NEXCOM

NEXCOM International Co., Ltd.

Industrial Computing Solutions
Fan-less Computer
NISE 3520 Series
User Manual

www.nexcom.com

Contents

Chapter 3: System Setup

Chapter 4: BIOS Setup

Chapter 5: AMT Settings

Appendix A: Power Consumption........................ 95

Appendix B: GPI/O Programming Guide.............. 97

Appendix C: Watchdog Timer Setting.................. 98

Appendix D: Intel Embedded AMT Management Express KVM..................................... 100

Appendix E: Intel Manageability Command Tool - KVM.. 107

Preface

Copyright

This publication, including all photographs, illustrations and software, is protected under international copyright laws, with all rights reserved. No part of this manual may be reproduced, copied, translated or transmitted in any form or by any means without the prior written consent from NEXCOM International Co., Ltd.

Disclaimer

The information in this document is subject to change without prior notice and does not represent commitment from NEXCOM International Co., Ltd. However, users may update their knowledge of any product in use by constantly checking its manual posted on our website: http://www.nexcom.com. NEXCOM shall not be liable for direct, indirect, special, incidental, or consequential damages arising out of the use of any product, nor for any infringements upon the rights of third parties, which may result from such use. Any implied warranties of merchantability or fitness for any particular purpose is also disclaimed.

Acknowledgements

NISE 3520 Series is a trademark of NEXCOM International Co., Ltd. All other product names mentioned herein are registered trademarks of their respective owners.

Regulatory Compliance Statements

This section provides the FCC compliance statement for Class 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

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

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

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

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

How 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.

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.

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.

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 needlenose pliers to disconnect connections as these can damage the soft metal or plastic parts of the connectors.

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. Do not leave this equipment in either an unconditioned environment or in a above 40°C storage temperature as this may damage the equipment.

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

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

10. 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.

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

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

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

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

15. 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.

16. Do not place heavy objects on the equipment.

17. 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.

18. 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.

19. The computer is provided with CD drives that comply with the appropriate safety standards including IEC 60825.

Technical Support and Assistance

1. For the most updated information of NEXCOM products, visit NEX-COM'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.

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.tw

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
Taichung 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
www.nexcom.com.tw

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, Building 21,
ZhongGuanCun Software Park, No.8,
Dongbeiwang West Road, 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: +86-755-833 7203
Fax: +86-755-833 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

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

Package Contents

Before continuing, verify that the NISE 3520 Series package that you received is complete. Your package should have all the items listed in the following table.

Item	P/N	Name	Qty
1	60233POW33X00	DC Power Cord	1
2	6012200053X00	PE ZIPPER BAG #3, 100x70mm	1
3	6012200052X00	PE ZIPPER BAG #8, 170x240mm	1
4	6023344361X00	CABLE, COM PORT HDB 44PIN TO D-SUB 9PIN MALEx4 L=250mm BLACK	1
5	6029900037X00	DOW CORNING 340 Silcone Heat Sink Compound(3g)	1
6	4NCPM00203X00	TERMINAL BLOCKS 2P PHOENIX CONTACT, 3.81mm	1
7	50311F0110X00	FLAT HEAD SCREW, F3x5	4
8	602DCD0269X00	NISB3500 CD DRIVER	1
9	7800000014X00	DVI-I TO VGA ADAPTER	1
10	5060600087X00	MYLAR for PCI Bracket Use	1
11	50311P0001X00	PRICE FOR PLASTIC SCREW	1
12	60233MK202X00	CABLE, Y PS/2 1 TO 2 KEYBOARD/MOUSE L:150mm	1
13	50322P0001X00	PLASTIC NUT, 11mmx6mm	1
14	50311C0006X00	HEAD SCREW	2
15	60177B0065X00	NISE3500 QUICK REFERENCE GUIDE	1

Ordering Information

The following provides ordering information for NISE 3520 Series.

- **Barebone**
  NISE 3520 (P/N: 10J00352000X0) RoHS Compliant
  - Intel® Core™ i7/i5 fanless system
  - 1 x PCI expansion slot

  NISE 3520P2 (P/N: 10J00352002X0) RoHS Compliant
  - Intel® Core™ i7/i5 fanless system
  - 2 x PCI expansion slots

  NISE 3520P2E (P/N: 10J00352003X0) RoHS Compliant
  - Intel® Core™ i7/i5 fanless system
  - 1 PCI, 1 PCIe x1 expansion slot

  19V, 120W AC/DC Power Adapter w/o power cord
  (P/N: 7410120002X00)

Chapter 1: Product Introduction

Overview

Front

Rear

Key Features

- Intel® Core™ i7/i5 socket processor
- Mobile Intel® QM57 PCH
- Dual Intel® Gigabit Ethernet ports
- Dual VGA or VGA/DVI or DVI/HDMI Independent Display
- 3x RS232 and 1x RS232/422/485 with Auto Flow Control
- 1x PCI (NISE 3520)
  2x PCI (NISE 3520P2)
  1x PCI, 1x PCIe x1 (NISE 3520P2E)

- 1x Mini PCIe socket with mobile interface
- 1x external SIM card holder
- Onboard DC to DC power design to support 9V to 30V DC power input
- Supports ATX power mode and PXE/WOL

Hardware Specifications

Main Board
- NISB 3520
- Onboard Mobile Intel® QM57 Platform Controller Hub
- Supports Intel® Core™ i7-620M PGA Processor (2.66GHz, 4M Cache)
- Supports Intel® Core™ i5-520M PGA Processor (2.4GHz, 3M Cache)
- Supports Intel® P4500 PGA Processor (1.86GHz, 2M Cache)

Main Memory
- 2x 240-pin memory DIMM, up to 4GB DDR3 800/1066MHz SDRAM, unbuffered and non-ECC

Note: The actual memory size is dynamic. It is based on the OS I/O resource allocation.

I/O Interface - Front
- ATX power on/off switch
- GSM: RF on / RF Active LEDs
- HDD Access / Power status LEDs
- 2x antenna holes
- 2x USB 2.0 ports
- 1x Line-out and 1x Mic-in
- 1x HDMI
- 1x external SIM card holder

I/O Interface - Rear
- 2-pin Remote Power on/off switch
- 9 ~ 30V DC input
- 1x PS/2 for Keyboard/Mouse
- 1x DB15 male connector for GPIO (4x input and 4x output)
- 1x DB44 Serial Port for 4x RS232
  (COM2: RS232/422/485 with auto flow control)
- 2x Gbe LAN ports
- 4x USB 2.0 ports
- 1x DB15 VGA port
- 1x DVI-I Port
- 1x Speaker-out
- 1x Mic-in

Device
- 1x 2.5" HDD drive bay

Expansion
- NISE 3520
  - 1x PCI expansion: Add-on card length: 169mm max
  - 1x Mini PCIe socket with mobile interface
- NISE 3520P2
  - 2x PCI expansion: Add-on card length: 169mm max
  - 1x Mini PCIe socket with GSM Audio
- NISE 3520P2E
  - 1x PCI expansion: Add-on card length: 169mm max
  - 1 PCIe x1 expansion: Add-on card length: 169mm max
  - 1x Mini PCIe socket with GSM Audio

Power Requirements
- ATX power mode
- Onboard DC to DC power support from 9V to 30V DC
- Optional power adapter

Dimensions
- NISE 3520
  - 195mm (W) x 268mm (D) x 80mm (H) (7.7" x 10.5" x 3.1")
- NISE 3520P2
  - 195mm (W) x 268mm (D) x 101mm (H) (7.7" x 10.5" x 3.98")
- NISE 3520P2E
  - 195mm (W) x 268mm (D) x 101mm (H) (7.7" x 10.5" x 3.98")

Construction
- Aluminum chassis with fanless design

Environment
- Operating temperature:
  Ambient with airflow: -5°C to 55°C
  (According to IEC60068-2-1, IEC60068-2-2, IEC60068-2-14)
- Storage temperature: -20°C to 80°C
- Relative humidity: 10% to 93% (Non-Condensing)

Certifications
- CE approval
- FCC Class A

Getting to Know NISE 3520 Series

Front Panel
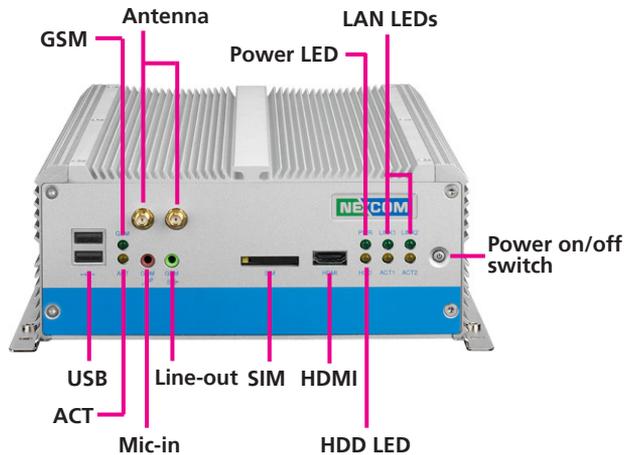
USB
Used to connect USB 2.0/1.1 devices.

GSM
Indicates the GSM's RF On status.

ACT
Indicates the GSM's RF Active status.

GSM Mic-in
Used to connect an external microphone.

GSM Line-out
Used to connect a headphone or a speaker.

Antenna Holes for Optional WiFi
Used to connect an optional Mini PCIe WiFi module.

SIM
Used to insert a SIM card.

HDMI
Used to connect devices that support HDMI.

Power LED
Indicates the power status of the system.

HDD LED
Indicates the status of the hard drive.

Wireless Active LEDs
Indicate the status of the LAN ports.

Power On/Off Switch
Press to power-on or power-off the system.

Rear Panel
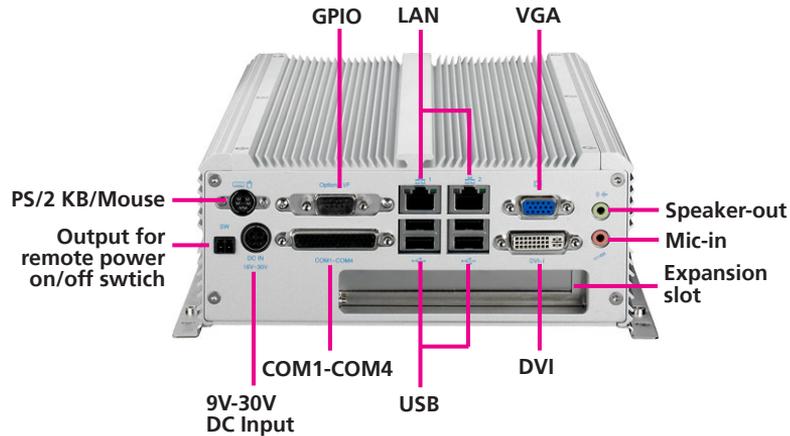
Output for Remote Power On/Off Switch
Used to connect a remote to power on/off the system.

PS/2 Keyboard/Mouse
Used to connect a PS/2 keyboard and PS/2 mouse via a cable.

9V-30V DC Input
Used to plug a DC power cord.

GPIO
The GPIO connector supports 4 digital input and 4 digital output.

COM1 to COM4
The DB44 port supports 3 RS232 and 1 RS232/422/485 compatible serial devices.

LAN
Used to connect the system to a local area network.

USB
Used to connect USB 2.0/1.1 devices.

VGA
Used to connect an analog VGA monitor.

DVI
Used to connect a digital LCD panel.

Expansion Slot
1 expansion slot (NISE 3520) or 2 expansion slots (NISE 3520P2/P2E).

Speaker-out
Used to connect a headphone or a speaker.

Mic-in
Used to connect an external microphone.

Mechanical Dimensions

NISE 3520
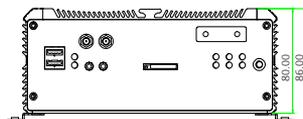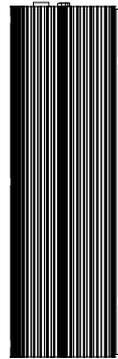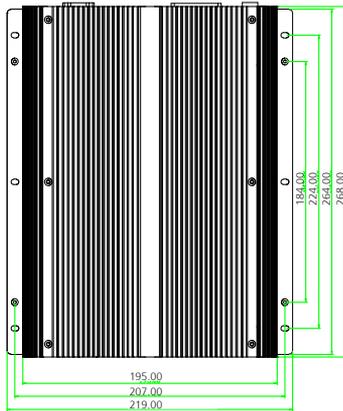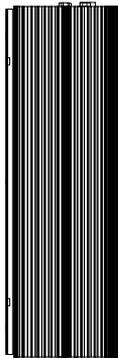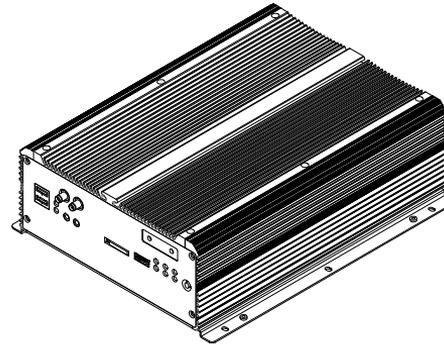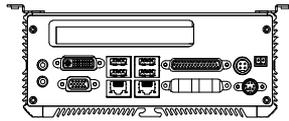
NISE 3520P2/3520P2E
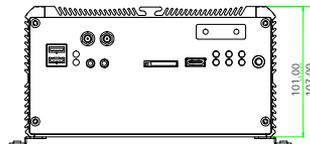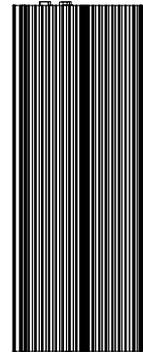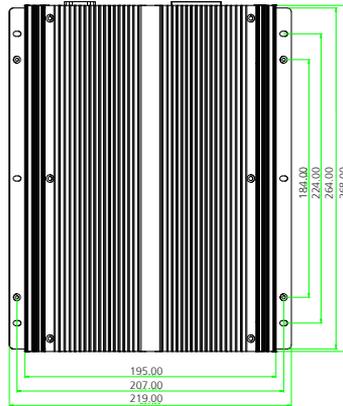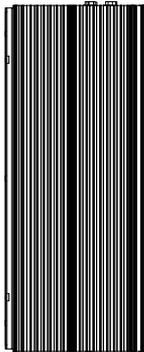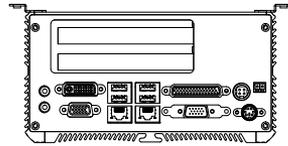
Chapter 2: Jumpers and Connectors

This chapter describes how to set the jumpers on the motherboard. Note that the following procedures are generic for all NISE 3520 series.

Before You Begin

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

- Adequate lighting and proper tools can prevent you from accidentally damaging the internal components. Most of the procedures that follow require only a few simple tools, including the following:
  - A Philips screwdriver
  - A flat-tipped screwdriver
  - A set of jewelers Screwdrivers
  - A grounding strap
  - An anti-static pad

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

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

Precautions

Computer components and electronic circuit boards can be damaged by discharges of static electricity. Working on the computers that are still connected to a power supply can be extremely dangerous.

Follow the guidelines below to avoid damage to your computer or yourself:

- Always disconnect the unit from the power outlet whenever you are working inside the case.

- If possible, wear a grounded wrist strap when you are working inside the computer case. Alternatively, discharge any static electricity by touching the bare metal chassis of the unit case, or the bare metal body of any other grounded appliance.

- Hold electronic circuit boards by the edges only. Do not touch the components on the board unless it is necessary to do so. Don't flex or stress the circuit board.

- Leave all components inside the static-proof packaging that they shipped with until they are ready for installation.

- Use correct screws and do not over tighten screws.

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)
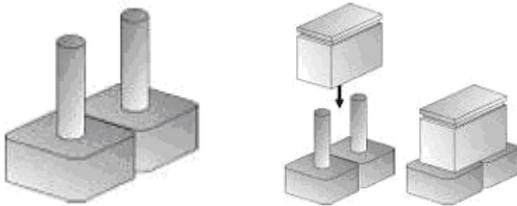
Three-Pin Jumpers: Pins 1 and 2 Are Short
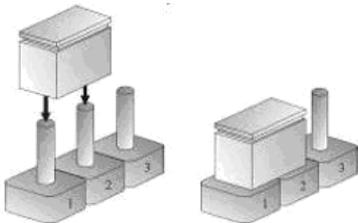
Locations of the Jumpers and Connectors

NISB 3520

The figure below is the top view of the NISB 3520 main board which is the main board used in the NISE 3520 Series system. It shows the locations of the jumpers and connectors.
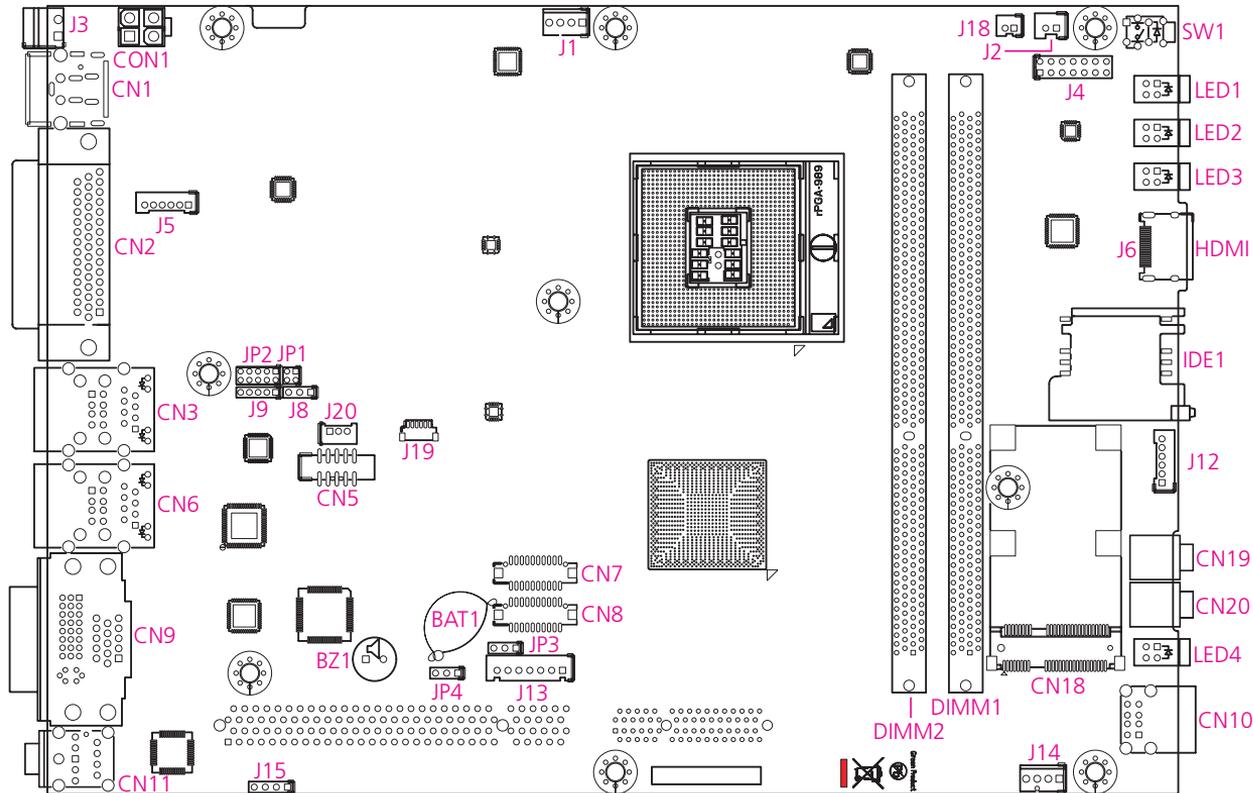
The figure below is the bottom view of the NISB 3520 main board.
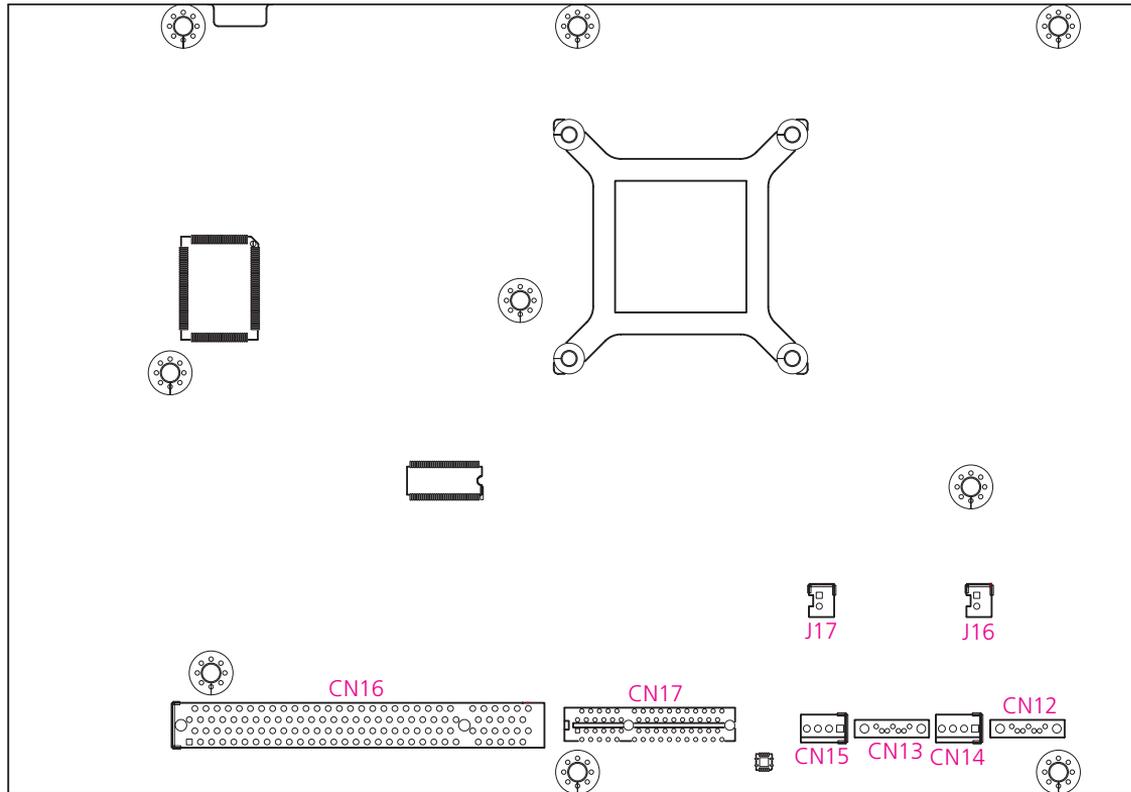
Jumpers

Clear CMOS

Connector type: 1x3 3-pin header, 2.54 mm pitch
Connector location: JP4

1 ☐ ○ ○ **3**

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

1-2 On: default

Pin	Definition
1	RTCRST#_PU
2	RTCRST#
3	CLR_CMOS

Connector Pin Definitions

External I/O Interface - Front Panel

USB3 Ports

Connector type: Dual USB port
Connector location: CN10
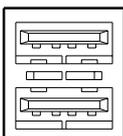
Pin	Definition	Pin	Definition
1	P5V_USB_P89	7	USB9+
2	USB8-	8	USB1_GND
3	USB8+	22	USB1_GND
4	USB1_GND	23	USB1_GND
5	P5V_USB_P89	26	USB1_GND
6	USB9-	27	USB1_GND

GSM LEDs

GSM

ACT

Status	LED Color
GSM	Green
ACT	Yellow

Mic-in Jack

Connector type: 5-pin jack, 25.9x12.6x17.0mm
Connector location: CN20
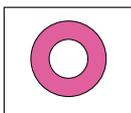
Pin	Definition
1	MIC_L
2	NA
3	NA
4	MIC_R
5	GND
6	GND

Line-out Jack

Connector type: 5-pin jack, 25.9x12.6x17.0mm
Connector location: CN19
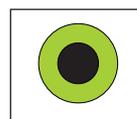
Pin	Definition
1	LOUT_R
2	NA
3	NA
4	LOUT_L
5	GND
6	GND

SIM Card Connector

Connector location: IDE1
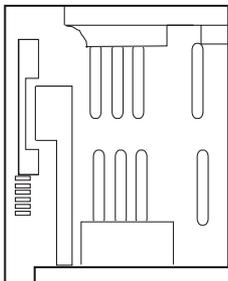
Pin	Definition	Pin	Definition
C1	3VSB	C2	RESET
C3	CLK	C5	GND
C6	VCCP	C7	DATA
SW	GND		

HDMI Connector

Connector type: HDMI
Connector location: J6
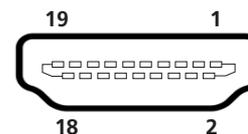
Pin	Definition	Pin	Definition
1	HDMID_D2P	2	HDMID_GND
3	HDMID_D2N	4	HDMID_D1P
5	HDMID_GND	6	HDMID_D1N
7	HDMID_D0P	8	HDMID_GND
9	HDMID_D0N	10	HDMID_LKP
11	HDMID_GND	12	HDMID_LKN
13	NC	14	NC
15	HDMID_CTL_CLK	16	HDMID_CTL_SDA
17	HDMID_GND	18	VCC5
19	HPD	MH1	HDMID_GND
MH2	HDMID_GND		

Status Indicators

Connector location: LED3

PWR

🟢

🟡

HDD

Status	LED Color
PWR	Green
HDD	Yellow

LAN1/LAN2 Link/Active LEDs

Connector location: LED1 and LED2

LINK1 **LINK2**

🟢 🟢

🟡 🟡

ACT1 **ACT2**

Pin	Definition
C1	LAN2_LINK_N
C2	LAN2_ACT_N
A1	LAN2_LINK_P
A2	LAN2_ACT_P

ATX Power On/Off Switch

Connector location: SW1

Pin	Definition
On	Blue light
Off	Red light

Pin	Definition	Pin	Definition
1	GND	2	PBT_PU
3	PBT_PU	4	GND
A1	PWRLED_N	C1	PWRLED_P
MH1	NC	MH2	NC

External I/O Interface - Rear Panel

Remote Power On/Off Switch

Connector type: 2-pin switch
Connector location: J3

Pin	Definition
1	GND
2	PBT_PU

PS/2 Keyboard/Mouse Port

Connector type: PS/2, Mini-DIN-6; JST-2.0mm-M-180
Connector location: J5
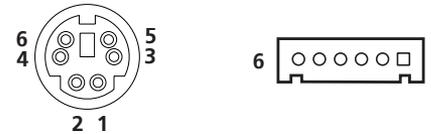
Pin	Definition	Pin	Definition
1	5VSB_KB	2	KDAT
3	KCLK	4	MDAT
5	MCLK	6	KBMS_GND

9V-30V DC Input

Connector type: POWER-F-90
Connector location: CN1
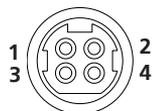
Pin	Definition	Pin	Definition
1	VIN	2	VIN
3	GND	4	GND
5	GND	MH1	GND
MH2	GND	MH3	GND
MH4	GND		

GPIO Connector

(4 digital input and 4 digital output)

Connector type: DB-15 port; 2x5 10-pin header, 2.0 mm-M-180
Connector location: JP2
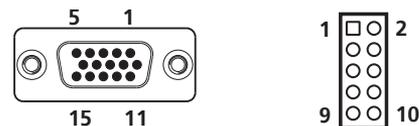
Pin	Definition	Pin	Definition
1	VCC5	2	GND
3	SIO_GPO24	4	SIO_GPI20
5	SIO_GPO25	6	SIO_GPI21
7	SIO_GPO26	8	SIO_GPI22
9	SIO_GPO27	10	SIO_GPI23

Serial Interface (COM 1 - COM 4)

Connector type: 44-pin D-Sub, 2x22 (12.55mm x 53.04mm)
Connector location: CN2
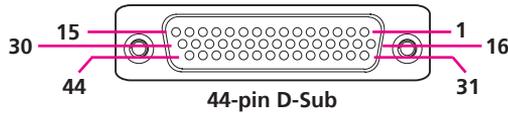
44-pin D-Sub

The 44-pin D-Sub connector is used to connect 4 external serial devices. Use the COM ports on the provided "DB44 to 4x DB9 COM port cable" (included in the package) to connect the devices.

COM port
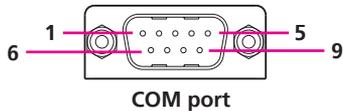
Pin	Definition	Pin	Definition
1	CN10_1	2	CN10_2
3	CN10_3	4	CN10_4
5	GND_COM	6	CN10_6
7	CN10_7	8	CN10_8
9	CN10_9	10	GND
11	CN10_11	12	CN10_12
13	CN10_13	14	CN10_14
15	GND_COM	16	CN10_16
17	CN10_17	18	CN10_18
19	CN10_19	20	GND_COM
21	CN10_21	22	CN10_22
23	CN10_23	24	CN10_24
25	GND_COM	26	CN10_26
27	CN10_27	28	CN10_28
29	CN10_29	30	GND_COM
31	CN10_31	32	CN10_32
33	CN10_33	34	CN10_34
35	GND_COM	36	CN10_36
37	CN10_37	38	CN10_38
39	SP4_RI_TI	40	GND_COM
41	NC	42	NC
43	NC	44	NC
MH1	GND_COM	MH2	GND_COM

COM1 (RS232) labelled "A" on DB9 Cable Connector					
DB44 Pin #	DB9 Pin #	Def.	DB44 Pin #	DB9 Pin #	Def.
1	1	DCD1	2	2	RXD1
3	3	TXD1	4	4	DTR1
5	5	GND	6	6	DSR1
7	7	RTS1	8	8	CTS1
9	9	RI1	10		GND

COM2 (RS232) labelled "B" on DB9 Cable Connector					
DB44 Pin #	DB9 Pin #	Def.	DB44 Pin #	DB9 Pin #	Def.
11	1	DCD2	12	2	RXD2
13	3	TXD2	14	4	DTR2
15	5	GND	16	6	DSR2
17	7	RTS2	18	8	CTS2
19	9	RI2	20		GND

COM3 (RS232) labelled "C" on DB9 Cable Connector					
DB44 Pin #	DB9 Pin #	Def.	DB44 Pin #	DB9 Pin #	Def.
21	1	DCD3	22	2	RXD3
23	3	TXD3	24	4	DTR3
25	5	GND	26	6	DSR3
27	7	RTS3	28	8	CTS3
29	9	RI3	30		GND

COM4 (RS232) labelled "D" on DB9 Cable Connector					
DB44 Pin #	DB9 Pin #	Def.	DB44 Pin #	DB9 Pin #	Def.
31	1	DCD4	32	2	RXD4
33	3	TXD4	34	4	DTR4
35	5	GND	36	6	DSR4
37	7	RTS4	38	8	CTS4
39	9	RI4	40		GND

Note: Pin 39 is defined as an external power source, which can be selected for 5V or 12V using J9.

COM2 (RS422) labelled "B" on DB9 Cable Connector					
DB44 Pin #	DB9 Pin #	Def.	DB44 Pin #	DB9 Pin #	Def.
11	1	TXD-	12	2	TXD+
13	3	RXD+	14	4	RXD-
15	5	GND	16	6	RTS-
17	7	RTS#	18	8	CTS+
19	9	CTS-	20		GND

COM2 (RS485) labelled "B" on DB9 Cable Connector					
DB44 Pin #	DB9 Pin #	Def.	DB44 Pin #	DB9 Pin #	Def.
11	1	TXD-	12	2	TXD+
		RXD-			RXD+
13	3	Reserved	14	4	Reserved
15	5	Reserved	16	6	Reserved
17	7	Reserved	18	8	Reserved
19	9	Reserved	20		Reserved

LAN1 Port

Connector type: RJ45 port with LEDs
Connector location: CN3B
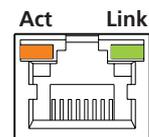
Act   **Link**

Act	Status
Orange Blinking	Data Activity
Off	No Acitivity

Link	Status
Green Always Lighted	Linked
Off	No Link

Pin	Definition	Pin	Definition
09	LAN1_M0P	10	LAN1_M0N
11	LAN1_M1P	12	LAN1_M2P
13	LAN1_M2N	14	LAN1_M1N
15	LAN1_M3P	16	LAN1_M3N
17	LAN1_LED1P	18	LAN1_LED_ACT#
19	LAN1_LED2P	20	LAN1_LINK#
21	UL_GND	24	UL_GND
25	UL_GND	28	UL_GND

LAN2 Port

Connector type: RJ45 port with LEDs
Connector location: CN6B
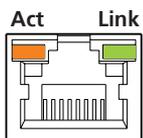
Act   Link

Act	Status
Orange Blinking	Data Activity
Off	No Acitivity

Link	Status
Green Always Lighted	Linked
Off	No Link

Pin	Definition	Pin	Definition
09	LAN2_M0P	10	LAN2_M0N
11	LAN2_M1P	12	LAN2_M2P
13	LAN2_M2N	14	LAN2_M1N
15	LAN2_M3P	16	LAN2_M3N
17	LAN2_LED1P	18	LAN2_LED_ACT#
19	LAN2_LED2P	20	LAN2_LINK#
21	UL_GND	24	UL_GND
25	UL_GND	28	UL_GND

USB1 Ports

Connector type: Dual USB port
Connector location: CN3A
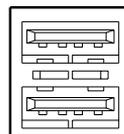
Pin	Definition	Pin	Definition
1	P5V_USB_P01	7	USB1+
2	USB0-	8	UL_GND
3	USB0+	22	UL_GND
4	UL_GND	23	UL_GND
5	P5V_USB_P01	26	UL_GND
6	USB1-	27	UL_GND

USB2 Ports

Connector type: Dual USB port
Connector location: CN6A
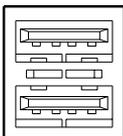
Pin	Definition	Pin	Definition
1	P5V_USB_P23	7	USB3+
2	USB2-	8	UL_GND
3	USB2+	22	UL_GND
4	UL_GND	23	UL_GND
5	P5V_USB_P23	26	UL_GND
6	USB3-	27	UL_GND

VGA Port

Connector type: DB-15 port, 15-pin D-Sub
Connector location: CN9B
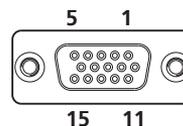
Pin	Definition	Pin	Definition
1	RED_VGA	10	DVI_GND
2	GREEN_VGA	11	DVI_GND
3	BLUE_VGA	12	DATA_V
4	DVI_GND	13	HS_VGA
5	DVI_GND	14	VS_VGA
6	DVI_GND	15	CLK_V
7	DVI_GND	MH3	DVI_GND
8	DVI_GND	MH4	DVI_GND
9	VGA_+5V		

DVI-I Port

Connector type: 29-pin D-Sub, Female 90°
Connector location: CN9A
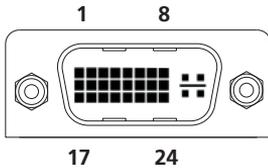
Pin	Function	Pin	Function
01	HDMI_DATA2_N	2	HDMI_DATA2_P
03	DVI_GND	4	NC
05	NC	6	HDMI_CTL_CLK
07	HDMI_CTL_SDA	8	DC_VSYNC_VGA
09	HDMI_DATA1_N	10	HDMI_DATA1_P
11	DVI_GND	12	NC
13	NC	14	HDMIC_PWR_S
15	DVI_GND	16	HDMIC_HPDET
17	HDMI_DATA0_N	18	HDMI_DATA0_P
19	DVI_GND	20	DC_DATA_VGA
21	DC_CLK_VGA	22	NC
23	HDMI_LKP	24	HDMI_LKN
C1	DC_RED_VGA	C2	DC_GREEN_VGA
C3	DC_BLUE_VGA	C4	DC_HSYNC_VGA
C5A	DVI_GND	C5B	DVI_GND

Speaker-out Jack

Connector type: 5-pin jack, 25.9x12.6x17.0mm
Connector location: CN11B

Pin	Definition
22	FRONT_LCI
23	AU_GND
24	FRONT-JD
25	FRONT_RCI
NH1	NC

Mic-in Jack

Connector type: 5-pin jack, 25.9x12.6x17.0mm
Connector location: CN11A

Pin	Definition
1	AU_GND
2	MIC_OUT-L
3	AU_GND
4	MIC_JD1
5	MIC_OUT-R
MH1	AU_GND
MH2	AU_GND
MH3	AU_GND
MH4	AU_GND

Internal Connectors

DC Power Output Connector

Connector type: 2x2 AUX Power
Connector location: CON1
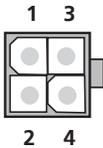
Pin	Definition
1	GND
2	GND
3	VIN
4	VIN

Reset Connector

Connector type: 1x2 2-pin header, JST 2.5mm-M-90
Connector location: J2

Pin	Definition
1	PM_RESET#_JP
2	GND

SMBus DATA/CLK Connector

Connector type: 1x3 3-pin header 2.54mm-M-180
Connector location: J8

Pin	Definition
1	SMB_CLK
2	SMB_DATA
3	GND

LVDS Backlight Power Select

Connector type: 1x3 3-pin header 2.54mm-M-180
Connector location: JP3

Pin	Definition
1	VCC5
2	PANEL1_VDD
3	VCC3

2-3 On: default

LVDS Connectors

Connector type: LCD-1.25mm-M-180
Connector location: CN7, CN8
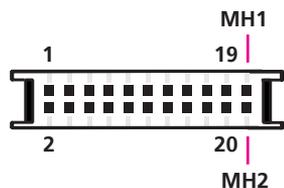
Pin	Definition	Pin	Definition
1	L_DDC_CLK	2	L_DDC_DATA
3	VDD	4	LA_DATAP0
5	LA_DATAP3	6	LA_DATAN0
7	LA_DATAN3	8	VDD
9	GND_LVDS	10	LA_DATAP1
11	LA_CLKP	12	LA_DATAN1
13	LA_CLKN	14	GND_LVDS
15	GND_LVDS	16	PANEL1_BACKLIGHT
17	LA_DATAP2	18	PANEL1_BACKLIGHT
19	LA_DATAN2	20	GND_LVDS
MH1	GND	MH2	GND

LVDS Backlight Connector

Connector type: 1x7 7-pin header JST-2.5mm-M-180
Connector location: J13
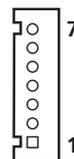
Pin	Definition
1	VCC5
2	PANEL1_BACKLIGHT
3	PANEL1_BACKLIGHT
4	L_BKLTCTL_R
5	GND
6	GND
7	L_BKLTEN

Line-in Connector

Connector type: 1x4 4-pin header 2.5mm-M-180
Connector location: J15

1 ☐○○○ **4**

Pin	Definition
1	LINE1-LP
2	GND
3	LINE1-JD
4	LINE1-RP

SATA1 Port

Connector type: Standard Serial ATAII 7P (1.27mm, SATA-M-180)
Connector location: CN12

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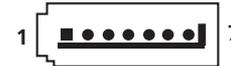
Pin	Definition
1	GND
2	SATA_TXP0
3	SATA_TXN0
4	GND
5	SATA_RXN0
6	SATA_RXP0
7	GND

SATA2 Port

Connector type: Standard Serial ATAII 7P (1.27mm, SATA-M-180)
Connector location: CN13
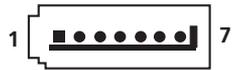
Pin	Definition
1	GND
2	SATA_TXP1
3	SATA_TXN1
4	GND
5	SATA_RXN1
6	SATA_RXP1
7	GND

SATA1 Power Connector

Connector type: 1x4 4-pin Wafer, 2.54mm-M-180
Connector location: CN15
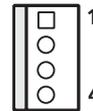
Pin	Definition
1	+12V
2	GND
3	GND
4	VCC5

SATA2 Power Connector

Connector type: 1x4 4-pin Wafer, 2.54mm-M-180
Connector location: CN14
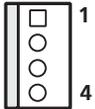
Pin	Definition
1	+12V
2	GND
3	GND
4	VCC5

SATA DOM Power Connectors

Connector type: 1x2 2-pin JST wafer, 2.54mm pitch
Connector location: J16, J17

Pin	Definition
1	+12V
2	GND

GPS Connector

Connector type: 1x6 6-pin JST, 2.54 mm pitch
Connector location: J19

6 ⬚⬚⬚⬚⬚⬚ 1

Pin	Definition
1	3VSB
2	NA
3	COM6_TXD
4	COM6_RXD
5	GND
6	VCC3
MH1	GND
MH2	GND

Power-on LED Connector

Connector type: 1x3 3-pin JST wafer, 2.54mm pitch
Connector location: J20

3 ⬚⬚⬚ 1
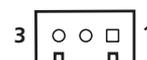
Pin	Definition
1	V_IN
2	LED_PWRN
3	GND

USB4 Connector

Connector type: 1x6 6-pin JST, JST-2.0mm-M-180
Connector location: J12
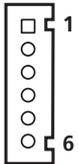
Pin	Definition
1	P5V_USB_P1011
2	USB10-
3	USB10+
4	NA
5	NA
6	USB2_GND

COM4 RI# Connector

Connector type: 1x5 5-pin header 2.0mm -M-180
Connector location: J9
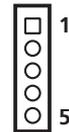
Pin	Definition
1	VCC5
2	SP4_RI_T
3	+12V
4	SP4_RI_T
5	SP4_RI

4-5 On: default

COM5 Connector

Connector type: 2x5 10-pin boxed header, 2.0mm-M-180
Connector location: CN5
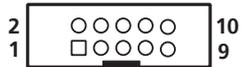
Pin	Definition	Pin	Definition
1	SP5_DCD	2	SP5_RXD
3	SP5_TXD	4	SP5_DTR
5	GND_COM5	6	SP5_DSR
7	SP5_RTS	8	SP5_CTS
9	SP5_RI	10	GND_COM5

GPIO LED Connector

Connector type: 2x2 4-pin 2.0mm -M-180
Connector location: JP1

Pin	Definition
1	GPO_LED0
2	GND
3	GPO_LED1
4	GND

PCI Slot

Connector type: 2x62 3.3V slot
Connector location: CN16

Pin	Definition	Pin	Definition
A1	PCI_SLOT_TRST#	B1	-12V
A2	+12V	B2	PCI_SLOT_TCK
A3	PCI_SLOT_TMS	B3	GND
A4	PCI_SLOT_TDI	B4	NC
A5	VCC5	B5	VCC5
A6	PCI_SLOT_IRQ#0	B6	VCC5
A7	PCI_SLOT_IRQ#2	B7	PCI_SLOT_IRQ#1
A8	VCC5	B8	PCI_SLOT_IRQ#3
A9	PCI_SLOT_RSV1	B9	PCI_SLOT_PRSNT1#
A10	VCC5	B10	PCI_SLOT_RSV5
A11	PCI_SLOT_RSV2	B11	PCI_SLOT_PRSNT2#
A12	GND	B12	GND
A13	GND	B13	GND
A14	3VSB	B14	PCI_CLK1
A15	PCI_SLOT_RST#	B15	GND
A16	VCC5	B16	PCI_CLK0
A17	PCI_GNT#0	B17	GND
A18	GND	B18	PCI_SLOT_REQ#0
A19	PCI_SLOT_PME#	B19	VCC5

Pin	Definition	Pin	Definition
A20	PCI_AD30	B20	PCI_AD31
A21	VCC3	B21	PCI_AD29
A22	PCI_AD28	B22	GND
A23	PCI_AD26	B23	PCI_AD27
A24	GND	B24	PCI_AD25
A25	PCI_AD24	B25	VCC3
A26	PCI_SLOT_IDSEL	B26	PCI_CBE#3
A27	VCC3	B27	PCI_AD23
A28	PCI_AD22	B28	GND
A29	PCI_AD20	B29	PCI_AD21
A30	GND	B30	PCI_AD19
A31	PCI_AD18	B31	VCC3
A32	PCI_AD16	B32	PCI_AD17
A33	VCC3	B33	PCI_CBE#2
A34	PCI_FRAME#	B34	GND
A35	GND	B35	PCI_IRDY#
A36	PCI_TRDY#	B36	VCC3
A37	GND	B37	PCI_DEVSEL#
A38	PCI_STOP#	B38	GND
A39	VCC3	B39	PCI_LOCK#
A40	SMBCLK_PCI	B40	PCI_PERR#
A41	SMBDATA_PCI	B41	VCC3
A42	GND	B42	PCI_SERR#
A43	PCI_PAR	B43	VCC3
A44	PCI_AD15	B44	PCI_CBE#1

Pin	Definition	Pin	Definition
A45	VCC3	B45	PCI_AD14
A46	PCI_AD13	B46	GND
A47	PCI_AD11	B47	PCI_AD12
A48	GND	B48	PCI_AD10
A49	PCI_AD9	B49	GND
A52	PCI_CBE#0	B52	PCI_AD8
A53	VCC3	B53	PCI_AD7
A54	PCI_AD6	B54	VCC3
A55	PCI_AD4	B55	PCI_AD5
A56	GND	B56	PCI_AD3
A57	PCI_AD2	B57	GND
A58	PCI_AD0	B58	PCI_AD1
A59	VCC5	B59	VCC5
A60	PU1_REQ64#	B60	PU1_ACK64#
A61	VCC5	B61	VCC5
A62	VCC5	B62	VCC5

PCIe x4 Slot

Connector type: PCIe x4
Connector location: CN17
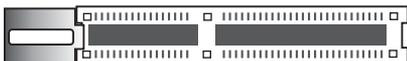
Pin	Definition	Pin	Definition
A1	PCIE_PRSNT1	B1	+12V
A2	+12V	B2	+12V
A3	+12V	B3	+12V
A4	GND	B4	GND
A5	CL_CLK	B5	SMB_CLK
A6	CL_RST#	B6	SMB_DATA
A7	USB5+	B7	GND
A8	CL_DATA	B8	VCC3
A9	VCC3	B9	USB5-
A10	VCC3	B10	3VSB
A11	PLT_RST_DVO_PCIE#	B11	PCIE_WAKE#
A12	GND	B12	NC
A13	CLK_PCIE_PCIE4_P	B13	GND
A14	CLK_PCIE_PCIE4_N	B14	PCIE_TXP5_PCIE4
A15	GND	B15	PCIE_TXN5_PCIE4
A16	PCIE_RXP5_PCIE4	B16	GND
A17	PCIE_RXN5_PCIE4	B17	CLK_REQ#PCIE4
A18	GND	B18	GND
A19	NC	B19	PCIE_TXP6_PCIE4

Pin	Definition	Pin	Definition
A20	GND	B20	PCIE_TXN6_PCIE4
A21	PCIE_RXP6_PCIE4	B21	GND
A22	PCIE_RXN6_PCIE4	B22	GND
A23	GND	B23	PCIE_TXP7_PCIE4
A24	GND	B24	PCIE_TXN7_PCIE4
A25	PCIE_RXP7_PCIE4	B25	GND
A26	PCIE_RXN7_PCIE4	B26	GND
A27	GND	B27	PCIE_TXP8_PCIE4
A28	GND	B28	PCIE_TXN8_PCIE4
A29	PCIE_RXP8_PCIE4	B29	GND
A30	PCIE_RXN8_PCIE4	B30	NC
A31	GND	B31	PCIE_PRSNT2
A32	NC	B32	GND

Mini-PCIe Slot

Connector location: CN18
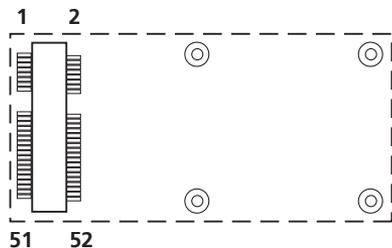
Pin	Definition	Pin	Definition
1	MIC_R	2	3VSB
3	MIC_L	4	GND
5	LOUT_R	6	V1_5
7	LOUT_L	8	3VSB
9	GND	10	UIM_DATA
11	PCIE_MINI_CLK_N	12	UIM_CLK
13	PCIE_MINI_CLK_P	14	UIM_RESET
15	GND	16	UIM_VCCP
17	GND	18	GND
19	GND	20	3VSB
21	GND	22	PLT_RST
23	PCIE_MINI_RXN	24	3VSB
25	PCIE_MINI_RXP	26	GND
27	GND	28	V1_5
29	GND	30	SMB_CLK

Pin	Definition	Pin	Definition
31	PCIE_MINI_TXN	32	SMB_DAT
33	PCIE_MINI_TXP	34	GND
35	GND	36	USB_N
37	GND	38	USB_P
39	3VSB	40	GND
41	3VSB	42	WLAN_ACT
43	GND	44	WLAN_ACT
45	NA	46	WLAN_ACT
47	NA	48	V1_5
49	NA	50	GND
51	NA	52	3VSB

Smart Fan1 Connector

Connector type: 1x4 4-pin Wafer, 2.54mm-M-180
Connector location: J1
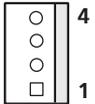
Pin	Definition
1	GND
2	+12V
3	CPUFANIN_P
4	CPUFANOUT_R

Smart Fan2 Connector

Connector type: 1x4 4-pin Wafer, 2.54mm-M-180
Connector location: J14
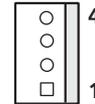
Pin	Definition
1	GND
2	+12V
3	SYSFANIN_P
4	SYSFANOUT_R

External LED Connector

Connector type: 2x7 14-pin header 2.54mm-M-180
Connector location: J4
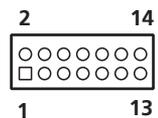
Pin	Description	Pin	Description
1	LED_PWRN	2	LED_PWRP
3	HD_LEDN	4	LED_HDDP
5	LAN1_LINK#	6	LAN1_LINKP
7	LAN1_LED_ACT#	8	LAN1_ACTP
9	LAN2_LINK#	10	LAN2_LINKP
11	LAN2_LED_ACT#	12	LAN2_ACTP
13	NC	14	NC

Chapter 3: System Setup

Removing the Chassis Cover

Prior to removing the chassis cover, make sure the unit's power is off and disconnected from the power sources to prevent electric shock or system damage.

1. The screws on the cover are used to secure the cover to the chassis.

2. Remove these screws and then put them in a safe place for later use.

The dots denote the locations of the screws.

3. Lift up the cover and then remove it from the chassis.

42
NISE 3520 Series User Manual

Installing a DIMM

1. Push the ejector tabs which are at the ends of the socket outward. This indicates that the socket is unlocked.

Ejector tab

DIMM sockets
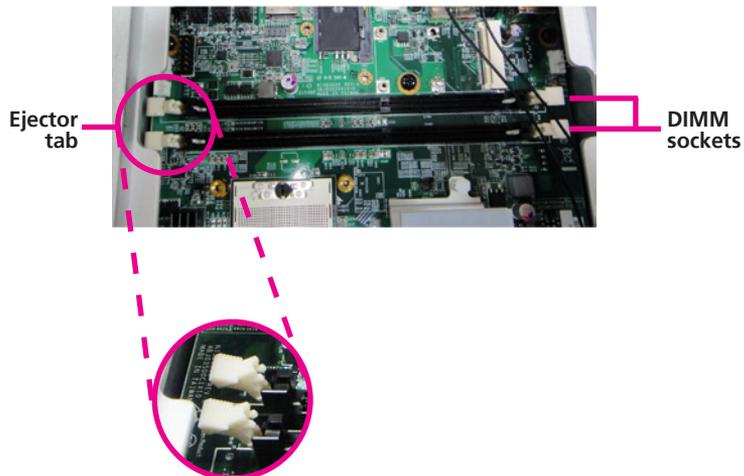
2. Note how the module is keyed to the socket. Grasping the module by its edges, align the module with the socket so that the "notch" on the module is aligned with the "key" on the socket. The key ensures the module can be plugged into the socket in only one direction.

Notch on the module
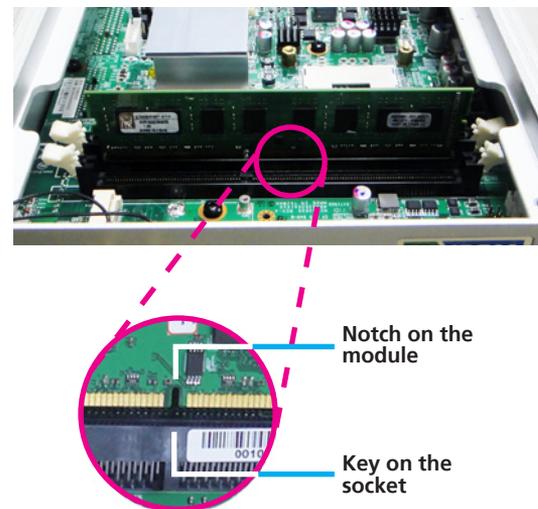
Key on the socket

3. Seat the module vertically, pressing it down firmly until it is completely seated in the socket. The ejector tabs at the ends of the socket will automatically snap into the locked position to hold the module in place.

Installing the CPU

1. The CPU socket is readily accessible after you have removed the chassis cover.

CPU socket

⚠ **CAUTION!**
- Make sure all power cables are unplugged before you install the CPU.
- The CPU socket must not come in contact with anything other than the CPU. Avoid unnecessary exposure.
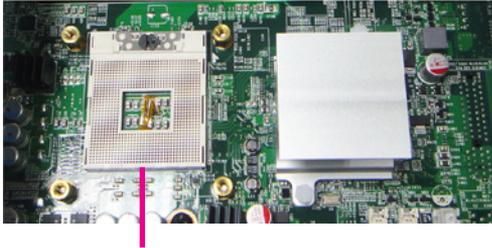
2. Make sure the screw is in its unlock position. If it's not, use a screwdriver to turn the screw to its unlock position.
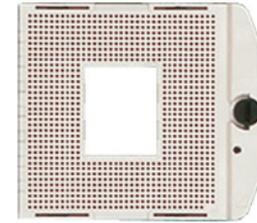
Screw in unlocked position

3. Position the CPU above the socket. The gold triangular mark on the CPU must align with pin 1 of the CPU socket.

Pin 1   **Gold triangular mark**
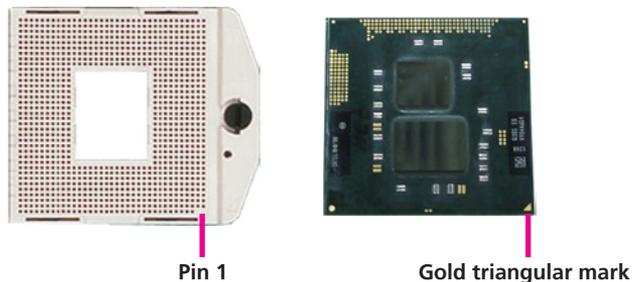
Handle the CPU by its edges and avoid touching the pins.

4. Insert the CPU into the socket until it is seated in place. The CPU will fit in only one orientation and can easily be inserted without exerting any force. Use a screwdriver to turn the screw to its lock position.

Screw in locked position
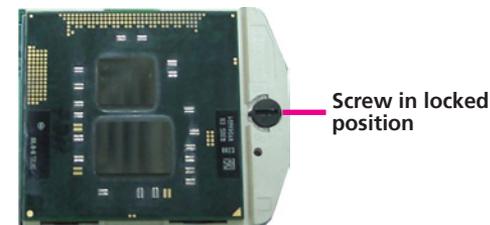
Do not force the CPU into the socket. Forcing the CPU into the socket may bend the pins and damage the CPU.

5. Before you install the heat sink, apply thermal paste onto the top of the CPU. Do not spread the paste all over the surface. When you later place the heat sink on top of the CPU, the compound will disperse evenly.

6. Align the mounting holes of the heat sink with the mounting studs on the board and then secure the heat sink with the provided screws.
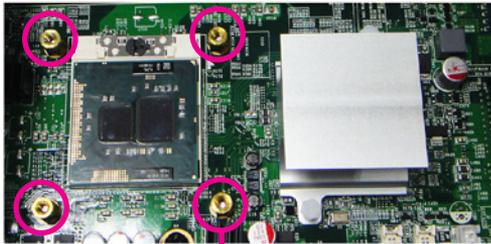
Mounting stud

Installing a SATA Hard Drive

1. With the bottom side of the chassis facing up, remove the screws of the bottom cover.

2. Remove the 4 mounting screws that secure the drive bay to the chassis.

   If you are installing one SATA drive only, the system will allow you to install an optional CompactFlash card, a half length SATA DOM or a full length SATA DOM.

3. Remove the drive bay. The drive bay is used to hold a SATA hard drive.
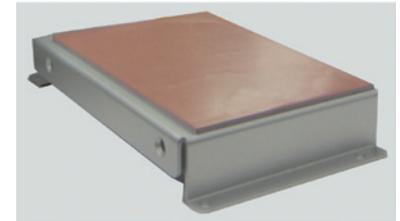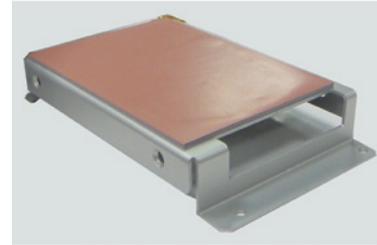
4. Place the SATA hard drive on the drive bay. Make sure the connector side of the SATA drive is facing the opening of the drive bay.

5. Align the mounting holes that are on the sides of the SATA drive with the mounting holes on the drive bay then use the provided mounting screws to secure the drive in place.

Connector side of the SATA drive

6. Connect the SATA data cable and SATA power cable to the connectors on the SATA drive.

SATA power cable

SATA data cable
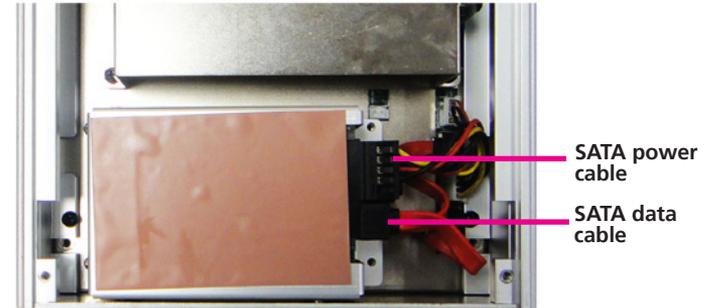
7. Use the provided mounting screws to secure the drive bay to the chassis.
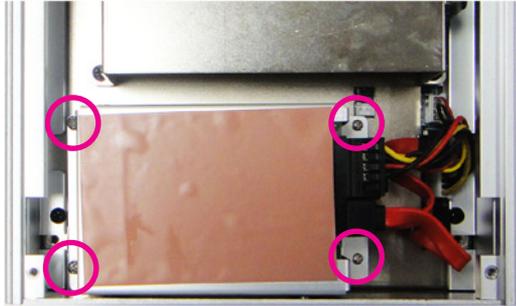
Installing a Half Length SATA DOM with SATA HD (NISE 3520P2/3520P2E)

If you intend to install a half length SATA DOM, you may install one SATA hard drive only.

1. Prior to installing the SATA DOM, you must first place the drive bay shown below into the chassis.
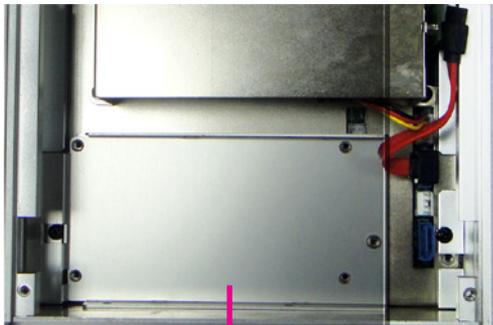
Drive bay

2. Locate for the SATA connector on the board.
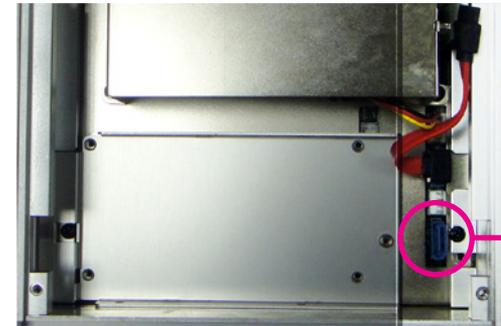
SATA connector

3. Align the SATA connector located on the solder side of the SATA DOM to the SATA connector that is on the board and then press it down firmly. Secure the SATA DOM with the provided mounting screw.

SATA DOM

Mounting screw

SATA connector

Solder side of SATA DOM
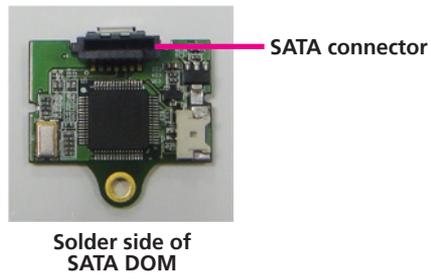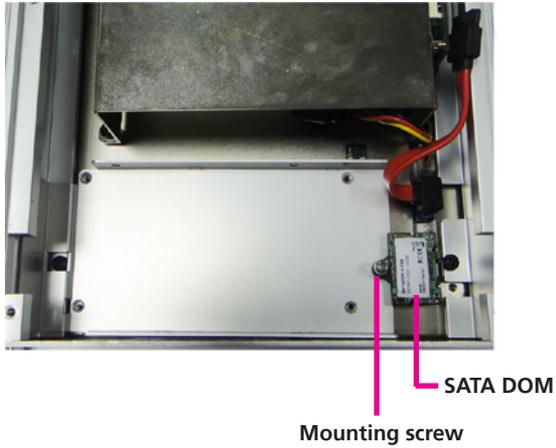
Installing a Full Length SATA DOM

If you intend to install a full length SATA DOM, you may install one SATA hard drive only.

1. Prior to installing the full length SATA DOM, remove any drive bay that may have been previously installed.

2. Locate for the SATA connector on the board.

3. Align the SATA connector located on the solder side of the SATA DOM to the SATA connector that is on the board and then press it down firmly. Secure the SATA DOM with the provided mounting screw.
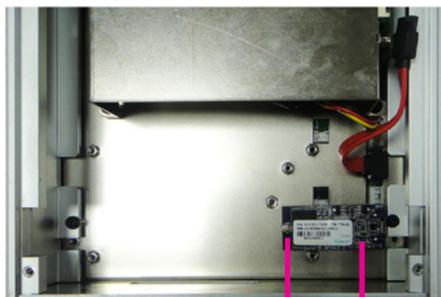
Mounting screw   **SATA DOM**

SATA connector

**Solder side of
SATA DOM**

4. Before installing the single drive bay back, you must first replace the 4 mounting studs.

    Now place the single drive bay by aligning the mounting holes of the drive bay with the mounting studs.
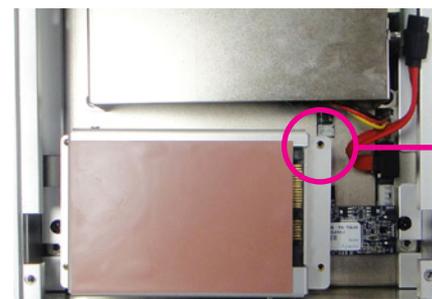
**Mounting
hole**

5. Secure the drive bay with the provided mounting screws.

Mounting screw
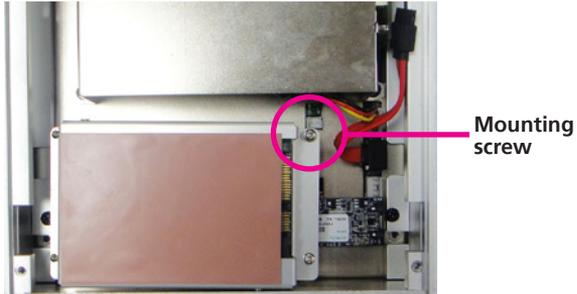
Installing a Wireless LAN Module

1. Locate for the Mini PCI Express slot on the board.

Mini PCI Express slot

2. Insert the wireless LAN module into the Mini PCI Express slot at a 45 degrees angle until the gold-plated connector on the edge of the module completely disappears inside the slot.

Wireless LAN module

Mini PCI Express slot

Wireless LAN module
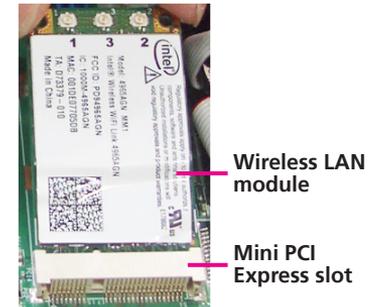
3. Push the module down and then secure it with mounting screws.

   Attach one end of the RF cable onto the module.

RF cable

Mounting screw
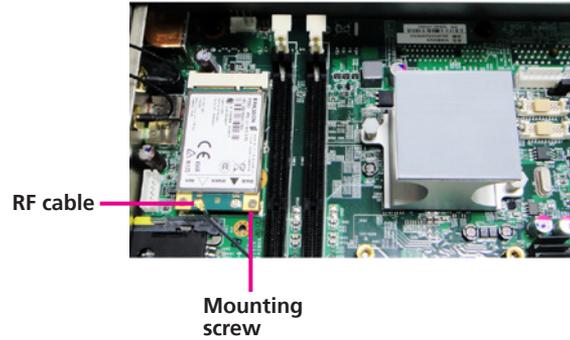
4. Remove the antenna hole covers that is located at the front panel of the chassis.

Antenna hole covers

5. Insert the antenna jack end of the cable through the antenna hole. Insert the 2 rings (ring 1 and then ring 2) onto the antenna jack end of the cable.

Antenna jack

Jack end of the cable
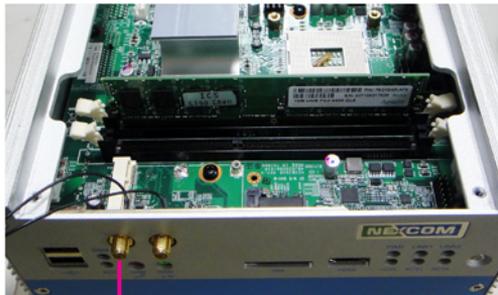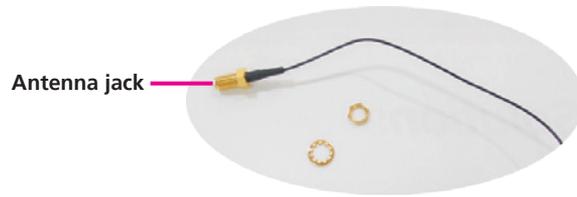
6. Connect an external antenna to the antenna jack.

Antenna

Inserting the SIM Card

1. Insert the SIM card into the SIM card slot.

SIM Card

2. To take out the SIM card, push the yellow button using a pointed object.

Yellow button

Chapter 4: BIOS Setup

This chapter describes how to use the BIOS setup program for the NISE 3520 series. 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.

NISE 3520 Series User Manual

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
Right and Left arrows	Moves the highlight left or right to select a menu.
Up and Down arrows	Moves the highlight up or down between sub-menus or fields.
<Esc>	Exits to the BIOS Setup Utility.
+ (plus key)	Scrolls forward through the values or options of the highlighted field.
- (minus key)	Scrolls backward through the values or options of the highlighted field.
Tab	Selects a field.
<F1>	Displays General Help.
<F10>	Saves and exits the Setup program.
<Enter>	Press <Enter> to enter the highlighted sub-menu.

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 <Enter>.

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 six setup functions and one exit choices. 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.

BIOS Information
Displays the detected BIOS information.

Memory Information
Displays the detected system memory information.

System Date
The date format is <day>, <month>, <date>, <year>. Day displays a day, from Sunday to Saturday. 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.

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.

```
                        BIOS SETUP UTILITY
  Main      Advanced      PCIPnP      Boot      Security      Chipset      Exit

  Legacy OpROM Support                              Enable or Disable Boot
  Launch PXE OpROM              [Disabled]          Option for Legacy
                                                    Network Devices.
  ▶  S5 RTC Wake Settings
  ▶  CPU Configuration
  ▶  SATA Configuration
  ▶  Intel IGD SWSCI OpRegion
  ▶  Intel TXT(LT) Configuration
  ▶  USB Configuration
  ▶  Super IO Configuration
  ▶  H/W Monitor
  ▶  Thermal Configuration             → ←:  Select Screen
  ▶  AMT Configuration                 ↑↓:   Select Item
                                       Enter: Select
                                       +/-:    Change Opt.
                                       F1:     General Help
                                       F2:     Previous Values
                                       F3:     Optimized Defaults
                                       F4:     Save  ESC:  Exit

         Version 2.00.1201. Copyright (C) 2009 American Megatrends, Inc.
```

Launch PXE OpROM
Enables or disables the boot option for legacy network devices.

S5 RTC Wake Settings
Configures the S5 RTC wake up setting.

CPU Configuration
This section is used to configure the CPU. It will also display detected CPU information.

SATA Configuration
This section is used to configure the SATA drives.

Intel IGD SWSCI OpRegion
Configures the Intel graphics display.

Intel TXT(LT) Configuration
Configures the Intel Trusted Execution technology.

USB Configuration
Configures the USB devices.

Super IO Configuration
This section is used to configure the I/O functions supported by the on-board Super I/O chip.

H/W Monitor
This section is used to configure the hardware monitoring events such as temperature, fan speed and voltages.

Thermal Configuration
Configures the intelligent power sharing function.

AMT Configuration
Configures the AMT function.

S5 RTC Wake Settings

This section is used to configure the wake up function.

```
                         BIOS SETUP UTILITY
  Advanced

 Wake System with Fixed Time        [Disabled]          Enable or Disable
                                                         system wake on alarm
                                                         event. When enabled,
                                                         system will wake on the
                                                         hr::min::sec specified.


                                                         →←:   Select Screen
                                                         ↑↓:   Select Item
                                                         Enter: Select
                                                         +/-:   Change Opt.
                                                         F1:    General Help
                                                         F2:    Previous Values
                                                         F3:    Optimized Defaults
                                                         F4:    Save  ESC: Exit

          Version 2.00.1201. Copyright (C) 2009 American Megatrends, Inc.
```
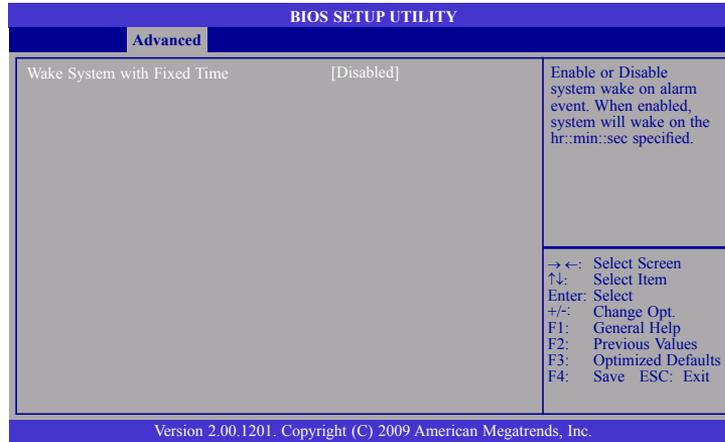
Wake System with Fixed Time

Enables or disables the system's wake on alarm event. When enabled, the system will wake up on the specified time.

CPU Configuration

This section is used to configure the CPU. It will also display detected CPU information.

```
                         BIOS SETUP UTILITY
       Advanced

 CPU Configuration                                       Enabled for Windows XP
                                                         and Linux (OS optimized
 Intel(R) Core(TM) i5 CPU M 540 @ 2.53GHz                for Hyper-Threading
 EMT64                              Supported            Technology) and Disabled
 Processor Speed                    2527 MHz             for other OS (OS not
 Processor Stepping                 20652                optimized for
 Microcode Revision                 9                    Hyper-Threading
 Processor Cores                    2                    Technology). When
 Intel HT Technology                Supported            Disabled only one thread
                                                         per enabled core is
 Hyper-Threading                    [Enabled]            enabled.
 Active Processor Cores             [A11]
 Limit CPUID Maximum                [Disabled]           →←:   Select Screen
 Hardware Prefetcher                [Enabled]            ↑↓:   Select Item
 Adjacent Cache Line Prefetch       [Enabled]            Enter: Select
 Intel Virtualization Technology    [Disabled]           +/-:   Change Opt.
 Power Technology                   [Energy Efficient]   F1:    General Help
 TDC Limit                          0                    F2:    Previous Values
 TDP Limit                          0                    F3:    Optimized Defaults
                                                         F4:    Save  ESC: Exit

          Version 2.00.1201. Copyright (C) 2009 American Megatrends, Inc.
```

Hyper-Threading

Enable this field for Windows XP and Linux which are optimized for Hyper-Threading technology. Select disabled for other OSes not optimized for Hyper-Threading technology. When disabled, only one thread per enabled core is enabled.

Active Processor Cores

Used to enter the number of cores to enable in each processor package.

Limit CPUID Maximum

The CPUID instruction of some newer CPUs will return a value greater than 3. The default is Disabled because this problem does not exist in the Windows series operating systems. If you are using an operating system other than Windows, this problem may occur. To avoid this problem, enable this field to limit the return value to 3 or lesser than 3.

Hardware Prefetcher

Turns on or off the MLC streamer prefetcher.

Adjacent Cache Line Prefetch

Enables or disables the adjacent cache line prefetch.

Intel Virtualization Technology

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

Power Technology

Configures the power management features.

TDC Limit

Used to select the TDC limit.

TDP Limit

Used to select the TDP limit.

SATA Configuration

This section is used to configure the SATA drives.

```
                          BIOS SETUP UTILITY
         Advanced

 SATA Configuration                               (1) IDE Mode.
                                                  (2) AHCI Mode.
 SATA Port 1              Not Present              (3) RAID Mode.
 SATA Port 2              Not Present
 SATA Port 3              Not Present
 SATA Port 4              Not Present

 SATA Mode                [IDE Mode]


                                                  → ←:  Select Screen
                                                  ↑↓:    Select Item
                                                  Enter: Select
                                                  +/-:   Change Opt.
                                                  F1:    General Help
                                                  F2:    Previous Values
                                                  F3:    Optimized Defaults
                                                  F4:    Save   ESC: Exit

          Version 2.00.1201. Copyright (C) 2009 American Megatrends, Inc.
```
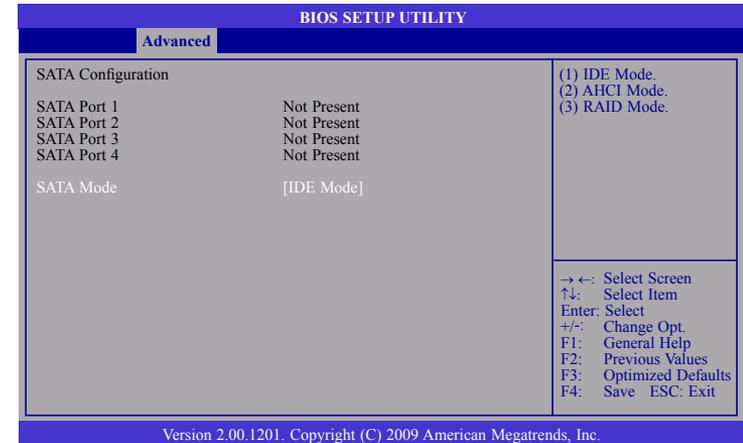
SATA Mode

IDE Mode   This option configures the Serial ATA drives as Parallel ATA storage devices.

AHCI Mode   This option allows the Serial ATA devices to use AHCI (Advanced Host Controller Interface).

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

Intel IGD SWSCI OpRegion

This section is used to configure the Intel graphics display.

```
                         BIOS SETUP UTILITY
    ┌──────────┐
    │ Advanced │
    ├──────────┴──────────────────────────────────────────────────────────┐
    │ Intel IGD SWSCI OpRegion Configuration        Select DVMT/FIXED       │
    │                                               Mode Memory size used   │
    │ DVMT/FIXED Memory        [256MB]              by Internal Graphics     │
    │ IGD - Boot Type          [CRT + DVI]          Device                   │
    │ LCD Panel Type           [VBIOS Default]                               │
    │                                                                        │
    │                                                                        │
    │                                               → ←:  Select Screen      │
    │                                               ↑↓:   Select Item        │
    │                                               Enter: Select            │
    │                                               +/-:   Change Opt.       │
    │                                               F1:    General Help      │
    │                                               F2:    Previous Values   │
    │                                               F3:    Optimized Defaults│
    │                                               F4:    Save   ESC: Exit  │
    ├────────────────────────────────────────────────────────────────────────┤
    │       Version 2.00.1201. Copyright (C) 2009 American Megatrends, Inc.   │
    └────────────────────────────────────────────────────────────────────────┘
```

DVMT/FIXED Memory

Selects the DVMT/FIXED mode memory size used by the internal graphics device.

IGD - Boot Type

Selects the video device that will be activated during POST. This will not affect any external graphics that may be present.

LCD Panel Type

Selects the LCD panel used by the internal graphics device.

Intel TXT(LT) Configuration

This section is used to configure the Intel Trusted Execution technology.

```
                         BIOS SETUP UTILITY
    ┌──────────┐
    │ Advanced │
    ├──────────┴──────────────────────────────────────────────────────────┐
    │ Intel Trusted Execution Technology Configuration                      │
    │                                                                        │
    │ Intel TXT(LT) Support          [Disabled]                             │
    │                                                                        │
    │                                                                        │
    │                                                                        │
    │                                               → ←:  Select Screen      │
    │                                               ↑↓:   Select Item        │
    │                                               Enter: Select            │
    │                                               +/-:   Change Opt.       │
    │                                               F1:    General Help      │
    │                                               F2:    Previous Values   │
    │                                               F3:    Optimized Defaults│
    │                                               F4:    Save   ESC: Exit  │
    ├────────────────────────────────────────────────────────────────────────┤
    │       Version 2.00.1201. Copyright (C) 2009 American Megatrends, Inc.   │
    └────────────────────────────────────────────────────────────────────────┘
```
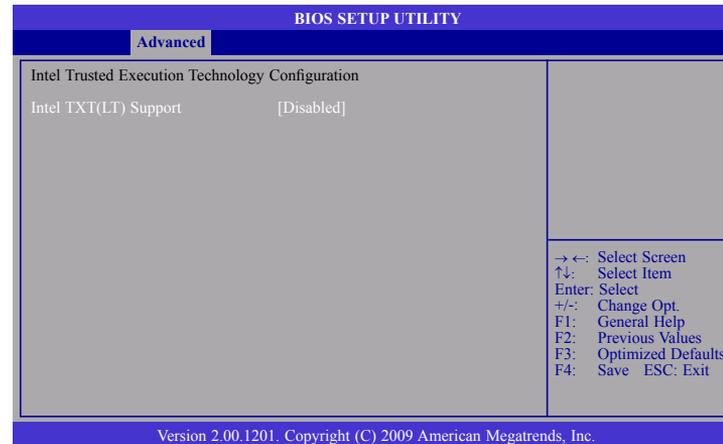
Intel TXT(LT) Support

The options are Enabled and Disabled.

USB Configuration

This section is used to configure USB devices.

```
                        BIOS SETUP UTILITY
    Advanced

  USB Configuration                                    Enables Legacy USB
                                                       support. AUTO option
  USB Devices:                                         disables legacy support if
        1 Mouse, 1 Hub                                 no USB devices are
                                                       connected. DISABLE
  Legacy USB Support            [Enabled]              option will keep USB
  EHCI Hand-off                 [Enabled]              devices available only for
  Device Reset Timeout          [20 Sec]               EFI applications.


                                                       → ←:  Select Screen
                                                       ↑↓:    Select Item
                                                       Enter: Select
                                                       +/-:   Change Opt.
                                                       F1:    General Help
                                                       F2:    Previous Values
                                                       F3:    Optimized Defaults
                                                       F4:    Save   ESC: Exit

        Version 2.00.1201. Copyright (C) 2009 American Megatrends, Inc.
```

Legacy USB Support

Enabled   Enables legacy USB.
Auto   Disables support for legacy when no USB devices are connected.
Disabled   Keeps USB devices available only for EFI applications.

EHCI Hand-off

This is a workaround for OSes that does not support EHCI hand-off. The EHCI ownership change should be claimed by the EHCI driver.

Device Reset Timeout

Selects the USB mass storage device start unit command timeout.

Super IO Configuration

This section is used to configure the I/O functions supported by the on-board Super I/O chip.

```
                        BIOS SETUP UTILITY
         Advanced

   Super IO Configuration                              Set Parameters of Serial
                                                       Port 1 (COMA)
   Super IO Chip                  ITE IT8783F
   ▶ Serial Port 0 Configuration
   ▶ Serial Port 1 Configuration
   ▶ Serial Port 2 Configuration
   ▶ Serial Port 3 Configuration
   ▶ Serial Port 4 Configuration
   ▶ Serial Port 5 Configuration

                                                       → ←:  Select Screen
                                                       ↑↓:    Select Item
                                                       Enter: Select
                                                       +/-:   Change Opt.
                                                       F1:    General Help
                                                       F2:    Previous Values
                                                       F3:    Optimized Defaults
                                                       F4:    Save   ESC: Exit

        Version 2.00.1201. Copyright (C) 2009 American Megatrends, Inc.
```

Serial Port 0 Configuration to Serial Port 5 Configuration

Selects the IO/IRQ setting of the I/O devices.

H/W Monitor

This section is used to configure the hardware monitoring events such as temperature, fan speed and voltages.

```
                        BIOS SETUP UTILITY
      Advanced

PC Health Status

Fan Setting                   [Always Full Speed]
System Temperature            : +30 C
CPU Temperature               : +28 C
System FAN Speed              : N/A
CPU FAN Speed                 : N/A
CPU:Vcore                     : +1.056V
+3.3V                         : +3.296 V
+5V                           : +4.915V
+12V                          : +11.932 V

                                          → ←:   Select Screen
                                          ↑↓:    Select Item
                                          Enter: Select
                                          +/-:   Change Opt.
                                          F1:    General Help
                                          F2:    Previous Values
                                          F3:    Optimized Defaults
                                          F4:    Save   ESC: Exit

            Version 2.00.1201. Copyright (C) 2009 American Megatrends, Inc.
```
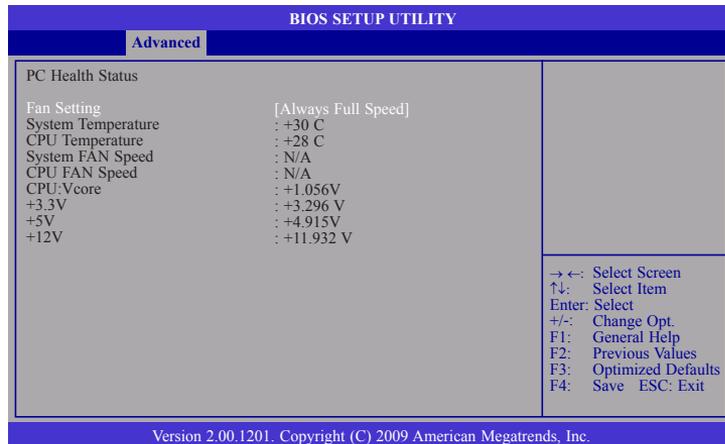
Fan Setting
Selects the speed of the fan.

System Temperature and CPU Temperature
Detects and displays the internal temperature of the system and the current temperature of the CPU.

System Fan Speed to CPU Fan Speed
Detects and displays the current system fan and CPU fan speed in RPM (Revolutions Per Minute).

CPU:Vcore to +12V
Detects and displays the output voltages.

Thermal Configuration

This section is used to configure the intelligent power sharing function.

```
                        BIOS SETUP UTILITY
      Advanced

Intelligent Power Sharing        [Disabled]        Intelligent power sharing
                                                   configuration menu. Note:
                                                   DTS must be enabled for
                                                   Power Sharing to function.

                                          → ←:   Select Screen
                                          ↑↓:    Select Item
                                          Enter: Select
                                          +/-:   Change Opt.
                                          F1:    General Help
                                          F2:    Previous Values
                                          F3:    Optimized Defaults
                                          F4:    Save   ESC: Exit

            Version 2.00.1201. Copyright (C) 2009 American Megatrends, Inc.
```
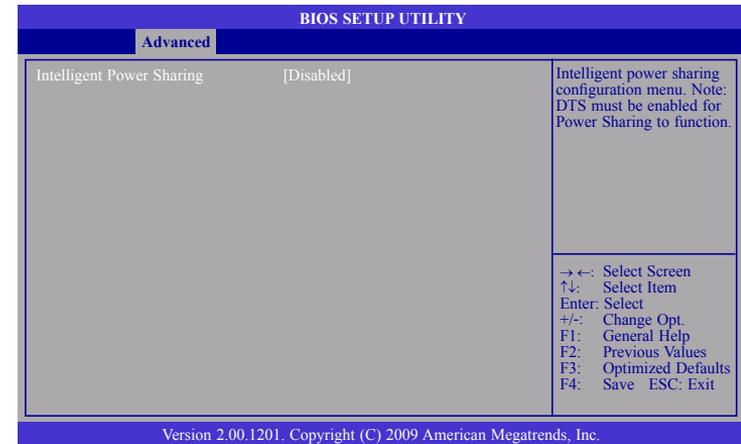
Intelligent Power Sharing
Enables or disables the power sharing function.

AMT Configuration

This section is used to configure the AMT function.

```
                        BIOS SETUP UTILITY
    Advanced

  AMT                          [Enabled]           AMT Help
  Unconfigure AMT/ME           [Disabled]
  Watchdog Timer               [Disabled]
    OS Watchdog Timer          0
    BIOS Watchdog Timer        0









                                                 → ←:  Select Screen
                                                 ↑↓:   Select Item
                                                 Enter: Select
                                                 +/-:  Change Opt.
                                                 F1:   General Help
                                                 F2:   Previous Values
                                                 F3:   Optimized Defaults
                                                 F4:   Save   ESC: Exit

        Version 2.00.1201. Copyright (C) 2009 American Megatrends, Inc.
```
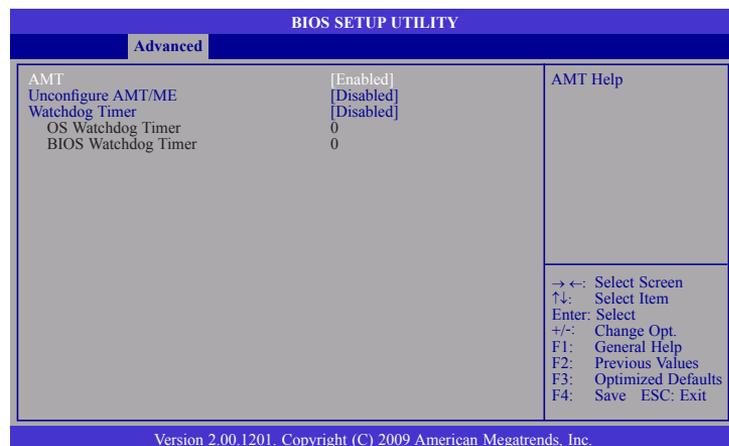
AMT
Enables or disables the AMT function.

Unconfigure AMT/ME
Select Enabled to unconfigure the AMT/ME function without the need for a password.

Watchdog Timer
Enables or disables the Watchdog Timer function.

OS Watchdog Timer
Selects the time interval of the OS Watchdog Timer.

BIOS Watchdog Timer
Selects the time interval of the BIOS Watchdog Timer.

Chipset

This section is used to configure the system based on the specific features of the chipset.

⚠️ Setting incorrect field values may cause the system to malfunction.

North Bridge

BIOS SETUP UTILITY		
Chipset		
CPU Type	Arrandale	
Total Memory	1024 MB (DDR3 1066)	
Memory Slot 0	1024 MB (DDR3 1066)	
Memory Slot 1	0 MB (DDR3 1066)	
CAS# Latency (tCL)	7	
RAS# Active Time (tRAS)	20	
Row Precharge Time (tRP)	7	
RAS# to CAS# Delay (tRCD)	7	
Write Recovery Time (tWR)	8	
Row Refresh Cycle Time (tRFC)	60	
Write to Read Delay (tWTR)	4	
Active to Active Delay (tRRD)	4	
Read CAS# Precharge (tRTP)	5	
Initiate Graphic Adapter	[PEG/IGD]	
VT-d	[Disabled]	→←: Select Screen ↑↓: Select Item Enter: Select
IGD Memory	[32M]	+/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save ESC: Exit
Version 2.00.1201. Copyright (C) 2009 American Megatrends, Inc.		

Initiate Graphic Adapter
Selects the graphics controller to use as the primary boot device.

VT-d
The options are Enabled and Disabled.

IGD Memory
Selects the internal graphics device's shared memory size.

South Bridge

```
                        BIOS SETUP UTILITY
              Chipset

  SB Chipset Configuration
  SMBus Controller                [Enable]
  GbE Controller                  [Enable]
  Wake On Lan From S5             [Enable]

  Restore AC Power Loss           [Power On]

  Audio Configuration
  Azalia HD Audio                 [Enabled]
  Azalia Internal HDMI Codec      [Enabled]

  High Precision Event Timer Configuration
  High Precision Timer            [Enabled]

  ▶  USB Configuration


                                          → ←:  Select Screen
                                          ↑↓:    Select Item
                                          Enter: Select
                                          +/-:    Change Opt.
                                          F1:    General Help
                                          F2:    Previous Values
                                          F3:    Optimized Defaults
                                          F4:    Save   ESC: Exit

        Version 2.00.1201. Copyright (C) 2009 American Megatrends, Inc.
```

SMBus Controller
Enables or disables the SMBus controller.

GbE Controller
Enables or disables the Gigabit LAN controller.

Wake On Lan From S5
When enabled, it allows the system to wake up from S5 via the network LAN.

Restore AC Power Loss
Off   When power returns after an AC power failure, the system's power is off. You must press the Power button to power-on the system.
On   When power returns after an AC power failure, the system will automatically power-on.

Azalia HD Audio
Enables or disables the Azalia HD audio.

Azalia Internal HDMI Codec
Enables or disables the Azalia internal HDMI codec.

High Precision Timer
Enables or disables the high precision event timer.

USB Configuration

```
                    BIOS SETUP UTILITY
    Advanced

USB Configuration                              Enable/Disable All USB
                                               Devices
All USB Devices              [Enabled]

EHCI Controller 1            [Enabled]
EHCI Controller 2            [Enabled]




                                               → ←:  Select Screen
                                               ↑↓:   Select Item
                                               Enter: Select
                                               +/-:  Change Opt.
                                               F1:   General Help
                                               F2:   Previous Values
                                               F3:   Optimized Defaults
                                               F4:   Save   ESC: Exit

    Version 2.00.1201. Copyright (C) 2009 American Megatrends, Inc.
```
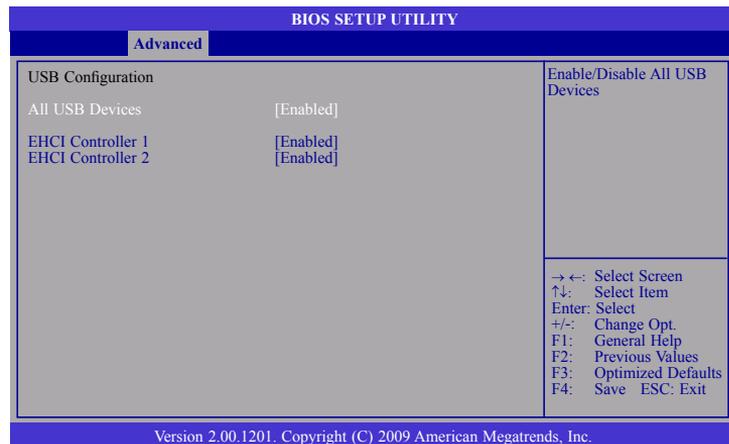
All USB Devices
Enables or disables all USB devices.

EHCI Controller 1 and EHCI Controller 2
Enables or disables the Enhanced Host Controller Interface (USB 2.0).

Intel ME Configuration

```
                    BIOS SETUP UTILITY
    Chipset

Intel ME Subsystem Configuration               ME Subsystem Help

ME Version                   6.0.3.1195

ME Subsystem                 [Enabled]
End of Post Message          [Enabled]
Execute MEBx                 [Enabled]




                                               → ←:  Select Screen
                                               ↑↓:   Select Item
                                               Enter: Select
                                               +/-:  Change Opt.
                                               F1:   General Help
                                               F2:   Previous Values
                                               F3:   Optimized Defaults
                                               F4:   Save   ESC: Exit

    Version 2.00.1201. Copyright (C) 2009 American Megatrends, Inc.
```
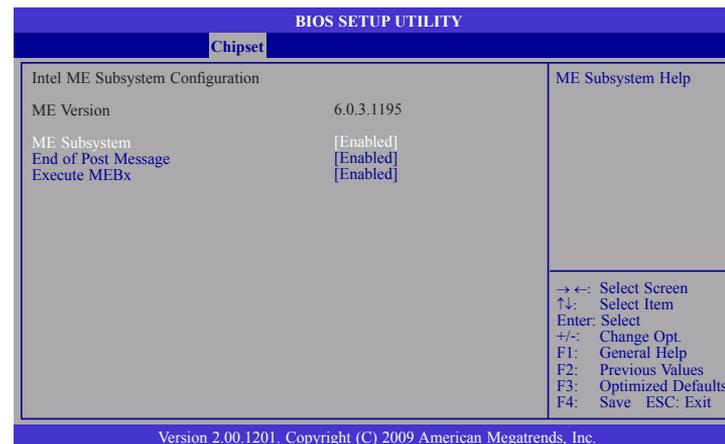
ME Subsystem
The options are Enabled and Disabled.

End of the POST Message
The options are Enabled and Disabled.

Execute MEBx
The options are Enabled and Disabled.

Boot

```
                          BIOS SETUP UTILITY
   Main     Advanced    Chipset    Boot    Security    Save & Exit

   Boot Configuration                                     Enables/Disables Quiet
   Quiet Boot              [Disabled]                     Boot option
   Fast Boot               [Disabled]
   Setup Prompt Timeout    1

   Bootup NumLock State    [On]

   CSM16 Module Version    07.60

   GateA20 Active          [Upon Request]
   Option ROM Messages     [Force BIOS]
   Interrupt 19 Capture    [Disabled]
                                                          ← →:  Select Screen
   Boot Option Priorities                                 ↑↓:   Select Item
   Boot Option #1          [SATA: FUJITSU MH...]          Enter: Select
   Boot Option #2          [Built-in EFI Shell]           +/-:  Change Opt.
                                                          F1:   General Help
   Hard Drive BBS Priorities                              F2:   Previous Values
                                                          F3:   Optimized Defaults
                                                          F4:   Save   ESC: Exit

            Version 2.00.1201. Copyright (C) 2009 American Megatrends, Inc.
```

Quiet Boot

Enables or disables the quiet boot function.

Fast Boot

Enables or disables boot with initialization of a minimal set of devices required to launch active boot option. This doesn't affect the BBS boot options.

Setup Prompt Timeout

Selects the number of seconds to wait for the setup activation key. 65535(0xFFFF) denotes indefinite waiting.

Bootup NumLock State

This allows you to determine the default state of the numeric keypad. By default, the system boots up with NumLock on wherein the function of the numeric keypad is the number keys. When set to Off, the function of the numeric keypad is the arrow keys.

Gate A20 Active

Configures the Gate A20 function.

Option ROM Messages

Configures the ROM messages.

Interrupt 19 Capture

When enabled, it allows the optional ROM to trap interrupt 19.

Boot Option #1 and Boot Option #2

Selects the boot sequence of the hard drives.

Hard Drive BBS Priorities

Sets the order of the legacy devices in this group.

Security

```
                    BIOS SETUP UTILITY
  Main    Advanced    Chipset    Boot    Security    Save & Exit

  Password Description                          Set Setup Administrator
                                                Password.
  If only the Administrator's password is set, then
  this only limits access to Setup and is only asked
  for when entering Setup.
  If only the User's password is set, then this is
  a power on password and must be entered to
  boot or enter setup. In Setup the User will have
  Administrator rights.

  Administrator Password
  User Password
                                          → ←:  Select Screen
                                          ↑↓:   Select Item
                                          Enter: Select
                                          +/-:   Change Opt.
                                          F1:    General Help
                                          F2:    Previous Values
                                          F3:    Optimized Defaults
                                          F4:    Save   ESC: Exit

        Version 2.00.1201. Copyright (C) 2009 American Megatrends, Inc.
```

Administrator Password

Sets the administrator password.

User Password

Sets the user password.

Save & Exit

```
                    BIOS SETUP UTILITY
  Main    Advanced    Chipset    Boot    Security    Save & Exit

  Save Changes and Exit                         Reset the system after
  Discard Changes and Exit                      saving the changes.
  Save Changes and Reset
  Discard Changes and Reset

  Save Options
  Save Changes
  Discard Changes

  Restore Defaults
  Save as User Defaults
  Restore User Defaults

  Boot Override
  SATA: FUJITSU MHZ2080BH G2                ← →:  Select Screen
  Built-in EFI Shell                        ↑↓:   Select Item
  ▶ Reset System with ME Disable Mode       Enter: Select
                                            +/-:   Change Opt.
                                            F1:    General Help
                                            F2:    Previous Values
                                            F3:    Optimized Defaults
                                            F4:    Save   ESC: Exit

        Version 2.00.1201. Copyright (C) 2009 American Megatrends, Inc.
```

Save Changes and Exit

To save the changes and exit the Setup utility, select this field then press <Enter>. A dialog box will appear. Confirm by selecting Yes. You can also press <F10> to save and exit Setup.

Discard Changes and Exit

To exit the Setup utility without saving the changes, select this field then press <Enter>. You may be prompted to confirm again before exiting. You can also press <ESC> to exit without saving the changes.

Discard Changes

To discard the changes, select this field then press <Enter>. A dialog box will appear. Confirm by selecting Yes to discard all changes made and restore the previously saved settings.

Chapter 5: AMT Settings

Enable Intel® AMT in the AMI BIOS

1. In the Advanced menu, select **AMT Configuration**.

```
                        BIOS SETUP UTILITY
   Main      Advanced    PCIPnP    Boot    Security    Chipset     Exit

   Legacy OpROM Support                              Enable or Disable Boot
   Launch PXE OpROM               [Disabled]         Option for Legacy
                                                     Network Devices.
   ▶ S5 RTC Wake Settings
   ▶ CPU Configuration
   ▶ SATA Configuration
   ▶ Intel IGD SWSCI OpRegion
   ▶ Intel TXT(LT) Configuration
   ▶ USB Configuration
   ▶ Super IO Configuration
   ▶ H/W Monitor
   ▶ Thermal Configuration                        →←:   Select Screen
   ▶ AMT Configuration                            ↑↓:   Select Item
                                                  Enter: Select
                                                  +/-:   Change Opt.
                                                  F1:    General Help
                                                  F2:    Previous Values
                                                  F3:    Optimized Defaults
                                                  F4:    Save  ESC: Exit

          Version 2.00.1201. Copyright (C) 2009 American Megatrends, Inc.
```

2. In the **AMT** field, select Enabled.

```
                        BIOS SETUP UTILITY
              Advanced

   AMT                             [Enabled]         AMT Help
   Unconfigure AMT/ME              [Disabled]
   Watchdog Timer                  [Disabled]
     OS Watchdog Timer             0
     BIOS Watchdog Timer           0




                                                  →←:   Select Screen
                                                  ↑↓:   Select Item
                                                  Enter: Select
                                                  +/-:   Change Opt.
                                                  F1:    General Help
                                                  F2:    Previous Values
                                                  F3:    Optimized Defaults
                                                  F4:    Save  ESC: Exit

          Version 2.00.1201. Copyright (C) 2009 American Megatrends, Inc.
```
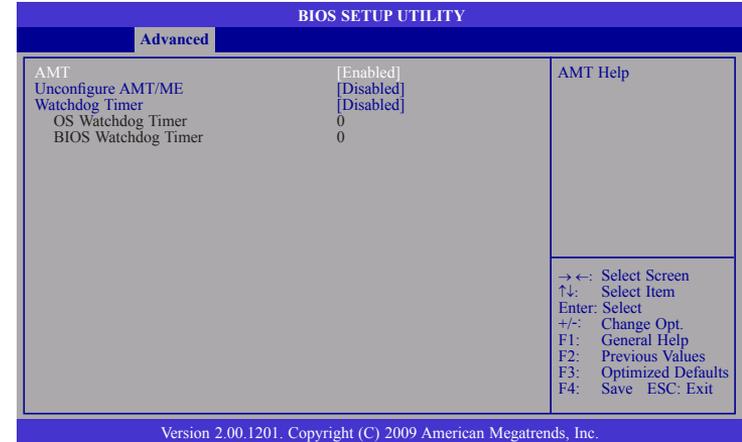
Configure the Intel® ME Setup

1. When the system reboots, the following message will be displayed. Press **<Ctrl-P>** as soon as the message is displayed; as this message will be displayed for only a few seconds.

```
Intel(R) Management Engine BIOS Extension v6.0.3.0019
Copyright(C) 2003-09 Intel Corporation. All Rights Reserved.

Intel(R) ME Firmware version 6.0.3.1195
Press <CTRL-ALT F1> to enter Remote Assistance
Press <CTRL-P> to enter Intel(R) ME Setup
```

2. You will be prompted for a password. The default password is "admin". Enter the default password in the space provided under Intel(R) ME Password and then press Enter.

```
Intel(R) Management Engine BIOS Extension v6.0.3.0019/Intel(R) ME v6.0.3.1195
          Copyright(C) 2003-09 Intel Corporation. All Rights Reserved.
=[    MAIN MENU    ]=

        Intel(R) ME General Settings      ▶
        Intel(R) AMT Configuration        ▶
        Exit



                 Intel(R) ME Password

        *****


    [ESC] : Exit                    [ENTER] : Submit
```
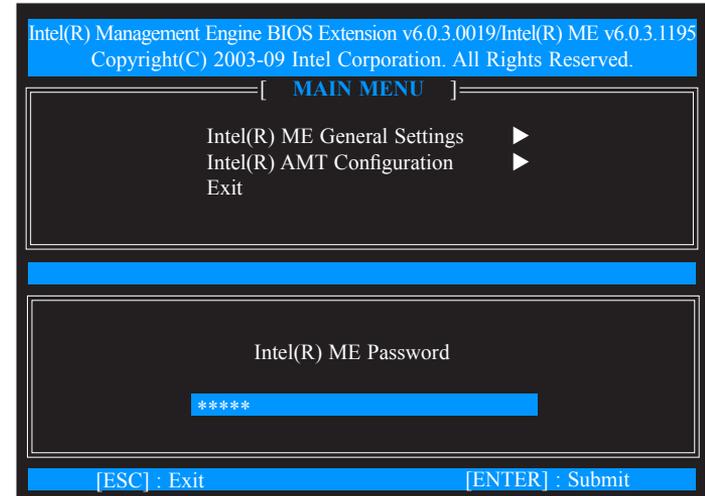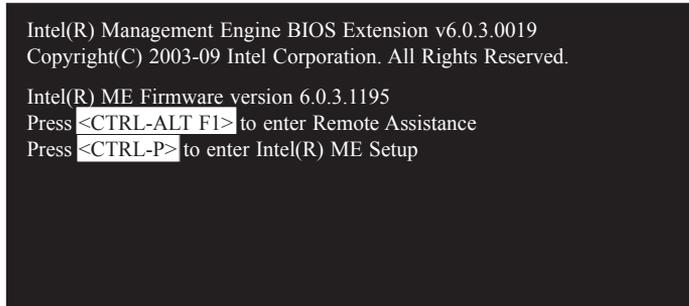
3. Enter a new password in the space provided under Intel(R) ME New Password and then press Enter. The new password must be based on the following rules to create a strong password security.

- Password length - at least 8 characters and not longer than 32.
- Password complexity - the password must include the following.
  - At least one digit character (0, 1, ...9)
  - At least one 7-bit ASCII non alpha-numeric character (e.g. !, $, ;) but excluding : , and " characters
  - At least one lowercase letter ('a', 'b'...'z') and at least one uppercase letter ('A', 'B'...'Z')

```
Intel(R) Management Engine BIOS Extension v6.0.3.0019/Intel(R) ME v6.0.3.1195
            Copyright(C) 2003-09 Intel Corporation. All Rights Reserved.
                        =[   MAIN MENU   ]=

              Intel(R) ME General Settings          ▶
              Intel(R) AMT Configuration            ▶
              Exit




              Intel(R) ME New Password

              __


    [ESC] : Exit                          [ENTER] : Submit
```
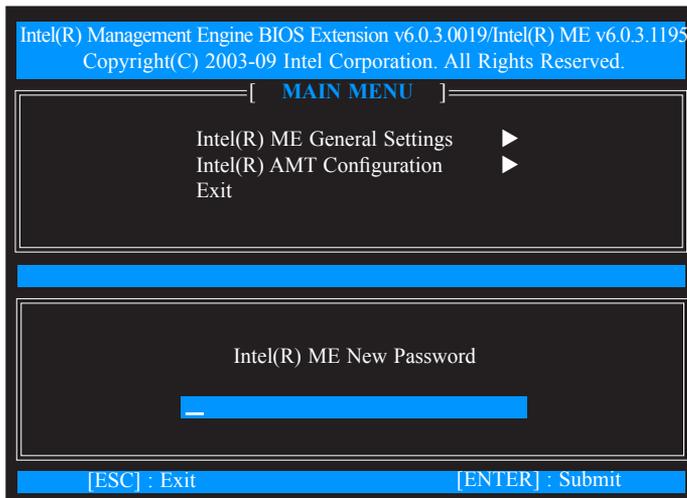
4. You will be asked to verify the password. Enter the same new password in the space provided under Verify Password and then press Enter.

```
Intel(R) Management Engine BIOS Extension v6.0.3.0019/Intel(R) ME v6.0.3.1195
            Copyright(C) 2003-09 Intel Corporation. All Rights Reserved.
                    =[   MAIN MENU   ]=

          Intel(R) ME General Settings          ▶
          Intel(R) AMT Configuration            ▶
          Exit



                  Verify Password

                  __


    [ESC] : Exit                    [ENTER] : Submit
```
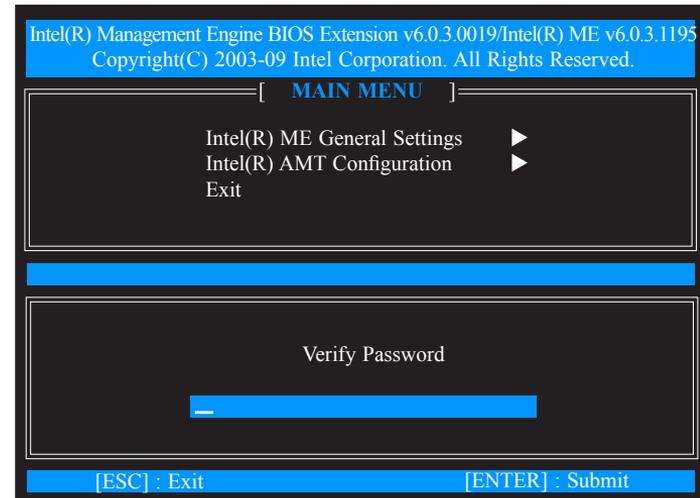
5. Select **Intel(R) ME General Settings** and then press Enter.

```
Intel(R) Management Engine BIOS Extension v6.0.3.0019/Intel(R) ME v6.0.3.1195
         Copyright(C) 2003-09 Intel Corporation. All Rights Reserved.
               ─[   MAIN MENU   ]─

              Intel(R) ME General Settings       ▶
              Intel(R) AMT Configuration          ▶
              Exit


         [ESC] : Exit        [↑↓] : Select       [ENTER] : Access
```
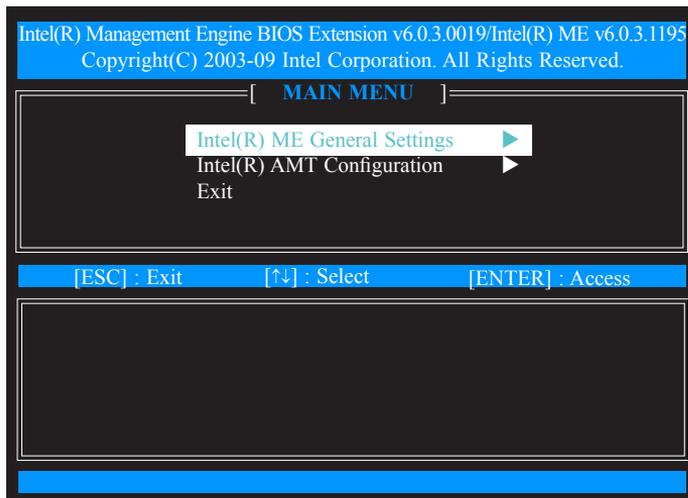
6. Select **Intel(R) ME State Control** and then press Enter.

    Select **Enabled** and then press Enter.

```
Intel(R) Management Engine BIOS Extension v6.0.3.0019/Intel(R) ME v6.0.3.1195
         Copyright(C) 2003-09 Intel Corporation. All Rights Reserved.
         ─[   INTEL(R) ME PLATFORM CONFIGURATION   ]─
              Intel(R) ME State Control
              Change ME Password
              Password Policy
              Network Setup                        ▶
              Activate Network Access
              Unconfigure Network Access
              Remote Setup and Configuration        ▶
              FW Update Settings                   ▶

         [ESC] : Exit        [↑↓] : Select       [ENTER] : Access

                    [ ] DISABLED
                    [*] ENABLED
```
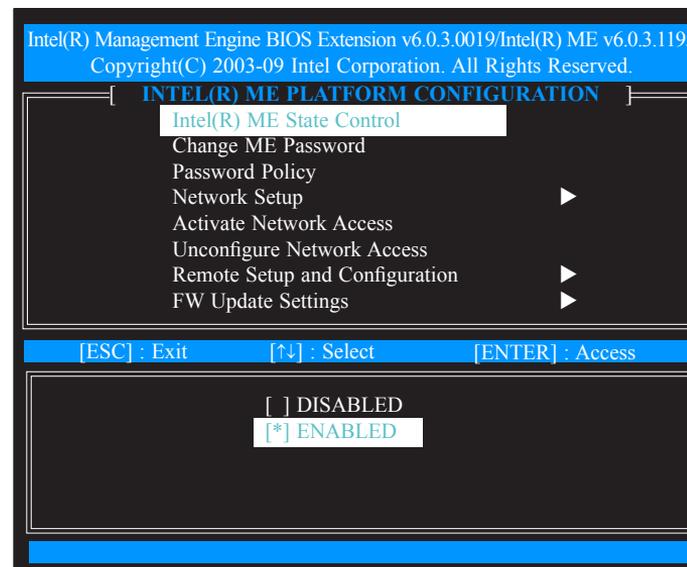
7. Select **Network Setup** and then press Enter.

```
Intel(R) Management Engine BIOS Extension v6.0.3.0019/Intel(R) ME v6.0.3.1195
             Copyright(C) 2003-09 Intel Corporation. All Rights Reserved.
    [        INTEL(R) ME PLATFORM CONFIGURATION        ]
             Intel(R) ME State Control
             Change ME Password
             Password Policy
             Network Setup                              ▶
             Activate Network Access
             Unconfigure Network Access
             Remote Setup and Configuration             ▶
             FW Update Settings                         ▶

    [ESC] : Exit          [↑↓] : Select          [ENTER] : Access
```

8. In the Intel(R) Network Setup menu, select **Intel(R) ME Network Name Settings** then press Enter.

```
Intel(R) Management Engine BIOS Extension v6.0.3.0019/Intel(R) ME v6.0.3.1195
             Copyright(C) 2003-09 Intel Corporation. All Rights Reserved.
         [        INTEL(R) NETWORK SETUP        ]


             Intel(R) ME Network Name Settings          ▶
             TCP/IP Settings                            ▶
             Previous Menu



    [ESC] : Exit          [↑↓] : Select          [ENTER] : Access
```
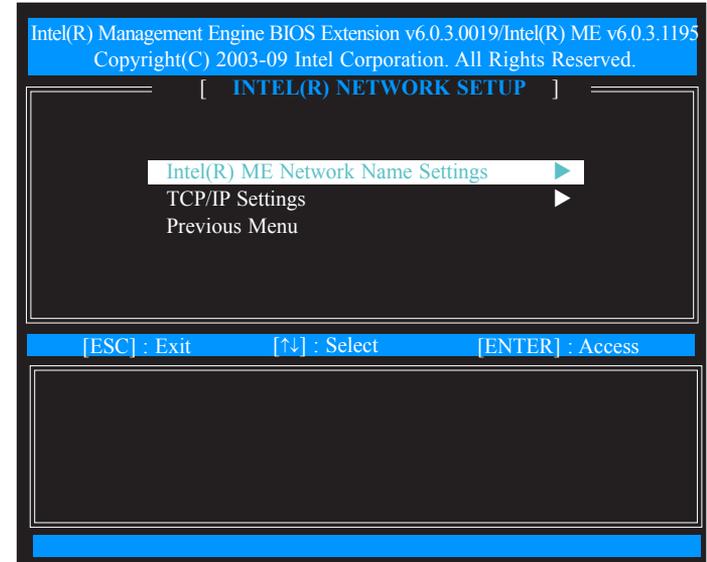
9. In the Intel(R) ME Network Name Settings menu, select **Host Name** and then press Enter.

   Enter the computer's host name (for example: QM57) and then press Enter.

   Select **Previous Menu** and then press Enter.

Intel(R) Management Engine BIOS Extension v6.0.3.0019/Intel(R) ME v6.0.9.1195
Copyright(C) 2003-09 Intel Corporation. All Rights Reserved.

[**INTEL(R) ME NETWORK NAME SETTINGS**   ]

Host Name
Domain Name
Shared/Dedicated FQDN
Dynamic DNS Update
Previous Menu

[ESC] : Exit   [↑↓] : Select   [ENTER] : Access

Computer host name

QM57
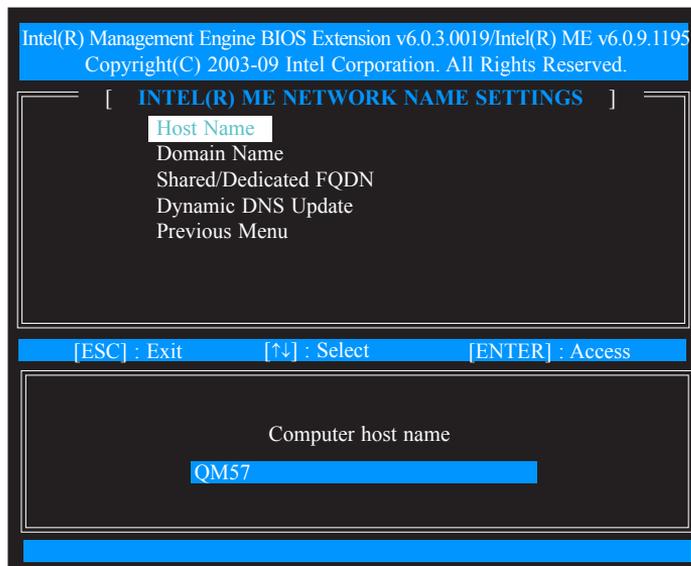
10. In the Network Setup menu, select **TCP/IP Settings** and then press Enter.

Intel(R) Management Engine BIOS Extension v6.0.3.0019/Intel(R) ME v6.0.3.1195
Copyright(C) 2003-09 Intel Corporation. All Rights Reserved.

[**INTEL(R) NETWORK SETUP**   ]

Intel(R) ME Network Name Settings   ▶
TCP/IP Settings   ▶
Previous Menu

[ESC] : Exit   [↑↓] : Select   [ENTER] : Access
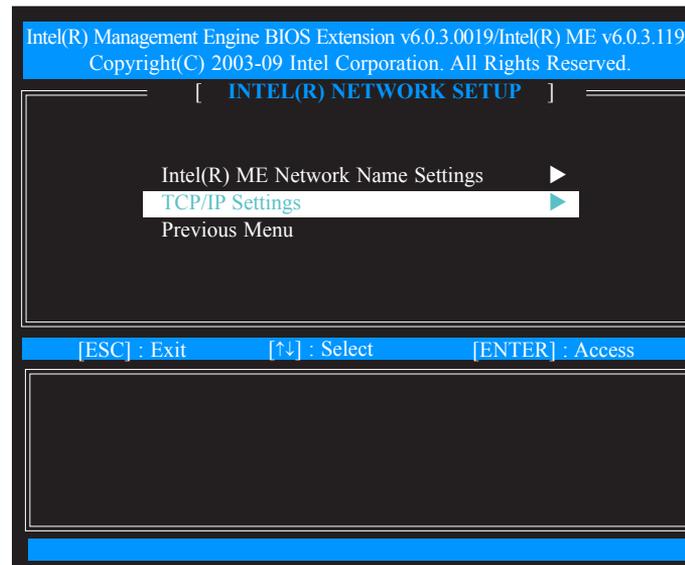
11. In the TCP/IP Settings menu, select **Wired LAN IPV4 Configuration** and then press Enter.

```
Intel(R) Management Engine BIOS Extension v6.0.3.0019/Intel(R) ME v6.0.3.1195
        Copyright(C) 2003-09 Intel Corporation. All Rights Reserved.
        ═════[    TCP/IP SETTINGS    ]═════


            Wired LAN IPV4 Configuration  ▶
            Wired LAN IPV6 Configuration  ▶
            Previous Menu



    [ESC] : Exit        [↑↓] : Select        [ENTER] : Access
```
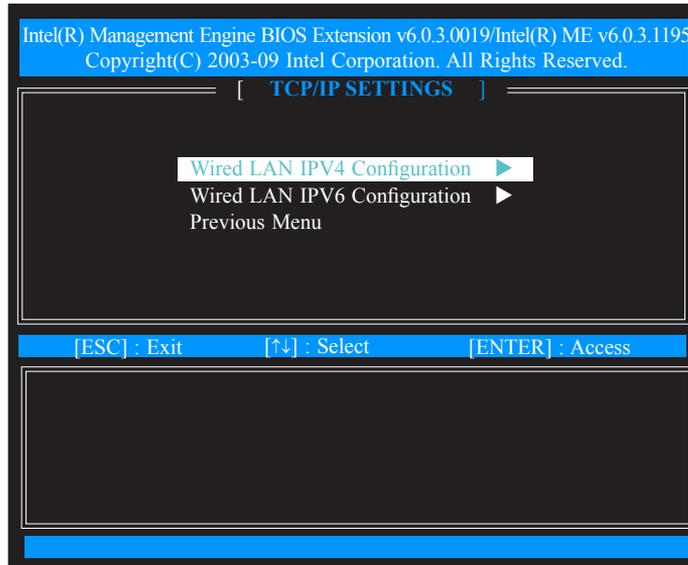
12. Select **DHCP Mode** and then press Enter.

   Select **Enabled** or **Disabled** and then press Enter.

```
Intel(R) Management Engine BIOS Extension v6.0.3.0019/Intel(R) ME v6.0.3.1195
        Copyright(C) 2003-09 Intel Corporation. All Rights Reserved.
        ═════[  WIRED LAN IPV4 CONFIGURATION  ]═════
                    DHCP Mode
                    Previous Menu




    [ESC] : Exit        [↑↓] : Select        [ENTER] : Access

                    [*] DISABLED
                    [*] ENABLED
```
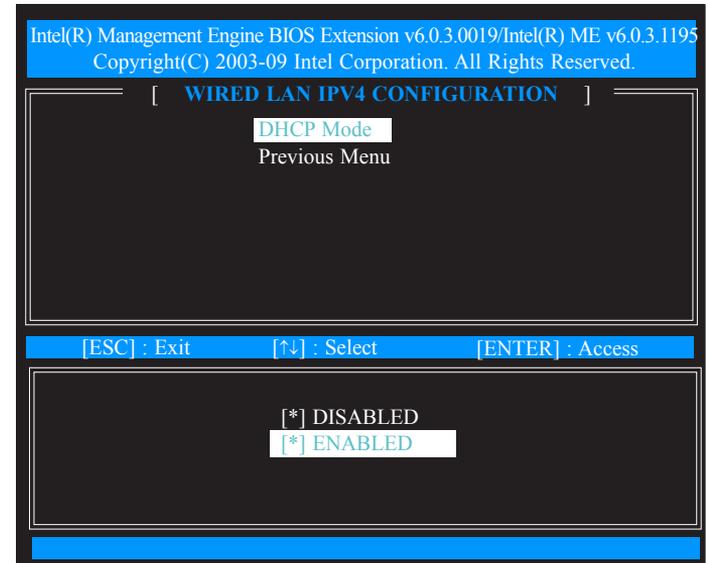
13. A list of options in the Wired LAN IPV4 Configuration menu will appear.

    Select **IPV4 Address** and then press Enter. Enter an **IP Address** then press Enter.

```
Intel(R) Management Engine BIOS Extension v6.0.3.0019/Intel(R) ME v6.0.9.1195
           Copyright(C) 2003-09 Intel Corporation. All Rights Reserved.
              [    WIRED LAN IPV4 CONFIGURATION    ]
                        DHCP Mode
                        IPV4 Address
                        Subnet Mask Address
                        Default Gateway Address
                        Preferred DNS Address
                        Alternate DNS Address
                        Previous Menu



                  IP address (e.g. 123.123.123.100)
```

14. Select **Subnet Mask Address** and then press Enter.

    Enter the **subnet mask address** and then press Enter.

```
Intel(R) Management Engine BIOS Extension v6.0.3.0019/Intel(R) ME v6.0.3.1195
          Copyright(C) 2003-09 Intel Corporation. All Rights Reserved.
              [    WIRED LAN IPV4 CONFIGURATION    ]
                        DHCP Mode
                        IPV4 Address
                        Subnet Mask Address
                        Default Gateway Address
                        Preferred DNS Address
                        Alternate DNS Address
                        Previous Menu

   [ESC] : Exit          [↑↓] : Select          [ENTER] : Access


                  Subnet mask (e.g. 255.255.255.0)
```
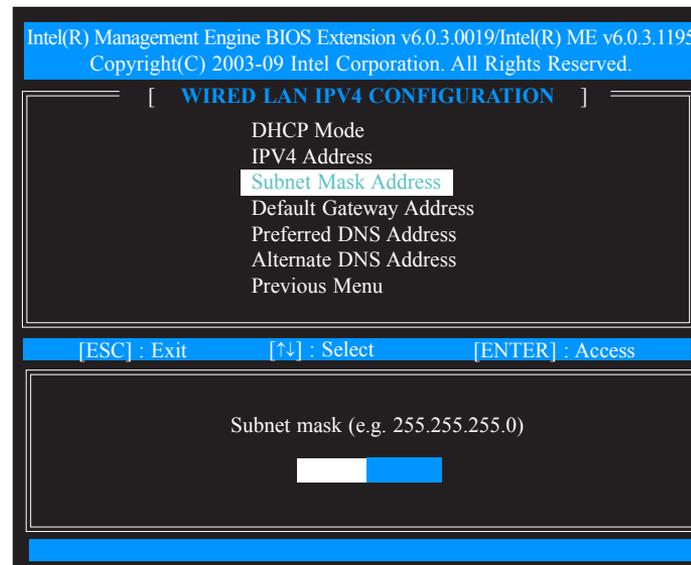
15. Select **Default Gateway Address** and then press Enter.

    Enter the **default gateway address** and then press Enter.

    ```
    Intel(R) Management Engine BIOS Extension v6.0.3.0019/Intel(R) ME v6.0.3.1195
                Copyright(C) 2003-09 Intel Corporation. All Rights Reserved.
    ──────────[    WIRED LAN IPV4 CONFIGURATION    ]──────────
                        DHCP Mode
                        IPV4 Address
                        Subnet Mask Address
                        Default Gateway Address
                        Preferred DNS Address
                        Alternate DNS Address
                        Previous Menu


    [ESC] : Exit          [↑↓] : Select          [ENTER] : Access


                        Default Gateway Address


    ```

16. Select **Previous Menu** and then press Enter.

    ```
    Intel(R) Management Engine BIOS Extension v6.0.3.0019/Intel(R) ME v6.0.3.1195
                Copyright(C) 2003-09 Intel Corporation. All Rights Reserved.
    ──────────[    INTEL(R) NETWORK SETUP    ]──────────


            Intel(R) ME Network Name Settings        ▶
            TCP/IP Settings                          ▶
            Previous Menu



    [ESC] : Exit          [↑↓] : Select          [ENTER] : Access


    ```

17. Select Previous Menu until you return to the **Intel(R) ME Platform Configuration** menu.

    Select **Activate Network Access** and then press Enter.

Intel(R) Management Engine BIOS Extension v6.0.3.0019/Intel(R) ME v6.0.3.1195
Copyright(C) 2003-09 Intel Corporation. All Rights Reserved.

INTEL(R) ME PLATFORM CONFIGURATION

Intel(R) ME State Control
Change ME Password
Password Policy
Network Setup   ▶
Activate Network Access
Unconfigure Network Access
Remote Setup and Configuration   ▶
FW Update Settings   ▶

[ESC] : Exit   [↑↓] : Select   [ENTER] : Access
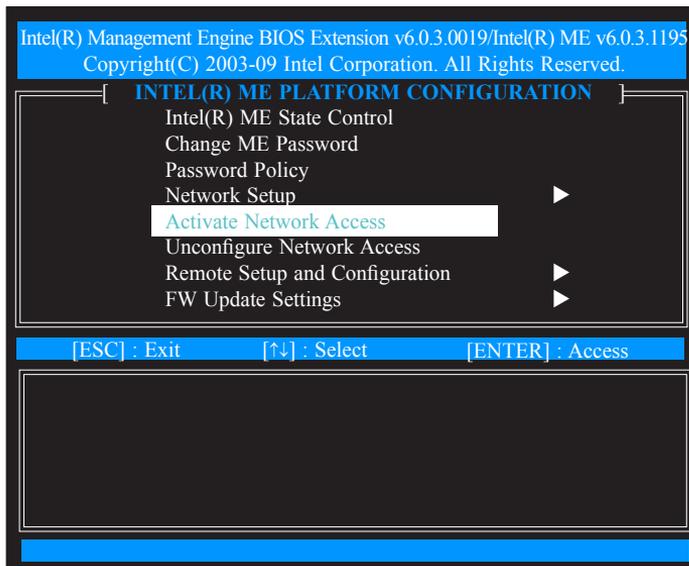
18. Type **Y** and then press Enter.

Intel(R) Management Engine BIOS Extension v6.0.3.0019/Intel(R) ME v6.0.3.1195
Copyright(C) 2003-09 Intel Corporation. All Rights Reserved.

INTEL(R) ME PLATFORM CONFIGURATION

Intel(R) ME State Control
Change ME Password
Password Policy
Network Setup   ▶
Activate Network Access
Unconfigure Network Access
Remote Setup and Configuration   ▶
FW Update Settings   ▶

[ESC] : Exit   [↑↓] : Select   [ENTER] : Access

[Caution]
Activates the current network settings
and opens the ME network interface
Continue: (Y/N)

19. In the Intel(R) ME Platform Configuration menu, select **Unconfigure Network Access** and then press Enter. Clear all network settings.

```
Intel(R) Management Engine BIOS Extension v6.0.3.0019/Intel(R) ME v6.0.3.1195
            Copyright(C) 2003-09 Intel Corporation. All Rights Reserved.
┌─────────────[  INTEL(R) ME PLATFORM CONFIGURATION  ]─────────────┐
│           Intel(R) ME State Control                              │
│           Change ME Password                                     │
│           Password Policy                                        │
│           Network Setup                          ▶               │
│           Unconfigure Network Access                             │
│           Remote Setup and Configuration         ▶               │
│           FW Update Settings                     ▶               │
│           Set PRTC                                               │
├──────────────────────────────────────────────────────────────────┤
│   [ESC] : Exit        [↑↓] : Select        [ENTER] : Access      │
└──────────────────────────────────────────────────────────────────┘
```
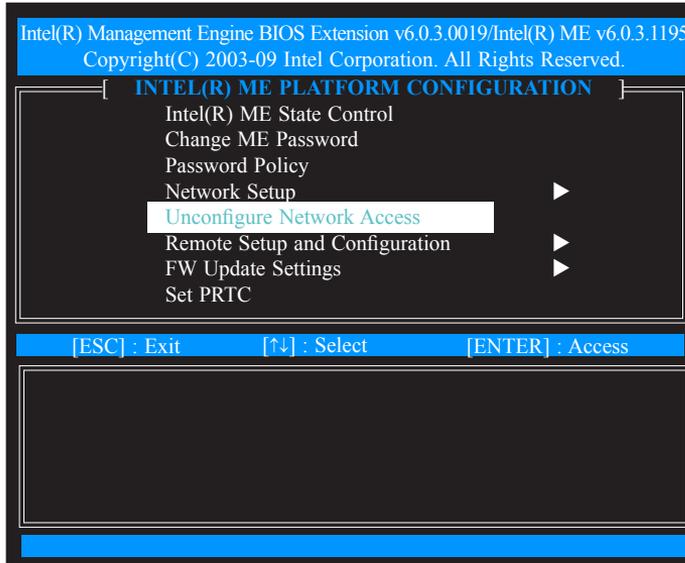
20. In the Intel(R) ME Platform Configuration menu, select **Power Control** and then press Enter.

```
Intel(R) Management Engine BIOS Extension v6.0.3.0019/Intel(R) ME v6.0.3.1195
            Copyright(C) 2003-09 Intel Corporation. All Rights Reserved.
┌─────────────[  INTEL(R) ME PLATFORM CONFIGURATION  ]─────────────┐
│           Change ME Password                                     │
│           Password Policy                                        │
│           Network Setup                          ▶               │
│           Unconfigure Network Access                             │
│           Remote Setup and Configuration         ▶               │
│           FW Update Settings                     ▶               │
│           Set PRTC                                               │
│           Power Control                          ▶               │
├──────────────────────────────────────────────────────────────────┤
│   [ESC] : Exit        [↑↓] : Select        [ENTER] : Access      │
└──────────────────────────────────────────────────────────────────┘
```
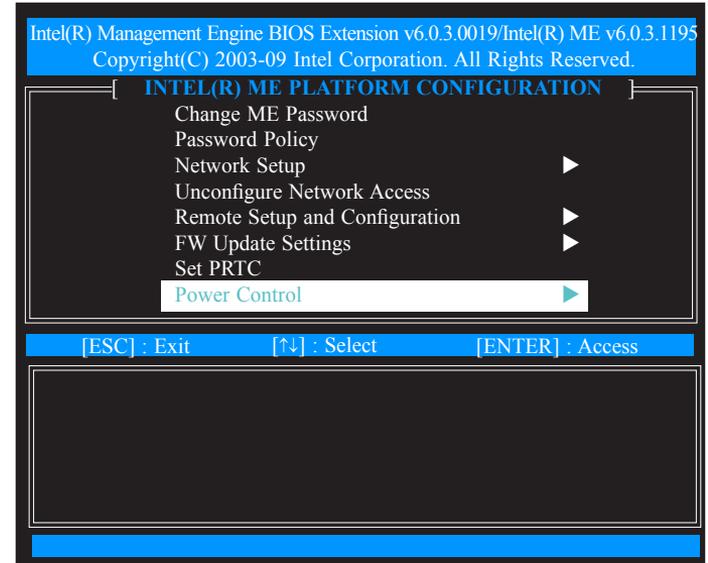
21. In the Intel(R) ME Power Control menu, select **Intel(R) ME ON in Host Sleep States** and then press Enter.

    Select **Mobile: ON in S0** and then press Enter.

Intel(R) Management Engine BIOS Extension v6.0.3.0019/Intel(R) ME v6.0.3.1195
Copyright(C) 2003-09 Intel Corporation. All Rights Reserved.
[**INTEL(R) ME POWER CONTROL**   ]

    Intel(R) ME ON in Host Sleep States
    Idle Timeout
    Previous Menu

[ESC]=Exit   [↑↓]=Select   [ENTER]=Access

[*] Mobile: ON in S0
[ ] Mobile: ON in S0, ME Wake in S3, S4-5 (AC only)

22. Select **Previous Menu** and then press Enter.

Intel(R) Management Engine BIOS Extension v6.0.3.0019/Intel(R) ME v6.0.3.1195
Copyright(C) 2003-09 Intel Corporation. All Rights Reserved.
[**INTEL(R) ME PLATFORM CONFIGURATION**   ]

    Password Policy
    Network Setup   ▶
    Unconfigure Network Access
    Remote Setup and Configuration   ▶
    FW Update Settings   ▶
    Set PRTC
    Power Control   ▶
    Previous Menu

[ESC] : Exit   [↑↓] : Select   [ENTER] : Access

23. Select Previous Menu until you return to the Main Menu. Select **Intel(R) AMT Configuration**.

```
Intel(R) Management Engine BIOS Extension v6.0.3.0019/Intel(R) ME v6.0.3.1195
         Copyright(C) 2003-09 Intel Corporation. All Rights Reserved.
===============[    MAIN MENU    ]===============

           Intel(R) ME General Settings       ▶
           Intel(R) AMT Configuration         ▶
           Exit


   [ESC]=Exit            [↑↓]=Select            [ENTER]=Access
```

24. The message below will appear.

```
Intel(R) Management Engine BIOS Extension v6.0.3.0019/Intel(R) ME v6.0.3.1195
         Copyright(C) 2003-09 Intel Corporation. All Rights Reserved.
=============[    MAIN MENU    ]=============

           Intel(R) ME General Settings       ▶
           Intel(R) AMT Configuration         ▶
           Exit


   [ESC]=Exit            [↑↓]=Select            [ENTER]=Access


      Update network settings in the General Settings menu
```

25. In the Intel(R) AMT Configuration menu, select **SOL/IDER** and then press Enter.

```
Intel(R) Management Engine BIOS Extension v6.0.3.0019/Intel(R) ME v6.0.3.1195
          Copyright(C) 2003-09 Intel Corporation. All Rights Reserved.
            [     INTEL(R) AMT CONFIGURATION     ]

                    Manageability Feature Selection
                    SOL/IDER
                    KVM Configuration
                    Previous Menu



    [ESC]=Exit          [↑↓]=Select          [ENTER]=Access


```
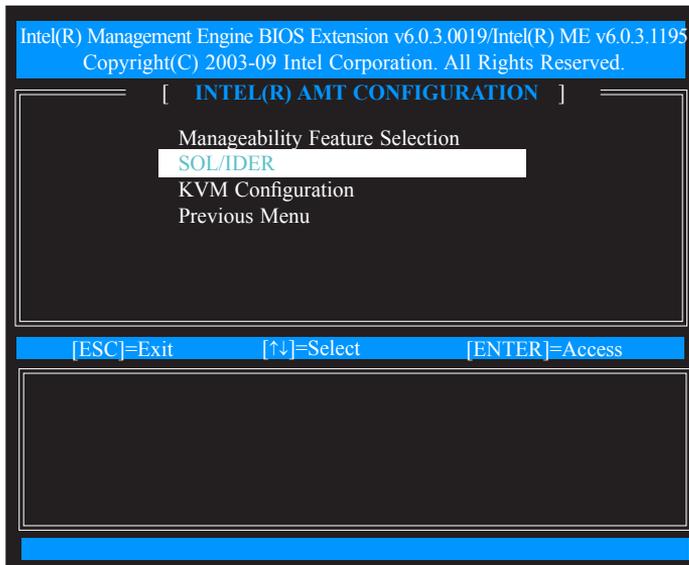
26. In the SOL/IDER menu, select **Username & Password** and then press Enter.

Select **Enabled** and then press Enter.

```
Intel(R) Management Engine BIOS Extension v6.0.3.0019/Intel(R) ME v6.0.3.1195
          Copyright(C) 2003-09 Intel Corporation. All Rights Reserved.
                    [     SOL/IDER     ]
                    Username & Password
                    SOL
                    IDER
                    Legacy Redirection Mode
                    Previous Menu



    [ESC]=Exit          [↑↓]=Select          [ENTER]=Access

                    [ ] DISABLED
                    [*] ENABLED


```
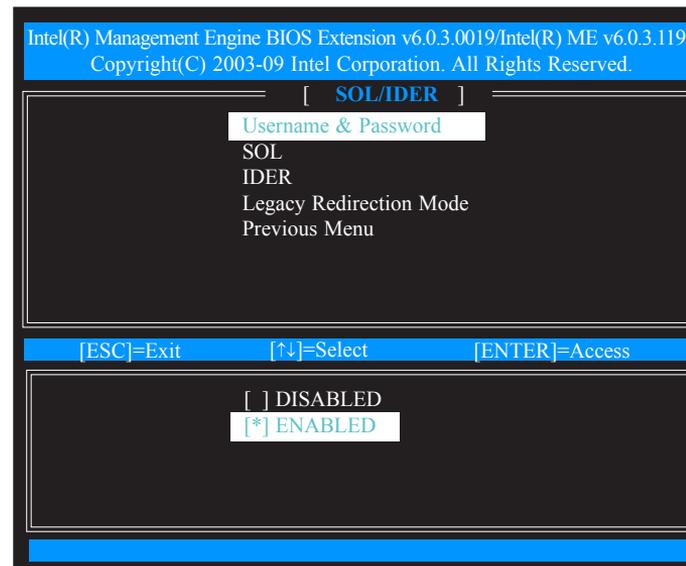
27. In the SOL/IDER menu, select **SOL** and then press Enter.

    Select **Enabled** and then press Enter.

```
Intel(R) Management Engine BIOS Extension v6.0.3.0019/Intel(R) ME v6.0.3.1195
              Copyright(C) 2003-09 Intel Corporation. All Rights Reserved.
    ════════════════════[   SOL/IDER   ]════════════════════
                  Username & Password
                  SOL
                  IDER
                  Legacy Redirection Mode
                  Previous Menu



    [ESC]=Exit            [↑↓]=Select            [ENTER]=Access

            [ ] DISABLED
            [*] ENABLED
```
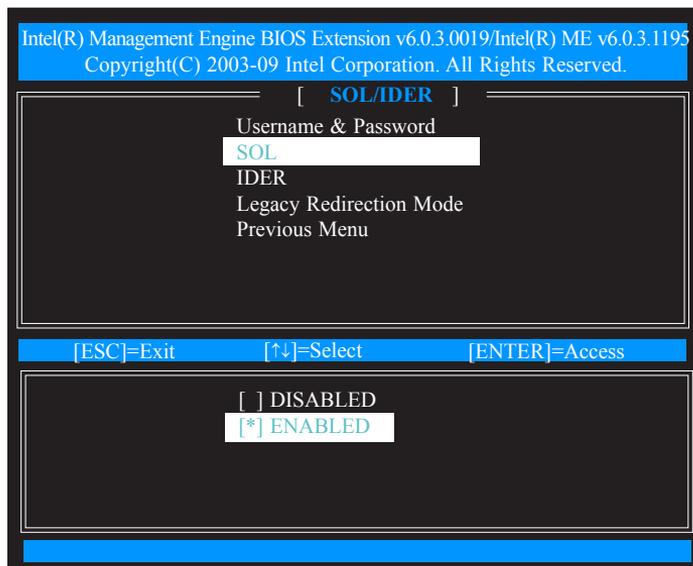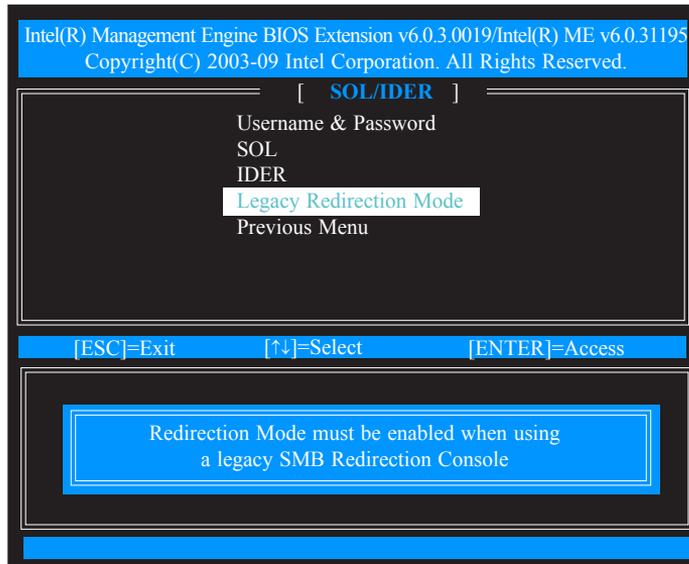
28. In the SOL/IDER menu, select **IDER** and then press Enter.

    Select **Enabled** and then press Enter.

```
Intel(R) Management Engine BIOS Extension v6.0.3.0019/Intel(R) ME v6.0.3.1195
              Copyright(C) 2003-09 Intel Corporation. All Rights Reserved.
    ════════════════════[   SOL/IDER   ]════════════════════
                  Username & Password
                  SOL
                  IDER
                  Legacy Redirection Mode
                  Previous Menu



    [ESC]=Exit            [↑↓]=Select            [ENTER]=Access

            [ ] DISABLED
            [*] ENABLED
```

29. In the SOL/IDER menu, select **Legacy Redirection Mode** and then press Enter.

```
Intel(R) Management Engine BIOS Extension v6.0.3.0019/Intel(R) ME v6.0.31195
            Copyright(C) 2003-09 Intel Corporation. All Rights Reserved.
                          [   SOL/IDER   ]
                    Username & Password
                    SOL
                    IDER
                    Legacy Redirection Mode
                    Previous Menu



    [ESC]=Exit          [↑↓]=Select          [ENTER]=Access


            Redirection Mode must be enabled when using
                    a legacy SMB Redirection Console
```

30. Select **Enabled** and then press Enter.

```
Intel(R) Management Engine BIOS Extension v6.0.3.0019/Intel(R) ME v6.0.31195
            Copyright(C) 2003-09 Intel Corporation. All Rights Reserved.
                          [   SOL/IDER   ]
                    Username & Password
                    SOL
                    IDER
                    Legacy Redirection Mode
                    Previous Menu



    [ESC]=Exit          [↑↓]=Select          [ENTER]=Access


                    [ ] DISABLED
                    [*] ENABLED
```
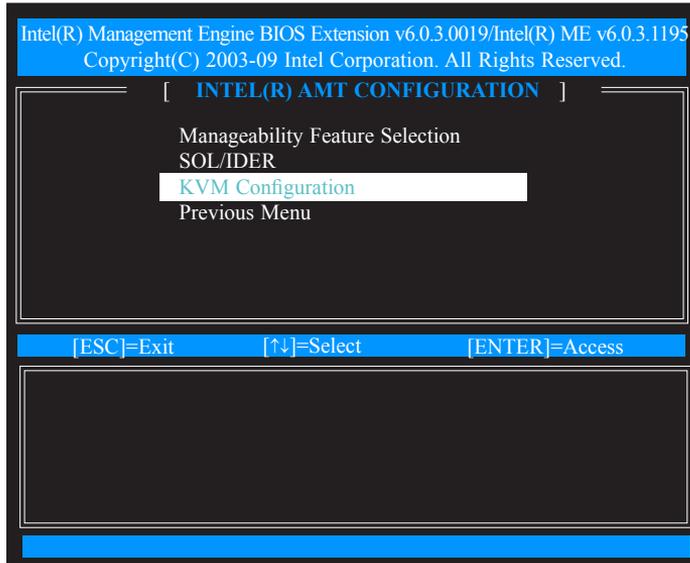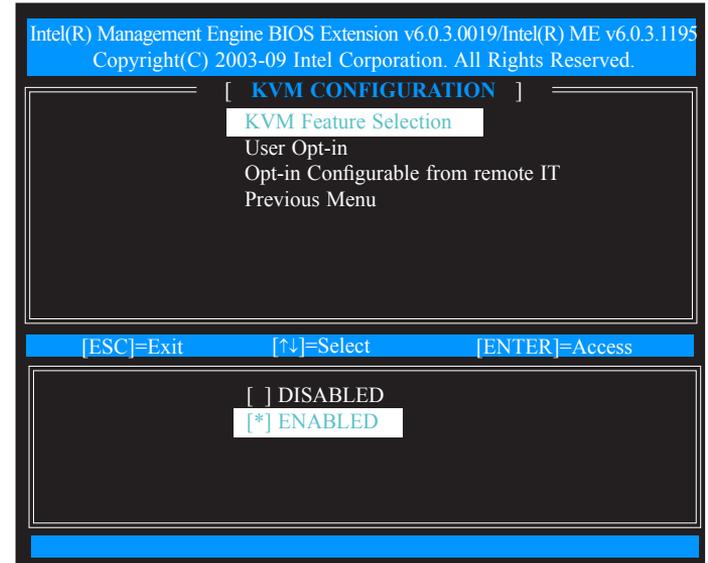
31. Select Previous Menu until you return to the **Intel(R) AMT Configuration** menu.
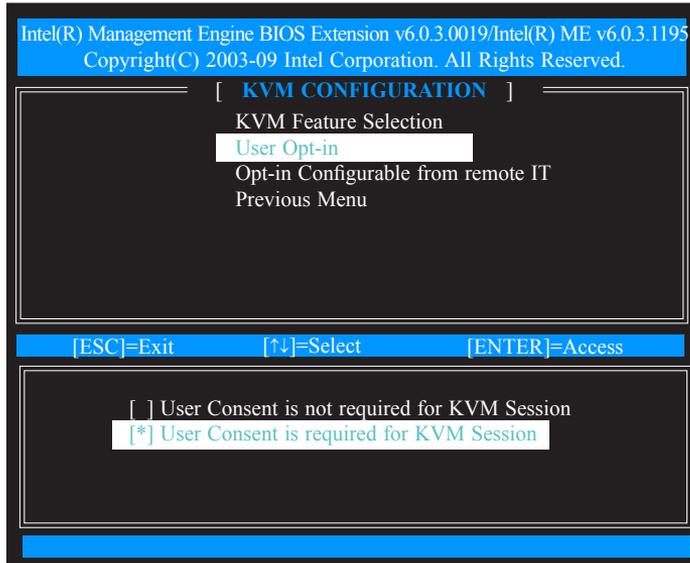
    Select **KVM Configuration** and then press Enter.

```
Intel(R) Management Engine BIOS Extension v6.0.3.0019/Intel(R) ME v6.0.3.1195
             Copyright(C) 2003-09 Intel Corporation. All Rights Reserved.
        ═══════[    INTEL(R) AMT CONFIGURATION    ]═══════

               Manageability Feature Selection
               SOL/IDER
               KVM Configuration
               Previous Menu



        [ESC]=Exit           [↑↓]=Select          [ENTER]=Access
```

32. In the KVM Configuration menu, select **KVM Feature Selection** and then press Enter.

    Select **Enabled** and then press Enter.

```
Intel(R) Management Engine BIOS Extension v6.0.3.0019/Intel(R) ME v6.0.3.1195
             Copyright(C) 2003-09 Intel Corporation. All Rights Reserved.
        ═══════[    KVM CONFIGURATION    ]═══════
               KVM Feature Selection
               User Opt-in
               Opt-in Configurable from remote IT
               Previous Menu



        [ESC]=Exit           [↑↓]=Select          [ENTER]=Access

               [ ] DISABLED
               [*] ENABLED
```
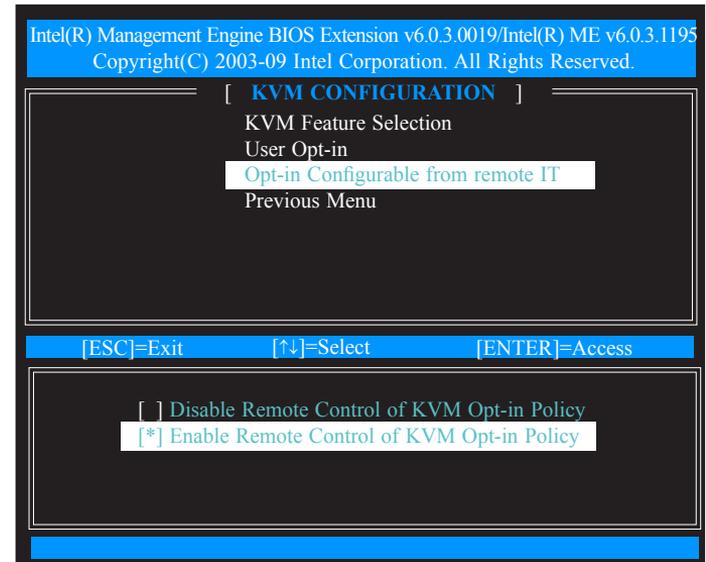
33. In the KVM Configuration menu, select **User Opt-in** and then press Enter.

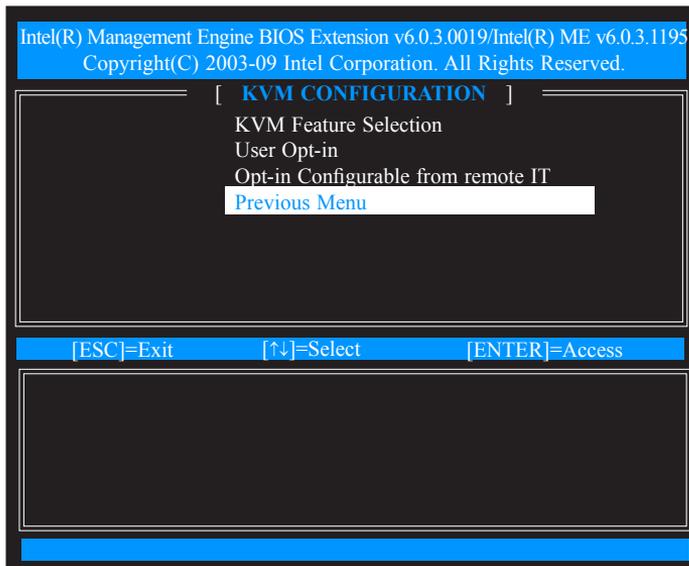   Select **User Consent is required for KVM Session** and then press Enter.

```
Intel(R) Management Engine BIOS Extension v6.0.3.0019/Intel(R) ME v6.0.3.1195
              Copyright(C) 2003-09 Intel Corporation. All Rights Reserved.
          ═══[  KVM CONFIGURATION  ]═══
              KVM Feature Selection
              User Opt-in
              Opt-in Configurable from remote IT
              Previous Menu



      [ESC]=Exit          [↑↓]=Select          [ENTER]=Access

          [ ] User Consent is not required for KVM Session
          [*] User Consent is required for KVM Session
```

34. In the KVM Configuration menu, select **Opt-in Configurable from Remote IT** and then press Enter.

    Select **Enable Remote Control of KVM Opt-in Policy** and then press Enter.

```
Intel(R) Management Engine BIOS Extension v6.0.3.0019/Intel(R) ME v6.0.3.1195
              Copyright(C) 2003-09 Intel Corporation. All Rights Reserved.
          ═══[  KVM CONFIGURATION  ]═══
              KVM Feature Selection
              User Opt-in
              Opt-in Configurable from remote IT
              Previous Menu



      [ESC]=Exit          [↑↓]=Select          [ENTER]=Access

          [ ] Disable Remote Control of KVM Opt-in Policy
          [*] Enable Remote Control of KVM Opt-in Policy
```
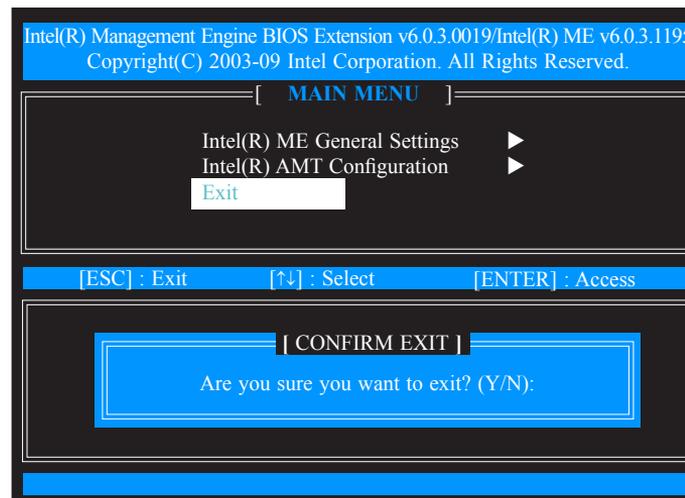
35. Select **Previous Menu**.

Intel(R) Management Engine BIOS Extension v6.0.3.0019/Intel(R) ME v6.0.3.1195
Copyright(C) 2003-09 Intel Corporation. All Rights Reserved.

[**KVM CONFIGURATION**   ]

KVM Feature Selection
User Opt-in
Opt-in Configurable from remote IT
Previous Menu

[ESC]=Exit   [↑↓]=Select   [ENTER]=Access

36. Select Previous Menu until you return to the Main Menu. Select **Exit** and then press Enter.
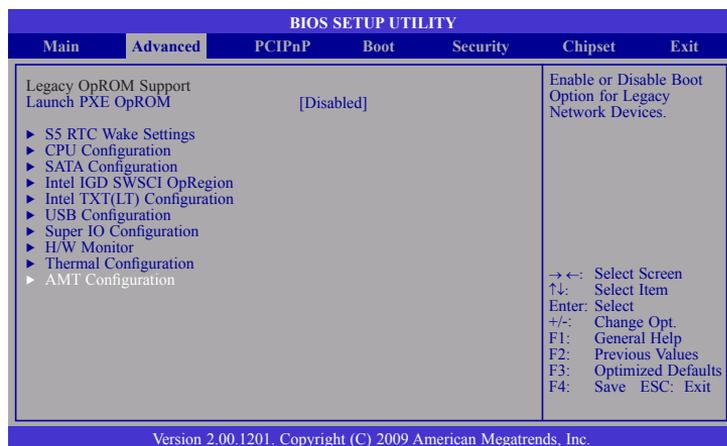
The following message will be displayed on the screen.

[CONFIRM EXIT]
Are you sure you want to exit? (Y/N):

Press Y.

Intel(R) Management Engine BIOS Extension v6.0.3.0019/Intel(R) ME v6.0.3.1195
Copyright(C) 2003-09 Intel Corporation. All Rights Reserved.

[**MAIN MENU**   ]

Intel(R) ME General Settings   ▶
Intel(R) AMT Configuration   ▶
Exit

[ESC] : Exit   [↑↓] : Select   [ENTER] : Access

[CONFIRM EXIT]

Are you sure you want to exit? (Y/N):

Unconfigure AMT/ME

1. In the Advanced menu, select **AMT Configuration**.

```
                          BIOS SETUP UTILITY
  Main      Advanced    PCIPnP     Boot     Security    Chipset     Exit

  Legacy OpROM Support                              Enable or Disable Boot
  Launch PXE OpROM            [Disabled]            Option for Legacy
                                                    Network Devices.
  ▶ S5 RTC Wake Settings
  ▶ CPU Configuration
  ▶ SATA Configuration
  ▶ Intel IGD SWSCI OpRegion
  ▶ Intel TXT(LT) Configuration
  ▶ USB Configuration
  ▶ Super IO Configuration
  ▶ H/W Monitor
  ▶ Thermal Configuration            → ←:  Select Screen
  ▶ AMT Configuration                ↑↓:    Select Item
                                     Enter: Select
                                     +/-:   Change Opt.
                                     F1:    General Help
                                     F2:    Previous Values
                                     F3:    Optimized Defaults
                                     F4:    Save  ESC: Exit

          Version 2.00.1201. Copyright (C) 2009 American Megatrends, Inc.
```

2. In the **Unconfigure AMT/ME** field, select Enabled. Clear all ME settings.

```
                          BIOS SETUP UTILITY
              Advanced

  AMT                            [Enabled]          AMT Help
  Unconfigure AMT/ME             [Enabled]
  Watchdog Timer                 [Disabled]
     OS Watchdog Timer           0
     BIOS Watchdog Timer         0




                                     → ←:  Select Screen
                                     ↑↓:    Select Item
                                     Enter: Select
                                     +/-:   Change Opt.
                                     F1:    General Help
                                     F2:    Previous Values
                                     F3:    Optimized Defaults
                                     F4:    Save  ESC: Exit

          Version 2.00.1201. Copyright (C) 2009 American Megatrends, Inc.
```
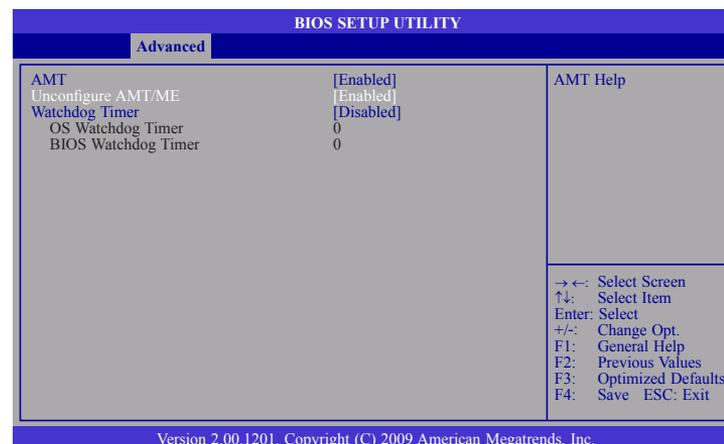
3. The message below will appear. Type **Y**.

```
Intel(R) Management Engine BIOS Extension v6.0.3.0019
Copyright(C) 2003-09 Intel Corporation. All Rights Reserved.

Found unconfigure of Intel(R) ME
Continue with unconfiguration (Y/N)
```

Appendix A: Power Consumption

Test Configuration

System Configuration	Sys#1	Sys#2
Chassis	CHASSIS NISE3500 VER:A	CHASSIS NISE3500 VER:A
CPU	Intel® Core™ i5-520M Processor (3M Cache, 2.4 GHz) (35w)	Intel® Core™ i7-620M Processor (4M Cache, 2.66 GHz) (35w)
Memory	Transcend DDR3 1066 2Gx2	Transcend DDR3 1066 2Gx2
HDD	HITACHI HTS723225L9A360 250GB	HITACHI HTS723225L9A360 250GB
FDD	N/A	N/A
CD-ROM	N/A	N/A
Compact Flash device	N/A	N/A
Power Supply	POWER ADAPTER SPI:G.P FSP120-AAB (N091)	POWER ADAPTER SPI:G.P FSP120-AAB (N091)
Add-on Card	D-LINK Lan Card	N/A
CPU Cooler	NISE3500 HEATSINK	NISE3500 HEATSINK
System Fan	N/A	N/A
Keyboard	LEMEL B-5201-P	LEMEL B-5201-P
Mouse	GENIVS EASY MOUSE PS/2	GENIVS EASY MOUSE PS/2

Power Consumption Measurement

Purpose

The purpose of the power consumption test is to verify the power dissipation of the system and the load of the power supply.

Test Equipment

PROVA CM-07 AC/DC CLAMP METER

Device Under Test

DUT: Sys #1 / Sys #2

Test Procedure

1. Power up the DUT and then boot Windows XP.
2. Enter the standby mode (HDD power down).
3. Measure the power consumption and record it.
4. Run the Burn-in test program to apply 100% full loading.
5. Run the Intel Kpower program.
5. Run the LAN Packet Counter and Receive program.

Test Data

	Sys #1	Sys #2
	+19V	+19V
Full-Loading Mode	2.97A	3.42A
Total	56.43W	64.98W
Standby Mode	1.025A	0.94A
Total	19.475W	17.86W

Appendix B: GPI/O Programming Guide

GPI/O (General Purpose Input/Output) pins are provided for custom system design. This appendix provides definitions and its default setting for the ten GPI/O pins in the NISE3500 series. The pin definition is shown in the following table:

Pin No.	GPI/O mode	PowerOn Default	Address	Pin No.	GPI/O mode	PowerOn Default	Address
1	VCC	-	-	2	GND	-	-
3	GPO	Low	3E4h (Bit4)	4	GPI	High	3E4h (Bit0)
5	GPO	Low	3E4h (Bit5)	6	GPI	High	3E4h (Bit1)
7	GPO	Low	3E4h (Bit6)	8	GPI	High	3E4h (Bit2)
9	GPO	Low	3E4h (Bit7)	10	GPI	High	3E4h (Bit3)

JP2 – GPI/O Connector

Control the GPO pin (3/5/7/9) level from I/O port 3E4h bit (4/5/6/7). The bit is Set/Clear indicated output High/Low

GPIO programming sample code

```
#define GPIO_PORT          0x3E4
#define GPO3              (0x01 << 4)
#define GPO5              (0x01 << 5)
#define GPO7              (0x01 << 6)
#define GPO9              (0x01 << 7)


#define GPO3_HI           outportb(GPIO_PORT, 0x10)
#define GPO3_LO           outportb(GPIO_PORT, 0x00)
#define GPO5_HI           outportb(GPIO_PORT, 0x20)
#define GPO5_LO           outportb(GPIO_PORT, 0x00)
#define GPO7_HI           outportb(GPIO_PORT, 0x40)
#define GPO7_LO           outportb(GPIO_PORT, 0x00)
#define GPO9_HI           outportb(GPIO_PORT, 0x80)
#define GPO9_LO           outportb(GPIO_PORT, 0x00)
void main(void)
{
    GPO3_HI;
    GPO5_LO;
    GPO7_HI;
    GPO9_LO;
}
```

Appendix C: Watchdog Timer Setting

```
                          ┌─────────┐
                          │  Start  │
                          └────┬────┘
                               │ Step 1
                               ▼
         ┌──────────────────────────────────────────┐
         │ See "SetupWDT" procedure                  │
         │ #Setup Watchdog Timer Environment         │
         └──────────────────┬───────────────────────┘
                            │ Step 2
                            ▼
         ┌──────────────────────────────────────────┐
         │ See "TimeBaseWDT" procedure               │
         │ #Initial Watchdog Timer                   │
         │ Users can select second or minute         │
         └──────────────────┬───────────────────────┘
                            │ Step 3
                            ▼
         ┌──────────────────────────────────────────┐
         │ See "TimeCountWDT" procedure              │
         │ #Set Watchdog Timer Time-out Value        │
         │ Users can set time-out value              │
         └──────────────────┬───────────────────────┘
                            │ Step 4
                            ▼
         ┌──────────────────────────────────────────┐
         │ See ExitSetup procedure                   │
         │ #Exit Setup Environment                   │
         └──────────────────┬───────────────────────┘
                            │
                            ▼
                       ┌─────────┐
                       │   End   │
                       └─────────┘
```
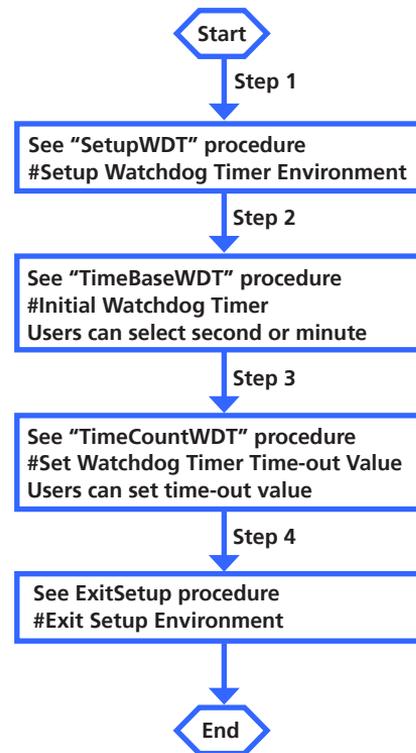
```
c:\>debug [enter]
-o 2e 87 ;Enter the Extended Function Mode
-o 2e 01
-o 2e 55
-o 2e 55
-o 2e 07 ;Logical Device Number Reg
-o 2f 07 ;LDN=7
-o 2e 72 ;Watch dog configuration
-o 2f XX ;minute mode or second mode
-o 2e 73 ;LSB for Watch dog tme out value
-o 2f YY
-o 2e 74 ;MSB for Watch dog tme out value
-o 2f ZZ

XX: 90 : Second mode
    10 : minute mode
ex:
10 second timeout:
xx=90
yy=0a
zz=00
```

Appendix D: Intel Embedded AMT Management Express KVM

1. After installing the Intel Embedded AMT Management Express utility, the **Intel Embedded AMT Management Express** icon will appear on your desktop.

2. Double-click the icon to run Intel Embedded AMT Management Express.

3. When the Intel Embedded AMT Management Express dialog box appears, click **Accept**.
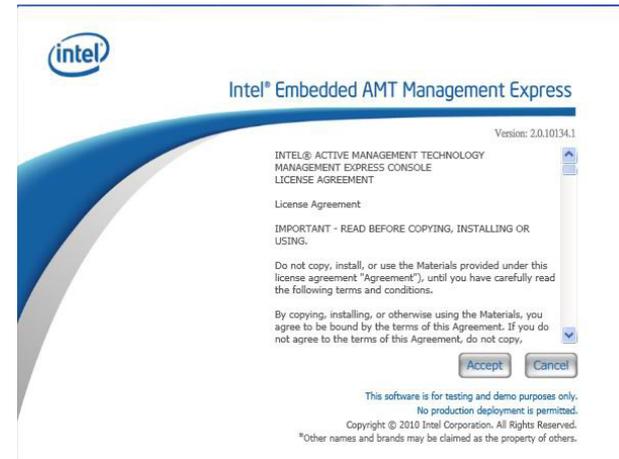
4. Click the first icon in the toolbar (top row).
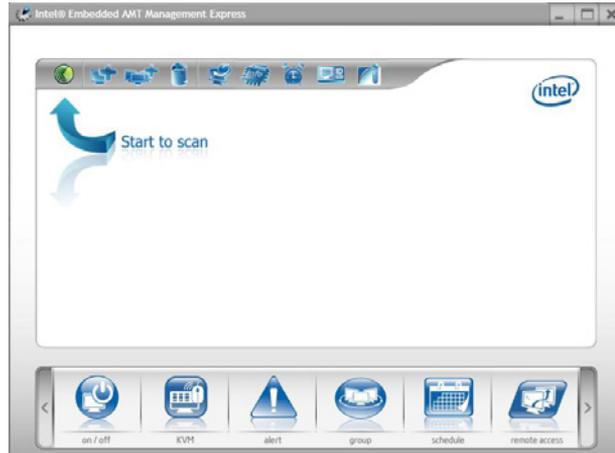
5. Enter a range of IP addresses that is within the network to find iAMT computers.

6. Click the **Start Scan** icon.

7. The iAMT computers that were detected within the network will appear under the Discovered Devices list.

8. Click **Add Device**. A dialog box will appear.

   Enter the ME BIOS' username "admin" and password. Click **OK**.

9. After you have added the iAMT computer, a dialog box will appear informing you that the device was added successfully. Click **OK**.

102 NISE 3520 Series User Manual

10. In the Intel Embedded AMT Management Express main menu, you will notice the **Device-1** icon in the Device section.

    Move the cursor to **Device-1** and you will see the remote iAMT computer's IP address.

11. Click the 5th icon (Connect to Selected Device) in the toolbar to connect to the remote iAMT computer.
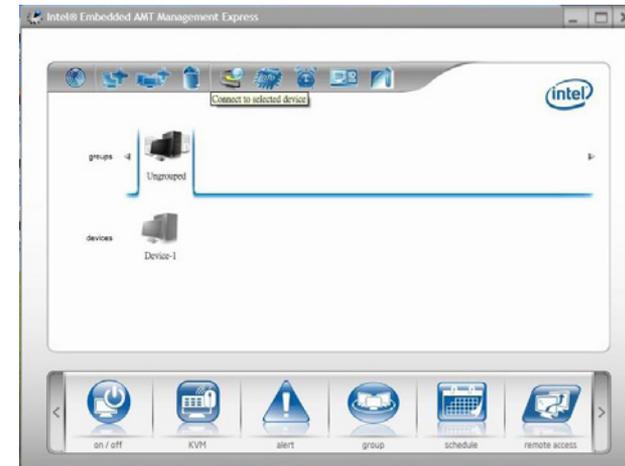
12. In the Connection dialog box, enter the remote computer's IP address, ME BIOS' username "admin" and password.

    Click the **Connect** icon to connect to the remote computer.
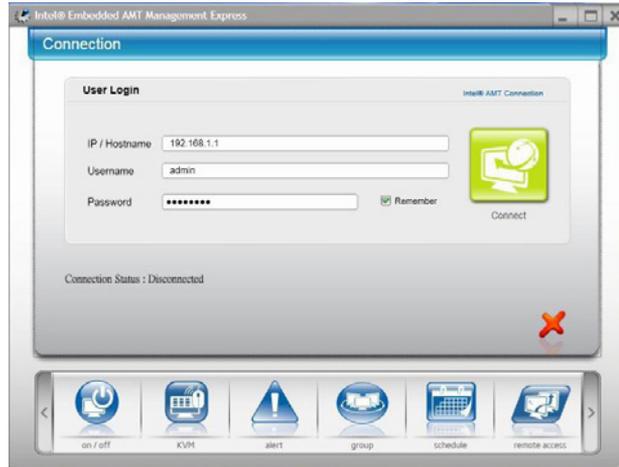
13. Once the server is connected to the remote computer, the message **Connection Status: Connection Established** will appear at the bottom of the screen.

14. In the Intel Embedded AMT Management Express main menu, click the **KVM** icon.

15. The Remote KVM screen will appear. In the KVM Password field, enter the ME BIOS admin's password and then click the **Start Session** icon.

You will be prompted to enter the **VNC's password**.

Enter the 6-character password that appeared on the remote computer.

16. When the server is connected to the remote iAMT computer, the server will be able to see the remote computer's current image.

If you entered the wrong password thrice, a message will appear notifying you that the server and remote computer's VNC connection failed. You must click the **KVM** icon again and then select **KVM Viewer Redirect Port** to reconnect.

Appendix E: Intel Manageability Command Tool - KVM

1. After installing the Intel Manageability Commander Tool, the **Manageability Commander Tool** icon will appear on your desktop.

2. Double-click the icon to run Manageability Commander Tool.

   The Network Discovery screen allows you to scan to find iAMT computers (with the ME BIOS configured) on the specified range of IP addresses.

3. Enter a range of IP addresses that is within the network. Enter the **Start IP address** and **End IP address**.

4. Click **Start** to search for iAMT computers that are in the designated range.
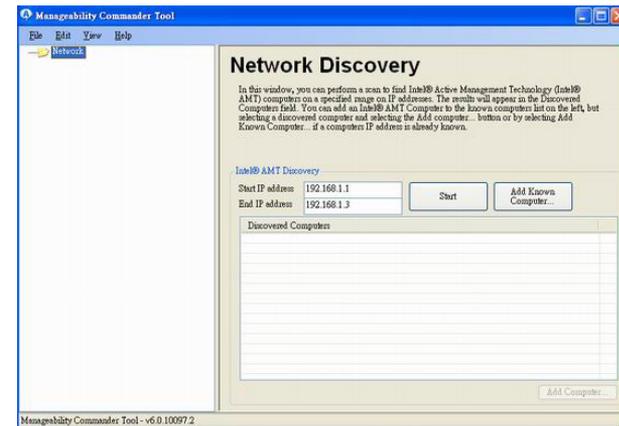
5. The detected iAMT computer will appear in the Discovered Computers field.

    You can either click **Add Known Computer** to add the iAMT computer to the Network list on the left column or double-click the computer name under the Discovered Computers list.
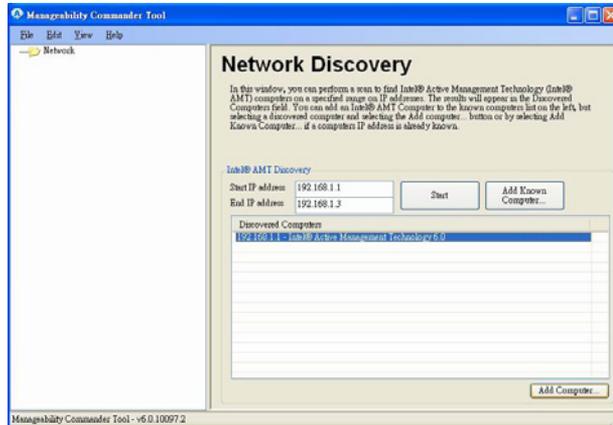
6. After adding the iAMT computer, a dialog box will appear. Enter the username "admin" and password used by the ME BIOS of the iAMT computer.

    Click **OK**.
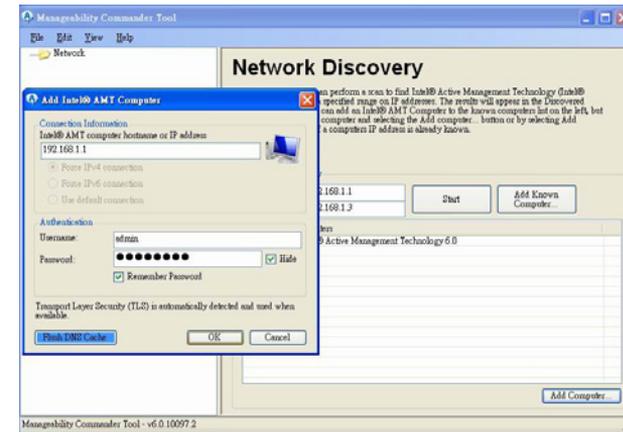
7. The newly added iAMT computer with its IP address will appear under the Network list located at the left column of the screen.
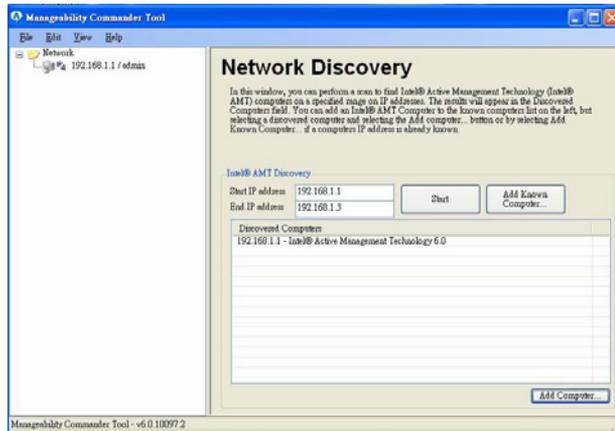
8. On the left column, under Network, select the iAMT computer. The Connect & Control screen will appear on the right side.

    Select the **Connection** tab and then click **Connect**. The Manageability Commander Tool will connect the iAMT computer with the server.

109
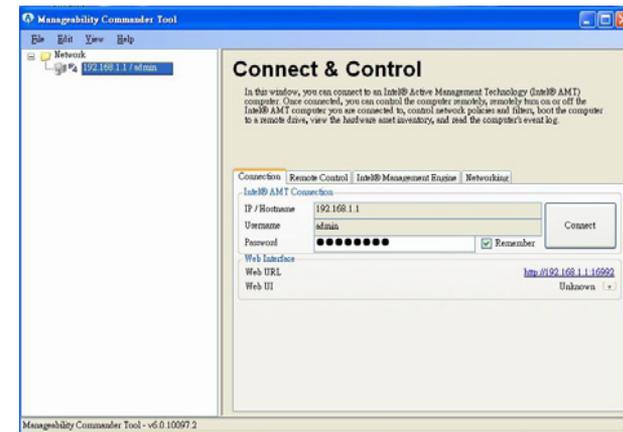
9. The iAMT computer's icon under the Network list will turn from gray to blue. The server and iAMT computer are now connected.
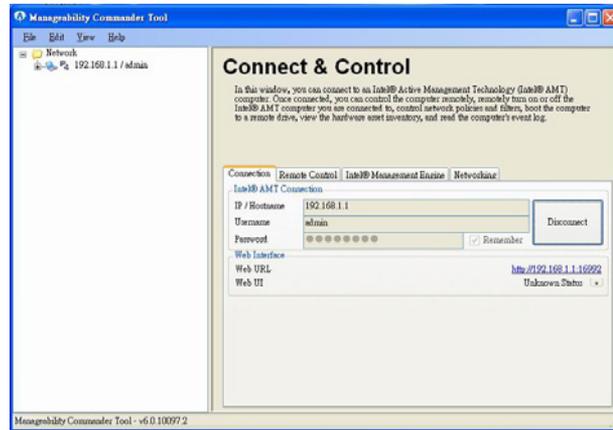
10. Display the hierarchical structure of the iAMT computer's files and folders. This will allow you to view the remote computer's hardware status and configuration.
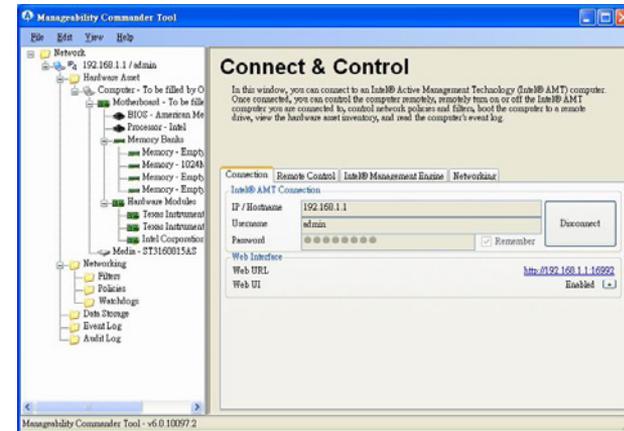
11. On the right side of the screen, select the **Remote Control** tab.

12. Under the KVM section, check whether the Remote KVM Setting's status is All Parts Enabled. If not, click the ↓ arrow beside it.
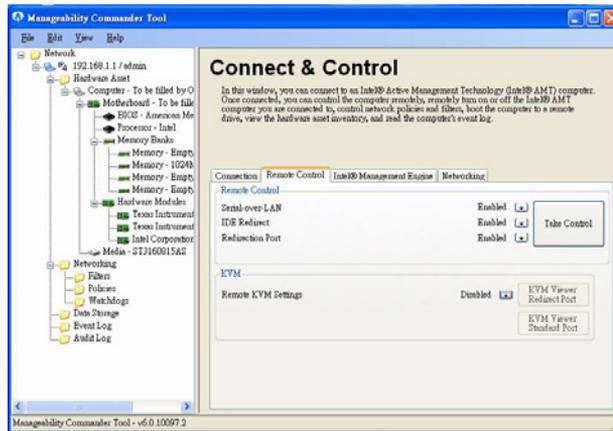
13. The Edit KVM Settings Form dialog box will appear. In the KVM State field, click the scroll down arrow and then select **Enabled - All Ports**. Click **OK**.
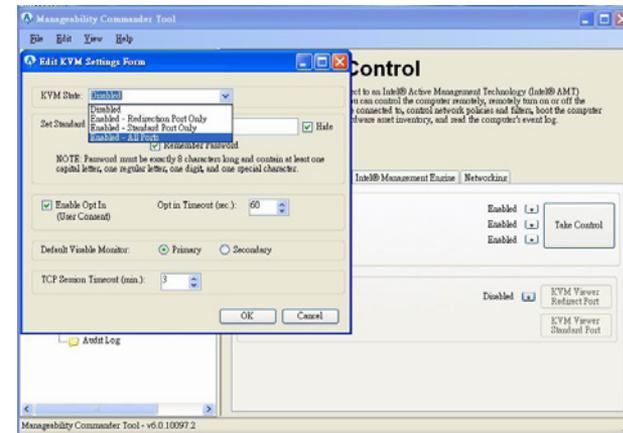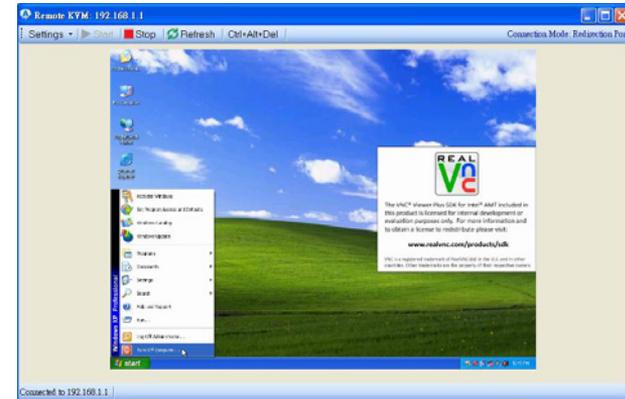
14. The Remote KVM screen will appear. Select **KVM Viewer Redirect Port**. The server will prompt you to enter the VNC's password.

    The remote iAMT's computer will at the same time display the Intel KVM Remote Assistance Application program's 6-character password.
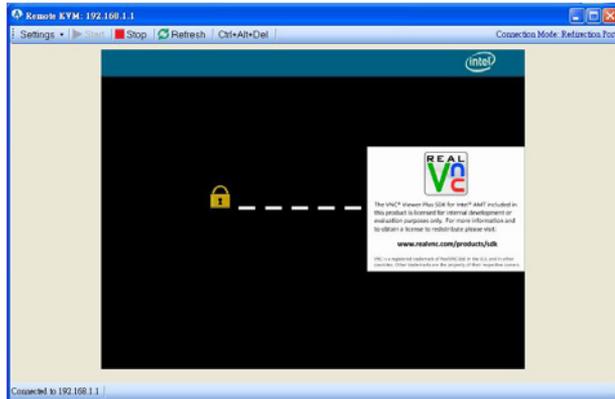
15. After the server entered the 6-character password provided by the remote computer's screen, the server will be able to see the remote computer's current image.

If you entered the wrong password thrice, a message will appear notifying you that the server and remote computer's VNC connection failed. You must click the **KVM** icon again and then select **KVM Viewer Redirect Port** to reconnect.