MAT-815

Intel 815E Celeron/Pentium III
ETX CPU Module

USER'S MANUAL

Version 1.0

Acknowledgments

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Introduction

Product Description

MAT-815 is ETX CPU module based on the Intel 815E chipset. ETX stands for Embedded Technology extended, a technology or form factor that offers flexible time-to-market solution, enabling product development time to shrink from four months to just four weeks. It also features low power consumption and low heat emission, eliminating the need for a CPU fan.

MAT-815 supports Intel Mobile Celeron or Pentium III processors running a front side bus 66/100/133MHz. The integrated Intel 815E chipset contains the Graphics and Memory Controller Hub (GMCH), the I/O Controller Hub (ICH2) and the Firmware Hub (FWH). With the ICH2, it is able to support UDMA/100, four USB ports, and integrated LAN. An optional SMI SM721G8 VGA controller with 8MB of embedded memory is available.

System memory is provided by a SO-DIMM socket that supports up 256MB of SDRAM memory. The Award BIOS facilitates easy system configuration and peripheral setup. Other advanced features include PCI to ISA bridge support, built-in Audio, and built-in ICH2 integrated Ethernet supporting 10Base-T / 100Base-TX protocol.

MAT-815 has four board-to-board high-density interface connectors for I/O signals that plug onto baseboards specific to customer' s applications. ETX embedded solutions provide fast time-to-market through the interchangeability and scalability of both the ETX module and the baseboard.

Checklist

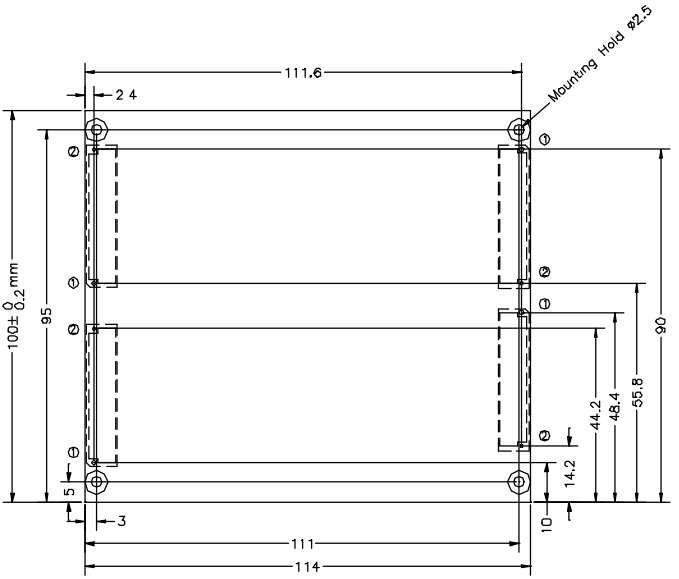
Your MAT-815 package should include the items listed below.

- The MAT-815 CPU Module
- This User's Manual
- 1 CD containing the following:
  - Chipset Drivers
  - Flash Memory Utility
- 1 FDD cable

Specifications

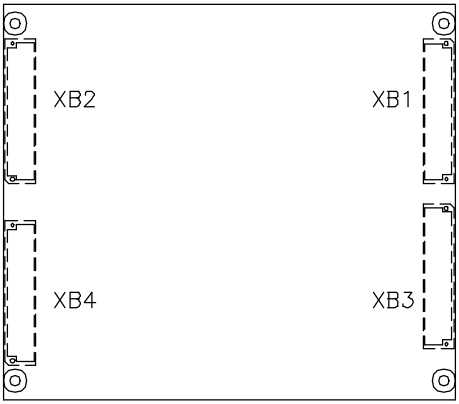
Processor Supported	Mounted processor: Intel Celeron / Pentium III, 400MHz, 500MHz, 66/100/133MHz Bus Speed
Chipset	Intel 815E Chipset
BIOS	Award BIOS Supports ACPI, DMI, PnP
System Memory	1x SODIMM socket supports up to 256MB capacity PC100/PC133 supported
LPC I/O Chipset	Winbond W83267HF
ETX Interface	Four connectors for PCI bus, USB, Audio, VGA, LCD, COM1, COM2, LPT, IrDA, Mouse, Keyboard, IDE1, IDE2, Ethernet, ISA A separate connector for FDD drive
VGA	815E integrated graphics Shared memory Optional SMI SM721G8 VGA controller with 8MB embedded memory
LAN	ICH2 integrated Ethernet controller 10Base-T / 100Base-TX protocol
Other Features	Built-in Intel 82801 with Intel 82562E PHY PCI to ISA bridge with Winbond 83628 and 83629 Chipset built-in Audio
Form Factor	ETX
Dimensions	100mm x 114mm

Dimensions

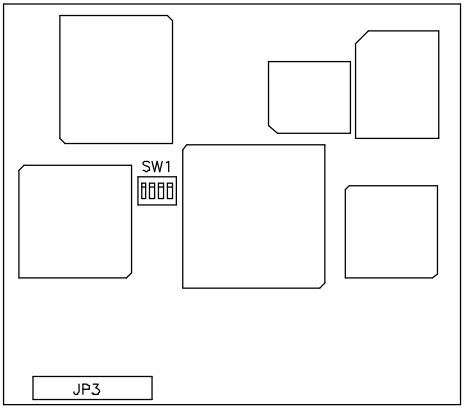


Ⓘ : Location peg ø1.0±0.5mm
Ⓞ : Location peg ø0.7±0.5mm
All dimension without tolerance ±0.2mm

Connector Locations on MAT-815



ETX Connectors Location (top view)



Connector Pin Assignments

SW1: Panel/Resolution Switch Setting

This switch is used in conjunction with the optional SMI 721 VGA controller.

Panel ID	SW 1-1	SW 1-2	SW 1-3	SW 1-4	Panel Type
0	ON	ON	ON	ON	640x480 TFT
1	OFF	ON	ON	ON	640x480 DSTN
2	ON	OFF	ON	ON	800x600 TFT
3	OFF	OFF	ON	ON	800x600 DSTN
4	ON	ON	OFF	ON	1024x768TFT
5	OFF	ON	OFF	ON	1024x768 DSTN
6	ON	OFF	OFF	ON	Reserved
7	OFF	OFF	OFF	ON	Reserved
8	ON	ON	ON	OFF	Reserved
9	OFF	ON	ON	OFF	Reserved
10	ON	OFF	ON	OFF	Reserved
11	OFF	OFF	ON	OFF	Reserved
12	ON	ON	OFF	OFF	Reserved
13	OF	ON	OFF	OFF	Reserved
14	ON	OFF	OFF	OFF	Reserved

1. XB1 (ISA-Bus)

Pin	Signal	Pin	Signal	Pin	Signal	Pin	Signal
1	GND	2	GND	51	VCC	52	VCC
3	SD14	4	SD15	53	SA6	54	IRQ5
5	SD13	6	MASTERJ	55	SA7	56	IR06
7	SD12	8	DREQ7	57	SA8	58	IRQ7
9	SD11	10	DACKJ7	59	SA9	60	SYSCLK
11	SD10	12	DREQ6	61	SA10	62	REFSHJ
13	SD9	14	DACKJ6	63	SA11	64	DREQ1
15	SD8	16	DREQ5	65	SA12	66	DACKJ 1
17	MEMWJ	18	DACKJ5	67	GND	68	GND
19	MEMRJ	20	DREQ0	69	SA13	70	DREQ3
21	LA17	22	DACKJ0	71	SA14	72	DACKJ3
23	LA18	24	IRQ14	73	SA15	74	IORJ
25	LA19	26	IR015	75	SA16	76	IOWJ
27	LA20	28	IRQ12	77	SA18	78	SA17
29	LA21	30	IRQ11	79	SA19	80	SMEMRJ
31	LA22	32	IRQ10	81	IOCHRDY	82	AEN
33	LA23	34	1016J	83	VCC	84	VCC
35	GND	36	GND	85	SD0	86	SMEMWJ
37	SBHEJ	38	M16J	87	SD2	88	SD1
39	SAO	40	OSC	89	SD3	90	NOWSJ
41	SA1	42	BALE	91	DREQ2	92	SD4
43	SA2	44	TC	93	SD5	94	IRQ9
45	SA3	46	DACKJ2	95	SD6	96	SD7
47	SA4	48	IR03	97	IOCHKJ	98	RSTDRV
49	SA5	50	IRQ4	99	GND	100	GND

2. XB2 (IDE 1, IDE 2, Ethernet, Misc)

Pin	Signal	Pin	Signal	Pin	Signal	Pin	Signal
1	GND	2	GND	51	SIDE IOWJ	52	PIDE_IORJ
3	5V SB	4	PWGIN	53	SIDE DRQ	54	PIDE IOWJ
5	PS ON	6	SPEAKER	55	SIDE D15	56	PIDE DRQ
7	PWRBTNJ	8	BATT	57	SIDE DO	58	PIDE D15
9	KBINH	10	LILED	59	SIDE D14	60	PIDE DO
11	NC	12	ACTLED	61	SIDE D1	62	PIDE D14
13	NC	14	SPEEDLED	63	SIDE D13	64	PIDE D1
15	NC	16	NC	65	GND	66	GND
17	VCC	18	VCC	67	SIDE D2	68	PIDE D13
19	OVCRJ	20	GPCSJ	69	SIDE D12	70	PIDE D2
21	EXTSMI	22	NC	71	SIDE D3	72	PIDE D12
23	SMBCLK	24	SMBDATA	73	SIDE-D 1	74	PIDE D3
25	SIDE_CS3J	26	N.C.	75	SIDE D4	76	PIDE D11
27	SIDE CS1J	28	DASP S	77	SIDE D10	78	PIDE D4
29	SIDE A2	30	PIDE_CS3J	79	SIDE D5	80	PIDE D10
31	SIDE AO	32	PIDE CS1J	81	VCC	82	VCC
33	GND	34	GND	83	SIDE-D9	84	PIDE D5
35	NC	36	PIDE_A2	85	SIDE D6	86	PIDE D9
37	SIDE AI	38	PIDE_A0	87	SIDE-D8	88	PIDE D6
39	SIDE INTRO	40	PIDE A1	89	N.C.	90	N.C.
41	N.C.	42	N.C.	91	RXD-	92	PIDE D8
43	SIDE_AKJ	44	PIDE INTRO	93	RXD+	94	SIDE D7
45	SIDE_RDY	46	PIDE_AKJ	95	TXD-	96	PIDE D7
47	SIDE_IORJ	48	PIDE RDY	97	TXD+	98	HDRSTJ
49	VCC	50	VCC	99	GND	100	GND

3. XB3 (PCI-Bus, USB, Sound)

Pin	Signal	Pin	Signal	Pin	Signal	Pin	Signal
1	GND	2	GND	51	VCC	52	VCC
3	PCICLK3	4	PCICLK4	53	PAR	54	SERRJ
5	GND	6	GND	55	GPERRJ	56	N C
7	PCICLK1	8	PCICLK2	57	PMEJ	58	USB20
9	REQJ3	10	GNTJ3	59	LOCKJ	60	DEVSELJ
11	GNTJ2	12	3V	61	TRDYJ	62	USB30
13	REQJ2	14	GNTJ1	63	IRDYJ	64	STOPJ
15	REQJ 1	16	3V	65	FRAMEJ	66	USB21
17	GNTJ0	18	N.C.	67	GND	68	GND
19	VCC	20	VCC	69	AD16	70	CBEJ2
21	SERIRQ	22	REQJ0	71	AD17	72	USB31
23	AD0	24	3V	73	AD19	74	AD18
25	AD1	26	AD2	75	AD20	76	USB00
27	AD4	28	AD3	77	AD22	78	AD21
29	AD6	30	AD5	79	AD23	80	USB10
31	CBFJ0	32	AD7	81	AD24	82	CBEJ3
33	AD8	34	AD9	83	VCC	84	VCC
35	GND	36	GND	85	AD25	86	AD26
37	AD10	38	AUXAL	87	AD28	88	USB01
39	AD11	40	MIC	89	AD27	90	AD29
41	AD12	42	AUXAR	91	AD30	92	USB11
43	AD13	44	ASVCC	93	PCIRSTJ	94	AD31
45	AD14	46	SNDL	95	IRQY	96	IRQZ
47	AD15	48	ASGND	97	IRQW	98	IRQX
49	CBEJ1	50	SNDR	99	GND	100	GND

4. XB4 (VGA, LCD, Video, COM, COM2, LPT/Floppy, IrDA, Mouse, Keyboard, LCD

Pin	Signal	Pin	Signal	Pin	Signal	Pin	Signal
1	GND	2	GND	51	N C	52	N C
3	R	4	B	53	VCC	54	GND
5	HSY	6	G	55	/STB	5 6	/AFD
7	VSY	8	DDCK	57	ic.	58	PD7
9	NC	10	DDDA	59	IRRX	60	/ERR
1 I	NC	12	NC	61	IRTX	62	PD7
13	NC	14	NC	63	RXD2	64	/INIT
15	GND	16	GND	65	GND	66	GND
17	NC	18	NC	67	RTS2J	68	PD5
19	NC	20	NC	69	DTR2J	70	/SLIN
21	GND	22	GND	71	DCD2J	72	PD4
23	NC	24	NC	73	DSR2J	74	PD3
25	NC	26	NC	75	CTS2J	76	PD2
27	GND	28	GND	77	TXD2J	78	PD1
29	TX2#	30	TXCLK	79	RI2J	80	PD0
31	TX2	32	TXCLK#	81	VCC	82	VCC
33	GND	34	GND	83	RXD1	84	/ACK
35	TX0	36	TX1	85	RTS1J	86	/BUSY
37	TX0#	38	TX1#	87	DTR1J	88	PE
39	VCC	40	VCC	89	DCD1J	90	/SLCT
41	JILI_DAT	42	LTGIO0	91	DSR1J	92	MSCLK
43	JILi_CLK	44	BLON#	98	CTS1J	94	MSDAT
45	BIASON	46	DIGON	95	TXD1	96	KBCLK
47	COMP	48	Y	97	RI1J	98	KBDAT
49	NC	50	C	99	GND	100	GND

5. JP3: FDD Connector

Pin	Signal	Pin	Signal
1	VCC	2	INDEX
3	VCC	4	DRV_SEL
5	VCC	6	DSK_CH
7	NC	8	NC
9	NC	10	MOTOR
1 I	DINST	12	DIR
13	NC	14	STEP
15	GND	16	WDATA
17	GND	18	EGATE
19	GND	20	TRACK
21	NC	22	WPROT
23	GND	24	RDATA
25	GND	26	SIDE

BIOS Setup

This chapter describes the different settings available in the Award BIOS that comes with the CPU card. The topics covered in this chapter are as follows:

BIOS Introduction

The Award BIOS (Basic Input/Output System) installed in your computer system's ROM supports Intel Pentium II/III processors. The BIOS provides critical low-level support for a standard device such as disk drives, serial ports and parallel ports. It also adds virus and password protection as well as special support for detailed fine-tuning of the chipset controlling the entire system.

BIOS Setup

The Award BIOS provides a Setup utility program for specifying the system configurations and settings. The BIOS ROM of the system stores the Setup utility. When you turn on the computer, the Award BIOS is immediately activated. Pressing the <Del> key immediately allows you to enter the Setup utility. If you are a little bit late pressing the <Del> key, POST (Power On Self Test) will continue with its test routines, thus preventing you from invoking the Setup. If you still wish to enter Setup, restart the system by pressing the "Reset" button or simultaneously pressing the <Ctrl>, <Alt> and <Delete> keys. You can also restart by turning the system Off and back On again. The following message will appear on the screen:

```
Press <DEL> to Enter Setup
```

In general, you press the arrow keys to highlight items, <Enter> to select, the <PgUp> and <PgDn> keys to change entries, <F1> for help and <Esc> to quit.

When you enter the Setup utility, the Main Menu screen will appear on the screen. The Main Menu allows you to select from various setup functions and exit choices.

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Standard CMOS Features	Frequency/Voltage Control
Advanced BIOS Features	Load Fail-Safe Defaults
Advanced Chipset Features	Load Optimized Defaults
Integrated Peripherals	Set Supervisor Password
Power Management Setup	Set User Password
PnP/PCI Configurations	Save & Exit Setup
PC Health Status	Exit Without Saving
ESC : Quit	↑ ↓ → ← : Select Item
F10 : Save & Exit Setup	
Time, Date, Hard Disk Type…	

The section below the setup items of the Main Menu displays the control keys for this menu. At the bottom of the Main Menu just below the control keys section, there is another section which displays information on the currently highlighted item in the list.

***Note**: If the system cannot boot after making and saving system changes with Setup, the Award BIOS supports an override to the CMOS settings that resets your system to its default.*

***Warning:** It is strongly recommended that you avoid making any changes to the chipset defaults. These defaults have been carefully chosen by both Award and your system manufacturer to provide the absolute maximum performance and reliability. Changing the defaults could cause the system to become unstable and crash in some cases.*

Standard CMOS Setup

"Standard CMOS Setup" choice allows you to record some basic hardware configurations in your computer system and set the system clock and error handling. If the CPU card is already installed in a working system, you will not need to select this option. You will need to run the Standard CMOS option, however, if you change your system hardware configurations, the onboard battery fails, or the configuration stored in the CMOS memory was lost or damaged.

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Standard CMOS Features

Date (mm:dd:yy)	Tue, Mar 26 2000	Item Help
Time (hh:mm:ss)	00 : 00 : 00	Menu Level
IDE Primary Master	Press Enter 13020 MB	Change the day, month,
IDE Primary Slave	Press Enter None	Year and century
IDE Secondary Master	Press Enter None	
IDE Secondary Slave	Press Enter None	
Drive A	1.44M, 3.5 in.	
Drive B	None	
Video	EGA/VGA	
Halt On	All Errors	
Base Memory	640K	
Extended Memory	129024K	
Total Memory	130048K	

At the bottom of the menu are the control keys for use on this menu. If you need any help in each item field, you can press the <F1> key. It will display the relevant information to help you. The memory display at the lower right-hand side of the menu is read-only. It will adjust automatically according to the memory changed. The following describes each item of this menu.

Date

The date format is:

Day : **Sun to Sat**
Month : **1 to 12**
Date : **1 to 31**
Year : **1994 to 2079**

To set the date, highlight the "Date" field and use the PageUp/ PageDown or +/- keys to set the current time.

Time

The time format is: **Hour : 00 to 23**
Minute : 00 to 59
Second : 00 to 59

To set the time, highlight the "Time" field and use the <PgUp>/ <PgDn> or +/- keys to set the current time.

IDE Primary HDDs / IDE Secondary HDDs

The onboard PCI IDE connectors provide Primary and Secondary channels for connecting up to four IDE hard disks or other IDE devices. Each channel can support up to two hard disks; the first is the "Master" and the second is the "Slave".

Press <Enter> to configure the hard disk. The selections include Auto, Manual, and None. Select 'Manual' to define the drive information manually. You will be asked to enter the following items.

CYLS :	Number of cylinders
HEAD :	Number of read/write heads
PRECOMP :	Write precompensation
LANDZ :	Landing zone
SECTOR :	Number of sectors

The Access Mode selections are as follows:

Auto	
Normal	(HD < 528MB)
Large	(for MS-DOS only)
LBA	(HD > 528MB and supports Logical Block Addressing)

Drive A / Drive B

These fields identify the types of floppy disk drive A or drive B that has been installed in the computer. The available specifications are:

360KB	1.2MB	720KB	1.44MB	2.88MB
5.25 in.	5.25 in.	3.5 in.	3.5 in.	3.5 in.

Video

This field selects the type of video display card installed in your system. You can choose the following video display cards:

EGA/VGA	For EGA, VGA, SEGA, SVGA or PGA monitor adapters. (default)
CGA 40	Power up in 40 column mode.
CGA 80	Power up in 80 column mode.
MONO	For Hercules or MDA adapters.

Halt On

This field determines whether or not the system will halt if an error is detected during power up.

No errors	The system boot will not be halted for any error that may be detected.
All errors	Whenever the BIOS detects a non-fatal error, the system will stop and you will be prompted.
All, But Keyboard	The system boot will not be halted for a keyboard error; it will stop for all other errors
All, But Diskette	The system boot will not be halted for a disk error; it will stop for all other errors.
All, But Disk/Key	The system boot will not be halted for a keyboard or disk error; it will stop for all others.

Advanced BIOS Features

This section allows you to configure and improve your system and allows you to set up some system features according to your preference.

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Advanced BIOS Features

Virus Warning	**Disabled**	ITEM HELP
CPU Internal Cache	Enabled	Menu Level
External Cache	Enabled	
CPU L2 Cache ECC Checking	Enabled	Allows you choose the VIRUS warning feature for IDE Hard Disk boot sector protection. If this function is enabled and someone attempt to write data into this area, BIOS will show a warning message on screen and alarm beep
Processor Number Feature	Enabled	
Quick Power On Self Test	Enabled	
First Boot Device	Floppy	
Second Boot Device	HDD-0	
Third Boot Device	LS120P	
Boot Other Device	Enabled	
Swap Floppy Drive	Disabled	
Boot Up Floppy Seek	Disabled	
Boot Up Numlock Status	On	
Gate A20 Option	Fast	
Typematic Rate Setting	Disabled	
Typematic Rate (chars/Sec)	6	
Typematic Delay (Msec)	250	
Security Option	Setup	
OS Select For DRAM>64MB	Non-OS2	
Report No FDD For WIN 95	No	
Video BIOS Shadow	Enabled	

Virus Warning

This item protects the boot sector and partition table of your hard disk against accidental modifications. If an attempt is made, the BIOS will halt the system and display a warning message. If this occurs, you can either allow the operation to continue or run an anti-virus program to locate and remove the problem.

CPU Internal Cache / External Cache

Cache memory is additional memory that is much faster than conventional DRAM (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 main DRAM into cache memory, for even faster access by the CPU. These items allow you to enable (speed up memory access) or disable the cache function. By default, these items are ***Enabled***.

CPU L2 Cache ECC Checking

This field enables or disables the ECC (Error Correction Checking) checking of the CPU level-2 cache. The default setting is ***Enabled***.

Processor Number Feature
When enabled, this feature allows external systems to detect the processor number/type of the CPU.

Quick Power On Self Test
When enabled, this field speeds up the Power On Self Test (POST) after the system is turned on. If it is set to *Enabled*, BIOS will skip some items.

First/Second/Third Boot Device
These fields determine the drive that the system searches first for an operating system. The options available include *Floppy*, *LS/ZIP*, *HDD-0*, *SCSI*, *CDROM*, *HDD-1*, *HDD-2*, *HDD-3*, *LAN* and *Disable*.

Boot Other Device
These fields allow the system to search for an operating system from other devices other than the ones selected in the First/Second/Third Boot Device.

Swap Floppy Drive
This item allows you to determine whether or not to enable Swap Floppy Drive. When enabled, the BIOS swaps floppy drive assignments so that Drive A becomes Drive B, and Drive B becomes Drive A. By default, this field is set to ***Disabled.***

Boot Up Floppy Seek
When enabled, the BIOS will seek whether or not the floppy drive installed has 40 or 80 tracks. 360K type has 40 tracks while 760K, 1.2M and 1.44M all have 80 tracks.

Boot Up NumLock Status
This allows you to activate the NumLock function after you power up the system.

Gate A20 Option
This field allows you to select how Gate A20 is worked. Gate A20 is a device used to address memory above 1 MB.

Typematic Rate Setting
When disabled, continually holding down a key on your keyboard will generate only one instance. When enabled, you can set the two typematic controls listed next. By default, this field is set to ***Disabled.***

Typematic Rate (Chars/Sec)

When the typematic rate is enabled, the system registers repeated keystrokes speeds. Settings are from 6 to 30 characters per second.

Typematic Delay (Msec)

When the typematic rate is enabled, this item allows you to set the time interval for displaying the first and second characters. By default, this item is set to ***250msec.***

Security Option

This field allows you to limit access to the System and Setup. The default value is ***Setup***. When you select *System*, the system prompts for the User Password every time you boot up. When you select *Setup*, the system always boots up and prompts for the Supervisor Password only when the Setup utility is called up.

OS Select for DRAM > 64MB

This option allows the system to access greater than 64MB of DRAM memory when used with OS/2 that depends on certain BIOS calls to access memory. The default setting is ***Non-OS/2***.

Video BIOS Shadow

This item allows you to change the Video BIOS location from ROM to RAM. Video Shadow will increase the video speed.

C8000 - CBFFF Shadow/DC000 - DFFFF Shadow

Shadowing a ROM reduces the memory available between 640KB to 1024KB. These fields determine whether or not optional ROM will be copied to RAM.

Advanced Chipset Features

This Setup menu controls the configuration of the chipset.

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Advanced Chipset Features

SDRAM CAS Latency Time	3	ITEM HELP
SDRAM Cycle Time Tras/Trc	7/9	Menu Level
SDRAM RAS-to-CAS Delay	3	
SDRAM RAS Precharge Time	3	
System BIOS Cacheable	Disabled	
Video BIOS Cacheable	Disabled	
Memory Hole At 15M-16M	Disabled	
CPU Latency Timer	Enabled	
Delayed Transaction	Enabled	
AGP Graphics Aperture Size	64MB	
User VGA BIOS in VBU Block	Enabled	
System Memory Frequency	100Mhz	
On-Chip Video Window Size	64MB	

SDRAM CAS Latency Time

You can select CAS latency time in HCLKs of 2/2 or 3/3. The system board designer should set the values in this field, depending on the DRAM installed. Do not change the values in this field unless you change specifications of the installed DRAM or the installed CPU. The choices are 2 and 3.

SDRAM Cycle Time Tras/Trc

The default setting for the SDRAM Cycle Time Tras/Trc is ***7/9***.

SDRAM RAS-to-CAS Delay

You can select RAS to CAS Delay time in HCLKs of 2/2 or 3/3. The system board designer should set the values in this field, depending on the DRAM installed. Do not change the values in this field unless you change specifications of the installed DRAM or the installed CPU. The choices are ***2*** and ***3***.

SDRAM RAS Precharge Time

This option defines the length of time for Row Address Strobe is allowed to precharge. The choices are ***2*** and ***3***.

System BIOS Cacheable

The setting of *Enabled* allows caching of the system BIOS ROM at F000h-FFFFFh, resulting in better system performance. However, if any program writes to this memory area, a system error may result.

Video BIOS Cacheable

The Setting *Enabled* allows caching of the video BIOS ROM at C0000h-F7FFFh, resulting in better video performance. However, if any program writes to this memory area, a system error may result.

Memory Hole At 15M-16M

In order to improve performance, certain space in memory can be reserved for ISA cards. This memory must be mapped into the memory space below 16 MB. The choices are *Enabled* and *Disabled*.

CPU Latency Timer

The default setting for the CPU Latency Timer is ***Enabled***.

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.

AGP Aperture Size

The field sets aperture size of the graphics. The aperture is a portion of the PCI memory address range dedicated for graphics memory address space. Host cycles that hit the aperture range are forwarded to the AGP without any translation. The default setting is ***64M***.

Use VGA BIOS in VBU Block

When enabled, this field allows the use of VGA BIOS in VBU block.

System Memory Frequency

This field sets the frequency of the memory installed in the CPU card. The default setting is ***100MHz***.

On-Chip Video Window Size

The setting choices for the On-Chip Video Window Size are *64MB* and *32MB*. By default, this option is set to ***64MB***.

Integrated Peripherals

This section sets configurations for your hard disk and other integrated peripherals.

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Integrated Peripherals

On-Chip Primary PCI IDE	Enabled	ITEM HELP
On-Chip Secondary PCI IDE	Enabled	Menu Level
IDE Primary Master PIO	Auto	
IDE Primary Slave PIO	Auto	
IDE Secondary Master PIO	Auto	
IDE Secondary Slave PIO	Auto	
IDE Primary Master UDMA	Auto	
IDE Primary Slave UDMA	Auto	
IDE Secondary Master UDMA	Auto	
IDE Secondary Slave UDMA	Auto	
USB Controller	Enabled	
USB Keyboard Support	Disabled	
Init Display First	PCI Slot	
AC97 Audio	Auto	
IDE Block Mode	Disabled	
POWER ON Function	BUTTON ONLY	
KB Power ON Password	Enter	
Hot Key Power ON	Ctrl-F1	
Onboard FDC Controller	Enabled	
Onboard Serial Port 1	3F8/IRQ4	
Onboard Serial Port 2	2F8/IRQ3	
UART Mode Select	Normal	
UR2 Duplex Mode	Half	
Onboard Parallel Port	378/IRQ7	
Parallel Port Mode	SPP	
ECP Mode Use DMA	3	
Midi Port Address	330	
Midi Port IRQ	10	

OnChip Primary/Secondary PCI IDE

The integrated peripheral controller contains an IDE interface with support for two IDE channels. Select *Enabled* to activate each channel separately.

IDE Primary/Secondary Master/Slave PIO

These fields allow your system hard disk controller to work faster. Rather than have the BIOS issue a series of commands that transfer to or from the disk drive, PIO (Programmed Input/Output) allows the BIOS to communicate with the controller and CPU directly.

The system supports five modes, numbered from 0 (default) to 4, which primarily differ in timing. When Auto is selected, the BIOS will select the best available mode.

IDE Primary/Secondary Master/Slave UDMA

These fields allow your system to improve disk I/O throughput to 33Mb/sec with the Ultra DMA/33 feature. The options are *Auto* and *Disabled*.

USB Controller

The options for this field are *Enabled* and *Disabled*. By default, this field is set to ***Enabled***.

USB Keyboard Support

The options for this field are *Enabled* and *Disabled*. By default, this field is set to ***Disabled***.

Init Display First

This field allows the system to initialize first the VGA card on chip or the display on the PCI Slot. By default, the *PCI Slot* VGA is initialized first.

AC97 Audio

The default setting of the AC97 Audio is ***Auto***.

IDE HDD Block Mode

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

POWER ON Function

This field allows powering on by the following methods:

Password	Hot KEY	Mouse Left	Mouse Right
Any KEY	BUTTON ONLY	Keyboard 98	

KB Power ON Password

This field allows you to set the power on function via the keyboard.

Hot Key Power ON

This field allows you to set the power on function via hot keys on the keyboard including Ctrl-F1 to Ctrl-F12.

Onboard FDC Controller

Select *Enabled* if your system has a floppy disk controller (FDC) installed on the CPU card and you wish to use it. If you install an add-in FDC or the system has no floppy drive, select Disabled in this field. This option allows you to select the onboard FDD port.

Onboard Serial/Parallel Port

These fields allow you to select the onboard serial and parallel ports and their addresses. The default values for these ports are:

Serial Port 1	3F8/IRQ4
Serial Port 2	2F8/IRQ3
Parallel Port	378H/IRQ7

UART Mode Select

This field determines the UART 2 mode in your computer. The default value is ***Normal***. Other options include *IrDA* and *ASKIR*.

Parallel Port Mode

This field allows you to determine parallel port mode function.

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

Midi Port Address

The option settings for this field are *330, 400* and *Disabled*. The default setting is ***330***.

Midi Port IRQ

The default Midi Port IRQ is ***10***.

Power Management Setup

The Power Management Setup allows you to save energy of your system effectively.

CMOS Setup Utility – Copyright ©1984-2001 Award Software
Power Management Setup

Power Management	User Define	ITEM HELP
Video Off Method	DPMS	Menu Level
Video Off In Suspend	Yes	
Suspend Type	Stop Grant	
Modem Use IRQ	3	
Suspend Mode	Disabled	
HDD Power Down	Disabled	
Soft-Off by PWR-BTTN	Instant-Off	
Power On by Ring	Disabled	
Resume by Alarm	Disabled	
Date (of Month) Alarm	0	
Time (hh:mm:ss) Alarm	0	
** Reload Global Timer Events **		
Primary IDE 0	Disabled	
Primary IDE 1	Disabled	
Secondary IDE 0	Disabled	
Secondary IDE 1	Disabled	
FDD, COM, LPT Port	Disabled	
PCI PIRQ[A-D] #	Disabled	

Power Management

This field allows you to select the type of power saving management modes. There are four selections for Power Management.

Min. Power Saving	Minimum power management
Max. Power Saving	Maximum power management.
User Define	Each of the ranges is from 1 min. to 1hr. Except for HDD Power Down which ranges from 1 min. to 15 min. (Default)

Video Off Method

This field defines the Video Off features. There are three options.

V/H SYNC + Blank	Default setting, blank the screen and turn off vertical and horizontal scanning.
DPMS	Allows the BIOS to control the video display card if it supports the DPMS feature.
Blank Screen	This option only writes blanks to the video buffer.

Video Off In Suspend
When enabled, the video is off in suspend mode. The default setting is ***Yes***.

Suspend Type
The default setting for the Suspend Type field is ***Stop Grant***.

Modem Use IRQ
This field sets the IRQ used by the Modem. By default, the setting is ***3***.

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

HDD Power Down
When enabled, and after the set time of system inactivity, the hard disk drive will be powered down while all other devices remain active.

Soft-Off by PWRBTN
This field defines the power-off mode when using an ATX power supply. The *Instant Off* mode allows powering off immediately upon pressing the power button. In the *Delay 4 Sec* mode, the system powers off when the power button is pressed for more than four seconds or enters the suspend mode when pressed for less than 4 seconds. The default value is ***Instant Off***.

Power On by Ring
This field enables or disables the power on of the system through the modem connected to the serial port or LAN.

Resume by Alarm
This field enables or disables the resumption of the system operation. When enabled, the user is allowed to set the *Date* and *Time*.

Reload Global Timer Events
The HDD, FDD, COM, LPT Ports, and PCI PIRQ are I/O events which can prevent the system from entering a power saving mode or can awaken the system from such a mode. 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.

PNP/PCI Configurations

This option configures the PCI bus system. All PCI bus systems on the system use INT#, thus all installed PCI cards must be set to this value.

CMOS Setup Utility – Copyright ©1984-2001 Award Software
PnP/PCI Configurations

Reset Configuration Data	Disabled	ITEM HELP
		Menu Level
Resources Controlled By	Auto (ESCD)	
IRQ Resources	Press Enter	Default is 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 OS cannot boot
PCI/VGA Palette Snoop	Disabled	

Reset Configuration Data

This field allows you to determine whether to reset the configuration data or not. The default value is ***Disabled.***

Resources Controlled by

This PnP BIOS can configure all of the boot and compatible devices automatically with the use of a use a PnP operating system such as Windows 95.

PCI/VGA Palette Snoop

Some non-standard VGA display cards may not show colors properly. This field allows you to set whether or not MPEG ISA/VESA VGA cards can work with PCI/VGA. When this field is enabled, a PCI/VGA can work with an MPEG ISA/VESA VGA card. When this field is disabled, a PCI/VGA cannot work with an MPEG ISA/VESA card.

PC Health Status

This section shows the parameters in determining the PC Health Status. These parameters include temperatures, fan speeds and voltages.

CMOS Setup Utility – Copyright ©1984-2001 Award Software
PC Health Status

		ITEM HELP
CPU Warning Temperature	Disabled	
CPU Temp.	59°C	
Vcore (V)	1.63V	
VTT(V)	1.50V	
VCC3(V)	3.37V	
+5(V)	5.05V	
+12(V)	12.09V	
VBAT	3.10V	
5VSB(V)	5.05V	
Shutdown Temperature	Disabled	

Shutdown Temperature

This field allows the user to set the temperature by which the system automatically shuts down once the threshold temperature is reached. This function can help prevent damage to the system that is caused by overheating.

Temperatures/Fan Speeds/Voltages

These fields are the parameters of the hardware monitoring function feature of the CPU card. The values are read-only values as monitored by the system and show the PC health status.

Frequency/Voltage Control

This section shows the user how to configure the processor frequency.

CMOS Setup Utility – Copyright ©1984-2001 Award Software
Frequency/Voltage Control

Auto Detect DIMM/PCI Clk	Disabled	ITEM HELP
Spread Spectrum	Disabled	Menu Level
Host CPU/PCI Clock	Default	
CPU Clock Ratio	X 3	

Auto Detect DIMM/PCI Clk

This field enables or disables the auto detection of the DIMM/PCI clock. The default setting is ***Disabled***.

Spread Spectrum

This field sets the value of the spread spectrum. The default setting is ***Disabled***. This field is for CE testing use only.

Host CPU/PCI Clock

The Host CPU/PCI Clock has a default setting of ***Default*** which automatically detects the systems host CPU clock and PCI clock. You can also use this parameter to overclock your system. However, it is important to note that overclocking the system/CPU can cause your system to become unstable or crash.

CPU Clock Ratio

The CPU Ratio, also known as the CPU bus speed multiplier, can be configured through this field. The default setting is ***X 3***. This parameter can be used in conjunction with the above field to change the processor's speed.

Load Fail-Safe Defaults

This option allows you to load the troubleshooting default values permanently stored in the BIOS ROM. These default settings are non-optimal and disable all high-performance features.

Load Setup Defaults

This option allows you to load the default values to your system configuration. These default settings are optimal and enable all high performance features.

Set Supervisor/User Password

These two options set the system password. Supervisor Password sets a password that will be used to protect the system and Setup utility. User Password sets a password that will be used exclusively on the system. To specify a password, highlight the type you want and press <Enter>. The Enter Password: message prompts on the screen. Type the password, up to eight characters in length, and press <Enter>. The system confirms your password by asking you to type it again. After setting a password, the screen automatically returns to the main screen.

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

Save & Exit Setup

This option allows you to determine whether or not to accept the modifications. If you type "Y", you will quit the setup utility and save all changes into the CMOS memory. If you type "N", you will return to Setup utility.

Exit Without Saving

Select this option to exit the Setup utility without saving the changes you have made in this session. Typing "Y" will quit the Setup utility without saving the modifications. Typing "N" will return you to Setup utility.

Drivers Installation

This section describes the installation procedures for software and drivers under the Windows 98, Windows NT 4.0 and Windows 2000. The software and drivers are included in the package. If you find the items missing, please contact the vendor where you made the purchase. The contents of this section include the following:

Windows 98 Chipset Drivers Installation

Intel Software Installation Utility

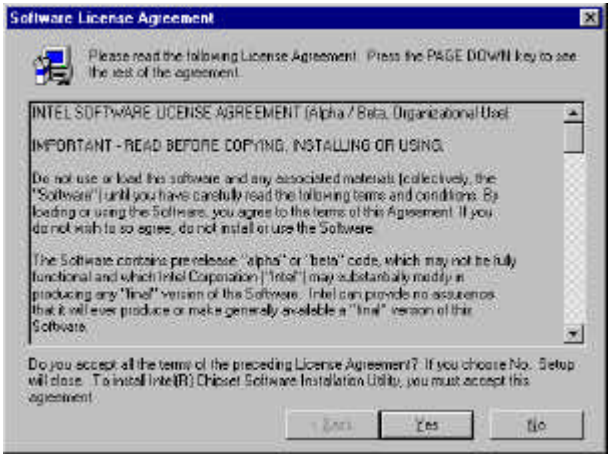
The Intel Chipset Software Installation Utility will enable Plug & Play INF support for Intel chipset components. Follow the instructions below to complete the installation under Windows 98.

1. Insert the CD that comes with the CPU card and the screen below would appear. Click Intel 815(E) Driver.

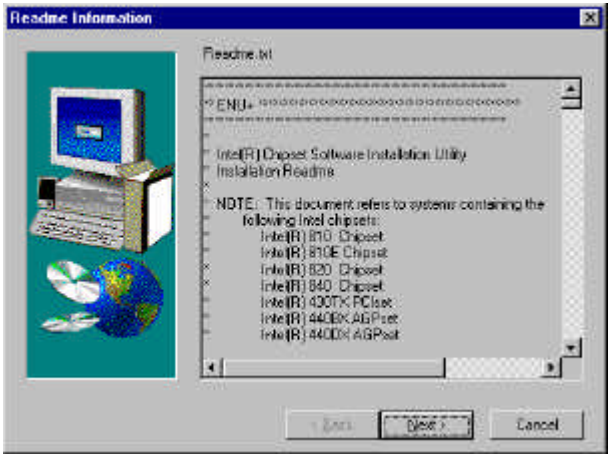
2. Click Intel Chipset Software Installation Utility.

3. When the Welcome screen appears, click Next to continue.

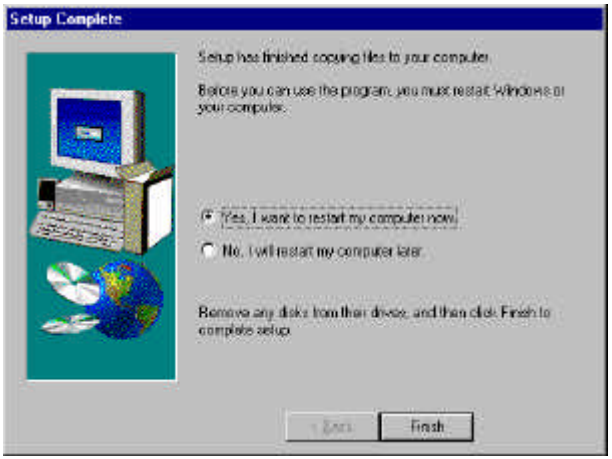
4. Click Yes to accept the software license agreement and proceed with the installation process.



5. On Readme Information screen, click Next to continue the installation.



6. The Setup process is now complete. Click Finish to restart the computer and for changes to take effect. When the computer has restarted, the system will be able to find some devices. Restart your computer when prompted.



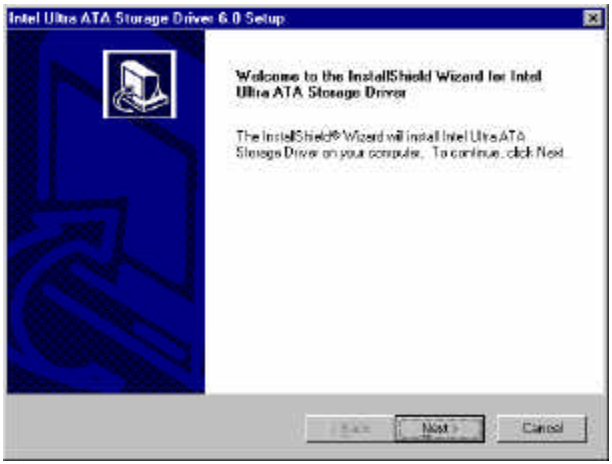
Intel Ultra ATA Storage Driver

Follow the steps below to install Intel Ultra ATA Storage Driver with the InstallShield Wizard under Windows 98.

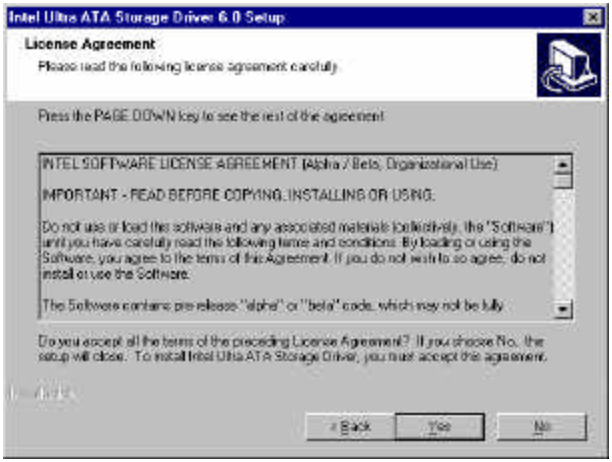
1. Insert the CD that comes with the CPU card and the screen below would appear. Click Intel 815(E) Driver.

2. Click Intel Ultra ATA IDE Driver.

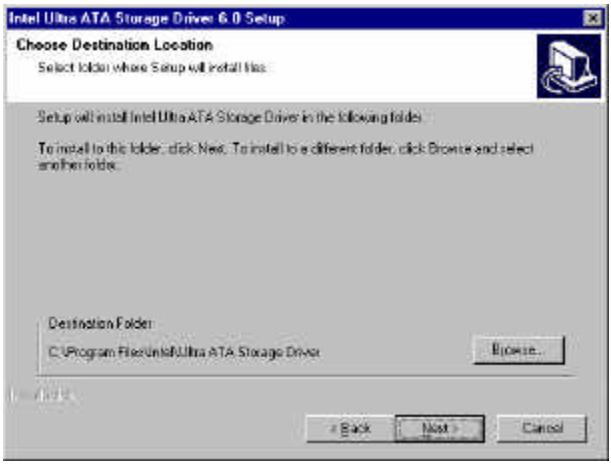
3. The Welcome screen of the Install Shield Wizard for Intel Ultra ATA Storage Driver appears. To continue, click Next.



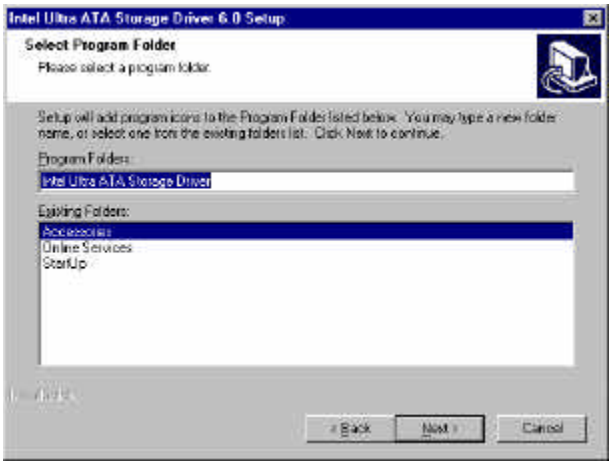
4. Click Yes to accept the software license agreement and proceed with the installation process.



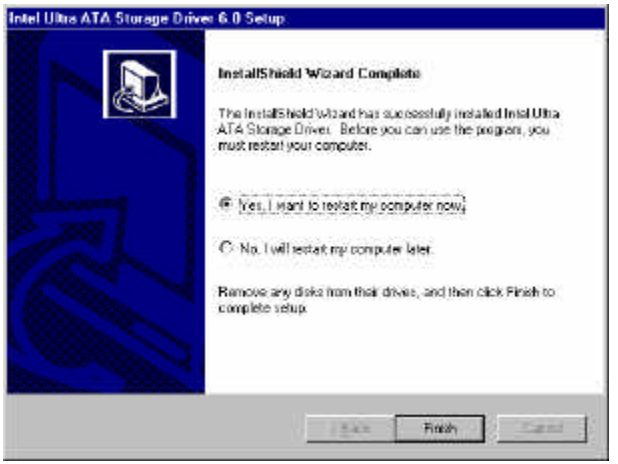
5. You are now required to Select the folder where Setup will install files. Click Next to accept the default folder or click Browse to configure the location.



6. You are now asked to select a program folder. Click Next to accept the default program folder or enter the folder name you prefer.



7. The InstallShield Wizard has completed installation. Click Finish for the computer to restart and changes to take effect.



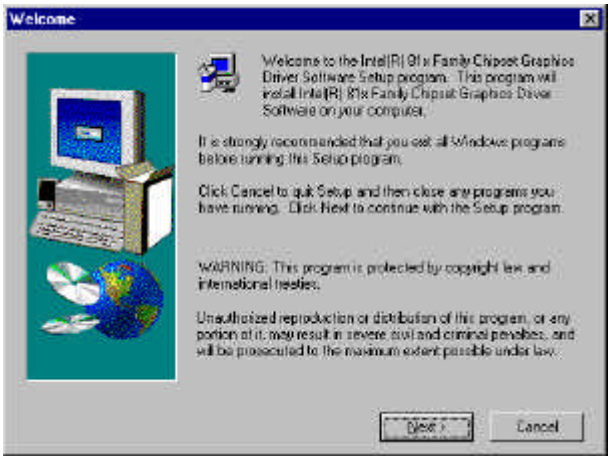
Intel 815E Chipset VGA Driver

Follow the steps below to install Intel 81x Family Chipset Graphics Driver Software under Windows 98.

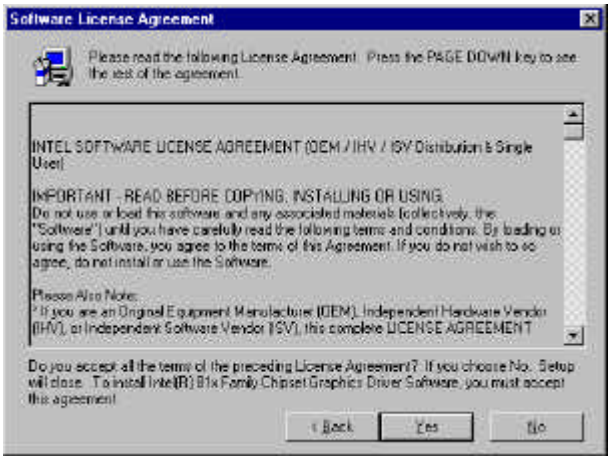
1. Insert the CD that comes with the CPU card and the screen below would appear. Click Intel 815(E) Driver.

2. Click Intel 81x Chipset Graphics Driver.

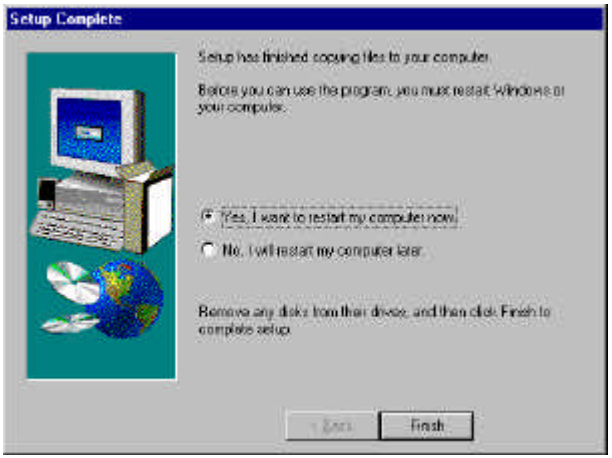
3. The Welcome screen of the Intel 81x Family Chipset Graphics Driver Software Setup program appears. To continue, click Next.



4. Click Yes to accept the software license agreement and proceed with the installation process.



5. The Setup program has now completed installation. Click Finish for the computer to restart and changes to take effect.



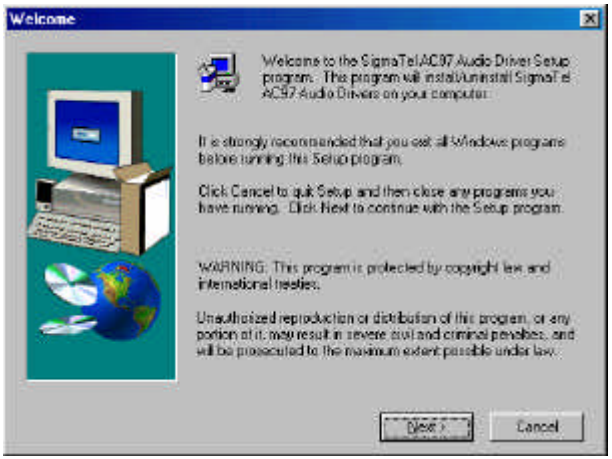
SigmaTel AC97 Audio Drivers

Follow the steps below to install SigmaTel AC97 Audio Drivers on your system under Windows 98.

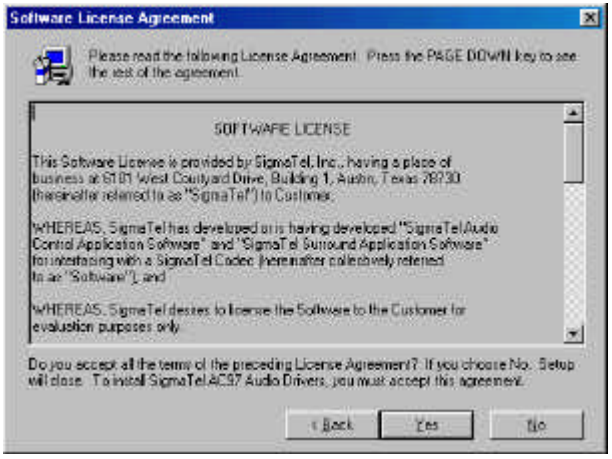
1. Insert the CD that comes with the CPU card and the screen below would appear. Click Intel 815(E) Driver.

2. Click SigmaTel AC97 Audio Driver.

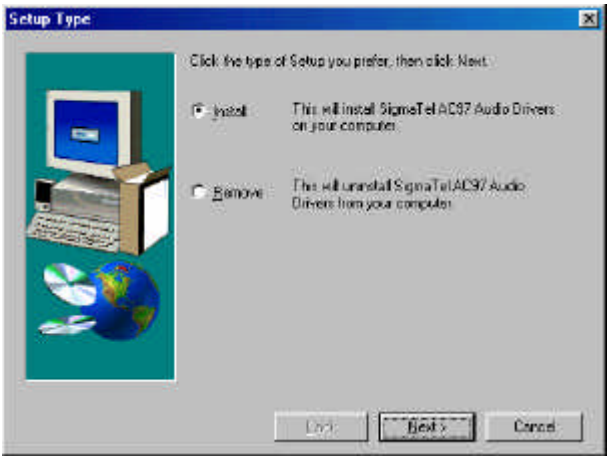
3. The Welcome screen of the SigmaTel AC97 Audio Driver Setup program appears. To continue, click Next.



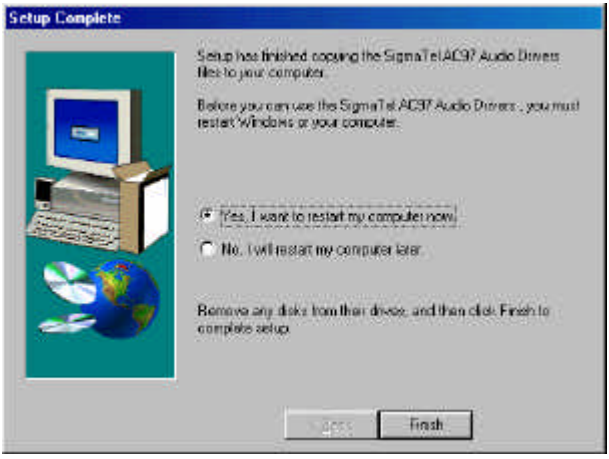
4. Click Yes to accept the software license agreement and proceed with the installation process.



5. Select Install and click Next to install SigmaTel AC97 Audio Drivers on your system.



6. The Setup program has now completed installation. Click Finish for the computer to restart and changes to take effect.



7. After the system has restarted, a screen would appear saying it was able to find the device "Intel AC' 97 Audio Controller." Click Next to continue.

8. Now click Select to "Search for the best river for your device (Recommended)." Click Next, then click Select to "specify a location". Now enter the path as "d:\intel\i815e\sound\win98\driver\wdm" (This is assuming drive D: is your CD-ROM drive.

9. Now click Next and Next again. You are now prompted to place the Windows 98 CD into the CD-ROM drive. Do so accordingly and click OK. Then click Finish to restart the system and for changes to take effect.

PCI Ethernet Drivers

Follow the steps below to install the PCI Ethernet/LAN drivers Windows 98.

1. Under the Windows 98 environment, click Start → Control Panel. Double click System → Device Manager.
2. Click Other Devices → PCI Ethernet Controller.
3. Click Driver → Update Driver → Next.
4. Now select "Display a list of all the drivers in a specific location."
5. Click Next and select "Network adapters."
6. Click Next → Have Disk….
7. Now insert the floppy diskette containing the Ethernet drivers for Windows 98 and click OK → OK → Next.
8. You are now prompted to insert the Windows 98 CD-ROM into the CD-ROM drive. Do so accordinlgy and click OK.
9. When file copying is done, click Yes to restart the system and changes to take effect.

Windows NT 4.0 Chipset Drivers Installation

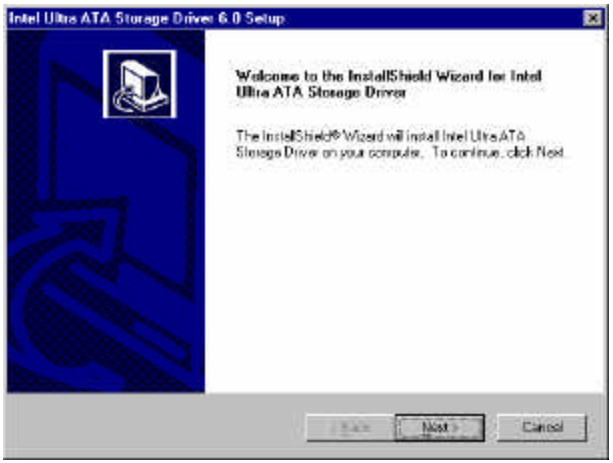
Intel Ultra ATA Storage Driver

Follow the steps below to install Intel Ultra ATA Storage Driver with the InstallShield Wizard under Windows NT 4.0.

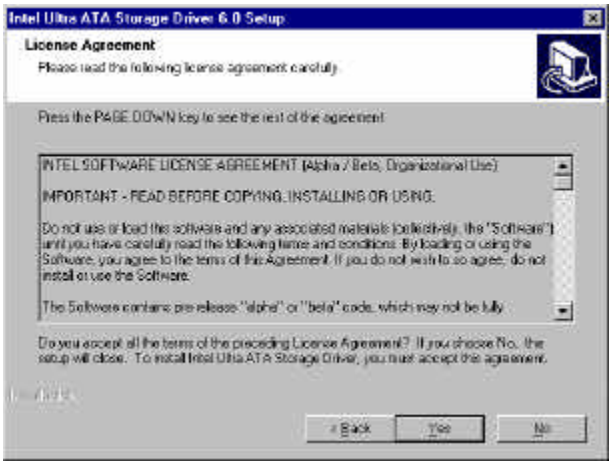
1. Insert the CD that comes with the CPU card and the screen below would appear. Click Intel 815(E) Driver.

2. Click Intel Ultra ATA IDE Driver.

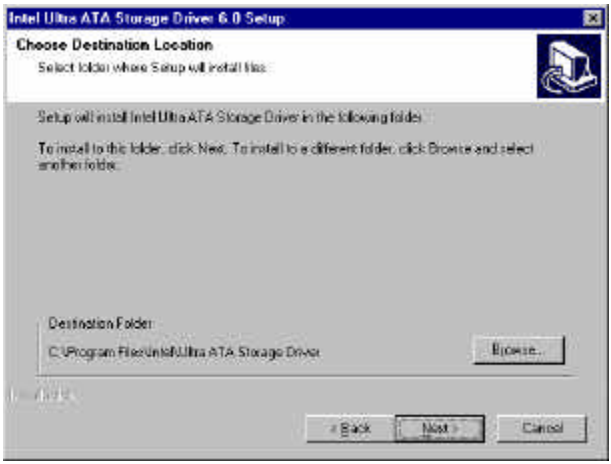
3. The Welcome screen of the Install Shield Wizard for Intel Ultra ATA Storage Driver appears. To continue, click Next.



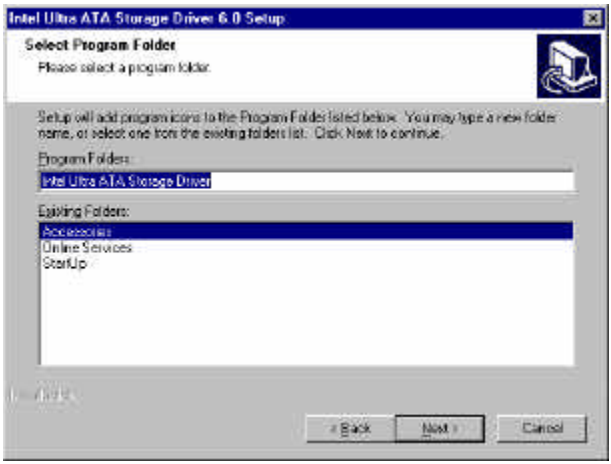
4. Click Yes to accept the software license agreement and proceed with the installation process.



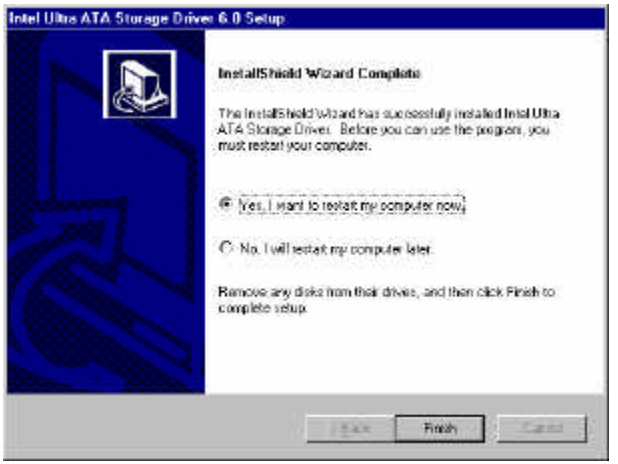
5. You are now required to Select the folder where Setup will install files. Click Next to accept the default folder or click Browse to configure the location.



6. You are now asked to select a program folder. Click Next to accept the default program folder or enter the folder name you prefer.



7. The InstallShield Wizard has completed installation. Click Finish for the computer to restart and changes to take effect.



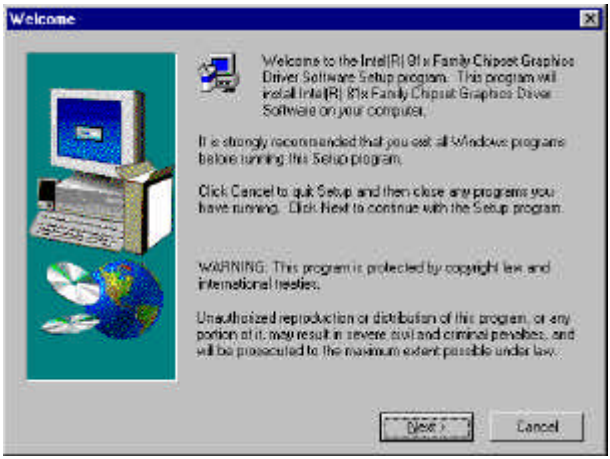
Intel 815E Chipset VGA Driver

Follow the steps below to install Intel 81x Family Chipset Graphics Driver Software under Windows NT 4.0.

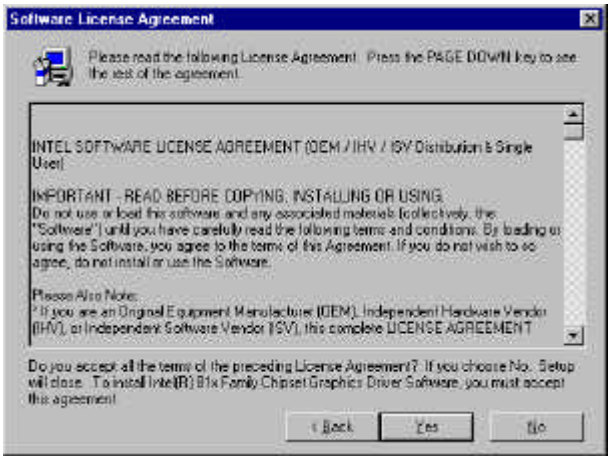
1. Insert the CD that comes with the CPU card and the screen below would appear. Click Intel 815(E) Driver.

2. Click Intel 81x Chipset Graphics Driver.

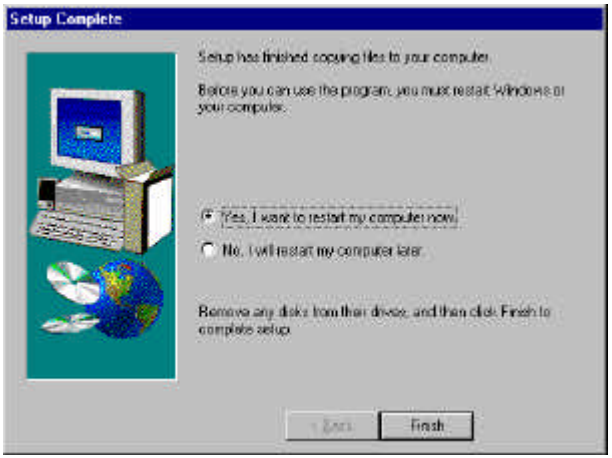
3. The Welcome screen of the Intel 81x Family Chipset Graphics Driver Software Setup program appears. To continue, click Next.



4. Click Yes to accept the software license agreement and proceed with the installation process.



5. The Setup program has now completed installation. Click Finish for the computer to restart and changes to take effect.



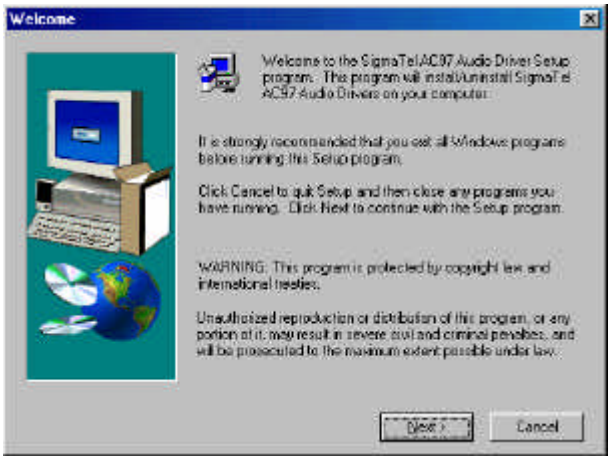
SigmaTel AC97 Audio Drivers

Follow the steps below to install SigmaTel AC97 Audio Drivers on your system under Windows NT 4.0.

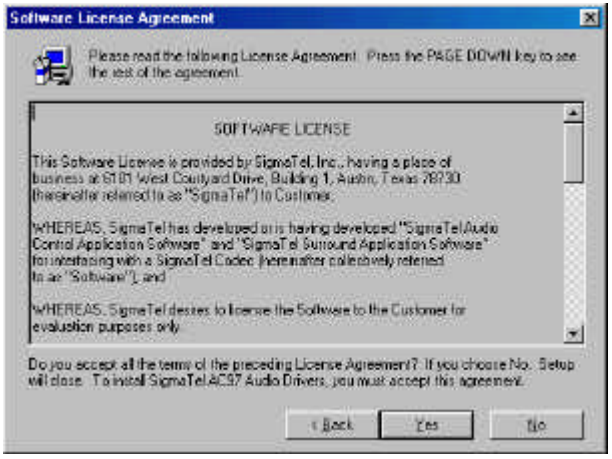
1. Insert the CD that comes with the CPU card and the screen below would appear. Click Intel 815(E) Driver.

2. Click SigmaTel AC97 Audio Driver.

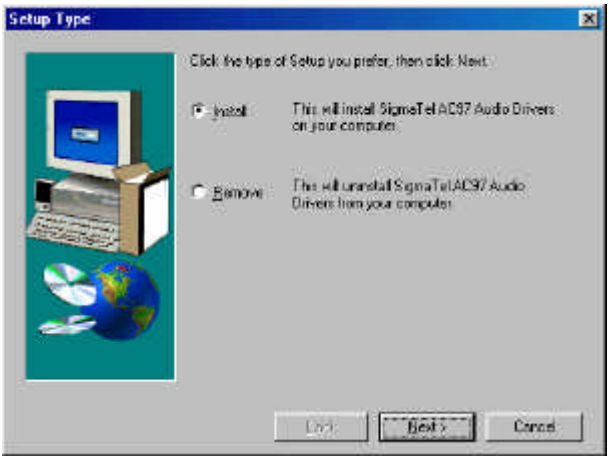
3. The Welcome screen of the SigmaTel AC97 Audio Driver Setup program appears. To continue, click Next.



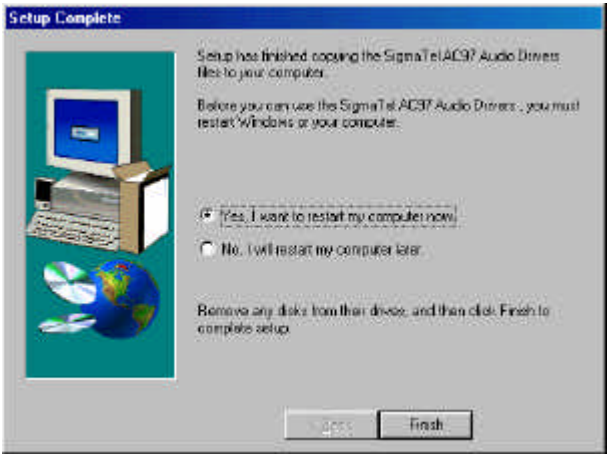
4. Click Yes to accept the software license agreement and proceed with the installation process.



5. Select Install and click Next to install SigmaTel AC97 Audio Drivers on your system.



6. The Setup program has now completed installation. Click Finish for the computer to restart and changes to take effect.



7. After the system has restarted, a screen would appear showing some installation information. Restart the system when prompted to complete the audio driver installation.

PCI Ethernet Drivers

Follow the steps below to install the PCI Ethernet/LAN drivers Windows NT 4.0.

1. Under the Windows NT 4.0 environment, click Start → Control Panel. Double click Network → Adapters → Add.
2. Select "Have disk …" and insert the floppy diskette containing the Ethernet drivers for Windows NT 4.0 into the FDD drive, then click OK.
3. Click OK → Close, and then enter IP address.
4. Restart the system for changes to take effect.

Windows 2000 Chipset Drivers Installation

Intel 815E Chipset VGA Driver

Follow the steps below to install Intel 81x Family Chipset Graphics Driver Software under Windows 2000.

1. Under the Windows 2000 environment, click Start → Control Panel. Double click System → Hardware → Device Manager → Other Devices.
2. Double-click Video Controller(VGA compatible).
3. Click Driver → Update Driver → Next.
4. Now select "Display a list of the known drivers for this device so that I can choose a specific driver."
5. Now enter the driver path as "d:\intel\815e\agp\win2000" assuming drive D: is your CD-ROM drive. Click OK and select "Intel 82815 graphics controller."
6. Click Next → Yes → Next → Finish.
7. Close all tasks and restart the computer.

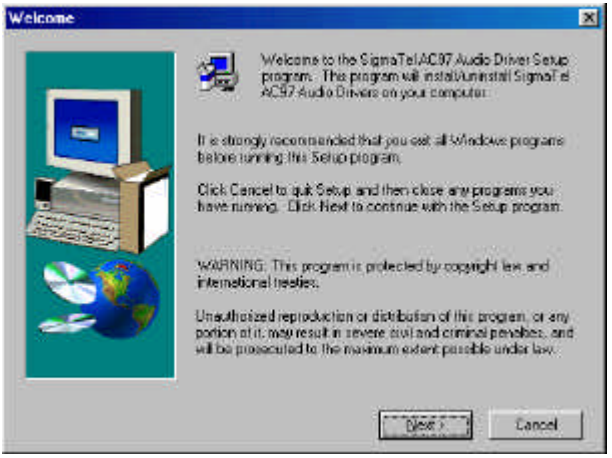
SigmaTel AC97 Audio Drivers

Follow the steps below to install SigmaTel AC97 Audio Drivers on your system under Windows 2000.

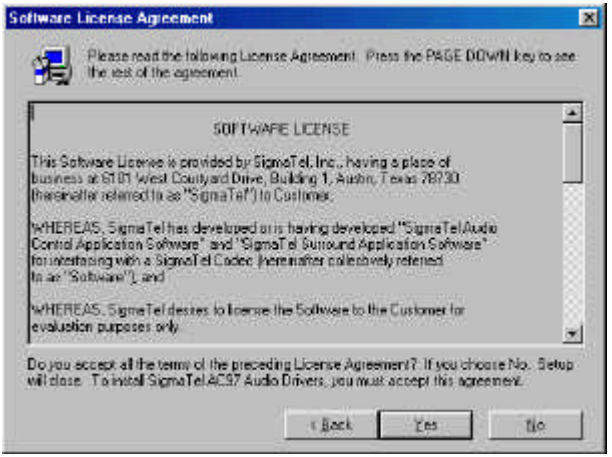
1. Insert the CD that comes with the CPU card. The CD will autorun and show an initial screen. Click Intel 815(E) Driver.

2. Click SigmaTel AC97 Audio Driver.

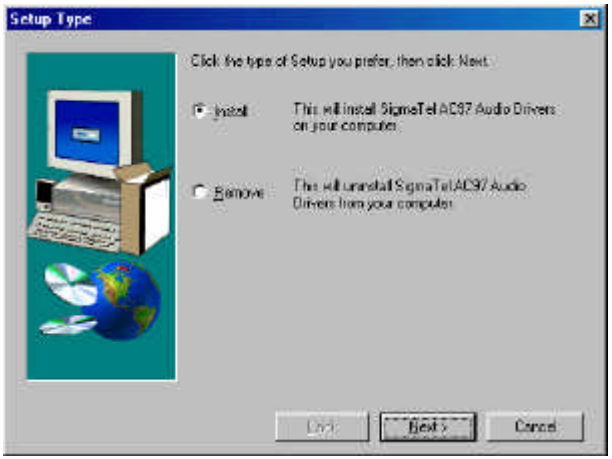
3. The Welcome screen of the SigmaTel AC97 Audio Driver Setup program appears. To continue, click Next.



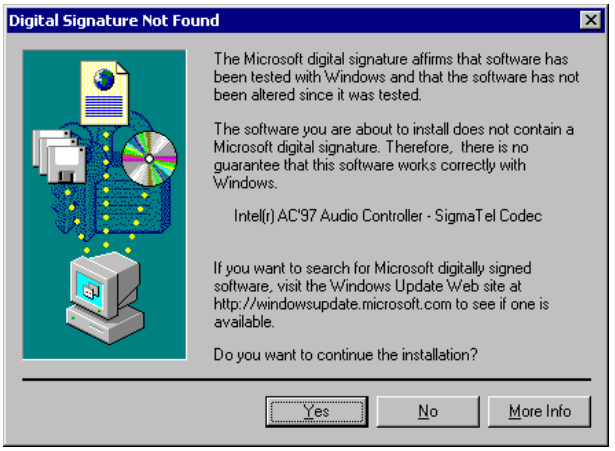
4. Click Yes to accept the software license agreement and proceed with the installation process.



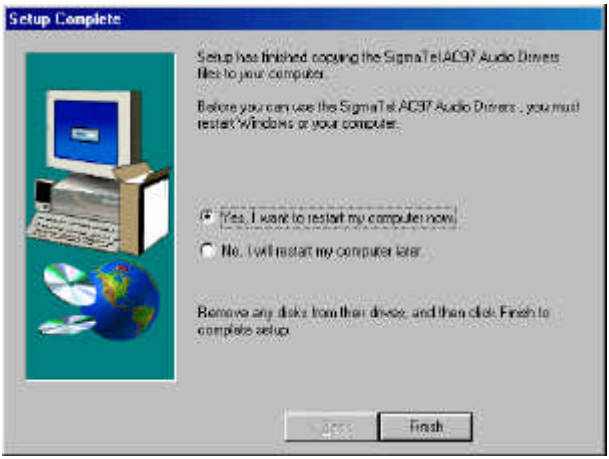
5. Select Install and click Next to install SigmaTel AC97 Audio Drivers on your system.



6. A window appears indicating that the software to be installed does not contain a Microsoft digital signature. Click Yes to continue the installation process.



7. The Setup program has now completed installation. Click Finish for the computer to restart and changes to take effect.



PCI Ethernet Drivers

Follow the steps below to install the PCI Ethernet/LAN drivers Windows 2000.

1. Under the Windows 2000 environment, click Start → Control Panel. Double click System → Hardware → Device Manager → Other Devices.
2. Double-click Ethernet Controller.
3. Click Driver → Update Driver → Next.
4. Now select "Display a list of the known drivers for this device so that I can choose a specific driver."
5. Insert the floppy diskette containing the Intel Ethernet drivers into the FDD drive. Click OK and select "Intel PRO/100 VE Network connection."
6. Click Next → Next → Finish. Close all tasks and restart the computer.

SMI SM721G8 VGA Drivers Installation

Driver Installation for Windows 95

1. Under the Windows 95 environment, click Start → Settings → Control Panel → Display → Settings → Advanced Properties → Change → Have disk. Enter the path location as "d:\vga\sm721\win95", assuming Drive D: is your CDROM drive. Click OK.
2. Close all tasks and restart the computer for changes to take effect.

Driver Installation for Windows 98SE

1. Under the Windows 98SE environment, click Start → Settings → Control Panel
2. Double click Display → Settings → Advanced → Adapter → Change → Next. Select "Search for a better driver than the one your device is using now. (Recommended)," then click Next.
4. Select "Specify a location."
Enter the path location as "d:\vga\sm721\win98," and click Next.
5. Click Next → Finish. Click Yes to restart the computer and for changes to take effect.

Driver Installation for Windows 98 ME

1. Under the Windows 98 ME environment, click Start → Settings → Control Panel → Display → Settings → Advanced.
2. Select "Specify a location."
3. Enter the path location as "d:\vga\sm721\winme", assuming Drive D: is your CDROM drive. Click Next.
4. Select "The update driver (Recommended) Silicon Motion Lynx3DM", then click Next. Click Next → Finish.
5. Click Yes to restart the computer and for changes to take effect.

Driver Installation for Windows 2000

1. Under the Windows 2000 environment, click Start → Settings → Control Panel. Double click System → Hardware → Device Manager → Other devices.
2. Double click "Video Controller (VGA Compatible)."
3. Click Driver → Update Driver → Next.
4. Select "Display a list of the known drivers for this device so that I can choose a specific driver," then click Next.
5. Select "Specify a location," then click Next.
6. Enter the path location as "d:\vga\sm721\win2000," and click OK.
7. Click Next → Finish. Close all tasks and restart the computer for changes to take effect.

Driver Installation for Windows NT 4.0

1. Under the Windows NT environment, click Start → Settings → Control Panel
2. Double click Display → Settings → Type → Change → Have Disk.
3. Enter the path location as "d:\vga\sm721\winnt40," then click OK → OK → Yes → OK.
4. Close all tasks and restart the computer for changes to take effect.

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Appendix

A. I/O Port Address Map
B. Interrupt Request Lines (IRQ)

A. I/O Port Address Map

Each peripheral device in the system is assigned a set of I/O port addresses which also becomes the identity of the device. The following table lists the I/O port addresses used.

Address	Device Description
000h - 01Fh	DMA Controller #1
020h - 03Fh	Interrupt Controller #1
040h - 05Fh	Timer
060h - 06Fh	Keyboard Controller
070h - 07Fh	Real Time Clock, NMI
080h - 09Fh	DMA Page Register
0A0h - 0BFh	Interrupt Controller #2
0C0h - 0DFh	DMA Controller #2
0F0h	Clear Math Coprocessor Busy Signal
0F1h	Reset Math Coprocessor
1F0h - 1F7h	IDE Interface
278 - 27F	Parallel Port #2(LPT2)
2F8h - 2FFh	Serial Port #2(COM2)
2B0 - 2DF	Graphics adapter Controller
378h - 3FFh	Parallel Port #1(LPT1)
360 - 36F	Network Ports
3B0 - 3BF	Monochrome & Printer adapter
3C0 - 3CF	EGA adapter
3D0 - 3DF	CGA adapter
3F0h - 3F7h	Floppy Disk Controller
3F8h - 3FFh	Serial Port #1(COM1)

B. Interrupt Request Lines (IRQ)

Peripheral devices use interrupt request lines to notify CPU for the service required. The following table shows the IRQ used by the devices on board.

Level	Function
IRQ0	System Timer Output
IRQ1	Keyboard
IRQ2	Interrupt Cascade
IRQ3	Serial Port #2
IRQ4	Serial Port #1
IRQ5	Reserved
IRQ6	Floppy Disk Controller
IRQ7	Parallel Port #1
IRQ8	Real Time Clock
IRQ9	Reserved
IRQ10	Reserved
IRQ11	Reserved
IRQ12	PS/2 Mouse
IRQ13	80287
IRQ14	Primary IDE
IRQ15	Secondary IDE