

ENDAT-3568i

User's Manual

Rev. Preliminary edition

UNICORN



For ENDAT-3568i PCB ver. A2 or later

A1

01/22/2009

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Installation Notice

The manufacturer recommends using a grounded plug to ensure proper motherboard operation. Care should be used in proper conjunction with a grounded power receptacle to avoid possible electrical shock. All integrated circuits on this motherboard are sensitive to static electricity. To avoid damaging components from electrostatic discharge, please do not remove the board from the anti-static packing before discharging any static electricity to your body, by wearing a wrist-grounding strap. The manufacturer is not responsible for any damage to the motherboard due to improper operation.

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Specification:

Model	ENDAT-3568i
System Chipset	Intel Q35 + 82801IB(ICH9)
CPU Supports	Intel® Core™ 2 Duo Family (65nm/Conroe & 45nm/Wolfdale)/ Intel Core 2 Quad processors in the LGA775 package
Memory	One 200Pin DDRII 667/800 SO-DIMM up to 2GB
Ethernet	2 x REALTEK RTL8111B 10/100/1000M
VGA	Intel® Q35 Integrated GMA 3100 Graphics, UMA configuration with DVMT for graphics memory
Serial/Parallel	4 x Serial Port w/ +5V, +12V Power Selector / 1 x LPT port
RS 422 / 485	via COM 2 (Optional)
SATA	Four SATA2/300M connectors on board support
USB	6 x (4 external + 2 internal) ports USB 2.0 support
Expansion	One 16 lane PCIE GFX adapter slot support
Watch Dog Timer	Fintek F81865 on-chip support 1 to 255 seconds / minutes
AUDIO	On-board support HD Audio(ALC888) with 1.2W amplifier
Back Panel I/O	PS/2 Keyboard / Mouse Connector
	2 x USB(2.0) + RJ-45 Connector
	Double deck D-sub Connector for COM 1/2/3
	1 x VGA 1 x SPK
I/O Onboard	8 x Digital I/O (4 x input + 4 x output) Pin Header
	Speaker out, Line-in, CD-in, MIC-in, SPDIF Pin Header
	COM4 Box Header
	2 ports USB 2.0 Pin Header
Power Supply	P4-ATX power (20-Pin ATX Power Supply plus P4 4-Pin 12V)
Form Factor	MINI-ITX (170mm x 170mm) with 8 Layers PCB

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Chapter 1. Introduction

In order to cope with the challenges of the system performance issues and demand of much more visually embedded system in diverse application, ENDAT-3568i system board provides the ultimate solution by Intel® Core 2 Duo and Core 2 Quad Processors (1333/1066/800 MHz FSB) with LGA775 Package. This package offers a high performance Intel® CPU with cost effective on the retail market.

ENDAT-3568i supports one 200pins DDR2 SO-DIMM socket up to 2GB capacities. The highest speed of system memory is up to DDR2-800.

ENDAT-3568i integrated Intel® Graphics Media Accelerator 3100(GMA3100). The GMA3100 improved realism with Microsoft DirectX* 9.0c, Shader Model 2.0, OpenGL* 1.4 for higher visually application.

ENDAT-3568i provides two SDVO ports to support various digital and analog display (such as LCD panel, DVI monitor, TV...etc) via x16 PCIE slot, and the SDVO ports are multiplexed (alternate feature) with PCIE x16 graphics port signals. The SDVO is capable of driving an Advanced Digital Display (ADD2) card or Media Expansion Card by PCIE x16 expansion slot.

Note: There may need OEM BIOS to support various displays.

ENDAT-3568i provides one 16 lane PCIE slot to support one standard x16 PCIE graphic adapter. It could get more scalability in graphics performance.

The ideal solutions of ENDAT-3568i

- POS system
- KIOSK
- Vehicle system
- Interactive system
- Industrial controller
- Gaming system
- Medical system
- Embedded system equipment

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1-1. Features

Basic Feature:

- High Performance platform.
- Intel® Core 2 Duo / Core 2 Quad Processors (1333/1066/800 MHz FSB) Support in the LGA775 Package.
- One DDR2 SO-DIMM socket supports 667/800 MHz up to 2 GB.
- Intel® Graphics Media Accelerator 3100(GMA3100).
- PCI Express x16 Port.
- HD Audio support with 1.2W amplifier built-in.
- Dual Gigabit Ethernet controller.
- Four fully function serial ports.

Software Support

- Drivers for major embedded operating systems: Linux, Windows XP, Windows XP embedded and Windows CE 5.0/6.0.

Ordering information:

TBD

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1-2. Unpacking

The motherboard comes securely packaged in a sturdy cardboard shipping carton. In addition to the User's Manual, the motherboard package includes the following items:

- ENDAT-3568i System Board
- HDD Cables
- LCD cable (**Optional**)
- CD with Driver utilities for on-board chipsets, VGA and LAN adapter

If any of these items are missing or damage, please contact the dealer from whom you purchase the motherboard. Save the shipping material and carton in the event that you want to ship or store the board in the future.

Note: Leave the motherboard in its original package until you are ready to install it!

1-3. Electrostatic Discharge Precautions

Make sure you properly ground yourself before handling the motherboard, or other system components. Electrostatic discharge can easily damage the components. Note: You must take special precaution when handling the motherboard in dry or air-conditioned environments.

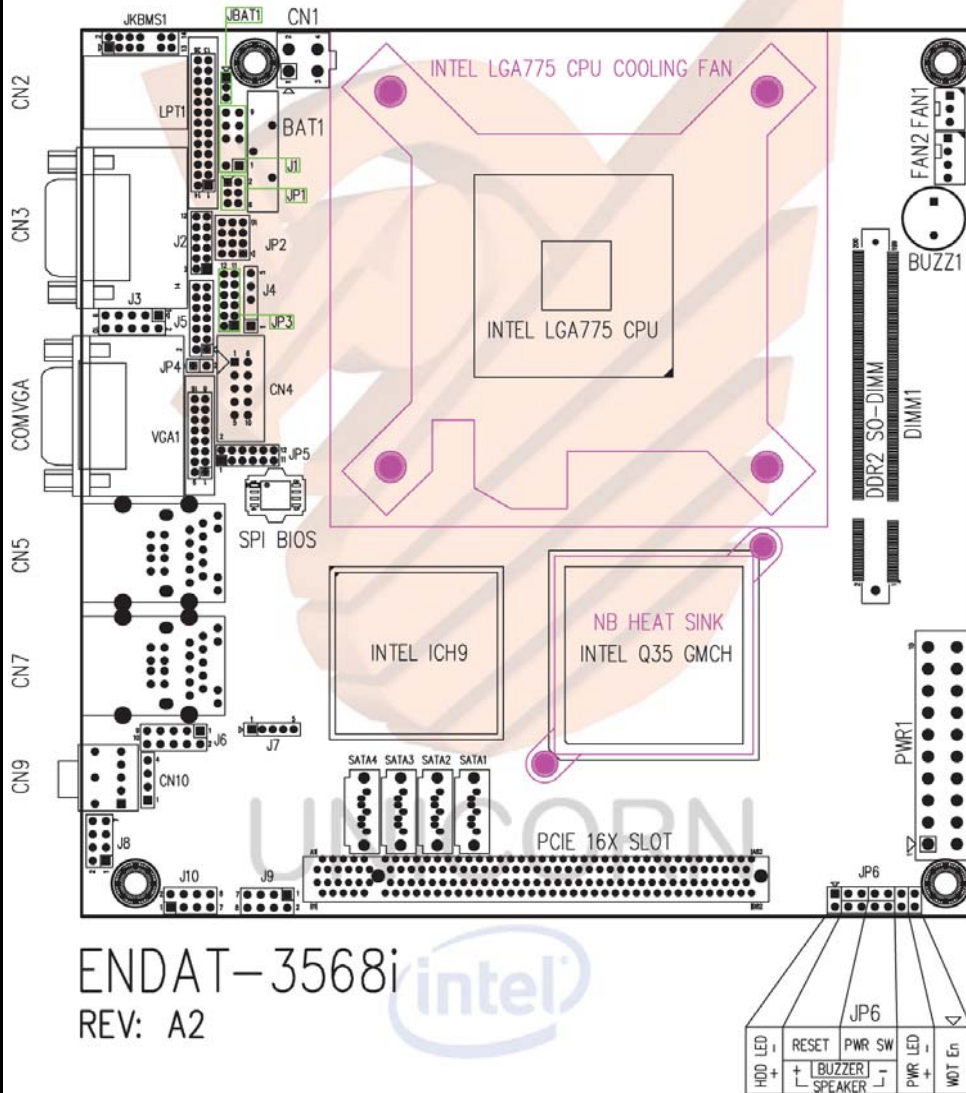
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1-4. MOTHERBOARD LAYOUT.



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Chapter 2. Setting up the Motherboard

2-1. Connectors / Headers and Jumpers

Connectors Overview:

Function	Connectors
ATX Power Connector	PWR1, CN1
LGA775 CPU Socket	U5
DDR2 SO-DIMM Socket	DIMM1
16X PCI-E Slot	PCI-E
PS/2 KB/MS Connector	CN2
LAN Connectors	CN5, CN7 (Upper)
USB Connectors	CN5, CN7 (Lower)
COM Port Connectors	CN3 (COM1: Upper), COMVGA
CRT Output Connector	COMVGA
SPEAKER OUT Connector	CN9
Cooling Fan Connectors	FAN1, FAN2
SATA Connectors	SATA1, SATA2, SATA3, SATA4

Box Headers, Pin Headers Overview:

VGA Box Header	VGA1
COM4 Box Header	CN4
LPT Box Header	LPT1
PS/2 KB/MS Header	J1
External PS/2 device Header	JKBMS1
USB Ports Header	J6
AUDIO Headers	CN10, J8, J9, J10
SPDIF Header	J7
IrDA Header	J4
Digital I/O Header	J5
Case Open Header	JP4
Reserved Function Header	J2, J3

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Jumpers Overview:

Clear CMOS	JBAT1
COM Port Voltage Selector	JP3 (COM1/2), JP5 (COM3/4)
RS-232 / 422 / 485 Selector (COM2)	JP1, JP2
Case Panel Header	JP6
HDD active LED	JP6: Pin 1 (-), Pin 2 (+)
Hardware Reset Switch	JP6: Pin 3, Pin 5
ATX Power Supply On/Off Switch	JP6: Pin 7, Pin 9
External Speaker	JP6: Pin 4 (+), Pin 10 (-)
Buzzer On/Off	JP6: Pin 6, Pin 8
Power On LED	JP6: Pin 11 (-), Pin 13 (+)
WDT (WatchDogTimer) Enable	JP6: Pin 14, Pin 15

Part 1: Onboard Jumpers

JBAT1: CMOS Data Clear (1x3 with 2.0mm)

Pin 1-2 *	Normal
Pin 2-3	Close for clear CMOS

JP3, JP5: COM Port Voltage Selector (2x6 with 2.0mm)

Voltage	+12V(DC)	R.I. *	+5V(DC)
JP3 (COM1)	1-2	3-4	5-6
JP3 (COM2)	7-8	9-10	11-12
JP5 (COM3)	1-2	3-4	5-6
JP5 (COM4)	7-8	9-10	11-12

JP1, JP2: RS232 / 422 / 485 Selectors for COM2 (2.0mm)

TYPE	JP2 (3x4 with 2mm)	JP1 (2x3 with 2mm)
RS-232 *	1-2, 4-5, 7-8, 10-11	1-2
RS-422	2-3, 5-6, 8-9, 11-12	3-4
RS-485	2-3, 5-6, 8-9, 11-12	5-6

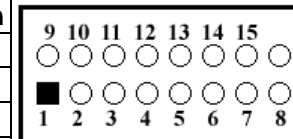
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Part 2: Onboard Connectors and Headers

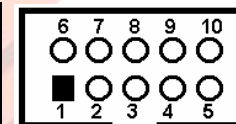
VGA1: CRT Box Header Connector (2x8 with 2.0mm)

Pin No.	Description	Pin No.	Description
1	RED	9	N.C / +5V
2	GREEN	10	GND
3	BLUE	11	N.C.
4	N.C.	12	DDC DAT
5	GND	13	H-Sync
6	GND	14	V-Sync
7	GND	15	DDC CLK
8	GND		



CN4: COM4 port Box Headers (2x5 with 2.54mm)

Pin No.	Function	Pin No.	Function
1	DCD	6	DSR
2	RXD	7	RTS
3	TXD	8	CTS
4	DTR	9	RI
5	GND	10	N.C.



LPT1: Printer Port Box Header (2x13 with 2.0mm)

Pin No.	Description	Pin No.	Description
1	STB#	10	ACK#
2	PD0	11	BUSY
3	PD1	12	PE
4	PD2	13	SLCT
5	PD3	14	AFD#
6	PD4	15	ERR#
7	PD5	16	INIT#
8	PD6	17	SLIN#
9	PD7	18-25	GND

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J1: PS/2 Keyboard / Mouse Header (2x5 with 2.54mm)

Pin No.	Signal (KB)	Pin No.	Signal (MS)
1	KB Data	2	MS Data
3	KEY	4	KEY
5	GND	6	GND
7	+5V(DC)	8	+5V(DC)
9	KB_CLK	10	MS_CLK

JKBMS1: External PS/2 Device Header (2x7 with 2.0mm)

Pin No.	Signal (KB)	Pin No.	Signal (MS)
1	MS Data Out	2	KB Data Out
3	MS Data In	4	KB Data In
5	MS CLK Out	6	KB CLK Out
7	MS CLK In	8	KB CLK In
9	KEY	10	KEY
11	+5V(DC)	12	+5V(DC)
13	GND	14	GND

J6: Pin Header for USB ports (2x5 with 2.54mm)

Pin No.	Function	Pin No.	Function
1	USB_VCC	2	USB_VCC
3	USBD4-	4	USBD5-
5	USBD4+	6	USBD5+
7	USB_GND	8	USB_GND
9	KEY	10	USB_GND

CN10: SPEAK OUT Pin Header (1 x 4 with 2.54mm)

Pin No.	Function
1	SPK_OUT_R
2	JACK_DETECT
3	GND_AUD
4	SPK_OUT_L

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J8: LINE-IN & CD-IN Header (2 x 4 with 2.54mm)

Pin No.	Signal (KB)	Pin No.	Signal (MS)
1	LINE_IN_R	2	CD_IN_R
3	JACK_DETECT	4	GND_AUD
5	GND_AUD	6	GND_AUD
7	LINE_IN_L	8	CD_IN_L

Notice: Please connect the jack detect pin to "GND_AUD" if the actual connector cannot support the jack detect function!

J9: Surround Out (Left & Right) Header (2 x 4 with 2.54mm)

Pin No.	Signal (KB)	Pin No.	Signal (MS)
1	SIDE_SURR_OUT_R	2	SURR_OUT_R
3	SIDE_JACK_DETECT	4	JACK_DETECT
5	GND_AUD	6	GND_AUD
7	SIDE_SURR_OUT_L	8	SURR_OUT_L

Notice: Please connect the jack detect pin to "GND_AUD" if the actual connector cannot support the jack detect function!

J10: Surround Out (Center) & MIC Header (2 x 4 with 2.54mm)

Pin No.	Signal (KB)	Pin No.	Signal (MS)
1	MIC_IN_R	2	LFE_OUT
3	JACK_DETECT	4	JACK_DETECT
5	GND_AUD	6	GND_AUD
7	MIC_IN_L	8	CENTER_OUT

Notice: Please connect the jack detect pin to "GND_AUD" if the actual connector cannot support the jack detect function!

J7: SPDIF Header (1 x 5 with 2.0mm)

Pin No.	Signal (KB)	Pin No.	Signal (MS)
1	+5V	4	GND
2	N.C	5	SPDIF-IN
3	SPDIF-OUT		

J4: IrDA Header (1 x 5 with 2.54mm)

Pin No.	Signal (KB)	Pin No.	Signal (MS)
1	+5V	4	GND
2	N.C	5	IR_TX
3	IR_RX		

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J5: DIGITAL I/O Pin Header (2 x 7 with 2.0mm)

Pin No.	Function	Pin No.	Function
1	+5V	2	+5V
3	DIO-O0	4	DIO-I0
5	DIO-O1	6	DIO-I1
7	GND	8	GND
9	DIO-O2	10	DIO-I2
11	DIO-O3	12	DIO-I3
13	+3.3V	14	+3.3V

FAN1: Cooling Fan Connector (System)

Pin No.	Function
1	GND
2	+12V
3	Sensor Pin

FAN2: Cooling Fan Connector (CPU)

Pin No.	Function
1	GND
2	+12V
3	Sensor Pin
4	PWM_CONTROL

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D-SUB Type Connector for COM2 port (RS-422→ 4 Wire)

Pin No.	Function	Pin No.	Function
1	-TXD	6	NA
2	+RXD	7	NA
3	+TXD	8	NA
4	NA	9	-RXD
5	NA		

D-SUB Type Connector for COM2 port (RS-485→ 2 Wire)

Pin No.	Function	Pin No.	Function
1	Data -	6	NA
2	NA	7	NA
3	Data +	8	NA
4	NA	9	NA
5	NA		

PWR1: ATX Power connector

ATX			
3.3V	11	1	3.3V
-12V	12	2	3.3V
GND	13	3	GND
PS ON	14	4	+5V
GND	15	5	GND
GND	16	6	+5V
GND	17	7	GND
-5V	18	8	POWER OK
+5V	19	9	5V SB
+5V	20	10	+12V

CN1: ATX 4-pins Power connector (For CPU only)

Pin No.	Function
1	GND
2	GND
3	+12V
4	+12V

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2-2. Installing Memory

The ENDAT-3568i CPU board offers one 200pin DDR2 SO-DIMM socket supporting up to 2GB of memory. The speed of DDR2 memory can be DDR2-667 or DDR2-800.

2-3. Shared VGA Memory

The ENDAT-3568i is using built-in Intel® GMA3100 graphic engine with DVMT - up to **384MB** of system memory. The amount of video memory on motherboard determines the number of colors and the video graphic resolution.

2-4. Watch Dog Timer

Watchdog Timer (WDT) is a special design for system monitoring to secure the system work normally. WDT has an independent clock from the oscillator and could set time and clear/refresh WDT counter function. When time is up, WDT will send hardware RESET signal to reset system.

Timeout Value Range

-1 to 255

-Second or Minute

Sample code (using TurboC/C++ 3.0):

```

outportb(0x4e,0x87); //Unlock register
outportb(0x4e,0x87); //Unlock register
outportb(0x4f,0x07); //Set Logic Device number pointer
outportb(0x4f,0x07); //Set Logic Device number
outportb(0x4e,0xF5);
outportb(0x4f,0x40);
outportb(0x4e,0xF6);
outportb(0x4f,0x00);//0-7 Bit :Time out value for watchdog timer
outportb(0x4e,0xF5);
outportb(0x4f,0x20);//Bit 5:If this bit is set to 1, the counting of watchdog time is enabled (bit 1:0
are select output pulse width of RESET signal: 0 for 1 ms, 1 for 25 ms, 2 for 125ms and 3 for 5
seconds)
    
```

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2-5. Digital I/O

Pin define:

J5: DIGITAL I/O Pin Header (2 x 7 with 2.0mm)

Pin No.	Function	Pin No.	Function
1	+5V	2	+5V
3	DIO-O0	4	DIO-I0
5	DIO-O1	6	DIO-I1
7	GND	8	GND
9	DIO-O2	10	DIO-I2
11	DIO-O3	12	DIO-I3
13	+3.3V	14	+3.3V

Voltage tolerance: +/- 5% with 0V to +5V.

DIGITAL I/O Pin (DIO-I3:DIO-I0) Register configuration (register number: E2):

bit No	7	6	5	4	3	2	1	0
Map	NA	NA	NA	NA	DIO-I3	DIO-I2	DIO-I1	DIO-I0

Sample code for input (using Turbo C/C++ 3.0)

```

#define input_port 0x4f // Digital input data port
Unsigned char read_data;
outportb(0x4e,0x87); //Unlock register
outportb(0x4e,0x87); //Unlock register
outportb(0x4e,0x07); //Set Logic Device number pointer
outportb(0x4f,0x06); //Set Logic Device number.
outportb(0x4e,0xE2); //Set active register is CRE2
read_data=inportb(input_port); // Read digital input data
read_data=read_data&&0x0f; //Get bit3-0
printf("DIO-Input=%x\n",read_data); //Show digital input data on screen
    
```

DIGITAL I/O Pin (DIO-O1:DIO-O0) Register configuration (register number: E1):

bit No	7	6	5	4	3	2	1	0
Map	DIO-O1	NA	NA	DIO-O0	NA	NA	NA	NA

Sample code for output (using Turbo C/C++ 3.0)

```

outportb(0x4e,0x87); //Unlock register
outportb(0x4e,0x87); //Unlock register
outportb(0x4e,0x07); //Set Logic Device number pointer
outportb(0x4f,0x06); //Set Logic Device number.
outportb(0x4e,0xE1); //Set active register is CRE1
outportb(0x4f,0x10); // Set bit4 (DIO-O0) as logical high
outportb(0x4f,0x80); //Set bit7 (DIO-O1) as logical high
    
```

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DIGITAL I/O Pin (DIO-O2) Register configuration (register number: F1):

bit No	7	6	5	4	3	2	1	0
Map	DIO-O2	NA	NA	NA	NA	NA	NA	NA

Sample code for output (using Turbo C/C++ 3.0)

```

outportb(0x4e,0x87); //Unlock register
outportb(0x4e,0x87); //Unlock register
outportb(0x4e,0x07); //Set Logic Device number pointer
outportb(0x4f,0x06); //Set Logic Device number.
outportb(0x4e,0xF1); //Set active register is CRF1
outportb(0x4f,0x80); //Set bit7 (DIO-O2) as logical high
```

DIGITAL I/O Pin (DIO-O3) Register configuration (register number: D1):

bit No	7	6	5	4	3	2	1	0
Map	NA	NA	NA	NA	NA	NA	NA	DIO-O3

Sample code for output (using Turbo C/C++ 3.0)

```

outportb(0x4e,0x87); //Unlock register
outportb(0x4e,0x87); //Unlock register
outportb(0x4e,0x07); //Set Logic Device number pointer
outportb(0x4f,0x06); //Set Logic Device number.
outportb(0x4e,0xD1); //Set active register is CRD1
outportb(0x4f,0x01); //Set bit7 (DIO-O3) as logical high
```



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Chapter 3. AWARD BIOS SETUP

Phoenix – Award BIOS CMOS Setup Utility

- | | |
|---|---|
| <ul style="list-style-type: none"> > Standard CMOS Features > Advanced BIOS Features > Advanced Chipset Features > Integrated Peripherals > Power Management Setup > PnP/PCI Configurations | <ul style="list-style-type: none"> > PC Health Status Load Optimized Defaults Set Supervisor Password Set Password Save & Exit Setup Exit Without Saving |
|---|---|

Use the BIOS CMOS setup program to modify the system parameters to reflect the environment installed in your system and to customize the system as desired. Press the key to enter into the BIOS CMOS setup program when you turn on the power. Settings can be accessed via arrow keys. Press <Enter> to choose an option to configure the system properly.

In the main menu, press F10 or “SAVE & EXIT SETUP” to save your changes and reboot the system. Choose “EXIT WITHOUT SAVING” to ignore the changes and exit the setup procedure. Pressing <ESC> at anywhere during the setup will return to the main menu.

All of the above CMOS BIOS items require board knowledge on PC/AT system architecture. Incorrect setup could cause system malfunctions.



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3-1. Standard CMOS Features

The Standard Setup is used for the basic hardware system configuration. The main function is for Data/Time and Hard Disk Drive settings.

Item	Optimized defaults
Date (mm:dd:yy)	
Time (hh:mm:ss)	
IDE Channel 0 Master	Press Enter
IDE Channel 0 Slave	Press Enter
IDE Channel 1 Master	Press Enter
IDE Channel 1 Slave	Press Enter
IDE Channel 2 Master	Press Enter
IDE Channel 3 Master	Press Enter
Video	EGA/VGA
Halt On	All Errors

Video

Select the type of primary video subsystem.

<Choice: EGA / VGA, CGA 40, CGA 80, MONO>

Halt On

Set the system's response to specific boot errors.

<Choice: All Errors, No Errors, All, But Keyboard, All, But Diskette, All, But Disk/Key >

IDE Channel 0~3 Primary Master/Slaver

Item	Optimized defaults
IDE HDD Auto-Detection	Press Enter
IDE Channel	Auto
Access Mode	Auto

IDE HDD Auto-Detection

Press <Enter> to autodetect the parameters of the IDE/SATA device on this channel. IDE Channel 0, 1, 2, 3 Master/Slave Configure your IDE/SATA devices by using one of the three methods below:

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IDE Channel Master/Slave

Configure your IDE/SATA devices by using one of the three methods below:

Auto: Lets BIOS automatically detect IDE/SATA devices during the POST.
(Default)

None: If no IDE/SATA devices are used, set this item to None so the system will skip the detection of the device during the POST for faster system startup.

Manual: Allows you to manually enter the specifications of the hard drive when the hard drive access mode is set to CHS.

Access Mode

Set the hard drive access mode. Options are: Auto (default), CHS, LBA, and Large.

3-2. Advanced BIOS Features

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

Item	Optimized defaults
CPU Feature	Press Enter
Virus Warning	Disabled
CPU L1 & L2 Cache	Enabled
CPU L3 Cache	Enabled
Quick Power On Self Test	Enabled
First Boot Device	Hard Disk
Second Boot Device	CDROM
Third Boot Device	Removable
Boot Other Device	Enabled
Boot Up NumLock Status	On
Typematic Rate Setting	Disabled
Typematic Rate (Chars/Sec)	6
Typematic Delay (Msec)	250
Security Option	Setup
OS Select For DRAM > 64MB	Non-OS2

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3-3. Advanced Chipset Features

This section allows you configuring the system based on the specific features of the installed chipset. This chipset manages bus speeds and the access to the system memory resources, such as DRAM and the external cache. It also coordinates the communications with the PCI bus. It must be stated that these items should never be altered. The default settings have been set as they provide the best operating conditions for your system. Users can change settings if find any data is lost while operating the system.

Item	Optimized defaults
DRAM Timing Selectable	By SPD
Memory Frequency	By SPD
System BIOS Cacheable	Enabled
Memory Hole At 15M-16M	Disable
** VGA Setting **	
PEG/Onchip VGA Control	Onchip VGA
On-Chip Frame Buffer Size	8MB
DVMT Mode	DVMT
DVMT/FIXED Memory Size	128MB

On-Chip Frame Buffer Size

This field is used to select the onboard VGA's frame buffer size that is shared from the system memory.

<Choice: 1M, 8M>

DVMT Mode

Intel's Dynamic Video Memory Technology (DVMT) allows the system to dynamically allocate memory resources according to the demands of the system at any point in time. The key idea in DVMT is to improve the efficiency of the memory allocated to either system or graphics processor.

It is recommended that you set this BIOS feature to DVMT Mode for maximum performance. Setting it to DVMT Mode ensures that system memory is dynamically allocated for optimal balance between graphics and system performance.

DVMT/FIXED Memory

When set to DVMT/FIXED Mode, the graphics driver will allocate a fixed amount of memory as dedicated graphics memory, as well as allow more system memory to be dynamically allocated between the graphics processor and the operating system.

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3-4. Integrated Peripherals

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

Integrated Peripherals

Item	Optimized defaults
OnChip IDE Device	Press Enter
SuperIO Device	Press Enter
Onboard Lan Boot ROM	Disabled
Onboard Serial Port 3	3E8H
Serial Port 3 IRQ	IRQ5
Onboard Serial Port 4	2E8H
Serial Port 4 IRQ	IRQ10
IR Function	Disabled
USB Device Setting	Press Enter

Onboard LAN Boot ROM

By default, this field is disabled. Enable this field if you wish to use the boot ROM (instead of a disk drive) to boot-up the system and access the local area network directly.

OnChip IDE Device

Item	Available Options:
IDE HDD Block Mode	Enabled
IDE DMA transfer access	Enabled
IDE Primary Master	PIO Auto
IDE Primary Slave	PIO Auto
IDE Primary Master	UDMA Auto
IDE Primary Slave	UDMA Auto
On-Chip Secondary PCI IDE	Enabled
IDE Secondary Master	PIO Auto
IDE Secondary Slave	PIO Auto
IDE Secondary Master	UDMA Auto
IDE Secondary Slave	UDMA Auto
SATA Mode	IDE
LEGACY Mode Support	Disabled

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SATA Mode

These fields are used to select the RAID/IDE mode of the serial ATA drives.
<Choice: AHCI, IDE>

IDE Primary Master/Slave PIO and IDE Secondary Master/Slave PIO

The four IDE PIO (programmed Input/Output) fields let you set a PIO mode (0-4) for each IDE device that the internal PCI IDE interface supports. Modes 0 through 4 provide successively increased performance. In Auto mode, the system automatically determines the best mode for each device.

IDE Primary Master/Slave UDMA and IDE Secondary Master/Slave UDMA

These fields allow you to set the Ultra DMA in use. When Auto is selected, the BIOS will select the best available option after checking your hard drive or CD-ROM.

IDE HDD Block Mode

Block mode is also called block transfer, multiple commands, or multiple sectors read/write.

LEGACY Mode Support

Disabled: Allows the SATA controllers to operate in Legacy IDE mode.

In Legacy mode the SATA controllers use dedicated IRQs that cannot be shared with other device. Set this option to Disabled if you wish to install operating systems that do not support Native mode, e.g. Windows 9X/ME. (Default)

Enabled: Allows the SATA controllers to operate in Native IDE mode. Enable Native IDE mode if you wish to install operating systems that support Native mode, e.g. Windows XP/2000.

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SuperIO Device

Item	Available Options:
POWER ON Function	BUTTON ONLY
Onboard Serial Port 1	3F8/IRQ4
Onboard Serial Port 2	2F8/IRQ3
Onboard Parallel Port	378/IRQ7
Parallel Port Mode	SPP
ECP Mode Use DMA	3
PWRON After PWR-Fail	off

Parallel Port Mode

Set the parallel port mode.

<Choice: SPP, EPP, ECP, ECP + EPP,>

PWRON After PWR-Fail

This item allows you to select if you want to power on the system after power failure

USB Device Setting

Item	Available Options:
USB 1.0 Controller	Enabled
USB 2.0 Controller	Enabled
USB Operation Mode	Full/Low Speed
USB Keyboard Function	Enabled
USB Storage Function	Enabled

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3-5. Power Management Setup

The Power Management Setup allows users configuring the system to save energy in a most effective way while operating in a manner consistent with their own style of computer use.

Item	Optimized defaults
ACPI function	Enabled
ACPI Suspend Type	S3(STR)
Power Management	User Define
Video off Method	DPMS
Vido off In Suspend	Yes
HDD Power Down	Disabled
Soft-Off by PWR-BTTN	Instant-Off
Power-On by Alarm	Disabled
USB KB Wake-Up From S3	Enabled
Resume by Alarm	Disabled
Date (of Month) Alarm	0
Time (hh:mm:ss) Alarm	0 : 0 : 0

ACPI Suspend Type

This field is used to select the type of Suspend mode.

S3(STR)	Enables the Suspend to RAM function.
----------------	--------------------------------------

Resume On RTC Alarm

When [Enabled], you can set the date and time at which the RTC (real-time clock) alarm awakens the system from suspend mode.

3-6. PnP/PCI Configurations

This section describes the configuration of the PCI bus system. PCI is a system that allows I/O device to operate at speeds nearing the speed of the CPU itself, when communicating with its own special components. This section covers some very technical items. It is strongly recommended that only experienced users make any changes to the default settings.

Item	Optimized defaults
Init Display First	Onboard
Reset Configuration Data	Disabled
Resources Controlled By	Auto(ESCD)
IRQ Resources	Press Enter
PCI/VGA Palette Snoop	Disabled

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Reset Configuration Data

Enabled	The BIOS will reset the Extended System Configuration Data (ESCD) once automatically. It will then recreate a new set of configuration data.
Disabled	The BIOS will not reset the configuration data.

Resources Controlled By

Auto(ESCD)	The system will automatically detect the settings for you.
Manual	Choose the specific IRQ in the "IRQ Resources" field.

3-7. PC Health Status

This screen shows the information of temperature, Fan speed and Vcore etc. It also can set CPU warning temperature to protect CPU.

PC Health Status

Item	Optimized defaults
VCC	
CPU Vcore	
+5V Voltage	
+12V Voltage	
+1.8V Voltage	
CPU Temperature	
Fan 1 Speed	
Fan 2 Speed	

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Chapter 4. VGA, SDVO and drivers

4-1. Graphic controller Feature

The ENDAT-3568i integrated a high performance Intel® GMA3100 GFX engine with Intel® DVMT technology. The Intel® GMA3100 offering the 3D enhancements enable greater flexibility and scalability. Improved realism with support for Microsoft DirectX* 9.0c, Shader Model 2.0, OpenGL* 1.4.

The ENDAT-3568i integrated graphics device (IGD) delivering cost competitive 3D, 2D and video capabilities. It's contains an extensive set of instructions for 3D operations, 2D operations, motion compensation, overlay, and display control. The video engines support video conferencing and other video applications. The Intel® GMA3100 uses a UMA configuration with Intel® DVMT for graphics memory.

The ENDAT-3568i also has the capability to support external graphics accelerators via the PCI Express Graphics (PEG) port but cannot work concurrently with the integrated graphics device. High bandwidth access to data is provided through the system memory port.

The ENDAT-3568i provides two SDVO ports ro support various digital and analog display (such as LCD panel, DVI monitor, TV...etc) via x16 PCIE slot, and the SDVO ports are multiplexed (alternate feature) with PCIE x16 graphic port signals. The SDVO is capable of driving an Advanced Digital Display (ADD2) card or Media Expansion Card by PCIE x16 expansion slot.

The build-in Graphics Controller's main features include:

- High Performance 3D and 2D graphics controller
- Support Microsoft DirectX* 9.0c, Shader Model 2.0 and OpenGL* 1.4
- Hardware frame buffer compression improves UMA (Unified Memory Architecture) memory efficiency
- Support up to 2048 x 1536 running at 75 HZ refresh rate (through VGA)
- Support up to 1920 x 1200 running at 60 HZ refresh rate (through SDVO)

4-2. SDVO interface

The ENDAT-3568i provides two SDVO ports to support various digital and analog display (such as LCD panel, DVI monitor, TV...etc) via x16 PCIE slot, and the SDVO ports are multiplexed (alternate feature) with PCIE x16 graphic port signals. The SDVO is capable of driving an Advanced Digital Display (ADD2) card or Media Expansion Card by PCIE x16 expansion slot.

Note: There may need other OEM BIOS to support these various display.

4-3. Driver Utility Installation Guide

1. When finishing the installation of Windows XP, Vista, please install the relative Intel® chipsets, display and AUDIO driver manually for compliance compatibility of hardware environment.
2. Please contact sales department of UNICORN for Embedded OS user driver (Linux, Windows CE and Windows XP embedded). All of embedded OS driver is not be included in any versions of driver CD-ROM from UNICORN.

Please download or check from Intel® web site: www.intel.com for more information or last versions of driver as needs!



Appendix A: FLASH Memory Utility

Using this utility to update the system BIOS from a disk file to the on board Flash memory. Be aware the improper change of the system BIOS will cause the system to malfunction.

Using utility as follows:

1. Prepare a bootable (MS-DOS) storage (HDD, USB sticker, ZIP...etc) and copy the BIOS file and flash utility to same direction.
2. At the DOS prompt, type A:>AWDFLASH (or C:\AWDFLASH) and press <Enter>

AwardBIOS FLASH Utility V8.24G C>Phoenix Technologies Ltd. All Rights Reserved
Flash Type –
File Name to Program: <input type="text"/>
Message:

3. Enter the name of the system BIOS disk file into the "File Name to Program" field. The following message appears in the "Message" field
4. Do you want to save BIOS (y/n)?
5. To update the FLASH memory from the system BIOS disk file, type Y
6. After complete updating, please re-boot the system (press "F1" key)
7. For upgrade BIOS procedure, please refer to our web site:
<http://www.unicorn-computer.com.tw>

* Please turn off system and clear CMOS data by JBATI.

* Please restart your system and load setup default.

Appendix B: LIMITED WARRANTY

Standard Two years limited warranty on all our ENDAT series all-in-one motherboards and embedded board. Products that become defective during the warranty period shall be repaired, or subject to manufacturer's option, replaced. The limited warranty applies to normal proper usage of the hardware and does not cover products that have been modified or subjected to unusual electrical or physical stress. Unicorn Computer Corp is not liable to repair or replace defective goods caused by improper using or use of unauthorized parts. The following situations will be charged:

1. The products during the warranty but defective caused by improper using or artificial external pressure and result in the components damages. According to the damage situation, the manufacturer has the rights to decide to repair or not. The manufacturer will charge the parts/repair cost and the returning shipping charge.
2. The products out of warranty will charge the parts/repair cost and the returning shipping charge as per the repair status.
3. The manufacturer has the rights to decide to repair or not based on the stock of parts for the products which are phased out of the production.
4. Please e-mail or fax the RMA Service Request Form when have the defective products.



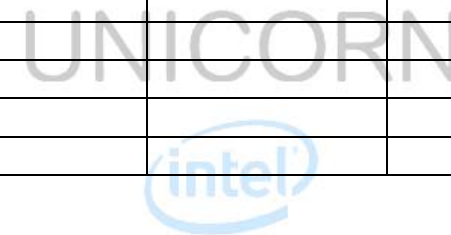
RMA SERVICE REQUEST FORM

When requesting RMA service, please fill out this "RMA Service Request Form". This form needs to be shipped with your returns. Service cannot begin until we have this information.

RMA NO.:

Company:	Person to Contact:
Phone No:	Purchase Date :
Fax No. :	Applied Date :
Return Shipping Address:	

Model No.	Serial No.	Problem Code	Remark



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● **Issue Code of defect.**

01	Second Times R.M.A.	11	Memory Socket Bad
02	No Screen (No Boot)	12	Hang Up Hardware
03	VGA (Display) Fail	13	Hang Up Software
04	CMOS Data Lost	14	PCB Problem
05	FDC Fail	15	CPU Socket Bad
06	HDC Fail	16	LAN Fail
07	Bad Slot	17	Audio Fail
08	BIOS Problem	18	Serial Port Fail
09	Keyboard Controller Fail	19	Parallel Port Fail
10	Cache RAM Problem	20	Others

Please specify the following when returning the RMA boards:

(1) Hardware Configuration (2) OS or Software (3) Testing Program

Authorized Signature

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