NEXCOM International Co., Ltd.

Network and Communication Solutions

Desktop Telecom Appliance

DTA1376 Series

User Manual

NEXCOM International Co., Ltd.
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PREFACE

Copyright

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Acknowledgements

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Regulatory Compliance Statements

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

Declaration of Conformity

FCC

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

CE

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

RoHS Compliance

NEXCOM RoHS Environmental Policy and Status Update

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.

NEXCOM Return Merchandise Authorization (RMA)

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

Repair Service Charges for Out-of-Warranty Products

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

System Level

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

Board Level

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

Warnings

Read and adhere to all warnings, cautions, and notices in this guide and the documentation supplied with the chassis, power supply, and accessory modules. If the instructions for the chassis and power supply are inconsistent with these instructions or the instructions for accessory modules, contact the supplier to find out how you can ensure that your computer meets safety and regulatory requirements.

Cautions

Electrostatic discharge (ESD) can damage system components. Do the described procedures only at an ESD workstation. If no such station is available, you can provide some ESD protection by wearing an antistatic wrist strap and attaching it to a metal part of the computer chassis.

Safety Information

Before installing and using the device, note the following precautions:

- Read all instructions carefully.
- Do not place the unit on an unstable surface, cart, or stand.
- Follow all warnings and cautions in this manual.
- When replacing parts, ensure that your service technician uses parts specified by the manufacturer.
- Avoid using the system near water, in direct sunlight, or near a heating device.
- The load of the system unit does not solely rely for support from the rackmounts located on the sides. Firm support from the bottom is highly necessary in order to provide balance stability.
- The computer is provided with a battery-powered real-time clock circuit. There is a danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Discard used batteries according to the manufacturer's instructions.

Installation Recommendations

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

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

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

Using your fingers can disconnect most of the connections. It is recommended that you do not use 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 skilled person.

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.

    "ATTENTION: Risque d'explosion si la batterie est remplacée par un type incorrect. Mettre au rebus les batteries usagées selon les instructions."

18. This equipment is not suitable for use in locations where children are likely to be present.

    Cet équipement ne convient pas à une utilisation dans des lieux pouvant accueillir des enfants.

19. Suitable for installation in Information Technology Rooms in accordance with Article 645 of the National Electrical Code and NFPA 75.

    Peut être installé dans des salles de matériel de traitement de l'information conformément à l'article 645 du National Electrical Code et à la NFPA 75.

20. Use certified and rated Laser Class I for Optical Transceiver product.

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.

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Package Contents

Before continuing, verify that the DTA1376 series package that you received is complete. Your DTA1376 series package should have all the items listed in the table below.

Item	Part Number	Name	Qty
1	10TA0137600X0 / TBD	DTA1376 / DTA1376A	1
2	5044440031X00	Rubber Foot Set	4
3	6023309081X00	DB9-to-RJ45 Console Cable	1
4	7400040039X00	Power Adapter	1

Ordering Information

The following below provides ordering information for DTA1376 series.

DTA1376 (P/N: 10TA0137600X0)

NXP® Layerscape® LS1046A processor, SoC, BGA type, 4 Cortex-A72 cores, 1.8GHz, 7 x 1GbE RJ45 ports

DTA1376A (P/N: TBD)

NXP® Layerscape® LS1046A processor, SoC, BGA type, 4 Cortex-A72 cores, 1.8GHz, 7 x 1GbE RJ45 ports, with PoE++ PD function supported

Chapter 1: Product Introduction

Overview

Key Features

- NXP® Layerscape® LS1046A SoC processor, BGA type
- 1 x DDR4-2133 SO-DIMM ECC socket, up to 16GB
- 1 x M.2 2242 NVMe SSD
- 7 x 1GbE RJ45 ports
- 1 x M.2 3042/3052 for 4G LTE/5G (FR1) module
- 1 x mini-PCIe slot for Wi-Fi 5 module
- PoE++ PD (DTA1376A only)

Hardware Specifications

Main Board

- NXP® Layerscape® LS1046A SoC processor, BGA type, 4 Cortex-A72 cores, 1.8GHz
- Supports DPAA

Main Memory

- 1 x DDR4 2133 SO-DIMM ECC socket, up to 16GB

Storage Device

- 1 x SPI NOR Flash 64MB for U-Boot
- 1 x M.2 2242 Key M, supports NVMe SSD with PCIe Gen3 x2
- 1 x Micro SD slot (optional)

LAN Features

- 7 x 1GbE RJ45 ports

Interface External

- SW1/SW2/SW3/power LEDs
- Ethernet LED: active/link speed
- 2 x USB 3.0
- 1 x Nano sim slot
- 1 x DC-in 12VDC
- 1 x Power button
- 1 x RJ45 console port
- 1 x Reset button
- 6 x SMA connectors (sides: 4 x for 4G LTE/5G antennas, back: 2 x forWi-Fi 5 antennas)
- 7 x 1GbE RJ45 ports

Interface Internal

- 1x mini-PCIe for Wi-Fi 5 module
- 1x M.2 3042/3052 for 4G LTE/5G FR1 module
- 1x M.2 2242 Key M for NVMe SSD
- 1x Micro SD slot (optional)

Power Input

- 1 x 40W 12V AC power adapter

Dimension and Weight

- Chassis dimension (mm): 225mm x 150mm x 44mm (W x D x H)
- Package dimension(mm): 343 x 258 x 212 (W x D x H)
- Without packing: 1.5kg
- With packing: 2.5kg

Environment

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

Certifications

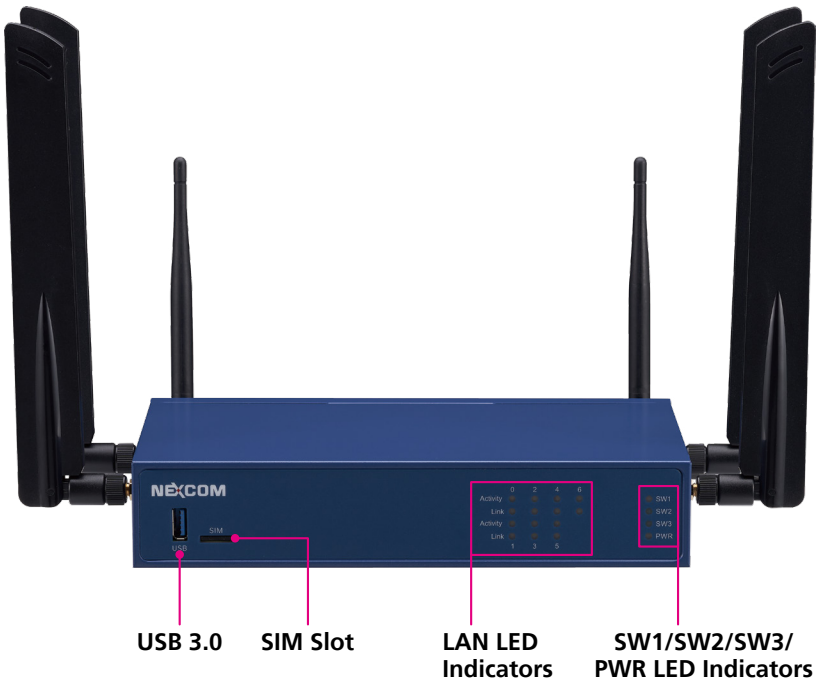
- CE/FCC Class B
- LVD

Software Development Kit

- NXP® Layerscape® SDK 20.04-NEXCOM DTA1376 revision

Knowing Your DTA1376/DTA1376A

Front Panel



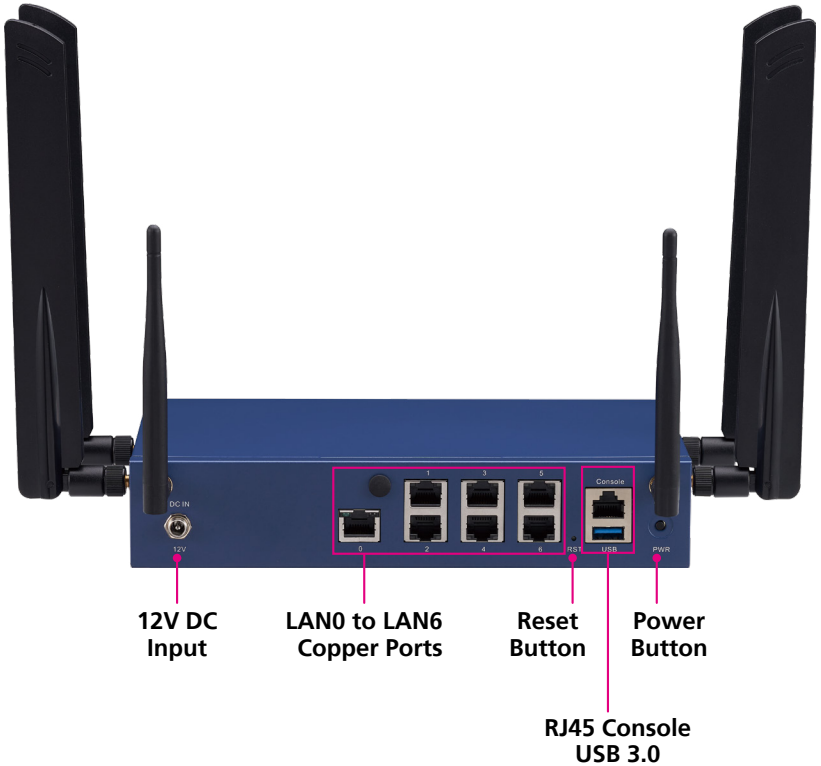
USB 3.0 Port
Used to connect a USB 3.0/2.0 device.

SIM Slot
Used to insert a Nano-SIM card.

LAN LED Indicators
Indicates the data activity and link status of LAN0 to LAN6 ports.

LED Indicators (SW1/SW2/SW3/PWR)
Three programmable LEDs (SW1, SW2, and SW3) and LED for power status (PWR) of the system.

Rear Panel



12V DC Input
Used to plug a DC power cord.

LAN0 to LAN6 Copper Ports
Used to connect network devices.

Reset Button
Press and hold 4 seconds using a pin or paperclip to restart the system.

RJ45 Console Port
Used to connect to a PC using a DB9 to RJ45 console cable for configuration.

USB 3.0 Port
Used to connect a USB 3.0/2.0 device.

Power Button
Press to power on or off the system.

Chapter 2: Jumpers and Connectors

This chapter describes how to set the jumpers and connectors on the DTA1376 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:

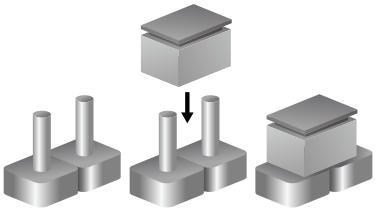
- Always disconnect the unit from the power outlet whenever you are working inside the case.
- If possible, wear a grounded wrist strap when you are working inside the computer case. Alternatively, discharge any static electricity by touching the bare metal chassis of the unit case, or the bare metal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

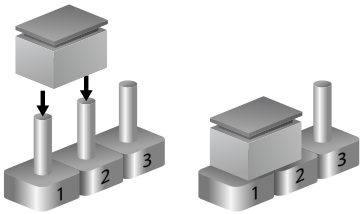
A jumper is the simplest kind of electric switch. It consists of two metal pins and a cap. When setting the jumpers, ensure that the jumper caps are placed on the correct pins. When the jumper cap is placed on both pins, the jumper is short. If you remove the jumper cap, or place the jumper cap on just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

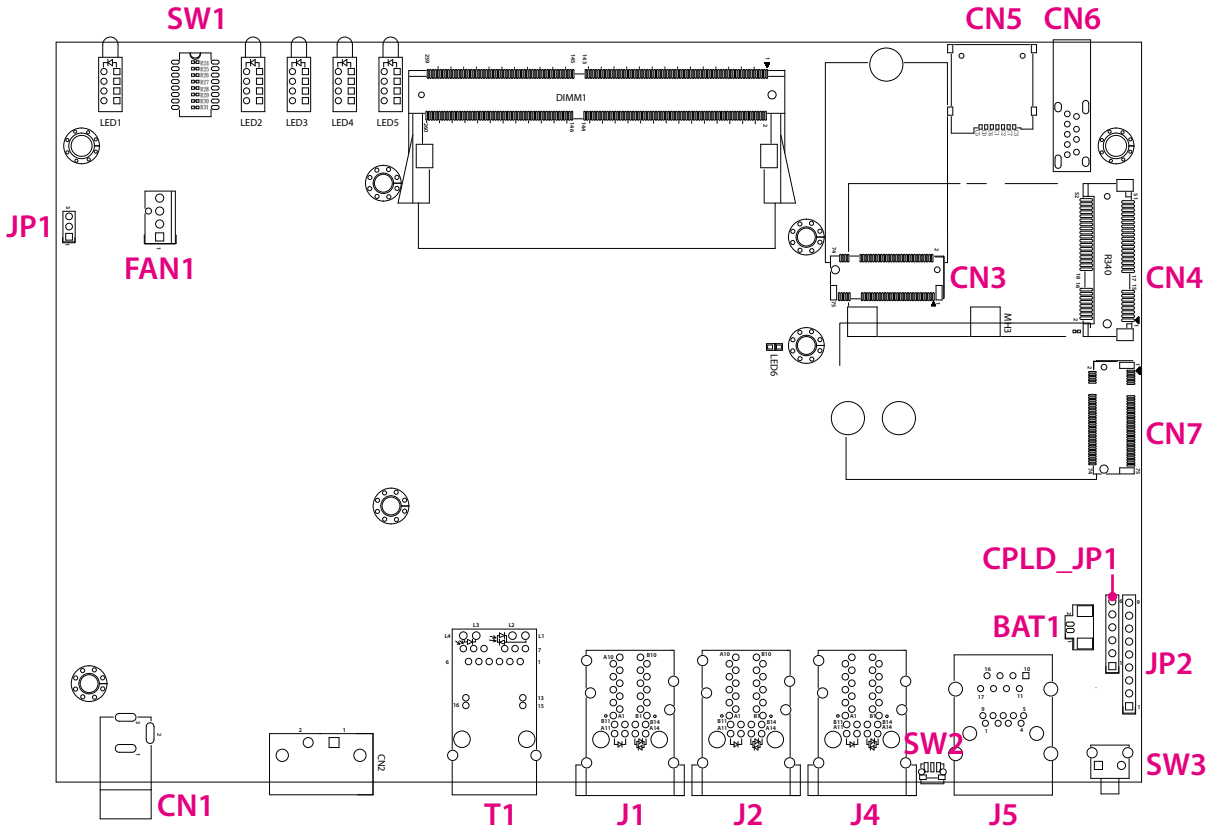


Three-Pin Jumpers: Pins 1 and 2 are Short



Locations of the Jumpers and Connectors

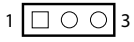
The figure below shows the location of the jumpers and connectors.



Jumpers

SDHC Mode

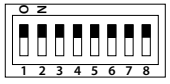
Connector type: 1x3 3-pin header
Connector location: JP1



Pin	Function
1-2	BOOT FROM SD CARD
2-3	BOOT FROM eMMC

RCW DIP Switch

Connector location: SW1



Pin	Definition	Pin	Definition
1	SW_RCW_SRC7	5	SW_RCW_SRC3
2	SW_RCW_SRC6	6	SW_RCW_SRC2
3	SW_RCW_SRC5	7	SW_RCW_SRC1
4	SW_RCW_SRC4	8	SW_RCW_SRC0

Connector Pin Definitions

External I/O Interfaces

12V DC Input

Connector location: CN1

Pin	Definition
1	GND
2	GND
3	P12V_IN

System Reset Button

Connector location: SW2

Pin	Definition
1	GND
2	RESET_BUTTON
3	GND

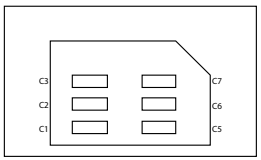
Power Button

Connector location: SW3

Pin	Definition
1	GND
2	PON_CPLD_BTN
3	GND
4	GND

Nano SIM Card Connector

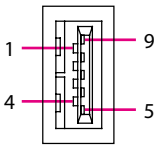
Connector location: CN5



Pin	Definition	Pin	Definition
C1	VCC	C5	GND
C2	RST	C6	VPP
C3	CLK	C7	I/O
C4	CD		

USB 3.0 Port (front panel)

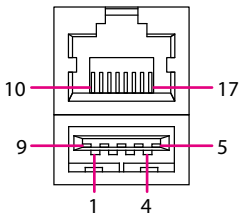
Connector type: USB 3.0 port, Type A
Connector location: CN6



Pin	Definition	Pin	Definition
1	P5V	8	USB3_TX_DN
2	USB2_DN	9	USB3_TX_DP
3	USB2_DP	MH1	GND_chassis
4	GND	MH2	GND_chassis
5	USB3_RX_DN	MH3	GND_chassis
6	USB3_RX_DP	MH4	NC
7	GND		

USB 3.0 Port (rear panel) with RJ45 (RS232)

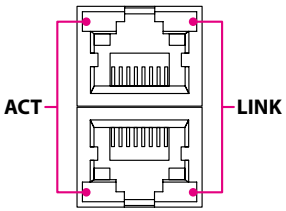
Connector type: USB 3.0 port, Type A
Connector location: J5



Pin	Definition	Pin	Definition
1	P5V	10	SP_RTS0_R
2	USB2_DN	11	SP_DTR0_R
3	USB2_DP	12	SP_TXD0_R
4	GND	13	SP_DCD0_R
5	USB3_RX_DN	14	GND
6	USB3_RX_DP	15	SP_RXD0_R
7	GND	16	SP_DSR0_R
8	USB3_TX_DN	17	SP_CTS0_R
9	USB3_TX_DP		
MH1	GND_chassis	MH4	GND_chassis
MH2	GND_chassis	MH5	GND_chassis
MH3	GND_chassis	MH6	GND_chassis

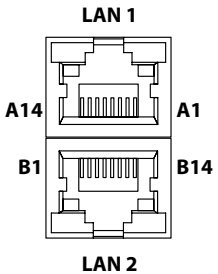
LAN 1 and LAN 2 Ports

Connector type: RJ45 with LEDs
Connector location: J1



Act (Left)	Status
Steady Green	Ethernet connected
Off	No connection
Flash Green	Data transferring

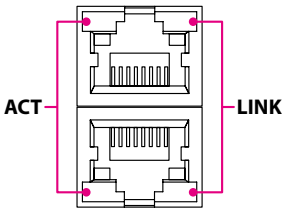
Link (Right)	Status
Blinking Green	1G network link
Steady Orange	100Mbps network link
Off	10Mbps or no link



Pin	Definition	Pin	Definition
A1	PORT2_MDI0	B1	PORT1_MDI0
A2	PORT2_MDI1	B2	PORT1_MDI1
A3	PORT2_MDI2	B3	PORT1_MDI2
A4	PORT2_MDI3	B4	PORT1_MDI3
A5	PORT2_MDI4	B5	PORT1_MDI4
A6	PORT2_MDI5	B6	PORT1_MDI5
A7	PORT2_MDI6	B7	PORT1_MDI6
A8	PORT2_MDI7	B8	PORT1_MDI7
A9	VCC_A	B9	VCC_B
A10	GND_A	B10	GND_B
A11	V3P3	B11	V3P3
A12	1545_LAN2_LED_ACT	B12	1545_LAN1_LED_ACT
A13	1545_LAN2_LED_1000M	B13	1545_LAN1_LED_1000M
A14	1545_LAN2_LED_100M	B14	1545_LAN1_LED_100M
MH1	GND_chassis	MH4	GND_chassis
MH2	GND_chassis	MH5	GND_chassis
MH3	GND_chassis	MH6	GND_chassis
NH1	NC	NH2	NC

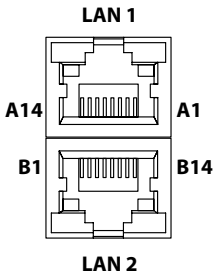
LAN 3 and LAN 4 Ports

Connector type: RJ45 with LEDs
Connector location: J2



Act (Left)	Status
Steady Green	Ethernet connected
Off	No connection
Blinking Green	Data transferring

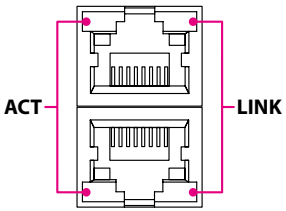
Link (Right)	Status
Steady Green	1G network link
Steady Orange	100Mbps network link
Off	10Mbps or no link



Pin	Definition	Pin	Definition
A1	PORT4_MDI0	B1	PORT3_MDI0
A2	PORT4_MDI1	B2	PORT3_MDI1
A3	PORT4_MDI2	B3	PORT3_MDI2
A4	PORT4_MDI3	B4	PORT3_MDI3
A5	PORT4_MDI4	B5	PORT3_MDI4
A6	PORT4_MDI5	B6	PORT3_MDI5
A7	PORT4_MDI6	B7	PORT3_MDI6
A8	PORT4_MDI7	B8	PORT3_MDI7
A9	VCC_A	B9	VCC_B
A10	GND_A	B10	GND_B
A11	V3P3	B11	V3P3
A12	1545_LAN4_LED_ACT	B12	1545_LAN3_LED_ACT
A13	1545_LAN4_LED_1000M	B13	1545_LAN3_LED_1000M
A14	1545_LAN4_LED_100M	B14	1545_LAN3_LED_100M
MH1	GND_chassis	MH4	GND_chassis
MH2	GND_chassis	MH5	GND_chassis
MH3	GND_chassis	MH6	GND_chassis
NH1	NC	NH2	NC

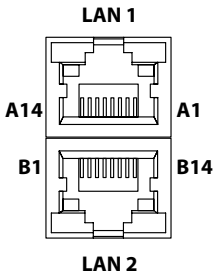
LAN 5 and LAN 6 Ports

Connector type: RJ45 with LEDs
Connector location: J4



Act (Left)	Status
Steady Green	Ethernet connected
Off	No connection
Blinking Green	Data transferring

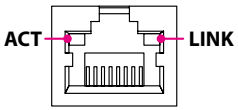
Link (Right)	Status
Steady Green	1G network link
Steady Orange	100Mbps network link
Off	10Mbps or no link

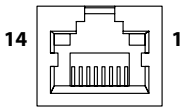


Pin	Definition	Pin	Definition
A1	PORT6_MDI0	B1	PORT5_MDI0
A2	PORT6_MDI1	B2	PORT5_MDI1
A3	PORT6_MDI2	B3	PORT5_MDI2
A4	PORT6_MDI3	B4	PORT5_MDI3
A5	PORT6_MDI4	B5	PORT5_MDI4
A6	PORT6_MDI5	B6	PORT5_MDI5
A7	PORT6_MDI6	B7	PORT5_MDI6
A8	PORT6_MDI7	B8	PORT5_MDI7
A9	VCC_A	B9	VCC_B
A10	GND_A	B10	GND_B
A11	V3P3	B11	V3P3
A12	1G_LAN6_LED_ACT	B12	1G_LAN5_LED_ACT
A13	1G_LAN6_LED_1000M	B13	1G_LAN5_LED_1000M
A14	1G_LAN6_LED_100M	B14	1G_LAN5_LED_100M
MH1	GND_chassis	MH4	GND_chassis
MH2	GND_chassis	MH5	GND_chassis
MH3	GND_chassis	MH6	GND_chassis
NH1	NC	NH2	NC

LAN 0 Port

Connector type: RJ45 with LEDs
Connector location: T1



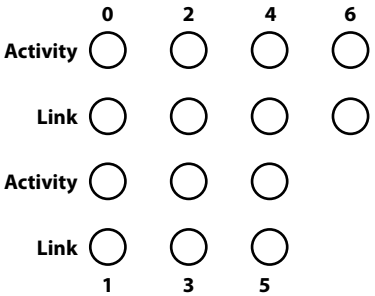


Act (Left)	Status
Steady Green	Ethernet connected
Off	No connection
Blinking Green	Data transferring

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

Pin	Definition	Pin	Definition
1	PB_CT	13	PR12
2	PB_MDI2N	14	PR36
3	PB_MDI2P	15	PR45
4	PB_MDI1P	16	PR78
5	PB_MDI1N	L1	1G_LAN1_LED_100M
6	PB_CT	L2	1G_LAN1_LED_1000M
7	PB_CT	L3	1G_LAN1_LED_ACT
8	PB_MDI3P	L4	V3P3
9	PB_MDI3N	MH1	GND_chassis
10	PB_MDI0N	MH2	GND_chassis
11	PB_MDI0P	NH1	NC
12	PB_CT	NH2	NC

LED Indicators



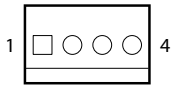
LED	Color	Status	Description
Ethernet LEDs	Green	Off	No connection
		On	Ethernet connected
		Blinking	Data transferring

LED	Color	Status	Description
SW1	Amber		User define
	Green		User define
SW2	Green	Off	Power down
		On	User define
SW3	Green	Off	Power down
		On	User define
PWR (Power)	Red	Steady	Standby
	Green	Steady	Power on

Internal Connectors

Fan Connector

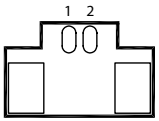
Connector type: 1x4 4-pin wafer
Connector location: FAN1



Pin	Definition
1	GND
2	12V
3	FAN1_IN
4	FAN1_PWM_R

RTC Battery Holder

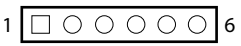
Connector type: 1x2 2-pin header
Connector location: BAT1



Pin	Definition
1	GND
2	3V_BATT

CPLD Program Connector

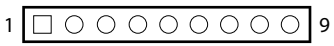
Connector type: 1x6 6-pin header
Connector location: CPLD_JP1



Pin	Definition	Pin	Definition
1	V3P3_VSB	4	JTAG_CPLD_TDO
2	GND	5	JTAG_CPLD_TDI
3	JTAG_CPLD_TCK	6	JTAG_CPLD_TMS

SD Card Signal Connector

Connector type: 1x9 9-pin header
Connector location: JP2



Pin	Definition	Pin	Definition
1	VDD	6	DATA3
2	VSS	7	DATA2
3	DATA0	8	DATA1
4	CMD	9	CD_B
5	CLK		

M.2 M-key (2242) for NVMe SSD

Connector location: CN3

Pin	Definition	Pin	Definition
1	GND	20	NC
2	P3V3_MKEY	21	NC
3	GND	22	NC
4	P3V3_MKEY	23	NC
5	NC	24	NC
6	NC	25	NC
7	NC	26	NC
8	NC	27	GND
9	GND	28	NC
10	NC	29	SD2_RX3_N
11	NC	30	NC
12	P3V3_MKEY	31	SD2_RX3_P
13	NC	32	NC
14	P3V3_MKEY	33	GND
15	GND	34	NC
16	P3V3_MKEY	35	SD2_TX3_N
17	NC	36	NC
18	P3V3_MKEY	37	SD2_TX3_P
19	NC	38	NGFF_DEVSLP(Always Low)

Pin	Definition	Pin	Definition
39	GND	58	NC
40	NC	59	M KEY
41	SD2_RX2_N	60	M KEY
42	NC	61	M KEY
43	SD2_RX2_P	62	M KEY
44	NC	63	M KEY
45	GND	64	M KEY
46	NC	65	M KEY
47	SD2_TX2_N	66	M KEY
48	NC	67	NC
49	SD2_TX2_P	68	NGFF_SUSCLK
50	NGFF_PERST_N	69	NC
51	GND	70	P3V3_MKEY
52	SSD_CLKREQ#	71	GND
53	PCIE3_REFCLK_S_N	72	P3V3_MKEY
54	NC	73	GND
55	PCIE3_REFCLK_S_P	74	P3V3_MKEY
56	NC	75	GND
57	GND		

M.2 B-key (3042/3052) for 4G LTE/5G Modem module

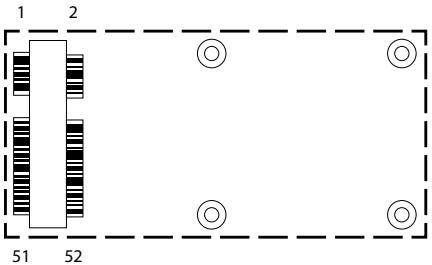
Connector location: CN7

Pin	Definition	Pin	Definition
1	NC	20	5G_COLAY_20
2	P3V3_BKEY	21	M2_BKEY_CONFIG0
3	GND	22	5G_COLAY_22
4	P3V3_BKEY	23	BKEY_WAN_WAKE#
5	GND	24	5G_COLAY_24
6	POWER_OFF_N	25	5G_COLAY_24
7	NC	26	W_5G_DIS2#
8	W_5G_DIS1#	27	GND
9	NC	28	5G_COLAY_28
10	5G_LED#	29	NC
11	GND	30	SIM_RST
12	B KEY	31	NC
13	B KEY	32	SIM_CLK
14	B KEY	33	GND
15	B KEY	34	SIM_DATA
16	B KEY	35	NC
17	B KEY	36	SIM_PWR
18	B KEY	37	NC
19	B KEY	38	5G_COLAY_38

Pin	Definition	Pin	Definition
39	GND	58	TEST_POINT
40	NC	59	NC
41	BKEY_RX_DN0	60	NC
42	NC	61	NC
43	BKEY_RX_DP0	62	TEST_POINT
44	NC	63	NC
45	GND	64	TEST_POINT
46	NC	65	NC
47	BKEY_TX_DN0	66	SIM_DET
48	NC	67	MODULE_1P8_RST#
49	BKEY_TX_DP0	68	5G_COLAY_68
50	BKEY_RST_N	69	M2_BKEY_CONFIG1
51	GND	70	P3V3_BKEY
52	BKEY_CLKREQ_N	71	GND
53	PCIE1_REFCLK_S_N	72	P3V3_BKEY
54	BKEY_PEWAKE#	73	GND
55	BKEY_PEWAKE#	74	P3V3_BKEY
56	TEST_POINT	75	M2_BKEY_CONFIG2
57	GND		

Mini-PCIe Connector for Wi-Fi 5 module

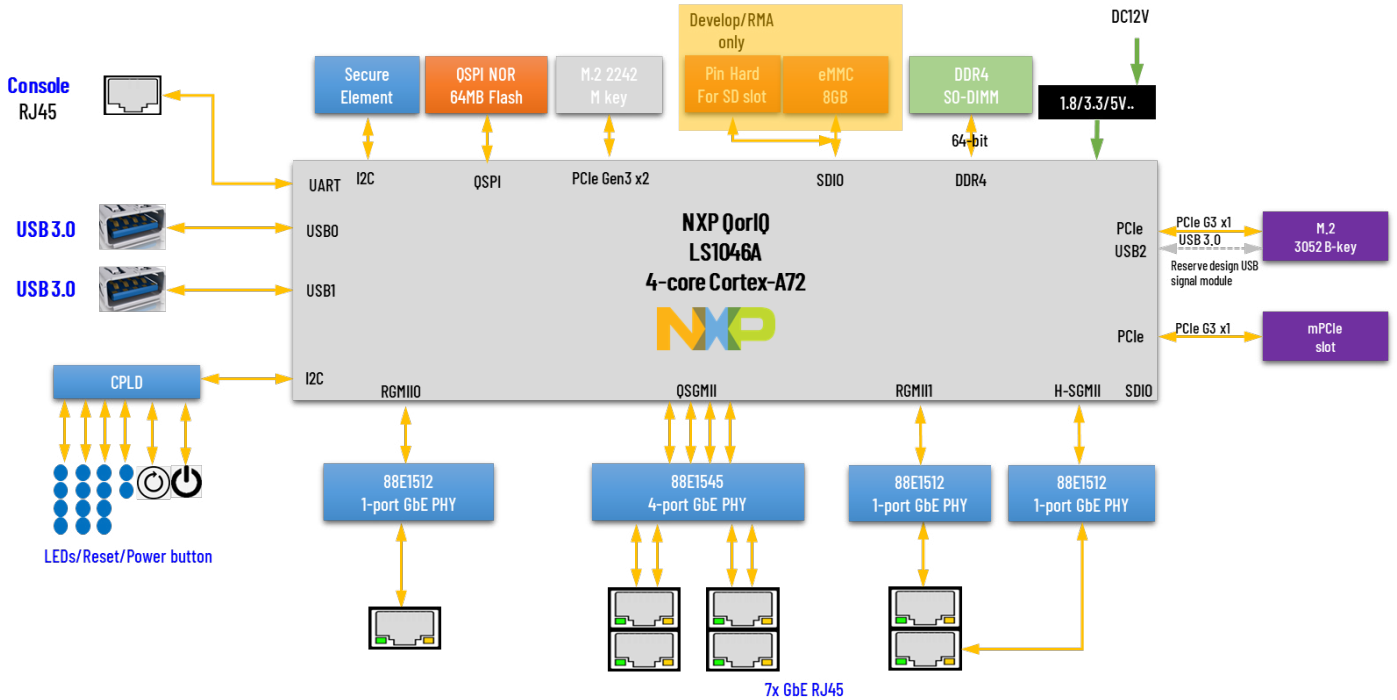
Connector location: CN4



Pin	Definition	Pin	Definition
1	P3V3_MNPE	14	NC
2	P3V3_MNPE	15	GND
3	NC	16	NC
4	GND	17	NC
5	NC	18	GND
6	NC	19	NC
7	CLKREQ_MNPE_N	20	W_DISABLE_MNPE_N
8	NC	21	GND
9	GND	22	SOC_PLTRST_N
10	NC	23	MNPE_RX_DN0_R
11	PCIE2_REFCLK_S_N	24	P3V3_MNPE
12	NC	25	MNPE_RX_DP0_R
13	PCIE2_REFCLK_S_P	26	GND

Pin	Definition	Pin	Definition
27	GND	40	GND
28	NC	41	P3V3_MNPE
29	GND	42	P3V3_MNPE
30	SMBUS_EKEY_CLK	43	GND
31	SD2_TX1_N	44	P3V3_MNPE
32	SMBUS_EKEY_DATA	45	V5P0
33	SD2_TX1_P	46	P3V3_MNPE
34	GND	47	V5P0
35	GND	48	NC
36	TEST_POINT	49	V5P0
37	GND	50	GND
38	TEST_POINT	51	V5P0
39	P3V3_MNPE	52	P3V3_MNPE

Block Diagram



Chapter 3: System Setup

Removing the Chassis Cover

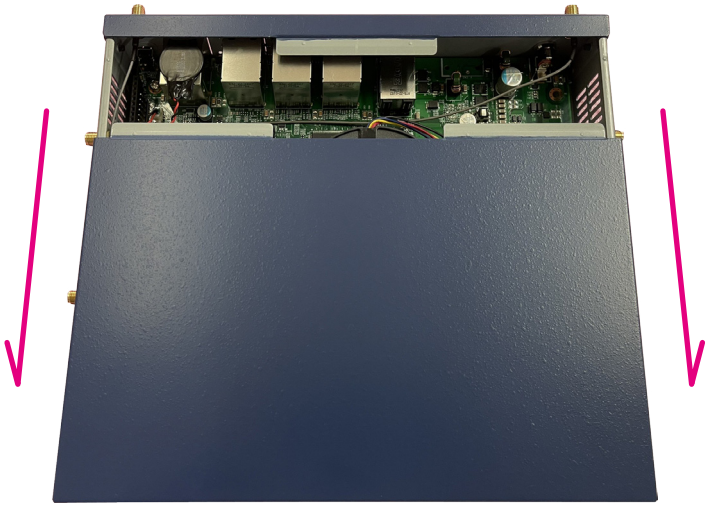
Prior to removing the chassis cover, make sure the unit's power is off and disconnected from the power sources to prevent electric shock or system damage.

1. The screws on the bottom and sides of the cover are used to secure the cover to the chassis. Remove these screws and put them in a safe place for later use.

Screws on the bottom

Screws on the sides

2. With the screws removed, gently slide the cover outwards then lift up the cover to remove it.



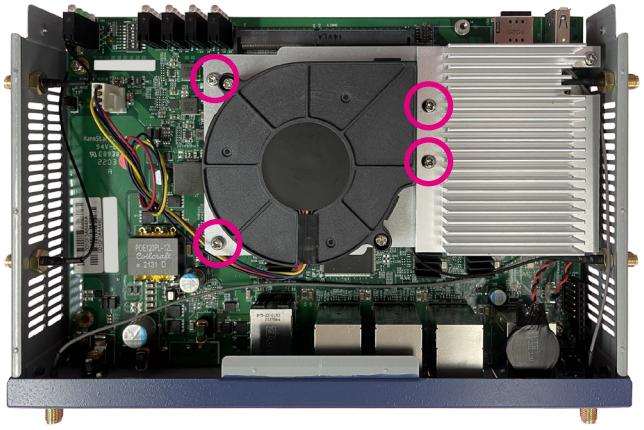
When sliding the chassis cover back to the system, ensure that the cover does not rub against the acetate tape above the fan. The acetate tape may be damaged if installed in such way. To prevent this, place the cover past ahead of the acetate tape before sliding it back. Refer to the images below for more information.

Correct way

Incorrect way

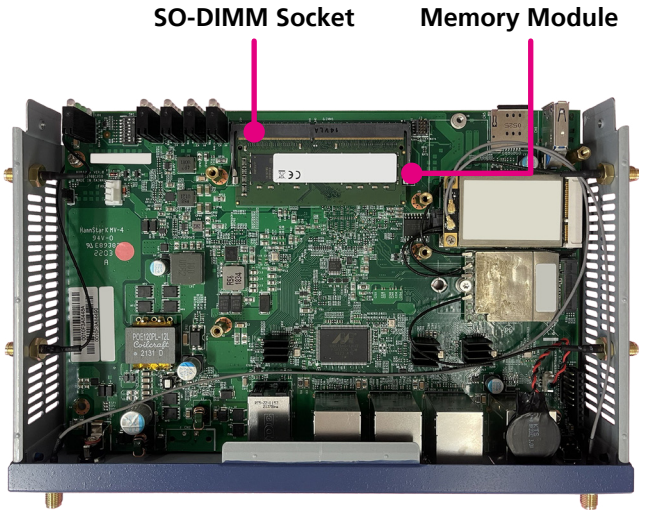
Installing a SO-DIMM Memory Module

1. Loosen the 4 screws on the heatsink fan and remove it from the motherboard to access the SO-DIMM slot.



2. Locate the SO-DIMM socket on the motherboard and insert the module into the socket at an approximately 30 degrees angle. Apply firm even pressure to each end of the module until it slips into the socket. The gold-plated connector on the edge of the module will almost completely disappear inside the socket.

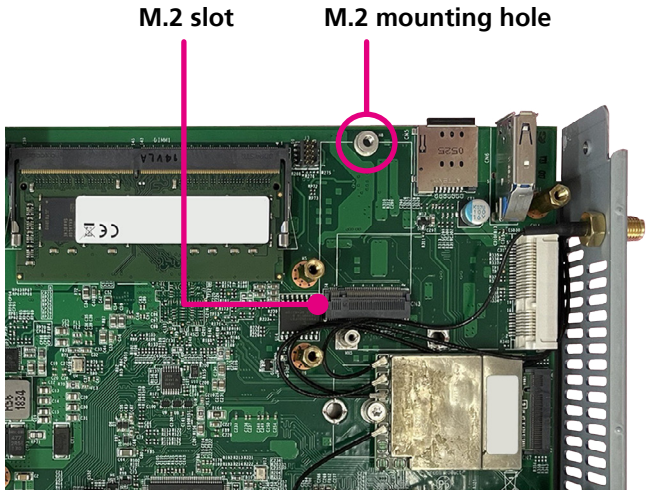
3. Push the module down until the clips on both sides of the socket lock into position. You will hear a distinctive "click" sound, indicating the module is correctly locked into position.



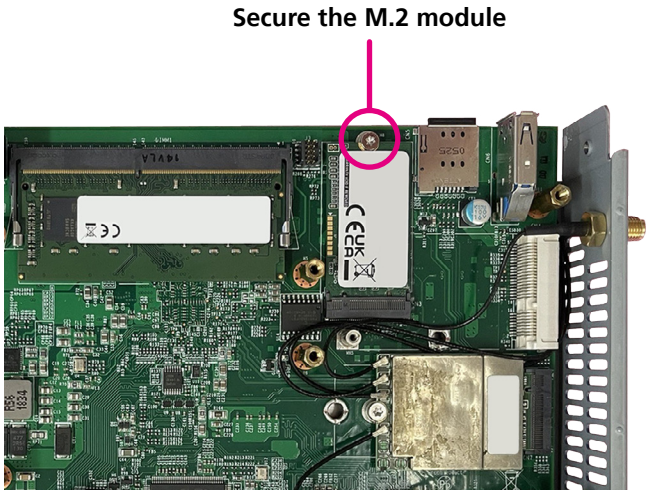
Installing a M.2 Module

Please install the M.2 module first in case a Wi-Fi module is necessary to assemble, and the supported form factor of M.2 is 2242 (M key) only.

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



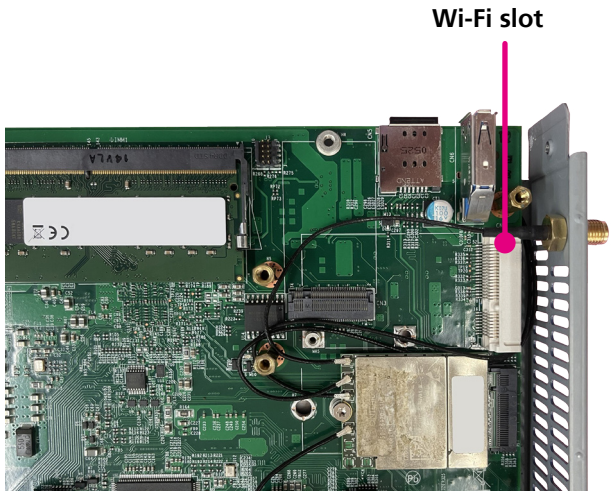
2. Insert the M.2 module into the M.2 slot at a 45 degrees angle until the gold-plated connector on the edge of the module completely disappears inside the slot. Push the M.2 module down and fasten an M.2 mounting screw into the mounting hole to secure the module.



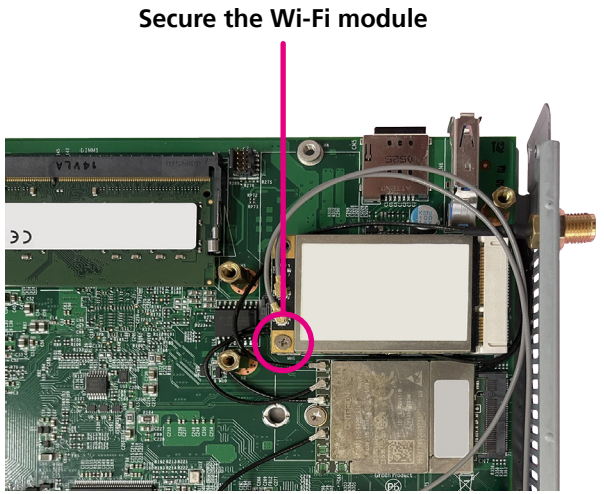
Installing a Wi-Fi Module

When installing both the M.2 and Wi-Fi module, please install the M.2 module first.

1. Locate the Wi-Fi slot on the motherboard.



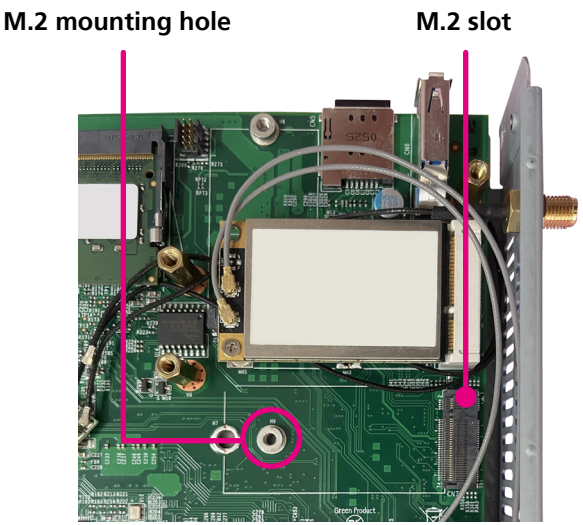
2. Insert the Wi-Fi module into the Wi-Fi slot at a 45 degrees angle until the gold-plated connector on the edge of the module completely disappears inside the slot. Push the Wi-Fi module down and fasten a Wi-Fi mounting screw into the mounting hole to secure the module.



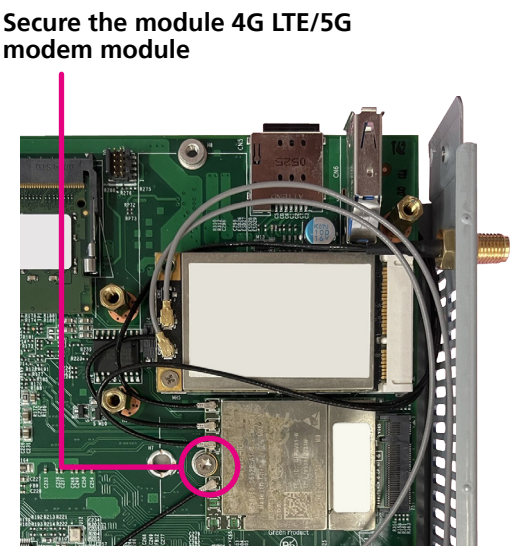
Installing a 4G LTE/5G Modem Module

Note that the supported form factor is 3042 and 3052 (B key).

1. Locate the 4G LTE/5G slot on the motherboard.



2. Insert the 4G LTE/5G module into the 4G LTE/5G slot at a 45 degrees angle until the gold-plated connector on the edge of the module completely disappears inside the slot. Push the 4G LTE/5G module down and fasten an M.2 mounting screw into the mounting hole to secure the module.



Chapter 4: System Configuration

Operating System Information

The built-in OS on DTA1376/DTA1376A is Ubuntu version 18.04 and Linux kernel version is 5.4.47. The OS and bootloader are customized by NXP LSDK version 20.12. For more information of LSDK, please visit www.nxp.com to search LSDK or refer to LSDK user guide at following link: https://www.nxp.com/docs/en/user-guide/LSDKUG_Rev20.12.pdf.

Logging into the System.

1. Connect the console port (refer to the section of Knowing Your DTA1376/DTA1376A) to a PC using a RJ45 serial console cable.

2. Install a terminal software (e.g. PuTTY, Tera Term, or Minicom) on the connected PC. The UART Baud rate setting is 115200-8-N-1 and no flow control.

3. Log in to Ubuntu using the installed terminal software after powering on the DTA1376/DTA1376A. By default, the username and password both are "root".

Mapping the Network Ports

Refer to the table below for network ports mapping.

Port Number	Port Name on Chassis	Port name in U-Boot	Port name in Linux
Port 0	RGMII	FM1@DTSEC3	fm1-mac3
Port 1	QSGMI	FM1@DTSEC6	fm1-mac6
Port 2	QSGMII	FM1@DTSEC5	fm1-mac5
Port 3	QSGMII	FM1@DTSEC10	fm1-mac10
Port 4	QSGMI	FM1@DTSEC1	fm1-mac1
Port 5	RGMII	FM1@DTSEC4	fm1-mac4
Port 6	SGMI	FM1@DTSEC9	fm1-mac9

Installing the Software Package

Refer to the steps below to install the specified software package. The example shown here is connecting to a PC using port 1.

Step1. dhclient fm1-mac6

Step2. apt update

Step3. apt install specified_package_name

ip_forward Testing

To do the “ip_forward” testing, the command should be as follows:

“/etc/sysctl.conf” to set “net.ipv4.ip_forward=1”.

Turning Off the DTA1376/DTA1376A

Before powering off the DTA1376/DTA1376A, it is suggested to command "halt" first.