VIA Embedded

user manual

EPIA-P830

Pico-ITX Embedded Board

1.10-06292012-092500

Copyright

Trademarks

All trademarks are the property of their respective holders.

Disclaimer

No license is granted, implied or otherwise, under any patent or patent rights of VIA Technologies. VIA Technologies makes no warranties, implied or otherwise, in regard to this document and to the products described in this document. The information provided in this document is believed to be accurate and reliable as of the publication date of this document. However, VIA Technologies assumes no responsibility for the use or misuse of the information in this document and for any patent infringements that may arise from the use of this document. The information and product specifications within this document are subject to change at any time, without notice and without obligation to notify any person of such change.

VIA Technologies, Inc. reserves the right the make changes to the products described in this manual at any time without prior notice.

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.

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-P830-12L	Standard kit ☐ 1 x P830-A daughter card ☐ 1 x SATA cable ☐ 1 x SATA power cable ☐ 1 x DC-in cable
P830-B	This companion card is for project based enquiries only. MOQ is required. Please contact sales for detailed information.

TABLE OF CONTENTS

1

Overview

The VIA EPIA-P830 Pico-ITX Mainboard is a compact native x86 mainboard optimized for multimedia applications. It provides support for high fidelity audio with its onboard VIA VT1708S High Definition Audio codec.

The EPIA-P830 is based on the VIA VX900H Unified Digital Media IGP chipset featuring the VIA Chrome9™ HD with 2D/3D graphics and video accelerators for rich digital media performance.

Key Components

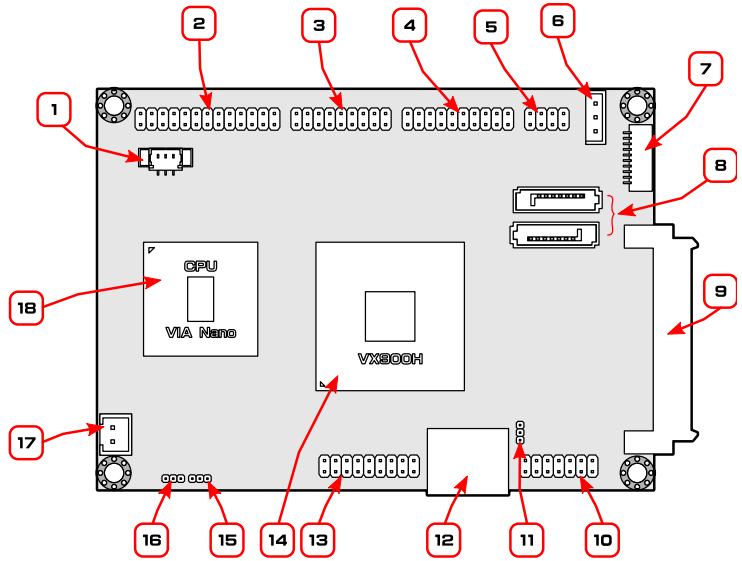
VIA Nano™ NanoBGA2 CPU

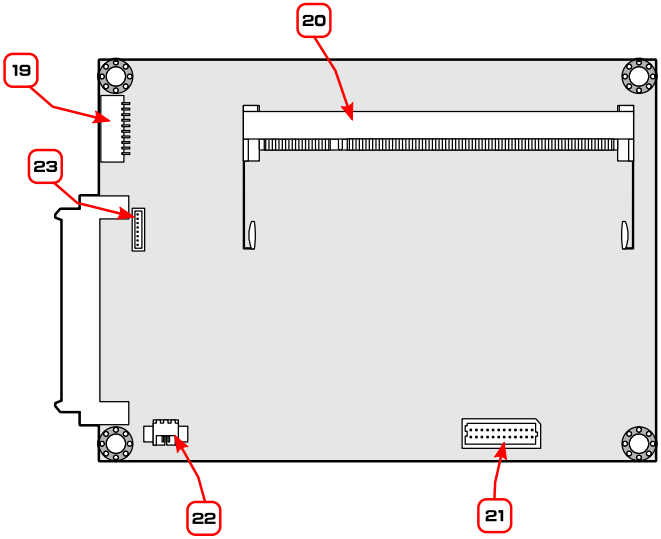
The VIA Nano™ is a 64-bit superscalar processor in x86 platform using a 65 nanometer process technology. It delivers an energy-efficient, powerful performance, with cool and quiet operation all within an ultra compact NanoBGA2 package measuring 21mm x 21mm. Perfectly fit for embedded system applications 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 VX900H System Processor

The VIA VX900H 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.

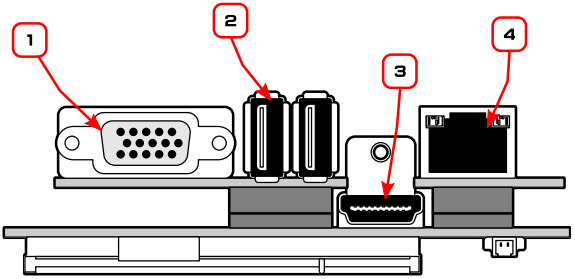
LAYOUT


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
CPU
VIA Nano
VX800H


19
20
21
22
23

Item	Description	Page
1	FAN1: System fan	21
2	CN5: LPC, SMBus, and GPIO combination pin header	18
3	CN4: Front panel and PS2 combination pin header	20
4	CN2: USB, and USB Device combination pin header	15
5	CN1: Front audio pin header	20
6	PWR2: SATA power connector	13
7	J1: UART port 2	17
8	SATA1, SATA2: SATA 3Gb/s connectors	13
9	CN6: PCIe and USB 2.0 combination connector	14
10	CN3: LAN pin header	16
11	JM1: Clear CMOS jumper	26
12	HDMI1: HDMI® port	10
13	VGA_USB1: VGA and USB combination pin header	12
14	VX900H system processor	2
15	JM2 LCD power selector	27
16	JM3: Backlight power selector	27
17	PWR1: DC-in power connector	21
18	VIA Nano™ CPU	2
19	J2: UART port 1	17
20	SODIMM1: DDR3 SODIMM socket	21
21	LVDS1: LVDS connector	11
22	BAT1: CMOS battery connector	19
23	J3: SPI connector	19

LAYOUT (I/O PANEL)



Item	Description	Page
1	VGA1: VGA port (on P830-A)	10
2	USB1, USB2: USB 2.0 ports (on P830-A)	10
3	HDMI1: HDMI® port	10
4	RJ1: Gigabit LAN port (on P830-A)	10

SPECIFICATIONS

Processor	VIA 1.2GHz U3300 Nano processor
Chipset	VIA VX900H Unified Digital Media IGP Chipset
Super I/O	Fintek F81801U-I
Memory	1 x DDR3 1066/800 MHz SODIMM slot (supports a 4 GB module**)
VGA	Integrated VIA Chrome9™ HD 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	- 1 x Single-channel 24-bit LVDS connector - 1 x LVDS inverter - 1 x VGA-USB pin header - 1 x 20-pin USB pin header for 5 additional USB ports - 2 x 1-lane PCIe expansion connector (with one USB support) - 1 x LAN pin header - 1 x Digital I/O pin header (GPI x 4, GPO x 4) - 2 x UART pin headers - 1 x LPC pin header - 1 x SMBUS pin header - 1 x Front audio pin header: Line-out, Line-in, Mic-in - 1 x SPI pin header - 1 x PS2 keyboard/mouse pin header - 1 x Front-panel pin header - 1 x System fan connector - 1 x DC-in power connector (+12V±5%)
Back Panel I/O	- 1 x VGA port (on P830-A) - 1 x HDMI® port - 1 x RJ-45 Gigabit LAN port (on P830-A) - 2 x USB 2.0 ports (on P830-A)
BIOS	AMI BIOS 8Mbit SPI flash ROM
Operating System	Windows 7, Windows CE, Windows XPe, Windows XP and Linux

System Monitoring	- Wake-on-LAN, Keyboard power-on, RTC Timer power-on, Watch Dog Timer - System power management, AC Power failure recovery
Operating environment	0°C ~ 60°C 0% ~ 95% (relative humidity; non-condensing)
Form Factor	12 layer Pico-ITX (10 cm x 7.2 cm)
Compliance	CE/FCC/RoHS/BSMI

Note:
*Specifications are subject to change without notice

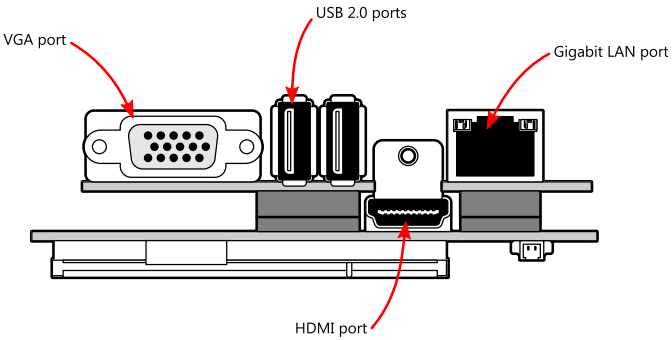
**The actual Max memory capacity that could be recognized under a 64-bit OS will be less than 4GB due to the conflict in the memory space of the MMIO mapping.

2

Onboard I/O

EXTERNAL I/O

The external I/O panel has the following ports:



VGA port

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

HDMI® port

The HDMI® port is for connecting to HDMI® displays.

Gigabit LAN port

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

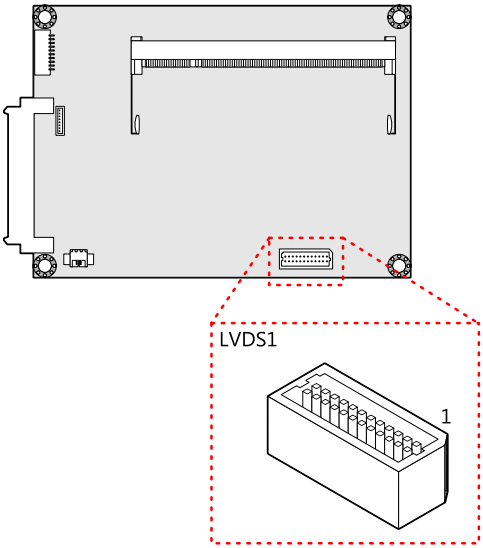
USB ports

Two standard USB 2.0 ports are provided.

ONBOARD CONNECTORS

LVDS panel connector

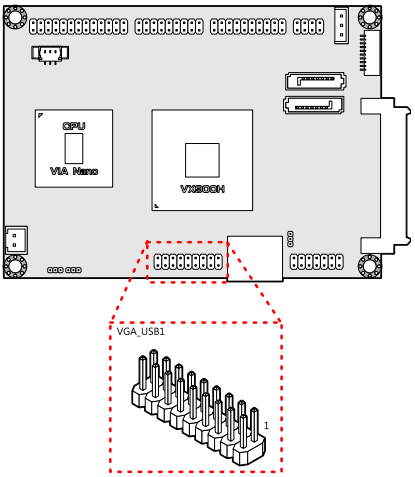
The onboard LVDS panel connector (LVDS1) supports a single-channel 24-bit display. Backlight controls are integrated into the LVDS connector pinout.



Pin	Signal	Pin	Signal
1	LVDSD0–	2	LVDSD1-
3	LVDSD0+	4	LVDSD1+
5	GND	6	GND
7	PVDD2	8	LVDSD2-
9	PVDD2	10	LVDSD2+
11	LCD1_DATA	12	GND
13	LCD1_CLK	14	LVDSCLK+
15	GND	16	LVDSCLK-
17	VDD_BL	18	GND
19	VDD_BL	20	LVDSD3-
21	BLEN_1	22	LVDSD3+
23	BAK_ADJ	24	GND

VGA and USB combination pin header

The VGA and USB combination pin header block (VGA_USB1) is used to connect to the P830-A companion card. The pin header block provides support for one VGA port and two USB 2.0 ports.



Pin	Signal	Pin	Signal
1	REDN	2	+5V
3	GREENN	4	GND
5	BLUEN	6	DDCDATAN
7	GND	8	DDCCLKN
9	VGP_IO	10	VS
11	HS	12	GND
13	+5VSUS	14	GND
15	USBHP5-	16	USBHP4-
17	USBHP5+	18	USBHP4+

SATA connectors

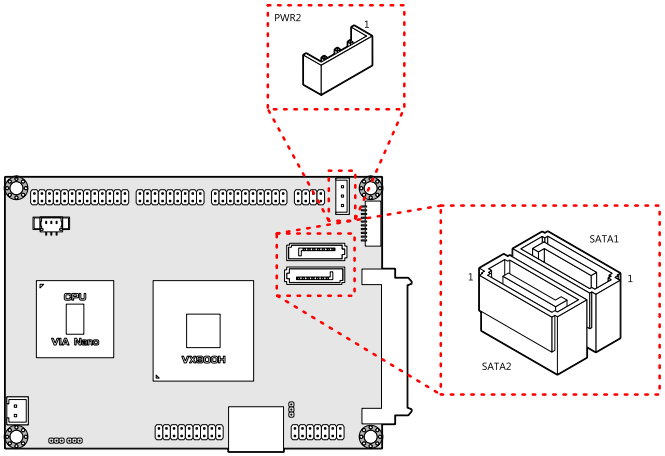
There are two onboard SATA connectors that support data transfer speeds up to 3 Gbps. Both SATA connectors have a 7th pin that can provide +5V power to a SATA Disk-on-Module (DOM). When a regular SATA hard drive is connected, the 7th pin will be a ground pin.

SATA1

Pin	Signal
1	GND
2	STXP_0
3	STXN_0
4	GND
5	SRXN_0
6	SRXP_0
7	+5V/GND

SATA2

Pin	Signal
1	GND
2	STXP_1
3	STXN_1
4	GND
5	SRXN_1
6	SRXP_1
7	+5V/GND



SATA power connector

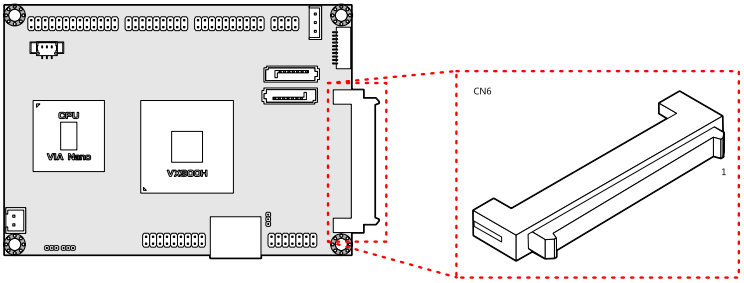
The onboard SATA power connector provides both +5V and +12V directly through the mainboard to the SATA hard drives.

Pin	Signal
1	+5V
2	+12V
3	GND

PCIe and USB combination connector

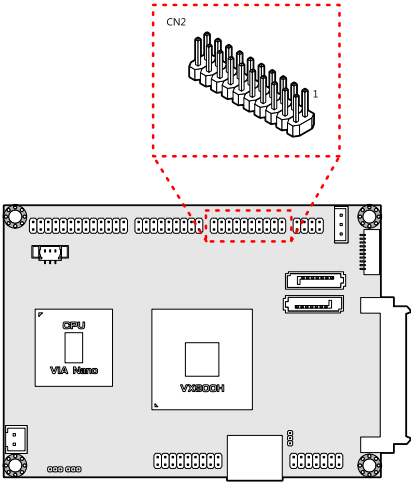
The onboard combination PCI Express and USB connector (CN6) is for connecting directly to the P830-B companion card. Standard PCIe or USB connectors are not supported. The connector pinout supports the equivalent of two PCIe x1 ports and one USB 2.0 port.

Pin	Signal	Pin	Signal
1–25	Reserved	2–26	Reserved
27	GND	28	GND
29	+5V	30	-LID
31	+5V	32	NC
33	+5V	34	GND
35	+3.3V	36	+12V
37	+3.3V	38	+5VSUS
39	GND	40	+5VSUS
41	SMBDT	42	+5VSUS
43	DMBCK	44	-PEX3RST
45	-PEREQ1	46	-PEX2RST
47	-PEXWAKE	48	-PEX1RST
49	GND	50	GND
51	PE3CLK-	52	USBHP7-
53	PE3CLK+	54	USBHP7+
55	GND	56	GND
57	PETN9	58	PEXRX9-
59	PETP9	60	PEXRX9+
61	GND	62	GND
63	PETN8	64	PEXRX8-
65	PETP8	66	PEXRX8+
67	GND	68	GND
69	NC	70	PE2CLK-
71	NC	72	PE2CLK+
73	GND	74	GND
75	NC	76	NC
77	NC	78	NC
79	GND	80	GND



USB and USB Device combination pin header

The onboard USB and USB Device combination pin header block (CN2) enables the addition of five more USB 2.0 ports and one USB device port.

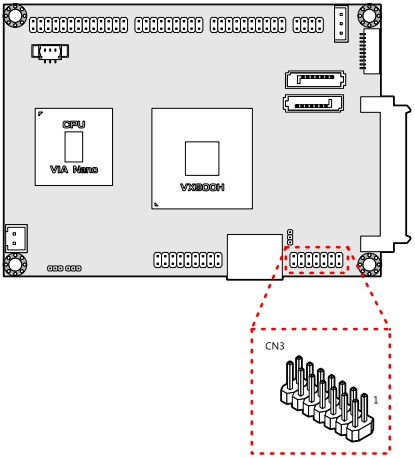


Pin	Signal	Pin	Signal
1	GND	2	GND
3	GND	4	GND
5	USB_VD0+	6	USB_VD6+
7	USB_VD0-	8	USB_VD6-
9	+5VSUS	10	+5VSUS
11	USB_VD1-	12	USB_VD3-
13	USB_VD1+	14	USB_VD3+
15	+5VUSBD	16	+5VSUS
17	USBDP+	18	USB_VD2+
19	USBDP-	20	USB_VD2–

Note:
USB Device port is a reserved feature. Contact sales for specific support.

LAN pin header

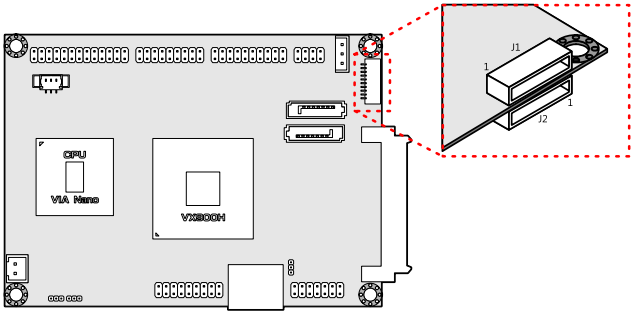
The onboard LAN pin header block (CN3) is used to connect to the P830-A companion card. The pin header block provides support for one RJ45 Gigabit Ethernet port.



Pin	Signal	Pin	Signal
1	VDDTXRX	2	AVDD33
3	TD2-	4	TD3-
5	TD2+	6	TD3+
7	TD0-	8	TD1-
9	TD0+	10	TD1+
11	GMD	12	LED1
13	LED2	14	LNK_ACT

UART connectors

The mainboard includes two UART ports. UART port 1 (J2) is the 12-pin port on the bottom side. UART port 2 (J1) is the 10-pin port on the top side.



UART 2 (J1)

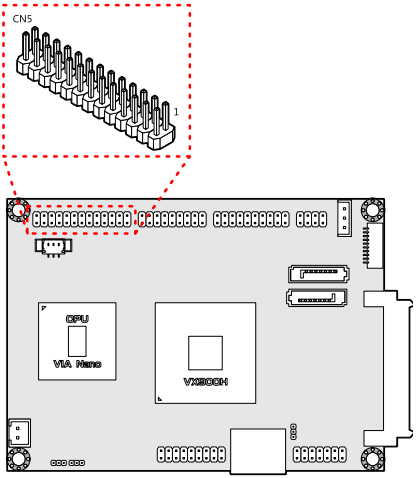
Pin	Signal
1	+5V
2	SIN2
3	SOUT2
4	-DCD2
5	-RI2
6	GND
7	-DTR2
8	CTS2
9	-RTS2
10	-DSR2

UART 1 (J2)

Pin	Signal
1	GND
2	-LPCRST
3	SIO_GPIO16
4	CTS1
5	-RTS2
6	-DSR1
7	-STR1
8	SIN1
9	SOUT1
10	-DCD1
11	-RI1
12	+3.3V

LPC, SMBus, and GPIO combination pin header

The mainboard includes one LPC, SMBus, and GPIO combination pin header block (CN5).

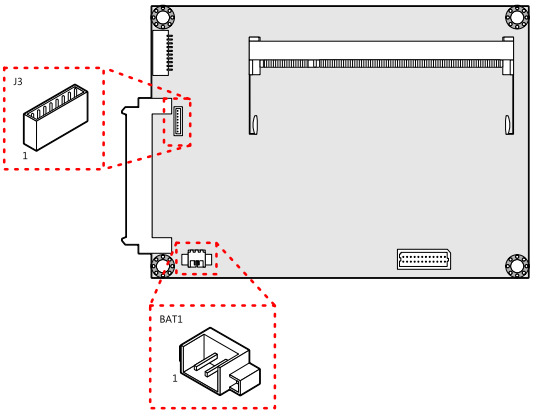


Pin	Signal	Pin	Signal
1	GND	2	LAD3
3	SIO_CLK1	4	LAD2
5	PCICLK2	6	LAD1
7	-LDRQ0	8	-LFRAME
9	SERIRQ	10	LAD0
11	NC	12	-PCIRST
13	SMB_CLK	14	SMB_DAT
15	+5V	16	+3.3V
17	-INTD/GPIO12	18	-RING/GPI8
19	-INTC/GPIO9	20	-THRM/GPI9
21	GPO12	22	-EXTSMI/GPI5
23	GPIO32	24	-BATLOW/GPI4
25	GND	26	GND

SPI connector

The onboard SPI connector (J3) is for updating the SPI flash ROM.

Pin	Signal
1	NC
2	NC
3	MSPIDO
4	MSPIDI
5	MSPICLK
6	MSPISSO
7	GND
8	SPIVCC



CMOS battery connector

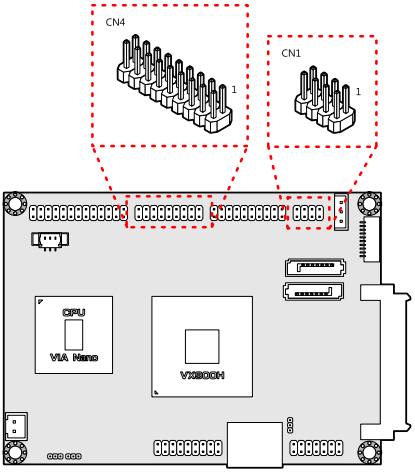
The onboard battery connector (BAT1) provides power to the CMOS RAM. If disconnected all configurations in the CMOS RAM will be reset to factory defaults.

Pin	Signal
1	+VBAT
2	GND

Front panel and PS/2 combination pin header

The mainboard includes one Front Panel and PS/2 combination pin header block (CN4). The PS/2 pin headers support one PS/2 keyboard and one PS/2 mouse.

Pin	Signal	Pin	Signal
1	+5VSUSLED1	2	+5VLED2
3	+5VSUSLED1	4	-HD_LED
5	GND	6	PW_BN-
7	SPEAK_BZ	8	GND
9	GND	10	RST_SW
11	-PWR_LED	12	GND
13	+5VSUS	14	GND
15	KBCK	16	KBDT
17	MSCK	18	MSDT



Front audio pin header

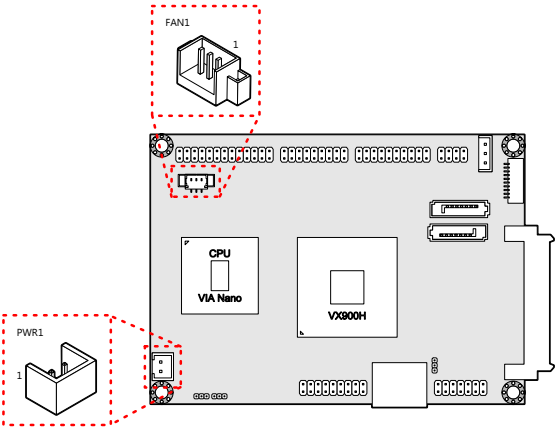
The mainboard has one pin header for connecting to front audio Headphone-out and Mic-in jacks.

Pin	Signal	Pin	Signal
1	LINER	2	GND_AUD
3	LINEL	4	MICINL
5	LINEOUTR	6	MICINR
7	LINEOUTL	8	SENSE A

System fan connector

The System fan (FAN1) runs on +5V and maintains system cooling.

Pin	Signal
1	FANIN1
2	+5V FANCTL
3	GND



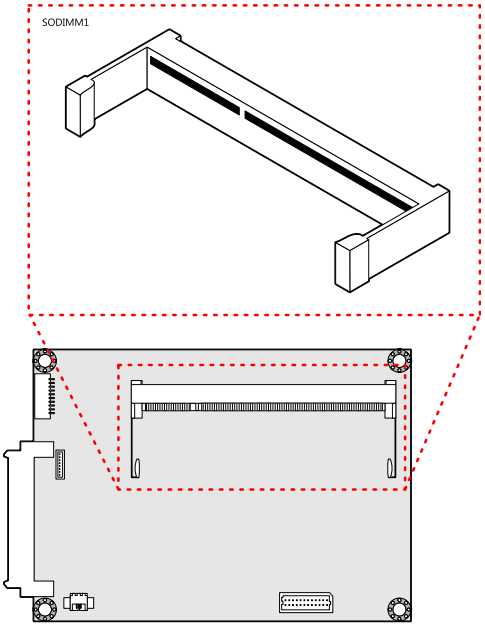
DC-in power connector

The mainboard has an onboard DC-In 2-pin power connector (PWR1) to connect the DC-In power cable.

Pin	Signal
1	DC-in (+12V±5%)
2	GND

SODIMM DDR3 memory slot

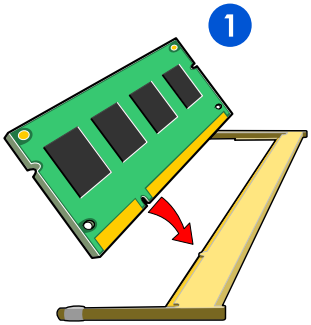
The mainboard has one 204-pin DDR3 SODIMM slot that supports non-ECC DDR3 1066/800 MHz memory modules. It can support memory sizes up to 4 GB.



Installing memory modules

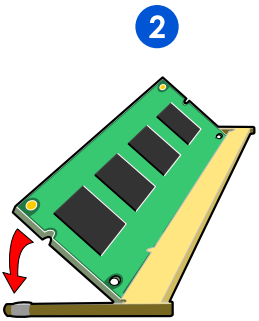
Step 1

Locate the SODIMM slot in the mainboard and align the notch on the SODIMM with the memory slot.



Step 2

Insert the SODIMM module at a 30 degree angle. Then push the SODIMM down until it snaps into the locking mechanism.



3

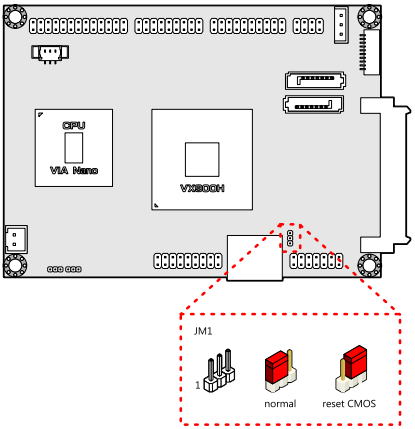
Onboard Jumpers

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 (JM1) 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

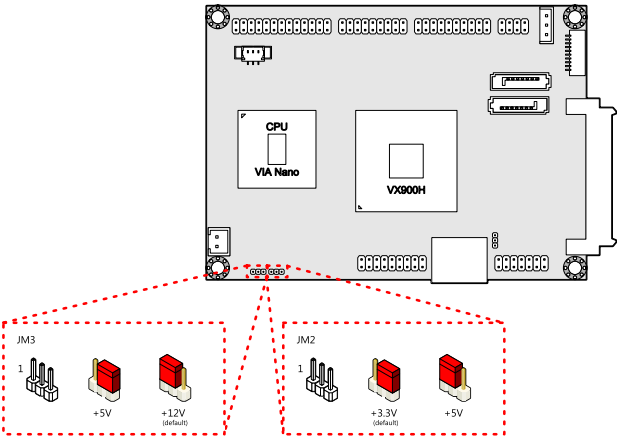
Caution:
Except when clearing the RTC RAM, never remove the cap from the CLEAR_CMOS jumper default position. Removing the cap will cause system boot failure. Avoid clearing the CMOS while the system is on; it will damage the mainboard.



LVDS jumper settings

The LVDS jumper (JM2) determines the input voltage for the LCD connector.

	1	2	3
+5V	ON	ON	OFF
+3.3V (default)	OFF	ON	ON



LCD Backlight Power selector

The backlight jumper (JM3) determines the input voltage for the LCD backlight inverter.

	1	2	3
+12V (default)	ON	ON	OFF
+5V	OFF	ON	ON

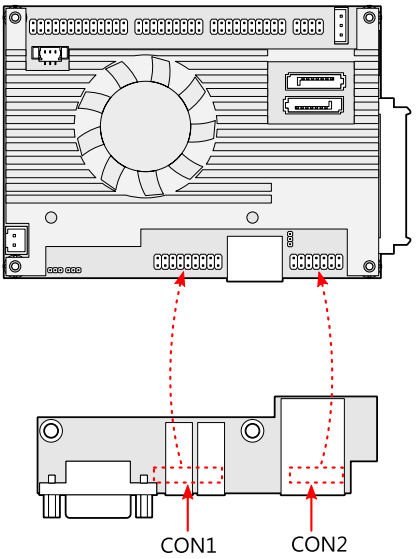
4

Hardware Installation

INSTALLING THE P830-A

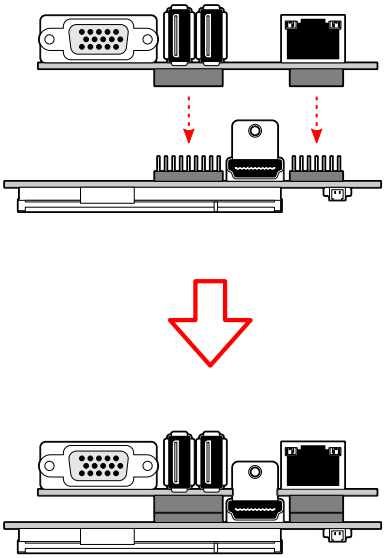
Step 1

Align the CON1 and CON2 connectors on the P830-A with the VGA_USB1 combination pin header block and LAN pin header block on the EPIA-P830, respectively. In the figure below, the dotted rectangles represent the CON1 and CON2 connectors on the bottom side of the P830-A companion card.



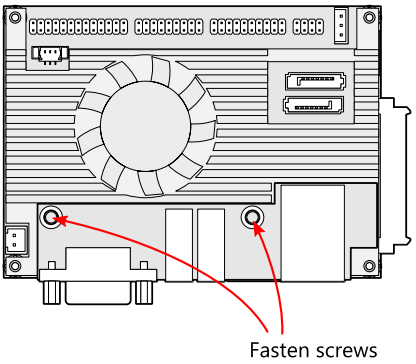
Step 2

Then gently press down until the pins on the EPIA-P830 mainboard have been fully inserted into the CON1 and CON2 connectors of the P830-A companion card.



Step 3

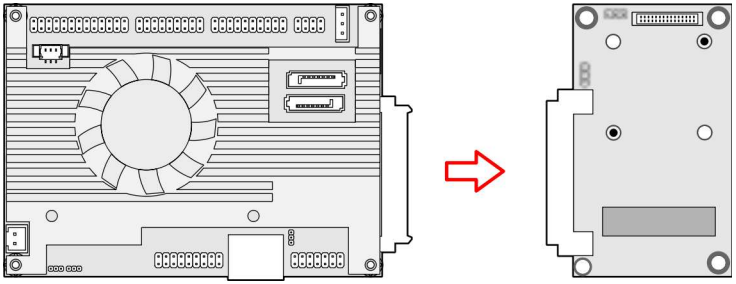
Secure the EPIA-P830-A to the EPIA-P830 with two screws.



INSTALLING THE P830-B

Step 1

Align the CN6 connector on the EPIA-P830 with the CN2 connector on the P830-B. Then gently insert the CN6 connector into the CN2 connector until the CN6 connector is fully inserted.



5

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.

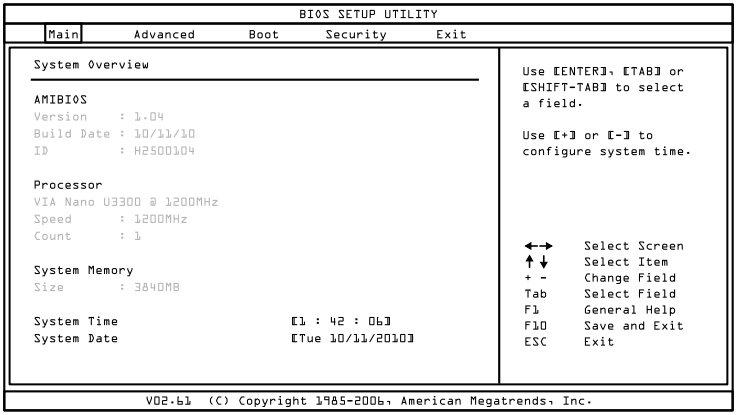
Control Keys

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.

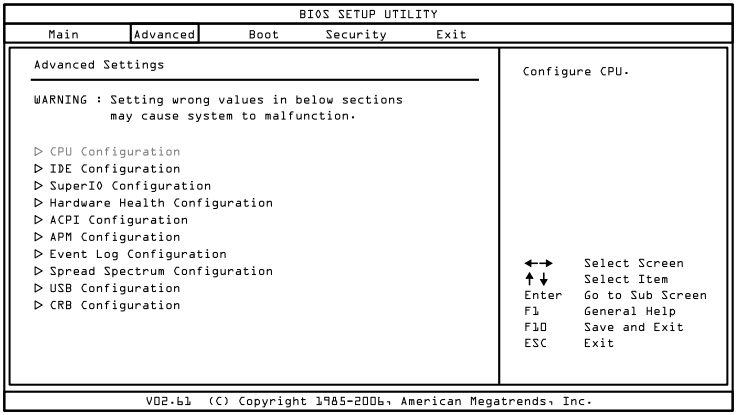
System Time

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].

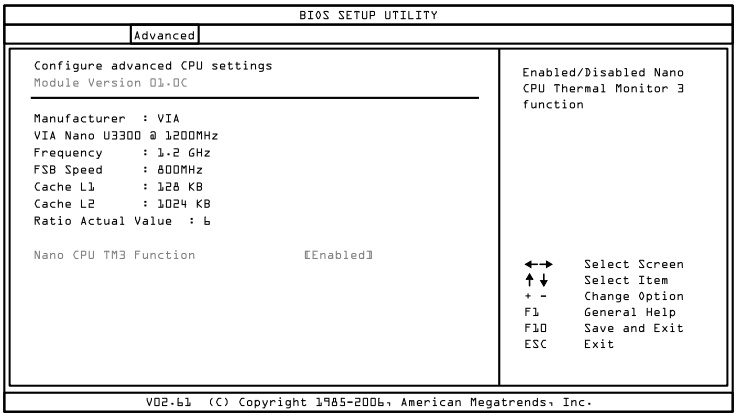
ADVANCED SETTINGS



Available submenus include the following:

- CPU Configuration
- IDE Configuration
- SuperIO Configuration
- Hardware Health Configuration
- ACPI Configuration
- APM Configuration
- Event Log Configuration
- Spread Spectrum Configuration
- USB Configuration
- CRB Configuration

CPU Configuration

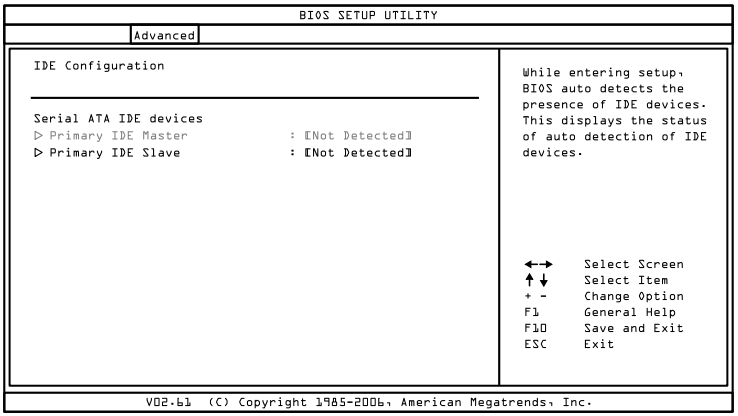


Nano CPU TM3 Control

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

Settings	Description
Disabled	No thermal monitoring
Enabled	Enables Thermal Monitor 3

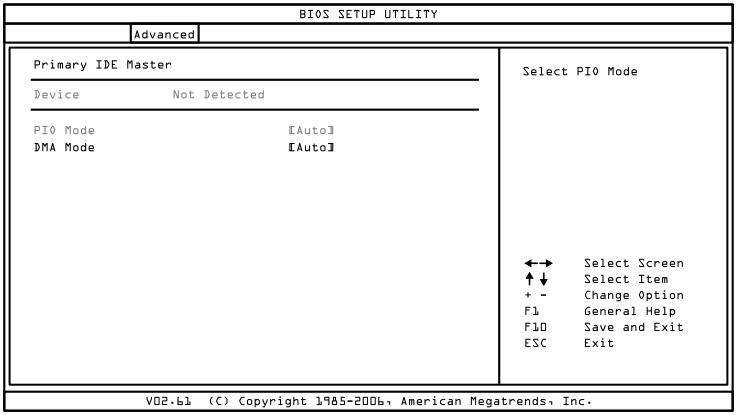
IDE CONFIGURATION



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.

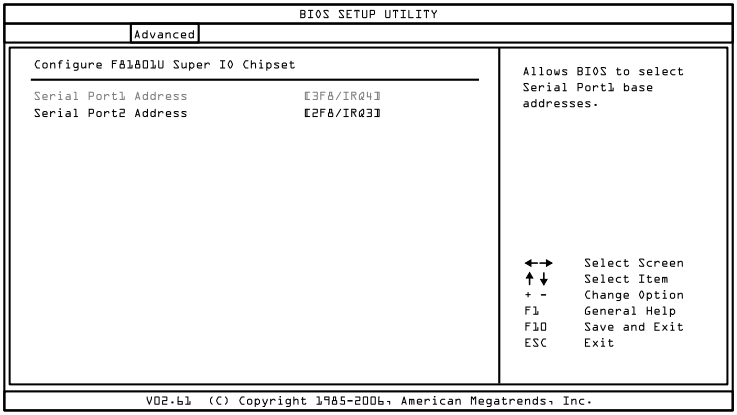
Settings	Description
Auto	The Programmed Input/Output mode is automatically selected.
0	Maximum transfer rate of 3.3 MB/s. Cycle time: 600ns. Defined in ATA specification.
1	Maximum transfer rate of 5.2 MB/s. Cycle time: 383ns. Defined in ATA specification.
2	Maximum transfer rate of 8.3 MB/s. Cycle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

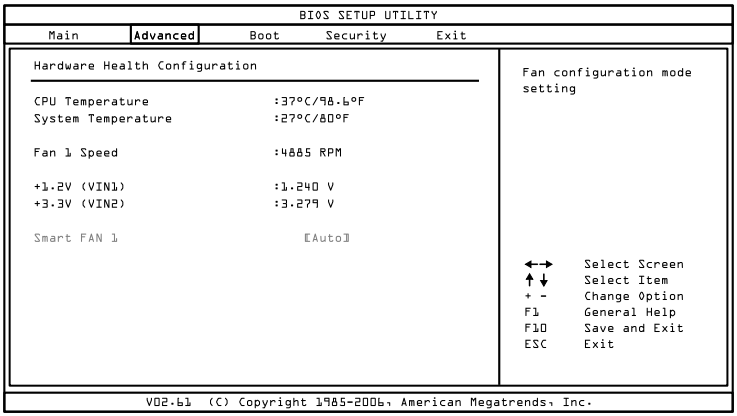


Serial Port Address, IRQ, and Type

The SuperIO configuration menu enables the BIOS to specifically define the resources used for serial ports 1 and 2.

Port	Address/IRQ
1	3F8/IRQ4, 3E8/IRQ4, 2E8/IRQ3, Disabled
2	2F8/IRQ3, 3E8/IRQ4, 2E8/IRQ3, Disabled

HARDWARE HEALTH CONFIGURATION

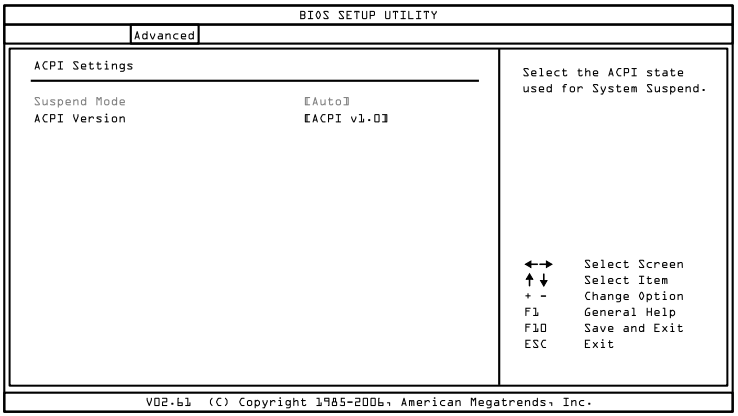


The Hardware Health Configuration displays all monitored information.

Smart FAN 1

Settings	Description
Auto	Fan speed is dynamically adjusted as required to maintain optimal system temperature.
Full Speed	Fan speed is fixed at the maximum RPM of the system fan.

ACPI CONFIGURATION



Suspend Mode

Select the ACPI state used for system suspend.

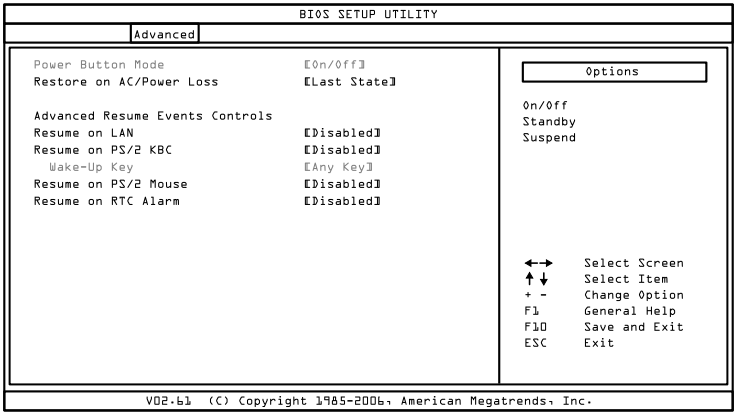
Settings	Description
S1(POS)	S1/Power On Suspend (POS) is a low power state. In this state, no system context (CPU or chipset) is lost and hardware maintains all system contexts
S3(STR)	S3/Suspend To RAM (STR) is a power-down state. In this state, power is supplied only to essential components such as 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 LAN

Settings	Description
Enabled	The system will boot if any power management event is triggered via LAN.
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)

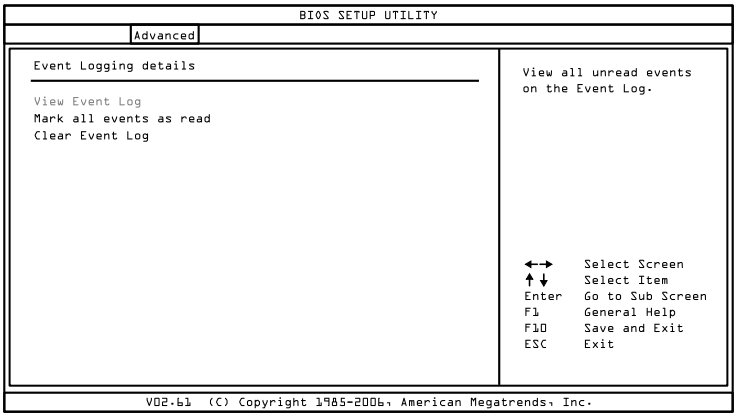
This option enables the user to specify the frequency of the RTC Alarm Date recurrence.

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.

EVENT LOG CONFIGURATION



View Event Log

This option enables users to view messages regarding recorded events. Pressing the **<Enter>** button while this option is selected will open a separate window containing a list of recorded event logs.

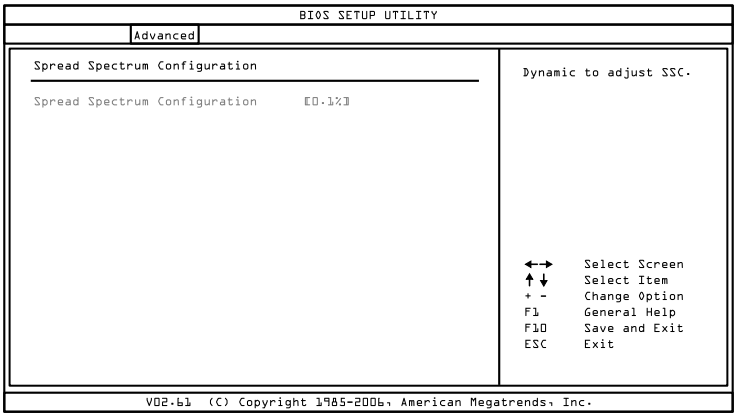
Mark all events as read

This option enables users to quickly flag all event logs as having been read — making it easier to distinguish old event logs from future event logs.

Clear Event Log

This option enables users to completely empty the event log history.

SPREAD SPECTRUM CONFIGURATION

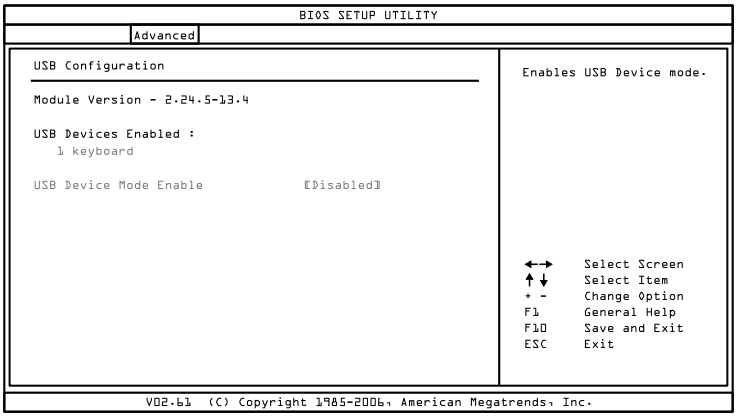


Spread Spectrum Configuration

The Spread Spectrum Configuration feature enables the BIOS to help limit Electromagnetic Interference (EMI) emanating from the system. Higher percentages reduce the EMI. However, higher percentages may result in reduced system stability. If the system is not placed near EMI sensitive electronics, it is recommended to leave this feature disabled.

Settings	Description
0.1 – 0.9%	Increments of 0.1. Higher percentages have a greater effect on reducing EMI.
Disabled	Support for this feature will be unavailable.

USB CONFIGURATION



The USB configuration page detects all connected USB devices.

USB Device Mode Enable

Settings	Description
Enabled	Unlocks the USB device port.
Disabled	Locks the USB device port.

Note:
The USB device port driver must be installed in order for the port to function.

USB Endpoint0 Ctrl Clk

This option is only available if **USB Device Mode Enable** is enabled.

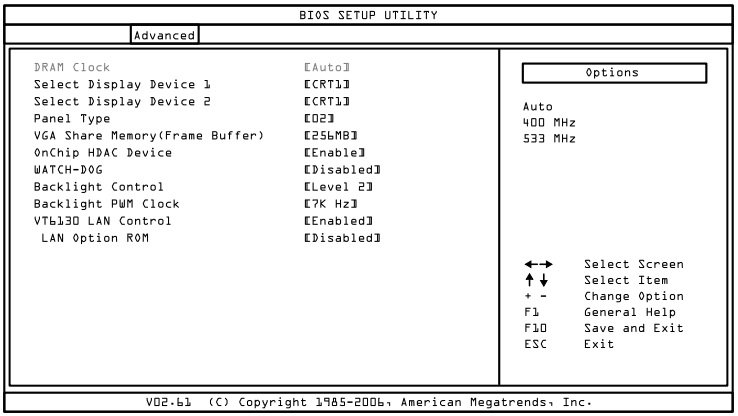
Settings	Description
Enabled	Enable dynamic clock control
Disabled	Disable dynamic clock control

USBD Interface Selection

This option is only available if **USB Device Mode Enable** is enabled.

Settings	Description
Register Out	Select register out CCA interface
Original	Select original CCA interface

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.
LCD1	Specifies the LCD1 port as the display port being used.
HDMI	Specifies the HDMI® port as the display port being used.
EDP	Specifies the EDP port as the display port being used.

Panel Type

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
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.

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.

WATCH-DOG

Settings	Description
Enabled	Enables the Watch-Dog timer.
Disabled	Disables the Watch-Dog timer.

Unit-Select

This option is only available if WATCH-DOG is enabled.

Settings	Description
Minutes	Sets the time increment in minutes
Seconds	Sets the time increment in seconds

Time-Select

This option is only available if **WATCH-DOG** is enabled.

Settings	Description
0	Disable
1–255	Sets the number of units to count. If **Unit-Select** is set to Minutes, the maximum acceptable integer is 17.

Backlight Control

This option sets the brightness control for an LCD device.

Settings	Description
Level 0	Sets the panel backlight brightness to 0%.
Level 1	Sets the panel backlight brightness to 25%.
Level 2	Sets the panel backlight brightness to 50%.
Level 3	Sets the panel backlight brightness to 75%.
Level 4	Sets the panel backlight brightness to 100%.

Backlight PWM Clock

This option is for selecting the clock frequency of the backlight Pulse Width Modulation controls. The clock frequency depends on the LVDS panel being used.

Settings	Description
14K Hz	Sets the panel frequency to 14 kHz.
7K Hz	Sets the panel frequency to 7 kHz.
110 Hz	Sets the panel frequency to 110 Hz.
54.4 Hz	Sets the panel frequency to 54.4 Hz.

VT6130 LAN Control 1

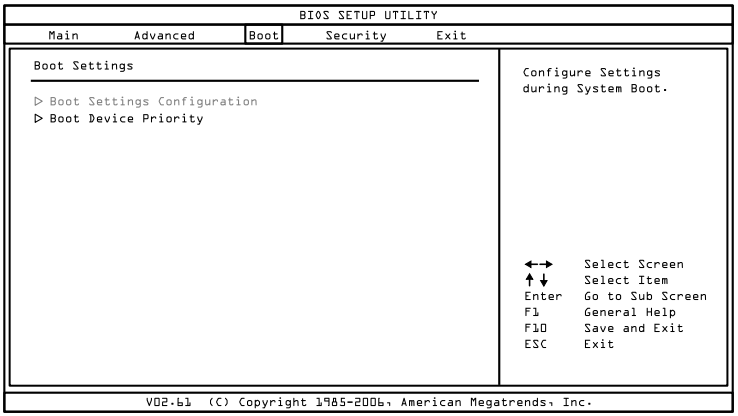
Settings	Description
Enabled	Enable the onboard PCIe GigaLAN controller.
Disabled	Disables the onboard PCIe GigaLAN controller and hides it from the operating system.

LAN Option 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.

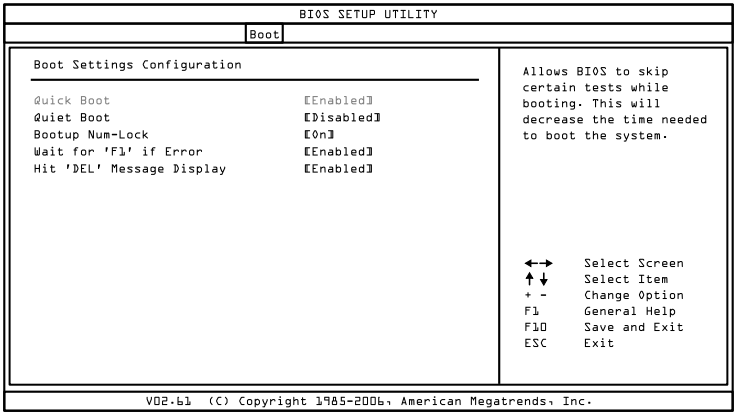
BOOT SETTINGS



The Boot Settings menu has the following submenus:

- Boot Settings Configuration
  Configuration settings during system boot.
- Boot Device Priority

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.

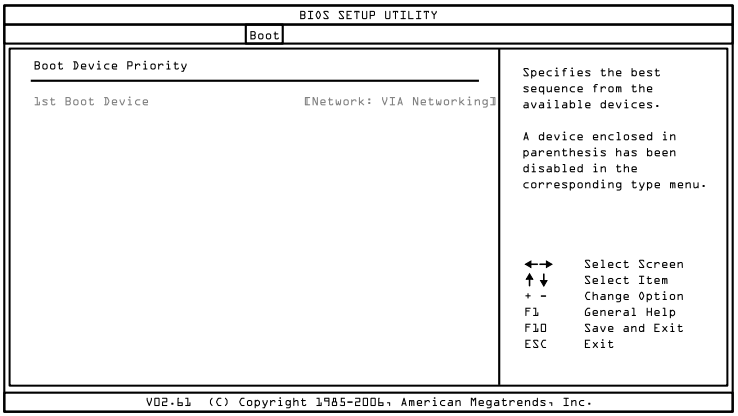
Wait For 'F1' If Error

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

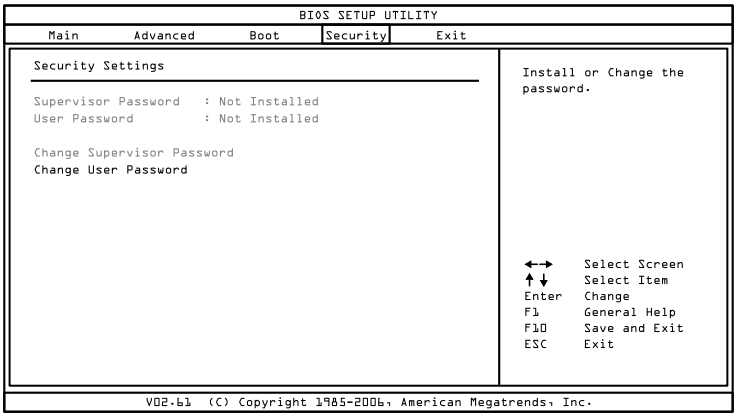
Settings	Description
Enabled	Shows the POST message that informs the user how to enter the BIOS setup menu. However, this message will be hidden if the Display Logo option is enabled.
Disabled	Hides the POST message that informs the user how to enter the BIOS setup menu.

BOOT DEVICE PRIORITY



This menu automatically detects and lists all bootable storage devices. The boot seek sequence can be changed in this 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

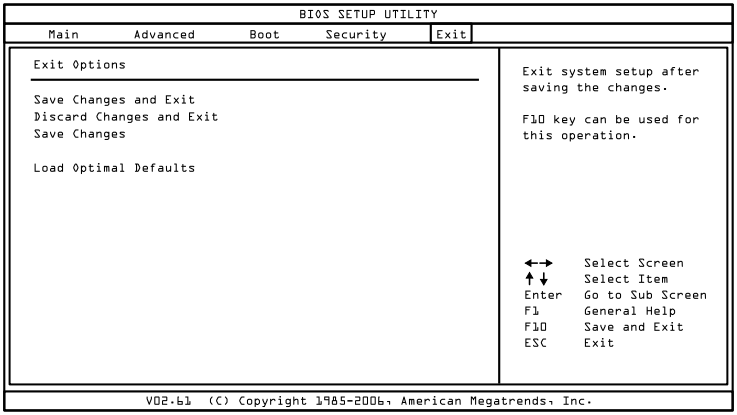
This option is only available when the user accesses the BIOS Setup Utility when the user password has been specified.

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.

6

Driver Installation

Microsoft Driver Support

The VIA EPIA-P830 mainboard is compatible with Microsoft operating systems. The latest Windows drivers can be downloaded from the VEPD website at www.viaembedded.com.

For embedded operating systems, the related drivers can be found in the VIA Embedded website at www.viaembedded.com.

Linux Driver Support

The VIA EPIA- P830 mainboard is highly compatible with many Linux distributions.

Support and drivers are provided through various methods including:

1. Drivers provided by VIA
2. Using a driver built into a distribution package
3. Visiting www.viaembedded.com for the latest updated drivers
4. Installing a third party driver (such as the ALSA driver from the Advanced Linux Sound Architecture project for integrated audio)

For OEM clients and system integrators developing a product for long term production, other code and resources may also be made available. Contact VEPD to submit a request.

A

Appendix

Pin Header and Connector Vendor Lists

Label	Function	Pins	Vendor	Part No.
LVDS1	LVDS	24	ACES	87216-2416-06
SODIMM1	Memory	204	Foxconn	AS0A626-J6RG-7H
SATA1, SATA2	SATA connector	7	Win Win	WATM-07DBN4A2B8UW
FAN1	Fan connector	3	Neltron	1251S-03-SM1-TR-F5
BAT1	Cable battery connector	2	Neltron	1251R-02-SM1-TR-F5
VGA_USB1	VGA and USB combination connector	18	Neltron	2208SM-18G-BK-CP
PWR1	DC-in connector	2	Neltron	2317SJ-02-F4
PWR2	SATA power connector	3	Neltron	2317SEH-03
J1	UART port 2 connector	10	Neltron	1600R-10-SM-TR
J2	UART port 1 connector	12	Neltron	1600R-12-SM-TR
J3	SPI connector	8	Neltron	1600S-08-SM-TR
CN1	Front audio connector	8	Neltron	2208SM-08G-BK-CP
CN2	USB and USB Device port combination connector	20	Neltron	2208SM-20G-BK-CP
CN3	LAN connector	14	Neltron	2208SM-14G-BK-CP
CN4	Front panel and PS/2 combination connector	18	Neltron	2208SM-18G-BK-CP
CN5	LPC, SMBus, and GPIO combination connector	26	Neltron	2208SM-26G-BK-CP
CN6	PCI Express and USB socket combination connector	80	Samtec	ERM8-040-01-L-D-EM2-TR
JM1, JM2, JM3	Jumper	3	Neltron	2199SA-03G-301523

VIA Embedded

Taiwan Headquarters
1F, 531 Zhong-Zheng Road
Xindian District, New Taipei City 231,
Taiwan

TEL: 886.2.2218.5452
FAX: 886.2.2218.5453
Email: embedded@via.com.tw

USA
940 Mission Court
Fremont, CA 94539
USA

TEL: 1.510.683.3300
FAX: 1.510.687.4654
Email: embedded@viatech.com

Europe
In den Dauen 6
53117 Bonn
Germany

TEL: 49.228.688565.0
FAX: 49.228.688565.19
Email: embedded@via-tech.de

China
Tsinghua Science Park Bldg. 7
No. 1 Zongguancun East Road
Haiden District, Beijing 100084

TEL: 86.10.59852288
FAX: 86.10.59852299
Email: embedded@viatech.com.cn

Japan
3-15-7 Ebisu MT Bldg. 6F
Higashi, Shibuya-ku
Tokyo 150-0011

TEL: 81.3.5466.1637
FAX: 81.3.5466.1638
Email: embedded@viatech.co.jp

Korea
2F, Sangjin Bldg., 417
Dogok-Dong, Gangnam-Gu
Seoul 135-854

TEL: 82.2.571.2986
FAX: 82.2.571.2987
Email: embedded@via-korea.com