NEXCOM International Co., Ltd.

Multi-Media Solutions

Digital Signage Platform

NDiS M422

User Manual

NEXCOM International Co., Ltd.
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Contents

Preface

Copyright

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Acknowledgements

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Regulatory Compliance Statements

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

Declaration of Conformity

FCC

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

CE

The product(s) described in this manual complies with all applicable European Union (CE) directives if it has a CE marking. For computer systems to remain CE compliant, only CE-compliant parts may be used. Maintaining CE compliance also requires proper cable and cabling techniques.

RoHS Compliance

NEXCOM RoHS Environmental Policy and Status Update

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

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

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

How to recognize NEXCOM RoHS Products?

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

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

Warranty and RMA

NEXCOM Warranty Period

NEXCOM manufactures products that are new or equivalent to new in accordance with industry standard. NEXCOM warrants that products will be free from defect in material and workmanship for 2 years, beginning on the date of invoice by NEXCOM. HCP series products (Blade Server) which are manufactured by NEXCOM are covered by a three year warranty period.

NEXCOM Return Merchandise Authorization (RMA)

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

Repair Service Charges for Out-of-Warranty Products

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

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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 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.

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

Conventions Used in this Manual

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

Caution:
Information to avoid damaging components or losing data.

Note:
Provides additional information to complete a task easily.

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Package Contents

Before continuing, verify that the NDiS M422 package that you received is complete. Your package should have all the items listed in the following table.

Item	Part Number	Name	Description	Qty
1	50311F0112X00	Flat Head Screw Long FEI:F3x4 ISO	M3x4mm(NYLOK) Black	2
2	601110A087X00	NDiSOPS inner box YI GIA	254x205x80mm	1
3	601111A185X00	NDiSOPS outside carton VER:A YI GIA	424x267x236mm	1
4	6012200049X00	ASG110 PE bag	240x380x0.08mm	1
5	6012200052X00	PE zipper bag #8	170x240mm	1
6	6012200053X00	PE zipper bag #3	100x70mm	1
7	6013300343X00	NDiSOPS EPE SENTENEL	200x75x73mm	1
8	6023309081X00	CABLE EDI:232091081804-RS	COM port DB9 female to RJ45 8P8C L:1800mm	1
9	602DCD0584X00	NDiS M422 DVD Driver Manual VER:1.0	JCL	

Ordering Information

The following information below provides ordering information for NDiS M422.

NDiS M422 (P/N: 10W00M42200X0)

AMD G-series Dual-Core Processor T56N 1.65GHz Onboard OS support, AMD A50M Fusion Controller Hub

Chapter 1: Product Introduction

Overview

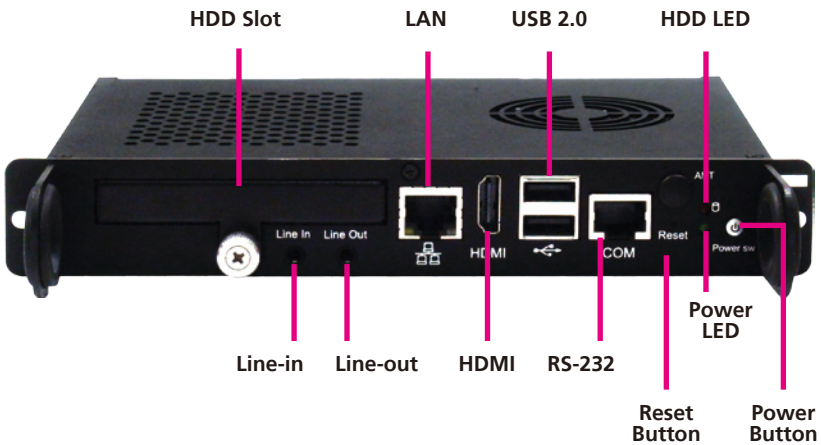
NDiS M422 is specifically designed to be compliant with OPS (Open Pluggable Specification). NDiS M422 is based on AMD Fusion platform and features G-series T56N processor for rich media playback. The OPS architecture is perfect for digital signage applications and enables fast and easy installation, minimizing maintenance and upgrade costs. NDiS M422 provides excellent graphics performance, full HD content playback, and dual display capabilities. NDiS M422 features slide-in 2.5" SATA disk, serial port, second display output in HDMI, on board expansion for WWAN/ WLAN/ TV tuner to fulfill the general application requirement of digital signage.

Key Features

- AMD G-series T56N 1.65GHz dual core APU
- Integrated AMD Radeon™ HD6320 GPU
- Compliant with Intel® Open Pluggable Specification (OPS)
- Low power consumption
- Easy maintenance and upgrade
- TV tuner/ WLAN support
- DirectX 11 support

Physical Features

Front Panel



Rear Panel

Hardware Specifications

CPU Support

- AMD G-series Dual-Core Processor T56N 1.65GHz Onboard

Chipset

- AMD A50M Fusion Controller Hub

Graphics

- AMD Radeon™ HD6320

Main Memory

- 1x 204 pin SO-DIMM socket, support DDR3 1333MHz with un-buffered and non-ECC SDRAM up to 8GB

I/O Interface-Front

- 1x Power button
- 1x Power LED
- 1x Reset button
- 1x HDD LED
- 2x USB2.0
- 1x HDMI
- 1x Audio Line-in
- 1x Audio Line-out
- 1x RJ45 with LEDs for Gigabit LAN
- 1x RJ45 for RS-232
- 1x 2.5" HDD slot
- 2x Antenna hole

I/O Interface-Rear

- 1x TMDS
- 1x UART
- 1x Audio out L/R
- 3x USB2.0
- DC input +12V~+19V
- Control signals (PWR_STATUS, PS_ON#, PB_DET, CEC, SYS_FAN)

Storage Device

- 1x 2.5" SATA Storage Bay for HDD / SSD

Expansion

- 1x Mini-PCIe for optional WLAN/ TV tuner module

Dimensions

- 200mm (W) x 119mm (D) x 30mm (H) (7.8" x 4.7" x 1.1")

Power Supply

- DC power input +12V~19V

Environment

- Operating temperature: ambient with air flow from 0°C to 45°C
- Storage temperature: -20°C to 80°C
- Humidity: 10 to 90% (non-condensing)

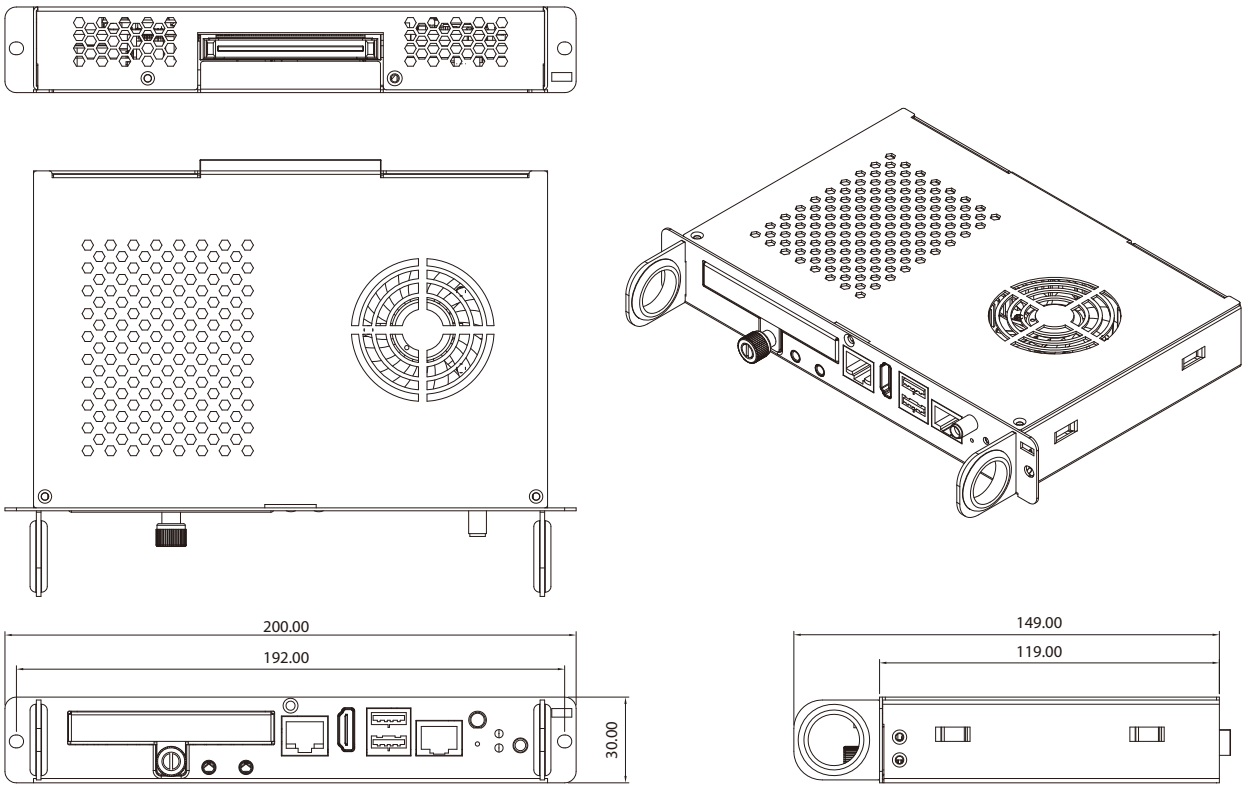
Certification

- CE approval
- FCC Class A

Operating System

- Windows 7 / XP / WES7 / WES2009 / Linux

Mechanical Dimensions



Chapter 2: Jumpers and Connectors

This chapter describes how to set the jumpers and connectors on the NDiS M422 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.

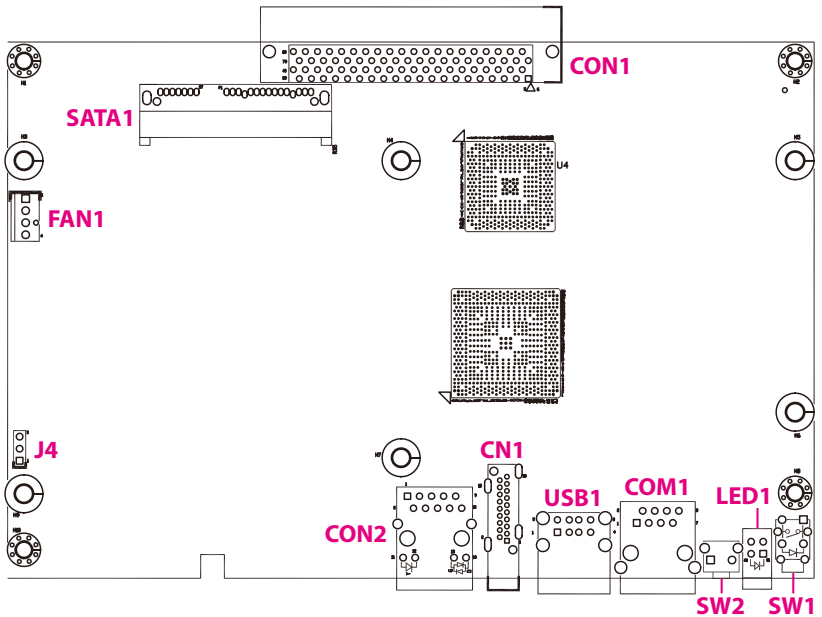
Follow the guidelines below to avoid damage to your computer or yourself:

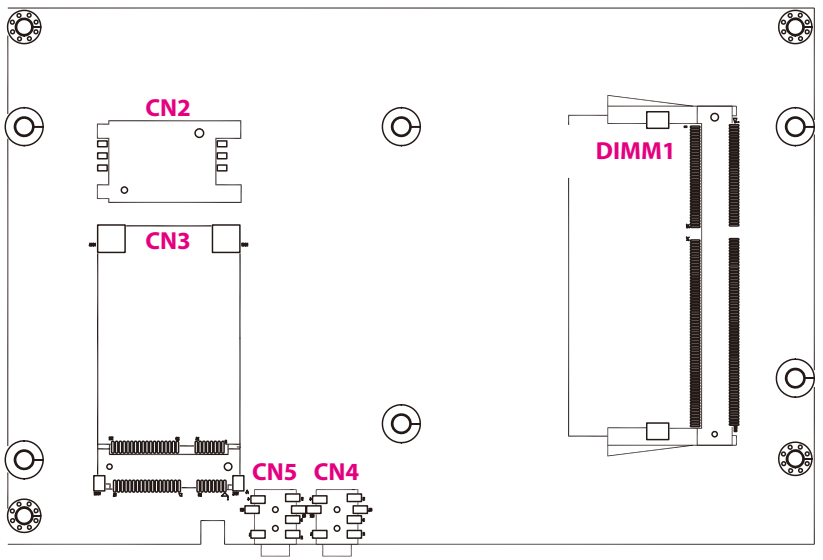
- Always disconnect the unit from the power outlet whenever you are working inside the case.
- If possible, wear a grounded wrist strap when you are working inside the computer case. Alternatively, discharge any static electricity by touching the bare metal chassis of the unit case, or the bare metal 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.

Locations of the Jumpers and Connectors for NDiB M422

NDiB M422

The figure below is the top and bottom view of the NDiB M422 main board which is the main board used in the NDiS M422. It shows the locations of the jumpers and connectors.



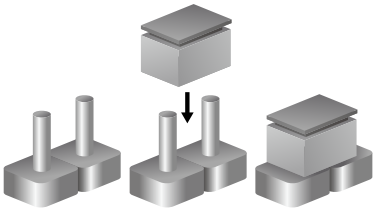


Jumper Settings

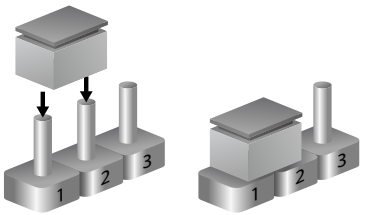
A jumper is the simplest kind of electric switch. It consists of two metal pins and a cap. When setting the jumpers, ensure that the jumper caps are placed on the correct pins. When the jumper cap is placed on both pins, the jumper is short. If you remove the jumper cap, or place the jumper cap on just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



Jumpers

CMOS Clear Select

Connector type: 1x3 3-pin header
Connector location: J4

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

1-2 On: default

Connector Pin Definitions

External I/O Interfaces

Power Button

Connector location: SW1

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

Status	PWRLED_N	PWRLED_P	LED Color
PWR OFF	Low	High	Red
PWR ON	High	Low	Blue

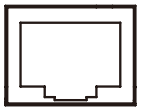
LED Connector

Connector location: LED1

Pin	Definition	Pin	Definition
A1	POWER_LED	A2	HD_LED
C1	LED_PWRN	C2	HD_LEDN

RS-232 COM Port

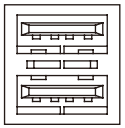
Connector type: RJ-50
Connector location: COM1



Pin	Definition	Pin	Definition
1	SP_RTS1	2	NC
3	SP_TXD1	4	GND
5	NC	6	SP_RXD1
7	NC	8	GND
GND	MH1 MH2		

USB 2.0 Ports

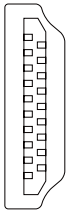
Connector type: Dual USB 2.0 ports
Connector location: USB1



Pin	Definition	Pin	Definition
1	VCC5	2	USB_0N
3	USB_0P	4	CH_GND
5	VCC5	6	USB_1N
7	USB_1P	8	CH_GND
MH1	CH_GND	MH2	CH_GND
MH3	CH_GND	MH4	CH_GND

HDMI

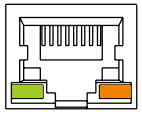
Connector type: HDMI port
Connector location: CN1



Pin	Definition	Pin	Definition
1	TMDS Data2+	2	TMDS Data2 Shield
3	TMDS Data2–	4	TMDS Data1+
5	TMDS Data1 Shield	6	TMDS Data1–
7	TMDS Data0+	8	TMDS Data0 Shield
9	TMDS Data0–	10	TMDS Clock+
11	TMDS Clock Shield	12	TMDS Clock–
13	CEC	14	NC
15	SCL	16	SDA
17	DDC/CEC/HEC Ground	18	Power (VCC5)
19	Hot Plug Detect	20	

LAN Port

Connector type: RJ45 port with LEDs
Connector location: CON2



Pin	Definition	Pin	Definition
1	TCT	2	MID3-
3	MID3+	4	MID2-
5	MID2+	6	MID1-
7	MID1+	8	MID0-
9	MID0+	10	GND
11	LED+	12	LAN_ACTLED#_C
13	LAN1_LED2P	14	LAN1_LED3P

Line-out Connector

Connector type: 3.5mm TRS
Connector location: CN4

Pin	Definition	Pin	Definition
1	AUDGND	2	AUDGND
3	LINE2_OUT_R_FB	4	LINE2_OUT_L_FB
5	LINE2_OUT_JD	G1,G2	AUDGND

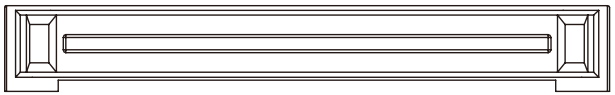
Line-in Connector

Connector type: 3.5mm TRS
Connector location: CN5

Pin	Definition	Pin	Definition
1	AUDGND	2	AUDGND
3	LINE1_IN_R3	4	LINE1_IN_L3
5	LINEIN_JD	6	AUDGND

JAE-TX25

Connector location: CON1



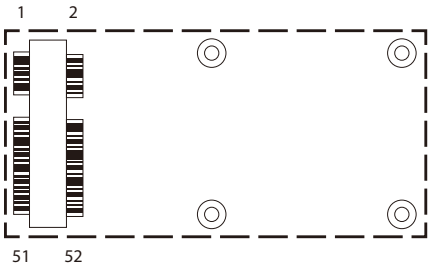
Pin	Definition	Pin	Definition
1	DDP_3N	18	TMDS_CLK+
2	DDP_3P	19	GND
3	GND	20	TMDS0-
4	DDP_2N	21	TMDS0+
5	DDP_2P	22	GND
6	GND	23	TMDS1-
7	DDP_1N	24	TMDS1+
8	DDP_1P	25	GND
9	GND	26	TMDS2-
10	DDP_0N	27	TMDS2+
11	DDP_0P	28	GND
12	GND	29	DVI_DDC_DATA
13	DDP_AUXN	30	DVI_DDC_CLK
14	DDP_AUXP	31	DVI_HPD
15	DDP_HPD	32	GND
16	GND	33	+12V~+19V
17	TMDS_CLK-	34	+12V~+19V

Pin	Definition	Pin	Definition
35	+12V~+19V	58	StdA_SSTX+
36	+12V~+19V	59	GND
37	+12V~+19V	60	USB_PN2
38	+12V~+19V	61	USB_PP2
39	+12V~+19V	62	GND
40	+12V~+19V	63	USB_PN1
41	RSVD	64	USB_PP1
42	RSVD	65	GND
43	RSVD	66	USB_PN0
44	RSVD	67	USB_PP0
45	RSVD	68	GND
46	RSVD	69	AZ_LINEOUT_L
47	RSVD	70	AZ_LINEOUT_R
48	RSVD	71	CEC
49	RSVD	72	PB_DET
50	SYS_FAN	73	PS_ON#
51	UART_RXD	74	PWR_STATUS
52	UART_TXD	75	GND
53	GND	76	GND
54	StdA_SSRX-	77	GND
55	StdA_SSRX+	78	GND
56	GND	79	GND
57	StdA_SSTX-	80	GND

Internal Connectors

Mini-PCIe Connector

Connector location: CN3

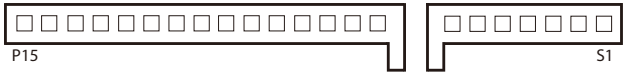


Pin	Definition	Pin	Definition
1	WAKE#	2	+V3.3A_MIN
3	NC	4	GND
5	NC	6	D15VS
7	CLKREQ#	8	NC
9	GND	10	NC
11	REFCLK-	12	NC
13	REFCLK+	14	NC
15	GND	16	NC
17	NC	18	GND
19	NC	20	DISABLE#
21	GND	22	PERST#
23	PERn0	24	+V3.3A_MIN
25	PERp0	26	GND

Pin	Definition	Pin	Definition
27	GND	28	D15VS
29	GND	30	SMB_CLK
31	PETn0	32	SMB_DATA
33	PETp0	34	GND
35	GND	36	USB_D-
37	NC	38	USB_D+
39	+V3.3A_MIN	40	GND
41	+V3.3A_MIN	42	LED_WWAN#
43	NC	44	LED_WLAN#
45	NC	46	LED_WPAN#
47	NC	48	D15VS
49	NC	50	GND
51	NC	52	+V3.3A_MIN

SATA Connector (7-pin and 15pin)

Connector type: Standard Serial ATAII 7P and 15P
Connector location: SATA1



Pin	Definition	Pin	Definition
S1	GND	S2	TX
S3	TX#	S4	GND
S5	RX#	S6	RX
S7	GND		
P1	V3.3	P2	V3.3
P3	V3.3	P4	GND
P5	GND	P6	GND
P7	V5	P8	V5
P9	V5	P10	GND
P11	P_Reserve	P12	GND
P13	V12	P14	V12
P15	V12		

Chapter 3: System Setup

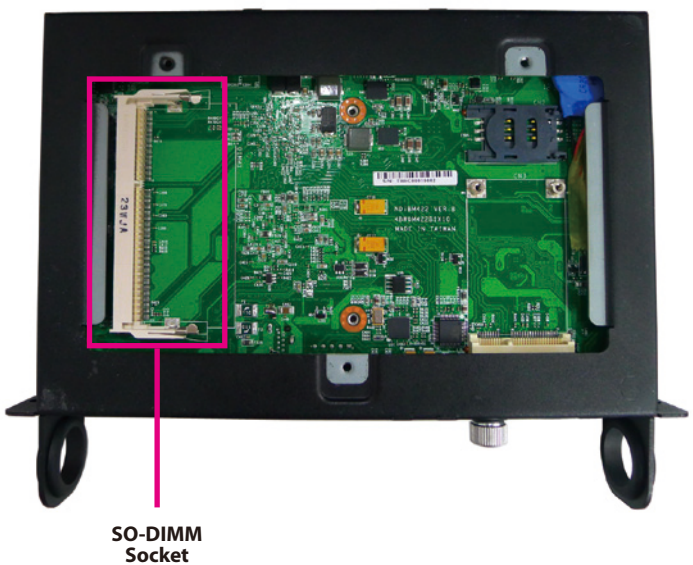
Removing the Chassis Cover

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.

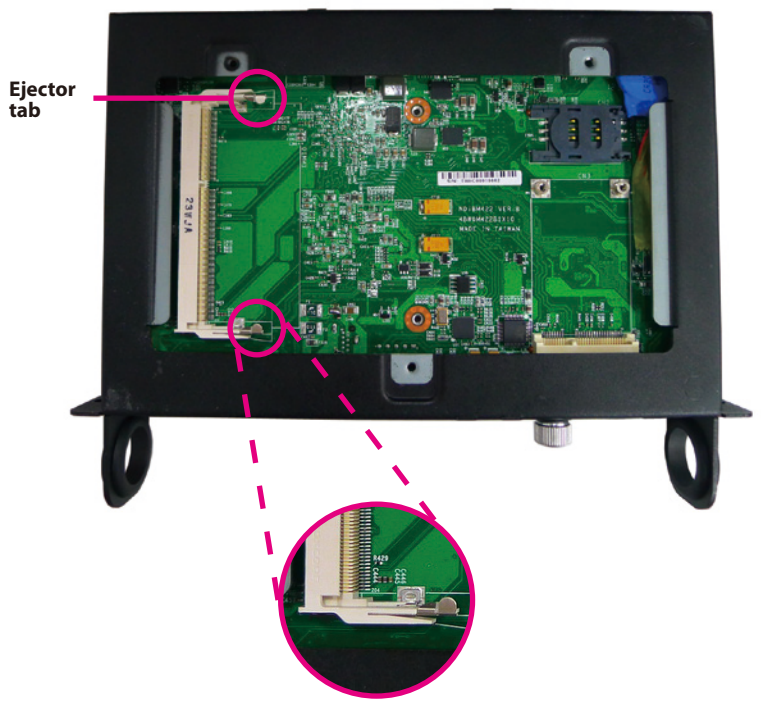
1. The screws on the front, top and back are used to secure the cover to the chassis. Remove these screws and put them in a safe place for later use.

Installing a SO-DIMM

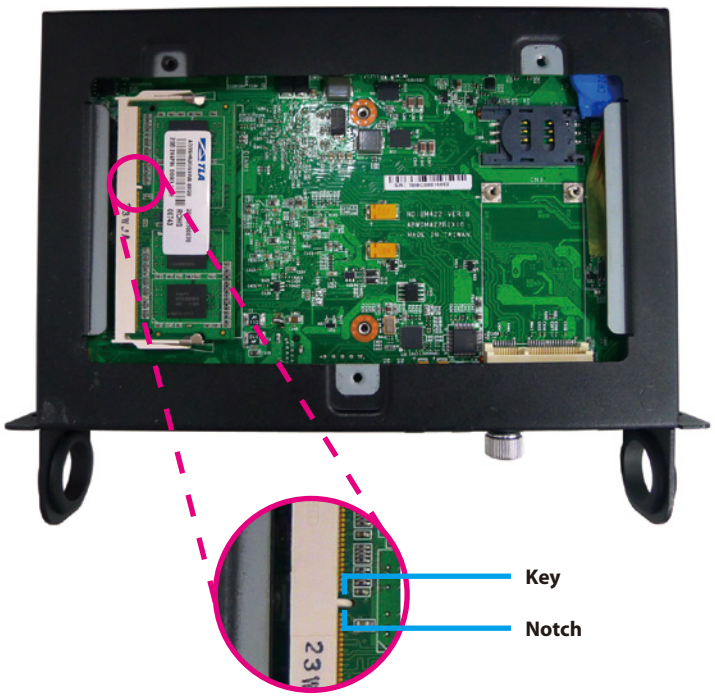
1. Remove the bottom cover of chassis. Then locate the SO-DIMM socket on the board.



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



3. 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.



4. Insert the module into the socket at an approximately 30 degrees angle. Apply firm even pressure to each end of the module until it slips down into the socket. The contact fingers on the edge of the module will almost completely disappear inside the socket.

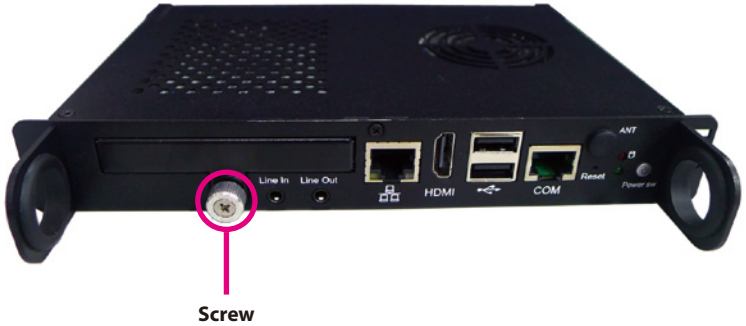
   The ejector tabs at the ends of the socket will automatically snap into the locked position to hold the module in place.

Installing a 2.5” HDD Storage

The system is equipped with a removable 2.5” HDD drive bay. To install a HDD, please follow the instructions below.

Please correctly follow the below instructions and noted items to avoid making unnecessary damages.

1. Remove the HDD cover located at the front panel by loosening the screw.



2. Gently take the cover out.

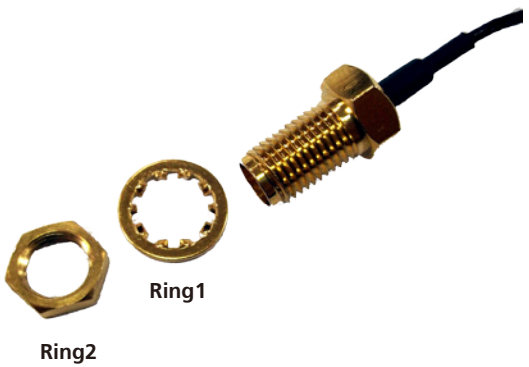
3. Align the mounting holes on the front of the HDD to the mounting holes on the cover, then tighten screws on both sides to secure it. Make sure the connector side of the HDD is facing outwards.

4. Put the HDD back into slot gently, then tighten the screws to secure it.

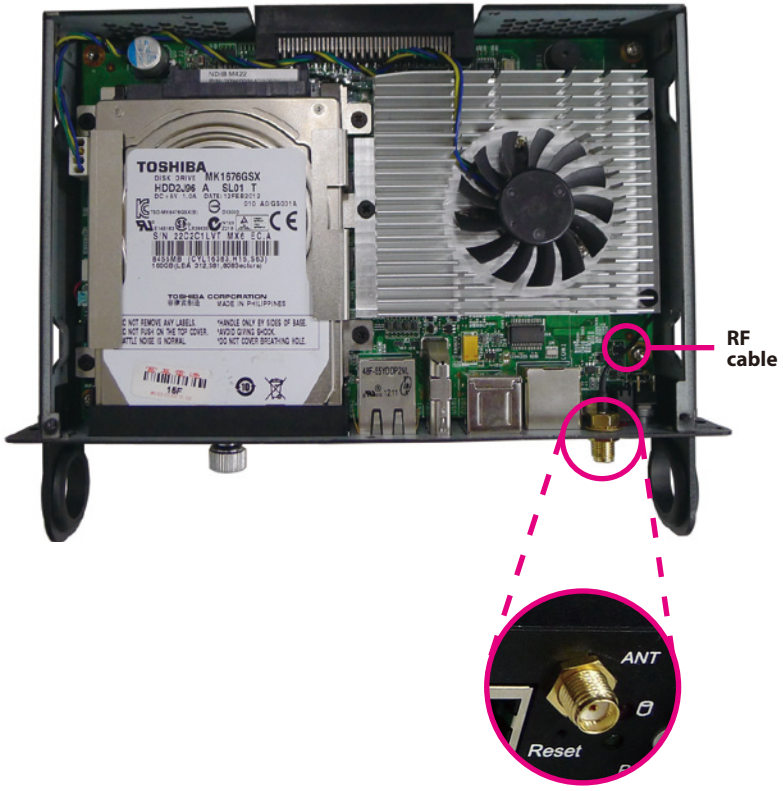
Installing a Wireless LAN Module

1. Remove the top cover of chassis and the antenna hole cover.

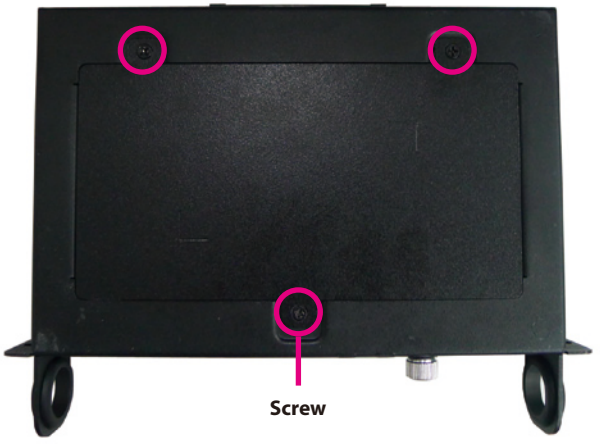
2. Insert the 2 rings (ring 1 then ring 2) into the Wi-Fi antenna jack.



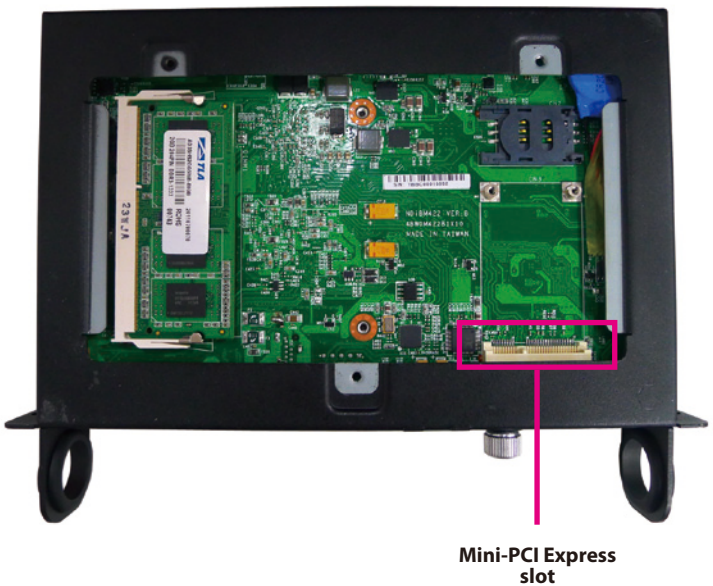
3. Mount the Wi-Fi antenna jack to the Wi-Fi antenna hole located at the front panel of the chassis then tighten the ring. Now wire the RF cable behind the mainboard.



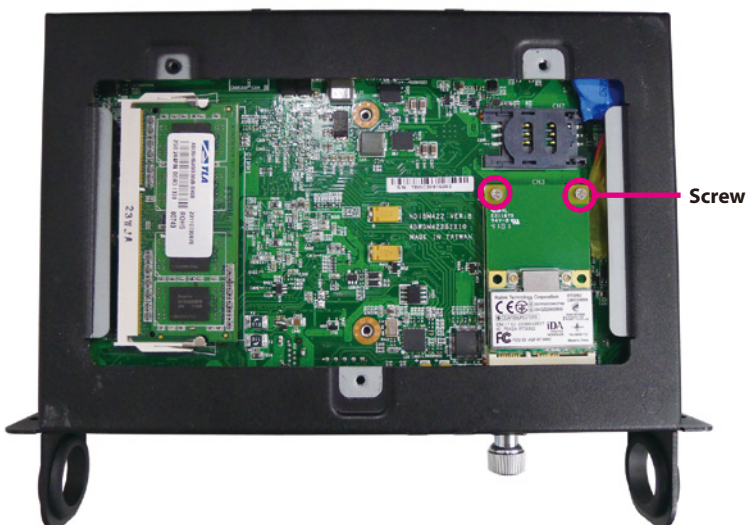
4. Remove the bottom cover by loosening the screws.



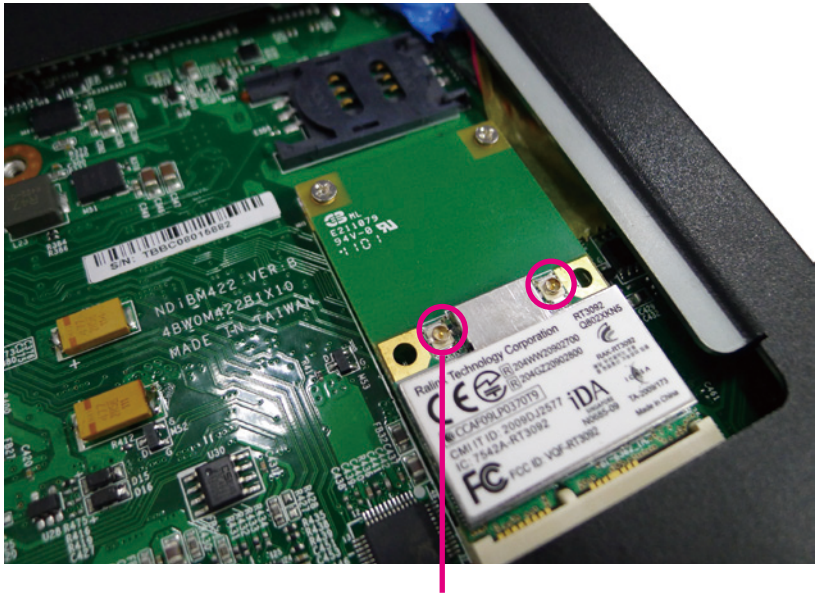
5. Locate the mini-PCI express slot on the board and insert the Wi-Fi module into the slot.

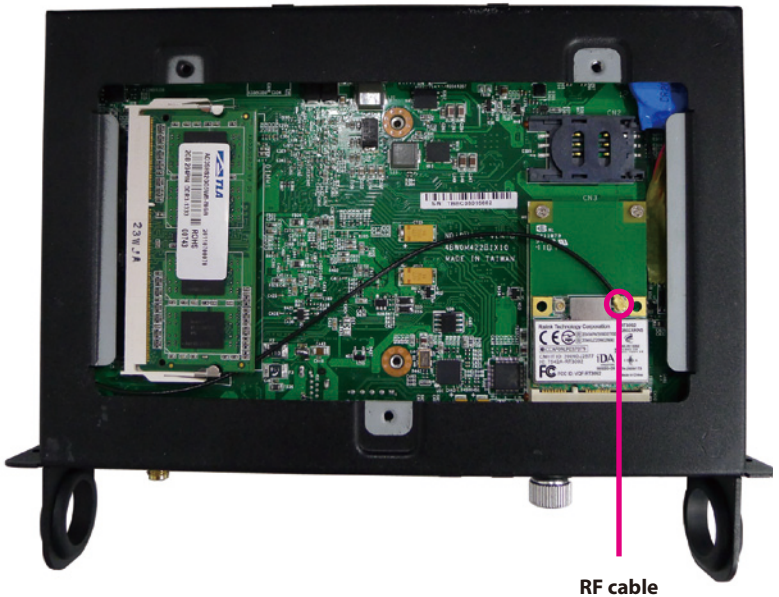


6. Align the mounting holes on the module to the mounting holes on the board, and tighten screws to secure it.

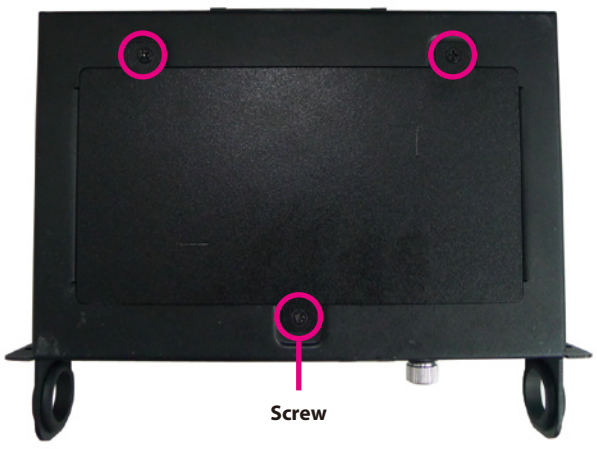


7. Locate the RF connector on the Wi-Fi module and attach the RF cable (from step 3) onto the Wi-Fi module.





8. Align the screw holes of the cover with the screw holes on the bottom plate then use the provided mounting screws to secure the cover in place.

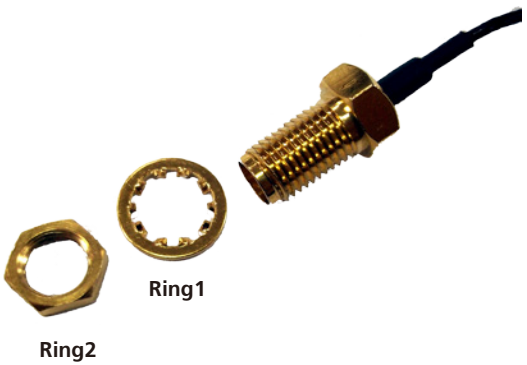


9. Connect an external antenna to the Wi-Fi antenna jack.

Installing a TV Tuner Module

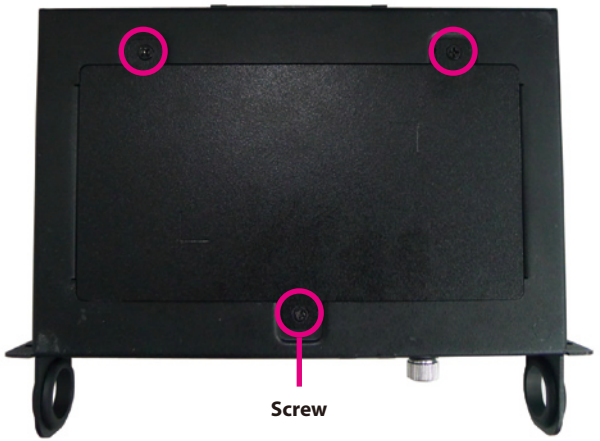
1. Remove the top cover of chassis and the antenna hole cover.

2. Insert the 2 rings (ring 1 then ring 2) into the Wi-Fi antenna jack.

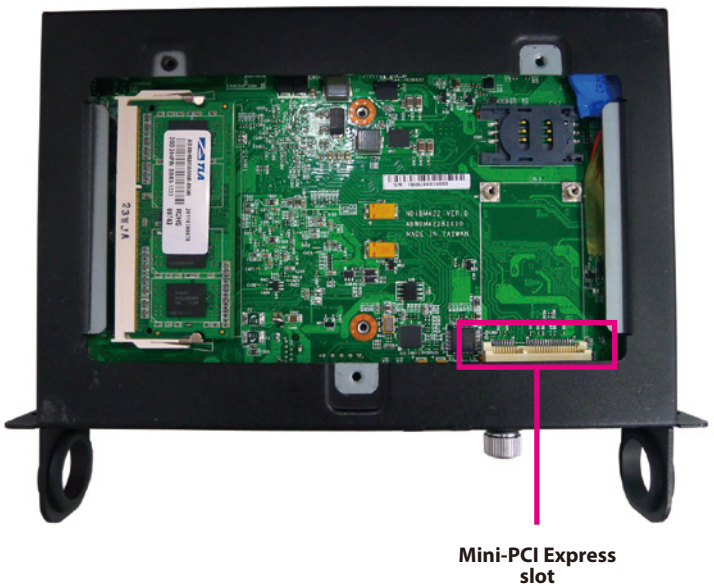


3. Mount the Wi-Fi antenna jack to the Wi-Fi antenna hole located at the front panel of the chassis then tighten the ring. Now wire the RF cable behind the mainboard.

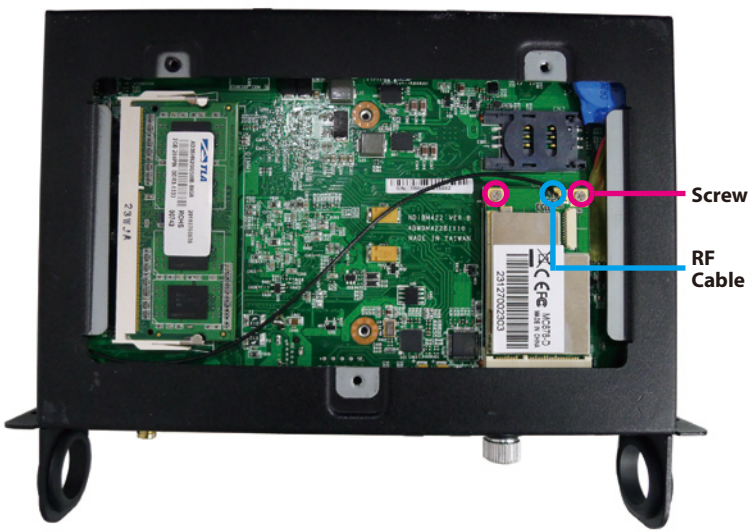
4. Remove the bottom cover by loosening the screws.



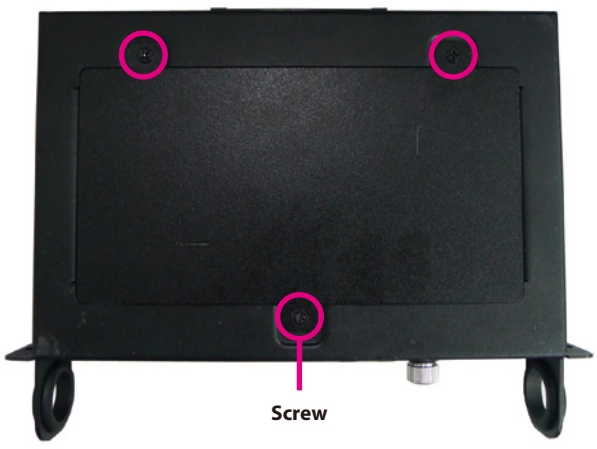
4. Locate the mini-PCI express slot on the board and insert the TV tuner module into the slot.



5. Align the mounting holes on the module to the mounting holes on the board, and tighten screws to secure it. Now attach the RF cable (from step 3) onto the TV tuner module's RF connector.



6. Align the screw holes of the cover with the screw holes on the bottom plate then use the provided mounting screws to secure the cover in place.



7. Connect an external antenna to the Wi-Fi antenna jack.

Chapter 4: BIOS Setup

This chapter describes how to use the BIOS setup program for the NDiS M422. 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.

Default Configuration

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

Entering Setup

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

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

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

TO ENTER SETUP BEFORE BOOT PRESS Ctrl + Alt + Esc

Press the Del key to enter Setup:

Legends

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

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 

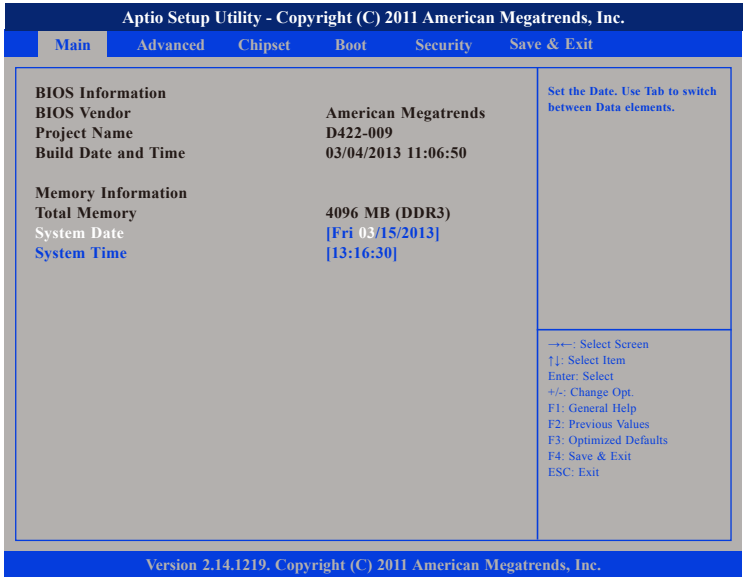
.

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 Enter to accept or enter the submenu.

Main

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



System Date

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

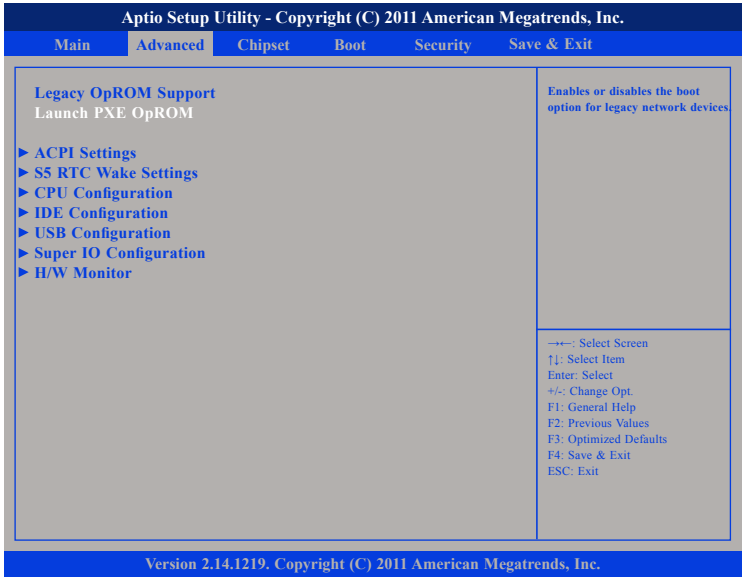
System Time

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

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.



Launch PXE OpROM

Enables or disables the boot option for legacy network devices.

ACPI Settings

This section is used to configure ACPI Settings.

Enable Hibernation

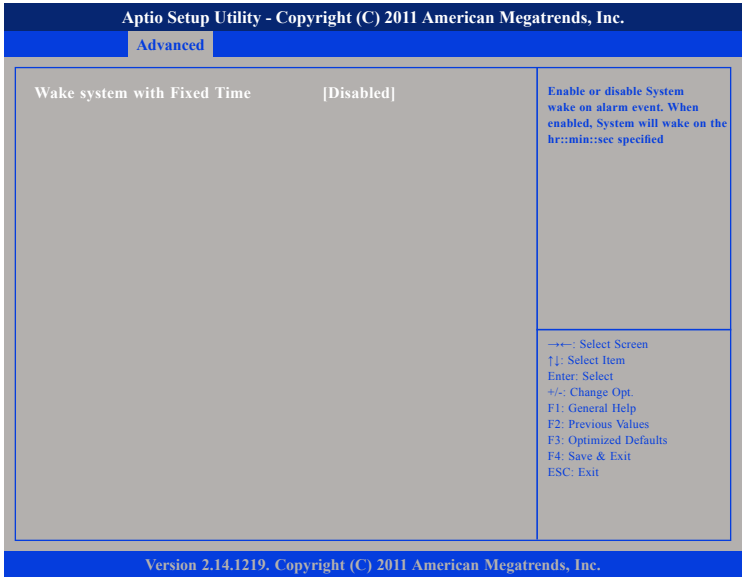
Enables or disables system ability to hibernate (OS/S4 Sleep State). This option may not be effective with some OS.

ACPI Sleep State

Select the highest ACPI sleep state the system will enter when the suspend button is pressed. The options are Suspend Disabled, S1 (CPU Stop Clock) and S3 (Suspend to RAM).

S5 RTC Wake Settings

This section is used to configure S5 RTC Wake Settings.



Wake system with Fixed Time

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

CPU Configuration

This section is used to configure the CPU.

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.

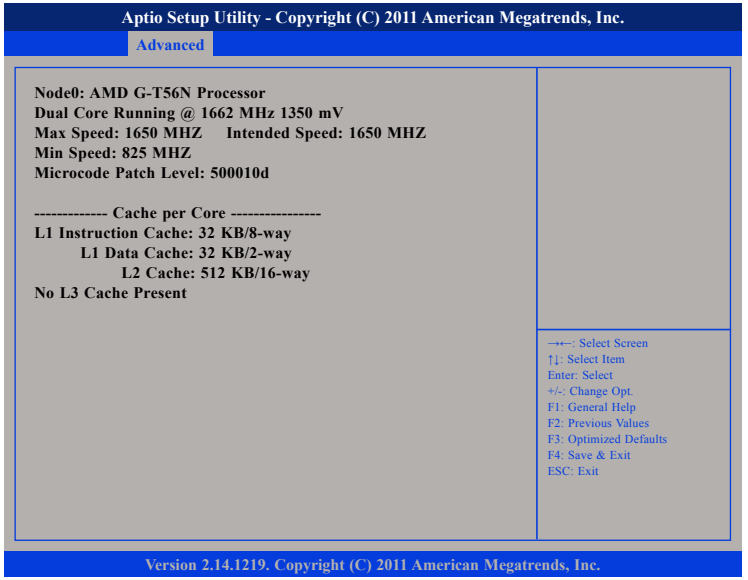
NX Mode
Enables or disables no-execute page protection function.

SVM Mode
Enables or disables CPU virtualization

C6 Mode
Enables or disables C6 mode.

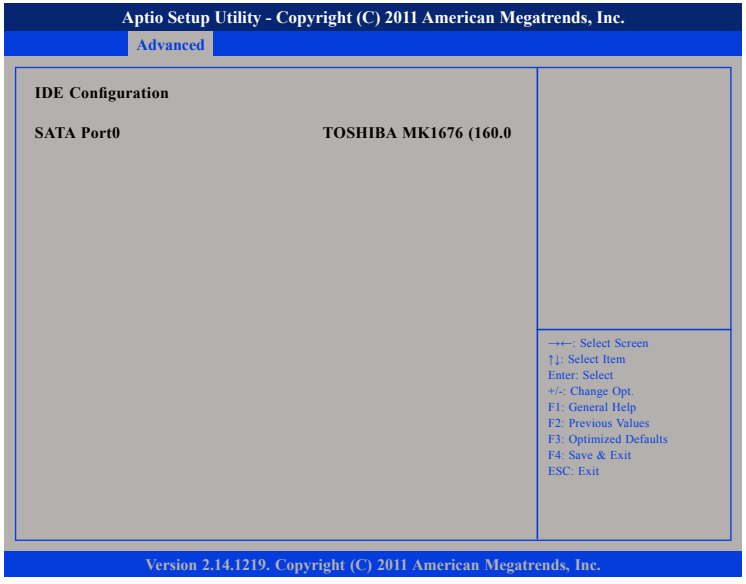
CPB Mode
Enables or disables CPB.

Node 0 Information
View memory information related to Node 0.



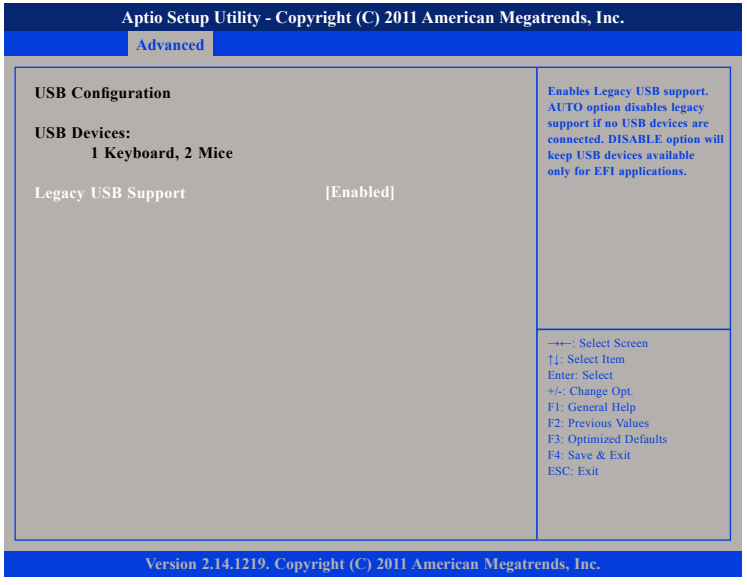
IDE Configuration

View drive information on SATA Port0.



USB Configuration

This section is used to configure the USB.

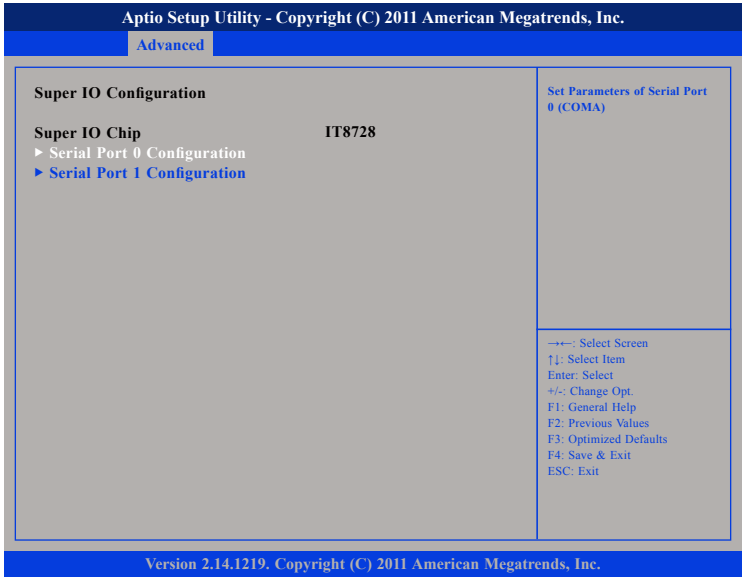


Legacy USB Support

Enabled	Enables Legacy USB.
Disabled	Keeps USB devices available only for EFI applications.

Super IO Configuration

This section is used to configure serial ports 0 and 1.

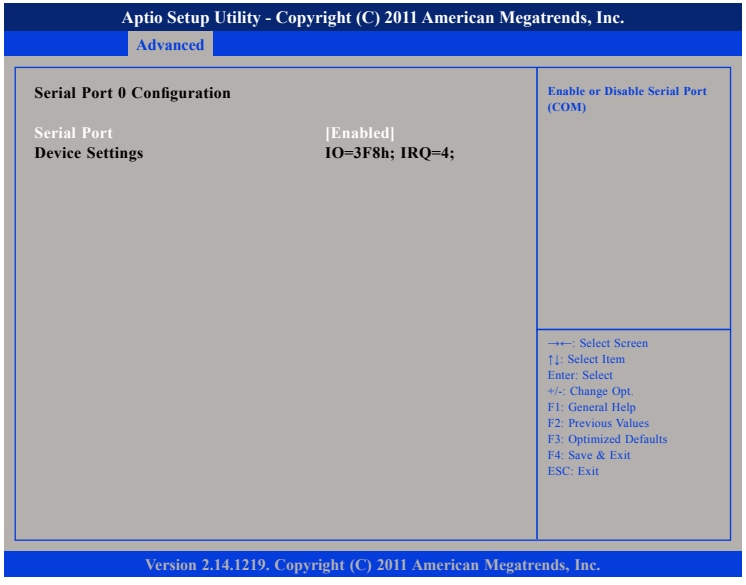


Super IO Chip

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

Serial Port 0 Configuration

This section is used to configure serial port 0.

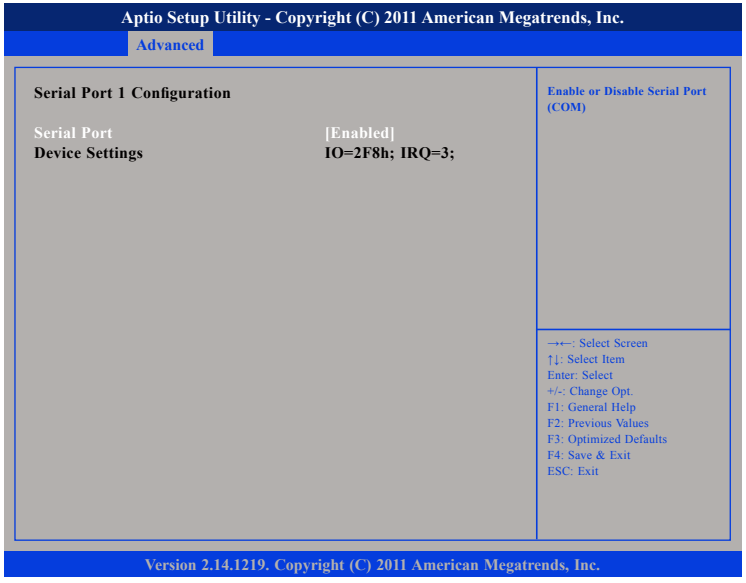


Serial Port

Enables or disables the serial port.

Serial Port 1 Configuration

This section is used to configure serial port 1.

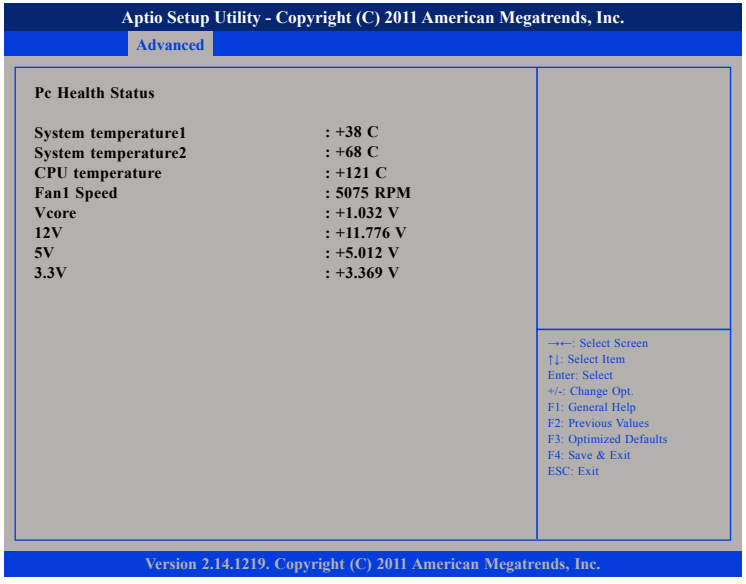


Serial Port

Enables or disables the serial port.

H/W Monitor

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



System Temperature 1 to System Temperature 2

Detects and displays the current temperature of system 1 and 2.

CPU Temperature

Detects and displays the current CPU temperature.

Fan1 Speed

Detects and displays Fan1 speed.

Vcore
Detects and displays the Vcore CPU voltage.

+12V
Detects and displays 12V voltage.

+5V
Detects and displays 5V voltage.

+3.3V
Detects and displays 3.3V voltage.

Chipset

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

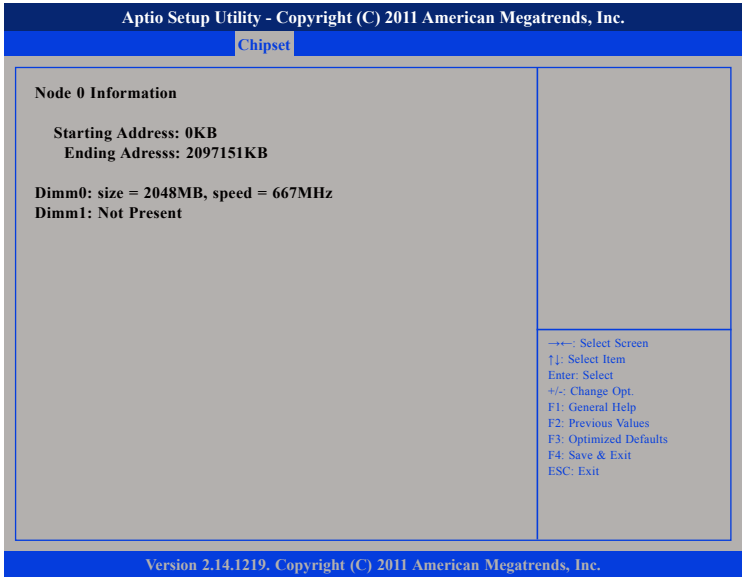
North Bridge

Displays the memory information

Setting incorrect field values may cause the system to malfunction.

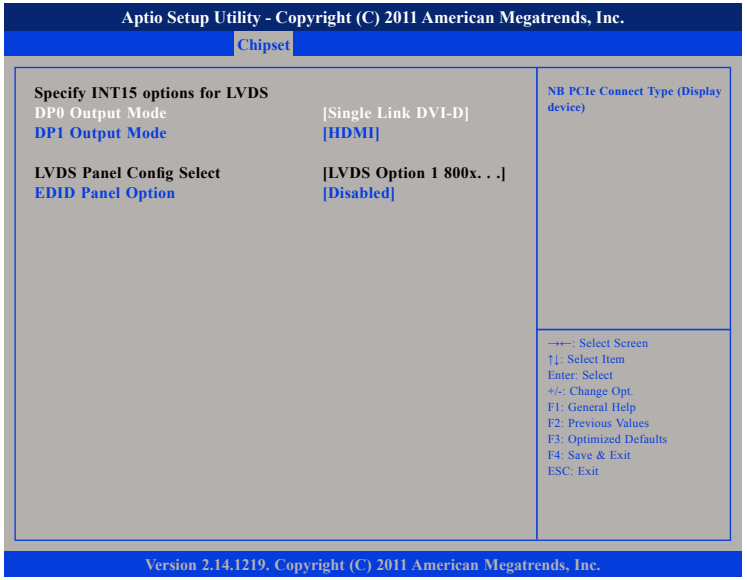
Node 0 Information

View memory information related to Node 0.



North Bridge LVDS Config Select

This section is used to configure INT15 options for LVDS.



DP0 Output Mode

Configures the DP0 output mode, the available options are Single Link DVI-D and Disabled.

DP1 Output Mode

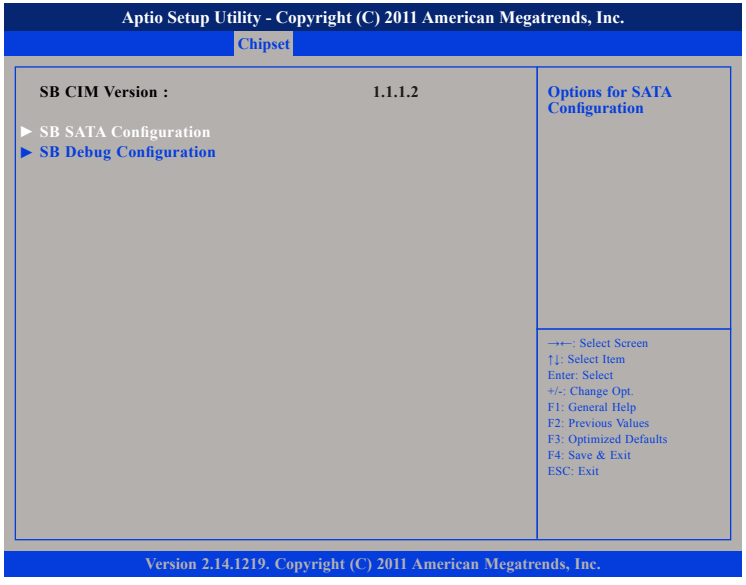
Configures the DP1 output mode, the available options are HDMI and Disabled.

EDID Panel Option

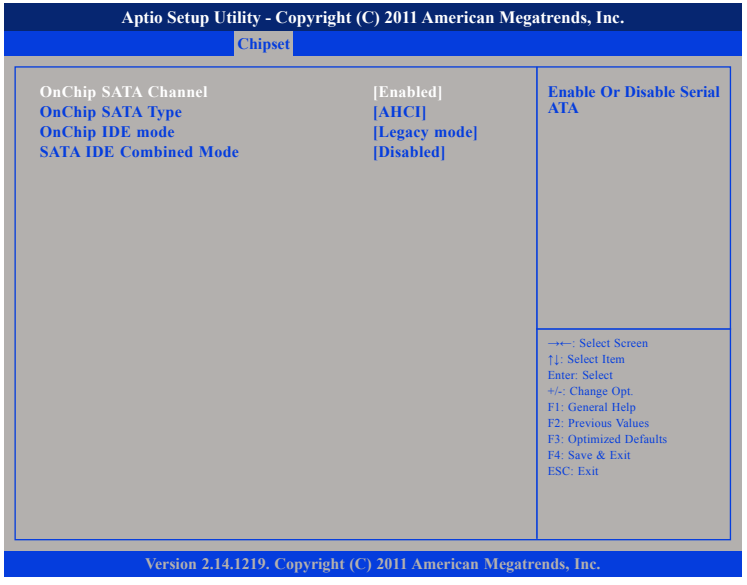
Parameters for EDID Panel function.

South Bridge

This section is used to configure the south bridge features.



SB SATA Configuration



OnChip SATA Channel

Enables or disables Serial ATA

OnChip SATA Type

Configures the SATA type as AHCI or Legacy IDE.

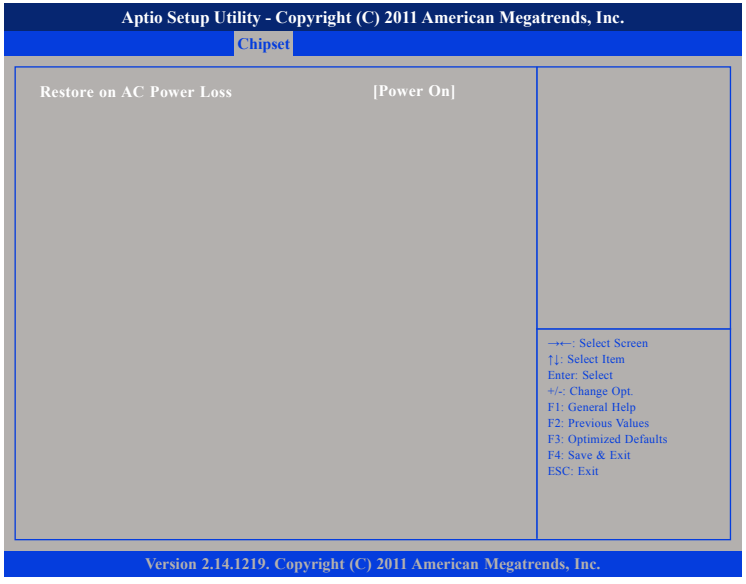
OnChip IDE mode

Configures the IDE mode as Legacy or Native.

SATA IDE Combined Mode

Enables or disables SATA IDE combined mode.

SB Debug Configuration

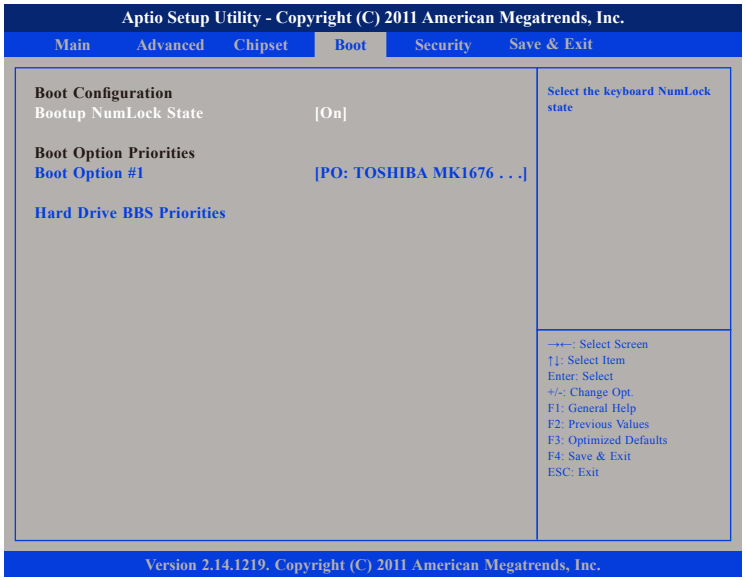


Restore on AC Power Loss

Power 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.
Power On	When power returns after an AC power failure, the system will automatically power-on.

Boot

This section is used to configure the boot features.



Bootup NumLock State

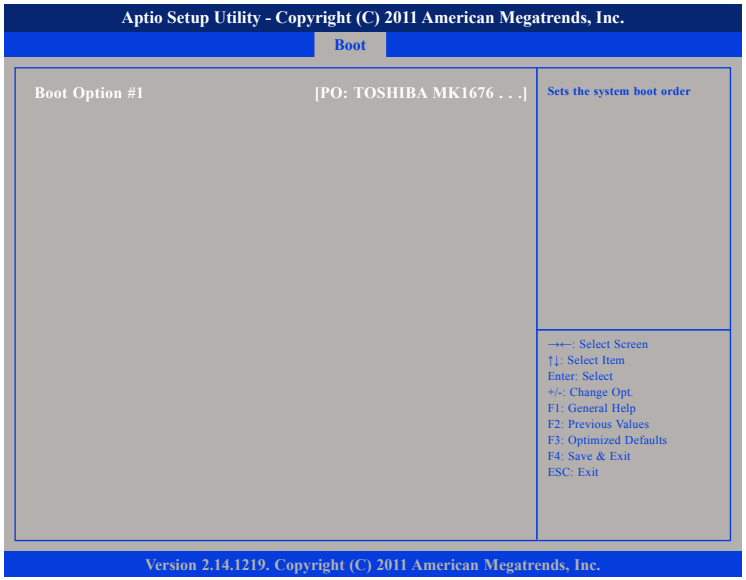
This allows you to determine the default state of the numeric keypad. By default, the system boots up with NumLock on wherein the function of the numeric keypad is the number keys. When set to Off, the function of the numeric keypad is the arrow keys.

Boot Option Priorities

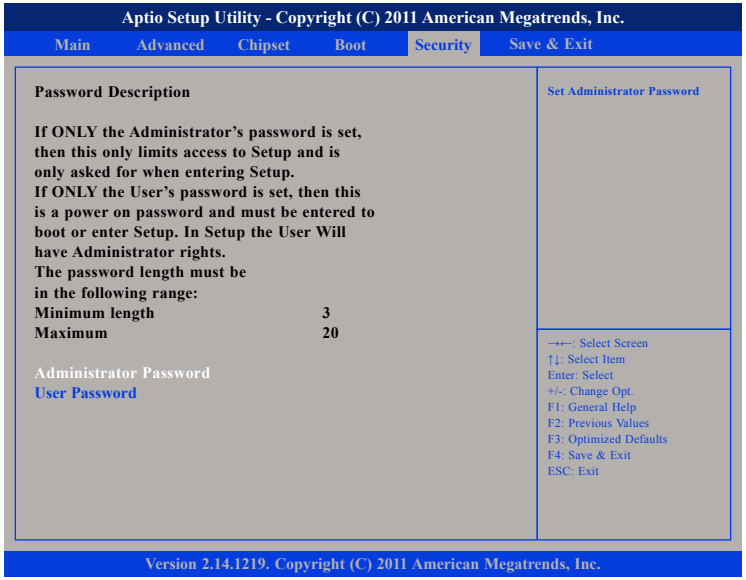
Adjust the boot sequence of the system. Boot Option #1 is the first boot device that the system will boot from, next will be #2 and so forth.

Hard Drive BBS Priorities

Sets the order of the legacy devices in this group.



Security



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

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

Save & Exit

Save Changes and 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 <F4> 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.

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: Watchdog Timer

NDiS M422 features a watchdog timer that resets the CPU or generates an interrupt if the processor stops operating for any reason. This feature ensures system reliability in industrial standalone or unmanned environments.

Watchdog Timer Control Register (Index=71h, Default=00h)

Bit	Description
7	WDT is reset upon a CIR interrupt.
6	WDT is reset upon a KBC (mouse) interrupt.
5	WDT is reset upon a KBC (keyboard) interrupt.
4	WDT is reset upon a read or a write to the Game Port base address.
3-2	Reserved
1	Force Time-out. This bit is self-clearing.
	WDT Status
0	1: WDT value reaches 0.
	0: WDT value is not 0.

Watchdog Timer Configuration Register (Index=72h, Default=001s0000b)

Bit	Description
7	**WDT Time-out value select 1** 1: Second 0: Minute
6	**WDT output through KRST (pulse) Enable** 1: Enable 0: Disable
5	**WDT Time-Out Value Extra Select** 1: 64ms x WDT Timer-out value (default=4s) 0: Determined by WDT Time-out value select 1 (bit 7 of this register)
4	**WDT Output through PWEGD Enable** 1: Enable 0: Disable During LRESET# this bit is selected by JP2 power-on strapping option.
3-0	**Interrupt level Select for WDT.**

Watch Dog Timer Time-out value (LSB) Register (Index=73h, default=38h)

Bit	Description
7-0	**WDT Time-out value select 7-0**

Watch Dog Timer Time-out value (MSB) Register (Index=74h, default=00h)

Bit	Description
7-0	**WDT Time-out value select 15-8**