

Single Board Computer

**EBC540**

User's Manual

June.-01-2009 Build

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For any update, please visit our website: [www.nexcom.com](http://www.nexcom.com)*

## **Preface**

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Version 1.3

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## **Acknowledgements**

The EBC 540 series is a trademark of NEXCOM international CO., LTD. All other product names mentioned herein are registered trademarks of their respective owners.

## **Regulatory Compliance Statements**

This section provides the FCC compliance statement for Class A devices and describes how to keep the system CE compliant.

## **Federal Communications Commission (FCC) For Class A Device**

This equipment has been tested and verified to comply with the limits for a Class A digital device, pursuant to Part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses,

and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. Operation of this equipment in a residential area (domestic environment) is likely to cause harmful interference, in which case the user will be required to correct the interference (take adequate measures) at their own expense.

## **CE Certification**

The product(s) described in this manual complies with all applicable European Union (CE) directives if it has a CE marking. For computer systems to remain CE compliant, only CE-compliant parts may be used. Maintaining CE compliance also requires proper cable and cabling techniques.

### **WARNINGS**

Read and adhere to all warnings, cautions, and notices in this guide and the documentation supplied with the chassis, power supply, and accessory modules. If the instructions for the chassis and power supply are inconsistent with these instructions or the instructions for accessory modules, contact the supplier to find out how you can ensure that your computer meets safety and regulatory requirements.

### **CAUTION**

Electrostatic discharge (ESD) can damage NSA components. Do the described procedures only at an ESD workstation. If no such station is available, you can provide some ESD protection by wearing an antistatic wrist strap and attaching it to a metal part of the computer chassis.

## **Safety Information**

Before installing and using the EBC540, note the following precautions:

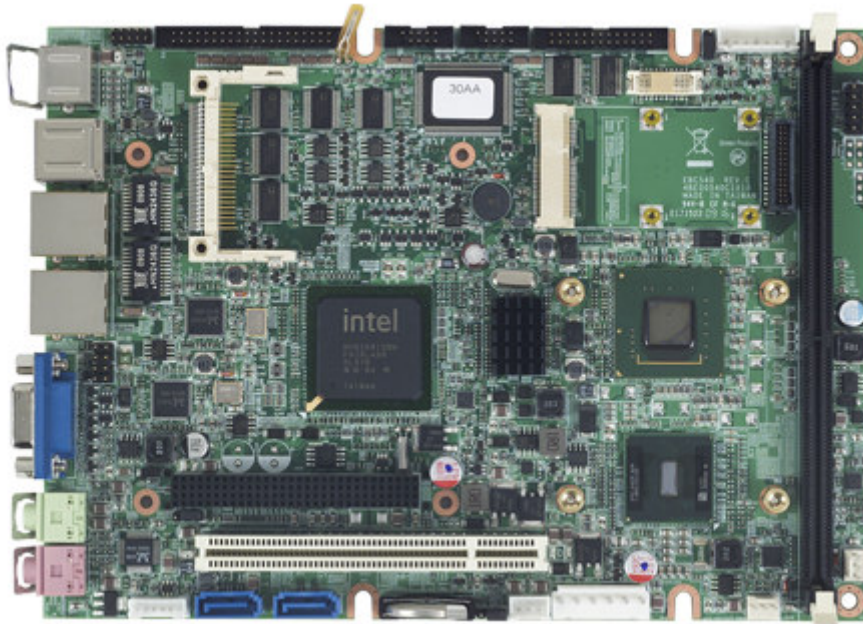
- Read all instructions carefully.
- Do not place the unit on an unstable surface, cart, or stand.
- Follow all warnings and cautions in this manual.
- When replacing parts, ensure that your service technician uses parts specified by the manufacturer.
- Avoid using the system near water, in direct sunlight, or near a hearing device.

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# Chapter 1

## General Information



## 1.1 Specification

### CPU Support

- Intel® Atom™ Processor N270 1.6GHZ

### Main Memory

- 1 x 240-pin DDR2 DIMM Socket (up to 2GB)

### Chipset

- Intel 945GSE Express chipset
- Intel® 82801GBM (ICH7-M)

### Graphic

- Intel® 945GSE integrated graphics
- Support Dual Independent Display: VGA+LVDS, DVI+LVDS, LVDS+LVDS
- CRT: 1 x DB15 VGA CON
- LVDS: 1x DF13 20-pin connector
- EBKSDVO1 module for secondary DVI display
- EBKSDVO2 module for secondary LVDS display

### Storage

- 1x Type I/II Compact Flash socket
- 1x 7-pin SATA connector

### Expansion

- 1x PCI-104
- 1x Mini-PCIE

## **Audio**

- Realtek ALC888 CODEC
- 1x Mic-In / 1x Line out Phone Jack

## **Network**

- LAN Chip: Realtek RTL8111C-GR
- Wake on LAN (When 5Vsb power available) LAN1 only
- Support Boot From LAN (PXE)

## **I/O**

- Serial port: 6 port, two 2x5 2.0mm Box header, one 2x20 2.0mm Box Header
- Parallel port: 1x 26-pin box header
- USB 2.0: 6 ports, 2 ports edge connector, 2 ports by 2.0mm JST connector and 2 ports by 2.54mm Pin Header
- 8 GPIO lines via header (GPI 0 ~ 3 and GPO0 ~ 3) TTL Level (0/5 V)
- On-board Power LED and HDD Active LED Pin Header
- 2x 3-pin fan connector (for CPU, System)
- 1x DB15 VGA connector
- 1x Keyboard/Mouse pin header
- On board Buzzer / SMBus2.0 /Reset SW

## **Power Supply**

- Support AT/ATX mode
- ATX mode with +12V, +5V and +5Vsb power in
- AT mode with +12V and +5V power in

## **System Management**

- Monitoring of 5 voltages and 3 temperatures
- 5 Voltage (+5V, Vcore , +12V , +3.3V , +2.5V)
- 3 Temperatures (CPU, two external Temperature Sensor )

## **RTC**

- On chip RTC with battery back up / External Li-ion Battery
- RTC Tolerance less than 2sec (24 hours) under 25°C

## **BIOS**

- Award system BIOS
- 8M bits SPI ROM

## **Operating Systems**

- Windows XP,XP Embedded, CE

## **Certification**

- CE
- FCC Class A

## **Environment**

- Operating temperatures: 0°C to 60°C
- Storage temperatures:-20°C to 85°C

## 1.2 Power Consumption Measurement

### EBC540 Power Consumption

Low AC Line 110: (System-Only)	+12V	Watts	+5V	Watts	+5VSB	Watts	Total (W)
S1 (Standby) (A/W)	0.59A	7.08W	0.75A	3.75W	0.17A	0.85W	11.68W
S4 (Suspend To Disk)(A/W)	0.17A	2.04W	0.18A	0.90W	0.27A	1.35W	4.29W
Idle Mode (A/W)	0.67A	8.04W	0.96A	4.80W	0.15A	0.75W	13.59W
Full-Loading Mode (A/W)	0.85A	10.20W	1.01A	5.05W	0.17A	0.85W	16.10W
System Power-on only (A/W)	1.00A	12.00W	0.89A	4.45W	0.13A	0.65W	17.10W



## 1.3 Board Layout

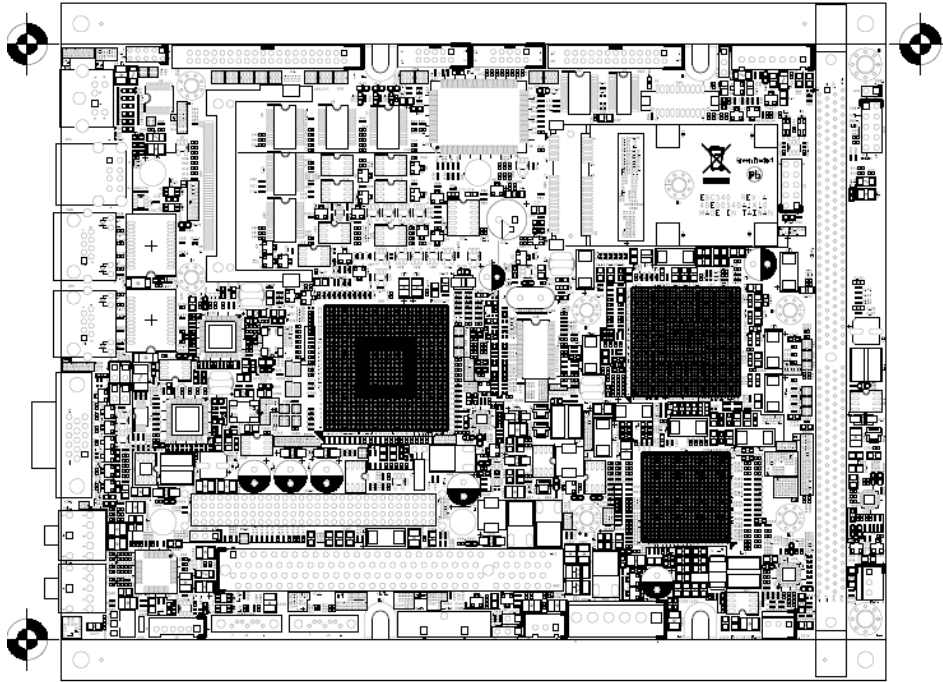


Figure 1.2: Overview of EBC 540

## 1.4 Board Dimension

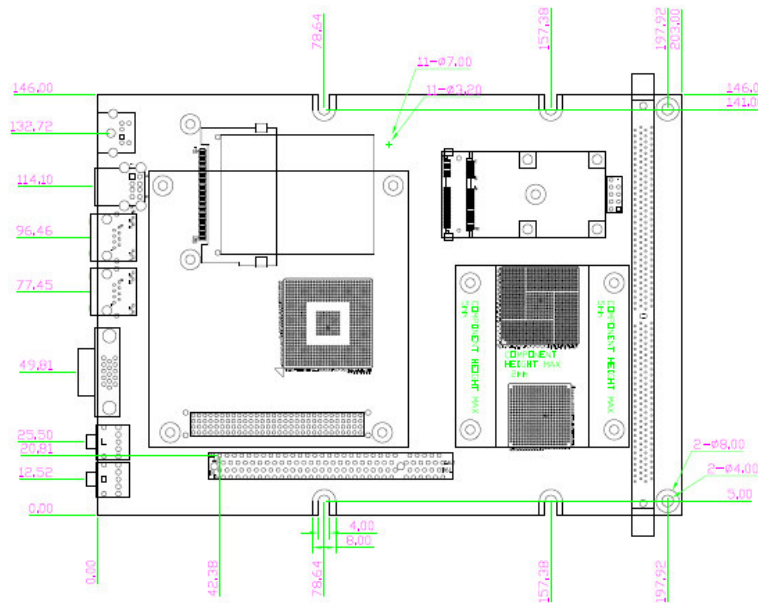


Figure 1.3: Mechanical Drawing of the EBC 540

## **Chapter 2**

# **Jumper Setting**

This chapter of the User's Manual describes how to set jumpers.

*Note: The procedures that follow are generic for all EBC540.*

## 2.1 Before You Begin

Ensure you have a stable, clean working environment. Dust and dirt can get into components and cause a malfunction. Use containers to keep small components separated.

Adequate lighting and proper tools can prevent you from accidentally damaging the internal components. Most of the procedures that follow require only a few simple tools, including the following:

- ◆ A Philips screwdriver
- ◆ A flat-tipped screwdriver
- ◆ A set of jewelers Screwdrivers
- ◆ A grounding strap
- ◆ An anti-static pad

Using your fingers can disconnect most of the connections. It is recommended that you do not use needle-nosed pliers to disconnect connections as these can damage the soft metal or plastic parts of the connectors.

Before working on internal components, make sure that the power is off. Ground yourself before touching any internal components, by touching a metal object. Static electricity can damage many of the electronic components. Humid environment tend to have less static electricity than dry environments. A grounding strap is warranted whenever danger of static electricity exists.

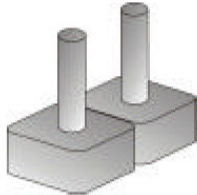
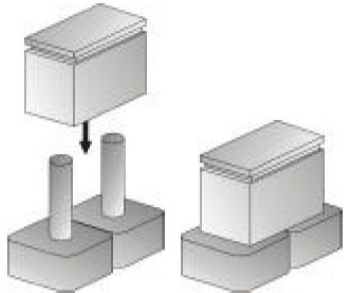
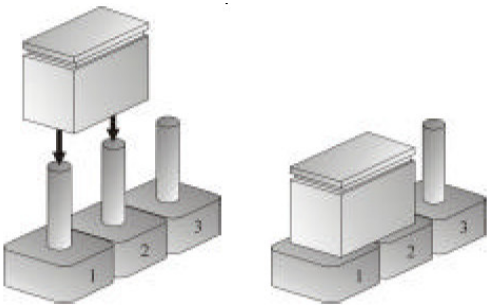
## 2.2 Precautions

Computer components and electronic circuit boards can be damaged by discharges of static electricity. Working on the computers that are still connected to a power supply can be extremely dangerous. Follow the guidelines below to avoid damage to your computer or yourself:

- ◆ Always disconnect the unit from the power outlet whenever you are working inside the case.
- ◆ If possible, wear a grounded wrist strap when you are working inside the computer case. Alternatively, discharge any static electricity by touching the bare metal chassis of the unit case, or the bare metal body of any other grounded appliance.
- ◆ Hold electronic circuit boards by the edges only. Do not touch the components on the board unless it is necessary to do so. Don't flex or stress the circuit board.
- ◆ Leave all components inside the static-proof packaging that they shipped with until they are ready for installation.
- ◆ Use correct screws and do not over tighten screws.

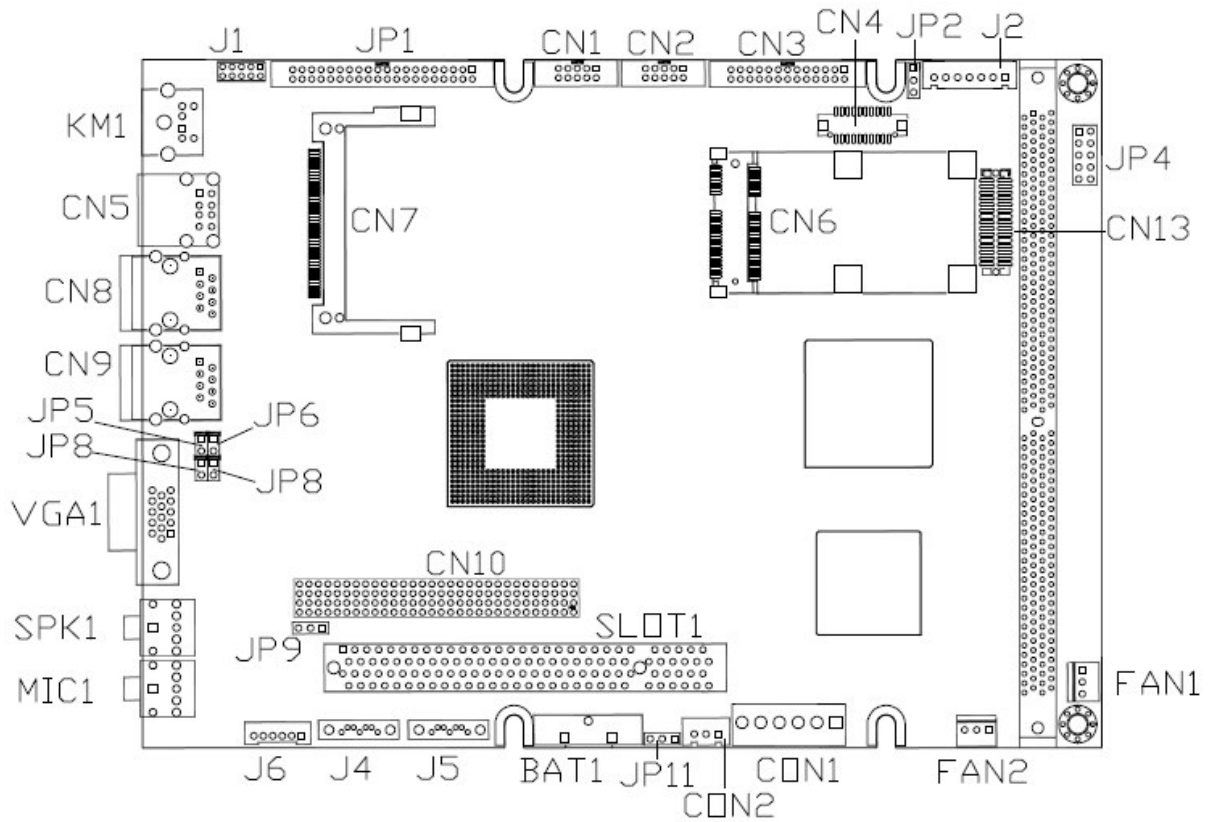
## 2.3 Setting Jumpers

A jumper is the simplest kind of electric switch. It consists of two metal pins and a cap. When setting the jumpers, ensure that the jumper caps are placed on the correct pins. When the jumper cap is placed on both pins, the jumper is **SHORT**. If you remove the jumper cap, or place the jumper cap on just one pin, the jumper is **OPEN**. Please see the following illustrations

<p>The illustrations on the right show a 2-pin jumper. When the jumper cap is placed on both pins, the jumper is <b>SHORT</b>. If you remove the jumper cap, or place the jumper cap on just one pin, the jumper is <b>OPEN</b>.</p>		
	Open (Off)	Short (On)
<p>These illustrations show a 3-pin jumper. Pins 1 and 2 are <b>SHORT</b>.</p>		

**Table 2-1: Setting Jumpers**

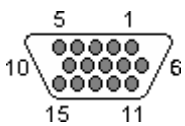
## 2.4 Location of Jumpers and Connectors



**Figure 2-1: Jumper Location**

### ⊙ VGA Port

#### VGA1 (D-Sub 15 pins)

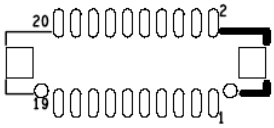


#### Pin Definition: (Location: VGA1)

Pin NO.	Description	Pin NO.	Description
1	RED_VGA	9	VGA_VCC
2	GREEN_VGA	10	GND
3	BLUE_VGA	11	NC
4	NC	12	VGA_DDC_DATA
5	GND	13	G_HSYNC
6	GND	14	G_VSYNC
7	GND	15	VGA_DDC_CLK
8	GND		

⊙ **LVDS CON**

**CN4 ( 2 X10 2.0 Pitch)**

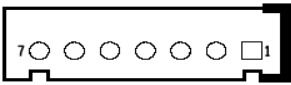


**Pin Definition: (Location: CN4)**

Pin NO.	Description	Pin NO.	Description
1	DDCCLK	11	LB_CLK_P
2	DDC_DATA	12	LB_DATAN1
3	VDD	13	LB_CLK_N
4	LB_DATAP0	14	GND
5	GND	15	GND
6	LB_DATAN0	16	VCC12_INV
7	GND	17	LB_DATAP2
8	VDD	18	VCC12_INV
9	GND	19	LB_DATAN2
10	LB_DATAP1	20	GND

⊙ **CCFL CON**

**JST 7 Pins 2.54 Pitch.**

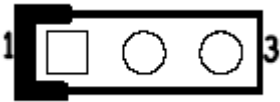


**Pin Definition: (Location: J2)**

Pin NO.	Description	Pin NO.	Description
1	+5V	2	+12V
3	+12V	4	Brightness Ctrl
5	GND	6	GND
7	Backlight Enable		

◎ **Panel Power selection:**

Pin header 1x3 2.54 Pitch.

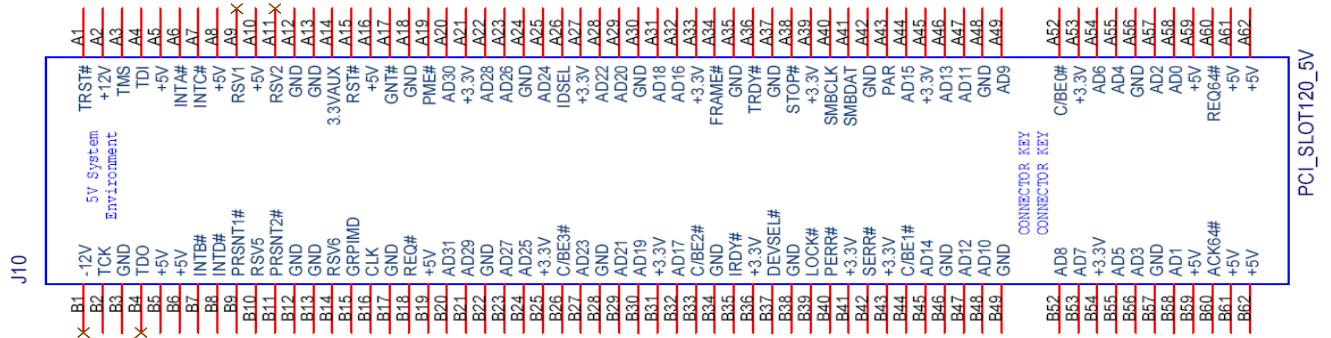


**Pin Definition: (Location: JP2)**

Pin NO.	Description
1	VCC5
2	Panel power
3	VCC3

◎ **PCI SLOT1**

- Connector size: 2\*62 PIN (5V SLOT)
- Connector location: **(Location: SLOT1)**



Connector pin definition :

Pin	Signal	Pin	Signal
A1	PCI_TRST#	B1	VCC12N
A2	VCC12	B2	PCI_TCK
A3	PCI_TMS	B3	GND
A4	PCI_TDI	B4	PCI_TDO
A5	VCC5	B5	VCC5
A6	PCI_IRQ#A	B6	VCC5
A7	PCI_IRQ#C	B7	PCI_IRQ#B
A8	VCC5	B8	PCI_IRQ#D
A9	NA	B9	PRSNT1-
A10	VCC5	B10	PCI_REQ#1
A11	PCI_GNT#1	B11	PRSNT2-
A12	GND	B12	GND
A13	GND	B13	GND
A14	3VSB	B14	PCI_CLK1
A15	PCI_RST#	B15	GND

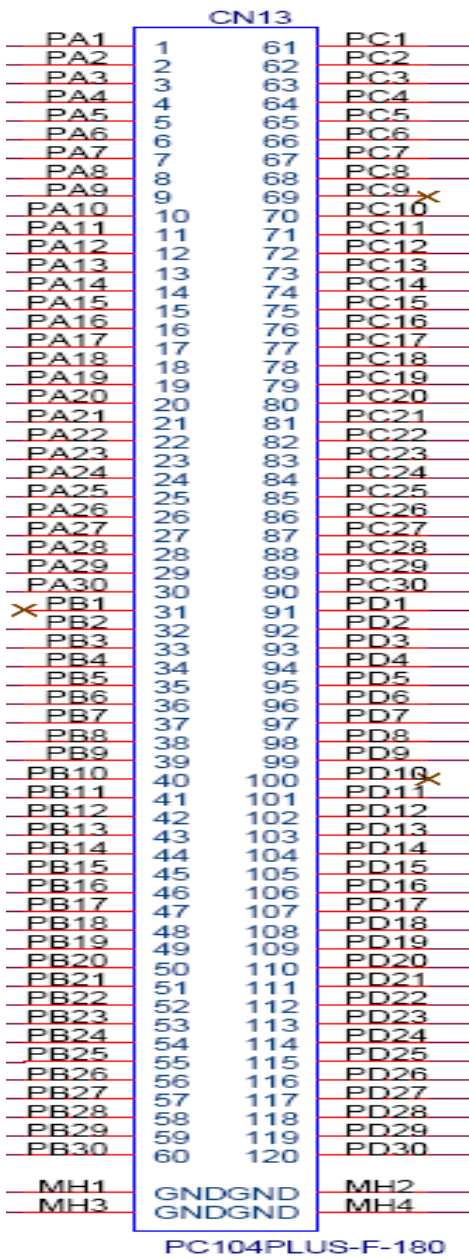
A16	VCC5	B16	PCI_CLK0
A17	PCI_GNT#0	B17	GND
A18	GND	B18	PCI_REQ#0
A19	PCI_PME#	B19	VCC5
A20	PCI_AD30	B20	PCI_AD31
A21	VCC3	B21	PCI_AD29
A22	PCI_AD28	B22	GND
A23	PCI_AD26	B23	PCI_AD27
A24	GND	B24	PCI_AD25
A25	PCI_AD24	B25	VCC3
A26	PCI_IDSEL0	B26	PCI_CBE#3
A27	VCC3	B27	PCI_AD23
A28	PCI_AD22	B28	GND
A29	PCI_AD20	B29	PCI_AD21
A30	GND	B30	PCI_AD19
A31	PCI_AD18	B31	VCC3
A32	PCI_AD16	B32	PCI_AD17
A33	VCC3	B33	PCI_CBE#2
A34	PCI_FRAME#	B34	GND
A35	GND	B35	PCI_IRDY#
A36	PCI_TRDY#	B36	VCC3
A37	GND	B37	PCI_DEVSEL#
A38	PCI_STOP#	B38	GND
A39	VCC3	B39	PCI_LOCK
A40	SDONE	B40	PCI_PERR#
A41	SBC#	B41	VCC3
A42	GND	B42	PCI_SERR#
A43	PCI_PAR	B43	VCC3
A44	PCI_AD15	B44	PCI_CBE#1
A45	VCC33	B45	PCI_AD14
A46	PCI_AD13	B46	GND
A47	PCI_AD11	B47	PCI_AD12
A48	GND	B48	PCI_AD10
A49	PCI_AD9	B49	GND
A52	PCI_CBE#0	B52	PCI_AD8
A53	VCC3	B53	PCI_AD7
A54	PCI_AD6	B54	VCC3
A55	PCI_AD4	B55	PCI_AD5



A56	GND	B56	PCI_AD3
A57	PCI_AD2	B57	GND
A58	PCI_AD0	B58	PCI_AD1
A59	VCC5	B59	VCC5
A60	PCI_REQ64#	B60	PCI_ACK64#
A61	VCC5	B61	VCC5
A62	VCC5	B62	VCC5

◎ PCI\_104 SLOT

- Connector size: 2\*62 PIN
- Connector location: (Location: CN10)

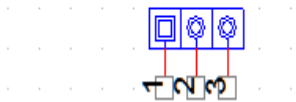


Pin	Signal	Pin	Signal
A1	GND	C1	VCC5
A2	VIO	C2	PCI_AD1
A3	PCI_AD5	C3	PCI_AD4
A4	PCI_CBE#0	C4	GND
A5	GND	C5	PCI_AD8
A6	PCI_AD11	C6	PCI_AD10
A7	PCI_AD14	C7	GND
A8	VCC3	C8	PCI_AD15
A9	PCI_SERR#	C9	NC
A10	GND	C10	VCC3
A11	PCI_STOP#	C11	PCI_LOCK#
A12	VCC3	C12	GND
A13	PCI_FRAME#	C13	PCI_IRDY#
A14	GND	C14	VCC3
A15	PCI_AD18	C15	PCI_AD17
A16	PCI_AD21	C16	GND
A17	VCC3	C17	PCI_AD22
A18	PCI_104_IDSEL0	C18	PCI_104_IDSEL1
A19	PCI_AD24	C19	VIO
A20	GND	C20	PCI_AD25
A21	PCI_AD29	C21	PCI_AD26
A22	VCC5	C22	GND
A23	PCI_REQ#2	C23	PCI_REQ#3
A24	GND	C24	VCC5
A25	PCI_GNT#3	C25	PCI_GNT#4
A26	VCC5	C26	GND
A27	PCI_CLK2	C27	PCI_CLK3
A28	GND	C28	VCC5
A29	VCC12	C29	PCI_IRQ#F
A30	VCC12N	C30	PCI_GNT#5
B1	NC	D1	PCI_AD0
B2	PCI_AD2	D2	VCC5
B3	GND	D3	PCI_AD3
B4	PCI_AD7	D4	PCI_AD6
B5	PCI_AD9	D5	GND
B6	VIO	D6	GND

B7	PCI_AD13	D7	PCI_AD12
B8	PCI_CBE#1	D8	VCC3
B9	GND	D9	PCI_PAR
B10	PCI_PERR#	D10	NC
B11	VCC3	D11	GND
B12	PCI_TRDY#	D12	PCI_DEVSEL#
B13	GND	D13	VCC3
B14	PCI_AD16	D14	PCI_CBE#2
B15	VCC3	D15	GND
B16	PCI_AD20	D16	PCI_AD19
B17	PCI_AD23	D17	VCC3
B18	GND	D18	PCI_104_IDSEL2
B19	PCI_CBE#3	D19	PCI_104_IDSEL3
B20	PCI_AD26	D20	GND
B21	VCC5	D21	PCI_AD27
B22	PCI_AD30	D22	PCI_AD31
B23	GND	D23	VIO
B24	PCI_REQ#4	D24	PCI_GNT#2
B25	VIO	D25	GND
B26	PCI_CLK0	D26	PCI_CLK1
B27	VCC5	D27	GND
B28	PCI_IRQ#H	D28	PCI_RST#
B29	PCI_IRQ#E	D29	PCI_IRQ#G
B30	PCI_REQ#5	D30	GND

C. (VIO 5V&3V SELECT)

**PIN-2.54mm-M-180**

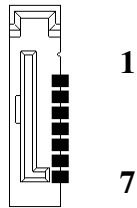


(Location: JP9)

Pin	Signal
1	VCC5
2	VIO
3	VCC3

◎ **Two SATAII ports**

**J4/J5 Standard Serial ATAII 1.27mm connector**



**Pin definition :**

**(Location: J5)**

Pin NO.	Description	Pin NO.	Description
1	GND	2	TXP0
4	GND	3	TXN0
7	GND	5	RXN0
		6	RXP0

**(Location: J4)**

Pin NO.	Description	Pin NO.	Description
1	GND	2	TXP1
4	GND	3	TXN1
7	GND	5	RXN1
		6	RXP1

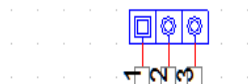
◎ **CMOS Clear pin header:**

A. Connector size: 1 X 3 = 3 Pin

Connector location: **(Location: JP11)**

B.

**PIN-2.54mm-M-180**



C. Connector pin definition

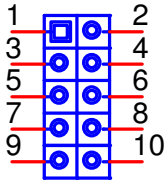
Pin	Signal
1	Battery 3.3V
2	RTCVDD
3	GND

◎ **DIGITAL IO 24 OUTPUT:**

A. Connector size: 2 X 5 = 10 Pin

B. Connector location: **(Location: J1)**

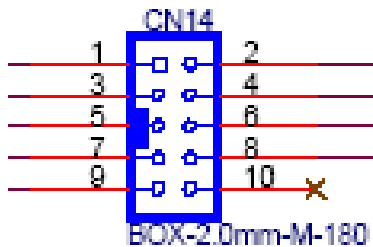
J1  
PIN-2.0mm-M-180



Pin	Signal	Pin	Signal
1	VCC5	2	GND
3	GPI20	4	GPO24
5	GPI21	6	GPO25
7	GPI22	8	GPO26
9	GPI23	10	GPO27

◎ **COM1:**

A. Connector size: 2 X 5 = 10 Pin (RS232 ONLY)

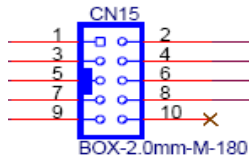


**(Location: CN2)**

Pin	Signal	Pin	Signal
1	DCD1	2	RXD1
3	TXD1	4	DTR1
5	GND	6	DSR1
7	RTS1	8	CTS1
9	RI1	10	NC

© **COM2:**

A. Connector size: 2 X 5 = 10 Pin (RS232/422/485)



**RS232 Mode: (Location: CN1)**

Pin	Signal	Pin	Signal
1	DCD2	2	RXD2
3	TXD2	4	DTR2
5	GND	6	DSR2
7	RTS2	8	CTS2
9	RI2	10	NC

**RS422 Mode:**

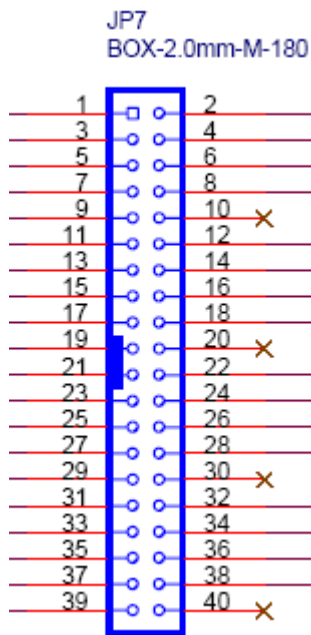
Pin	Signal	Pin	Signal
1	TXD-	2	TXD+
3	RXD-	4	RXD+
5	GND	6	RTS -
7	RTS +	8	CTS +
9	CTS -	10	NC

**RS485 Mode:**

Pin	Signal	Pin	Signal
1	TXD - /RXD -	2	TXD + / RXD +
3	RSV	4	RSV
5	RSV	6	RSV
7	RSV	8	RSV
9	RSV	10	RSV

© COM 3~6:

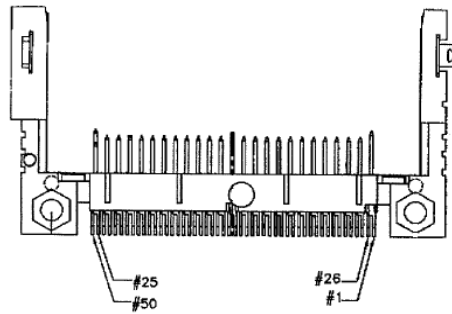
A. Connector size: 2 X 20 = 40 Pin



Pin definition: (Location: JP1)

Pin	Signal	Pin	Signal
1	SP_DCD3	2	SP_DSR3
3	SP_RXD3	4	SP_RTS3
5	SP_TXD3	6	SP_CTS3
7	SP_DTR3	8	SP_RI3
9	GND	10	NC
11	SP_DCD4	12	SP_DSR4
13	SP_RXD4	14	SP_RTS4
15	SP_TXD4	16	SP_CTS4
17	SP_DTR4	18	SP_RI4
19	GND	20	NC
21	SP_DCD5	22	SP_DSR5
23	SP_RXD5	24	SP_RTS5
25	SP_TXD5	26	SP_CTS5
27	SP_DTR5	28	SP_RI5
29	NC	30	NC
31	SP_DCD6	32	SP_DSR6
33	SP_RXD6	34	SP_RTS6
35	SP_TXD6	36	SP_CTS6
37	SP_DTR6	38	SP_RI6
39	GND	40	NC

© **Compact Flash**  
**(Compact Flash TYPE 2)**



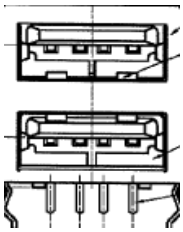
**Pin Definition: (Location: CN7)**

Pin NO.	Description	Pin NO.	Description
1	GND	2	SDD3A
3	SDD4A	4	SDD5A
5	SDD6A	6	SDD7A
7	SDCS#1	8	GND
9	GND	10	GND
11	GND	12	GND
13	VCC	14	GND
15	GND	16	GND
17	GND	18	SDA2A
19	SDA1A	20	SDA0A
21	SDD0A	22	SDD1A
23	SDD2A	24	NC
25	CF_CD2#	26	CF_CD1#
27	SDD11A	28	SDD12A
29	SDD13A	30	SDD14A
31	SDD15A	32	SDCS#3
33	NC	34	SDIOR#
35	SDIOW#	36	VCC
37	HDIRQ14	38	VCC
39	CF_SEL#	40	NC
41	IDERST#	42	SIORDY
43	SDREQ	44	SDDACK#
45	IDEACTP#	46	DIAG#
47	SDD8A	48	SDD9A
49	SDD10A	50	GND



- Rear side USB Port

**CN5 Dual USB port.**



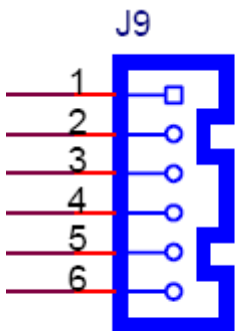
**Pin Definition: (Location: CN5)**

Pin NO.	Description	Pin NO.	Description
1	VCC	5	VCC
2	USB_0N	6	USB_1N
3	USB_0P	7	USB_1P
4	GND	8	GND

**USB JST 2.0mm**

A. Connector size: 1 X 6 = 6 Pin

B. Connector location: J6



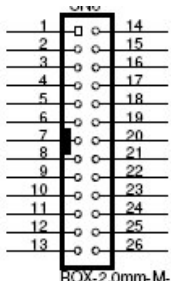
JST-2.0mm-M-180

**(Location: J6)**

Pin NO.	Description	Pin NO.	Description
1	VCC	2	USB_3N
3	USB_3P	4	USB_2N
5	USB_2P	6	GND

◎ **Parallel Interface**

**(2.0mm Box Header)**

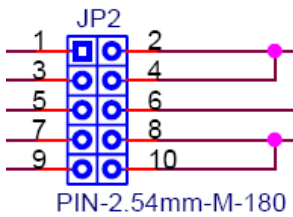


**Pin Definition: (Location: CN3)**

Pin NO.	Description	Pin NO.	Description
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	26	NC

◎ **Other PIN header**

**(2.54mm PIN Header)**

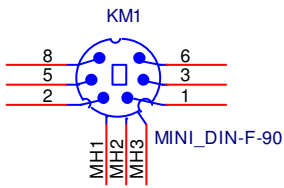


**Pin Definition: (Location: JP4)**

Pin	Signal	Pin	Signal
1	PWRBT_SW	2	GND
3	RESET#_SW	4	GND
5	SMB_CLK_RESUME	6	SMB_DATA_RESUME
7	PWR_LED	8	GND
9	HD_LED_N	10	GND

◎ P/S 2 Keyboard / Mouse

**Mini DIMM 6 Pins**

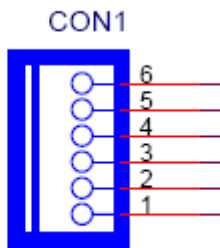


**Pin Definition: (Location: KM1)**

KM1 FOR KEYBOARD/ MOUSE:			
Pin NO.	Description	Pin NO.	Description
1	KB_DATA	2	LM_DATA
3	GND	5	GND
6	KB_CLK	8	LM_CLK

**DC Power output Connector: ( 12V=7A, 5V=14A)**

**CON1 1x 6 Pin Power connector:**



POWER-3.96mm-M-180

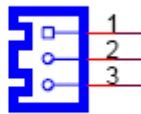
**Pin Definition: (Location: CON1)**

Pin NO.	ON
1	VCC12
2	GND
3	GND
4	GND
5	VCC5
6	VCC5

DC Power output Connector: ( 5VSB=2A)

CON2 1x 3Pin Power connector:

CON2



JST-2.5mm-M-180

Pin Definition: (Location: CON2)

Pin NO.	ON
1	5VSB
2	GND
3	-PSON

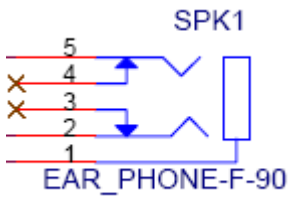
BD to BD Connector:

Pin Headr 15 X 2 1.27mm Pitch

Pin Definition: (Location: CN13)

Pin	Signal	Pin	Signal
1	VCC12	2	VCC5
3	GND	4	VCC5
5	VCC3	6	GND
7	VCC3	8	GND
9	GND	10	SDVO_CTRL_DATA
11	RESET	12	SDVO_CTRL_CLK
13	GND	14	GND
15	SDVO_R_P	16	SDVO_STALL_P
17	SDVO_R_N	18	SDVO_STALL_N
19	GND	20	GND
21	SDVO_G_P	22	SDVO_INT_P
23	SDVO_G_N	24	SDVO_INT_N
25	GND	26	GND
27	SDVO_B_P	28	SDVO_CLK_P
29	SDVO_B_N	30	SDVO_CLK_N

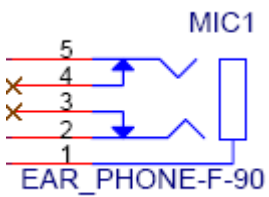
⊙ **Speaker-Out Connector:**  
**Phone Jack**



(Location: SPK1)

Pin NO.	ON
1	GND
2	SPK_Out_L
3	GND
4	SPK-JD1
5	SPK_Out_R

⊙ **MIC Connector:**  
**Phone Jack**



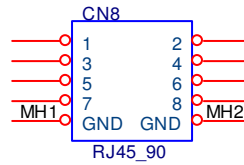
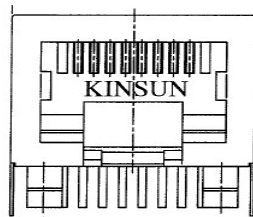
(Location: MIC1)

Pin NO.	ON
1	GND
2	MIC1L
3	GND
4	MIC-JD1
5	MIC1R

◎ LAN1 connector:

A. Connector size: RJ45 without

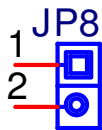
(Location: CN8) / Co-layout CN11 (Option Vertical type)



B. Connector pin definition

Pin	Signal	Pin	Signal
1	LAN1_TXD0P	2	LAN1_TXD0N
3	LAN1_TXD1P	4	LAN1_TXD2P
5	LAN1_TXD2N	6	LAN1_TXD1N
7	LAN1_TXD3P	8	LAN1_TXD3N
9	LAN1_L100#	10	LAN1_LED1+
11	LAN1_ACTLED#	12	LAN1_LED2+
MH1	GND_CHASSIS	MH2	GND_CHASSIS

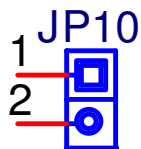
D.LAN 1 LINK LED PIN: (Location: JP5)



PIN-2.54mm-M-180

Pin	Signal
1	LAN1_LED1+
2	LAN1_L100#

E.LAN 1 ACTIVE LED PIN : (Location:JP6)



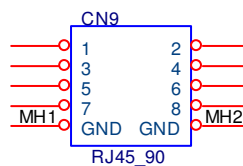
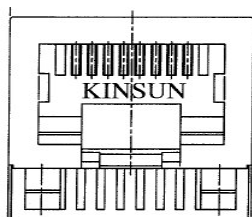
PIN-2.54mm-M-180

Pin	Signal
1	LAN1_LED2+
2	LAN1_ACTLED#

**LAN2 connector:**

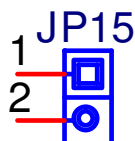
**A. Connector size: RJ45 without**

**(Location: CN9) / Co-layout CN12 (Option Vertical type)**



Pin	Signal	Pin	Signal
1	LAN1_TXD0P	2	LAN1_TXD0N
3	LAN1_TXD1P	4	LAN1_TXD2P
5	LAN1_TXD2N	6	LAN1_TXD1N
7	LAN1_TXD3P	8	LAN1_TXD3N
9	LAN2_L100#	10	LAN2_LED1+
11	LAN2_ACTLED#	12	LAN2_LED2+
MH1	GND_CHASSIS	MH2	GND_CHASSIS

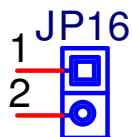
**C.LAN 2 LINK LED PIN : (Location:JP7)**



PIN-2.54mm-M-180

Pin	Signal
1	LAN2_LED1+
2	LAN2_L100#

**D.LAN 2 ACTIVE LED PIN : (Location: JP8)**

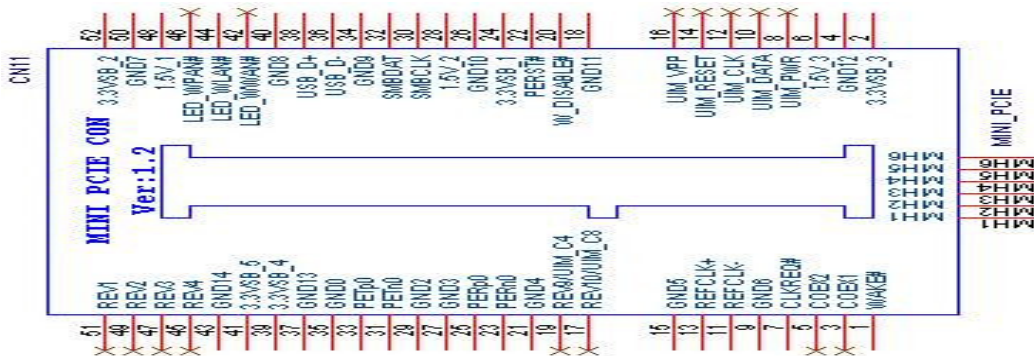


PIN-2.54mm-M-180

Pin	Signal
1	LAN2_LED2+
2	LAN2_ACTLED#

## Mini PCIe connector:

### A. Connector size: 1 X 57 = 57 Pin (Location: CN6)



### B. Connector pin definition

Pin	Signal	Pin	Signal
1	PCIE_WAKE#	2	+V3.3A_MINI
3	NC	4	GND
5	NC	6	+V1.5S_MINI
7	PCIE_MINI_CLKREQ#1	8	NC
9	GND	10	NC
11	CK_MPCIE_N	12	NC
13	CK_MPCIE_P	14	NC
15	GND	16	NC
17	NC	18	GND
19	NC	20	MINICARD1_DIS#
21	GND	22	PLT_RST_BUF#
23	PER_N1	24	+V3.3A_MINI
25	PER_P1	26	GND
27	GND	28	+V1.5S_MINI
29	GND	30	SMB_CLK_RESUME
31	PET_N1	32	SMB_DATA_REAUME
33	PET_P1	34	GND
35	GND	36	USB_6N
37	GND	38	USB_6P
39	+V3.3A_MINI	40	GND
41	+V3.3A_MINI	42	NC
43	GND	44	LED_WLAN_N
45	NC	46	NC
47	NC	48	+V1.5S_MINI
49	NC	50	GND
51	NC	52	+V3.3A_MINI



MH1	GND	MH2	GND
MH3	GND	MH4	GND
MH6	GND		

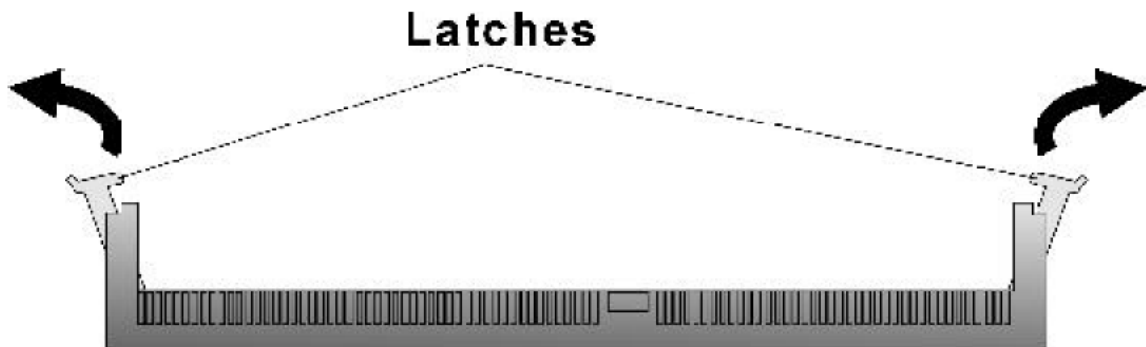
## **Chapter 3**

# **Expansion & Display module**

## 3.1 Installing DIMM

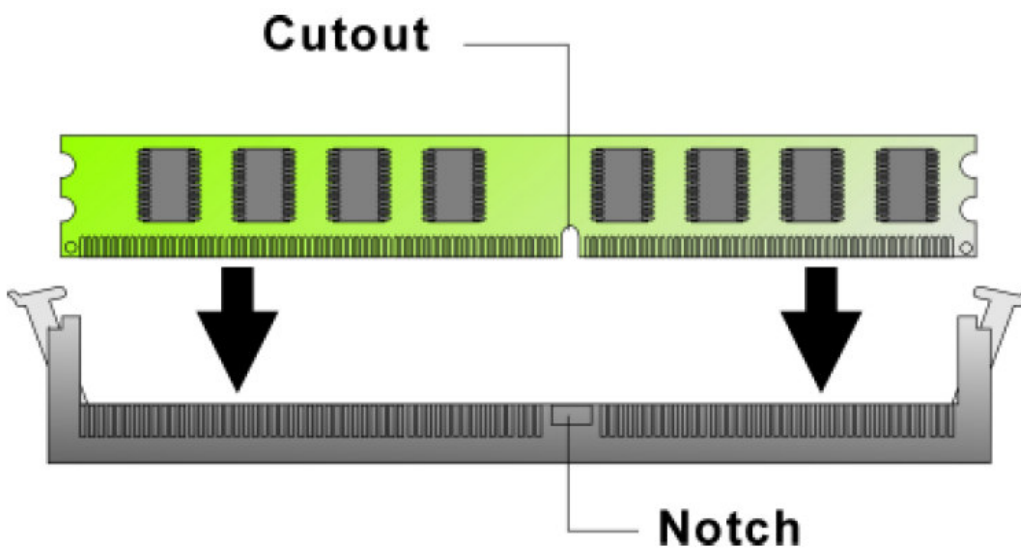
### To install DIMM

1. Make sure the two handles of the DIMM sockets are in the “open” position, i.e. the handles stay outward.



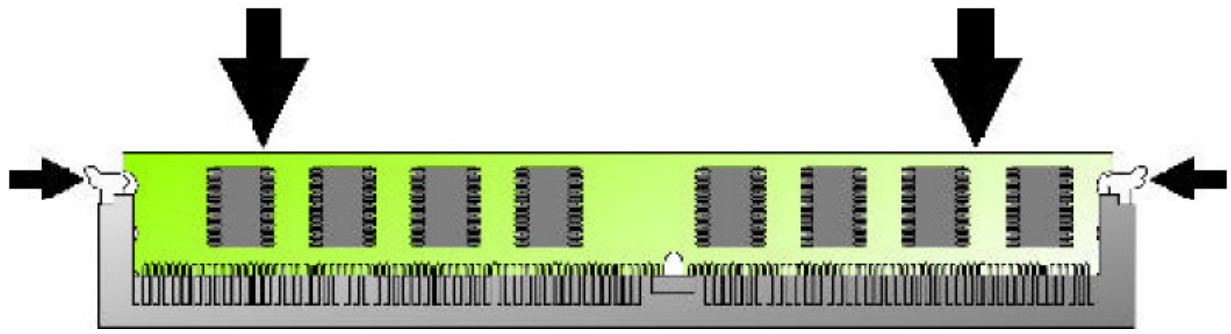
**Figure 3-1: How to Install DIMM (1)**

2. Slowly slide the DIMM modules along the plastic guides in the both ends of the socket.



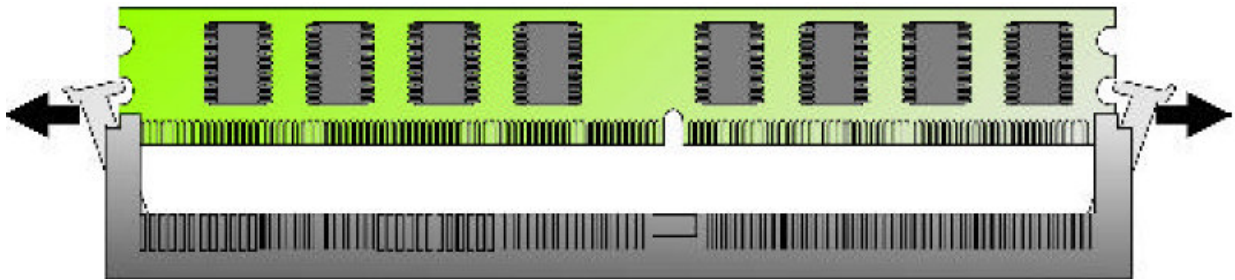
**Figure 3-2: How to Install DIMM (2)**

3. Then press the DIMM module down right into the socket, until a click is heard. That means the two handles automatically locked the memory modules into the right position of the DIMM socket.



**Figure 3-3: How to Install DIMM (3)**

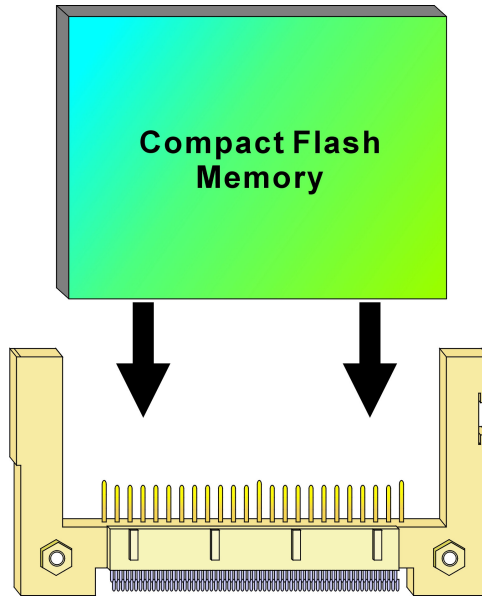
4. To take away the memory module, just push the both handles outward, the memory module will be ejected by the mechanism in the socket.



**Figure 3-4: How to Install DIMM (4)**

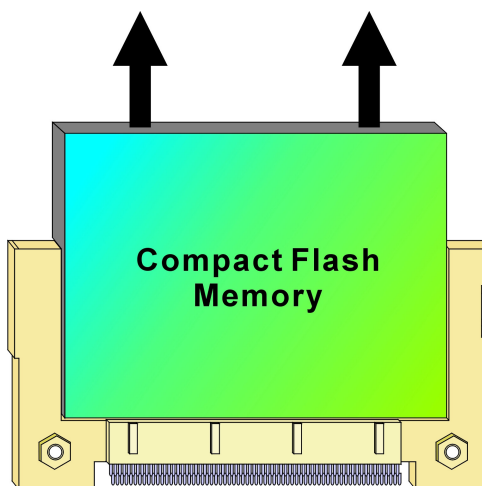
## 3.2 Installing Compact Flash

1. To install a Compact Flash memory card into EBC 540, align the notches on the card with the Compact Flash socket in the EBC 540. Then firmly insert the card into the socket until it is completely seated.



**Figure 3-5: How to Install Compact Flash Memory (1)**

2. To remove the Compact Flash memory card from EBC 540, pull out the memory card from the Compact Flash socket.



**Figure 3-6: How to Uninstall Compact Flash Memory (2)**

### 3.3 Installing Display Module

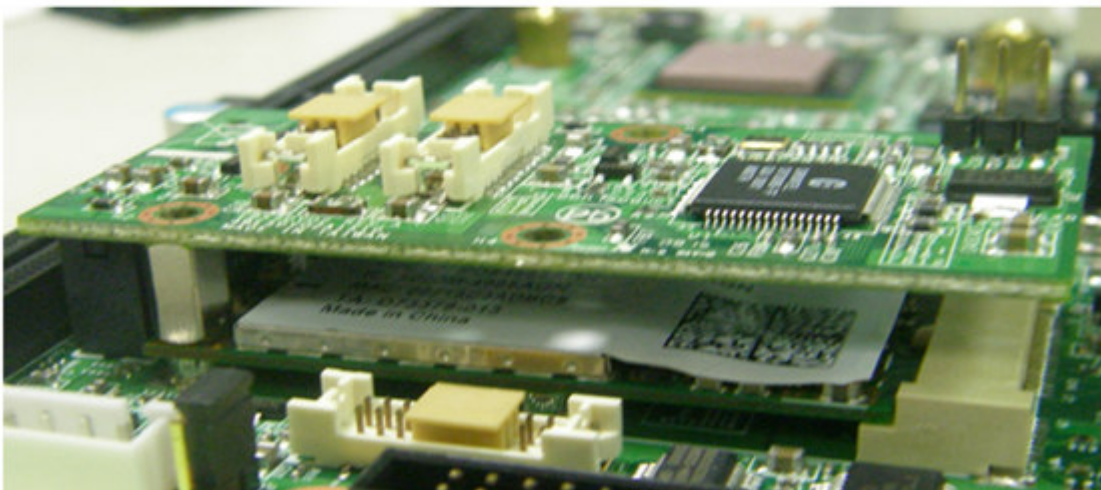
As you have display module to combine with EBC540 main board, you can follow up installation guide step by step to build up dual independent display configurations.

#### Display module plus Mini-PCIE card configuration

- **Mini-PCIE+SDVO Card**
- **1. Mini-PCIE → 2. Two copper pillar → 3. SDVO Card.**

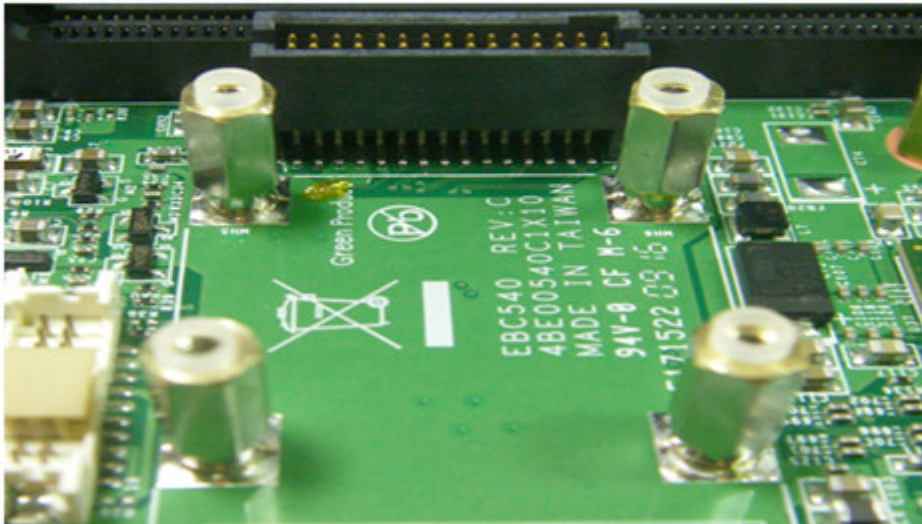


- **Assembly completion**
- **SDVO must to be removed first when cable is assembly.**



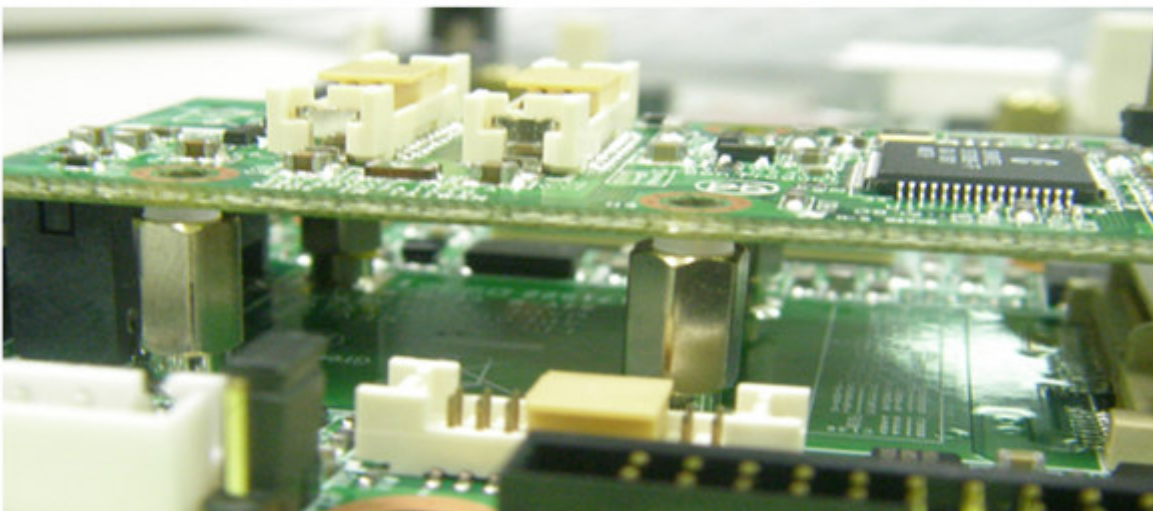
## Only Display module combined with EBC540 configuration

- **SDVO Card only.**
- **1.Four copper pillar →2.washer → 3. SDVO card.**



## ▪ **Assembly completion**

**It is recommended to remove the board first when cable is assembly.**



# Chapter 4

## BIOS Setting



## Award BIOS Setup

Award's BIOS ROM has a built-in Setup program that allows users to modify the basic system configuration. This type of information is stored in battery-backed RAM (CMOS RAM) so that it retains the Setup information when the power is turned off.

**The Chapter shows the currently BIOS setup picture is for reference only, which may change by the BIOS modification in the future. Any Major updated items or re-version, user can download from NEXCOM web site <http://www.nexcom.com.tw> or any unclear message, can contact NEXCOM Customer Service people for help <http://www.nexcom.com.tw/contact/contact.htm>**

### ✓ 4.1 Entering Setup

Power on the computer and press **<Del>** immediately will allow you to enter Setup. The other way to enter Setup is to power on the computer, when the below message appears briefly at the bottom of the screen during the POST (Power On Self Test), press **<Del>** key

**TO ENTER SETUP BEFORE BOOT  
PRESS <DEL> KEY**

### ✓ 4.2 Getting Help

#### Main Menu

The on-line description of the highlighted setup function is displayed at the bottom of the screen.

#### Sub-Menu

If you find a right pointer symbol appears to the left of certain fields (as shown in the right view), that means a sub-menu containing additional options for the field can be launched from this field.

```
▶ IDE Primary Master
▶ IDE Primary Slave
▶ IDE Secondary Master
▶ IDE Secondary Slave
```

To enter the sub-menu, highlight the field and press **<Enter>**. Then you can use control keys to move between and change the settings of the sub-menu.

To return to the main menu, press **<Esc>** to trace back.

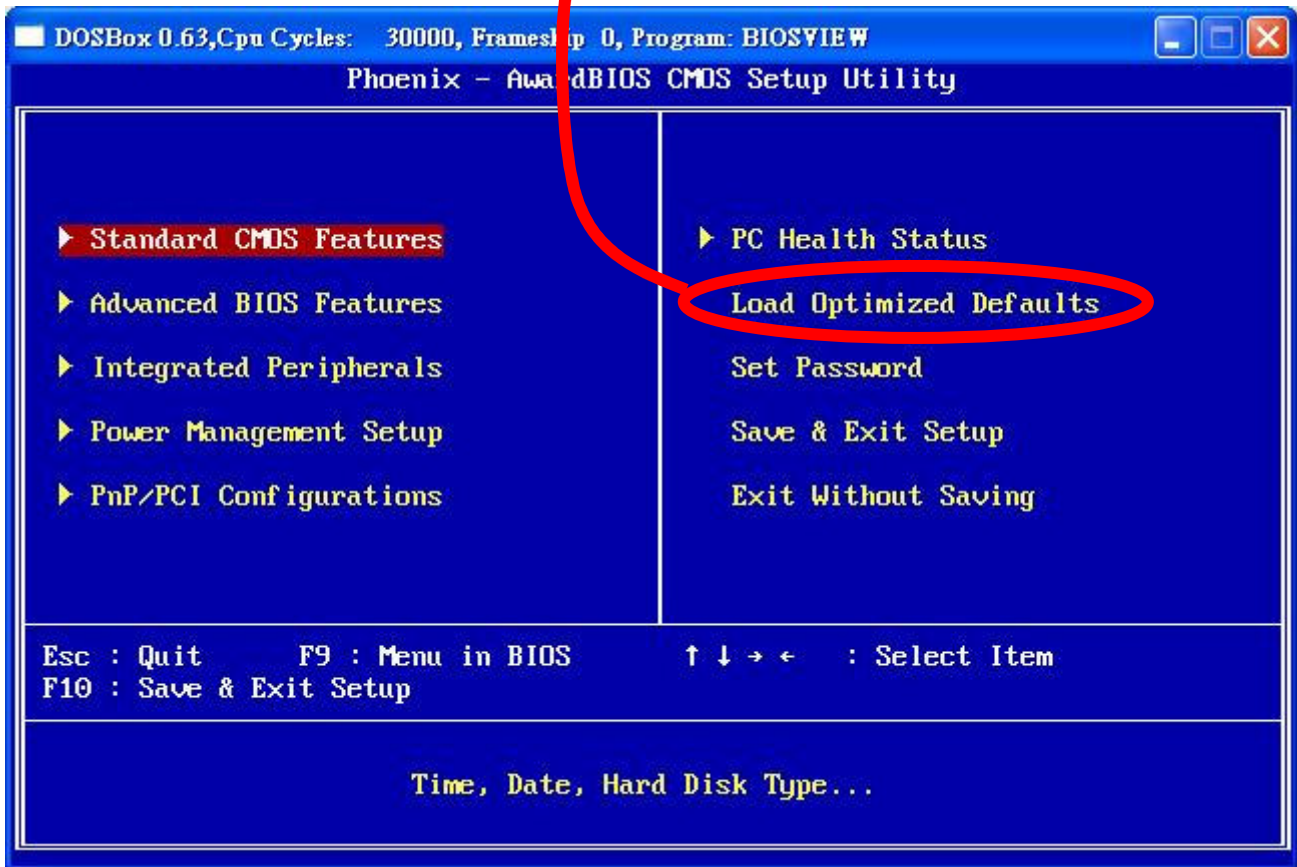
### **Status Page Setup Menu/Option Page Setup Menu**

Press <F1> to pop up a small help window that describes the appropriate keys to use and the possible selections for the highlighted item. To exit the Help Window press <Esc>.

## ✓ 4.3 The Main Menu

Once you enter Award BIOS CMOS Setup Utility, the Main Menu (Figure 1) will appear on the screen. The Main Menu allows you to select from ten setup functions and two exit choices. Use arrow keys to select among the items and press <Enter> to accept or enter the sub-menu.

**It is recommended to load the Defaults for “Optimized” .**



### Standard CMOS Features

Use this menu for basic system configuration.

### Advanced BIOS Features

Use this menu to set the Advanced Features available on your system.

### Integrated Peripherals

Use this menu to specify your settings for integrated peripherals.

### **Power Management setup**

Use this menu to specify your settings for power management

### **PNP/PCI Configuration**

This entry appears if your system supports PnP / PCI.

### **PC health Status**

Display CPU/System Temperature, Fan speed.

### **Load Optimized Defaults**

Use this menu to load the BIOS default values that are factory settings for optimal Uperformance system operations. While Award has designed the custom BIOS to maximize performance, the factory has the right to change these defaults to meet their needs.

### **Set Password**

Enter and change the options of the setup menus. If password error or disable, some read only INFO will be displayed on the menu.

### **Save & Exit Setup**

Save CMOS value changes to CMOS and exit setup.

### **Exit Without Saving**

Abandon all CMOS value changes and exit setup.