Building the Digital Infrastructure

# NISE 3110 User Manual

Version 1.3

March, 2008

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## Declaration of Conformity

### CE

This product has passed the CE test for environmental specifications when shielded cables are used for external wiring. We recommend the use of shielded cables. Please contact your local supplier for ordering information.
This product has passed the CE test for environmental specifications. Test conditions for passing included the equipment being operated within an industrial enclosure. In order to protect the product from being damaged by ESD (Electrostatic Discharge) and EMI leakage, we strongly recommend the use of CE-compliant industrial enclosure products.

### FCC Class A

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the 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 instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

## Installation Suggestions

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 thatfollow require only a few simple tools, including the following:
A Philips screwdriver
A flat-tipped screwdriver
A grounding strap
An anti-static pad
Using your fingers can disconnect most of the connections. It is recommended that you do not use needlenose pliers to disconnect connections as these can damage the soft metal or plastic parts of the connectors.

## Handling Precautions

- Always disconnect the unit from the power outlet whenever you are installing or fixing a component inside the chassis.
- If possible, always wear a grounded wrist strap when you are installing or fixing a component inside the chassis. 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. Do not flex or stress the circuit board.
- Use the correct screws and do not overly tighten them.
- Keep the original packaging and static-protective bag in case the unit has to be returned.

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# NEXCOM RMA Policy

## 1.Warranty Period

NEXCOM manufactures products that are new or equivalent to new in accordance with industry standard. NEXCOM warrants that products will be free from defect in material and workmanship for 24 months beginning on the date of invoice by NEXCOM. HCP series products (Blade Server) which are manufactured by NEXCOM are covered by a three year warranty period.

## 2. RMA (Return Merchandise Authorization)

- Customers shall enclose the “NEXCOM RMA Service Form” with the returned packages.
- Customers must collect all the information about the problems encountered and note anything abnormal or, print out any on-screen messages, and describe the problems on the “NEXCOM RMA Service Form” for the RMA number apply process.
- Customers can send back the faulty products with or, without accessories (manuals,cable, etc.) and any unnecessary components from the card, such as CPU and RAM.
  If the components were suspected as part of the problems, please note clearly that which components are included. Otherwise, NEXCOM is not responsible for the devices/parts.
- Customers are responsible to for the safe packaging of defective products are durable enough to be resistant against further damage and deterioration during transportation. In case of damages occurred during the transportation, the repair is treated as “Out of Warranty.”
- 2.5 Any products returned by NEXCOM to other locations besides the customers’ site will bear an extra charge and will be billed to the customer.

## 3. Repair service charges for out of warranty products

NEXCOM will charge for out of warranty products in two categories, one is basic diagnostic fee and another is component (product) fee.

### System level

- Component fee: NEXCOM will only charge for main components, such as SMD chip, BGA chip, etc. Passive components will be repaired for free, ex: resistor, capacitor.
- Items will be replaced with NEXCOM products if the original one is not able to be repaired. Ex: motherboard, power supply, etc.
- Replaced with 3rd party products if needed.
- If RMA goods can not be repaired, NEXCOM will return it to customer without any charge.

### Board level

- Component fee: NEXCOM will only charge for main components, such as SMD chip, BGA chip, etc. Passive components will be repaired for free, ex: resistors, capacitors.
- If RMA goods can not be repaired, NEXCOM will return it to customer without any charge.

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## RoHS Compliance


NEXCOM RoHS Environmental Policy and Status Update.
Nexcom is a global citizen for building the digital infrastructure. We are committed to providing green products and services, which are compliant with European Union RoHS (Restriction on Use of Hazardous Substance in Electronic Equipment) directive 2002/95/EU, to be your trusted green partner and to protect our environment.

RoHS restricts the use of Lead (Pb) < 0.1% or 1,000ppm, Mercury (Hg) < 0.1% or 1,000ppm, Cadmium (Cd) < 0.01% or 100ppm, Hexavalent Chromium (Cr6+) < 0.1% or 1,000ppm, Polybrominated biphenyls (PBB) < 0.1% or 1,000ppm, and Polybrominated diphenyl Ethers (PBDE) < 0.1% or 1,000ppm.

In order to meet the RoHS compliant directives, NEXCOM has established an engineering and manufacturing task force in to implement the introduction of green products. The task force will ensure that we follow the standard NEXCOM development procedure and that all the new RoHS components and new manufacturing processes maintain the highest industry quality levels for which NEXCOM are renowned.

The model selection criteria will be based on market demand. Vendors and suppliers will ensure that all designed components will be RoHS compliant.

How do you recognize NEXCOM RoHS Products?

For existing products where there are non-RoHS and RoHS versions, the suffix "(LF)" will be added to the compliant product name.

For example, PEAK 7220VL2G RoHS version will become PEAK 7220VL2G(LF).

All new product models launched after January 2006 will be RoHS compliant. They will use the usual NEXCOM naming convention.

For example, PEAK 870VL2, NBP14570, EBC 420 etc. All RoHS compliant model and component manufacturing part numbers will be suffixed "X00"

## Manual Revision History

| Revision | Date | Description |
|---|---|---|
| 1.0 | Sep., 07 | First Edition, V1.0 |
| 1.1 | Nov. 07 | Add Appendix C "power consumption" |
| 1.2 | Feb.,08 | Correct P28 GPIO pin definition (J11) |
| 1.3 | March, 08 | Add the Appendix E: Display Setting<br>Modify the Appendix B: GPIO Programming guide (add the note for SPC150) |

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# Table of Content



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# Chapter 1 General Information

## 1.1 Product Overview

Featuring Intel 945GME & ICH7 chipsets, the NISE 3110 fan-less box computer supports Intel's Core 2 Duo /Celeron M processor with 533/667 MHz FSB and DDR2 667/533 memory. The rugged NISE 3110 fan-less box computer is designed for space-critical application requires extreme reliability, low-power consumption and versatile I/O configuration. For added flexibility, the NISE 3110 also boasts three RS232 ports, one RS232/422/485 port and one PCI expansion slot.

For data storage, the NISE 3110 provides one CompactFlash socket and one 2.5" HDD drive bay. The System supports ATX mode power feature and can accept a wide range of power supplies from 12 V DC to 30 V DC.

Housed in a compact 195 mm x 268 mm x 80 mm heavy-duty aluminum chassis, the NISE 3110 is designed for reliable, maintenance-free industrial computing. The NISE 3110 fan-less box computer offers a cost-effective solution for a multitude of mission-critical embedded computing applications in automation, machine control, and POS systems.

- Support Intel® Core 2 Duo / Core Duo/ Celeron® M processors
- Intel® 945GME Chipsets
- Dual 1000/100/10Mbps LAN ports
- 6 x USB2.0/ VGA / DVI/ 4 x SIO
- One PCI Expansion Slot

## 1.2 Block Diagram

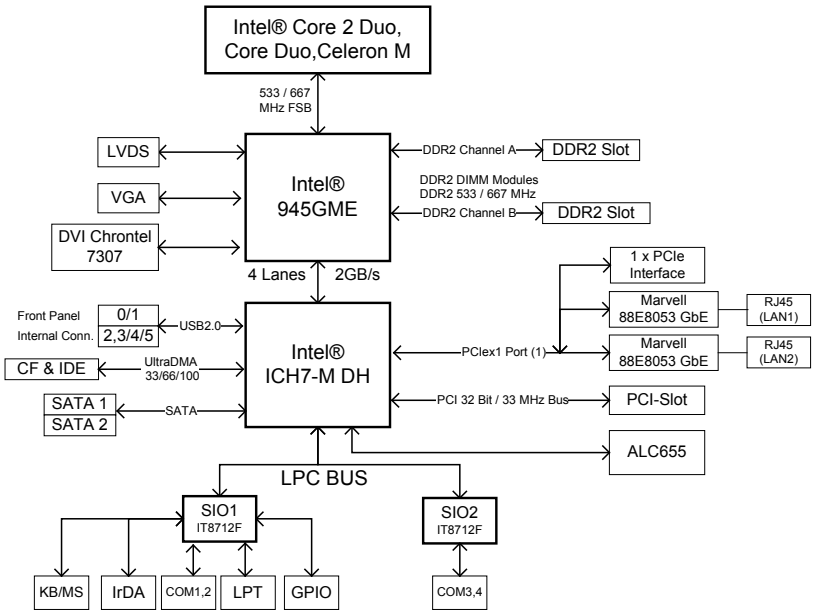


**Figure 1.1 : Block Diagram of EBC 576**


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## 1.3 Specifications

### Main Board

- EBC 576
- Support Intel® Core 2 Duo, Core Duo, Celeron® M family processors with 533/667 MHz
- Intel® Embedded Processor Reference List (Intel® Longevity CPU):
  Core Duo Processor (T2300E) 1.66 G
  Core Duo Processor (T2500) 2.0G
  Celeron® M 530 1.73G
  Celeron® M 440 1.86G

### Chipset

- Intel® 945GME Graphics Memory Controller Hub (GMCH)
- Intel® 82801 GBM ICH7 Mobile digital Home (ICH7-M)

### Main Memory

- 2 x 240 pin DDR2 533/667 DIMM sockets, up to 2 GB unbuffered non-ECC DDR SDRAM (Max. 3G Capacity supported)

### Expansion Slot

- Supports one 32-bit/ 33MHz PCI card
- PCI Length support:
  160 mm (When 2.5" HDD installed)
  240 mm (When no HDD is installed)

### I/O Interface-Front

- Customized logo(Optional)
- HDD Access/Power/LAN status LEDs
- 2 x USB 2.0 ports
- ATX power on/off switch

### I/O Interface-Rear

- 2 x PS/2 connectors (KB/MS)
- 1 x VGA connector
- 4 x USB 2.0 ports
- 2 x GbE LAN Ports
- 4 x Serial Ports, with 1x DB44 connector ( Three ports support RS232, One port supports RS232/422/485)
- 1 x DVI interface
- 1 x Mic-in and 1 x Speaker-out
- 1 x 2-pin connector output for remote power on/off switch
- DC-in power connector for +12V ~+30V DC power input

### Device

- 1 x On-board CompactFlash socket
- 1 x Internal 2.5" HDD drive bay

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### Power Input

- DC to DC power designed for on-board support of 12 to 30 VDC (Max: 120 Watts)
- 1 x External 120 W AC adapter

  Power input: 100 to 240 V AC 2 A 50/60 Hz

  Power output: 19 VDC

### Dimensions

- 195 mm (W) x 268 mm (D) x 80 mm (H) (7.6" x 10.5" x 3.1")

### Construction

- Aluminum chassis with fan-less design

### Environment

- Operating temperature:

  Ambient with air flow : 0°C to 40°C (CPU loading: 70% less continently)

- NISE 3110 Tcase ( Surface Temperature of Chassis)
  5°C to 50°C (W/HDD)
  -10°C to 55°C (W/CF card only)
- Storage temperature: -20°C to 80°C
  Relative humidity: 10% to 90% (Non-condensing)

### Certifications

- CE approval
- FCC

## 1.4 Ordering Information

**Barebone**
**NISE 3110 (P/N: 10J0031100X0)** RoHS Compliant
Intel® Core 2 Duo, Core Duo, Celeron® M Fanless Bare-Bone System, with one PCI expansion slot

## 1.5 Packing Materials Checklist

| Description | Q'ty |
|---|---|
| Power Adapter 120W | 1 |
| Power Connector 2P | 1 |
| COM cable<br>(1 x 44 pin connector to 4 x DB9 ports) | 1 |
| IDE Cable | 1 |
| EBC 576 CD Driver | 1 |
| EBC 576 Quick Reference Guide | 1 |
| Sliicone Heatsink Compound | 1 |

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## 1.6 Board Layout

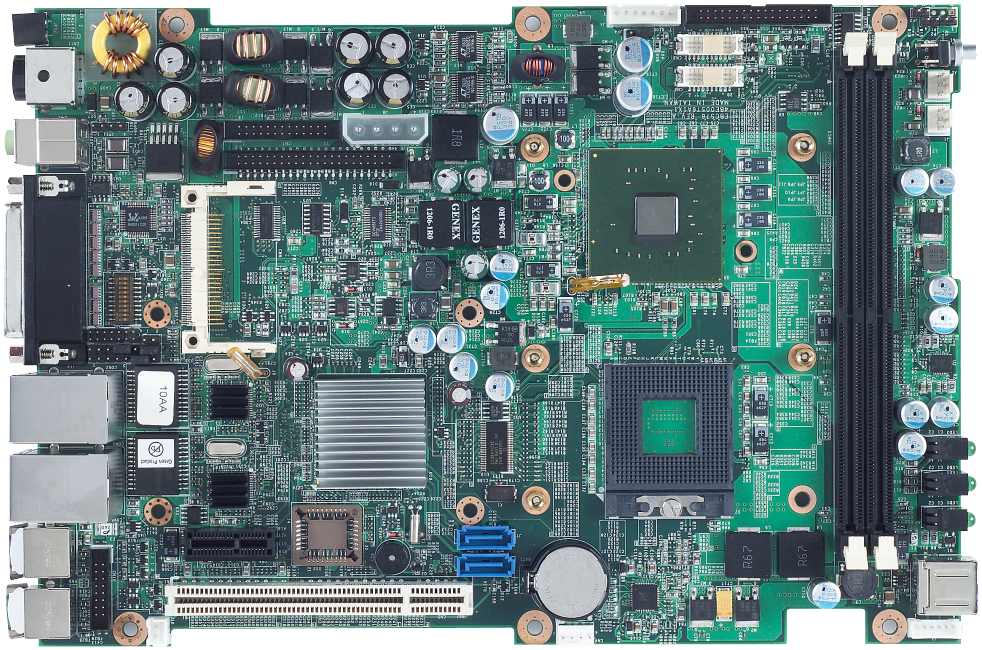

Figure 1.2 Top View of the EBC 576

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## 1.7 Dimension Drawing

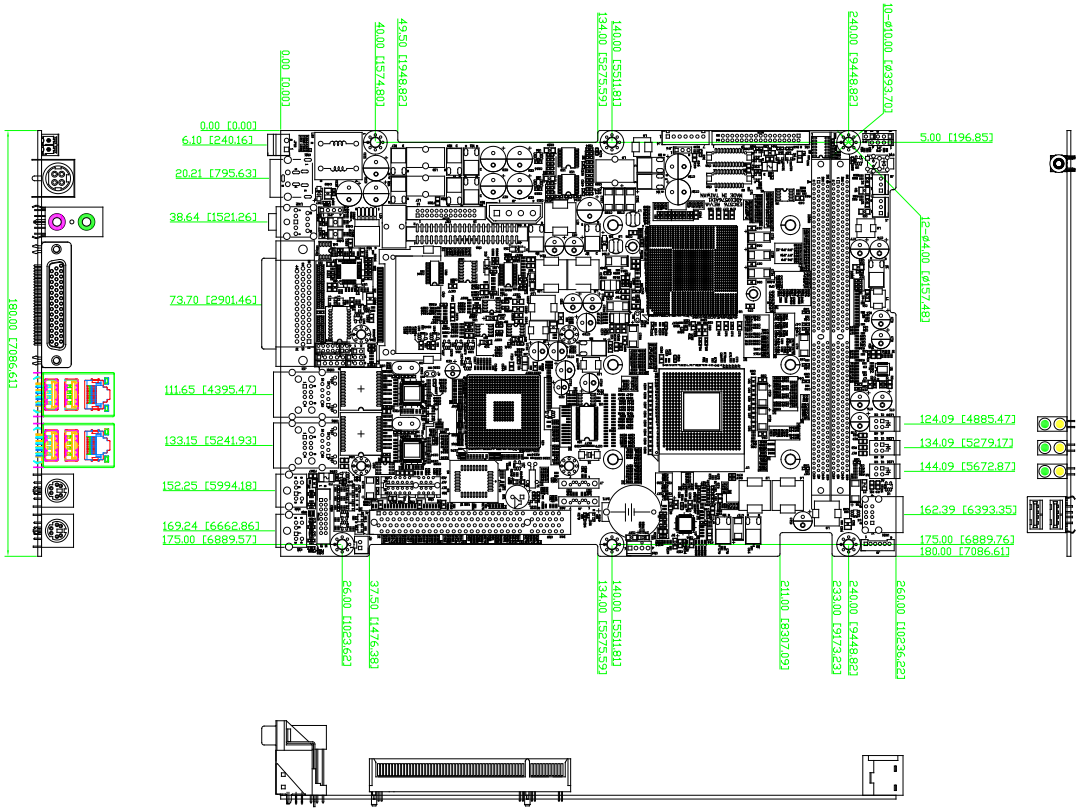


**Figure 1.3: Dimension drawing of EBC 576**


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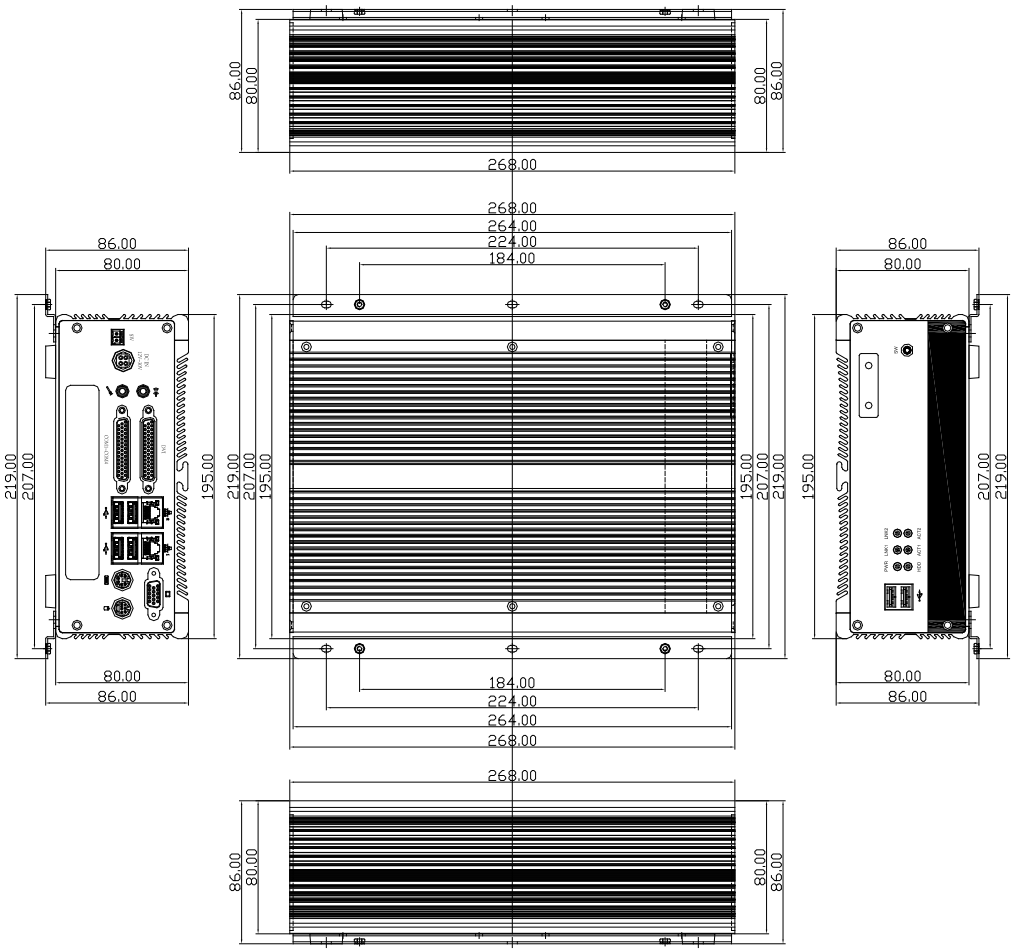


**Figure 1.4 Dimension drawing of NISE 3110**

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# Chapter 2 Jumper Setting

## 2.1 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

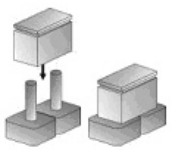
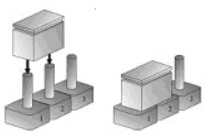
| | | |
|---|---|---|
| The illustrations on the right show a 2-pin jumper. When the jumper cap is placed on both pins, the jumper is SHORT. If you remove the jumper cap, or place the jumper cap on just one pin, the jumper is OPEN. |  |  |
| | Open (Off) | Short (On) |
| These illustrations show a 3-pin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

**Table 2.1 Setting Jumpers**

## 2.2 PCI Device interrupt and BUS Assignments

| | Configuration BUS/DEVIC/FUNCTION | PCI INT# | REQ# /GNT# |
|---|---|---|---|
| PCI Slot1 | 1 / 17 / 0<br>1 / 18 / 0 | A,B,C,D<br>D,A,B,C | 0,1 |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## 2.3 Location of Jumpers

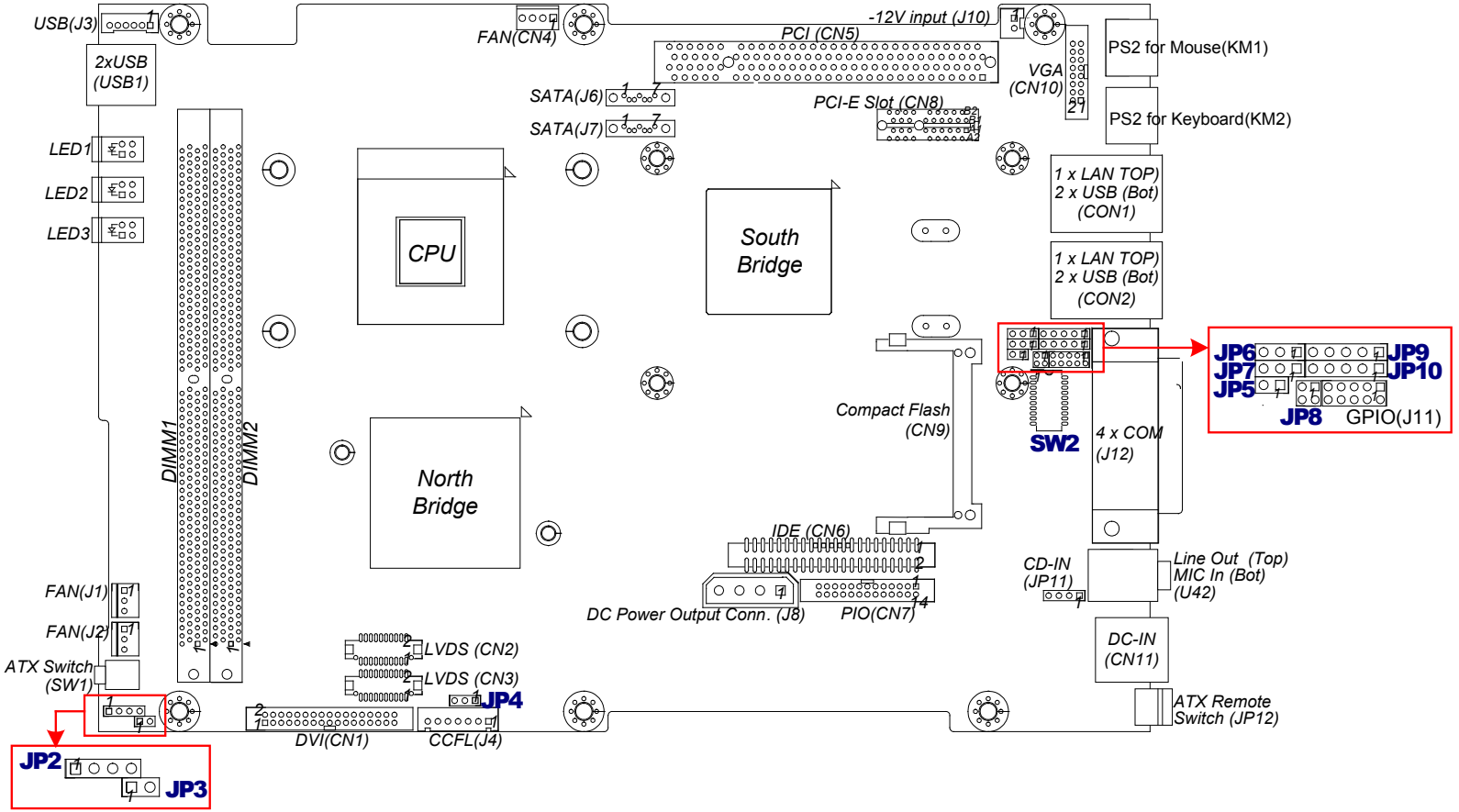


**Figure 2-1: Jumper Location of EBC 576**

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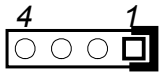
## 2.4 Definition of Jumpers

✠ JP2: ATX power Switch (1x4 pin header,2.54mm)

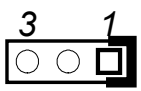



| PIN | Def. | PIN | Def. | PIN | Def. |
|---|---|---|---|---|---|
| 1 | ATX Power on | 2 | ATX Power on | 3-4 | GND |

✠ JP3: Hardware Reset (1x2 pin header,2.54mm)


| PIN | Def. | PIN | Def. |
|---|---|---|---|
| 1 | Reset | 2 | GND |

✠ JP4:Panel Power Select (1x3 pin header,2.54mm)

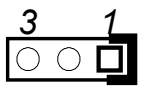



| PIN | Def. |
|---|---|
| 1 | VCC5 |
| 2 | Panel Power |
| 3 | VCC3 |

✠ JP5: $I^2C$ (1x2 pin header,2.54mm)

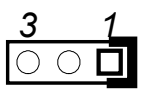

| Pin | Def. | Pin | Def. |
|---|---|---|---|
| 2 | Data | 1 | CLK |

✠ JP6: CMOS Status Select (1x3 pin header,2.54mm)




| Pin | Status | Function |
|---|---|---|
| 1-2 | Short* | Normal Operation |
| 2-3 | Short | Clear CMOS DATA |

✠ JP7: CF Master / Slave Selection (1x3 pin header,2.54mm)




**<1-2 pin short= Master / **2-3 pin short= Slave>**

| PIN | Def. | PIN | Def. | PIN | Def. |
|---|---|---|---|---|---|
| 3 | Slave (GND) | 2 | CF_CSEL | 1 | Master (VCC5) |

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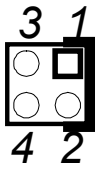
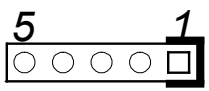
✠ JP8: GPI/O Programming LED (2x2 pin header,2.0mm)



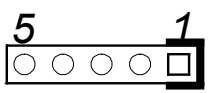

| Pin | Def. | Pin | Def. |
|---|---|---|---|
| 3 | GP21 | 1 | GP20 |
| 4 | GND | 2 | GND |

✠ JP9: IR Interface (1x5 pin header,2.54mm)




| PIN | Def. | PIN | Def. | PIN | Def. | PIN | Def. | PIN | Def. |
|---|---|---|---|---|---|---|---|---|---|
| 5 | IRTX | 4 | GND | 3 | IRRX | 2 | CIRRX | 1 | VCC5 |

✠ JP10: RI# Signal Power Select (1x5 pin header,2.54mm)



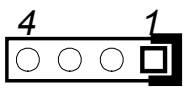

**<1-2 short: RI Power = 5v / 3-4 short: RI Power=12V / **4-5 short: Normal >**

| PIN | Def. | PIN | Def. | PIN | Def. | PIN | Def. | PIN | Def. |
|---|---|---|---|---|---|---|---|---|---|
| 5 | SP_RI2 | 4 | RI2 | 3 | +12V | 2 | RI2 | 1 | VCC5 |

✠ SW2: COM2 RS232/422/485 Select (2x10 DIP SWITCH)

| Mode | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| RS232* | OFF | OFF | OFF | ON | OFF | ON | OFF | OFF | OFF | OFF |
| RS422 | OFF | OFF | ON | OFF | ON | OFF | ON | ON | ON | ON |
| RS485 | ON | ON | OFF | ON | ON | OFF | OFF | OFF | OFF | ON |

✠ JP11: CD-IN (1x4 pin header, 2.54mm)




| Pin. | Def. |
|---|---|
| 1 | CD-IN-L |
| 2 | AUDIO GND PWR |
| 3 | AUDIO GND PWR |
| 4 | CD-IN-R |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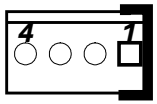
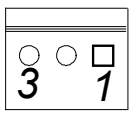
✠ CN4:CPU FAN (1x4 pinWafer, 2.54mm)




| Pin. | Def. |
|---|---|
| 1 | GND |
| 2 | +12V |
| 3 | SENSE |
| 4 | FAN_CTRL |

✠ J1/J2: SYSTEM FAN ( 1x 3 pin Wafer, 2.54mm)




| Pin. | Def. |
|---|---|
| 1 | GND |
| 2 | 12V |
| 3 | SENSE |

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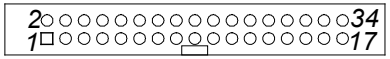
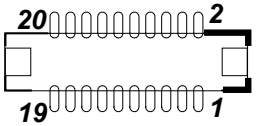
✠ CN1: DVI Interface (2x17 pin box header, 2.0mm)




| Pin. | Def. | Pin. | Def. |
|---|---|---|---|
| 1 | CAS_GND | 18 | HPDET |
| 2 | CAS_GND | 19 | DVI_DATA0# |
| 3 | DVI_DATA2# | 20 | DVI_DATA0 |
| 4 | DVI_DATA2 | 21 | CAS_GND |
| 5 | GND | 22 | NC |
| 6 | NC | 23 | NC |
| 7 | NC | 24 | GND |
| 8 | DDC_CLK | 25 | TLC |
| 9 | DDC_DATA | 26 | TLC# |
| 10 | NC | 27 | GND |
| 11 | DVI_DATA1# | 28 | GND |
| 12 | DVI_DATA1 | 29 | NC |
| 13 | CAS_GND | 30 | NC |
| 14 | NC | 31 | NC |
| 15 | NC | 32 | CAS_GND |
| 16 | DVI_VCC | 33 | CAS_GND |
| 17 | CAS_GND | 34 | NC |

✠ CN2/CN3: LVDS Connector (2x10 pin DF13)




| CN2 | | | |
|---|---|---|---|
| Pin. | Def. | Pin. | Def. |
| 1 | DDCCLK | 11 | LA_CLK_P |
| 2 | DDC_DATA | 12 | LA_DATAN1 |
| 3 | VDD | 13 | LA_CLK_N |
| 4 | LA_DATAP0 | 14 | GND |
| 5 | NC | 15 | GND |
| 6 | LA_DATAN0 | 16 | BACKLIGNT |
| 7 | NC | 17 | LA_DATAP2 |
| 8 | VDD | 18 | BACKLIGNT |
| 9 | GND | 19 | LA_DATAN2 |
| 10 | LA_DATAP1 | 20 | GND |

| CN3 | | | |
|---|---|---|---|
| Pin. | Def. | Pin. | Def. |
| 1 | DDCCLK | 11 | LB_CLK_P |
| 2 | DDC_DATA | 12 | LB_DATAN1 |
| 3 | VDD | 13 | LB_CLK_N |
| 4 | LB_DATAP0 | 14 | GND |
| 5 | NC | 15 | GND |

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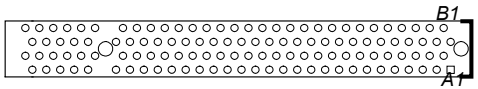
| | | | |
|---|---|---|---|
| 6 | LB_DATAN0 | 16 | BACKLIGNT |
| 7 | NC | 17 | LB_DATAP2 |
| 8 | VDD | 18 | BACKLIGNT |
| 9 | GND | 19 | LB_DATAN2 |
| 10 | LB_DATAP1 | 20 | GND |

✠ CN5: PCI-SLOT (Standard PCI 32 Bit Connector)




| Pin. | Def. ( Side B) | Def. ( Side A) |
|---|---|---|
| 1 | -12V | GND |
| 2 | GND | +12V |
| 3 | GND | +5V |
| 4 | NC | +5V |
| 5 | +5V | +5V |
| 6 | +5V | Interrupt A# |
| 7 | Interrupt B# | Interrupt C# |
| 8 | Interrupt D# | +5V |
| 9 | Connector capacitance 10pf to Ground | NC |
| 10 | Request#1 | +5V |
| 11 | Connector capacitance 10pf to Ground | NC |
| 12 | GND | GND |
| 13 | GND | GND |
| 14 | Clock1 | Grant#1 |
| 15 | GND | Reset# |
| 16 | Clock0 | +5V |
| 17 | GND | Grant#0 |
| 18 | Request#0 | GND |
| 19 | +5V | Power Management Event# |
| 20 | Address and Data 31 | Address and Data 30 |
| 21 | Address and Data 29 | +3.3V |
| 22 | GND | Address and Data 28 |
| 23 | Address and Data 27 | Address and Data 26 |
| 24 | Address and Data 25 | GND |
| 25 | +3.3V | Address and Data 24 |
| 26 | Command & Byte Enable#3 | Initialization Device Select |
| 27 | Address and Data 23 | +3.3V |
| 28 | GND | Address and Data 22 |
| 29 | Address and Data 21 | Address and Data 20 |
| 30 | Address and Data 19 | GND |
| 31 | +3.3V | Address and Data 18 |
| 32 | Address and Data 17 | Address and Data 16 |
| 33 | Command & Byte Enable#2 | +3.3V |
| 34 | GND | Frame# |
| 35 | Initiator Ready# | GND |
| 36 | +3.3V | Target Ready# |
| 37 | Device Select# | Device Select# |
| 38 | GND | GND |
| 39 | Lock# | Lock# |
| 40 | Parity Error# | Parity Error# |

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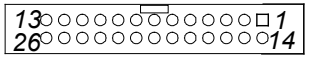
| | | |
|---|---|---|
| 41 | +3.3V | +3.3V |
| 42 | System Error# | System Error# |
| 43 | +3.3V | +3.3V |
| 44 | Command & Byte Enable#1 | Command & Byte Enable#1 |
| 45 | Address and Data 14 | Address and Data 14 |
| 46 | GND | GND |
| 47 | Address and Data 12 | Address and Data 12 |
| 48 | Address and Data 10 | Address and Data 10 |
| 49 | GND | GND |
| 50 | Connector Key | Connector Key |
| 51 | Connector Key | Connector Key |
| 52 | Address and Data 8 | Address and Data 8 |
| 53 | Address and Data 7 | Address and Data 7 |
| 54 | +3.3V | +3.3V |
| 55 | Address and Data 5 | Address and Data 5 |
| 56 | Address and Data 3 | Address and Data 3 |
| 57 | GND | GND |
| 58 | Address and Data 1 | Address and Data 1 |
| 59 | +5V | +5V |
| 60 | +5V | +5V |
| 61 | +5V | +5V |
| 62 | +5V | +5V |

✠ CN7: Parallel port (2x13 pin box header)




| Pin. | Def. | Pin. | Def. |
|---|---|---|---|
| 1 | STB# | 14 | AFD- |
| 2 | PD0 | 15 | ERR- |
| 3 | PD1 | 16 | INIT- |
| 4 | PD2 | 17 | NC |
| 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 |

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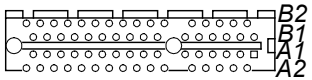
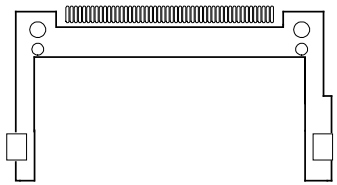
## CN8: PCI-E Slot




| Pin. | Def. ( Side B) | Def. ( Side A) |
|---|---|---|
| 1 | +12 volt power | NC |
| 2 | +12 volt power | +12 volt power |
| 3 | Reserved | +12 volt power |
| 4 | Ground | Ground |
| 5 | SMBus clock | NC |
| 6 | SMBus data | NC |
| 7 | Ground | NC |
| 8 | +3.3 volt power | NC |
| 9 | NC | 3.3v volt power |
| 10 | 3.3VSB | 3.3v volt power |
| 11 | WAKE# | PE_RESEET# |
| 12 | Reserved | Ground |
| 13 | Ground | REFCLK_P |
| 14 | TXP0 | REFCLK_N |
| 15 | TXN0 | Ground |
| 16 | Ground | RXP0 |
| 17 | SDVO_CTRLCLK | RXN0 |
| 18 | Ground | Ground |

## CN9: Compact Flash Socket (Type 2)



| Pin. | Def. | Pin. | Def. |
|---|---|---|---|
| 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 |

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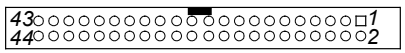
| | | | |
|---|---|---|---|
| 37 | HDIRQ14 | 38 | VCC |
| 39 | CF_SEL# | 40 | NC |
| 41 | IDERST# | 42 | SIORDY |
| 43 | SDREQ | 44 | SDDACK# |
| 45 | IDEACTP# | 46 | DIAG# |
| 47 | SDD8A | 48 | SDD9A |
| 49 | SDD10A | 50 | GND |

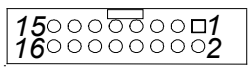
✠ CN12(Reverse)/ CN6 (Obverse): IDE Connectoe (2x44 pin box heade,2.0mm)

**<Note: CN12 and CN6 are co-layout>**




| Pin. | Def. | Pin. | Def. |
|---|---|---|---|
| 1 | RESET | 2 | GND |
| 3 | DD7 | 4 | DD8 |
| 5 | DD6 | 6 | DD9 |
| 7 | DD5 | 8 | DD10 |
| 9 | DD4 | 10 | DD11 |
| 11 | DD3 | 12 | DD12 |
| 13 | DD2 | 14 | DD13 |
| 15 | DD1 | 16 | DD14 |
| 17 | DD0 | 18 | DD15 |
| 19 | GND | 20 | NC |
| 21 | REQ | 22 | GND |
| 23 | IOW | 24 | GND |
| 25 | IOR | 26 | GND |
| 27 | IO_CH_RDY | 28 | DIAG |
| 29 | DACK#, | 30 | GND |
| 31 | IRQ_R | 32 | NC |
| 33 | DA1 | 34 | 66DET |
| 35 | DA0 | 36 | DA2 |
| 37 | CS0 | 38 | CS1 |
| 39 | ACT | 40 | GND |
| 41 | VCC5 | 42 | VCC5 |
| 43 | GND | 44 | NC |
| 41 | VCC5 | 42 | VCC5 |
| 43 | GND | 44 | NC |

✠ CN10: VGA Port (2x8 pin box header, 2.0mm)




| Pin. | Def. | Pin. | Def. |
|---|---|---|---|
| 1 | RED_VGA | 9 | VGA_VCC |
| 2 | GREEN_VGA | 10 | GND |
| 3 | BLUE_VGA | 11 | NC |
| 4 | NC | 12 | DATA_V |
| 5 | GND | 13 | HS_VGA |
| 6 | GND | 14 | VS_VGA |
| 7 | GND | 15 | CLK_V |
| 8 | GND | 16 | NC |

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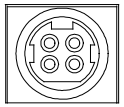
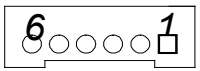
✠ CN11: Power Jack 4 pins



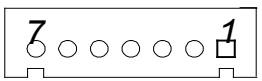
| Pin | Def, | Pin | Def, |
|---|---|---|---|
| 3-4 | GND | 1-2 | DC-IN |

✠ J3: Internal USB Connector ( 1x6 pin JST, 2.0mm)



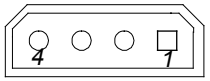

| Pin. | Def. | Pin. | Def. |
|---|---|---|---|
| 1 | VCC | 4 | USB_1N |
| 2 | USB_0N | 5 | USB_1P |
| 3 | USB_0P | 6 | GND |

✠ J4: CCFL (1x7 pin JST, 2.54mm)



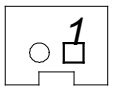

| Pin. | Def. | Pin. | Def. |
|---|---|---|---|
| 1 | +5V | 2 | +12V |
| 3 | +12V | 4 | Brightness Ctrl |
| 5 | GND | 6 | GND |
| 7 | Backlight Enable | | |

✠ J8: DC Power output Connector (1x4-pin power jack, 5.08mm)



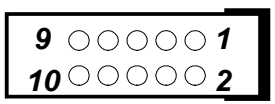

| Pin. | Def. | Pin. | Def. | Pin. | Def. | Pin. | Def. |
|---|---|---|---|---|---|---|---|
| 4 | VCC5 | 3 | GND | 2 | GND | 1 | +12v |

✠ J10: External 12 power input connector (1x2 pin JST, 2.5mm)




| Pin. | Def. | Pin. | Def. |
|---|---|---|---|
| 2 | GND | 1 | -12V |

✠ J11: External GPI/O Indicated LED (2x5 pin header, 2.0mm)




| Pin. | Def. | Pin. | Def. |
|---|---|---|---|
| 1 | +5V | 2 | GND |
| 3 | GP20: Output | 4 | GP24: Input |
| 5 | GP21: Output | 6 | GP25: Input |
| 7 | GP22: Output | 8 | GP26: Input |
| 9 | GP23: Output | 10 | GP27: Input |

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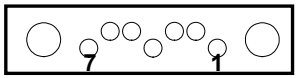
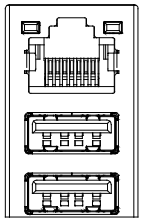
✠ J6/J7: SATA Connector (Standard Serial ATAII 1.27mm connector)




| J6 | | | |
|---|---|---|---|
| Pin. | Def. | Pin. | Def. |
| 1 | GND | 2 | TXP0 |
| 4 | GND | 3 | TXN0 |
| 7 | GND | 5 | RXN0 |
| | | 6 | RXP0 |
| J7 | | | |
| Pin. | Def. | Pin. | Def. |
| 1 | GND | 2 | TXP1 |
| 4 | GND | 3 | TXN1 |
| 7 | GND | 5 | RXN1 |
| | | 6 | RXP1 |

✠ CON1/ CON2: USB / LAN Port (RJ45 Jack combine with dual USB ports)



| CON1-A: | | | |
|---|---|---|---|
| Pin. | Def. | Pin. | Def. |
| 1 | VCC | 5 | VCC |
| 2 | USB_2N | 6 | USB_3N |
| 3 | USB_2P | 7 | USB_3P |
| 4 | GND | 8 | GND |
| CON1-B: | | | |
| 9 | TX0P_E | 19 | VCC3 |
| 10 | TX0N_E | 20 | LINK_E |
| 11 | TX1P_E | 21 | GND |
| 12 | TX2P_E | 22 | GND |
| 13 | TX2N_E | 23 | GND |
| 14 | TX1N_E | 24 | GND |
| 15 | TX3P_E | 25 | GND |
| 16 | TX3N_E | 26 | GND |
| 17 | ACT_E | 27 | GND |
| 18 | LINK_E | 28 | GND |

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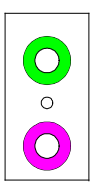
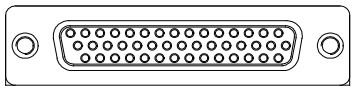
| CON2-A: | | | |
|---|---|---|---|
| Pin. | Def. | Pin. | Def. |
| 1 | VCC | 5 | VCC |
| 2 | USB_4N | 6 | USB_5N |
| 3 | USB_4P | 7 | USB_5P |
| 4 | GND | 8 | GND |
| CON2-B: | | | |
| 9 | TX0P_F | 19 | VCC3 |
| 10 | TX0N_F | 20 | LINK_F |
| 11 | TX1P_F | 21 | GND |
| 12 | TX2P_F | 22 | GND |
| 13 | TX2N_F | 23 | GND |
| 14 | TX1N_F | 24 | GND |
| 15 | TX3P_F | 25 | GND |
| 16 | TX3N_F | 26 | GND |
| 17 | ACT_F | 27 | GND |
| 18 | LINK_F | 28 | GND |

✠ U42: Audio Interface (Double layer Phone jack)



| | Def. | | Def. |
|---|---|---|---|
| GreenUpper | Line-Out | Pink Lower | MIC-In |

✠ J12: Serial Interface ( COM1~COM4, 44-pin D-SUB)



| COM1 (RS-232) | | | |
|---|---|---|---|
| Pin. | Def. | Pin. | Def. |
| 1 | DCD1 | 2 | RXD1 |
| 3 | TXD1 | 4 | DTR1 |
| 5 | GND | 6 | DSR1 |
| 7 | RTS1 | 8 | CTS1 |
| 9 | RI1 | 10 | GND |
| COM2 (RS-232) | | | |
| Pin. | Def. | Pin. | Def. |
| 11 | DCD2 | 12 | RXD2 |
| 13 | TXD2 | 14 | DTR2 |
| 15 | GND | 16 | DSR2 |
| 17 | RTS2 | 18 | CTS2 |
| 19 | RI2 | 20 | GND |
| COM3 (RS-232) | | | |
| Pin. | Def. | Pin. | Def. |
| 21 | DCD3 | 22 | RXD3 |
| 23 | TXD3 | 24 | DTR4 |
| 25 | GND | 26 | DSR3 |
| 27 | RTS3 | 28 | CTS3 |
| 29 | RI3 | 30 | GND |

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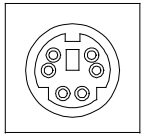
| COM4 (RS-232) | | | |
|---|---|---|---|
| Pin. | Def. | Pin. | Def. |
| 31 | DCD4 | 32 | RXD4 |
| 33 | TXD4 | 34 | DTR5 |
| 35 | GND | 36 | DSR4 |
| 37 | RTS4 | 38 | CTS4 |
| 39 | RI4 | 40 | GND |
| 41 | NC | 42 | NC |
| 43 | NC | 44 | NC |

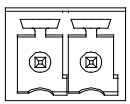
| COM2 (RS-422) | | | |
|---|---|---|---|
| Pin. | Def. | Pin. | Def. |
| 11 | TXD# | 12 | TXD |
| 13 | RXD | 13 | RXD# |
| 15 | GND | 16 | RTS |
| 17 | RTS# | 18 | CTS |
| 19 | CTS# | 20 | GND |
| COM2 (RS-485) :pin 19 is defined as an external Power source, which can be selected for 5V or 12V by JP10 | | | |
| Pin. | Def. | Pin. | Def. |
| 11 | TXD# | 12 | TXD |
| | RXD# | | RXD |
| 13 | Reserved | 13 | Reserved |
| 15 | Reserved | 15 | Reserved |
| 17 | Reserved | 17 | Reserved |
| 19 | Power Source | 20 | Reserved |

✠ KM1/ KM2 :P/S 2 Keyboard / Mouse ( 6-pin Mini DIMM )



| KM2 For Keyboard: | | | |
|---|---|---|---|
| Pin. | Def. | Pin. | Def. |
| 1 | KB_DATA | 2 | NC |
| 3 | GND | 4 | KM_VCC |
| 5 | KB_CLK | 6 | NC |
| KM1 For Mouse: | | | |
| Pin. | Def. | Pin. | Def. |
| 1 | LM_DATA | 2 | NC |
| 3 | GND | 4 | KM_VCC |
| 5 | LM_CLK | 6 | NC |

✠ JP12: ATX Remote On / Off Switch ( 2 pin Tterminal port, 3.81mm)



| Pin. | Def. |
|---|---|
| 1 | GND |
| 2 | PWR_ON |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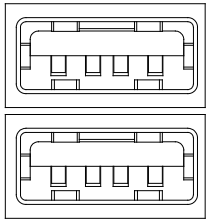
✠ USB1: USB Port (Dual USB port)



| Pin. | Def. | Pin. | Def. |
|---|---|---|---|
| 1 | VCC | 5 | VCC |
| 2 | USB_1N | 6 | USB_0N |
| 3 | USB_1P | 7 | USB_0P |
| 4 | GND | 8 | GND |

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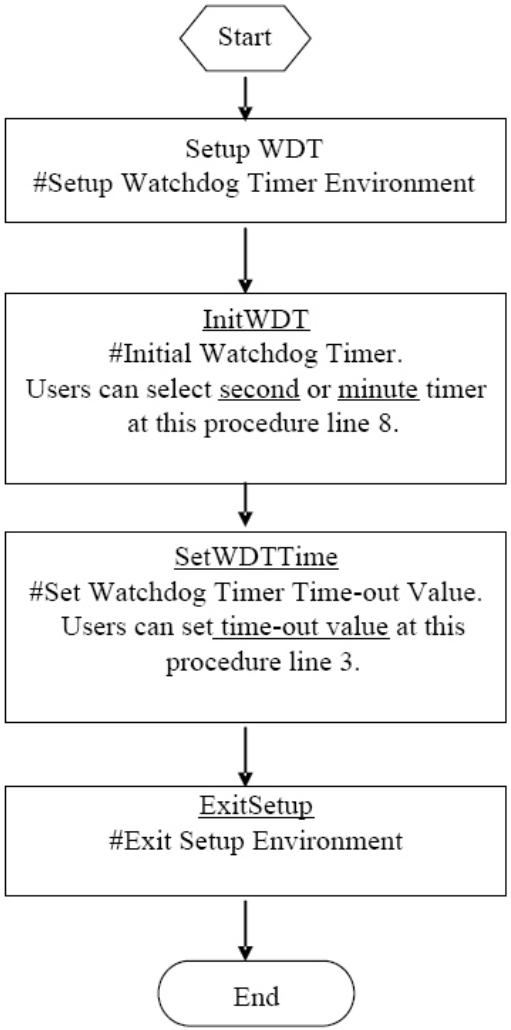
# Appendix A-Watchdog Timer




## Watchdog Timer Common library

==========

| | | |
|---|---|---|
| 0 | SetupWDT | PROC |
| 1 | mov | al,87h |
| 2 | out | 2eh, al |
| 3 | mov | al,01h |
| 4 | out | 2eh,al |
| 5 | mov | al,55h |
| 6 | out | 2eh,al |
| 7 | out | 2eh,al |
| 8 | | |
| 9 | mov | al,07h |
| 10 | out | 2eh,al |
| 11 | mov | al,07h |
| 12 | out | 2fh,al |
| 13 | ret | |
| 14 | SetupWDT | ENDP |

==========

| | | |
|---|---|---|
| 0 | InitWDT | PROC |
| 1 | mov | al,71h |
| 2 | out | 2eh,al |
| 3 | mov | al,30h |
| 4 | out | 2fh,al |
| 5 | | |

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| | | |
|---|---|---|
| 6 | mov | al,72h |
| 7 | out | 2eh,al |
| 8 | mov | al,0c0h -Here!! set 0c0h for second, set 40h for minute |
| 9 | out | 2fh,al |
| 10 | ret | |
| 11 | InitWDT | ENDP |

==========

| | | |
|---|---|---|
| 0 | SetWDTTime | PROC |
| 1 | mov | al,73h |
| 2 | out | 2eh,al |
| 3 | mov | al,5-Here!! Set 5 sec. (time out vale: 0x00-0xff) |
| 4 | out | 2fh,al |
| 5 | ret | |
| 6 | SetWDTTime | ENDP |

==========

| | | |
|---|---|---|
| 0 | ExitSetup | PROC |
| 1 | mov | al,02h |
| 2 | out | 2eh,al |
| 3 | mov | al,02h |
| 4 | out | 2fh,al |
| 5 | ret | |
| 6 | ExitSetup | ENDP |

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# Appendix B-GPIO Programming Guide

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Fan-less BOX Computer NISE 3110

| PIN | Description | PIN | Description |
|---|---|---|---|
| 1 | +5V | 2 | GND |
| 3 | GP20:OUTPUT | 4 | GP24:INPUT |
| 5 | GP21:OUTPUT | 6 | GP25:INPUT |
| 7 | GP22:OUTPUT | 8 | GP26:INPUT |
| 9 | GP23:OUTPUT | 10 | GP27:INPUT |

IO ADDRESS : 801H

Bit0 : GP20
Bit1 : GP21
Bit2 : GP22
Bit3 : GP23
Bit4 : GP24
Bit5 : GP25
Bit6 : GP26
Bit7 : GP27

Note:

- GPIO Pin-20 on EBC576/NISE3110 has been programmed for Smart Panel Computer to indicate the system power status to SPC.
- GPIO Pin-20 signal level is controlled by BIOS, high defined as system power up and low defined as system shutdown with standby power.

*If GPIO slave input port: Reflects the incoming logic levels of the pins, regardless of whether the pin is defined as an input or output. Writes to this register[bit:7..4] have no effect.

*If GPIO slave output port: Controls the levels of the GPIO output pins defined as outputs. Bit values in this register[bit:3..0] have no effect on pins defained as inputs.
Read form this register reflects the saved value last written, not the actual pin value.

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# Appendix C-Power Consumption

| DC Line 19V: (System-Only) | CPU Type: Intel Core 2 Duo T7400 2.16GHz / 06F6/C7 | |
|---|---|---|
| | +19V | Total Watts |
| Full-Loading Mode | 2.61A | 49.59W |
| Idle Mode | 1.12A | 21.28W |
| Standby Mode (HDD Drive Power-Down) | 1.07A | 20.33W |

Test Criteria:

- Test configuration should include test board, HDD drive.
- Full loading mode should utilize CPU 100% with run Burn-in test program.
- Idle mode will utilize CPU loading below 5%, and there is no data or application running.

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# Appendix D- Installstion Guide

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## D.1 Handling Precautions

- Always disconnect the unit from the power outlet whenever you are installing or fixing a component inside the chassis.
- If possible, always wear a grounded wrist strap when you are installing or fixing a component inside the chassis. 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 EBC575 board) by the edges only. Do not touch the components on the board unless it is necessary to do so. Do not flex or stress the circuit board.
- Use the correct screws and do not overly tighten them.
- Keep the original packaging and static-protective bag in case the unit has to be returned.

## D.2 Packing List

### Accessories

- Quick Reference Guide x 1
- COM Port Cable x 1
- 2-pin Phoenix power connector x1
- CD Driver x 1
- 120W Power Adapter x 1
- IDE cable x 1

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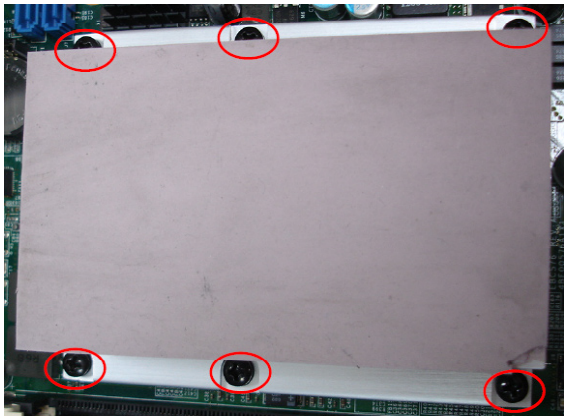
# D.3 Installation

## 1.Open Top Cover

✠ Step 1-1: Remove 6 screws from the top.

## 2.Install/Remove CPU

✠ Step 2-1: Unscrew 6 screws on heat sink



✠ Step 2-2: Pay attentions to CPU installation

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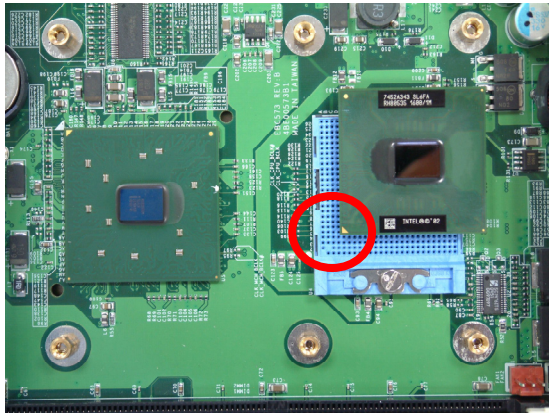
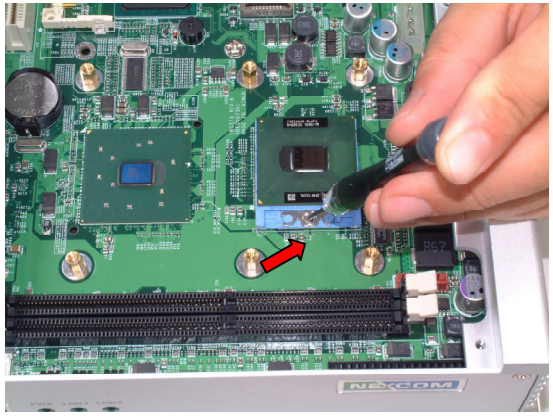
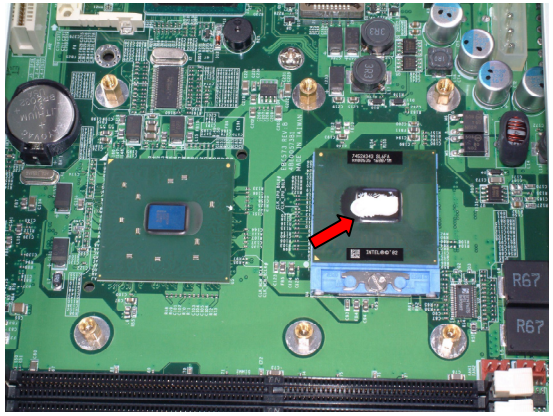
✠ Step 2.3: Be aware that the beveled corner of the CPU as shown in the picture is aligned to the direction of the socket.



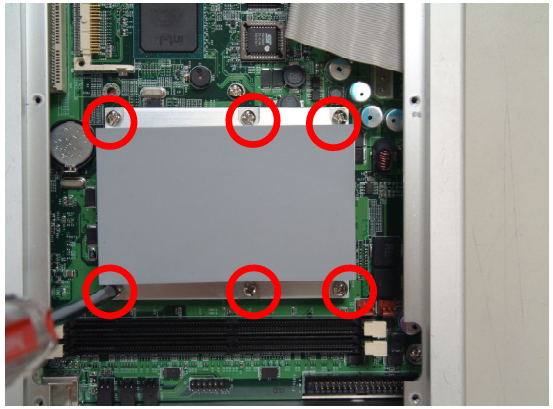
✠ Step 2.4: Secure the CPU



✠ Step 2.5: Insert heat sink silicon compound




✠ Step 2.6: Lock the heat sink



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## 3. Install/Remove RAM module

✠ Step 3-1: Insert either 1 or 2 DDR

## 4.Close Top Cover

✠ Step 4-1: Secure the top cover with screws

## 5.Open Bottom Cover

✠ Step 5-1: Remove the screws on the bottom side

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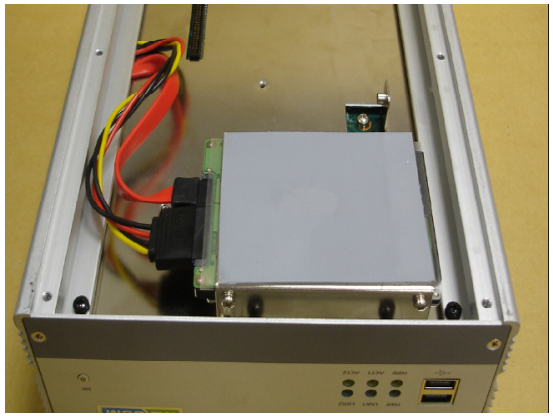
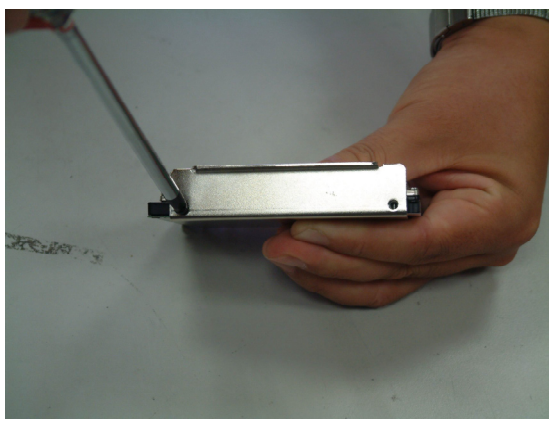
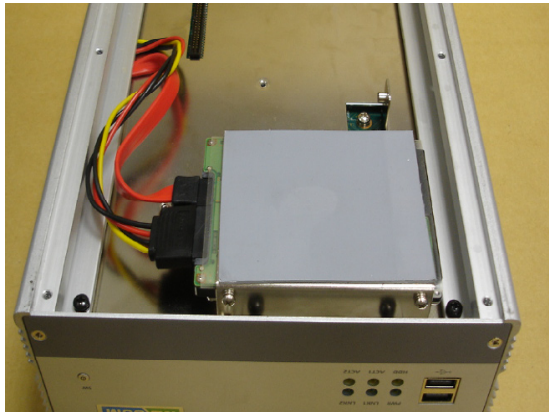
## 6.Install HDD



✠ Step 6-1: Unscrew HDD stand



✠ Step 6-2: Secure 2.5” HDD



✠ Step 6-3: Place finished stand with HDD back to the chassis and make sure it is properly secured. Plug HDD cable and pay attention to SATA power cable and SATA cable at the right position.

## 7.Close Bottom Cover

✠ Step7-1: Lock bottom cover with screws

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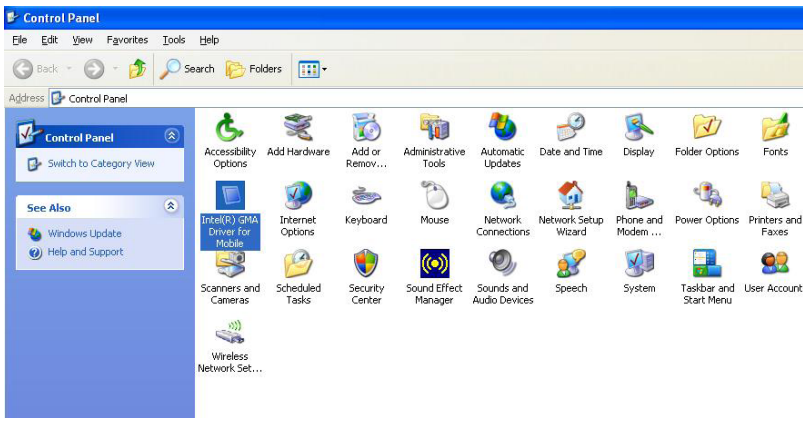
# Appendix E- Display Setting

Since the chipset belongs to Intel mobile group, LVDS is the default of display. Once VGA port is not linked with monitor when power on the NISE system, LVDS will be the first display automatically aftwards. Follow below steps to select the VGA/DVI monitor as the default display for your need.

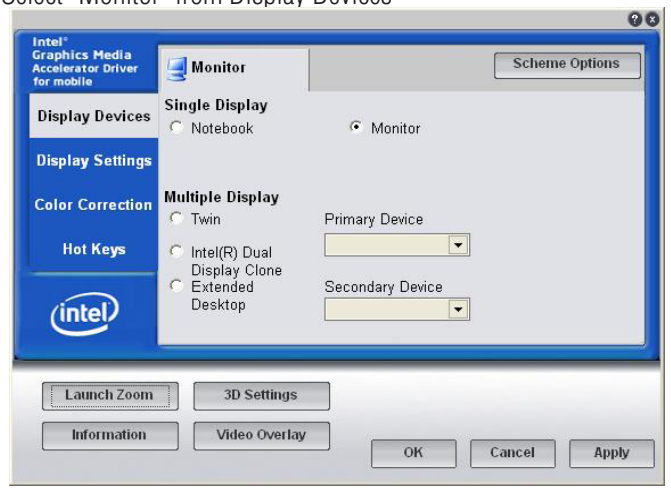
After setting, press "CRTL + ALT + F1" to enable monitor as the main display if have the same situation.

✠ Have NISE system linked with VGA/DVI monitor

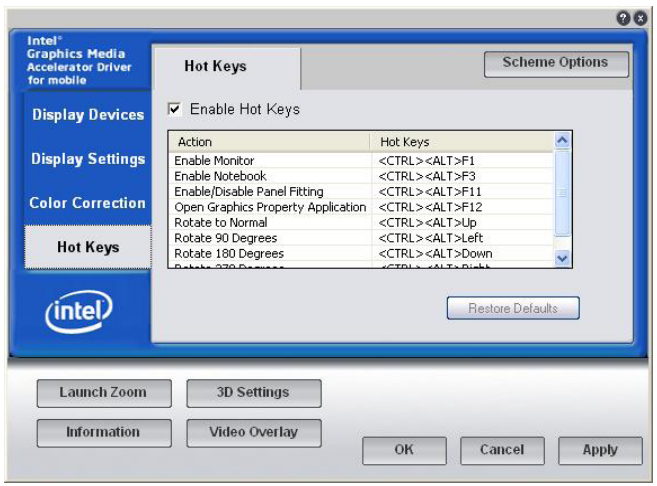
✠ Select "Intel GMA Driver for Mobile" from Control Panel




✠ Select "Monitor" from Display Devices




✠ Select "Enable Hot Keys" from Hot Keys





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