NEXCOM International Co., Ltd.

Industrial Computing Solutions

COM Express Type 2
ICEK 268-T2 (ICES 268 and ICEB 8050C)

Starter Kit User Manual

NEXCOM International Co., Ltd.
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Preface

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Acknowledgements

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Regulatory Compliance Statements

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

Declaration of Conformity

FCC

This equipment has been tested and verified to comply with the limits for a Class B 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

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.

RoHS Compliance

NEXCOM RoHS Environmental Policy and Status Update

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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 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 to 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.

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

Warranty and RMA

NEXCOM 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 2 years, 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.

NEXCOM Return Merchandise Authorization (RMA)

- 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 components from the card, such as CPU and RAM. If the components were suspected as part of the problems, please note clearly which components are included. Otherwise, NEXCOM is not responsible for the devices/parts.
- Customers are responsible for the safe packaging of defective products, making sure it is durable enough to be resistant against further damage and deterioration during transportation. In case of damages occurred during transportation, the repair is treated as "Out of Warranty."
- Any products returned by NEXCOM to other locations besides the customers' site will bear an extra charge and will be billed to the customer.

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.

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 cannot be repaired. Ex: motherboard, power supply, etc.
- Replace with 3rd party products if needed.
- If RMA goods can not be repaired, NEXCOM will return it to the 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 the customer without any charge.

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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.

Cautions

Electrostatic discharge (ESD) can damage system 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.

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Safety Information

Before installing and using the device, 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 heating device.
- The load of the system unit does not solely rely for support from the rackmounts located on the sides. Firm support from the bottom is highly necessary in order to provide balance stability.
- The computer is provided with a battery-powered real-time clock circuit. There is a danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Discard used batteries according to the manufacturer's instructions.

Installation Recommendations

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 grounding strap
- An anti-static pad

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

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Safety Precautions

1. Read these safety instructions carefully.

2. Keep this User Manual for later reference.

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

4. For plug-in equipment, the power outlet socket must be located near the equipment and must be easily accessible.

5. Keep this equipment away from humidity.

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

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

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

9. Place the power cord in a way so that people will not step on it. Do not place anything on top of the power cord. Use a power cord that has been approved for use with the product and that it matches the voltage and current marked on the product's electrical range label. The voltage and current rating of the cord must be greater than the voltage and current rating marked on the product.

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

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

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

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

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

15. Do not place heavy objects on the equipment.

16. The unit uses a three-wire ground cable which is equipped with a third pin to ground the unit and prevent electric shock. Do not defeat the purpose of this pin. If your outlet does not support this kind of plug, contact your electrician to replace your obsolete outlet.

17. CAUTION: DANGER OF EXPLOSION IF BATTERY IS INCORRECTLY REPLACED. REPLACE ONLY WITH THE SAME OR EQUIVALENT TYPE RECOMMENDED BY THE MANUFACTURER. DISCARD USED BATTERIES ACCORDING TO THE MANUFACTURER'S INSTRUCTIONS.

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Technical Support and Assistance

1. For the most updated information of NEXCOM products, visit NEXCOM's website at www.nexcom.com.

2. For technical issues that require contacting our technical support team or sales representative, please have the following information ready before calling:
   - Product name and serial number
   - Detailed information of the peripheral devices
   - Detailed information of the installed software (operating system, version, application software, etc.)
   - A complete description of the problem
   - The exact wordings of the error messages

Warning!

1. Handling the unit: carry the unit with both hands and handle it with care.

2. Maintenance: to keep the unit clean, use only approved cleaning products or clean with a dry cloth.

3. CompactFlash: Turn off the unit's power before inserting or removing a CompactFlash storage card.

Conventions Used in this Manual

Warning:
Information about certain situations, which if not observed, can cause personal injury. This will prevent injury to yourself when performing a task.

Caution:
Information to avoid damaging components or losing data.

Note:
Provides additional information to complete a task easily.

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Global Service Contact Information

Headquarters

NEXCOM International Co., Ltd.
15F, No. 920, Chung-Cheng Rd.,
ZhongHe District, New Taipei City, 23586,
Taiwan, R.O.C.
Tel: +886-2-8226-7786
Fax: +886-2-8226-7782
www.nexcom.com

America

USA

NEXCOM USA
2883 Bayview Drive,Fremont CA 94538,
USA
Tel: +1-510-656-2248
Fax: +1-510-656-2158
Email: sales@nexcom.com
www.nexcom.com

Asia

Taiwan

Central Taiwan Office
16F, No.250, Sec. 2, Chongde Rd.,
Beitun Dist., Taichung City 406, R.O.C.
Tel: +886-4-2249-1179
Fax: +886-4-2249-1172
Email: sales@nexcom.com.tw
www.nexcom.com.tw

Japan

NEXCOM Japan
9F, Tamachi Hara Bldg.,4-11-5, Shiba Minato-ku,
Tokyo, 108-0014, Japan
Tel: +81-3-5419-7830
Fax: +81-3-5419-7832
Email: sales@nexcom-jp.com
www.nexcom-jp.com

China

NEXCOM China
2F, Block 4, Venus Plaza, Bldg. 21,
ZhongGuanCun Software Park, No. 8,
Dongbeiwang West Rd., Haidian District,
Beijing, 100193, China
Tel: +86-10-8282-5880
Fax: +86-10-8282-5955
Email: sales@nexcom.cn
www.nexcom.cn

Shanghai Office
Room 1505, Greenland He Chuang Bldg.,
No. 450 Caoyang Rd.,
Shanghai, 200062, China
Tel: +86-21-6150-8008
Fax: +86-21-3251-6358
Email: sales@nexcom.cn
www.nexcom.cn

Nanjing Office
Hall C, Block 17, Tian Xing Cui Lang Bldg.,
No. 49 Yunnan North Rd.,
Nanjing, 210018, China
Tel: +86-25-8315-3486
Fax: +86-25-8315-3489
Email: sales@nexcom.cn
www.nexcom.cn

Shenzhen Office
Western Room 708, Block 210,
Tairan Industry & Trading Place,
Futian Area, Shenzhen,
518040, China
Tel: +86-755-8332-7203
Fax: +86-755-8332-7213
Email: sales@nexcom.cn
www.nexcom.cn

Wuhan Office
1-C1804/ 1805, Mingze Liwan,
No. 519 South Luoshi Rd.,
Hongshan District,
Wuhan, 430070, China
Tel: +86-27-8722-7400
Fax: +86-27-8722-7400
Email: sales@nexcom.cn
www.nexcom.cn

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Chengdu Office
9F, Shuxiangxie, Xuefu Garden,
No.12 Section 1, South Yihuan Rd.,
Chengdu, 610061, China
Tel: +86-28-8523-0186
Fax: +86-28-8523-0186
Email: sales@nexcom.cn
www.nexcom.cn

Europe
France
NEXCOM France
La Grande Arche-Paroi Nord,
92044 Paris La Défense, France
Tel: +33 (0) 1 40 90 33 35
Fax: +33 (0) 1 40 90 31 01
Email: sales.fr@nexcom.eu
www.nexcom.eu

Germany
NEXCOM GmbH
Leopoldstraße Business Centre,
Leopoldstraße 244,
80807 Munich, Germany
Tel: +49-89-208039-278
Fax: +49-89-208039-279
Email: sales.de@nexcom.eu
www.nexcom.eu

Italy
NEXCOM ITALIA S.r.l
Via Gaudenzio Ferrari 29,
21047 Saronno (VA), Italia
Tel: +39 02 9628 0333
Fax: +39 02 9286 9215
Email: nexcomitalia@nexcom.eu
www.nexcomitalia.it

United Kingdom
NEXCOM EUROPE
10 Vincent Avenue,
Crownhill Business Centre,
Milton Keynes, Buckinghamshire MK8 0AB,
United Kingdom
Tel: +44-1908-267121
Fax: +44-1908-262042
Email: sales.uk@nexcom.eu
www.nexcom.eu

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Package Contents

Before continuing, verify that the ICEK 268-T2 package that you received is complete. Your package should have all the items listed in the following table.

Item	Description	Qty
1	ICES 268	1
2	ICEB 8050C	1
3	Built-in 10.4" LED LCD Panel	1
4	Built-in 150W Flex-ATX power supply for AC 110V/220V input	1
5	NEXCOM USB card containing ICEK 268-T2 Design-in documentation	1

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Ordering Information

The following information below provides ordering information for ICEK 268-T2.

ICES 268 (P/N: 10K00026800X0)

COM Express type 2, basic Module QM77 support Intel® 3rd Generation Core™ rPGA988 embedded processors, non-ECC DDR3/ 2x SO-DIMMs

ICES 268 F-kit (P/N: 10K00026801X0)

COM Express Active fan kits with heat-spreader, heat-sink and cooling fan for ICES 268

ICEB 8050C (P/N: 10KB0805001X0)

COM Express Type 2, COM.0 Rev. 2.0 Evaluation CRB, VGA/ LVDS/ 8x USB 2.0/ 2x COM/ GbE/ LPT/ 5.1 HD/ SPDIF, CF/ IDE/ mSATA/ CFast/ PCIe x16/ PCIe x4 PCIe x1/ PCI/ mPCIe, ATX power input

ICEK 8050C-T2 (P/N: MISC by Project Registered)

COM Express Type 2 Starter Kit ready for NEXOM COM Express compact/ basic modules assembly SO-DIMM system memory with passive/ active fan-sink onto Type 2 carrier ICEB8050C with bootable Mini-SATA/ CFast-SSD pre-load Win 7 trial version OS with 10.4" LCD/ LVDS display and built-in Flex-ATX PSU AC 110/220V Input

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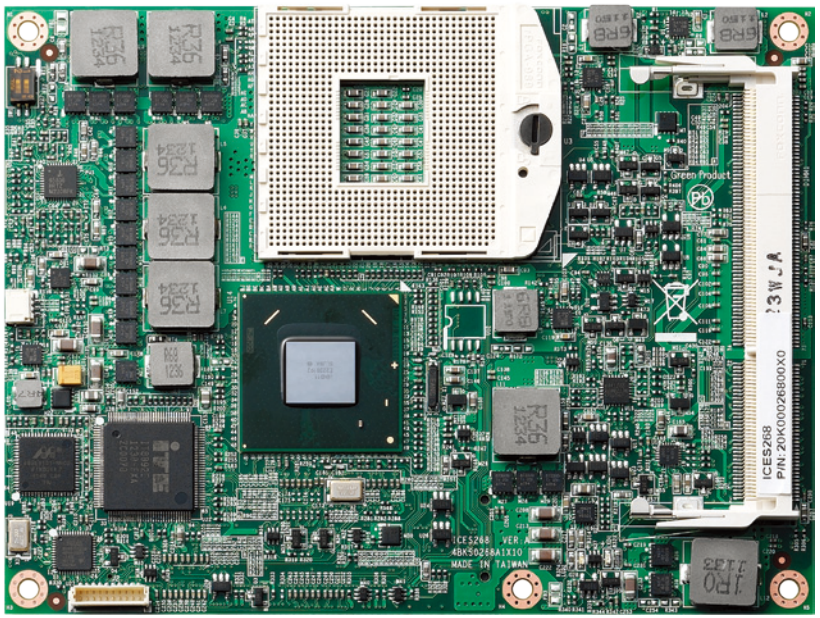
Chapter 1: Product Introduction

Overview - ICES 268



Key Features

- Intel® 3rd generation Intel® Embedded Core™ rPGA988 embedded processors family
- Intel® QM77 PCH (HM76) chipset support PICMG COM.0 Rev. 2.0 Type 2, pin-outs
- Support two DDR3 SO-DIMMs 1333/1600 non-ECC up to 16GB
- Support PCIex16 (Gen3.0), 5x PCIex1, 12x USB2.0, 2x SATA3.0/ 2x SATA2.0 and 1x GbE
- Support VGA, dual channels 18/24-bit LVDS and optional 1x DDI/SDVO by PEG
- Dimension: 95mm (W) x 125mm (L)

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Hardware Specifications

CPU Support

- Support Intel® 3rd generation Core™ i7/i5/i3 embedded rPGA988 processors
  - Intel® Core™ i7-3610QE (4x 2.3GHz/ 6MB cache/ Max. TDP 45W)
  - Intel® Core™ i7-3610ME (2x 2.7GHz/ 3MB cache/ Max. TDP 35W)
  - Intel® Celeron® B810 (2x 1.6GHz/ 2MB cache/ Max. TDP 35W)

Main Memory

- Two DDR3 SO-DIMMs, 1333/1600 MHz SDRAM non-ECC up to 16GB

Platform Control Hub

- Intel® QM77 PCH (optional HM76) chipset

BIOS

- AMI UEFI System BIOS
- Plug and play support
- Advanced Power Management and ACPI support

Display

- Intel® HD graphics with DX11 support and supports triple independent displays
- One PCI Express x16 Lane (Gen 3.0) down to the carried board
- Supports VGA, single/dual channels LVDS 18/24-bit interfaces
- Optional 1x DDI port B support HDMI, DVI, DisplayPort and SDVO by PEG with EBK-A2HDMI

Audio

- HD audio interface

On-board LAN

- Intel® 82579LM Gigabit Ethernet, support iAMT 8.0 (supported by QM77 only)
- Support boot from LAN, wake on LAN function
- Signals down to I/O board

COM Express Connector

- AB
  VGA/ LVDS/ 8x USB 2.0, HD Audio/ 2x SATA3.0, 2x SATA 2.0/ GbE/ GPIO/ LPC bus/ 5 x PCIex1/ SMBus (I2C)/ SPI BIOS / SPK out
- CD
  PCIex16 (Gen. 3.0) / PCI (v2.3)/ IDE

Power Requirements

- +12V, +5VSB, +3.3V RTC power

Dimensions

- 95mm (W) x 125mm (L)

Environment

- Board level operating temperatures: -15°C to 60°C
- Storage temperatures: -20°C to 80°C
- Relative humidity:
- 10% to 90% (operating, non-condensing)
- 5% to 95% (non-operating, non-condensing)

Certifications

- CE approval
- FCC Class A

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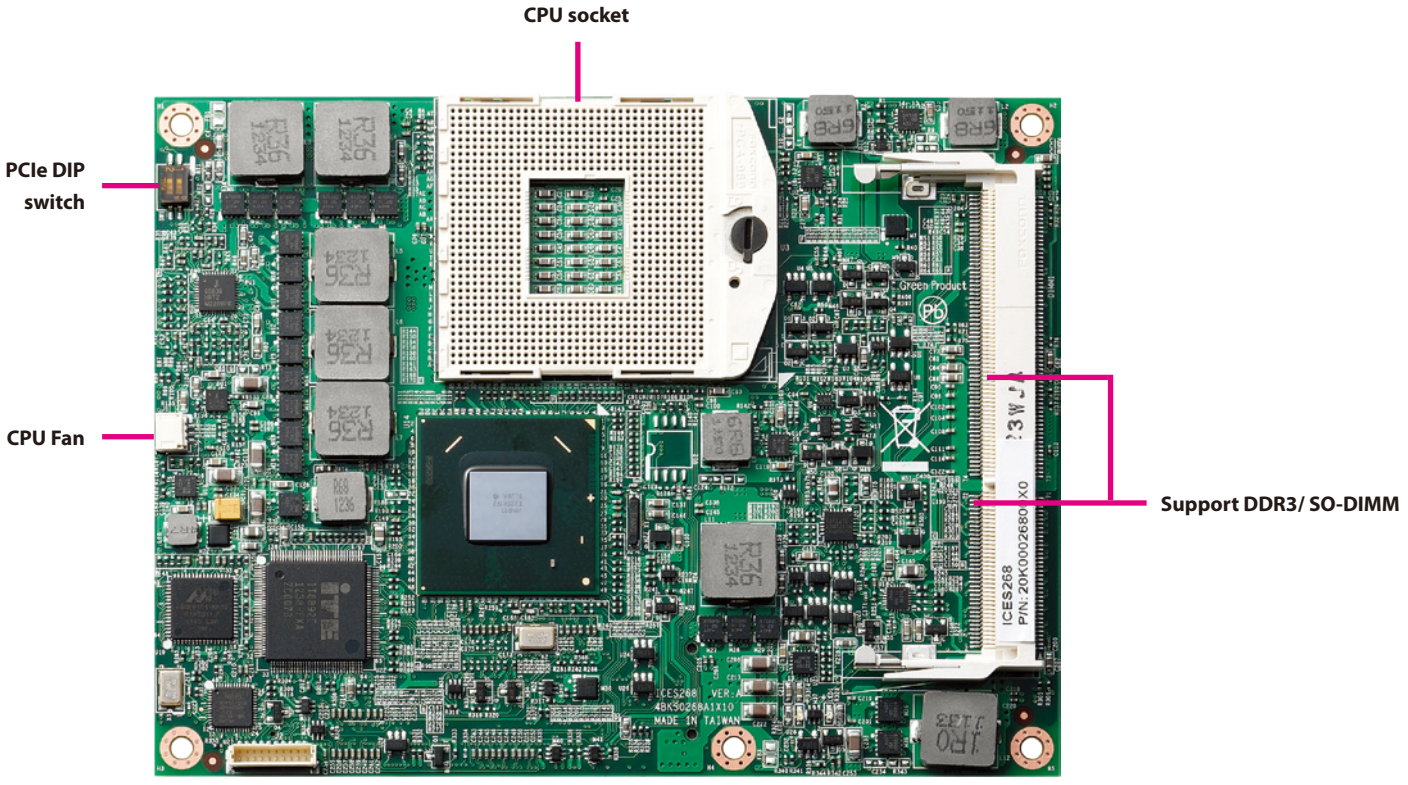
Knowing Your ICES 268



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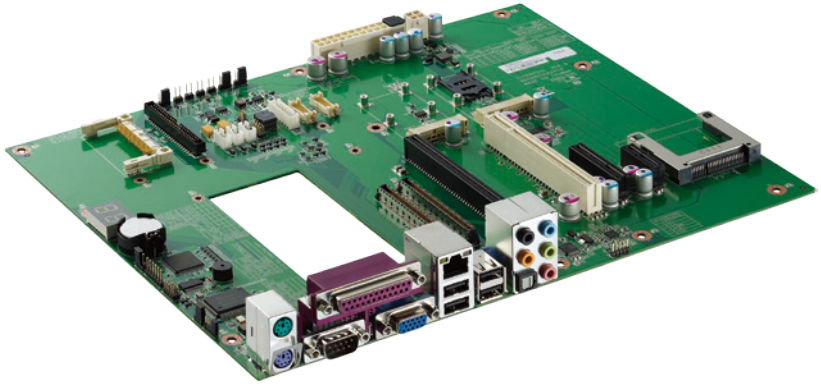
Overview - ICEB 8050C



Key Features

- COM Express COM.0, Rev2.0 evaluation carrier, ATX form-factor
- Support Type 2 pin-outs, COMe Extended/ Basic/ Compact Module
- Display: VGA & dual channels 18/24-bit LVDS
- Bootable CFAST or mini-SATA, CF and shared IDE
- PCIe x16, PCIe x4, PCIe x1, PCIx 1 and mini-PCIe for Wi-Fi
- PS2/KB/Mouse, LPT/ RS232/422/485, VGA/GbE/4USB/ 5.1, S/PDIF

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Hardware Specifications

Form Factor

- ATX Carrier MB, dimension: 305mm x 244mm (12" x 9.9")
- COM Express Evaluation CRB: PICMB COM Express board-to-board interconnectors, type 2 pin-puts, female, 8mm stack-up height, COM.0 Rev. 2.0

NEXCOM Computer-on-Modules Support List

- Compact Size (95x 95mm) : ICES 251/ ICES 251X, ICES 253, ICES 254
- Basic Size (125x 95mm) : ICES 270, ICES 267/ ICES 267S

Expansion

- 1x PCIe x16 slot, support PEG interfaces
- 1x PCIe x4 slot, optional 4x PCIe x1 signals
- 1x PCIe x1 slot and 1x PCI (v2.3) slot
- 1x mini-PCIe slot for Wi-Fi with SIM tray

Graphic Interfaces

- Graphic Chip: from Type 2 pin-out, COM Express module
- CRT: support analog VGA with DB15 connector on the I/O edge
- LVDS: dual channels 18/24-bit LVDS connector (dual DF-13-20P)
- PCIe x16: optional EBK-A2HDMI (ICES254 only) riser card for HDMI or DP

Super I/O

- Winbond W83627DHG-PT

I/O Interface

- Serial COM: 2 ports
  - 1x edge DB9 connector to support RS232/ 422/ 485 (+5/ +12V by Ring)
  - 1x internal box-header 2.0 pitch to support RS232
- USB 2.0: 8 ports
  - 4x USB 2.0 ports by stack Type A on edge
  - 3x USB 2.0 by 4-pins JST 2.0mm JST connector,
  - 1x internal USB 2.0 to mini-PCIe slot for external Wi-Fi module
- SATA 2.0: 4 ports
  - 2x SATA 2.0 ports
  - 1x mini-SATA by mini-PCIe slot for half-/ full size mSATA-SSD
  - 1x CFAST slot for CFAST/ SATA 2.0
- CF: 1x CF/ shared IDE slot onboard (default master-mode)
- IDE: 1x 44pins box-header for legacy IDE-HDD
- PS/2: 2x PS/2 connectors on edge for Keyboard/ Mouse
- Printer Port: 1x DB25 on edge for legacy printer interface
- GPIO ports: 8x pins GPIO signals from COMe (default 5V TTL/ option 3.3V)

Network

- LAN chip: from COMe CPU module
- Support 1x RJ45/ GbE port on the edge I/O

Audio

- HD Audio AL886 with 5.1 channels
- Support external S/PDIF interface
- Support internal pin-header for L/R speaker-out 2W/ 4 Ohm

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EEPROM

- 1x 2K EEPROM to record PCI Express Lane configuration
- ATMEL AT24C32 (or C02) and address 0x57 or (0xAE)

Watchdog Timer

- Watchdog timeout can be programmed by software from 1 second to 255 seconds and from 1 minute to 255 minutes (Tolerance 15% temperature 25°C)

On-board RTC

- On-chip RTC with battery BR2032

Power Input

- Standard ATX 24 pins and AUX 4-pins with 12V

Dimensions

- ATX form factor, 305x 244mm (Lx W, 12”x9.6”)

Environment

- Operating temperatures: -20°C to 60°C
- Storage temperature: -40°C to 85°C
- Relative humidity: Operating 10% to 90%, non-condensing

Certifications

- CE approval
- FCC Class A

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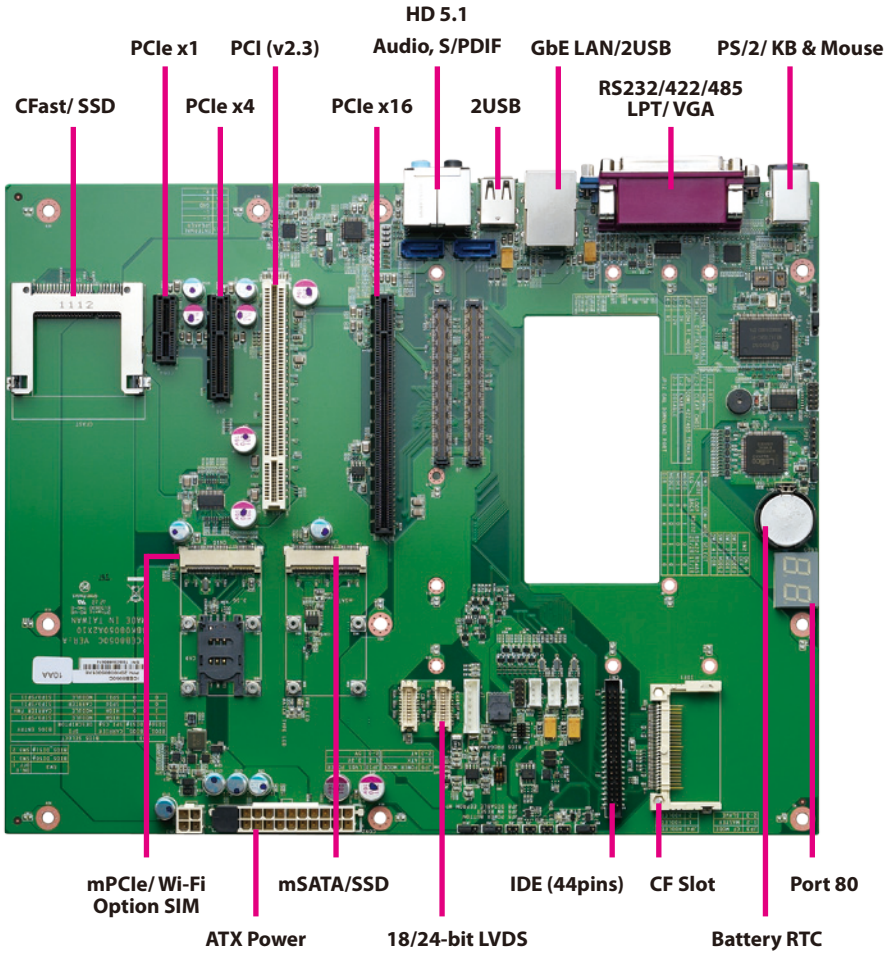
Knowing Your ICEB 8050C



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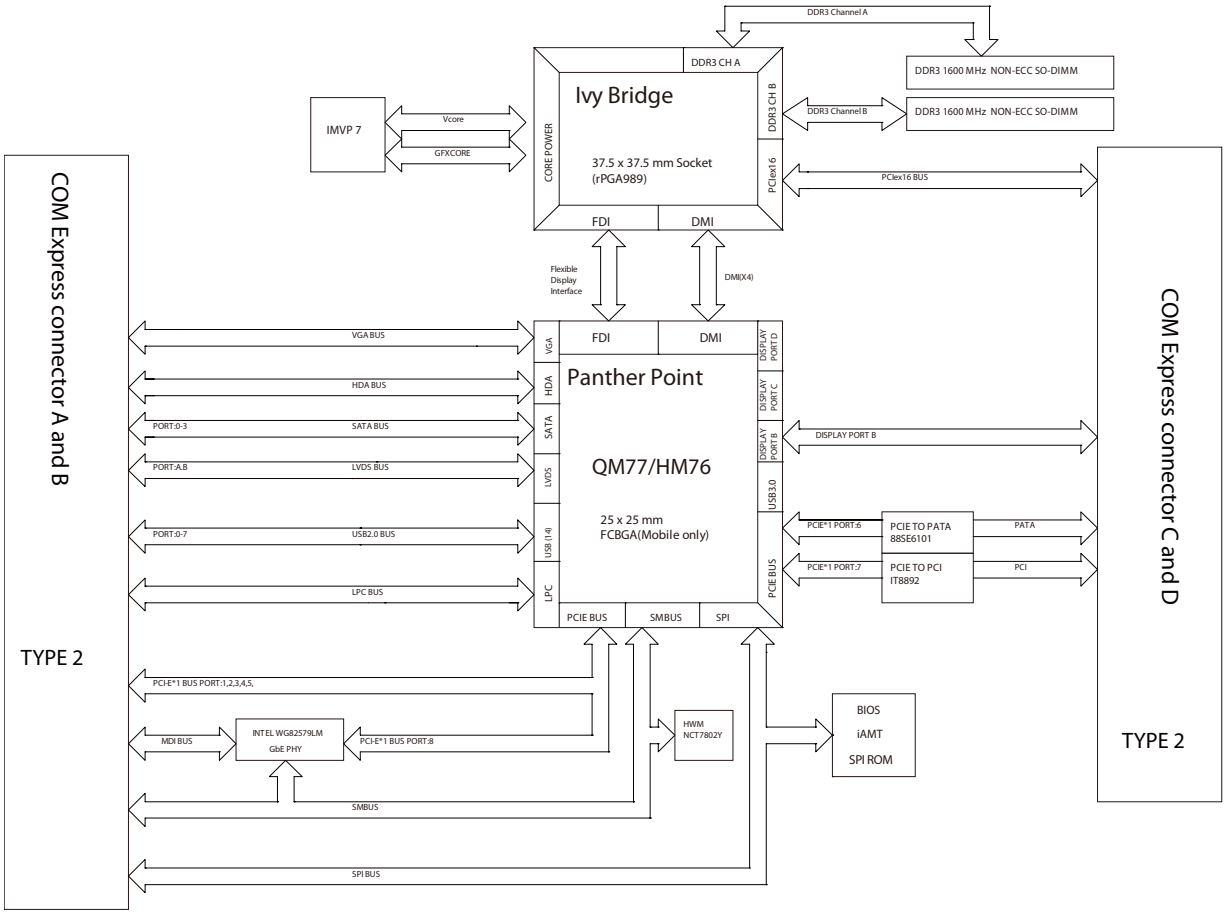
Block Diagram

ICES 268



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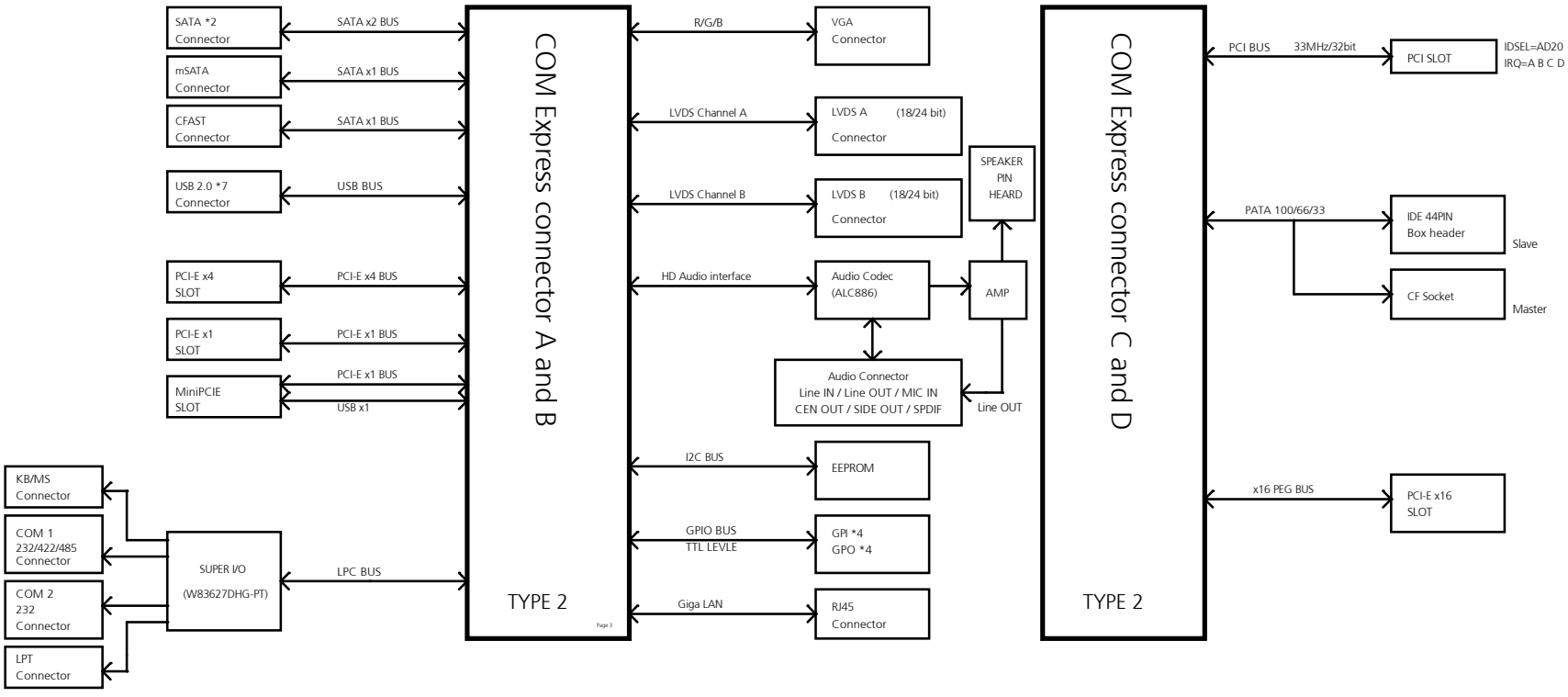
ICEB 8050C



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Chapter 2: Jumpers and Connectors

This chapter describes how to set the jumpers and connectors on the ICES 268 and ICEB 8050C motherboard.

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 environments tend to have less static electricity than dry environments. A grounding strap is warranted whenever danger of static electricity exists.

Precautions

Computer components and electronic circuit boards can be damaged by discharges of static electricity. Working on 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.

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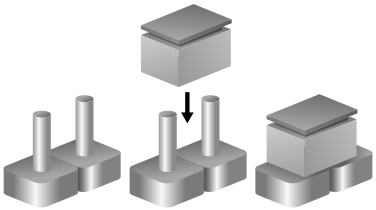
Jumper Settings

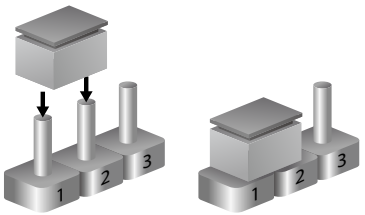
A jumper is the simplest kind of electric switch. It consists of two metal pins and a cap. When setting the jumpers, ensure that the jumper caps are placed on the correct pins. When the jumper cap is placed on both pins, the jumper is short. If you remove the jumper cap, or place the jumper cap on just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

Refer to the illustrations below for examples of what the 2-pin and 3-pin jumpers look like when they are short (on) and open (off).

Two-Pin Jumpers: Open (Left) and Short (Right)



Three-Pin Jumpers: Pins 1 and 2 are Short



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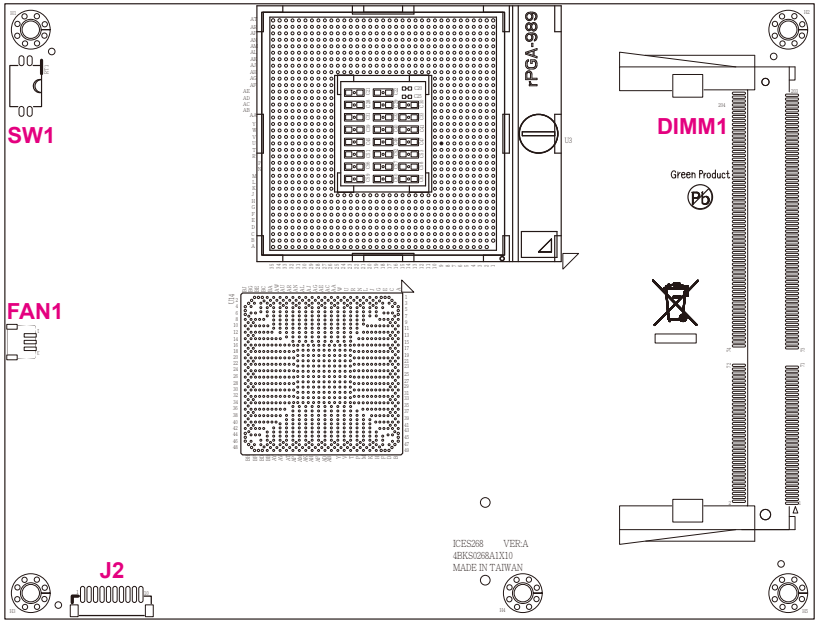
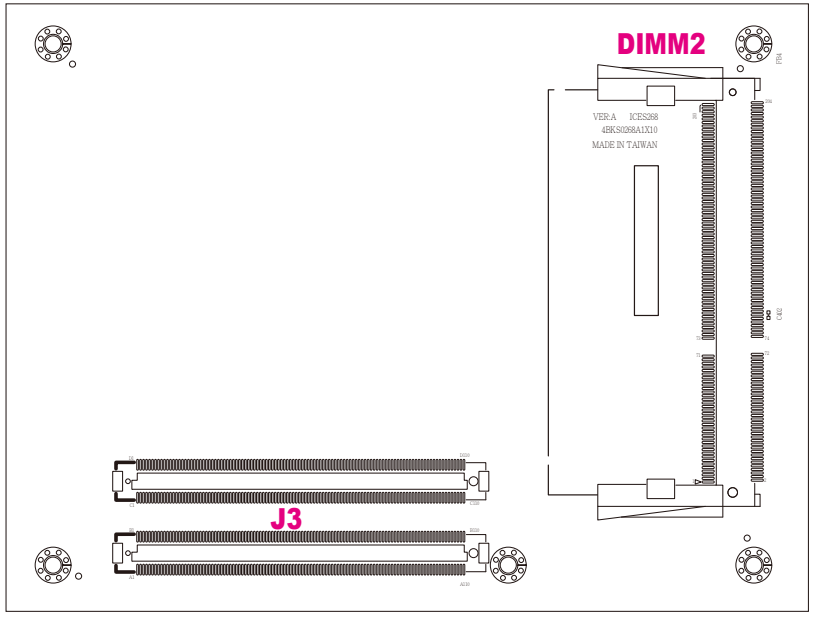
Locations of the Jumpers and Connectors for ICES 268

The figure below shows the locations of the jumpers and connectors on the top and bottom of ICES 268.





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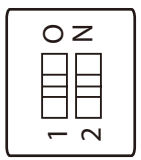
Connector Pin Definitions

Internal Connectors

PCIe DIP Switch

Connector type: 1x4 4-pin DIP switch
Connector location: SW1

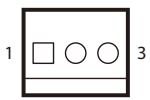


Pin	Definition	Pin	Definition
1	CFG5	2	CFG6
3	GND	4	GND

PCI Express Bifurcation		(CFG6) (CFG5)
CFG6	**CFG5**	
0	0	1 x8, 2 x4 PCI Express
0	1	reserved
1	0	2 x8 PCI Express
1	1	1 x16 PCI Express (Default)

CPU Fan Connector

Connector type: 1x3 3-pin header
Connector location: FAN1



Pin	Definition	Pin	Definition
1	GND	2	VCC12
3	VCC5_S		

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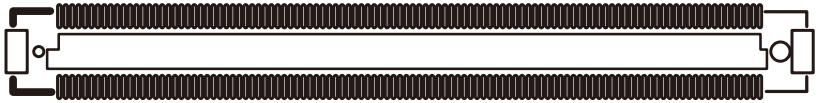
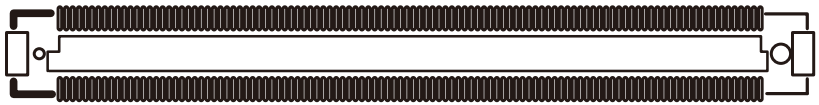
High Speed Board-to-Board Connector: Row A and B, Row C and D

Connector location: J3



Com Express A&B Connector



Com Express C&D Connector

Pin	Definition	Pin	Definition	Pin	Definition	Pin	Definition
A1	GND(FIXED)	B1	GND(FIXED)	C1	GND(FIXED)	D1	GND(FIXED)
A2	GBE0_MDI3-	B2	GBE0_ACT#	C2	IDE_D7	D2	IDE_D5
A3	GBE0_MDI3+	B3	LPC_FRAME#	C3	IDE_D6	D3	IDE_D10
A4	GBE0_LINK100#	B4	LPC_AD0	C4	IDE_D3	D4	IDE_D11
A5	GBE0_LINK1000#	B5	LPC_AD1	C5	IDE_D15	D5	IDE_D12
A6	GBE0_MDI2-	B6	LPC_AD2	C6	IDE_D8	D6	IDE_D4
A7	GBE0_MDI2+	B7	LPC_AD3	C7	IDE_D9	D7	IDE_D0
A8	GBE0_LINK#	B8	LPC_DRQ0#	C8	IDE_D2	D8	IDE_REQ#
A9	GBE0_MDI1-	B9	LPC_DRQ1#	C9	IDE_D13	D9	IDE_IOW#
A10	GBE0_MDI1+	B10	LPC_CLK	C10	IDE_D1	D10	IDE_ACK#
A11	GND(FIXED)	B11	GND(FIXED)	C11	GND(FIXED)	D11	GND(FIXED)
A12	GBE0_MDI0-	B12	PWRBTN#	C12	IDE_D14	D12	IDE_IRQ#
A13	GBE0_MDI0+	B13	SMB_CK	C13	IDE_IORDY	D13	IDE_A0

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Pin	Definition	Pin	Definition	Pin	Definition	Pin	Definition
A14	GBE0_CTREF	B14	SMB_DAT	C14	IDE_IOR#	D14	IDE_A1
A15	SUS_S3#	B15	SMB_ALERT#	C15	PCI_PME#	D15	IDE_A2
A16	SATA0_TX+	B16	SATA1_TX+	C16	PCI_GNT2#-	D16	IDE_CS1#
A17	SATA0_TX-	B17	SATA1_TX-	C17	PCI_REQ2#	D17	IDE_CS3#
A18	SUS_S4#	B18	SUS_STAT#	C18	PCI_GNT1#	D18	IDE_RST#
A19	SATA0_RX+	B19	SATA1_RX+	C19	PCI_REQ1#	D19	PCI_GNT3#
A20	SATA0_RX-	B20	SATA1_RX-	C20	PCI_GNT0#	D20	PCI_REQ3#
A21	GND(FIXED)	B21	GND(FIXED)	C21	GND(FIXED)	D21	GND(FIXED)
A22	SATA2_TX+	B22	SATA3_TX+	C22	PCI_REQ0#	D22	PCI_AD1
A23	SATA2_TX-	B23	SATA3_TX-	C23	PCI_RST#	D23	PCI_AD3
A24	SUS_S5#	B24	PWR_OK	C24	PCI_AD0	D24	PCI_AD5
A25	SATA2_RX+	B25	SATA3_RX+	C25	PCI_AD2	D25	PCI_AD7
A26	SATA2_RX-	B26	SATA3_RX-	C26	PCI_AD4	D26	PCI_CBE#0
A27	BATLOW#	B27	NC	C27	PCI_AD6	D27	PCI_AD9
A28	(S)ATA_ACT#	B28	AC/HDA_SDIN2	C28	PCI_AD8	D28	PCI_AD11
A29	AC/HDA_SYNC	B29	AC/HDA_SDIN1	C29	PCI_AD10	D29	PCI_AD13
A30	AC/HDA_RST#	B30	AC/HDA_SDIN0	C30	PCI_AD12-	D30	PCI_AD15
A31	GND(FIXED)	B31	GND(FIXED)	C31	GND(FIXED)	D31	GND(FIXED)
A32	AC/HDA_BITCLK	B32	SPKR	C32	PCI_AD14	D32	PCI_PAR
A33	AC/HDA_SDOUT	B33	I2C_CK	C33	PCI_CBE#1-	D33	PCI_SERR#
A34	BIOS_DIS0#	B34	I2C_DAT	C34	PCI_PERR#	D34	PCI_STOP#
A35	THRMTRIP#	B35	NC	C35	PCI_LOCK#	D35	PCI_TRDY#
A36	USB6-	B36	USB7-	C36	PCI_DEVSEL#	D36	PCI_FRAME#
A37	USB6+	B37	USB7+	C37	PCI_IRDY#	D37	PCI_AD16
A38	USB_6_7_OC#	B38	USB_4_5_OC#	C38	PCI_CBE#2	D38	PCI_AD18
A39	USB4-	B39	USB5-	C39	PCI_AD17	D39	PCI_AD20
A40	USB4+	B40	USB5+	C40	PCI_1D19	D40	PCI_AD22
A41	GND(FIXED)	B41	GND(FIXED)	C41	GND(FIXED)	D41	GND(FIXED)

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Pin	Definition	Pin	Definition	Pin	Definition	Pin	Definition
A42	USB2-	B42	USB3-	C42	PCI_AD21	D42	PCI_AD24
A43	USB2+	B43	USB3+	C43	PCI_AD23	D43	PCI_AD26
A44	USB_2_3_OC#	B44	USB_0_1_OC#	C44	PCI_CBE#3	D44	PCI_AD28
A45	USB0-	B45	USB1-	C45	PCI_AD25	D45	PCI_AD30
A46	USB0+	B46	USB1+	C46	PCI_AD27	D46	PCI_IRQ#C
A47	VCC_RTC	B47	EXCD1_PERST#	C47	PCI_AD29	D47	PCI_IRQ#D
A48	EXCD0_PERST#	B48	NC	C48	PCI_AD31	D48	NC
A49	NC	B49	SYS_RESET#	C49	PCI_IRQ#A	D49	PCI_M66EN
A50	LPC_SERIRQ	B50	CB_RESET#	C50	PCI_IRQ#B	D50	PCI_CLK
A51	GND(FIXED)	B51	GND(FIXED)	C51	GND(FIXED)	D51	GND(FIXED)
A52	NC	B52	NC	C52	SDVO_TVCLKP/PEG_RX0+	D52	PEG_TX0+/SDVO_RP
A53	NC	B53	NC-	C53	SDVO_TVCLKN/PEG_RX0-	D53	PEG_TX0-/SDVO_RN
A54	GPI0	B54	GPO1	C54	TYPE0#	D54	PEG_LANE_RV#
A55	PCIE_TX4+	B55	PCIE_RX4+	C55	SDVO_INTP/PEG_RX1+	D55	PEG_TX1+/SDVO_GP
A56	PCIE_TX4-	B56	PCIE_RX4-	C56	SDVO_INTN/PEG_RX1-	D56	PEG_TX1-/SDVO_GN
A57	GND	B57	GPO2	C57	TYPE1#	D57	TYPE2#
A58	PCIE_TX3+	B58	PCIE_RX3+	C58	SDVO_FLDSTALP/PEG_RX2+	D58	PEG_TX2+/SDVO_BP
A59	PCIE_TX3-	B59	PCIE_RX3-	C59	SDVO_FLDSTALN/PEG_RX2-	D59	PEG_TX2-/SDVO_BN
A60	GND(FIXED)	B60	GND(FIXED)	C60	GND(FIXED)	D60	GND(FIXED)
A61	PCIE_TX2+	B61	PCIE_RX2+	C61	PEG_RX3+	D61	PEG_TX3+/SDVO_CLKP
A62	PCIE_TX2-	B62	PCIE_RX2-	C62	PEG_RX3-	D62	PEG_TX3-/SDVO_CLKN
A63	GPI1	B63	GPO3	C63	RSVD	D63	RSVD
A64	PCIE_TX1+	B64	PCIE_RX1+	C64	RSVD	D64	RSVD
A65	PCIE_TX1-	B65	PCIE_RX1-	C65	PEG_RX4+	D65	PEG_TX4+
A66	GND	B66	WAKE0#	C66	PEG_RX4-	D66	PEG_TX4-
A67	GPI2	B67	WAKE1#	C67	RSVD	D67	GND
A68	PCIE_TX0+	B68	PCIE_RX0+	C68	PEG_RX5+	D68	PEG_TX5+
A69	PCIE_TX0-	B69	PCIE_RX0-	C69	PEG_RX5-	D69	PEG_TX5-

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Pin	Definition	Pin	Definition	Pin	Definition	Pin	Definition
A70	GND(FIXED)	B70	GND(FIXED)	C70	GND(FIXED)	D70	GND(FIXED)
A71	LVDS_A0+	B71	LVDS_B0+	C71	PEG_RX6+	D71	PEG_TX6+
A72	LVDS_A0-	B72	LVDS_B0-	C72	PEG_RX6-	D72	PEG_TX6-
A73	LVDS_A1+	B73	LVDS_B1+	C73	SDVO_DATA	D73	GND
A74	LVDS_A1-	B74	LVDS_B1-	C74	PEG_RX7+	D74	PEG_TX7+
A75	LVDS_A2+	B75	LVDS_B2+	C75	PEG_RX7-	D75	PEG_TX7-
A76	LVDS_A2-	B76	LVDS_B2-	C76	GND	D76	GND
A77	LVDS_VDD_EN	B77	LVDS_B3+	C77	RSVD	D77	IDE_CBLID#
A78	LVDS_A3+	B78	LVDS_B3-	C78	PEG_RX8+	D78	PEG_TX8+
A79	LVDS_A3-	B79	LVDS_BKLT_EN	C79	PEG_RX8-	D79	PEG_TX8-
A80	GND(FIXED)	B80	GND(FIXED)	C80	GND(FIXED)	D80	GND(FIXED)
A81	LVDS_A_CK+	B81	LVDS_B_CK+	C81	PEG_RX9+	D81	PEG_TX9+
A82	LVDS_A_CK-	B82	LVDS_B_CK-	C82	PEG_RX9-	D82	PEG_TX9-
A83	LVDS_I2C_CK	B83	LVDS_BKLT_CTRL	C83	RSVD	D83	RSVD
A84	LVDS_I2C_DAT	B84	VCC_5V_SBY	C84	GND	D84	GND
A85	GPI3	B85	VCC_5V_SBY	C85	PEG_RX10+	D85	PEG_TX10+
A86	RSVD(KBD_RST#)	B86	VCC_5V_SBY	C86	PEG_RX10-	D86	PEG_TX10-
A87	RSVD(A20GATE)	B87	VCC_5V_SBY	C87	GND	D87	GND
A88	PCIE_CLK_REF+	B88	BIOS_DIS1#	C88	PEG_RX11+	D88	PEG_TX11+
A89	PCIE_CLK_REF-	B89	VGA_RED	C89	PEG_RX11-	D89	PEG_TX11-
A90	GND(FIXED)	B90	GND(FIXED)	C90	GND(FIXED)	D90	GND(FIXED)
A91	SPI_POWER	B91	VGA_GRN	C91	PEG_RX12+	D91	PEG_TX12+
A92	SPI_MISO	B92	VGA_BLUE	C92	PEG_RX12-	D92	PEG_TX12-
A93	GPO0	B93	VGA_HSYNC	C93	GND	D93	GND
A94	SPI_CLK	B94	VGA_VSYNC	C94	PEG_RX13+	D94	PEG_TX13+
A95	SPI_MOSI	B95	VGA_I2C_CK	C95	PEG_RX13-	D95	PEG_TX13-
A96	GND	B96	VGA_I2C_DAT	C96	GND	D96	GND
A97	TYPE10#	B97	SPI_CS#	C97	RSVD	D97	PEG_EN#

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Pin	Definition	Pin	Definition	Pin	Definition	Pin	Definition
A98	NC	B98	RSVD	C98	PEG_RX14+	D98	PEG_TX14+
A99	NC	B99	RSVD	C99	PEG_RX14-	D99	PEG_TX14-
A100	GND(FIXED)	B100	GND(FIXED)	C100	GND(FIXED)	D100	GND(FIXED)
A101	NC	B101	NC	C101	PEG_RX15+	D101	PEG_TX15+
A102	NC	B102	NC	C102	PEG_RX15-	D102	PEG_TX15-
A103	NC	B103	NC	C103	GND	D103	GND
A104	VCC_12V	B104	VCC_12V	C104	VCC_12V	D104	VCC_12V
A105	VCC_12V	B105	VCC_12V	C105	VCC_12V	D105	VCC_12V
A106	VCC_12V	B106	VCC_12V	C106	VCC_12V	D106	VCC_12V
A107	VCC_12V	B107	VCC_12V	C107	VCC_12V	D107	VCC_12V
A108	VCC_12V	B108	VCC_12V	C108	VCC_12V	D108	VCC_12V
A109	VCC_12V	B109	VCC_12V	C109	VCC_12V	D109	VCC_12V
A110	GND(FIXED)	B110	GND(FIXED)	C110	GND(FIXED)	D110	GND(FIXED)

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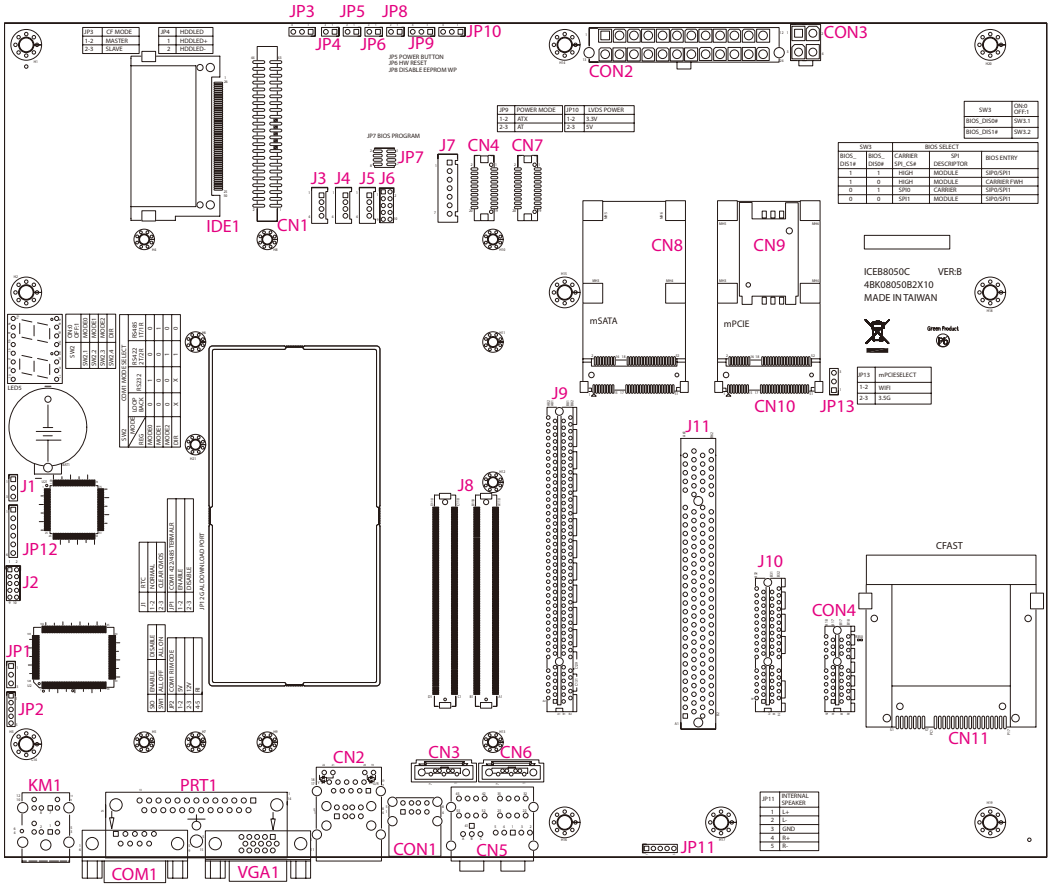
Locations of the Jumpers and Connectors for ICEB 8050C

The figure below shows the location of the jumpers and connectors for ICEB 8050C.



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Jumpers

AT/ATX Power Type Select

Connector type: 1x3 3-pin header, 2.54mm pitch
Connector location: JP9

Pin	Settings
1-2 On	ATX
2-3 On	AT

1-2 On: default

RTC Clear

Connector type: 1x3 3-pin header, 2.54mm pitch
Connector location: J1

Pin	Settings
1-2 On	Normal
2-3 On	Clear CMOS

1-2 On: default

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LVDS Backlight Power Select

Connector type: 1x3 3-pin header, 2.54mm pitch
Connector location: JP10

Pin	Settings
1-2 On	+3.3V
2-3 On	+5V

1-2 On: default

COM1 RS232 RI# Pin Power Select

Connector type: 1x3 3-pin header, 2.54mm pitch
Connector location: JP2

Pin	Settings
1-2 On	+5V
2-3 On	+12V
4-5 On	RI

4-5 On: default

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Termal R

Connector type: 1x3 3-pin header, 2.54mm pitch
Connector location: JP1

Pin	Settings
1-2 On	Enable COM1 422/485 Termal R
2-3 On	Disable COM1 422/485 Termal R

2-3 On: default

CF Mode Select

Connector type: 1x3 3-pin header, 2.54mm pitch
Connector location: JP3

Pin	Settings
1-2 On	Master
2-3 On	Slave

1-2 On: default

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mPCIe Select

Connector type: 1x3 3-pin header, 2.54mm pitch
Connector location: JP13

Pin	Settings
1-2 On	Wi-Fi
2-3 On	3.5G

1-2 On: default

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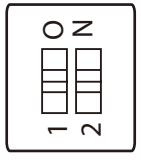
DIP Switch Settings

Close to Net LPC_SIO1_CLK

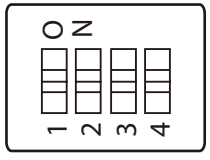
Connector type: 2x2 4-pin DIP switch
Connector location: SW1



Pin	Settings
1-2 Off	Enable
1-2 On	Disable

RS232/ RS422/ RS485 Mode Select

Connector type: 2x4 8-pin DIP switch
Connector location: SW2



SW2	ON:0 OFF:1
SW2.1	MODE0
SW2.2	MODE1
SW2.3	MODE2
SW2.4	DIR

	Loop Back	RS232	RS422	RS485
MODE0	0	1	0	0
MODE1	0	0	0	1
MODE2	0	0	1	0
MODE3	X	X	1	0

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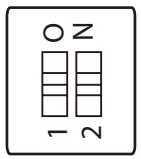
BIOS Select

Connector type: 2x2 4-pin DIP switch
Connector location: SW3



SW3	ON:0 OFF:1
SW3.1	BIOS_DIS0#
SW3.2	BIOS_DIS1#

BIOS_DIS1#	BIOS_DIS0#	Carrier SPI_CS#	SPI Descriptor	BIOS Entry
1	1	High	Module	SPI0/SPI1
1	0	High	Module	Carrier FWH
0	1	SPI0	CARRIER	SPI0/SPI1
0	0	SPI1	MODULE	SPI0/SPI1

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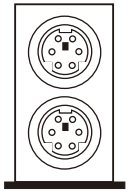
Connector Pin Definitions

External Connectors

PS2 Keyboard and Mouse

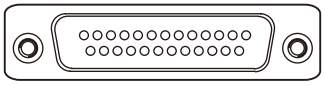
Connector type: PS/2, Mini-DIN-6
Connector location: KM1



Pin	Definition	Pin	Definition
1	KDAT	2	NC
3	GND	4	+5V
5	KCLK	6	NC
7	MDAT	8	NC
9	GND	10	+5V
11	MCLK	12	NC
MH1	GND	MH2	GND
MH3	GND	MH4	GND
MH5	GND		

Parallel Port

Connector type: 26-pin D-Sub, 2x13 (2.0mm)
Connector location: PRT1



Pin	Definition	Pin	Definition
1	RP_-STB	2	RP_PRD0
3	RP_PRD1	4	RP_PRD2
5	RP_PRD3	6	RP_PRD4
7	RP_PRD5	8	RP_PRD6
9	RP_PRD7	10	ACK#
11	BUSY	12	PE
13	SLCT	14	AFD#
15	ERR#	16	INIT#
17	SLIN#	18	GND
19	GND	20	GND
21	GND	22	GND
23	GND	24	GND
25	GND	MH1	GND
MH2	GND	MH3	GND

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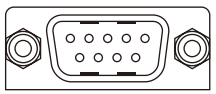
COM1 Port

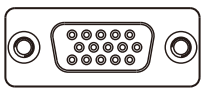
Connector type: DB-9 port, 9-pin D-Sub
Connector location: COM1



Pin	Definition	Pin	Definition
1	SP_DCD1	2	SP_RXD1
3	SP_TXD1	4	SP_DTR1
5	GND	6	SP_DSR1
7	SP_RTS1	8	SP_CTS1
9	SP_RI1_T	MH1	GND
MH2	GND		

VGA Port

Connector type: DB-15 port, 15-pin D-Sub (VGA)
Connector location: VGA1



Pin	Definition	Pin	Definition
1	VGA_R	2	VGA_G
3	VGA_B	4	NC
5	GND	6	VGADET
7	GND	8	GND
9	+5V	10	GND
11	NC	12	VGA_DAT
13	VGA_HSYNC	14	VGA_VSYNC
15	VGA_CLK	MH1	GND
MH2	GND		

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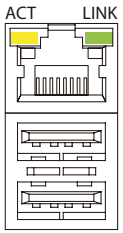
LAN and USB1/2 Ports

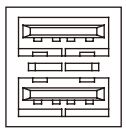
Connector type: RJ45 port with LEDs and dual USB 2.0 ports, Type A
Connector location: CN2A (USB) and CN2B (LAN)



Pin	Definition	Pin	Definition
1	+5V_USB	2	USB_0N
3	USB_0P	4	GND
5	+5V_USB	6	USB_1N
7	USB_1P	8	GND
MH1	GND	MH2	GND
MH3	GND	MH4	GND
9	V25_LA1	10	LAN_MDI0P
11	LAN_MDI0N	12	LAN_MDI1P
13	LAN_MDI1N	14	LAN_MDI2P
15	LAN_MDI2N	16	LAN_MDI3P
17	LAN_MDI3N	18	GND
19	LAN_SPEED100#	20	LAN_SPEED1000#
21	LAN_ACTLED#	22	+3.3VSBY
MH5	GND	MH6	GND
MH7	GND	MH8	GND

USB2/3 Ports

Connector type: Dual USB 2.0 ports, Type A
Connector location: CON1



Pin	Definition	Pin	Definition
1	+5V_USB	2	USB_2N
3	USB_2P	4	GND
5	+5V_USB	6	USB_3N
7	USB_3P	8	GND
MH1	GND	MH2	GND
MH3	GND	MH4	GND

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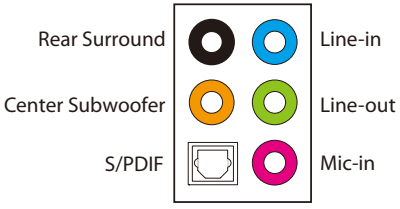
Audio Connectors

Connector type: 5x 3.5mm TRS, 1x S/PDIF
Connector location: CN5



Pin	Definition	Pin	Definition
1	GND	2	MIC_L
3	MIC_JD1	4	GND
5	MIC_R	22	FRONT_L2
23	FRONT_JD	24	GND
25	FRONT_R2	32	LINEIN_L
33	LINE1_JD	34	GND
35	LINEIN_R	41	GND
42	CEN_OUT	43	CEN_JD
44	GND	45	LEF_OUT
52	SIDE_L	53	SIDESURR_JD
54	GND	55	SIDE_R
A	SPDIFO	B	+5V
C	GND	MH1	GND
MH2	GND	MH3	GND
MH4	GND		

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Internal Connectors

HDD LED

Connector type: 1x2 2-pin header, 2.54mm pitch
Connector location: JP4

Pin	Definition
1	+5V
2	GND

Internal Speaker

Connector type: 1x5 5-pin header, 2.0mm pitch
Connector location: JP11

Pin	Definition
1	SPKR_L+
2	SPKR_L-
3	GND
4	SPKR_R+
5	SPKR_R-

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USB 5 Port

Connector type: 1x4 4-pin header, 2.0mm pitch
Connector location: J3

Pin	Definition
1	+5V_USB
2	USB_5N
3	USB_5P
4	GND

USB 6 Port

Connector type: 1x4 4-pin header, 2.0mm pitch
Connector location: J4

Pin	Definition
1	+5V_USB
2	USB_6N
3	USB_6P
4	GND

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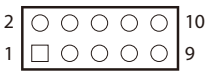
USB 7 Port

Connector type: 1x4 4-pin header, 2.0mm pitch
Connector location: J5

Pin	Definition
1	+5V_USB
2	USB_7N
3	USB_7P
4	GND

COM2 RS232

Connector type: 2x5 10-pin header, 2.0mm pitch
Connector location: J2



Pin	Definition	Pin	Definition
1	SP_DCD2	2	SP_RXD2
3	SP_TXD2	4	SP_DTR2
5	GND	6	SP_DSR2
7	SP_RTS2	8	SP_CTS2
9	SP_RI2	10	NC

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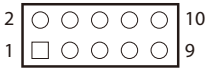
GPIO

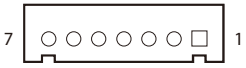
Connector type: 2x5 10-pin header, 2.0mm pitch
Connector location: J6



Pin	Definition	Pin	Definition
1	+5V	2	GND
3	ICH_GPO0_OUT	4	ICH_GPI0_IN
5	ICH_GPO1_OUT	6	ICH_GPI1_IN
7	ICH_GPO2_OUT	8	ICH_GPI2_IN
9	ICH_GPO3_OUT	10	ICH_GPI3_IN

CCFL

Connector type: 1x7 7-pin header, 2.0mm pitch
Connector location: J7



Pin	Definition	Pin	Definition
1	+5V	2	GND
3	ICH_GPO0_OUT	4	ICH_GPI0_IN
5	ICH_GPO1_OUT	6	ICH_GPI1_IN
7	ICH_GPO2_OUT	8	ICH_GPI2_IN
9	ICH_GPO3_OUT	10	ICH_GPI3_IN

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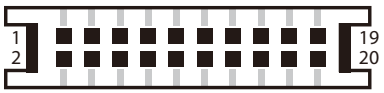
LVDS Channel A

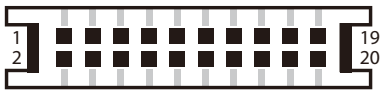
Connector type: 2x10 20-pin header, 1.25mm pitch
Connector location: CN7



Pin	Definition	Pin	Definition
1	LVDS_DDC_CLK	2	LVDS_DDC_DATA
3	Panel_VDD	4	LVDSA_DATA0
5	LVDSA_DATA3	6	LVDSA_DATA#0
7	LVDSA_DATA#3	8	Panel_VDD
9	GND	10	LVDSA_DATA1
11	LVDSA_CLK	12	LVDSA_DATA#1
13	LVDSA_CLK#	14	GND
15	GND	16	Panel_backlight
17	LVDSA_DATA2	18	Panel_backlight
19	LVDSA_DATA#2	20	GND
MH1	GND	MH2	GND

LVDS Channel B

Connector type: 2x10 20-pin header, 1.25mm pitch
Connector location: CN4



Pin	Definition	Pin	Definition
1	LVDS_DDC_CLK	2	LVDS_DDC_DATA
3	Panel_VDD	4	LVDSB_DATA0
5	LVDSB_DATA3	6	LVDSB_DATA#0
7	LVDSB_DATA#3	8	Panel_VDD
9	GND	10	LVDSB_DATA1
11	LVDSB_CLK	12	LVDSB_DATA#1
13	LVDSB_CLK#	14	GND
15	GND	16	Panel_backlight
17	LVDSB_DATA2	18	Panel_backlight
19	LVDSB_DATA#2	20	GND
MH1	GND		

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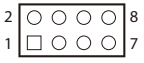
GAL Download Port

Connector type: 1x6 6-pin header, 2.54mm pitch
Connector location: JP12

Pin	Definition	Pin	Definition
1	+3.3V	2	GND
3	TCK	4	TDO
5	TDI	6	TMS

SPI

Connector type: 2x4 8-pin header, 1.27mm pitch
Connector location: JP7



Pin	Definition	Pin	Definition
1	SPI_CS	2	ISPIMISO
3	ISPIWP#	4	GND
5	SPI_MOSI	6	SPI_CLK
7	SPI_POWER	8	SPI_POWER

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Disable EEPROM

Connector type: 1x2 2-pin header, 2.54mm pitch
Connector location: JP8

Pin	Definition
1	EEPROM_WP
2	GND

HW Reset Function

Connector type: 1x2 2-pin header, 2.54mm pitch
Connector location: JP6

Pin	Definition
1	+3.3V
2	GND

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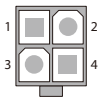
Power Button

Connector type: 1x2 2-pin header, 2.54mm pitch
Connector location: JP5

Pin	Definition
1	+3.3VSBY
2	GND

4-Pin Power Connector

Connector type: 2x2 4-pin header
Connector location: CON3



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

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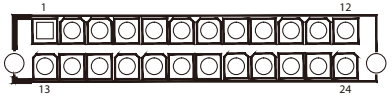
ATX Power Connector

Connector type: 2x12 24-pin header, 4.2mm pitch
Connector location: CON2



Pin	Definition	Pin	Definition
1	+3.3V	2	+3.3V
3	GND	4	+5V
5	GND	6	+5V
7	GND	8	PS_PWRGD
9	+5VSBY	10	+12V
11	+12V	12	+3.3V
13	+3.3V	14	-12V
15	GND	16	PSON# R
17	GND	18	GND
19	GND	20	-5V
21	+5V	22	+5V
23	+5V	24	GND

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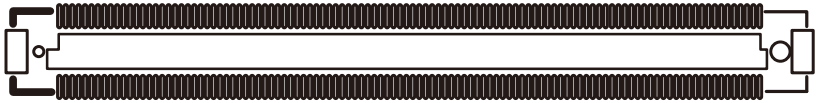
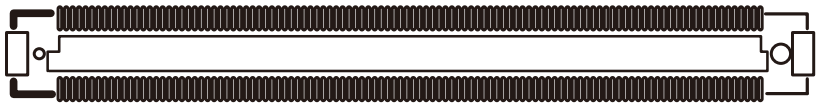
High Speed Board-to-Board Connector: Row A and B, Row C and D

Connector location: J8



Com Express A&B Connector



Com Express C&D Connector

Pin	Definition	Pin	Definition	Pin	Definition	Pin	Definition
A1	GND(FIXED)	B1	GND(FIXED)	C1	GND(FIXED)	D1	GND(FIXED)
A2	LAN_MDI3N	B2	LAN_ACTLED#	C2	ICH_IDE_DD7	D2	ICH_IDE_DD5
A3	LAN_MDI3P	B3	LPC_FRAME#	C3	ICH_IDE_DD6	D3	ICH_IDE_DD10
A4	LAN_SPEED100#	B4	LPC_AD0	C4	ICH_IDE_DD3	D4	ICH_IDE_DD11
A5	LAN_SPEED1000#	B5	LPC_AD1	C5	ICH_IDE_DD15	D5	ICH_IDE_DD12
A6	LAN_MDI2N	B6	LPC_AD2	C6	ICH_IDE_DD8	D6	ICH_IDE_DD4
A7	LAN_MDI2P	B7	LPC_AD3	C7	ICH_IDE_DD9	D7	ICH_IDE_DD0
A8	LAN_LINK	B8	LPC_DRQ0#	C8	ICH_IDE_DD2	D8	ICH_IDE_DDREQ
A9	LAN_MDI1N	B9	LPC_DRQ1#	C9	ICH_IDE_DD13	D9	ICH_IDE_DIOW#
A10	LAN_MDI1P	B10	LPC_CLK	C10	ICH_IDE_DD1	D10	ICH_IDE_DDACK#
A11	GND(FIXED)	B11	GND(FIXED)	C11	GND(FIXED)	D11	GND(FIXED)
A12	LAN_MDI0N	B12	PM_PWRBTN#	C12	ICH_IDE_DD14	D12	ICH_IDE_IRQ
A13	LAN_MDI0P	B13	SMB_CLK	C13	ICH_IDE_IORDY	D13	ICH_IDE_DA0

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Pin	Definition	Pin	Definition	Pin	Definition	Pin	Definition
A14	LAN_CTREF	B14	SMB_DATA	C14	ICH_IDE_DIOR#	D14	ICH_IDE_DA1
A15	PM_SLP_S3#	B15	SMB_ALERT#	C15	PCI_PME#	D15	ICH_IDE_DA2
A16	SATA_TXP0	B16	SATA_TXP1	C16	PCI_GNT#2	D16	ICH_IDE_DCS1#
A17	SATA_TXN0	B17	SATA_TXN1	C17	PCI_REQ#2	D17	ICH_IDE_DCS3#
A18	PM_SLP_S4#	B18	SUS_STAT#	C18	PCI_GNT#1	D18	IDE_RST#
A19	SATA_RXP0	B19	SATA_RXP1	C19	PCI_REQ#1	D19	PCI_GNT#3
A20	SATA_RXN0	B20	SATA_RXN1	C20	PCI_GNT#0	D20	PCI_REQ#3
A21	GND(FIXED)	B21	GND(FIXED)	C21	GND(FIXED)	D21	GND(FIXED)
A22	SATA_TXP2	B22	SATA_TXP3	C22	PCI_REQ#0	D22	ICH_PCI_AD1
A23	SATA_TXN2	B23	SATA_TXN3	C23	ICH_PCI_RST#	D23	ICH_PCI_AD3
A24	PM_SLP_S5#	B24	PS_PWRGD	C24	ICH_PCI_AD0	D24	ICH_PCI_AD5
A25	SATA_RXP2	B25	SATA_RXP3	C25	ICH_PCI_AD2	D25	ICH_PCI_AD7
A26	SATA_RXN2	B26	SATA_RXN3	C26	ICH_PCI_AD4	D26	PCI_CBE#0
A27	PM_BATLOW#	B27	GAL_WDT#	C27	ICH_PCI_AD6	D27	ICH_PCI_AD9
A28	ICH_SATA_LED#	B28	HDA_SDIN2	C28	ICH_PCI_AD8	D28	ICH_PCI_AD11
A29	HDA_SYNC	B29	HDA_SDIN1	C29	ICH_PCI_AD10	D29	ICH_PCI_AD13
A30	HDA_RST#	B30	HDA_SDIN0	C30	ICH_PCI_AD12	D30	ICH_PCI_AD15
A31	GND(FIXED)	B31	GND(FIXED)	C31	GND(FIXED)	D31	GND(FIXED)
A32	HDA_BIT_CLK	B32	HDA_SPKR	C32	ICH_PCI_AD14	D32	PCI_PAR
A33	HDA_SDOUT	B33	I2C_CLK	C33	PCI_CBE#1	D33	PCI_SERR#
A34	BIOS_DIS0#	B34	I2C_DAT	C34	PCI_PERR#	D34	PCI_STOP#
A35	PM_THRMTRIP#	B35	PM_THRM#	C35	PCI_LOCK#	D35	PCI_TRDY#
A36	USB_6N	B36	USB_7N	C36	PCI_DEVSEL#	D36	PCI_FRAME#
A37	USB_6P	B37	USB_7P	C37	PCI_IRDY#	D37	ICH_PCI_AD16
A38	USB_OC67#	B38	USB_OC45#	C38	PCI_CBE#2	D38	ICH_PCI_AD18
A39	USB_4N	B39	USB_5N	C39	ICH_PCI_AD17	D39	ICH_PCI_AD20
A40	USB_4P	B40	USB_5P	C40	ICH_PCI_AD19	D40	ICH_PCI_AD22
A41	GND(FIXED)	B41	GND(FIXED)	C41	GND(FIXED)	D41	GND(FIXED)

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Pin	Definition	Pin	Definition	Pin	Definition	Pin	Definition
A42	USB_2N	B42	USB_3N	C42	ICH_PCI_AD21	D42	ICH_PCI_AD24
A43	USB_2P	B43	USB_3P	C43	ICH_PCI_AD23	D43	ICH_PCI_AD26
A44	USB_OC23#	B44	USB_OC01#	C44	PCI_CBE#3	D44	ICH_PCI_AD28
A45	USB_0N	B45	USB_1N	C45	ICH_PCI_AD25	D45	ICH_PCI_AD30
A46	USB_0P	B46	USB_1P	C46	ICH_PCI_AD27	D46	PCI_IRQ#C
A47	+VBAT	B47	EXCD1_PERST#	C47	ICH_PCI_AD29	D47	PCI_IRQ#D
A48	EXCD0_PERST#	B48	EXCD1_CPPE#	C48	ICH_PCI_AD31	D48	PM_CLKRUN#
A49	EXCD0_CPPE#	B49	HW_RST#	C49	PCI_IRQ#A	D49	PCI_M66EN
A50	INT_SERIRQ	B50	CB_RESET#	C50	PCI_IRQ#B	D50	CLK_PCI
A51	GND(FIXED)	B51	GND(FIXED)	C51	GND(FIXED)	D51	GND(FIXED)
A52	PCIE_TXP5	B52	PCIE_RXP5	C52	PEG_RXP0	D52	PEG_TXP0
A53	PCIE_TXN5	B53	PCIE_RXN5	C53	PEG_RXN0	D53	PEG_TXN0
A54	ICH_GPI0	B54	ICH_GPO1	C54	TYPE0#	D54	PEG_LANE_RV#
A55	PCIE_TXP4	B55	PCIE_RXP4	C55	PEG_RXP1	D55	PEG_TXP1
A56	PCIE_TXN4	B56	PCIE_RXN4	C56	PEG_RXN1	D56	PEG_TXN1
A57	GND(FIXED)	B57	ICH_GPO2	C57	TYPE1#	D57	TYPE2#
A58	PCIE_TXP3	B58	PCIE_RXP3	C58	PEG_RXP2	D58	PEG_TXP2
A59	PCIE_TXN3	B59	PCIE_RXN3	C59	PEG_RXN2	D59	PEG_TXN2
A60	GND(FIXED)	B60	GND(FIXED)	C60	GND(FIXED)	D60	GND(FIXED)
A61	PCIE_TXP2	B61	PCIE_RXP2	C61	PEG_RXP3	D61	PEG_TXP3
A62	PCIE_TXN2	B62	PCIE_RXN2	C62	PEG_RXN3	D62	PEG_TXN3
A63	ICH_GPI1	B63	ICH_GPO3	C63	NC	D63	NC
A64	PCIE_TXP1	B64	PCIE_RXP1	C64	NC	D64	NC
A65	PCIE_TXN1	B65	PCIE_RXN1	C65	PEG_RXP4	D65	PEG_TXP4
A66	GND(FIXED)	B66	PCIE_WAKE#	C66	PEG_RXN4	D66	PEG_TXN4
A67	ICH_GPI2	B67	WAKE1#	C67	NC	D67	GND
A68	PCIE_TXP0	B68	PCIE_RXP0	C68	PEG_RXP5	D68	PEG_TXP5
A69	PCIE_TXN0	B69	PCIE_RXN0	C69	PEG_RXN5	D69	PEG_TXN5

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Pin	Definition	Pin	Definition	Pin	Definition	Pin	Definition
A70	GND(FIXED)	B70	GND(FIXED)	C70	GND(FIXED)	D70	GND(FIXED)
A71	LVDSA_DATA0	B71	LVDSB_DATA0	C71	PEG_RXP6	D71	PEG_TXP6
A72	LVDSA_DATA#0	B72	LVDSB_DATA#0	C72	PEG_RXN6	D72	PEG_TXN6
A73	LVDSA_DATA1	B73	LVDSB_DATA1	C73	SDVO_CTRLDATA	D73	SDVO_CTRLCLK
A74	LVDSA_DATA#1	B74	LVDSB_DATA#1	C74	PEG_RXP7	D74	PEG_TXP7
A75	LVDSA_DATA2	B75	LVDSB_DATA2	C75	PEG_RXN7	D75	PEG_TXN7
A76	LVDSA_DATA#2	B76	LVDSB_DATA#2	C76	GND	D76	GND
A77	LVDS_VDD_EN	B77	LVDSB_DATA3	C77	NC	D77	IDE_PATADET
A78	LVDSA_DATA3	B78	LVDSB_DATA#3	C78	PEG_RXP8	D78	PEG_TXP8
A79	LVDSA_DATA#3	B79	L_BKLT_EN	C79	PEG_RXN8	D79	PEG_TXN8
A80	GND(FIXED)	B80	GND(FIXED)	C80	GND(FIXED)	D80	GND(FIXED)
A81	LVDSA_CLK	B81	LVDSB_CLK	C81	PEG_RXP9	D81	PEG_TXP9
A82	LVDSA_CLK#	B82	LVDSB_CLK#	C82	PEG_RXN9	D82	PEG_TXN9
A83	LVDS_DDC_CLK	B83	L_BKLT_CTRL	C83	NC	D83	NC
A84	LVDS_DDC_DATA	B84	+5VSBY	C84	GND	D84	GND
A85	ICH_GPI3	B85	+5VSBY	C85	PEG_RXP10	D85	PEG_TXP10
A86	KBD_RST#	B86	+5VSBY	C86	PEG_RXN10	D86	PEG_TXN10
A87	H_A20GATE	B87	+5VSBY	C87	GND	D87	GND
A88	PCIE0_CK_REF+	B88	BIOS_DIS1#	C88	PEG_RXP11	D88	PEG_TXP11
A89	PCIE0_CK_REF-	B89	CRT_RED	C89	PEG_RXN11	D89	PEG_TXN11
A90	GND(FIXED)	B90	GND(FIXED)	C90	GND(FIXED)	D90	GND(FIXED)
A91	SPI_POWER	B91	CRT_GREEN	C91	PEG_RXP12	D91	PEG_TXP12
A92	SPI_MISO	B92	CRT_BLUE	C92	PEG_RXN12	D92	PEG_TXN12
A93	ICH_GPO0	B93	CRT_HSYNC	C93	GND	D93	GND
A94	SPI_CLK	B94	CRT_VSYNC	C94	PEG_RXP13	D94	PEG_TXP13
A95	SPI_MOSI	B95	CRT_DDC_CLK_MCH	C95	PEG_RXN13	D95	PEG_TXN13
A96	GND(FIXED)	B96	CRT_DDC_DATA_MCH	C96	GND	D96	GND
A97	TYPE10#	B97	SPI_CS#	C97	NC	D97	PEG_ENABLE#

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Pin	Definition	Pin	Definition	Pin	Definition	Pin	Definition
A98	NC	B98	NC	C98	PEG_RXP14	D98	PEG_TXP14
A99	NC	B99	CD1#_R	C99	PEG_RXN14	D99	PEG_TXN14
A100	GND(FIXED)	B100	GND(FIXED)	C100	GND(FIXED)	D100	GND(FIXED)
A101	NC	B101	NC	C101	PEG_RXP15	D101	PEG_TXP15
A102	NC	B102	NC	C102	PEG_RXN15	D102	PEG_TXN15
A103	NC	B103	NC	C103	GND	D103	GND
A104	+12V	B104	+12V	C104	+12V	D104	+12V
A105	+12V	B105	+12V	C105	+12V	D105	+12V
A106	+12V	B106	+12V	C106	+12V	D106	+12V
A107	+12V	B107	+12V	C107	+12V	D107	+12V
A108	+12V	B108	+12V	C108	+12V	D108	+12V
A109	+12V	B109	+12V	C109	+12V	D109	+12V
A110	GND(FIXED)	B110	GND(FIXED)	C110	GND(FIXED)	D110	GND(FIXED)

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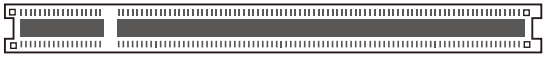
PCIe x16

Connector location: J9



Pin	Definition	Pin	Definition
A1	NC	B1	+12V
A2	+12V	B2	+12V
A3	+12V	B3	+12V
A4	GND	B4	GND
A5	GND	B5	SMB_CLK
A6	+3.3V	B6	SMB_DATA
A7	NC	B7	GND
A8	+3.3V	B8	+3.3V
A9	+3.3V	B9	GND
A10	+3.3V	B10	+3.3VSBY
A11	CB_RESET#	B11	PCIE_WAKE#
A12	GND	B12	NC
A13	PCIE_X16_CLKP	B13	GND
A14	PCIE_X16_CLKN	B14	PEG_TXP0
A15	GND	B15	PEG_TXN0
A16	PEG_RXP0	B16	GND
A17	PEG_RXN0	B17	SDVO_CTRLCLK
A18	GND	B18	GND

Pin	Definition	Pin	Definition
A19	NC	B19	PEG_TXP1
A20	GND	B20	PEG_TXN1
A21	PEG_RXP1	B21	GND
A22	PEG_RXN1	B22	GND
A23	GND	B23	PEG_TXP2
A24	GND	B24	PEG_TXN2
A25	PEG_RXP2	B25	GND
A26	PEG_RXN2	B26	GND
A27	GND	B27	PEG_TXP3
A28	GND	B28	PEG_TXN3
A29	PEG_RXP3	B29	GND
A30	PEG_RXN3	B30	NC
A31	GND	B31	SDVO_CTRLDATA
A32	NC	B32	GND
A33	NC	B33	PEG_TXP4
A34	GND	B34	PEG_TXN4
A35	PEG_RXP4	B35	GND
A36	PEG_RXN4	B36	GND

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Pin	Definition	Pin	Definition
A37	GND	B37	PEG_TXP5
A38	GND	B38	PEG_TXN5
A39	PEG_RXP5	B39	GND
A40	PEG_RXN5	B40	GND
A41	GND	B41	PEG_TXP6
A42	GND	B42	PEG_TXN6
A43	PEG_RXP6	B43	GND
A44	PEG_RXN6	B44	GND
A45	GND	B45	PEG_TXP7
A46	GND	B46	PEG_TXN7
A47	PEG_RXP7	B47	GND
A48	PEG_RXN7	B48	NC
A49	GND	B49	GND
A50	NC	B50	PEG_TXP8
A51	GND	B51	PEG_TXN8
A52	PEG_RXP8	B52	GND
A53	PEG_RXN8	B53	GND
A54	GND	B54	PEG_TXP9
A55	GND	B55	PEG_TXN9
A56	PEG_RXP9	B56	GND
A57	PEG_RXN9	B57	GND
A58	GND	B58	PEG_TXP10
A59	GND	B59	PEG_TXN10

Pin	Definition	Pin	Definition
A60	PEG_RXP10	B60	GND
A61	PEG_RXN10	B61	GND
A62	GND	B62	PEG_TXP11
A63	GND	B63	PEG_TXN11
A64	PEG_RXP11	B64	GND
A65	PEG_RXN11	B65	GND
A66	GND	B66	PEG_TXP12
A67	GND	B67	PEG_TXN12
A68	PEG_RXP12	B68	GND
A69	PEG_RXN12	B69	GND
A70	GND	B70	PEG_TXP13
A71	GND	B71	PEG_TXN13
A72	PEG_RXP13	B72	GND
A73	PEG_RXN13	B73	GND
A74	GND	B74	PEG_TXP14
A75	GND	B75	PEG_TXN14
A76	PEG_RXP14	B76	GND
A77	PEG_RXN14	B77	GND
A78	GND	B78	PEG_TXP15
A79	GND	B79	PEG_TXN15
A80	PEG_RXP15	B80	GND
A81	PEG_RXN15	B81	NC
A82	GND	B82	NC

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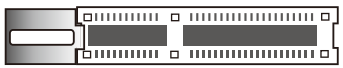
PCIe x4

Connector location: J10



Pin	Definition	Pin	Definition
A1	GND	B1	12V
A2	12V	B2	12V
A3	12V	B3	12V
A4	GND	B4	GND
A5	NC	B5	SMB_CLK
A6	NC	B6	SMB_DATA
A7	NC	B7	GND
A8	NC	B8	+3.3V
A9	+3.3V	B9	NC
A0	+3.3V	B10	+3.3VSBY
A11	CB_RESET#	B11	PCIE_WAKE#
A12	GND	B12	NC
A13	PCIE_X4_CLKP	B13	GND
A14	PCIE_X4_CLKN	B14	PCIE_TXP0
A15	GND	B15	PCIE_TXN0
A16	PCIE_RXP0	B16	GND

Pin	Definition	Pin	Definition
A17	PCIE_RXN0	B17	NC
A18	GND	B18	GND
A19	NC	B19	PCIE_TXP1
A20	GND	B20	PCIE_TXN1
A21	PCIE_RXP1	B21	GND
A22	PCIE_RXN1	B22	GND
A23	GND	B23	PCIE_TXP2
A24	GND	B24	PCIE_TXN2
A25	PCIE_RXP2	B25	GND
A26	PCIE_RXN2	B26	GND
A27	GND	B27	PCIE_TXP3
A28	GND	B28	PCIE_TXN3
A29	PCIE_RXP3	B29	GND
A30	PCIE_RXN3	B30	NC
A31	GND	B31	NC
A32	NC	B32	GND

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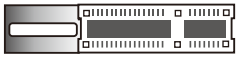
PCIe x1

Connector location: CON4



Pin	Definition	Pin	Definition
A1	NC	B1	+12V
A2	+12V	B2	+12V
A3	+12V	B3	+12V
A4	GND	B4	GND
A5	NC	B5	SMB_CLK
A6	NC	B6	SMB_DATA
A7	NC	B7	GND
A8	NC	B8	+3.3V
A9	+3.3V	B9	NC
A10	+3.3V	B10	+3.3VSBY
A11	CB_RESET#	B11	PCIE_WAKE#
A12	GND	B12	NC
A13	PCIE_X1_CLKP0	B13	GND
A14	PCIE_X1_CLKN0	B14	PCIE_TXP4
A15	GND	B15	PCIE_TXN4
A16	PCIE_RXP4	B16	GND
A17	PCIE_RXN4	B17	NC
A18	GND	B18	GND

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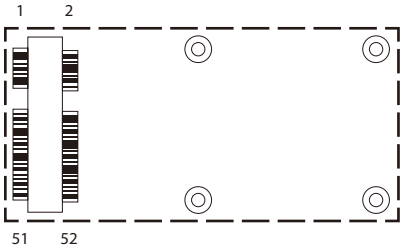
Mini-PCIe Slot (3G)

Connector location: CN10



Pin	Definition	Pin	Definition
1	PCIE_WAKE#	2	3VSB_MINI
3	NC	4	GND
5	NC	6	1V5
7	3VSB_MINI	8	UIM_PWR
9	GND	10	UIM_DATA
11	PCIE_X1_CLKN1	12	UIM_CLK
13	PCIE_X1_CLKP1	14	UIM_RESET
15	GND	16	UIM_VPP
17	NC	18	GND
19	NC	20	3VSB_MINI
21	GND	22	CB_RESET#
23	PCIE_RXN5	24	3VSB_MINI
25	PCIE_RXP5	26	GND

Pin	Definition	Pin	Definition
27	GND	28	1V5
29	GND	30	SMB_CLK
31	PCIE_TXN5	32	SMB_DATA
33	PCIE_TXP5	34	GND
35	GND	36	USB_4N
37	GND	38	USB_4P
39	3VSB_MINI	40	GND
41	3VSB_MINI	42	NC
43	GND	44	NC
45	NC	46	NC
47	NC	48	1V5
49	NC	50	GND
51	NC	52	3VSB_MINI

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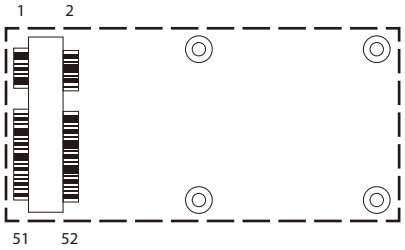
Mini-PCIe Slot (mSATA)

Connector location: CN8



Pin	Definition	Pin	Definition
1	NC	2	+3.3V
3	NC	4	GND
5	NC	6	1V5_MSATA
7	NC	8	NC
9	GND	10	NC
11	NC	12	NC
13	NC	14	NC
15	GND	16	NC
17	NC	18	GND
19	NC	20	NC
21	GND	22	NC
23	SATA_RXN3	24	+3.3V
25	SATA_RXP3	26	GND

Pin	Definition	Pin	Definition
27	GND	28	1V5_MSATA
29	GND	30	SMBCLK_MAIN
31	SATA_TXN3	32	SMBDATA_MAIN
33	SATA_TXP3	34	GND
35	GND	36	NC
37	GND	38	NC
39	+3.3V	40	GND
41	+3.3V	42	NC
43	GND	44	NC
45	TEST POINT	46	NC
47	TEST POINT	48	1V5_MSATA
49	NC	50	GND
51	+3.3V	52	+3.3V

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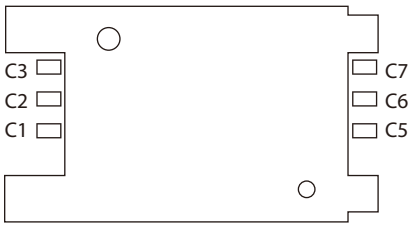
SIM Card Slot

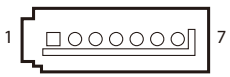
Connector location: CN9



Pin	Definition	Pin	Definition
C1	UIM_PWR	C5	GND
C2	UIM_RESET	C6	UIM_VPP
C3	UIM_CLK	C7	UIM_DATA

SATA Connectors

Connector type: Standard Serial ATAII 7P (1.27mm, SATA-M-180)
Connector location: CN6 and CN3



CN6

Pin	Definition	Pin	Definition
1	GND	2	SATA_TXP0
3	SATA_TXN0	4	GND
5	SATA_RXN0	6	SATA_RXP0
7	GND		

CN3

Pin	Definition	Pin	Definition
1	GND	2	SATA_TXP1
3	SATA_TXN1	4	GND
5	SATA_RXN1	6	SATA_RXP1
7	GND		

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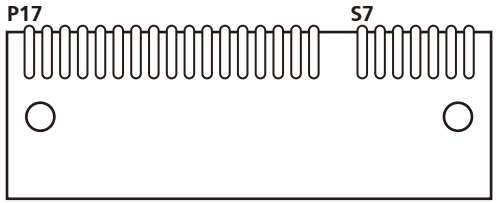
CFast Slot

Connector location: CN11



Pin	Definition	Pin	Definition
S1	GND	S2	SATA_TXP2
S3	SATA_TXN2	S4	GND
S5	SATA_RXN2	S6	SATA_RXP2
S7	GND		
P1	GND	P2	GND
P3	NC	P4	NC
P5	NC	P6	NC
P7	GND	P8	TEST POINT
P9	NC	P10	NC
P11	NC	P12	NC
P13	+3.3V	P14	+3.3V
P15	GND	P16	GND
P17	NC	MH1	GND
MH2	GND		

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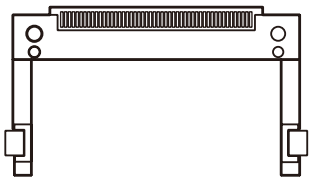
CF-Master

Connector location: IDE1



Pin	Definition	Pin	Definition
1	GND	2	ICH_IDE_DD3
3	ICH_IDE_DD4	4	ICH_IDE_DD5
5	ICH_IDE_DD6	6	NC
7	ICH_IDE_DCS1#	8	GND
9	GND	10	GND
11	GND	12	GND
13	+5V	14	GND
15	GND	16	GND
17	GND	18	ICH_IDE_DA2
19	ICH_IDE_DA1	20	ICH_IDE_DA0
21	ICH_IDE_DD0	22	ICH_IDE_DD1
23	ICH_IDE_DD2	24	NC
25	GND	26	CD1#_R

Pin	Definition	Pin	Definition
27	ICH_IDE_DD11	28	ICH_IDE_DD12
29	ICH_IDE_DD13	30	ICH_IDE_DD14
31	ICH_IDE_DD15	32	ICH_IDE_DCS3#
33	NC	34	ICH_IDE_DIOR#
35	ICH_IDE_DIOW#	36	+5V
37	ICH_IDE_IRQ	38	+5V
39	IDE_CABLE	40	NC
41	IDE_RST#	42	+5V
43	GND	44	ICH_IDE_DDACK#
45	IDEACTP#	46	GND
47	ICH_IDE_DD8	48	ICH_IDE_DD9
49	ICH_IDE_DD10	50	GND

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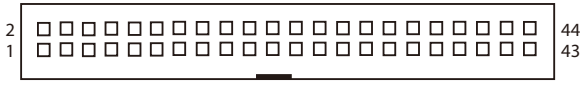
IDE-Slave

Connector type: 2x22 44-pin header, 2.0mm pitch
Connector location: CN1



Pin	Definition	Pin	Definition
1	IDE_RST#	2	GND
3	ICH_IDE_DD7	4	ICH_IDE_DD8
5	ICH_IDE_DD6	6	ICH_IDE_DD9
7	ICH_IDE_DD5	8	ICH_IDE_DD10
9	ICH_IDE_DD4	10	ICH_IDE_DD11
11	ICH_IDE_DD3	12	ICH_IDE_DD12
13	ICH_IDE_DD2	14	ICH_IDE_DD13
15	ICH_IDE_DD1	16	ICH_IDE_DD14
17	ICH_IDE_DD0	18	ICH_IDE_DD15
19	GND	20	NC
21	ICH_IDE_DDREQ	22	GND

Pin	Definition	Pin	Definition
23	ICH_IDE_DIOW#	24	GND
25	ICH_IDE_DIOR#	26	GND
27	ICH_IDE_IORDY	28	GND
29	ICH_IDE_DDACK#	30	GND
31	ICH_IDE_IRQ	32	NC
33	ICH_IDE_DA1	34	IDE_PATADET
35	ICH_IDE_DA0	36	ICH_IDE_DA2
37	ICH_IDE_DCS1#	38	ICH_IDE_DCS3#
39	IDEACTP#	40	GND
41	+5V	42	+5V
43	GND	44	NC

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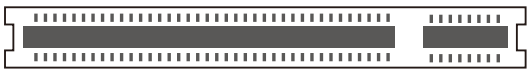
PCI Slot

Connector location: J11



Pin	Definition	Pin	Definition
A1	NC	B1	-12V
A2	+12V	B2	NC
A3	NC	B3	GND
A4	NC	B4	NC
A5	+5V	B5	+5V
A6	PCI_IRQ#A	B6	+5V
A7	PCI_IRQ#C	B7	PCI_IRQ#B
A8	+5V	B8	PCI_IRQ#D
A9	NC	B9	NC
A10	+5V	B10	PCI_REQ#1
A11	PCI_GNT#1	B11	NC
A12	GND	B12	GND
A13	GND	B13	GND
A14	+3.3VSBY	B14	CLK_PCI_SIOT2
A15	ICH_PCI_RST#	B15	GND
A16	+5V	B16	CLK_PCI_SIOT1
A17	PCI_GNT#0	B17	GND

Pin	Definition	Pin	Definition
A18	GND	B18	PCI_REQ#0
A19	PCI_PME#	B19	+5V
A20	ICH_PCI_AD30	B20	ICH_PCI_AD31
A21	+3.3V	B21	ICH_PCI_AD29
A22	ICH_PCI_AD28	B22	GND
A23	ICH_PCI_AD26	B23	ICH_PCI_AD27
A24	GND	B24	ICH_PCI_AD25
A25	ICH_PCI_AD24	B25	+3.3V
A26	ICH_PCI_AD20	B26	PCI_CBE#3
A27	+3.3V	B27	ICH_PCI_AD23
A28	ICH_PCI_AD22	B28	GND
A29	ICH_PCI_AD20	B29	ICH_PCI_AD21
A30	GND	B30	ICH_PCI_AD19
A31	ICH_PCI_AD18	B31	+3.3V
A32	ICH_PCI_AD16	B32	ICH_PCI_AD17
A33	+3.3V	B33	PCI_CBE#2
A34	PCI_FRAME#	B34	GND

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Pin	Definition	Pin	Definition
A35	GND	B35	PCI_IRDY#
A36	PCI_TRDY#	B36	+3.3V
A37	GND	B37	PCI_DEVSEL#
A38	PCI_STOP#	B38	GND
A39	+3.3V	B39	PCI_LOCK#
A40	SMB_CLK	B40	PCI_PERR#
A41	SMB_DATA	B41	+3.3V
A42	GND	B42	PCI_SERR#
A43	PCI_PAR	B43	+3.3V
A44	ICH_PCI_AD15	B44	PCI_CBE#1
A45	+3.3V	B45	ICH_PCI_AD14
A46	ICH_PCI_AD13	B46	GND
A47	ICH_PCI_AD11	B47	ICH_PCI_AD12
A48	GND	B48	ICH_PCI_AD10
A49	ICH_PCI_AD9	B49	PCI_M66EN
A52	PCI_CBE#0	B52	ICH_PCI_AD8
A53	+3.3V	B53	ICH_PCI_AD7
A54	ICH_PCI_AD6	B54	+3.3V
A55	ICH_PCI_AD4	B55	ICH_PCI_AD5
A56	GND	B56	ICH_PCI_AD3
A57	ICH_PCI_AD2	B57	GND
A58	ICH_PCI_AD0	B58	ICH_PCI_AD1
A59	+5V	B59	+5V
A60	+3.3V	B60	+3.3V
A61	+5V	B61	+5V
A62	+5V	B62	+5V

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Chapter 3: System Setup

The starter kit is preconfigured and assembled. No addtional setup is required. However, if installation is needed, please refer to the instructions below.

Setting up the System

CAUTION!

Make sure the power supply is switched off and disconnected from the power sources to prevent electric shock or system damage before installing.

1. Place the case on a stable surface and pull the yellow clasp to release the lock.

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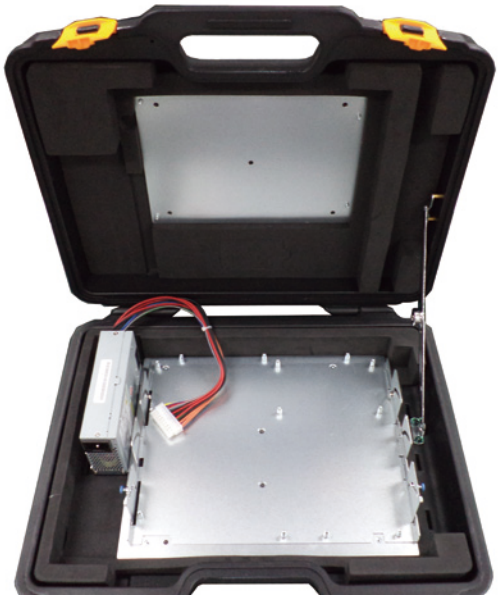
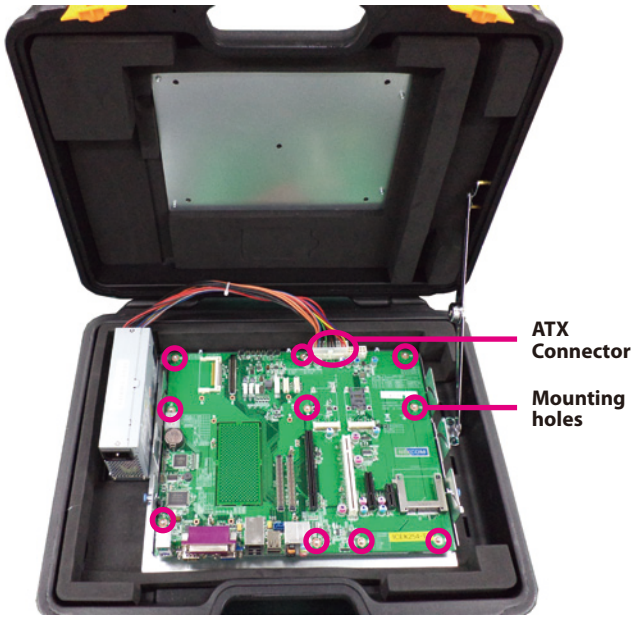
2. Open the case.



3. Align the mounting holes on the ICEB 8050C mainboard to the mounting holes inside the case.



4. Tighten screws onto the holes to secure the mainboard, and plug the ATX power supply connector to the ATX connector on the motherboard.

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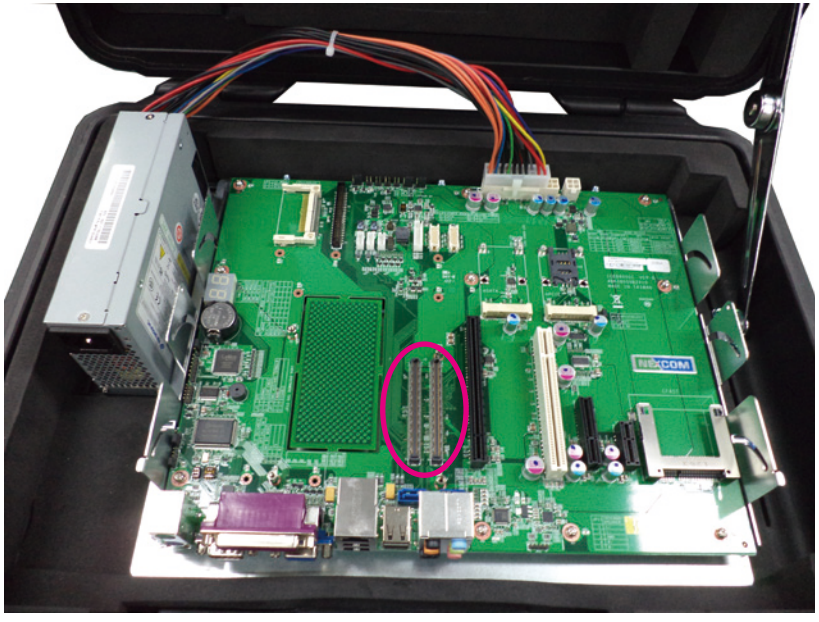
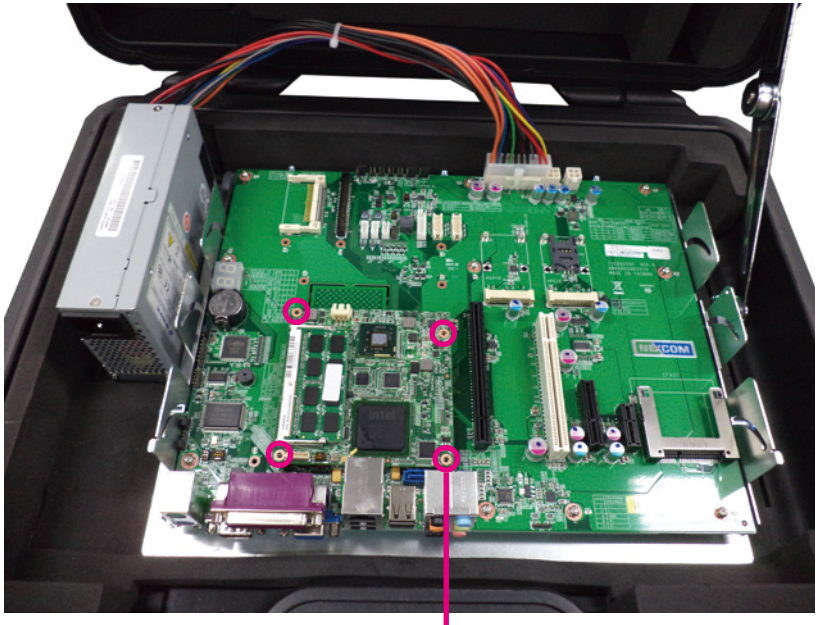
5. Locate the COM Express connector on the mainboard.



6. Install the ICES 268 module onto the COM Express connector.



Mounting holes

7. Align the mounting holes on the ICES 268 to the heatsink mounting holes on the mainboard.

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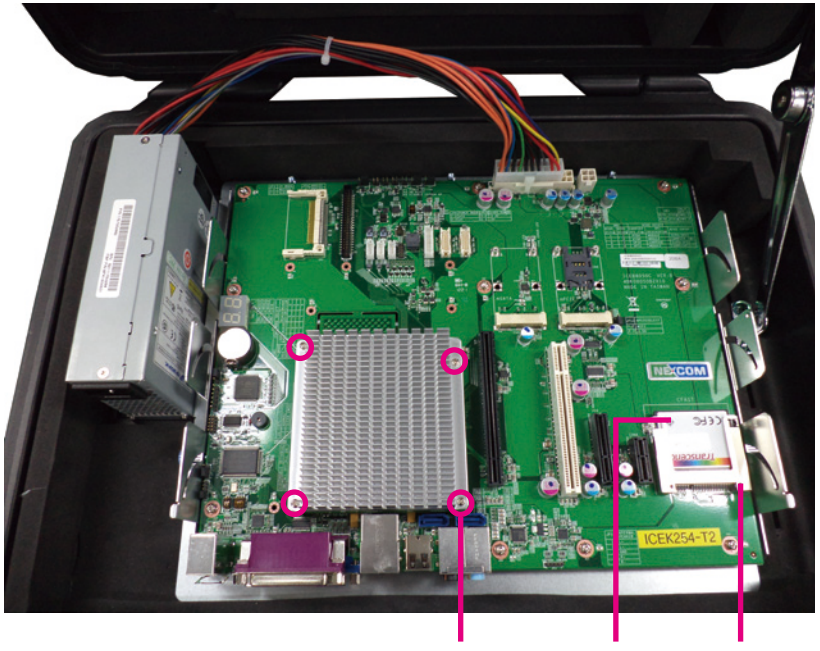
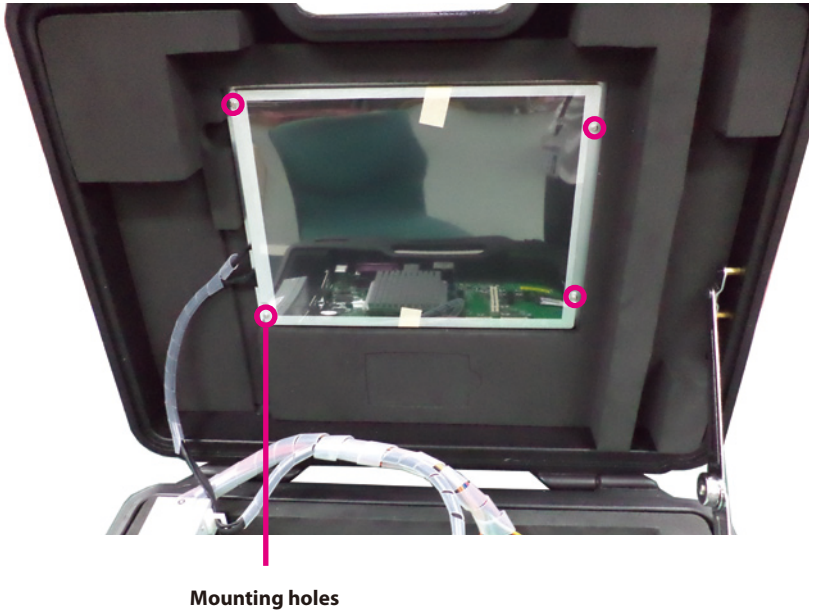
8. Once the holes are aligned, place the heatsink on top and tighten mounting screws to secure the heatsink.



9. Insert the CFast card into the CFast slot.

10. Align the mounting holes on the LCD panel to the mounting holes on top of the case.



11. Tighten screws onto the mounting holes to secure the LCD panel.

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12. Connect the LVDS and CCFL cables to the LVDS and CCFL connector on the mainboard.

13. Plug the AC power cord to the power supply and connect the other end to a power outlet. Then switch on the system.

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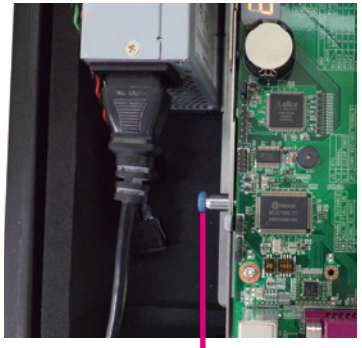
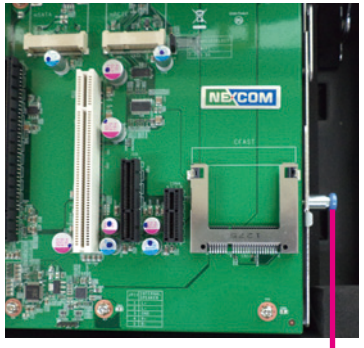
There is a metal plate supporting the mainboard that can be lifted up or lowered down. The instructions below illustrate the step-by-step procedures.

NOTE: Before lifting up or lowering down, make sure the two spring-nuts located on the left and right side of the metal support plate are inserted/ closed to the end-position as depicted in the diagram below.



Left spring-nut



Right spring-nut

1. Hold on the left and right spring-nuts using both hands, and pull out the spring-nuts to lift up or lower down.

2. After lifting up the mainboard, make sure the two spring-nuts are inserted and closed to the end-position before plugging any connectors and I/O cards, then power on the system.

3. After lowering down the mainboard, make sure the two spring-nuts are inserted and closed to the end position before powering off the system and closing the cover.

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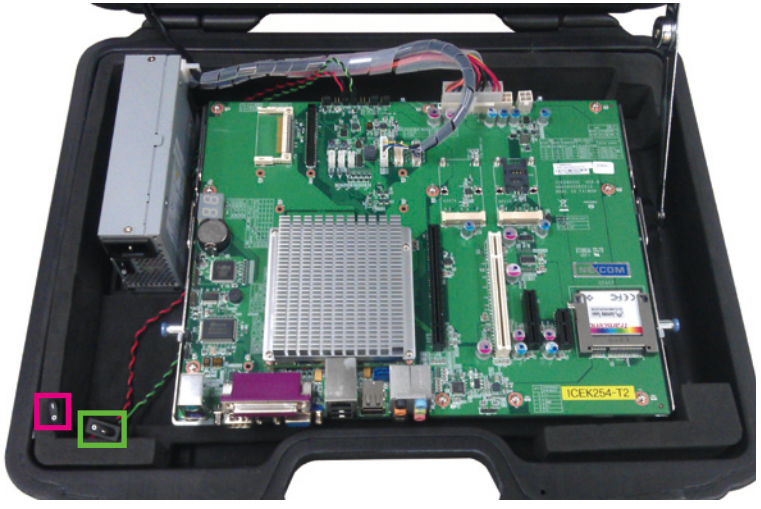
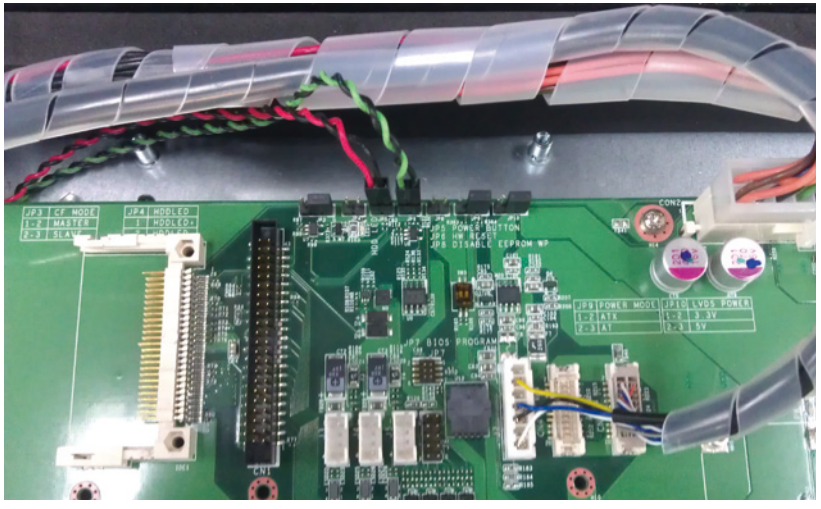
External Soft-Power On/Off and Hardware Reset Switches

There are two special switches included inside the case to connect to JP5 and JP6 connectors for soft-power on/off and hardware reset function.

JP5: Soft-power on/off (red and black)





JP6: Hardware reset switch (green and black)

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Closing the Case

1. After lowering down the mainboard, make sure the two spring-nuts are inserted and closed to the end position before powering off.

2. Make sure to place the LCD cover protector onto the LCD panel before closing the case.

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Chapter 4: BIOS Setup

This chapter describes how to use the BIOS setup program for the ICEK 268-T2. The BIOS screens provided in this chapter are for reference only and may change if the BIOS is updated in the future.

To check for the latest updates and revisions, visit the NEXCOM Web site at www.nexcom.com.tw.

About BIOS Setup

The BIOS (Basic Input and Output System) Setup program is a menu driven utility that enables you to make changes to the system configuration and tailor your system to suit your individual work needs. It is a ROM-based configuration utility that displays the system's configuration status and provides you with a tool to set system parameters.

These parameters are stored in non-volatile battery-backed-up CMOS RAM that saves this information even when the power is turned off. When the system is turned back on, the system is configured with the values found in CMOS.

With easy-to-use pull down menus, you can configure such items as:

- Hard drives, diskette drives, and peripherals
- Video display type and display options
- Password protection from unauthorized use
- Power management features

The settings made in the setup program affect how the computer performs. It is important, therefore, first to try to understand all the setup options, and second, to make settings appropriate for the way you use the computer.

When to Configure the BIOS

- This program should be executed under the following conditions:
- When changing the system configuration
- When a configuration error is detected by the system and you are prompted to make changes to the setup program
- When resetting the system clock
- When redefining the communication ports to prevent any conflicts
- When making changes to the Power Management configuration
- When changing the password or making other changes to the security setup

Normally, CMOS setup is needed when the system hardware is not consistent with the information contained in the CMOS RAM, whenever the CMOS RAM has lost power, or the system features need to be changed.

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Default Configuration

Most of the configuration settings are either predefined according to the Load Optimal Defaults settings which are stored in the BIOS or are automatically detected and configured without requiring any actions. There are a few settings that you may need to change depending on your system configuration.

Entering Setup

When the system is powered on, the BIOS will enter the Power-On Self Test (POST) routines. These routines perform various diagnostic checks; if an error is encountered, the error will be reported in one of two different ways:

- If the error occurs before the display device is initialized, a series of beeps will be transmitted.
- If the error occurs after the display device is initialized, the screen will display the error message.

Powering on the computer and immediately pressing <Del> allows you to enter Setup. Another way to enter Setup is to power on the computer and wait for the following message during the POST:

TO ENTER SETUP BEFORE BOOT PRESS Ctrl + Alt + Esc

Press the Del key to enter Setup:

Legends

Key	Function
← →	Moves the highlight left or right to select a menu.
↑ ↓	Moves the highlight up or down between sub¬menus or fields.
Esc	Exits the BIOS Setup Utility.
+	Scrolls forward through the values or options of the highlighted field.
–	Scrolls backward through the values or options of the highlighted field.
Tab	Selects a field.
F1	Displays General Help.
F2	Load previous values.
F3	Load optimized default values.
F4	Saves and exits the Setup program.
Enter	Press <Enter> to enter the highlighted sub¬menu

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Scroll Bar

When a scroll bar appears to the right of the setup screen, it indicates that there are more available fields not shown on the screen. Use the up and down arrow keys to scroll through all the available fields.

Submenu

When "▶" appears on the left of a particular field, it indicates that a submenu which contains additional options are available for that field. To display the submenu, move the highlight to that field and press

.

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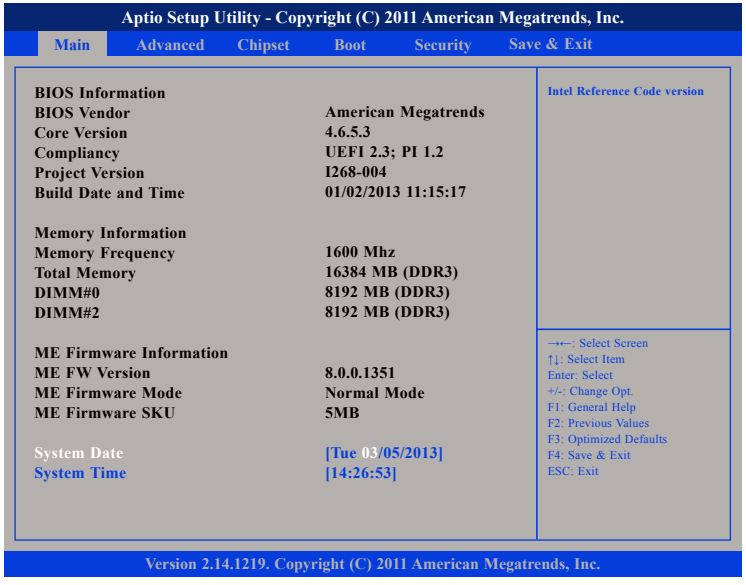
BIOS Setup Utility

Once you enter the AMI BIOS Setup Utility, the Main Menu will appear on the screen. The main menu allows you to select from several setup functions and one exit. Use arrow keys to select among the items and press Enter to accept or enter the submenu.

Main

The Main menu is the first screen that you will see when you enter the BIOS Setup Utility.



System Date

The date format is <day>, <month>, <date>, <year>. Day displays a day, from Monday to Sunday. Month displays the month, from January to December. Date displays the date, from 1 to 31. Year displays the year, from 1999 to 2099.

System Time

The time format is <hour>, <minute>, <second>. The time is based on the 24-hour military-time clock. For example, 1 p.m. is 13:00:00. Hour displays hours from 00 to 23. Minute displays minutes from 00 to 59. Second displays seconds from 00 to 59.

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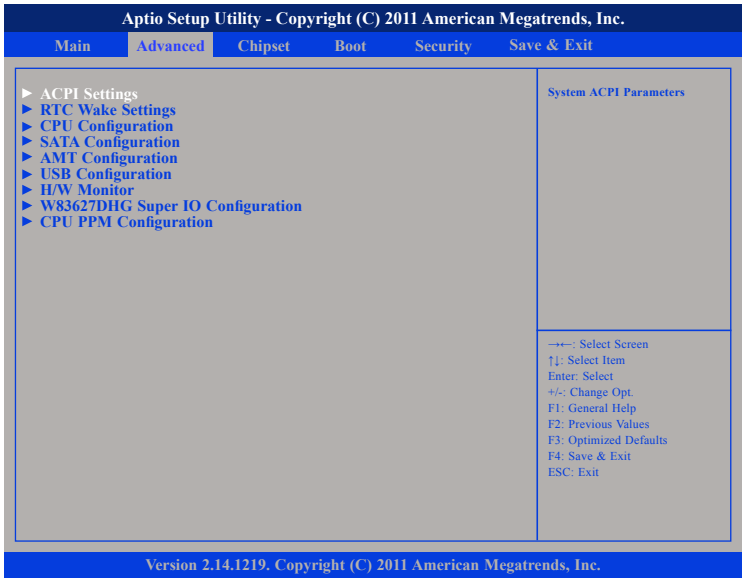
Advanced

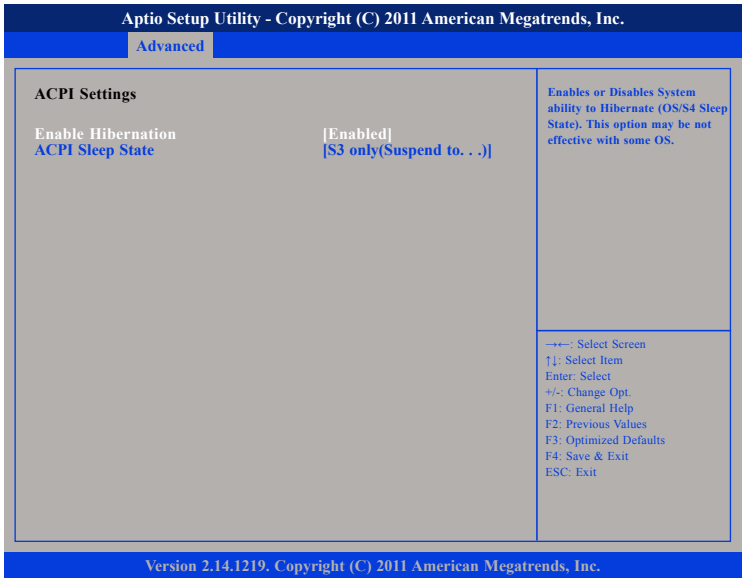
The Advanced menu allows you to configure your system for basic operation. Some entries are defaults required by the system board, while others, if enabled, will improve the performance of your system or let you set some features according to your preference.

Setting incorrect field values may cause the system to malfunction.



ACPI Settings

This section is used to configure ACPI Settings.



Enable Hibernation

Enables or disables system ability to hibernate (OS/S4 Sleep State). This option may not be effective with some OS.

ACPI Sleep State

Select the highest ACPI sleep state the system will enter when the suspend button is pressed.

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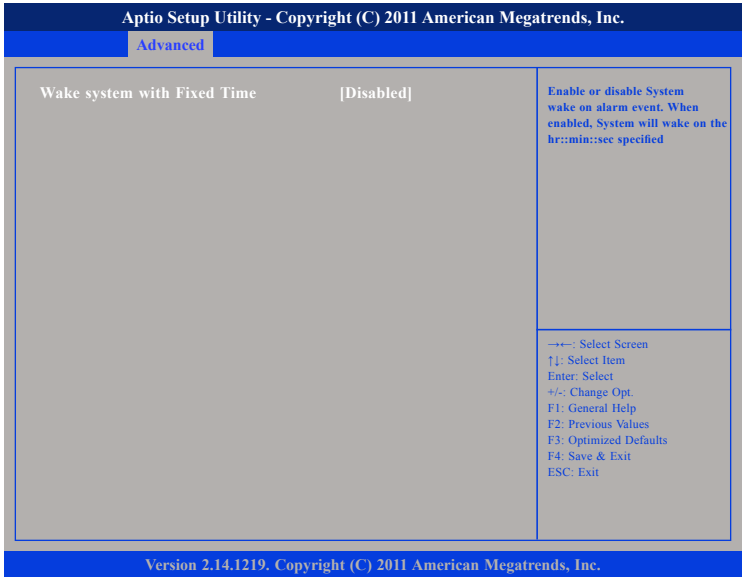
RTC Wake Settings

This section is used to configure RTC Wake settings.

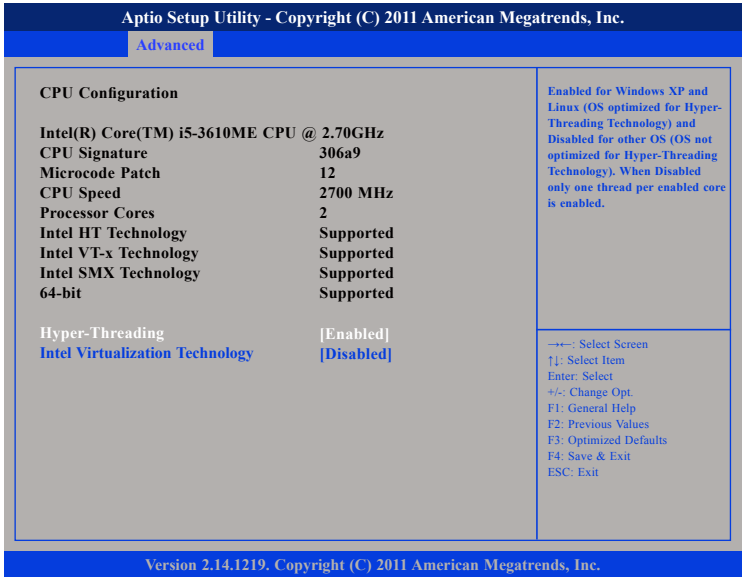


Wake System with Fixed Time

Enables or disables system wake on alarm event. When enabled, system will wake on the hr::min::sec specified.

CPU Configuration

This section is used to configure the CPU.



Hyper-Threading

This field is used to enable or disable hyper-threading.

Intel® Virtualization Technology

When this field is set to Enabled, the VMM can utilize the additional hardware capabilities provided by Vanderpool Technology.

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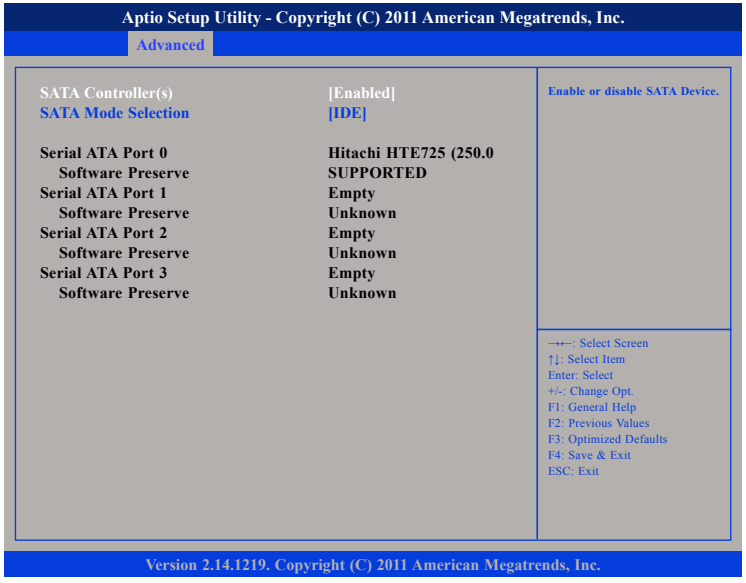
SATA Configuration

This section is used to configure the SATA drives.



SATA Controller(s)

Enables or disables the SATA controller.

SATA Mode Selection

Configures the SATA as IDE, AHCI or RAID mode.

IDE This option configures the Serial ATA drives as Parallel ATA physical storage device.

RAID This option allows you to create RAID or Intel Matrix Storage configuration on Serial ATA devices.

AHCI This option configures the Serial ATA drives to use AHCI (Advanced Host Controller Interface). AHCI allows the storage driver to enable the advanced Serial ATA features which will increase storage performance.

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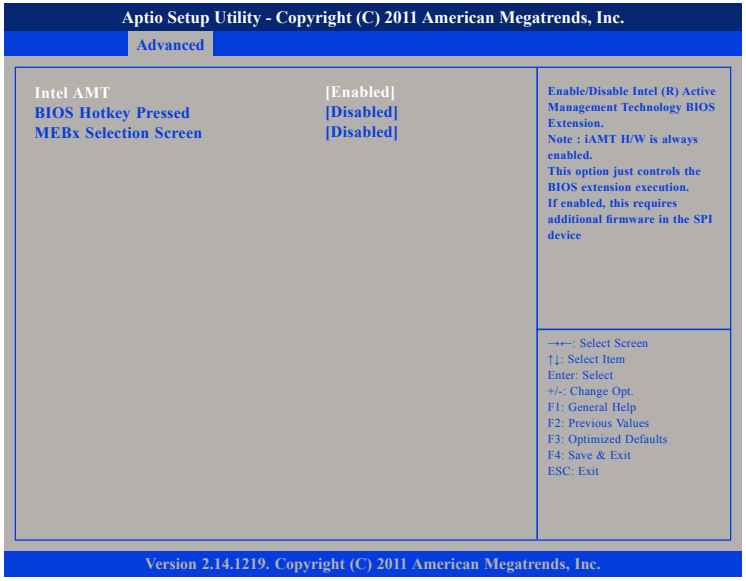
AMT Configuration

This section is used to configure Active Management Technology (AMT) options.



Intel® AMT

Enables or disables Intel® Active Management Technology.

BIOS Hotkey Pressed

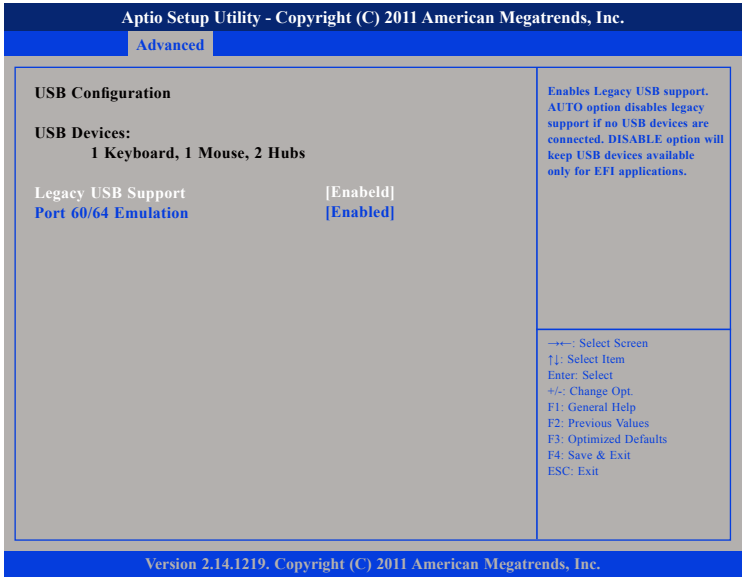
Enables or disables BIOS hotkey press.

MEBx Selection Screen

Enables or disables MEBx selection screen.

USB Configuration

This section is used to configure the USB.



Legacy USB Support

Enable Enables Legacy USB.
Auto Disables support for Legacy when no USB devices are connected.
Disable Keeps USB devices available only for EFI applications.

Port 60/64 Emulation

Enables the 60h/64h I/O port emulation. You must enable this to fully support USB keyboard legacy for non-USB OSes.

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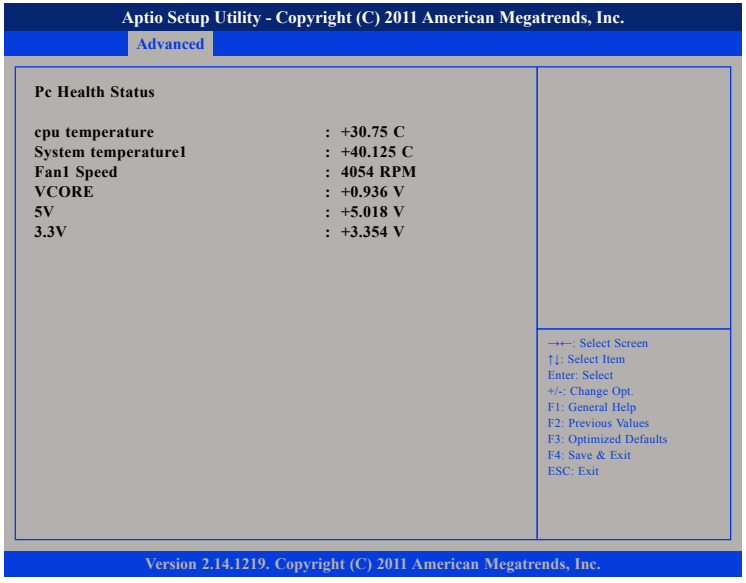
H/W Monitor

This section is used to monitor hardware status such as temperature, fan speed and voltages.



CPU Temperature
Detects and displays the current CPU temperature.

System Temperature1
Detects and displays the current system temperature.

Fan1 Speed
Detects and displays the speed of fan1.

VCORE
Detects and displays the Vcore CPU voltage.

+5V
Detects and displays 5V voltage.

+3.3V
Detects and displays 3.3V voltage.

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W83627DHG Super IO Configuration

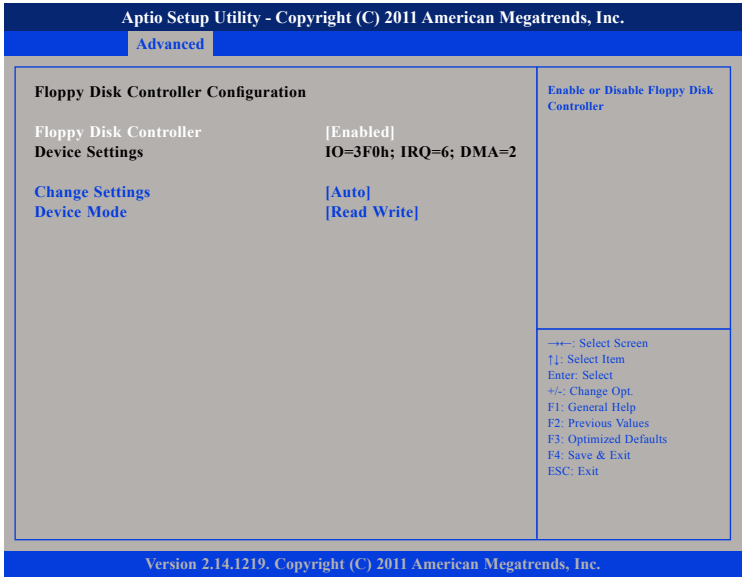
This section is used to configure serial ports 0 and 1, floppy disk and parallel port.

W83627DHG Super IO Chip

Displays the Super I/O chip used on the board.

Floppy Disk Controller Configuration

This section is used to configure the floppy disk controller.



Serial Port

Enables or disables the floppy disk controller.

Change Settings

Selects an optimal setting for the Super IO device.

Device Mode

Changes the mode of the floppy disk controller. Select 'Read Write' for normal operation. Select 'Write Protect' mode for read only operation.

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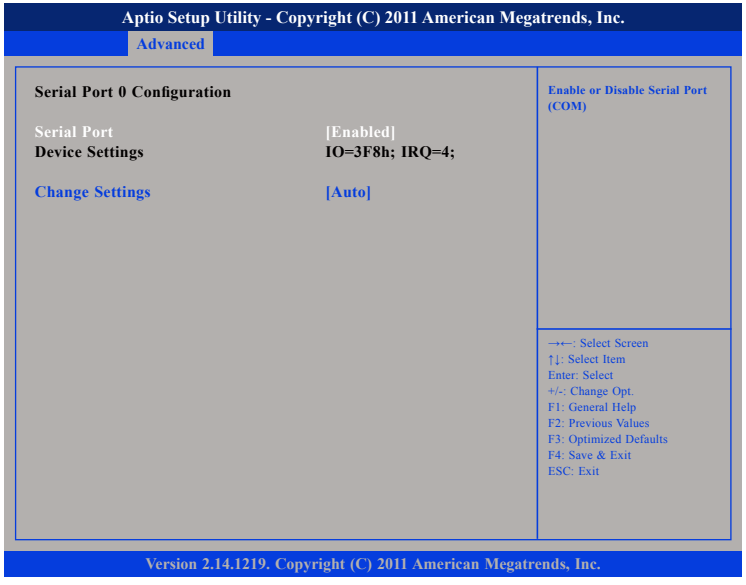
Serial Port 0 Configuration

This section is used to configure serial port 0.



Serial Port

Enables or disables the serial port.

Change Settings

Selects an optimal setting for the Super IO device.

Serial Port 1 Configuration

This section is used to configure serial port 1.

Serial Port

Enables or disables the serial port.

Change Settings

Selects an optimal setting for the Super IO device.

Device Mode

Changes the serial port mode.

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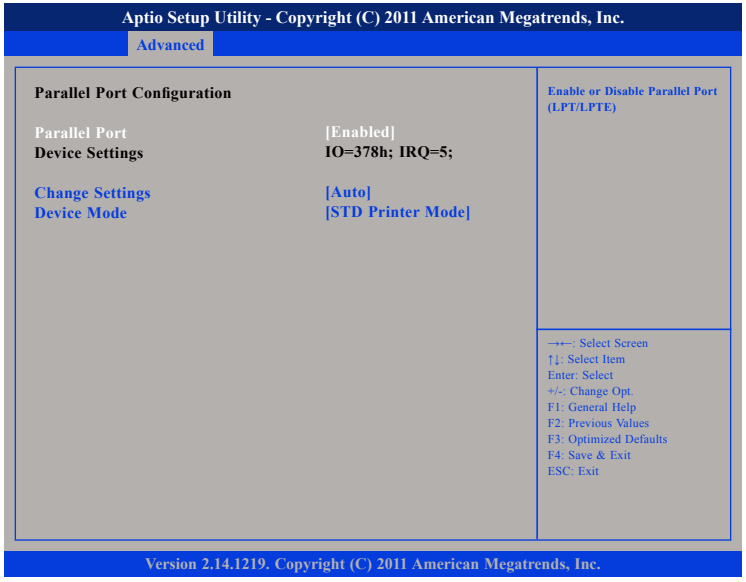
Parallel Port Configuration

This section is used to configure the parallel port.



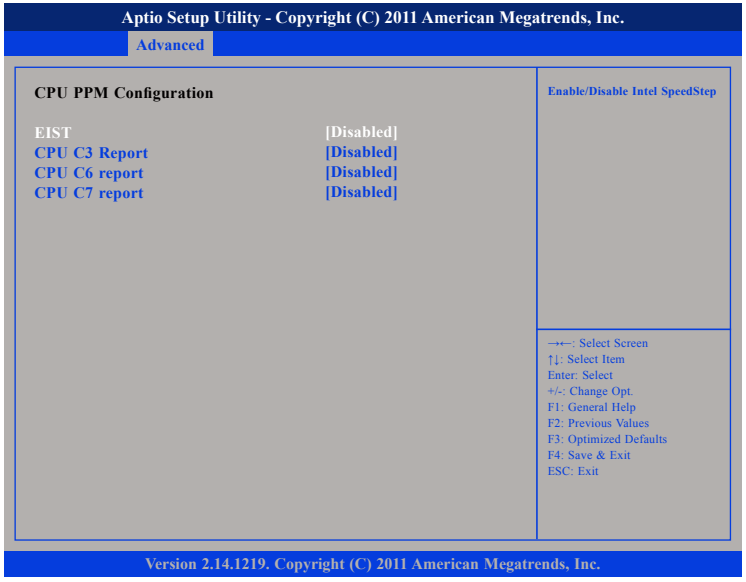
Parallel Port
Enables or disables the parallel port.

Change Settings
Selects an optimal setting for the Super IO device.

Device Mode
Configures the operating mode of the parallel port.

CPU PPM Configuration

This section is used to configure the Processor Power Management (PPM) configuration.



EIST
Enables or disables Intel® SpeedStep.

CPU C3 Report
Enables or disables C3 report to the operating system.

CPU C6 Report
Enables or disables C6 report to the operating system.

CPU C7 Report
Enables or disables C7 report to the operating system.

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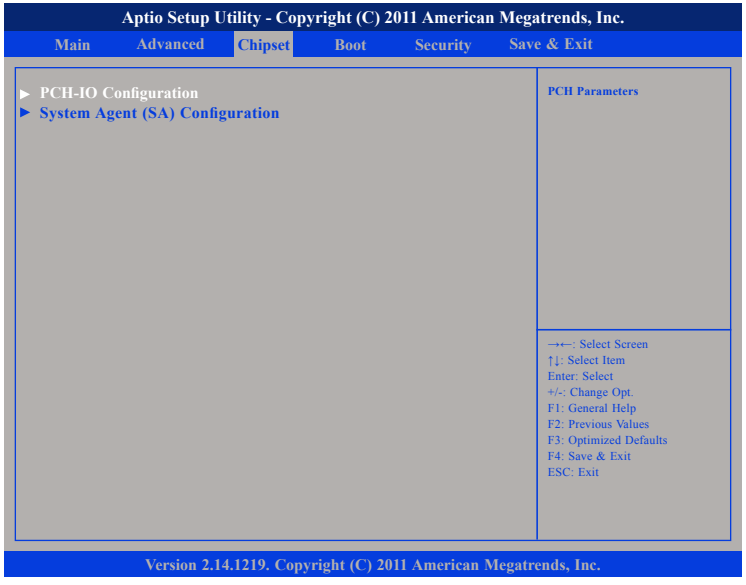
Chipset

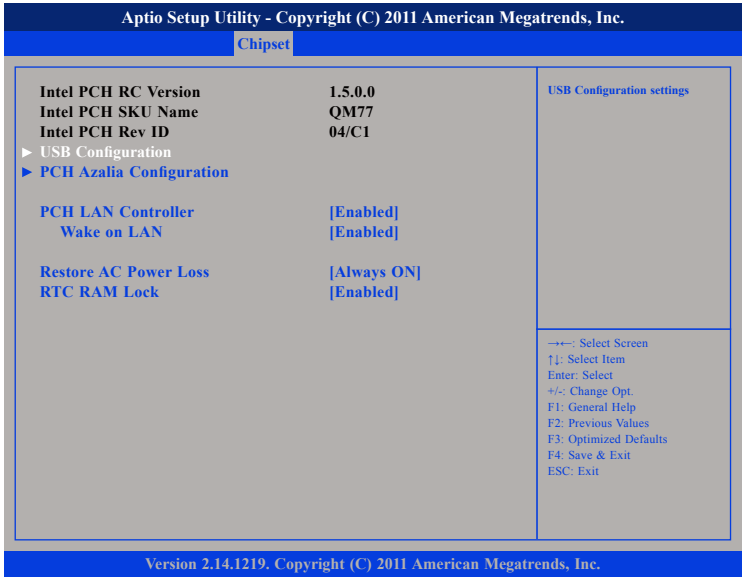
This section gives you functions to configure the system based on the specific features of the chipset. The chipset manages bus speeds and access to system memory resources.



Setting incorrect field values may cause the system to malfunction.

PCH-IO Configuration

This section is used to configure PCH-IO configuration.



PCH LAN Controller
Enables or disables onboard NIC.

Wake on LAN
Enables or disables integrated LAN to wake the system.

Restore AC Power Loss
Select AC power state when power is re-applied after a power failure.

RTC RAM Lock
Enables or disables RTC RAM lock.

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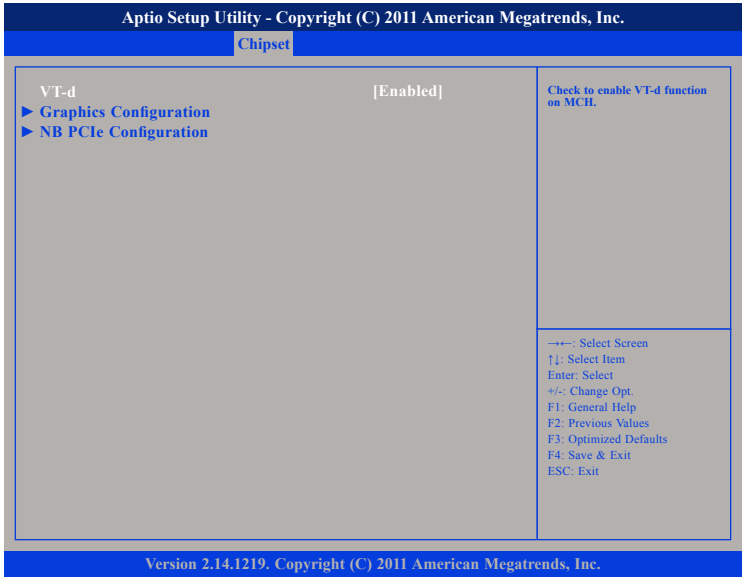
System Agent (SA) Configuration



VT-d

Enables or disables VT-d function on MCH.

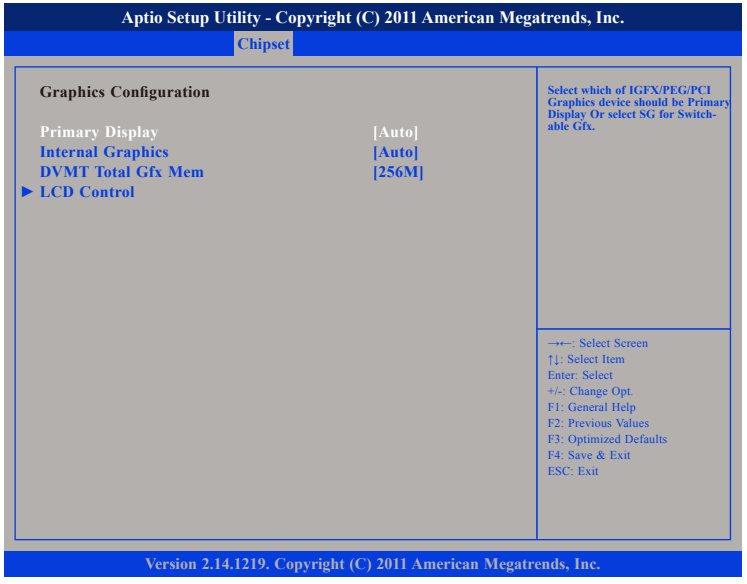
Graphics Configuration

Configures the graphic chip settings.

NB PCIe Configuration

Configures the NB PCI Express settings.

Graphics Configuration



Primary Display

Select which of IGFX/PEG/PCI graphics device should be primary display or select SG for switchable Gfx.

Internal Graphics

Keep IGD enabled based on the setup options.

DVMT Total Gfx Mem

Select DVMT5.0 Total Graphic Memory size used by the Internal Graphics Device.

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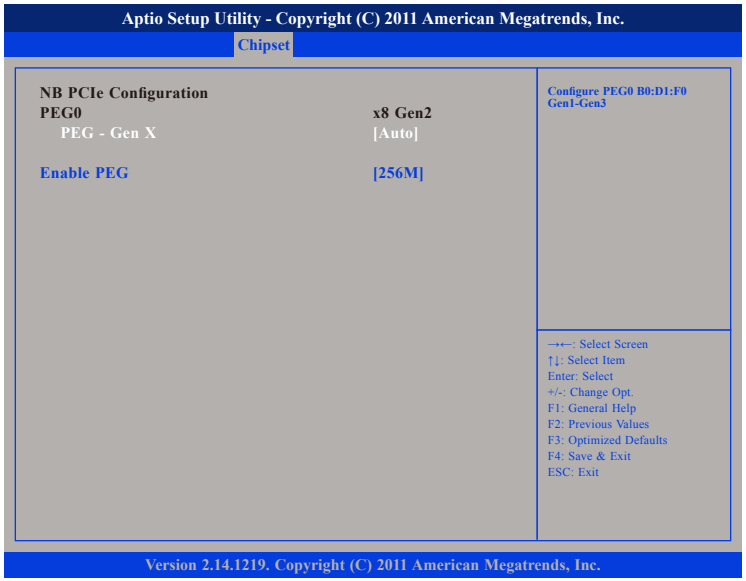
NB PCIe Configuration

This section is used to configure Northbridge PCI Express settings.



PEG0 - Gen X

Configure PEG0 B0:D1:F0 Gen1-Gen3.

Enable PEG

Enables or disables the PEG slot.

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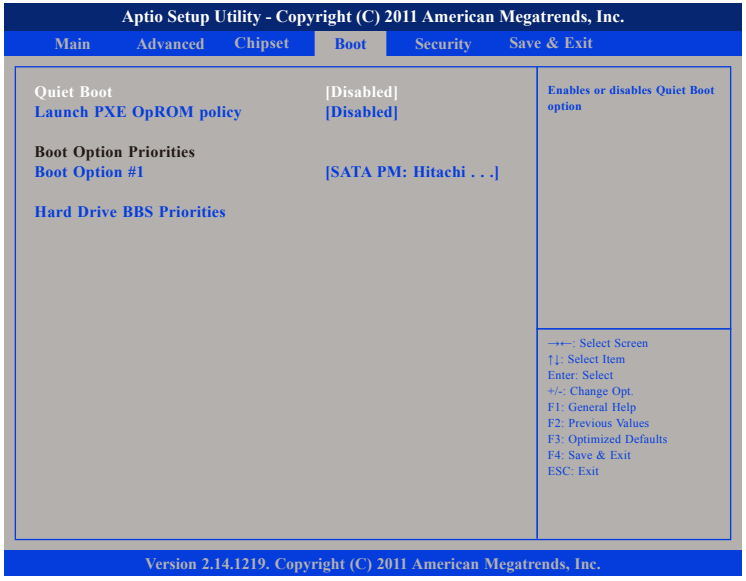
Boot

This section is used to configure the boot features.



Quiet Boot

Enabled Displays OEM logo instead of the POST messages.
Disabled Displays normal POST messages.

Launch PXE OpROM Policy

Controls the execution of UEFI and legacy PXE OpROM.

Boot Option Priorities

Adjust the boot sequence of the system. Boot Option #1 is the first boot device that the system will boot from, next will be #2 and so forth.

Hard Drive BBS Priorities

Sets the order of the legacy devices in this group.

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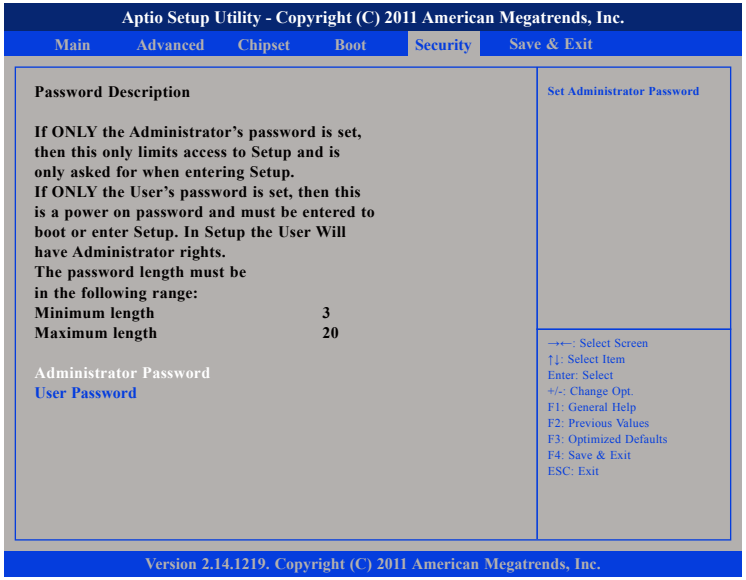
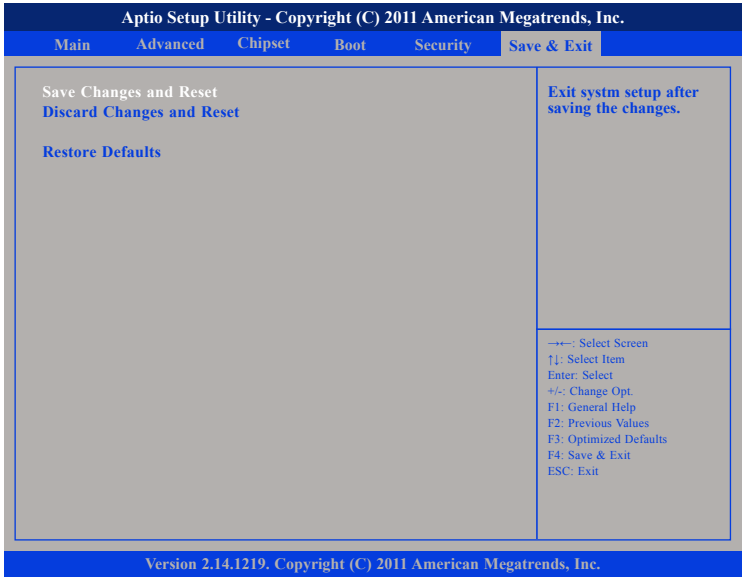
Security



Administrator Password
Select this to reconfigure the administrator's password.

User Password
Select this to reconfigure the user's password.

Save & Exit



Save Changes and Reset
To save the changes and reset, select this field then press <Enter>. A dialog box will appear. Confirm by selecting Yes.

Discard Changes and Reset
To exit the Setup utility and reboot the system without saving the changes, select this field then press <Enter>. You may be prompted to confirm again before exiting.

Restore Defaults
To restore the BIOS to default settings, select this field then press <Enter>. A dialog box will appear. Confirm by selecting Yes.

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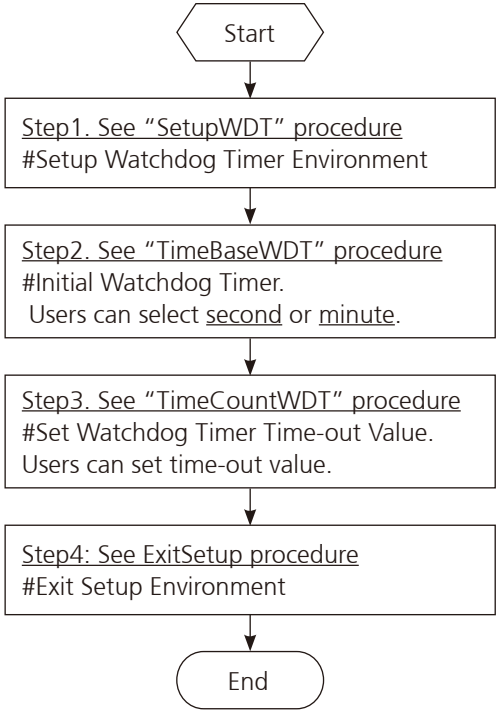
Appendix A: Watchdog Timer

WDT Programming Guide

ICES 268 Watch Dog Function Configuration Sequence Description:



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```
;------------------------------------------------
SetupWDT PROC
mov dx, 2eh
mov al, 087h
out dx, al
nop
nop
out dx, al ;Write operations to special address port (2E) for entering MB PnP Mode.
mov al, 07h
out 2eh, al
mov al, 08h ;Select logical device for Watch Dog.
out 2fh, al
ret
SetupWDT ENDP
;------------------------------------------------
TimeBaseWDT PROC
mov al, 0F5h
out 2eh, al
mov al, 04h ; Here!! set 04h for second, set 0Ch for minute(WDT output through WDTO)
out 2fh, al
ret
TimeBaseWDT ENDP
;------------------------------------------------
TimeCountWDT PROC
mov al, 0F6h ;WDT Time-out register.
out 2eh, al
mov al, 03h ;Here!! Set count 3.
out 2fh, al
ret
TimeCountWDT ENDP
;------------------------------------------------
ExitSetup PROC
mov al, 0AAh
out 2eh, al
ret
ExitSetup ENDP
;------------------------------------------------
```

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