VIA Embedded

user manual

VIPRO VP7806

Fanless Panel PC with
6.5" TFT LCD and Touch Screen

Copyright and Trademarks

Disclaimer

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

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

Don'ts

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

Box Contents and Ordering Information

Model Number	Description
VIPRO VP7806-R1N13A1	Standard kit

☐ 1 x VIPRO VP7806 unit
☐ 2 x Wall-mount bracket
☐ 2 x Panel-mount bracket
☐ 1 x package of panel/wall mounting screw
☐ 1 x 0.5cc Thermally Conductive Dispensable Gel in tube syringe
☐ 1 x Power cable, 2-pole Phoenix plug to DC-Jack

Optional Accessories

External AC-to-DC Adapter and Power Cable

Model Number	Description
99G63-020186	AC-to-DC adapter, DC 19V/90W with 2-pole Phoenix power plug
99G33-02058C	Power cable, 180 cm, USA type
99G33-02057C	Power cable, 180 cm, Europe type
99G33-02092C	Power cable, 180 cm, Japan Type

TABLE OF CONTENTS

1

Product Overview

The VIPRO VP7806 Fanless Panel PC is an embedded panel computer with a 6.5" TFT LCD and Five-Wire Resistive Touch Screen. It has a default 2.0 megapixel camera, stereo speakers, and MIC-in that makes it good for multimedia applications. Its LCD offers wide viewing angles; high contrast and high brightness which can operate up to 700 nits (cd/m²) of brightness. The VIPRO VP7806 also comes with robust housing design that withstands shock and vibration. Its IP65 compliant front panel protects against water and dust.

The VIPRO VP7806 accepts a wide range of DC power input voltages (from DC 7V – 36V). It provides multiple external I/O connectors such as Gigabit Ethernet ports, USB 2.0 ports, configurable COM ports, LVDS port and VGA port. Storage can be integrated into its 2.5-inch internal HDD drive bay and external Compact Flash socket. It also includes a variety of mounting options that make it a flexible system to install.

The VIPRO VP7806 system is based on the Em-ITX mainboard form factor and powered by a VIA Nano 1.3 GHz processor — making it an ideal solution for applications that require low power consumption, and fanless, noise-free operation.

These features make the VIPRO VP7806 Fanless Panel PC suitable for a wide variety of embedded, multimedia, and industrial HMI (Human Machine Interface) applications including factory automation systems, precision machinery, production process control, terminal information systems, entertainment management systems, and car park automation systems...etc. The VIPRO VP7806 is a reliable, cost-effective solution that can shorten your application development time.

KEY FEATURES

Fanless and Ultra Low Power Consumption
- ➢ VIA Nano 1.3 GHz Ultra Low Power processor.
- ➢ Noise free and fanless operation.

Compact and Robust Housing Design
- ➢ Aluminum sealed construction.
- ➢ Special cushioned hard disk bay design that absorbs vibration to ensure maximum reliability under harsh conditions.

Multiple I/O Integration and Networking Function
- ➢ Supports four USB 2.0 ports, enabling access to USB peripherals such as storage subsystems, security ID devices, card readers, bar code scanners, multifunction printers and scanners individually dedicated or shared among users via the network, making the best of USB device investments.
- ➢ The VP7806 has two Gigabit Ethernet, and four serial ports (two RS-232 and two RS-232/422/485 serial ports) that enable communication and control at field level for measurement and operator control of diverse automations, such as Embedded Device Servers for storage, image printing, medical applications, as well as security and access control for POI/POS/Kiosk.

Water and Dust Resistant Front Panel
- ➢ IP65 compliant front panel protects against water and dust.

Empowered Multimedia Capabilities
- ➢ Built-in 3D/2D performance graphics engine with MPEG-2 and WMV9 decoding accelerator.

Wide Range of Power Source
- ➢ Wide range of DC 7V~36V power source offers flexibility of power input for various automation environments.

Panel/Wall Mountable
- ➢ Multiple mounting options make it easy to install anywhere, including Panel mount and Wall mount.

SPECIFICATIONS

Processor Core Logic System

CPU
- VIA Nano 1.3 GHz Processor
  - NanoBGA2 package: compact 21 mm x 21 mm
  - 800 MHz Front Side Bus speed
  - 1 MB L2 Cache memory

System Chipset
- VIA VX800 Unified Digital Media IGP chipset

BIOS
- Award BIOS
- 8Mbit SPI Flash BIOS
- Supports Diskless Boot to BIOS ROM (Free DOS operating system environment)

System Power Management
- Times Power On
- ACPI Supported

System Memory

Technology
- One 200-pin SODIMM socket support DDR2 533/667 SDRAM

Maximum Capacity
- Supports memory sizes up to 2 GB

Graphic

Controller
- Integrated VIA C-9 HC3 DX9 3D/2D graphics engine with MPEG-2 and WMV9 video decoding acceleration built-in VIA VX800 Unified Digital Media IGP chipset

Display Memory
- Optimized shared memory architecture, supports up to 256 MB frame buffer using system memory

External Display Interface
- Supports one external VGA port by a DB-9 connector
- Supports one 24-bit single-channel LVDS interface by a DB-26 connectors

LCD Display

LCD Type
- 6.5" color TFT LCD panel, LED driving

Resolution/Color
- Supports up to 640 x 480 @ 262K

Pixel Pitch

- 0.207 mm x 0.207 mm

Viewing Angle

- 80˚ (right), 80˚ (left), 70˚ (up) and 70˚ (down)

Luminance:

- 700 cd/m²

LED Backlight MTBF

- 50,000 hours (typical)

Touch Screen

Type
- Fire-Wire Analog resistive

Transparency
- 80% ± 3%

Controller:
- Built-in system a EETI ETP-CP-S5XU, USB interface controller

Software Driver:
- Supports Windows XP and Windows 7

Durabuility (Knock Test):
- 35 million

Gigabit Ethernet

Controller
- Two VIA VT6130 Gigabit Ethernet controllers

Interface
- Support two RJ45 connectors
- Supports Wake On LAN (WOL)
- Supports Preboot Execution Environment (PXE)

Audio

Controller
- VIA VT1708B High Definition Audio Codec

External Speakers
- Supports left and right speakers on front bezel

External Microphone
- Supports microphone on front bezel

Serial

Interface
- Supports four USB 2.0 ports
    - USB 2.0 compliant
- Support 4 COM ports
    - Two RS-232/422/485 configurable via BIOS setup
    - Two RS-232

Storage

Serial ATA HDD
- Supports a hard disk drive bay space for 2.5-inch of SATA Hard Disk Drive.

CompactFlash
- One socket support type I/II CompactFlash disk

System Indicator

Power Status LED
- One green color LED

HDD Activity LED
- One red color LED

Camera

Built-in a 2.0 megapixel CMOS camera on the front bezel

Watchdog Timer

Output
- System reset

Interval
- Programmable 1~255 sec.

System I/O ports

Top I/O Coastline on PC Unit
- One DB-9 connector for a VGA/CRT interface
- One DB-26 connectors for a 24-bit single channel LVDS interface (LVDS2)
- Two RJ-45 connectors for dual Gigabit Ethernet connection (LAN1 and LAN2)
- Two USB mini-DIN connectors (USB3 and USB4)

Bottom I/O Coastline on PC Unit
- One HDD and PWR LED
- Two RS-232/422/485 COM port connectors (COM 1 and COM2)
- Two RS-232 COM port connectors (COM3 and COM4)
- Two USB mini-DIN connectors (USB1 and USB2)
- One Phoenix 2-pole power input connector
- One ATX power On/Off switch button

Power Supply

Input Voltage
- Built-in onboard DC-to-DC converter
- Accept wide range of Power Input of 7VDC ~ 36VDC
- Typical Power Input
  - $7\ V_{DC}$ @ 2.64 A
  - $12\ V_{DC}$ @ 1.54 A
  - $16\ V_{DC}$ @ 1.15 A
  - $19\ V_{DC}$ @ 0.97 A
  - $24\ V_{DC}$ @ 0.77 A
  - $36\ V_{DC}$ @ 0.51 A
- Support AT and ATX mode

Input Power Protection
- Supports over voltage protection
- Supports over current protection
- Supports under voltage protection

Mechanical Characteristics

Construction
- Aluminum mixed with heavy-duty steel

Mounting
- Panel/wall mountable

Dimension (W x H x D)
- 203 mm x 165 mm x 78.42 mm (7.9" x 6.5" x 3")

Net Weight
- 3 kg (6.6 lbs)

Environment Specifications

Operating Temperature
- With CompactFlash disk only: -20°C up to 60 °C
- With 2.5-inch hard disk drive: 0°C up to 45 °C

Storage Temperature
- -20°C up to 70 °C

Relative Humidity
- 0% ~ 90% @ 45% °C, non-condensing

Vibration loading during operation
- With CompactFlash disk only:
  5Grms, IEC 60068-2-64, random,
  5~500Hz, 1 Oct./min, 1hr/axis

- With 2.5-inch hard disk drive:
  1Grms, IEC 60068-2-64, random
  5 ~ 500Hz, 1 Oct./min, 1hr/axis

Shock during operation
- With CompactFlash disk only: 50G, IEC 60068-2-27, half sine, 11ms duration
- With 2.5-inch hard disk drive: 20G, IEC 60068-2-27, half sine, 11ms duration

Front Panel Protection
- IP65 compliant

EMC Approved
- CE/FCC Class A

Safety Approved
- UL, CCC

Software Compatibility

Operating System
- Windows XP, Windows 7 and Windows XP Embedded
- Ubuntu Linux

VIPRO VP7806 DIMENSIONS

Front View

208 mm

132.98 mm

99.86 mm

165 mm

Back View

100 mm

100 mm

Right and Left View

78.5 mm

27.5 mm

123.5 mm
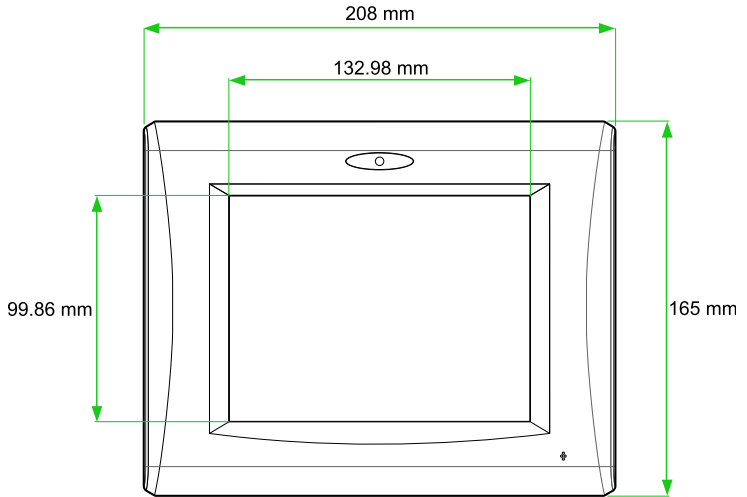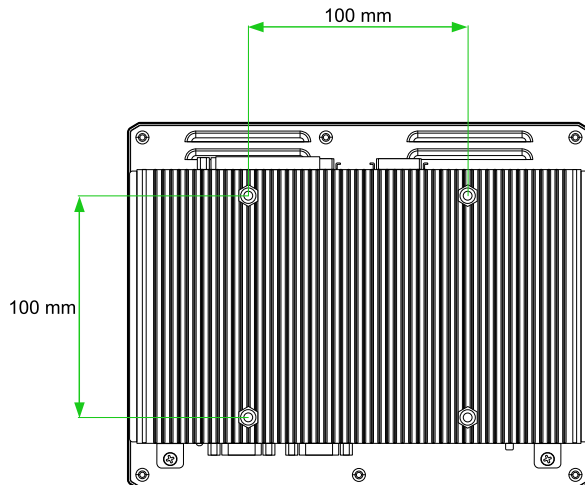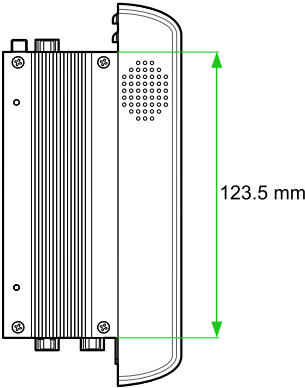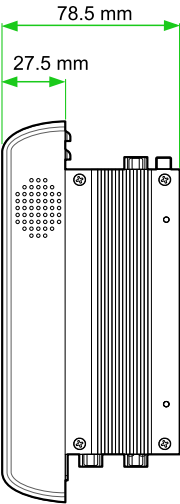
ACCESSORIES

Power cable 2-pole Phoenix
Part # 99G33-250073
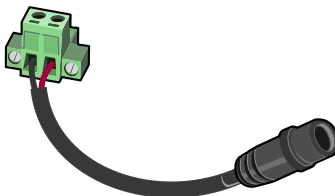
Panel-mount Brackets
Part # 99G42-091536-A1
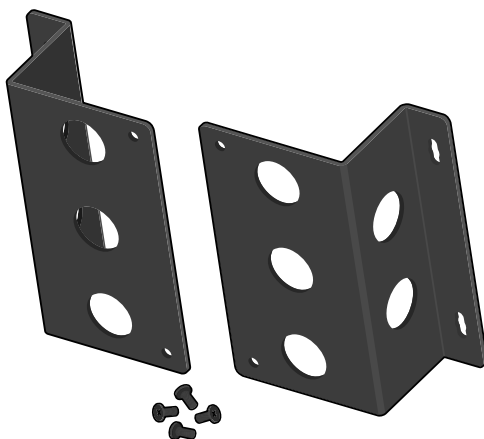
Wall-mount Brackets
Part # 99G42-091376-A1
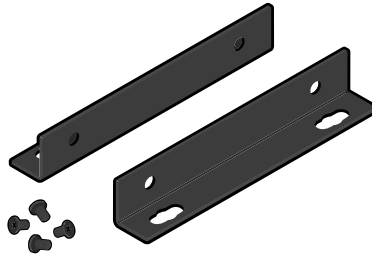
Panel/Wall-mounting Screws
Part # 99G44-010395

Heatsink Grease
Part # 99G26-110022
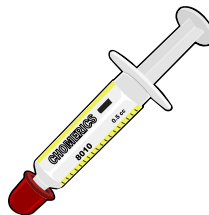
2

VIPRO VP7806 Hardware Functionality

This chapter provides information about the VIPRO VP7806's external I/O connectors, switches, LED indicators and its functionality.

Section includes:

Introduction of I/O Layout
I/O Connectors Functionality

INTRODUCTION OF I/O LAYOUT

Front View Layout

2 Mega Pixels Camera

Microphone

Top View Layout

LVDS port 2

USB 2.0 port 4

USB 2.0 port 3

VGA port

GigaLAN port 1

Compact Flash slot

GigaLAN port 1

Bottom View Layout

USB 2.0 port 1

Power input connector

COM4 port
(RS-232)

COM3 port
(RS-232)

Power button

HDD LED

Power LED

COM1 port
(RS-232/422/485)

COM2 port
(RS-232/422/485)

USB 2.0 port 2
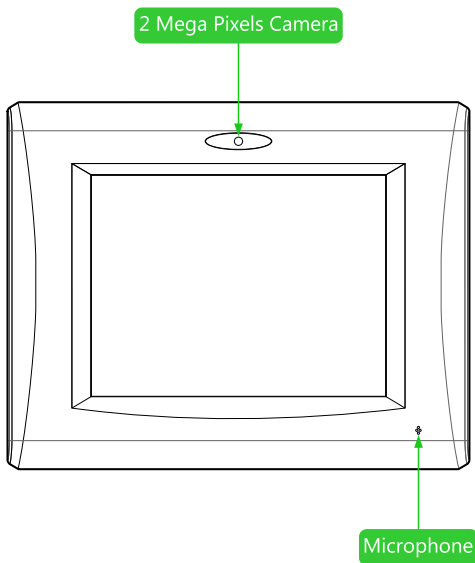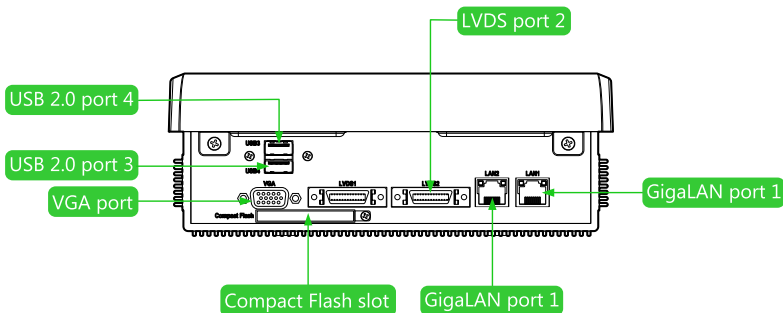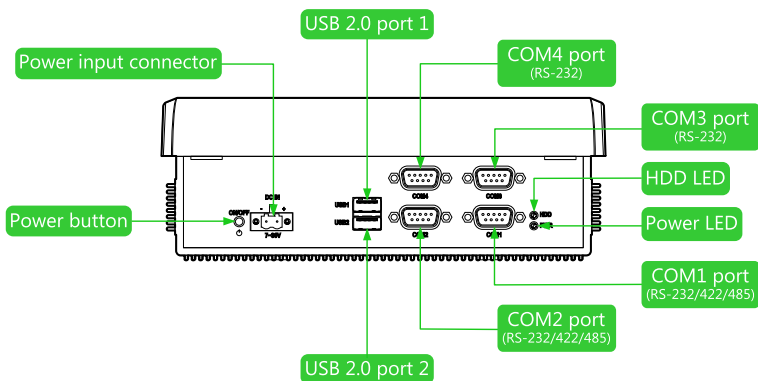
Right and Left View Layout

Right Speaker

Left Speaker
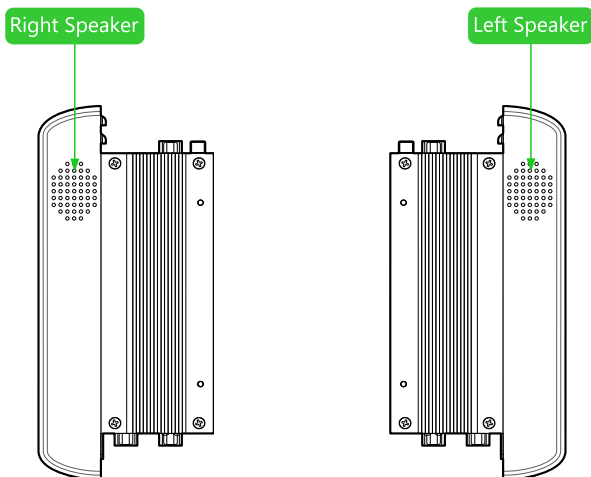
I/O CONNECTOR FUNCTIONALITY

Power Button

The VIPRO VP7806 comes with a dual function Power On/Off button on the bottom I/O side that supports Soft Power -On/Off (i.e., Instant off or 4-Second Delay) and Suspend.

Power Input Connector

The VIPRO VP7806 comes with a Phoenix connector on the bottom I/O side that carries 7 ~ 36VDC external power input.

Pin	Signal
1	GND
2	7VDC ~ 36VDC
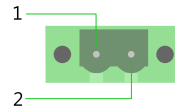
USB Ports: USB Port 1 ~ Port 4

The VIPRO VP7806 provides four USB 2.0 interface connectors (USB1 ~ USB4). The USB1 and USB2 connectors are located on bottom I/O side while USB3 and USB4 are located on top I/O side. Each USB port supports Plug & Play and hot swapping for external devices. The USB interface complies with USB UHCI, Rev. 2.0.

The USB-interface connector is used for connecting any device that conforms to the USB interface. Many recent digital devices conform to this standard. The USB interface supports Plug and Play, which enables you to connect or disconnect a device whenever you want, without turning off the computer

Pin	Signal
1	VCC
2	USB_P0-
3	USB_P0+
4	GND
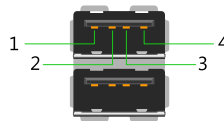
COM Port Connectors

The VIPRO VP7806 provides four D-Sub 9-pin connectors: COM1, COM2, COM3 and COM4.
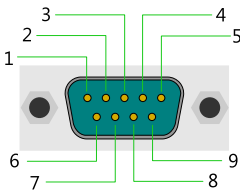
COM1 and COM2 ports

The VIPRO VP7806 provides two D-Sub 9-pin connectors (COM1 and COM2) for RS-232/422/485 serial communications on bottom I/O side.

	RS-232	RS-422	RS-485
Pin	Signal	Signal	Signal
1	DCD	Tx-	DATA-
2	RxD	Tx+	DATA+
3	TxD	Rx+	NC
4	DTR	Rx-	NC
5	GND	GND	GND
6	DSR	NC	NC
7	RTS	NC	NC
8	CTS	NC	NC
9	RI	NC	NC

The default setting of COM1 and COM2 is RS-232, both COM1 and COM2 can be configured to operate in RS-232, RS-422 or RS-485 mode by changing the settings in the BIOS setup menu. See page 65 for details.

Note:
NC represents "No Connection"

COM3 and COM4 ports

The VIPRO VP7806 provides two D-Sub 9-pin connectors on the bottom I/O side, which offers standard RS-232 serial communications interface.

Refer to the table list below for the pin assignments of COM3 and COM4.

Pin	Signal
1	DCD
2	RxD
3	TxD
4	DTR
5	GND
6	DSR
7	RTS
8	CTS
9	RI

LED Indicators

There are two LEDs on the VIPRO VP7806 bottom I/O side for indicating system status:

- **PWR LED** is for power status and flashes in green
- **HDD LED** is for hard disk and compact flash disk status, and flashes in red.

VGA Connector

The VIPRO VP7806 provides a high resolution VGA interface on the top I/O side through a D-sub 15-pin connector to support a VGA CRT monitor. It supports resolutions up to 1920 x 1200. The pin assignments for the VGA display are listed below.

Pin	Signal
1	Red
2	Green
3	Blue
4	NC
5	GND
6	GND
7	GND
8	GND
9	NC
10	GND
11	NC
12	NC
13	H-SYNC
14	V-SYNC
15	NC
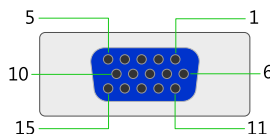
LVDS Connector: LVDS2

The VIPRO VP7806 supports one external 24-bit single channel LVDS interface connector using D-Sub 26-pin connector on top I/O side. The connector also carries the inverter control signals.
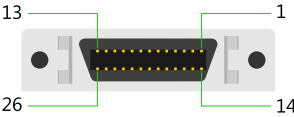
Built in LCD Backlight On/Off and Brightness control signals

LVDS2 connector includes the following control signals: BLON, and BRIGHTNESS_CTL. In addition +12V, +5V and Ground Pin signals are also included, allowing developers and applications to connect these signals to the LCD Inverter to implement the LCD backlight On/Off control and brightness control.

- Provides the "BLON" signal that the inverter module requires for controlling the Backlight On/Off feature.
- Provides 12V and 5V as the Inverter Power Source.
- Provides the "BRIGHTNESS_CTL" signal pin that can be connected to LCD's Inverter that allow applicant to implement brightness adjustment through customer's software utility.

LVDS2

Pin	Signal	Pin	Signal
1	+LCLK2	14	GND
2	-LCLK2	15	+LD2C3
3	GND	16	-LD2C3
4	+LD2C2	17	GND
5	-LD2C2	18	GND
6	GND	19	+LD2C1
7	+LD2C0	20	-LD2C1
8	-LD2C0	21	GND
9	SPCLK2	22	SPD2
10	PVDD2	23	PVDD2
11	IVDD2_12V	24	IVDD2_12V
12	BLON2	25	BRIGHTNESS_CTL2
13	IVDD2_5V	26	IVDD2_5V

Onboard LCD signal power 3.3V/5V switch

The system also provides jumper header (PVDD2_SEL) onboard for selecting the LCD signal power of 3.3V or 5V for LVDS2. The default setting of PVDD2 is 3.3V.

LAN ports: Gigabit Ethernet Port 1 and 2

The VIPRO VP7806 system is equipped with two VIA VT6130 PCIe Gigabit Ethernet controllers on the mainboard. The controllers provide support for two Gigabit Ethernet RJ-45 ports (LAN1 and LAN2) on top I/O side. Both are fully compliant with IEEE 802.3 (10BASE-T), 802.3u (100BASE-TX), and 802.3ab (1000BASE-T) standards. The pin assignments of LAN1 and LAN2 ports are listed below.

8 ——————— 1

LAN1

Pin	Signal
1	LAN1_TD0+
2	LAN1_TD0-
3	LAN1_TD1+
4	LAN1_TD1-
5	LAN1_TD2+
6	LAN1_TD2-
7	LAN1_TD3+
8	LAN1_TD3-

LAN2

Pin	Signal
1	LAN2_TD0+
2	LAN2_TD0-
3	LAN2_TD1+
4	LAN2_TD1-
5	LAN2_TD2+
6	LAN2_TD3-
7	LAN2_TD3+
8	LAN2_TD3-

Both LAN1 and LAN2 are equipped with 2 individual LED indicators to show its Active/Link status and Speed status.

LAN LED Status

	Link LED (Left LED on RJ-45 connector)	Active LED (Right LED on RJ-45 connector)
Active	The LED always On in different color, and it depends on different of LAN connection speed	Flash in Orange color
Link	The LED always On in different color, and it depends on different of LAN connection speed	LED is off
Speed_10Mbit	The LED is always On in Orange color	Flash in Orange color
Speed_100 Mbit	The LED is always On in Green color	Flash in Orange color
Speed_1000 Mbit	The LED is always On in Red color	Flash in Orange color

3

Hardware Installation and Upgrade

This chapter provides information about hardware installation procedures. It is recommended to use a grounded wrist strap before handling computer components. Electrostatic discharge (ESD) can damage some components.

Section includes:

Basic Installation
Setting Up the Jumpers

BASIC INSTALLATION

Opening the Chassis

Step 1
Remove the two screws from the top I/O side.
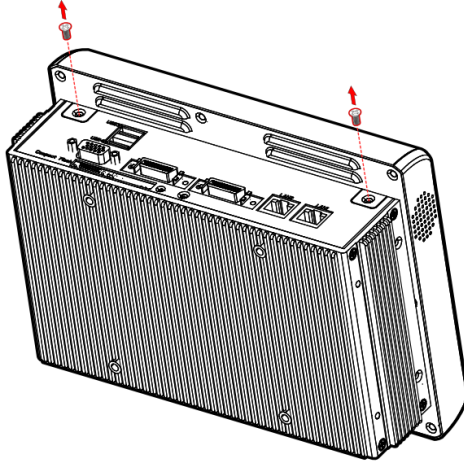
Step 2
Then remove the two screws from the bottom I/O side.
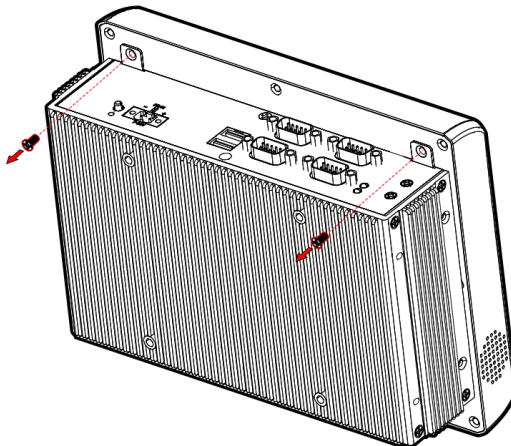
Step 3
Slide the panel upward until the display panel is released from locking mechanism.
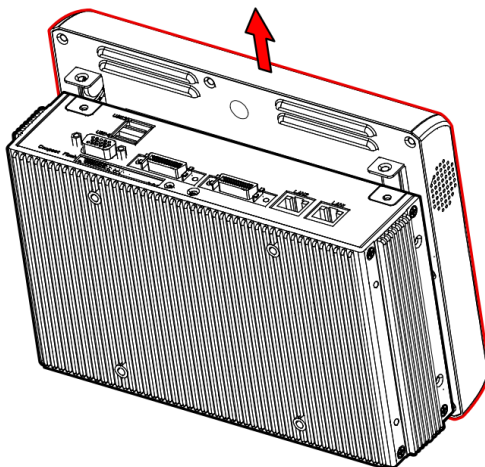
Step 4
Lift the display panel a little bit perpendicularly from the main body of VIPRO 7806.
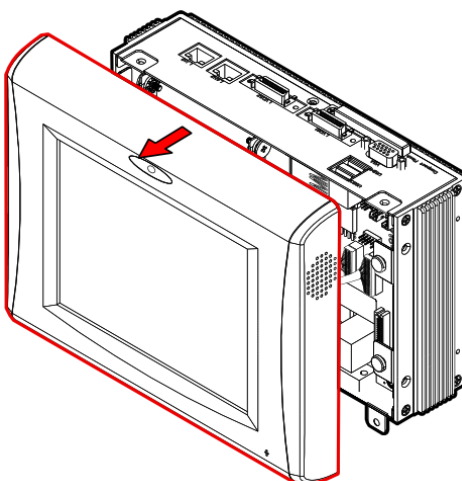
Step 5

Then disconnect connector A and connector B cables from the connectors on the main body of the VIPRO 7806 as show in the figure below.
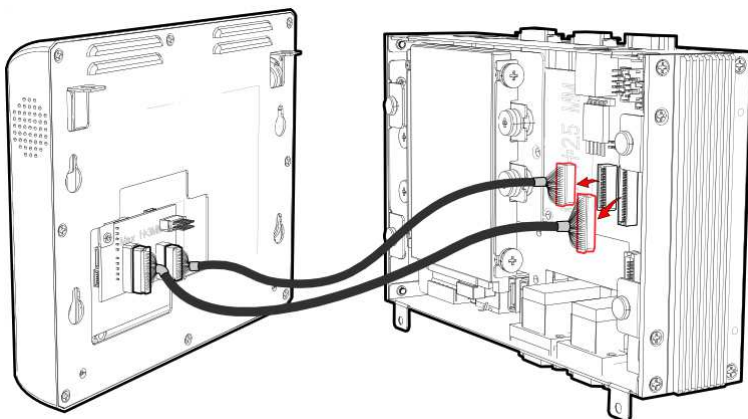
Note:
You can disconnect the connectors either from the main body or from back of the panel.

Installing the Memory

Step 1
Remove the hard disk brackets by unscrewing the four screws.
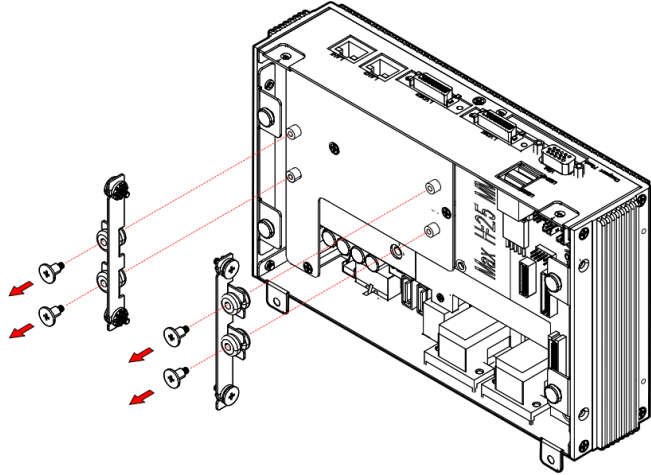
Step 2
Unscrew the two screws to remove the portion of the memory heatsink in order to locate the memory slot.
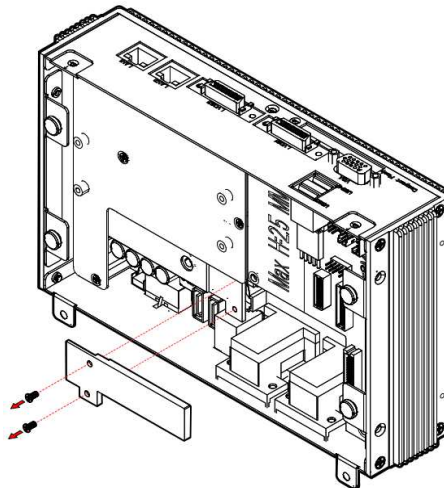
Step 3

Insert the memory module into the SODIMM socket at a 45 degree angle. Then push down until the memory module snaps into place. The SODIMM socket has two locking mechanisms that will click once the memory module has been fully inserted.
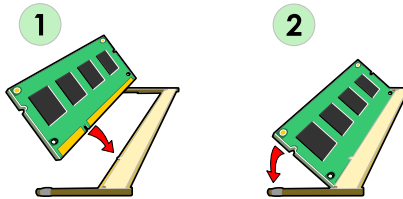
Step 4

Apply the thermal grease on the memory heatsink joint using the syringe injection before replacing the memory heatsink.
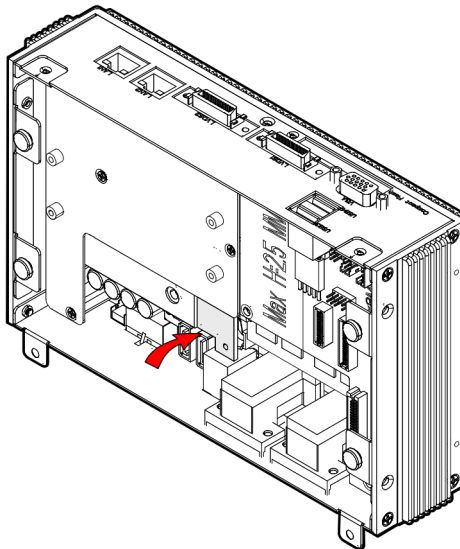
Step 5
Peel the protective layers off of the memory thermal pad on the bottom of the memory heatsink.

Step 6
Reinstall the memory heatsink and secure it with two screws.
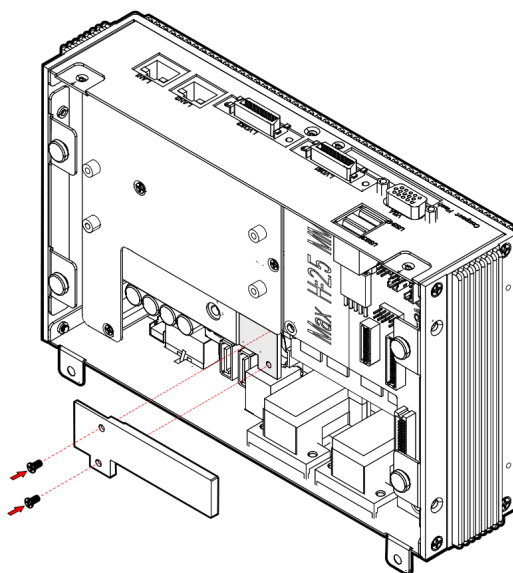
Installing the SATA 2.5″ hard disk

Step 1
Remove the SATA 2.5″ hard disk mounting brackets.
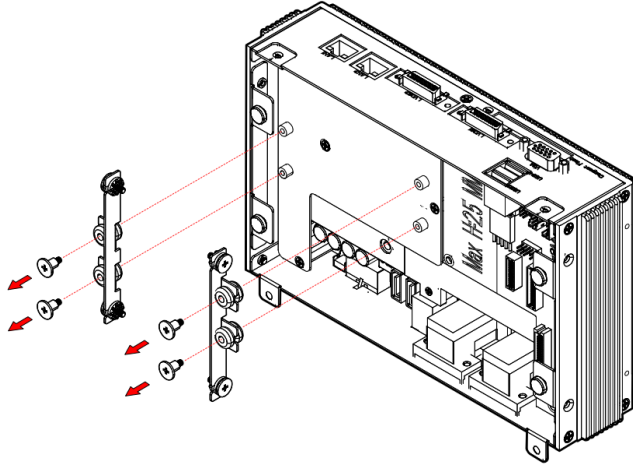
Step 2
Prepare the hard disk screws and rubber washer. Align the mounting holes on the SATA 2.5″ hard disk with the mounting holes on the hard disk mounting brackets. Secure the hard disk in place with four hard disk screws.
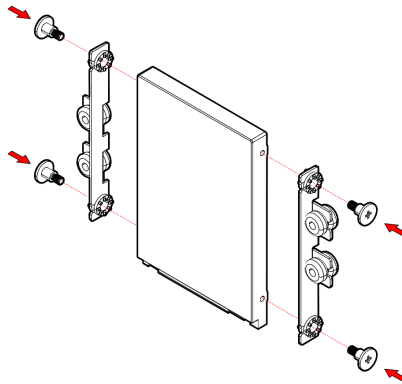
Note:
Use the shorter screws when installing the brackets onto the hard disk drive.

Step 3

Align the mounting brackets with the mounting holes on the hard disk plate. Secure the brackets in place with four screws. Then connect the SATA power and data cables of the hard disk, also connect the other ends of the cables to the SATA port and SATA power port onto the board.
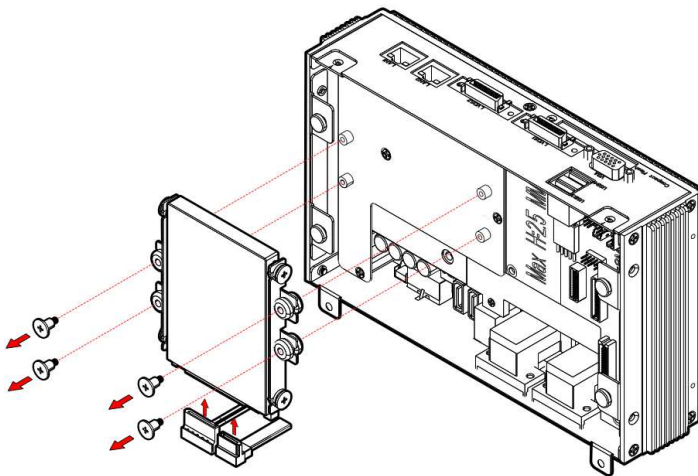
Installing the CompactFlash Card

Step 1
Locate the CompactFlash access cover on the top I/O side of the VIPRO VP7806 and remove the screw to remove the access cover.
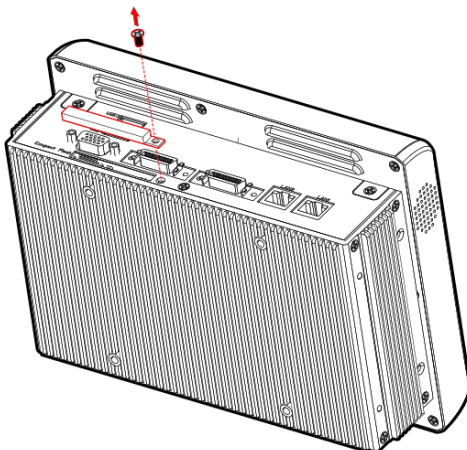
Step 2
Ensure the proper orientation of the CompactFlash card with the CompactFlash slot before inserting.
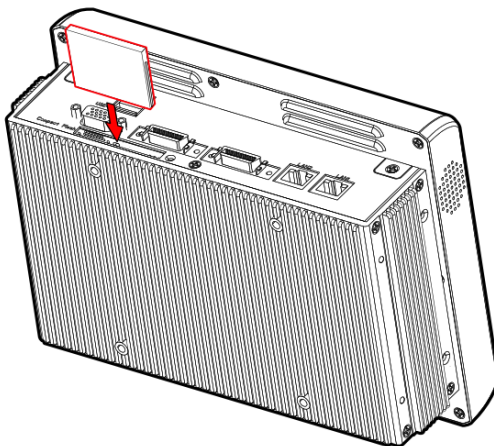
Step 3
Replace the CompactFlash access cover. Secure the CompactFlash access cover with the screw.

Installing Panel mounting kit

Panel mounting should be used in situations where only the front and bezel of the VIPRO VP7806 will be visible.

Step 1
Prepare and cutout a designated space on the wall for embedding the VIPRO VP7806. A recommended cutout dimension is shown below.
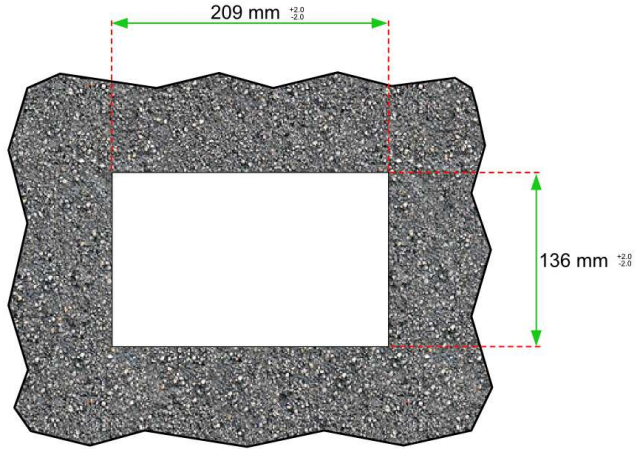
Note:
The cutout shown above is for embedding the VIPRO VP7806 directly into the wall without an additional chassis. If using a chassis to mount the VIPRO VP7806, ensure the cutout is sufficient for the chassis.

Step 2
Once the cutout has been prepared, slide the VIPRO VP7806 backwards into the panel opening.
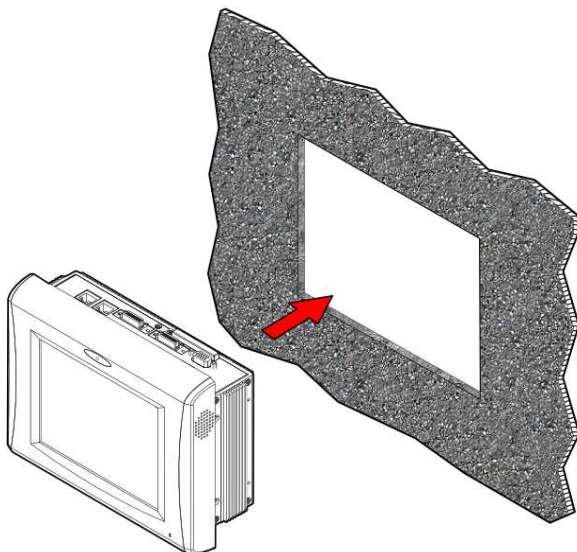
Step 3
From the other side of the panel, align the panel mounting brackets on the rear side of VIPRO VP7806 and attach the four screws.
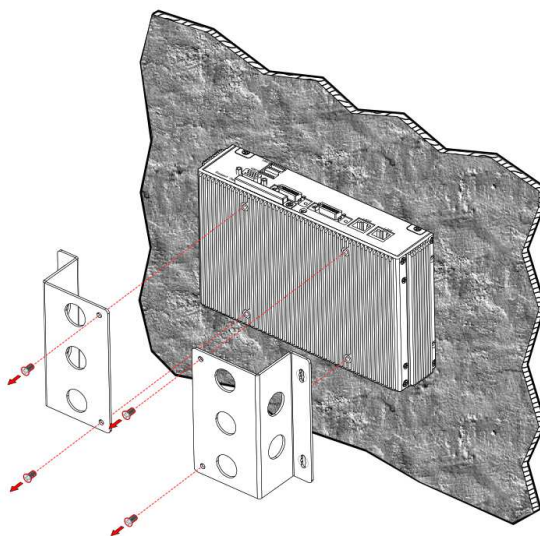
Step 4
Secure the VIPRO VP7806 to the wall with four screws.
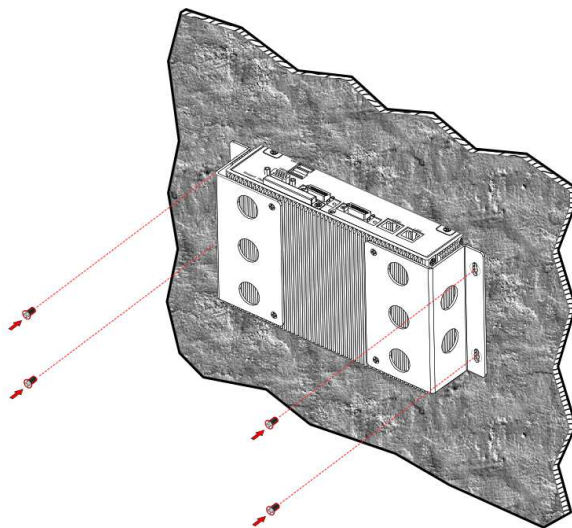
Installing Wall mounting kit (optional)

Wall mounting should be used when the VIPRO VP7806 cannot be embedded into the wall. When wall mounting, the entire system will be exposed.

For details on the assembly of the wall mounting kit, refer to the installation guide provided with the wall mounting kit.

Step 1
Position the wall mounting brackets on sides of the chassis with four screws.
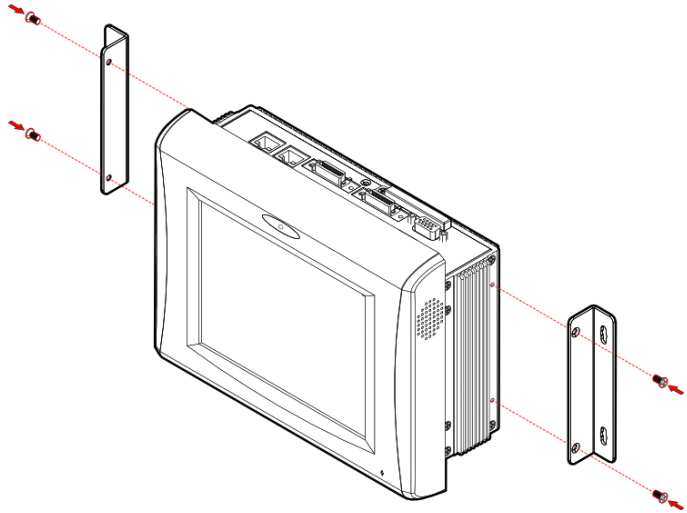
Step 2

Secure the both mounting brackets to the wall with four wall-mounting screws.
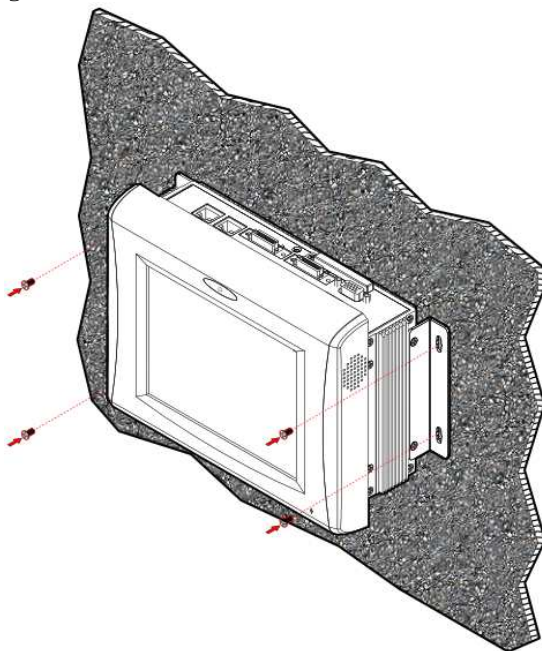
SETTING UP THE JUMPERS

This section will explain how to configure the VIPRO VP7806 to match the needs of your application by setting the jumpers.

Jumper Settings

The VIPRO VP7806 internal board provides a jumper for setting some system hardware functions. The jumper is the simplest kind of electrical switch. It consists of two metal pins and a small metal clip. It is often protected by a plastic cover that slides over the pins to connect them. In order to "close" a jumper, you should connect the pins with the clip. And remove the clip in order to "open" the jumper. Sometimes a jumper will have three pins which labeled 1, 2, and 3. In this case, you would connect either pins 1 and 2 or pins 2 and 3.

Open   Closed   Closed 2-3
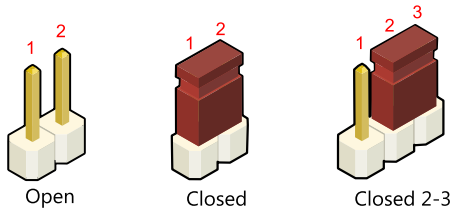
Note:
A pair of needle nose pliers may be helpful when setting up the jumpers. If you have any doubts about the proper hardware configuration for your application, contact your local distributor or sales representative before you make any changes.

CLEAR_CMOS: Clear CMOS jumper

The CMOS RAM of VIPRO VP7806 system internal motherboard stores system configuration data and has an onboard battery power supply.

Step 1
Remove the front bezel by following the procedures in Opening the Chassis.

Step 2
Locate the 3-pin CLEAR_CMOS jumper by removing the bezel's left slide bracket, hard disk drive plate, memory heatsink and the main heatsink. The following sequences are shown in the figure below.
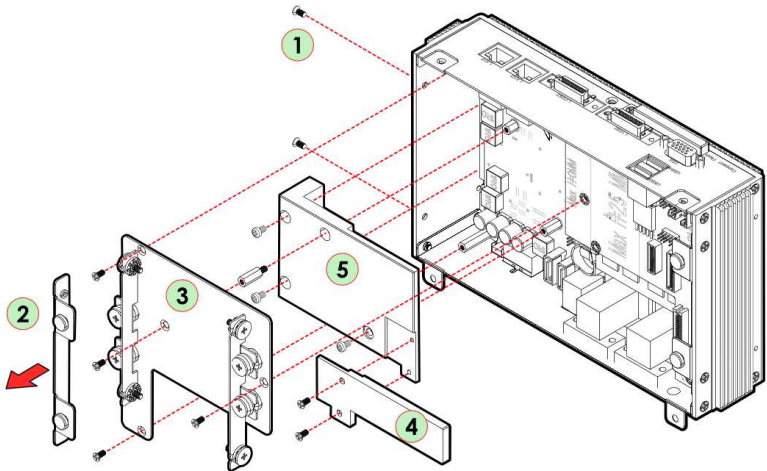
Step 3

To reset the CMOS settings, set the jumper on pin 2 and 3 while the system is off. Return the jumper to pin 1 and 2 afterwards. Setting the jumper while the system is on will damage the mainboard.

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

Closed 1-2 (Default)

Closed 2-3 (Clear CMOS)
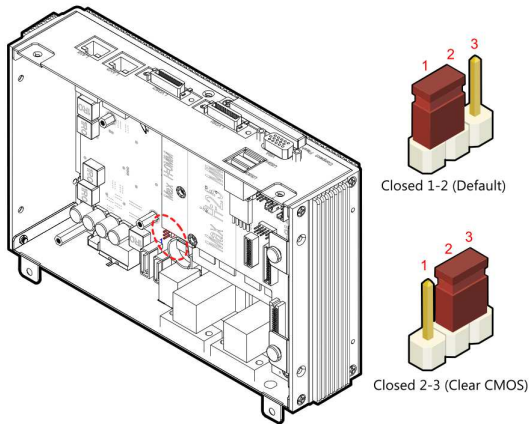
Caution:
Except when clearing the RTC RAM, never remove the CLEAR_CMOS jumper cap from the default position. Removing the cap will cause system boot failure. Avoid clearing the CMOS while the system is on; it will damage the mainboard.

AT/ATX Power mode Select

The VIPRO VP7806 supports two kinds of power modes: ATX (default) and AT. The ATX mode requires a standby power connection and a power supply on signal to turn on the main power supply. The AT mode does not require a standby power connection but needs to be connected to ground to boot up properly. The power mode can be set by changing the jumper position on the 3-pin AT/ATX pin header. Default setup support ATX mode.

Setting	1	2	3
AT mode	ON	ON	OFF
ATX mode (default)	OFF	ON	ON
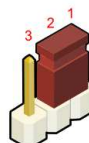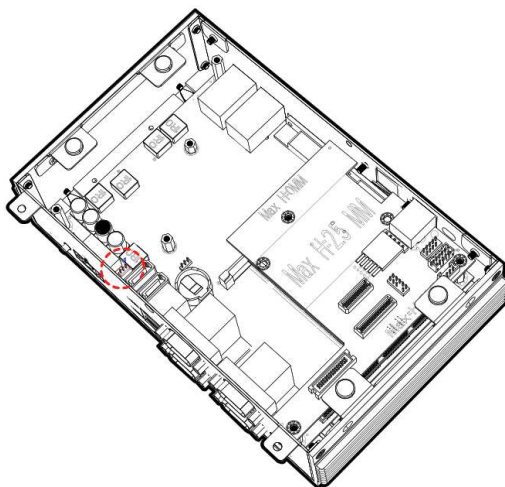
Closed 1-2 (AT Mode)
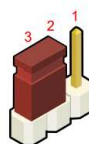
Closed 2-3 (ATX Mode)

PVDD2_SEL: LCD power jumper

The VIPRO VP7815 system internal motherboard provides an onboard jumper named "PVDD2_SEL" for setting the LCD signal power to either 5V or 3.3V. When connecting the LVDS LCD Panel display to LVDS2 on the top I/O side, the setting of PVDD2_SEL must match the power requirements of the connected LVDS Panel display. The default setting of PVDD2_SEL is 3.3V.

Step 1
Remove the daughter board (EMIO-1410) to access the PVDD2_SEL jumper.
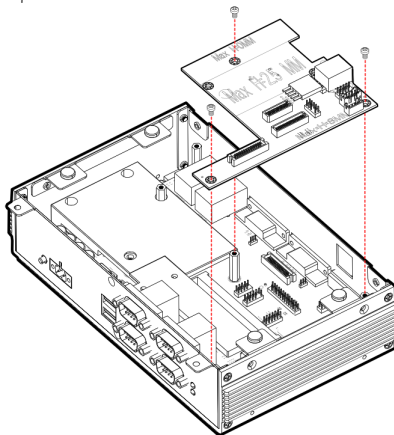
Step 2
The PVDD2_SEL setting can be set by changing the jumper position.

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

Closed 1-2 (+3.3V)

Closed 2-3 (+5V)
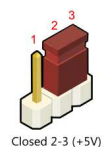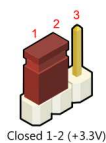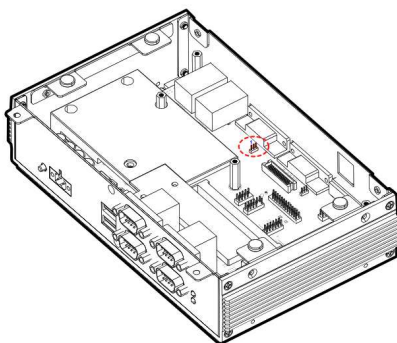
4

BIOS Setup

This chapter gives a detailed explanation of the BIOS setup functions.

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 item in the left side
Right	Move to the item in the right side
Enter	Select the item
Esc	Jumps to the Exit menu or returns to the main menu from a submenu
Page up	Increase the numeric value or make changes
Page down	Decrease the numeric value or make changes
+ (number pad)	Increase the numeric value or make changes
- (number pad)	Decrease the numeric value or make changes
F1	General help, only for Status Page Setup Menu and Option Page Setup Menu
F5	Restore the previous CMOS value from CMOS, only for Option Page Setup Menu
F6	Load the default CMOS value from Fail-Safe default table, only for Option Page Setup Menu
F7	Load Optimized defaults
F10	Save all the CMOS changes and exit

NAVIGATING THE BIOS MENUS

The main menu displays all the BIOS setup categories. Use the <**Left**>/<**Right**> and <**Up**>/<**Down**> arrow keys to select any item or sub-menu. Descriptions of the selected/highlighted category are displayed at the bottom of the screen.

The small triangular arrowhead symbol next to a field indicates that a sub-menu is available (see figure below). Press <**Enter**> to display the sub-menu. To exit the sub-menu, press <**Esc**>.

```
                    Phoenix - AwardBIOS CMOS Setup Utility

  ▷ Standard CMOS Features           ▷ PC Health Status

  ▷ Advanced BIOS Features           ▷ Frequency/Voltage Control

  ▷ Advanced Chipset Features           Load Optimized Defaults

  ▷ Integrated Peripherals              Set Supervisor Password

  ▷ FreeDOS Configuration               Set User Password

  ▷ Power Management Setup              Save & Exit Setup

  ▷ PnP/PCI Configurations             Exit Without Saving

    Esc: Quit                       ↑↓→←: Select Item
    F10: Save & Exit Setup

                    Time, Date, Hard Disk Type...
```

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

The Main Menu contains thirteen setup functions and two exit choices. Use arrow keys to select the items and press <**Enter**> to accept or enter Sub-menu.

```
                    Phoenix - AwardBIOS CMOS Setup Utility

  ▷ Standard CMOS Features              ▷ PC Health Status

  ▷ Advanced BIOS Features              ▷ Frequency/Voltage Control

  ▷ Advanced Chipset Features            Load Optimized Defaults

  ▷ Integrated Peripherals               Set Supervisor Password

  ▷ FreeDOS Configuration                Set User Password

  ▷ Power Management Setup               Save & Exit Setup

  ▷ PnP/PCI Configurations              Exit Without Saving

    Esc: Quit                          ↑↓→←: Select Item
    F10: Save & Exit Setup

                    Time, Date, Hard Disk Type...
```

Standard CMOS Features

Use this menu to set basic system configurations.

Advanced BIOS Features

Use this menu to set the advanced features available on your system.

Advanced Chipset Features

Use this menu to set chipset specific features and optimize system performance.

Integrated Peripherals

Use this menu to set onboard peripherals features.

FreeDOS Configuration

Use this menu to set FreeDOS configuration.

Power Management Setup

Use this menu to set onboard power management functions.

PnP/PCI Configurations
Use this menu to set the PnP and PCI configurations.

PC Health Status
This menu shows the PC health status.

Frequency/Voltage Control
Use this menu to set the system frequency and voltage control.

Load Optimized Defaults
Use this menu option to load BIOS default settings for optimal and high performance system operations.

Set Supervisor Password
Use this menu option to set the BIOS supervisor password.

Set User Password
Use this menu option to set the BIOS user password.

Save & Exit Setup
Save BIOS setting changes and exit setup.

Exit Without Saving
Discard all BIOS setting changes and exit setup.

STANDARD CMOS FEATURES

```
                    Phoenix - AwardBIOS CMOS Setup Utility
                           Standard CMOS Features

    Date (mm:dd:yy)              Thu, Mar 25 2010          Item Help
    Time (hh:mm:ss)              3 : 17 : 8
                                                      Menu Level ▷
  ▷ IDE Channel 0 Master        [None]
  ▷ IDE Channel 0 Slave         [None]               Change the day, month, year
  ▷ IDE Channel 1 Master        [None]               and century
  ▷ IDE Channel 1 Slave         [None]

    Video                       [EGA/VGA]
    Halt On                     [All, But Keyboard]

    Base Memory                 640K
    Extended Memory             456784K
    Total Memory                456784K


 ↑↓→←: Move   Enter: Select   +/-/PU/PD: Value   F10: Save   ESC: Exit   F1: General Help
              F5: Previous Values                    F7: Optimized Defaults
```

Date
The date format is [Day, Month, Date, Year]

Time
The time format is [Hour : Minute : Second]

Video
Settings: [EGA/VGA, CGA 40, CGA 80, MONO]

Halt On
Set the system's response to specific boot errors. Below is a table that details the possible settings.

Settings	Description
All Errors	System halts when any error is detected
No Errors	System does not halt for any error
All, But Keyboard	System halts for all non-key errors

IDE CHANNELS

```
                      Phoenix - AwardBIOS CMOS Setup Utility
                               IDE Channel 0 Master

    IDE HDD Auto-Detection              [Press Enter]            Item Help

                                                        Menu Level  ▷ ▷
    IDE Channel 0 Master               [Auto]
    Access Mode                        [Auto]            To auto-detect the HDD's
                                                         size, head... on this
    Capacity                           0 MB              channel

    Cylinder                           0
    Head                               0
    Precomp                            0
    Landing Zone                       0
    Sector                             0



  ↑↓→←: Move    Enter: Select    +/-/PU/PD: Value   F10: Save    ESC: Exit    F1: General Help
            F5: Previous Values                          F7: Optimized Defaults
```

The specifications of your drive must match with the drive table. The hard disk will not work properly if you enter incorrect information in this category. Select "**Auto**" whenever possible. If you select "**Manual**", make sure the information is from your hard disk vendor or system manufacturer.

Below is a table that details required hard drive information when using the "**Manual**" mode.

Settings	Description
IDE Channel	The name of this match the name of the menu. Settings: [None, Auto, Manual]
Access Mode	Settings: [CHS, LBA, Large, Auto]
Capacity	Formatted size of the storage device
Cylinder	Number of cylinders
Head	Number of heads
Precomp	Write precompensation
Landing Zone	Cylinder location of the landing zone
Sector	Number of sectors

ADVANCED BIOS FEATURES

```
                    Phoenix - AwardBIOS CMOS Setup Utility
                            Advanced BIOS Features
 ▷ CPU Features                       【Press Enter】             Item Help
 ▷ Hard Disk Boot Priority            【Press Enter】
   Virus Warning                      【Enabled】           Menu Level ▷
   CPU L1 & L2 Cache                  【Enabled】
   CPU L2 Cache ECC Checking          【Enabled】
   Quick Power On Self Test           【USB-HDD】
   First Boot Device                  【None】
   Second Boot Device                 【None】
   Third Boot Device                  【None】
   Boot Other Device                  【On】
   Boot Up NumLock Status             【Disabled】
   Typematic Rate Setting             【Disabled】
 x Typematic Rate (Chars/Sec)              6
 x Typematic Delay (Msec)                 250
   Security Option                    【Setup】
   MPS Version Control for OS          【Non-OS2】
   OS Select for DRAM > 64MB          【Disabled】
   HDD S.M.A.R.T. Capability          【Disabled】

↑↓→←: Move    Enter: Select    +/-/PU/PD: Value    F10: Save    ESC: Exit    F1: General Help
              F5: Previous Values                   F7: Optimized Defaults
```

Virus Warning

Allows you to choose the VIRUS warning feature for IDE Hard Disk boot sector protection.

Settings	Description
Enabled	Turns on hard disk boot sector virus protection
Disabled	Turns off hard disk boot sector virus protection

Note:

If this function is enabled and someone attempt to write data into this area, BIOS will show a warning message on the screen and alarm beep.

CPU L1 & L2 Cache

Settings	Description
Disabled	Turns off CPU L1 & L2 cache
Enabled	Turns on CPU L1 & L2 cache

CPU L2 Cache ECC Checking

Settings: [Enabled, Disabled]

Quick Power On Self-Test

Shortens Power On Self-Test (POST) cycle to enable shorter boot up time.

Settings	Description
Disabled	Standard Power On Self Test (POST)
Enabled	Shorten Power On Self Test (POST) cycle and boot up time

First/Second/Third Boot Device

Set the boot device sequence as BIOS attempts to load the disk operating system.

Settings	Description
LS120	Boot from LS120
Hard Disk	Boot from the HDD
CDROM	Boot from CDROM
ZIP100	Boot from ZIP100
USB-FDD	Boot from USB Floppy
USB-ZIP	Boot from USB ZIP drive
USB-CDROM	Boot from USB CDROM
Legacy LAN	Boot from network drive
Disabled	Disable the boot device sequence

Boot Other Device

Enables the system to boot from alternate devices if the system fails to boot from the "First/Second/Third Boot Device" lists.

Settings	Description
Disabled	No alternate boot device allowed
Enabled	Enable alternate boot device

Boot Up NumLock Status

Set the NumLock status when the system is powered on.

Settings	Description
Off	Forces keypad to behave as arrow keys
On	Forces keypad to behave as 10-key

Typematic Rate Setting

Enable "Typematic Rate" function.
Settings: [Disabled, Enabled]

Typematic Rate (Chars/Sec)

This item sets the rate (characters/second) at which the system retrieves a signal from a depressed key.
Settings: [6, 8, 10, 12, 15, 20, 24, 30]

Typematic Delay (Msec)

This item sets the delay between, when the key was first pressed and when the system begins to repeat the signal from the depressed key.
Settings: [250, 500, 750, 1000]

Security Option

Selects whether the password is required every time the System boots, or only when you enter Setup.

Settings	Description
Setup	Password prompt appears only when end users try to run BIOS Setup
System	Password prompt appears every time when the computer is powered on and when end users try to run BIOS Setup

MPS Version Control for OS

Settings: [1.1, 1.4]

OS Select for DRAM > 64 MB

Settings: [Non-OS2, OS2]

HDD S.M.A.R.T Capability

Settings: [Disabled, Enabled]

Video BIOS Shadow

Settings: [Disabled, Enabled]

Full Screen Logo Show

Show full screen logo during BIOS boot up process.
Settings: [Disabled, Enabled]

Summary Screen Show

Show summary screen.
Settings: [Disabled, Enabled]

CPU FEATURE

```
                        Phoenix - AwardBIOS CMOS Setup Utility
                                      CPU Features

        Thermal Management              [Thermal Monitor 2]          Item Help
        Thermal Monitor Bus Ratio       4X
        Thermal Monitor Bus VID         0.700V              Menu Level ▷ ▷

                                                            Thermal Monitor 1 (On
                                                            die throtting)

                                                            Thermal Monitor 2
                                                            (Ratio & VID transition)

                                                            Thermal Monitor 3
                                                            (Dynamic Ratio & VID
                                                            transition)

        ↑↓→←: Move   Enter: Select   +/-/PU/PD: Value   F10: Save   ESC: Exit   F1: General Help
                    F5: Previous Values                        F7: Optimized Defaults
```

Thermal Management
This item sets CPU's thermal control rule to protect CPU from overheat.

Settings	Description
Thermal Monitor 1	On-die throtting
Thermal Monitor 2	Ratio & VID transition
Thermal Monitor 3	Dynamic Ratio & VID transition
Disabled	Disable the thermal monitor

Thermal Monitor Bus Ratio
This item sets the frequency (bus ratio) of the throttled performance that will be initiated when one on die sensor goes from not hot to hot.

Key in a DEC number.
Settings: [Min = 0, Max = 255]

Thermal Monitor Bus VID
This item sets the voltage of the throttled performance that will be initiated when the on die sensor goes from not hot to hot.
Settings: [0.700V, 0.716V, 0.732V, 0.748V, 0.764V, 0.780V, 0.796V, 0.812V, 0.828V, 0.844V, 0.860V, 0.876V, 0.892V, 0.908V, 0.924V, 0.940V, 0.956V, 0.972V, 0.988V, 1.004V, 1.020V, 1.036V, 1.052V, 1.068V, 1.084V, 1.100V, 1.116V, 1.132V, 1.148V, 1.164V, 1.180V, 1.196V, 1.212V, 1.228V, 1.244V, 1.260V, 1.276V, 1.292V, 1.308V, 1.324V, 1.340V, 1.356V, 1.372V, 1.388V, 1.404V, 1.420V, 1.436V, 1.452V, 1.468V, 1.484V, 1.500V, 1.516V, 1.532V, 1.548V, 1.564V, 1.580V, 1.596V, 1.612V, 1.628V, 1.644V, 1.660V, 1.676V, 1.692V, 1.708]

HARD DISK BOOT PRIORITY

```
                Phoenix - AwardBIOS CMOS Setup Utility
                       Hard Disk Boot Priority
                                                    Item Help
    1. Bootable Add-in Cards
                                               Menu Level ▷ ▷

                                               Use <↑> or <↓> to
                                               select a device, then
                                               press <+> to move it
                                               up, or <-> to move it
                                               down the list. Press
                                               <ESC> to exit this menu.




↑↓→←: Move    Enter: Select    +/-/PU/PD: Value    F10: Save    ESC: Exit    F1: General Help
            F5: Previous Values                    F7: Optimized Defaults
```

This is for setting the priority of the hard disk boot order when the "Hard Disk" option is selected in the "[First/Second/Third] Boot Device" menu item.

ADVANCED CHIPSET FEATURES

```
                    Phoenix - AwardBIOS CMOS Setup Utility
                          Advanced Chipset Features

                                                          Item Help
 ▷ Internal VGA Control              【Press Enter】
 ▷ CPU & PCI Bus Control             【Press Enter】
   Memory Hole                       【Disabled】       Menu Level ▷
   System BIOS Cacheable             【Disabled】
   Video RAM Cacheable               【Disabled】
   GFX & PCIE VGA Co-Exist           【Enabled】




↑↓→←: Move    Enter: Select    +/-/PU/PD: Value    F10: Save    ESC: Exit   F1: General Help
            F5: Previous Values                       F7: Optimized Defaults
```

Caution:
The Advanced Chipset Features menu is used for optimizing the chipset functions. Do not change these settings unless you are familiar with the chipset.

Memory Hole
Settings: [Disabled, 15M – 16M]

System BIOS Cacheable
Settings: [Disabled, Enabled]

Video RAM Cacheable
Settings: [Disabled, Enabled]

GFX & PCIE VGA Co-Exist
Settings: [Disabled, Enabled]

INTERNAL VGA CONTROL

```
                    Phoenix - AwardBIOS CMOS Setup Utility
                            Internal VGA Control
                                                        ┌─────────────────┐
                                                        │    Item Help     │
   VGA Share Memory Size              【128M】            ├─────────────────┤
   Direct Frame Buffer                【Enabled】
   Select Display Device              【LCD】            Menu Level ▷ ▷
   Panel Type                         【00: 640*480】



   ↑↓→←: Move    Enter: Select   +/-/PU/PD: Value   F10: Save   ESC: Exit   F1: General Help
            F5: Previous Values                       F7: Optimized Defaults
```
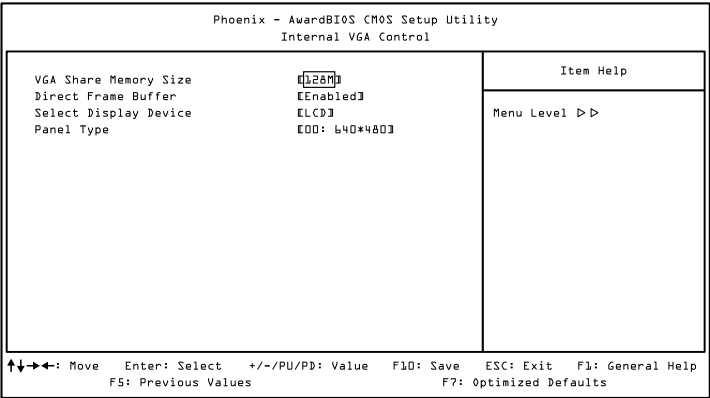
VGA Share Memory Size
This setting allows you to select the amount of system memory that is allocated to the integrated graphics processor.
Settings: [Disabled, 64M, 128M, 256M]

Direct Frame Buffer
Settings: [Disabled, Enabled]

Select Display Device
This setting refers to the type of display being used with the system.
Settings: [CRT, LCD, DVI, LCD2, CRT+LCD, CRT+DVI, CRT+LCD2, LCD+LCD2, LCD+DVI]

Panel Type
This setting refers to the native resolution of the display being used with the system.
Settings:

00: 640 x 480	08: 800 x 480
01: 800 x 600	09: 1024 x 600
02: 1024 x 768	0A: 1366 x 768
03: 1280 x 768	0B: 1600 x 1200
04: 1280 x 1024	0C: 1680 x 1050
05: 1400 x 1050	0D: 1920 x 1200
06: 1440 x 900	0E: 640 x 240
07: 1280 x 800	0F: 1024 x 576

CPU & PCI Bus Control

```
              Phoenix - AwardBIOS CMOS Setup Utility
                      CPU & PCI Bus Control

  PCI Master 0 WS Write        [Enabled]              Item Help
  PCI Delay Transaction        [Enabled]
  VIA PWR Management           [Enabled]         Menu Level ▷ ▷




 ↑↓→←: Move    Enter: Select   +/-/PU/PD: Value   F10: Save   ESC: Exit   F1: General Help
              F5: Previous Values                     F7: Optimized Defaults
```

PCI Master 0 WS Write
Settings: [Disabled, Enabled]

PCI Delay Transaction
Settings: [Disabled, Enabled]

VIA PWR Management
Settings: [Disabled, Enabled]

INTEGRATED PERIPHERALS

```
                    Phoenix - AwardBIOS CMOS Setup Utility
                             Integrated Peripherals
  ┌─────────────────────────────────────────────┬──────────────────────────┐
  │                                              │        Item Help         │
  │  ▷ VIA OnChip IDE Device        【Press Enter】├──────────────────────────┤
  │  ▷ VIA OnChip PCI Device        【Press Enter】│                          │
  │  ▷ SuperIO Device               【Press Enter】│  Menu Level  ▷           │
  │  ▷ USB Device Setting           【Press Enter】│                          │
  │                                              │                          │
  │                                              │                          │
  │                                              │                          │
  │                                              │                          │
  │                                              │                          │
  │                                              │                          │
  │                                              │                          │
  ├──────────────────────────────────────────────┴──────────────────────────┤
  │ ↑↓→←: Move   Enter: Select   +/-/PU/PD: Value   F10: Save   ESC: Exit   F1: General Help │
  │        F5: Previous Values                      F7: Optimized Defaults    │
  └──────────────────────────────────────────────────────────────────────────┘
```

VIA ONCHIP IDE DEVICE

```
                    Phoenix - AwardBIOS CMOS Setup Utility
                          VIA OnChip IDE Device

    CF Card ATA66              【Enabled】              Item Help
    SATA Controller           【Enabled】
    IDE DMA Transfer Access   【Enabled】        Menu Level ▷ ▷
    OnChip IDE Channel 1      【Enabled】
    IDE Prefetch Mode         【Enabled】        Enable it to support
    Secondary Master PIO      【Auto】           ATA66 (UDMA Mode 4)
    Secondary Slave PIO       【Auto】           when CF card exists on
    Secondary Master UDMA     【Auto】           IDE Channel.
    Secondary Slave UDMA      【Auto】
    IDE HDD Block Mode        【Enabled】




 ↑↓→←: Move    Enter: Select    +/-/PU/PD: Value    F10: Save    ESC: Exit    F1: General Help
            F5: Previous Values                      F7: Optimized Defaults
```

CF Card ATA66
Settings: [Disabled, Enabled]

SATA Controller
Settings: [Disabled, Enabled]

IDE DMA Transfer Access
Settings: [Disabled, Enabled]

OnChip IDE Channel 1
Settings: [Disabled, Enabled]

IDE Prefetch Mode
Settings: [Disabled, Enabled]

Secondary Master PIO
Settings: [Auto, Mode 0, Mode 1, Mode 2, Mode 3, Mode 4]

Secondary Slave PIO
Settings: [Auto, Mode 0, Mode 1, Mode 2, Mode 3, Mode 4]

Secondary Master UDMA
Settings: [Disabled, Auto]

Secondary Slave UDMA
Settings: [Disabled, Auto]

IDE HDD Block Mode
Settings: [Disabled, Enabled]

VIA ONCHIP PCI DEVICE

```
              Phoenix - AwardBIOS CMOS Setup Utility
                      VIA OnChip PCI Device

                                                  Item Help
   Azalia HDA Controller          【Auto】
   OnBoard LAN Boot ROM           【Disabled】
                                              Menu Level ▷ ▷




↑↓→←: Move    Enter: Select   +/-/PU/PD: Value   F10: Save   ESC: Exit   F1: General Help
          F5: Previous Values                      F7: Optimized Defaults
```
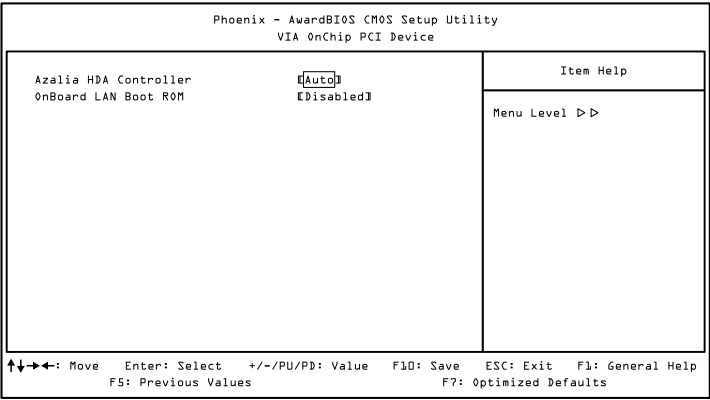
Azalia HDA Controller
Settings: [Disabled, Auto]

OnBoard LAN Boot ROM
Settings: [Enabled, Disabled]

SUPERIO DEVICE

```
                    Phoenix - AwardBIOS CMOS Setup Utility
                                SuperIO Device

                                                            Item Help
 ▷ Super IO COM Ports (UARTs)        【Press Enter】
    Onboard Parallel Port            【378/IRQ7】
    Parallel Port Mode               【SPP】            Menu Level ▷ ▷
    ECP Mode Use DMA                 3
    Watch Dog Timer Select           【Disabled】




 ↑↓→←: Move    Enter: Select    +/-/PU/PD: Value    F10: Save    ESC: Exit    F1: General Help
             F5: Previous Values                        F7: Optimized Defaults
```

Onboard Parallel Port
Settings: [Disabled, 378/IRQ7, 278/IRQ5, 3BC/IRQ7]

Parallel Port Mode
Settings: [SPP, EPP, ECP, ECP+EPP]

Watch Dog Timer Select
Settings: [Disabled, 10 Sec, 20 Sec, 30 Sec, 40 Sec, 1 Min, 2 Min, 4 Min]

SUPERIO COM PORTS (UARTS)

```
                    Phoenix - AwardBIOS CMOS Setup Utility
                          SuperIO COM Ports (UARTs)

                                                      ┌─────────────────────┐
    Onboard Serial Port 1          【3F8/IRQ4】        │      Item Help       │
    COM1 RS232/422/485 Type        【By Default】      │                      │
    Onboard Serial Port 2          【2F8/IRQ4】        │   Menu Level ▷ ▷     │
    COM2 RS232/422/485 Type        【By Default】      │                      │
    Onboard Serial Port 3          【3E8/IRQ4】        │                      │
    Onboard Serial Port 4          【2E8/IRQ4】        │                      │
                                                      │                      │
                                                      │                      │
                                                      │                      │
                                                      │                      │
                                                      │                      │
                                                      │                      │
                                                      └─────────────────────┘

 ↑↓→←: Move    Enter: Select    +/-/PU/PD: Value    F10: Save    ESC: Exit    F1: General Help
            F5: Previous Values                          F7: Optimized Defaults
```

Onboard Serial Port 1
Settings: [Disabled, 3F8/IRQ4, 2F8/IRQ4, 3E8/IRQ4, 2E8/IRQ4]

COM1 RS232/422/485 Type
Settings: [By Default, RS232, RS422, RS485]

Onboard Serial Port 2
Settings: [Disabled, 3F8/IRQ4, 2F8/IRQ4, 3E8/IRQ4, 2E8/IRQ4]

COM2 RS232/422/485 Type
Settings: [By Default, RS232, RS422, RS485]

Onboard Serial Port 3
Settings: [Disabled, 3F8/IRQ4, 2F8/IRQ4, 3E8/IRQ4, 2E8/IRQ4]

Onboard Serial Port 4
Settings: [Disabled, 3F8/IRQ4, 2F8/IRQ4, 3E8/IRQ4, 2E8/IRQ4]

USB DEVICE SETTING

```
                    Phoenix - AwardBIOS CMOS Setup Utility
                              USB Device Setting

                                                    ┌─────────────────┐
     USB 1.0 Controller              [Enabled]      │    Item Help     │
     USB 2.0 Controller              [Enabled]      ├─────────────────┤
     USB Operation Mode              [High Speed]   │ Menu Level ▷ ▷   │
     USB Keyboard Function           [Enabled]      │                 │
     USB Mouse Function              [Enabled]      │ Enabled or Disabled│
     USB Storage Function            [Enabled]      │ Universal Host Controller│
     USB Wireless LAN Support        [Enabled]      │ Interface for Universal│
     *** USB Mass Storage Device Boot Setting ***   │ Serial Bus       │
                                                    │                 │
                                                    │                 │
                                                    └─────────────────┘

↑↓→←: Move    Enter: Select   +/-/PU/PD: Value   F10: Save   ESC: Exit   F1: General Help
           F5: Previous Values                      F7: Optimized Defaults
```

USB 1.0 Controller

Enable or disable Universal Host Controller Interface for Universal
Serial Bus.
Settings: [Disabled, Enabled]

USB 2.0 Controller

Enable or disable Enhanced Host Controller Interface for Universal
Serial Bus.
Settings: [Disabled, Enabled]

USB Operation Mode

Auto decide USB device operation mode.

Settings	Description
Full/Low Speed	All of USB Device operated on full/low speed mode
High Speed	If USB device was high speed device, then it operated on high speed mode.

USB Keyboard Function

Enable or disable Legacy support of USB Keyboard.
Settings: [Disabled, Enabled]

USB Mouse Function

Enable or disable Legacy support of USB Mouse.
Settings: [Disabled, Enabled]

USB Storage Function

Enable or disable Legacy support of USB Mass Storage.
Settings: [Disabled, Enabled]

USB Wireless LAN Support

Settings: [Disabled, Enabled]

FREEDOS CONFIGURATION

```
                    Phoenix - AwardBIOS CMOS Setup Utility
                          FreeDOS Configuration

   Boot into FreeDOS              [Disabled]              Item Help

                                                    Menu Level ▷

                                                    The system will boot
                                                    to FreeDOS when it is
                                                    enabled.




   ↑↓→←: Move    Enter: Select   +/-/PU/PD: Value   F10: Save   ESC: Exit   F1: General Help
              F5: Previous Values                    F7: Optimized Defaults
```

Boot into FreeDOS
The system will boot to FreeDOS.
Settings: [Disabled, Enabled]

POWER MANAGEMENT SETUP

```
                    Phoenix - AwardBIOS CMOS Setup Utility
                           Power Management Setup

   ACPI Suspend Type              【S1&S3】                    Item Help
   Power Management Option        【User Define】
   HDD Power Down                 【Disabled】        Menu Level ▷
   Suspend Mode                   【Disabled】
   Video Off Option              【Suspend -> Off】
   Video Off Method              【V/H SYNC+Blank】
   MODEM Use IRQ                  【3】
   Soft-Off by PWRBTN           【Instant-Off】
   Run VGABIOS if S3 Resume      【Auto】
   AC Loss Auto Restart          【Off】
 ▷ Wakeup Event Detect           【Press Enter】



↑↓→←: Move    Enter: Select   +/-/PU/PD: Value   F10: Save   ESC: Exit   F1: General Help
            F5: Previous Values                       F7: Optimized Defaults
```

ACPI Suspend Type

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.
S1 & S3	Depends on the OS to select S1 or S3.

Power Management Option

Settings: [User Define, Min Saving, Max Saving]

HDD Power Down

Set the length of time for a period of inactivity before powering down the hard disk.
Settings: [Disable, 1 Min, 2 Min, 3 Min, 4 Min, 5 Min, 6 Min, 7 Min, 8 Min, 9 Min, 10 Min, 11 Min, 12 Min, 13 Min, 14 Min, 15 Min]

Suspend Mode

Settings: [Disabled, 1 Min, 2 Min, 4 Min, 6 Min, 8 Min, 10 Min, 20 Min, 30 Min, 40 Min, 1 Hour]

Video Off Option

Select whether or not to turn off the screen when system enters power saving mode, ACPI OS such as Windows XP will override this option.

Settings	Description
Always On	Screen is always on even when system enters power saving mode
Suspend -> Off	Screen is turned off when system enters power saving mode

Video Off Method

Settings: [Blank Screen, V/H SYNC + Blank, DPMS Support]

MODEM Use IRQ

Settings: [NA, 3, 4, 5, 7, 9, 10, 11]

Soft-Off by PWRBTN

Settings	Description
Delay 4 Sec	System is turned off if power button is pressed for more than four seconds.
Instant-Off	Power button functions as a normal power-on/-off button.

Run VGABIOS if S3 Resume

Select whether to run VGA BIOS if resuming from S3 state. This is only necessary for older VGA drivers.
Settings: [Auto, Yes, No]

AC Loss Auto Restart

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

Settings	Description
Off	Keeps the system in an off state until the power button is pressed
On	Restarts the system when the power is back
Former-Sts	Former-Sts

WAKEUP EVENT DETECT

```
                    Phoenix - AwardBIOS CMOS Setup Utility
                              Wakeup Event Detect

                                                         ┌─────────────────┐
                                                         │    Item Help    │
   PowerOn by PCI Card              [By OS]              ├─────────────────┤
   RTC Alarm Resume                 [Disabled]          │
   Date (of Month)                     0                │ Menu Level ▷ ▷
   Resume Time (hh:mm:ss)            0 : 0 : 30         │



↑↓→←: Move    Enter: Select   +/-/PU/PD: Value    F10: Save    ESC: Exit    F1: General Help
           F5: Previous Values                         F7: Optimized Defaults
```

PowerOn by PCI Card

Enables activity detected from any PCI card to power up the system
or resume from a suspended state. Such PCI cards include LAN,
onboard USB ports, etc.
Settings: [By OS, Enabled]

RTC Alarm Resume

Set a scheduled time and/or date to automatically power on the
system.
Settings: [Disabled, Enabled]

Date (of Month)

This field can only be set if "RTC Alarm Resume" is enabled. The
field specifies the date for "RTC Alarm Resume".

Resume Time (hh:mm:ss)

This field can only be set if "RTC Alarm Resume" is enabled. The
field specifies the time for "RTC Alarm Resume".

PNP/PCI CONFIGURATIONS

```
                    Phoenix - AwardBIOS CMOS Setup Utility
                           PnP/PCI Configurations

                                                    ┌─────────────────┐
    Init Display First              【PCIEx】         │    Item Help     │
    PNP OS Installed                【No】            ├─────────────────┤
    Reset Configuration Data        【Disabled】      │ Menu Level  ▷   │
                                                     │                  │
    Resources Controlled By         【Auto(ESCD)】    │                  │
  x IRQ Resources                       Press Enter  │                  │
                                                     │                  │
    PCI/VGA Palette Snoop            【Disabled】      │                  │
    Assign IRQ For VGA               【Enabled】       │                  │
    Assign IRQ For USB               【Enabled】       │                  │
                                                     │                  │
          ** PCI Express relative items **           │                  │
    Maximum Payload Size             【4096】          │                  │
                                                     └─────────────────┘

↑↓→←: Move   Enter: Select   +/-/PU/PD: Value   F10: Save   ESC: Exit   F1: General Help
            F5: Previous Values                          F7: Optimized Defaults
```

Note:
This section covers some very technical items and it is strongly recommended to leave the default settings as is unless you are an experienced user.

Init Display First
Settings: [Onboard, PCIEx]

PNP OS Installed

Settings	Description
No	BIOS will initialize all the PnP cards
Yes	BIOS will only initialize the PnP cards used for booting (VGA, IDE, SCSI). The rest of the cards will be initialized by the PnP operating system

Reset Configuration Data

Settings	Description
Disabled	Default setting
Enabled	Resets the ESCD (Extended System Configuration Data) after exiting BIOS Setup if a newly installed PCI card or the system configuration prevents the operating system from loading

Resources Controlled By

Enables the BIOS to automatically configure all the Plug-and-Play compatible devices.

Settings	Description
Auto(ESCD)	BIOS will automatically assign IRQ, DMA and memory base address fields
Manual	Unlocks "IRQ Resources" for manual configuration

PCI/VGA Palette Snoop

Settings: [Disabled, Enabled]

Assign IRQ for VGA

Assign IRQ for VGA devices.

Settings: [Disabled, Enabled]

Assign IRQ for USB

Assign IRQ for USB devices.

Settings: [Disabled, Enabled]

Maximum Payload Size

This options sets the maximum TLP payload size in bytes for PCI Express devices.
Settings: [128, 256, 512, 1024, 2048, 4096]

PC HEALTH STATUS

```
                    Phoenix - AwardBIOS CMOS Setup Utility
                              PC Health Status

                                                       Item Help
    +3.3V                        3.32V
    VCore                        0.68V
    +5V                          5.07V              Menu Level ▷
    +12V                         11.88V
    +1.8V DIMM                   1.77V
    USB3V                        3.312V
    Voltage Battery              3.37V
    CPU Temp.                    43 C
    System Temp                  N/A




  ↑↓→←: Move    Enter: Select    +/-/PU/PD: Value    F10: Save    ESC: Exit    F1: General Help
           F5: Previous Values                        F7: Optimized Defaults
```

The PC Health Status displays the current status of all of the monitored hardware devices/components such as CPU voltages, temperatures and fan speeds.

FREQUENCY/VOLTAGE CONTROL

```
                Phoenix - AwardBIOS CMOS Setup Utility
                       Frequency/Voltage Control

                                                        ┌─────────────────┐
     Current FSB Frequency            200 MHz           │    Item Help     │
     Current DRAM Frequency           266 MHz           ├─────────────────┤
     DRAM Frequency                  [SPD]              │ Menu Level  ▷    │
     DDR CAS Latency Control         [SPD]              │                  │
     DDR Burst Length                [SPD]              │                  │
     DDR 1T Command Rate             [Disabled]         │                  │
     DRDY Table                      [Optimize]         │                  │
     ODT                             [Enabled]          │                  │
     Spread Spectrum                 [+/-0.1%]          │                  │
                                                        │                  │
                                                        │                  │
                                                        │                  │
                                                        │                  │
                                                        │                  │
                                                        └─────────────────┘
 ↑↓→←: Move   Enter: Select   +/-/PU/PD: Value   F10: Save   ESC: Exit   F1: General Help
            F5: Previous Values              F7: Optimized Defaults
```

DRAM Frequency
Settings: [DDR2-400, DDR2-533, DDR2-667, SPD]

DDR CAS Latency Control
Settings: [2T, 3T, 4T, 5T, 6T, SPD]

DDR Burst Length
Settings: [4, 8, SPD]

DDR 1T Command Rate
Settings: [Disabled, Enabled]

DRDY Table
Settings: [Slowest, Optimize]

ODT
Settings: [Disabled, Enabled]

Spread Spectrum

When the mainboard's clock generator pulses, the extreme values (spikes) of the pulses create EMI (Electromagnetic Interference). The Spread Spectrum function reduces the EMI generated by modulating the pulses so that the spikes of the pulses are reduced to flatter curves.

Settings: [Disabled, +/- 0.1%, +/- 0.2%, +/- 0.3%, +/- 0.4%, +/- 0.5%, +/- 0.6%, +/- 0.7%, +/- 0.8%, +/- 0.9%]

LOAD OPTIMIZED DEFAULTS

```
                    Phoenix - AwardBIOS CMOS Setup Utility

  ▷ Standard CMOS Features            ▷ PC Health Status

  ▷ Advanced BIOS Features            ▷ Frequency/Voltage Control

  ▷ Advanced Chipset Features          Load Optimized Defaults

  ▷ Integrated Peripherals    ┌──────────────────────────┐ord
                              │                          │
  ▷ FreeDOS Configuration     │  Load Optimized Defaults (Y/N)? N │
                              │                          │
  ▷ Power Management Setup     └──────────────────────────┘ Setup

  ▷ PnP/PCI Configurations             Exit Without Saving

  Esc: Quit                          ↑↓→←: Select Item
  F10: Save & Exit Setup

                      Load Optimized Defaults
```

This option is for restoring all the default optimized BIOS settings.
The default optimized values are set by the mainboard
manufacturer to provide a stable system with optimized
performance.

Entering "**Y**" and press <**Enter**> to load the default optimized BIOS
values. Entering "**N**" will cancel the load optimized defaults request.

SET SUPERVISOR/USER PASSWORD

```
                    Phoenix - AwardBIOS CMOS Setup Utility

 ▷ Standard CMOS Features              ▷ PC Health Status

 ▷ Advanced BIOS Features              ▷ Frequency/Voltage Control

 ▷ Advanced Chipset Features             Load Optimized Defaults

 ▷ Integrated Peripherals   ┌─────────────────────────┐ ord
                            │  Enter Password: □      │
 ▷ FreeDOS Configuration    └─────────────────────────┘
                                        Save & Exit Setup
 ▷ Power Management Setup

 ▷ PnP/PCI Configurations                Exit Without Saving

   Esc: Quit                            ↑↓→←: Select Item
   F10: Save & Exit Setup

                       Change/Set/Disable Password
```

This option is for setting a password for entering BIOS Setup. When a password has been set, a password prompt will be displayed whenever BIOS Setup is run. This prevents an unauthorized person from changing any part of your system configuration.

There are two types of passwords you can set. A supervisor password and a user password. When a supervisor password is used, the BIOS Setup program can be accessed and the BIOS settings can be changed. When a user password is used, the BIOS Setup program can be accessed but the BIOS settings cannot be changed.

To set the password, type the password (up to eight characters in length) and press <Enter>. The password typed now will clear any previously set password from CMOS memory. The new password will need to be reentered to be confirmed. To cancel the process press <Esc>.

To disable the password, press <Enter> when prompted to enter a new password. A message will show up to confirm disabling the password. To cancel the process press <Esc>.

Additionally, when a password is enabled, the BIOS can be set to request the password each time the system is booted. This would prevent unauthorized use of the system. See "Security Option" in the "Advanced BIOS Features" section for more details.

SAVE & EXIT SETUP

```
                    Phoenix - AwardBIOS CMOS Setup Utility

  ▷ Standard CMOS Features              ▷ PC Health Status

  ▷ Advanced BIOS Features              ▷ Frequency/Voltage Control

  ▷ Advanced Chipset Features             Load Optimized Defaults

  ▷ Integrated Peripherals                                    ord
                              SAVE to CMOS and EXIT (Y/N)? Y
  ▷ FreeDOS Configuration

  ▷ Power Management Setup                 Save & Exit Setup

  ▷ PnP/PCI Configurations                 Exit Without Saving

   Esc: Quit                           ↑↓→←: Select Item
   F10: Save & Exit Setup

                        Save Data to CMOS
```

Entering "**Y**" saves any changes made, and exits the program.
Entering "**N**" will cancel the exit request.

EXIT WITHOUT SAVING

```
                  Phoenix - AwardBIOS CMOS Setup Utility

 ▷ Standard CMOS Features              ▷ PC Health Status

 ▷ Advanced BIOS Features              ▷ Frequency/Voltage Control

 ▷ Advanced Chipset Features             Load Optimized Defaults

 ▷ Integrated Peripherals                                    ord
                              Quit Without Saving (Y/N)? N
 ▷ FreeDOS Configuration

 ▷ Power Management Setup                Save & Exit Setup

 ▷ PnP/PCI Configurations               Exit Without Saving

  Esc: Quit                          ↑↓→←: Select Item
  F10: Save & Exit Setup

                      Abandon all Data
```

Entering "**Y**" discards any changes made, and exits the program.
Entering "**N**" will cancel the exit request.

5

Driver Installation

MICROSOFT DRIVER SUPPORT

The VIA VIPRO-7806 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 VIPRO-7806 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.