

# FT-8551

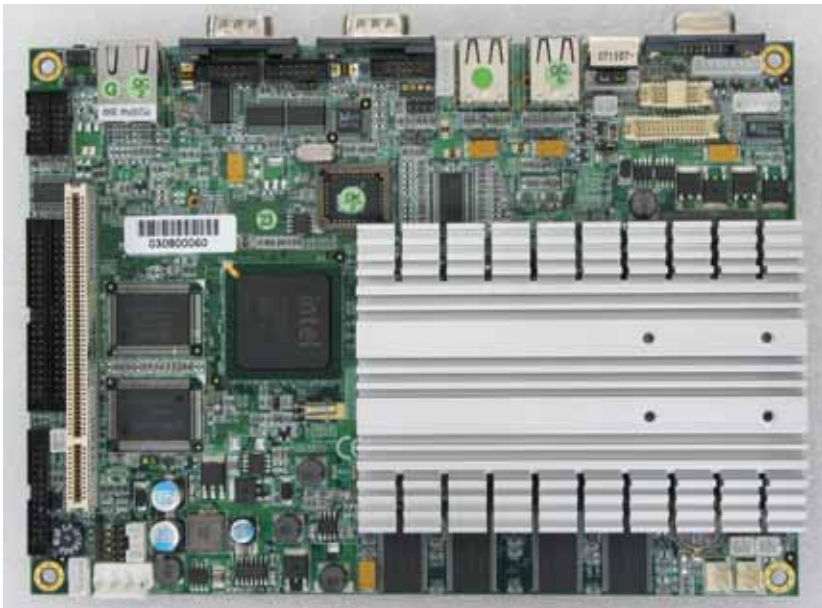
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## 5.25" Embedded Miniboard

### User's Manual

Edition: 1.0

2009/2/5



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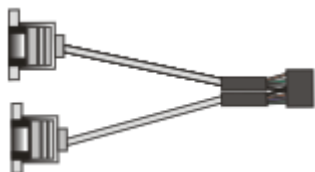
## Packing List

Please check the package before you use this product

### Hardware:

FT-8551 5.25" Embedded Miniboard x 1

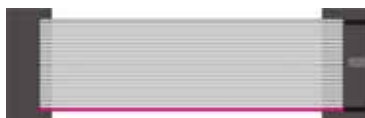
### Cable Kit:



**USB2.0 cable x1**



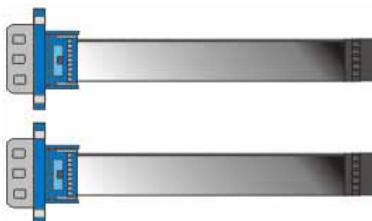
**PS2 cable x1**



**44-pin IDE cable x1**



**Audio cable x1**



**COM cable x2**



**DC\_IN cable x1**

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# Chapter 1 <Introduction>

## 1.1 <Product Overview>

**FT-8551** is the 5.25 inch Embedded miniboard, with supporting Intel Celeron M processors for 400MHz front side bus, Intel 852GM and ICH4 chipset, integrated graphics, DDR memory, Realtek AC97 Audio, one Intel 82562ET PHY 100 LAN.

### **Intel Celeron M Processor**

The board supports Intel Celeron processors with 400MHz front side bus, 512KB L2 cache, to provide more powerful performance than before.

### **Intel 852GM chipset**

The board integrates Intel 852GM and ICH4 chipset, to provide new generation of the mobile solution, supports Intel extreme graphic 2 technology.

### **All in One multimedia solution**

Based on Intel 852GM and ICH4 chipset, the board provides high performance onboard graphics, 24-bit Dual channel LVDS interface, 2 channels AC97 Audio, to meet the very requirement of the multimedia application.

### **Flexible Extension Interface**

The board also provides CompactFlash Type I socket, one mini-PCI socket and one PCI slot.

## 1.2 <Product Specification>

### General Specification

Form Factor	5.25 Embedded mini-board
CPU	Package: 478 pin BGA L2 Cache: 512KB FSB: 400MHz
Memory	On board 256M DDR 266 SDRAM
Chipset	Intel 82852GM and ICH4
BIOS	Phoenix-Award v6.00PG 4Mb PnP flash BIOS
Green Function	Power saving mode includes doze, standby and suspend modes. ACPI version 1.0
Watchdog Timer	System reset programmable watchdog timer with 1 ~ 255 sec./min.
Real Time Clock	Intel ICH4 built-in RTC with lithium battery
Enhanced IDE	PCI enhanced IDE interface supports dual channels and up to 4 ATAPI devices at UltraATA/33, two 44-pin IDE ports

### Multi-I/O Port

Chipset	Intel ICH4 and Winbond W83627HG-AW LPC Super I/O controller
Serial Port	Six RS-232 serial ports with HIN213 compatible UART Two external and four internal com ports
USB Port	Six Hi-Speed USB 2.0 ports with 480 Mbps of transfer rate Four external and two internal USB ports
Parallel Port	One internal bi-direction parallel port with SPP/ECP/EPP mode
K/B & Mouse	Internal PS/2 keyboard and mouse ports on rear I/O panel
GPIO	One 10-pin Digital I/O connector with 8-bit programmable I/O interface

### VGA Display Interface

Chipset	Intel 852GME GMCH built-in Intel Extreme Graphics 2 With 266 MHz VGA core and 256-bit 3D engine
Frame Buffer	Intel DVMT (Dynamic Video Memory Technology) 2.0 up to 64Mbytes shared with system*
Display Type	CRT and LCD monitors for analog display 24-bit single/dual channel LCD panel for digital display
Connector	Internal / External DB15 female connector on rear I/O panel Internal 30-pin LVDS connector

### Ethernet Interface

Chipset	Intel PRO/100+ LAN interface with Intel 82562ET PHY
Type	10Base-T / 100Base auto-switching Fast Ethernet Full duplex, IEEE802.3U compliant
Connector	External RJ45 connector with LED on rear I/O panel



**Audio Interface**

Chipset	Intel ICH4 with REALTEK ALC203 AC97 3D audio codec
Interface	2 channel 3D audio with front (R/L)
Connector	Internal 10-pin header for line-in/-out, MIC-in

**Solid State Disk Interface**

Flash Type	Compact Flash Type-I for Compact Flash Card
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**Expansion Interface**

PCI Slot	One PCI slot
Mini-PCI	One Mini-PCI type B socket

**Power and Environment**

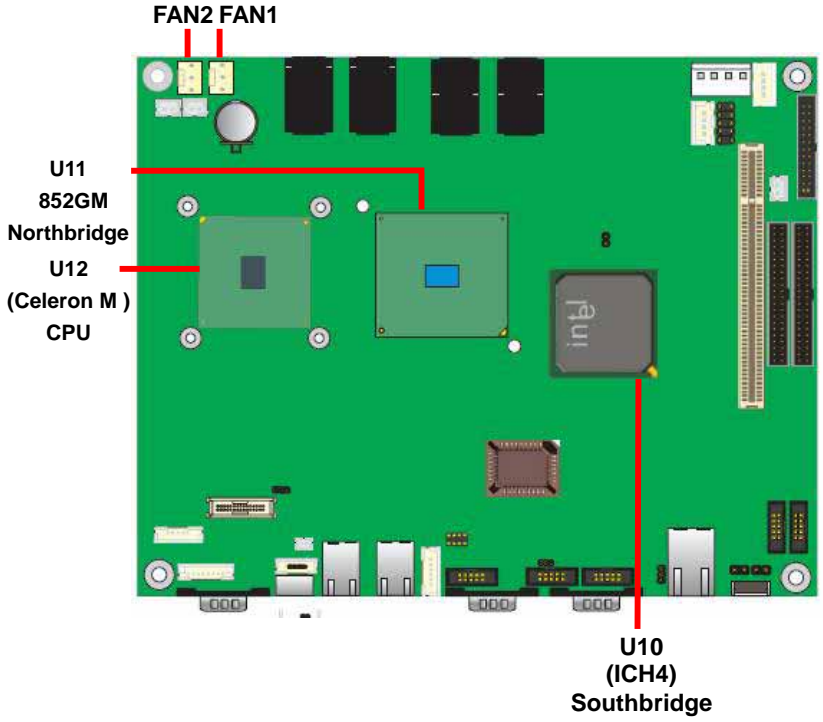
Power Requirement	One 12V (auto switching) DC Adapter connector 4-pin onboard connector
Input Voltage	12V power supply
Dimension	203 (L) x 146 (H) mm, 5.25 inch miniboard
Temperature	Operating within 0 ~ 60°C (32 ~ 140°F) Storage within -20 ~ 85°C (-4 ~ 185°F)

**Ordering Code**

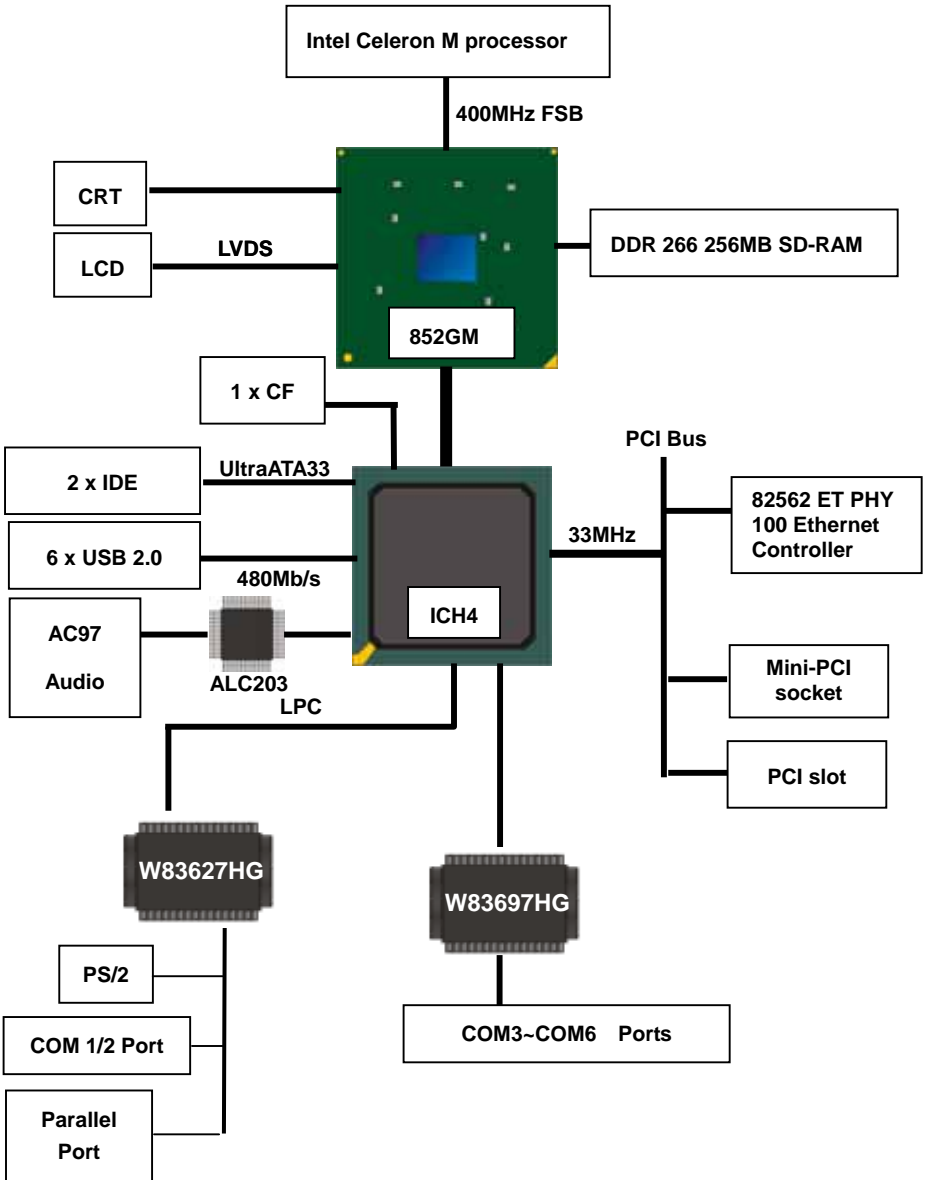
<b>FT-8551</b>	Onboard VGA, Intel 100 LAN, USB2.0, Mini-PCI, PCI, Serial Port, SPI, CF, AC97 Audio, IDE, LPT and LVDS
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For further product information please visit the website at <http://www.comnell.com.tw>

### 1.3 <Component Placement>



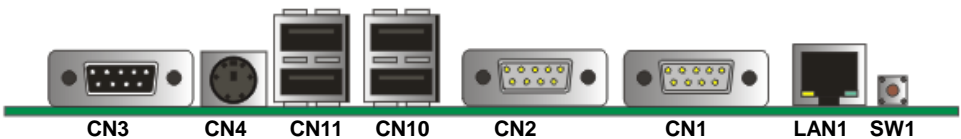
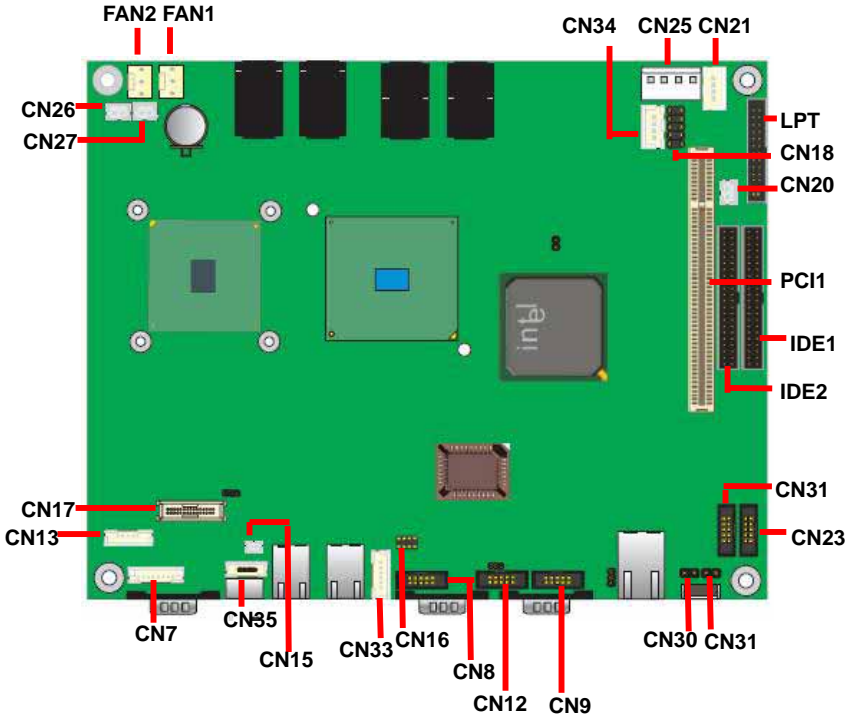
### 1.4 <Block Diagram>

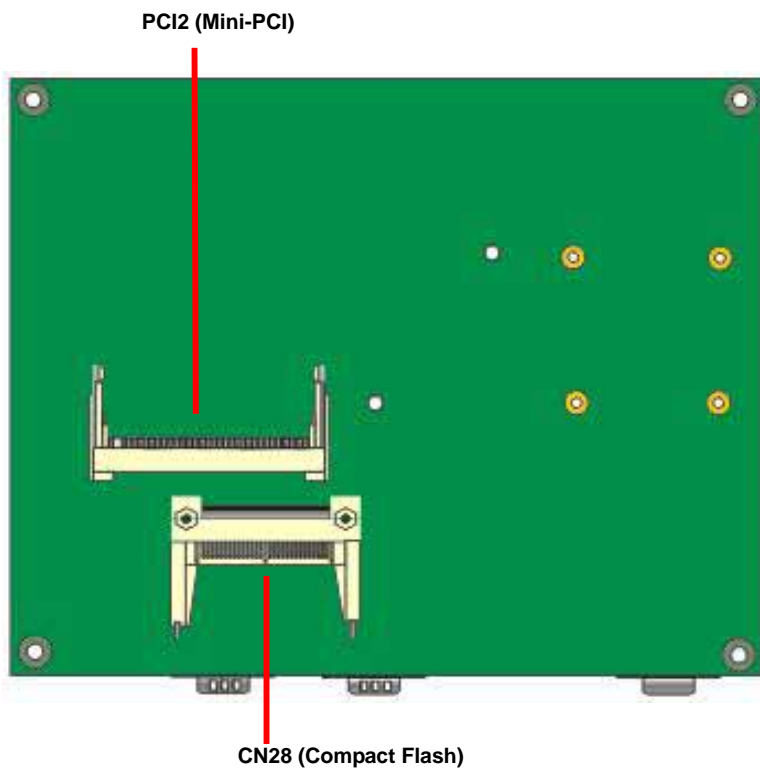


## Chapter 2 <Hardware Setup>

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.

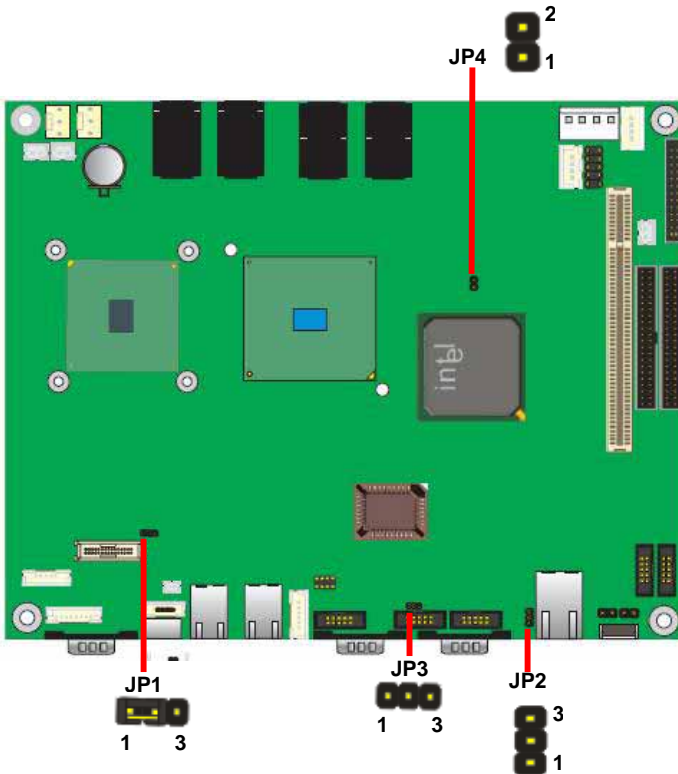
### 2.1 <Connector Location>





## 2.2 <Jumper Reference>

Jumper	Function
JP4	COMS Operate / Clear Setting <b>(default open)</b> <b>1-2 open is normal, 1-2 short is clear CMOS</b>
JP1	LCD Panel Voltage Setting <b>(default 1-2)</b> <b>1-2 short is +3.3V, 2-3 short is +5V</b>
JP2	COM1 PIN-9 Voltage setting <b>(default open)</b> <b>Open is normal, 1-2 short is +5V, 2-3 short is +12V</b>
JP3	COM2 PIN-9 Voltage setting <b>(default open)</b> <b>Open is normal, 1-2 short is +5V, 2-3 short is +12V</b>



## 2.3 <Connector Reference>

### 2.3.1 <Internal Connector>

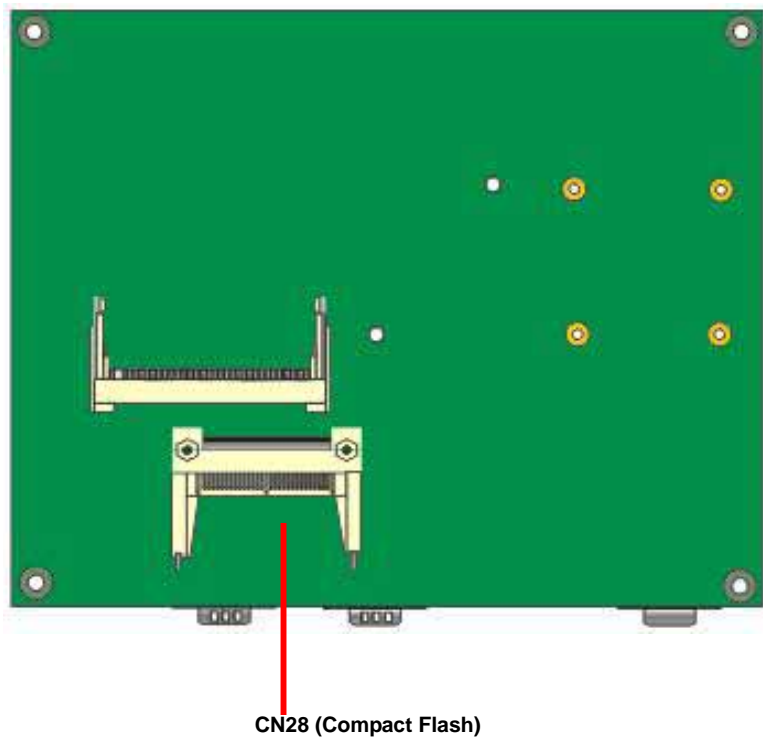
Connector	Function	Remark
IDE1	44-pin Primary IDE Port	
IDE2	44-pin Secondary IDE Port	
CN16	10-pin Hi-Speed USB 2.0 Port	
CN25	4-pin AT Power Connector	
CN15	2-pin 5V output Connector	
CN20	2-pin 5V output Connector	
CN30	2-pin reset switch Connector	
CN31	2-pin power switch Connector	
FAN1	3-pin +12V CPU Fan Connector	
FAN2	3-pin +12V System Fan Connector	
CN8	10-pin Audio Port	
CN17	30-pin LVDS connector	
CN13	5-pin LCD Inverter Power Connector	
CN18	10-pin programmable I/O connector	
LPT	26 pin parallel port	
CN9,CN12,CN23,CN24	COM6,COM5,COM3,COM4 Connector	
CN33	PS/2 type keyboard and mouse port	
CN7	VGA port	
CN34	ATX power support	
CN21	4-pin power LED and HDD LED	
CN26	2-pin power LED	
CN27	2-pin HDD LED	
CN35	Enable internal KB/MS	

### 2.3.2 <External I/O connector>

Connector	Function	Remark
CN4	PS/2 type keyboard and mouse port	
CN28	Compact Flash Card Interface	
CN3	DB15 VGA port	
LAN1	RJ45 LAN port	
CN5,CN6,CN10,CN11	USB connectors	
CN1,CN2	RS232 DB9 serial port	
SW1	Power button	
PCI1	124-pin PCI slot	
PCI2	124-pin Mini-PCI socket	

## 2.4 <Compact Flash Interface>

The board supports Compact Flash Type I socket for storage flash disk only.





## 2.5 <Display Interface>

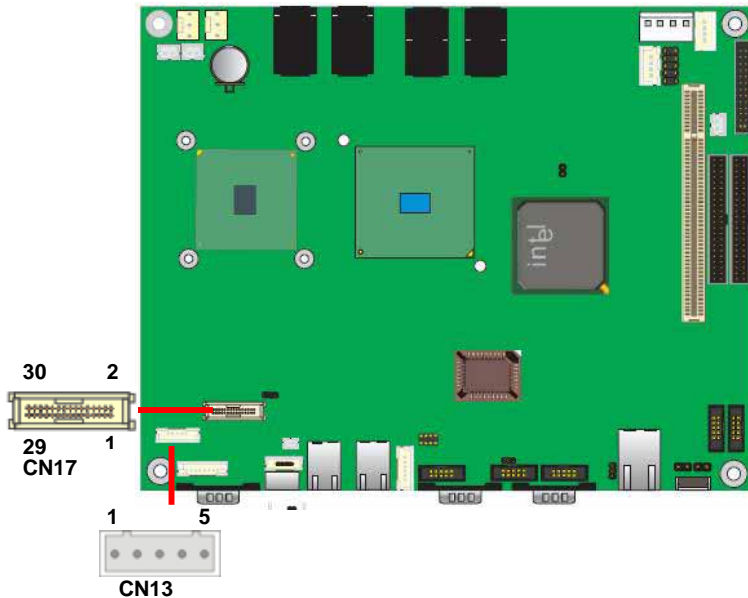
### 2.5.1 <Analog display interface>

The board is integrated with Intel 855GM GMCH chipset built-in Intel Extreme Graphics 2 with 266 MHz VGA core, 256-bit 3D engine and Intel Dynamic Video Memory up to 64MBytes shared with system memory. The CRT / analog VGA interface includes one external DB15 female connector on bracket on board.



### 2.5.2 <Digital display interface>

The board's digital video interface provides LVDS flat panel support. The built-in 18/24-bit dual channel LVDS interface offers the economical solution for LVDS-based LCD display.



Connector: **CN13 (Inverter)**

Type: 5-pin inverter Power Header

Pin	Description
1	+12V
2	GND
3	NC
4	GND
5	ENABKL

Connector: **JP1**

Type: 3-pin LCD Power select Header

Pin	Description
1	VCC3 (+3.3V)
2	LCDVCC
3	VCC (+5V)

Connector: **CN17 (LVDS)**

Type: onboard 30-pin connector for LVDS connector

Pin	Signal	Pin	Signal
2	LCDVCC	1	LCDVCC
4	ATX0-	3	ATX0+
6	ATX1-	5	ATX1+
8	ATX2-	7	ATX2+
10	ATX3-	9	ATX3+
12	ATXCK-	11	ATXCK+
14	LVDS_DDCPDATA	13	LVDS_DDCPCLK
16	GND	15	GND
18	BTX0-	17	BTX0+
20	BTX1-	19	BTX1+
22	BTX2-	21	BTX2+
24	BTX3-	23	BTX3+
26	BTXCK-	25	BTXCK+
28	LVDS_DDCPDATA	27	LVDS_DDCPCLK
30	GND	29	GND

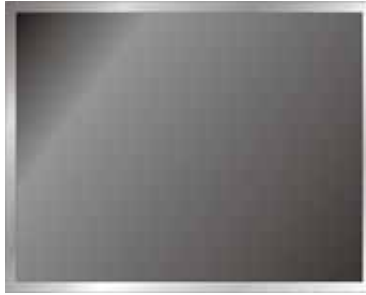
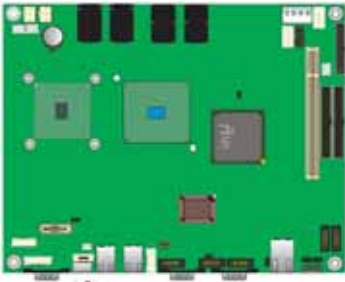
To setup the LCD, you need the components below:

1. A panel (support up to 24-bit dual channel) with LVDS interfaces.
2. An inverter for panel's backlight power.
3. A LCD cable and an inverter cable.

For the cables, please follow the pin assignment of the connector to make a cable, because every panel has its own pin assignment, so we do not provide a standard cable; please find a local cable manufacture to make cables.

**LCD installing guide:**

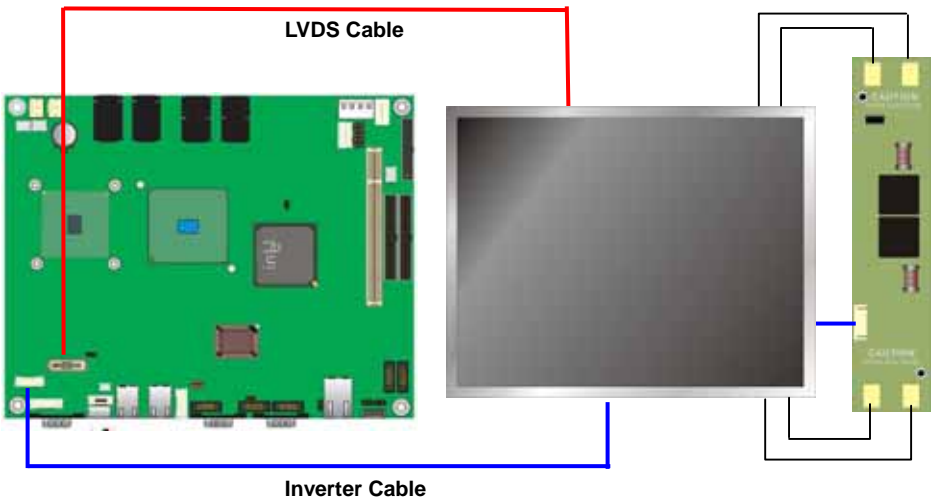
1. Prepare a panel, inverter and **FT-8551**.



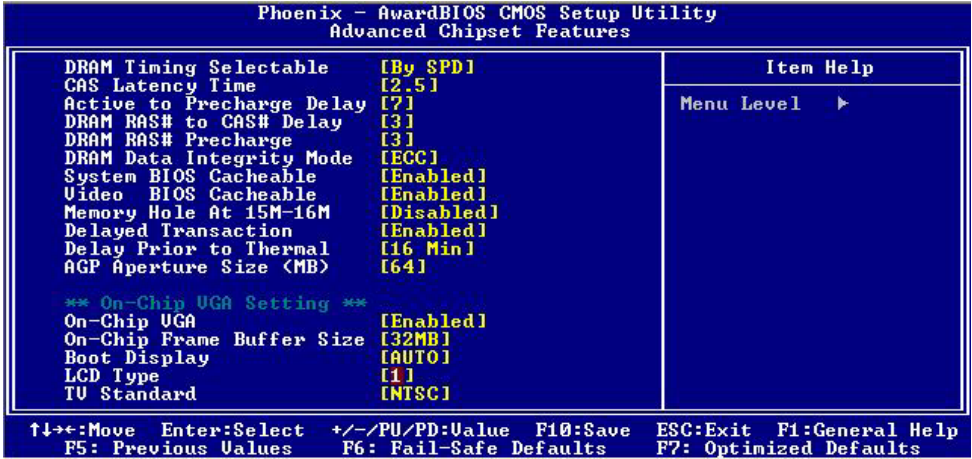
2. Please check the datasheet of the panel to see the voltage of the panel, and set the jumper **JP1** to +5V or +3.3V.
3. Prepare a LVDS type LCD cable



4. Connect all the devices well.



After setup the devices well, you need to select the LCD panel type in the BIOS.



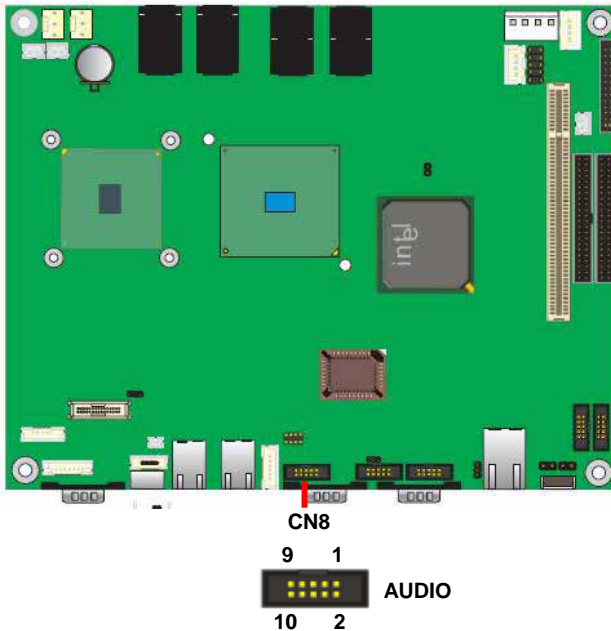
The panel type mapping is list below:

BIOS panel type selection form			
For 18-bit color		For 24-bit color	
NO.	Output format	NO.	Output format
1	640 x 480	8	1024 x 768
2	800 x 600	9	1280 x 1024 Dual Channel
3	1024 x 768	10	1400 x 1050 Dual Channel
4	1280 x 1024	11	1600 x 1200 Dual Channel
5	1400 x 1050 Dual Channel @ 108Mhz	13	1024 x 768 Dual Channel
6	1400 x 1050 Dual Channel @ 122Mhz	14	
7	1600 x 1200 Dual Channel	15	1280 x 768Dual Channel
12	1024 x 768 Dual Channel		

## 2.6 <Audio Interface>

The board integrates Intel ICH4 with REALTEK ALC203 codec for AC97 Rev 2.3; it comes with the features below:

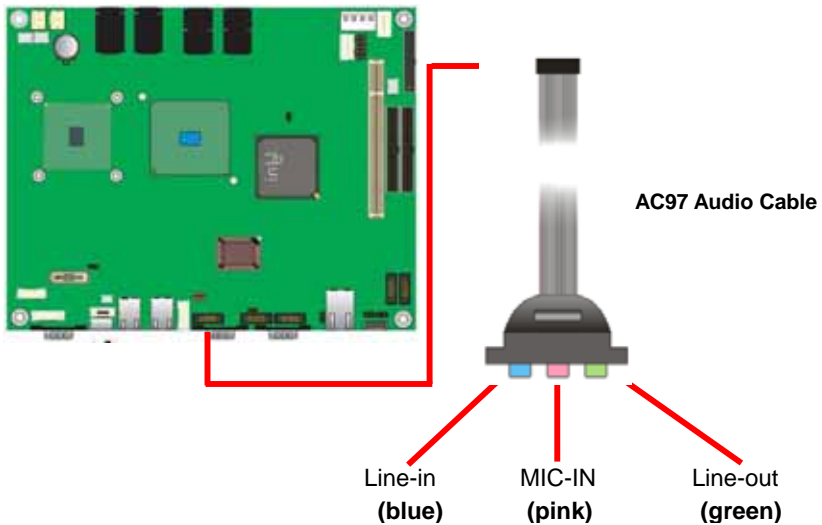
- Microsoft WHQL/WLP 2.0 audio compliance
- Software selectable for 2-channel sound
- 16-bit Stereo full-duplex CODEC with 48KHz sampling rate
- One software selectable MIC inputs
- EAX™ 1.0 & 2.0, Direct Sound 3D™, A3D™ compatible



**Connector: CN32 (AUDIO)**

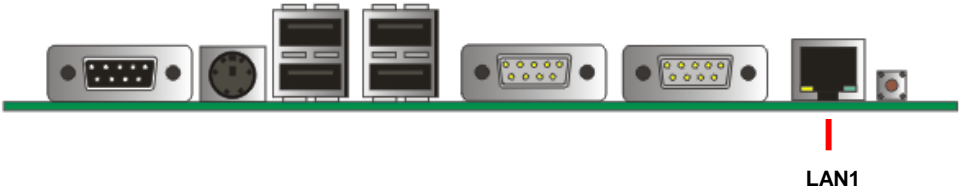
Type: 10-pin (2 x 5) 2.0-pitch header

Pin	Description	Pin	Description
1	Line IN – Left	2	Ground
3	Ground	4	Line IN – Right
5	Line Out – Left	6	Ground
7	Ground	8	Line Out – Right
9	MIC IN	10	Ground



## 2.7 <Ethernet Interface>

The board integrates with Intel 82562EM controller at the type of 10Base-T/100Base-TX auto-switching Ethernet with full duplex and IEEE 802.3U compliant. The LAN function comes with a RJ45 jack on the rear I/O panel.

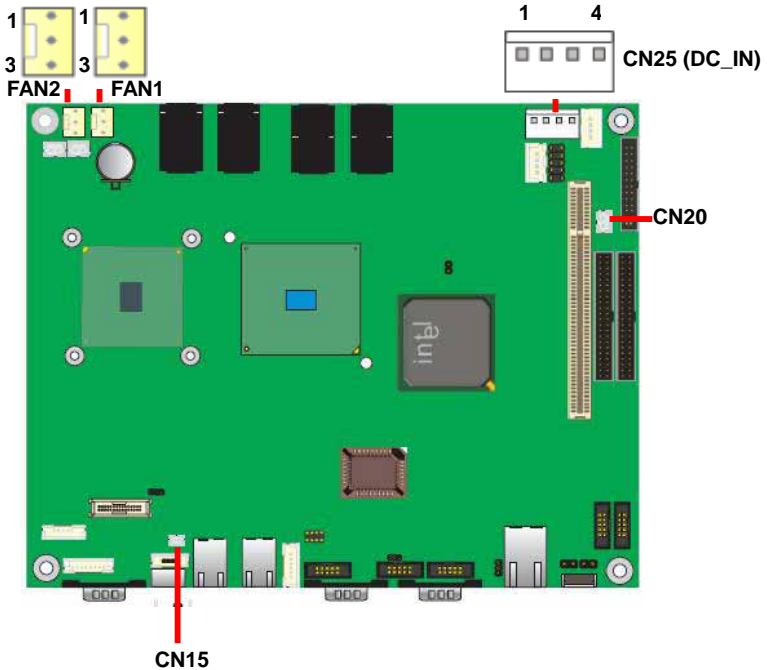
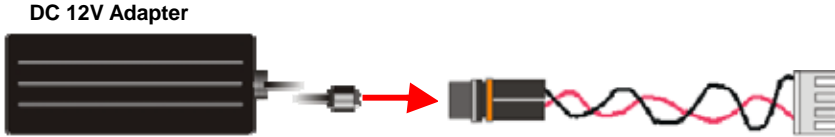


## 2.8 <Power connector>

The board comes with a 4-pin power connector for DC 12V auto-switching input, The board has two power connectors for 5V output and it has two fan connectors for CPU and system cooling.

### How to power the board

Use DC 12V adapter with 4-pin connector for DC\_IN





Connector: **CN25**

Type: 4-pin DC power connector

Pin	Description	Pin	Description
1	+12V	2	+12V
3	Ground	4	Ground

Connector: **FAN1/FAN2**

Type: 3-pin fan wafer connector

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

Connector: **CN15/CN20**

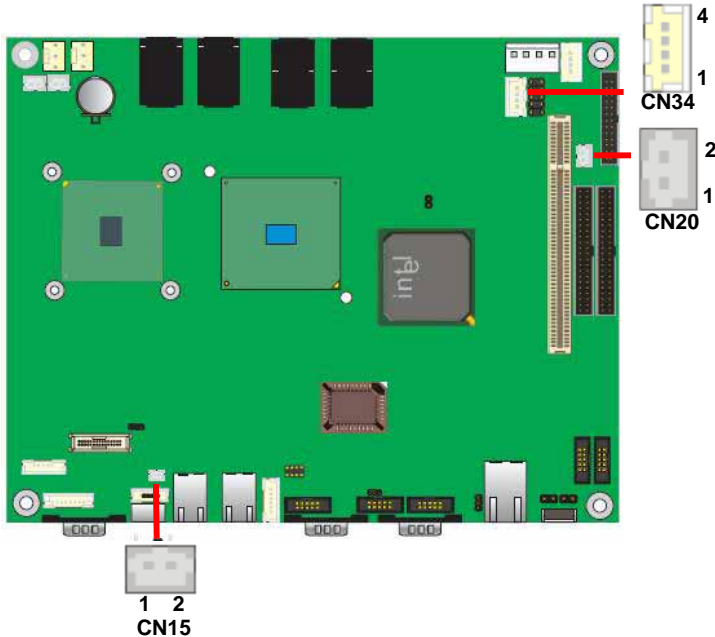
Type: 2-pin connector for +5V **output**

Pin	Description	Pin	Description
1	+5V	2	Ground

Connector: **CN34**

Type: 4-pin connector for ATX power support

Pin	Description	Pin	Description
1	NC	2	VCC5_SB
3	PSON_DRIVE	4	Ground



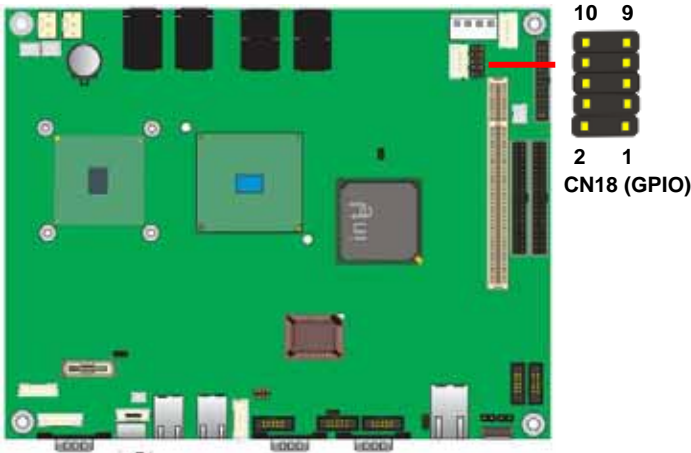
## 2.9 <GPIO Interface>

The board offers 8-bit digital I/O to customize its configuration to your control needs. For example, you may configure the digital I/O to control the opening and closing of the cash drawer or to sense the warning signal from a tripped UPS.

Connector: **CN18 (GPIO)**

Type: 10-pin (5 x 2) header

Pin	Description	Pin	Description
1	GPIO 4	2	GPIO 0
3	GPIO 5	4	GPIO 1
5	GPIO 6	6	GPIO 2
7	GPIO 7	8	GPIO 3
9	GND	10	VCC (+5V)

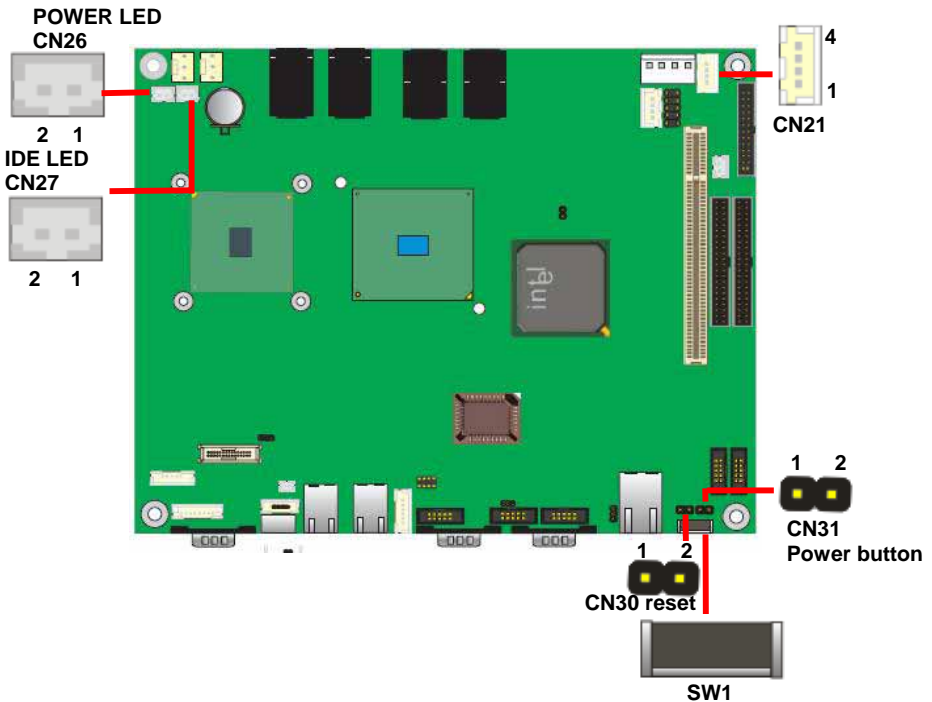


## 2.10 <Switch and Indicator>

Connector: CN31,CN30,CN26,CN27,CN21,SW1

Function	Signal	PIN
CN31 Power button	5VSB	1
	PWRBT	2
CN30 Reset	Reset	1
	GND	2
SW1 Power button	5VSB	1
	PWRBT	2

Function	Signal	PIN
CN21 Power LED IDE LED	IDE LED	1
	VCC	2
	Power LED	3
	GND	4
CN26 Power LED	Power LED	1
	GND	2
CN27 IDE LED	VCC	1
	IDE LED	2



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## Chapter 3 <System Setup>

### 3.1 <Watchdog Timer Setting>

The watchdog timer makes the system auto-reset while it stops to work for a period. The integrated watchdog timer can be setup as system reset mode by program.

#### Timeout Value Range

- 1 to 255
- Second or Minute

#### Program Sample

Watchdog timer setup as system reset with 5 second of timeout

```

2E, 87
2E, 87
2E, 07
2F, 08      Logical Device 8
2E, 30      Activate
2F, 01
2E, F5      Set as Second*
2F, 00
2E, F6      Set as 5
2F, 05
    
```

\* Minute: bit 3 = 0; Second: bit 3 = 1

You can select Timer setting in the BIOS, after setting the time options, the system will reset according to the period of your selection.



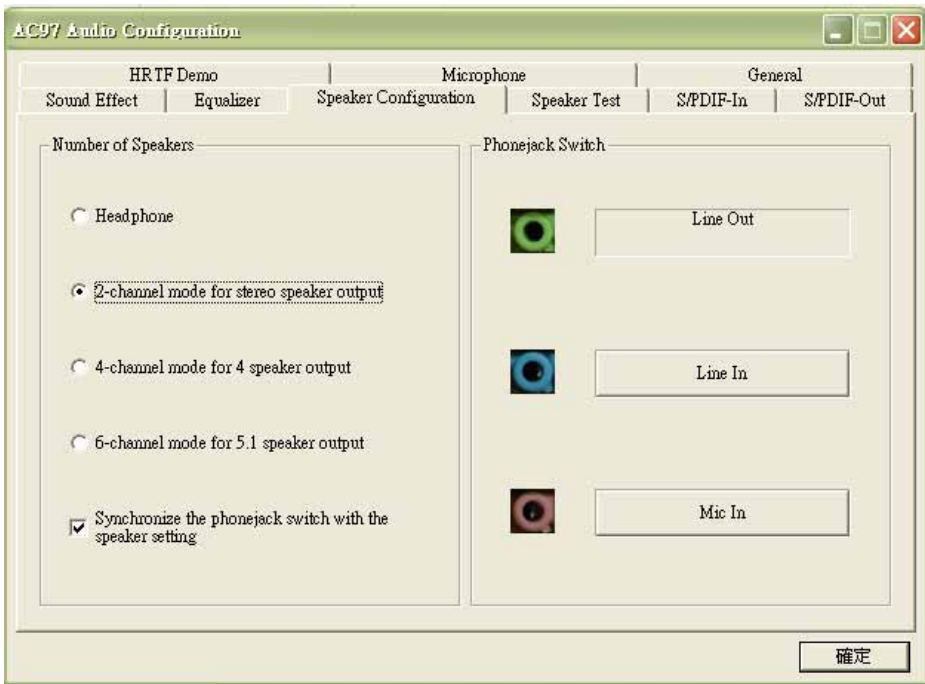
### 3.2 <Audio Setting>

The board integrates Intel® ICH4 with REALTEK® ALC203 codec. It can support 2-channel sound under system configuration. Please follow the steps below to setup your sound system.

1. Install REALTEK AC97 Audio driver.



2. Launch the control panel and Sound Effect Manager.
3. Select Speaker Configuration



4. Select the sound mode to meet your speaker system.

### 3.3 <Display Device Setup>

This chapter shows you how to setup the display device under Windows OS.

**Before you using your display device:**

1. Check your software

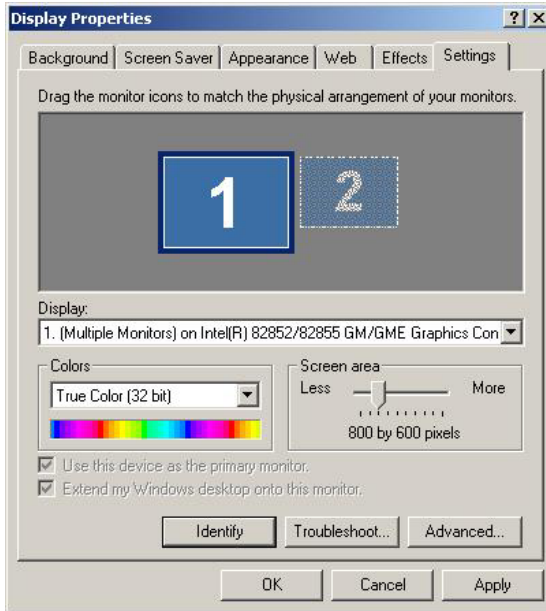
Before you can use the display device properly, please install the VGA driver.

2. Check your hardware

Please setup the display device properly before you boot up the system.

**For configure your Display device, please follow the instructions below:**

1. Please lunch Display Properties.



You would see two Graphics Controllers. If you connect two display devices, you would be able to setup each device for color bit and resolution.

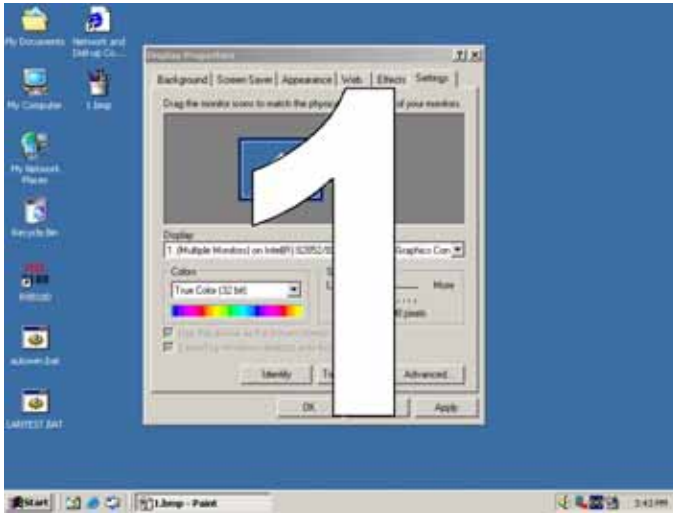


This item can let you configure which device would be the primary if you connect two display devices.

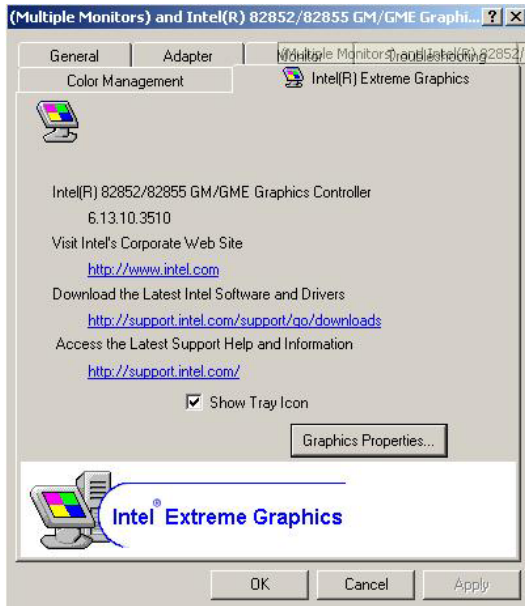


This item can let you extend your Windows Desktop to second display device.

If you click the identify button, the screen will pop up the number sequence of your device.



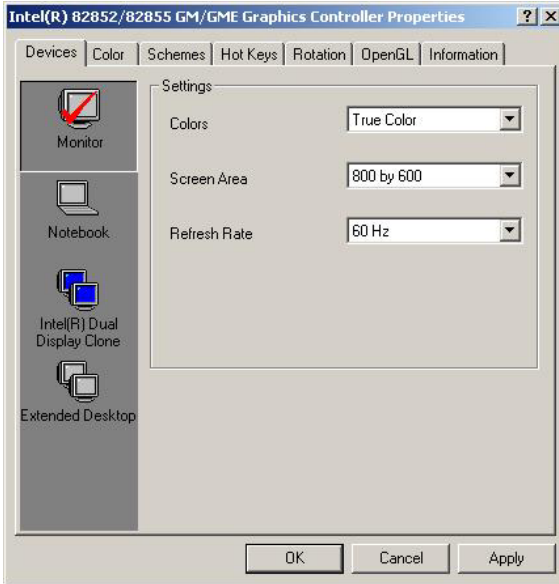
For advanced display settings, please click Advanced... button and choose Intel(R) Extreme Graphics.



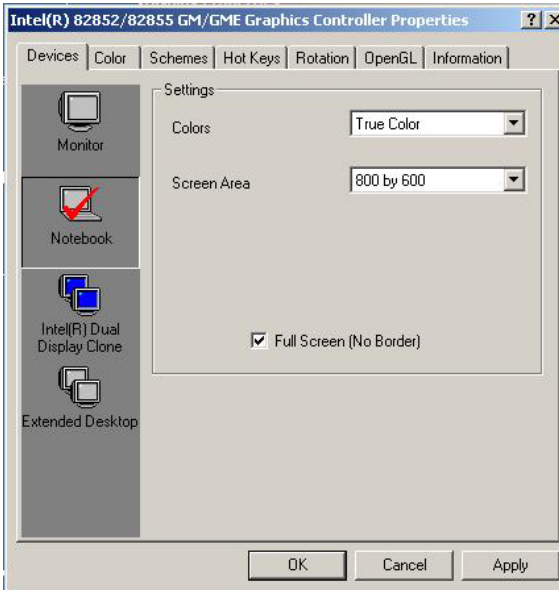
Please click Graphics Properties button to enter the advanced setup.



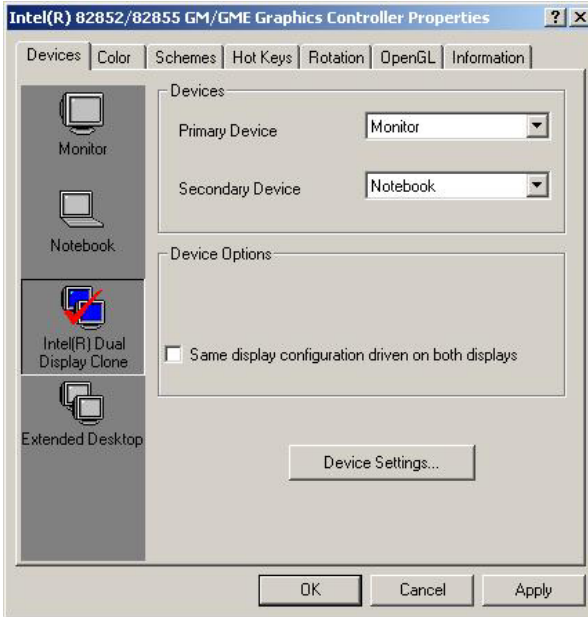
While you entering the Graphics Properties, you will see the options below:



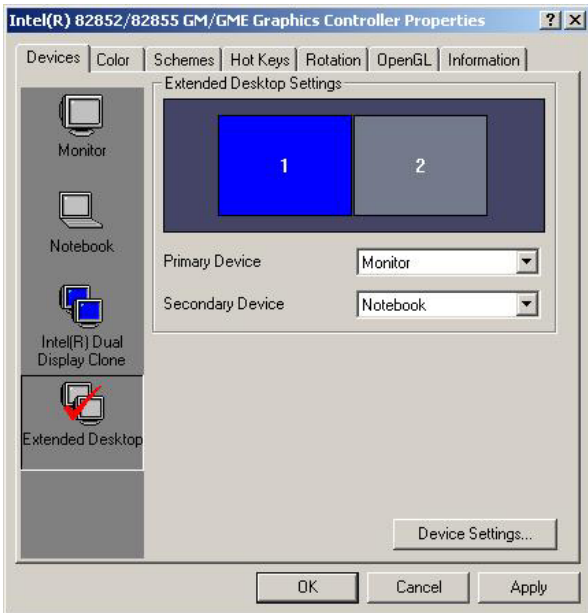
This option can let you configure the CRT monitors for Colors, Screen Area (Resolution) and Refresh Rate.



This option can let you configure the LCD panel for Colors, Screen Area (Resolution) and Full Screen option.



This option can let you configure the Dual Display for clone mode (same display on two devices)



This option can let you configure the Dual Display for Extended Desktop mode

## Chapter 4 <BIOS Setup>

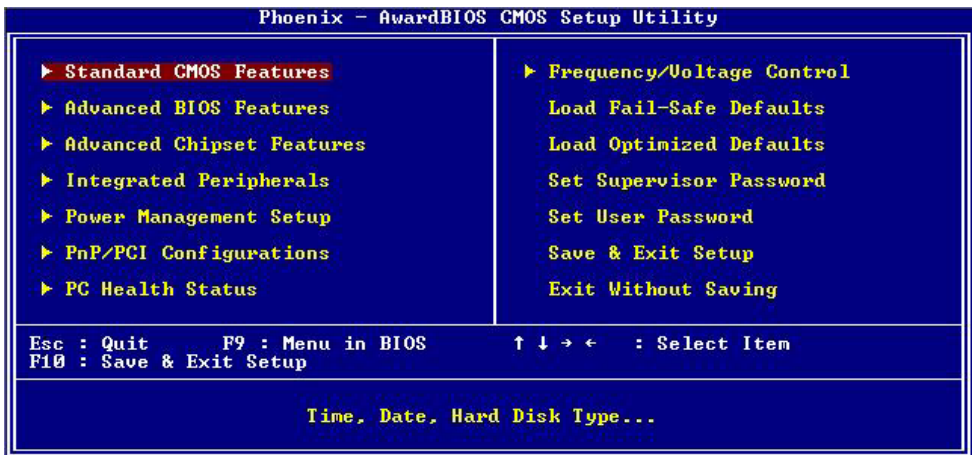
The single board computer uses the Award BIOS for the system configuration. The Award BIOS in the single board computer is a customized version of the industrial standard BIOS for IBM PC AT-compatible computers. It supports Intel x86 and compatible CPU architecture based processors and computers. The 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 5-1**. You can use arrow keys to select your function, press <Enter> key to accept the selection and enter the sub-menu.

**Figure 5-1** CMOS Setup Utility Main Screen



For more BIOS information please visit Phoenix-Award:

<http://www.phoenix.com/en/customer+services/bios/awardbios/default1.htm>

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## Appendix A <I/O Port Pin Assignment>

### A.1 <IDE Port>

Connector: **IDE1**

Type: 44-pin (22 x 2) 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	IDESEL
29	DACK-	30	Ground
31	IRQ	32	N/C
33	A1	34	CBLID
35	A0	36	A2
37	CS1	38	CS3
39	IDEACT-	40	Ground
41	VCC	42	VCC
43	Ground	44	Ground

Connector: **IDE2**

Type: 44-pin (22 x 2) box header

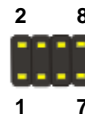


Pin	Description	Pin	Description
1	Reset	2	Ground
3	D7	4	D8
5	D6	6	D9
7	D5	8	D10
9	D4	10	D11
11	D3	12	D12
13	D2	14	D13
15	D1	16	D14
17	D0	18	D15
19	Ground	20	N/C
21	REQ	22	Ground
23	IOW-/STOP	24	Ground
25	IOR-/HDMARDY	26	Ground
27	IRDY/DDMARDY	28	IDESEL
29	DACK-	30	Ground
31	IRQ	32	N/C
33	A1	34	CBLID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

## A.2 < USB Interface >

Connector: **CN16 (USB)**

Type: 8-pin (4 x 2) header for dual USB Ports

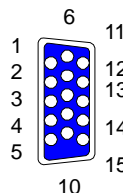


Pin	Description	Pin	Description
1	VCC	2	Ground
3	Data0-	4	Data+
5	Data0+	6	Data-
7	Ground	8	VCC

## A.3 < VGA Port >

Connector: **CN3 (VGA)**

Type: 15-pin D-sub female connector on bracket



Pin	Description	Pin	Description	Pin	Description
1	VGA_RED	6	Ground	11	N/C
2	VGA_GREEN	7	Ground	12	5VCDDCDA
3	VGA_BLUE	8	Ground	13	5VHSYNCR
4	N/C	9	VCC_VGA	14	5VVSYNCR
5	Ground	10	Ground	15	5VDDCCL

Connector: **CN7 (CN\_VGA)**

Type: 8-pin header connector on bracket



Pin	Description	Pin	Description
1	VGA_RED	5	5VCDDCDA
2	VGA_GREEN	6	5VDDCCL
3	VGA_BLUE	7	5VHSYNCR
4	Ground	8	5VVSYNCR

### A.4 < LAN Port >

Connector: **LAN1 (RJ45)**

Type: RJ45 connector with LED on bracket

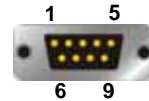


Pin	1	2	3	4	5	6	7	8
Description	MDI0+	MDI0-	MDI1+	MDI1-	MDI2+	MDI2-	MDI3+	MDI3-

### A.5 < Serial Port >

Connector: **CN1 (COM1)**

Type: 9-pin D-sub male connector on bracket



Pin	Description	Pin	Description
1	DCD#1	6	DSR#1
2	RXD#1	7	RTS#1
3	TXD#1	8	CTS#1
4	DTR#1	9	RI#1
5	Ground		

Connector: **CN2 (COM2)**

Type: 9-pin D-sub male connector on bracket

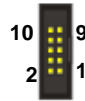


Pin	Description	Pin	Description
1	DCD#2	6	DSR#2
2	RXD#2	7	RTS#2
3	TXD#2	8	CTS#2
4	DTR#2	9	RI#2
5	Ground		



Connector: **CN23 (COM3)**

Type: 9-pin header connector on bracket



Pin	Description	Pin	Description
1	DCD#3	2	DSR#3
3	RXD#3	4	RTS#3
5	TXD#3	6	CTS#3
7	DTR#3	8	RI#3
9	Ground	10	NC

Connector: **CN24 (COM4)**

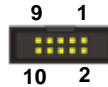
Type: 9-pin header connector on bracket



Pin	Description	Pin	Description
1	DCD#4	2	DSR#4
3	RXD#4	4	RTS#4
5	TXD#4	6	CTS#4
7	DTR#4	8	RI#4
9	Ground	10	NC

Connector: **CN12 (COM5)**

Type: 9-pin header connector on bracket



Pin	Description	Pin	Description
1	DCD#5	2	DSR#5
3	RXD#5	4	RTS#5
5	TXD#5	6	CTS#5
7	DTR#5	8	RI#5
9	Ground	10	NC

Connector: **CN9 (COM6)**

Type: 9-pin header connector on bracket



Pin	Description	Pin	Description
1	DCD#6	2	DSR#6
3	RXD#6	4	RTS#6
5	TXD#6	6	CTS#6
7	DTR#6	8	RI#6
9	Ground	10	NC

## A.6 < PS2 Port >

Connector: **CN4 (PS2)**

Type: 6-pin Mini-DIN connector on bracket



Pin	Description	Pin	Description
1	KBD_DAT	2	L_MDAT
3	KMGND	4	KB5V
5	KBD_CLK	6	L_MCLK

Connector: **CN33 (CN\_PS2)**

Type: 6-pin header connector on bracket



Pin	Description	Pin	Description
1	KBD_DAT	2	L_MDAT
3	KMGND	4	KB5V
5	KBD_CLK	6	L_MCLK

## A.7 < Parallel Port >

Connector: **LPT1 (Printer)**

Type: 26-Pin box header



Pin	Description	Pin	Description
1	BP_STB	2	AFD-
3	BP_PRD0	4	ERR-
5	BP_PRD1	6	INIT-
7	BP_PRD2	8	SLIN-
9	BP_PRD3	10	Ground
11	BP_PRD4	12	Ground
13	BP_PRD5	14	Ground
15	BP_PRD6	16	Ground
17	BP_PRD7	18	Ground
19	ACK-	20	Ground
21	BUSY	22	Ground
23	PE	24	Ground
25	SLCT	26	Ground

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## Appendix B <Flash BIOS>

### B.1 <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.phoenix.com/en/home/>

[http://www.commell.com.tw/Support/Support\\_SBC.htm](http://www.commell.com.tw/Support/Support_SBC.htm)

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

### B.2 <Flash BIOS Procedure>

1. Please make a bootable floppy disk.
2. Get the last .bin files you want to update and copy it into the disk.
3. Copy awardflash.exe to the disk.
4. Power on the system and flash the BIOS. (Example: C:/ awardflash XXX.bin)
5. Restart the system.

































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










<http://www.commell.com.tw/support/support.htm>

## Appendix C <System Resource>

### C.1 <I/O Address Map>



























#### Input/output (IO)

	[00000000 - 0000000F]	Direct memory access controller
	[00000000 - 00000CF7]	PCI bus
	[00000010 - 0000001F]	Motherboard resources
	[00000020 - 00000021]	Programmable interrupt controller
	[00000022 - 0000003F]	Motherboard resources
	[00000040 - 00000043]	System timer
	[00000044 - 0000005F]	Motherboard resources
	[00000060 - 00000060]	Standard 101/102-Key or Microsoft Natural PS/2 Keyboard
	[00000061 - 00000061]	System speaker
	[00000062 - 00000063]	Motherboard resources
	[00000064 - 00000064]	Standard 101/102-Key or Microsoft Natural PS/2 Keyboard
	[00000065 - 0000006F]	Motherboard resources
	[00000070 - 00000073]	System CMOS/real time clock
	[00000074 - 0000007F]	Motherboard resources
	[00000080 - 00000090]	Direct memory access controller
	[00000091 - 00000093]	Motherboard resources
	[00000094 - 0000009F]	Direct memory access controller
	[000000A0 - 000000A1]	Programmable interrupt controller
	[000000A2 - 000000BF]	Motherboard resources
	[000000C0 - 000000DF]	Direct memory access controller
	[000000E0 - 000000EF]	Motherboard resources
	[000000F0 - 000000FF]	Numeric data processor
	[00000170 - 00000177]	Secondary IDE Channel
	[000001F0 - 000001F7]	Primary IDE Channel
	[00000274 - 00000277]	ISAPNP Read Data Port
	[00000279 - 00000279]	ISAPNP Read Data Port
	[00000294 - 00000297]	Motherboard resources
	[000002E8 - 000002EF]	Communications Port (COM4)
	[000002F8 - 000002FF]	Communications Port (COM2)
	[00000376 - 00000376]	Secondary IDE Channel
	[00000378 - 0000037F]	Printer Port (LPT1)
	[000003B0 - 000003BB]	Intel(R) 82852/82855 GM/GME Graphics Controller
	[000003C0 - 000003DF]	Intel(R) 82852/82855 GM/GME Graphics Controller
	[000003E8 - 000003EF]	Communications Port (COM3)
	[000003F6 - 000003F6]	Primary IDE Channel

	[000003F8 - 000003FF]	Communications Port (COM1)
	[00000400 - 000004BF]	Motherboard resources
	[000004D0 - 000004D1]	Motherboard resources
	[000004E8 - 000004EF]	Communications Port (COM6)
	[000004F8 - 000004FF]	Communications Port (COM5)
	[00000500 - 0000051F]	Intel(R) 82801DB/DBM SMBus Controller - 24C3
	[00000778 - 0000077B]	Printer Port (LPT1)
	[00000A78 - 00000A7B]	Motherboard resources
	[00000B78 - 00000B7B]	Motherboard resources
	[00000BBC - 00000BBF]	Motherboard resources
	[00000D00 - 0000FFFF]	PCI bus
	[00000E78 - 00000E7B]	Motherboard resources
	[00000F78 - 00000F7B]	Motherboard resources
	[00000FBC - 00000FBF]	Motherboard resources
	[0000D000 - 0000D03F]	Intel(R) PRO/100 VM Network Connection
	[0000E000 - 0000E0FF]	Realtek AC'97 Audio
	[0000E800 - 0000E81F]	Intel(R) 82801DB/DBM USB Universal Host Controller - 24C7
	[0000E900 - 0000E907]	Intel(R) 82852/82855 GM/GME Graphics Controller
	[0000EB00 - 0000EB1F]	Intel(R) 82801DB/DBM USB Universal Host Controller - 24C2
	[0000EC00 - 0000EC3F]	Realtek AC'97 Audio
	[0000ED00 - 0000ED1F]	Intel(R) 82801DB/DBM USB Universal Host Controller - 24C4
	[0000F000 - 0000F00F]	Intel(R) 82801DB Ultra ATA Storage Controller - 24CB






















## C.2 <Memory Address Map>

### Memory

	[00000000 - 0009FFFF] System board
	[000A0000 - 000BFFFF] Intel(R) 82852/82855 GM/GME Graphics Controller
	[000A0000 - 000BFFFF] PCI bus
	[000C0000 - 000DFFFF] PCI bus
	[000E0000 - 000EFFFF] System board
	[000F0000 - 000F3FFF] System board
	[000F4000 - 000F7FFF] System board
	[000F8000 - 000FBFFF] System board
	[000FC000 - 000FFFFF] System board
	[00100000 - 0DFEFFFF] System board
	[0DFF0000 - 0DFFFFFF] System board
	[0E000000 - FEBFFFFFFF] PCI bus
	[D8000000 - DFFFFFFF] Intel(R) 82852/82855 GM/GME Graphics Controller
	[E0000000 - E7FFFFFFF] Intel(R) 82852/82855 GM/GME Graphics Controller
	[E8000000 - E8000FFF] Intel(R) PRO/100 VM Network Connection
	[E8100000 - E817FFFF] Intel(R) 82852/82855 GM/GME Graphics Controller
	[E8180000 - E81FFFFFF] Intel(R) 82852/82855 GM/GME Graphics Controller
	[E8200000 - E82003FF] Intel(R) 82801DB/DBM U5B2 Enhanced Host Controller - 24CD
	[E8201000 - E82011FF] Realtek AC'97 Audio
	[E8202000 - E82020FF] Realtek AC'97 Audio
	[FEBFFC00 - FEBFFFFFFF] Intel(R) 82801DB Ultra ATA Storage Controller - 24CB
	[FEC00000 - FECFFFFFFF] System board
	[FEE00000 - FEEFFFFFFF] System board
	[FFB00000 - FFB7FFFF] System board
	[FFB80000 - FFBFFFFFFF] Intel(R) 82802 Firmware Hub Device
	[FFF00000 - FFFFFFFF] System board

### C.3 <System IRQ and DMA Resource>

#### Interrupt request (IRQ)

	(ISA) 0	System timer
	(ISA) 1	Standard 101/102-Key or Microsoft Natural PS/2 Keyboard
	(ISA) 3	Communications Port (COM2)
	(ISA) 4	Communications Port (COM1)
	(ISA) 8	System CMOS/real time clock
	(ISA) 9	Microsoft ACPI-Compliant System
	(ISA) 10	Communications Port (COM3)
	(ISA) 10	Communications Port (COM5)
	(ISA) 11	Communications Port (COM4)
	(ISA) 11	Communications Port (COM6)
	(ISA) 13	Numeric data processor
	(ISA) 14	Primary IDE Channel
	(ISA) 15	Secondary IDE Channel
	(PCI) 5	Intel(R) 82801DB/DBM SMBus Controller - 24C3
	(PCI) 16	Intel(R) 82801DB/DBM USB Universal Host Controller - 24C2
	(PCI) 16	Intel(R) 82852/82855 GM/GME Graphics Controller
	(PCI) 17	Realtek AC'97 Audio
	(PCI) 18	Intel(R) 82801DB/DBM USB Universal Host Controller - 24C7
	(PCI) 19	Intel(R) 82801DB/DBM USB Universal Host Controller - 24C4
	(PCI) 20	Intel(R) PRO/100 VM Network Connection
	(PCI) 23	Intel(R) 82801DB/DBM USB2 Enhanced Host Controller - 24CD



## Contact Information

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

### Taiwan Commate Computer Inc.

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