

Vega86-6247

VIA Mark CoreFusion 533MHz

3.5" CPU Module

with 6S/3USB/VGA/LCD/LAN/Audio/CF

256MB SDRAM Onboard

User's Manual

(Revision 1.0A)

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Chapter 1

Introduction

1.1 Packing List

| Product Name | Package |
|--------------|--|
| Vega86-6247 | <ul style="list-style-type: none">● Embedded Vega86 CPU All-in-One Board● Manual & Drivers CD x 1● RS232 cable x 5● PRINTER cable x1● FDD cable x 1● IDE cable x 1 (44pin to 40 pin)● USB cable x 1 (USB port x 2)● Audio cable x 3● YKB for Keyboard & PS/2 Mouse x 1 |

1.2 Product Description

The Vega86 Single-Board-Computer series (powered by VIA Mark CoreFusion processor) offers high performance, cost-effective and energy efficient processor with integrated ProSavage4 SA graphics controller, which is the powerful embedded x86 platform for Windows XP Embedded, WEPOS, and embedded Linux application.

The complete board consists of the Mark CoreFusion processor and the VT82C686B PCI-ISA South Bridge, Realtek RTL8100B 10/100 Fast Ethernet Controller, etc. The processor integrates VIA's high-performance ProSavage4 3D / 2D graphics controller, LCD and Flat Panel display interfaces, with further superior performance between the CPU, DRAM and PCI bus with pipelined, burst, and concurrent operation. The South Bridge is PC98 / PC99 compliant with integrated UltraDMA-66 / 33 IDE, 2 (or 3) USB (1.1) ports, Super-I/O functions (floppy disk drive interface and serial / parallel ports), and AC-97 link supporting digital audio functions.

The Vega86 SBC supports SDRAMs up to 256MB. As to the SDRAM controller, it meets the standard PC133 Synchronous DRAM (SDRAM). The Synchronous DRAM interface allows zero wait state bursting between the SDRAM and the data buffers at 133MHz.

The Vega86 SBC integrates S3 Graphics and 128-bit ProSavage4 graphics accelerators that bring mainstream graphics performance to the Value PC with leading-edge 2D, 3D and DVD video acceleration into a cost effective package. Vega86 SBC also combines the industry's first integrated AGP 4X solution with Microsoft Direct-X texture compression and massive 2Kx2K textures to deliver unprecedented 3D performance and image quality for the Value PC mobile market.

Vega86 SBC's South Bridge supports four levels (doubleword) of line buffers, DMA transfers and delay transaction to allow efficient PCI bus utilization and (PCI-2.2 compliant). The VT82C686B also includes an integrated Super I/O, integrated DS12885 style real time clock with extended 256 byte CMOS RAM, integrated master mode enhanced IDE controller with full scatter / gather capability, integrated two (or three) USB (1.1) interface with root hub and two function ports with built-in physical layer transceivers, Distributed DMA support and integrated AC-97 link for basic audio functions.

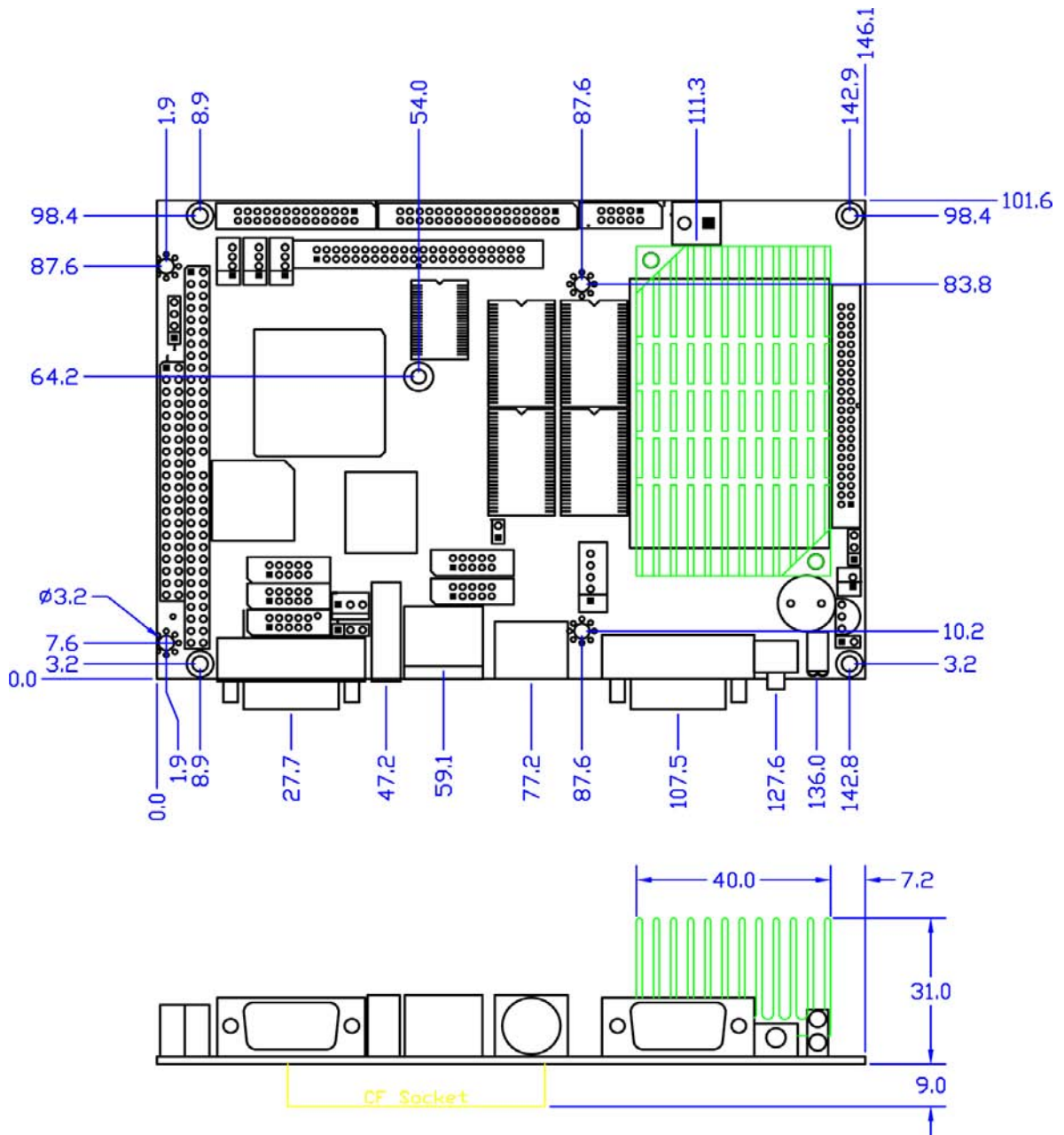
Regarding the network architecture application, Vega86 SBC equips with the Realtek RTL8100B, which is a highly integrated, cost-effective single-chip Fast Ethernet controller able to provide 32-bit performance, PCI bus master capability, and full compliance with IEEE 802.3u 10/100Base-T specifications and IEEE 802.3x Full Duplex Flow Control.

1.3 Specification

| Features | Vega86-6247 |
|----------------|---|
| CPU | VIA Mark CoreFusion 533MHz |
| Chipset | VIA VT82C686B |
| BIOS | AMI BIOS |
| System Memory | 256MB SDRAM onboard |
| Cache | L1:64KB L2:64KB |
| Bus Interface | PC/104 Standard Compliant |
| Watchdog Timer | None |
| VGA | Integrated 2D/3D AGP2X graphics with MPEG2 Accelerator, Shared system memory 8M/16M/32M VGA, SVGA, XGA, SXGA and DSTN/TFT Flat Panel interface support |
| LAN | Realtek 8100B 10/100Mbps Ethernet Controller Half/Full duplex capability |
| Audio | VIA VT1612A, AC97 2.2 Specification. |
| I/O Interface | <ul style="list-style-type: none"> ● Enhanced IDE interface (UltraDMA-100 / 66 / 33) x1 ● FDD interface x1 ● RS232 port x5 ● RS-232/485 port x1 (RS485 with Auto Direction) ● Parallel port x1 ● USB port x3 (USB 1.1 version) ● 10/100Mbps Ethernet port x1 |
| Connectors | <ul style="list-style-type: none"> ● 2.00 mm Ø 44-pin box header for IDE x1 ● 2.00 mm Ø 44-pin box header for LCD x 1 ● 2.00 mm Ø 34-pin box header for FDD x1 ● 2.00 mm Ø 26-pin box header for Printer x1 ● 2.00 mm Ø 10-pin box header for RS-232 x5 ● 2.00 mm Ø 10-pin header for USB (for 2 USB ports) x1 ● 2.00 mm Ø4-pin wafer for Line-in/Line-out/MIC-in x3 ● 2.54 mm Ø5-pin box header for Keyboard x1 ● 2.54 mm Ø3-pin header for RS-485 x1 ● 2.54 mm Ø2-pin header for Reset x1 ● 2.54mm 4-pin header for +12V, -12V, -5V x1 ● External 15-pin D-Sub female connector for VGA x1 ● External 9-pin D-Sub male connector for RS-232 x1 ● External RJ-45 connector for Ethernet x1 ● External USB connector for x1 ● External Mini DIN socket for Keyboard/Mouse x1 ● Type I/II Compact Flash slot x1 |

| | |
|-----------------------|--|
| Flash Disk Support | <ul style="list-style-type: none"> ● 44-pin IDE Flash Disk(EmbedDisk 16MB or above) ● Type I/II CF Card |
| Power Requirement | Single Voltage +5V @2.25A |
| Dimension | 102 X 144mm (4.01 x 5.67 inches) |
| Weight | 290g |
| Operating Temperature | -20°C ~ +60°C |

1.4 Board Dimension

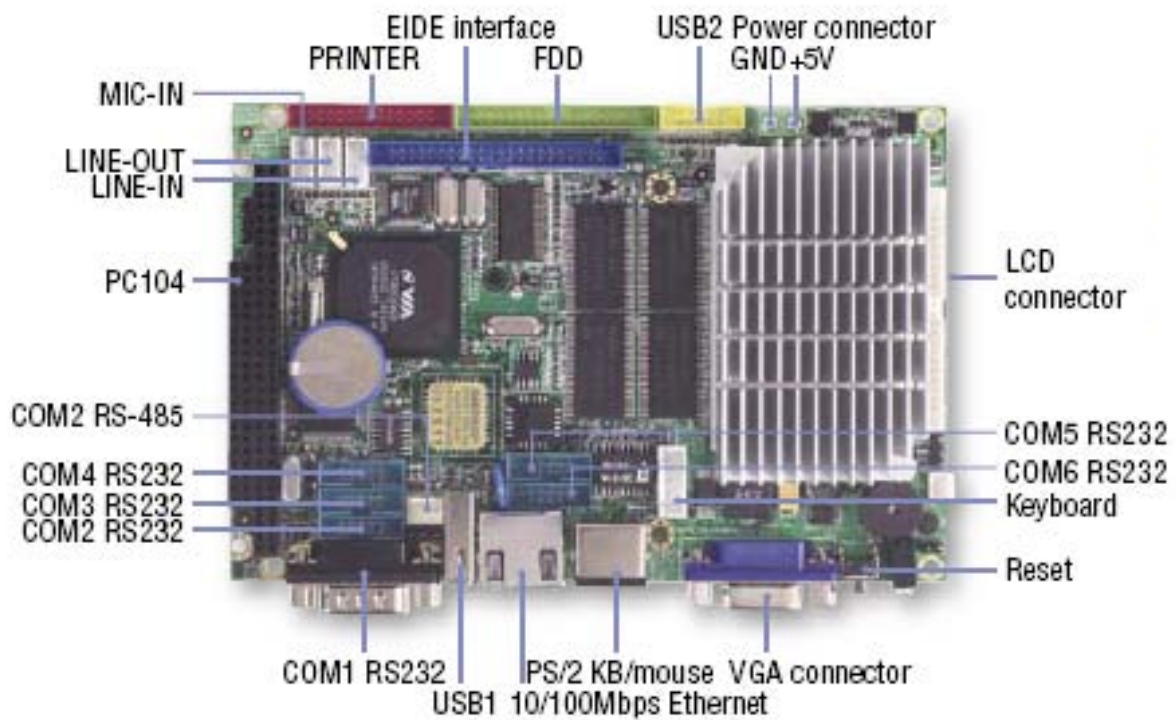


Unit: mm

Chapter 2

Installation

2.1 Board Outline

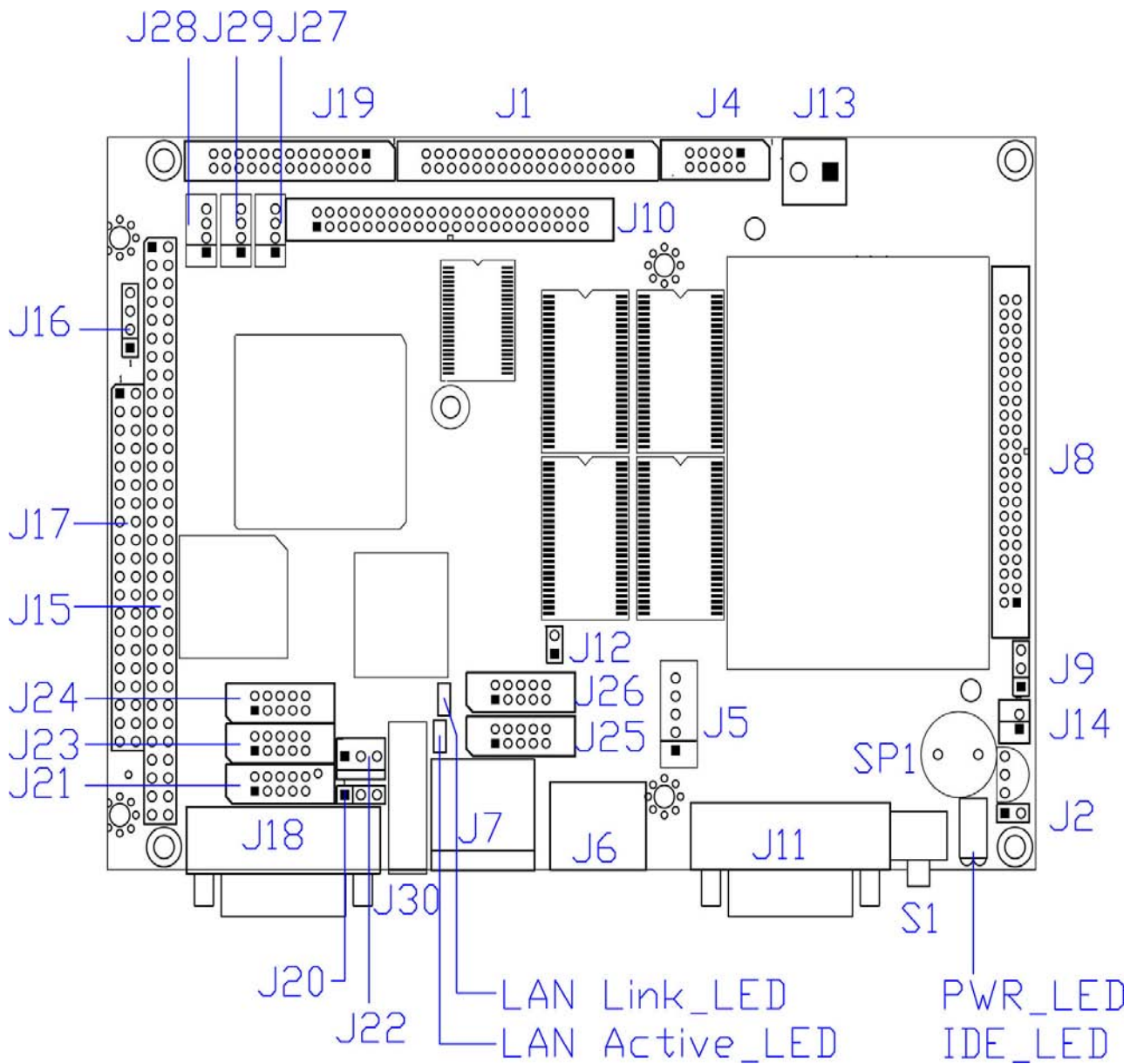


To guarantee the stability & maximum performance of original design, Vega86-6247 must be used with the manufacturer designated passive heat sink shown as below photo.

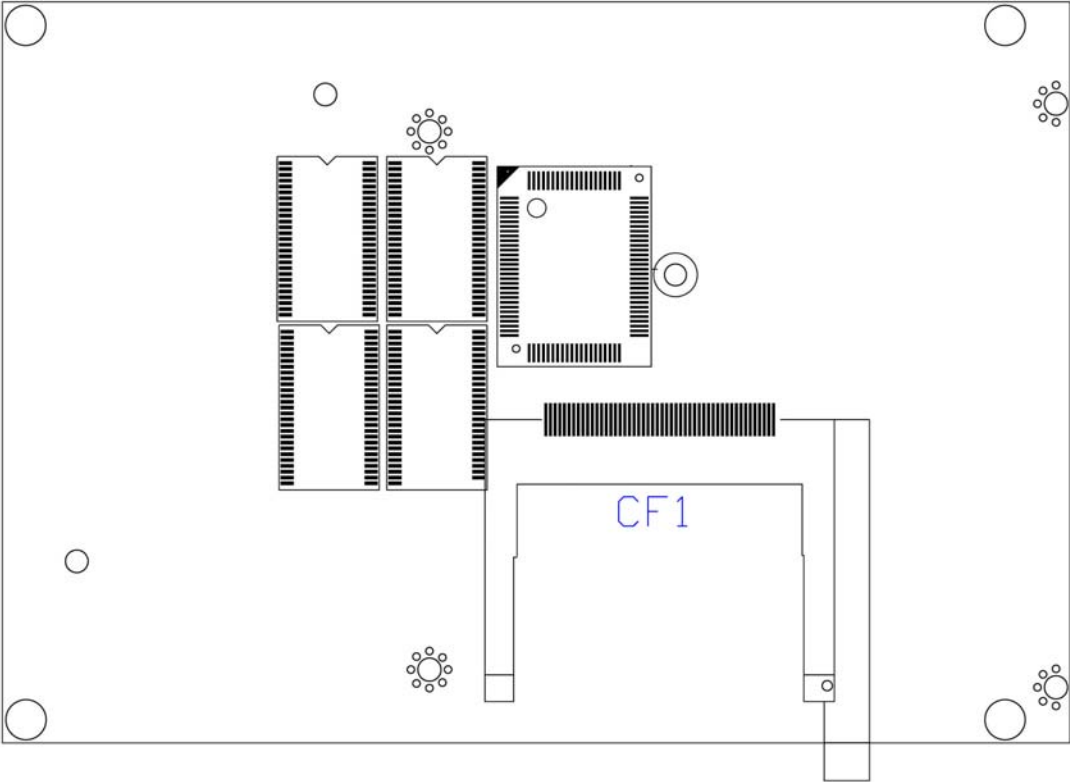


2.2 Connectors & Jumpers Location

Solder Side



Bottom side



2.3 Connectors & Jumpers Summary

| Summary Table | | | |
|---------------|--|--------------------------|-----------|
| Nbr | Description | Type of Connections | Pin nbrs. |
| J1 | FDD | Pin Header, 2.0Ø ,17x2 | 10-pin |
| J2 | Reset | Pin Header, 2,54Ø,1x2 | 2-pin |
| J4 | USB | Box Header,2.0Ø , 5x2 | 10-pin |
| J5 | Keyboard | Pin Header, 2,54Ø,1x5 | 5-pin |
| J6 | PS/2 Keyboard / Mouse | Mini-DIN Female | 6-pin |
| J7 | LAN | RJ45 | 8-pin |
| J8 | LCD Connector | Box Header,2.0Ø , 22x2 | 44-pin |
| J9 | LCD Volts Sel. (5V or 3.3V) | Pin Header, 2.54Ø ,3x1 | 3-pin |
| J10 | IDE | Box Header, 2.0Ø ,22x2 | 44-pin |
| J11 | VGA | D-Sub Female | 15-pin |
| J12 | CF Card Master/Slave Select | Pin Header, 2.54Ø, 2x1 | 2-pin |
| J13 | Power Connector | Terminal Block 5.0Ø,2x1 | 2-pin |
| J14 | FAN (Reserved Power-output for FAN) | Molex Header,2.0Ø , 2x1 | 2-pin |
| J15 | PC104 Connector – 64 pin | Box Header, 2.54Ø 32x2 | 64-pin |
| J16 | 4P Power Source (Interconnect to PC/104 - J15) | Pin Header, 2.54Ø , 4x1 | 4-pin |
| J17 | PC104 Connector – 40 pin | Box Header, 2.54Ø 20x2 | 40-pin |
| J18 | COM1 | D-Sub Male | 9-pin |
| J19 | PRINT | Pin Header, 2.0Ø , 13x2 | 26-pin |
| J20 | RS232/RS485 Select (COM 2) | Pin Header, 2.54Ø, 3x1 | 3-pin |
| J21 | COM2 | Pin Header, 2.0Ø 5x2 | 10-pin |
| J22 | RS-485 | Molex Header,2.54Ø , 3x1 | 3-pin |
| J23 | COM3 | Pin Header, 2.0Ø 5x2 | 10-pin |
| J24 | COM4 | Pin Header, 2.0Ø 5x2 | 10-pin |
| J25 | COM5 | Pin Header, 2.0Ø 5x2 | 10-pin |
| J26 | COM6 | Pin Header, 2.0Ø 5x2 | 10-pin |
| J27 | LINE OUT | Molex Header, 2.0Ø, 4x1 | 4-pin |
| J28 | MIC IN | Molex Header, 2.0Ø, 4x1 | 4-pin |
| J29 | LINE IN | Molex Header, 2.0Ø, 4x1 | 4-pin |
| J30 | USB | USB connector | 4-pin |
| CF1 | Compact Flash | Type I/II CF Connector | 50-pin |
| LED 0 | LAN Active LCD (Green) | LED-SMD | |

| | | | |
|---------|---------------------------|---------|--|
| LED 1 | LAN 1 Link LED (Yellow) | LED-SMD | |
| PWR_LED | POWER Active LED | | |
| IDE_LED | IDE Link LED | | |
| SP1 | BUZZER | | |
| S1 | RESET SWITCH | | |

2.4 Pin Assignments & Jumper Settings

J1: FDD

| Pin # | Signal Name | Pin # | Signal Name |
|-------|-------------|-------|-------------|
| 34 | DSKCHG\ | 33 | GND |
| 32 | HDSEL\ | 31 | GND |
| 30 | RD\ | 29 | GND |
| 28 | WP\ | 27 | GND |
| 26 | TR0\ | 25 | GND |
| 24 | WG\ | 23 | GND |
| 22 | WD\ | 21 | GND |
| 20 | STEP\ | 19 | GND |
| 18 | DIR\ | 17 | GND |
| 16 | MTR1\ | 15 | GND |
| 14 | DS0\ | 13 | GND |
| 12 | DS1\ | 11 | GND |
| 10 | MTR0\ | 9 | GND |
| 8 | INDEX\ | 7 | GND |
| 6 | DRV1 | 5 | GND |
| 4 | NC | 3 | GND |
| 2 | DENSEL | 1 | GND |

J2: RESET

| Pin # | Signal Name | Pin # | Signal Name |
|-------|-------------|-------|-------------|
| 1 | RST_SW | 2 | GND |

J4: USB

| Pin # | Signal Name | Pin # | Signal Name |
|-------|-------------|-------|-------------|
| 1 | VCC | 2 | VCC |
| 3 | -DATA1 | 4 | -DATA0 |
| 5 | +DATA1 | 6 | +DATA0 |
| 7 | GND | 8 | GND |
| 9 | GND | 10 | GND |

J5: Keyboard

| Pin # | Signal Name | Pin # | Signal Name |
|-------|-------------|-------|-------------|
| 1 | KBCLK | 2 | KBDAT |
| 3 | NC | 4 | GND |
| 5 | +5V | | |

J6: PS/2 Keyboard / Mouse

| Pin # | Signal Name | Pin # | Signal Name |
|-------|-------------|-------|-------------|
| 1 | KBCLK | 2 | MSCLK |
| 3 | GND | 4 | KBDAT |
| 5 | IRQ12 | 6 | +5V |

J7: LAN

| Pin # | Signal Name | Pin # | Signal Name |
|-------|-------------|-------|-------------|
| 1 | TX+ | 2 | TX- |
| 3 | RX+ | 4 | LED0 |
| 5 | LED0+ | 6 | RX- |
| 7 | LED1+ | 8 | LED1 |

J8: LCD Connector

| Pin # | Signal Name | Pin # | Signal Name |
|-------|-------------|-------|-------------|
| 1 | LCDVCC | 2 | LCDVCC |
| 3 | FPD0 | 4 | FPD1 |
| 5 | FPD2 | 6 | FPD3 |
| 7 | FPD4 | 8 | FPD5 |
| 9 | FPD6 | 10 | FPD7 |
| 11 | FPD8 | 12 | FPD9 |
| 13 | FPD10 | 14 | FPD11 |
| 15 | FPD12 | 16 | FPD13 |
| 17 | FPD14 | 18 | FPD15 |
| 19 | FPD16 | 20 | FPD17 |
| 21 | FPD18 | 22 | FPD19 |
| 23 | FPD20 | 24 | FPD21 |
| 25 | FPD22 | 26 | FPD23 |
| 27 | FP24 | 28 | FP25 |
| 29 | FPD26 | 30 | FPD27 |
| 31 | FPD28 | 32 | FPD29 |
| 33 | GND | 34 | GND |
| 35 | FPD30 | 36 | FPCLK |
| 37 | FPD31 | 38 | FPDEN |
| 39 | FPD32 | 40 | FPHS |
| 41 | FPD34 | 42 | FPVS |
| 43 | ENVEE | 44 | ENVDD |

(Please refer to Appendix A, B for STN and TFT Flat Panel Data Output)

J9: LCD Volts Sel.

| Pin # | Signal Name | Pin # | Signal Name |
|-------|-------------|-------|-------------|
| 1-2 | +5V | 2-3 | +3.3V |

J10: IDE

| Pin # | Signal Name | Pin # | Signal Name |
|-------|-------------|-------|-------------|
| 1 | PCIRST- | 2 | GND |
| 3 | IDED7 | 4 | IDED8 |
| 5 | IDED6 | 6 | IDED9 |
| 7 | IDED5 | 8 | IDED10 |
| 9 | IDED4 | 10 | IDED11 |
| 11 | IDED3 | 12 | IDED12 |
| 13 | IDED2 | 14 | IDED13 |
| 15 | IDED1 | 16 | IDED14 |
| 17 | IDED0 | 18 | IDED15 |
| 19 | GND | 20 | NC |
| 21 | IDEREQ | 22 | GND |
| 23 | IDEIOW- | 24 | GND |
| 25 | IDEIOR- | 26 | GND |
| 27 | ICHRDY | 28 | GND |
| 29 | IDEACK- | 30 | GND |
| 31 | IRQ14 | 32 | NC |
| 33 | IDESA1 | 34 | PD_80P |
| 35 | IDESA0 | 36 | IDESA2 |
| 37 | IDECS-0 | 38 | IDECS1 |
| 39 | DASP | 40 | GND |
| 41 | VCC | 42 | VCC |
| 43 | GND | 44 | NC |

J11: VGA

| Pin # | Signal Name | Pin # | Signal Name |
|-------|-------------|-------|-------------|
| 1 | R OUT | 2 | GND |
| 3 | G OUT | 4 | GND |
| 5 | B OUT | 6 | GND |
| 7 | HSYNC | 8 | GND |
| 9 | VSYNCD | 10 | GND |

J12: CF Card Master/Slave Select

| Pin # | Signal Name |
|-------|-------------|
| OPEN | Slave |
| CLOSE | Master |

J13: Power Connector

| Pin # | Signal Name |
|-------|-------------|
| 1 | 5V |
| 2 | GND |

J14: FAN

| Pin # | Signal Name |
|-------|-------------|
| 1 | 5V |
| 2 | GND |

J15: PC104 Connector – 64pin

| Pin # | Signal Name | Pin # | Signal Name |
|-------|-------------|-------|-------------|
| 1 | IOCHCHK * | 2 | GND |
| 3 | SD7 | 4 | RESETDRV |
| 5 | SD6 | 6 | +5V |
| 7 | SD5 | 8 | IRQ9 |
| 9 | SD4 | 10 | -5V |
| 11 | SD3 | 12 | DRQ2 |
| 13 | SD2 | 14 | -12V |
| 15 | SD1 | 16 | OWS |
| 17 | SD0 | 18 | +12V |
| 19 | IOCHRDY | 20 | GND |
| 21 | AEN | 22 | SMEMW * |
| 23 | SA19 | 24 | SMEMR * |
| 25 | SA18 | 26 | IOW * |
| 27 | SA17 | 28 | IOR * |
| 29 | SA16 | 30 | DACK3 * |
| 31 | SA15 | 32 | DRQ3 |
| 33 | SA14 | 34 | DACK1 * |
| 35 | SA13 | 36 | DRQ1 |
| 37 | SA12 | 38 | REFRESH * |
| 39 | SA11 | 40 | SYSCLK |
| 41 | SA10 | 42 | IRQ7 |
| 43 | SA9 | 44 | IRQ6 |
| 45 | SA8 | 46 | IRQ5 |

| | | | |
|----|-----|----|---------|
| 47 | SA7 | 48 | IRQ4 |
| 49 | SA6 | 50 | IRQ3 |
| 51 | SA5 | 52 | DACK2 * |
| 53 | SA4 | 54 | TC |
| 55 | SA3 | 56 | BALE |
| 57 | SA2 | 58 | +5V |
| 59 | SA1 | 60 | OSC |
| 61 | SA0 | 62 | GND |
| 63 | GND | 64 | GND |

J16: 4P Power Source (Interconnect to PC/104 - J15)

| Pin # | Signal Name |
|-------|-------------|
| 1 | +12V |
| 2 | -12V |
| 3 | -5V |
| 4 | GND |

J17: PC104 Connector – 40pin

| Pin # | Signal Name | Pin # | Signal Name |
|-------|-------------|-------|-------------|
| 1 | GND | 2 | GND |
| 3 | MEMCS16 * | 4 | SBHE * |
| 5 | IOCS16 * | 6 | SA23 |
| 7 | IRQ10 | 8 | SA22 |
| 9 | IRQ11 | 10 | SA21 |
| 11 | IRQ12 | 12 | SA20 |
| 13 | IRQ15 | 14 | SA19 |
| 15 | IRQ14 | 16 | SA18 |
| 17 | DACK0 * | 18 | SA17 |
| 19 | DRQ0 | 20 | MEMR * |
| 21 | DACK5 * | 22 | MEMW * |
| 23 | DRQ5 | 24 | SD8 |
| 25 | DACK6 * | 26 | SD9 |
| 27 | DRQ6 | 28 | SD10 |
| 29 | DACK7 * | 30 | SD11 |
| 31 | DRQ7 | 32 | SD12 |
| 33 | +5V | 34 | SD13 |
| 35 | MASTER * | 36 | SD14 |
| 37 | GND | 38 | SD15 |
| 39 | GND | 40 | NC |

J18: COM 1

| Pin # | Signal Name | Pin # | Signal Name |
|-------|-------------|-------|-------------|
| 1 | DCD1 | 2 | RXD1 |
| 3 | TXD1 | 4 | DTR1 |
| 5 | GND | 6 | DSR1 |
| 7 | RTS1 | 8 | CTS1 |
| 9 | RI1 | 10-11 | GGND |

J19: PRINT

| Pin # | Signal Name | Pin # | Signal Name |
|-------|-------------|-------|-------------|
| 1 | STB- | 2 | PD0 |
| 3 | PD1 | 4 | PD2 |
| 5 | PD3 | 6 | PD4 |
| 7 | PD5 | 8 | PD6 |
| 9 | PD7 | 10 | ACK- |
| 11 | BUSY | 12 | PE |
| 13 | SLCT | 14 | AFD- |
| 15 | ERR- | 16 | PRINIT- |
| 17 | SLIN- | 18 | GND |
| 19 | GND | 20 | GND |
| 21 | GND | 22 | GND |
| 23 | GND | 24 | GND |
| 25 | GND | 25 | GND |

J20: RS232/RS485 Select (COM2)

| Pin # | Signal Name |
|-------|-------------|
| 1-2 | COM2 RS232 |
| 2-3 | RS485 |

J21: COM2

| Pin # | Signal Name | Pin # | Signal Name |
|-------|-------------|-------|-------------|
| 1 | DCD2 | 2 | RXD2 |
| 3 | TXD2 | 4 | DTR2 |
| 5 | GND | 6 | DSR2 |
| 7 | RTS2 | 8 | CTS2 |
| 9 | RI2 | 10 | VCC |

J22: RS485 (Auto direction)

| Pin # | Signal Name |
|-------|-------------|
| 1 | RS485+ |
| 2 | RS485- |
| 3 | GND |

J23: COM3

| Pin # | Signal Name | Pin # | Signal Name |
|-------|-------------|-------|-------------|
| 1 | DCD3 | 2 | RXD3 |
| 3 | TXD3 | 4 | DTR3 |
| 5 | GND | 6 | DSR3 |
| 7 | RTS3 | 8 | CTS3 |
| 9 | RI3 | 10 | VCC |

J24: COM4

| Pin # | Signal Name | Pin # | Signal Name |
|-------|-------------|-------|-------------|
| 1 | DCD4 | 2 | RXD4 |
| 3 | TXD4 | 4 | DTR4 |
| 5 | GND | 6 | DSR4 |
| 7 | RTS4 | 8 | CTS4 |
| 9 | RI4 | 10 | VCC |

J25: COM5

| Pin # | Signal Name | Pin # | Signal Name |
|-------|-------------|-------|-------------|
| 1 | DCD5 | 2 | RXD5 |
| 3 | TXD5 | 4 | DTR5 |
| 5 | GND | 6 | DSR5 |
| 7 | RTS5 | 8 | CTS5 |
| 9 | RI5 | 10 | VCC |

J26: COM6

| Pin # | Signal Name | Pin # | Signal Name |
|-------|-------------|-------|-------------|
| 1 | DCD6 | 2 | RXD6 |
| 3 | TXD6 | 4 | DTR6 |
| 5 | GND | 6 | DSR6 |
| 7 | RTS6 | 8 | CTS6 |
| 9 | RI6 | 10 | VCC |

J27: LINE OUT

| Pin # | Signal Name |
|-------|-------------|
| 1 | LOUTR |
| 2 | GND |
| 3 | GND |
| 4 | LOUTL |

J28: MIC IN

| Pin # | Signal Name |
|-------|-------------|
| 1 | VREFOUT |
| 2 | GND |
| 3 | GND |
| 4 | MICIN |

J29: LINE IN

| Pin # | Signal Name |
|-------|-------------|
| 1 | LINEIN_R |
| 2 | GND |
| 3 | GND |
| 4 | LINEIN_L |

J30: USB

| Pin # | Signal Name | Pin # | Signal Name |
|-------|-------------|-------|-------------|
| 1 | VCC | 2 | VCC |
| 3 | -DATA1 | 4 | -DATA0 |
| 5 | +DATA1 | 6 | +DATA0 |
| 7 | GND | 8 | GND |
| 9 | GND | 10 | GND |

2.5 System Mapping

System Mapping (系統佔用位址說明)

Memory Mapping

| Address | Description | Usage |
|---------------------|--|-------|
| 0000:0000-9000:FFFF | System RAM | * |
| A000:0000-A000:FFFF | EGA/VGA Video Memory | * |
| B000:0000-B000:7FFF | MDA RAM, Hercules graphics display RAM | * |
| B000:8000-B000:FFFF | CGA display RAM | * |
| C000:0000-C000:DFFF | EGA/VGA BIOS ROM | * |
| CE00:0000-CE00:FFFF | Boot ROM enable. | * |
| CF00:0000-E000:7FFF | Expansion ROM space. | |
| E000:8000-E000:FFFF | USB Legacy SCSI ROM space. | * |
| F000:0000-F000:FFFF | Motherboard BIOS | * |

I/O Mapping

| I/O Address | Owner | Usage |
|-------------|----------------------------------|-------|
| 000h - 00Fh | 8237 DMA Controller #1 | * |
| 020h - 021h | 8259 Master Interrupt Controller | * |
| 040h - 043h | 8253 Programmable Timer | * |
| 060h - 06Fh | 8042 Keyboard Controller | * |
| 070h - 07Fh | RTC, NMI Mask Register | * |
| 080h - 09Fh | DMA Page Registers | * |
| 0A0h - 0B1h | 8259 Slave Interrupt Controller | * |
| 0C0h - 0DFh | 8237 DMA Controller #2 | * |
| 0F0h - 0F1h | Math Coprocessor | * |
| 0F8h - 0FFh | Math Coprocessor | * |
| 170h - 177h | Hard Disk Controller #2 | |
| 1F0h - 1F7h | Hard Disk Controller #1 | * |
| 278h - 27Fh | Parallel Printer | * |
| 2E0h - 2E7h | Serial Port 6 | * |
| 2E8h - 2EFh | Serial Port 4 | * |
| 2F8h - 2FFh | Serial Port 2 | * |
| 378h - 37Fh | Parallel Printer | |
| 3B0h - 3BBh | MDA Adapter | * |

| | | |
|-------------|----------------------|---|
| 3BCh - 3BFh | Parallel Printer | |
| 3C0h - 3CFh | VGA/EGA Adapter | * |
| 3D0h - 3DFh | CGA Adapter | * |
| 3E0h - 3E7h | Serial Port 5 | * |
| 3E8h - 3EFh | Serial Port 3 | * |
| 3F0h - 3F7h | Floppy Controller #1 | * |
| 3F8h - 3FFh | Serial Port 1 | * |

IRQ Mapping

| IRQ# | Description | Usage |
|-------|--|-------|
| IRQ0 | System Timer | * |
| IRQ1 | Keyboard Controller | * |
| IRQ2 | Cascade for IRQ8 - 15 | |
| IRQ3 | Serial Port 2 | * |
| IRQ4 | Serial Port 1 | * |
| IRQ5 | Serial Port 5 | * |
| IRQ6 | Floppy Disk Controller | * |
| IRQ7 | Parallel Port 1 | * |
| IRQ8 | Real Time Clock | * |
| IRQ9 | Ethernet 10/100M LAN / Codec AC'97 / USB | * |
| IRQ10 | Serial Port 3 | * |
| IRQ11 | Serial Port 4 | * |
| IRQ12 | Mouse | * |
| IRQ13 | Math Coprocessor | * |
| IRQ14 | Hard Disk Controller | * |
| IRQ15 | Serial Port 6 | * |

DMA Mapping

| DMA# | Description | Usage |
|------|------------------------|-------|
| DMA0 | | |
| DMA1 | | |
| DMA2 | Floppy Disk Controller | * |
| DMA3 | | |
| DMA5 | | |
| DMA6 | | |
| DMA7 | | |

Chapter 3

Driver Installation

VGA

The Mark CoreFusion processor also integrates S3 Graphics' 128-bit ProSavage4 graphics accelerator that brings mainstream graphics performance to the Value PC with leading-edge 2D, 3D and DVD video acceleration into a cost effective package. Mark CoreFusion also combines the industry's first integrated AGP 4X solution with Microsoft Direct-X texture compression and massive 2Kx2K textures to deliver unprecedented 3D performance and image quality for the Value PC mobile market.

LAN

The Realtek RTL-8100B 10/100Mbps Ethernet controller board supports both 10/100BASE-T and allows direct connection to your 10/100Mbps Ethernet based Local Area Network for full interaction with local servers, wide area networks such as the Internet.

I/O and IRQ settings can be done by software with the supplied utility software, or it can be set for Plug and Play compatibility. The controller supports: Half / Full-Duplex Ethernet function to double channel bandwidth, auto media detection.

Audio

The VIA VT1612A Audio Codec conforms to the AC'97 2.2 specification providing 18-bit resolution performance. With 2 channel outputs the VIA VT1612A provides high-performance stereo quality for headphones or speaker connections. Furthermore, an integrated headphone amplifier with thermal shutdown reduces the need for further external components. The VIA VT1612A includes analog mixer circuitry for stereo enhancement to provide a pleasing 3D surround sound effect for stereo media. For a completely digital audio path the VIA VT1612A includes an integrated IEC958 line driver for S/PDIF compressed digital or LPCM audio out.

The Vega86-6247 3.5" CPU board provides the VGA, LAN and Audio drivers for Windows CE.NET 4.2, Windows CE 5.0, Windows 98, Windows XP and Windows XP Embedded. Please get the drivers from the Driver CD which attached with the standard packing of Vega86-6247 board or please get it from VIA Mark CoreFusion official website:

<http://www.viaarena.com/default.aspx?PageID=2> .

Vega86-6247 also supports most of the popular Linux distributions, for example XFree86, Fedora, Mankrake, SuSE and so on. To get the most update Linux driver, please get it from VIA Mark CoreFusion official website <http://www.viaarena.com/default.aspx?PageID=2&Type=3> .

Appendix

A. STN Flat Panel Data Output

| Pin Name | STN8 | STN16 | STN24 | DSTN8 | DSTN16 | DSTN24 | DSTN16 | DSTN24 |
|----------|------|-------|-------|-------|--------|--------|--------|--------|
| FPD0 | R0 | R0 | R0 | LR0 | LR0 | LR0 | | LB3 |
| FPD1 | G0 | G0 | G0 | | | LR3 | | LB2 |
| FPD2 | B0 | B0 | B0 | LG0 | LG0 | LG0 | LB1 | LB1 |
| FPD3 | R1 | R1 | R1 | | | | LB0 | LB0 |
| FPD4 | G1 | G1 | G1 | LB0 | LB0 | LB0 | | UB3 |
| FPD5 | B1 | B1 | B1 | | | | | UB2 |
| FPD6 | R2 | R2 | R2 | LR1 | LR1 | LR1 | UB1 | UB1 |
| FPD7 | G2 | G2 | G2 | | | LG3 | UB0 | UB0 |
| FPD8 | | B2 | B2 | | LG1 | LG1 | | LG3 |
| FPD9 | | R3 | R3 | | | | LG2 | LG2 |
| FPD10 | | G3 | G3 | | LB1 | LB1 | LG1 | LG1 |
| FPD11 | | B3 | B3 | | | | LG0 | LG0 |
| FPD12 | | R4 | R4 | | LR2 | LR2 | | UG3 |
| FPD13 | | G4 | G4 | | | LB3 | UG2 | UG2 |
| FPD14 | | B4 | B4 | | LG2 | LG2 | UG1 | UG1 |
| FPD15 | | R5 | R5 | | | | UG0 | UG0 |
| FPD16 | | | G5 | | | LB2 | | LR3 |
| FPD17 | | | B5 | | | | LR2 | LR2 |
| FPD18 | | | R6 | UR0 | UR0 | UR0 | LR1 | LR1 |
| FPD19 | | | G6 | | | UR3 | LR0 | LR0 |
| FPD20 | | | B6 | UG0 | UG0 | UG0 | | UR3 |
| FPD21 | | | R7 | | | | UR2 | UR2 |
| FPD22 | | | G7 | UB0 | UB0 | UB0 | UR1 | UR1 |
| FPD23 | | | B7 | | | | UR0 | UR0 |
| FPD24 | | | | UR1 | UR1 | UR1 | | |
| FPD25 | | | | | | UG3 | | |
| FPD26 | | | | | UG1 | UG1 | | |
| FPD27 | | | | | | | | |
| FPD28 | | | | | UB1 | UB1 | | |
| FPD29 | | | | | | UB3 | | |
| FPD30 | | | | | UR2 | UR2 | | |
| FPD31 | | | | | | UB3 | | |
| FPD32 | | | | | UG2 | UG2 | | |
| FPD33 | | | | | | | | |
| FPD34 | | | | | | UB2 | | |
| FPD35 | | | | | | | | |

B. TFT Flat Panel Data Output

| Pin Name | TFT18 | TFT2x18 | TFT24 |
|----------|-------|---------|-------|
| FPD0 | | R14 | B0 |
| FPD1 | | R15 | B1 |
| FPD2 | B0 | B00 | B2 |
| FPD3 | B1 | B01 | B3 |
| FPD4 | B2 | B02 | B4 |
| FPD5 | B3 | B03 | B5 |
| FPD6 | B4 | B04 | B6 |
| FPD7 | B5 | B05 | B7 |
| FPD8 | | R12 | G0 |
| FPD9 | | R13 | G1 |
| FPD10 | G0 | G00 | G2 |
| FPD11 | G1 | G01 | G3 |
| FPD12 | G2 | G02 | G4 |
| FPD13 | G3 | G03 | G5 |
| FPD14 | G4 | G04 | G6 |
| FPD15 | G5 | G05 | G7 |
| FPD16 | | R10 | R0 |
| FPD17 | | R11 | R1 |
| FPD18 | R0 | R00 | R2 |
| FPD19 | R1 | R01 | R3 |
| FPD20 | R2 | R02 | R4 |
| FPD21 | R3 | R03 | R5 |
| FPD22 | R4 | R04 | R6 |
| FPD23 | R5 | R05 | R7 |
| FPD24 | | G10 | |
| FPD25 | | G11 | |
| FPD26 | | G12 | |
| FPD27 | | G13 | |
| FPD28 | | G14 | |
| FPD29 | | G15 | |
| FPD30 | | B10 | |
| FPD31 | | B11 | |
| FPD32 | | B12 | |
| FPD33 | | B13 | |
| FPD34 | | B14 | |
| FPD35 | | B15 | |

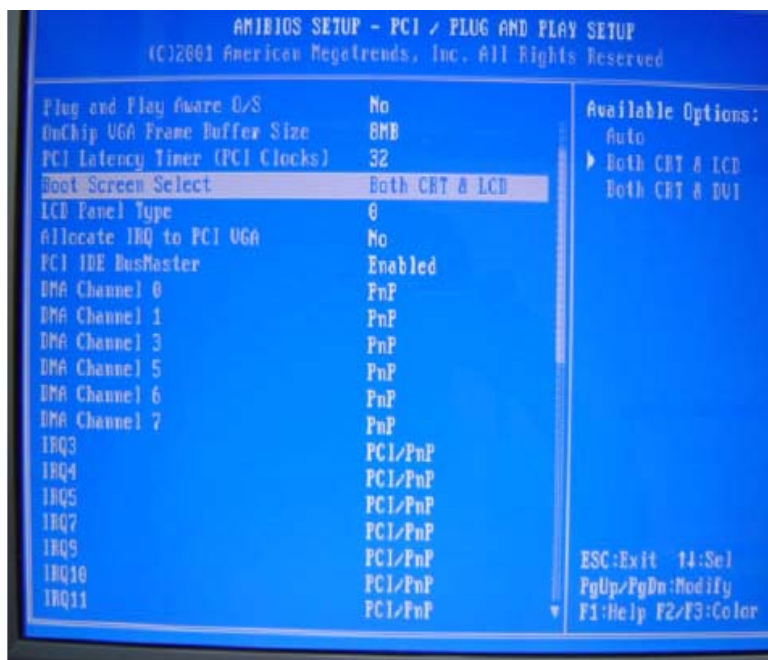
C. Flat Panel BIOS Setting

The Vega86-6247 offers the BIOS setting for the various LCD Flat Panel support. Before you connect the LCD Flat Panel to CPU Board, please go to BIOS→Enter “the PCI /Plug and Play Setup” → Adjust “Boot Screen” from “Auto “to “Both CRT & LCD”→choose” LCD Panel type”. This can be seen in the following description:

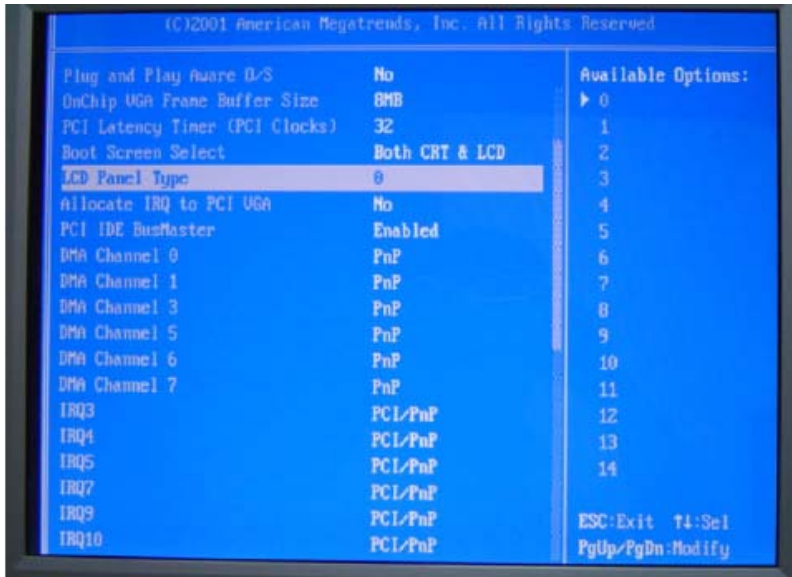
Enter the “PCI / Plug and Play Setup”



Adjust the “Boot Screen Select” from “Auto” to “Both CRT & LCD”



Make sure the "LCD Panel Type"



| LCD Panel Type | Function | |
|----------------|-----------|--|
| 0 | 640x480 | TFT at 24MHz (18bit,24bit) |
| 1 | 800x600 | TFT (for some special panel use) |
| 2 | 1024x768 | TFT 2 pixel / CLK at 32Mhz (36bit) |
| 3 | 1280x1024 | TFT 2 pixel / CLK at 81MHz (24bit) |
| 4 | 640x480 | DSTN at 25MHz (16bit) |
| 5 | 800x600 | DSTN at 40MHz (16bit) |
| 6 | 1024x768 | DSTN 2 pixel / CLK at 81MHz (24bit) |
| 7 | 1024x768 | TFT 1pixel / CLK at 65Mhz (18bit,24bit) |
| 8 | 640x480 | TFT not use (for special panel use) |
| 9 | 800x600 | TFT at 40MHz (18bit,24bit) |
| 10 | 1024x768 | TFT at 60MHz (18bit,24bit) |
| 11 | 1280x1024 | TFT 2 pixel / CLK at 54MHz (18bit,24bit) |
| 12 | 1400x1050 | TFT 2 pixel / CLK at 54Mhz |
| 13 | 800x600 | DSTN at 40MHz (24bit) |
| 14 | 1024x768 | DSTN at 65MHz (16bit) |

D. Flat Panel Wiring and Lighting

Before you connect the LCD Flat Panel with Vega86-6247, please make sure that the LCD Flat Panel use 3.3V or 5V, then place the J9 (see page 14) on the correct position.

For the Wiring, please refer to [Page 14\(J8: LCD connector\)](#) and [Page 25~28](#). Or for more LCD lighting and integration service, please contact our us.

Warranty

This product is warranted to be in good working order for a period of one year from the date of purchase. Should this product fail to be in good working order at any time during this period, we will, at our option, replace or repair it at no additional charge except as set forth in the following terms. This warranty does not apply to products damaged by misuse, modifications, accident or disaster. Vendor assumes no liability for any damages, lost profits, lost savings or any other incidental or consequential damage resulting from the use, misuse of, originality to use this product. Vendor will not be liable for any claim made by any other related party. Return authorization must be obtained from the vendor before returned merchandise will be accepted. Authorization can be obtained by calling or faxing the vendor and requesting a Return Merchandise Authorization (RMA) number. Returned goods should always be accompanied by a clear problem description.