VIA Embedded

user manual

EPIA-M850

Mini-ITX Embedded Board

Revision 1.00
100-09209010-1610

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Regulatory Compliance

FCC-A Radio Frequency Interference Statement

This equipment has been tested and found to comply with the limits for a class A digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his personal expense.

Notice 1

The changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Notice 2

Shielded interface cables and A.C. power cord, if any, must be used in order to comply with the emission limits.

CE FC Tested To Comply With FCC Standards FOR HOME OR OFFICE USE

Battery Recycling and Disposal

Only use the appropriate battery specified for this product.
Do not re-use, recharge, or reheat an old battery.
Do not attempt to force open the battery.
Do not discard used batteries with regular trash.
Discard used batteries according to local regulations.

Safety Precautions

Do's

- Always read the safety instructions carefully.
- Keep this User's Manual for future reference.
- All cautions and warnings on the equipment should be noted.
- Keep this equipment away from humidity.
- Lay this equipment on a reliable flat surface before setting it up.
- Make sure the voltage of the power source and adjust properly 110/220V before connecting the equipment to the power inlet.
- Place the power cord in such a way that people cannot step on it.
- Always unplug the power cord before inserting any add-on card or module.
- If any of the following situations arises, get the equipment checked by authorized service personnel:
    - The power cord or plug is damaged.
    - Liquid has penetrated into the equipment.
    - The equipment has been exposed to moisture.
    - The equipment has not worked well or you cannot get it work according to User's Manual.
    - The equipment has dropped and damaged.
    - The equipment has obvious sign of breakage.

Don'ts

- Do not leave this equipment in an environment unconditioned or in a storage temperature above 60°C (140°F). The equipment may be damaged.
- Do not leave this equipment in direct sunlight.
- Never pour any liquid into the opening. Liquid can cause damage or electrical shock.
- Do not place anything over the power cord.
- Do not cover the ventilation holes. The openings on the enclosure protect the equipment from overheating

Box Contents and Ordering Information

Model Number	Description
EPIA-M850-16L	Standard kit ☐ 1 x SATA cable ☐ 1 x I/O bracket ☐ 1 x Driver CD
EPIA-M850-12EL	Standard kit ☐ 1 x SATA cable ☐ 1 x I/O bracket ☐ 1 x Driver CD

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Overview

The VIA EPIA-M850 Mini-ITX Mainboard is a compact native x86 mainboard optimized for advanced level system in embedded and multimedia applications. It provides support for high fidelity audio with its onboard VIA VT1708S High Definition Audio codec. In addition it supports two SATA 3Gb/s storage.

The EPIA-M850 is based on the VIA VX900 Unified Digital Media IGP chipset featuring the VIA Chrome9™ HC3 with 2D/3D graphics and video accelerators for rich digital media performance.

Key Components

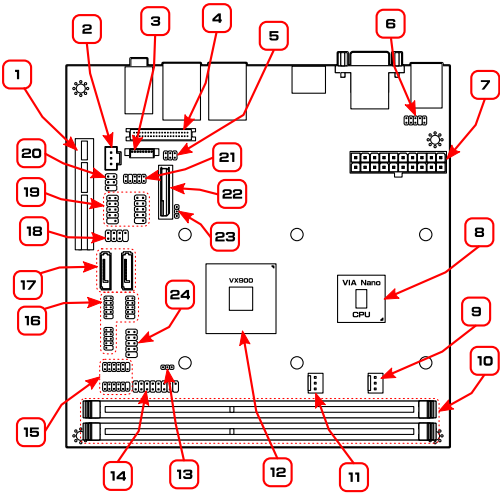
VIA Nano™ NanoBGA2 CPU

The VIA Nano is a 64-bit superscalar processor in x86 platform using a 65 nanometer process technology. It delivers an energy-efficient, powerful performance, with cool and quiet operation all within an ultra compact NanoBGA2 package measuring 21mm x 21mm. Perfectly fit for embedded system applications such as industrial PCs, test machines, measuring equipment, digital signage, medical PCs, monitoring systems, gaming machines, in-vehicle entertainment, and etc. The VIA Nano also boasts of immersive multimedia performance, connectivity and computing applications.

VIA VX900 System Processor

The VIA VX900 media system processor is an all-in-one, highly integrated digital media IGP chipset featuring the latest video, graphics and connectivity performance in a single chip measuring just 31x31mm.

LAYOUT



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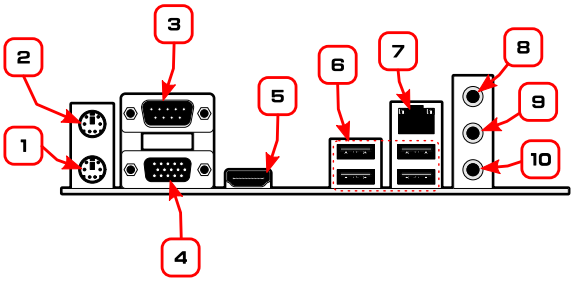
LAYOUT (I/O PANEL)



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SPECIFICATIONS

Processor	Fan VIA 1.6 GHz Nano processor Fanless VIA 1.2GHz Nano processor
Chipset	VIA VX900 Advanced all-in-one system processor
Super I/O	Fintek F81865-I
Memory	2 x DDR3 1066/800 MHz DIMM slot (each slot can support a 4 GB module**)
VGA	Integrated VIA Chrome9™ HC3 3D/2D graphics
Storage	2 x SATA 3Gb/s connectors
LAN	VIA VT6130 PCIe Gigabit Ethernet controller
Audio	VIA VT1708S High Definition audio codec
I/O	2 x USB pin header (supports four USB ports) 1 x USB pin header for USB device port 1 x 2-channel 24-bit LVDS connector 1 x LVDS inverter connector 1 x front audio pin header (Line-in/Mic-in or amplifier module) 1 x PS2 keyboard/mouse pin header 3 x RS232 pin header (configurable 5V/12V) 1 x LPC pin header 1 x SMBUS pin header 1 x S/PDIF Out connector 2 x Digital I/O pin header (GPI x 8, GPO x 8) 1 x front panel pin header 2 x Smart Fan connectors 1 x Temperature sensor pin header 1 x ATX power connector
Expansion	1 x 4-lane PCIe slot
Back Panel I/O	2 x PS/2 connectors (mouse and keyboard) 1 x RS232 COM port 1 x VGA port 1 x RJ-45 LAN port 4 x USB ports 3 x Audio jacks (Line-out, Line-in, Mic-in)
BIOS	AMI BIOS 4/8Mbit SPI Flash ROM
Operating System	Windows 7, Windows CE, XPe, XP, Linux

System Monitoring	- CPU voltage monitor - System temperature monitor - Wake-on-LAN, keyboard power-on, RTC timer, Watch Dog timer - System power management - AC power failure recover
Operating environment	0°C ~ 60°C 0% ~ 95% (relative humidity; non-condensing)
Form Factor	Mini-ITX (17 cm x 17 cm)
Certifications	CE/FCC, BSMI
Compliance	RoHS

Note:
*Specifications are subject to change without notice

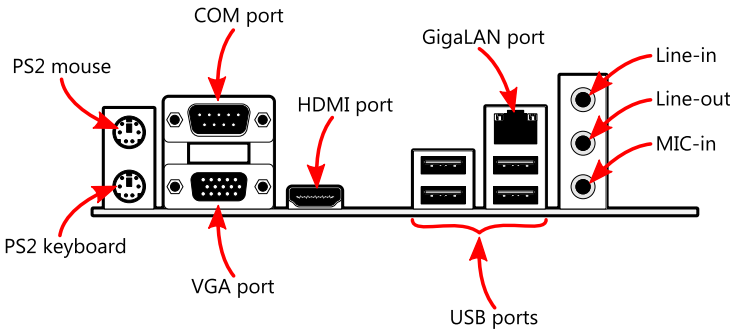
**The actual Max memory capacity that could be recognized under a 64-bit OS will be around 7.1GB due to the conflict in the memory space of the MMIO mapping.

2

Hardware Installation

External I/O

The external I/O panel has the following ports:



PS/2 ports

There are two PS/2 ports: one for a keyboard, one for a mouse.

VGA port

The 15-pin VGA port is for connecting to analog displays.

HDMI port

The HDMI port is for connecting to HDMI displays.

COM ports

The 9-pin COM port is for pointing devices or other serial devices.

Gigabit LAN ports

The Gigabit Ethernet port is controlled through the VIA VT6130 PCIe Gigabit Ethernet controller.

USB ports

Four standard USB 2.0 ports are provided.

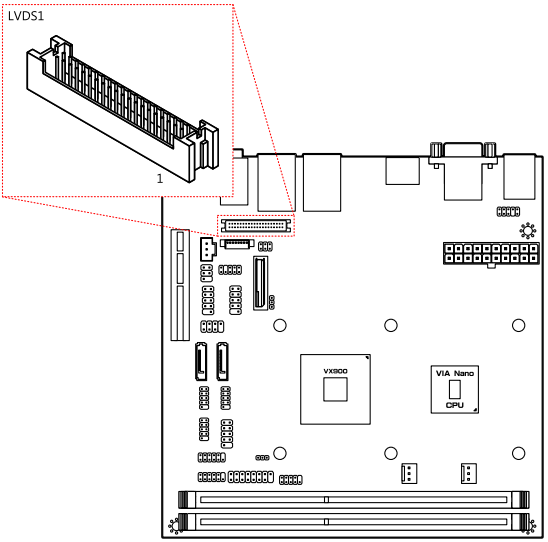
Audio ports

Three 3.5 mm TRS jacks enable connections to Line-out, Line-in, and Mic-in.

ONBOARD CONNECTORS

LVDS panel connector

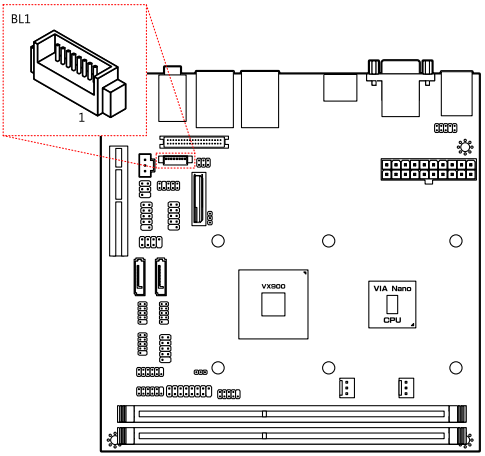
The onboard LVDS panel connector LVDS1 supports dual-channel 24-bit displays.



Pin	Signal	Pin	Signal
1	1LDC4-	2	PVDD1
3	1LDC4+	4	PVDD1
5	GND	6	GND
7	1LDC5-	8	GND
9	1LDC5+	10	1LDC0-
11	GND	12	1LDC0+
13	1LDC6-	14	GND
15	1LDC6+	16	1LDC1-
17	GND	18	1LDC1+
19	1LCLK2-	20	GND
21	1LCLK2+	22	1LDC2-
23	GND	24	1LDC2+
25	1LDC7-	26	GND
27	1LDC7+	28	1LCLK1-
29	NC	30	1LCLK1+
31	GND	32	GND
33	NC	34	1LDC3-
35	NC	36	1LDC3+
37	NC	38	LCD CLK
39	NC	40	LCD DATA

Inverter connector

The onboard inverter controls the LVDS panel backlight and brightness.



Pin	Signal
1	IVDD1_CEN
2	IVDD1_CEN
3	ENABLT/ENAVDD1
4	NC
5	ENAVDD1/ENABLT1
6	BRIGHTNESS1_CTL
7	GND
8	GND

SATA connectors

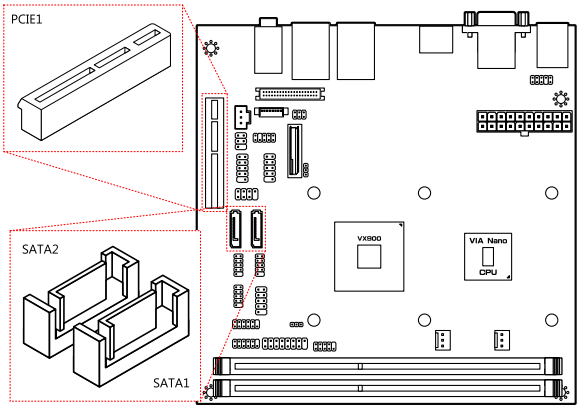
There are two onboard SATA connectors that support data transfer speeds up to 3 Gbps.

SATA1

Pin	Signal
G1	G1
1	GND
2	TX0+
3	TX0-
4	GND
5	RX0-
6	RX0+
7	GND
G2	G2

SATA2

Pin	Signal
G1	G1
1	GND
2	TX1+
3	TX1-
4	GND
5	RX1-
6	RX1+
7	GND
G2	G2



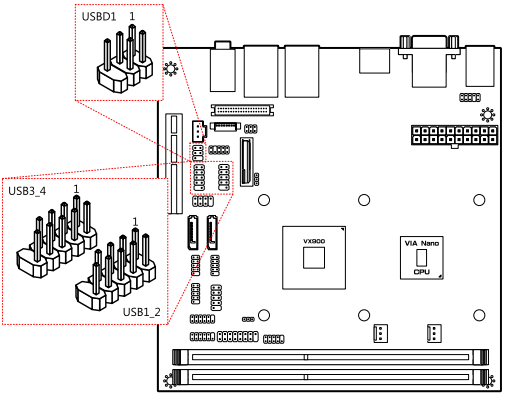
PCIe slot

The onboard PCI Express slot supports one PCIe x4 expansion card.

USB device port pin header

The onboard USB Device Port pin header can be configured to support standard USB Client connectors through cabling and turn the system into a device mode to be controlled by another PC or smart device for transmitting data, synchronizing data, etc.

Pin	Signal	Pin	Signal
1	+5VUSBD	2	USB_DP-
3	NC	4	USB_DP+
5	GND	6	—



USB pin header

The onboard USB pin headers enable the addition of four more USB 2.0 ports.

USB1_2

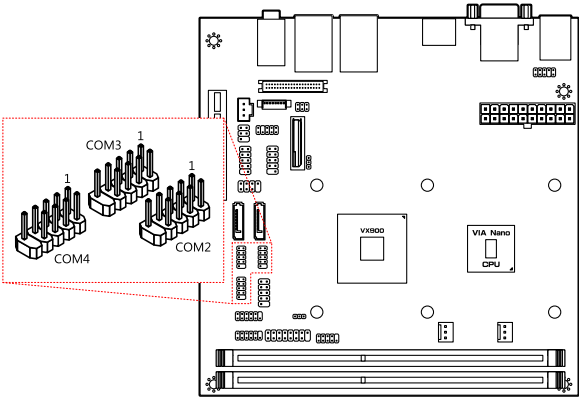
Pin	Signal	Pin	Signal
1	+5VDUAL	2	+5VDUAL
3	USBH_P1-	4	USBH_P7-
5	USBH_P1+	6	USBH_P7+
7	GND	8	GND
9	—	10	GND

USB3_4

Pin	Signal	Pin	Signal
1	+5VDUAL	2	+5VDUAL
3	USBH_P2-	4	USBH_P6-
5	USBH_P2+	6	USBH_P6+
7	GND	8	GND
9	—	10	GND

RS232 COM pin headers

The mainboard includes three COM pin headers onboard.



COM2

Pin	Signal	Pin	Signal
1	-DCDA_2	2	RXDA_2
3	TXDA_2	4	-DTRA_2
5	GND	6	-DSRA_2
7	-RTSA_2	8	-CTSA_2
9	-RIA_2	10	—

COM3

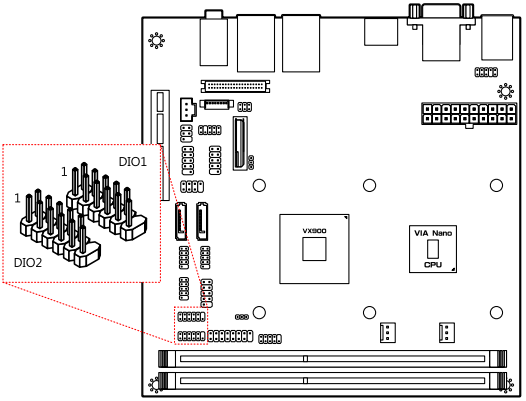
Pin	Signal	Pin	Signal
1	-DCDA_3	2	RXDA_3
3	TXDA_3	4	-DTRA_3
5	GND	6	-DSRA_3
7	-RTSA_3	8	-CTSA_3
9	-RIA_3	10	—

COM4

Pin	Signal	Pin	Signal
1	-DCDA_4	2	RXDA_4
3	TXDA_4	4	-DTRA_4
5	GND	6	-DSRA_4
7	-RTSA_4	8	-CTSA_4
9	-RIA_4	10	—

Digital I/O pin headers

The mainboard includes two Digital I/O pin headers that support eight GPO and eight GPI pins.



DIO1

Pin	Signal	Pin	Signal
1	DIO5V	2	DIO12V
3	GPO27	4	GPI19
5	GPO28	6	GPI20
7	GPO29	8	GPI21
9	GPO30	10	GPI22
11	GND	12	NC

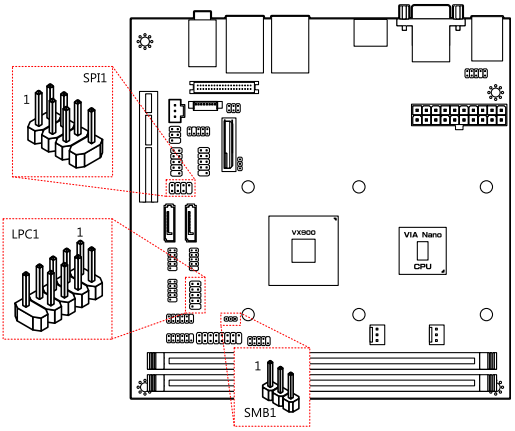
DIO2

Pin	Signal	Pin	Signal
1	DIO5V	2	DIO12V
3	GPO23	4	GPI15
5	GPO24	6	GPI16
7	GPO25	8	GPI17
9	GPO26	10	GPI18
11	GND	12	NC

LPC pin header

The mainboard includes one LPC pin header.

Pin	Signal	Pin	Signal
1	+3.3V	2	-LPCRST
3	LPCCLK1	4	LAD0
5	-LFRAME	6	LAD1
7	LAD3	8	LAD2
9	GND	10	—



SMBus pin header

The mainboard includes an SMBus pin header.

Pin	Signal
1	SMBCK
2	SMBDT
3	GND

SPI pin header

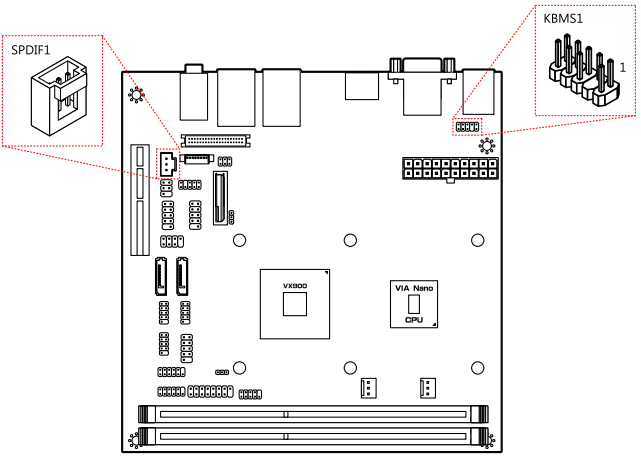
The onboard SPI pin header provides support for one full-duplex serial slave device.

Pin	Signal	Pin	Signal
1	SPIVCC	2	GND
3	MSPISS0	4	MSPICLK
5	MSPID0	6	-PCIRST
7	—	8	MSPISS0

SPDIF connector

The mainboard includes one SPDIF connector.

Pin	Signal
1	+5VAUDIO
2	SPDIFO
3	GND



PS/2 keyboard and mouse pin header

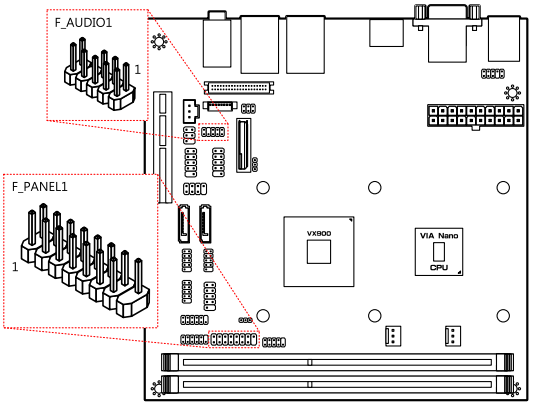
The mainboard includes one pin header for adding support for PS/2 keyboard and mouse.

Pin	Signal	Pin	Signal
1	+5VDUAL	2	+5VDUAL
3	NC	4	—
5	GND	6	GND
7	KB_DT	8	MS_DT
9	KB_CK	10	MS_CK

Front audio pin header

The mainboard has one pin header for connecting to front audio Headphone-out and Mic-in jacks.

Pin	Signal	Pin	Signal
1	LINE2R	2	LINE2L
3	NC	4	NC
5	MIC2_IN_R	6	MIC2_IN_L
7	—	8	NC
9	GND	10	GND



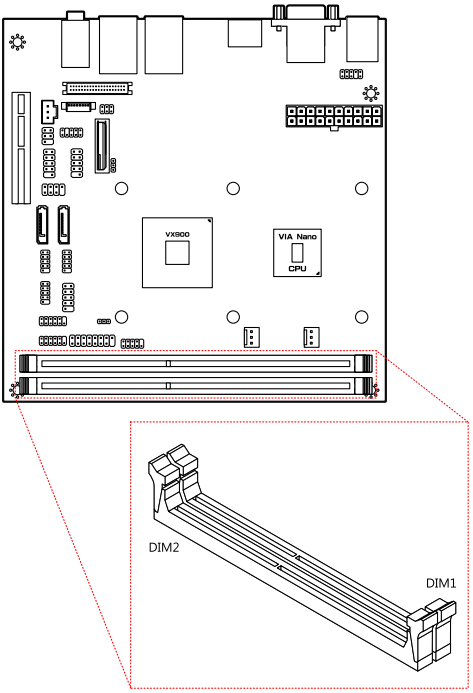
Front panel pin header

The mainboard has one pin header for connecting to front panel switches and status LEDs.

Pin	Signal	Pin	Signal
1	+5VDUAL	2	+5V
3	+5VDUAL	4	HD_LED
5	PW_LED	6	PWR_BTN
7	+5V	8	GND
9	NC	10	-RST_SW/-SUSB
11	NC	12	GND
13	SPEAK_BZ	14	+5V
15	—	16	NC

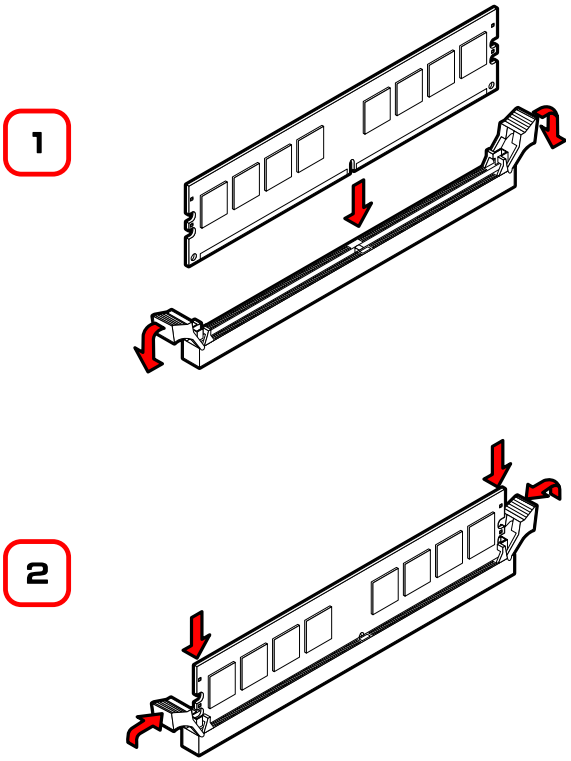
Memory module slots

The mainboard includes two DIMM memory module slots that support DDR3 memory.



To install the memory modules:

1. Disengage the locking mechanism at both ends of the DIMM slot.
2. Align the notch at the bottom of the DIMM with the counterpart on the DIMM slot.
3. Then insert the DIMM into the slot and push down at both ends until the locking clips snap into position.



CPU fan and system fan connectors

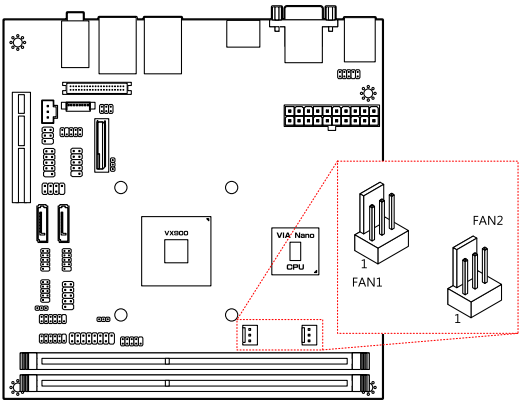
FAN1 (system) and FAN2 (CPU) run on +12V and maintains system cooling. When connecting the cable to the connector, always be aware that the red wire (positive wire) should be connected to the pin 1. The black wire is the ground wire and should always be connected to GND.

FAN1

Pin	Signal
1	FAN_IN1
2	FAN_CTL1
3	GND

FAN2

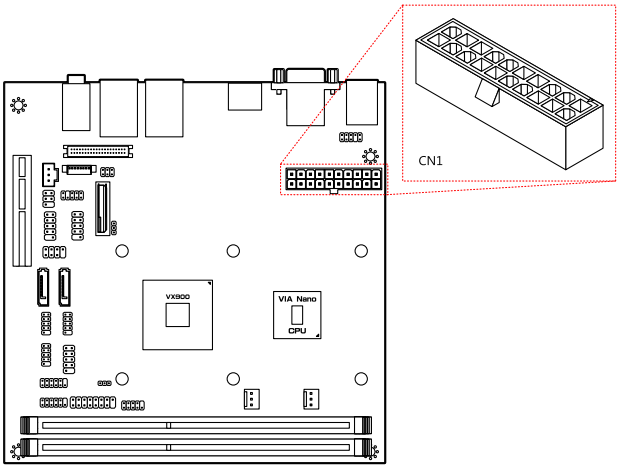
Pin	Signal
1	FAN_IN2
2	FAN_CTL2
3	GND



ATX power connector

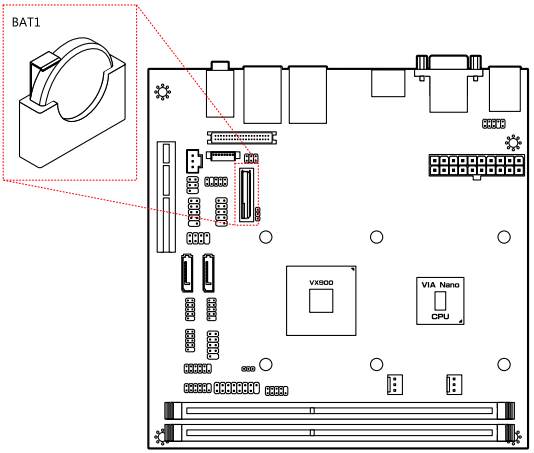
The mainboard supports a conventional ATX power supply for the power system. Before inserting the power supply connector, always make sure that all components are installed correctly to ensure that no damage will be caused. To connect the power supply, make sure the power plug is inserted in the proper orientation and the pins are aligned. Then push down the plug firmly into the connector.

Pin	Signal	Pin	Signal
1	+3.3V	2	+3.3V
3	+3.3V	4	-12V
5	GND	6	GND
7	+5V	8	PS_ON
9	GND	10	GND
11	+5V	12	GND
13	GND	14	GND
15	PW_OK	16	-5V
17	+5V_SB	18	+5V
19	+12V	20	+5V



CMOS battery

The onboard battery provides power to the CMOS RAM. If disconnected all configurations in the CMOS RAM will be reset to factory defaults. When replacing the battery, use CR2032 coin batteries.

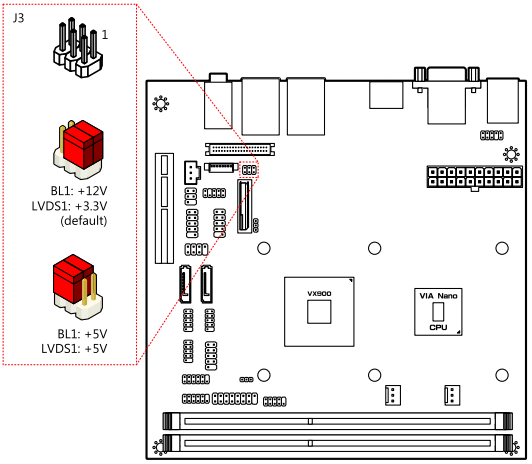


ONBOARD JUMPERS

LVDS jumper settings

The LVDS connectors and LVDS inverters can operate on different input voltages. Pins 1, 3, and 5 correspond to BL1. Pins 2, 4, and 6 correspond to LVDS1.

BL1 power	1	3	5
+12V	ON	ON	OFF
+5V (default)	OFF	ON	ON
LVDS1 power	**2**	**4**	**6**
+3.3V	ON	ON	OFF
+5V (default)	OFF	ON	ON

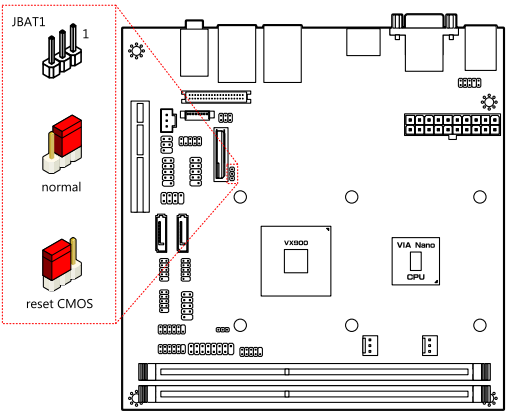


Clear CMOS jumper

The onboard CMOS RAM stores system configuration data and has an onboard battery power supply. To reset the CMOS settings, set the jumper on pins 2 and 3 while the system is off. Return the jumper to pins 1 and 2 afterwards. Setting the jumper while the system is on will damage the mainboard. The default setting is on pins 1 and 2.

Setting	1	2	3
Normal Operation (default)	ON	ON	OFF
Clear CMOS setting	OFF	ON	ON

Caution:
Except when clearing the RTC RAM, never remove the cap from the CLEAR_CMOS jumper default position. Removing the cap will cause system boot failure. Avoid clearing the CMOS while the system is on; it will damage the mainboard.



3

BIOS Setup

Entering the BIOS Setup Menu

Power on the computer and press <Delete> during the beginning of the boot sequence to enter the BIOS setup menu. If you missed the BIOS setup entry point, restart the system and try again.

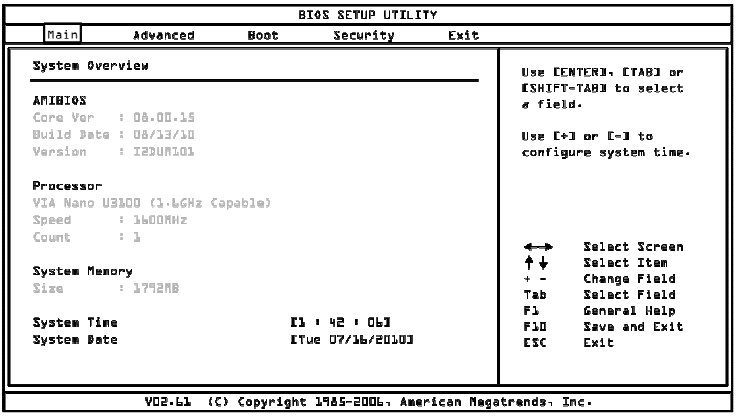
Control Keys

Keys	Description
Up	Move to the previous item
Down	Move to the next item
Left	Move to the previous tab
Right	Move to the next tab
Enter	Select the item
Esc	Jumps to the Exit menu or returns to the main menu from a submenu
+ (number pad)	Increase the numeric value
- (number pad)	Decrease the numeric value
F1	General help, only for Status Page Setup Menu and Option Page Setup Menu
F7	Discard Changes
F9	Load Optimized defaults
F10	Save all the changes and exit

GETTING HELP

The BIOS setup program provides a "General Help" screen. You can display this screen from any menu/sub-menu by pressing <F1>. The help screen displays the keys for using and navigating the BIOS setup. Press <Esc> to exit the help screen.

MAIN MENU



AMIBIOS

BIOS version number and related information.

Processor

This section describes the detected CPU name, speed, and number of processors.

System Memory

This section describes the detected memory size.

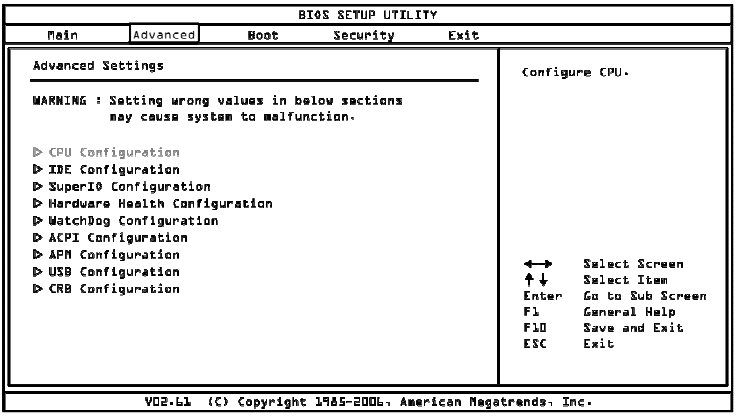
System Time

Use the key "+" or "-" to configure system time. The time format is [Hour : Minute : Second].

System Date

Use the key "+" or "-" to configure system Date. The date format is [Day, Month, Date, Year].

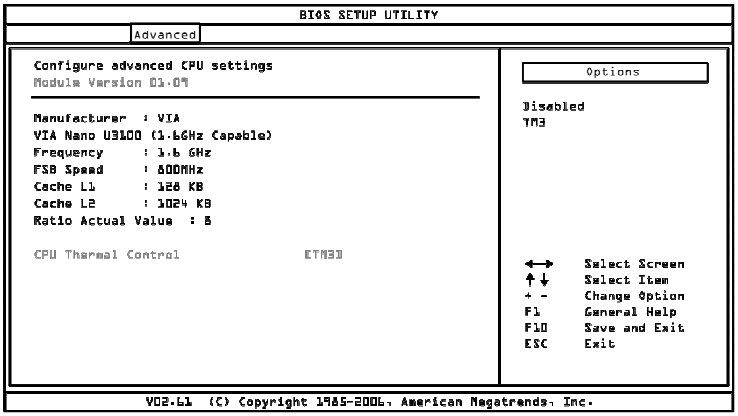
ADVANCED SETTINGS



Available submenus include the following:

- CPU Configuration
- IDE Configuration
- SuperIO Configuration
- Hardware Health Configuration
- WatchDog Configuration
- ACPI Configuration
- APM Configuration
- USB Configuration
- CRB Configuration

CPU CONFIGURATION

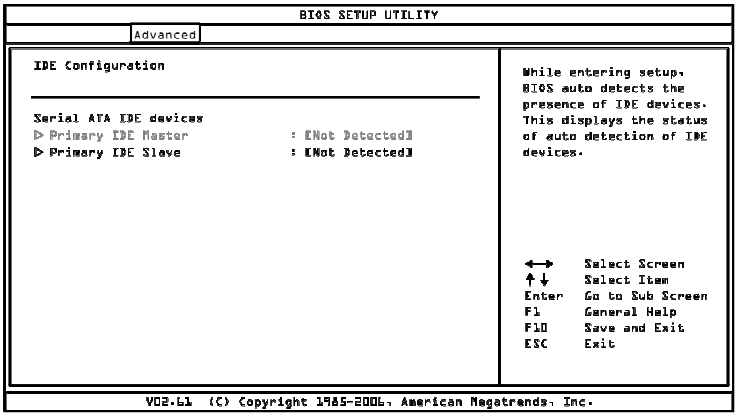


CPU Thermal Control

This option is used to enable the internal thermal protection features inside the onboard Nano CPU.

Settings	Description
Disabled	No thermal monitoring
TM3	Enables Thermal Monitor 3

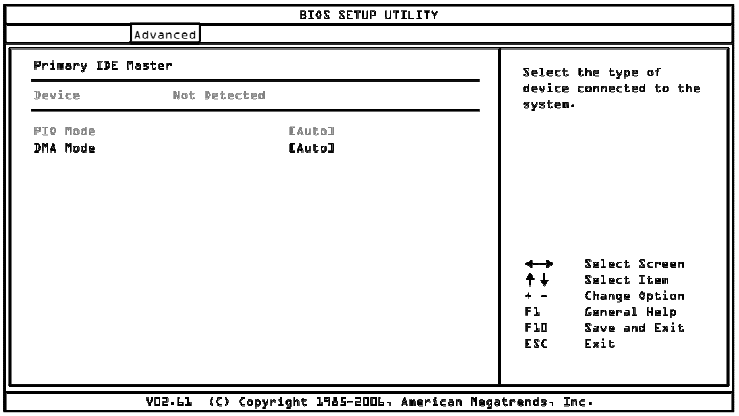
IDE CONFIGURATION



Available submenus include the following:

- Primary IDE Master
- Primary IDE Slave

IDE DRIVES



PIO Mode

The Programmed Input/Output mode is a data transfer method that uses the CPU registers to transfer data.

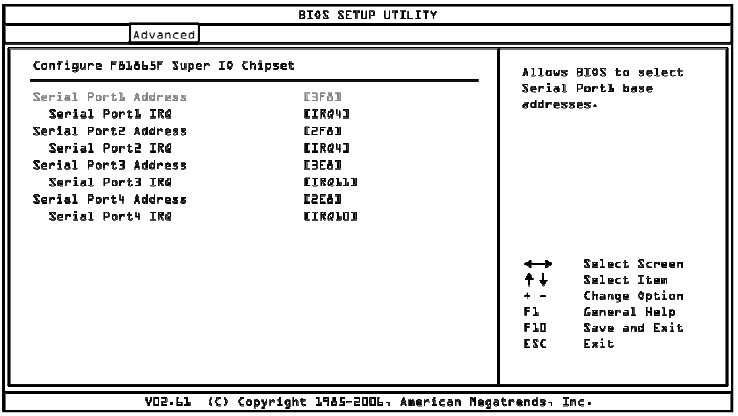
Settings	Description
Auto	The Programmed Input/Output mode is automatically selected.
0	Maximum transfer rate of 3.3 MB/s. Cycle time: 600ns. Defined in ATA specification.
1	Maximum transfer rate of 5.2 MB/s. Cycle time: 383ns. Defined in ATA specification.
2	Maximum transfer rate of 8.3 MB/s. Cycle time: 240ns. Defined in ATA specification.
3	Maximum transfer rate of 11.1 MB/s. Cycle time: 180ns. Defined in ATA-2 specification.
4	Maximum transfer rate of 16.7 MB/s. Cycle time: 120ns. Defined in ATA-2 specification.

DMA Mode

The Direct Memory Access mode is a data transfer method that bypasses the CPU and directly transfers between the system memory and the connected IDE device.

Settings	Description
Auto	The Direct Memory Access mode is automatically selected.

SUPERIO CONFIGURATION

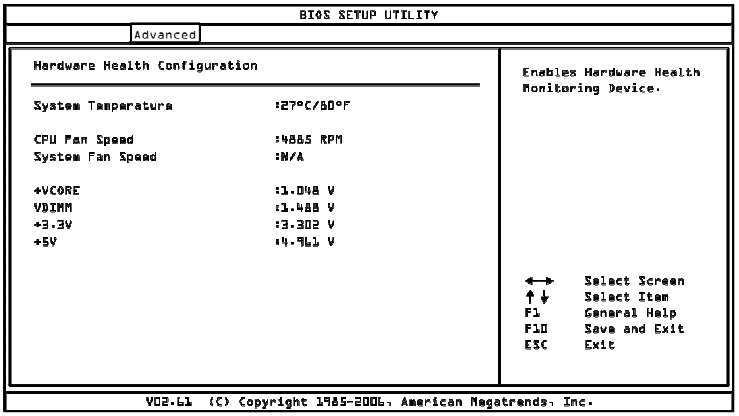


Serial Port Address, IRQ, and Type

The SuperIO configuration menu enables the BIOS to specifically define the resources used for serial ports 1 – 4.

Port	Address	IRQ
1	3F8, 3E8, 2E8, Disabled	3, 4, 10, 11
2	2F8, 3E8, 2E8, Disabled	3, 4, 10, 11
3	3F8, 2F8, 3E8, 2E8, 2D0, 2E0, Disabled	3, 4, 10, 11
4	3F8, 2F8, 3E8, 2E8, 2D0, 2E0, Disabled	3, 4, 10, 11

HARDWARE HEALTH CONFIGURATION

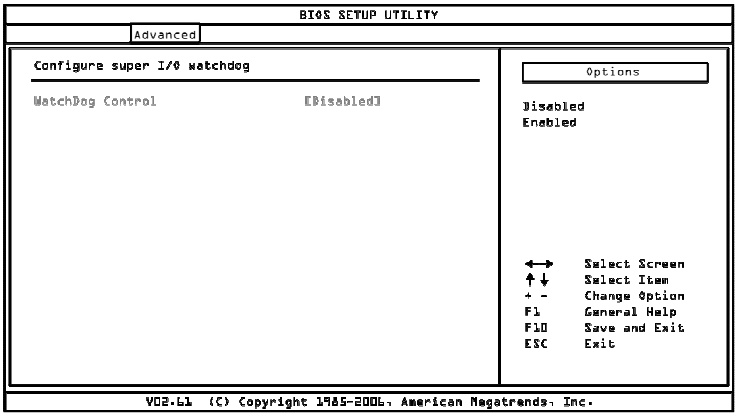


The Hardware Health Configuration displays all monitored information. System Temperature is taken from an optional sensor (PHILIPS PMBT3904 SOT-23).

H/W Health Function

Settings	Description
Disabled	Support for this feature will be unavailable.
Enabled	Enables the Hardware Health Monitoring device.

WatchDog Configuration



The WatchDog function monitors the system to ensure that the system has not frozen. If the system appears to have frozen for a specific period of time, then the WatchDog function will force the system to reboot.

WatchDog Control

Settings	Description
Disabled	Disables the WatchDog function
Enabled	Will monitor the system.

Time

This option is only visible when the WatchDog function is enabled.

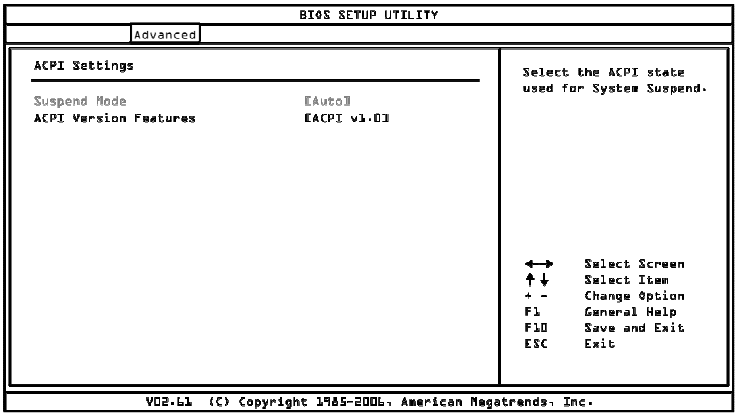
Settings	Description
0 ~ 255	Any integer in the range of 0 to 255.

Unit

This option is only visible when the WatchDog function is enabled.

Settings	Description
Second	Sets the time unit to seconds.
Minute	Sets the time unit to minutes.

ACPI CONFIGURATION



Suspend Mode

Select the ACPI state used for system suspend.

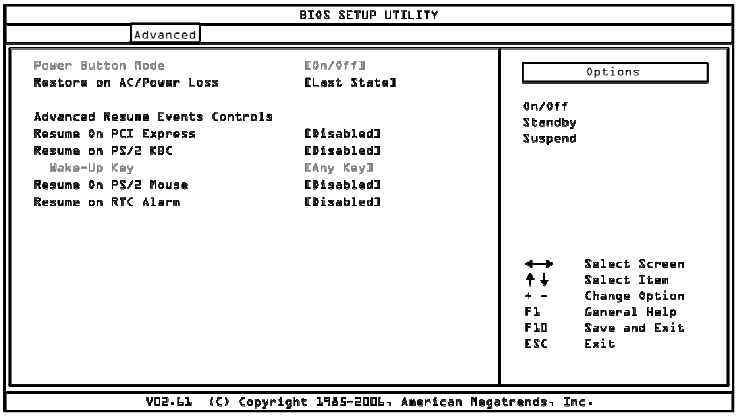
Settings	Description
S1(POS)	S1/Power On Suspend (POS) is a low power state. In this state, no system context (CPU or chipset) is lost and hardware maintains all system contexts
S3(STR)	S3/Suspend To RAM (STR) is a power-down state. In this state, power is supplied only to essential components such as main memory and wakeup-capable devices. The system context is saved to main memory, and context is restored from the memory when a "wakeup" event occurs.
Auto	Depends on the OS to select the state.

ACPI Version Features

To enable RSDP pointers to 64-bit Fixed System Description Tables.

Settings	Description
ACPI v1.0	Supports ACPI v1.0
ACPI v2.0	Supports ACPI v2.0
ACPI v3.0	Supports ACPI v3.0

APM CONFIGURATION



Power Button Mode

Settings	Description
On/Off	Pressing the power button will Instantly cause the system to power on or off.
Standby	Requires the user to press and hold the power button for 4 seconds before powering off the system.
Suspend	Pressing the power button will Instantly cause the system to enter suspend mode.

Restore on AC / Power Loss

The field defines how the system will respond after an AC power loss during system operation.

Settings	Description
Power Off	Keeps the system in an off state until the power button is pressed.
Power On	Restarts the system when the power is back
Last State	Save in last state

Resume on PCI Express

Settings	Description
Enabled	The system will boot if any power management event is triggered via PCI Express devices
Disabled	The feature will be disabled.

Resume On PS/2 KBC

Enables any detected keyboard activity to restore the system from a power saving mode to an active state.

Settings	Description
S3	PS/2 keyboard activity will be detected if the system is in S3 power saving mode.
S3/S4/S5	PS/2 keyboard activity will be detected if the system is in S3/S4/S5 power saving mode.
Disabled	Disables the detection of PS/2 keyboard activity.

Wake-Up Key

This option can only be modified when Resume on PS/2 KBC is enabled.

Settings	Description
Any Key	Any key can be used to wake up the system.
Specific Key	This option unlocks the Wake-Up Password option.

Wake-Up Password

This option can only be modified when Wake-Up Key is set to Specific Key. When selected, a prompt will be displayed requesting a password for waking up the system. This password can consist of up to 6 alphanumeric characters and some special characters. Function keys and modifier keys (such as Ctrl, Alt, Del, etc.) cannot be used.

Resume on PS/2 Mouse

Enable any PS/2 mouse activity to restore the system from the power saving mode to an active state.

Settings	Description
S3	PS/2 mouse activity will be detected if the system is in S3 power saving mode.
S3/S4/S5	PS/2 mouse activity will be detected if the system is in S3/S4/S5 power saving mode.
Disabled	Disables the detection of PS/2 mouse activity.

Resume on RTC Alarm

This feature enables the BIOS to automatically power on at a scheduled time.

Settings	Description
Enabled	Unlocks the RTC Alarm Date and System Time options.
Disabled	Support for this feature will be unavailable.

RTC Alarm Date (Days)

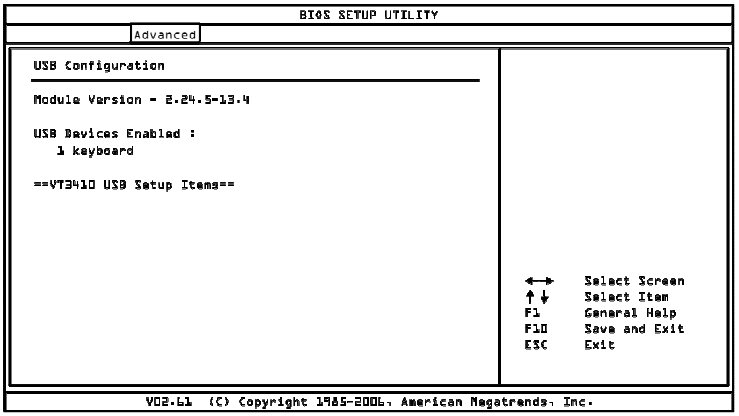
This option enables the user to specify the frequency of the RTC Alarm Date recurrence.

Settings	Description
Every Day	Triggers the RTC Alarm Date daily.
1 – 31 (days)	Triggers the RTC Alarm Date according to the increment specified.

System Time

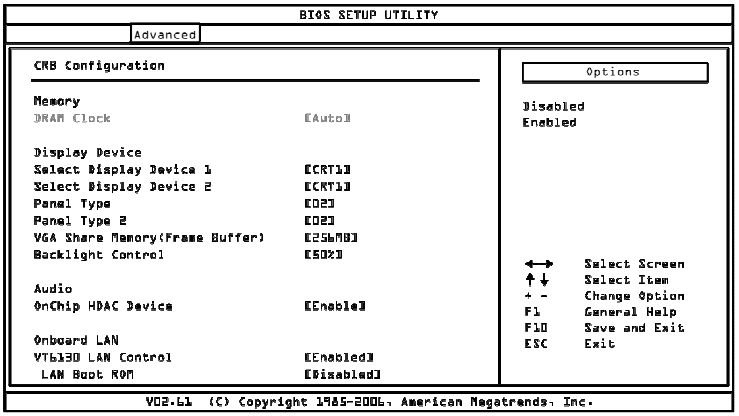
This option enables the user to specify the power on time for the scheduled recurring date.

USB CONFIGURATION



The USB configuration page detects all connected USB devices.

CRB CONFIGURATION



DRAM Clock

Settings	Description
Auto	Auto adjusts the DRAM clock
400 MHz	Sets the DRAM clock to 400 MHz. DDR3 modules will operate at 800 MHz.
533 MHz	Sets the DRAM clock to 533 MHz. DDR3 modules will operate at 1066 MHz.

Select Display Device 1 and 2

The system can output data to two display devices simultaneously.

Settings	Description
CRT1	Specifies the CRT1 port as the display port being used.
LCD2	Specifies the LCD2 port as the display port being used.
LCD1	Specifies the LCD1 port as the display port being used.
HDMI	Specifies the HDMI port as the display port being used.
DP	Specifies the DP port as the display port being used.

Panel Type and Panel Type 2

This feature enables the user to specify the resolution of the display being used with the system. The panel types are predefined in the VGA VBIOS.

Settings	Description
00	640 x 480
01	800 x 600
02	1024 x 768
03	1280 x 768
04	1280 x 1024
05	1400 x 1050
06	1440 x 900
07	1280 x 800
08	800 x 480
09	1024 x 600
10	1366 x 768
11	1600 x 1200
12	1680 x 1050
13	1920 x 1200
14	1920 x 1080
15	1024 x 576

VGA Share Memory (Frame Buffer)

Settings	Description
8MB	Allocates 8 MB of system DRAM for the VGA frame buffer.
16MB	Allocates 16 MB of system DRAM for the VGA frame buffer.
32MB	Allocates 32 MB of system DRAM for the VGA frame buffer.
64MB	Allocates 64 MB of system DRAM for the VGA frame buffer.
128MB	Allocates 128 MB of system DRAM for the VGA frame buffer.
256MB	Allocates 256 MB of system DRAM for the VGA frame buffer.
512MB	Allocates 512 MB of system DRAM for the VGA frame buffer.

Backlight Control

This option sets the brightness control for an LCD device.

Settings	Description
0%	Sets the panel backlight brightness to 0%.
25%	Sets the panel backlight brightness to 25%.
50%	Sets the panel backlight brightness to 50%.
75%	Sets the panel backlight brightness to 75%.
100%	Sets the panel backlight brightness to 100%.

OnChip HDAC Device

Settings	Description
Enabled	Enables the HD audio codec in the VT1708S controller.
Disabled	Disables the HD audio codec in the VT1708S controller.

VT6130 LAN Control 1

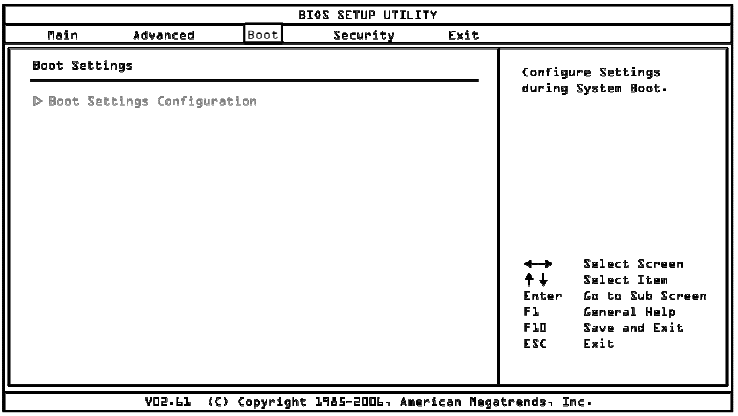
Settings	Description
Enabled	Enable the onboard PCIe GigaLAN controller.
Disabled	Disables the onboard PCIe GigaLAN controller and hides it from the operating system.

LAN Boot ROM

This option enables the PXE feature for booting via LAN.

Settings	Description
Enabled	Enables the PXE feature of the LAN controller.
Disabled	Does not load a separate ROM from the LAN controller.

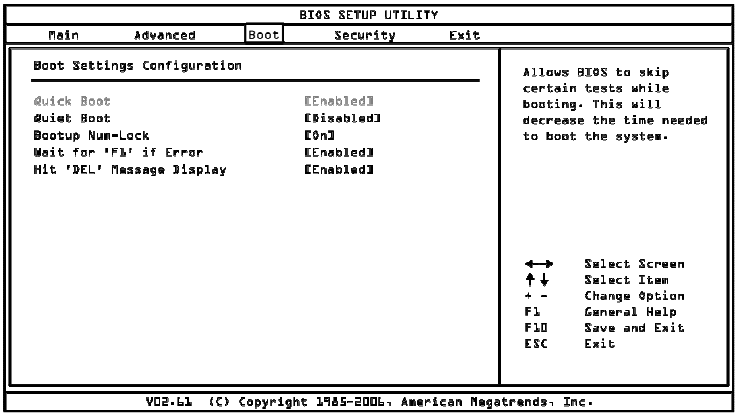
BOOT SETTINGS



The Boot Settings menu has the following submenu:

- Boot Settings Configuration
  Configuration settings during system boot.

BOOT SETTINGS CONFIGURATION



Quick Boot

Settings	Description
Enabled	Enables the BIOS to skip certain tests in order to reduce boot up time.
Disabled	Support for this feature will be unavailable.

Quiet Boot

Settings	Description
Enabled	Displays an OEM logo instead of POST messages.
Disabled	Displays POST messages.

Bootup Num-Lock

Settings	Description
On	For keyboards with a built-in 10-key pad, the BIOS will force the keypad to behave in 10-key mode.
Off	For keyboards with a built-in 10-key pad, the keypad will behave as a cursor keypad.

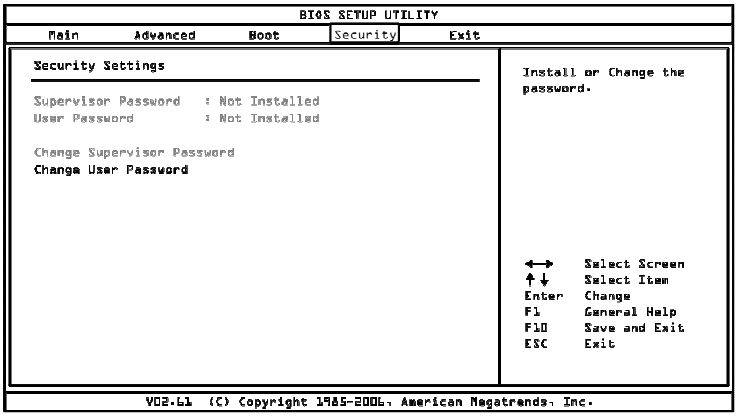
Wait For 'F1' If Error

Settings	Description
Enabled	If an error is detected, the BIOS will pause booting and wait for the user to press F1 to enter the BIOS setup menu.
Disabled	Ignores errors while booting.

Hit 'DEL' Message Display

Settings	Description
Enabled	Shows the POST message that informs the user how to enter the BIOS setup menu. However, this message will be hidden if the Display Logo option is enabled.
Disabled	Hides the POST message that informs the user how to enter the BIOS setup menu.

SECURITY SETTINGS



Change Supervisor Password

This option is for setting a password for accessing the BIOS setup utility. When a password has been set, a password prompt will be displayed whenever the BIOS setup utility is launched. This prevents an unauthorized person from changing any part of the system configuration.

When a supervisor password is set, the User Access Level and Password Check options will be unlocked.

User Access Level

This feature controls the level of access a user (without the supervisor password) is granted to the BIOS setup utility.

Settings	Description
No Access	Completely locks the BIOS setup utility. The supervisor password is required to access and change the BIOS settings..
View Only	Only allows access to view the BIOS settings.
Limited	Only allows non-critical BIOS settings to be changed. Changes are allowed to the following options: ▪ System Time ▪ System Date ▪ Quick Boot ▪ Display Logo
Full Access	Allows all BIOS settings to be changed except for the Change Supervisor Password and User Access Level options.

Change User Password

This option is for setting a password for non-supervisors. When a user password is set, the Clear User Password and Password Check options will be unlocked.

Clear User Password

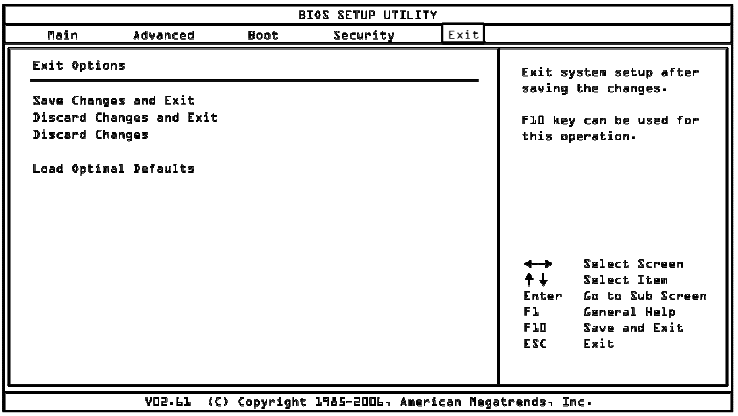
This option is only available when the user accesses the BIOS Setup Utility when the user password has been specified.

Password Check

This feature is compulsory when the Change Supervisor Password option is set. The user will have up to three chances to enter the correct password before the BIOS forces the system to stop booting. If the user does not enter the correct password, the keyboard will also lock up. The only way to get past this is to do a hard reboot (i.e., use the system reset button or cut off the power to the system). A soft reboot (i.e., Ctrl+Alt+Del) will not work because the keyboard will be locked.

Settings	Description
Setup	Force users to enter a password in order to access the BIOS setup utility.
Always	Force users to enter a password in order to boot up the system.

EXIT OPTIONS



Save Changes and Exit

Save all changes to the BIOS and exit the BIOS Setup Utility. The "F10" hotkey can also be used to trigger this command.

Discard Changes and Exit

Exit the BIOS Setup Utility without saving any changes. The "Esc" hotkey can also be used to trigger this command.

Discard Changes

This command reverts all changes to the settings that were in place when the BIOS Setup Utility was launched. The "F7" hotkey can also be used to trigger this command.

Load Optimal Defaults

Load optimal default values for all the setup items. The default optimized values are defined by the mainboard manufacturer to provide optimized environment for a basic system. The "F9" hotkey can also be used to trigger this command.

4

Driver Installation

This chapter gives you brief descriptions of each mainboard driver and application. You must install the VIA chipset drivers first before installing other drivers such as VGA drivers. The applications will only function correctly if the necessary drivers are already installed.

DRIVER UTILITIES

Getting Started

The VIA EPIA-M850 includes a driver CD that contains the drivers and software for enhancing the performance of the system. The drivers can also be downloaded from http://www.via.com.tw.

Note:
The driver utilities and software are updated from time to time. The latest updated versions are available at http://www.via.com.tw

Running the Driver Utilities CD

To start using the CD, insert the CD into the CD-ROM or DVD-ROM drive. The CD should run automatically after closing the CD-ROM or DVD-ROM drive. The driver utilities and software menu screen should then appear on the screen. If the CD does not run automatically, click on the "Start" button and select "Run..." Then type: "D:\Setup.exe".

For Linux drivers, click the right button on mouse and click open. Linux drivers located in the "Driver" folder.

Note:
D: might not be the drive letter of the CD-ROM/DVD-ROM in your system.

CD CONTENT

- ☐ VIA 4 in 1 Drivers
  - Contains VIA ATAPI Vendor Support Driver (enables the performance enhancing bus mastering functions on ATA-capable Hard Disk Drives and ensures IDE device compatibility), AGP VxD Driver (provides service routines to your VGA driver and interface directly to hardware, providing fast graphical access), IRQ Routing Miniport Driver (sets the system's PCI IRQ routing sequence) and VIA INF Driver (enables the VIA Power Management function).
- ☐ VIA Graphics Driver
  - Enhances the onboard VIA graphic chip.
  - Windows 7, Windows XP and Linux drivers are provided.
- ☐ VIA HDMI Driver
- ☐ VIA Audio Driver
  - Enables access to the onboard VIA HD audio codec.
- ☐ VIA USB 2.0 Driver
  - Enhances VIA USB 2.0 ports.
- ☐ VIA GigaLAN Driver