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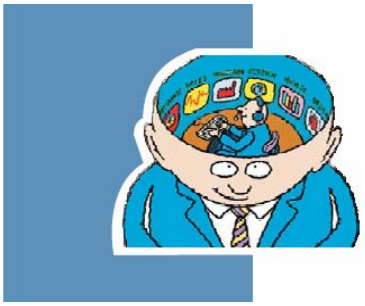

Single Board Computer

EBC 580 Series

User's Manual

April-12-2006 Build

Nov-15-2006 Update

Preface

Copyright

Version 1.0/1.1

Disclaimer

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Acknowledgements

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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 EBC 580, 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.

Table of Content

Chapter 1
General Information

1.1 Main Feature

Support VIA® EDEN/C7 processors from 400MHz up to 1.5GHz

- VIA® CN700 and VIA® 8237R+ chipsets
- 184-pin DIMM x 1, support up to 1GB un-buffered non-ECC DDR 333/400 SDRAM
- Realtek® RTL8110SB Gigabit Ethernet Controller x 2 supporting two GbE LAN ports
- Support LVDS, CCFL, and DB-15 VGA Connector
- Support IDE and SATA HDD
- Compact Flash socket
- USB 2.0 Port x 4, COM x 4

1.2 Specifications

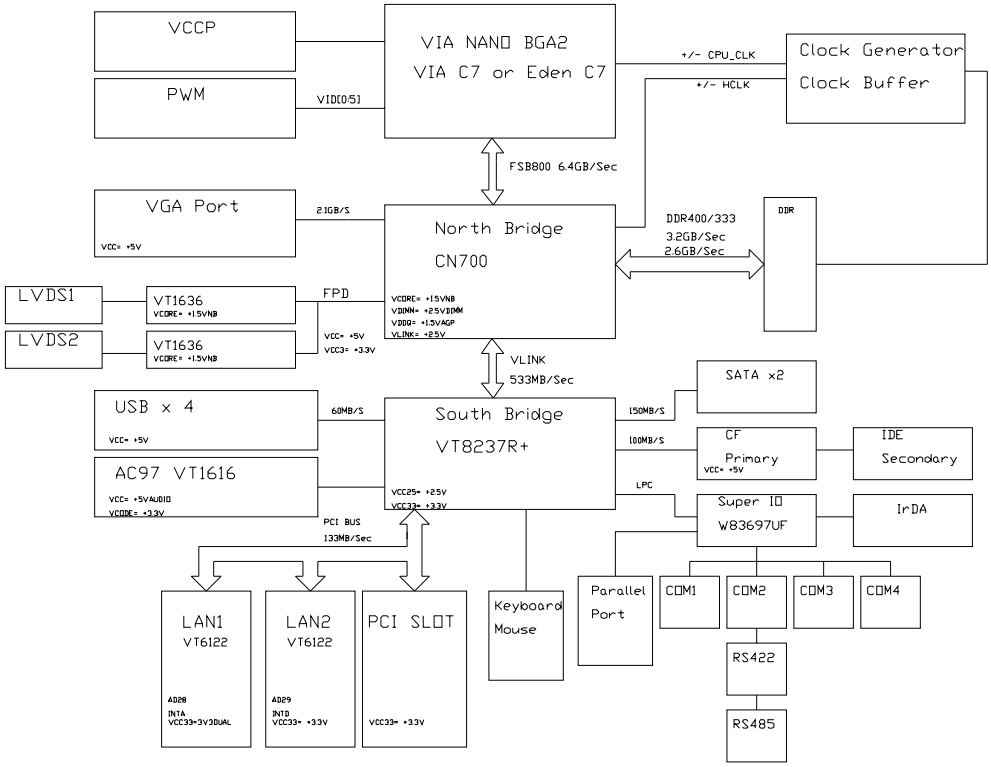


Figure 1.1: Block Diagram of EBC 580

System Architecture	- 5.25” Embedded SBC
CPU Support	- Eden V4 400MHZ or 1GHZ (5W)➔ FANless Possibility

	- C7 1.5GHZ (12W) ➔ With CPU Cooler
Memory	- 1 x 184-pin DIMM - Up to 1GB un-buffered non-ECC DDR 333/400 SDRAM
BIOS	- Plug & Play support - Award System BIOS - Advanced Power Management and Advanced Configuration & Power Interface support
Chipset	- VIA® CN700 - VIA® 8237R+
LAN	- Realtek® RTL8110SB Gigabit Ethernet Controller x 2 supporting two GbE LAN ports
Display	- LVDS1：VIA VT1636 transmitter, DF13-20DP, 20-pin connector x 2 for LVDS1 panel output - LVDS2：VIA VT1636 transmitter, DF13-20DP, 20-pin connector x 2 for LVDS2 panel output - CCFL：CCFL x 2 for LCD Panel Backlight Inverter Power VGA：DB15 VGA Connector x 1
IDE	- HDD: Support IDE with 44 pin connector × 1 (Secondary) - Compact Flash Socket x 1 (Primary)
SATA	- SATA x 2ports, support Raid 0,1
Audio	- VIA VT1616 CODEC for AC97 v2.1 CODEC - CD audio in, Line in - Microphone in and Speaker out Interface
I/O Interface	- SIO× 4, with 4x16C550 UARTs, COM 2 for RS 232/422/485 (40 pin 2.0 header with housing ×1) - USB 2.0 x 4 - Parallel port: Box header 2x13 2.0mm 180-degree connector - PS/2 connectors for Keyboard and Mouse - Digital I/O: Pin header 2x4 2.54mm Male 180-degree connector - IrDA：On board pin header for IrDA Tx Rx - SMBus 2.0 controller: Pin header 1x3 2.0mm Male 180-degree connector (One pin for GND) - On board header for reset SW and HD active LED - I2C: On board 3 pin header for I2C, one pin for GND
Expansion Slot	- One 32 bit/33MHZ PCI Slot support PCI Expansion. - PCI Expansion Slot position is compatible with EBC 569. And support NEXCOM PCI Riser Card:

I/O on Bracket	■ EBK PCI1 ■ EBK PCIR2 ■ EBK PCIR3 - Mic-in - Speaker Out - VGA DB-15 connector x 1 - RJ45 Gigabit Ethernet LAN port x 2 - USB x 2 - Mini-DIN for Keyboard/mouse x 1
System Management	- Derived from Super IO to support system monitor. - Monitoring of **5** voltages, **3** temperature and **2** fans Speed. 5 voltage (For +3.3V, +5V, +12V, Vcore and +2.5V) 3 Temperatures (CPU, two external Temperature Sensor) 2 FANs speed (CPU and System FANs). - Watchdog timeout can be programmable by Software from 1 second to 64 Sec.
Real Time Clock	- On-chip RTC with battery back up - External Lithium battery x 1
Watchdog Timer	- 1-minute increments from 1 to 255 minutes - 1-second increments from 1 to 255 seconds
Dimensions	- 203mm(L) x 143mm(W)
Power Supply	- Three Pin Headers for AT/ATX mode switch - +3.3V is converted from +5V - 6 PIN Power Input Connector - 3 PIN Jst connector to receive the 5Vsb input from Power Source - Factory Default Setting is AT Mode - ATX Mode ■ Power Required: +12V/+5V/+5Vsb ■ Support Power On push Button, Software Shutdown function and LAN1 remote wake up only. ■ Two Pin Header for Power On Push Button ■ BIOS default setting is as shown below: ➢ POWER -SUPPLY TYPE ➔ [ATX] ➢ AUTO PWR-FAILURE RESUME ➔ [ON] - AT mode ■ Power Required: +5V/+12V No Power On push Button, No Software Shutdown function and No LAN1 remote wake up

Environments	- Board-level operating temperatures: -20°C to 60°C - Storage temperatures: -20°C to 80°C - Relative humidity: 10% to 90% (Non-condensing)
Certification	- CE - FCC Class A

Ordering Information

EBC 580-715

NEW RoHS Compliant. 5.25" Low Power Embedded Board with VIA C7 CPU 1.5G w/VGA/ Dual LVDS/Audio/4 COMs/8 USB2.0 /Dual Gigabit LAN

EBC 580-E10

NEW RoHS Compliant. 5.25" Low Power Embedded Board with VIA Eden V4 Bus CPU 1GHZ w/VGA/ Dual LVDS/Audio/4 COMs/8 USB2.0 /Dual Gigabit LAN

1.3 Power Consumption Measurement

EBC-580-715 Power Consumption

Power Type	+12V	+5V	+5VSB	Mode
Power-On	0.81A	2.70A	x	AT Mode
HCT	1.30A	2.80A	0.28A	ATX Mode

EBC-580-E10 Power Consumption

Power Type	+12V	+5V	+5VSB	Mode
Power-On	0.46A	2.71A	x	AT Mode
HCT	0.39A	2.59A	0.04A	ATX Mode

1.4 Board Layout

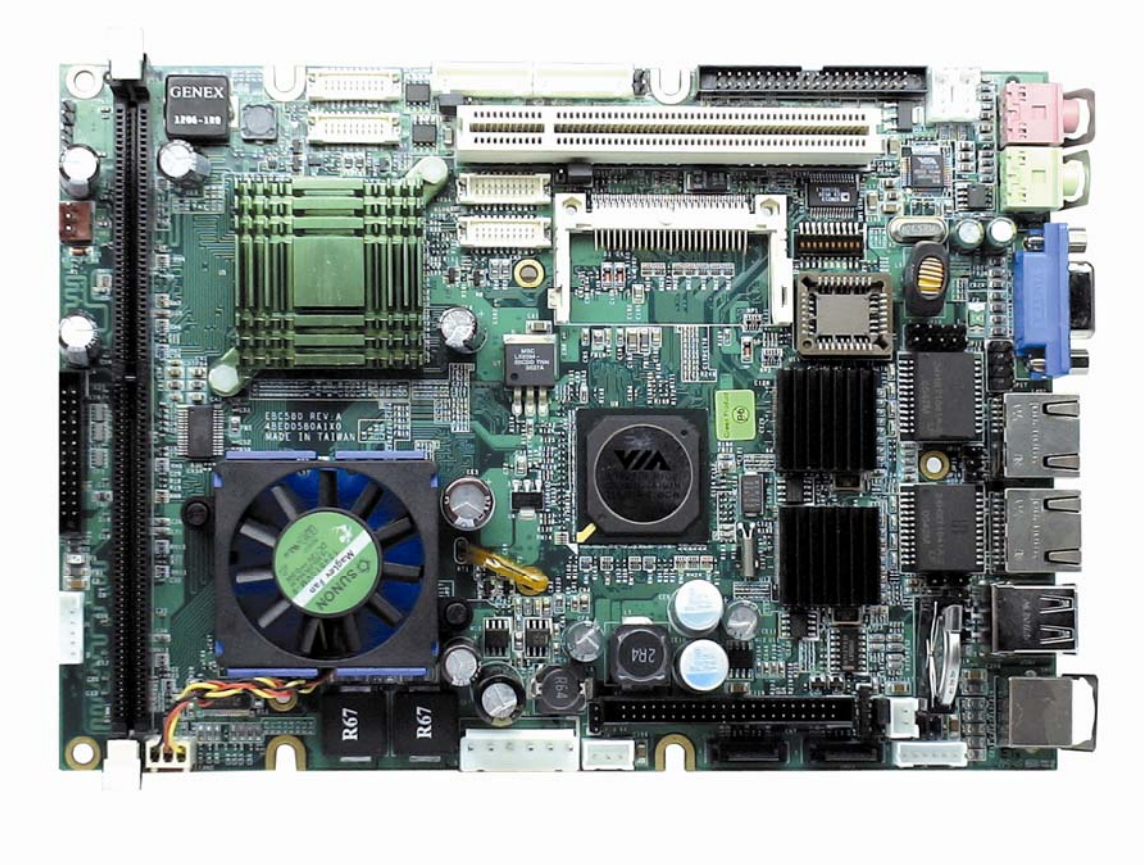


Figure 1.2: Overview of EBC 580

1.5 Board Dimensions

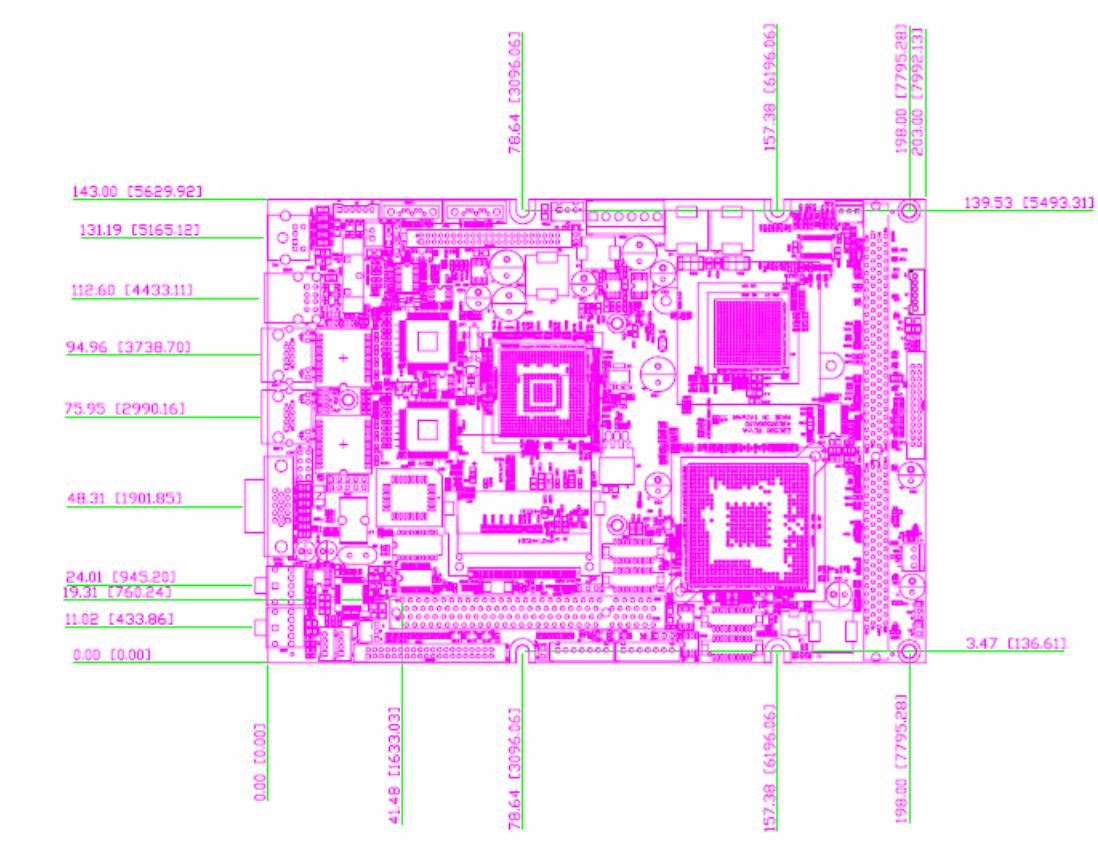


Figure 1.3: Mechanical Drawing of the EBC 580

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 EBC 580 series.

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 (such as the EBC 580 board) 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

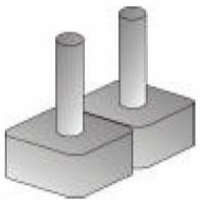
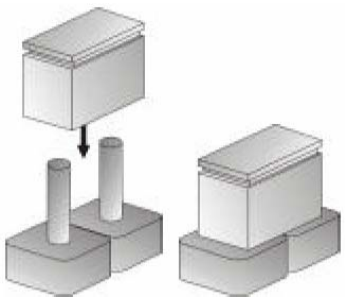
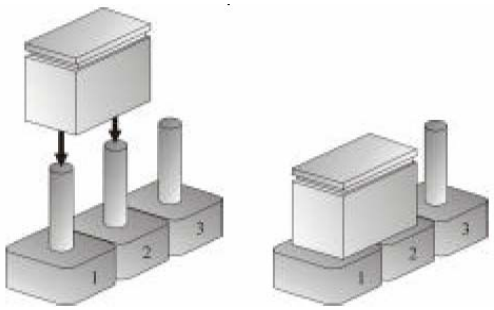
<table>
<tr><td rowspan="2">The illustrations on the right show a 2-pin jumper. When the jumper cap is placed on both pins, the jumper is SHORT. If you remove the jumper cap, or place the jumper cap on just one pin, the jumper is OPEN.</td><td>  </td><td>  </td></tr>
<tr><td>Open (Off)</td><td>Short (On)</td></tr>
<tr><td>These illustrations show a 3-pin jumper. Pins 1 and 2 are SHORT.</td><td colspan="2"> 
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Table 2-1: Setting Jumpers

2.4 Location of Jumpers

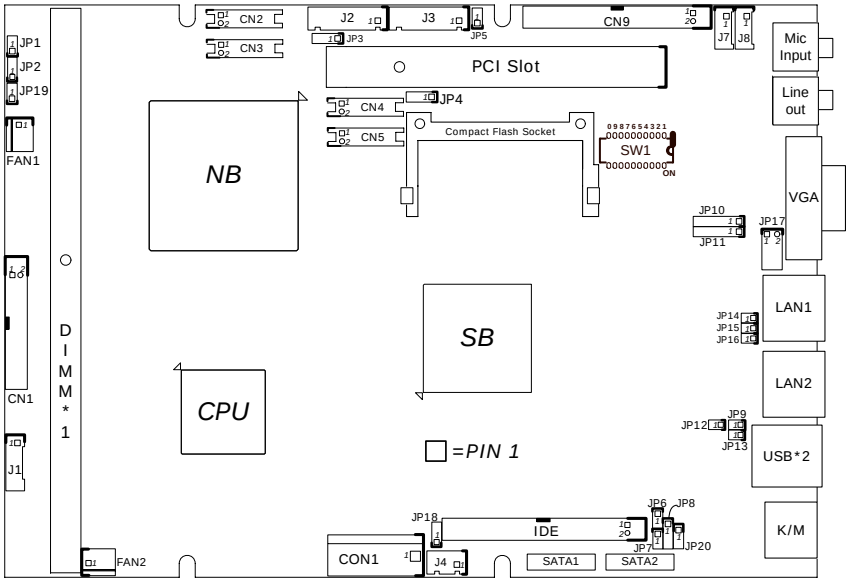

Figure 2-1: Jumper Location

2.5 Functions of Jumpers and Connectors

◎ J7(CD Input)：JST 1x4 2.0mm Male 180-degree connector

Pin NO.	Description	Pin NO.	Description
1	Left sound channel	3	GND
2	GND	4	Right sound channel

◎J8 (Line Input)：JST 1x4 2.0mm Male 180-degree connector

Pin NO.	Description	Pin NO.	Description
1	Left sound channel	3	GND
2	GND	4	Right sound channel

◎J1 (USB)：：JST 1x6 2.0mm Male 180-degree connector

		Pin NO.	Description
1	VCC5	4	USBP3N
2	USBP2N	5	USBP3P
3	USBP2P	6	GND

◎J3 (CCFL)：：JST 1x7 2.0mm Male 180-degree connector

Pin NO.	Description	Pin NO.	Description
1	VDD5SAFE	5	GND
2	+12V	6	GND
3	+12V	7	Back light Enable
4	Back light control		

◎J4(5VSB connector)：JST 1x3 2.5mm Male 180-degree connector

Pin NO.	Description	Pin NO.	Description
1	PSON#	3	5VSB
2	GND		

◎JP9(LAN2 Active LED)：Pin header 1x2 2.54mm Male 180-degree connector

Pin NO.	Description	Pin NO.	Description
1	Pull up to 3.3V	2	Active signal

◎JP12(LAN2 100 Speed LED)：Pin header 1x2 2.54mm Male 180-degree connector

Pin NO.	Description	Pin NO.	Description
1	Pull up to 3.3V	2	100 Speed signal

◎JP13(LAN2 1000 Speed LED)：Pin header 1x2 2.54mm Male 180-degree connector

Pin NO.	Description	Pin NO.	Description
1	Pull up to 3.3V	2	1000 Speed signal

◎JP14(LAN1 Active LED)：Pin header 1x2 2.54mm Male 180-degree connector

Pin NO.	Description	Pin NO.	Description
1	Pull up to 3Vdual	2	Active signal

◎JP15(LAN2 100 Speed LED)：Pin header 1x2 2.54mm Male 180-degree connector

Pin NO.	Description	Pin NO.	Description
1	Pull up to 3Vdual	2	100 Speed signal

◎JP16(LAN1 1000 Speed LED)：Pin header 1x2 2.54mm Male 180-degree connector

Pin NO.	Description	Pin NO.	Description
1	Pull up to 3Vdual	2	1000 Speed signal

◎JP11(IrDA) ：Pin header 1x5 2.54mm Male 180-degree connector

Pin NO.	Description	Pin NO.	Description
1	+5V	4	GND
2	NC	5	IRTX
3	IRRX		

◎JP17(Digital I/O)：Pin header 2x4 2.54mm Male 180-degree connector

Pin NO.	Description	Pin NO.	Description
1	Digital Input 1	2	Digital Output 1
3	Digital Input 2	4	Digital Output 2

5	Digital Input 3	6	Digital Output 3
7	Digital Input 4	8	Digital Output 4

◎JP4(CF mode select)：Pin header 1x3 2.54mm Male 180-degree connector

Pin NO.	Description	Pin NO.	Description
1-2	Master	2-3	Slave

◎JP8(CMOS Clear)

Pin NO.	Description	Pin NO.	Description
1-2	Normal	2-3	Clear

◎JP7(Power Button)

Pin NO.	Description	Pin NO.	Description
1	Power ON	2	GND

◎JP5(HD active LED)：Pin header 1x2 2.54mm Male 180-degree connector

Pin NO.	Description	Pin NO.	Description
1	Pull up to +5V	2	HD avtive signal

◎JP3(Panel power select)：Pin header 1x3 2.54mm Male 180-degree connector

Pin NO.	Description	Pin NO.	Description
1-2	+5V Input	2-3	+3V Input

◎JP1(RESET Button) ：Pin header 1x2 2.54mm Male 180-degree connector

Pin NO.	Description	Pin NO.	Description
1	RESET	2	GND

◎JP2(SMBus) ：Pin header 1x3 2.0mm Male 180-degree connector

Pin NO.	Description	Pin NO.	Description
1	SMBus Data	3	GND
2	SMBus Clock		

◎JP18(I2CBus) ：Pin header 1x3 2.0mm Male 180-degree connector

Pin NO.	Description	Pin NO.	Description
1	SMBus Data	3	GND
2	SMBus Clock		

◎JP20 (Power Select)

Pin NO.	Description	Pin NO.	Description
1-2	AT power supply	2-3	ATX power supply

◎JP6(Thermister)：Pin header 1x2 2.54mm Male 180-degree connector

◎JP10(Second COM port RI# function select)：Pin header 1x3 2.54mm Male 180-degree connector

Pin NO.	Description	Pin NO.	Description
1-2	+12V	4-5	RI#
2-3	+5V		

◎CON1(Power connector)：1x6 3.96mm Male 180-degree connector

Pin NO.	Description	Pin NO.	Description
1	+12V	4	GND
2	GND	5	+5V
3	GND	6	+5V

◎FAN1(FAN)：Pin header 1x3 2.54mm Male 180-degree connector

Pin NO.	Description	Pin NO.	Description
1	GND	3	FAN speed sense
2	+12V		

◎FAN2(FAN)：Pin header 1x3 2.54mm Male 180-degree connector

Pin NO.	Description	Pin NO.	Description
1	GND	3	FAN speed sense
2	+12V		

◎CN1 (Parallel port)：Box header 2x13 2.0mm 180-degree connector

Pin NO.	Description	Pin NO.	Description
1	Strobe#	14	Auto form feed#
2	DATA0	15	Error#
3	DATA1	16	Initialize
4	DATA2	17	Printer select IN#
5	DATA3	18	Chassis GND
6	DATA4	19	Chassis GND
7	DATA5	20	Chassis GND
8	DATA6	21	Chassis GND
9	DATA7	22	Chassis GND
10	Acknowledge#	23	Chassis GND
11	Busy	24	Chassis GND
12	Paper empty	25	Chassis GND
13	Printer select	26	NA

◎CN5 (LVDS1) (Slave)

Pin NO.	Description	Pin NO.	Description
1	NA	2	NA
3	Panel Power	4	B0P
5	B3P	6	BOM
7	B3M	8	Panel Power
9	GND	10	B1P
11	CLK2P	12	B1M
13	CLK2M	14	GND
15	GND	16	+12V
17	B2P	18	+12V
19	B2M	20	GND

◎CN4 (LVDS1) (Master)

Pin NO.	Description	Pin NO.	Description
1	NA	2	NA
3	Panel Power	4	A0P
5	A3P	6	AOM
7	A3M	8	Panel Power
9	GND	10	A1P
11	CLK1P	12	A1M
13	CLK1M	14	GND
15	GND	16	+12V
17	A2P	18	+12V
19	A2M	20	GND

◎CN2 (LVDS2) (Slave)

Pin NO.	Description	Pin NO.	Description
1	NA	2	NA
3	Panel Power	4	DOB0P
5	DOB3P	6	DOBOM
7	DOB3M	8	Panel Power
9	GND	10	DOB1P
11	DOCLK2P	12	DOB1M
13	DOCLK2M	14	GND
15	GND	16	+12V
17	DOB2P	18	+12V
19	DOB2M	20	GND

◎CN3 (LVDS2) (Master)

Pin NO.	Description	Pin NO.	Description
1	NA	2	NA
3	Panel Power	4	DOA0P
5	DOA3P	6	DOAOM
7	DOA3M	8	Panel Power
9	GND	10	DOA1P
11	DOCLK1P	12	DOA1M
13	DOCLK1M	14	GND
15	GND	16	+12V
17	DOA2P	18	+12V
19	DOA2M	20	GND

◎CN12 (Line out)

Pin NO.	Description	Pin NO.	Description
1	GND	4	NC
2	Right sound channel	5	Left sound channel
3	NC		

◎CN11 (Microphone Input)

Pin NO.	Description	Pin NO.	Description
1	GND	4	NC
2	Microphone Input	5	Microphone BIAS
3	NC		

◎CN9 (4 x COM)：Box header 2x20 2.0mm connector

Pin NO.	Description	Pin NO.	Description
1	Data carrier detect A	2	Data set ready A
3	Receive data A	4	Request to send A
5	Transmit data A	6	Clear to send A
7	Data terminal ready A	8	Ring indicator A
9	GND	10	NC
11	Data carrier detect B (RS422/485 TX+)	12	Data set ready B (RS422 RTS-)
13	Receive data B (RS422/485 TX-)	14	Request to send B (RS422 RTS+)
15	Transmit data B (RS422 RX+)	16	Clear to send B (RS422 CTX+)
17	Data terminal ready B (RS422 RX-)	18	Ring indicator B (RS422 CTX-)
19	GND	20	NC
21	Data carrier detect C	22	Data set ready C
23	Receive data C	24	Request to send C
25	Transmit data C	26	Clear to send C
27	Data terminal ready C	28	Ring indicator C

29	GND	30	NC
31	Data carrier detect D	32	Data set ready D
33	Receive data D	34	Request to send D
35	Transmit data D	36	Clear to send D
37	Data terminal ready D	38	Ring indicator D
39	GND	40	NC

◎CN7 (IDE)：Box header 2x22 2.0mm connector

Pin NO.	Description	Pin NO.	Description
1	RESET#	2	GND
3	DATA7	4	DATA8
5	DATA6	6	DATA9
7	DATA5	8	DATA10
9	DATA4	10	DATA11
11	DATA3	12	DATA12
13	DATA2	14	DATA13
15	DATA1	16	DATA14
17	DATA0	18	DATA15
19	GND	20	NC
21	DMA request	22	GND
23	IOW#	24	GND
25	IOR#	26	GND
27	IOCHRDY	28	Pull down
29	DMA Acknowledge#	30	GND
31	IRQ14	32	NC
33	Disk address1	34	DMA66 Detect
35	Disk address0	36	Disk address2
37	HDC CS1	38	HDC CS3
39	HD active LED	40	GND

◎CN6 (PCI)

◎CN8 (SATA1)

Pin NO.	Description	Pin NO.	Description
1	GND	5	RX-
2	TX+	6	RX+
3	TX-	7	GND
4	GND		

◎CN10 (SATA2)

Pin NO.	Description	Pin NO.	Description
1	GND	5	RX-
2	TX+	6	RX+
3	TX-	7	GND
4	GND		

◎DIMM1 (DDR Socket)

◎GPIO (Super I/O：W83697UF).

Input	W83697UF pin name	Pin number
TIN0	GP17	121
TIN1	GP16	122
TIN2	GP15	123
TIN3	GP14	124

Output	W83697UF pin name	Pin number
TOUT0	GP13	125
TOUT1	GP12	126
TOUT2	GP11	127
TOUT3	GP10	128

◎ JP19 (Power LED)

Pin NO.	Description	Pin NO.	Description
1	+5V	2	GND

◎ SW1 (COM2 Mode Select)

NO.	1	2	3	4	5	6	7	8	9	10
RS 232	OFF	OFF	OFF	ON	OFF	ON	OFF	OFF	OFF	OFF
RS 422	OFF	OFF	ON	OFF	ON	OFF	ON	ON	ON	ON
RS 232	OFF	OFF	OFF	ON	OFF	ON	OFF	OFF	OFF	OFF

◎GPIO Programming guide：

Logical Device 7

CRF0 (GP10-GP17 I/O selection register. Default 0xFF)

When set to a ’1’, the respective GPIO port is programmed as an input port. ?

When set to a ’0’, the respective GPIO port is programmed as an output port. ?

CRF1 (GP10-GP17 data register. Default 0x00)

If a port is programmed to be an output port, its respective bit can be read/written.

If a port is programmed to be an input port, its respective bit can only be read.

CRF2 (GP10-GP17 inversion register. Default 0x00)

When set to a ‘1’, the incoming/outgoing port value is inverted.

When set to a ‘0’, the incoming/outgoing port value is the same as in the data register.

14	15	16	17	10	11	12	13

```
SIO_PORT   EQU   2EH
SIO_ENTRY   EQU   087H
SIO_EXIT   EQU   0AAH
```

SIO entry configuration procedure

```
mov dx,SIO_PORT
mov al,SIO_ENTERY
out dx,al
nop
nop
out dx,al
```

```
Logical Device 7
mov dx,SIO_PORT
mov al,07h
out dx,al     ;point to logical device number register
;
mov al,07h
inc dl
out dx,al     ;select logical device 7
```

Reading Digit I/O data for register CRF1

```
mov dx,SIO_PORT
mov al,0F1h
out dx,al
inc dl
in al,dx     ;You need data in AL register
```

SIO exit configuration procedure

```
mov dx,SIO_PORT
mov al,SIO_EXIT
out dx,al
```

◎ Watch Dog timer programming guide

WDT_CRWM EQU 0F3H

```
Logical Device 8
CRF3 (PLED mode register. Default 0x00)
Bit [7：3]：Reserved .
Bit 2：Select WDTO count mode.
0－Second
1－Minute
Bit [1：0]：select PLED mode
00 Power LED pin is tri-stated.
01 Power LED pin is droved low.
10 Power LED pin is a 1Hz toggle pulse with 50 duty cycle.
11 Power LED pin is a 1/4Hz toggle pulse with 50 duty cycle.
```

WDT_CRWV EQU 0F4H

```
Logical Device 8
CRF4 (Default 0x00)
Watch Dog Timer Time-out value.
Writing a non-zero value to this register causes the counter to load the value to Watch Dog Counter and
start counting down.
Reading this register returns current value in Watch Dog Counter instead of Watch Dog Timer
Time-out value.
Bit [7：0]   = 0x00 Time-out Disable
= 0x01 Time-out occurs after 1 second/minute
= 0x02 Time-out occurs after 2 second/minutes
= 0x03 Time-out occurs after 3 second/minutes
.....
= 0xFF Time-out occurs after 255 second/minutes
```

WDT_CRWE EQU 0F5H

Logical Device 8

CRF5 (Default 0x00)
Bit [7]：Reserved .
Bit [6]：invert Watch Dog Timer Status
Bit [5]：Force Watch Dog Timer Time-out, Write only*
1－ Force Watch Dog Timer time-out event；this bit is self-clearing.
Bit[4]：Watch Dog Timer Status, R/W
1－ Watch Dog Timer time-out occurred.
Bit [3：0]：These bits select IRQ resource for Watch Dog.
Setting of 2 selects SMI.

SIO entry configuration procedure

```
mov dx,SIO_PORT
mov al,SIO_ENTERY
out dx,al
nop
nop
out dx,al
```

Watch Dog setting

```
Logical Device 8
mov dx,SIO_PORT
mov al,07h
out dx,al        ;point to logical device number register
mov al,08h
inc dl
out dx,al        ;select logical device 8
```

Set units are seconds

```
mov dx,SIO_PORT
mov al,WDT_CRWM
out dx,al
inc dl
in al,dx
and al,not 04h
mov ah,al
```

```
mov dx,SIO_PORT
mov al,WDT_CRWM
out dx,al
inc dl
mov al,ah
out dx,al
```

Set time out value

```
mov dx,SIO_PORT
mov al,WDT_CRWV
out dx,al
inc dl
mov al,WDT_TIME_OUT
out dx,al
```

Set timer to be reset upon mouse or keyboard interrupt

```
mov dx,SIO_PORT
mov al,WDT_CRWE
out dx,al
inc dl
mov al,10h       ;Watch Dog Timer Status, R/W：set "1"
out dx,al
```

SIO exit configuration procedure

```
mov dx,SIO_PORT
mov al,SIO_EXIT
out dx,al
```

Chapter 3
Expansion

3.1 System Memory

EBC 580 incorporates VIA CN700chipset supports up to 1GB un-buffered non-ECC DDR 333/400 SDRAM.

3.2 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.

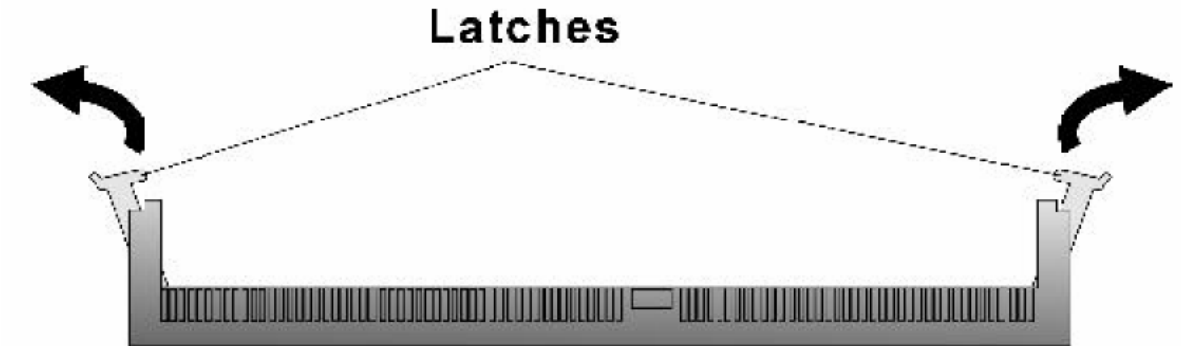

Figure3-1: How to Install DIMM (1)

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

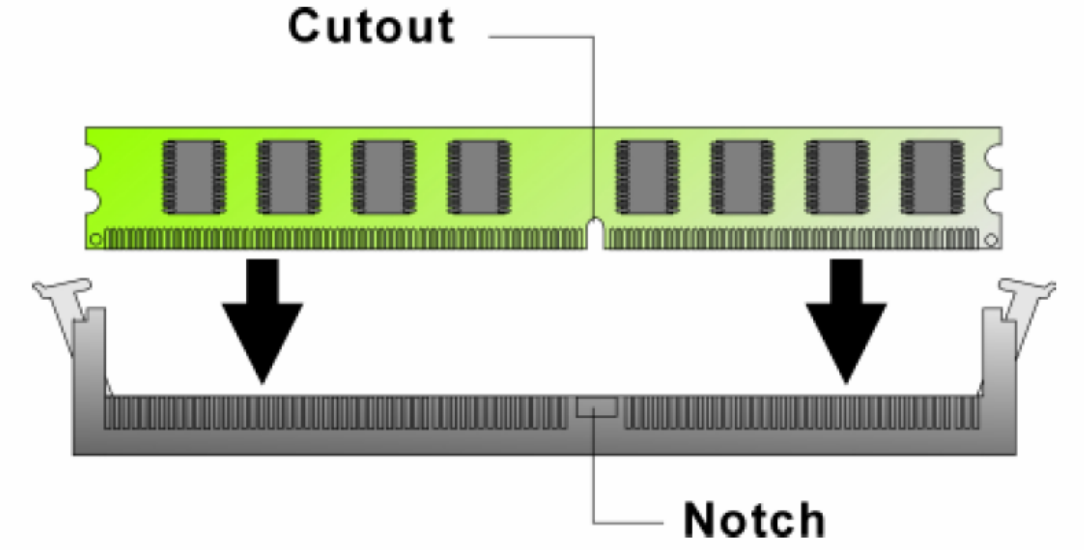

Figure 3-2: How to Install DIMM (2)

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.

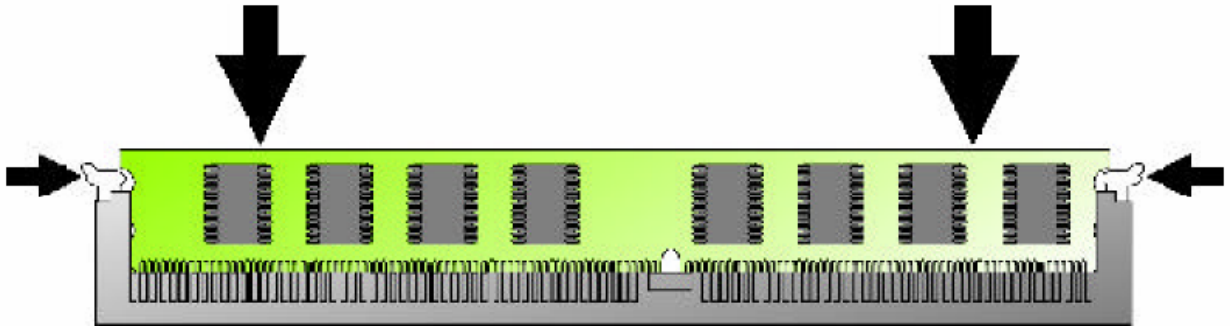

Figure 3-3: How to Install DIMM (3)

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.

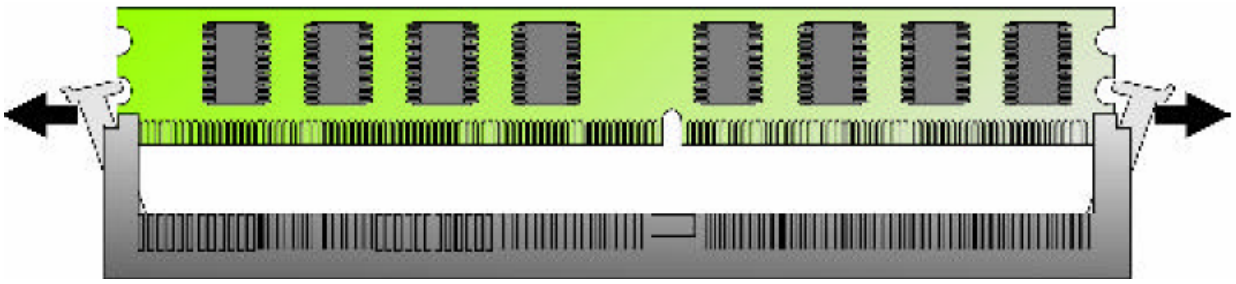

Figure 3-4: How to Install DIMM (4)

3.3 Installing Compact Flash

1. To install a Compact Flash memory card into EBC 580, align the notches on the card with the Compact Flash socket in the EBC 580. Then firmly insert the card into the socket until it is completely seated.

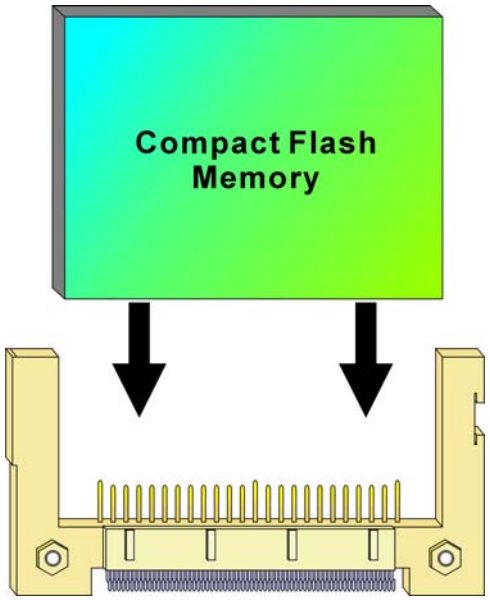

Figure 3-5: How to Install Compact Flash Memory (1)

2. To remove the Compact Flash memory card from EBC 580, pull out the memory card from the Compact Flash socket.

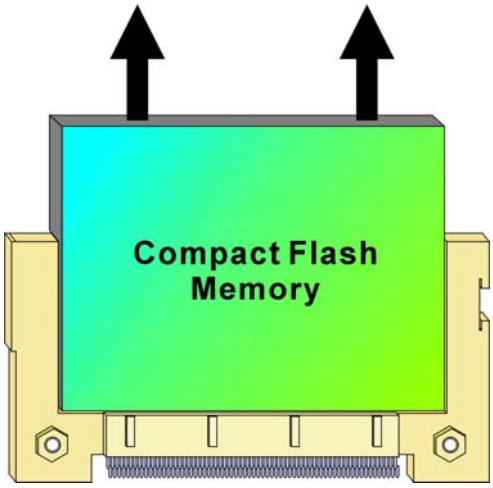

Figure 3-6: How to Uninstall Compact Flash Memory (2)