift) F2 : Color
		F6	: Load BIOS Defaults
		F7	: Load Setup Defaults

## 4.6 Power Management Setup

The Power Management Setup allows user to configure the system for saving energy in a most effective way while operating in a manner consistent with his own style of computer use.

ROM PCI-ISA BIOS <2A6KLD29>  
POWER MANAGEMENT SETUP  
AWARD SOFTWARE, INC.

ACPI Function	: Disabled	<b>** Standby Events **</b>	
Power Management	: User Define	Bus Master	: Disabled
PM Control by APM	: No	Primary HDD	: Disabled
MODEM Use IRQ	: NA	Secondary HDD	: Disabled
Video Off Option	: Susp, Stby -> off	Vido I/O Access	: Disabled
Video Off Method	: DPMS Support	Floppy I/O Access	: Disabled
<b>** PM Monitor **</b>		Serial Ports	: Disabled
HDD Power Down	: Disable	Keyboard Access	: Enabled
Doze Mode	: Disable	Parallel Ports	: Disabled
Standby Mode	: Disable		
Suspend Mode	: Disable		
		ESC	: Quit
		F1	: Help
		F5	: Old Values
		F6	: Load BIOS Defaults
		F7	: Load Setup Defaults
		←←←←	: Select Item
		PU/PD/+/-	: Modify
		(Shift) F2	: Color