



**User's Manual**

**3302014**

# 3302014

## User's Manual Version 1.1

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# Packing List

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## Hardware

3302014 Single Board Computer ..... X 1

## Cable Kit

IDE Flat Cable (UltraDMA/33)..... X 1

FDD Cable ..... X 1

Quad-COM Port DB9 Male Cable ..... X 1

Parallel Port DB25 Female Cable ..... X 2

Dual-USB Port Cable with Bracket ..... X 2

PS/2 Keyboard and Mouse Cable..... X 1

UltraATA/100 IDE Cable ..... X 1

VGA DB15 Female Cable ..... X 1

20-pin 16-it GPIO Cable..... X 1

Audio Cable ..... X 1

LAN RJ45 Cable (VL, CL, CL3 Only) ..... X 1

## Printed Matter and Software

User's Manual..... X 1

Driver CD ..... X 1

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# Chapter 1. Introduction

## 1.1 Product Overview

The 3302014 Single Board Computer is an all-in-one industrial 5.25" drive-size EBX-compliant littleboard computer based on Intel socket 370 architecture, supports Intel PPGA/FC-PGA Pentium-III/Celeron and VIA C3 CPU at 66, 100, 133 MHz FSB with PC-66/100/133 SDRAM. Based on VIA PL133 chipset with VIA 8604 and 686B, 3302014 supports CPU up to 1.1 GHz at 133 MHz FSB and 512 MB PC133 SDRAM and integrated 4xAGP S3 Savage4 3D SVGA, AC97 3D audio and UltraATA/100 PCI enhanced IDE interfaces. The high computing capacity and integrated multi-media functions make 3302014 be the ideal solution of industrial workstation, node terminal, transaction station, POS, Kiosk, panel PC, ATM and embedded application.

3302014 also integrates the applied interfaces including 4xAGP 3D SVGA with up to 32 MB of video memory shared with system memory, AC97 3D audio, Intel PRO/100+ 10/100 Mbps LAN, UltraATA/100 IDE, PC/104-plus, DiskOnChip interfaces, and 16-bit GPIO, 4 serial and 2 parallel ports. With these features, 3302014 provides the powerful system performance and integration solutions including, but not limited to the following.

### **Advanced Computing Platform**

Intel Pentium-III / Celeron or VIA C3 CPU supported up to 1.1 GHz with 133 MHz FSB, 512 MB PC133 SDRAM of system memory for high-end industrial computing platform with high CPU and memory loading.

### **Powerful VGA Interface**

Integrated on-die S3 Savage4 3D SVGA controller with up to 32 MB of video memory shared with system memory to offer the powerful video / image processing capacity. The optional C&T69K flat panel controller provides the TTL or 24-bit LVDS interface supported for flat panel displays with 2/4 MB of on-die video memory.

### **10/100 Mbps Fast Ethernet Interface**

Integrated with Intel PRO/100+ 10/100 Mbps Fast Ethernet interface with full duplex, IEEE 802.3U compliant.

### **Multiple I/O Port Interface**

Integrated 4 COM, 2 parallel, 4 USB and 16-bit GPIO ports for industrial applications.

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## 1.2 Specifications

### General Specification

Form Factor	5.25" drive-size EBX compliant littleboard computer
CPU	Socket 370 supports Intel Pentium-III / Celeron and VIA C3 CPUs up to 1.1 GHz at 66/100/133 MHz of FSB. Intel PPGA/FC-PGA CPU supported (up to Coppermine)
Chipset	VIA ProSavage PL133 with 8604 and 686B
DRAM	One 168-pin DIMM slot supports 512 MB PC133 SDRAM
BIOS	Phoenix-Award 2Mb PnP flash BIOS
Enhanced IDE	PCI enhanced IDE interface supports dual ports up to 4 ATAPI devices with UltraATA/100 supported One 40-pin box header connector One 44-pin box header connector
Green Function	Power saving mode supported in BIOS with DOZE, STANDBY and SUSPEND modes. ACPI version 1.0 and APM version 1.2 compliant
Watchdog Timer	6-level generates NMI or system reset programmable watchdog timer
Real Time Clock	VIA 686B built-in RTC with lithium battery

### Multi-I/O Ports

Chipset	VIA 686B built-in super I/O controller Winbond W83977EF-AW for COM3/4 and LPT2 Ports
Serial Port	Three RS-232 serial port COM1/3/4 and one jumper selectable RS-232/422/485 serial port COM2. Both with 16C550 compatible UART and 16 bytes FIFO
USB Port	Four USB ports with USB version 1.1 compliant Onboard dual 2x5 (10) pin header connectors
Parallel Port	Two bi-direction parallel port with SPP/ECP/EPP mode Onboard dual 2 x 13 (26) pin box header connectors
GPIO Port	One 16-bit programmable general purpose I/O port Onboard 2 x 10 (20) pin header connector
FDD	1 x FDD port supports up to two FDD
IrDA Port	1 x IrDA compliant Infrared interface supports SIR
K/B & Mouse	PS/2 keyboard and mouse ports with onboard 2 x 5 (10) pin header connector

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## Solid State Disk Interface

Flash Type	M-systems <a href="#">DiskOnChip-2000</a> and <a href="#">DiskOnChip Millennium</a> embedded solid state flash disk
Package	Single chip flash disk in 32-pin DIP JEDEC
Capacity	Up to 576 MB flash memory
Data Reliability	ECC / EDC data protection
Memory Window	8 Kbytes of memory window

## Display Interface

Chipset	VIA 8604 built-in S3 Savage4 3D SVGA controller
Video Memory	Up to 32 MB of video memory shared with system memory, selectable in BIOS
Display Type	CRT and LCD monitor at VGA, SVGA, XGA, SXGA, UXGA
Connector	Onboard 16-pin header connector with external DB15 female cable

## Ethernet Interface

Chipset	Intel PRO/100+ LAN interface with Intel 82559 Fast Ethernet controller
Type	10Base-T / 100Base-TX, auto-switching Fast Ethernet, full duplex, IEEE802.3U compliant
Connector	Onboard 10-pin header connector with external RJ45 cable

## Audio Interface

Chipset	VIA 686B integrated AC97 3D audio controller with onboard codec
Interface	Line-in, line-out, CD-in, Mic-out
Connector	Onboard 10-pin header connector for line-in, line-out and Mic-out Onboard 4-pin header connector for CD-in

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## Expansive Interface

PCI Bus	One 32-bit/33 MHz PCI slot with 3 x bus master PCI via an additional riser card
PC/104-plus	One PC/104-plus interface with 32-bit PCI-based 120-pin PC/104-plus interface and 16-bit ISA-based 104-pin PC/104 interface

---

## Power and Environment

Power Req.	+5V, +12V, -12V DC input +5V @ 4.2A typically with Intel Pentium-III 866 MHz CPU and 128 MB PC133 SDRAM
ATX Function	One 3-pin ATX interface with 5V standby
Dimension	146 x 203 mm or 5.75" x 8" (L x W), standard EBX size
Weight	0.30 Kg
Temperature	Operating within 0 ~ 60°C (32 ~ 140°F) Storage within -20 ~ 85°C (-4 ~ 185°F)

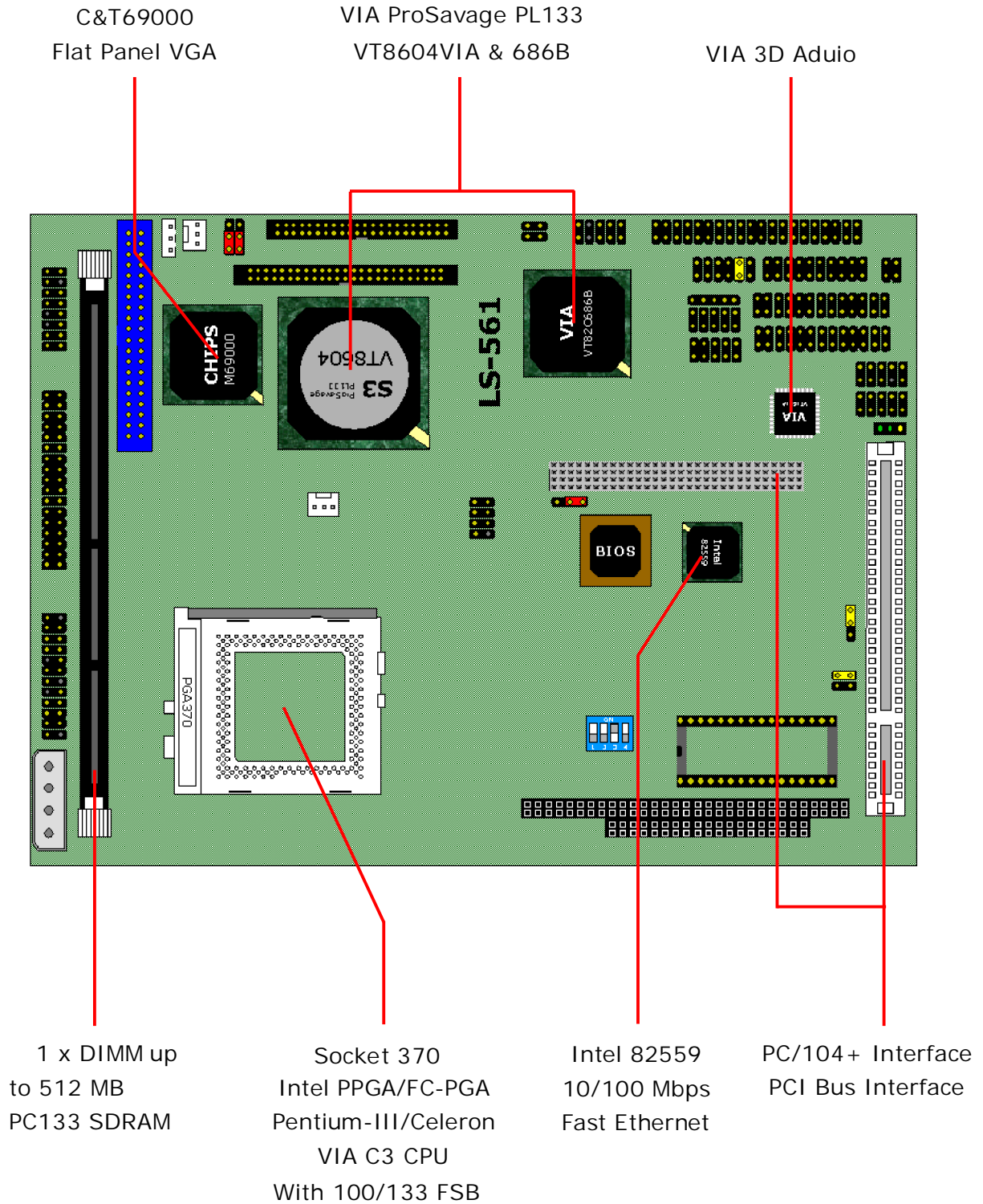
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## Ordering Code

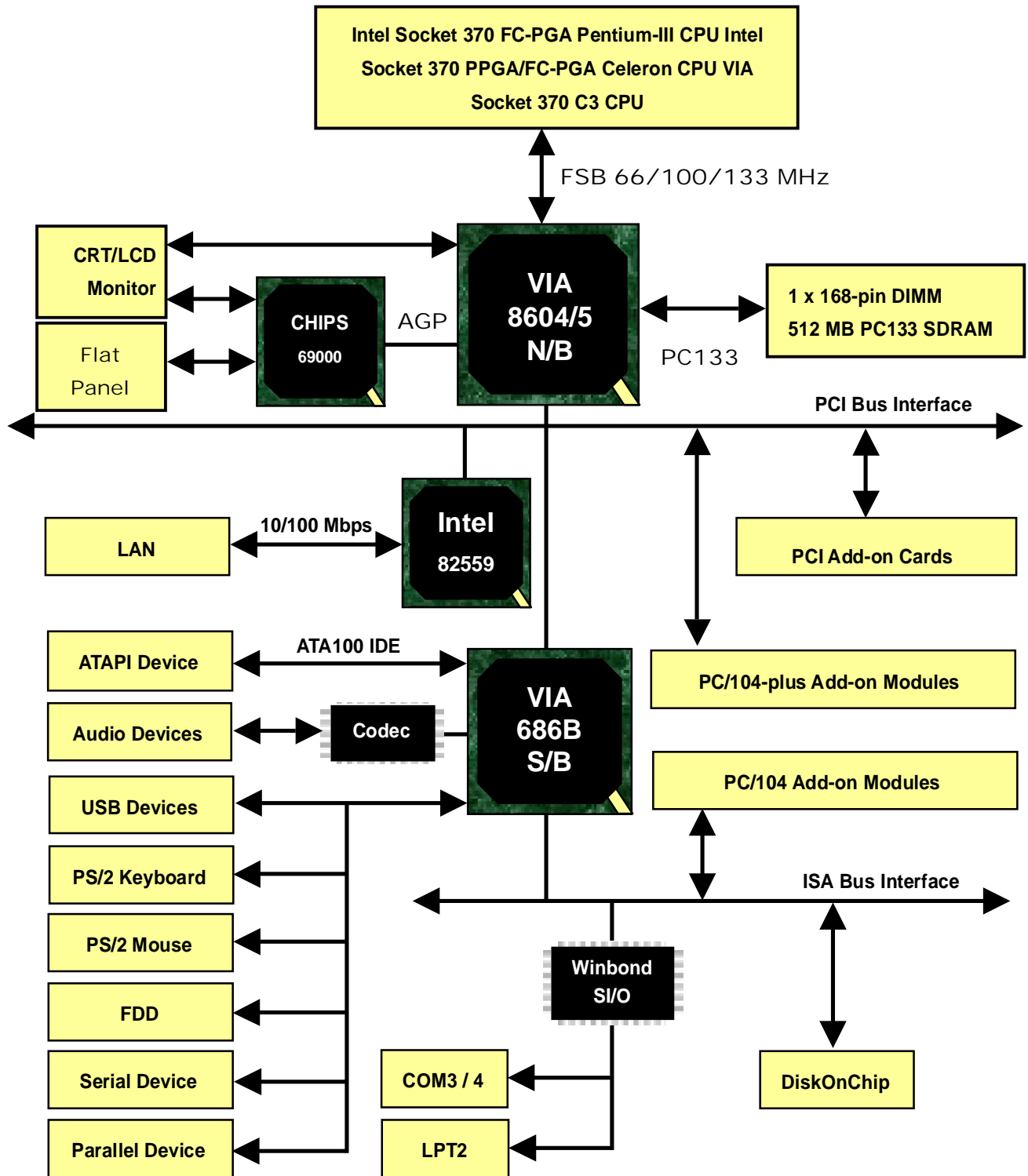
3302014A	5.25" Drive-size Socket 370 PC133 Littleboard with 4xAGP 3D SVGA/32MB VRAM, AC97 3D Audio, UltraATA/100 IDE, DiskOnChip Interfaces and 4 COM / 2 LPT and 16-bit GPIO Ports
3302014B	Same as 3302014A but with onboard Intel PRO/100+ Fast Ethernet Interface
3302014C	OEM Version Based on 3302014B with AGP C&T69000 Flat Panel SVGA Interface / 2 MB On-die Video Memory (8605 Chipset)
3302014D	OEM Version Based on 3302014B with AGP C&T69030 Flat Panel SVGA Interface / 4 MB On-die Video Memory (8605 Chipset)

Online product information detail and updates are available on <http://www.globalamericaninc.com>

## 1.3 Component Placement



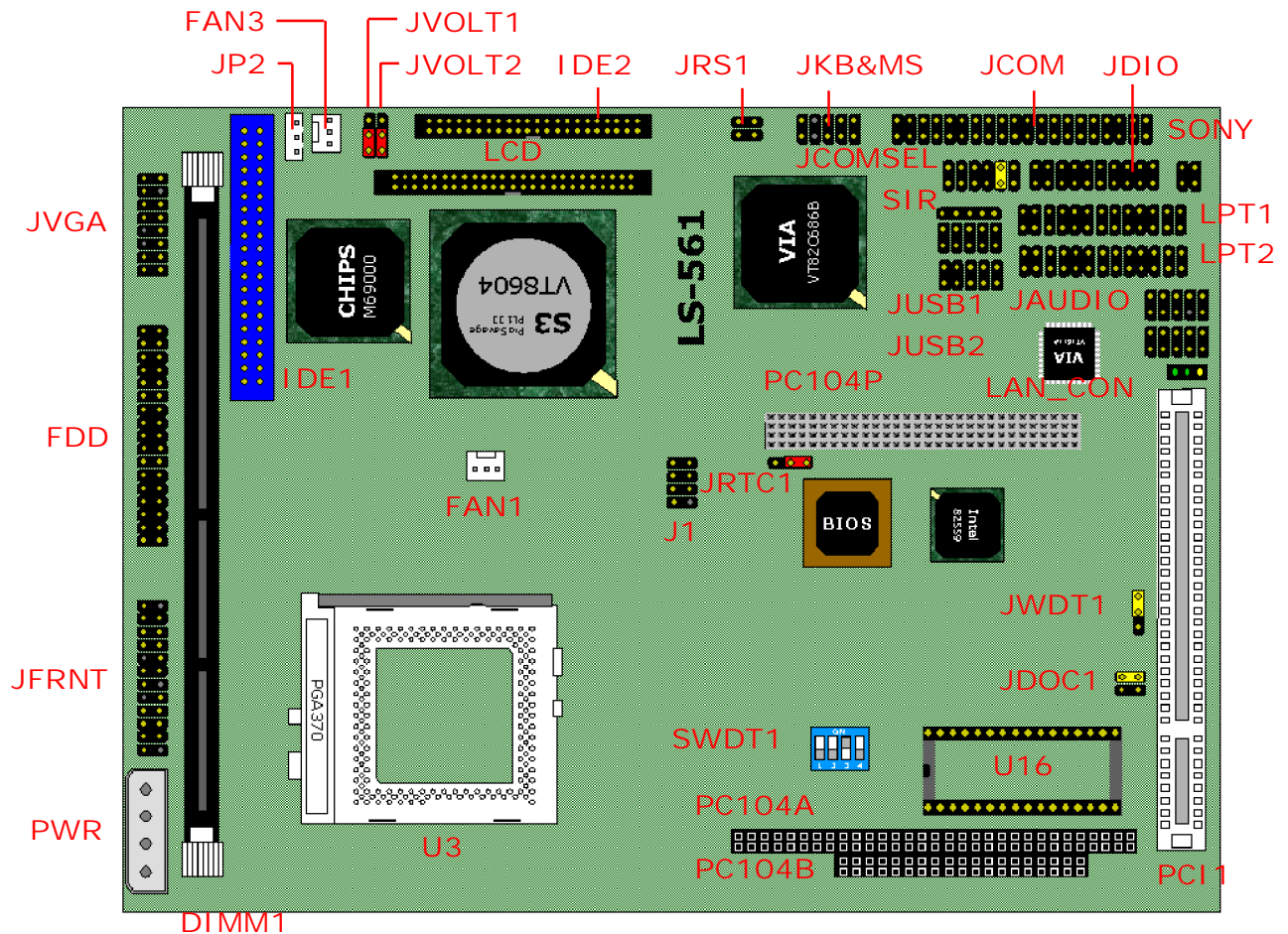
## 1.4 Block Diagram



## Chapter 2. Hardware Setup

This chapter contains the information for installation of hardware. The install procedure includes jumper settings, CPU and memory installation, fan, I/O and panel connections.

### 2.1 Jumpers and Connectors Location



#### Color of Jumper Hat

- Red : Power or Important Setting
- Yellow : Function Enable / Disable Setting
- Green : CPU Speed Setting (Not Available)

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## 2.1.1 Jumpers Reference

<b>Jumper</b>	<b>Function</b>	<b>Section</b>
JRTC1	COMS Setting	<a href="#">2.3</a>
JWDT1	Watchdog Timer Setting	<a href="#">2.4</a>
SWDT1	Time Out Value of Watchdog Timer Setting	<a href="#">2.4</a>
JDOC1	DiskOnChip Address Setting	<a href="#">2.5.1</a>
JVOLT1	Flat Panel's Voltage Setting	<a href="#">2.7.2</a>
JVOLT2	Flat Panel's Power Setting	<a href="#">2.7.2</a>
JCOMSEL	COM2 RS-232/422/485 Mode Setting	<a href="#">2.10.1</a>

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## 2.1.2 Connectors Reference

<b>Connector</b>	<b>Function</b>	<b>Remark</b>
U3	CPU Socket PGA370	Standard
DIMM1	168-pin DIMM Slot	Standard
IDE1	40-pin Primary IDE Port	Standard
IDE2	44-pin Secondary IDE Port	Standard
FDD	34-pin FDD Port	Standard
LPT1	26-pin Primary Parallel Port	Standard
LPT2	26-pin Secondary Parallel Port	Standard
JUSB1	10-pin 1st / 2nd USB Port	Standard
JUSB2	10-pin 3rd / 4th USB Port	Standard
COM	40-pin COM1/2/3/4 RS232 Serial Port	Standard
J1	10-pin COM2 RS422/485 Serial Port	Standard
JDIO	20-pin 61-bit GPIO Port	Standard
U16	32-pin DiskOnChip Socket	Standard
JKB&MS	10-pin PS/2 Keyboard / Mouse Connector	Standard
SIR	5-pin SIR IrDA Port	Standard
PWR	4-pin AT Power Connector	Standard
JP2	3-pin ATX Signal Connector	Standard
JFRNT	24-pin Front Panel Connector	Standard
FAN1	3-pin CPU Fan Connector	Standard
FAN3	3-pin System Fan Connector	Standard
JVGA	16-pin Internal VGA Port	Standard
JAUDIO	10-pin Audio Port	Standard
SONY	4-pin CD-in Interface	Standard
LCD	50-pin Flat Panel VGA Port	OEM Only
LAN_CON	10-pin LAN Port Connector	L only
PCI1	32-bit PCI Slot	Standard
PC104A/B	104-pin PC/104 Connector	Standard
PC104P	120-pin PC/104-plus Connector	Standard

---

## 2.2 CPU and DRAM Setting

The board is based on Intel socket 370 Pentium-III / Celeron architecture supports Intel PPGA/FC-PGA and VIA C3 CPUs at 66/100/133 MHz of FSB. The FSB, ratio and voltage of CPU is default set by CPU without any additional jumper selection. The CPU should be installed into the CPU ZIF socket U3.

The board supports PC-66/100/133 SDRAM up to 512 MB on one 168-pin DIMM slot DIMM1.

## 2.3 CMOS Setting

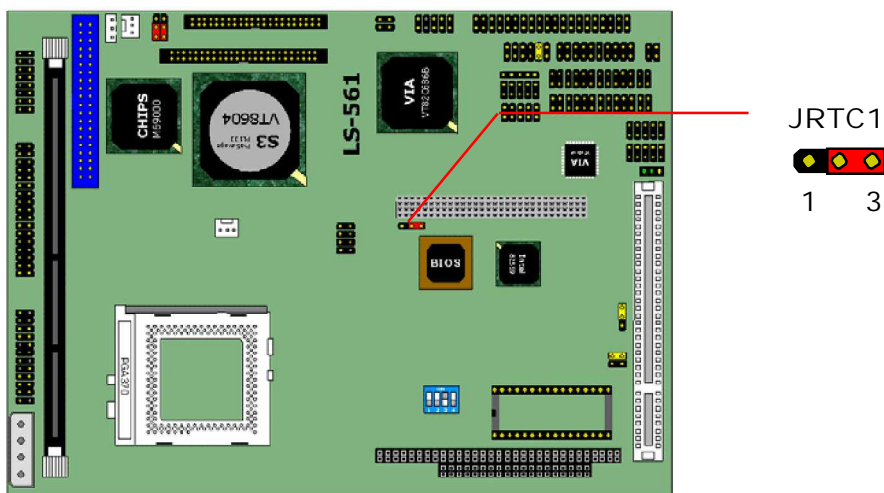
The board's data of CMOS can be setting in BIOS. If the board refuses to boot due to inappropriate CMOS settings, here is how to proceed to clear (reset) the CMOS to its default values.

Jumper: JRRTC1

Type: onboard 3-pin header

JRRTC1	Mode
1-2	Clear CMOS
2-3	Normal Operation

Default setting



## 2.4 Watchdog Timer Setting

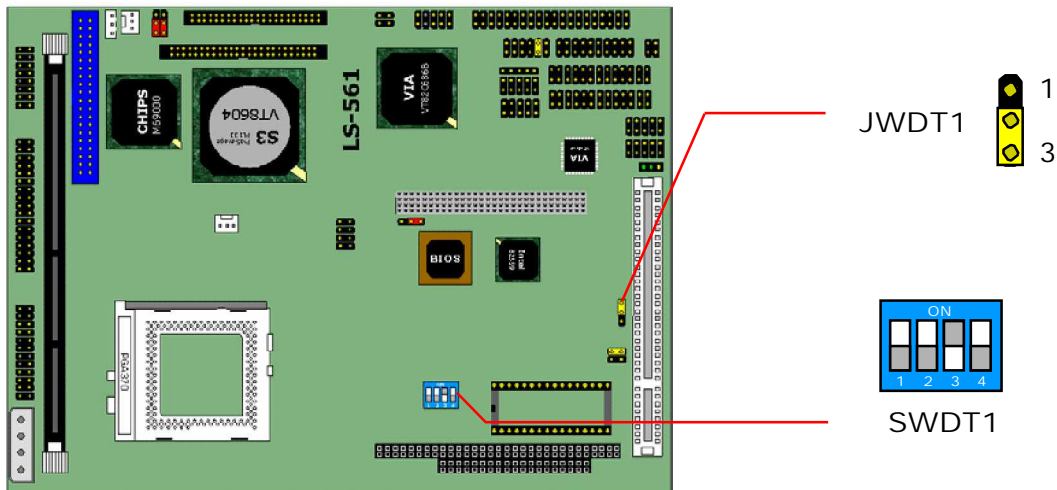
The watchdog timer makes the systems auto-reset while it stop to work for a period. The onboard watchdog timer can be set as system reset or active NMI mode by jumper JWDT1; the timeout value can be set as 1, 2, 10, 20, 110, or 220 seconds by jumper SWDT1.

Jumper: JWDT1

Type: onboard 3-pin header

JWDT1	Watchdog Timer
1-2	Active NMI
2-3	Reset

Default setting



Jumper: SWDT1

Type: onboard 4-button / 2-level DIP switch

Timeout Value	SWDT1	1	2	3	4
1 Second		OFF	OFF	ON	OFF
2 Seconds		OFF	OFF	ON	ON
10 Seconds		OFF	ON	OFF	OFF
20 Seconds		OFF	ON	OFF	ON
110 Seconds		ON	OFF	OFF	OFF
220 Seconds		ON	OFF	OFF	ON

Default setting

---

## 2.5 Embedded Flash Disk

The board supports both 32-pin [DiskOnChip 2000](#) and [DiskOnChip IDE Pro](#) embedded flash disk. The onboard 32-pin socket, U16, supports DiskOnChip 2000 single chip flash disk in 32-pin DIP JEDEC with jumper selectable address on jumper JDOC1; onboard 40-pin IDE1 box header and 44-pin IDE2 header support DOM (DiskOnModule) or M-systems DiskOnChip IDE Pro flash disk.

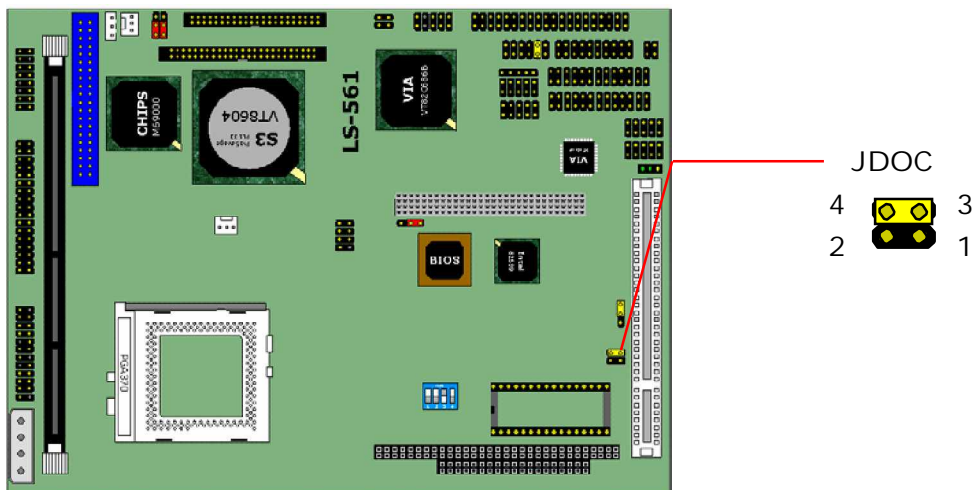
### 2.5.1 DiskOnChip 2000 Address Setting

Jumper: JDOC1

Type: onboard 4-pin header

JDOC1	DiskOnChip Address
1-2	D000h
3-4	D800h

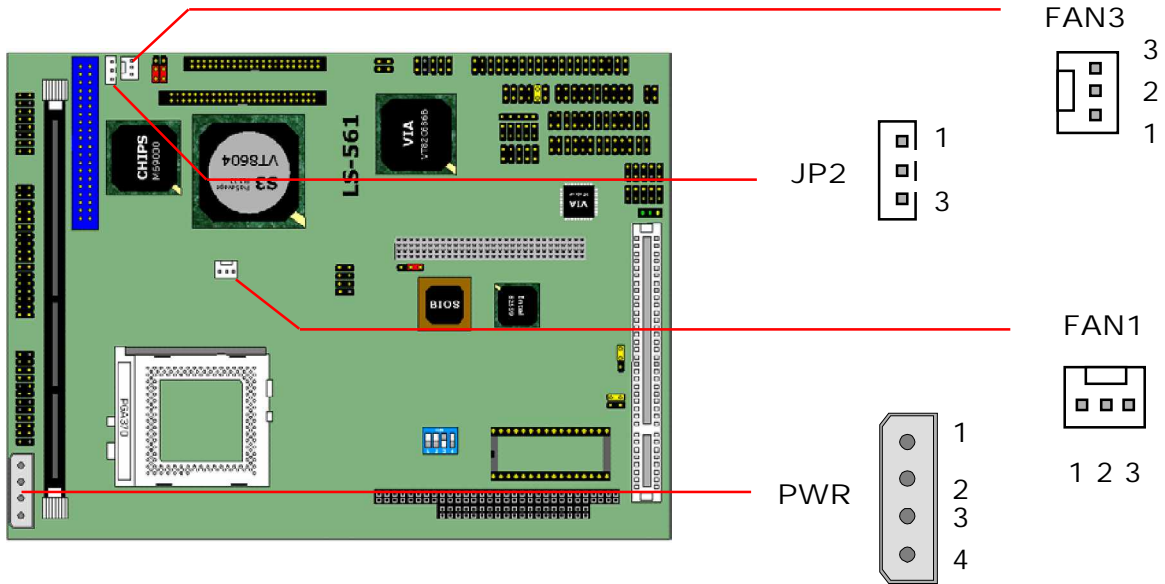
Default setting



### 2.5.2 DiskOnModule or DiskOnChip 2000 IDE Pro

The DiskOnModule or IDE Pro flash disk module can be used on normal IDE ports, 40-pin IDE1 with power cable and 44-pin IDE2 without cable.

## 2.6 Power and Fan Connectors



Connector: PWR  
Type: 4-pin AT Power Connector

Pin	Description	Cable Color Reference
1	+12V	Yellow
2	Ground	Black
3	Ground	Black
4	+5V	Red

Connector: JP2  
Type: 3-pin ATX Function Connector

Pin	Description	Pin	Description	Pin	Description
1	5V Standby	2	Ground	3	Power On

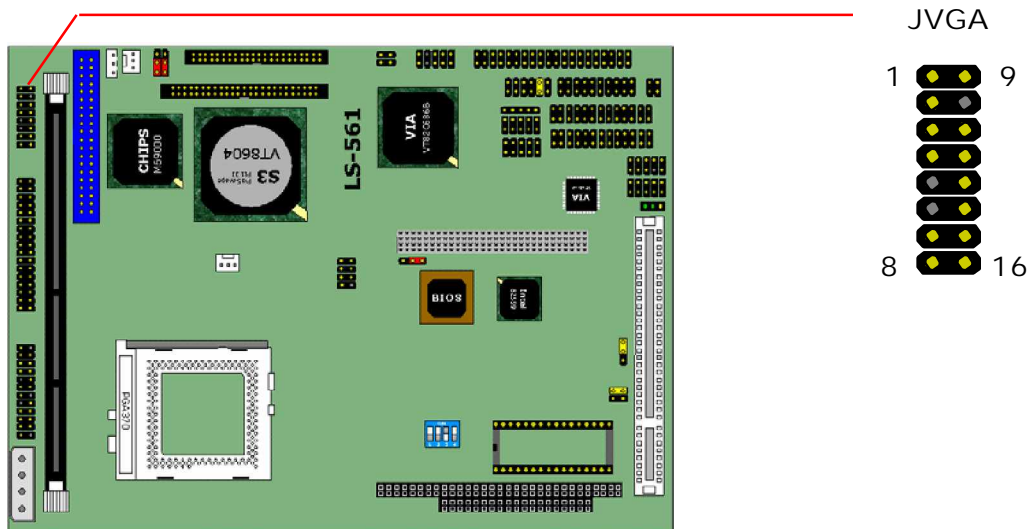
Connector: FAN1, FAN3  
Type: 3-pin Fan Power Wafer Connector

Pin	Description	Pin	Description	Pin	Description
1	Ground	2	+12V	3	Fan Control

## 2.7 VGA Interface

### 2.7.1 Standard Analog VGA Interface

The board is integrated with VIA ProSavage PL133 chipset's built-in 4xAGP S3 Savage4 VGA accelerator with 3D/2D engine and 32 MB of video memory shared with system memory.

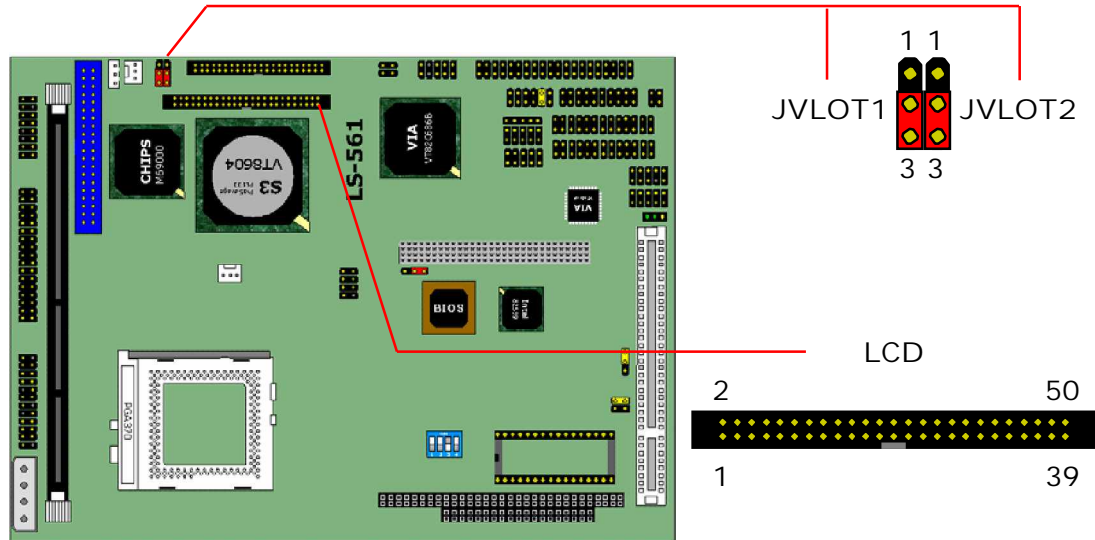


Connector: JVGA  
Type: 16-pin header

Pin	Description	Pin	Description
1	Red	9	Green
2	Blue	10	N/C
3	Ground	11	Ground
4	Ground	12	Ground
5	N/C	13	Ground
6	N/C	14	Data
7	HSYNC	15	VSYNC
8	Clock	16	N/C

## 2.7.2 Digital VGA Interface (Optional)

The board provides an additional option of digital VGA interface for OEM project with C&T69K series of VGA controller. The VGA interface of the board with C&T69K is AGP bus interface and with VIA 8605 chipset. The C&T69000 integrates 2 MB of on-die video memory and C&T69030 integrates 4 MB of on-die video memory. Both of them integrate with 2D engine.



Jumper: JVOLT1  
Type: onboard 3-pin header

JVOLT1	LCD Voltage Setting
1-2	+5V
2-3	+3.3V

Default setting

Jumper: JVOLT2  
Type: onboard 3-pin header

JVOLT2	LCD Power Sequence Control
1-2	Power Input Directly
2-3	Power Sequence Control by Chipset (C&T69K)

Default setting

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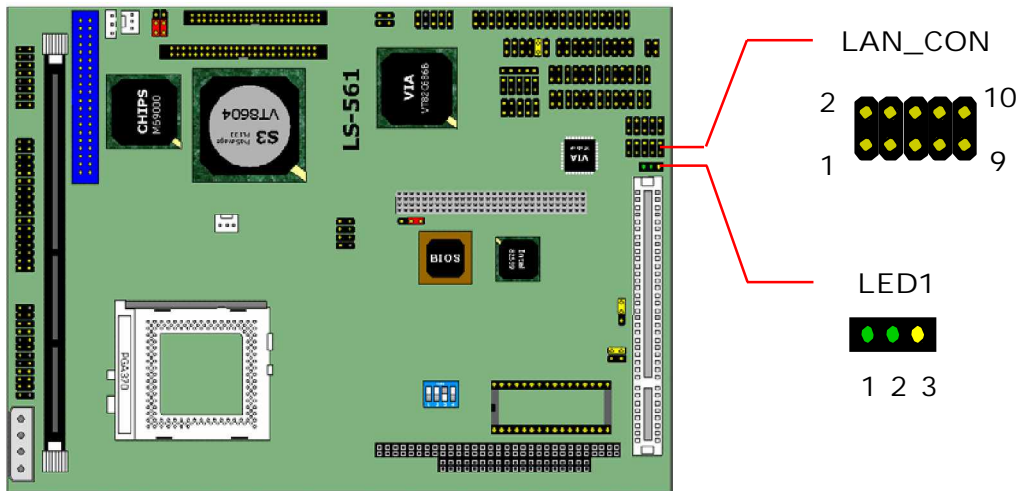
Connector: **LCD**

Type: onboard 50-pin box header

<b>Pin</b>	<b>Signal</b>	<b>Pin</b>	<b>Signal</b>
1	+12V	2	+12V
3	GND	4	GND
5	V <sub>CC</sub> (LCD)	6	ENAVDD
7	ENAVEE	8	GND
9	P0	10	P1
11	P2	12	P3
13	P4	14	P5
15	P6	16	P7
17	P8	18	P9
19	P10	20	P11
21	P12	22	P13
23	P14	24	P15
25	P16	26	P17
27	P18	28	P19
29	P20	30	P21
31	P22	32	P23
33	P24	34	P25
35	SHFCLK	36	FLM
37	M	38	LP
39	GND	40	ENABKL
41	P26	42	P27
43	P28	44	P29
45	P30	46	P31
47	P32	48	P33
49	P34	50	P35

## 2.8 Ethernet Interface

The board integrated with [Intel PRO/100+](#) Fast Ethernet interface at the type of 10Base-T/100Base-TX auto-switching Fast Ethernet with full duplex and IEEE 802.3U compliant. The LAN controller, Intel 82559, provides the powerful Fast Ethernet interface with embedded operating system (OS) supported, green function (power saving mode / wake-on-LAN) and advanced network management functions.



Connector: LAN\_CON  
Type: 10-pin header connector

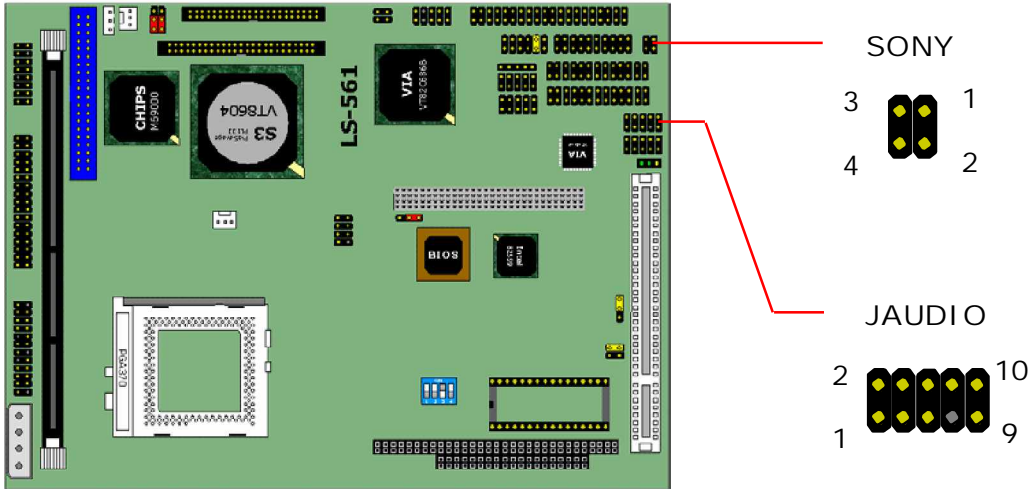
Pin	Description	Pin	Description
1	TX+	2	TX-
3	RX+	4	N/C
5	N/C	6	RX-
7	N/C	8	N/C
9	Ground	10	Ground

LAN Indicator LED: LED1  
Type: 3-pin LED

Pin	1 (Green)	2 (Green)	3 (Yellow)
Description	10 Mbps Mode	100 Mbps Mode	Active Transfer

## 2.9 Audio Interface

The board integrates with AC97 3D audio interface VIA 686B and 1611A codec that provides line-in, line-out, Mic-in and CD-in interfaces for industrial applications with audio function.



Connector: JAUDIO  
Type: 10-pin header

Pin	Description	Pin	Description
1	Line $\infty$ Right	2	Ground
3	Line $\infty$ Left	4	MIC
5	MIC	6	Ground
7	N/C	8	Line Out $\infty$ Left
9	Line Out $\infty$ Right	10	Ground

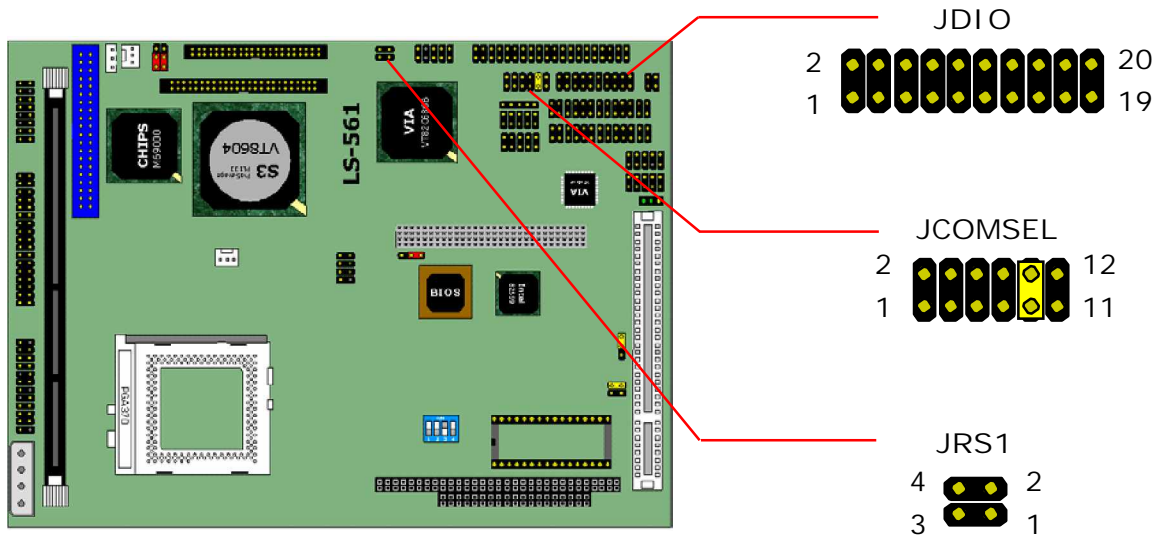
Connector: SONY (CD Audio Input Interface)  
Type: 4-pin header

Pin	Description	Pin	Description
1	CD $\infty$ Right	2	Ground
3	Ground	4	CD $\infty$ Left

## 2.10 Multiple I/O Port Configuration

The onboard COM2 RS-422/485 mode setting is done by the jumper JCOMSEL and activates at connector JRS1.

### 2.10.1 COM2 RS-422/485 Mode Selection



Jumper: JCOMSEL (COM2 RS-422/485 Mode Selection)

Type: 12-pin header

Mode	1-2	3-4	5-6	7-8	9-10	11-12
RS-232	OFF	OFF	OFF	OFF	ON	OFF
RS-485	ON	ON	ON	ON	OFF	ON
RS-422						
RX/TX always enable	OFF	OFF	OFF	OFF	OFF	ON
RX enable by RTS, TX always enable	OFF	ON	OFF	OFF	OFF	ON
RX always enable, TX enable by RTS	ON	OFF	OFF	OFF	OFF	ON
RX/TX enable by RTS	ON	ON	OFF	OFF	OFF	ON

**Default setting**

Connector: JRS1 (COM2 RS-422/485 Mode)

Type: 4-pin header

Pin	RS-422	RS-485	Pin	RS-422	RS-485
1	TX-	RS485-	2	TX+	RS485+
3	RX+	N/C	4	RX-	N/C

---

## 2.10.2 16-bit General Purpose I/O Port

Connector: JDIO (16-bit GPIO Port)

Type: 20-pin header

Pin	Description	Pin	Description
1	D/O-0	2	D/O-1
3	D/O-2	4	D/O-3
5	D/O-4	6	D/O-5
7	D/O-6	8	D/O-7
9	Ground	10	Ground
11	D/I-0	12	D/I-1
13	D/I-2	14	D/I-3
15	D/I-4	16	D/I-5
17	D/I-6	18	D/I-7
19	+5V	20	+12V

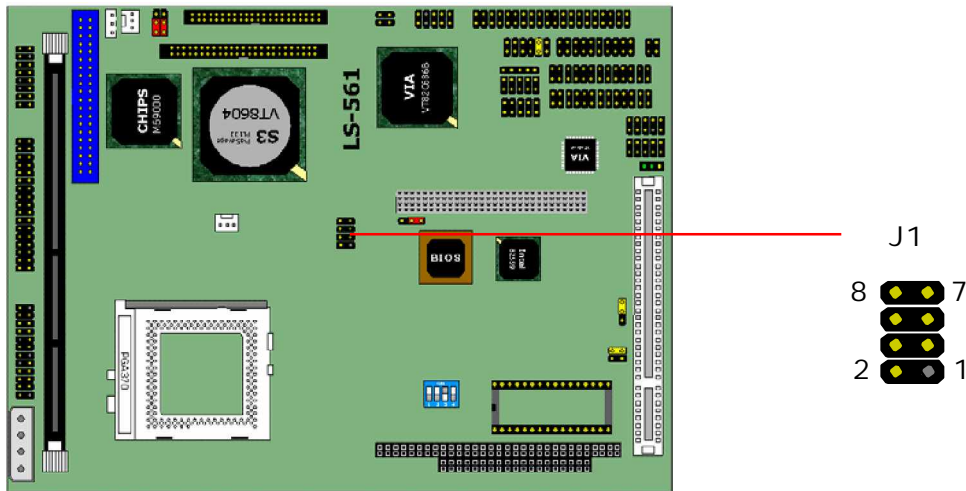
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## 2.11 Expansive Bus Interfaces

The board offers PCI/ISA expansive bus interfaces including one PCI slot and one PC/104-plus connector.

### 2.11.1 PCI Bus Interface

The onboard expansive PCI bus interface offers 3 sets of bus master PCI signal to support up to 3 pieces of PCI-based add-on cards via an additional riser card.



Connector: J1 (3 x Bus Master PCI Interfaces Supported)  
Type: 8-pin header

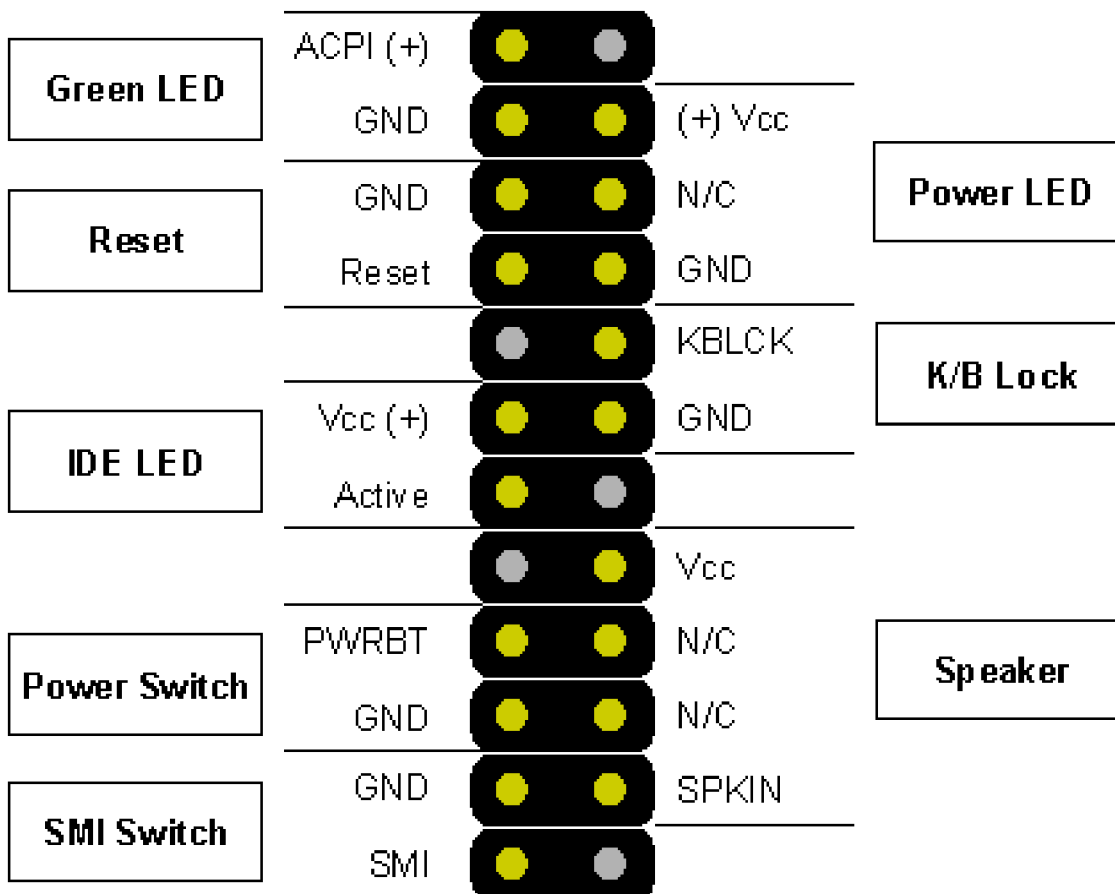
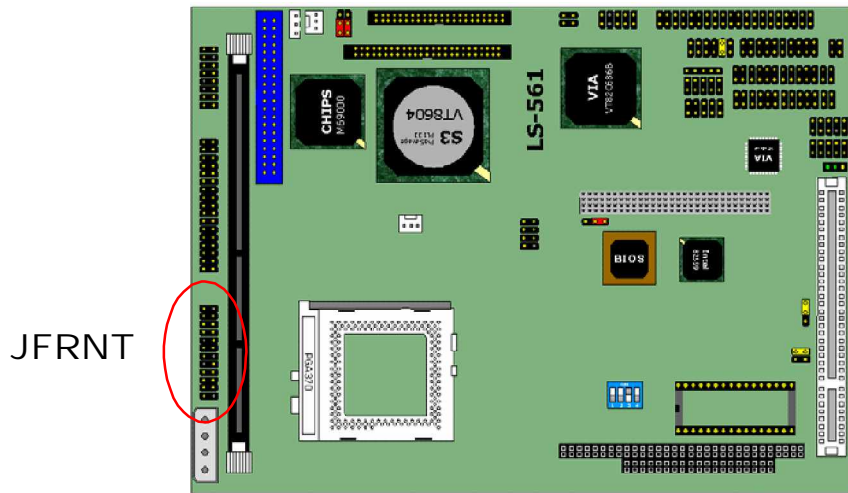
Pin	Description	Pin	Description
1	N/C	2	Ground
3	PCI Clock 1	4	PCI Clock 2
5	Request 1	6	Request 2
7	Grant 1	8	Grant 2

### 2.11.2 PC/104-plus Interface

The onboard PC/104-plus interface includes 32-bit PCI-based 120-pin PC/104-plus interface and 16-bit ISA-based PC/104 interface. There is one set of bus master PCI signal is supported on the onboard PC/104-plus interface. More information about PC/104-plus interface is available at:

<http://www.pc104.org/>

## 2.12 Switches and Indicators



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## Chapter 3. BIOS Setup

The single board computer uses the Award BIOS for the system configuration. The Award BIOS in the single board computer is a customized version of the industrial standard BIOS for IBM PC AT-compatible computers. It supports Intel x86 and compatible CPU architecture based processors and computers. The BIOS provides critical low-level support for the system central processing, memory and I/O sub-systems.

The BIOS setup program of the single board computer let the customers modify the basic configuration setting. The settings are stored in a dedicated battery-backed memory, NVRAM, retains the information when the power is turned off. If the battery runs out of the power, then the settings of BIOS will come back to the default setting.

The BIOS section of the manual is subject to change without notice and is provided here for reference purpose only. The settings and configurations of the BIOS are current at the time of print, and therefore they may not be exactly the same as that displayed on your screen.

To activate CMOS Setup program, press `DEL` key immediately after you turn on the system. The following message —Press DEL to enter SETUP“ should appear in the lower left hand corner of your screen. When you enter the CMOS Setup Utility, the Main Menu will be displayed as **Figure 3-1**. You can use arrow keys to select your function, press `Enter` key to accept the selection and enter the sub-menu.

**Figure 3-1.** CMOS Setup Utility Main Screen

Phoenix ⌘ Award BIOS CMOS Setup Utility

>Standard CMOS Features	>Frequency/Voltage Control
>Advanced BIOS Features	Load Fail-Safe Defaults
>Advanced Chipset Features	Load Optimized Defaults
>Integrated Peripherals	Set Supervisor Password
>Power Management Setup	Set User Password
>PnP / PCI Configurations	Save & Exit Setup
>PC Health Status	Exit Without Saving
Esc : Quit	
F10 : Save & Exit Setup	
: Select Item	

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## Chapter 4. Driver Installation

The driver CD offers auto-run menu. It will detect and select the type of single board computer and helps you install the drivers automatically.

### 4.1 Install Board's Software

The selection helps you install the drivers of chipset. It will detect your version of OS automatically.

### 4.2 Install Ultra ATA IDE Driver

The selection helps you to install the driver of IDE interface.

### 4.3 Install VGA Driver

The selection helps you to install the driver of onboard VGA interface.

### 4.4 Install LAN Driver

The selection helps you to install the driver of onboard LAN interface.

### 4.5 Install Audio Driver

The selection helps you to install the driver of onboard audio interface.

### 4.6 Link to < Website > Homepage

The selection help you to link to the website to find the updated technical documents and download directly.

### 4.7 Browse this CD

The selection helps you to find the drivers in this CD directly.

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# Appendix A. System Resources

## A.1 I/O Port Address Map

<b>Address Range</b>	<b>Device</b>
0x03B0-0x03BB	VgaSave
0x03B0-0x03BB	PCI to PCI Bridge
0x03C0-0x03DF	VgaSave
0x03C0-0x03DF	PCI to PCI Bridge
0x0022-0x003F	PCI bus
0x0044-0x0047	PCI bus
0x004C-0x006F	PCI bus
0x0072-0x007F	PCI bus
0x0090-0x0091	PCI bus
0x0093-0x009F	PCI bus
0x00A2-0x00BF	PCI bus
0x00E0-0x00EF	PCI bus
0x0100-0x0CF7	PCI bus
0x0D00-0xFFFF	PCI bus
0x0A79-0x0A79	ISAPNP Read Data Port
0x0274-0x0277	ISAPNP Read Data Port
0xD000-0xD00F	VIA Bus Master IDE Controller
0x01F0-0x01F7	Primary IDE Channel
0x03F6-0x03F6	Primary IDE Channel
0x0170-0x0177	Secondary IDE Channel
0x0376-0x0376	Secondary IDE Channel
0xD400-0xD41F	VIA USB Universal Host Controller
0xD800-0xD81F	VIA USB Universal Host Controller
0xDC00-0xDCFF	Multimedia Audio Controller
0xE000-0xE003	Multimedia Audio Controller
0xE400-0xE403	Multimedia Audio Controller
0xE800-0xE83F	Intel(R) PRO/100+ Management Adapter #2
0x0020-0x0021	Programmable interrupt controller
0x00A0-0x00A1	Programmable interrupt controller
0x0040-0x0043	System timer
0x0000-0x000F	Direct memory access controller
0x0081-0x0083	Direct memory access controller
0x0087-0x0087	Direct memory access controller
0x0089-0x008B	Direct memory access controller
0x008F-0x0091	Direct memory access controller
0x00C0-0x00DF	Direct memory access controller

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0x0060-0x0060	PC/AT Enhanced PS/2 Keyboard (101/102-Key)
0x0064-0x0064	PC/AT Enhanced PS/2 Keyboard (101/102-Key)
0x0378-0x037F	Printer Port (LPT1)
0x0278-0x027F	Printer Port (LPT1)
0x03F8-0x03FF	Communications Port (COM1)
0x02F8-0x02FF	Communications Port (COM2)
0x03E8-0x03EF	Communications Port (COM3)
0x02E8-0x02EF	Communications Port (COM4)
0x03F0-0x03F5	Standard floppy disk controller
0x03F7-0x03F7	Standard floppy disk controller
0x0061-0x0061	System speaker
0x0070-0x0071	System CMOS/real time clock
0x00F0-0x00FF	Numeric data processor

---

---

## A.2 Memory Address Map

<b>Range</b>	<b>Device</b>
0xA0000-0xBFFFF	VgaSave
0xA0000-0xBFFFF	PCI bus
0xA0000-0xBFFFF	PCI to PCI Bridge
0xCC000-0xEFFFF	PCI bus
0x1F800000-0xFFFEFFFF	PCI bus
0xEC000000-0xEDFFFFFF	PCI to PCI Bridge
0xE0000000-0xE7FFFFFF	PCI to PCI Bridge
0xE0000000-0xE7FFFFFF	Video Controller (VGA Compatible)
0xED000000-0xED07FFFF	Video Controller (VGA Compatible)
0xEF100000-0xEF100FFF	Intel(R) PRO/100+ Management Adapter #2
0xEF000000-0xEF0FFFFF	Intel(R) PRO/100+ Management Adapter #2
0x0000-0x9FFFF	System board
0xFFFE0000-0xFFFFFFFF	System board
0xFEE00000-0xFEE0FFFF	System board
0x100000-0x1F7FFFF	System board
0xF0000-0xF3FFF	Motherboard resources
0xF4000-0xF7FFF	Motherboard resources
0xF8000-0xFBFFF	Motherboard resources
0xFC000-0xFFFF	Motherboard resources

---

## A.3 System IRQ and DMA Resource

### A.3.1 IRQ

IRQ Number	Device
1	PC/AT Enhanced PS/2 Keyboard (101/102-Key)
3	Communications Port (COM2)
4	Communications Port (COM1)
6	Standard Floppy Disk Controller
8	System CMOS/real time clock
9	Video Controller (VGA Compatible)
9	VIA USB Universal Host Controller
9	Multimedia Audio Controller
9	Intel(R) PRO/100+ Management Adapter #2
10	Communications Port (COM4)
11	Communications Port (COM3)
12	PS/2 Port Mouse
13	Numeric data processor
14	Primary IDE Channel
15	Secondary IDE Channel

### A.3.2 DMA

Channel	Device
0	(free)
1	(free)
2	Standard Floppy Disk Controller
3	(free)
4	Direct memory access controller
5	(free)
6	(free)
7	(free)

---

# Appendix B. Flash the BIOS

## B.1 BIOS Auto Flash Tool

The board is based on Award BIOS and can be updated easily by the BIOS auto flash tool. You can download the tool online at the address below:

<http://www.award.com>

File name of the tool is —awdfash.exe“, it's the utility that can write the data into the BIOS flash ship and update the BIOS.

## B.2 Flash Method

1. Get the —.bin“ file including the image of new BIOS you want to update.
2. Power on the system and flash the BIOS.
3. Re-star the system.

Any question about the BIOS re-flash please contact your distributors or visit the web-site at below:

<http://www.globalamericaninc.com>

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# Appendix C. I/O Port Pin Assignment

## C.1 IDE Port

Connector: IDE1

Type: 40-pin box header



Pin	Description	Pin	Description
1	Reset	2	Ground
3	D7	4	D8
5	D6	6	D9
7	D5	8	D10
9	D4	10	D11
11	D3	12	D12
13	D2	14	D13
15	D1	16	D14
17	D0	18	D15
19	Ground	20	N/C (Vcc)
21	REQ	22	Ground
23	IOW-/STOP	24	Ground
25	IOR-/HDMARDY	26	Ground
27	IORDY/DDMARDY	28	IDESEL
29	DACK-	30	Ground
31	IRQ	32	N/C
33	A1	34	CBLID
35	A0	36	A2
37	CS0 (MASTER CS)	38	CS1 (SLAVE CS)
39	LED ACT-	40	Ground

Connector: IDE2  
 Type: 44-pin box header



Pin	Description	Pin	Description
1	Reset	2	Ground
3	D7	4	D8
5	D6	6	D9
7	D5	8	D10
9	D4	10	D11
11	D3	12	D12
13	D2	14	D13
15	D1	16	D14
17	D0	18	D15
19	Ground	20	N/C
21	REQ	22	Ground
23	IOW-/STOP	24	Ground
25	IOR-/HDMARDY	26	Ground
27	IORDY/DDMARDY	28	Ground
29	DACK-	30	Ground
31	IRQ	32	N/C
33	A1	34	SD
35	A0	36	A2
37	CS1	38	CS3
39	ASP1	40	Ground
41	Vcc	42	Vcc
43	Ground	44	Ground

---

## C.2 FDD Port

Connector: FDD  
Type: 34-pin header



Pin	Description	Pin	Description
1	Ground	2	DRIVE DENSITY SELECT 0
3	Ground	4	DRIVE DENSITY SELECT 1
5	Ground	6	N/C
7	Ground	8	INDEX-
9	Ground	10	MOTOR ENABLE A-
11	Ground	12	DRIVER SELECT B-
13	Ground	14	DRIVER SELECT A-
15	Ground	16	MOTOR ENABLE B-
17	Ground	18	DIRECTION-
19	Ground	20	STEP-
21	Ground	22	WRITE DATA-
23	Ground	24	WRITE GATE-
25	Ground	26	TRACK 0-
27	Ground	28	WRITE PROTECT-
29	Ground	30	READ DATA-
31	Ground	32	HEAD SELECT-
33	Ground	34	DISK CHANGE-

---

### C.3 Parallel Port

Connector: LPT1, LPT2  
Type: Dual 26-pin header



Pin	Description	Pin	Description
1	STROBE-	14	AUTO FEED-
2	D0	15	ERROR-
3	D1	16	INITIALIZE-
4	D2	17	SELECT INPUT-
5	D3	18	Ground
6	D4	19	Ground
7	D5	20	Ground
8	D6	21	Ground
9	D7	22	Ground
10	ACKNOWLEDGE-	23	Ground
11	BUSY	24	Ground
12	PAPER EMPTY	25	Ground
13	SELECT+	26	N/C

---

## C.4 RS-232 Serial Port

### C.4.1 Onboard Quad-RS-232 Serial Port

Connector: COM

2



40

Type: 40-pin header

1

39

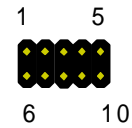
Pin	Description	Pin	Description
1	DCD1	2	RXD1
3	TXD1	4	DTR1
5	Ground	6	DSR1
7	RTS1	8	CTS1
9	RI1	10	Ground
11	DCD2	12	RXD2
13	TXD2	14	DTR2
15	Ground	16	DSR2
17	RTS2	18	CTS2
19	RI2	20	Ground
21	DCD3	22	RXD3
23	TXD3	24	DTR3
25	Ground	26	DSR3
27	RTS3	28	CTS3
29	RI3	30	Ground
31	DCD4	32	RXD4
33	TXD4	34	DTR4
35	Ground	36	DSR4
37	RTS4	38	CTS4
39	RI4	40	N/C

---

## C.5 USB Port

Connector: JUSB1, JUSB2

Type: 10-pin header for dual USB Ports



Pin	Description	Pin	Description
1	Vcc	6	Vcc
2	Data0-	7	Data1-
3	Data0+	8	Data2+
4	Ground	9	Ground
5	Ground	10	Ground

## C.6 IrDA Port

Connector: SIR

Type: 5-pin header for SIR Port



Pin	Description
1	Vcc
2	N/C
3	IRRX
4	Ground
5	IRTX

## C.7 PS/2 Keyboard and Mouse Port

Connector: JKB&MS

Type: 10-pin header connector



Pin	Description	Pin	Description
1	Keyboard Data	2	Mouse Data
3	N/C	4	N/C
5	Ground	6	Ground
7	Ground	8	Ground
9	Keyboard Clock	10	Mouse Clock

Any advice or comments about our products and service, or anything we can help you with please don't hesitate to contact with us. We will do our best to support you for your products, projects and business

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