ATX686D Dual Pentium II ATX PCI System Board Note

Essentially, most jumpers on ***ATX686D*** are described as ATX686 (N686SX) manual's. So that we use ATX686 (N686SX) user's manual and this note for ***ATX686D system board.***

1) ***ATX686D*** M/B has two sets of Slot 1 for dual Pentium II processors.
2) There are few different jumper settings between ***ATX686D*** and ATX686 (N686SX):
   A. CPU Bus Clock, Page 1-3. If the board is ATX686D, it is as follows:

CPU Bus Clock	CPU Core Clock Mhz	JP1	Turbo	JP12
60 / 61.6Mhz	120/150/180/210/240/270/333	2-3, 5-6	Normal(Turbo)	OPEN (SHORT)
66 / 68.4 Mhz	133/166/200/233/266/300	1-2, 4-5	Normal (Turbo)	OPEN (SHORT)
75 Mhz	Reserved	1-2, 1-2	Turbo	SHORT
83 Mhz	Reserved	2-3, 2-3	Turbo	SHORT

   B. Front Panel Connector, **J12.** Pin-20 and Pin-21 are for STANDBY switch from case front panel, STBY. SHORT Pin-20 and Pin-21 is for charge system power state On/Off. Besides BIOS Peripherals Setting Item, Modem Ring Up, must be " ENABLE." If not, STANDBY switch will not function power On/Off from Power Supply. It is a special design to Power On and Power Off. When Windows 95 shut-down the PC, it will auto turn-off system power supply. You don't need to press power supply switch! When you are going to use PC, just press STANDBY switch on ATX case to turn-on system power supply.
   C. **JP3**: CPU SMI Mode.
   SHORT from IOAPIC, Dual CPU
   OPEN from PIIX3, Single CPU

BEST REGARDS

PENTIUM PRO ALL I/O
GREEN & PnP
MAIN BOARD

Intel 440FX
PCI-690 for AT Size
ATX686 for ATX Size + Wide SCSI

USER'S MANUAL

version 1.0

CONTENT

Preface

Inside the Document

This document express how to setup *PCI-690* and ATX686 main board Intel NATOMA PCI CHIPSET 440FX. PCI-690 is for AT size, and N686X is for ATX form, plus Adaptec 7880 SCSI on board. We will highline the different jumpers between PCI-690 and ATX686. **Enhance I/O** system board to be configured with right jumpers and values in your system. Package of *PCI-690* with 1 IDE cable for 2 devices, 1 FDD cable for 2 devices, 1 COM1 cable, 1 COM2 cable, 1 Parallel cable, and 1 PS/2 Mouse cable, and IDE DEVICE DRIVER, including WINDOWS NT 3.5, WINDOWS 95, OS/2 2.0 and WARP3.X. Package of ATX686 with 1 IDE cable for 2 devices, 1 FDD cable for 2 devices, and SCSI, WSCSI cables, and IDE/SCSI DRIVER, including WINDOWS NT 3.5, WINDOWS 95, OS/2 2.0 and WARP3.X.

Chapter 1 is for hardware installation for *PCI-690*. The information in Chapter 1 is about positions, jumpers and connectors. Due to the board supports full range of Pentium CPU Pro 150Mhz-200Mhz, P6S, and P6T. There are many jumpers related to CPU type, speed, and voltage. Connectors are for input/output devices.

Chapter 2 is for hardware installation for ATX686. Most jumper settings are same as PCI-690 and we only describe the different jumpers and connectors in this chapter.

Chapter 3 is for BIOS setup. If you want to use external I/O card, you can disable the I/O function in BIOS and then install a card on slot. You also modify the COM1 and COM2 as COM3 and COM4 in BIOS. Finally, the BIOS is PnP function. It auto detect the PCI IRQ, ISA IRQ and HDD mode.
Chapter 4 is for IDE DIVER installation and how to upgrade BIOS.

Simple features:

- Intel 440 FX PCISET. PCI and Memory Controller (PMC), Data Bus Accelerator (DBX), and PCI ISA IDE Xcelerator (PIIX3).
- Winbond W83877F super I/O on board.
- Support 60/66Mhz P6 CPU Bus frequency, max to 333Mhz CPU speed.
- Support on board 13A 80% efficiency VRM(*PCI-690*), 15A (*N686SX*)
- On board VRM program outputs from 2.1v to 3.5v using integrated 4 bits DAC (*PCI-690*), and from 1.3v to 3.5v using integrated 5 bits DAC (*N686SX*).
- Support 2, 2.5, 3, 3.5, 4, 4.5, 5, 5.5 ratio of core clock to bus clock
- Support BEDO/EDO/Fast page DRAM, 72-pin SIMM socket * 4pcs 2 pairs/4 banks up to 512MB.
- 3.3v/3.45v CPU voltage on board.
- PCI V2.1 compatible. Concurrent PCI, enhanced CPU/PCI/ISA performance. Multi-transational timer. Enhanced write performance. Passive release.
- Optimized performance for short bursters (smart TV and Video capture).
- Cut down on DMA and ISA overhead (Audio applications).
- DRAM availability has less impact on CPU-DRAM-PCI write cycle.
- Support the **U**niversal **S**erial **B**us (USB).
- SIMM sockets support FP/EDO/BEDO (5-2-2-2) DRAM.

- Support on chip DRAM parity/ECC (Error Checking and Correction) for sever designs.
- 4 * 32-bit PCI, 4 * 16 bit ISA Slots, (3pcs*ISA for *N686SX*)
- 2 * IDE bus master ATAPI EIDE, support 4 IDE devices. EPP/ECP/SPP printer port. 2 * 16550 UART serial ports. PS/2 mouse port. IR, infrared, port, option for FIR, fast infrared. 2 * USB, universal serial bus, ports.
- Built-in AWARD PCI/ISA Plug and Play Flash BIOS GREEN BIOS
- One mega flash BIOS ROM.
- PCB size 220*280mm.(245*305mm for *N686SX*)

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Chapter 1

Hardware Installation For *PCI-690*

✐About This Section

❶ PCB layout and relevant positions for SIMM, , SLOTS, and CPU
❷ Insert the system CPU processor
❸ Set the CPU relevant jumpers to correctly configure the CPU type, CPU speed and CPU voltage.
❹ Install system DRAM memory.
❺ Install IDE, I/O connectors and other jumpers
❻ I/O address and IRQ/DRQ

1.1 PCB Layout and Positions

Please refer to previous left side page for PCB layout.

1.2 Install The System CPU Processor

■ Install Pentium Pro CPU on the ZIF socket, U9.

å➥ Locate the 387-pin ZIF socket, U9.

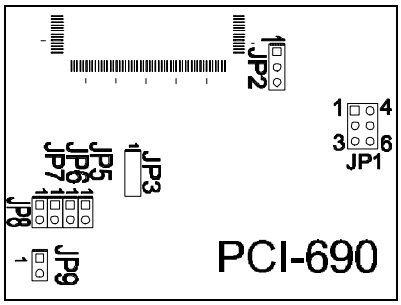
å ➥ Raise the ZIF socket retaining arm to the open position. Pin coordinates A-1 will be in the arm corner.

å ➥ Position the notched corner of microprocessor over the notched corner of the ZIF socket and align the pins of CPU over the socket.

å ➥ Carefully insert the aligned CPU into the ZIF socket and press firmly. After CPU inserted,press ZIF retaining arm downwards.

å ➥ Examine the installed CPU to ensure it is installed in the correct direction and pin aligned properly.

1.3 Set The CPU Relevant Jumpers To Correctly Configure The CPU Type, CPU Clock And CPU Voltage



*** CPU VOLTAGE ***

JP9: Select **CPU Voltage**, 3.3v and 3.45v.
SHORT for 3.45v CPU(default), OPEN for 3.3v CPU.

*** CPU SPEED SETTING FOR PENTIUM PRO***

CPU SPEED	JP8	JP7	JP6	JP5	JP1
150Mhz	SHORT	SHORT	SHORT	OPEN	2-3, 5-6
166	SHORT	SHORT	SHORT	OPEN	1-2, 4-5
180	SHORT	SHORT	OPEN	SHORT	2-3, 5-6
200	SHORT	SHORT	OPEN	SHORT	1-2, 4-5
210	SHORT	SHORT	OPEN	OPEN	2-3, 5-6
233	SHORT	SHORT	OPEN	OPEN	1-2, 4-5
240	SHORT	OPEN	SHORT	SHORT	2-3, 5-6
266	SHORT	OPEN	SHORT	SHORT	1-2, 4-5
270	SHORT	OPEN	SHORT	OPEN	2-3, 5-6
300	SHORT	OPEN	SHORT	OPEN	1-2, 4-5
333	SHORT	OPEN	OPEN	SHORT	2-3, 5-6

+ JP1 is for BUS CLOCK.
+ JP5-8 are for ratio of core clock to bus clock.
++ PCI690 is only supporting 150-200Mhz Pentium Pro CPU,P6S/P6T

*** RATIO OF CORE CLOCK TO BUS CLOCK ***

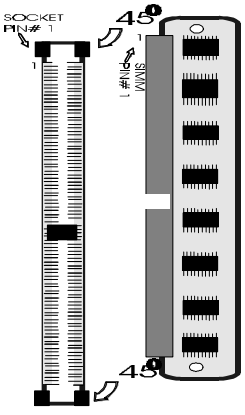
CPU Mhz	JP8	JP7	JP6	JP5	Freq. Mult
120/133	SHORT	SHORT	SHORT	SHORT	2x
150/166	SHORT	SHORT	SHORT	OPEN	2.5x
180/200	SHORT	SHORT	OPEN	SHORT	3x
210/233	SHORT	SHORT	OPEN	OPEN	3.5x
240/266	SHORT	OPEN	SHORT	SHORT	4x
276/300	SHORT	OPEN	SHORT	OPEN	4.5x
333	SHORT	OPEN	OPEN	SHORT	5x

*** CPU BUS CLOCK ***

CPU BUS Clock Mhz	CPU Core Clock Mhz	JP1
60	120/150/180/210/240/270/333	2-3, 5-6
66	133/166//200/233/266/300	1-2, 4-5

1.4 Install System DRAM Memory

The board supports different types 72-pin SIMM whatever single side or double side. There is no jumper nor connector needed for memory configuration. It also supports both fast page DRAM or EDO DRAM or BEDO SIMMs, but you can't use them at the same bank, i.e. one SIMM is fast page DRAM and the other is EDO SIMM.



However, it is no problem that you use one bank, 2pcs EDO mode DRAM SIMM and the other bank, 2pcs page mode DRAM SIMM.

The 70ns fast page SIMM or 60ns EDO DRAM needed, at least.

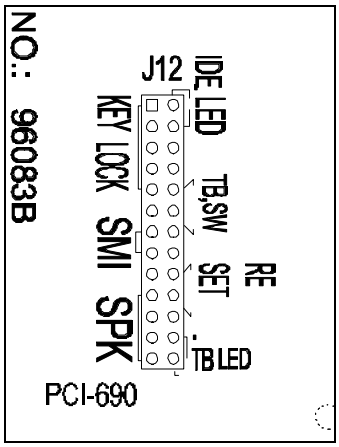
Bank 0, SIMM 1/2	Bank 1, SIMM 3/4	TOTAL
1MB * 32 SS	X	8MB
1MB * 32 SS	1MB * 32 SS	16MB
1MB * 32 SS	2MB * 32 DS	24MB
1MB * 32 SS	4MB * 32 SS	40MB

1MB * 32 SS	8MB * 32 DS	72MB
2MB * 32 DS	X	16MB
2MB * 32 DS	1MB * 32 SS	24MB
2MB * 32 DS	2MB * 32 DS	32MB
2MB * 32 DS	4MB * 32 SS	48MB
2MB * 32 DS	8MB * 32 DS	80MB
4MB * 32 SS	X	32MB
4MB * 32 SS	1MB * 32 SS	40MB
4MB * 32 SS	2MB * 32 DS	48MB
4MB * 32 SS	4MB * 32 SS	64MB
4MB * 32 SS	8MB * 32 DS	96MB
8MB * 32 DS	X	64MB
8MB * 32 DS	1MB * 32 SS	72MB
8MB * 32 DS	2MB * 32 DS	80MB
8MB * 32 DS	4MB * 32 SS	96MB
8MB * 32 DS	8MB * 32 DS	128MB
16MB * 32SS	X	128MB
16MB * 32SS	16MB * 32SS	256MB
16MB * 32DS	X	256MB
16MB * 32DS	16MB * 32SS	384MB
16MB * 32DS	16MB * 32DS	512MB

1.5 Install IDE, Enhanced I/O Connector and Other Jumpers

There is a special design that J12 is for Key Lock, Sleep/Resume SW, Speaker, IDE LED, TB SW, Reset SW, and Turbo LED. It is convenient for you to connect the cable from front board of Case.

For PCI-690:



J12: 1-5, Key Lock - Keyboard lock switch & power LED connector. 1. Power LED (+), 2. N/C, 3. GND, 4. Key lock, 5. GND

J12: 7-8, SMI, Sleep/Resume Switch - Short to sleep mode. A key strobe or mouse movement (mouse driver exists). The system will instantly " wake up" .GREEN FUNCTION.

J12: 10-13, Speaker - Connect to the system's speaker for beeping. 10. Speaker, 11. GND, 12. GND, 13. VCC.

J12: 14-17, IDE LED Indicator - LED ON when on board PCI IDE HDD activities.

J12: 18-19, Turbo switch

J12: 22-23, Reset - Short to restart system.

J12: 25-26, Turbo LED Indicator - LED ON when high speed(JP5: 7-8 SHORT).

JP4: FIR, fast infrared port. PIN-1: IRRX, PIN-2: GND; PIN-3: IRTX; PIN-4: VCC.

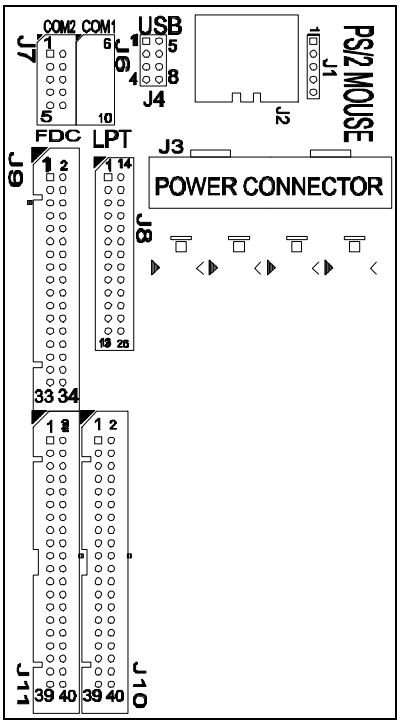
JP10: Select FLASH BIOS .
2-3 SHORT: 1 Mega Byte Length Flash BIOS(default)
1-2 SHORT: 2 Mega Byte Length Flash BIOS
NOTE: Set by the factory

JP11: Select FALSH BIOS type.
2-3 SHORT: 12v type Flash BIOS(default)
1-2 SHORT: 5v type Flash BIOS
NOTE: Set by the factory

JP12: SHORT: Clear CMOS ramdate. All CMOS is set as default value. OPEN for normal operation.
NOTE: When you want to clear CMOS, please make sure "POWER OFF".

PS/2 Mouse/J1: PS/2 mouse port. 5-pin Mouse:

Pin #	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5
Pin Name	Data	Clock	GND	No Key	VCC
Cable Color	Blue	Green	Red		Yellow



IDE 1/J10: Primary IDE port to support ATAPI Mode 5 IDE devices

IDE 2/J11: Secondary IDE port to support ATAPI Mode 5 IDE devices.

FDC/J9: Support 2 FDD up to 1.44MB or 2.88MB .

COM1-2/J6-7: Support 16550 high speed serial ports/ UART.

LPT/J8: Printer port with ECP/EPP. bi-direction. It can be used with external IDE/ SCSI device.

USB1-2/J4: 4-PIN connectors. PIN-1: VCC(5V), PIN-2: USB-, PIN-3: USB+, PIN-4: GND

(Left graphic is for PCI-690)

1.6 I/O Address and IRQ/DRQ

I/O Address and IRQ

On Board I/O	Address	IRQ	DRQ
GAME	200-20F	X	X
COM1	3F8-3FF	4	X
COM2	2F8-2FF	3	X
COM3	3E8-3EF	3	X
COM4	2E8-2EF	3	X
IDE1	1F0-1F7	14	X
IDE2	170-177	15	X
LPT1	378-37F	7	3 (ECP)
LPT2	278-27F	7	3 (ECP)
LPT3	3BC-3BF	7	3 (ECP)
FDD1	3F0-3F7	6	2
PS/2 MOUSE	X	12	X

1.7 Jumpers and Connectors List

ITEMS	DESCRIPTION
JP1	CPU Bus Clock. 4-6 SHORT for 60Mhz, 3-5 SHORT for 66Mhz
JP2-3	UNUSED
JP4	FIR port
JP5-8	Ratio for Core Clock to Bus Clock
JP9	Set CPU voltage. SHORT for 3.45v, OPEN for 3.3v
JP10	Set Flash BIOS. 1-2 SHORT for 1Mb, 2-3 SHORT for 2Mb

JP11	Set BIOS type. 1-2 SHORT for 5v, 2-3 SHORT for 12v
JP12	Clear CMOS. Short to Clear. Open for normal operation
J1	PS/2 mouse port
J2	Keyboard connector
J3	Power supply connector
J4	USB port
J6-7	COM1-2
J8	Printer port
J9	FDD control port
J10-11	IDE control port
J12	Front panel connector

1.8 Pin Definition for Cable Connection (for PCI-690)

There are two cables for COM1 and COM2. Each cable is connected to 10-pin IDC connector. The pin definitions for COM1/COM2 are as follows:

9-pin D-Sub	Definition	10-pin IDC
Pin-1	CD, Carrier Detect →	Pin-1 (IN)
Pin-2	RXD, Receive Data ←	pin-3 (IN)
Pin-3	TXD, Transmit Data	Pin-5 (OUT)
Pin-4	DTR, Data Terminal Ready ←	Pin-7 (OUT)
Pin-5	GND, Signal Ground	Pin-9
Pin-6	DSR, Data Set Ready →	Pin-2 (IN)
Pin-7	RTS, Request To Send ←	Pin-4 (OUT)
Pin-8	CTS, Clear To Send ←	Pin-6 (IN)
Pin-9	RI, Ring Indicator ←	Pin-8 (IN)

25-pin D-Sub	Definition	10-pin IDC
Pin-8	CD, Carrier Detect →	Pin-1 (IN)
Pin-6	DSR, Data Set Ready →	Pin-2(IN)
Pin-3	RXD, Receive Data →	Pin-3 (IN)
Pin-4	RTS, Request To Send ←	Pin-4 (OUT)
Pin-2	TXD, Transmit Data ←	Pin-5 (OUT)
Pin-5	CTS, Clear To Send →	Pin-6 (IN)
Pin-20	DTR, Data Terminal Ready ←	Pin-7 (OUT)
Pin-22	RI, Ring Indicator CTS →	Pin-8 (IN)
Pin-7	GND, Signal Ground	Pin-9

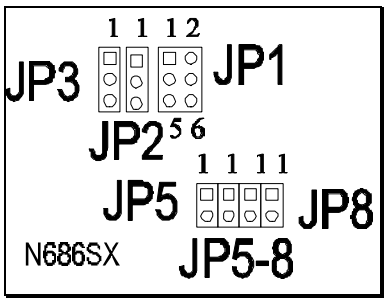
Chapter 2

Hardware Installation For ATX686

About This Section

It is to express the different jumper setting and parts location.

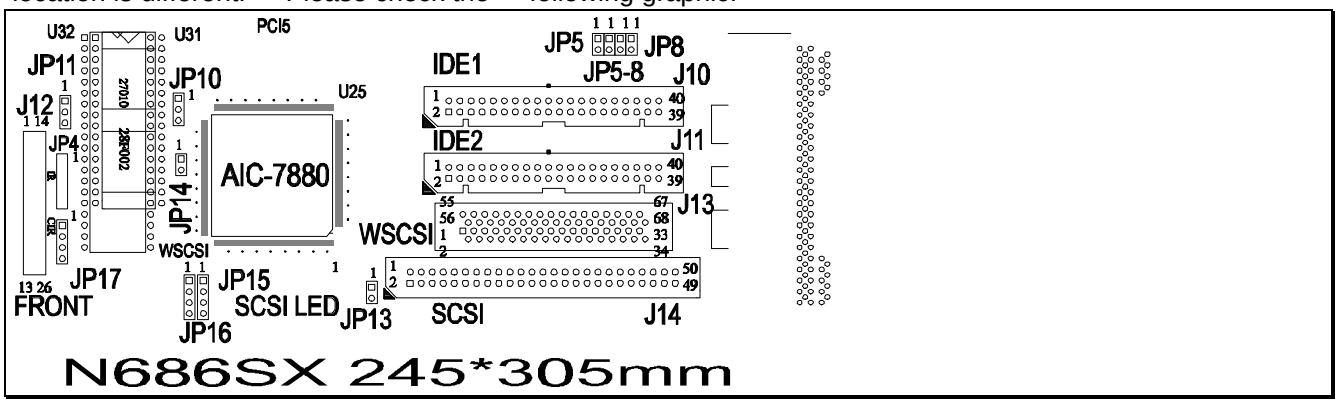
2.1 Set The CPU Relevant Jumpers To Correctly Configure The CPU Type, CPU Clock And CPU Voltage



The jumper settings, JP1/5/6/7/8, are same as the PCI-690, please refer to Page 1-2. The locations for those jumpers are different, left-hand graphic.

2.2 Install Connector and Other Jumpers

The IDE/FDC/J12 (front panel connector) are same as PCI-690. Please refer to Page 1-5/6. But the location is different. Please check the following graphic:



JP10: Select FLASH BIOS .
1-2 SHORT: 1 Mega Byte Length Flash BIOS(default), on normal mode
2-3 SHORT: 2 Mega Byte Length Flash BIOS, on recovery mode.
(When Flash BIOS ROM's 1st MB data is wrong, you can set this position to recover original BIOS ROM. However, under this mode, please do not write Flash ROM update. Because it is not original, it will become wrong data and there is no way to get the original BIOS, at 2nd time writing.

JP14: SCSI operation. OPEN for SCSI II. SHORT for WSCSI.

JP15: SCSI LED connector.

JP16: 1-2, 3-4 SHORT, no work with RAID EN slot. OPEN for RAID EN slot.

WSCSI Connector/J13: Wide /SCSI III SCSI connector.

SCSI Connector/J14: SCSI II connector.

2.3 Different Jumpers List for ATX686

ITEMS	DESCRIPTION
JP10	Set the BIOS: 1Mega for 1-2, 2Mega for 2-3
JP14	Select SCSI II or SCSI III. Open for SCSI II. Short for WSCSI.

JP15	SCSI LED
JP16	RAID EN slot selection. Short for no work. Open to use RAID EN slot
J13	WSCSI connector
J14	SCSI connector

Chapter 3

AWARD, PnP GREEN BIOS SETUP

3.1 BIOS Setup

Powe on the computer and press <DEL> key immediately and the screen will display you CMOS SETUP UTILITY as follows:

ROM PCI/ISA BIOS (2A6HT49)
CMOS SETUP UTILITY
AWARD SOFTWARE, INC.

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

3.2 Standard CMOS Setup

The STANDARD CMOS SETUP allows user to configure system setting such as current date and time, type of hard disk drive installed in the system, floppy drive type, and the type of display monitor.

ROM PCI/ISA BIOS (2A69HT49)
STANDARD CMOS SETUP
AWARD SOFTWARE, INC.

Date (mm:dd:yy) : Wed, Jan 5 2000
Time (hh:mm:ss) : 0 : 0 0 : 0

HARD DISKS	TYPE	SIZE	CYLS	HEADS	PRECOMP	LANDZ	SECTOR	MODE
Primary Master:	NONE	0	0	0	0	0	0	--------
Primary Slave:	NONE	0	0	0	0	0	0	--------
Secondary Master:	NONE	0	0	0	0	0	0	--------
Secondary Slave:	NONE	0	0	0	0	0	0	--------

Drive A: 1.2M, 5.25 in
Drive B: None

Video: EGA/VGA

Halt On: All Errors

Base Memory:	640K
Extended Memory:	3072K
Other Memory:	384K
Total Memory:	4096K

Esc: Quit ↑↓→←: Select Item Pu/Pd/+/-: Modify
F1: Help (Shift) F2: Change Color

3.3 BIOS Features Setup

ROM PCI/ISA BIOS (2A69HT49)

BIOS FEATURES UTILITY
AWARD SOFTWARE, INC.

Virus Warning	: Disable	Video BIOS Shadow	: Enabled
CPU Internal Cache	: Enabled	C8000-CBFFF Shadow	: Disabled
External Cache	: External	CC000-CFFFF Shadow	: Disabled
Quick Power On Self Test	: Disable	D0000-D3FFF Shadow	: Disabled
Boot Sequence	: A,C	D4000-D7FFF Shadow	: Disabled
Swap Floppy Drive	: Disable	D8000-DBFFF Shadow	: Disabled
Boot Up Floppy Seek	: Enabled	DC000-DFFFF Shadow	: Disabled
Boot Up NumLock Status	: On		
Boot Up System Speed	: High		
Gate A20 Option	: Fast		
Typematic Rate Setting	: Disabled		
Typematic Rate (Chars/Sec)	: 6	↑↓←→: Select Item	
Typematic Delay *Msec)	: 250	F1 : Help	PU/PD/+/- : Modify
Security Option	: Setup	F5 : Old Values	(Shift)F2 : Color
PCI/VGA Palette Snoop	: Disabled	F6: Load BIOS Defaults	
OS Select for DRAM >64MB	: NON-OS2	F7 : Load Setup Defaults	

3.4 Chipset Features Setup

ROM PCI/ISA BIOS (2A69HT49)
CHIPSET FEATURES SETUP
AWARD SOFTWARE, INC.

Auto Configuration	: Enabled	Video RAM Cacheable	: Disabled
DRAM Speed Selection	: 60ns	8 Bit I/O Recovery Time	: 1
DRAM RAS# Precharge Time	: 4	16 Bit I/O Recovery Time	: 1
MA additional Wait State	: Enabled	Memory Hole At 15M-16M	: Disabled
RAS# To CAS# Delay	: Disabled	DRAM Fast Leadoff	: Disabled
DRAM Read Burst (B/E/F)	: x2/3/4		
DRAM Write Burst (B/E/F)	: x4/4/4		
ISA Bus Clock	: PCICLK/3		
DRAM Refresh Queuect	: Disabled		
DRAM RAS Only Refresn	: Disabled		
DRAM ECC/PARITY/Select	: ECC		
Fast DRAM Refresh	: Enabled		
Read-Around-Write	: Enabled		
PCI Burst Write Combine	: Enabled	↑↓←→: Select Item	
PCI-To-DRAM Pipeline	: Disabled	F1 : Help	PU/PD/+/- : Modify
CPU-To-PCI Write Post	: Enabled	F5 : Old Values	(Shift)F2 : Color
CPU-To-PCI IDE Posting	: Disabled	F6: Load BIOS Defaults	
System BIOS Cacheable	: Disabled	F7 : Load Setup Defaults	

3.5 Power Management Setup

ROM PCI/ISA BIOS (2A69HT49)
POWER MANAGEMENT SETUP
AWARD SOFTWARE, INC.

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

3.6 PNP/PCI Configuration

ROM PCI/ISA BIOS (2A69HT49)
PNP/PCI CONFIGURATION

AWARD SOFTWARE, INC.

Resources Controlled By	: Manual	PCI IRQ Actived By	: Level
Reset Configuration Data	: Enabled	PCI IDE IRQ Map To	: PCI-AUTO
		primary IDE INT#	: A
IRQ-3 assigned to	: Legacy ISA	Secondary IDE INT#	: B
IRQ-4 assigned to	: Legacy ISA	Used MEM base addr	: N/A
IRQ-5 assigned to	: Legacy ISA	Used MEM Length	: 64K
IRQ-7 assigned to	: Legacy ISA		
IRQ-9 assigned to	: Legacy ISA		
IRQ-10 assigned to	: Legacy ISA		
IRQ-11 assigned to	: Legacy ISA		
IRQ-12 assigned to	: Legacy ISA		
IRQ-14 assigned to	: Legacy ISA		
IRQ-15 assigned to	: Legacy ISA		
DMA-0 assigned to	: Legacy ISA		
DMA-1 assigned to	: Legacy ISA	↑↓←→: Select Item	
DMA-5 assigned to	: Legacy ISA	F1 : Help	PU/PD/+/- : Modify
DMA-6 assigned to	: Legacy ISA	F5 : Old Values	
DMA-7 assigned to	: Legacy ISA	F6: Load BIOS Defaults	
	:	F7 : Load Setup Defaults	(Shift)F2 : Color

3.7 Integrated Peripherals

ROM PCI/ISA BIOS (2A69HT49)
INTEGRATED PERIPHERALS
AWARD SOFTWARE, INC.

IDE HDD block Mode	: Enabled	USB Controller	: Enabled
IDE Promary Master PIO	: Auto		
IDE Primary Slave PIO	: Auto		
IDE Secondary Master PIO	: Auto		
IDE Secondary Slave PIO	: Auto		
On-chip Primary PCI IDE	: Enabled		
On-Chip Secondary PCI IDE	: Enabled		
Onboard FDD Controller	: Enabled		
Onboard Serial Port 1	: 3F8/IRQ4		
Onboard Serial Port 2	: 2F8/IRQ3		
UART 2 Mode	: Standard		
Onboard Parallel Port	:378H/IRQ7		
Onboard Parallel Mode	: SPP		
		↑↓←→: Select Item	
		F1 : Help	PU/PD/+/- : Modify
		F5 : Old Values	
	:	F6: Load BIOS Defaults	
		F7 : Load Setup Defaults	(Shift)F2 : Color

3.8 AWARD BIOS Post Code

POST (hex)	Description
C0	1. Turn off OEM specific cache, shadow... 2. Initialize all the standard devices with default values standard devices includes: -DMA controller (8237), -Programmable Interrupt Controller (8259), -Programmable Interval Timer (8254), -RTC chip
C1	Auto-detection of onboard DRAM & Cache
C3	1. Test system BIOS checksum 2. Test the first 256K DRAM 3. Expand the compressed codes into temporary DRAM area including the compressed System BIOS & Option ROMs
C5	Copy the BIOS from ROM into E0000-FFFFF shadow RAM so that POST will go faster
01-02	Reserved
03	Initialize EISA registers (EISA BIOS only)
04	Reserved
05	1. Keyboard Controller Self-Test 2. Enable Keyboard Interface
06	Reserved

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

31	1. Test Base Memory from 256K to 640K 2. Test Extended Memory from 1M to the top of memory
32	1. Display the Award Plug & Play BIOS Extension message (PnP BIOS only) 2. Program all onboard super I/O chips (if any) including COM ports, LPT ports, FDD port... according to setup value
33-3B	Reserved
3C	Set flag to allow users to enter CMOS Setup Utility
3D	1. Initialize Keyboard 2. Install PS2 mouse
3E	Try to turn on Level 2 cache Note: Some chipset may need to turn on the L2 cache in this stage. But usually, the cache is turn on later in POST 61h
3F-40	Reserved
BF	1. Program the rest of the Chipset's value according to Setup. (Later Setup Value Program) 2. If auto-configuration is enabled, programmed the chipset with pre-defined values in the MODBINable Auto-Table
41	Initialize floppy disk drive controller
42	Initialize Hard drive controller
43	If it is a PnP BIOS, initialize serial & parallel ports
44	Reserved
45	Initialize math coprocessor.
46-4D	Reserved
4E	If there is any error detected (such as video, kb...), show all the error messages on the screen & wait for user to press <F1> key
4F	1. If password is needed, ask for password 2. Clear the Energy Star Logo (Green BIOS only)
50	Write all CMOS values currently in the BIOS stack area back into the CMOS
51	Reserved
52	1. Initialize all ISA ROMs 2. Later PCI initializations (PCI BIOS only) -assign IRQ to PCI devices -initialize all PCI ROMs 3. PnP Initializations (PnP BIOS only) -assign IO, Memory, IRQ & DMA to PnP ISA devices -initialize all PnP ISA ROMs 4. Program shadows RAM according to Setup settings 5. Program parity according to Setup setting 6. Power Management Initialization -Enable/Disable global PM -APM interface initialization
53	1. If it is NOT a PnP BIOS, initialize serial & parallel ports 2. Initialize time value in BIOS data area by translate the RTC time value into a timer tick value
60	Setup Virus Protection (Boot Sector Protection) functionality according to Setup setting
61	1. Try to turn on Level 2 cache

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

Chapter 4

Quick Installation Guide

EIDE Driver
and
Update Flash BIOS
for Intel Chipset

Thise Chapter includes two parts: one is to instal Enhance IDE Driver and the other is to update main board BIOS.

PART 1. Installation IDE driver:

Dear Customer,

Thank you for choosing the Intel PIIX Bus Master IDE Drivers. This production release of the drivers provides support for Intel PCIsets.

To install the drivers, follow the steps below:

1. **For all drivers: execute the appropriate self-extracting archive.**
   Windows 95* archive - bmide_95.exe
   Windows NT* archive - bmide_nt.exe
   IBM OS/2* archive - bmideos2.exe
   This will place the SETUP files in a subdirectory on your hard disk.

2. **For all drivers: run the setup program.**
   Click on SETUP.EXE from Windows* File Manager/Explorer OR
   Execute Program/Run from the Program Manager.

3. **Driver Installation**
   For the Windows 95 Driver:
   [See auto install procedures.]

[If using OEM Version of Windows 95 CD-ROM on PIIX3 based systems see also " 82371SB PIIX3 Application Note #3 Microsoft Windows 95* Support for PIIX3 IDE Controller".]

For the IBM OS/2 and Windows NT Drivers:
After running SETUP, follow the installation instructions in the
README.TXT file which is extracted to the driver installation directory.

The Driver Version Numbers included in this release are:

Windows 95 Driver - version 2.61
Windows NT Driver - version 1.59
IBM OS/2 Driver - version 2.05

Sincerely,
PCIsets Product Line Marketing
PCI Components Division
Intel Corporation

*Other brands and names are the properties of their respective owners

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* PIIX Bus Master IDE Driver for Windows 95*
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* Auto Install/Uninstall Procedures
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* INTRODUCTION
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This document describes the auto installation and uninstallation procedurefor the PIIX Bus Master IDE Drivers for Windows 95.

Note: For information regarding the driver, refer to the README.TXT file included with the driver package. In order to access the README.TXT file, follow the steps to EXTRACT or INSTALL the driver below.

The README.TXT document has more detailed information on the following topics:

- System Requirements
- Installing the Software - Manual Method
- UNINSTALLing the Software - Manual Method
- Troubleshooting
- Identifying the Software Version Number
- Contents of the Distribution Package
- Storage Devices Supported by the Driver
- Release Notes

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ASSUMPTION: Ensure that a mouse is connected to the system.

TO DECOMPRESS THE DRIVER.

If drive is on a diskette, copy BMIDE_95.EXE to your system.
Click on BMIDE_95.EXE from Windows* File Manager to decompress file.

Decompression process is completed when the command prompt appears.

TO RUN DRIVER SETUP.EXE PROGRAM

Click on SETUP.EXE from Windows File Manager.

- Select YES to read license.
- Close License box.
- Select YES if you agree to the terms of the license.
  - If you do not agree, the installation process will terminate.

THREE OPTIONS WILL BE PRESENTED:

1. AUTO INSTALL

NOTE: SETUP.EXE will only perform installation of the driver on Windows 95-based systems with use either the Intel 82371FB or 82371SB PCI Bus Master IDEcontroller.

To INSTALL the driver, click on INSTALL.

The 'Choose Destination Location' box appears. The default subdirectory, where the driver files and documentation are to be located, is displayed.

If another subdirectory is desired, specify subdirectory and hit ENTER.
Otherwise, click on NEXT.

If either the c:\CONFIG.SYS or c:\AUTOEXEC.BAT system files are present on the system, SETUP.EXE will prompt a warning. The user will be required to confirm that there are no IDE or ATAPI real-mode drivers installed. For more information regarding this issue, extract the README.TXT file from the driver package; the information is listed under the 'Troubleshooting' section. NOTE: the user can still install the drivers in the case that the CONFIG.SYS/AUTOEXEC.BAT files exist on the system. Select YES when prompted to continue. The 'Restart Windows' box appears. Select 'Yes, I want to restart my computer now.' Click on OK.
[The system will restart.]

[Windows 95 will report that 'New Hardware' has been found in the system.]

NOTE: When the Windows 95 compressed image is present on the system that the driver is installed on, Windows 95 may prompt the user for a driver installation path. If this happens, enter the path where the containing the driver files and click on OK when prompted to do so.

Windows 95 will prompt that the system settings have changed. Select YES when prompted to restart Windows 95. The system will restart.
[This step, restarting Windows 95, may occur two times.]

The PIIX Bus Master IDE Device Driver should now be installed.

2. AUTO UNINSTALL

First follow TO RUN DRIVER SETUP.EXE PROGRAM procedures, then continue to the AUTO UNINSTALL procedures.

To uninstall the driver, click on UNINSTALL.
Question box appears warning that the driver will be uninstalled.
Select YES to proceed with unstalling the driver.

The 'Restart Windows' box appears.
Select 'Yes, I want to restart my computer now.'
Click on OK.
[The system will restart.]
.
The 'New Hardware found' box appears.
Select 'Windows default driver'.
Click on OK.

[Windows 95 will report that 'New Hardware' has been found in the system.]

Windows 95 will prompt that the system settings have changed.
Select YES when prompted to restart Windows 95.
The system will restart.
[This step, restarting Windows 95, may occur two times.]

The PIIX Bus Master IDE Device Driver should now be uninstalled.

3. EXTRACT

First follow TO RUN DRIVER SETUP.EXE PROGRAM procedures, then continue to the EXTRACT procedures.

NOTE: Extraction of the driver files may be performed on any Windows-based system.

To EXTRACT the driver files (e.g. README.TXT) to the hard disk
without installing the driver, click on EXTRACT.

The 'Choose Destination Location' box appears.
The default subdirectory, where the driver files and documentation are to be located, is displayed. If another subdirectory is desired, specify subdirectory and hit ENTER. Otherwise, click on NEXT. Extraction process is completed.Go to specified subdirectory to refer to driver files.

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Intel is making no claims of usability, efficacy or warranty. The Shrink Wrap Software License Agreement completely defines the license and use of the PIIX Bus Master IDE Driver.
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PART II. Update Flash BIOS

Because the BIOS of Pentium Triton main board is Flash BIOS, there are two methods to update BIOS. Before programming the BIOS. **(THIS MODIFICATION IS UNDER THE SUPPLIER‘ S PERMISSION AND FOR QUALIFIED ENGINEER.)**

BIOS is writeable so that don‘ t write anything in the BIOS local address from FFF0:E000 - FFF0:FFFF.
Keep BIOS ROM data is available.

From the BIOS of new main board to old main board:

1. Perform the command, AWDFLASH. The command is in the BIOS of new main board, sub directory of AWARD.
2. Save BIOS.OLD and save it to another disk.
3. Program the BIOS.OLD of the disk to old main board.

From disk to old main board:

1. Get the disk from your supplier. Usually EIDE Driver include the update function.
2. Program the file, PCI595.BIN, of disk to old main board.

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