



NEXCOM International Co., Ltd.

IoT Automation Solutions Business Group

Fan-less Computer

NISE 50-J1900

User Manual

CONTENTS

Preface

Copyright	iv
Disclaimer	iv
Acknowledgements	iv
Regulatory Compliance Statements	iv
Declaration of Conformity	iv
RoHS Compliance	v
Warranty and RMA	vi
Safety Information	viii
Installation Recommendations	viii
Safety Precautions	ix
Technical Support and Assistance	x
Conventions Used in this Manual	x
Global Service Contact Information	xi
Package Contents	xiii
Ordering Information	xiv

Chapter 1: Product Introduction

Overview	1
Key Features	1
Hardware Specifications	2
Knowing Your NISE 50-J1900	4
Front Panel	4
Rear Panel	4
Mechanical Dimensions	5

Chapter 2: Jumpers and Connectors

Before You Begin	6
Precautions	6
Jumper Settings	7
Locations of the Jumpers and Connectors for NISE 50-J1900	8
NISE 50-J1900	8
Jumpers	9
AT/ATX Power Select	9
Clear CMOS/ME	9
COM1 5V/12V/RI Select	10
COM3 TX Terminal Pin Header	10
COM3 RX Terminal Pin Header	11
COM3 RS422/485 Select	11
SIM Card Power Select	12
Connector Pin Definitions	13
External I/O Interfaces - Front Panel	13
Power Button	13
SIM Card Slot	13
HDMI	14
USB1/2 Ports (USB 2.0)	14
USB3/4 Ports (USB 2.0)	15
LAN 1 Port	15
LAN 2 Port	16
External I/O Interfaces - Rear Panel	17
DC Power Input	17
COM 1 Port (RS232)	17

COM 2 Port (RS232).....	18
COM 3 Port (RS422/485 Only).....	18
Internal Connectors.....	19
BIOS Pin Header.....	19
LAN1 LED Signal Pin Header.....	19
LAN2 LED Signal Pin Header.....	20
SATA Connector.....	20
SATA Power Connector.....	21
GPIO Pin Header.....	21
Port 80.....	22
COM4 (Full RS232) Pin Header.....	22
PWR_LED/HDD_LED/SMB_BUS/S3/SW_ON/RESET.....	23
RTC Connector.....	23
EC Programmable Connector.....	24
SMBUS Pin Header.....	24
SPI and I2C Pin Header.....	25
SOC GPIO Pin Header.....	25
SOC UART Pin Header.....	26
Mini-PCIe Connector (3G/mSATA).....	27
Mini-PCIe Connector (3G/Wi-Fi).....	28
Half-size Mini-PCIe Connector (Wi-Fi).....	29

Chapter 3: System Setup

Removing the Chassis Cover.....	30
Installing a SO-DIMM Memory Module.....	31
Installing a Wi-Fi/BT Mini-PCIe Module (Half-size).....	32
Installing a 3G/mSATA Mini-PCIe Module (Full-size).....	34
Installing a 3G/Wi-Fi Mini-PCIe Module (Half-size).....	36
Installing a SIM Card.....	38
Installing an Antenna.....	40
Wallmount Installation.....	42

Chapter 4: BIOS Setup

About BIOS Setup.....	43
When to Configure the BIOS.....	43
Default Configuration.....	44
Entering Setup.....	44
Legends.....	44
BIOS Setup Utility.....	46
Main.....	46
Advanced.....	47
Chipset.....	57
Security.....	59
Boot.....	60
Save & Exit.....	61

Appendix A: Power Consumption62

Appendix B: GPIO Control Commands

Command List.....	64
GPIO Default Table.....	64
Read GPIO Status Sequence.....	65
Write GPIO Status Sequence.....	65
Read GPIO Direction Sequence.....	66
Write GPIO Direction Sequence.....	66

Appendix C: Watchdog Control

Command List.....	67
Watchdog HW RAM Address.....	67
Start Watchdog.....	67
Stop Watchdog.....	67
Reset Watchdog.....	67

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 50-J1900 is a trademark of NEXCOM International Co., Ltd. All other product names mentioned herein are registered trademarks of their respective owners.

Regulatory Compliance Statements

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

Declaration of Conformity

FCC

This equipment has been tested and verified to comply with the limits for a Class A digital device, pursuant to Part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. Operation of this equipment in a residential area (domestic environment) is likely to cause harmful interference, in which case the user will be required to correct the interference (take adequate measures) at their own expense.

CE

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 2011/65/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 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 2013 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.

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.



Danger of explosion if battery is incorrectly replaced. Replace with the same or equivalent type recommended by the manufacturer. Discard used batteries according to the manufacturer's instructions.

Installation Recommendations

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

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

- A Philips screwdriver
- A flat-tipped screwdriver
- A grounding strap
- An anti-static pad

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

Safety Precautions

1. Read these safety instructions carefully.
2. Keep this User Manual for later reference.
3. Disconnect this equipment from any AC outlet before cleaning. Use a damp cloth. Do not use liquid or spray detergents for cleaning.
4. For plug-in equipment, the power outlet socket must be located near the equipment and must be easily accessible.
5. Keep this equipment away from humidity.
6. Put this equipment on a stable surface during installation. Dropping it or letting it fall may cause damage.
7. The openings on the enclosure are for air convection to protect the equipment from overheating. **DO NOT COVER THE OPENINGS.**
8. Make sure the voltage of the power source is correct before connecting the equipment to the power outlet.
9. Place the power cord in a way so that people will not step on it. Do not place anything on top of the power cord. Use a power cord that has been approved for use with the product and that it matches the voltage and current marked on the product's electrical range label. The voltage and current rating of the cord must be greater than the voltage and current rating marked on the product.
10. All cautions and warnings on the equipment should be noted.
11. If the equipment is not used for a long time, disconnect it from the power source to avoid damage by transient overvoltage.
12. Never pour any liquid into an opening. This may cause fire or electrical shock.
13. Never open the equipment. For safety reasons, the equipment should be opened only by qualified service personnel.
14. If one of the following situations arises, get the equipment checked by service personnel:
 - a. The power cord or plug is damaged.
 - b. Liquid has penetrated into the equipment.
 - c. The equipment has been exposed to moisture.
 - d. The equipment does not work well, or you cannot get it to work according to the user's manual.
 - e. The equipment has been dropped and damaged.
 - f. The equipment has obvious signs of breakage.
15. Do not place heavy objects on the equipment.
16. The unit uses a three-wire ground cable which is equipped with a third pin to ground the unit and prevent electric shock. Do not defeat the purpose of this pin. If your outlet does not support this kind of plug, contact your electrician to replace your obsolete outlet.
17. **CAUTION: DANGER OF EXPLOSION IF BATTERY IS INCORRECTLY REPLACED. REPLACE ONLY WITH THE SAME OR EQUIVALENT TYPE RECOMMENDED BY THE MANUFACTURER. DISCARD USED BATTERIES ACCORDING TO THE MANUFACTURER'S INSTRUCTIONS.**

Technical Support and Assistance

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

Warning!

1. Handling the unit: carry the unit with both hands and handle it with care.
2. Maintenance: to keep the unit clean, use only approved cleaning products or clean with a dry cloth.

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.

9F, 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

Asia

Taiwan

NexAIoT Headquarters

Industry 4.0 and Cloud Services

13F, No.916, Zhongzheng Rd.,
Zhonghe District, New Taipei City,
23586, Taiwan, R.O.C.
Tel: +886-2-8226-7796
Fax: +886-2-8226-7926
Email: sales@nexaiot.com
www.nexaiot.com

NexAIoT Co., Ltd.

Taichung Office

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

NexCOBOT Taiwan Co., Ltd.

13F, No.916, Chung-Cheng Rd.,
Zhonghe District,
New Taipei City, 23586, Taiwan, R.O.C.
Tel: +886-2-8226-7786
Fax: +886-2-8226-7926
Email: sales@nexcobot.com
www.nexcobot.com

GreenBase Technology Corp.

13F, No.922, Chung-Cheng Rd.,
Zhonghe District,
New Taipei City, 23586, Taiwan, R.O.C.
Tel: +886-2-8226-7786
Fax: +886-2-8226-7900
Email: sales@nexcom.com.tw
www.nexcom.com.tw

EMBUX Technology Co., Ltd.

13F, No.916, Chung-Cheng Rd.,
Zhonghe District,
New Taipei City, 23586, Taiwan, R.O.C.
Tel: +886-2-8226-7786
Fax: +886-2-8226-7782
Email: sales@nexcom.com.tw
www.nexcom.com.tw

TMR Technology Corp.

13F, No.916, Chung-Cheng Rd.,
Zhonghe District,
New Taipei City, 23586, Taiwan, R.O.C.
Tel: +886-2-8226-7786
Fax: +886-2-8226-7782
Email: sales@nexcom.com.tw
www.nexcom.com.tw

China

NEXSEC Incorporated

5F, No.4, No.7 Fengxian Middle Rd.,
(Beike Industrial Park), Haidian District,
Beijing, 100094, China
Tel: +86-10-5704-2680
Fax: +86-10-5704-2681
Email: marketing@nexsec.cn
www.nexsec.cn

NEXCOM Shanghai

No.4, 16 Building,
Shanghai OMNI Tech & Science Park
No. 1699, Douhui Rd.,
Shanghai, 201108, China
Tel: +86-21-5278-5868
Fax: +86-21-3251-6358
Email: sales@nexcom.cn
www.nexcom.cn

NEXCOM Surveillance Technology Corp.

5F, Building C, ZhenHan Industrial Zone,
GanKeng Community, Buji Street,
LongGang District,
ShenZhen, 518112, China
Tel: +86-755-8364-7768
Fax: +86-755-8364-7738
Email: steveyang@nexcom.com.tw
www.nexcom.cn

NEXCOM United System Service

Room 603/604, Huiyinmingzun Plaza Bldg. 1,
No. 609, Yunlin East Rd.,
Shanghai, 200062, China
Tel: +86-21-5278-5868
Fax: +86-21-3251-6358
Email: renwang@nexcom.com.tw
www.nexcom.cn

NEXGOL Chongqing

1F, Building B4, Electronic 2nd Area,
(Phoenix Lake Industrial Park), Yongchuan Dist.,
Chongqing City, 402160, China
Tel: +86-23-4960-9080
Fax: +86-23-4966-5855
Email: sales@nexgol.com.cn
www.nexcobot.com/NexGOL

NexCOBOT China

Room 501, Building 1, Haichuang Building,
No.7 Qingyi Road, Guicheng Street,
Nanhai District, Foshan City,
Guangdong Province, 528314, China
Tel: +86-757-8625-7118
Email: sales@nexcobot.com
www.nexcobot.com.cn

Beijing NexGemo Technology Co.,Ltd.

5F, Gemotech Building, No.1, Development Rd.,
Changping International Information Industry Base,
Changping District,
Beijing, 102206, China
Tel: +86-10-8190-9328
Fax: +86-10-8190-9456
Email: sales@gemotech.cn
www.nexgemo.cn

Japan

NEXCOM Japan

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

America

USA NEXCOM USA

46665 Fremont Blvd.,
Fremont CA 94538, USA
Tel: +1-510-656-2248
Fax: +1-510-656-2158
Email: sales@nexcom.com
www.nexcomusa.com

Europe

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.co.uk

Package Contents

Before continuing, verify that the NISE 50-J1900 package that you received is complete. Your package should have all the items listed in the following table.

Item	Part Number	Description	Qty
1	19J00005029X0	NISE 50-J1900 ASSY	1
2	6012200052X00	PE Zipper Bag #8	1
3	60177A0599X00	NISE 50-E3845 Quick Reference Guide VER:A SIZE:A4	1
4	6012200053X00	PE Zipper Bag #3	1
5	5060900226X00	Mini PCIe Bracket CHYUAN-JYH	1
6	50311F0330X00	Round Head Screw Long Fei:P2x3 ISO+Nylon	6
7	50311F0295X00	Flat Head Screw Long Fei:F2x4 Nylok NIGP	2
8	602DCD1608H00	NISE 50 DVD Driver VER:2.0	1

Ordering Information

The following information below provides ordering information for NISE 50-J1900.

- **Barebone**

- **NISE 50-J1900 (P/N: 10J00005029X0)**

- Intel® Celeron® processor J1900 quad core fanless system, with DDR3L RAM SO-DIMM slot

- **60W 12V/5A AC/DC power adapter w/o power cord (P/N: 7400060051X00)**

CHAPTER 1: PRODUCT INTRODUCTION

Overview



Key Features

- Onboard Intel® Celeron® processor J1900 quad core, 2.42GHz
- 1 x HDMI display
- 2 x Intel® I210AT GbE LAN ports; support WoL, teaming and PXE
- 4 x USB 2.0
- 3 x mini-PCIe sockets for optional Wi-Fi/3.5G/LTE modules
- 2 x RS232, 1 x RS422/485 with auto flow control
- Support -5~55 degree C operating temperature
- Support 12V DC input

Hardware Specifications

CPU Support

- Default: Onboard Intel® Celeron® processor J1900 quad core, 2.42GHz

Main Memory

- 1 x DDR3L 1066/1333 SO-DIMM socket, support up to 8GB

Display Option

- 1 x HDMI display

I/O Interface - Front

- ATX power on/off switch
- 1 x Storage/2 x GPO programmable LEDs
- 1 x SIM card holder
- 2 x Intel® I210AT GbE LAN ports; support WoL, teaming and PXE
- 1 x HDMI display output
- 4 x USB 2.0 (500mA per port)
- 2 x Antenna holes for optional Wi-Fi/3.5G antenna

I/O Interface - Rear

- 3 x DB9 for COM1 & COM2 & COM3
 - COM1: Full RS232 signal
 - COM2: Full RS232 signal
 - COM3: RS422/485 auto flow control
- Support 12V DC input

I/O Interface - Internal

- 4 x GPI and 4 x GPO (programmable to GPI or GPO)
- 1 x RS232, pin header, support RS232 Tx/Rx/GND signal only

Storage Device

- Optional mSATA module

Expansion Slot

- 3 x Mini-PCIe sockets for optional Wi-Fi/3.5G modules

Mini-PCIe	Size	USB	PCIe	SATA	mSATA	3.5G/4G	Wi-Fi
CN5	Full	✓	N/A	✓	Support	Support	N/A
CN6	Full	✓	✓	✗	N/A	Support	Support
CN7	Half	✗	✓	✗	N/A	N/A	Support

Power Requirements

- Power input: 12V DC +/-20%
- 1 x Optional 12V, 60W power adapter

Support OS

- Windows 7 64-bit
- Windows 10 64-bit

Dimensions

- 162mm (W) x 26mm (H) x 150mm (D) without wall-mount bracket

Construction

- Metal chassis with fanless design

Environment

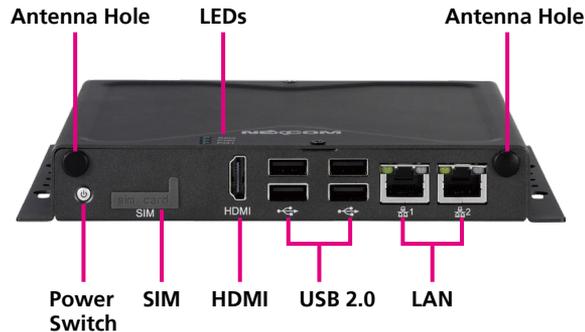
- Operating temperature:
Ambient with air flow: -5°C to 55°C
(according to IEC60068-2-1, IEC60068-2-2, IEC60068-2-14)
- Storage temperature: -20°C to 75°C
- Relative humidity: 10% to 95% (non-condensing)
- Shock protection:
 - mSATA: 50G, half sine, 11ms, IEC60068-2-27
- Vibration protection w/ mSATA condition:
 - Random: 2Grms @ 5~500 Hz, IEC60068-2-64
 - Sinusoidal: 2Grms @ 5~500 Hz, IEC60068-2-6

Certifications

- CE
- FCC Class A

Knowing Your NISE 50-J1900

Front Panel



Antenna Hole

Used to install external antennas.

Power Switch

Press to power-on or power-off the system.

SIM

Used to insert a SIM card.

LED Indicators

Indicates the hard drive and GPIO (programmable) activity of the system.

HDMI

Used to connect a high-definition display.

USB 2.0

USB 2.0 ports to connect the system with USB 2.0/1.1 devices.

LAN

Used to connect the system to a local area network.

DC Input

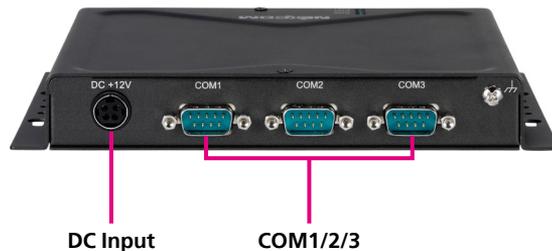
Used to plug a DC power cord.

COM1 to COM3

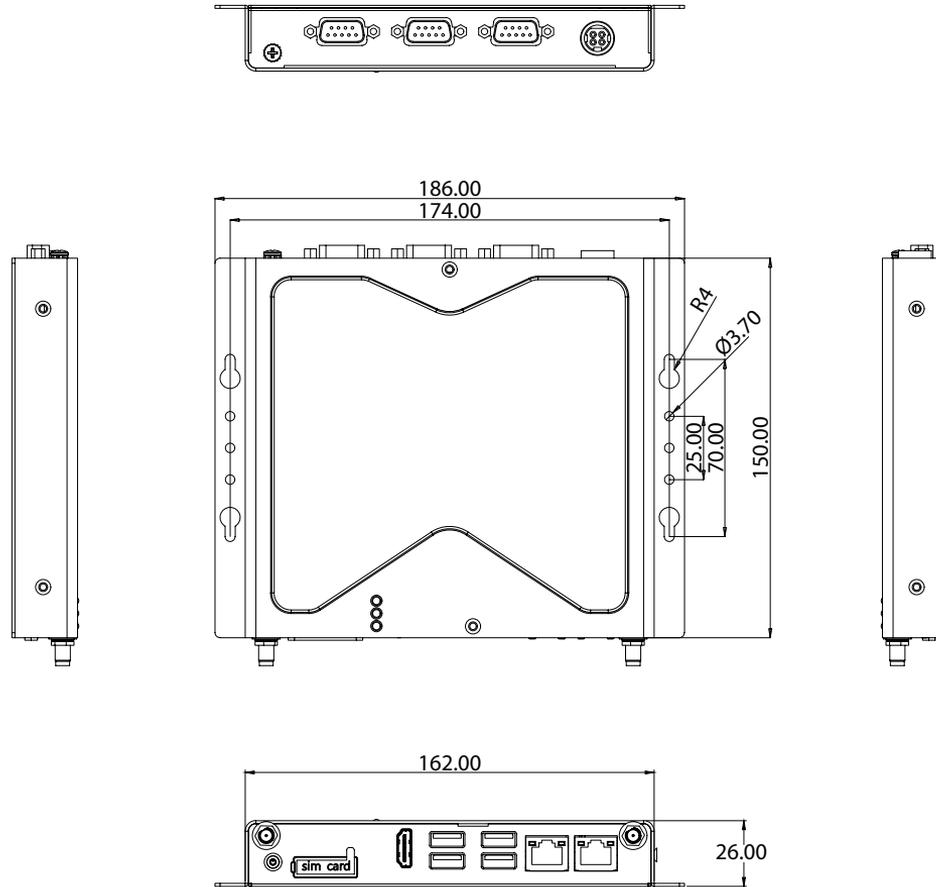
Three DB9 ports used to connect serial devices.

- COM1: Full RS232 signal
- COM2: Full RS232 signal
- COM3: RS422/485 auto flow control

Rear Panel



Mechanical Dimensions



CHAPTER 2: JUMPERS AND CONNECTORS

This chapter describes how to set the jumpers and connectors on the NISE 50-J1900 motherboard.

Before You Begin

- Ensure you have a stable, clean working environment. Dust and dirt can get into components and cause a malfunction. Use containers to keep small components separated.
- Adequate lighting and proper tools can prevent you from accidentally damaging the internal components. Most of the procedures that follow require only a few simple tools, including the following:
 - A Philips screwdriver
 - A flat-tipped screwdriver
 - A set of jewelers screwdrivers
 - A grounding strap
 - An anti-static pad
- Using your fingers can disconnect most of the connections. It is recommended that you do not use needle-nosed pliers to disconnect connections as these can damage the soft metal or plastic parts of the connectors.
- Before working on internal components, make sure that the power is off. Ground yourself before touching any internal components, by touching a metal object. Static electricity can damage many of the electronic components. Humid environments tend to have less static electricity than

dry environments. A grounding strap is warranted whenever danger of static electricity exists.

Precautions

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

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

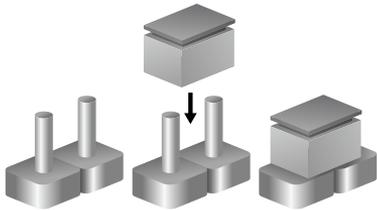
- Always disconnect the unit from the power outlet whenever you are working inside the case.
- If possible, wear a grounded wrist strap when you are working inside the computer case. Alternatively, discharge any static electricity by touching the bare metal chassis of the unit case, or the bare metal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

Jumper Settings

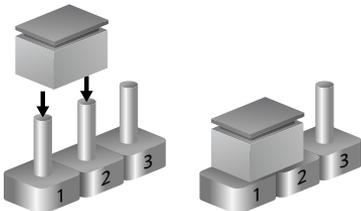
A jumper is the simplest kind of electric switch. It consists of two metal pins and a cap. When setting the jumpers, ensure that the jumper caps are placed on the correct pins. When the jumper cap is placed on both pins, the jumper is short. If you remove the jumper cap, or place the jumper cap on just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



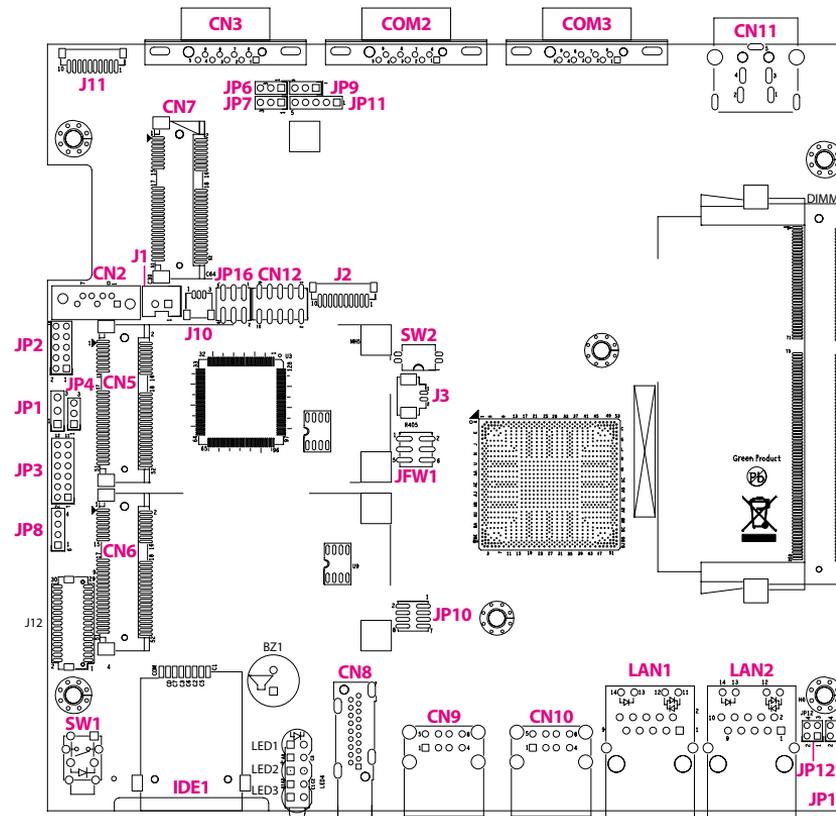
Three-Pin Jumpers: Pins 1 and 2 are Short



Locations of the Jumpers and Connectors for NISB 50-J1900

NISB 50-J1900

The figure below is the top view of the NISB 50-J1900 main board which is the main board used in NISE 50-J1900. It shows the locations of the jumpers and connectors.



Jumpers

AT/ATX Power Select

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



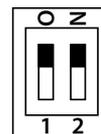
Pin	Settings
1-2 On	ATX Mode
2-3 On	AT Mode

1-2 On: default

Pin	Definition
1	3VSB
2	AT_ATX_SELECT
3	GND

Clear CMOS/ME

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



Pin	Definition
1	SRTC_RST#
2	RTC_TEST#
3	GND
4	GND

COM1 5V/12V/RI Select

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



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

Pin	Definition
1	VCC5
2	COM1_RI#_T
3	VCC12
4	COM1_RI#_T
5	COM1_RI#

COM3 TX Terminal Pin Header

Connector type: 1x3 3-pin header, 2.0mm pitch
Connector location: JP6



Pin	Definition
1	TX+
2	TX-
3	GND

COM3 RX Terminal Pin Header

Connector type: 1x3 3-pin header, 2.0mm pitch

Connector location: JP7



Pin	Definition
1	RX+_DATA+
2	RX-_DATA-
3	GND

COM3 RS422/485 Select

Connector type: 1x3 3-pin header, 2.0mm pitch

Connector location: JP9



Pin	Settings
1-2 On	RS422
2-3 On	RS485

2-3 On: default

Pin	Definition
1	VCC5
2	RS485_OE
3	RS485_OE_RTS

SIM Card Power Select

Connector type: 1x3 3-pin header, 2.0mm pitch
Connector location: JP4



Pin	Settings
1-2 On	CN5
2-3 On	CN6

Pin	Definition
1	UIM_PWR1
2	UIM_PWR
3	UIM_PWR2

Connector Pin Definitions

External I/O Interfaces - Front Panel

Power Button

Connector location: SW1



Pin	Definition	Pin	Definition
1	GND	2	EC_PWRBT#
3	EC_PWRBT#	4	GND
A1	PWR_SW_P	C1	PWR_SW_N
MH1	GND	MH2	GND

SIM Card Slot

Connector location: IDE1

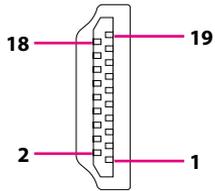


Pin	Definition	Pin	Definition
C1	UIM_PWR	C2	UIM_RESET
C3	UIM_CLK	C5	GND
C6	UIM_VPP	C7	UIM_DATA

HDMI

Connector type: HDMI port

Connector location: CN8

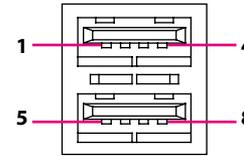


Pin	Definition	Pin	Definition
1	HDMI_DATA2_P_C	2	GND
3	HDMI_DATA2_N_C	4	HDMI_DATA1_P_C
5	GND	6	HDMI_DATA1_N_C
7	HDMI_DATA0_P_C	8	GND
9	HDMI_DATA0_N_C	10	HDMI_CLK_P_C
11	GND	12	HDMI_CLK_N_C
13	HDMI_CEC	14	NC
15	HDMI_CTRL_CLK_C	16	HDMI_CTRL_DAT_C
17	GND	18	HDMI_PWR
19	HDMI_HPD_R		
MH1	CHASSIS_GND	MH2	GND
MH3	CHASSIS_GND	MH4	GND

USB1/2 Ports (USB 2.0)

Connector type: USB 2.0 port

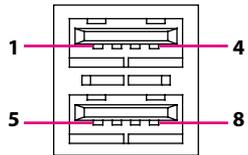
Connector location: CN10



Pin	Definition	Pin	Definition
1	4USBV1	2	DN1_C
3	DP1_C	4	GND
5	4USBV1	6	DN2_C
7	DP2_C	8	GND
MH1	CHASSIS_GND	MH2	CHASSIS_GND
MH3	CHASSIS_GND	MH4	CHASSIS_GND

USB3/4 Ports (USB 2.0)

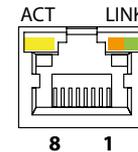
Connector type: USB 2.0 port
 Connector location: CN9



Pin	Definition	Pin	Definition
1	4USBV2	2	DN3_C
3	DP3_C	4	GND
5	4USBV2	6	DN4_C
7	DP4_C	8	GND
MH1	CHASSIS_GND	MH2	CHASSIS_GND
MH3	CHASSIS_GND	MH4	CHASSIS_GND

LAN 1 Port

Connector type: RJ45 with LEDs
 Connector location: LAN1



Act	Status
Flashing Yellow	Data activity
Off	No activity

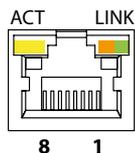
Link	Status
Steady Green	1G network link
Steady Orange	100Mbps network link
Off	10Mbps or no link

Pin	Definition	Pin	Definition
1	LAN_MDI0P_1	2	LAN_MDI0N_1
3	LAN_MDI1P_1	4	LAN_MDI1N_1
5	LAN1TCT	6	GND
7	LAN_MDI2P_1	8	LAN_MDI2N_1
9	LAN_MDI3P_1	10	LAN_MDI3N_1
11	LAN_LED_LINK1G#	12	LAN_LINK
13	LAN_LED_ACT#	14	LAN_ACTPW
MH1	CHASSIS_GND	MH2	CHASSIS_GND

LAN 2 Port

Connector type: RJ45 with LEDs

Connector location: LAN2



Act	Status
Flashing Yellow	Data activity
Off	No activity

Link	Status
Steady Green	1G network link
Steady Orange	100Mbps network link
Off	10Mbps or no link

Pin	Definition	Pin	Definition
1	LAN2_MDI0P	2	LAN2_MDI0N
3	LAN2_MDI1P	4	LAN2_MDI1N
5	LAN2_TCT	6	GND
7	LAN2_MDI2P	8	LAN2_MDI2N
9	LAN2_MDI3P	10	LAN2_MDI3N
11	LAN2_LED_LINK1G#	12	LAN2_LINK
13	LAN2_LED_ACT#	14	LAN2_ACTPW
MH1	CHASSIS_GND	MH2	CHASSIS_GND

External I/O Interfaces - Rear Panel

DC Power Input

Connector location: CN11

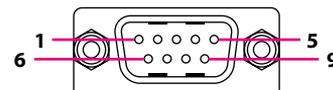


Pin	Definition
1	VIN_VSS
2	VIN_1
3	VIN_VSS
4	VIN_1

COM 1 Port (RS232)

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

Connector location: COM3

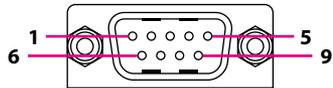


Pin	Definition	Pin	Definition
1	COM1_DCD#_R	2	COM1_RXD_R
3	COM1_TXD_R	4	COM1_DTR#_R
5	GND	6	COM1_DSR#_R
7	COM1_RTS#_R	8	COM1_CTS#_R
9	COM1_RI#_T		
MH1	CHASSIS_GNDR2	MH2	CHASSIS_GNDR1

COM 2 Port (RS232)

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

Connector location: COM2

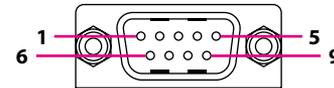


Pin	Definition	Pin	Definition
1	SP2_DCD#_R	2	SP2_RXD_R
3	SP2_TXD_R	4	SP2_DTR#_R
5	GND	6	SP2_DSR#_R
7	SP2_RTS#_R	8	SP2_CTS#_R
9	SP2_RI#_R		
MH1	CHASSIS_GNDR3	MH2	CHASSIS_GNDR2

COM 3 Port (RS422/485 Only)

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

Connector location: CN3



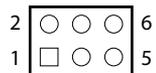
RS485		RS422	
Pin	Definition	Pin	Definition
1	DATA-	1	TX-
2	DATA+	2	TX+
3	NC	3	RX+
4	NC	4	RX-
5	GND	5	GND
6	NC	6	RTS-
7	NC	7	RTS+
8	NC	8	CTS+
9	NC	9	CTS-

Internal Connectors

BIOS Pin Header

Connector type: 2x3 6-pin header, 2.0mm pitch

Connector location: JFW1

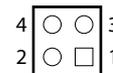


Pin	Definition	Pin	Definition
1	VCC	2	GND
3	CS#0	4	CLK
5	SO	6	SI

LAN1 LED Signal Pin Header

Connector type: 2x2 4-pin header, 2.0mm pitch

Connector location: JP12

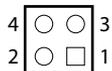


Pin	Definition	Pin	Definition
1	LAN_ACTPW	2	LAN_LED_ACT#
3	LAN_LED_LINK1G#	4	LAN_LED_LINK#

LAN2 LED Signal Pin Header

Connector type: 2x2 4-pin header, 2.0mm pitch

Connector location: JP14

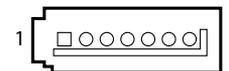


Pin	Definition	Pin	Definition
1	LAN2_ACTPW	2	LAN2_LED_ACT#
3	LAN2_LED_LINK1G#	4	LAN2_LED_LINK#

SATA Connector

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

Connector location: CN2



Pin	Definition	Pin	Definition
1	GND	2	SATA_TXP0_C
3	SATA_TXN0_C	4	GND
5	SATA_RXN0_C	6	SATA_RXP0_C
7	GND		

SATA Power Connector

Connector type: 1x2 2-pin header, 2.0mm pitch

Connector location: J1

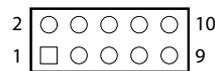


Pin	Definition
1	GND
2	VCC5

GPIO Pin Header

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

Connector location: JP2



Pin	Definition	Pin	Definition
1	VCC5	2	GND
3	ICH_GPO0_OUT	4	ICH_GPIO_IN
5	ICH_GPO1_OUT	6	ICH_GPI1_IN
7	ICH_GPO2_OUT	8	ICH_GPI2_IN
9	ICH_GPO3_OUT	10	ICH_GPI3_IN

Port 80

Connector type: 1x10 10-pin header, 1.0mm pitch

Connector location: J2



Pin	Definition	Pin	Definition
1	GND	2	EC_PLTRST#
3	DEBUG_LPC33MHZ	4	LPC_FRAME#
5	LPC_AD3	6	LPC_AD2
7	LPC_AD1	8	LPC_ADO
9	VCC3/LPC_SERIRQ	10	VCC3

COM4 (Full RS232) Pin Header

Connector type: 1x10 10-pin header, 1.0mm pitch

Connector location: J11

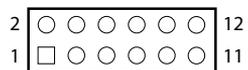


Pin	Definition	Pin	Definition
1	SP4_DCD#_R	2	SP4_RXD_R
3	SP4_TXD_R	4	SP4_DTR#_R
5	GND	6	SP4_DSR#_R
7	SP4_RTS#_R	8	SP4_CTS#_R
9	SP4_RI#_R	10	NA

PWR_LED/HDD_LED/SMB_BUS/S3/SW_ON/RESET

Connector type: 2x6 12-pin header, 2.0mm pitch

Connector location: JP3



Pin	Definition	Pin	Definition
1	PWR_LED_N	2	VCC5
3	SATA_LED#	4	VCC5
5	3VSB	6	GND
7	SLP_S3#	8	PS_ON#
9	EC_PWRBT#	10	GND
11	PM_RESET#_J	12	GND

RTC Connector

Connector type: 1x2 2-pin header, 1.25mm pitch

Connector location: J3

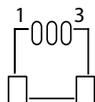


Pin	Definition
1	GND
2	VBAT_L

EC Programmable Connector

Connector type: 1x3 3-pin header, 1.25mm pitch

Connector location: J10

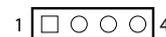


Pin	Definition	Pin	Definition
1	EC_SMBCLK	2	EC_SMBDATA
3	GND		

SMBUS Pin Header

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

Connector location: JP8

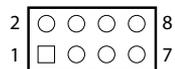


Pin	Definition	Pin	Definition
1	VCC3	2	SMB_CLK
3	SMB_DATA	4	GND

SPI and I2C Pin Header

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

Connector location: JP10

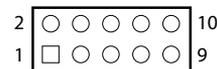


Pin	Definition	Pin	Definition
1	3VSB	2	GND
3	3V3_SPI_CS	4	3V3_SPI_MISO
5	3V3_SPI_MOSI	6	3V3_SPI_CLK
7	3P3_I2C_CLK	8	3P3_I2C_DATA

SOC GPIO Pin Header

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

Connector location: CN12

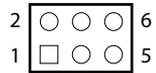


Pin	Definition	Pin	Definition
1	3VSB	2	GND
3	3V3_GPIO_IN1	4	3V3_GPIO_OUT1
5	3V3_GPIO_IN2	6	3V3_GPIO_OUT2
7	3V3_GPIO_IN3	8	3V3_GPIO_OUT3
9	3V3_GPIO_IN4	10	3V3_GPIO_OUT4

SOC UART Pin Header

Connector type: 2x3 6-pin header, 2.0mm pitch

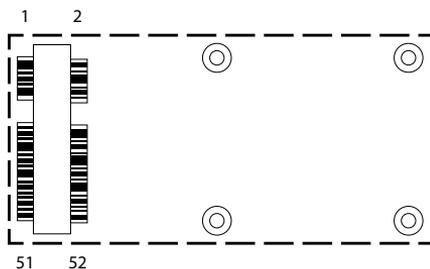
Connector location: JP16



Pin	Definition	Pin	Definition
1	3VSB	2	GND
3	3V3_UART_RXD	4	3V3_UART_TXD
5	3V3_UART_RTS	6	3V3_UART_CTS

Mini-PCIe Connector (3G/mSATA)

Connector location: CN5

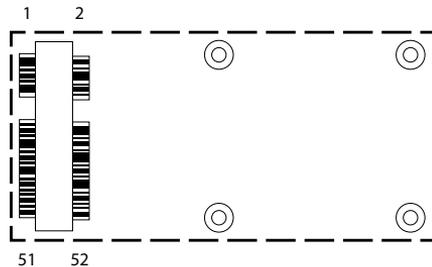


Pin	Definition	Pin	Definition
1	N/A	2	3VSB_MINI1
3	N/A	4	GND
5	N/A	6	V1P5S_1
7	N/A	8	UIM_PWR1
9	GND	10	UIM_DATA
11	N/A	12	UIM_CLK
13	N/A	14	UIM_RESET
15	GND	16	UIM_VPP
17	N/A	18	GND
19	N/A	20	MINICARD2DIS#
21	GND	22	N/A
23	SATA_RXP1_C	24	3VSB_MINI1
25	SATA_RXN1_C	26	GND

Pin	Definition	Pin	Definition
27	GND	28	V1P5S_1
29	GND	30	EC_SMBCLK
31	SATA_TXN1_C	32	EC_SMBDATA
33	SATA_TXP1_C	34	GND
35	GND	36	MINI1USBN
37	GND	38	MINI1USBP
39	3VSB_MINI1	40	GND
41	3VSB_MINI1	42	N/A
43	GND	44	N/A
45	N/A	46	N/A
47	N/A	48	V1P5S_1
49	N/A	50	GND
51	3VSB_MINI1	52	3VSB_MINI1

Mini-PCIe Connector (3G/Wi-Fi)

Connector location: CN6

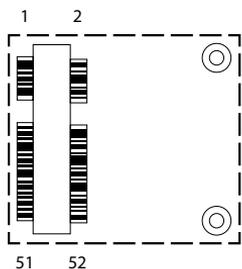


Pin	Definition	Pin	Definition
1	PCIEWAKE#	2	3VSB_MINI2
3	N/A	4	GND
5	N/A	6	V1P5S_2
7	MINICARD2CLKREQ#	8	UIM_PWR2
9	GND	10	UIM_DATA
11	PCIE_CLKN0	12	UIM_CLK
13	PCIE_CLKP0	14	UIM_RESET
15	GND	16	UIM_VPP
17	N/A	18	GND
19	N/A	20	MINICARD2DIS#
21	GND	22	EC_PLTRST#
23	RXNO_R	24	3VSB_MINI2
25	RXPO_R	26	GND

Pin	Definition	Pin	Definition
27	GND	28	V1P5S_2
29	GND	30	EC_SMBCLK
31	TXNO_R	32	EC_SMBDATA
33	TXPO_R	34	GND
35	GND	36	MINI2USBN
37	GND	38	MINI2USBP
39	3VSB_MINI2	40	GND
41	3VSB_MINI2	42	N/A
43	GND	44	N/A
45	N/A	46	N/A
47	N/A	48	V1P5S_2
49	N/A	50	GND
51	N/A	52	3VSB_MINI2

Half-size Mini-PCle Connector (Wi-Fi)

Connector location: CN7



Pin	Definition	Pin	Definition
1	PCIE_WAKE#	2	3VSB_MINI3
3	N/A	4	GND
5	N/A	6	V1P5S_3
7	MINICARD1CLKREQ#	8	N/A
9	GND	10	N/A
11	PCIE_CLKN3	12	N/A
13	PCIE_CLKP3	14	N/A
15	GND	16	N/A
17	N/A	18	GND
19	N/A	20	MINICARD3DIS#
21	GND	22	EC_PLTRST#
23	RXN3_R	24	3VSB_MINI3
25	RXP3_R	26	GND

Pin	Definition	Pin	Definition
27	GND	28	V1P5S_3
29	GND	30	EC_SMBCLK
31	TXN3_R	32	EC_SMBDATA
33	TXP3_R	34	GND
35	GND	36	MINI3USBN
37	GND	38	MINI3USBP
39	3VSB_MINI3	40	GND
41	3VSB_MINI3	42	N/A
43	GND	44	N/A
45	N/A	46	N/A
47	N/A	48	V1P5S_3
49	N/A	50	GND
51	N/A	52	3VSB_MINI3

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. Remove the six mounting screws around the chassis cover. There are two screws each on the top and on the sides.



2. With the screws removed, lift up the cover and remove it from the chassis.



Screws on the sides

Installing a SO-DIMM Memory Module

1. Locate the SO-DIMM socket.



SO-DIMM Socket

2. Insert the module into the socket at an approximately 30 degrees angle. Push the module down until the clips on both sides of the socket lock into position. The ejector tabs at the ends of the socket will automatically snap into the locked position to hold the module in place.

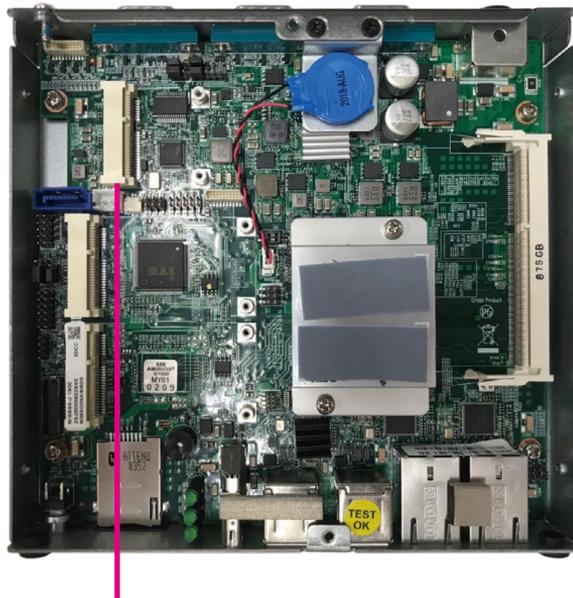


Memory Module



Installing a Wi-Fi/BT Mini-PCle Module (Half-size)

1. Locate the mini-PCI Express slot (CN7) on the board.

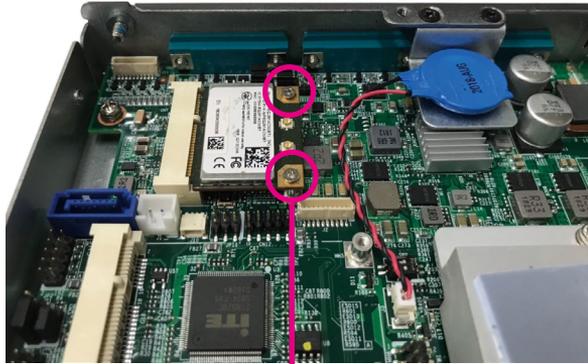


Mini-PCle Slot

2. Insert the Wi-Fi module into the mini-PCI Express slot at a 45 degree angle until the gold-plated connector on the edge of the module completely disappears inside the slot.



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



**Mounting
Screw**

Installing a 3G/mSATA Mini-PCle Module (Full-size)

1. Locate the mini-PCI Express slot (CN5) on the board.



Mini-PCle Slot

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



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

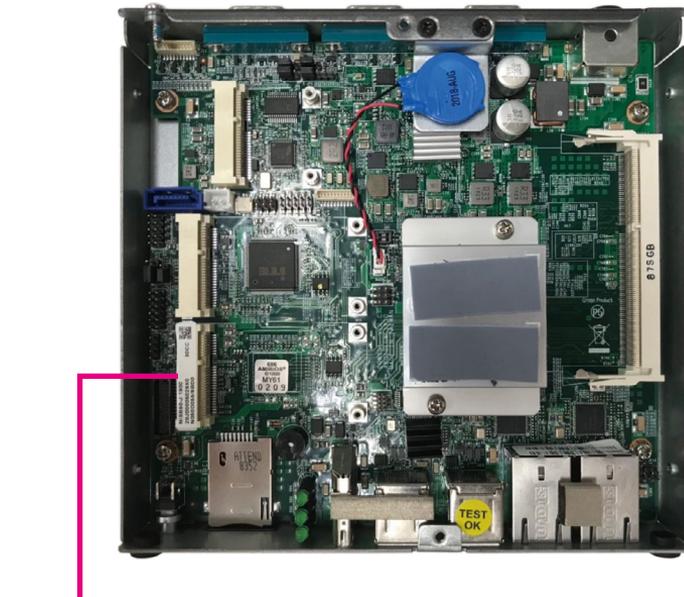


Mounting
Screw

Installing a 3G/Wi-Fi Mini-PCle Module (Half-size)

1. Locate the mini-PCI Express slot (CN6) on the board.

2. Align the 3G module to the module bracket and secure both together with screws.

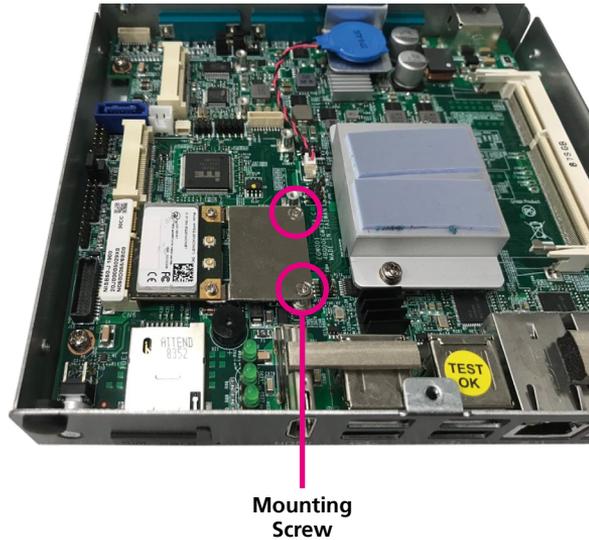


Mini-PCle Slot



Module Bracket

3. Insert the module into the mini-PCI Express slot at a 45 degree angle until the gold-plated connector on the edge of the module completely disappears inside the slot. Push the module down and then secure it with mounting screws.



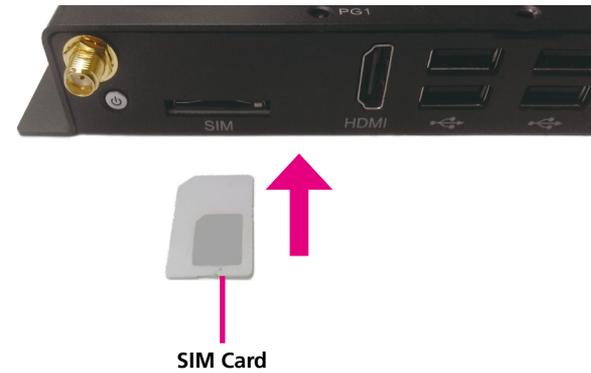
**Mounting
Screw**

Installing a SIM Card

1. Locate the SIM card slot on the front panel and remove the slot cover.



2. Insert the SIM card into the slot.



3. Insert the SIM card cover back to its original position.

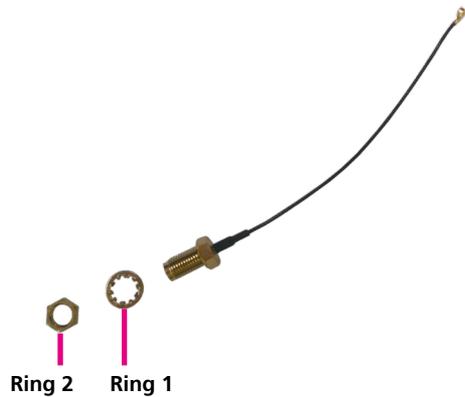


SIM Cover

Installing an Antenna



Note: Please remove the gaskets (ring 1 and ring 2) on the SMA antenna jack first.



1. Remove the antenna hole cover located on the front panel.



2. Insert the SMA antenna jack end of the cable through the antenna hole, and insert the 2 rings (ring 1 and ring 2) back to the antenna jack.



3. Attach the RF cable onto the module.



RF Cable

4. Connect the external antenna to the antenna jack.

Wallmount Installation

1. Align the M4 mounting holes on the chassis cover to the desired installation location.



2. Mount the system by fastening 4 screws through the mounting holes.



CHAPTER 4: BIOS SETUP

This chapter describes how to use the BIOS setup program for NISE 50-J1900. 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 website 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.

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 allows you to enter Setup.

Press the  key to enter Setup:

Legends

Key	Function
	Moves the highlight left or right to select a menu.
	Moves the highlight up or down between sub-menus or fields.
	Exits the BIOS Setup Utility.
	Scrolls forward through the values or options of the highlighted field.
	Scrolls backward through the values or options of the highlighted field.
	Selects a field.
	Displays General Help.
	Load previous values.
	Load optimized default values.
	Saves and exits the Setup program.
	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

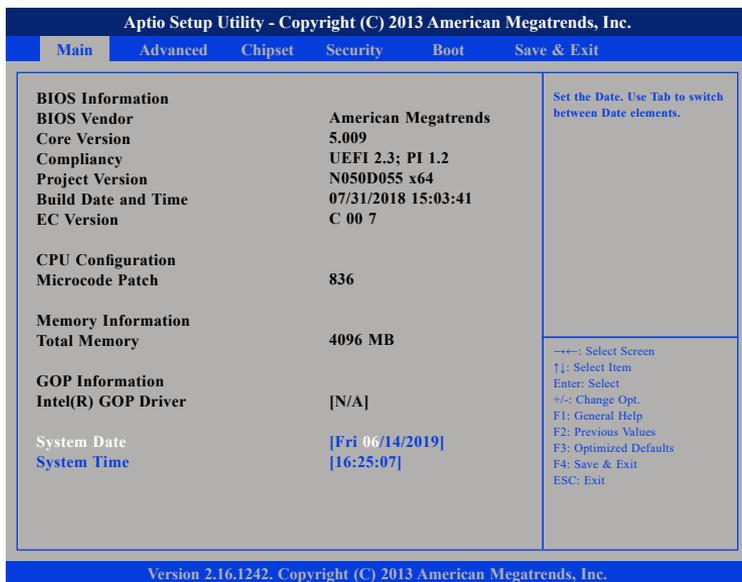
When “▶” appears on the left of a particular field, it indicates that a submenu which contains additional options are available for that field. To display the submenu, move the highlight to that field and press  .

BIOS Setup Utility

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



Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.					
Main	Advanced	Chipset	Security	Boot	Save & Exit
BIOS Information		American Megatrends		Set the Date. Use Tab to switch between Date elements.	
BIOS Vendor	5,009				
Core Version	UEFI 2.3; PI 1.2				
Compliance	N050D055 x64				
Project Version	07/31/2018 15:03:41				
Build Date and Time	C 00 7				
EC Version					
CPU Configuration		836			
Microcode Patch					
Memory Information		4096 MB			
Total Memory					
GOP Information		[N/A]			
Intel(R) GOP Driver					
System Date	[Fri 06/14/2019]				
System Time	[16:25:07]				
←→: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit					
Version 2.16.1242. Copyright (C) 2013 American Megatrends, Inc.					

System Date

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

System Time

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

Advanced

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

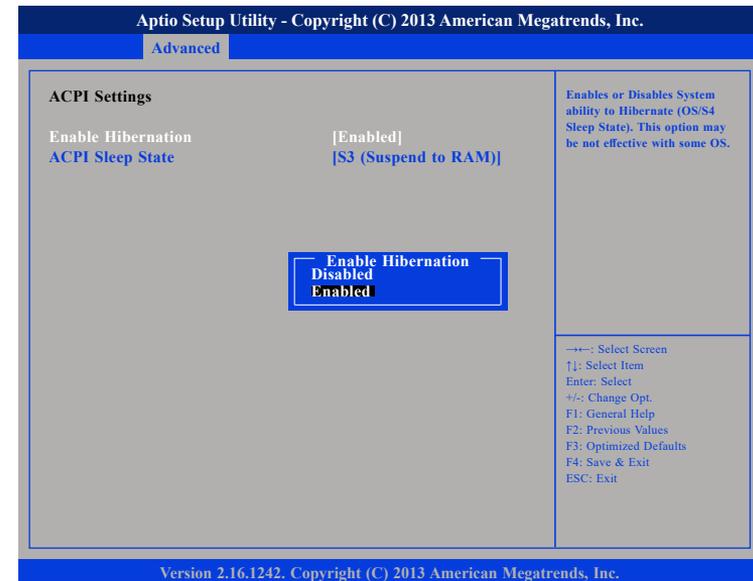


Setting incorrect field values may cause the system to malfunction.



ACPI Settings

This section is used to configure ACPI settings.



Enable Hibernation

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

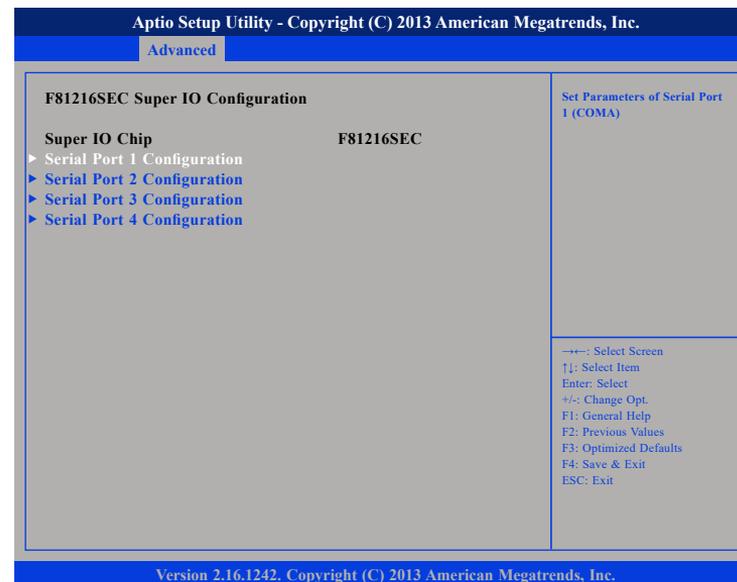
ACPI Sleep State



Select the highest ACPI sleep state the system will enter when the suspend button is pressed. The options are Suspend Disabled and S3 (Suspend to RAM).

F81216SEC Super IO Configuration

This section is used to configure the serial ports of the F81216SEC Super IO.



Super IO Chip

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

Serial Port 1 Configuration

This section is used to configure serial port 1.



Serial Port

Enables or disables the serial port.

Serial Port 2 Configuration

This section is used to configure serial port 2.



Serial Port

Enables or disables the serial port.

Serial Port 3 Configuration

This section is used to configure serial port 3.



Serial Port

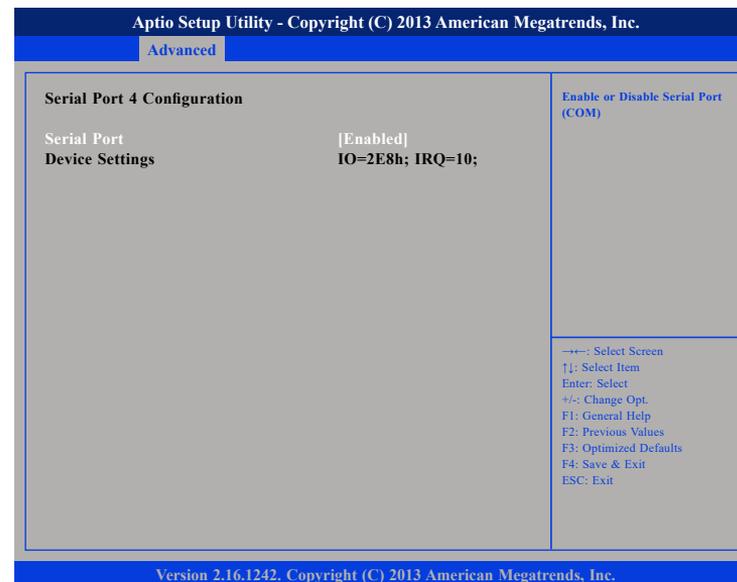
Enables or disables the serial port.

RS485 AUTO

Enables or disables RS485 auto direction.

Serial Port 4 Configuration

This section is used to configure serial port 4.

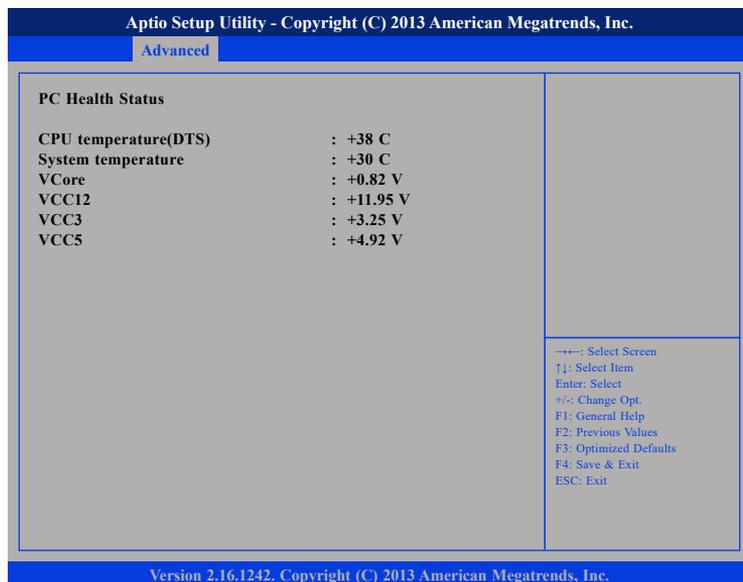


Serial Port

Enables or disables the serial port.

IT8528 H/W Monitor

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



CPU temperature(DTS)

Detects and displays the current CPU temperature.

System temperature

Detects and displays the current system temperature.

VCore to VCC5

Detects and displays the output voltages.

CPU Configuration

This section is used to configure the CPU.



Active Processors Cores

Select 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.

Execute Disable Bit

When this field is set to Disabled, it will force the XD feature flag to always return to 0. XD can prevent certain classes of malicious buffer overflow attacks when combined with a supporting OS (Windows Server 2003 SP1, Windows XP SP2, SuSE Linux 9.2, RedHat Enterprise 3 Update 3).

Intel® Virtualization Technology

Enables or disables Intel Virtualization technology.

Socket 0 CPU Information

Display information on the CPU installed on socket 0.

Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
Advanced

Socket 0 CPU Information	
Intel(R) Celeron(R) CPU J1900 @ 1.99GHz	
CPU Signature	30678
Microcode Patch	836
Max CPU Speed	1990 MHz
Min CPU Speed	1334 MHz
Processor Cores	4
Intel HT Technology	Not Supported
Intel VT-x Technology	Supported
L1 Data Cache	24 kB x 4
L1 Code Cache	32 kB x 4
L2 Cache	1024 kB x 2
L3 Cache	Not Present

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

Version 2.16.1242. Copyright (C) 2013 American Megatrends, Inc.

PPM Configuration

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

Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
Advanced

PPM Configuration	Enable/Disable Intel SpeedStep
EIST	[Disabled]

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

Version 2.16.1242. Copyright (C) 2013 American Megatrends, Inc.

EIST

Enables or disables Intel® SpeedStep.

IDE Configuration

This section is used to configure the SATA drives.



Serial-ATA Port 0 and Serial-ATA Port 1

Enables or disables SATA port 0 or port 1.

SATA Port0 HotPlug and SATA Port1 HotPlug

Enables or disables hot pluggable support on SATA port 0 or port 1.

Serial-ATA (SATA)

Enables or disables the SATA controller.

SATA Mode

Configures the SATA as IDE or AHCI mode.

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

LPSS & SCC Configuration

This section is used to configure LPSS and SCC settings.



LPSS & SCC Devices Mode

Selects the LPSS and SCC device mode as ACPI mode or PCI mode.

SCC eMMC Support

Enables or disables SCC eMMC support.

SCC eMMC 4.5 DDR50 Support

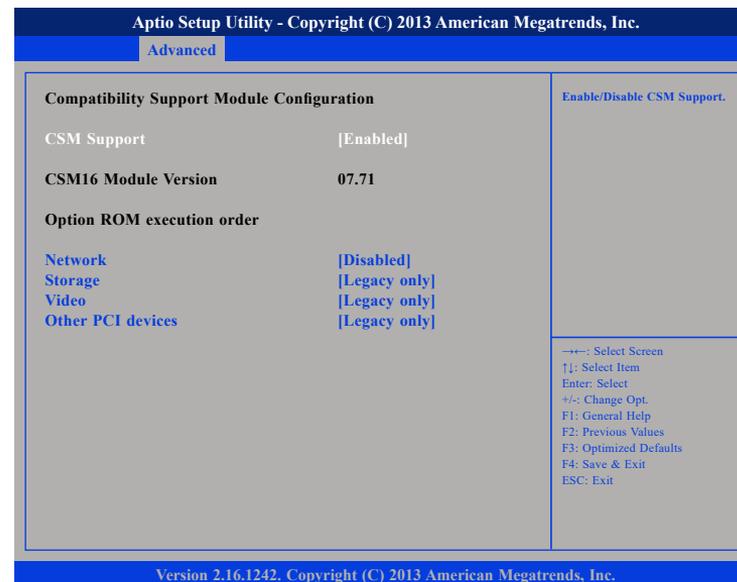
Enables or disables SCC eMMC 4.5 DDR50 support.

SCC eMMC 4.5 HS200 Support

Enables or disables SCC eMMC 4.5 HS200 support.

CSM Configuration

This section is used to configure the compatibility support module features.



CSM Support

Enables or disables CSM support.

Network

Controls the execution of UEFI and legacy PXE OpROM.

Storage

Controls the execution of UEFI and legacy storage OpROM.

Video

Controls the execution of UEFI and legacy video OpROM.

Other PCI Devices

Determines OpROM execution policy for devices other than network, storage or video.

Trusted Computing

This section is used to configure Trusted Platform Module (TPM) settings.



Security Device Support

Enables or disables BIOS support for security device. O.S will not show Security Device. TCG EFI protocol and INT1A interface will not be available.

USB Configuration

This section is used to configure the USB.



Legacy USB Support

Enable Enables Legacy USB.

Auto Disables support for Legacy when no USB devices are connected.

Disable Keeps USB devices available only for EFI applications.

USB3.0 Support

Enables or disables USB 3.0 (XHCI) controller support.

XHCI Hand-off

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

EHCI Hand-off

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

Chipset

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



South Bridge

Enters the South Bridge submenu.

South Bridge



High Precision Timer

Enables or disables high precision event timer.

Restore AC Power Loss

Select the AC power state when power is re-applied after a power failure.

PCH Azalia Configuration



Azalia

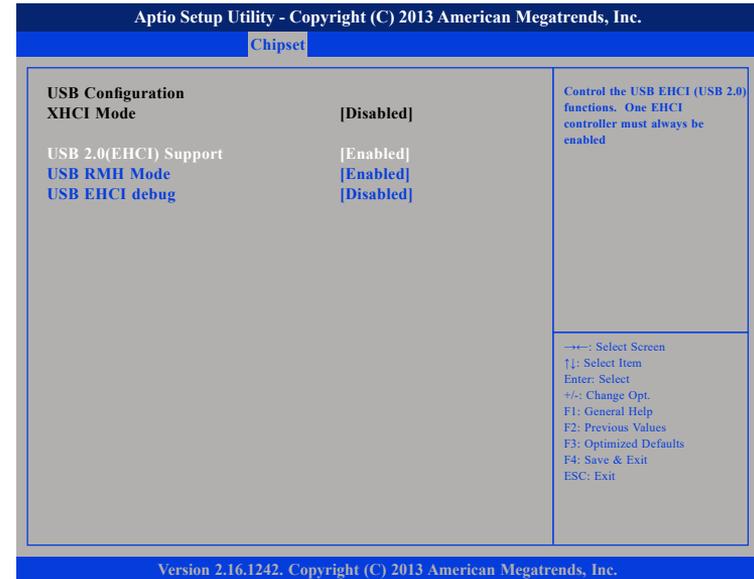
Control detection of the Azalia device.

- Disabled Azalia will be unconditionally disabled.
- Enabled Azalia will be unconditionally enabled.

Azalia HDMI Codec

Enables or disables internal HDMI codec for Azalia.

USB Configuration



USB 2.0(EHCI) Support

Enables or disables the Enhanced Host Controller Interface (USB 2.0), one EHCI controller must always be enabled.

USB RMH Mode

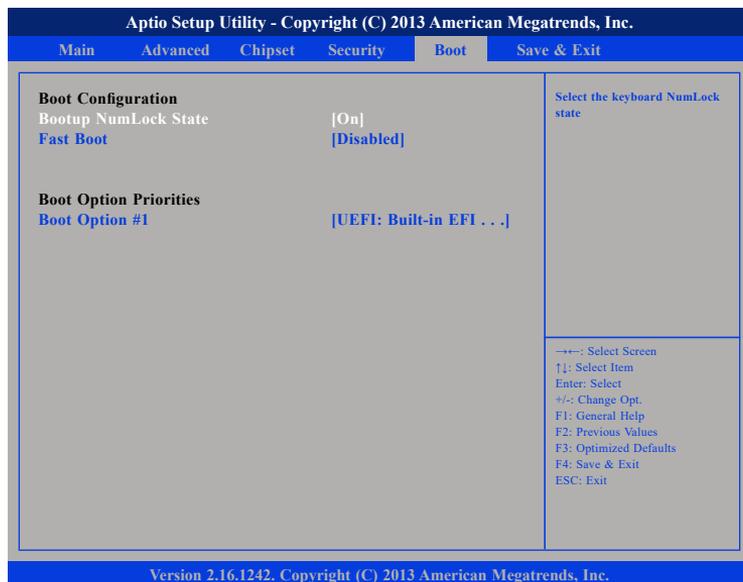
Enables or disables PCH USB rate matching hubs mode.

USB EHCI Debug

Enables or disables PCH EHCI debug capability.

Boot

This section is used to configure the boot features.



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.

Fast Boot

When enabled, the BIOS will shorten or skip some check items during POST. This will decrease the time needed to boot the system.

Boot Option Priorities

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

Save & Exit



Save Changes and Reset

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

Discard Changes and Reset

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

Restore Defaults

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

APPENDIX A: POWER CONSUMPTION

Power Consumption Management

Purpose

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

Test Equipment / Software

1. LCD monitor
2. DC power supply
3. Operating System OS: Windows 8.1 (64-bit)
4. Burn-In Test Ver: 8.1
5. Intel® Thermal Analysis Tool software version: 6.0.1013
6. Network test program
7. Function port fixture:

Functional Port	Front / Rear Panel
USB 2.0 x4	5V, 0.5A (Cement Resistor)
COM1, COM2	RS232 Loopback (115200 baud rate)
HDMI	LCD Monitor
USB	Keyboard & Mouse

Device under Test

DUT: SYS#1

Test Parameters

1. Make sure mechanical structure and electrical functionality are normal before testing.
2. Install all I/O load devices and according as system input voltage specifications to set up DC power supply voltage.
3. Measure system maximum power consumption as below mode:
 - Standby mode
 - BIOS mode
 - 100% Full loading mode (Include USB load fixture)
4. Measure and record system maximum power consumption value.

Test Result

System Mode		12Vdc	
		I _{max.}	W _{max.}
CPU: Intel® Celeron® CPU J1900 @ 1.99GHz System model: NISE 50-J1900 / Revision: C BIOS: American Megatrends Inc. Revision: N050C034 X64 EC Revision: C 00 3 Operating System OS: Windows 8.1 (64-bit)	Standby mode (S3)	0.18A	2.16W
	BIOS mode	0.56A	1.92W
	100% Full loading mode	1.84A	22.08W

APPENDIX B: GPIO CONTROL COMMANDS

This command set is used to control GPIO. System sends HW pin number which is taken from the dynamic control table to EC. Then EC uses this code to control real pin. System can read/write/set direction/set internal pull up/down GPIO. Only GPIO type device id in the dynamic control table can be a controller. EC does not allow system to control other pins which are not defined in the table.

Command List

Command	Description																					
0x10	Write pin number into index																					
0x11	According index, get GPIO pin status. 1-active, 0-unactive, 0xFF-fail																					
0x12	According index, change GPIO pin status. 1-active, 0-unactive																					
0x1D	According index, get GPIO input/output type. 1-output, 0-input, 0xFF-fail																					
	<table border="1"> <thead> <tr> <th>Bit7 & Bit6</th> <th>Bit5</th> <th>Bit4</th> <th>Bit3</th> <th>Bit2</th> <th>Bit1</th> <th>Bit0</th> </tr> </thead> <tbody> <tr> <td>0x10 Input</td> <td>x</td> <td>x</td> <td>x</td> <td>0x10Pull-up</td> <td></td> <td>x</td> </tr> <tr> <td>0x01 Output</td> <td>x</td> <td>x</td> <td>x</td> <td>0x01Pull-dn</td> <td></td> <td>x</td> </tr> </tbody> </table>	Bit7 & Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0	0x10 Input	x	x	x	0x10Pull-up		x	0x01 Output	x	x	x	0x01Pull-dn		x
	Bit7 & Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0															
0x10 Input	x	x	x	0x10Pull-up		x																
0x01 Output	x	x	x	0x01Pull-dn		x																
0x1E	According index, change GPIO input/output type. 1-output, 0-input																					
	<table border="1"> <thead> <tr> <th>Bit7 & Bit6</th> <th>Bit5</th> <th>Bit4</th> <th>Bit3</th> <th>Bit2</th> <th>Bit1</th> <th>Bit0</th> </tr> </thead> <tbody> <tr> <td>0x10 Input</td> <td>x</td> <td>x</td> <td>x</td> <td>0x10Pull-up</td> <td></td> <td>x</td> </tr> <tr> <td>0x01 Output</td> <td>x</td> <td>x</td> <td>x</td> <td>0x01Pull-dn</td> <td></td> <td>x</td> </tr> </tbody> </table>	Bit7 & Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0	0x10 Input	x	x	x	0x10Pull-up		x	0x01 Output	x	x	x	0x01Pull-dn		x
	Bit7 & Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0															
0x10 Input	x	x	x	0x10Pull-up		x																
0x01 Output	x	x	x	0x01Pull-dn		x																

GPIO Default Table

There are 8 alternate GPIOs in the COM specification. The system can use commands to control these pins. The system can also set up a default table to configure these GPIO behaviors when power resumes for the first time. This table can be stored into the EEPROM for first time use. The addresses in the ACPI RAM are as follows:

Default Table in ACPI RAM

GPIO0 start address: 0xD8	GPIO4 start address: 0xE4
GPIO1 start address: 0xDB	GPIO5 start address: 0xE7
GPIO2 start address: 0xDE	GPIO6 start address: 0xEA
GPIO3 start address: 0xE1	GPIO7 start address: 0xED

Offset	Name	Description														
0x00	Pin	HW pin number. EC will set up this value.														
0x01	Type control	Value type is same as command 0x1D.														
0x02	Default control	Set up default pin behavior														
		<table border="1"> <thead> <tr> <th>Bit7</th> <th>Bit6</th> <th>Bit5</th> <th>Bit4</th> <th>Bit3</th> <th>Bit2</th> <th>Bit1</th> <th>Bit0</th> </tr> </thead> <tbody> <tr> <td>x</td> <td>x</td> <td>x</td> <td>x</td> <td>x</td> <td>x</td> <td>x</td> <td>HiLow</td> </tr> </tbody> </table> <p>HiLow – If type control is input type, 1-high active and 0-low active.</p> <p>If type control is output type, 1-default output high and 0-default output low.</p>	Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0	x	x	x	x	x	x
Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0									
x	x	x	x	x	x	x	HiLow									

Read GPIO Status Sequence

Step	Action	Description
0	Wait IBF clear	
1	Write 0x10 to 0x66	Send GPIO index command
2	Wait IBF clear	
3	Write PIN number to 0x62	Write pin number to index
4	Wait OBF set	
5	Read 0x62 port	If index setup is successful, EC will return pin number. If failed, EC will return 0xFF.
6	Wait IBF clear	
7	Write 0x11 to 0x66	Send read GPIO status command.
8	Wait OBF set	
9	Read 0x62 port	EC will return pin status according to the pin number which you set in index. 1-GPIO is high. 0-GPIO is low. 0xFF-fail.

Write GPIO Status Sequence

Step	Action	Description
0	Wait IBF clear	
1	Write 0x10 to 0x66	Send GPIO index command
2	Wait IBF clear	
3	Write PIN number to 0x62	Write pin number to index
4	Wait OBF set	
5	Read 0x62 port	If index setup is successful, EC will return pin number. If failed, EC will return 0xFF.
6	Wait IBF clear	
7	Write 0x12 to 0x66	Send write GPIO status command.
8	Wait IBF clear	
9	Write pin status to 0x62 port	Write 0x01, GPIO pin will be set high. Write 0x00, GPIO pin will be set low.

Read GPIO Direction Sequence

Step	Action	Description
0	Wait IBF clear	
1	Write 0x10 to 0x66	Send GPIO index command
2	Wait IBF clear	
3	Write PIN number to 0x62	Write pin number to index
4	Wait OBF set	
5	Read 0x62 port	If index setup is successful, EC will return pin number. If failed, EC will return 0xFF.
6	Wait IBF clear	
7	Write 0x1D to 0x66	Send read GPIO direction command
8	Wait OBF set	
9	Read 0x62 port	EC will return pin status according to the pin number which you set in index. 0x80-input, 0x40-output. 0xFF-fail

Write GPIO Direction Sequence

Step	Action	Description
0	Wait IBF clear	
1	Write 0x10 to 0x66	Send GPIO index command
2	Wait IBF clear	
3	Write PIN number to 0x62	Write pin number to index
4	Wait OBF set	
5	Read 0x62 port	If index setup is successful, EC will return pin number. If failed, EC will return 0xFF.
6	Wait IBF clear	
7	Write 0x1E to 0x66	Send write GPIO direction command
8	Wait IBF clear	
9	Write pin status to 0x62 port	Write 0x40, GPIO pin will be set output. Write 0x80, GPIO pin will be set input.

APPENDIX C: WATCHDOG CONTROL

EC can send multistage watchdog event. System can set up each watchdog event independently to make up event sequence.

Command List

Command	Description
0x28	Start watchdog
0x29	Stop watchdog
0x2A	Reset watchdog

Watchdog HW RAM Address

Watchdog HW RAM allows for time limit setup and for keeping event status. Timebase is 10ms. Each time limit is word long. You can set up event time from 0 to 0xFFFFFFFF. Write 0xFFFFFFFF to time limit RAM will disable the event. Time range is from 10ms to 497 days.

Address	Name	Description
0x50-0x53	Watchdog time	0~0xFFFFFFFF, Watchdog delay time.

Start Watchdog

Step	Action	Description
0	Wait IBF clear	
1	Write 0x28 to 0x66	Send start watchdog command
2	Wait IBF clear	
3	Write 0x01 to 0x62	
4	Wait OBF set	
5	Read 0x62 port	If setup is successful, EC will return 0x01.

Stop Watchdog

Step	Action	Description
0	Wait IBF clear	
1	Write 0x29 to 0x66	Send stop watchdog command
2	Wait OBF set	
3	Read 0x62 port	If setup is successful, EC will return 0x02.

Reset Watchdog

Step	Action	Description
0	Wait IBF clear	
1	Write 0x2A to 0x66	Send reset watchdog command
2	Wait OBF set	
3	Read 0x62 port	If setup is successful, EC will return 0x03.