



NEXCOM International Co., Ltd.

Network and Communication Solutions

Network Security Appliance

NSA 3170 Series

User Manual

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PREFACE

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Acknowledgements

The NSA 3170 series is a trademark of NEXCOM International Co., Ltd. All other product names mentioned herein are registered trademarks of their respective owners.

Regulatory Compliance Statements

This section provides the FCC compliance statement for Class 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 in to implement the introduction of green products. The task force will ensure that we follow the standard NEXCOM development procedure and that all the new RoHS components and new manufacturing processes maintain the highest industry quality levels for which NEXCOM are renowned.

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

How to recognize NEXCOM RoHS Products?

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

All new product models launched after January 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. HCP series products (Blade Server) which are manufactured by NEXCOM are covered by a three year warranty period.

NEXCOM Return Merchandise Authorization (RMA)

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

Repair Service Charges for Out-of-Warranty Products

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

Repair Service Charges for Out-of-Warranty Products

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

System Level

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

Board Level

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

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.

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 Co., Ltd.

Taipei Office

13F, No.920, Chung-Cheng Rd.,
ZhongHe District,
New Taipei City, 23586, Taiwan, R.O.C.

Tel: +886-2-8226-7796

Fax: +886-2-8226-7792

Email: sales@nexcom.com.tw

www.nexcom.com.tw

NexAIoT Co., Ltd.

Taichung Office

16F, No.250, Sec. 2, Chongde Rd.,
Beitun Dist.,

Taichung City 406, R.O.C.

Tel: +886-4-2249-1179

Fax: +886-4-2249-1172

Email: sales@nexcom.com.tw

www.nexcom.com.tw

NexCOBOT Taiwan Co., Ltd.

13F, No.916, Chung-Cheng Rd.,
ZhongHe District,
New Taipei City, 23586, Taiwan, R.O.C.

Tel: +886-2-8226-7796

Fax: +886-2-8226-7792

Email: sales@nexcom.com.tw

www.nexcom.com.tw

GreenBase Technology Corp.

13F, No.922, Chung-Cheng Rd.,
Zhonghe Dist.,
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

China

NEXSEC Incorporated

Floor 5, 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: sales@nexcom.cn

www.nexcom.cn

NEXCOM Shanghai

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: sales@nexcom.cn
www.nexcom.cn

NEXCOM Surveillance Technology Corp.

Floor 5, 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

1st Floor, 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@nexcobot.com
www.nexgol.com/NexGoL

Beijing NexGemo Technology Co.,Ltd.

5th Floor, Gemotech Building, No.1, Development Rd.,
Changping International Information Industry Base,
Changping District,
Beijing, 102206, China
Tel: +86-10-8190-9399
Fax: +86-10-8190-9456

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

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.eu

**America
USA****NEXCOM USA**

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

Package Contents

Before continuing, verify that the NSA 3170 package that you received is complete. Your package should have all the items listed in the following table.

Item	Part Number	Name	Qty
1	5044440031X00	Rubber Foot KANG YANG: RF20-5-4P 19.8x18x5.0mm	4
2	6012200052X00	PE Zipper Bag #8 170x240mm, w/China RoHS Symbol	1
3	6012200053X00	PE Zipper Bag #3 100x70mm, w/China RoHS Symbol	1
4	6023309081X00	Cable EDI:232091081804-RS COM Port. DB9 Female to RJ45 8P8C L:1800mm	1
5	50311F0100X00	Round Head Screw w/Spring + Flat Washer LONG FEI:P3x6L P3x6 iso/SW6x0.5 NI	8
6	60233AT133X00	SATA Cable ST:MD-6102042 SATA 7P 180D(LOCK) to 7P 90D(LOCK) L=135mm	2
7	5060900301X00	NSA 5130 EAR SETS VER:A CHYUAN-JYH 79.5x43.5x26mm AL PANTONE 295U	1
8	5040150001X00	NSA 7135 AL Handle VER:A PANADVANCE 78X58X8mm	1

Ordering Information

The following below provides ordering information for NSA 3170.

Barebone

NSA 3170 (P/N: 10S00317000X0)

Intel® H110 PCH, supporting Intel® 6th gen. Core™/Pentium® processors, 2 DDR4 memory slots, 6GbE copper LAN ports, SATA DOM, USB ports, VGA port, one PCIe x8 LAN expansion slot (front), w/o LCM

NSA 3170A (P/N: 10S00317001X0)

Intel® C236 PCH, supporting Intel® 6th gen. Xeon®/Core™/Pentium® processors, 2 DDR4 memory slots, 16GbE copper LAN ports, SATA DOM, USB ports, VGA port, one PCIe x8 LAN expansion slot (front), w/o LCM

NSK 1170 (P/N: 20SK0117000X0)

PCIe x8 riser card for NSA 3170A Internal LAN I/O module
(For NSA 3170A only)

NX 140F

Intel® XL710-BM1 10GbE module 4 fiber ports by PCIe x8 interface with PKG

NX 142F

Intel® XL710-BM1 10GbE module 4 fiber ports with 2 bypass segment (multi mode) by PCIe x8 interface with PKG

NI 140F

Intel® I350 module 4 fiber ports with PCIe x8 interface with PKG

NI 180F

Intel® I350 module 8 fiber ports with PCIe x8 interface with PKG

NI 142C

Intel® I350 module 4 copper ports with 2 bypass segment by PCIe x8 interface with PKG

NI 180C

Intel® I350 module 8 copper ports by PCIe x8 interface with PKG

NI 184C

Intel® I350 module 8 copper ports with 4 bypass segment by PCIe x8 interface with PKG

NI 142F

Intel® I350 module 4 fiber ports with 2 bypass segment by PCIe x8 interface with PKG

NI 121F

Intel® I350 module 2 fiber ports with 1 bypass segment by PCIe x8 interface with PKG

Model	P/N Controller	Interface	Type	Port Number	Bypass/Segment	Expansion Slot	Location Slot
NX 140F	10S20140F01X0	XL710-BM1	PCIe x8	4 SFP+	None	None	All Slot
NX 142F	10S20142F01X0	XL710-BM1	PCIe x8	4 SFP+	2 bypass (multi mode)	None	All Slot
NI 140F	10SK000NI02X0	i350AM4x1	PCIe x8	4 SFP	None	None	All Slot
NI 180F	10S10180F01X0	i350AM4x2	PCIe x8	8 SFP	None	None	All Slot
NI 142C	10SK000NI03X0	i350AM4x1	PCIe x8	4 Copper	2 bypass	None	All Slot
NI 180C	10S10180C01X0	i350AM4x2	PCIe x8	8 Copper	None	None	All Slot
NI 184C	10S10184C01X0	i350AM4x2	PCIe x8	8 Copper	4 bypass	None	All Slot
NI 142F	10S10142F01X0	i350AM4x1	PCIe x8	4 SFP	2 bypass	None	All Slot
NI 121F	10S10121F01X0	i350AM2x1	PCIe x8	4 SFP	1 bypass	None	All Slot

CHAPTER 1: PRODUCT INTRODUCTION

Overview



Key Features

- 1U rackmount network platform
- Support Intel® 6th gen. Xeon®/Core™/Pentium® processors
- Support DDR4 2400 ECC & REG, up to 32GB
- Support one PCIe x8 expansion
- Internal two 2.5" HDD bays
- Single 300 watt PSU

Hardware Specifications

Main Board

- NSB 3170
- Supports Intel® 6th gen. Xeon®/Core™/Pentium® processors (codenamed Skylake-S)
- Intel® H110/Intel® C236 chipset

Main Memory

- 2x DDR4 2400 memory DIMM, support ECC/non-ECC memory, Max 32GB

LAN Features

- LAN Chip: Intel® i211-AT
- Support 10/100/1000/10G link speed
- LAN Bypass: 2 pairs

I/O Interface-Front

- Power status/HDD status/LAN status/bypass status LEDs
- 2x USB 3.0 ports
- 1x micro USB console port (optional)
- 1x RJ45 type console port
- Max. 16x copper LAN ports
- 1x Reset button

I/O Interface-Rear

- 1x Rear PCIe x8 expansion slot (optional)
- 1x VGA Port
- 1x Power button switch (optional)
- 2x USB 3.0 ports (optional)

Devices

- 1x SATA DOM (power pin reserved)
- 2x 2.5" HDD bay

Power Input

- ATX power supply 300W

Chassis Dimensions

- Chassis dimension: 438 mm x 300mm x 44mm
- Carton dimension: TBC

Weight

- Without packing: TBC
- With packing: TBC

Environment

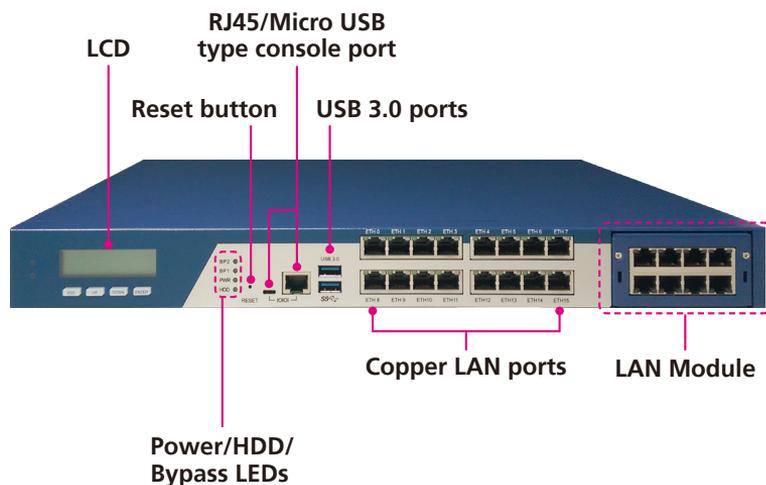
- Operating temperatures: 0°C~40°C
- Storage temperature: -20°C~75°C
- Relative humidity: 10%~90% non-condensing

Certifications

- CE approval
- FCC Class A
- UL

Knowing Your NSA 3170

Front Panel



LCD

128x32 characters LCD module.

Power/HDD/Bypass LED Indicators

Indicates the LAN bypass status, power status and hard drive activity of the system.

Reset Button

Press to restart the system.

RJ45/Micro USB Type Console Serial Port

Used to connect console devices with RJ45/Micro USB type connection.

USB 3.0 Ports

Used to connect USB 3.0/2.0/1.1 devices.

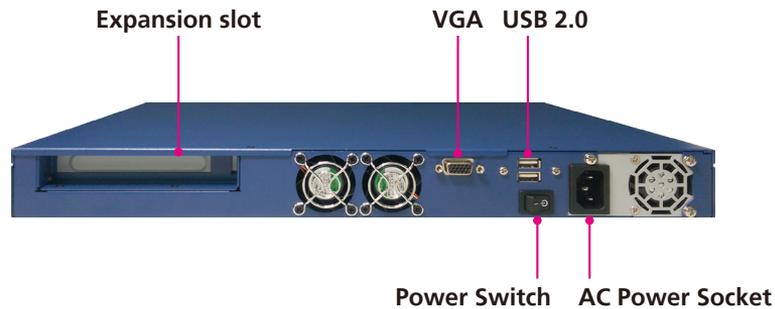
Copper LAN Ports

16 LAN ports used to connect network devices.

LAN Module

LAN module bay used to install add-on network modules.

Rear Panel



Expansion Slot

Used to install a PCI Express add-on card.

VGA

Used to connect an analog VGA monitor.

USB 2.0 Ports

Used to connect USB 2.0/1.1 devices.

Power Switch

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

AC Power Socket

Plug an AC power cord here before turning on the system.

CHAPTER 2: JUMPERS AND CONNECTORS

This chapter describes how to set the jumpers and connectors on the NSA 3170 series 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:

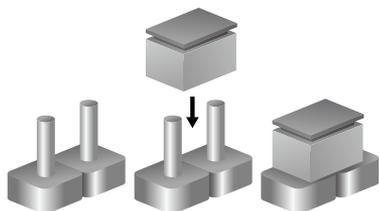
- Always disconnect the unit from the power outlet whenever you are working inside the case.
- If possible, wear a grounded wrist strap when you are working inside the computer case. Alternatively, discharge any static electricity by touching the bare metal chassis of the unit case, or the bare metal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

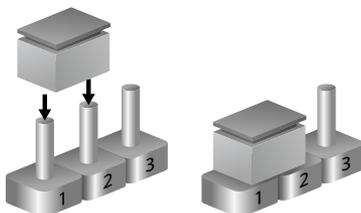
A jumper is the simplest kind of electric switch. It consists of two metal pins and a cap. When setting the jumpers, ensure that the jumper caps are placed on the correct pins. When the jumper cap is placed on both pins, the jumper is short. If you remove the jumper cap, or place the jumper cap on just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

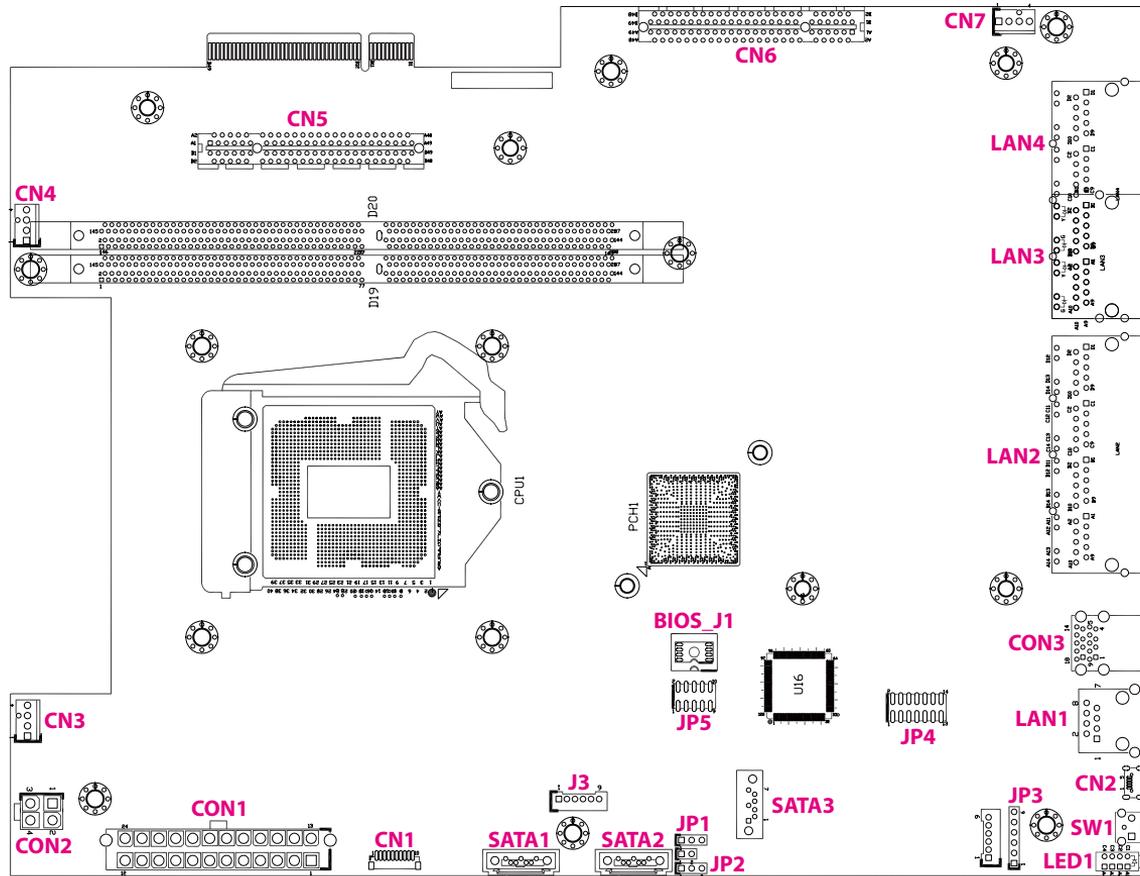


Three-Pin Jumpers: Pins 1 and 2 are Short



Locations of the Jumpers and Connectors

The figure below shows the location of the jumpers and connectors.



Jumpers

AT/ATX Mode Select

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



Pin	Definition
1	GND
2	GND
3	AT_ATX_SEL

Clear CMOS Function

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



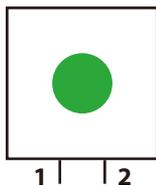
Pin	Definition
1	NC
2	RST_RTCRST_N
3	GND

Connector Pin Definitions

External I/O Interfaces - Front Panel

Reset Button

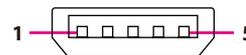
Connector location: SW1



Pin	Definition
1	GND
2	FP_SYS_RESET_N

Micro USB Port (For Console Connection)

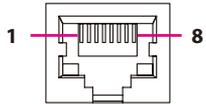
Connector location: CN2



Pin	Definition	Pin	Definition
1	CONSOLE_VBUS	2	SP_TXD1_R
3	SP_RXD1_R	4	CGND
5	CGND		

RJ45 Console Port (Co-layout with Micro USB)

Connector location: LAN1

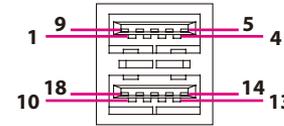


Pin	Definition	Pin	Definition
1	RJ45_RTS	2	RJ45_DTR
3	RJ45_TXD	4	GND
5	RJ45_DCD	6	RJ45_RXD
7	RJ45_DSR	8	RJ45_CTS

USB 3.0 Ports

Connector type: Dual USB 3.0 ports

Connector location: CON3

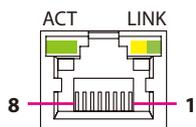


Pin	Definition	Pin	Definition
1	P5V_USB_P01	2	USB2N0_C
3	USB2P0_C	4	GND
5	USB3RN1_C	6	USB3RP1_C
7	GND	8	USB3TN1_C
9	USB3TP1_C	10	P5V_USB_P01
11	USB2N1_C	12	USB2P1_C
13	GND	14	USB3RN2_C
15	USB3RP2_C	16	GND
17	USB3TN2_C	18	USB3TP2_C
MH1	GND	MH2	GND
MH3	GND	MH4	GND

LAN1 to LAN8 Ports

Connector type: RJ45 with LEDs

Connector location: LAN2A, LAN2B, LAN2C and LAN2D



Act	Status
Flashing Green	Data activity
Off	No activity

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

LAN2A

Pin	Definition	Pin	Definition
A1	P_LAN0_MDI0P	A2	P_LAN0_MDI0N
A3	P_LAN0_MDI1P	A4	P_LAN0_MDI1N
A5	GND	A6	NC (V1P5_LAN0)
A7	P_LAN0_MDI2P	A8	P_LAN0_MDI2N
A9	P_LAN0_MDI3P	A10	P_LAN0_MDI3N
A11	LAN0_LED_LINK1G#	A12	LAN0_LED_LINK#
A13	LAN0_LED_ACT#	A14	VCC3_LAN0
MH1	GND		

LAN2B

Pin	Definition	Pin	Definition
B1	P_LAN1_MDI0P	B2	P_LAN1_MDI0N
B3	P_LAN1_MDI1P	B4	P_LAN1_MDI1N
B5	GND	B6	NC (V1P5_LAN1)
B7	P_LAN1_MDI2P	B8	P_LAN1_MDI2N
B9	P_LAN1_MDI3P	B10	P_LAN1_MDI3N
B11	LAN1_LED_LINK1G#	B12	LAN1_LED_LINK#
B13	LAN1_LED_ACT#	B14	V3P3_LAN1
MH2	GND		

LAN2C

Pin	Definition	Pin	Definition
C1	P_LAN2_MDI0P	C2	P_LAN2_MDI0N
C3	P_LAN2_MDI1P	C4	P_LAN2_MDI1N
C5	GND	C6	NC (V1P5_LAN2)
C7	P_LAN2_MDI2P	C8	P_LAN2_MDI2N
C9	P_LAN2_MDI3P	C10	P_LAN2_MDI3N
C11	LAN2_LED_LINK1G#	C12	LAN2_LED_LINK#
C13	LAN2_LED_ACT#	C14	V3P3_LAN2
MH3	GND		

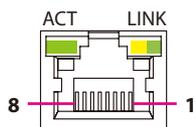
LAN2D

Pin	Definition	Pin	Definition
D1	P_LAN3_MDI0P	D2	P_LAN3_MDI0N
D3	P_LAN3_MDI1P	D4	P_LAN3_MDI1N
D5	GND	D6	NC (V1P5_LAN3)
D7	P_LAN3_MDI2P	D8	P_LAN3_MDI2N
D9	P_LAN3_MDI3P	D10	P_LAN3_MDI3N
D11	LAN3_LED_LINK1G#	D12	LAN3_LED_LINK#
D13	LAN3_LED_ACT#	D14	V3P3_LAN3
MH4	GND	MH5	GND

LAN9 to LAN16 Ports

Connector type: RJ45 with LEDs

Connector location: LAN3A, LAN3B, LAN4C and LAN4D



Act	Status
Flashing Green	Data activity
Off	No activity

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

LAN3A

Pin	Definition	Pin	Definition
A1	LAN4_MDI0P	A2	LAN4_MDI0N
A3	LAN4_MDI1P	A4	LAN4_MDI1N
A5	LAN4_A5 (V1P5_LAN4)	A6	LAN4_A6
A7	LAN4_MDI2P	A8	LAN4_MDI2N
A9	LAN4_MDI3P	A10	LAN4_MDI3N
A11	LAN4_LED_LINK1G#	A12	LAN4_LED_LINK#
A13	LAN4_LED_PIN13	A14	LAN4_LED_PIN14
MH1	CGND		

LAN3B

Pin	Definition	Pin	Definition
B1	LAN5_MDI0P	B2	LAN5_MDI0N
B3	LAN5_MDI1P	B4	LAN5_MDI1N
B5	LAN5_B5 (V1P5_LAN5)	B6	LAN5_B6
B7	LAN5_MDI2P	B8	LAN5_MDI2N
B9	LAN5_MDI3P	B10	LAN5_MDI3N
B11	LAN5_LED_LINK1G#	B12	LAN5_LED_LINK#
B13	LAN5_LED_PIN13	B14	LAN5_LED_PIN14
MH2	GND		

LAN4C

Pin	Definition	Pin	Definition
C1	LAN6_MDI0P	C2	LAN6_MDI0N
C3	LAN6_MDI1P	C4	LAN6_MDI1N
C5	GND	C6	NC (V1P5_LAN6)
C7	LAN6_MDI2P	C8	LAN6_MDI2N
C9	LAN6_MDI3P	C10	LAN6_MDI3N
C11	LAN6_LED_LINK1G#	C12	LAN6_LED_LINK#
C13	LAN6_LED_ACT#	C14	V3P3_LAN6
MH3	GND		

LAN4D

Pin	Definition	Pin	Definition
D1	LAN7_MDI0P	D2	LAN7_MDI0N
D3	LAN7_MDI1P	D4	LAN7_MDI1N
D5	GND	D6	NC (V1P5_LAN7)
D7	LAN7_MDI2P	D8	LAN7_MDI2N
D9	LAN7_MDI3P	D10	LAN7_MDI3N
D11	LAN7_LED_LINK1G#	D12	LAN7_LED_LINK#
D13	LAN7_LED_ACT#	D14	V3P3_LAN7
MH4	GND	MH5	GND

External I/O Interfaces - Rear Panel

VGA Port (Co-layout with CN1)

Connector type: DB-15 port, 15-pin D-Sub. 1x10 10-pin header, 1.0mm pitch
Connector location: CN1



CN1

Pin	Definition	Pin	Definition
1	VGA_5V_FB6	2	DDC_CLKO
3	VSYNC_VGA	4	HSYNC_VGA
5	DDC_DATAO	6	VGADET
7	VGA_GND	8	BLUE_VGA
9	GREEN_VGA	10	RED_VGA

Dual USB 2.0 Port (Co-layout with J3)

Connector type: USB 2.0 Port, Type A. 1x6 6-pin header, 2.0mm pitch
Connector location: J3



J3

Pin	Definition	Pin	Definition
1	P5V_USB_P23	2	USB2N2_C
3	USB2P2_C	4	USB2N3_C
5	USB2P3_C	6	USB23GND

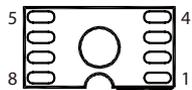
Connector Pin Definitions

Internal Connectors

BIOS Socket

Connector type: 2x4 8-pin header

Connector location: BIOS_J1

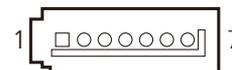


Pin	Definition	Pin	Definition
1	SPI_CS0#	2	BIOS_SO
3	BIOS_WP#	4	GND
5	P3V3_AUX	6	BIOS_HOLD#
7	BIOS_SCK	8	BIOS_SI

SATA Connectors

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

Connector location: SATA1 and SATA2

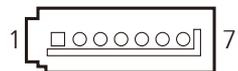


Pin	Definition	Pin	Definition
1	GND1	2	TXP
3	TXN	4	GND2
5	RXN	6	RXP
7	GND3		

SATA DOM Connector

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

Connector location: SATA3

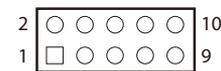


Pin	Definition	Pin	Definition
1	GND2	2	TXP
3	TXN	4	GND3
5	RXN	6	RXP
7	GND4		

GPIO Pin Header

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

Connector location: JP5



Pin	Definition	Pin	Definition
1	P3V3_AUX	2	GND
3	SIO_GPIN1	4	SIO_GPOUT1
5	SIO_GPIN2	6	SIO_GPOUT2
7	SIO_GPIN3	8	SIO_GPOUT3
9	SIO_GPIN4	10	SIO_GPOUT4

CPLD JTAG Pin Header

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

Connector location: JP3

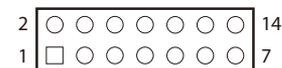


Pin	Definition	Pin	Definition
1	P3V3_CPLD	2	GND
3	JTAG_PLD_TCK	4	JTAG_PLD_TDO
5	JTAG_PLD_TDI	6	JTAG_PLD_TMS

TPM Function

Connector type: 2x7 14-pin header, 2.0mm pitch

Connector location: JP4



Pin	Definition	Pin	Definition
1	GND	2	CLK_PCI_TPM_CPLD
3	NC	4	LPC_FRAME#
5	LPC_AD2	6	RST_TPM_N
7	LPC_AD1	8	LPC_AD3
9	GND	10	LPC_AD0
11	INT_SERIRQ	12	P3V3
13	GND	14	GND

System Fan Connectors

Connector type: 1x4 4-pin Wafer, 2.54mm pitch

Connector location: CN3 (FAN1), CN4 (FAN2) and CN7 (FAN3)

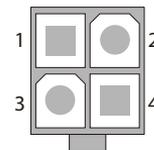


Pin	Definition
1	GND
2	P12V
3	SYSFAN_TAC_[1:3]
4	SYSFAN_CTL_[1:3]

4-Pin 12V Power Connector

Connector type: 2x2 4-pin header, 4.2mm pitch

Connector location: CON2

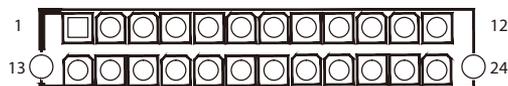


Pin	Definition
1	GND
2	GND
3	P12V
4	P12V

24-Pin ATX Power Connector

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

Connector location: CON1

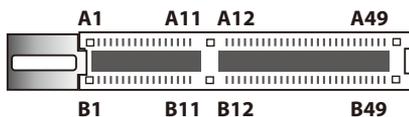


Pin	Definition	Pin	Definition
1	P3V3	2	P3V3
3	GND	4	P5V
5	GND	6	P5V
7	GND	8	PS_PWROK_R
9	P5V_AUX	10	P12V
11	P12V	12	P3V3
13	P3V3	14	NC
15	GND	16	FM_PS_EN_PSU_N
17	GND	18	GND
19	GND	20	NC
21	P5V	22	P5V
23	P5V	24	GND

PCIe x8 Slot

Connector type: PCIe x8 Slot

Connector location: CN6



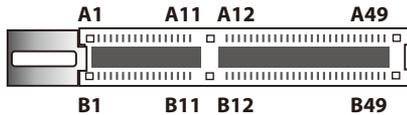
Pin	Definition	Pin	Definition
A1	GND	B1	P12V
A2	P12V	B2	P12V
A3	P12V	B3	P12V
A4	GND	B4	GND
A5	SMBDAT_TX_REDRIVER_SLOT0	B5	SMB_CLK_SLOT
A6	SMBCLK_TX_REDRIVER_SLOT0	B6	SMB_DAT_SLOT
A7	NA	B7	GND
A8	NA	B8	VCC3
A9	VCC3	B9	PD_SLOT0_JAG1 (GND)
A10	VCC3	B10	P3V3_AUX
A11	PCIE_SLOT0_RST_N	B11	WAKE_N
A12	GND	B12	NC
A13	CLK_PCIE_X8_SLOT0_P	B13	GND
A14	CLK_PCIE_X8_SLOT0_N	B14	PE_PCH_X8_TXP0
A15	GND	B15	PE_PCH_X8_TXN0
A16	REP_SLOT0_RXOP	B16	GND
A17	REP_SLOT0_RXON	B17	PD_PCIE0_1_PRESENT_L
A18	GND	B18	GND
A19	NC	B19	PE_PCH_X8_TXP1
A20	GND	B20	PE_PCH_X8_TXN1

Pin	Definition	Pin	Definition
A21	REP_SLOT0_RX1P	B21	GND
A22	REP_SLOT0_RX1N	B22	GND
A23	GND	B23	PE_PCH_X8_TXP2
A24	GND	B24	PE_PCH_X8_TXN2
A25	REP_SLOT0_RX2P	B25	GND
A26	REP_SLOT0_RX2N	B26	GND
A27	GND	B27	PE_PCH_X8_TXP3
A28	GND	B28	PE_PCH_X8_TXN3
A29	REP_SLOT0_RX3P	B29	GND
A30	REP_SLOT0_RX3N	B30	NC
A31	GND	B31	PD_PCIE0_2_PRESENT_L
A32	NC	B32	GND
A33	NC	B33	PE_PCH_X8_TXP4
A34	GND	B34	PE_PCH_X8_TXN4
A35	REP_SLOT0_RX4P	B35	GND
A36	REP_SLOT0_RX4N	B36	GND
A37	GND	B37	PE_PCH_X8_TXP5
A38	GND	B38	PE_PCH_X8_TXN5
A39	REP_SLOT0_RX5P	B39	GND
A40	REP_SLOT0_RX5N	B40	GND
A41	GND	B41	PE_PCH_X8_TXP6
A42	GND	B42	PE_PCH_X8_TXN6
A43	REP_SLOT0_RX6P	B43	GND
A44	REP_SLOT0_RX6N	B44	GND
A45	GND	B45	PE_PCH_X8_TXP7
A46	GND	B46	PE_PCH_X8_TXN7
A47	REP_SLOT0_RX7P	B47	GND
A48	REP_SLOT0_RX7N	B48	NC
A49	GND	B49	GND

PCIe x8 Slot (For Rear Side)

Connector type: PCIe x8 Slot

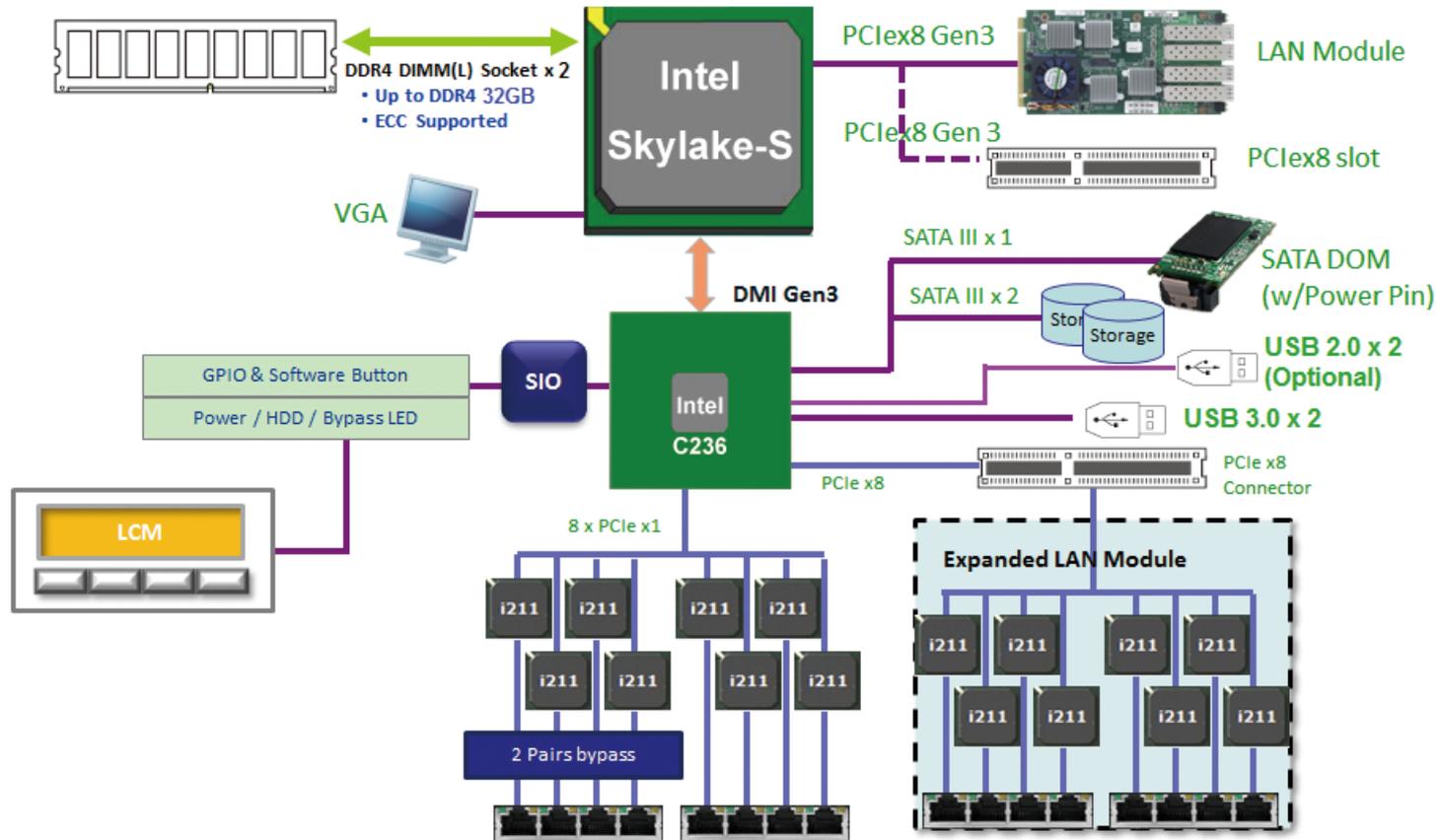
Connector location: CN5



Pin	Definition	Pin	Definition
A1	GND	B1	P12V
A2	P12V	B2	P12V
A3	P12V	B3	P12V
A4	GND	B4	GND
A5	NC	B5	SMB_CLK_SLOT
A6	NC	B6	SMB_DAT_SLOT
A7	NC	B7	GND
A8	NC	B8	P3V3
A9	P3V3	B9	PD_SLOT1_JAG1 (GND)
A10	P3V3	B10	P3V3_AUX
A11	PCIE_SLOT1_RST_N	B11	WAKE_N
A12	GND	B12	NC
A13	CLK_PCIE_X8_SLOT1_P	B13	GND
A14	CLK_PCIE_X8_SLOT1_N	B14	REP_SLOT1_TX0P
A15	GND	B15	REP_SLOT1_TX0N
A16	REP_SLOT1_RX0P	B16	GND
A17	REP_SLOT1_RX0N	B17	PD_PCIE1_1_PRESENT_L
A18	GND	B18	GND
A19	NC	B19	REP_SLOT1_TX1P
A20	GND	B20	REP_SLOT1_TX1N
A21	REP_SLOT0_RX1P	B21	GND

Pin	Definition	Pin	Definition
A22	REP_SLOT1_RX1N	B22	GND
A23	GND	B23	REP_SLOT1_TX2P
A24	GND	B24	REP_SLOT1_TX2N
A25	REP_SLOT1_RX2P	B25	GND
A26	REP_SLOT1_RX2N	B26	GND
A27	GND	B27	REP_SLOT1_TX3P
A28	GND	B28	REP_SLOT1_TX3N
A29	REP_SLOT1_RX3P	B29	GND
A30	REP_SLOT1_RX3N	B30	NC
A31	GND	B31	PD_PCIE1_2_PRESENT_L
A32	NC	B32	GND
A33	NC	B33	REP_SLOT1_TX4P
A34	GND	B34	REP_SLOT1_TX4N
A35	REP_SLOT1_RX4P	B35	GND
A36	REP_SLOT1_RX4N	B36	GND
A37	GND	B37	REP_SLOT1_TX5P
A38	GND	B38	REP_SLOT1_TX5N
A39	REP_SLOT1_RX5P	B39	GND
A40	REP_SLOT1_RX5N	B40	GND
A41	GND	B41	REP_SLOT1_TX6P
A42	GND	B42	REP_SLOT1_TX6N
A43	REP_SLOT1_RX6P	B43	GND
A44	REP_SLOT1_RX6N	B44	GND
A45	GND	B45	REP_SLOT1_TX7P
A46	GND	B46	REP_SLOT1_TX7N
A47	REP_SLOT1_RX7P	B47	GND
A48	REP_SLOT1_RX7N	B48	NC
A49	GND	B49	GND

Block Diagram



CHAPTER 3: SYSTEM SETUP

Removing the Chassis Cover

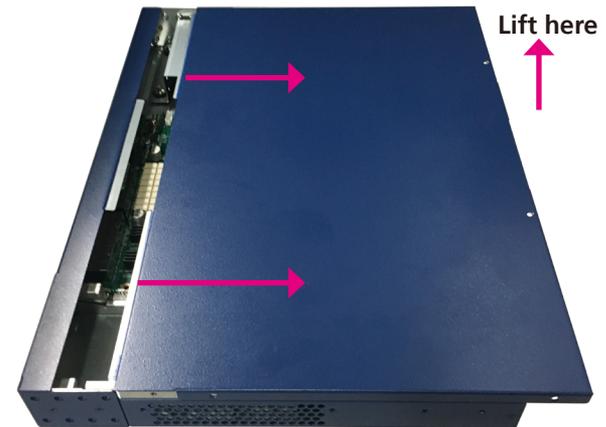


Prior to removing the chassis cover, make sure the unit's power is off and disconnected from the power sources to prevent electric shock or system damage.

1. Remove the screws on the chassis cover then put them in a safe place for later use.

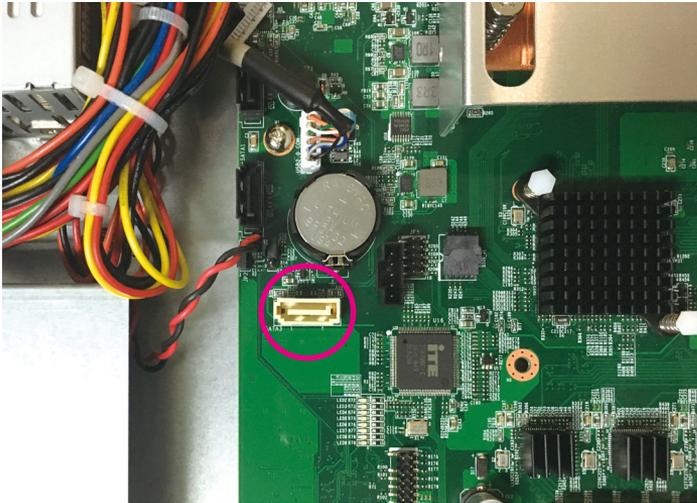


2. Gently slide the cover outwards, then lift up the cover to remove it.

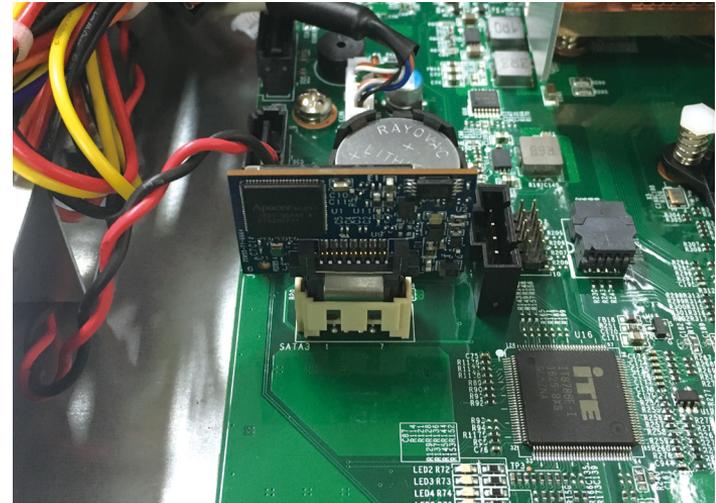


Installing a SATA DOM

1. Locate the SATA DOM connector on the board.

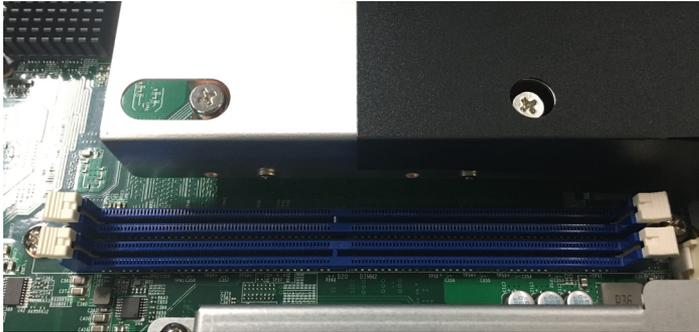


2. Install the SATA DOM module to the connector.

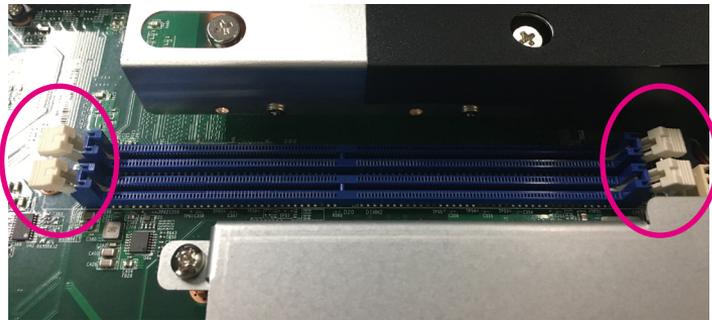


Installing DIMM Memory Modules

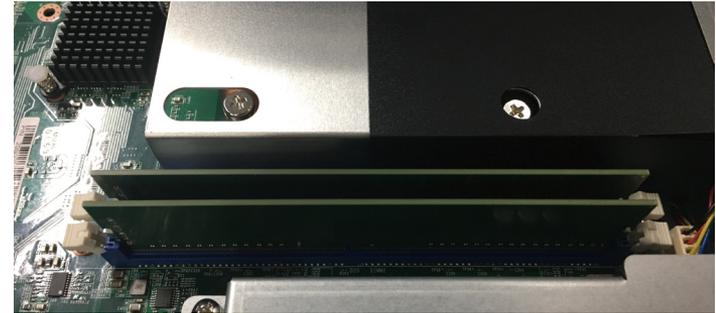
1. Locate the DIMM sockets on the board.



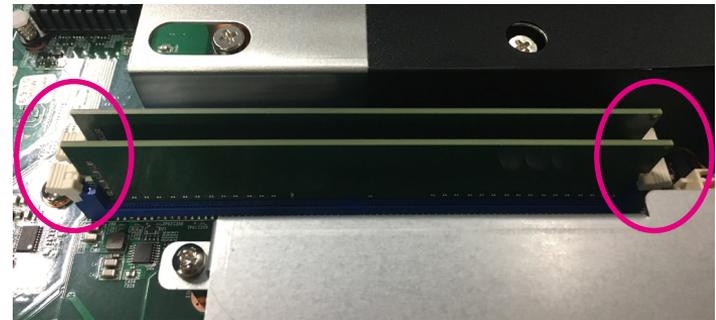
2. Release the locks on the DIMM sockets.



3. Insert the modules into the socket at a 90 degree angle. Apply firm even pressure to each end of the modules until they slip into the socket.



4. While pushing the modules into position, the lock will close automatically.

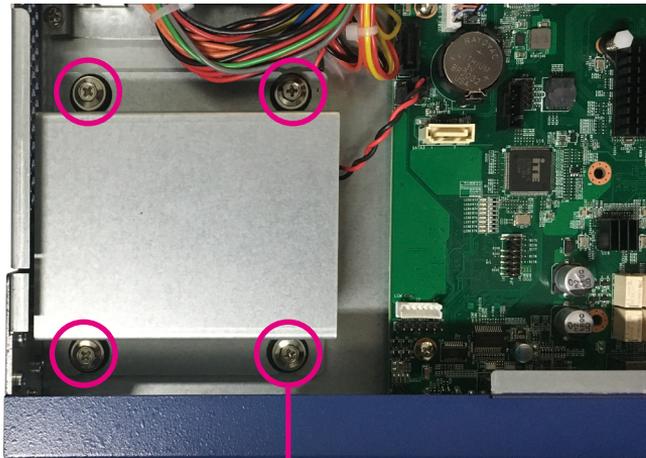


Installing a 2.5" SATA Hard Drive



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

1. Remove the mounting screws that secure the hard drive bracket to the chassis.



Mounting screw

2. Place the SATA hard drive into the hard drive bracket with the SATA connector facing outwards.



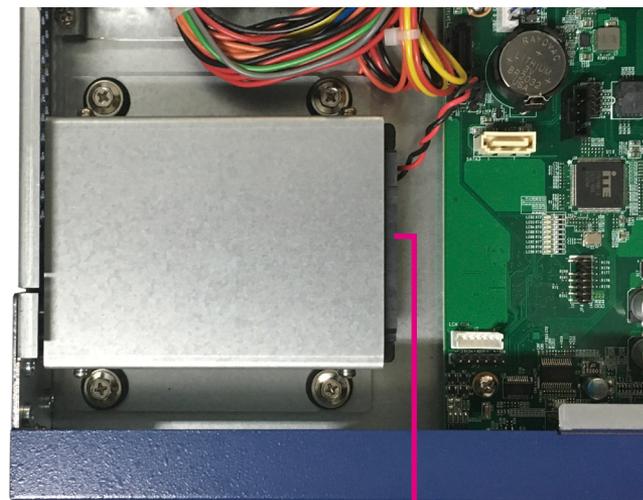
SATA data and power connector

- Align the mounting holes that are on the sides of the SATA drive with the mounting holes on the hard drive bracket. Then use the provided mounting screws to secure the SATA drive in place.



- Repeat step 3 for securing the screws on the other side of the hard drive bracket.

- Place the drive into the chassis with the connector side facing the board, and then use the provided mounting screws to secure the hard drive bracket in place.



Connector side

6. Locate the SATA data connector on the board.



SATA data connector

7. Plug the SATA data cable onto the connector, then plug the other end to the SATA data connector on the hard drive.



SATA data cable

SATA data connector

8. Plug the SATA power cable to the SATA power connector on the hard drive.



SATA power cable

Installing a LAN Module

The system is equipped with 1 LAN module bay. To install a LAN module, please follow the instructions below.



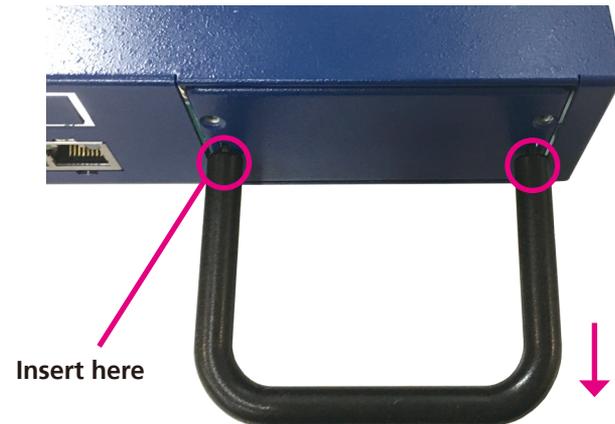
Please correctly follow the below instructions and noted items to avoid making unnecessary damages. Make sure the power supply is switched off and disconnected from the power sources before replacing or adding LAN modules to prevent electric shock or system damage.

1. Remove the screw on the cover plate of the LAN module then put them in a safe place for later use.



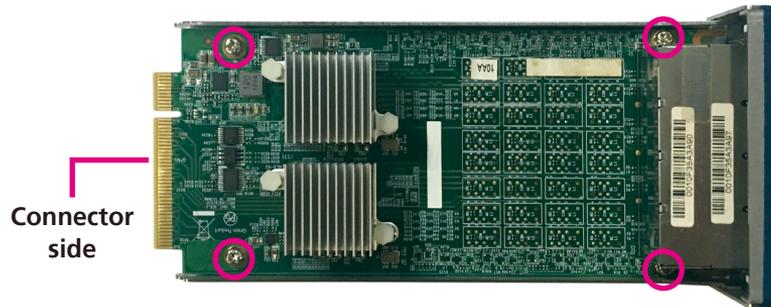
Mounting screw

2. Use the handle provided, and insert the handle into the two holes on the LAN module cover.



3. Once the handle is firmly secured in position, pull the handle outwards to remove the LAN module tray.

- Place the LAN module into the tray making sure the connector side of the module is at the rear side of the tray.



Important:

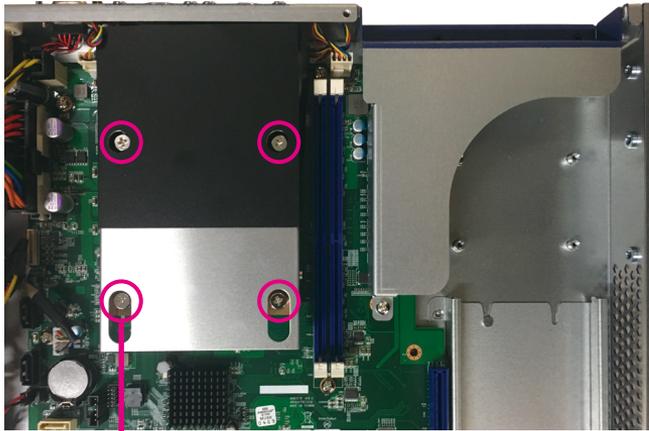
Before using Optical fiber for transferring data, make sure you have connected an approved Optical Transceiver Module. User needs to install appropriate and UL approved Laser Class I Transceivers, rated 3.3Vdc, max. 1W.

- Secure the module in place with screws, and slide the tray back into the bay.



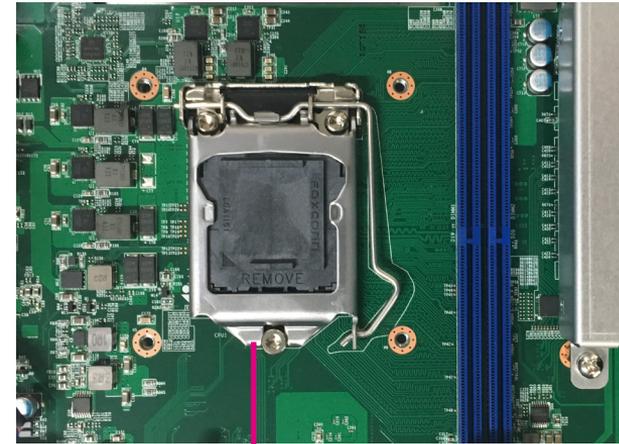
Installing a CPU

1. Remove the mounting screws that secure the heat sink to the chassis.



Mounting screw

2. The CPU socket is readily accessible after you have removed the heat sink.

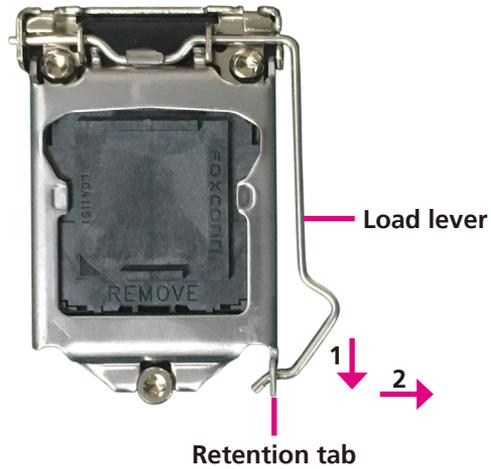


CPU socket



- Before you proceed, make sure (1) the CPU socket comes with a protective cap, (2) the cap is not damaged and (3) the socket's contact pins are not bent.
- Make sure all power cables are unplugged before you install the CPU.
- The CPU socket must not come in contact with anything other than the CPU. Avoid unnecessary exposure. Remove the protective cap only when you are about to install the CPU.

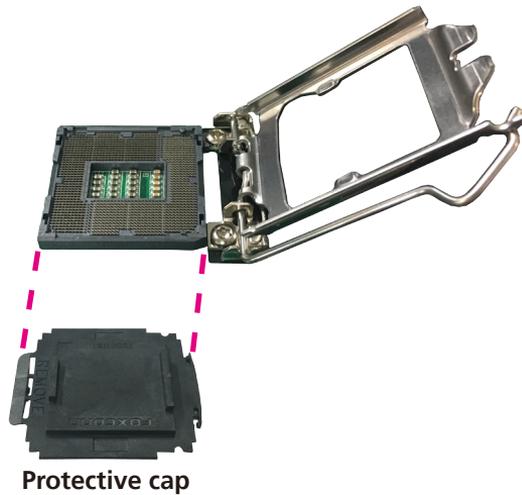
3. Unlock the socket by pushing the load lever down (1), moving it sideways (2) until it is released from the retention tab; then lift the load lever up.



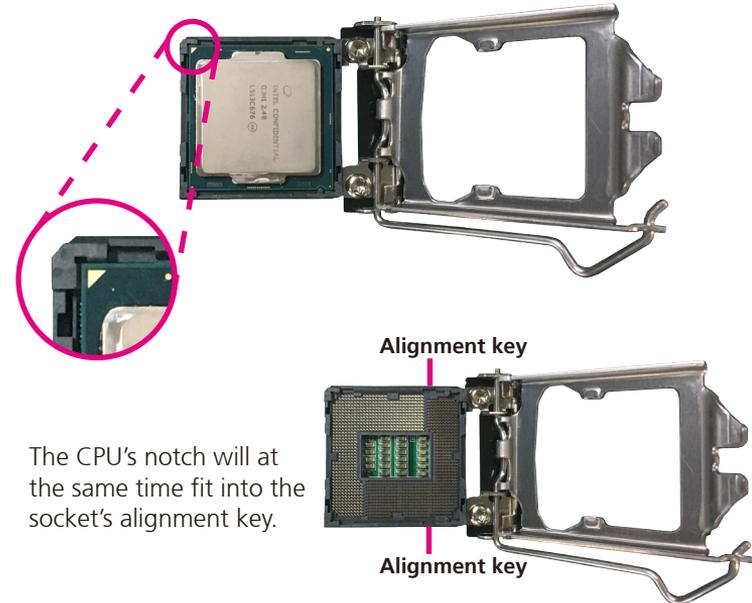
4. Lifting the load lever will at the same time lift the load plate.



5. Remove the protective cap from the CPU socket. The cap is used to protect the CPU socket against dust and harmful particles. Remove the protective cap only when you are about to install the CPU.



6. Insert the CPU into the socket. The triangular edge on the CPU must align with the corner of the CPU socket shown on the photo.



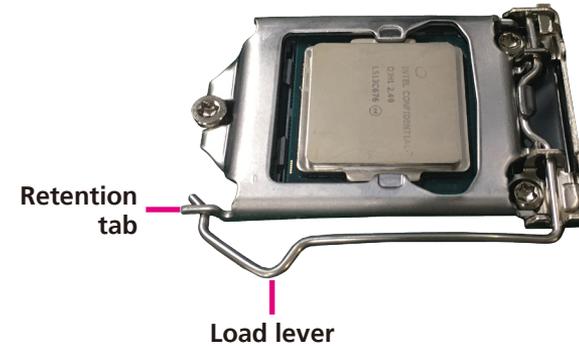
- Handle the CPU by its edges and avoid touching the pins.
- The CPU will fit in only one orientation and can easily be inserted without exerting any force.

7. Close the load plate and then push the load lever down.

While closing the load plate, make sure the front edge of the load plate slides under the retention knob.

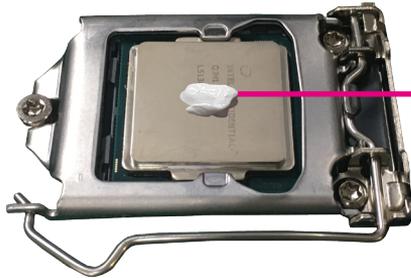


8. Hook the load lever under the retention tab.



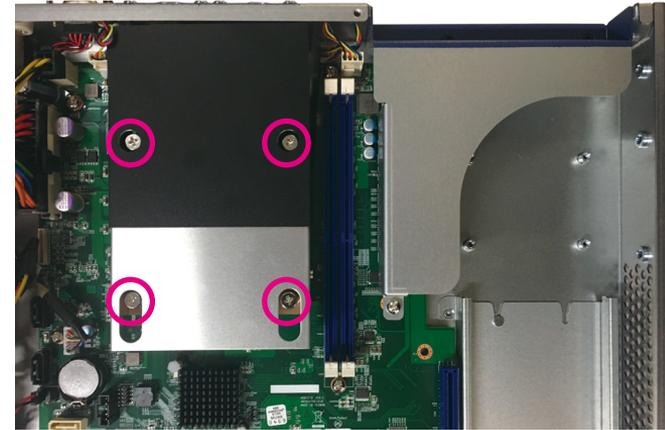
Do not force the CPU into the socket. Forcing the CPU into the socket may bend the pins and damage the CPU.

9. Apply thermal compound on top of the CPU. Do not spread the compound all over the surface. When you later place the heat sink on top of the CPU, the compound will disperse evenly.



Thermal compound on the CPU

10. Tighten the screws to secure the heat sink in place.



CHAPTER 4: BIOS SETUP

This chapter describes how to use the BIOS setup program for the NSA 3170 series. The BIOS screens provided in this chapter are for reference only and may change if the BIOS is updated in the future.

To check for the latest updates and revisions, visit the NEXCOM 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.

Legends

Key	Function
	Moves the highlight left or right to select a menu.
	Moves the highlight up or down between sub-menu 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

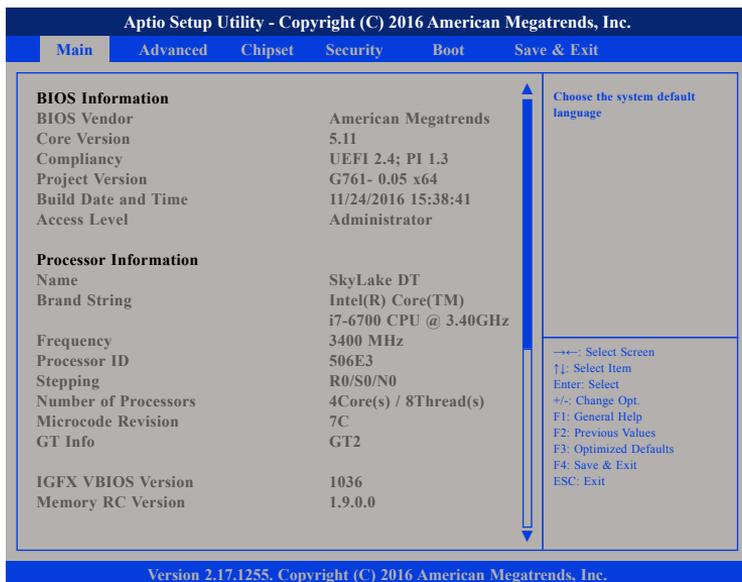
When “▶” appears on the left of a particular field, it indicates that a submenu which contains additional options are available for that field. To display the submenu, move the highlight to that field and press  .

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) 2016 American Megatrends, Inc.	
Main Advanced Chipset Security Boot Save & Exit	
BIOS Information	
BIOS Vendor	American Megatrends
Core Version	5.11
Compliance	UEFI 2.4; PI 1.3
Project Version	G761- 0.05 x64
Build Date and Time	11/24/2016 15:38:41
Access Level	Administrator
Processor Information	
Name	SkyLake DT
Brand String	Intel(R) Core(TM)
	i7-6700 CPU @ 3.40GHz
Frequency	3400 MHz
Processor ID	506E3
Stepping	R0/S0/N0
Number of Processors	4Core(s) / 8Thread(s)
Microcode Revision	7C
GT Info	GT2
IGFX VBIOS Version	1036
Memory RC Version	1.9.0.0
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Aptio Setup Utility - Copyright (C) 2016 American Megatrends, Inc.	
Main Advanced Chipset Security Boot Save & Exit	
Total Memory	16384 MB
Memory Frequency	2133 MHz
PCH Information	
Name	SKL PCH-H
PCH SKU	PCH-H Desktop H110 SKU
Stepping	31/D1
ME FW Version	11.0.0.1202
ME Firmware SKU	Corporate SKU
System Language	[English]
System Date	[Fri 01/01/2016]
System Time	[21:54:03]
Version 2.17.1255. Copyright (C) 2016 American Megatrends, Inc.	

System Language

Selects the language of the system.

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.



Trusted Computing

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

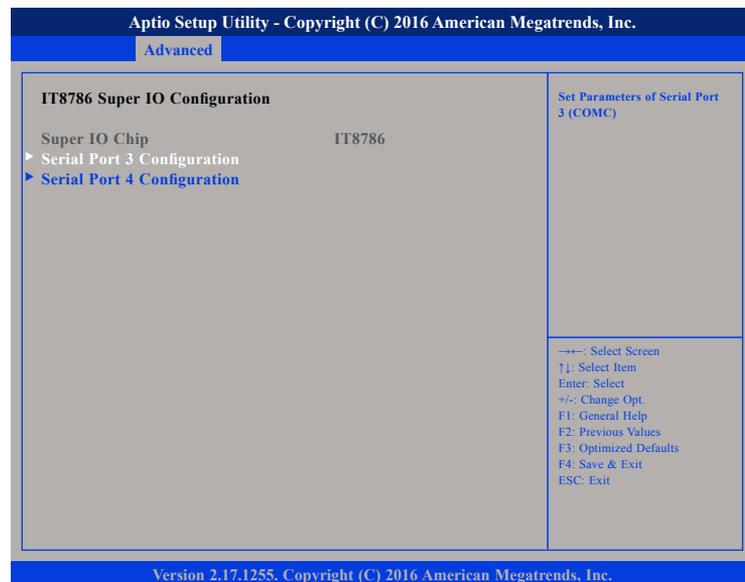


Security Device Support

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.

IT8786 Super IO Configuration

This section is used to configure the serial ports.



Super IO Chip

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

Serial Port 3 Configuration

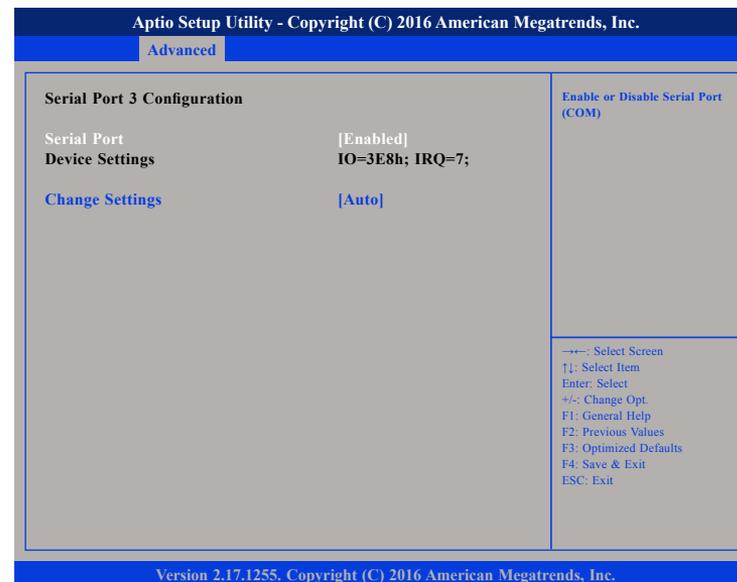
Configuration settings for serial port 3.

Serial Port 4 Configuration

Configuration settings for serial port 4.

Serial Port 3 Configuration

This section is used to configure serial port 3.



Serial Port

Enables or disables the serial port.

Change Settings

Selects an optimal setting for the Super IO device.

Serial Port 4 Configuration

This section is used to configure serial port 4.



Serial Port

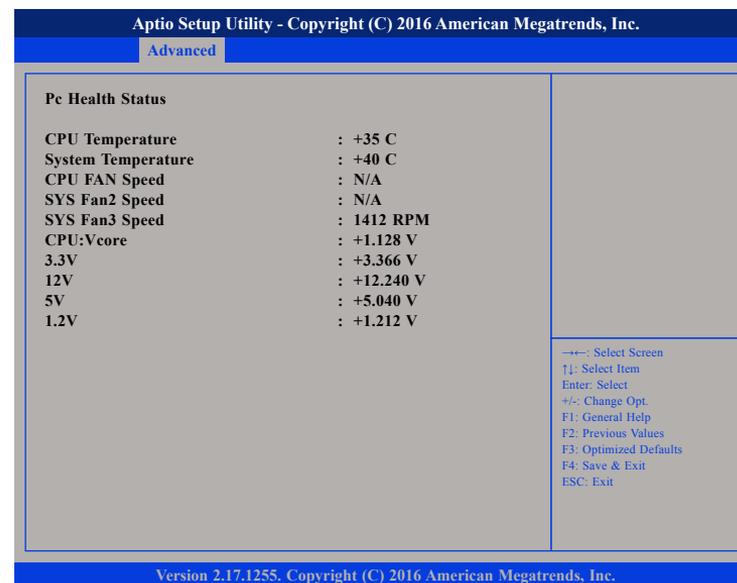
Enables or disables the serial port.

Change Settings

Selects an optimal setting for the Super IO device.

Hardware Monitor

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



CPU and System Temperature

Detects and displays the current CPU and system temperature.

CPU FAN Speed

Detects and displays the current CPU fan speed.

SYS Fan2 and Fan3 Speed

Detects and displays the current system fan2 and fan3 speed.

CPU:Vcore to 1.2V

Detects and displays the output voltages.

Serial Port Console Redirection

This section is used to configure the serial port that will be used for console redirection.



Console Redirection (COM0/COM1/EMS)

Enables or disables console redirection for COM0/COM1/EMS.

Console Redirection Settings (COM1)

Specifies how the host computer and the remote computer (which the user is using) will exchange data. Both computers should have the same or compatible settings.



Terminal Type

- ANSI Extended ASCII character set.
- VT100 ASCII character set.
- VT100+ Extends VT100 to support color, function keys, etc.
- VT-UTF8 Uses UTF8 encoding to map Unicode characters onto 1 or more bytes.

Bits Per Second

Selects the serial port transmission speed. The speed must match the other side. Long or noisy lines may require a lower speed.

Data Bits

The options are 7 and 8.

Parity

A parity bit can be sent with the data bits to detect some transmission errors.

Even Parity bit is 0 if the number of 1's in the data bits is even.

Odd Parity bit is 0 if number of 1's in the data bits is odd.

Stop Bits

Stop bits indicate the end of a serial data packet. (A start bit indicates the beginning). The standard setting is 1 stop bit. Communication with slow devices may require more than 1 stop bit.

Flow Control

Flow control can prevent data loss from buffer overflow. When sending data and the receiving buffers are full, a "stop" signal can be sent to stop the data flow.

VT-UTF8 Combo Key Support

Enables or disables VT-UTF8 combo key support.

Recorder Mode

When this field is enabled, only text will be sent. This is to capture the terminal data.

Resolution 100x31

Enables or disables extended terminal resolution.

Legacy OS Redirection

Selects the number of rows and columns that support redirection.

Putty Keypad

Selects the Putty keyboard emulation type.

Redirection After BIOS POST

Enables or disables redirection after BIOS POST.

Serial Port for Out-of-Band Management



Out-of-Band Mgmt Port

Configures the out-of-band management port. Microsoft Windows Emergency Management Services (EMS) allows for remote management of a Windows Server OS via a serial port.

Terminal Type

- ANSI Extended ASCII character set.
- VT100 ASCII character set.
- VT100+ Extends VT100 to support color, function keys, etc.
- VT-UTF8 Uses UTF8 encoding to map Unicode characters onto 1 or more bytes.

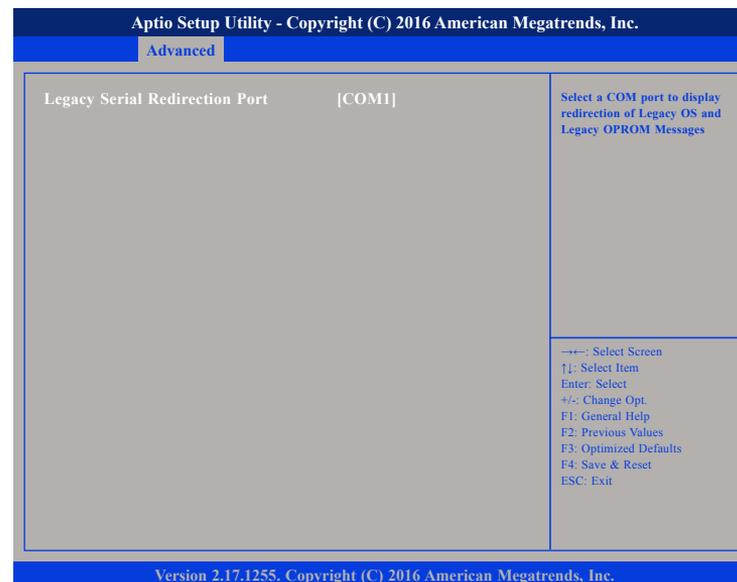
Bits Per Second

Selects the serial port transmission speed. The speed must match the other side. Long or noisy lines may require a lower speed.

Flow Control

Flow control can prevent data loss from buffer overflow. When sending data and the receiving buffers are full, a “stop” signal can be sent to stop the data flow.

Legacy Console Redirection Settings



Legacy Serial Redirection Port

Configures the COM port to display redirection of legacy OS and legacy OPROM messages.

CPU Configuration

This section is used to configure the CPU.

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Advanced

CPU Configuration

Intel(R) Core(TM) i7-6700 CPU @ 3.40GHz

CPU Signature	506E3
Microcode Patch	7C
Max CPU Speed	3400 MHz
Min CPU Speed	800 MHz
CPU Speed	3400 MHz
Processor Cores	4
Hyper-Threading Technology	Supported
Intel VT-x Technology	Supported
Intel SMX Technology	Supported
64-bit	Supported
EIST Technology	Supported
CPU C3 state	Supported
CPU C6 state	Supported
CPU C7 state	Supported
CPU C8 state	Supported
CPU C9 state	Not Supported
CPU C10 state	Not Supported

Enabled for Windows XP and Linux (OS optimized for Hyper-Threading Technology) and Disabled for other OS (OS not optimized for Hyper-Threading Technology). When Disabled only one thread per enabled core is enabled.

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

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Hyper-Threading

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

Intel® Virtualization Technology

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

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Advanced

CPU C6 state	Supported
CPU C7 state	Supported
CPU C8 state	Supported
CPU C9 state	Not Supported
CPU C10 state	Not Supported
L1 Data Cache	32 kB x 4
L1 Code Cache	32 kB x 4
L2 Cache	256 kB x 4
L3 Cache	8 MB
L4 Cache	Not Present
Hyper-threading	[Enabled]
Intel Virtualization Technology	[Enabled]
Hardware Prefetcher	[Enabled]
Intel(R) SpeedStep(tm)	[Disabled]
CPU C states	[Disabled]

Enable or disable CPU C states

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

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Hardware Prefetcher

Turns on or off the MLC streamer prefetcher.

Intel® SpeedStep™

Enables or disables Intel SpeedStep.

CPU C States

Enables or disables CPU C-States support for power saving. It is recommended to keep C3, C6 and C7 all enabled for better power saving.

SATA Configuration

This section is used to configure the SATA drives.



SATA Controller(s)

Enables or disables the SATA controller.

SATA Mode Selection

Configures the SATA mode.

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.



Port 0, Port 2 and Port 3

Enables or disables SATA port 0, port 2 and port 3.

Hot Plug

Enables or disables hot plugging feature on SATA port 0, port 2 and port 3.

External SATA

Enables or disables the external SATA option on SATA port 0, port 2 and port 3.

Spin Up Device

Enables or disables staggered spin up on devices connected to SATA port 0, port 2 and port 3.

SATA Device Type

Identifies what type of SATA device is connected.

Topology

Identifies what type of SATA connection is used.

Device Sleep

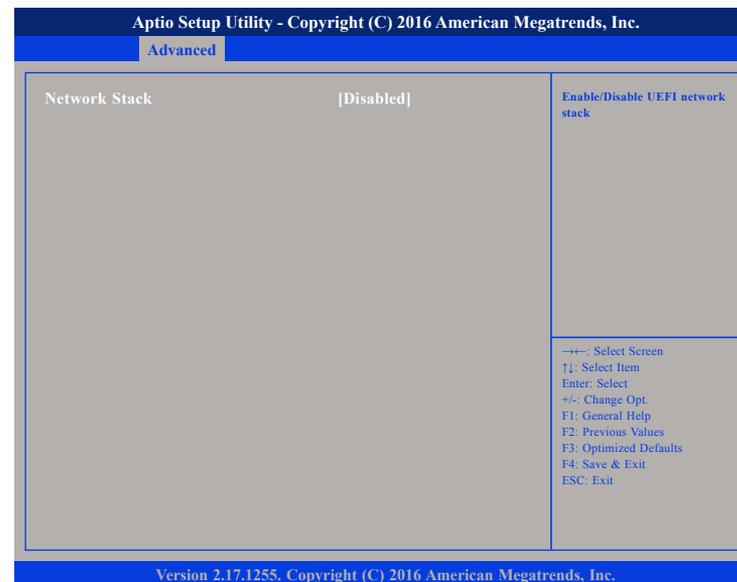
Enables or disables SATA device sleep support.

SATA DEVSLEP Idle Timeout Config

Enables or disables SATA DEVSLEP Idle Timeout Config.

Network Stack Configuration

This section is used to configure the network stack.



Network Stack

Enables or disables UEFI network stack.

CSM Configuration

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



CSM Support

This field is used to enable or disable CSM support, if Auto option is selected, based on OS, CSM will be enabled or disabled automatically.

Boot Option Filter

Configures which devices the system will boot from.

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

Configures the OpROM execution policy for devices other than Network, Storage or Video.

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.

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.

USB Mass Storage Driver Support

Enables or disables USB mass storage device driver support.

Port 60/64 Emulation

Enables I/O port 60h/64h emulation support. This should be enabled for complete USB keyboard legacy support for non-USB aware OS.

USB Transfer Time-out

The time-out value for control, bulk, and Interrupt transfers.

Device Reset Time-out

Selects the USB mass storage device's start unit command timeout.

Device Power-up Delay

Maximum time the value will take before it properly reports itself to the Host Controller. "Auto" uses default value: for a Root port it is 100 ms, for a Hub port the delay is taken from Hub descriptor.

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.



System Agent (SA) Configuration

Enters the System Agent (SA) parameters sub-menu.

PCH-IO Configuration

Enters the PCH parameters sub-menu.

System Agent (SA) Configuration



VT-d

Enables or disables VT-d function on MCH.

Graphics Configuration

Configures the graphics chip settings.

PEG Port Configuration

Configures the PEG Port settings.

Memory Configuration

Configures the memory settings.

Graphics Configuration

Aptio Setup Utility - Copyright (C) 2016 American Megatrends, Inc.	
Chipset	
Graphics Configuration	
IGFX VBIOS Version	1036
Graphics Turbo IMON Current	31
Internal Graphics	[Auto]
GTT Size	[8MB]
Aperture Size	[256MB]
DVMT Total Gfx Mem	[256M]
Graphics turbo IMON current values supported (14-31)	
←→: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit	
Version 2.17.1255. Copyright (C) 2016 American Megatrends, Inc.	

Graphics Turbo IMON Current

Configures the graphics turbo IMON value. The supported range is 14 to 31.

Internal Graphics

Keep IGD enabled based on the setup options.

GTT Size

Configures the GTT memory size.

Aperture Size

Configures the Aperture size.

DVMT Total Gfx Mem

Configures the DVMT 5.0 Total Graphic Memory size used by the IGD.

PEG Port Configuration

Aptio Setup Utility - Copyright (C) 2016 American Megatrends, Inc.	
Chipset	
PEG Port Configuration	
PEG 0:1:0	Not Present
Enable Root Port	[Enabled]
Max Link Speed	[Auto]
PEG 0:1:1	Not Present
Enable Root Port	[Enabled]
Max Link Speed	[Auto]
PEG 0:1:2	Not Present
Enable Root Port	[Enabled]
Max Link Speed	[Auto]
Enable or Disable the Root Port	
←→: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit	
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Enable Root Port (PEG 0:1:0, 0:1:1 and 0:1:2)

Enables or disables the root port.

Max Link Speed (PEG 0:1:0, 0:1:1 and 0:1:2)

Configures the maximum link speed of the PEG device.

Memory Configuration

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Chipset

Memory Information	
Memory RC Version	1.9.0.0
Memory Frequency	2133 Mhz
Total Memory	16384 MB
VDD	1200
DIMM#0	16384 MB
DIMM#1	Not Present
Memory Timings (tCL-tRCD-tRP-tRAS)	15-35
Maximum Memory Frequency	[Auto]

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

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Maximum Memory Frequency

Configures the maximum frequency of the memory.

PCH-IO Configuration

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Chipset

Intel PCH RC Version	1.9.0.0	NETWORK CONFIGURATION
Intel PCH SKU Name	PCH-H Desktop H110 SKU	
Intel PCH Rev ID	31/D1	
▶ NETWORK CONFIGURATION		
State After G3	[Last State]	
Power Supply Type	ATX	

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

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Network Configuration

Enters the network configuration sub-menu.

State After G3

Configures the PCH state after G3.

Network Configuration

Aptio Setup Utility - Copyright (C) 2016 American Megatrends, Inc.		
Chipset		
Slot1 Model Name:	Device is Not Found	NETWORK CONFIGURATION
Power_ON ByPass Mode	[Disabled]	
Power_OFF ByPass Mode	[Disabled]	
		→←: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.17.1255. Copyright (C) 2016 American Megatrends, Inc.		

Power_ON ByPass Mode

Enables or disables the LAN module bypass mode after the system powers on.

Power_OFF ByPass Mode

Enables or disables the LAN module bypass mode after the system powers off.

Security

Aptio Setup Utility - Copyright (C) 2016 American Megatrends, Inc.					
Main	Advanced	Chipset	Security	Boot	Save & Exit
Password Description			Set Administrator Password		
If ONLY the Administrator's password is set, then this only limits access to Setup and is only asked for when entering Setup. If ONLY the User's password is set, then this is a power on password and must be entered to boot or enter Setup. In Setup the User Will have Administrator rights. The password length must be in the following range:					
Minimum length			3		
Maximum length			20		
Administrator Password					
User Password					
		→←: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit			
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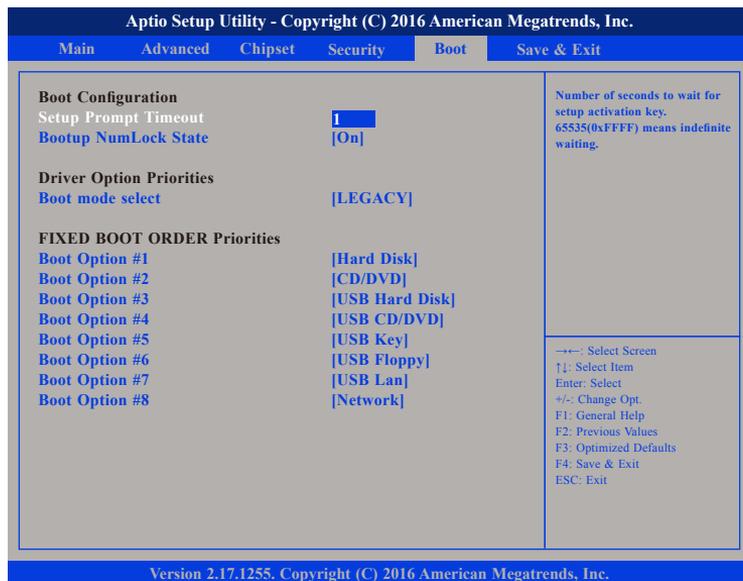
Administrator Password

Select this to reconfigure the administrator's password.

User Password

Select this to reconfigure the user's password.

Boot



Setup Prompt Timeout

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

Bootup NumLock State

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

Boot Mode Select

Configures the boot mode option.

Fixed Boot Order 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 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.

Launch EFI Shell from Filesystem Device

To launch EFI shell from a filesystem device, select this field and press <Enter>.