

ET722

VIA Eden-V4 / CN700

ETX CPU Module

USER'S MANUAL

Version 1.0

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Introduction

Product Description

ET722 is an ETX CPU module based on the VIA CN700 chipset and supports VIA Eden-V4 processors with speeds from 400MHz to 1.2GHz. The onboard chipset-VGA controller supports CRT and LVDS displays, as well as MPEG-2 playback. This ETX module has 10/100 BaseT networking.

Expansion and interfaces include one DDR2 sockets accommodating up to 1GB of system memory, four USB, two COM ports, and PCI to ISA bridge.

With board size of 95mm by 114mm, the module also features a watchdog timer.

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.

Checklist

Your ET722 package should include the items listed below.

- The ET722 CPU Module
- This User's Manual
- 1 CD containing the following:
 - Chipset Drivers
 - Flash Memory Utility
 - Optional SATA cable (SATA8)



The ET722 VIA CN700 ETX CPU Module

Specifications

Product Name	ET722
CPU Type	Eden-V4 NanoBGA2 (21x21mm) package
CPU Voltage	Eden-V4: 1.0~1.2GHz (heatsink only for fanless)
CPU Frequency	1.004V ~ 1.148V
CPU FSB	400/533MHz
Cache	128KB L2 (CPU integrated)
Green /APM	APM1.2
Chipset	VIA CN700/8237R+ chipset North bridge: CN700 567-pin HSBGA South bridge: VT8237R+ 539-pin PBGA
BIOS	Award BIOS, supports ACPI function
Memory	200-pin SODIMM DDR200/266/333/400 socket x1, Max.1GB
VGA	VIA CN700 built-in 128-bit Unichrome Pro 3D/2D controller
LCD interface	VIA VT1636 for 18 or 24 dual channel LVDS
LAN	VT8237R+ built 10/100Mb MAC + VT6103 PHY w/ wake up on LAN
USB	VT8237R+, supports 4 ports USB1.1/2.0
IDE	VT8237R+ built-in two channels UDMA 33/66/100/133 controller
SATA	VT8237R+ built-in SATA (one port)
Audio	VT8237R+ built-in Audio controller + ALC655 AC97 codec
LPC Super I/O	Winbond W83697HF: Parallel, COM1, COM2 (RS-232), IrDA, FDC & hardware monitor (2 thermal inputs, 5 voltage monitor inputs)
RTC/CMOS	VT8237R+ built-in RTC with on board Lithium Battery
PCI to ISA	ITE IT8888G
ETX Interface	ETX connector x 4 for PCI-Bus, ISA-Bus, USBX4, Audio, VGA, LVDS, LAN, IDEs, COM ports, Parallel port & Keyboard / Mouse
On Board Connector	Slim Floppy connector x1 SATA Connector x1 (JST SM05B-SRSS-TB)
Other Function	Wake_on_LAN
OS	Windows XP, 2000 & CE
Operating Temperature	0°C ~ 60°C (32°F ~140°F)
Board Size	95mm x 114mm

Remarks:

1. ET722's ISA interface supports Slave mode only.

Connector and Jumpers

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X1 (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

X2 (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	I016J	83	VCC	84	VCC
35	GND	36	GND	85	SD0	86	SMEMWJ
37	SBHEJ	38	M16J	87	SD2	88	SD1
39	SA0	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

X3 (VGA, LCD, Video, COM, COM2, LPT/Floppy, IrDA, Mouse, Keyboard, LCD)

Pin	Signal	Pin	Signal	Pin	Signal	Pin	Signal
1	GND	2	GND	51	NC	52	NC
3	R	4	B	53	VCC	54	GND
5	HSY	6	G	55	/STB	56	/AFD
7	VSX	8	DDCK	57	ic.	58	PD7
9	NC	10	DDDA	59	IRRX	60	/ERR
11	LCD DO16	12	LCD DO18	61	IRTX	62	PD7
13	LCD DO17	14	LCD DO19	63	RXD2	64	/INIT
15	GND	16	GND	65	GND	66	GND
17	LCD DO13	18	LCD DO15	67	RTS2J	68	PD5
19	LCD DO12	20	LCD DO14	69	DTR2J	70	/SLIN
21	GND	22	GND	71	DCD2J	72	PD4
23	LCD DO8	24	LCD DO11	73	DSR2J	74	PD3
25	LCD DO9	26	LCD DO10	75	CTS2J	76	PD2
27	GND	28	GND	77	TXD2J	78	PD1
29	LCD DO4	30	LCD DO7	79	RI2J	80	PD0
31	LCD DO5	32	LCD DO6	81	VCC	82	VCC
33	GND	34	GND	83	RXD1	84	/ACK
35	LCD DO1	36	LCD DO3	85	RTS1J	86	/BUSY
37	LCD DO0	38	LCD DO2	87	DTR1J	88	PE
39	VCC	40	VCC	89	DCD1J	90	/SLCT
41	NC	42	LTGIO0	91	DSR1J	92	MSCLK
43	NC	44	BLON#	93	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

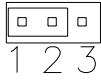
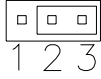
X4 (IDE 1, IDE 2, Ethernet, Misc)

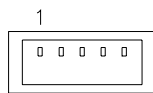
Pin	Signal	Pin	Signal	Pin	Signal	Pin	Signal
1	GND	2	GND	51	SIDE IOWJ	52	PIDE_IORJ
3	5V SB	4	PWGIN	53	SIDE DRQ	54	PIDE IOWJ
5	PS ON	6	SPEAKER	55	SIDE D15	56	PIDE DRQ
7	PWRBTNJ	8	BATT	57	SIDE DO	58	PIDE D15
9	KBINH	10	LILED	59	SIDE D14	60	PIDE DO
11	NC	12	ACTLED	61	SIDE D1	62	PIDE D14
13	NC	14	SPEEDLED	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

FDD1: 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
11	DINST	12	DIR
13	NC	14	STEP
15	GND	16	WDATA
17	GND	18	EGATE
19	GND	20	TRACK
21	GND	22	WPROT
23	GND	24	RDATA
25	GND	26	HEAD

JP1: AT / ATX Power

JP1	Setting	Power Supply
	Pin 1-2 Short/Closed	ATX Power
	Pin 2-3 Short/Closed	AT Power

CN1: SATA Connector

Pin #	Signal Name
1	TxP
2	TxN
3	Ground
4	RxN
5	RxP

Note: The Serial ATA cable is optional.

Watchdog Timer Configuration

The WDT is used to generate a variety of output signals after a user programmable count. The WDT is suitable for use in the prevention of system lock-up, such as when software becomes trapped in a deadlock. Under these sort of circumstances, the timer will count to zero and the selected outputs will be driven. Under normal circumstance, the user will restart the WDT at regular intervals before the timer counts to zero.

SAMPLE CODE:

This code and information is provided "as is" without warranty of any kind, either expressed or implied, including but not limited to the implied warranties of merchantability and/or fitness for a particular purpose.

```

Filename : Main.cpp
=====
//
// THIS CODE AND INFORMATION IS PROVIDED "AS IS" WITHOUT WARRANTY OF ANY
// KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE
// IMPLIED WARRANTIES OF MERCHANTABILITY AND/OR FITNESS FOR A PARTICULAR
// PURPOSE.
//
=====
#include <stdio.h>
#include <stdlib.h>
#include "W697HF.H"
=====
int main (int argc, char *argv[]);
void copyright(void);
void EnableWDT(int);
void DisableWDT(void);
=====
int main (int argc, char *argv[])
{
    unsigned char bBuf;
    unsigned char bTime;
    char **endptr;

    copyright();

    if (argc != 2)
    {
        printf(" Parameter incorrect!!\n");
        return 1;
    }

    if (Init_W697HF() == 0)
    {
        printf(" Winbond 83697HF is not detected, program abort.\n");
        return 1;
    }

    bTime = strtol (argv[1], endptr, 10);
    printf("System will reset after %d seconds\n", bTime);

    EnableWDT(bTime);

    return 0;
}
=====
void copyright(void)
{
    printf("\n===== Winbond 697HF Watch Timer Tester (AUTO DETECT) =====\n")
        "      Usage : W697WD reset_time\n"
        "      Ex : W697WD 3 => reset system after 3 second\n"
        "           W697WD 0 => disable watch dog timer\n");
}
=====
void EnableWDT(int interval)

```

```

{
    unsigned char bBuf;

    bBuf = Get_W697HF_Reg(0x29);
    bBuf &= (~0x60);
    bBuf |= 0x20;
    Set_W697HF_Reg(0x29, bBuf);                //enable WDTO

    Set_W697HF_LD(0x08);                      //switch to logic device 8

    bBuf = Get_W697HF_Reg(0xF3);
    bBuf &= (~0x04);
    Set_W697HF_Reg( 0xF3, bBuf);              //count mode is second

    Set_W697HF_Reg( 0xF4, interval);          //set timer
    Set_W697HF_Reg( 0x30, 0x01);              //enable timer
}
//=====
void DisableWDT(void)
{
    Set_W697HF_LD(0x08);                      //switch to logic device 8
    Set_W697HF_Reg(0x30, 0x00);              //watchdog disabled
    Set_W697HF_Reg(0xF4, 0x00);              //clear watchdog timer
}
//=====

Filename : W697hf.cpp
//=====
//
// THIS CODE AND INFORMATION IS PROVIDED "AS IS" WITHOUT WARRANTY OF ANY
// KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE
// IMPLIED WARRANTIES OF MERCHANTABILITY AND/OR FITNESS FOR A PARTICULAR
// PURPOSE.
//
//=====
#include "W697HF.H"
#include <dos.h>
//=====
unsigned int W697HF_BASE;
void Unlock_W697HF (void);
void Lock_W697HF (void);
//=====
unsigned int Init_W697HF(void)
{
    unsigned int result;
    unsigned char ucDid;

    W697HF_BASE = 0x2E;
    result = W697HF_BASE;

    ucDid = Get_W697HF_Reg(0x20);
    if ( ucDid == 0x60)
    {   goto Init_Finish;   }

    W697HF_BASE = 0x4E;
    result = W697HF_BASE;

    ucDid = Get_W697HF_Reg(0x20);
    if ( ucDid == 0x60)
    {   goto Init_Finish;   }

    W697HF_BASE = 0x00;
    result = W697HF_BASE;

Init_Finish:
    return (result);
}
//=====
void Unlock_W697HF (void)
{
    outportb(W697HF_INDEX_PORT, W697HF_UNLOCK);
    outportb(W697HF_INDEX_PORT, W697HF_UNLOCK);
}

```

```

}
//=====
void Lock_W697HF(void)
{
    outportb(W697HF_INDEX_PORT, W697HF_LOCK);
}
//=====
void Set_W697HF_LD(unsigned char LD)
{
    Unlock_W697HF();
    outportb(W697HF_INDEX_PORT, W697HF_REG_LD);
    outportb(W697HF_DATA_PORT, LD);
    Lock_W697HF();
}
//=====
void Set_W697HF_Reg(unsigned char REG, unsigned char DATA)
{
    Unlock_W697HF();
    outportb(W697HF_INDEX_PORT, REG);
    outportb(W697HF_DATA_PORT, DATA);
    Lock_W697HF();
}
//=====
unsigned char Get_W697HF_Reg(unsigned char REG)
{
    unsigned char Result;
    Unlock_W697HF();
    outportb(W697HF_INDEX_PORT, REG);
    Result = inportb(W697HF_DATA_PORT);
    Lock_W697HF();
    return Result;
}
//=====

Filename : W697hf.h
//=====
//
// THIS CODE AND INFORMATION IS PROVIDED "AS IS" WITHOUT WARRANTY OF ANY
// KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE
// IMPLIED WARRANTIES OF MERCHANTABILITY AND/OR FITNESS FOR A PARTICULAR
// PURPOSE.
//
//=====
#ifndef __W697HF_H
#define __W697HF_H                1
//=====
#define W697HF_INDEX_PORT        (W697HF_BASE)
#define W697HF_DATA_PORT        (W697HF_BASE+1)
//=====
#define W697HF_REG_LD            0x07
//=====
#define W697HF_UNLOCK            0x87
#define W697HF_LOCK              0xAA
//=====
unsigned int Init_W697HF(void);
void Set_W697HF_LD(unsigned char);
void Set_W697HF_Reg(unsigned char, unsigned char);
unsigned char Get_W697HF_Reg(unsigned char);
//=====
#endif // __W697HF_H

```

BIOS Setup

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

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Load Fail-Safe Defaults.....	34
Load Optimized Defaults	34
Set Supervisor/User Password.....	34
Save & Exit Setup	34
Exit Without Saving	34

BIOS Introduction

The Award BIOS (Basic Input/Output System) installed in your computer system's ROM supports VIA 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 key immediately allows you to enter the Setup utility. If you are a little bit late pressing the 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 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.

Phoenix - Award Workstation BIOS CMOS Setup Utility

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 motherboard 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.

Phoenix - Award WorkstationBIOS CMOS Setup Utility
Standard CMOS Features

Date (mm:dd:yy)	Wed, Feb 18 2004	Item Help
Time (hh:mm:ss)	00 : 00 : 00	Menu Level
IDE Channel 0 Master	None	Change the day, month, Year and century
IDE Channel 0 Slave	None	
IDE Channel 1 Master	None	
IDE Channel 1 Slave	None	
IDE Channel 2 Master	None	
IDE Channel 3 Master	None	
Drive A	None	
Drive B	None	
Video	EGA/VGA	
Halt On	All But Keyboard	
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.

Date

The date format is:

- Day :** Sun to Sat
- Month :** 1 to 12
- Date :** 1 to 31
- Year :** 1999 to 2099

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 Channel 0/1/2 HDDs

The onboard PCI IDE connectors provide three channels for connecting up to four IDE hard disks and one SATA drives.

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

These fields identify the types of floppy disk drive 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.

Phoenix - Award Workstation BIOS CMOS Setup Utility
Advanced BIOS Features

		ITEM HELP
CPU Feature	Press Enter	
Hard Disk Booty Priority	Press Enter	Menu Level
Virus Warning	Disabled	
CPU L1 & L2 Cache	Enabled	
CPU L2 Cache ECC Checking	Enabled	
Quick Power On Self Test	Enabled	
First Boot Device	Floppy	
Second Boot Device	Hard Disk	
Third Boot Device	CDROM	
Boot Other Device	Enabled	
Swap Floppy drive	Disable	
Boot up Floppy Seek	Disable	
Boot Up Numlock Status	On	
Typematic Rate Setting	Disabled	
Typematic Rate (chars/Sec)	6	
Typematic Delay (Msec)	250	
Security Option	Setup	
APIC Mode	Enabled	
MPS Version Control for OS	1.4	
OS Select For DRAM>64MB	Non-OS2	
Video BIOS Shadow	Enabled	
Small Logo (EPA) Show	Disabled	

CPU Feature

This item allows you to set the “Delay Prior to Thermal” and “Thermal Management” where the default settings are “16 Min” and “Thermal Monitor 1

Hard Disk Booty Priority

This item allows you to arrange the priority of the devices where the system boots from.

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 L1/L2 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.

CPU L2 Cache ECC Checking

When enabled, it allows ECC checking of the CPU L2 cache. Enabling this feature is recommended because it will detect and correct single-bit errors in data stored in the L2 cache. It will also detect double-bit errors but not correct them.

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*, *Hard Disk*, *CDROM*, *ZIP100*, *USB-FDD*, *USB-CD-ROM*, *Legacy 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

This feature controls whether the BIOS checks for a floppy drive while booting up. If it cannot detect one (either due to improper configuration or its absence), it will flash an error message.

Boot Up NumLock Status

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

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.

Security Option

This field allows you to limit access to the System and 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 Setup utility is called up.

MPS Version Control for OS

This option specifies the MPS (Multiprocessor Specification) version for your operating system. MPS 1.4 added extended configuration tables to improve support for multiple PCI bus configurations and improve future expandability. The default setting is *1.4*.

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.

Small Logo (EPA) Show

This field enables the showing of the EPA logo located at the upper right of the screen during boot up.

Advanced Chipset Features

This Setup menu controls the configuration of the chipset.

Phoenix - AwardBIOS CMOS Setup Utility
Advanced Chipset Features

DRAM Clock / Drive Control	Press Enter	ITEM HELP
AGP & P2P Bridge Control	Press Enter	Menu Level
CPU & PCI Bus Control	Press Enter	
Memory Hole	Disabled	
System BIOS Cacheable	Enabled	
Video RAM Cacheable	Disabled	
LAN PXE Option ROM	Disabled	
Init Display First	PCI Slot	

Phoenix - AwardBIOS CMOS Setup Utility
DRAM Clock/Driver Control

Current FSB Frequency	100MHz	ITEM HELP
Current DRAM Frequency	266Mhz	Menu Level
DRAM Clock	By SPD	
DRAM Timing	Auto By SPD	
DRAM CAS Latency	2.5/4	
Bank Interleave	Disabled	
Precharge to Active (Trp)	4T	
Active to Precharge (Tras)	07T	
Active to CMD(Trcd)	4T	
REF to ACT/REF to REF(Trfc)	21T	
ACT(0) to ACT(1) TRRD	3T	
Read to Precharge (Trtp)	2T	
Write to Read CMD (Twtr)	1T/2T	
Write Recovery Time (Twr)	4T	
DRAM Command Rate	2T Command	
RDSAIT Mode	Auto	
RDSAIT Selection	03	

Phoenix - AwardBIOS CMOS Setup Utility
AGP & P2P Bridge Control

AGP Aperture Size	128M	ITEM HELP
AGP 3.0 Mode	8X	Menu Level
AGP Driving Control	Auto	
AGP Driving Value	DA	
AGP Fast Write	Disabled	
AGP Master 1 WS Write	Enabled	
AGP Master 1 WS Read	Enabled	
AGP 3.0 Calibration cycle	Disabled	
VGA Share Memory Size	64M	
Direct Frame Buffer	Enabled	
Select Display Device	CRT+LCD	
Panel Type	1024 x 768 18bit SC	
Output Port	D10	
Dithering	Disabled	

Phoenix - AwardBIOS CMOS Setup Utility
CPU & PCI Bus Control

PCI Master 0 WS Write	Enabled	ITEM HELP
PCI Delay Transaction	Enabled	Menu Level
Vlink mode selection	By Auto	Menu Level
Vlink 8x Support	Enabled	
DRDY Timing	Default	

DRAM Clock / Drive Control

This field provides settings related to DRAM. The fields are listed below.

Current FSB Frequency

The default setting of the FSB Frequency is 100MHz.

Current DRAM Frequency

The default setting of the DRAM Frequency is 266MHz.

DRAM Clock

The default setting of the DRAM clock is SPD.

DRAM Timing

This option refers to the method by which the DRAM timing is selected. The default is Auto by SPD.

DRAM CAS Latency

This is the period between when the chipset requests data from memory and when the memory is ready to send the data across the bus.

Bank Interleave

This decides how multiple memory modules communicate. It will only make a difference if you have more than one memory module.

Precharge to Active(Trp)

The amount of time from a bank precharge request to when it can be activated.

Active to Precharge(Tras)

The Active to Precharge timing controls the length of the delay between the activation and precharge commands – the length of time after activation can the access cycle be started again.

Active to CMD(Tred)

This is the time between a row access request and a column access request.

REF to ACT/REF to REF(Trfc)

The default setting is 21T.

ACT(0) to ACT(1) (TRRD)

The default time setting is 4T.

DRAM Command Rate

The time to wait after a chip select before activate and read can be started.

Read to Precharge (Trtp)

The default time setting is 2T.

Write to Read CMD (Twtr)

The default time setting is 1T/2T.

Write Recovery Time

The default time setting is 4T.

DRAM Command Rate

The time to wait after a chip select before activate and read can be started.

RDSAIT Mode

The default time setting is Auto.

RDSAIT Selection

The default time setting is 03.

AGP & P2P Bridge Control

The fields related to AGP & P2P Bridge Control are listed below.

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.

AGP 3.0 Mode

The default setting is 8X.

AGP Driving Value

This decides how multiple memory modules communicate. It will only make a difference if you have more than one memory module.

AGP Fast Write

This accelerates memory write transactions from the chipset to the AGP device.

AGP Master 1 WS Write

When enabled, this changes the default from a 2ws to a 1ws which will increase AGP Writing.

AGP Master 1 WS Read

By default, the AGP busmastering device waits for at least 2 wait states before it starts a write transaction. When enable, this option sets the delay to 1 wait state.

AGP 3.0 Calibration cycle

By default, this field is disabled.

VGA Share memory Size

By default, this field is set to 64M.

Direct Frame Buffer

By default, this field is set to Enabled.

Select Display Device

By default, this field is set to CRT+LCD. Other settings are CRT, LCD, and CRT+LCD.

Panel Type

By default, this field is set to 1024x768 18Bit SC.

Output Port

By default, this field is set to D10.

Dithering

By default, this field is set to Disabled.

CPU & PCI Bus Control

The fields related to CPU & PCI Bus Control are listed below.

PCI Master 0 WS Write

This determines whether the chipset inserts a delay before any writes from the PCI bus.

PCI Delay Transaction

This is used to meet the latency of PCI cycles to and from the ISA bus.

Vlink mode selection

The default is set to By Auto.

Vlink 8X Support

By default, this field is enabled.

DRDY_Timing

By default, this field is set to Default.

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*.

System BIOS Cacheable

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

Video RAM Cacheable

These items allow the video RAM to be cached in memory for faster execution.

LAN PXE Option ROM

By default, this field is set to Disabled.

Init Display First

By default, this field is set to PCI Slot.

Integrated Peripherals

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

Phoenix - Award WorkstationBIOS CMOS Setup Utility
Integrated Peripherals

VIA OnChip IDE Device	Press Enter	ITEM HELP
VIA OnChip PCI Device	Press Enter	Menu Level
SuperIO Device	Press Enter	

VIA OnChip IDE Device

Upon pressing Enter on this field, another window appears. Below are the fields shown with their respective default settings:

- OnChip SATA – Enabled
- OnChip IDE Channel0 – Enabled
- OnChip IDE Channel1 – Enabled
- IDE Prefetch Mode – Enabled
- Primary Master PIO – Auto
- Primary Slave PIO – Auto
- Secondary Master PIO – Auto
- Secondary Slave PIO – Auto
- Primary Master UDMA – Auto
- Primary Slave UDMA – Auto
- Secondary Master UDMA – Auto
- Secondary Slave UDMA – Auto
- IDE HDD Block Mode – Enabled

VIA OnChip PCI Device

Upon pressing Enter on this field, another window appears. Below are the fields shown with their respective default settings:

- VIA-3058 AC97 Audio – Auto
- VIA-3043 OnChip LAN – Enabled
- OnChip USB Controller – Enabled
- OnChip EHCI Controller – Enabled
- USB Emulation – OFF
- USB Keyboard Support – Disabled
- USB Mouse Support – Disabled

SuperIO Device

Upon pressing Enter on this field, another window appears. Below are the fields shown:

Onboard FDC Controller

Select *Enabled* if your system has a floppy disk controller (FDC) installed on the board 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	378/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
ECP+EPP	Combination of ECP and EPP capabilities
Normal	Normal function

Power Management Setup

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

Phoenix - Award Workstation BIOS CMOS Setup Utility
Power Management Setup

		ITEM HELP
ACPI Function	Disabled	Menu Level
ACPI Suspend Type	S1 (POS)	
Power Management Option	User Define	
HDD Power Down	Disabled	
Suspend Mode	Disabled	
Video Off Option	Suspend -> Off	
Modem Use IRQ	3	
Video Off Method	V/H SYNC+Blank	
Soft-Off by PWR-BTTN	Instant-Off	
Ac Loss Auto Restart	Off	
IRQ/Event Activity Detect	Press Enter	

ACPI Function

Enable this function to support ACPI (Advance Configuration and Power Interface).

Power Management Option

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.

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.

Suspend Mode

BIOS will turn the HDD's motor off when system is in SUSPEND mode. By default, this field is disabled.

Video Off Option

This field sets the video off option. By default, video goes into suspend state and then Off.

Modem Use IRQ

This field has a default setting of 3 for the IRQ.

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 BIOS to control the video display.
Blank Screen	Writes blanks to the video buffer.

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.

AC Loss Auto Restart

This field sets the auto restarting function of the system when there is AC power loss.

IRQ/Event Activity Detect

The items under this field are I/O events that 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.

Phoenix - AwardBIOS CMOS Setup Utility
IRQ/Event Activity Detect

		ITEM HELP
PS2KB Wakeup select	Hot Key	Menu Level
PS2KB Wakeup from S3/S4/S5	Disable	
PS2MS Wakeup from S3/S4/S5	Disable	
VGA	OFF	
LPT & COM	LPT / COM	
HDD & FDD	ON	
PCI Master	OFF	
PowerOn by PCI Card	Disabled	
Modem Ring Resume	Disabled	
RTC Alarm Resume	Disabled	
Date (of Month) Alarm	0	
Time (hh:mm:ss) Alarm	0 : 0 : 0	
IRQs Activity Monitoring	Press Enter	

IRQ Activity Monitoring

When you press Enter on this field, the following window appears.

Phoenix - AwardBIOS CMOS Setup Utility
IRQs Activity Monitoring

		ITEM HELP
Primary INTR	ON	Menu Level
IRQ3 (COM2)	Disabled	
IRQ4 (COM1)	Enabled	
IRQ5 (LPT 2)	Enabled	
IRQ6 (Floppy Disk)	Enabled	
IRQ7 (LPT 1)	Enabled	
IRQ8 (RTC Alarm)	Disabled	
IRQ9 (IRQ2 Redir)	Disabled	
IRQ10 (Reserved)	Disabled	
IRQ11 (Reserved)	Disabled	
IRQ12 (PS/2 Mouse)	Enabled	
IRQ13 (Coprocessor)	Enabled	
IRQ14 (Hard Disk)	Enabled	
IRQ15 (Reserved)	Disabled	

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.

Phoenix - Award Workstation BIOS CMOS Setup Utility
PnP/PCI Configurations

PNP OS Installed	No	ITEM HELP Menu Level
Reset Configuration Data	Disabled	
Resources Controlled By IRQ Resources	Auto (ESCD) 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	
Assign IRQ for VGA	Enabled	
Assign IRQ for USB	Enabled	

PNP OS Installed

Enable the PNP OS Install option if it is supported by the operating system installed. The default value is *No*.

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.

Assign IRQ for VGA

This field enables the assigning of an IRQ for VGA.

Assign IRQ for USB

This field enables the assigning of an IRQ for USB.

PC Health Status

Phoenix - Award Workstation BIOS CMOS Setup Utility
PC Health Status

		ITEM HELP
Thermal Duty Cycle	Disable	
CPU Warning Temperature	Disable	
Current System Temp	45°C/113°F	
Current CPU Temp	45°C/113°F	
Vcore	0.78V	
3.3V	3.29V	
+5V	4.91V	
+12V	11.30V	
VBAT(V)	3.21V	
5VSB(V)	4.77V	
Shutdown Temperature	Disabled	

Temperatures/Fan Speeds/Voltages

These fields are the parameters of the hardware monitoring function feature of the motherboard. 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.

Phoenix - Award Workstation BIOS CMOS Setup Utility
Frequency/Voltage Control

Auto Detect PCI/DIMM Clk	Disabled	ITEM HELP
Spread Spectrum	Disabled	Menu Level

Auto Detect PCI/DIMM Clk

This field enables or disables the auto detection of the PCI/DIMM clock.

Spread Spectrum

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

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 Optimized 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 Windows 2000/XP. The software and drivers are included with the motherboard. If you find the items missing, please contact the vendor where you made the purchase. The contents of this section include the following:

VIA CN700 4 in 1 Driver Installation	36
Realtek AC'97 Codec Audio Driver Installation	38
VIA CN700 VGA Driver Installation	39
VIA VT8237 LAN Driver Installation.....	40

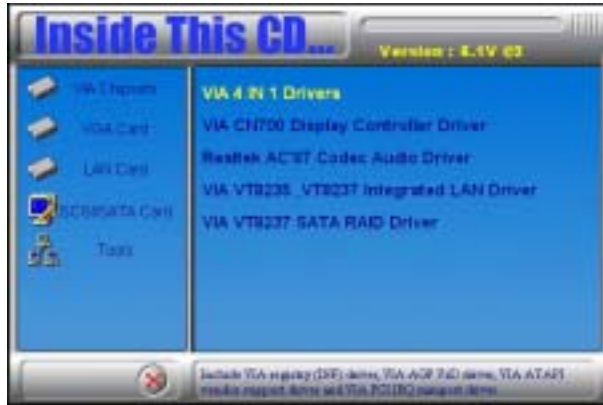
IMPORTANT NOTE:

After installing your Windows operating system (Windows 2000/XP), you must install first the Chipset Software Installation Utility before proceeding with the drivers installation.

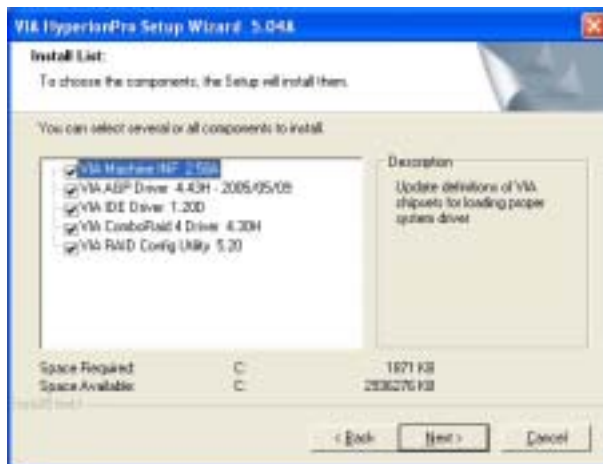
VIA CN700 4 in 1 Driver Installation

Follow the steps below to install the chipset drivers of the VIA CN700 chipset under Windows 2000/XP.

1. Insert the CD that comes with the motherboard and the screen below would appear. Click 4 IN 1 Drivers. The VIA HyperionPro Setup Wizard welcome screen will appear. Click Next to continue. When the license agreement window appears, click "I Agree", then click Next to continue.



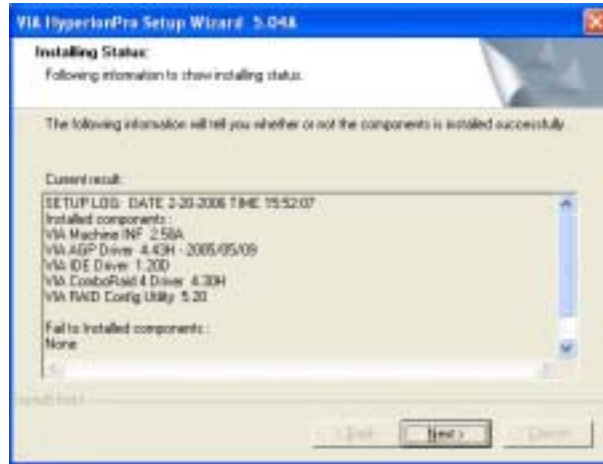
2. In the following window, click all the components to be installed, and click Next to continue.



3. You are now asked to review setting before installing the components, click Next to continue.



4. The following window shows you the installing status with the result. Click Next. The installation process is now complete. Restart the computer as prompted for changes to take effect



Realtek AC'97 Codec Audio Driver Installation

Follow the steps below to install the Realtek AC'97 Codec Audio Driver under Windows 2000/XP.

1. Insert the CD that comes with the motherboard and the screen below would appear. Click Realtek AC'97 Codec Audio Driver and the Audio Setup welcome screen would appear. Click Next.

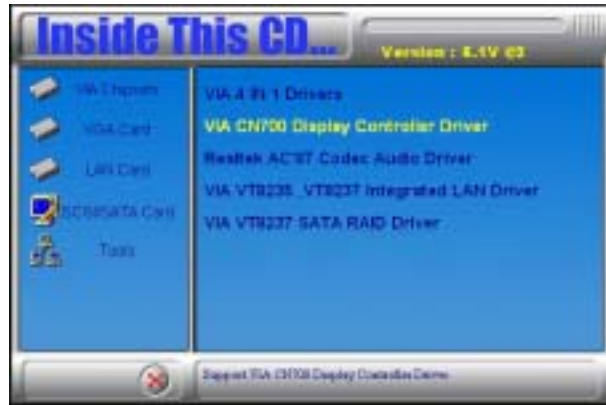


2. In the following screen you will be informed that the Realtek 'AC97 audio controller has not passed Windows logo testing. Click "Continue Anyway" to proceed with the installation. After the installation is complete, click Finish to restart the computer.

VIA CN700 VGA Driver Installation

Follow the steps below to install the VIA CN700 VGA Driver under Windows 2000/XP.

1. Insert the CD that comes with the motherboard and the screen below would appear. Click on VIA CN700 Display Controller Driver to start the installation.



2. Click Finish to complete the installation.

VIA VT8237 LAN Driver Installation

1. Insert the CD that comes with the motherboard and the screen below would appear. Click VIA VT8235 VT8237 Integrated LAN Driver and the drivers will automatically be installed.

