User's Manual

BP-325

POS Box PC

(M/B: FH-5251)

Version 1.7

Copyright Notice

Safety and Warranty

1. Read these safety instructions carefully.

2. Keep this user's manual for later reference.

3. Disconnect this equipment from any AC outlet before cleaning. Do not use liquid or spray detergents for cleaning. Use a damp cloth.

4. For pluggable equipment, the power outlet must be installed near the equipment and must be easily accessible.

5. Keep this equipment away from humidity.

6. Put this equipment on a reliable surface during installation. Dropping it or letting it fall could cause damage.

7. The openings on the enclosure are for air convection. Protect the equipment from overheating. DO NOT COVER THE OPENINGS.

8. Make sure the voltage of the power source is correct before connecting the equipment to the power outlet.

9. Position the power cord so that people cannot step on it. Do not place anything over the power cord.

10. All cautions and warnings on the equipment should be noted.

11. If the equipment is not used for a long time, disconnect it from the power source to avoid damage by transient over-voltage.

12. Never pour any liquid into an opening. This could cause fire or electrical shock.

13. Never open the equipment. For safety reasons, only qualified service personnel should open the equipment.

14. If any of the following situations arises, get the equipment checked by service personnel:
    a. The power cord or plug is damaged.
    b. Liquid has penetrated into the equipment.
    c. The equipment has been exposed to moisture.
    d. The equipment does not work well, or you cannot get it to work according to the user’s manual.
    e. The equipment has been dropped and damaged.
    f. The equipment has obvious signs of breakage.

15. DO NOT LEAVE THIS EQUIPMENT IN AN UNCONTROLLED ENVIRONMENT WHERE THE STORAGE TEMPERATURE IS BELOW -20°C (-4℉) OR A BOVE 60°C (140°F). IT MAY DAMAGE THE EQUIPMENT.

Table of Content

About this Manual

This manual contains all the information you need to set up and use BP-325.

Chapter 1 Provides an introduction to BP-325 and this manual.

Chapter 2 Provides all necessary information for all hardware setup.

Chapter 3 Provides the necessary information for installing for chipset and its accessories.

Chapter 4 Lists all BP-325 specifications.

Chapter 5 Troubleshooting of BP-325.

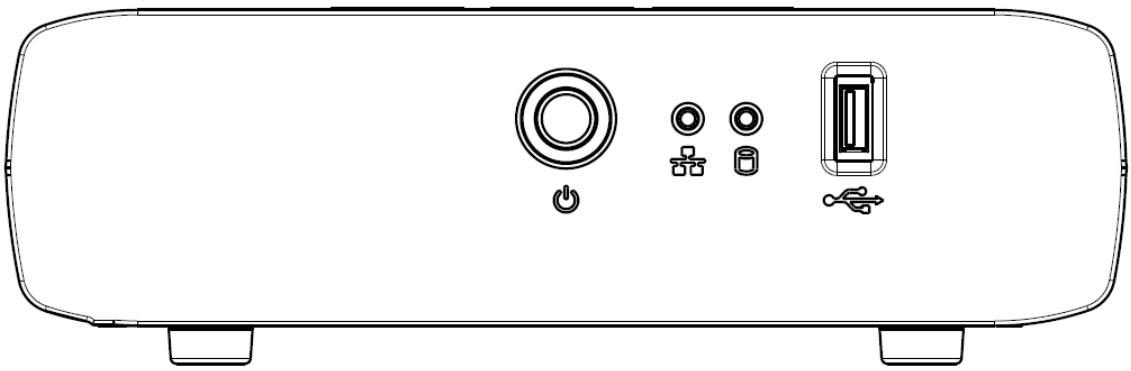
Chapter1

Introduction

BP-325 Characteristics

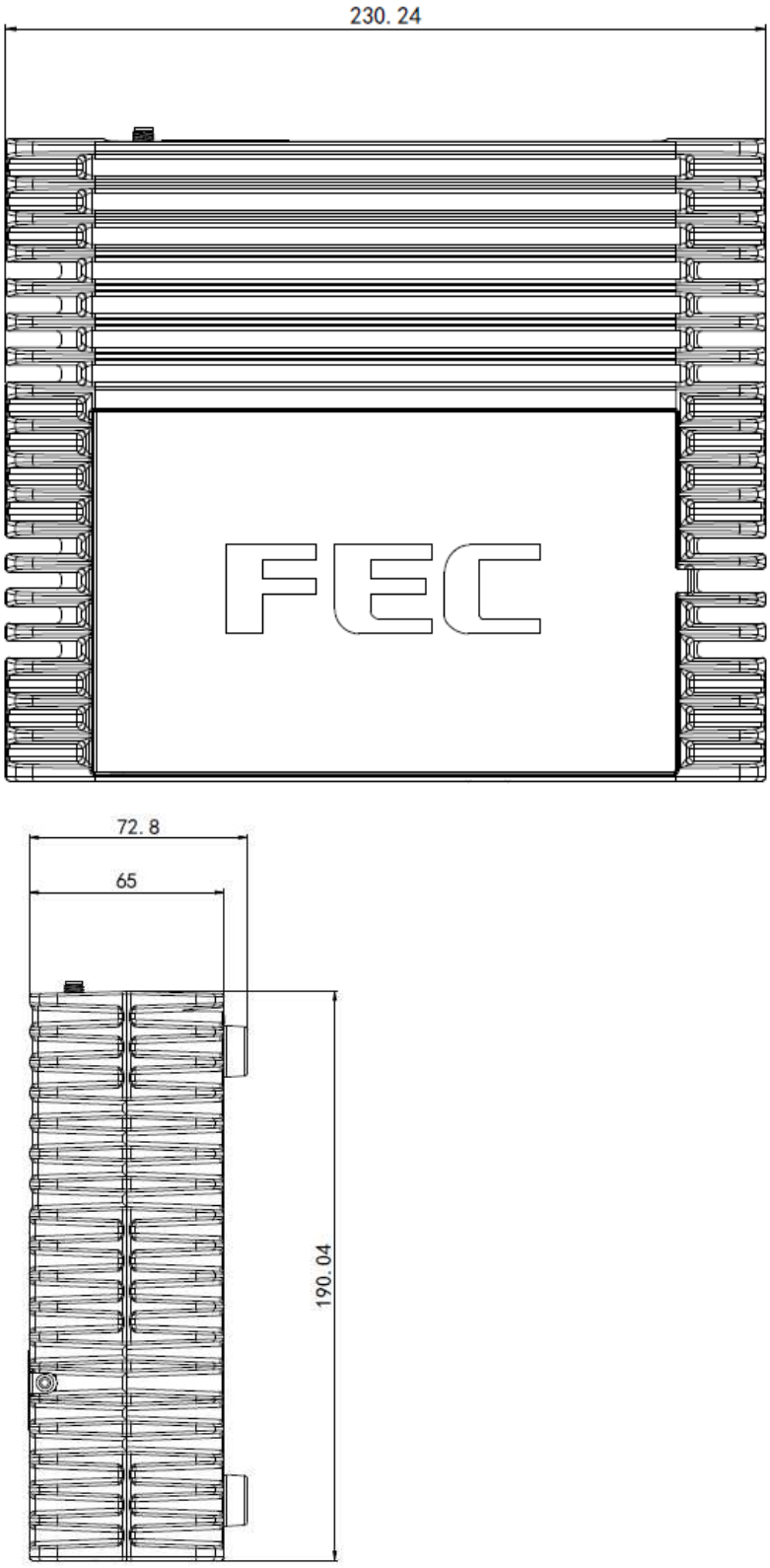
BP-325, with Atom D525 1.8GHz and great heat dissipation ability for any harsh environment, is specially designed for POS application. Its stylish mechanical design with feature of easy maintenance and abundant I/O access make it a decent choice for POS application.

- **System:** Equipped with Intel D525 and ICH8M chipset.
- **Housing:** BP-325 is made with strong metal housing suitable
- **Extensibility:** Low profile design with abundant I/O access, BP-325 is ideal for connecting a variety of system devices:
  - DC 12V out supported — For Display
  - Abundant I/O allowed the box for different kinds of peripherals or devices

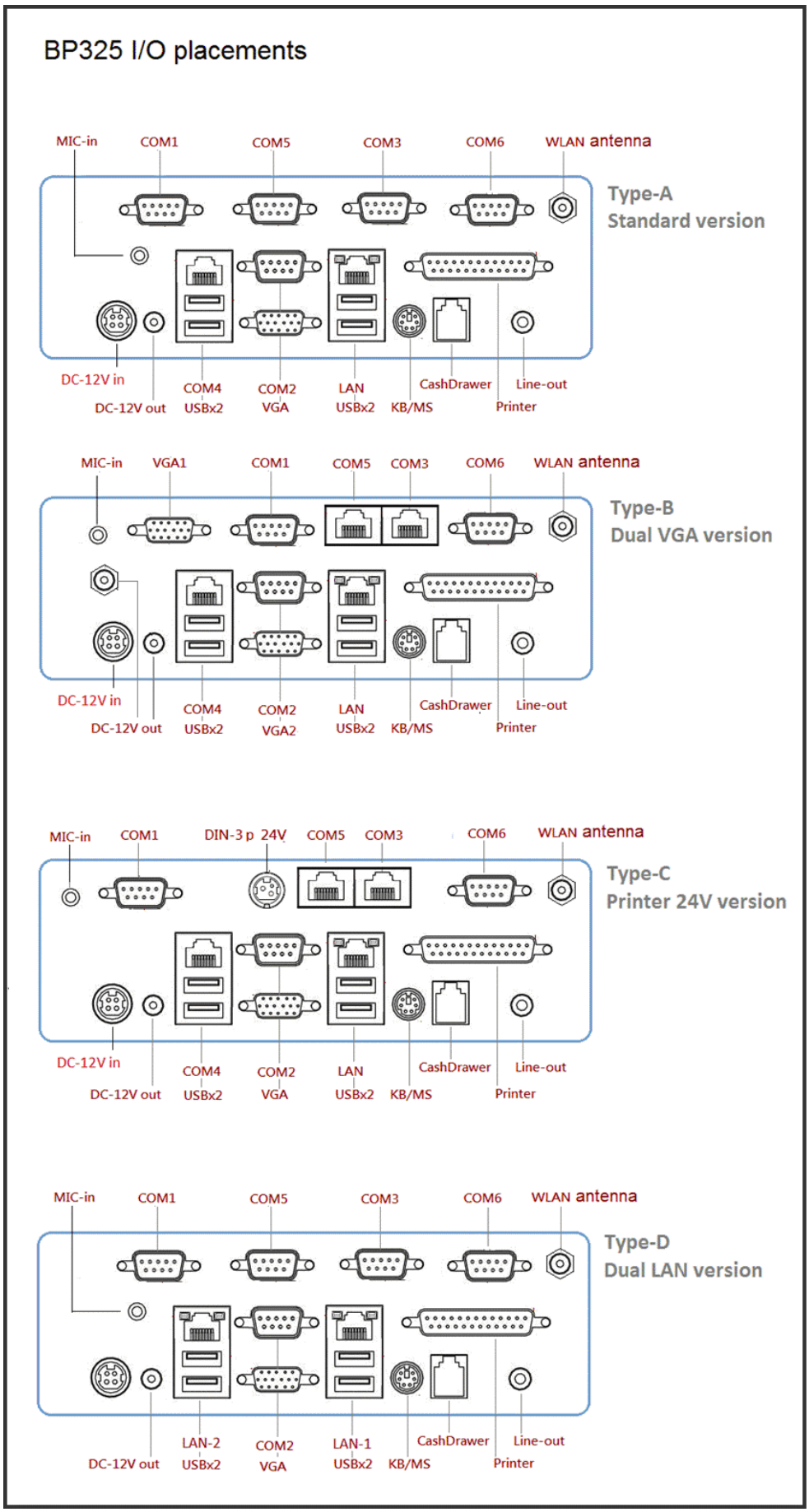


BP-325

BP-325 Dimensions



Rear I/O Panel



I/O Port	Connector Type	Description (type A standard version)
DC-12V in	DC-in Connector	DC 12V in connector
DC-12V out	12V DC-out connector	This DC-out port can sustain the power of the monitor or any other devices which need 12V DC power input.
VGA	D-Sub 15 Pin Connector	The VGA port is used for connecting LCD or CRT monitors
LAN	LAN RJ45 Connector	The LAN port is applied to hook the terminal to a local area network.
USB Port	USB Type A	Standard USB connector for external device
LPT Port	D-Sub 25 Connector	The parallel port LPT1 can be used to connect parallel devices, such as a printer.
K/B / Mouse	PS/2 Keyboard Connector	The port is for connecting an external keyboard or mouse.
Cash Drawer	RJ11 Connector	Cash Drawer Connector, 12V supported
COM1, COM2, COM3, COM5, COM6	D-Sub 9 Pin Connector	The serial ports can be used to connect serial devices. (COM2: RS-232/422/485 selectable)
Line-Out	Earphone connector	This port is used for audio-out
MIC in	Earphone connector	This port is used for Microphone
COM4	RJ-45 Connector	The serial ports can be used to connect serial devices or VFD/LCM
Wireless Antenna	Antenna Connector	This port is for internal mPCIe Wireless module's antenna

Packing List

The following items are standard with BP-325:

- Main System x 1
- Power Adaptor x 1 / AC Power Cord x 1

Chapter2

Hardware Installation and Upgrading

Do not remove the top cover until you have verified that no power is supplied to the system. The system must be switched off and the power cord must be unplugged. Every time you service the system, you should be aware of this.

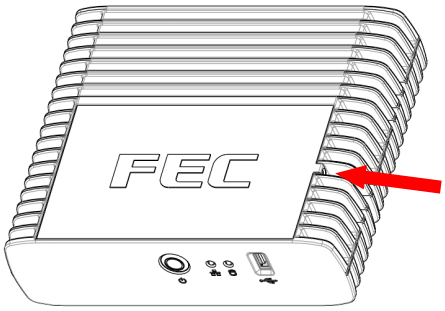
2.5 inches Hard Disk Drive Installation

A standard BP-325 comes with a 2.5” hard disk drive (HDD), unless it is pre-requested.

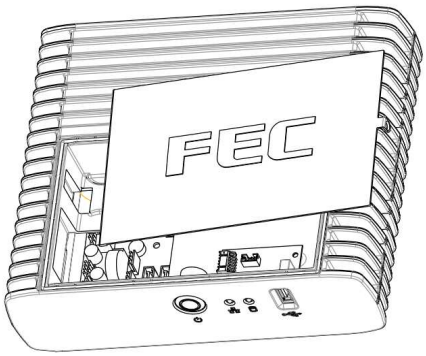
BP-325 (2.5” HDD or other storage disassembly process)

1. Turn off the system and remove power cable from main unit.

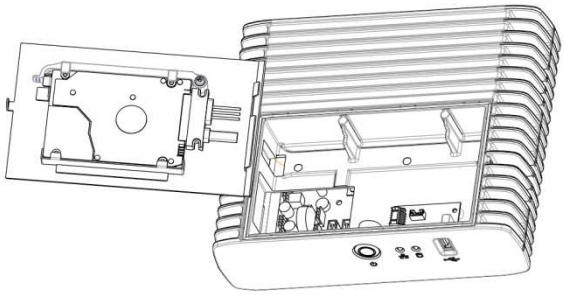
2. Unlock the screw and open the HDD door.



3. Take off the cover and beware of the cables.

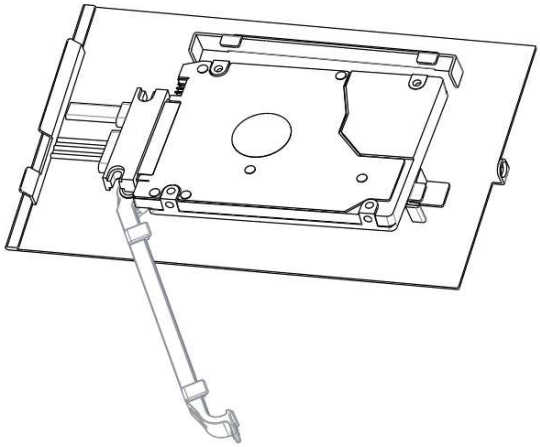


4. Take off the SATA cable.



5. Open the tray of HDD bracket.

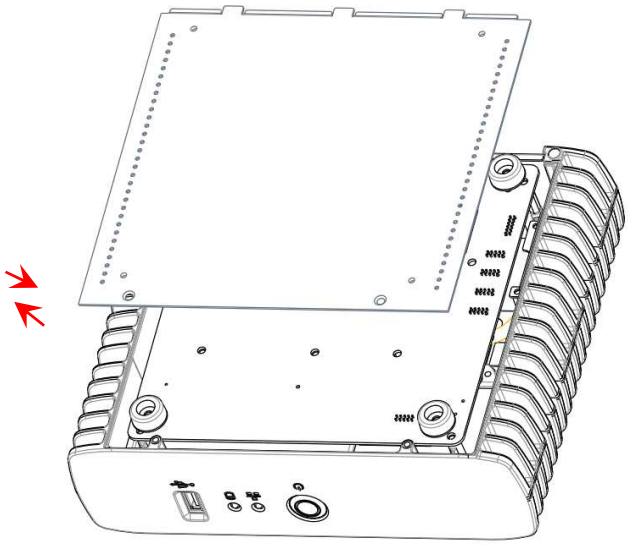
6. Change the HDD and lock back to the tray.



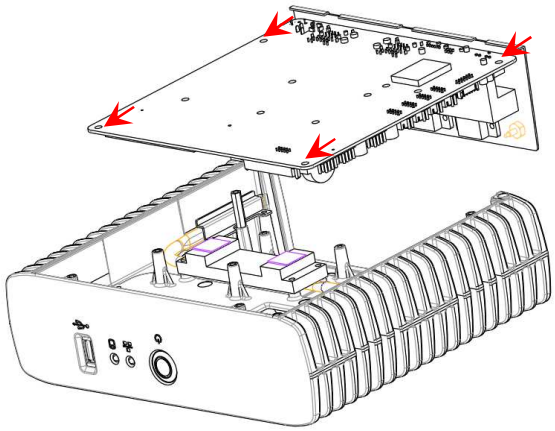
7. Put it back to main unit and fix with the screw.

Memory (DDRIII RAM) Installation

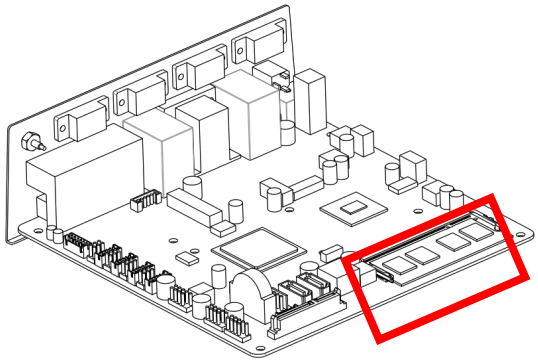
1. Remove two screws on the back cover and take off it.



2. Remove four screws on the M/B and pull it up.



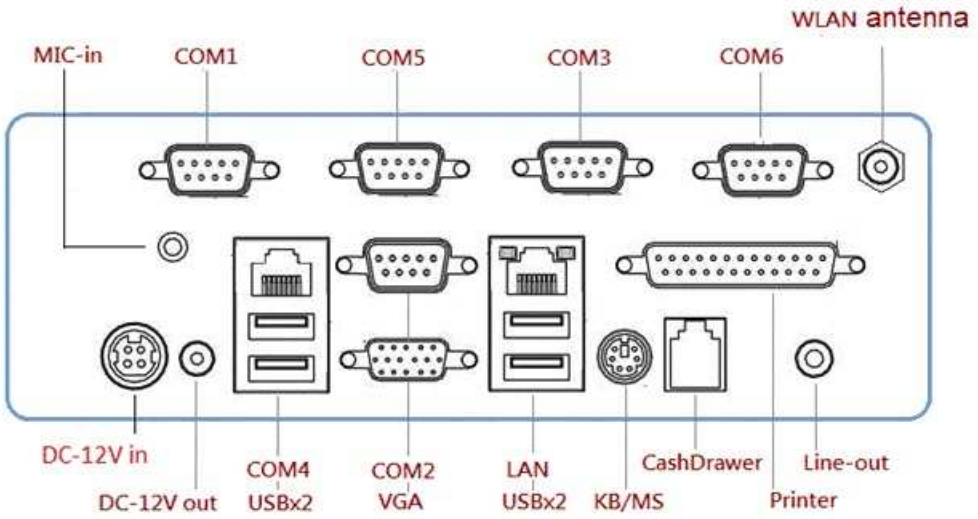
3. Access to RAM slot and restore the unit.



Cash Drawer Installation

Before connecting the cash drawer to the BP-325, please make sure the drive voltage and cable pin assignment of the cash drawer matches the definition of the cash drawer port of BP-325. Please refer to the jumper setting and pin definition(for more information on the Cash Drawer.

Plug cash drawer cable into cash drawer port.



Note: If the cash drawer cannot be detected by the system, please refer to troubleshooting.

Up to two cash drawers may be driven from this port. Driving voltage of the solenoid is DC+12V. I/O port 284 is used for drawer operation. A test program is supplied, for Linux and Windows, source code of which is available on request by software developers.

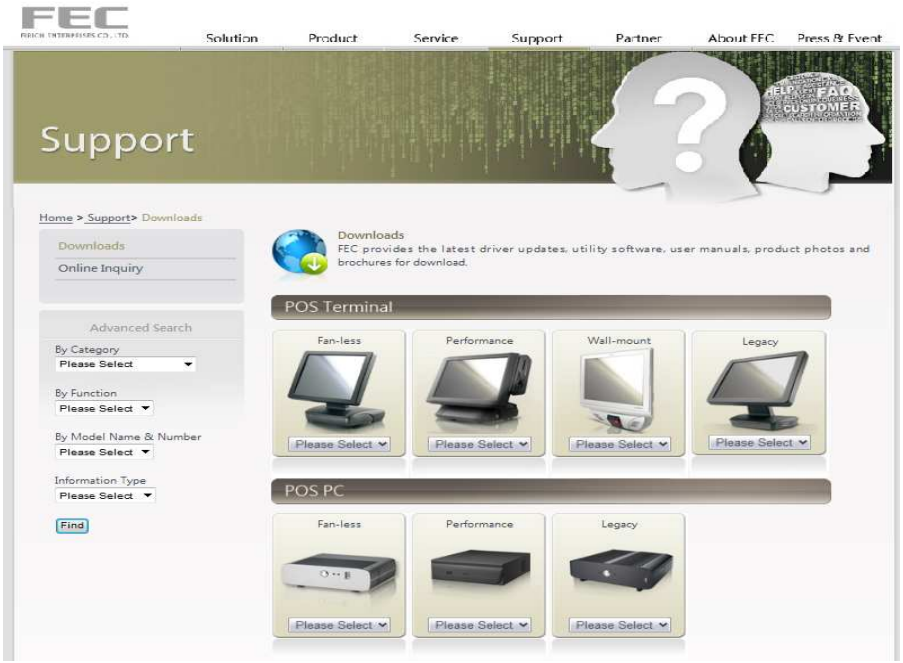
Value	*Description*
0x284	*Output address.*
0x284 read 8bit	*Bit 2 => 0: low 1: high*
0x200	*Sleep 200ms*
0x01	*Open cashdrawer1 value.*
0x02	*Open cashdrawer2 value.*
0x04	*Close cash-drawer value.*
0x04	*Cash-drawer status mask.*

Chapter3

Software Installation and Setup

Driver Download from FEC Website *Model*

A. Please go to FEC website to download the drivers.



B: The installation sequence: Chipset Driver -> VGA Driver -> LAN Driver -> Audio Driver -> Other Driver(optional)

C: Then, you can start to install.

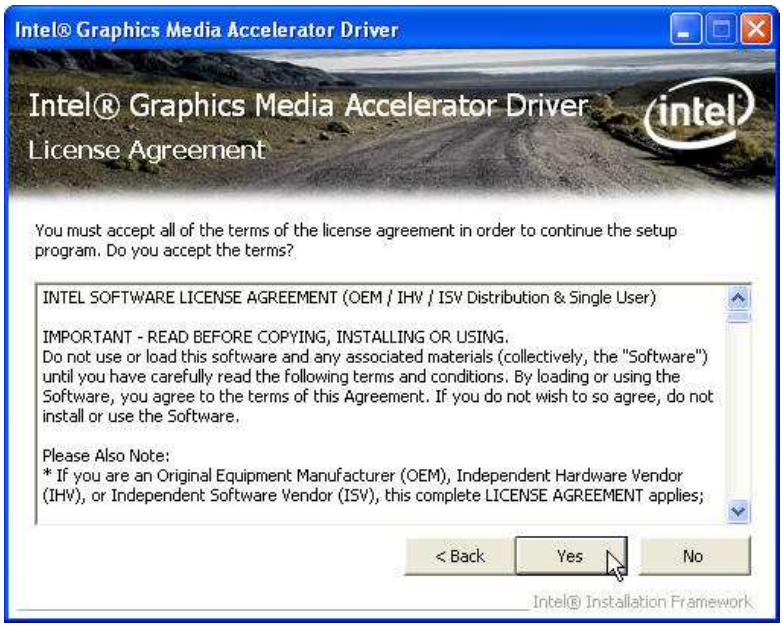
Please follow this installation sequence accordingly.

Intel ATOM D525 Chipset Installation Utilities for Windows XP

Step 1. Please double confirm the Intel chipset driver from website.

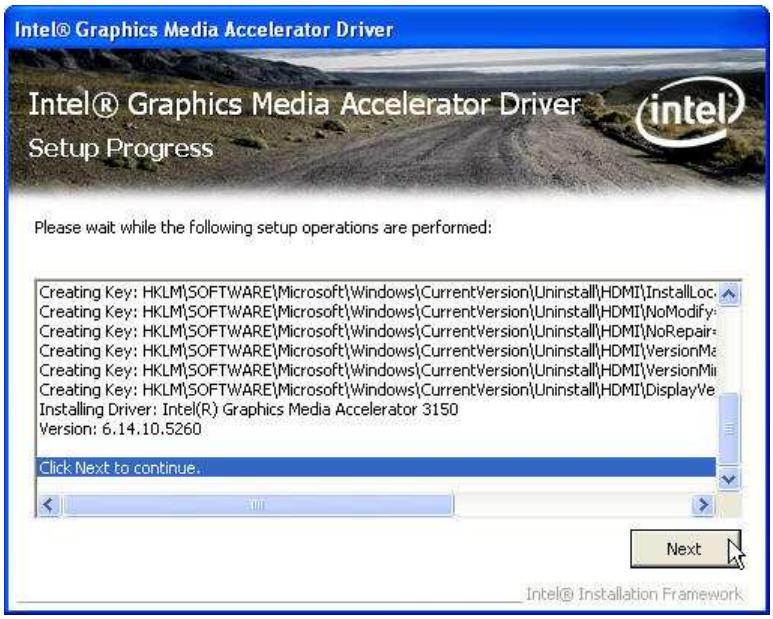
Step 2. Click Next

Step 3. Read the License Agreement and click “Yes” to continue



Step 4. Click “Next” to continue

Step 5. Click “Next” to continue



Step 6. Click “Finish” to complete setup

VGA Driver Installation

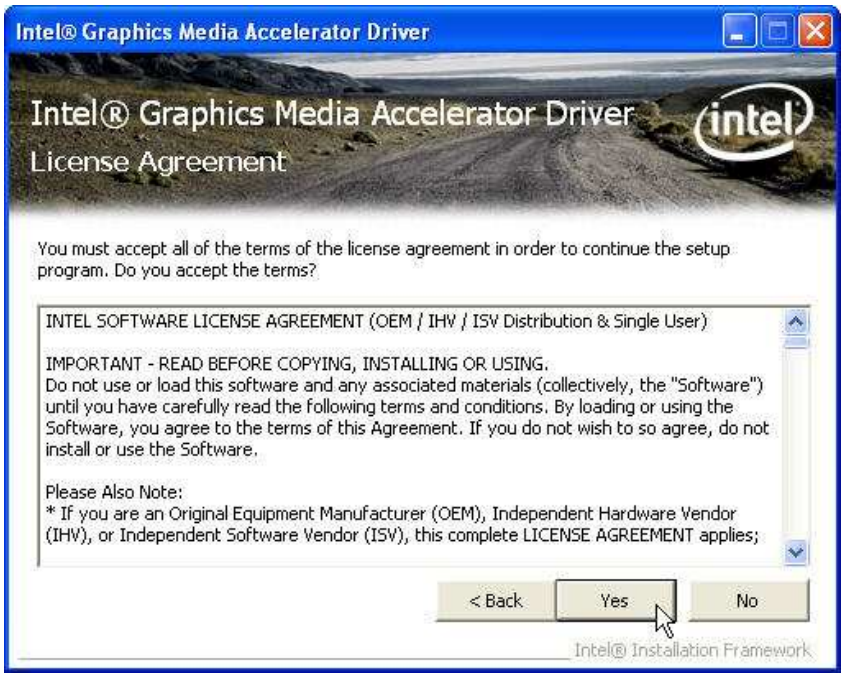
Step 1. Please double confirm the VGA driver from website.

Step 2. Click Next

Note:

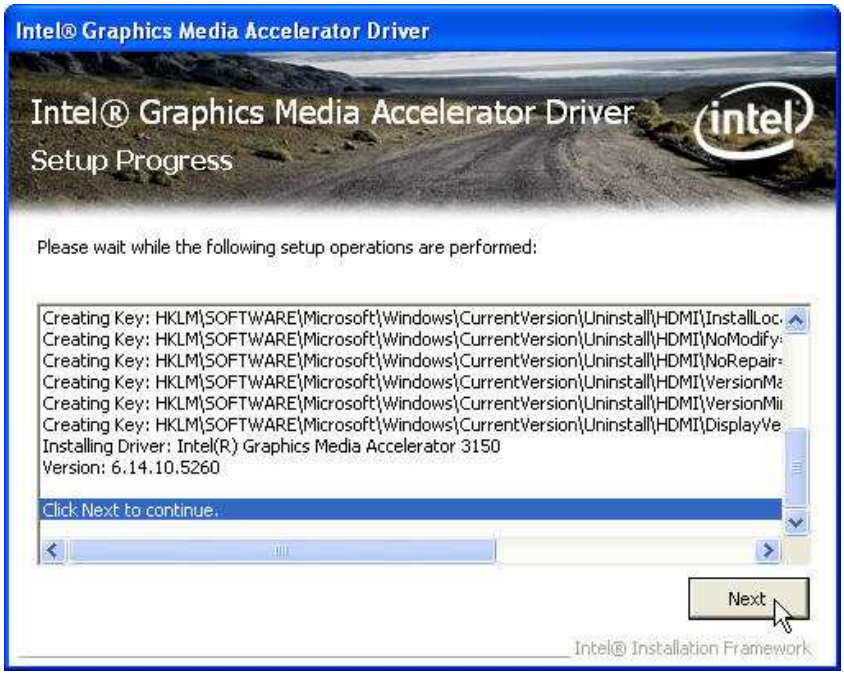
When installing the IEGD driver for VGA under POSready 2009, the default setting is 800x600 with Clone mode; if you need to use Extension Mode, please set the 2nd panel as primary as below. (**Warning: After you set the panel to Extension Mode, it won't be available to set back to Clone Mode due to the driver issue.**)

Step 3. Read the License Agreement and click "Yes" to continue



Step 4. Click “Next” to continue

Step 5. Click “Next” to continue

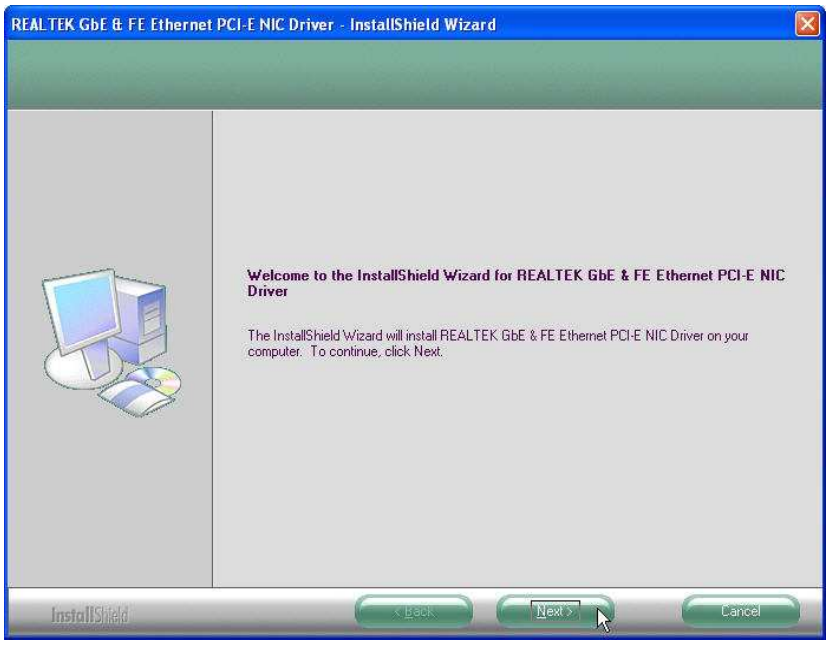


Step 6. Click “Finish” to complete setup

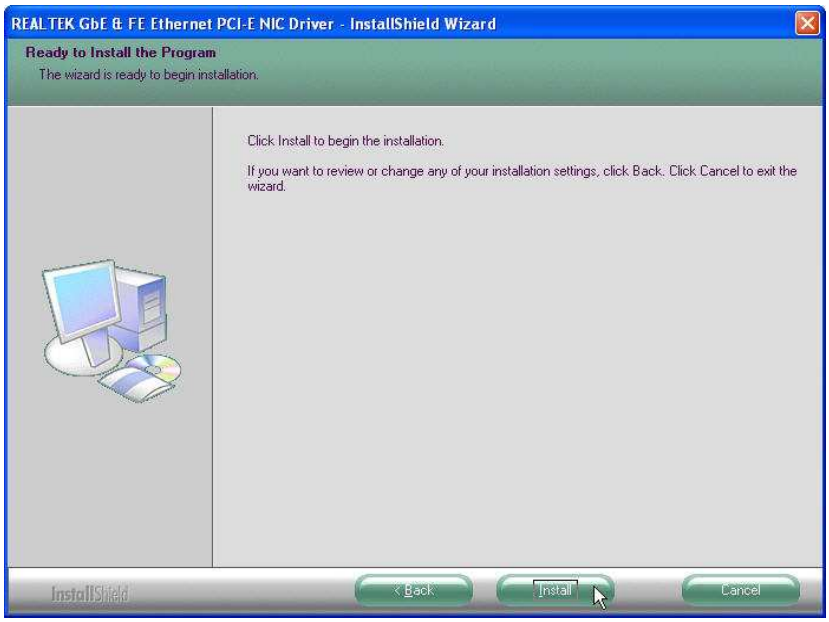
LAN Driver Installation

Step 1. Please double confirm the LAN driver from website.

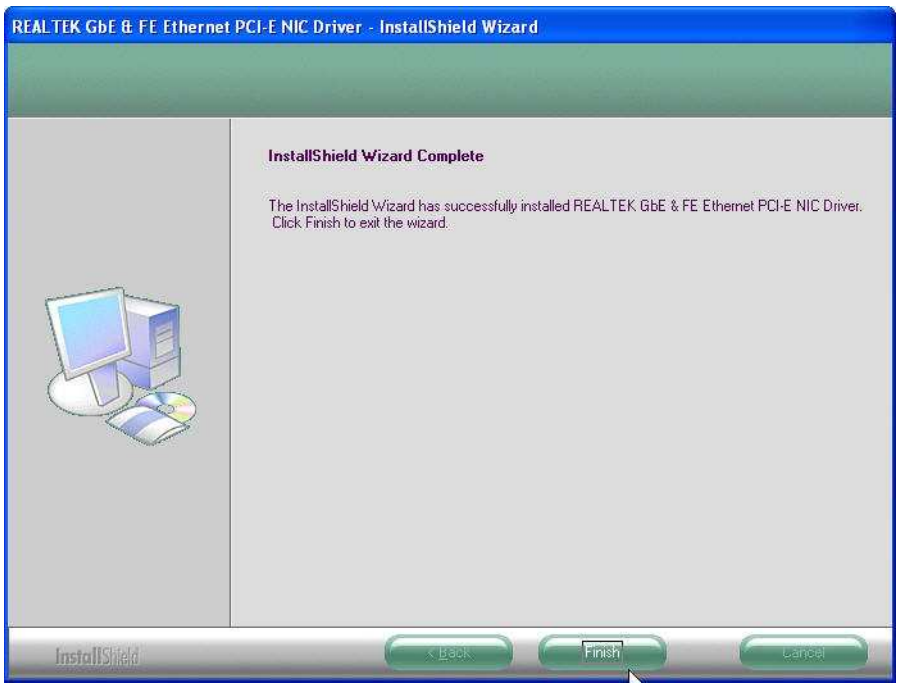
Step 2. Click Next



Step 3. Click “Next” to continue



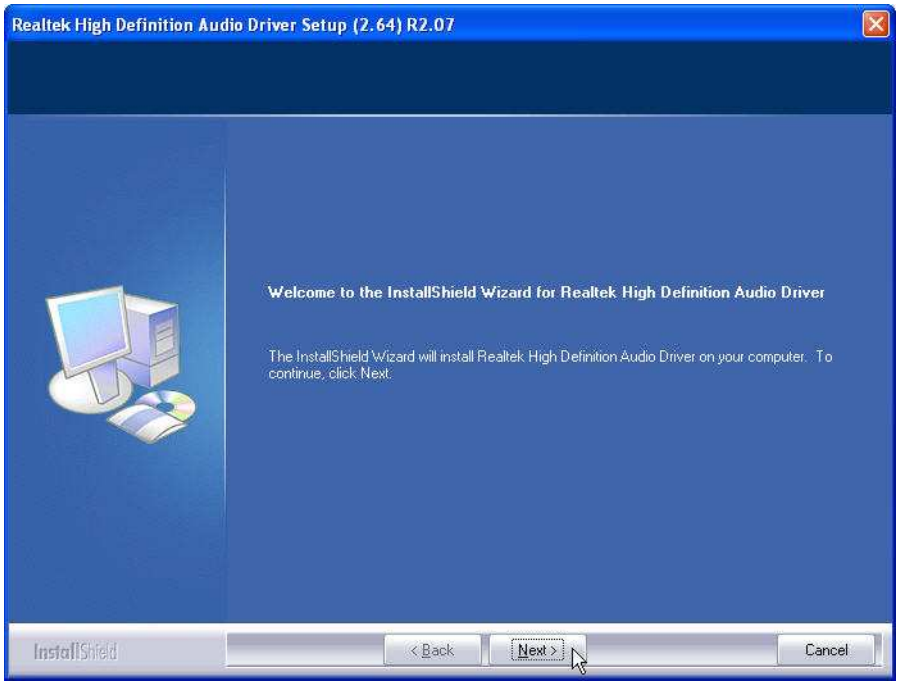
Step 4. Click “Finish” to complete setup



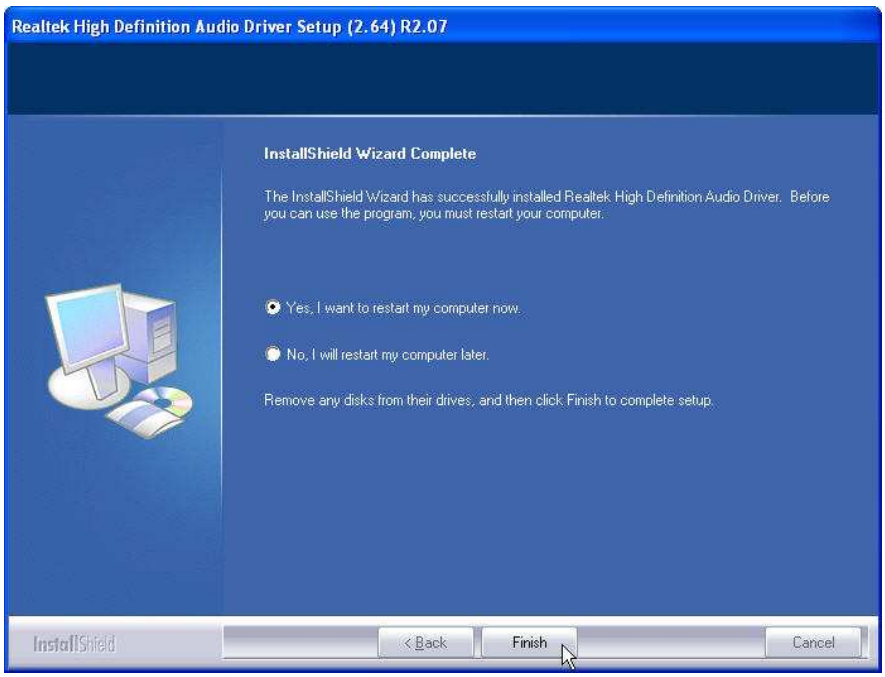
Audio Driver Installation

Step 1. Please double confirm the Audio driver from website.

Step 2. Click Next



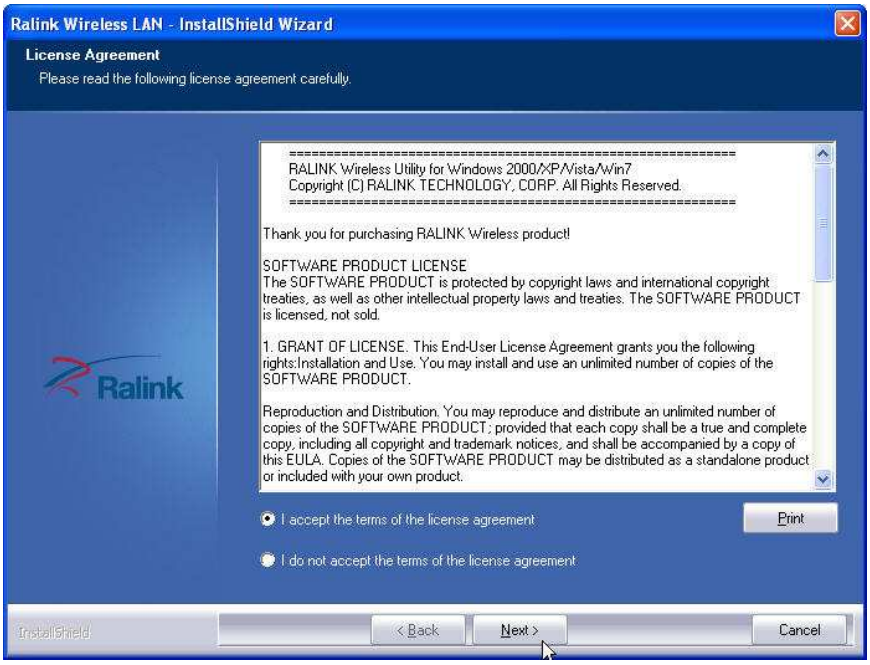
Step 3. Click “Finish” to complete setup



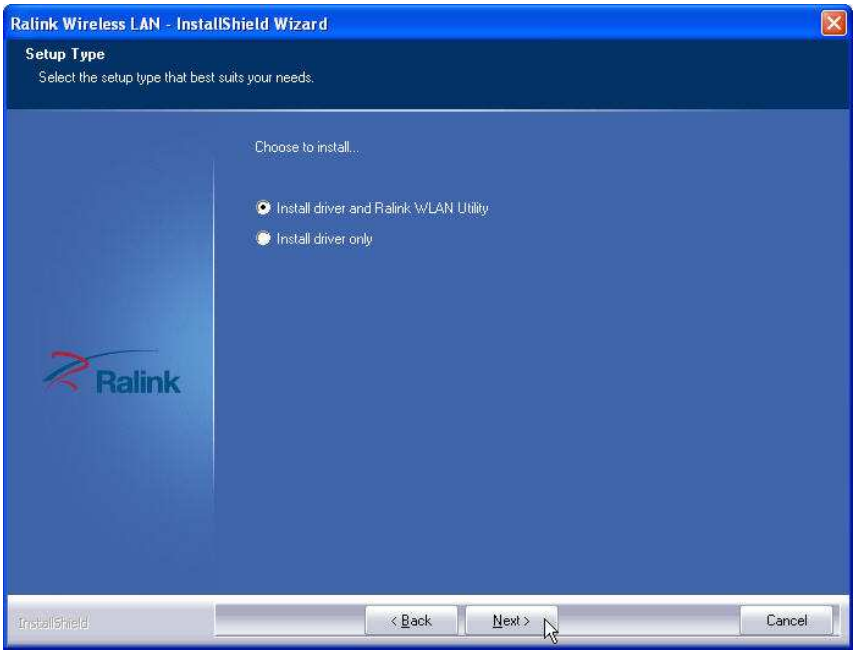
Wireless LAN (optional) Driver Installation

Step 1. Please double confirm the wireless LAN driver from website.

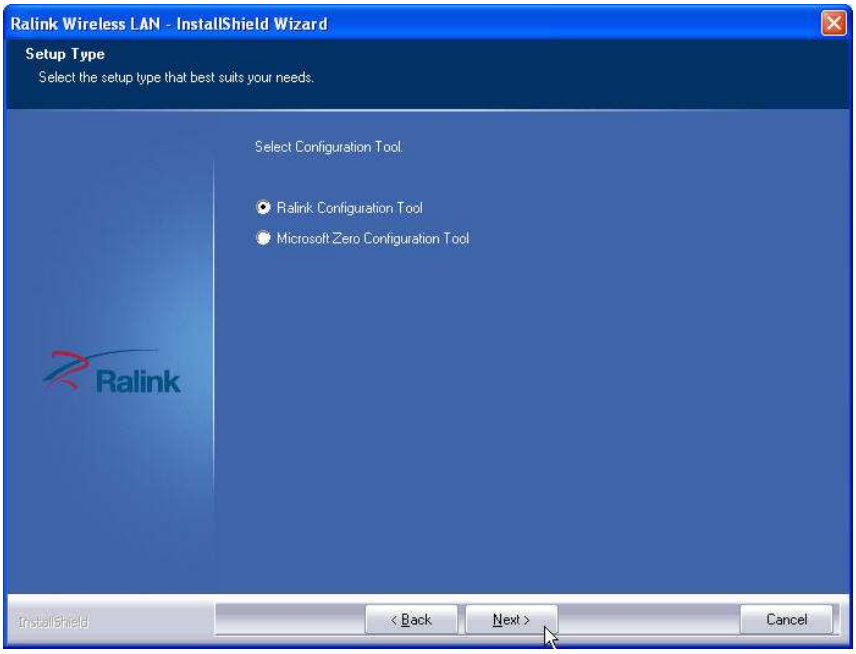
Step 2. Click Next



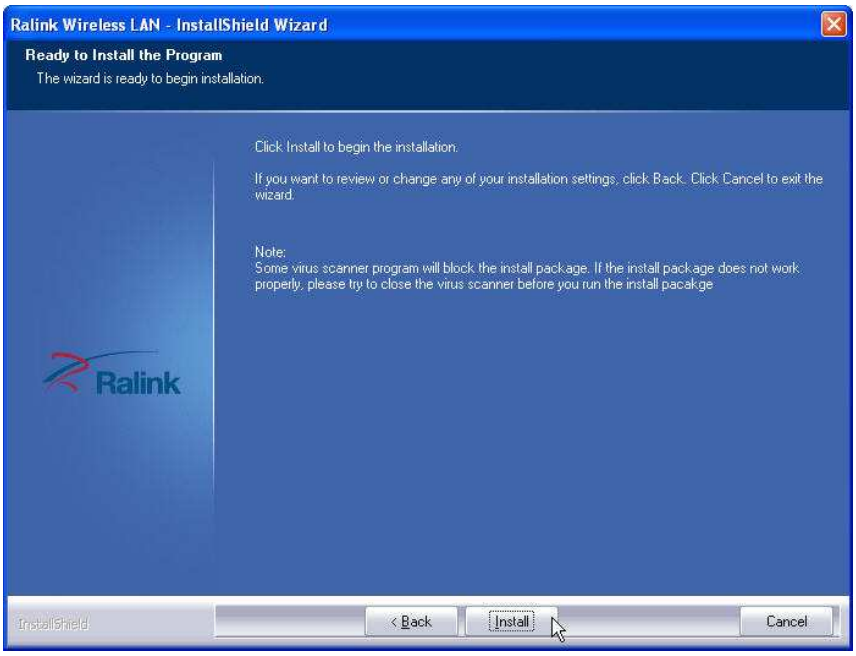
Step3. Select **“Install driver and Ralink WLAN Utility”**



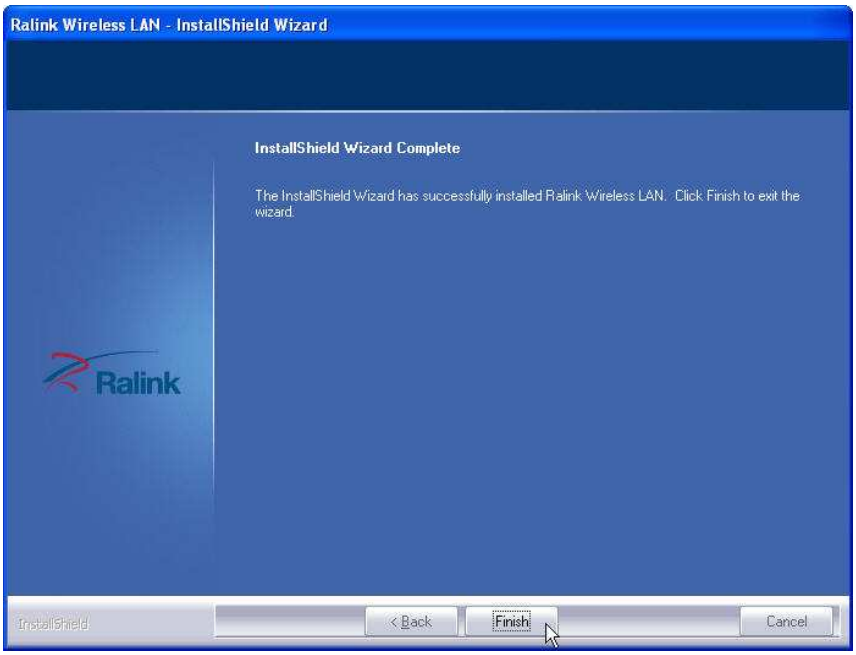
Step4. Select **“Ralink Configuration Tool”**Select **“Optimize for WiFi mode”**



Step5. Select **“Install”**



Step6. Click **"Finish"**



Chapter4

Specifications

BP-325 System Specifications

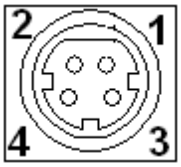
System Configuration (Default)	
Processor	Intel D525 1.8GHz (Dual Core, L2 cache 1MB)
Chipset	D525+ICH8M
Memory	1 x DDRIII 800MHz SO-DIMM (Up to 4GB)
VGA/LCD	Intel GMA3150 18 bit single channel LVDS display
LAN	Realtek RTL8111E GbE, 1000/100/10 Mbps
Audio	Realtek ALC269
Connectors	
Serial Port	5 x COM ports (DB-9 male) with 5/12v DC output 1 x COM port (RJ-45) for 12V Customer display
Parallel Port	1 x Parallel port (DB25 female)
USB Port	1 x USB 2.0 (type A/front panel) 4 x USB 2.0 (type A/rear panel), 3 x On board pin header
Cash drawer Port	1 x 12V (RJ11)
Keyboard/Mouse Port	1 x PS/2
LAN Port	1 x RJ45 10/100/1000 Base-T
Audio Port	1 x Line-out; 1 x Mic-in; internal speaker pinheader 2W+2W (at 2 Ohms)
VGA Port	1 x DB-15 female
Storage	1 x 2.5” SATA Storage (HDD / SSD)

Expansion	1 x mini PCI Express
LED Indicator	HDD access/LAN access/Power on
Power supply	12V-60W power adaptor 60w for system as default
Housing Color / ID	Iron Gray
Wireless LAN	Built-in wireless 802.11 b/g/n mini PIC-E module (option)
Operating Temperature	0℃ ~ 40℃
O/S Supported	WinCE ,Linux, WinXP, Win 7
EMI/Safety	CE, FCCC, CCC

I/O Pin Definition

A. DC_IN (DC Adapter 12V in)

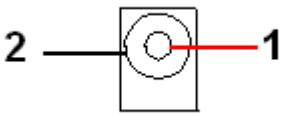
DC_IN



Pin	Definition
1	12V
2	GND
3	12V
4	GND

B. +12V_OUT (12V OUT)

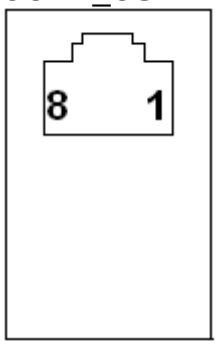
+12V_OUT



Pin	Definition
1	12V
2	GND

C. COM4_USB1 (VFD & RS-232 port + USB 2.0/1.1 port)

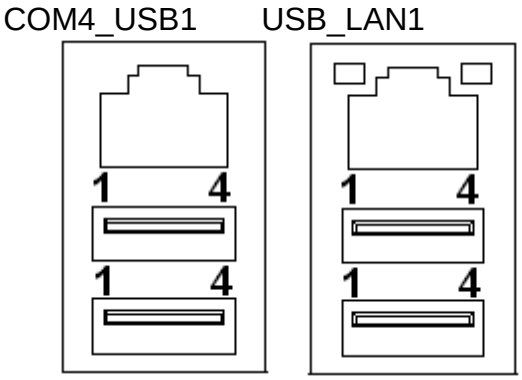
COM4_USB1



Pin	Definition
1	RI/ 5V /12V
2	CTS or RI/5V/12
3	GND
4	RTS or GND
5	DTR
6	DSR
7	TXD
8	RXD

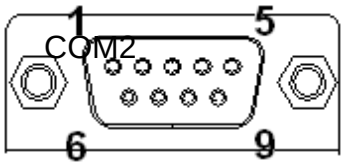
The definition of pin1 , pin 2 and pin4 are depending on jumper setting from JCOM4 and VFD_JR1

D. USB 2.0/1.1 Port



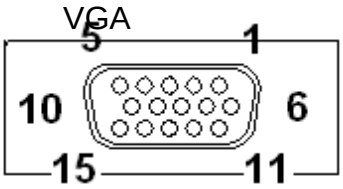
Pin	Definition
1	USB 5V
2	D-
3	D+
4	GND

E. COM1/COM2/COM3/COM5/COM6



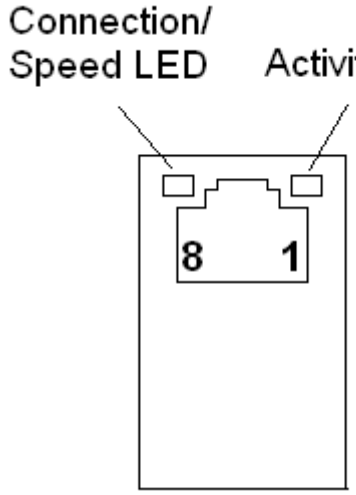
Pin	Definition
1	DCD
2	RXD
3	TXD
4	DTR
5	GND
6	DSR
7	RTS
8	CTS
9	RI/ 5V /12V

F. VGA



Pin	Definition
1	RED
2	GREEN
3	BLUE
4	NC
5	GND
6	GND
7	GND
8	GND
9	VCC 5V
10	GND
11	NC
12	DDC Data
13	H-SYNC
14	V-SYNC
15	DDC Clock

G. USB_LAN1 (LAN connector RJ45+USB 2.0/1.1 Port)



USB_LAN1

Connection/Speed LED:

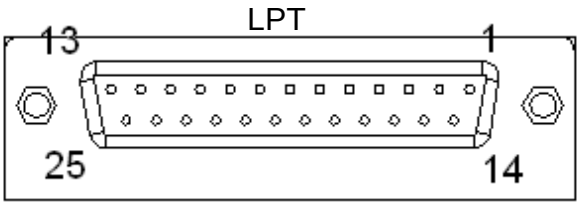
State	Description
Orange	Speed:1 Gbps
Green	Speed:1 00 Mbps

Activity LED:

State	Description
On	Transmitting
Off	Not Transmitting

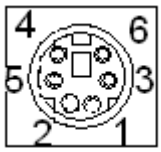
Pin	Definition
1	Data 0+
2	Data 0-
3	Data 1+
4	Data 1-
5	Data 2+
6	Data 2-
7	Data 3+
8	Data 3-

H. LPT Port



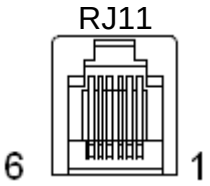
Pin	Definition	Pin	Definition
1	STB-	14	AFD-
2	PD0	15	ERR-
3	PD1	16	INIT-
4	PD2	17	SLIN-
5	PD3	18	GND
6	PD4	19	GND
7	PD5	20	GND
8	PD6	21	GND
9	PD7	22	GND
10	ACK-	23	GND
11	BUSY	24	GND
12	PE	25	GND
13	SLCT		

I. KB_MS1 (PS/2 Connector)



Pin	Definition
1	Keyboard Data
2	Mouse Data
3	GND
4	Mouse Clock
5	5V
6	Keyboard Clock

J. RJ11 Port

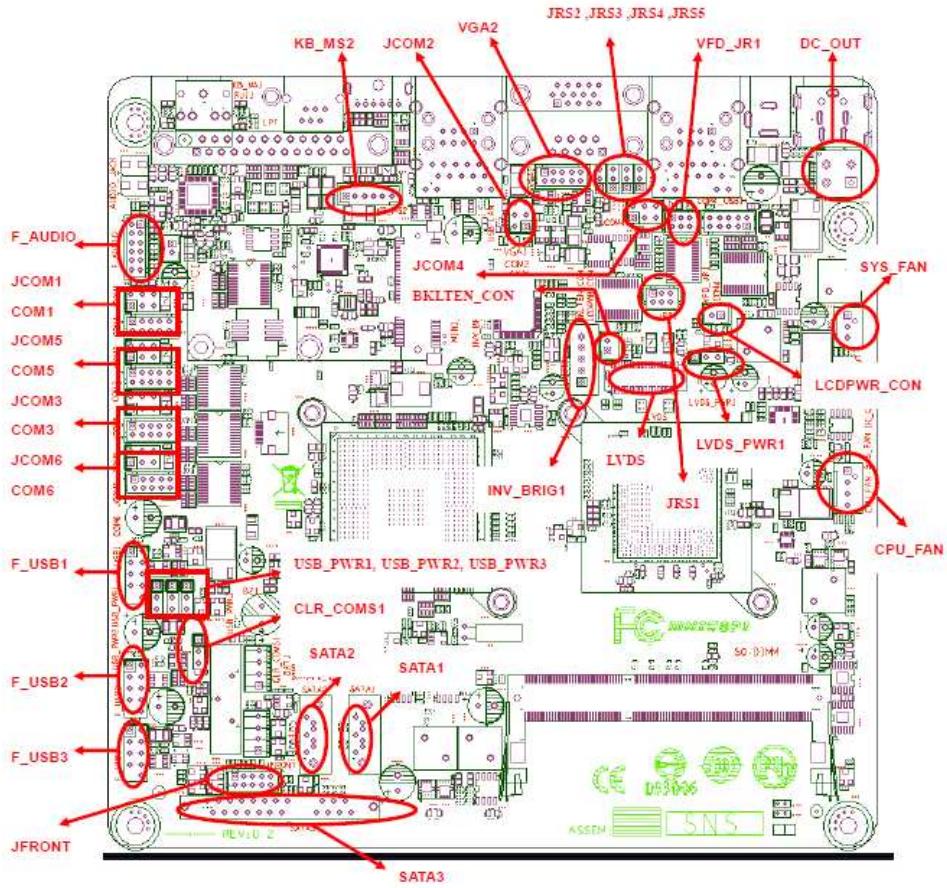


Pin	Definition
1	GND
2	GPIO-0
3	CASH Drawer Switch
4	12V
5	GPIO-1
6	GND

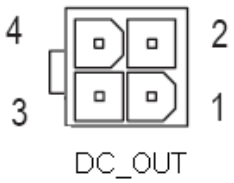
K. AUDIO_JACK (Audio Line Out)

Pin	Definition
1	GND
2	Line Out (L)
3	AUDIO_JD
4	-ACZ_DET
5	Line Out (R)

Jumper Setting



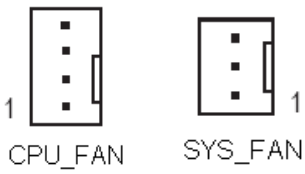
1. DC_OUT (12V for external/internal use, This connector is reserved for future use)



DC 12V OUT:

Pin	Definition
1	GND
2	GND
3	12V
4	12V

2. CPU_FAN (CPU FAN)
3. SYS_FAN (System FAN)



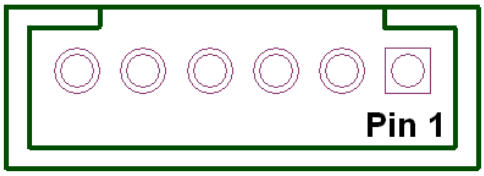
CPU_FAN:

Pin	Definition
1	GND
2	+12V/RPM control
3	RPM detect
4	RPM control

SYS_FAN:

Pin	Definition
1	GND
2	+12V/RPM control
3	RPM detect

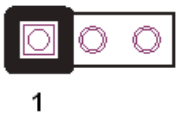
4. KB_MS2 (PS/2 Keyboard and PS/2 Mouse)



KB_MS2:

Pin	Definition
1	GND
2	KDAT
3	F_KDAT
4	KCLK
5	F_KCLK
6	5V

5. LVDS_PWR1 (LVDS 3V/5V selection)



LVDS_PWR1: Default: 1-2

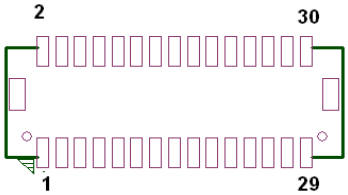
Pin	Definition
1	3.3V
2	DC input
3	5V

6. INV_BRIG1 (Inverter with Box-header)

INV_BRIG1:

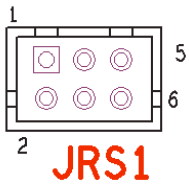
Pin	Definition
1	12V DC out
2	12V DC out
3	GND
4	Backlight Controller
5	Backlight Enable

7, LVDS 18 bit Connector



Pin	Definition	Pin	Definition	Pin	Definition
1	GND	12	Backlight Enable	23	LVDS Clock+
2	NC	13	GND	24	Backlight 5V
3	EDID Data	14	Backlight Controller	25	GND
4	GND	15	Data1+	26	GND
5	EDID Clock	16	GND	27	Data2-
6	NC	17	Data1-	28	LVDS Power 3.3V
7	GND	18	GND	29	Data2+
8	NC	19	GND	30	LVDS Power 3.3V
9	Data0+	20	Backlight 5V		
10	NC	21	LVDS Clock-		
11	Data0-	22	Backlight 5V		

8. JRS1, JRS2, JRS3, JRS4, JRS5 (Only COM2 available for RS232,RS422 or RS485 selections)



Default 1-2

Pin	Definition
1	RS232
2	UART RXD
3	RS422
4	UART RXD
5	RS485
6	UART RXD

JRS2, JRS3, JRS4, JRS5

JRS2: Default 2-3 short

Pin	Definition
1	RS485 D-
2	COM2 Pin 1
3	RS232 DCD

JRS3: Default 2-3short

Pin	Definition
1	RS485 D+
2	COM2 Pin 2
3	RS232 RXD

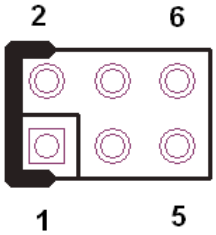
JRS4: Default 2-3

Pin	Definition
1	RS422 D-
2	COM2 Pin 4
3	RS232 DTR

JRS5: Default 2-3

Pin	Definition
1	RS422 D+
2	COM2 Pin 3
3	RS232 TXD

9. JCOM1, JCOM2, JCOM3, JCOM4,JCOM5,JCOM6 for D-sub 9's Pin 9 output 5V,12V or RI (COM4 output on RJ-45's Pin1&2)

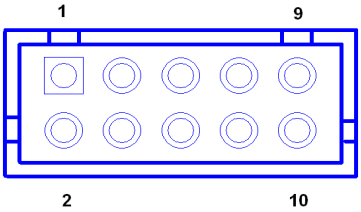


Default 3-4 Short

Pin	Definition
1-2 Short	5V
3-4 Short	RI
5-6 Short	12V

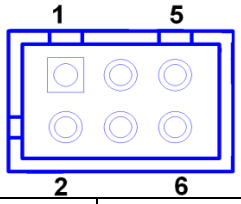
***PS: JCOM4 is pre-set as 5-6 short for 12V VFD customer display

10. COM1, COM3, COM5, COM6 (Serial Port with Box-header)



Pin	Definition	Pin	Definition
1	DCD	2	DSR
3	RXD	4	RTS
5	TXD	6	CTS
7	DTR	8	RI/+5V/+12V
9	GND	10	RI/+5V/+12V

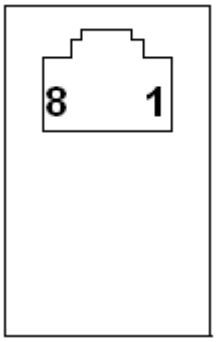
11. VFD_JR1 (VFD & RS232 Mode select)



Pin	Definition	Pin	Definition
1	CTS4-	2	RTS4-
3	Signal for PIN2 of COM4 port	4	Signal for PIN4 of COM4 port
5	RI4-/1_5V/12V_F	6	GND

*****PS: JCOM4 is set to 5-6 short for 12V VFD display as default.**

VFD Mode	VFD_JR1[1-2], [3-5], [4-6] Short JCOM4[5-6] Short



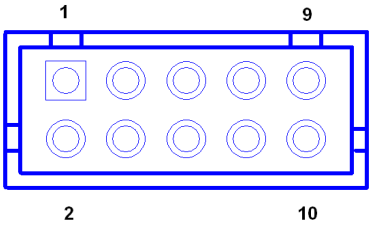
COM4_USB1 Port

Pin	Definition
1	12V
2	12V
3	GND
4	GND
5	DTR
6	DSR
7	TXD
8	RXD

RS232 Mode	VFD_JR1[1-3], [2-4] Short JCOM4 [3-4] Short

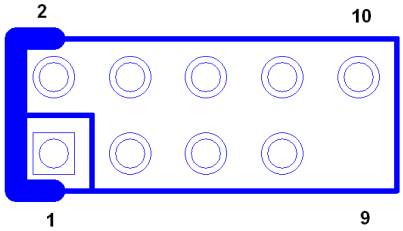
Pin	Definition
1	RI
2	CTS
3	GND
4	RTS
5	DTR
6	DSR
7	TXD
8	RXD

12. JFRONT (Front Panel Connector with Box-header)



Pin	Definition	Pin	Definition
1	Stand-by LED	2	Power LED
3	Power Switch#	4	GND
5	LAN Action LED	6	Stand-by 5V
7	HDD LED#	8	VCC 5V
9	System Reset#	10	GND

13. F_USB1, F_USB2, (USB Pin-header)

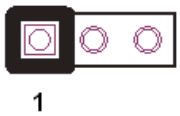


Pin	Definition	Pin	Definition
1	USB Power 5V	2	USB Power 5V
3	USB Dx-	4	USB Dy-
5	USB Dx+	6	USB Dy+
7	GND	8	GND
9	NC	10	NC

F_USB3, (USB Pin-header)

Pin	Definition	Pin	Definition
1	USB Power 5V	2	USB Power 5V
3	USB Dx-	4	NC
5	USB Dx+	6	NC
7	GND	8	GND
9	NC	10	NC

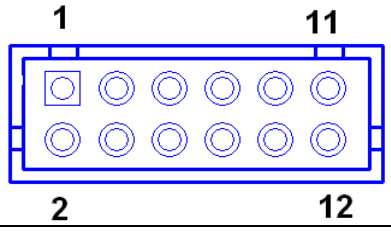
14. USB_PWR1, USB_PWR2, USB_PWR3 (Jumper for Stand-by ,5V or VCC 5V selections)



Default 1-2 short

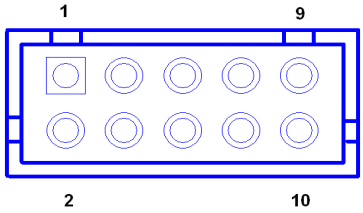
Pin	Definition
1	VCC 5V
2	USB DC IN
3	Stand-by 5V

15. F_AUDIO (Front Audio Box-header)



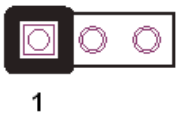
Pin	Definition	Pin	Definition
1	Amplifier Out_R+	2	MIC_L
3	Amplifier Out_R-	4	MIC_R
5	GND	6	Line In_R
7	Amplifier Out_L+	8	Line In_L
9	Amplifier Out_L-	10	Line In_JD
11	GND	12	MIC_JD

16. VGA2 (VGA Connector with Box-header)



Pin	Definition	Pin	Definition
1	V-SYNC	2	H-SYNC
3	GND	4	GND
5	RED	6	GND
7	GREEN	8	DDC Clock
9	BULE	10	DDC Data

17. CLR_COMS1 (Clear CMOS Pin-header)



Default 2-3 short

Pin	Definition
1	GND
2	Battery 3V
3	Battery 3V

18. SATAPW_1, SATAPW_2 (SATA HDD Power 5V & 12V)

Pin	Definition
1	+12V
2	GND
3	GND
4	5V

19. LCDPWR_CON (LCD Power ON/OFF)

Default 1-2 Open

ON	Short 1-2
OFF	Open 1-2

20. BKLTEN_CON (Back light Inverter Enable/Disable)

Default 1-2 Open

Enable	Short 1-2
Disable	Open 1-2

Chapter5

Troubleshooting

Please note that the following troubleshooting guide is designed for people with strong computer hardware knowledge such as System Administrators and Engineers.

Display Shows “No Signal” Before Loading into Windows OS

A) Check if the VGA cable is getting loose while loading the system.

B) If the monitor is not connected to the VGA port before power on the system, the Windows OS may automatically choose LVDS to be the primary display. As a result, the monitor (VGA-connected device) will then be defined as the 2nd display and “No Signal” will show on the screen. To switch the monitor back to the primary display, please connect a keyboard to the system and press Ctrl + Alt + F1 simultaneously.

Cannot Detect HDD

A) SATA cable is not connected properly to main board.

B) HDD power cable is not connected properly to the main board or it could be defective.

C) Check CMOS setup, set SATA HDD to Auto Detect.

D) On-board IDE port could be defective.

Cash Drawer Port Is Not Functioning Properly

A) Make sure the pin assignment matches between the cash drawer and the RJ11 cash drawer port.

B) The main board or I/O board could be defective.