



NEXCOM International Co., Ltd.

# **Network and Communication Solutions**

## **Network Security Appliance**

### **DNA 1170 Series**

#### User Manual

# CONTENTS

## Preface

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

## Chapter 1: Product Introduction

Overview .....	1
Key Features .....	1
Hardware Specifications .....	2
Knowing Your DNA 1170 .....	3
Front Panel .....	3
Rear Panel .....	3
Rear Panel .....	4

LED Indicators .....	5
LED Indicators .....	6

## Chapter 2: Jumpers and Connectors

Before You Begin .....	5
Precautions .....	5
Jumper Settings .....	6
Locations of the Jumpers and Connectors .....	7
Jumpers .....	8
RTC Clear .....	8
CMOS Clear .....	8
Connector Pin Definitions .....	9
External I/O Interfaces .....	9
DC In Jack .....	9
Power Button .....	9
Reset Button .....	10
USB 3.0 Ports .....	10
RJ45 Console Port .....	11
RJ45 Management Port .....	11
SFP+ Connectors .....	12
RJ45 LAN Port .....	12
USB 3.0 Port .....	13
Internal Connectors .....	14
CPLD_GPIO connector .....	14
M.2 Key M SATA SSD Connector .....	14
SATA Connectors .....	16



FAN Connector .....	16
SATA Power Connector .....	17
CPLD JTAG Header .....	17
TPM Connector .....	18
CPLD Remote Update Connector .....	18
SMB1 UART Connector .....	19
ME Recover Connector .....	19
MCU Pin .....	20
Block Diagram .....	21

### Chapter 3: System Setup

Removing the Chassis Cover .....	24
Installing a SO-DIMM Memory Module .....	25
Installing a M.2 Storage Module .....	26

### Chapter 4: BIOS Setup

About BIOS Setup .....	33
When to Configure the BIOS .....	33
Default Configuration .....	34
Entering Setup .....	34
Legends .....	34
BIOS Setup Utility .....	36
Main .....	36
Advanced .....	37
Platform Configuration .....	45
Socket Configuration .....	50
Security .....	55
Boot .....	56
Save & Exit .....	57

# PREFACE

## Copyright

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

## Disclaimer

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

## Acknowledgements

DNA 1170 series is a trademark of NEXCOM International Co., Ltd. All other product names mentioned herein are registered trademarks of their respective owners.

## Regulatory Compliance Statements

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

## Declaration of Conformity

### FCC

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

### CE

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



## RoHS Compliance



### **NEXCOM RoHS Environmental Policy and Status Update**

NEXCOM is a global citizen for building the digital infrastructure. We are committed to providing green products and services, which are compliant with European Union RoHS (Restriction on Use of Hazardous Substance in Electronic Equipment) directive 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](http://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, Zhongzheng Rd.,  
Zhonghe District, New Taipei City, 23586,  
Taiwan, R.O.C.  
Tel: +886-2-8226-7786  
Fax: +886-2-8226-7782  
www.nexcom.com

### Asia

#### **Taiwan**

#### **NexAIoT Headquarters**

#### **Industry 4.0 and Cloud Services**

12F, No.922, Zhongzheng Rd.,  
Zhonghe District, New Taipei City,  
23586, Taiwan, R.O.C.  
Tel: +886-2-8226-7796  
Fax: +886-2-8226-7926  
Email: sales@nexaiot.com  
www.nexaiot.com

#### **NexAIoT Co., Ltd.**

#### **Taichung Office**

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

#### **NexCOBOT Taiwan Co., Ltd.**

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

#### **GreenBase Technology Corp.**

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

#### **DivioTec Inc.**

19F-1A, No.97, Sec.4, ChongXin Rd.,  
Sanhong District,  
New Taipei City, 24161, Taiwan, R.O.C.  
Tel: +886-2-8976-3077  
Email: sales@diviotec.com  
www.diviotec.com

#### **AIoT Cloud Corp.**

13F, No.922, Zhongzheng Rd.,  
Zhonghe District,  
New Taipei City, 23586, Taiwan, R.O.C.  
Tel: +886-2-8226-7786  
Fax: +886-2-8226-7782  
Email: alantsai@aiotcloud.net  
www.aiotcloud.dev

#### **EMBUX TECHNOLOGY CO., LTD.**

13F, No.916, Zhongzheng Rd.,  
Zhonghe District,  
New Taipei City, 23586, Taiwan, R.O.C.  
Tel: +886-2-8226-7786  
Fax: +886-2-8226-7782  
Email: info@embux.com  
www.embux.com

#### **TMR TECHNOLOGIES CO., LTD.**

13F, No.916, Zhongzheng Rd.,  
Zhonghe District,  
New Taipei City, 23586, Taiwan, R.O.C.  
Tel: +886-2-8226-7786  
Fax: +886-2-8226-7782  
Email: services@tmrtek.com  
www.tmrtek.com

## China NEXSEC Incorporated

201, Floor 2, Unit 2, Building 15, Yard 3,  
Gaolizhang Road, Haidian District,  
Beijing, 100094, China  
Tel: +86-10-5704-2680  
Fax: +86-10-5704-2681  
Email: marketing@nexsec.cn  
www.nexsec.cn

## NEXCOM Shanghai

Room 406-407, Building C, No 154, Lane 953,  
Jianchuan Road, Minhang District,  
Shanghai, 201108, China  
Tel: +86-21-5278-5868  
Fax: +86-21-3251-6358  
Email: sales@nexcom.cn  
www.nexcom.cn

## NEXCOM Surveillance Technology Corp.

Floor 8, Building B3, Xiufeng 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

## NEXGOL Chongqing

1st Building No.999,  
Star Boulevard, Yongchuan Dist,  
Chongqing City, 402160, China  
Tel: +86-23-4960-9080  
Fax: +86-23-4966-5855  
Email: sales@nexgol.com.cn  
www.nexcom.cn

## Beijing NexGemo Technology Co.,Ltd.

Room 205, No.1, Fazhan Rd.,  
Beijing International Information Industry Base,  
Changping District,  
Beijing, 102206, China  
Tel: +86-10-8072-2025  
Fax: +86-10-8072-2022  
Email: sales@nexgemo.cn  
www.nexgemo.com

## Japan

### NEXCOM Japan

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

## America

### USA NEXCOM USA

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



## Package Contents

Before continuing, verify that the DNA 1170 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	5044440031X00	RUBBER FOOT KANG YANG:RF20-5-4P	19.8x18x5.0mm	4
2	60110A0342X00	ACCESSORY BOX FOR DNA1170 SERIES VER:A FULPAK	250x176x60mm E FLUTE 5KG	1
3	6012200053X00	PE ZIPPER BAG #3 炎洲:印刷由任袋3號	100x70mm,W/China RoHS SYMBOL	1
4	6023309081X00	CABLE EDI:232091081804-RS	COM PORT. DB9 FEMALE TO RJ45 8P8C L:1800mm	1

## Ordering Information

The following below provides ordering information for DNA 1170.

### Barebone

#### **DNA 1170 (by request)**

Intel Atom® processor C5315, BGA type 4 cores/2.4 GHz, w/ 4 x SFP+ & 8 x 1GbE RJ45 ports

#### **DNA 1170A (P/N: 10L00117001X0)**

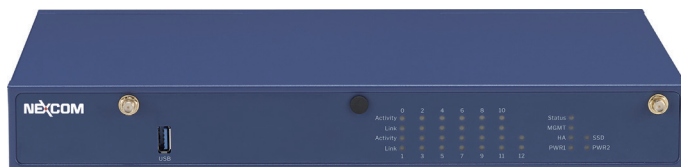
Intel Atom® processor C5325, BGA type 8 cores/2.4 GHz, w/ 4 x SFP+ & 8 x 1GbE RJ45 ports

#### **DNA 1170W (by request)**

Intel Atom® processor C5325, BGA type 8 cores/2.4 GHz, w/ 4 x SFP+ & 8 x 1GbE RJ45 ports, 1 x mini-PCIe slot for Wi-Fi module & 1 x M.2 3042 Key B for 5G/LTE module

# CHAPTER 1: PRODUCT INTRODUCTION

## Overview



## Key Features

- Intel Atom® C5315/C5325 processor
- 2 x DDR4 SODIMM, up to 16GB
- 8 x 1GbE RJ45 ports
- 4 x SFP+ ports
- 2 x 65W AC power adapters
- Supports Wi-Fi 6E (optional)
- Supports LTE/5G (optional)
- 4 x 1GbE RJ45 ports with 2 x bypass pairs

## Hardware Specifications

### Main Board

- Intel Atom® C5000 processor w/ QAT
  - Intel Atom® processor C5315, BGA type, 4 cores/2.4 GHz for DNA 1170
  - Intel Atom® processor C5325, BGA type, 8 cores/2.4 GHz for DNA 1170A
  - Intel Atom® processor C5325, BGA type, 8 cores/2.4 GHz for DNA 1170W

### Main Memory

- 2GB2 x DDR4 2933 SODIMM, up to 16GB

### Storage

- 1 x M.2 Key M 2242 for SATA 3.0
- 2 x 2.5" SSD SATA 3.0 (DNA 1170W)

### Interface External

- Button: power and reset
- LED: status/MGMT/HA/PWR1/PWR2/SSD/LAN
- LED (optional): bypass/5G LTE/Wi-Fi
- 1 x RJ45 console port
- 3 x USB 3.0 connector
- 1 x Nano SIM slot (DNA 1170W)
- 1 x 1G RJ45 management port
- 8 x 1GbE RJ45 ports
  - 4 x 1GbE RJ45 ports with 2 x bypass pairs
- 4 x SFP+ ports
- 1 x Fixed smart fan

- 2 x Power inlets
- 6 x Antenna holes (4 x antennas for 5G LTE, 2 x antennas for Wi-Fi 6E) (DNA 1170W)

### Interface Internal

- 1 x mini-PCIe slot for Wi-Fi module (DNA 1170W)
- 1 x M.2 3042 Key B for 5G/LTE module (DNA 1170W)
- 1 x TPM header

### Power

- 2 x 65W 19V AC power adapters

### Dimension and Weight

- Chassis dimension (mm): 340 x 250 x 44 (W x D x H)
- Package dimension(mm): 436 x 346 x 198 (W x D x H)
- Without packing: 2.9kg
- With packing: 4.3kg

### Environment

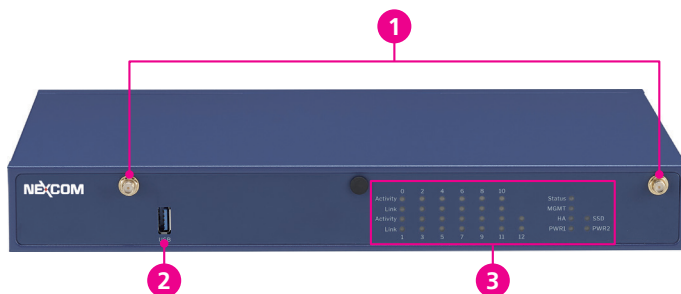
- Operating temperature: 0°C~40°C
- Storage temperature: -20°C~80°C
- Relative humidity: 10%~90%, non-condensing

### Certifications

- CE
- FCC Class B

## Knowing Your DNA 1170

### Front Panel



#### 1. Antenna Holes (DNA1170W Only)

Used for connecting antennas for Wi-Fi.

#### 2. USB Ports

Used to connect USB 3.0/2.0 devices.

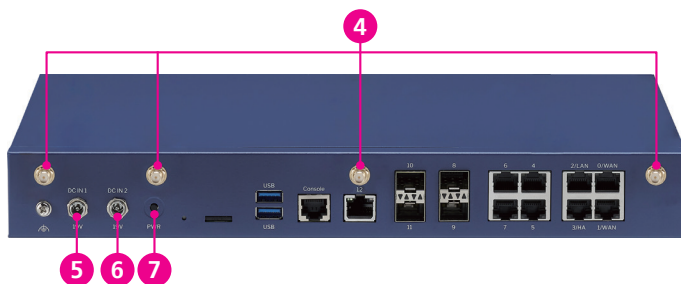
#### 3. LED Indicators

Refer to [LED Indicators section](#) for more details.

#### 4. Antenna Holes (DNA1170W Only)

Used for connecting antennas for 5G, LTE.

### Rear Panel



#### 5. DC In 1 (19V)

Used to plug a DC power cord.

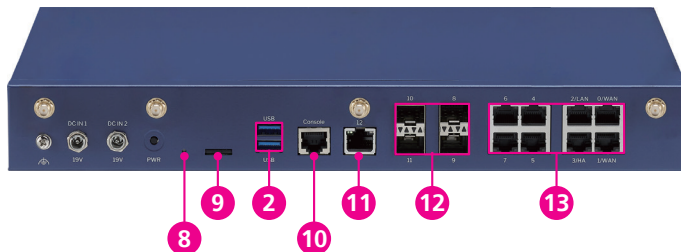
#### 6. DC In 2 (19V)

Used to plug a DC power cord.

#### 7. Power Button

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

## Rear Panel



### 8. Reset Pin Hole

Press to restart the system.

### 9. Nano SIM Card Slot (Optional)

Used to plug a nano SIM cord.

### 10. RJ45 Console Port

Used to connect to a console device with an RJ45 port type.

### 11. RJ45 Management Port

Used to connect to a network for remote management and configuration.

### 12. SFP+ Ports

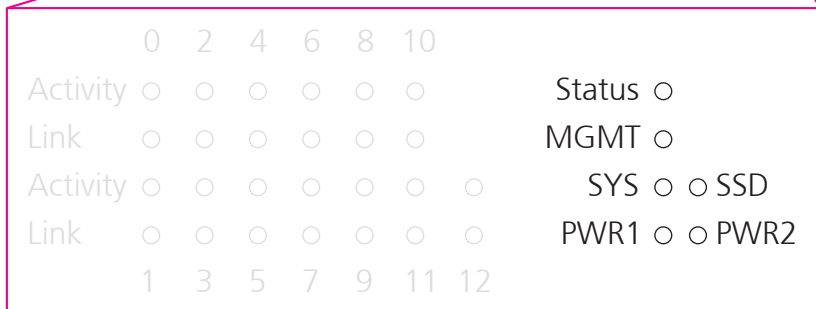
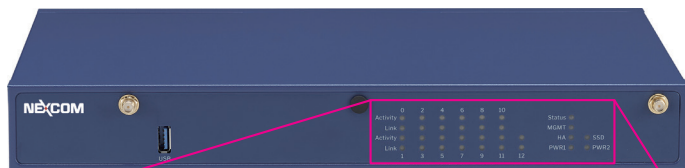
Used to connect to fiber optic networks, enabling long-distance networking or connections.

### 13. RJ45 LAN Ports

Used to connect to local area networks (LANs) or other networking devices at 1GbE speed.



## LED Indicators



### Status LED

LED	Behavior	Description
Status	Off	Power off
	Steady Green ●	Power on
	Steady Orange ●	Standby

### MGMT LED

LED	Behavior	Description
Magement	Off	Not connected
	Steady Green ●	Connected

### SYS LED

LED	Behavior	Description
System	Steady Green ●	Active

### PWR1 and PWR2 LEDs

LED	Behavior	Description
PWR1	Steady Green ●	Power on
PWR2	Steady red ●	Power off

### SSD LED

LED	Behavior	Description
SSD	Off	Off (default)
	Flashing Green ●	Data transferring



## CHAPTER 2: JUMPERS AND CONNECTORS

This chapter describes how to set the jumpers and connectors on the DNA 1170 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:

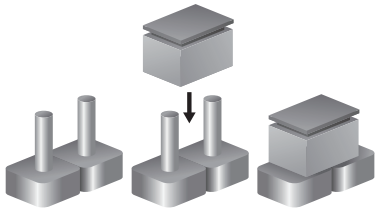
- Always disconnect the unit from the power outlet whenever you are working inside the case.
- If possible, wear a grounded wrist strap when you are working inside the computer case. Alternatively, discharge any static electricity by touching the bare metal chassis of the unit case, or the bare metal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

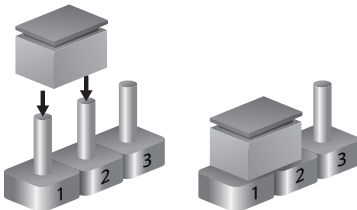
A jumper is the simplest kind of electric switch. It consists of two metal pins and a cap. When setting the jumpers, ensure that the jumper caps are placed on the correct pins. When the jumper cap is placed on both pins, the jumper is short. If you remove the jumper cap, or place the jumper cap on just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

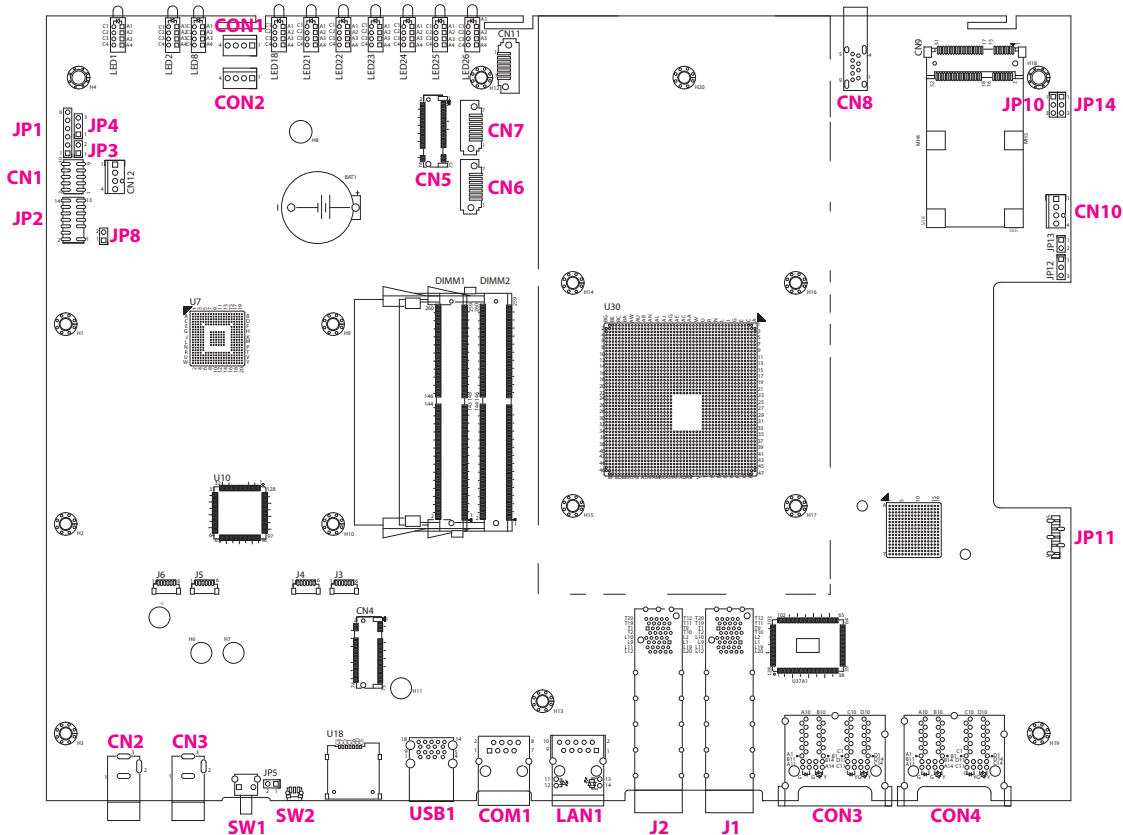


Three-Pin Jumpers: Pins 1 and 2 are Short



## Locations of the Jumpers and Connectors

The following figure shows the mainboard used in the DNA 1170 series, and indicate the locations of the jumpers and connectors. Refer to this chapter for detailed pin settings and definitions of the connectors marked in pink on this figure.



## Jumpers

### RTC Clear

Connector type: 1x3 3-pin header

Connector location: JP10



Pin	Definition
1	NC
2	RST_SRTCST_N
3	GND

Pin	Function
1-2 On	Normal (default)
2-3 On	Clear RTC

### CMOS Clear

Connector type: 1x3 3-pin header

Connector location: JP14



Pin	Definition
1	U7_V20
2	GND
3	U7_U18

Pin	Function
1-2 On	Normal (default)
2-3 On	Clear CMOS

## Connector Pin Definitions

### External I/O Interfaces

#### DC In Jack

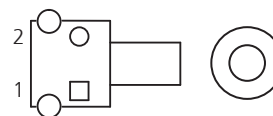
Connector location: CN2, CN3



Pin	Definition
1	DC_IN
2	GND
3	GND

#### Power Button

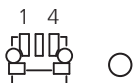
Connector location: SW1



Pin	Definition
1	GND
2	PWRBTN#_IN
3	GND
4	GND

## Reset Button

Connector location: SW2

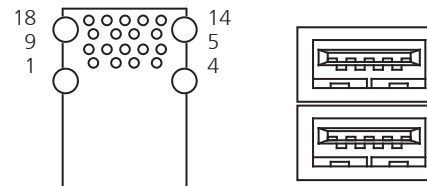


Pin	Definition
1	GND
2	ACPI_BTN_IN#
3	GND
4	GND

## USB 3.0 Ports

Connector type: USB 3.0 port, Type A

Connector location: USB1

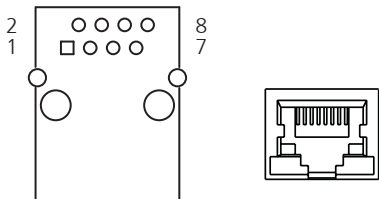


Pin	Definition
1,10	V5USB
2,11	USB2N0
3,12	USB2P0
5,14	USB3RN
6,15	USB3RP
8,17	USB3TN
9,18	USB3TP
4,13 7,16	USB_GND

## RJ45 Console Port

Connector type: RJ45

Connector location: LAN1

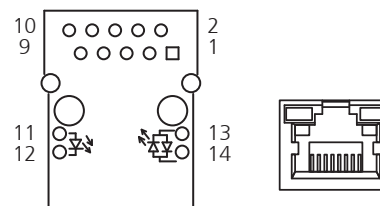


Pin	Definition
1	SP_RTS1
2	SP_DTR1
3	SP_TXD1
4	GND
5	SP_DCD1
6	SP_RXD1
7	SP_DSR1
8	SP_CTS1

## RJ45 Management Port

Connector type: RJ45

Connector location: LAN1

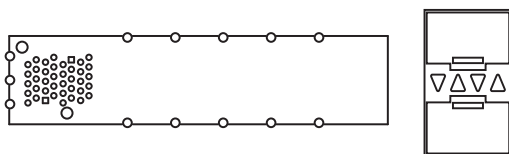


Pin	Definition
1,3,7,9	LAN_MDIP
2,4,8,10	LAN_MDINO
5,6	GND
12	LED2_ACT_N
11	VCC3_LED
14	LED1_L2500_N
13	LED0_L1000_N

### SFP+ Connectors

Connector type: SFP+cage

Connector location: J1

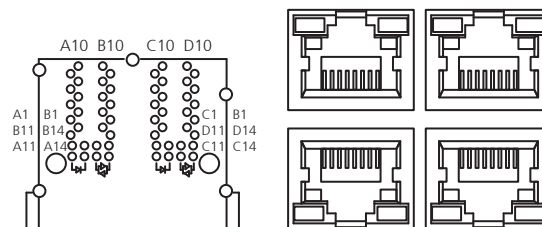


Pin	Definition	Pin	Definition
1	VEET	11	VEER
2	TXFAULT	12	RD-
3	TX_DISABLE	13	RD+
4	SDA	14	VEER
5	SCL	15	VCCR
6	MOD-ABS	16	VCCT
7	RS0	17	VEET
8	RX_LOS	18	TD+
9	RS1	19	TD-
10	VEER	20	VEET

### RJ45 LAN Port

Connector type: RJ45

Connector location: COM3, COM4



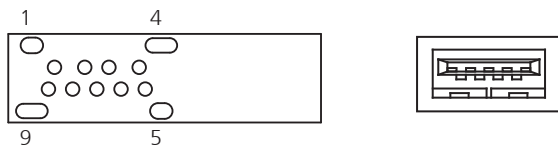
Pin	Definition
1	SP_RTS1
2	SP_DTR1
3	SP_TXD1
4	GND
5	SP_DCD1
6	SP_RXD1
7	SP_DSR1
8	SP_CTS1



## USB 3.0 Port

Connector type: USB 3.0 port, Type A

Connector location: CN8

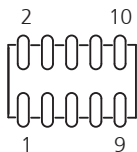


Pin	Definition
1	V5USB
2	USB2N0
3	USB2P0
5	USB3RN
6	USB3RP
8	USB3TN
9	USB3TP
4,7	USB_GND

## Internal Connectors

### CPLD\_GPIO connector

Connector location: CN1



Pin	Definition
1	P3V3_AUX
2	GND
3	CPLD_GPIN1
4	CPLD_GPOUT1
5	CPLD_GPIN2
6	CPLD_GPOUT2
7	CPLD_GPIN3
8	CPLD_GPOUT3
9	CPLD_GPIN4
10	CPLD_GPOUT4

### M.2 Key M SATA SSD Connector

Connector location: CN5

Pin	Definition	Pin	Definition
1	SSD_DET_N	2	P3V3_SSD
3	GND	4	P3V3_SSD
5	NC	6	NC
7	NC	8	NC
9	GND	10	M.2_ACT_LED1
11	NC	12	P3V3_SSD
13	NC	14	P3V3_SSD
15	GND	16	P3V3_SSD
17	NC	18	P3V3_SSD
19	NC	20	NC
21	GND	22	NC
23	NC	24	NC

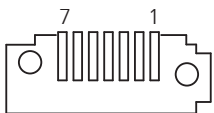
Continued on next page

Pin	Definition	Pin	Definition
25	NC	26	NC
27	GND	28	NC
29	NC	30	NC
31	NC	32	NC
33	GND	34	NC
35	NC	36	NC
37	NC	38	NGFF_DEVSLP
39	GND	40	NC
41	SATA2_RXP	42	NC
43	SATA2_RXN	44	NC
45	GND	46	NC
47	SATA2_TXN	48	NC
49	SATA2_TXP	50	SSD_RST_N

Pin	Definition	Pin	Definition
51	GND	52	SSD_CLKREQ#
53	CLK_100M_M2_SSD_N	54	MFG_CLK2
55	CLK_100M_M2_SSD_P	56	NC
57	GND	58	NC
59	Mechanical Key	60	Mechanical Key
61	Mechanical Key	62	Mechanical Key
63	Mechanical Key	64	Mechanical Key
65	Mechanical Key	66	Mechanical Key
67	Mechanical Key	68	CLK_32K_SUSCLK_SOC
69	GND	70	P3V3_SSD
71	GND	72	P3V3_SSD
73	GND	74	P3V3_SSD
75	GND		

## SATA Connectors

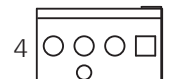
Connector location: CN6, CN7



Pin	Definition	Pin	Definition
1	GND	2	SATA_TXP
3	SATA_TXN	4	GND
5	SATA_RXN	6	SATA_RXP
7	GND		

## FAN Connector

Connector location: CN10



Pin	Definition
1	GND
2	P12V_FAN
3	FAN1_IN_CON
4	FAN1_PWM_OUT

## SATA Power Connector

Connector location: CON1, CON2



Pin	Definition
1	P12V_AUX
2	GND
3	GND
4	P5V

## CPLD JTAG Header

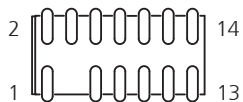
Connector location: JP1



Pin	Definition
1	P3V3_AUX
2	GND
3	JTAG_PLD_TCK
4	JTAG_PLD_TDO
5	JTAG_PLD_TDI
6	JTAG_PLD_TMS

## TPM Connector

Connector location: JP2



Pin	Definition
1,9,12,14	GND
5	LPC_AD2
7	LPC_AD1
11	LPC_SERIRQ
2	LPC_CLK_TPM
4	LPC_FRAME_N
6	RST_TPM_N
8	LPC_AD3
10	LPC_AD0

## CPLD Remote Update Connector

Connector location: JP3



Pin	Definition
1	JTAG_SEL
2	GND

## SMB1 UART Connector

Connector location: JP4



Pin	Definition
1	U7_V20
2	GND
3	U7_U18

## ME Recover Connector

Connector location: JP8



Pin	Definition
1	JTAG_SEL
2	GND

## MCU Pin

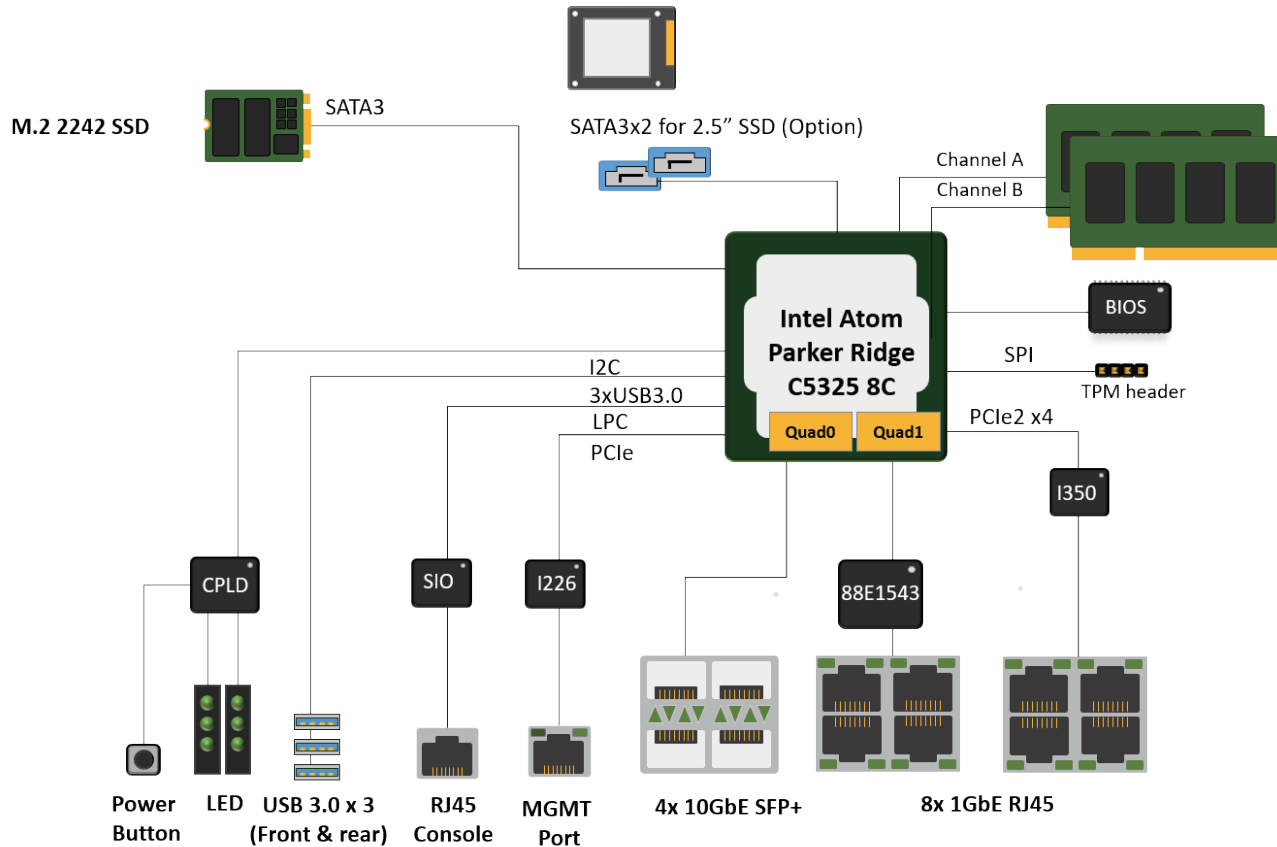
Connector location: JP11



Pin	Definition
1	MCU1_NMCLR
2	MCU_Vdd
3	GND
4	MCU1_PGED
5	MCU1_PGEC



# Block Diagram



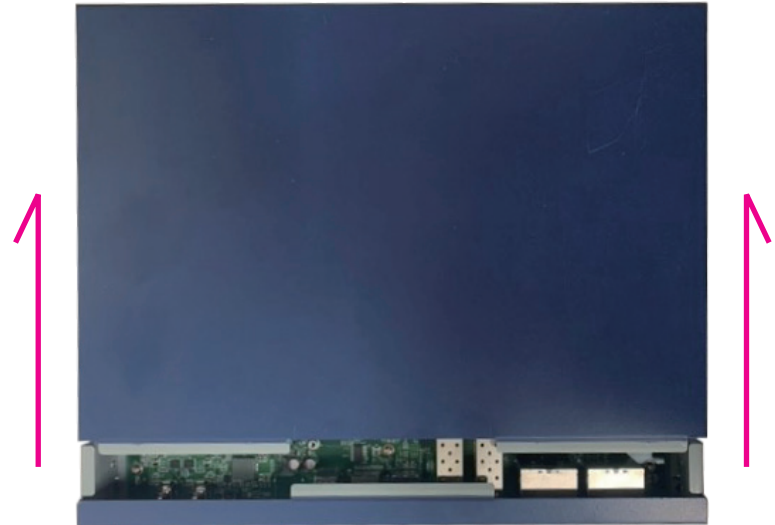
# CHAPTER 3: SYSTEM SETUP

## 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.

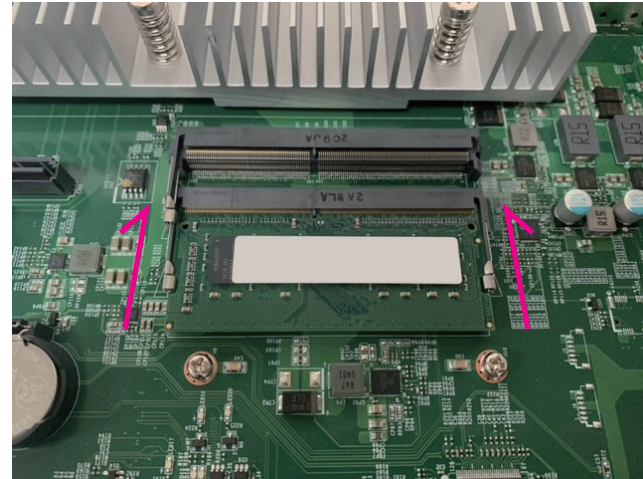
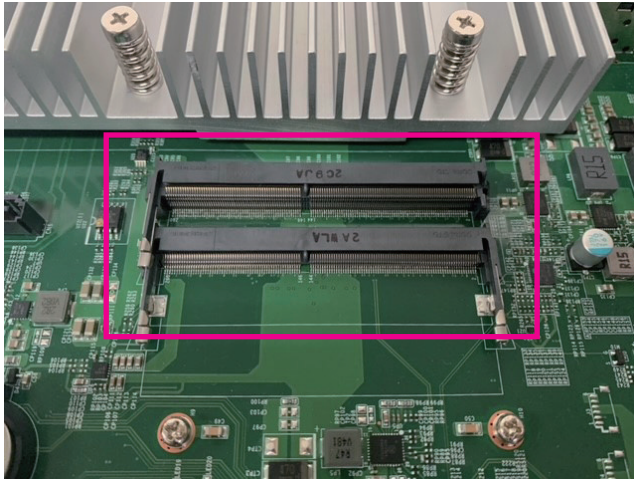
1. The screws around the cover are used to secure the cover to the chassis. Remove these screws and put them in a safe place for later use.
2. Gently slide the cover outwards, then lift up the cover to remove it.



Note that the appearance of the chassis may vary, but the I/O ports and mechanics remain the same.

## Installing a SO-DIMM Memory Module

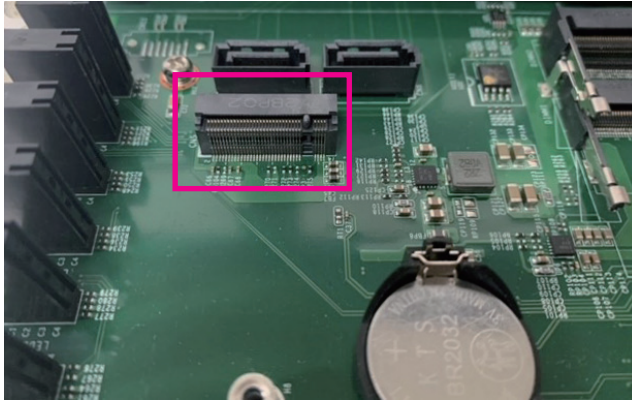
- With the cover removed, install a memory module in the SODIMM socket. Insert the module into the socket at an approximately 30-degree angle. Push the module down until the clips on both sides of the socket lock into position. The gold-plated connector on the edge of the module will almost completely disappear inside the socket.



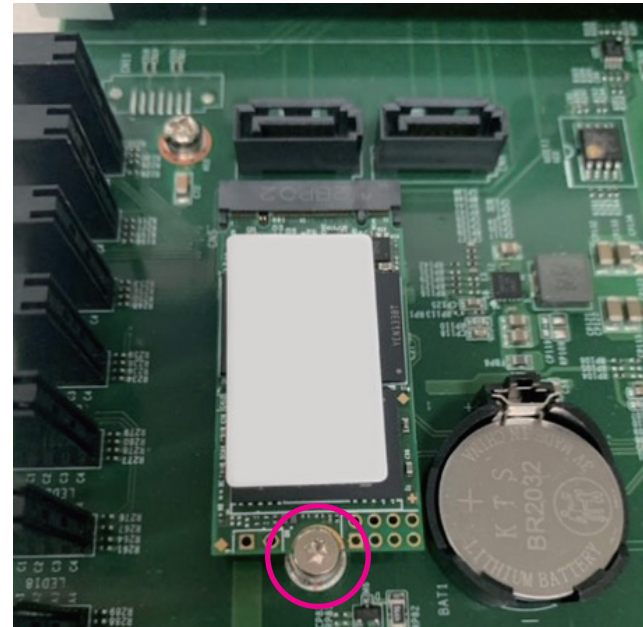
1.

## Installing a M.2 Storage Module

1. Locate the M.2 Key M slot on the motherboard.



2. Insert the M.2 module into the M.2 slot at a 45-degree angle until the gold-plated connector on the edge of the module completely disappears into the slot. Secure the M.2 module using the screw.



# CHAPTER 4: BIOS SETUP

This chapter describes how to use the BIOS setup program for DNA 1170 series. The BIOS screens provided in this chapter are for reference only and may change if the BIOS is updated in the future.

To check for the latest updates and revisions, visit the NEXCOM Web site at [www.nexcom.com.tw](http://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.











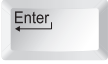
## Entering Setup

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 - American Megatrends International, LLC.
Main | Advanced | Platform Configuration | Socket Configuration | Security | >
-----
BIOS Information
BIOS Vendor      American Megatrends
Core Version     5.19
Compliancy      UEFI 2.7; PI 1.6
Project Version  G272- 0.05 x64
Build Date and Time 09/05/2023 14:38:17
Access Level     Administrator
Memory Information
Total Memory     16384 MB
System Date     [Mon 04/21/2008]
System Time     [18:36:23]
-----
|Set the Date. Use Tab
|to switch between Date
|elements.
|Default Ranges:
|Year: 1998-9999
|Months: 1-12
|Days: Dependent on month
|Range of Years may vary.
-----
|<: Select Screen
|^v: Select Item
|Enter: Select
|+/-: Change Opt.
|F1: General Help
|F2: Previous Values
|F3: Optimized Defaults
|F4: Save & Reset
|ESC: Exit
-----
Ver. 2.21.1277 Copyright (C) 2023 American Megatrends International, LLC.

```

### 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 2005 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.

```

Aptio Setup - American Megatrends International, LLC.
Main  Advanced  Platform Configuration  Socket Configuration  Security
-----
> Trusted Computing
> NCT6797D Super IO Configuration
> Hardware Monitor
> UEFI Variables Protection
> Serial Port Console Redirection
> PCI Subsystem Settings
> USB Configuration
> Network Stack Configuration
> SDIO Configuration

Trusted Computing
Settings

-----
><: Select Screen
^v: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Reset
ESC: Exit

Ver. 2.21.1277 Copyright (C) 2023 American Megatrends International, LLC.

```

## Trusted Computing

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

```

Aptio Setup - American Megatrends International, LLC.
Advanced
-----
Configuration
Security Device      [Enable]
Support
  Disable Block Sid  [Disabled]
  NO Security Device Found

[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.]

-----
><: Select Screen
^v: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Reset
ESC: Exit

Ver. 2.21.1277 Copyright (C) 2023 American Megatrends International, LLC.

```

### Security Device Support

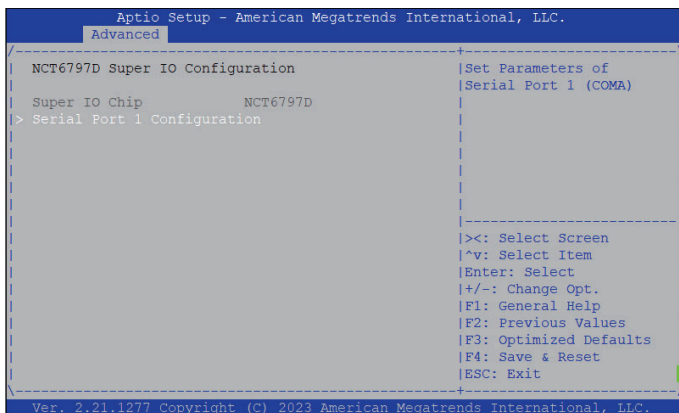
Enables or disables BIOS support for security device. O.S will not show Security Device. TCG EFI protocol and INT1A interface will not be available.

### Disable Block Sid

Override to allow SID authentication in TCG storage device.

## NCT6797D Super IO Configuration

This section is used to configure the serial port of the super IO.



### Super IO Chip

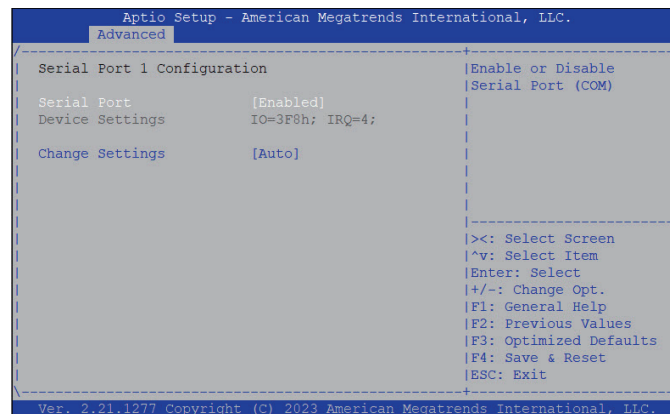
Display the Super I/O chip used on the board.

### Serial Port 1 Configuration

Configure the IO/IRQ settings of serial port 1.

## Serial Port 1 Configuration

This section is used to configure serial port 1.



### Serial Port

Enable or disable the serial port.

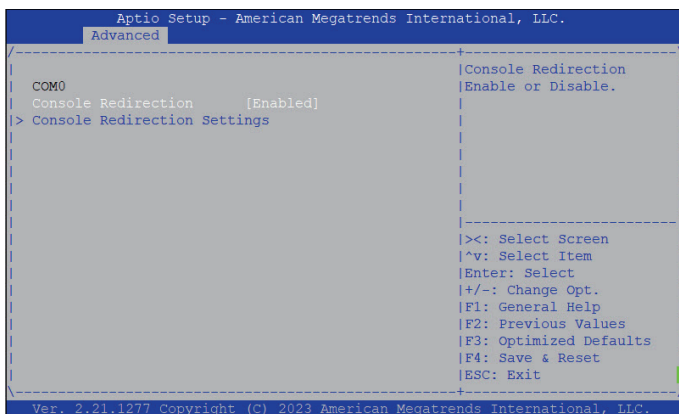
### Change Settings

Select an optimal setting for the Super IO device.



## Serial Port Console Redirection

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



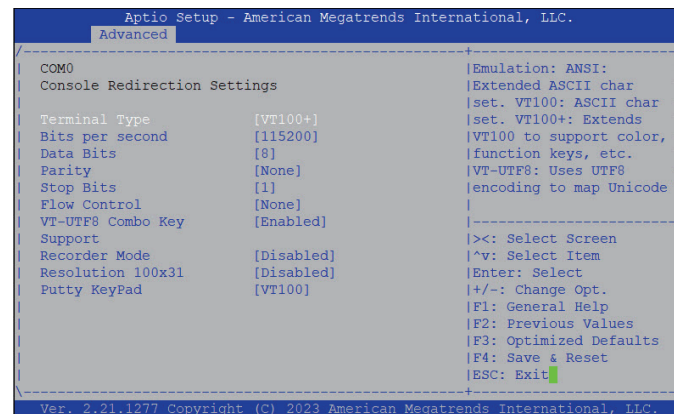
### Console Redirection

Enable or disable the console redirection.

### Console Redirection (Serial Port for Out-of-Band Management)

When the Console Redirection is enabled, the Console Redirection Settings will be available. Press <Enter> for additional configuration options.

## Console Redirection 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

Select 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

Enable or disable 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

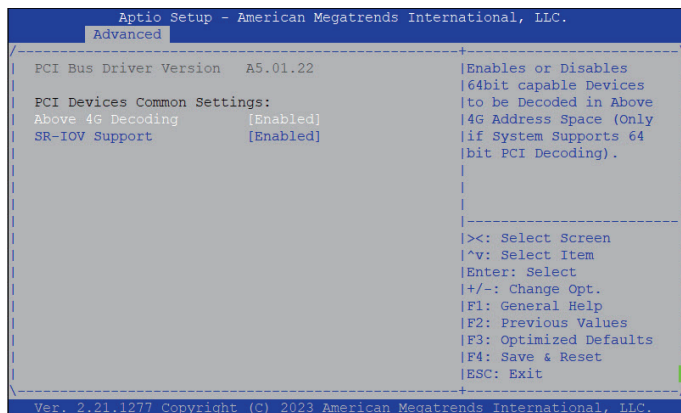
Enable or disable extended terminal resolution.

## Putty Keypad

Select the Putty keyboard emulation type.

## PCI Subsystem Settings

This section is used to configure the PCI.



### Above 4G Decoding

Enable or disable 64bit capable devices to be decoded in above 4G address space (only if the system supports 64 bit PCI decoding).

### SR-IOV Support

Enable or disable SR-IOV support.

## USB Configuration

This section is used to configure the USB.

```

Apdio Setup - American Megatrends International, LLC.
Advanced
-----
USB Configuration
USB Module Version      25
USB Controllers:
  1 XHCI
USB Devices:
  1 Keyboard
Legacy USB Support      [Enabled]
XHCI Hand-off           [Enabled]
USB Mass Storage Driver Support
USB hardware delays
and time-outs:
USB transfer time-out   [20 sec]
Device reset time-out  [20 sec]
-----
^| Enables Legacy USB
*| support. AUTO option
*| disables legacy support
*| if no USB devices are
*| connected. DISABLE
*| option will keep USB
*| devices available only
*| for EFI applications.
*|
*|-----
*|<<: Select Screen
*|^v: Select Item
*|Enter: Select
*|+/-: Change Opt.
*|F1: General Help
*|F2: Previous Values
*|F3: Optimized Defaults
v|F4: Save & Reset
|ESC: Exit
-----
Ver. 2.21.1277 Copyright (C) 2023 American Megatrends International, LLC.

```

### 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

Enable or disable USB mass storage driver support.

### USB transfer time-out

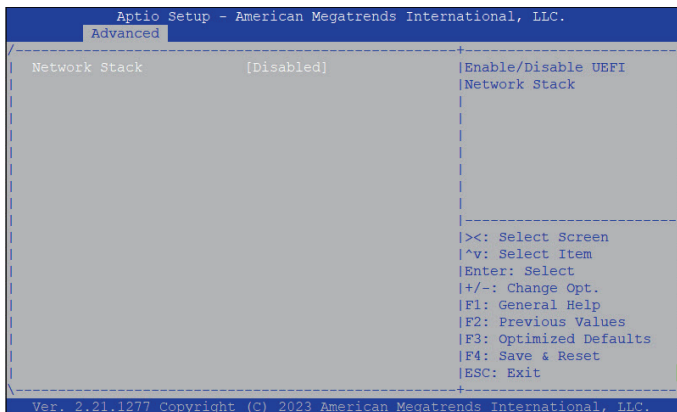
The time-out value for control, bulk, and Interrupt transfers.

### Device reset time-out

Select the USB mass storage device's start unit command timeout

## Network Stack Configuration

This section is used to configure the network stack.

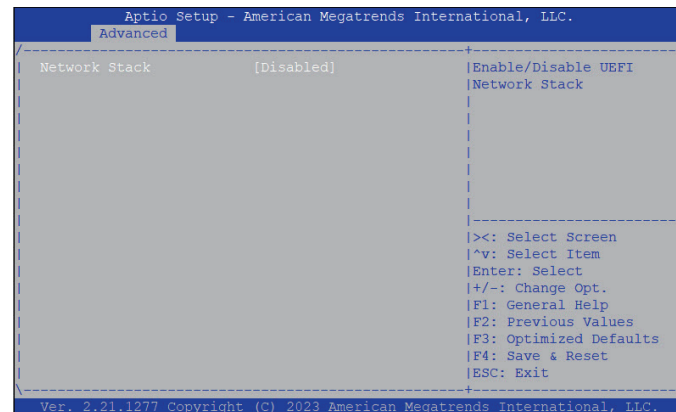


### Network Stack

Enable or disable UEFI network stack.

## SDIO Configuration

This section is used to configure the SDIO.



### SDIO Access Mode

Auto option: Access SD device in DMA mode if controller supports it, otherwise in PIO mode.

DMA option: Access SD device in DMA mode.

PIO option: Access SD device in PIO mode.



## Platform Configuration

```

Aptio Setup - American Megatrends International, LLC.
Main Advanced Platform Configuration Socket Configuration Security >
> PCH-IO Configuration
> Server ME Configuration

-----
Setup Warning:
Setting items on this screen to incorrect
values
may cause system to malfunction!

-----
><: Select Screen
^v: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Reset
ESC: Exit

Ver. 2.21.1277 Copyright (C) 2023 American Megatrends International, LLC.

```

### PCH-IO Configuration

Enter the PCH-IO Configuration submenu.

### Server ME Configuration

Enter the Server ME Configuration submenu.

## PCH-IO Configuration

```

Aptio Setup - American Megatrends International, LLC.
Platform Configuration
PCH-IO Configuration
> PCI Express Configuration
> Fia Mux Configuration
> SATA Configuration
> USB Configuration
> SCS Configuration

State After G3 [Last State]

-----
><: Select Screen
^v: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Reset
ESC: Exit

Ver. 2.21.1277 Copyright (C) 2023 American Megatrends International, LLC.

```

### PCI Express Configuration

Enter the PCI Express Configuration submenu.

### Fia Mux Configuration

Enter the Fia Mux Configuration submenu.

### SATA Configuration

Enter the SATA Configuration submenu.

### USB Configuration

Enter the USB Configuration submenu.

### SCS Configuration

Enter the SCS Configuration submenu.

### State After G3

Configure the PCH state after G3.

### PCI Express Configuration



#### PCI Express Root Port 1/3/4/9/10/11/12

Control the PCI Express Root Port.

#### ASPM

Enable or disable the ASPM.

#### L1 Substates

Configure the L1 Substates settings.

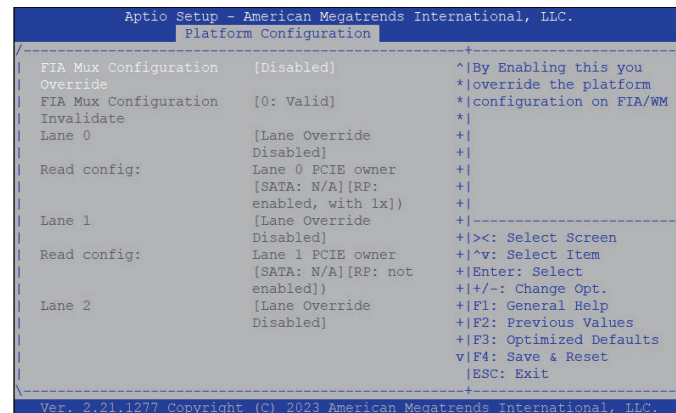
#### PCIe Speed

Configure the speed of the PCI Express port.

#### CTO

Configure the CTO for PCI Express.

### Fia Mux Configuration



#### FIA Mux Configuration

By enabling this you override the platform configuration on FIA/WM.

## SATA Configuration

```

Aptio Setup - American Megatrends International, LLC.
Platform Configuration
-----
> Controller 1 SATA Configuration      SATA Controller 1
                                     Device Options Settings
                                     -----
                                     ><: Select Screen
                                     ^v: Select Item
                                     Enter: Select
                                     +/-: Change Opt.
                                     F1: General Help
                                     F2: Previous Values
                                     F3: Optimized Defaults
                                     F4: Save & Reset
                                     ESC: Exit
-----
Ver. 2.21.1277 Copyright (C) 2023 American Megatrends International, LLC.

```

### SATA Configuration

Enter the SATA Configuration submenu.

## SATA Configuration > Controller 1 SATA Configuration

```

Aptio Setup - American Megatrends International, LLC.
Platform Configuration
-----
Controller 1 SATA Configuration      ^SATA test settings
                                     *|
SATA Configuration                  [Enabled]                    *|
SATA Test Mode                      [Disabled]                   *|
> Software Feature Mask Configuration for Controller 1 *|
Aggressive LPM Support               [Enabled]                     *|
                                     *|
SATA Port 6 (CN6)                   [Not Installed]              *|
Software Preserve                    Unknown                          *|
-----
Port 6                               [Enabled]                    +><: Select Screen
Hot Plug                             [Disabled]                   +^v: Select Item
Configured as eSATA                  Hot Plug supported           +|Enter: Select
External                             [Disabled]                   +|+/-: Change Opt.
Spin Up Device                       [Disabled]                   +|F1: General Help
SATA Device Type                    [Hard Disk Drive]           +|F2: Previous Values
SATA Port 6 DevSlp                  [Disabled]                   +|F3: Optimized Defaults
DITO Configuration                  [Disabled]                   v|F4: Save & Reset
                                     |ESC: Exit
-----
Ver. 2.21.1277 Copyright (C) 2023 American Megatrends International, LLC.

```

### SATA Configuration

Enable or disable SATA configuration.

### SATA Test Mode

Enable or disable SATA test mode.

### Software Feature Mask Configuration for Controller 1

Enable or disable software feature mask configuration for controller 1.

### Aggressive LPM Support

Enable or disable aggressive LPM support.

### Port 6

Enable or disable SATA port 6.

### Hot Plug

Enable or disable hot plugging feature on SATA port 6.

### External

Enable or disable the feature of External.

### Spin Up Device

Enable or disable staggered spin up on devices connected to SATA port 6.

### SATA Device Type

Identify what type of SATA device is connected.

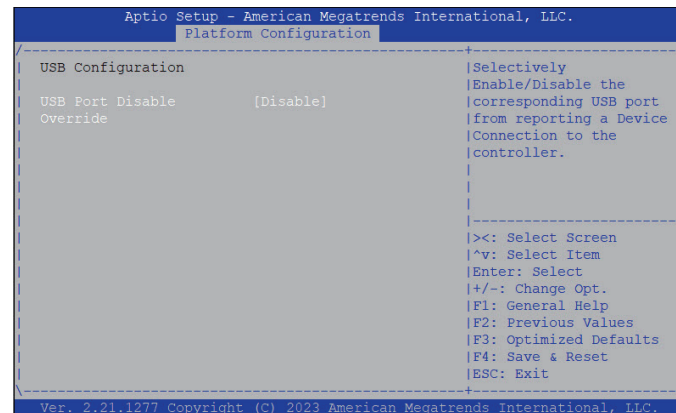
### SATA Port 6 DevSlp

Enable or disable SATA Port 1/3 DevSlp. Before enabling DevSlp, board rework is needed.

### DITO Configuration

Enable or disable DITO configuration.

### USB Configuration



### USB Port Disable Override

Selectively enable or disable the corresponding USB port from reporting a device connection to the controller.

## SCS Configuration

```

Aptio Setup - American Megatrends International, LLC.
Platform Configuration

eMMC 5.1 Controller      [Enabled]      Enable or Disable SCS
eMMC 5.1 HS400 Mode     [Enabled]      eMMC 5.1 Controller

><: Select Screen
^v: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Reset
ESC: Exit

Ver. 2.21.1277 Copyright (C) 2023 American Megatrends International, LLC.

```

### eMMC 5.1 Controller

Enable or disable SCS eMMC 5.1 controller.

### eMMC 5.1 HS400 Mode

Enable or disable SCS eMMC 5.1 HS400 mode.

## General ME Configuration

Display information of the firmware installed in the system.

```

Aptio Setup - American Megatrends International, LLC.
Platform Configuration

General ME Configuration
Oper. Firmware Version  12:5.0.3.216
Backup Firmware         N/A
Version
Recovery Firmware      12:5.0.3.216
Version
ME Firmware Status #1  0x00000255
ME Firmware Status #2  0x8A116026
Current State          Operational
Error Code             No Error
Recovery Cause         N/A

><: Select Screen
^v: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Reset
ESC: Exit

Ver. 2.21.1277 Copyright (C) 2023 American Megatrends International, LLC.

```

## Socket Configuration

```

Aptio Setup - American Megatrends International, LLC.
Main Advanced Platform Configuration Socket Configuration Security >
> Processor Configuration      Displays and provides
> Memory Configuration        option to change the
> IIO Configuration           Processor Settings
> Advanced Power Management Configuration

|-----|
|><: Select Screen            |
|^v: Select Item              |
|Enter: Select                |
|+/-: Change Opt.            |
|F1: General Help            |
|F2: Previous Values         |
|F3: Optimized Defaults      |
|F4: Save & Reset            |
|ESC: Exit                    |
|-----|
Ver. 2.21.1277 Copyright (C) 2023 American Megatrends International, LLC.

```

### Processor Configuration

Enter the Processor Configuration submenu.

### Memory Configuration

Enter the Memory Configuration submenu.

### IIO Configuration

Enter the IIO Configuration submenu.

### Advanced Power Management Configuration

Enter the Advanced Power Management Configuration submenu.

## Processor Configuration

```

Aptio Setup - American Megatrends International, LLC.
Socket Configuration
-----
Processor Configuration      ^|Change Per-Socket
                             *|Settings
                             *|
> Per-Socket Configuration  *|
Processor BSP Revision       80667 - SNR C0 *|
Processor Socket             Socket 0      *|
Processor ID                 00080667*    *|
Processor Frequency          2.400GHz     *|
Processor Max Ratio          18H          *|
Processor Min Ratio          08H          *|
-----
Microcode Revision          4C000021    *|><: Select Screen
L1 Cache RAM(Per Core)     64KB        *|^v: Select Item
L2 Cache RAM(Per           9216KB      *|Enter: Select
Package)                    *|+/-: Change Opt.
L3 Cache RAM(Per           7680KB      *|F1: General Help
Package)                    *|F2: Previous Values
Processor 0 Version         Intel Atom(R) C5325 pro *|F3: Optimized Defaults
                           cessor      *|^F4: Save & Reset
                             *|ESC: Exit
                             *|
Ver. 2.21.1277 Copyright (C) 2023 American Megatrends International, LLC.

```

### Pre-Socket Configuration

Enter the Pre-Socket Configuration submenu.

### Pre-Socket Configuration

```

Aptio Setup - American Megatrends International, LLC.
Socket Configuration

Processor Configuration
-----
> Per-Socket Configuration
Processor BSP Revision      80667 - SNR C0
Processor Socket            Socket 0
Processor ID                00080667*
Processor Frequency        2.400GHz
Processor Max Ratio        18H
Processor Min Ratio        08H
Microcode Revision         4C000021
L1 Cache RAM(Per Core)    64KB
L2 Cache RAM(Per Package) 9216KB
L3 Cache RAM(Per Package) 7680KB
Processor 0 Version        Intel Atom(R) C5325 pro
                           cessor

^|Change Per-Socket
*|Settings
*|
*|
*|><: Select Screen
*|^v: Select Item
+|Enter: Select
+|+/-: Change Opt.
+|F1: General Help
+|F2: Previous Values
+|F3: Optimized Defaults
v|F4: Save & Reset
|ESC: Exit

Ver. 2.21.1277 Copyright (C) 2023 American Megatrends International, LLC.
    
```

### Pre-Socket Configuration

Change pre-socket settings.

### Memory Configuration

```

Aptio Setup - American Megatrends International, LLC.
Socket Configuration

-----
Socket0.ChA.Dimm0:
2933MT/s Transcend
SRx8 8GB SODIMM
Socket0.ChB.Dimm0:
2933MT/s Transcend
SRx8 8GB SODIMM
-----

><: Select Screen
^v: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Reset
ESC: Exit

Ver. 2.21.1277 Copyright (C) 2023 American Megatrends International, LLC.
    
```

### Memory Topology

Display memory topology with DIMM population information.

## I/O Configuration

```

Aptio Setup - American Megatrends International, LLC.
Socket Configuration

I/O Configuration
-----
> Socket0 Configuration
> Intel VT for Directed I/O (VT-d)

|<: Select Screen
|^v: Select Item
|Enter: Select
|+/-: Change Opt.
|F1: General Help
|F2: Previous Values
|F3: Optimized Defaults
|F4: Save & Reset
|ESC: Exit

Ver. 2.21.1277 Copyright (C) 2023 American Megatrends International, LLC.

```

### Socket0 Configuration

Enter the Socket0 Configuration submenu.

### Intel VT for Directed I/O (VT-d)

Enter the Intel VT for Directed I/O (VT-d) submenu.

## Socket0 Configuration

```

Aptio Setup - American Megatrends International, LLC.
Socket Configuration

IOU0 (IIO PCIe Port 1) [Auto]
|Selects PCIe port
|Bifurcation for
|selected slot(s)

|<: Select Screen
|^v: Select Item
|Enter: Select
|+/-: Change Opt.
|F1: General Help
|F2: Previous Values
|F3: Optimized Defaults
|F4: Save & Reset
|ESC: Exit

Ver. 2.21.1277 Copyright (C) 2023 American Megatrends International, LLC.

```

### IOU0 (IIO PCIe Port 1) [Auto]

Select PCIe port bifurcation for selected slot(s).



## Intel VT for Directed I/O (VT-d)

```

Aptio Setup - American Megatrends International, LLC.
Socket Configuration

Intel VT for Directed I/O (VT-d)
-----
Intel VT for Directed I/O (VT-d)      [Enable]
DMA Control Opt-In Flag                [Disable]
Interrupt Remapping                    [Auto]
X2APIC Opt Out                         [Disable]
Pre-boot DMA Protection                [Auto]

Enable/Disable Intel Virtualization Technology for Directed I/O (VT-d) by reporting the I/O device assignment to VMM through DMAR ACPI Tables.

><: Select Screen
^v: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Reset
ESC: Exit

Ver. 2.21.1277 Copyright (C) 2023 American Megatrends International, LLC.

```

### Intel VT for Directed I/O (VT-d)

Enable or disable Intel Virtualization Technology for Directed I/O (VT-d) by reporting the I/O device assignment to VMM through DMAR ACPI Tables.

### DMA Control Opt-In Flag

Enable or disable the DMA Control Opt-In Flag.

### Interrupt Remapping

Configure the Interrupt Remapping.

### X2APIC Opt-Out

Enable or disable the X2APIC mode.

### Pre-boot DMA Protection

Enable or disable the Pre-boot DMA Protection

## Advanced Power Management Configuration

```

Aptio Setup - American Megatrends International, LLC.
Socket Configuration

IIO Configuration
-----
> Socket0 Configuration
> Intel VT for Directed I/O (VT-d)

><: Select Screen
^v: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Reset
ESC: Exit

Ver. 2.21.1277 Copyright (C) 2023 American Megatrends International, LLC.

```

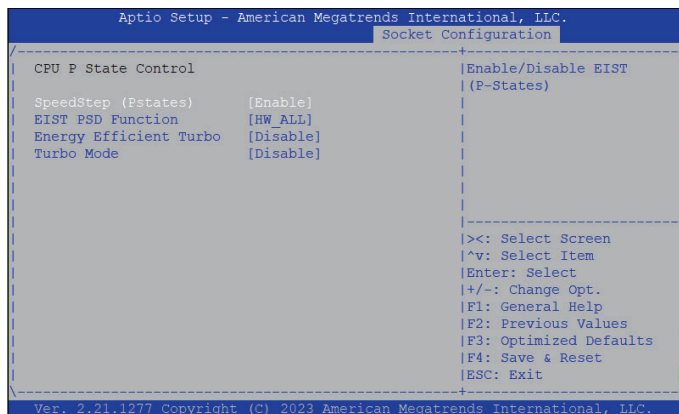
### CPU P State Control

Enter the CPU P State Control submenu.

### CPU C State Control

Enter the CPU C State Control submenu.

## CPU P State Control



### SpeedStep (PStates)

Enable or disable EIST (P-State).

### EIST PSD Function

Select a preferred option for EIST PSD.

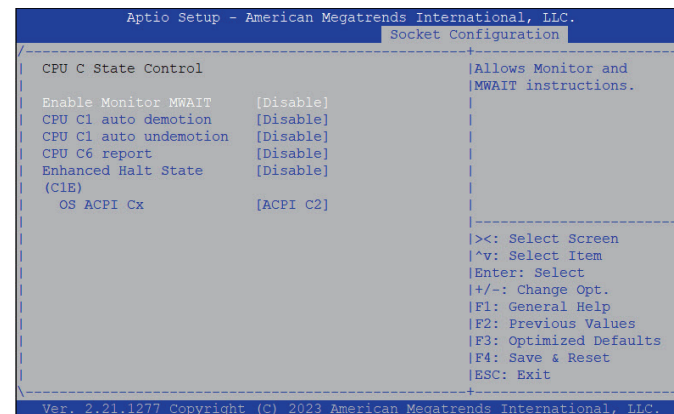
### Energy Efficient Turbo

Enable or disable the Energy Efficient Turbo.

### Turbo Mode

Enable or disable the turbo mode.

## CPU C State Control



### Enable Monitor MWAIT

Enable or disable monitoring and MWAIT instructions.

### CPU C1 auto demotion

Enable or disable CPU C1 auto demotion.

### CPU C1 auto undemotion

Enable or disable CPU C1 auto undemotion.

### CPU C6 report

Enable or disable C6 report to the operating system.

### Enhanced Halt State (C1E)

Enable or disable Enhanced Halt State (C1E) for lower power consumption.

### OS ACPI Cx

Enable or disable C3 report or C6 report to OS ACPI C2 or ACPI C3.

## Security

```
Aptio Setup - American Megatrends International, LLC.
Main Advanced Platform Configuration Socket Configuration Security >

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.              |
The password length must be                       |
in the following range:                           |
Minimum length      3                             |
Maximum length     20                             |
-----|-----
Administrator Password                             |
                                                    | ><: Select Screen
                                                    | ^v: Select Item
                                                    | Enter: Select
                                                    | +/-: Change Opt.
                                                    | F1: General Help
                                                    | F2: Previous Values
                                                    | F3: Optimized Defaults
                                                    | F4: Save & Reset
                                                    | ESC: Exit
-----|-----
Ver. 2.21.1277 Copyright (C) 2023 American Megatrends International, LLC.
```

### Administrator Password

Select to reconfigure the administrator's password.

## Boot

```

Aprio Setup - American Megatrends International, LLC.
< Boot Save & Exit
-----
Boot Configuration
Setup Prompt Timeout      3
Bootup NumLock State      [On]
Quiet Boot                [Disabled]
Fast Boot                 [Disable Link]

FIXED BOOT ORDER Priorities
Boot Option #1            [Hard Disk]
Boot Option #2            [USB CD/DVD]
Boot Option #3            [USB Hard Disk]
Boot Option #4            [USB Key]
Boot Option #5            [Disabled]
Boot Option #6            [Disabled]
Boot Option #7            [Disabled]
Boot Option #8            [Disabled]
Boot Option #9            [Disabled]
Boot Option #10           [Disabled]

^|Number of seconds to
*|wait for setup
*|activation key.
*|65535(0xFFFF) means
*|indefinite waiting.
*|
*|
*|
*|<: Select Screen
*|v: Select Item
*|Enter: Select
*|+/-: Change Opt.
*|F1: General Help
*|F2: Previous Values
+|F3: Optimized Defaults
v|F4: Save & Reset
|ESC: Exit
-----
Ver. 2.21.1277 Copyright (C) 2023 American Megatrends International, LLC.

```

### Setup Prompt Timeout

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

### Bootup NumLock State

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

### Quiet Boot

Enabled            Display OEM logo instead of the POST messages.  
 Disabled          Display normal POST messages.  
 Fast

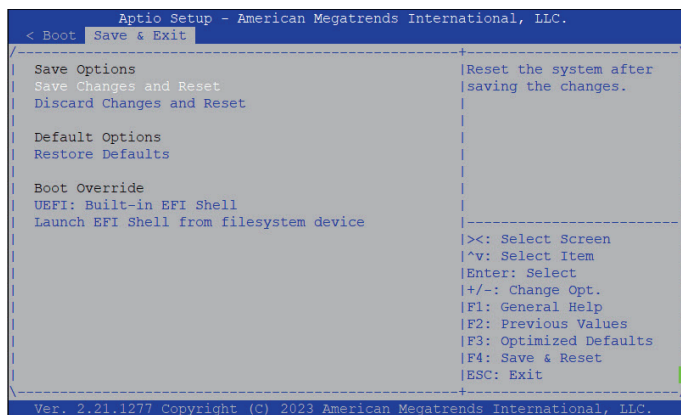
### Fast Boot

Enable or disable boot with initialization of a minimal set of devices required to launch active boot option. Has no effect for BBS boot options

### Boot Option #1 to Boot Option #10

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

## Save & Exit



### Save Changes and Reset

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

### Discard Changes and Reset

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

### Restore Defaults

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

### Launch EFI Shell from filesystem device

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