

User's Manual



ETE-CN700

MSC ETX Module

- PRELIMINARY -

Rev. 0.5

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MICROCOMPUTERS · SYSTEMS · COMPONENTS · VERTRIEBS GMBH

... embedding excellence

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MSC Vertriebs GmbH

Important Information

This product is not an end user product. It was developed and manufactured for further processing by trained personnel.

EMC Rules

This unit has to be installed in a shielded housing. If not installed in a properly shielded enclosure, and used in accordance with the instruction manual, this product may cause radio interference in which case the user may be required to take adequate measures at his or her own expense.

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1 General Information

1.1 Revision History

Rev.	Date	Description
0.1		Initial version
0.2, 0.3		New formatting
0.4	27. Feb. 2007	BIOS chapter integrated
0.5	16-Apr-07	Power consumption results added

1.2 Introduction

The ETe-CN700 is an all-in-one cpu module. It is fully compliant with the ETX 3.0 standard.

The design of the MSC ETE-CN700 module supports the VIA Eden(V4) and VIA C7 processor combined with the CN700 and 8237R+ bridge components thus enabling new features like DDR memory support, Dual Display Support, USB 2.0 and onboard SATA according to the new ETX® Specification 3.0.

On board features include an 100MBit Ethernet controller , two EIDE ports, audio, parallel / floppy, serial, keyboard and mouse interfaces, four usb 2.0 ports.

Please visit our website <http://www.msc-ge.com> where you can find drivers, firmware updates and documentation (--> COM/Embedded Modules --> ET(e)/ETX® --> ETE-CN700).

2 Technical Information

2.1 Specifications

Core

CPU VIA Eden(V4) 400MHz - 1.2GHz, Eden ULV(V4),
VIA C7 up to 1.8GHz,
all versions soldered (with optional heatspreader)

ChipSet VIA CN700 Northbridge
VIA VT8237R+ Southbridge

L2 Cache 128KB second level cache on chip

Memory 200-Pin SO-DIMM socket (max. 1GB DDR400 SDRAM)

ISA-Bus Interface ITE8888 PCI to ISA Bridge (ETX connector X2)

PCI-Bus Interface VIA VT8237R+ Southbridge; 4 external PCI bus masters
(ETX connector X1)

Video 3D Unichrome™ Pro controller (integrated in CN700 Chipset)
up to 32MB Video Memory (UMA)
dual video streams
LVDS Interface: 24-bit, 2pixel/clock;
max. resolution 1.600 x 1.200
TFT Interface: 18-bit (optional) , 3.3V
CRT Interface: max. resolution 1.600 x 1.200

Ethernet 10/100Base-TX controller in VT8237R+ (PHY VT6103)

Audio VT8237R+ AC97 Audio controller

VT1613 AC97 Codec

USB integrated in VT8237R+ South Bridge
4 USB 2.0 ports

EIDE integrated in VT8237R+ South Bridge
2 Ports (primary, secondary) for up to 4 devices
Ultra ATA/66/100/133; PIO Mode 4;
PCI IDE Busmaster

Floppy Disk integrated in W83627HF-AW SuperIO (pinshared with
parallel port)

Serial, COM1, COM2 integrated in W83627HF-AW SuperIO
2 x TTL
IrDA on COM2

Parallel	integrated in W83627HF-AW SuperIO 1 Parallel Port (PS/2-compatible/ECP/EPP via SETUP configurable, pins shared with floppy port)
Keyboard, Mouse	MFII-Keyboard Interface, PS/2-Mouse Interface integrated in VT8237R+ South Bridge
Realtime Clock	integrated in VT8237R+ South Bridge, external battery required
Watchdog	PIC12C509A Start delay and timeout configurable via SETUP creates hardware reset
BIOS	Phoenix cME FirstBIOS Pro in 1024 KB Flash LPC Firmware Hub
EEPROM	EEPROM for CMOS Setup backup
System Monitoring	1 fan with speed input (valid only if optional fan connector is used) 2 temperatures (CPU by MAX1618, Board by W83627HF-AW SuperIO) 6 voltages (CPU core, +1.05,+1.50,+2.5V, +3.3V, + 5V)
Power supply	+5V \pm 5%
Typical supply current (DOS prompt)	VIA Eden 400Mhz 1.60 A (8.00 W) VIA Eden 1000Mhz 1.95 A (9.75 W) VIA Eden 1200Mhz 2.15 A (10.75 W) VIA C7 1500Mhz 2.90 A (14.50 W)
Typical CMOS battery power consumption	2.5 μ A at +3V RTC / CMOS integrated in VT8237R+ South Bridge
Environment	Temperature 0 ... + 60°C (operating), -25 ... + 85°C (non operating) Humidity (rel.) 0 ... 95 % (operating), 5 ... 95 % (non operating)

Note:

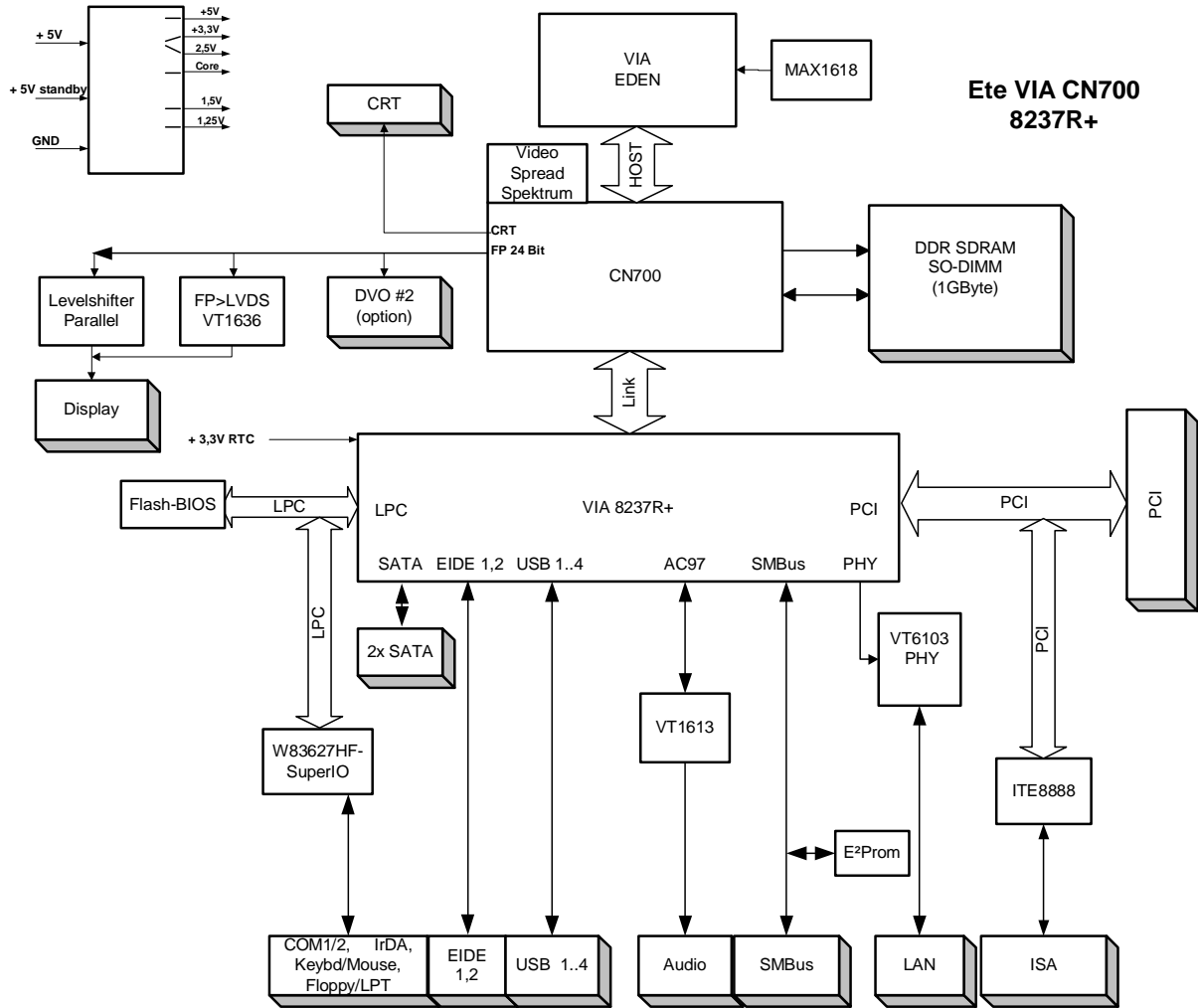
A heat spreader plate is available from MSC providing a standard thermal interface for the module.

The heat spreader is not a heat sink!

The heat spreader is thermally connected to the cpu and the VIA CN700 Northbridge using a 3mm aluminium plate (for the cpu) and thermal gap pads. About 75% of the power dissipated by the module is conducted to the heat spreader. The thermal solution (passive or active) has to be designed for 8 W (400MHz) to about 19 W (1,5GHz).

Dimensions 95 x 114 x 12 mm

2.2 Block Diagram



2.3 Installation

2.3.1 Jumpers and switches

There are no jumpers or switches.

2.3.2 Installing a DRAM SO-DIMM module

The ETe-CN700 board has a standard SO-DIMM socket for 2.5V DDR SO-DIMM modules (max.1 Gbyte)

Note : Module height should not exceed 1250mil (= 31.75 mm)

2.4 Watchdog

The Ete-CN700 board has a watchdog function implemented using a PIC microcontroller with an SMBus interface. Via SETUP the watchdog can be enabled and configured.

If the watchdog is enabled a counter is started which creates a reset if it is not retriggered within a programmable time window.

Watchdog: Enabled / Disabled (default)

Initial Delay : 1s, 5s, 10s, 30s (default), 1min, 5min, 10min, 30min

Timeout : 0,4s, 1s, 5s, 10s, 30s (default), 1min, 5 min, 10min

Start on Boot: if yes, watchdog starts at the end of POST (power on self-test)
before the OS is loaded

The watchdog is controlled by the software UEFI Interface.

2.5 Interrupts, DMA channels, Upper memory

IRQ	used for	available	comment
0	Timer 0	No	
1	Keyboard	No	
2	Slave 8259	No	
3	COM2	No	(1)
4	COM1	No	(1)
5	Audio / LPT2	Yes	(1) / (2) / (3)
6	Floppy Disk Controller	No	(1)
7	LPT1	No	(1)
8	Real Time Clock	No	
9	PCI	Yes	(1)
10	PCI / COM3	Yes	(1) / (3)
11	PCI / COM4	Yes	(1) / (3)
12	PS/2 Mouse	No	(1)
13	Floating Point Unit	No	
14	Primary IDE	No	(1)
15	Secondary IDE	No	(1)

(1) If the device is disabled in SETUP, the interrupt is available

(2) Can be used by legacy audio (sound blaster)

(3) Can be used by external Super I/O controller FDC37C669

2.5.1 PCI Devices

PCI Device	PCI Interrupt	REQ/GNT (0..3)	IDSEL
PCI/ISA Bridge		4	AD25
SATA	INT E		
USB 0..3 (Southbridge)	INT F		
Sound AC 97	INT G		
LAN	INT H		

2.5.2 DMA channels

DMA	used for	available	comment
0		Yes	
1		(Yes)	Can be used by legacy audio (sound blaster)
2	Floppy Disk Controller	No	
3	(ECP, if enabled)	(No)	LPT ECP mode (default)
4	Cascade	No	
5..7	- - -	Yes	

2.5.3 Memory map

Upper Memory	used for	available	comment
C0000h..CFFFFh	VGA BIOS	No	64 KB VGA BIOS
D0000h..DBFFFh		Yes	ISA bus or shadow RAM
DC000h..DFFFFh	USB Buffer	No	
E0000h..FFFFFFh	System BIOS	No	

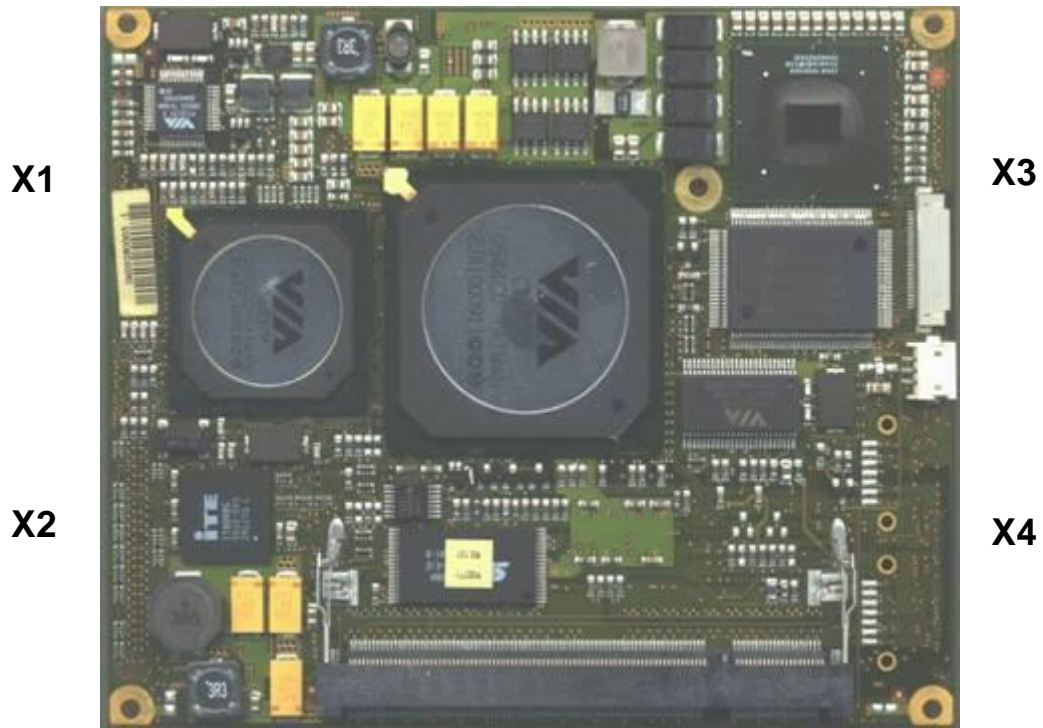
2.5.4 SMBus address map

Device	A6	A5	A4	A3	A2	A1	A0	R/W	address *)
SMBus host	0	0	0	1	0	0	0	x	10h / 08h
core temperature (MAX1618)	0	1	0	1	0	1	0	x	54h / 2Ah
clock synthesizer (ICS952906)	1	1	0	1	0	0	1	x	D2h / 69h
Ram Clock (ICS9P936)	1	1	0	1	1	1	0	x	DCh / 6Eh
watchdog (PIC12C509)	1	0	1	1	0	0	0	x	B0h / 58h
CMOS backup EEPROM #1	1	0	1	0	1	0	0	x	A8h / 54h
CMOS backup EEPROM #2	1	0	1	0	1	0	1	x	AAh / 55h
SPD EEPROM (SO-DIMM)	1	0	1	0	0	0	0	x	A0h / 50h

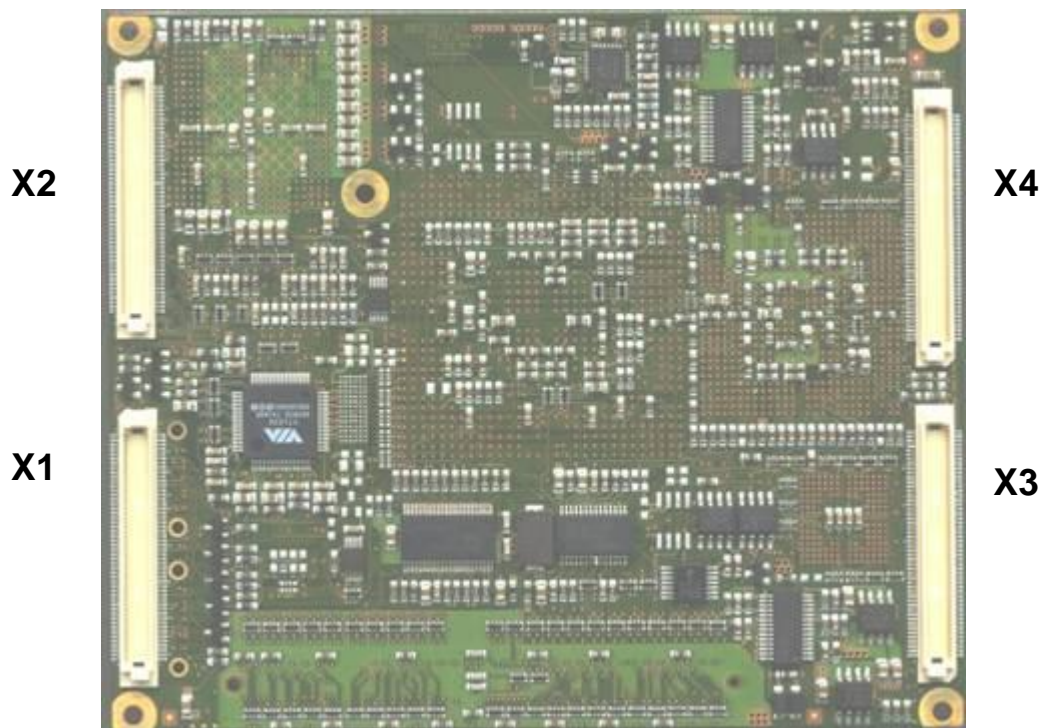
*) 8 bit address (with R/W) / 7 bit address (without R/W)

2.6 Mechanical Specification

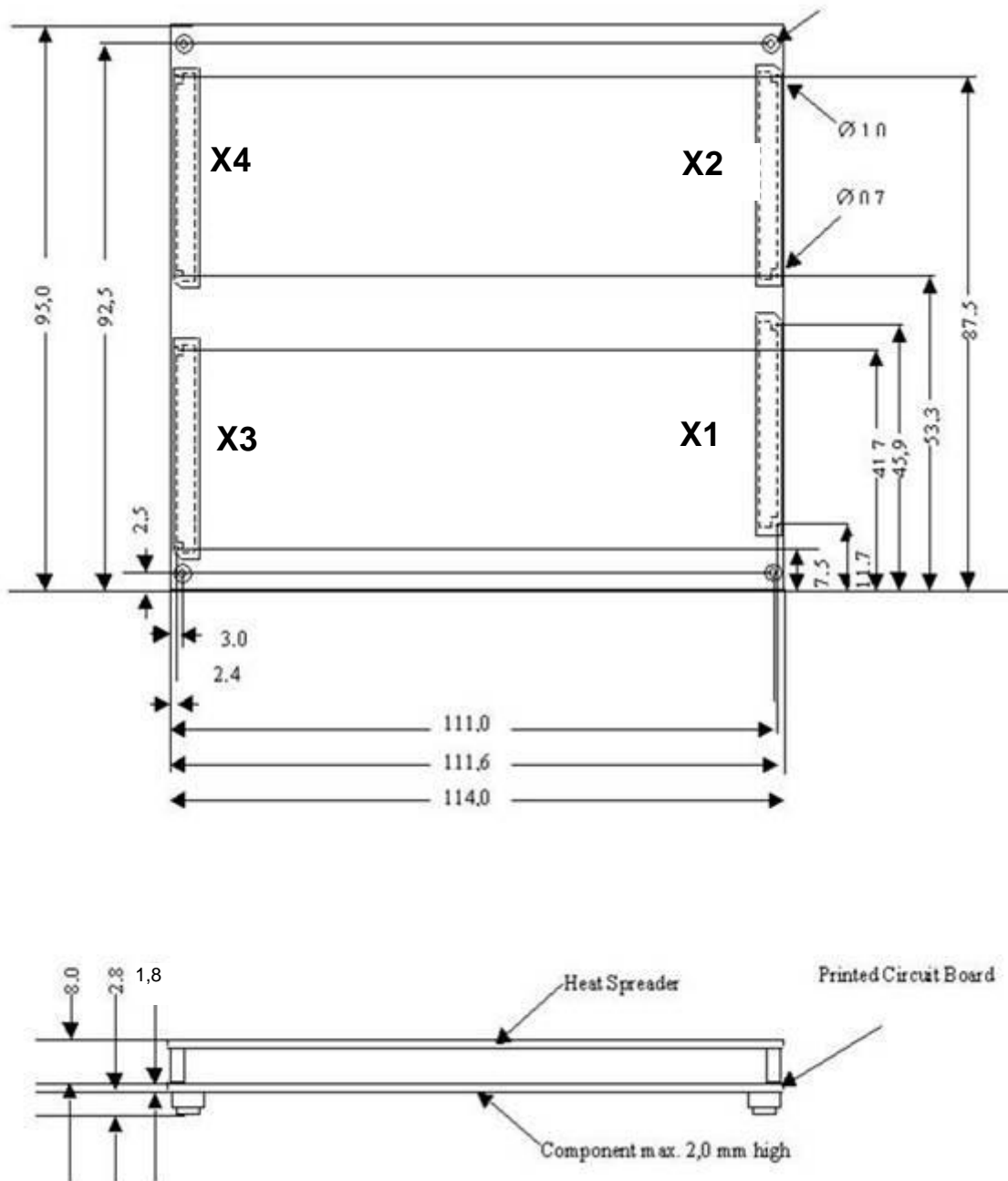
2.6.1 Top view



2.6.2 Bottom view



2.6.3 Mechanical drawing



2.6.4 Heat spreader options

- Heat spreader with through hole standoffs (3mm)
- Heat spreader with threaded corner standoffs (2,5mm)

3 ETX Connectors

3.1 Connector X1 (PCI, USB, Audio)

Pin	Signal	Pin	Signal	Pin	Signal	Pin	Signal
1	GND	2	GND	51	VCC	52	VCC
3	PCICLK3	4	PCICLK4	53	PAR	54	SERR#
5	GND	6	GND	55	GPERR#	56	RESERVED
7	PCICLK1	8	PCICLK2	57	PME#	58	USB2#
9	REQ3#	10	GNT3#	59	LOCK#	60	DEVSEL#
11	GNT2# (*)	12	3.3V	61	TRDY#	62	USB3#
13	REQ2# (*)	14	GNT1#	63	IRDY#	64	STOP#
15	REQ1#	16	3.3V	65	FRAME#	66	USB2
17	GNT0#	18	RESERVED	67	GND	68	GND
19	VCC	20	VCC	69	AD16	70	CBE2#
21	SERIRQ	22	REQ0#	71	AD17	72	USB3
23	AD0	24	3.3V	73	AD19	74	AD18
25	AD1	26	AD2	75	AD20	76	USB0#
27	AD4	28	AD3	77	AD22	78	AD21
29	AD6	30	AD5	79	AD23	80	USB1#
31	CBE0#	32	AD7	81	AD24	82	CBE3#
33	AD8	34	AD9	83	VCC	84	VCC
35	GND	36	GND	85	AD25	86	AD26
37	AD10	38	AUXAL	87	AD28	88	USB0
39	AD11	40	MIC	89	AD27	90	AD29
41	AD12	42	AUXAR	91	AD30	92	USB1
43	AD13	44	ASVCC	93	PCIRST#	94	AD31
45	AD14	46	SNDL	95	INTC#	96	INTD#
47	AD15	48	ASGND	97	INTA#	98	INTB#
49	CBE1#	50	SNDR	99	GND	100	GND

(*) REQ / GNT 2 used by onboard ethernet controller

Signal	Description	I/O	Note
VCC	Power Supply +5V, +/-5%	I	external supply
GND	Power Ground	I	external supply
3V	Power Supply +3.3V	O	Do not use externally
RESERVED	Not connected	n.a.	Do not connect
SERIRQ	Serial interrupt request	n.c.	Not supported

Signal	Description of PCI Bus Signals	I/O	Note
			PCI outputs 3,3V signal level PCI inputs 5V tolerant
PCICLK1..4.	PCI clock output	O	
REQ0..3#	PCI bus request	I	REQ2# used by onboard LAN controller 82551ER
GNT0..3#	PCI bus grant	O	GNT2# used by onboard LAN controller 82551ER
AD0..31	PCI Adress-/ Databus	I/O	
CBE0..3#	PCI bus command/byte enables	I/O	
PAR	PCI bus parity	I/O	
SERR#	PCI bus system error	I/O	
GPERR#	PCI bus grant parity error	I/O	
PME#	PCI bus power management event	I/O	Not supported
LOCK#	PCI bus lock	I/O	
DEVSEL#	PCI bus device select	I/O	
TRDY#	PCI bus target ready	I/O	
IRDY#	PCI bus initiator ready	I/O	
STOP#	PCI bus stop	I/O	
FRAME#	PCI bus frame	I/O	
PCIRST#	PCI bus reset	O	
INTA#	PCI bus interrupt A	I	
INTB#	PCI bus interrupt B	I	
INTC#	PCI bus interrupt C	I	
INTD#	PCI bus interrupt D	I	

Signal	Description of USB Signals	I/O	Note
USB0, USB0#	USB Port 0	I/O	
USB1, USB1#	USB Port 1	I/O	
USB2, USB2#	USB Port 2	I/O	
USB3, USB3#	USB Port 3	I/O	

Signal	Description of Audio Signals	I/O	Note
SNDL	Line-Level stereo output left	O	0.7VRMS
SNDR	Line-Level stereo output right	O	0.7VRMS
AUXAL	Auxiliary input A left	I	
AUXAR	Auxiliary input A right	I	
MIC	Microphone input	I	
ASGND	Analog ground of sound controller	I	
ASVCC	Analog supply of sound controller	O	3.3V

3.2 Connector X2 (ISA)

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	MASTER#	55	SA7	56	IRQ6
7	SD12	8	DREQ7	57	SA8	58	IRQ7
9	SD11	10	DACK7#	59	SA9	60	SYSCLK
11	SD10	12	DREQ6	61	SA10	62	REFSH#
13	SD9	14	DACK6#	63	SA11	64	DREQ1
15	SD8	16	DREQ5	65	SA12	66	DACK1#
17	MEMW#	18	DACK5#	67	GND	68	GND
19	MEMR#	20	DREQ0	69	SA13	70	DREQ3
21	LA17	22	DACK0#	71	SA14	72	DACK3#
23	LA18	24	IRQ14	73	SA15	74	IOR#
25	LA19	26	IRQ15	75	SA16	76	IOW#
27	LA20	28	IRQ12	77	SA18	78	SA17
29	LA21	30	IRQ11	79	SA19	80	SMEMR#
31	LA22	32	IRQ10	81	IOCHRDY	82	AEN
33	LA23	34	IO16#	83	VCC	84	VCC
35	GND	36	GND	85	SD0	86	SMEMW#
37	SBHE#	38	M16#	87	SD2	88	SD1
39	SA0	40	OSC	89	SD3	90	NOWS#
41	SA1	42	BALE	91	DREQ2	92	SD4
43	SA2	44	TC	93	SD5	94	IRQ9
45	SA3	46	DACK2#	95	SD6	96	SD7
47	SA4	48	IRQ3	97	IOCHK#	98	RSTDRV
49	SA5	50	IRQ4	99	GND	100	GND

Signal	Description	I/O	Note
VCC	Power Supply +5V, +/-5%	I	external supply
GND	Power Ground	I	external supply

Signal	ISA Bus Signals	I/O	Note
SD0..15	ISA Databus	I/ O	all ISA outputs 3,3V signal level all ISA inputs 5V tolerant
SA0..19	ISA Addressbus	O	
LA17..23	ISA Addressbus	O	
SBHE#	ISA Byte High Enable	O	
BALE	ISA Address Latch Enable	O	
AEN	ISA Address Enable	O	
MEMR#	ISA memory read	O	
SMEMR#	ISA memory read in lowest 1MB address range	O	
MEMW#	ISA memory write	O	
SMEMW#	ISA memory write in lowest 1MB address range	O	
IOR#	ISA IO read	O	
IOW#	ISA IO write	I	
IOCHK#	ISA IO check	I	
IOCHRDY	ISA IO channel ready	I	
M16#	ISA 16Bit memory device	I	
IO16#	ISA 16Bit IO device	O	
REFSH#	ISA memory refresh cycle pending	I	
NOWS#	ISA No waitstates	n.c.	Not supported
MASTER#	ISA Master	O	
SYSCLK	ISA System clock (8 MHz)	O	
OSC	ISA Oscillator (14,31818 MHz)	O	
RSTDV	ISA Reset signal	I	
DREQ0..7	ISA DMA request	I	DRQ2 used by onboard floppy controller (see 2.5)
DACK0#..7#	ISA DMA acknowledge	O	DACK2# used by onboard floppy controller (see 2.5)
TC	ISA DMA end	I/O	
IRQ3..7	ISA Interrupt request	I	Interrupt table see 2.5
IRQ9..12	ISA Interrupt request	I	Interrupt table see 2.5
IRQ14..15	ISA Interrupt request	I	Interrupt table see 2.5

3.3 Connector X3 (CRT, Display, TVout, Serial, Parallel, Mouse, Keyboard)

Standard pinout with LVDS and LPT

Pin	Signal	Pin	Signal	Pin	Signal	Pin	Signal
1	GND	2	GND	51	LPT/FLPY#	52	RESERVED
3	R	4	B	53	VCC	54	GND
5	HSY	6	G	55	STB#/RES	56	AFD#/DENSEL
7	VSY	8	DDCK	57	RESERVED	58	PD7/RES
9	DETECT#	10	DDDA	59	IRRX	60	ERR#/HDSEL#
11	LCDDO16	12	LCDDO18	61	IRTX	62	PD6/RES
13	LCDDO17	14	LCDDO19	63	RXD2	64	INIT#/DIR#
15	GND	16	GND	65	GND	66	GND
17	LCDDO13	18	LCDDO15	67	RTS2#	68	PD5/RES
19	LCDDO12	20	LCDDO14	69	DTR2#	70	SLIN#/STEP#
21	GND	22	GND	71	DCD2#	72	PD4/DSKCHG#
23	LCDDO8	24	LCDDO11	73	DSR2#	74	PD3/RDATA#
25	LCDDO9	26	LCDDO10	75	CTS2#	76	PD2/WP#
27	GND	28	GND	77	TXD2	78	PD1/TRK0#
29	LCDDO4	30	LCDDO7	79	RI2#	80	PD0/INDEX#
31	LCDDO5	32	LCDDO6	81	VCC	82	VCC
33	GND	34	GND	83	RXD1	84	ACK/DRV1
35	LCDDO1	36	LCDDO3	85	RTS1#	86	BUSY#/MOT1#
37	LCDDO0	38	LCDDO2	87	DTR1#	88	PE/WDATA#
39	VCC	40	VCC	89	DCD1#	90	SLCT#/WGATE#
41	JILI_DAT	42	LTGIO0	91	DSR1#	92	MSCLK
43	JILI_CLK	44	BLON#	93	CTS1#	94	MSDAT
45	BIASON	46	DIGON	95	TXD1	96	KBCLK
47	COMP	48	Y	97	RI1#	98	KBDAT
49	SYNC	50	C	99	GND	100	GND

Signal	Description	I/O	Note
VCC	Power Supply +5VDC, 5%	I	external supply
GND	Power Ground	I	external supply
N.C.	Not connected	n.a.	Do not connect
LTGIO0	General Purpose IO	O	Used for parallel display option (VSYNC)

Signal	Description of analog CRT signals	I/O	Note
HSYNC	Horizontal Sync	O	
VSYNC	Vertical Sync	O	
R	Red channel RGB Analog Video Output	O	
G	Green channel RGB Analog Video Output	O	
B	Blue channel RGB Analog Video Output	O	
DDCK	Display Data Channel Clock	I/O	
DDDA	Display Data Channel Data	I/O	

Signal	Description of COMx signals	I/O	Note
DTR1..2#	Data terminal ready of COM1/COM2	I	
RI1..2#	Ring indicator of COM1/COM2	I	
TXD1..2	Data transmit of COM1/COM2	O	
RXD1..2	Data receive of COM1/COM2	I	
CTS1..2#	Clear to send of COM1/COM2	I	
RTS1..2#	Request to send of COM1/COM2	O	
DCD1..2#	Data carrier detect of COM1/COM2	O	
DSR1..2#	Data set ready of COM1/COM2	I	

Signal	Description of keyboard and infrared signals	I/O	Note
KBDAT	Keyboard Data	I/O	
KBCLK	Keyboard Clock	O	
MSDAT	Mouse Data	I/O	
MSCLK	Mouse Clock	O	
IRTX	Infrared Transmit	O	
IRRX	Infrared Receive	I	

Signal	Description of FDC signals (shared with LPT)	I/O	Note
LPT/FLPY#	LPT or Floppy Interface configuration input	I	Connect to GND
STB#/RES	nc	-	
AFD#/DENSEL	density select: low = 250/300Kb/s high = 500/1000Kb/s	O	
PD0/INDEX#	Index signal	I	
PD1/TRK0#	Track signal	I	
PD2/WP#	Write protect signal	I	
PD3/RDATA#	Raw data read	I	
PD4/DSKCHG#	Disc changed	I	
PD5/RES	nc	-	
PD6/RES	nc	-	
PD7/RES	nc	-	
ERR#/HDSEL#	Head select	O	
INIT#/DIR#	Direction	O	
SLIN#/STEP#	Motor step	O	
ACK/DRV1	Drive 1 select	O	
BUSY#/MOT1#	Motor 1 select	O	
PE/WDATA#	Raw write data	O	
SLCT#/WGATE#	Write enable	O	

Signal	Description of LPT signals (shared with FDC)	I/O	Note
LPT/FLPY#	LPT or Floppy Interface configuration input	I	Connect to VCC (resistor 4K7)
STB#/RES	Strobe signal	O	
AFD#/DENSEL	Automatic feed	O	
PD0/INDEX#	Databus D0	I/O	
PD1/TRK0#	Databus D1	I/O	
PD2/WP#	Databus D2	I/O	
PD3/RDATA#	Databus D3	I/O	
PD4/DSKCHG#	Databus D4	I/O	
PD5/RES	Databus D5	I/O	
PD6/RES	Databus D6	I/O	
PD7/RES	Databus D7	I/O	
ERR#/HDSEL#	LPT error	I	
INIT#/DIR#	Initiate	O	
SLIN#/STEP#	Select	O	
ACK/DRV1	Acknowledge	I	
BUSY#/MOT1#	Busy	I	
PE/WDATA#	Paper empty	I	
SLCT#/WGATE#	Power ON	I	

Signal	Description of LVDS Flatpanel signals	I/O	Note
DIGON	Display Power ON	O	
BLON#	Display Backlight ON	O	
LCDDO0	Y0-	O	
LCDDO1	Y0+	O	
LCDDO2	Y1-	O	
LCDDO3	Y1+	O	
LCDDO4	Y2-	O	
LCDDO5	Y2+	O	
LCDDO6	YCLK-	O	
LCDDO7	YCLK+	O	
LCDDO8	Y3-	O	
LCDDO9	Y3+	O	
LCDDO10	Z0-	O	
LCDDO11	Z0+	O	
LCDDO12	Z1-	O	
LCDDO13	Z1+	O	
LCDDO14	Z2-	O	
LCDDO15	Z2+	O	
LCDDO16	ZCLK-	O	
LCDDO17	ZCLK+	O	
LCDDO18	Z3-	O	
LCDDO19	Z3+	O	

Signal	Description of TTL Flatpanel signals	I/O	Note
DIGON	Display Power ON	O	
BLON#	Display Backlight ON	O	
LCDDO0	R0	O	FPD2
LCDDO1	R1	O	FPD3
LCDDO2	R2	O	FPD4
LCDDO3	R3	O	FPD5
LCDDO4	R4	O	FPD6
LCDDO5	R5	O	FPD7
LCDDO6	G0	O	FPD10
LCDDO7	G1	O	FPD11
LCDDO8	G2	O	FPD12
LCDDO9	G3	O	FPD13
LCDDO10	G4	O	FPD14
LCDDO11	G5	O	FPD15
LCDDO12	B0	O	FPD18
LCDDO13	B1	O	FPD19
LCDDO14	B2	O	FPD20
LCDDO15	B3	O	FPD21
LCDDO16	B4	O	FPD22
LCDDO17	B5	O	FPD23

			LVDS mode pin description
SHFCLK	Shift Clock	O	LCDDO18
EN	Display Enable	O	LCDDO19
HSYNC	Horizontal Sync	O	BIASON
VSYNC	Vertical Sync	O	LTGIO0

Note: Displays with 2 pixels/clock are not supported in parallel mode

3.4 Connector X3 - alternate pinout

LPT (LPT/FLPY# = high)				Floppy (LPT/FLPY# = low)			
Pin	Signal	Pin	Signal	Pin	Signal	Pin	Signal
1	GND	2	GND	51	LPT/FLPY#	52	RESERVED
3	R	4	B	53	VCC	54	GND
5	HSY	6	G	55	RESERVED	56	DENSEL
7	VSY	8	DDCK	57	RESERVED	58	RESERVED
9	DETECT#	10	DDDA	59	IRRX	60	HDSEL#
11	B4	12	SHFCLK	61	IRTX	62	RESERVED
13	B5	14	EN	63	RXD2	64	DIR#
15	GND	16	GND	65	GND	66	GND
17	B1	18	B3	67	RTS2#	68	RESERVED
19	B0	20	B2	69	DTR2#	70	STEP#
21	GND	22	GND	71	DCD2#	72	DSKCHG#
23	G2	24	G5	73	DSR2#	74	RDATA#
25	G3	26	G4	75	CTS2#	76	WP#
27	GND	28	GND	77	TXD2	78	TRK0#
29	R4	30	G1	79	RI2#	80	INDEX#
31	R5	32	G0	81	VCC	82	VCC
33	GND	34	GND	83	RXD1	84	DRV
35	R1	36	R3	85	RTS1#	86	MOT
37	R0	38	R2	87	DTR1#	88	WDATA#
39	VCC	40	VCC	89	DCD1#	90	WGATE#
41	JILI_DAT	42	VSYNC	91	DSR1#	92	MSCLK
43	JILI_CLK	44	BLON#	93	CTS1#	94	MSDAT
45	HSYNC	46	DIGON	95	TXD1	96	KBCLK
47	COMP	48	Y	97	RI1#	98	KBDAT
49	SYNC	50	C	99	GND	100	GND

3.5 Connector X4 (EIDE, Ethernet, Speaker, Batterie, I2C, SMBus, etc.)

Pin	Signal	Pin	Signal	Pin	Signal	Pin	Signal
1	GND	2	GND	51	SIDE_IOW#	52	PIDE_IOR#
3	5V_SB	4	PWGIN	53	SIDE_DRQ	54	PIDE_IOW#
5	PS_ON	6	SPEAKER	55	SIDE_D15	56	PIDE_DRQ
7	PWRBTN#	8	BATT	57	SIDE_D0	58	PIDE_D15
9	KBINH	10	LILED	59	SIDE_D14	60	PIDE_D0
11	RSMRST#	12	ACTLED	61	SIDE_D1	62	PIDE_D14
13	ROMKBCS#	14	SPEEDLED	63	SIDE_D13	64	PIDE_D1
15	EXT_PRG	16	I2CLK	65	GND	66	GND
17	VCC	18	VCC	67	SIDE_D2	68	PIDE_D13
19	OVCR#	20	GPCS#	69	SIDE_D12	70	PIDE_D2
21	EXTSMI#	22	I2DAT	71	SIDE_D3	72	PIDE_D12
23	SMBCLK	24	SMBDATA	73	SIDE_D11	74	PIDE_D3
25	SIDE_CS3#	26	SMBALRT#	75	SIDE_D4	76	PIDE_D11
27	SIDE_CS1#	28	DASP_S	77	SIDE_D10	78	PIDE_D4
29	SIDE_A2	30	PIDE_CS3#	79	SIDE_D5	80	PIDE_D10
31	SIDE_A0	32	PIDE_CS1#	81	VCC	82	VCC
33	GND	34	GND	83	SIDE_D9	84	PIDE_D5
35	PDIAG_S	36	PIDE_A2	85	SIDE_D6	86	PIDE_D9
37	SIDE_A1	38	PIDE_A0	87	SIDE_D8	88	PIDE_D6
39	SIDE_INTRQ	40	PIDE_A1	89	GPE2#	90	CBLID_P#
41	BATLOW#	42	GPE1#	91	RXD#	92	PIDE_D8
43	SIDE_AK#	44	PIDE_INTRQ	93	RXD	94	SIDE_D7
45	SIDE_RDY	46	PIDE_AK#	95	TXD#	96	PIDE_D7
47	SIDE_IOR#	48	PIDE_RDY	97	TXD	98	HDRST#
49	VCC	50	VCC	99	GND	100	GND

Signal	Description	I/O	Note
VCC	Power Supply +5VDC, 5%	I	external supply
GND	Power Ground	I	external supply
N.C.	Not connected	n.a.	Do not connect

Signal	Description of IDE signals	I/O	Note
PIDE_D0..15	Primary IDE Databus	I/O	
PIDE_A0..2	Primary IDE Addressbus	O	
PIDE_CS1#	Primary IDE chip select channel0	O	
PIDE_CS3#	Primary IDE chip select channel1	O	
PIDE_DRQ	Primary IDE dma request	I	
PIDED_AK#	Primary IDE dma acknowledge	O	
PIDE_RDY	Primary IDE ready	I	
PIDE_IOR#	Primary IDE IO read	O	
PIDE_IOW#	Primary IDE IO write	O	
PIDE_INTRQ	Primary IDE interrupt request	I	
CBLID_P#	Cable ID primary	I	
SIDE_D0..15	Secondary IDE Databus	I/O	
SIDE_A0..2	Secondary IDE Addressbus	O	
SIDE_CS1#	Secondary IDE chip select channel0	O	
SIDE_CS3#	Secondary IDE chip select channel1	O	
SIDE_DRQ	Secondary IDE dma request	I	
SIDED_AK#	Secondary IDE dma acknowledge	O	
SIDE_RDY	Secondary IDE ready	I	
SIDE_IOR#	Secondary IDE IO read	O	
SIDE_IOW#	Secondary IDE IO write	O	
SIDE_INTRQ	Secondary IDE interrupt request	I	
DASP_S	Secondary IDE Drive active	n.a.	
PDIAG_S	Secondary IDE Master/Slave negotiation	n.a.	
HDRST#	HardDrive reset	O	

Signal	Description of Ethernet signals	I/O	Note
TXD+, TXD-	Ethernet Twisted Pair transmit signal pair	O	
RXD+, RXD-	Ethernet Twisted Pair receive signal pair	I	
ACTLED	Ethernet activity LED	O	
LILED	Ethernet link LED	O	
SPEEDLED	Ethernet speed LED, ON at 100Mb/s	O	

Signal	Description of Misc. signals	I/O	Note
SPEAKER	Speaker output	O	3.3V signal level Connect the speaker between SPEAKER and VCC
BATT	Battery supply	I	
PWGIN	Power good input	I	
I2CLK	I2C Bus clock	O	
I2DAT	I2C Bus Data	I/O	
SMBCLK	SM Bus clock	O	3.3V tolerant input
SMBDAT	SM Bus Data	I/O	3.3V tolerant input
SMBALRT#	Not supported	I	
KBINH	Keyboard inhibit	n.a.	
5V_SB	Supply of internal suspend circuit	I	
PS_ON	Power Save ON	O	
PWRBTN#	Power Button	I	
OVCR#	Over current detect for USB	I	
ROMKBCS#	Do not connect	n.a.	
EXT_PRG#	Do not connect	n.a.	
GPCS#	General purpose chip select	n.a.	
GPE1#	LID input	I	
GPE2#	Ring Input	I	
BATLOW#	Battery low	I	3.3V tolerant input
EXTSMI#	External SMI	I	3.3V tolerant input
RSMRST#	Resume Reset	I	3.3V tolerant input

4 Other Connectors

4.1 SATA Connector X1201,X1202

Pin	Signal
1	GND
2	TX+
3	TX-
4	GND
5	RX-
6	RX+
7	GND

4.2 Second Display Connector J1901 (1.5V Signal Level)

Pin	Signal
1	GND
2	FPCLK
3	GND
4	FPDE
5	FPHSync
6	FPVSync
7	GND
8	FPD12
9	FPD13
10	FPD14
11	FPD15
12	FPD16
13	FPD17
14	FPD18
15	FPD19
16	FPD20
17	FPD21
18	FPD22
19	FPD23
20	GND
21	GND
22	FPSMBCLK
23	FPSMBDAT
24	SELECTSMB
25	GND
26	GND

BIOS

4.3 Introduction

This guide describes the Phoenix FirstBIOS Pro Startup screen and contains information on how to access Phoenix FirstBIOS Pro setup to modify the settings which control Phoenix pre-OS (operating system) functions.

4.3.1 BIOS Version

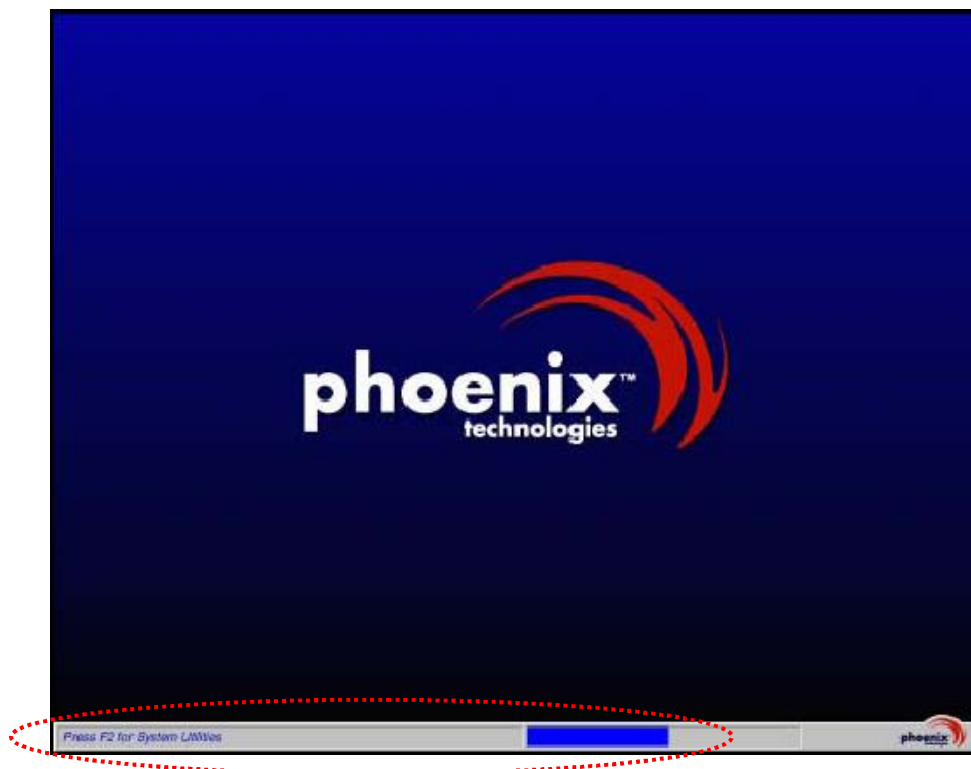
Phoenix FirstBIOS™ Pro for ETE-CN700 BIOS V1.00

4.3.2 Startup Screen Overview

The Phoenix FirstBIOS Pro Startup screen is a graphical user interface (GUI) that is included in Phoenix FirstBIOS Pro products. A Startup screen consists of:

Progress Bar: Part of the Status Bar, it indicates the progress of the Startup Screen functions and provides user prompting and POST status

The following figure shows the various parts of a generic Startup Screen at 1024x768 resolution:



4.3.3 Activity Detection Background

While the FirstBIOS Startup screen is displayed, press the Setup Entry key (F2 - FirstBIOS default). The FirstBIOS Startup Status Bar acknowledges the input, and at the end of POST, the screen clears and Setup launches.

An example of the Startup Status Bar displaying changing state is shown in the following figure. The Please Wait... text is displayed after the F2 key is pressed to acknowledge user input.

Active status bar:



4.4 FirstBIOS Pro Setup Utility

With the Phoenix FirstBIOS Pro Setup program, you can modify FirstBIOS Pro settings and control the special features of your computer. The Setup program uses a number of menus for making changes and turning the special features on or off. This chapter provides an overview of the Setup utility and describes at a high-level how to use it.

4.4.1 The Main Menu

To start the Phoenix FirstBIOS Pro Setup utility, press [F2] to launch Setup. The Setup main menu displays.

PhoenixBIOS Setup Utility						
Main	Advanced	Security	Power	Boot	Exit	
Bios Version V1.00 CPU Type VIA Esther processor 1000MHz CPU Speed 1000 MHz System Memory: 634 KB Extended Memory: 980992 KB System Time: [11:22:33] System Date: [01:01:2007] Legacy Diskette A: [Disabled]					Item Specific Help	
▶ IDE Channel 0 Master [ST320014A-(PM)] ▶ 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]					<Tab>, <Shift-Tab>, or <Enter> selects field.	
▶ Boot Options						
F1	Help	↑↓	Select Item	-/+	Change Values	F9 Setup Defaults
Esc	Exit	←	Select Menu	Enter	Select ▶ Sub-Menu	F10 Save and Exit

The Menu Bar

The Menu Bar at the top of the window lists these selections:

Menu Items	Description
Main	Use this menu for basic system configuration.
Advanced	Use this menu to set the Advanced Features available on your system's chipset.
Security	Use this menu to set User and Supervisor Passwords and the Backup and Virus-Check reminders.
Power	Use this menu to configure Power-Management features.

Boot	Use this menu to set the boot order in which the BIOS attempts to boot to OS.
Exit	Exits the current menu.

Use the left and right arrow keys on your keyboard to make a menu selection.

The Legend Bar

Use the keys listed in the legend bar on the bottom of the screen to make your selections, or to exit the current menu. The following table describes the legend keys and their alternates:

Key	Function
F1 or Alt-H	General Help window.
Esc	Exit this menu.
Arrow keys	Select a different menu.
Up and down arrow keys	Move cursor up and down.
Tab or Shift-Tab	Cycle cursor up and down.
Home or End	Move cursor to top or bottom of window.
PgUp or PgDn	Move cursor to next or previous page.
F5 or -	Select the previous value for the field.
F6 or + or Space	Select the next value for the field.
F9	Load the Default Configuration values (for all menus).
F10	Save and exit.
Enter	Execute command or select submenu.
Alt-R	Refresh screen.

To select an item, use the arrow keys to move the cursor to the field you want. Then use the plus-and-minus value keys to select a value for that field. The Save Values commands in the Exit Menu save the values currently displayed in all the menus.

To display a submenu, use the arrow keys to move the cursor to the sub menu you want. Then press Enter. A pointer marks all submenus.

4.4.1.1 Main Menu Selections

You can make the following selections on the Main Menu itself. Use the sub menus for other selections.

Feature	Options	Description
---------	---------	-------------

BIOS Version	N/A	Displays the current BIOS Version.
CPU Type	N/A	Displays the installed CPU Type.
CPU Speed	N/A	Displays the CPU Speed.
System Time	HH:MM:SS	Set the System Time.
System Date	DD/MM/YYYY	Set the System Date.
System Memory	N/A	Displays amount of conventional memory detected during boot up.
Extended Memory	N/A	Displays amount of extended memory detected during boot up.
Legacy Diskette A	Disabled, 1.44 MB 3½"	Set the type of floppy-disk drive installed in your system.
IDE Channel 0 Master	PATA. See "Masters and Slaves" section.	
IDE Channel 0 Slave	PATA. See "Masters and Slaves" section.	
IDE Channel 1 Master	PATA. See "Masters and Slaves" section.	
IDE Channel 1 Slave	PATA. See "Masters and Slaves" section.	
IDE Channel 2 Master	SATA. See "Masters and Slaves" section.	
IDE Channel 3 Master	SATA. See "Masters and Slaves" section.	
Boot Options	See "Boot Option" section.	

4.4.1.2 Masters and Slaves

The **Master** and **Slave** settings on the Main Menu control these types of devices:

- **Hard-disk drives**
- **Removable-disk drives**
- **CD-ROM drives**

There is one IDE connector on your motherboard, usually labeled "Primary IDE". There are usually two connectors on each ribbon cable attached to IDE connector. When you have connected two drives to this connector, the one on the end of the cable is the Master.

When you enter Setup, the Main Menu displays the results of Autotyping information each drive provides about its own size and other characteristics - and how they are arranged as Masters or Slaves on your machine.

Note: Do not attempt to change these settings unless you have an installed drive that does not autotype properly (such as an older hard-disk drive that does not support autotyping).

If you need to change your drive settings, select one of the Master or Slave drives on the Main Menu. This will display a menu like this:

PhoenixBIOS Setup Utility			
Main			
Primary Master [ST320014A-(PM)]		Item Specific Help	
Type:	[User]	User = you enter parameters of hard-disk drive installed at this connection. Auto = autotypes hard-disk drive installed here. CD-ROM = a CD-ROM drive is installed here. ATAPI Removable = removable disk drive is installed here.	
Cylinders:	CHS Format [16383]		
Heads:	[16]		
Sectors:	[63]		
Maximum Capacity:	8455MB		
Total Sectors:	LBA Format 39102336		
Maximum Capacity:	20020MB		
Multi-Sector Transfers:	[16 Sectors]		
LBA Mode Control:	[Enabled]		
32 Bit I/O:	[Disabled]		
Transfer Mode:	[FPIO 4 / DMA 2]		
Ultra DMA Mode:	[Mode 5]		
Smart Monitoring:	Disabled		
F1 Help	↑↓ Select Item	-/+ Change Values	F9 Setup Defaults
Esc Exit	← Select Menu	Enter Select ► Sub-Menu	F10 Save and Exit

Note: The capacity is displayed in 'real' Mbytes (1MB=1024*1024 Bytes) Drives with a total capacity greater than 8Gbyte operate in LBA format only.

Use the following chart to configure the hard disk drive with Advanced Hard Disk Features:

Feature	Options	Description
Type	None, Auto, User, IDE Removable, ATAPI Removable, Other ATAPI, CD-ROM	<i>None</i> = Autotyping is not able to supply the drive type or end user has selected None, disabling any drive that may be installed. <i>Auto</i> = Autotyping, the drive itself supplies the information. <i>User</i> = You supply the hard-disk drive information in the following fields. <i>IDE Removable</i> = Removable Disk Drive <i>ATAPI Removable</i> = Removable

		Disk Drive. <i>CD-ROM</i> = CD-ROM drive.
Cylinders	1 to 65536	Number of Cylinders
Heads	1 to 16	Number of read/write heads
Sectors	1 to 63	Number of sectors per track
Multi-Sector Transfers	Disabled, 2 sectors, 4 sectors, 8 sectors, 16 sectors	Any selection except <i>Disabled</i> determines the number of sectors transferred per block.
LBA Mode Control	Disabled, Enabled	Enabling LBA causes Logical Block Addressing to be used in place of Cylinders, Heads, & Sectors.
32 Bit I/O	Disabled, Enabled	Enables 32-bit communication between CPU and IDE card. Requires PCI or local bus.
Transfer Mode	Standard Fast PIO 1 Fast PIO 2 Fast PIO 3 Fast PIO 4 FPIO 3 / DMA 1 FPIO 4 / DMA 2	Selects the method for transferring the data between the hard disk and system memory. The Setup menu only lists those options supported by the drive and platform.
Ultra DMA Mode	Disabled Mode 0 Mode 1 Mode 2 Mode 3 Mode 4 Mode 5 Mode 6	Ultra DMA Mode supports 33/66/100/133 MB/sec transfer rate for fixed disk drives.
Smart Monitoring	N/A	Displays smart monitoring capability of hard disk device.

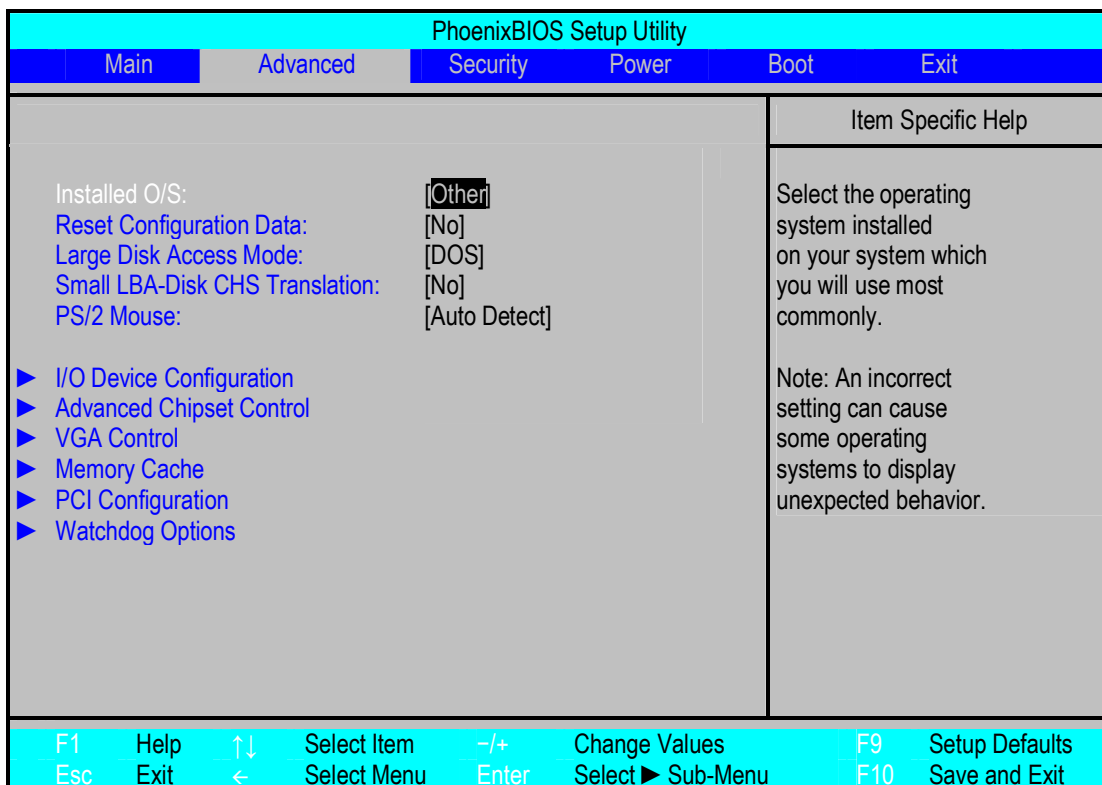
WARNING: Incorrect settings can cause your system to malfunction.

		attached keyboard and show an error message if there is no keyboard attached.
Floppy check	Disabled, Enabled	<i>Enabled</i> verifies floppy type on boot. <i>Disabled</i> speeds up boot time.
Extended Memory Testing	Normal, Just zero it, None	Determines which type of test will be performed on extended memory during POST (above 1 MB). Enabled quick boot will bypass normal memory test.

4.4.2 The Advanced Menu

4.4.2.1 Advanced Menu Selections

You can make the following selections on the Main Menu itself. Use the sub menus for other selections.



Feature	Options	Description
Installed O/S	Other, Win98, WinMe,	Select the operating system installed on your system which you will use most

	Win2000, WinXP	commonly. NOTE: An incorrect setting can cause some operating systems to display unexpected behavior.
Reset Configuration Data	No, Yes	Selecting Yes will clear the Extended System Configuration Data (ESCD) area.
Large Disk Access Mode	Other, DOS	Select <i>Other</i> for UNIX, Novell NetWare. Select <i>DOS</i> for all other operating systems.
Small LBA-Disk CHS Translation	No, Yes	Select Yes if CHS translation should be made for an LBA-capable hard disk with less than 1024 cylinders, e.g. Compact Flash. If you have problems with booting from a Compact Flash try to change this setting.
PS/2 Mouse	Disabled Enabled Auto Detect	'Disabled' prevents any installed PS/2 from functioning, but frees up IRQ12. 'Enabled' forces the PS/2 mouse port to be enabled regardless if a mouse is present. 'Auto Detect' will enable the PS/2 mouse only if present.
I/O Device Configuration	See "I/O Device Configuration" section.	
Advanced Chipset Control	See "Advanced Chipset Control" section.	
VGA Control	See "VGA Control" section.	
Memory Cache	See "Memory Cache" section.	
PCI Configuration	See "PCI Configuration" section.	
Watchdog Options	See "Watchdog Options" section.	

4.4.2.2 I/O Device Configuration Menu

PhoenixBIOS Setup Utility					
Main	Advanced	Security	Power	Boot	Exit
I/O Device Configuration				Item Specific Help	
Serial port A:	[Enabled]	Configure serial port A using options:			
Base I/O address:	[3F8]	[Disabled]			No configuration
Interrupt:	[IRQ 4]	[Enabled]			User configuration
Serial port B:	[Enabled]	[Auto]			BIOS or OS chooses configuration
Mode :	[Auto Detect]	[Disabled]			
Base I/O address:	[2F8]	[Disabled]			
Interrupt:	[IRQ 3]	[Disabled]			
Serial port C:	[Disabled]				
Serial port D:	[Disabled]				
Parallel Port:	[Disabled]				
External Parallel Port:	[Disabled]				
External Diskette Controller:	[Disabled]				
F1 Help	↑↓ Select Item	-/+ Change Values	F9 Setup Defaults		
Esc Exit	← Select Menu	Enter Select ► Sub-Menu	F10 Save and Exit		

Feature	Options	Description
Serial Port A	Disabled, Enabled, Auto	<i>Disabled</i> = Disabled the device <i>Enabled</i> = User configuration <i>Auto</i> = BIOS or OS chooses configuration
Base I/O address	3F8, 2F8, 3E8, 2E8	Set the base I/O address for Serial Port A.
Interrupt	3, 4	Set the interrupt for Serial Port A.
Serial Port B	Disabled, Enabled, Auto	<i>Disabled</i> = Disabled the device <i>Enabled</i> = User configuration <i>Auto</i> = BIOS or OS chooses configuration
Mode	Normal, IR, ASK-IR	Set the mode for Serial Port B (wired / infrared).
Base I/O address	3F8, 2F8, 3E8, 2E8	Set the base I/O address for Serial Port B.
Interrupt	3, 4	Set the interrupt for Serial Port B.

Serial Port C	Disabled, Enabled, Auto	<p><i>Disabled</i> = Disabled the device <i>Enabled</i> = User configuration <i>Auto</i> = BIOS or OS chooses configuration</p> <p>NOTE: Serial port C is available only if a 2nd SuperIO chip is implemented on the base board. Otherwise this menu item is invisible.</p>
Base I/O address	3E8, 2E8	Set the base I/O address for Serial Port C.
Interrupt	10, 11	Set the interrupt for Serial Port C.
Serial Port D	Disabled, Enabled, Auto	<p><i>Disabled</i> = Disabled the device <i>Enabled</i> = User configuration <i>Auto</i> = BIOS or OS chooses configuration</p> <p>NOTE: Serial port D is available only if a 2nd SuperIO chip is implemented on the base board. Otherwise this menu item is invisible.</p>
Mode	Normal, IR, ASK-IR	Set the mode for Serial Port D (wired / infrared).
Base I/O address	3E8, 2E8	Set the base I/O address for Serial Port D.
Interrupt	10, 11	Set the interrupt for Serial Port D.
Floppy Controller or Parallel Port	Disabled, Enabled, Auto	<p><i>Disabled</i> = Disabled the device <i>Enabled</i> = User configuration <i>Auto</i> = BIOS or OS chooses configuration</p> <p>NOTE: The floppy controller shares pins with the parallel port. Therefore, depending on the status of the LPT/FLPY# signal on pin 51 of the ETX connector X3, either the floppy controller entry <u>or</u> the parallel port entry is visible.</p>
Base I/O address	378, 278, 3BC	Set the base I/O address for Parallel Port.
Interrupt	5, 7	Set the interrupt for Parallel Port.
Mode	Output only, Bi-directional, EPP, ECP	Set the mode for Parallel Port.
DMA channel	1, 3	Set the DMA channel for Parallel Port (only available if mode was set to ECP).
External Parallel Port	Disabled, Enabled, Auto	<p><i>Disabled</i> = Disabled the device <i>Enabled</i> = User configuration <i>Auto</i> = BIOS or OS chooses configuration</p> <p>NOTE: External Parallel Port is available only if a 2nd SuperIO chip is implemented on the base board. Otherwise this menu item is invisible.</p>

Base I/O address	378, 278	Set the base I/O address for External Parallel Port.
Interrupt	5, 7	Set the interrupt for External Parallel Port.
Mode	Output only, Bi-directional, EPP	Set the mode for External Parallel Port.
External Diskette Controller	Disabled, Enabled, Auto	<p><i>Disabled</i> = Disabled the device <i>Enabled</i> = User configuration <i>Auto</i> = BIOS or OS chooses configuration</p> <p>NOTE: External Diskette Controller is available only if a 2nd SuperIO chip is implemented on the base board. Otherwise this menu item is invisible.</p>

Warning: If you choose the same I/O address or Interrupt for more than one port, the menu displays an asterisk (*) at the conflicting settings. It also displays this message at the bottom of the menu:

* Indicates a DMA, Interrupt, I/O, or memory resource conflict with another device.

4.4.2.3 Advanced Chipset Control Menu

PhoenixBIOS Setup Utility					
Main	Advanced	Security	Power	Boot	Exit
Advanced Chipset Control				Item Specific Help	
Legacy USB Support:	[Enabled]				Enable support for Legacy Universal Serial Bus
USB port 2-3:	[Enabled]				
USB port 4-5:	[Enabled]				
USB port 6-7:	[Enabled]				
USB 2.0 functionality:	[Enabled]				
Parallel ATA:	[Both]				
Serial ATA:	[Enabled]				
Native Mode Operation:	[Auto]				
SATA Raid Enable:	[Disabled]				
OnChip Audio Device:	[Enabled]				
OnChip LAN Device:	[Enabled]				
LAN Boot:	[Disabled]				
F1 Help	↑↓	Select Item	-/+	Change Values	F9 Setup Defaults
Esc Exit	←	Select Menu	Enter	Select ► Sub-Menu	F10 Save and Exit

Feature	Options	Description
Legacy USB support	Disabled, Enabled	Enables support for Legacy USB.
USB port 2-3	Disabled, Enabled	Enables USB port 2-3 support.
USB port 4-5	Disabled, Enabled	Enables USB port 4-5 support.
USB port 6-7	Disabled, Enabled	Enables USB port 6-7 support.
USB 2.0 functionality	Disabled, Enabled	<i>Enabled</i> = USB 2.0 support, <i>Disabled</i> = USB 1.1 support
Parallel ATA	Disabled, Channel 0, Channel 1 Both	Enables certain channels of parallel IDE Controller.
Serial ATA	Disabled, Enabled	Enables the serial IDE Controller.
Native Mode Operation	Disabled, Enabled	Enables Native IDE support for WinXP. Enabling this feature for any other operating systems will have no effect.
OnChip Audio Device	Disabled, Enabled	Enables the onboard Audio controller.

OnChip LAN Device	Disabled, Enabled	Enables the onboard LAN controller.
LAN Boot	Disabled, Enabled	Allows network boot using the onboard LAN controller.

4.4.2.4 VGA Control

PhoenixBIOS Setup Utility					
Main	Advanced	Security	Power	Boot	Exit
VGA Control				Item Specific Help	
Frame Buffer Size: [64 MB] LCD Panel Type: [1024x768 18b sp] Display Device Selection: [LCD + CRT] Aperture Size: [256M]				Select the amount of Main Memory that the Internal Graphics Device will use.	
F1	Help	↑↓	Select Item	-/+	Change Values
Esc	Exit	←	Select Menu	Enter	Select ► Sub-Menu
F9	Setup Defaults				
F10	Save and Exit				

Feature	Options	Description
Frame Buffer Size	16 MB, 32 MB, 64 MB	Select the amount of main memory that the internal graphics device will use.
LCD Panel Type	640x480 18b sp 800x600 18b sp 1024x768 18b sp 1280x768 18b sp 1280x1024 18b dp 1400x1050 18b dp 1600x1200 18b dp 1280x800 18b sp 800x480 18b sp 1024x768 18b dp 1024x768 24b sp	Select the LCD panel to be used by the internal Graphics Device or use EEPROM with EDID and EPI data for auto detection. 18b = 18 bits resolution 24b = 24 bits resolution sp = one pixel per clock

	1024x768 24b dp 1280x768 24b sp 1280x768 24b sp 1400x1050 24b dp 1600x1200 24b dp	dp = two pixel per clock
Display Device Selection	CRT, LCD + CRT	Select the Video Device that will be activated during POST. CRT device is always enabled.
Aperture Size	32M, 64M, 128M, 256M, 512M	Select the size of the Graphics Aperture for the video device.

4.4.2.5 Memory Cache Control Menu

PhoenixBIOS Setup Utility					
Main	Advanced	Security	Power	Boot	Exit
Memory Cache				Item Specific Help	
Memory Cache:		[Enabled]	Sets the state of the memory cache		
Cache System BIOS area:		[Write Protect]			
Cache Video BIOS area:		[Write Protect]			
Cache Extended Memory Area:		[Write Back]			
Cache D000 – D3FF:		[Disabled]			
Cache D400 – D7FF:		[Disabled]			
Cache D800 – DBFF:		[Disabled]			
Cache DC00 – DFFF:		[Disabled]			
F1	Help	↑↓	Select Item	-/+	Change Values
Esc	Exit	←	Select Menu	Enter	Select ► Sub-Menu
				F9	Setup Defaults
				F10	Save and Exit

Feature	Options	Description
Memory Cache	Disabled, Enabled	Sets the state of the memory cache.
Cache System BIOS area	Uncached, Write Protect	Enables caching of system BIOS area.
Cache Video BIOS area	Uncached, Write Protect	Enables caching of video BIOS area.
Cache Extended	Uncached,	Enables caching of system memory

Memory Area	Write Through, Write Protect, Write Back	above 1 MB.
Cache D000 – D3FF Cache D400 – D7FF Cache D800 – DBFF Cache DC00 – DFFF	Disabled, Write Through, Write Protect, Write Back	<i>Disabled</i> = This block is not cached. <i>Write through</i> = Writes are cached and sent to main memory at once. <i>Write Protect</i> = Writes are ignored. <i>Write Back</i> = Writes are cached but not sent to main memory until necessary.

4.4.2.6 PCI Configuration Menu

PhoenixBIOS Setup Utility						
Main	Advanced	Security	Power	Boot	Exit	
PCI Configuration					Item Specific Help	
▶ PCI/PNP ISA UMB Region Exclusion: ▶ PCI/PNP ISA IRQ Resopurce Exclusion: PCI IRQ line 1: [Auto Select] PCI IRQ line 2: [Auto Select] PCI IRQ line 3: [Auto Select] PCI IRQ line 4: [Auto Select] PCI IRQ line 5: [Auto Select] PCI IRQ line 6: [Auto Select] PCI IRQ line 7: [Auto Select] PCI IRQ line 8: [Auto Select]					Reserve specific upper memory blocks for use by legacy ISA devices	
F1	Help	↑↓	Select Item	-/+	Change Values	F9 Setup Defaults
Esc	Exit	←	Select Menu	Enter	Select ► Sub-Menu	F10 Save and Exit

Feature	Options	Description
PCI/PNP ISA UMB Region Exclusion	See "PCI/PNP ISA UMB Region Exclusion" section.	
PCI/PNP ISA IRQ Resource Exclusion	See "PCI/PNP ISA IRQ Resource Exclusion" section.	
PCI IRQ line 1	Disabled, Auto Select, 3-5, 7, 9-12, (14, 15)	IRQ assignment for PCI INT A. If set to Auto select BIOS will handle the IRQ setup.
PCI IRQ line 2	see above	IRQ assignment for PCI INT B. If set to Auto select BIOS will handle the IRQ setup.
PCI IRQ line 3	see above	IRQ assignment for PCI INT C. If set to Auto select BIOS will handle the IRQ setup.
PCI IRQ line 4	see above	IRQ assignment for PCI INT D. If set to Auto select BIOS will handle the IRQ setup.
PCI IRQ line 5	see above	IRQ assignment for PCI INT E. If set to Auto select BIOS will handle the IRQ setup.

PCI IRQ line 6	see above	IRQ assignment for PCI INT F. If set to Auto select BIOS will handle the IRQ setup.
PCI IRQ line 7	see above	IRQ assignment for PCI INT F. If set to Auto select BIOS will handle the IRQ setup.
PCI IRQ line 8	see above	IRQ assignment for PCI INT H. If set to Auto select BIOS will handle the IRQ setup.

4.4.2.6.1 PCI/PNP ISA UMB Region Exclusion Configuration Menu

PhoenixBIOS Setup Utility					
Main	Advanced	Security	Power	Boot	Exit
PCI/PNP ISA UMB Region Exclusion				Item Specific Help	
D000 - D3FF: [Available] D400 - D7FF: [Available] D800 - DBFF: [Available] DC00 - DFFF: [Available]				Reserves the specified Block of upper memory for use by legacy ISA devices	
F1	Help	↑↓	Select Item	-/+	Change Values
Esc	Exit	←	Select Menu	Enter	Select ► Sub-Menu
				F9	Setup Defaults
				F10	Save and Exit

Feature	Options	Description
D000 – D3FF	Available, Reserved	Reserve this block of upper memory for use by legacy ISA devices.
D400 – D7FF		
D800 – DBFF		
DC00 – DFFF		

4.4.2.6.2 PCI/PNP ISA IRQ Resource Exclusion Configuration Menu

PhoenixBIOS Setup Utility						
Main	Advanced	Security	Power	Boot	Exit	
PCI/PNP ISA UMB Resource Exclusion				Item Specific Help		
IRQ 3:		[Available]			Reserve the specified IRQ for use by legacy ISA devices	
IRQ 4:		[Available]				
IRQ 5:		[Available]				
IRQ 7:		[Available]				
IRQ 9:		[Available]				
IRQ 10:		[Available]				
IRQ 11:		[Available]				
IRQ 12:		[Available]				
F1	Help	↑↓	Select Item	-/+	Change Values	F9 Setup Defaults
Esc	Exit	←	Select Menu	Enter	Select ► Sub-Menu	F10 Save and Exit

Feature	Options	Description
IRQ x	Available, Reserved	Reserve this IRQ for use by legacy ISA devices.
IRQ 14 IRQ 15	Available, Reserved	Reserve this IRQ for use by legacy ISA devices. Only available if no IDE device attached to the primary IDE port.

4.4.2.7 Watchdog Options

PhoenixBIOS Setup Utility						
Main	Advanced	Security	Power	Boot	Exit	
Watchdog Options					Item Specific Help	
Watchdog delay: [30 seconds] Watchdog timeout: [30 seconds] Watchdog start on boot: [No]					After watchdog is activated, he waits selected delay time before he starts counting the timeout periode.	
F1	Help	↑↓	Select Item	-/+	Change Values	F9 Setup Defaults
Esc	Exit	←	Select Menu	Enter	Select ► Sub-Menu	F10 Save and Exit

Feature	Options	Description
Watchdog delay	1 second, 5 seconds, 10 seconds, 30 seconds, 1 minute, 2 minutes, 10 minutes, 30 minutes	After watchdog is activated, he waits selected delay time before he starts counting the timeout period.
Watchdog timeout	0.4 second, 1 second, 5 seconds, 10 seconds, 30 seconds, 1 minute, 5 minutes, 10 minutes	Select the maximum watchdog trigger period. If the watchdog will not be triggered during selected period, system reset will be generated.
Watchdog start on boot	No, Yes	Select if the watchdog should be started at the end of POST – before OS is booted.

4.4.3 The Security Menu

PhoenixBIOS Setup Utility					
Main	Advanced	Security	Power	Boot	Exit
Supervisor Password Is: Clear User Password Is: Clear Set Supervisor Password [Enter] Set User Password [Enter] Password on boot: [Disabled]					Item Specific Help Supervisor Password contains access to the setup utility.
F1	Help	↑↓	Select Item	-/+	Change Values
Esc	Exit	←	Select Menu	Enter	Select ► Sub-Menu
				F9	Setup Defaults
				F10	Save and Exit

Feature	Options	Description
Supervisor Password Is		Shows if supervisor password is set
User Password Is		Shows if user password is set
Set User Password	---	Sets the user password.
Set Supervisor Password	---	The supervisor password controls the access to the setup utility.
Password on boot	Disabled, Enabled	Enabled password entry on boot.

4.4.4 The Power Menu

4.4.4.1 Power Menu Selections

PhoenixBIOS Setup Utility						
Main	Advanced	Security	Power	Boot	Exit	
After Power Failure: [Stay Off] ▶ Hardware Monitor ▶ Temperature Management [Disabled] Spread Spectrum Modulation:					Item Specific Help	
					Sets the mode of operation if an AC/Power Loss occurs. The two modes are: "Power On" will turn the power on as soon as the power supply is back on. "Stay Off" will keep the power off until the power button is pressed.	
F1	Help	↑↓	Select Item	-/+	Change Values	F9 Setup Defaults
Esc	Exit	←	Select Menu	Enter	Select ▶ Sub-Menu	F10 Save and Exit

Feature	Options	Description
After Power Failure	Stay Off, Power On	Sets the mode of operation if an AC power loss occurs. <i>Power On</i> will turn the power on as soon as the power supply is back on. <i>Stay Off</i> will keep the power off until the power button is pressed.
Hardware Monitor	See " Hardware Monitor " section.	
Temperature Management	See " Temperature Management " section.	
Spread Spectrum Modulation	Disabled, 0.20%, 0.25%, 0.35%	Clock controller spread spectrum modulation reduces EMI.

4.4.4.2 Hardware Monitoring Menu

PhoenixBIOS Setup Utility					
Main	Advanced	Security	Power	Boot	Exit
Hardware Monitor				Item Specific Help	
CPU Temp		= 48°C		All items on this menu cannot be modified in user mode. If any items require changes, please consult your system Supervisor.	
Board Temp		= 37°C			
Vcore (CPU)		= 0.81 V			
V +2.5		= 2.49 V			
V +3.3		= 3.32 V			
V +1.5		= 1.48 V			
V +1.05		= 1.04 V			
Vbat		= 3.16 V			
CPU FAN speed		No Function			
F1 Help	↑↓	Select Item	-/+	Change Values	F9 Setup Defaults
Esc Exit	←	Select Menu	Enter	Select ► Sub-Menu	F10 Save and Exit

Feature	Description
Board Temp	Displays the current Board Temperature.
CPU Temp	Displays the current CPU Temperature.
Vcore (CPU)	Displays the current CPU voltage.
V +2.5	Displays the current voltage.
V +3.3	Displays the current voltage.
V +1.5	Displays the current voltage.
V +1.05	Displays the current voltage.
Vbat	Displays the current Battery voltage.
CPU FAN speed	Displays the current FAN speed, only if a three wire FAN is connected to the board.

4.4.4.3 Temperature Management Menu

PhoenixBIOS Setup Utility						
Main	Advanced	Security	Power	Boot	Exit	
Temperature Management				Item Specific Help		
Throttling Rate		[50%]				CPU clock will be throttled by the selected value when reaching the temperature threshold.
CPU Alarm Temperature		[80°C]				
CPU Alarm Hysteresis		[5°C]				
Board Alarm Temperature		[50°C]				
Board Alarm Hysteresis		[5°C]				
F1 Help	↑↓	Select Item	-/+	Change Values	F9	Setup Defaults
Esc Exit	←	Select Menu	Enter	Select ► Sub-Menu	F10	Save and Exit

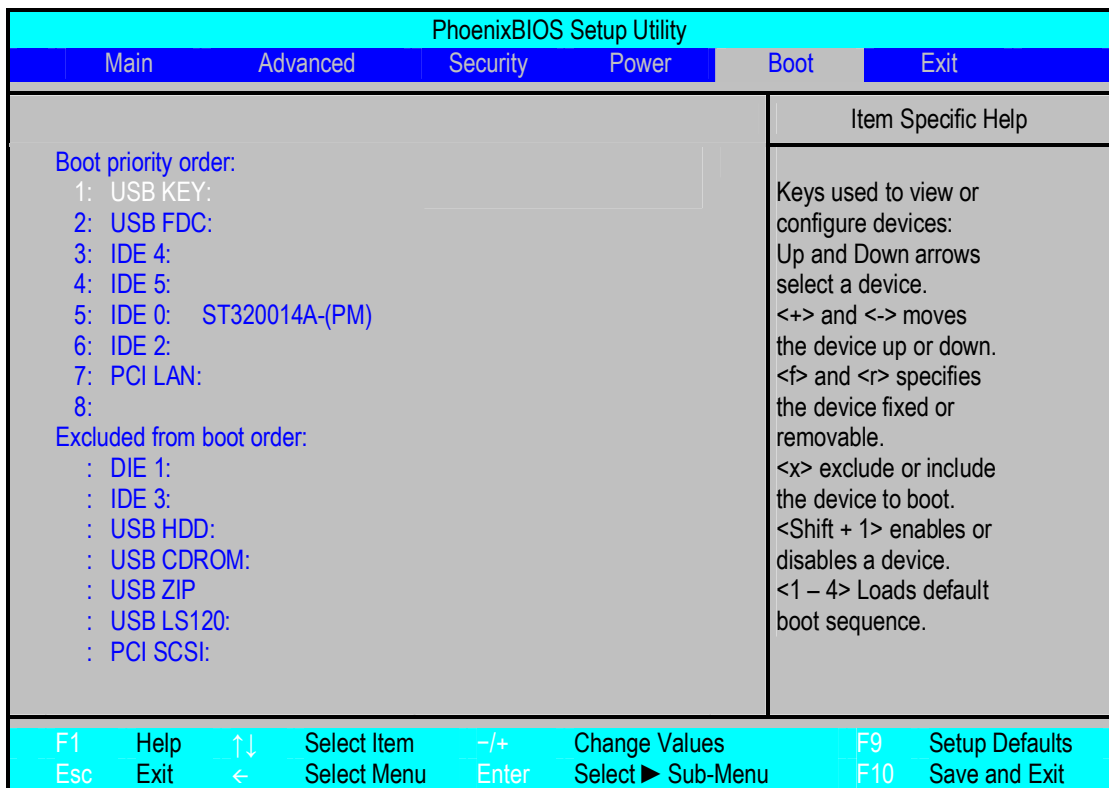
Feature	Options	Description
Throttling Rate	Disabled, 75%, 50%, 25%	If the CPU or Board temperature reaches the set temperature set in "CPU Alarm Temperature" or "Board Alarm Temperature" the CPU clock will be throttled by this value.
CPU Alarm Temperature	Disabled, 65°C, 70°C, 75°C, 80°C, 85°C, 90°C	Sets the CPU temperature at which the CPU clock will be throttled by the value set in "CPU Clock Throttling".
CPU Alarm Hysteresis	3°C, 4°C, 5°C, 6°C	Sets the temperature by which the set CPU Alarm Temperature has to decrease in order to stop CPU clock throttling again.
Board Alarm Temperature	Disabled, 40°C, 45°C, 50°C, 55°C, 60°C, 65°C, 70°C	Sets the CPU temperature at which the CPU clock will be throttled by the value set in "CPU Clock Throttling".
Board Alarm Hysteresis	3°C, 4°C, 5°C, 6°C	Sets the temperature by which the set CPU Alarm Temperature has to decrease in order to stop CPU clock throttling again.

4.4.5 The Boot Menu

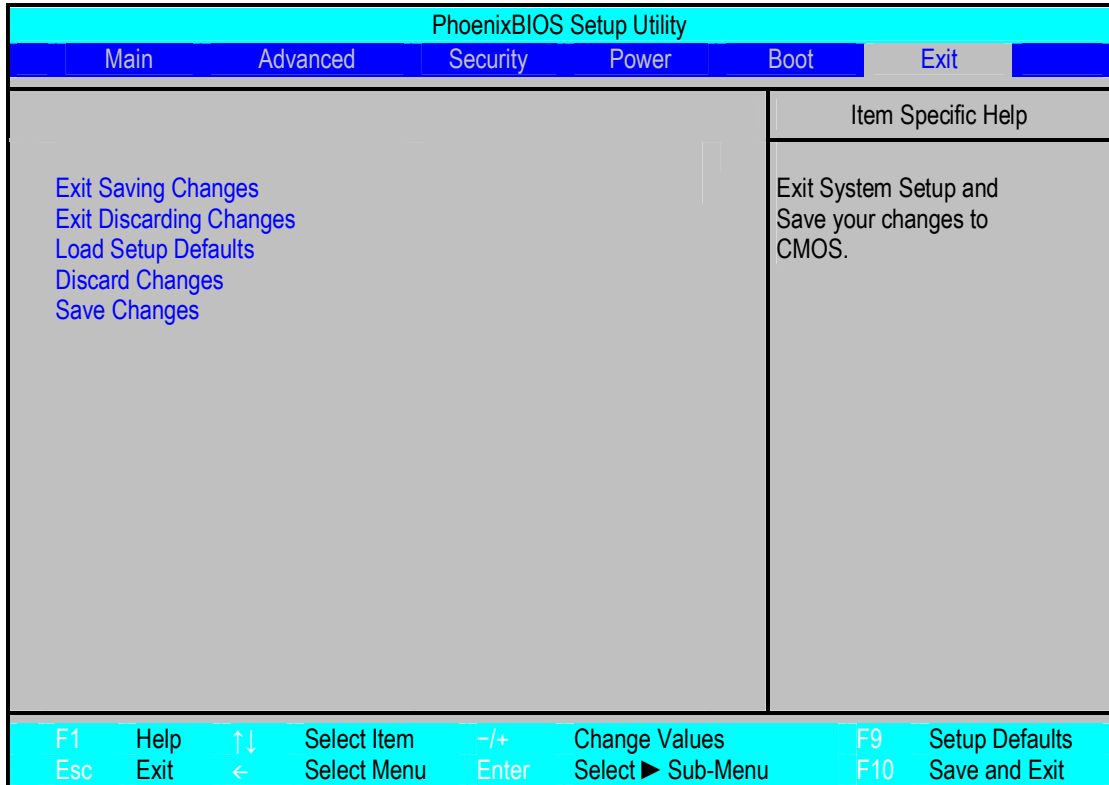
After you turn on your computer, it will attempt to load the operating system (such as DOS, Windows XP or Linux) from the device of your choice. If it cannot find the operating system on that device, it will attempt to load it from one or more other devices in the order specified in the Boot Menu. Boot devices (i.e., with access to an operating system) can include: hard drives, floppy drives, CD ROMs, removable devices (e.g. USB sticks), and network cards.

Note: Specifying any device as a boot device on the Boot Menu requires the availability of an operating system on that device. Most PCs come with an operating system already installed on hard-drive C:

Selecting "Boot" from the Menu Bar displays the Boot menu, which looks like this:



4.4.6 The Exit Menu



The following sections describe each of the options on this menu. Note that <Esc> does not exit this menu. You must select one of the items from the menu or menu bar to exit.

4.4.6.1 Exit Saving Changes

After making your selections on the Setup menus, always select "Exit Saving Changes". This procedure stores the selections displayed in the menus in CMOS (short for "battery-backed CMOS RAM") a special section of memory that stays on after you turn your system off. The next time you boot your computer, the BIOS configures your system according to the Setup selections stored in CMOS.

If you attempt to exit without saving, the program asks if you want to save before exiting. During boot-up, PhoenixBIOS attempts to load the values saved in CMOS. If those values cause the system boot to fail, reboot and press <F2> to enter Setup. In Setup, you can get the Default Values (as described below) or try to change the selections that caused the boot to fail.

4.4.6.2 Exit Discarding Changes

Use this option to exit Setup without storing in CMOS any new selections you may have made. The selections previously in effect remain in effect.

4.4.6.3 Load Setup Defaults

To display the default values for all the Setup menus, select "Load Setup Defaults" from the Main Menu.

If, during boot-up, the BIOS program detects a problem in the integrity of values stored in CMOS, it displays these messages:

System CMOS checksum bad - run SETUP Press <F1> to resume, <F2> to Setup

The CMOS values have been corrupted or modified incorrectly, perhaps by an application program that changes data stored in CMOS.

Press <F1> to resume the boot or <F2> to run Setup with the ROM default values already loaded into the menus. You can make other changes before saving the values to CMOS.

4.4.6.4 Discard Changes

If, during a Setup Session, you change your mind about changes you have made and have not yet saved the values to CMOS, you can restore the values you previously saved to CMOS.

Selecting "Discard Changes" on the Exit menu updates all the selections with their previous values.

4.4.6.5 Save Changes

Selecting "Save Changes" saves all the selections without exiting Setup. You can return to the other menus if you want to review and change your selections.