Lanner

Network Appliance Platform

Hardware Platforms for Network Computing

NCA-1515
User Manual

Version: 0.5

Date of Release: 2019-01-30

Icon Descriptions

The icons are used in the manual to serve as an indication of interest topics or important messages. Below is a description of these icons:

Note: This check mark indicates that there is a note of interest and is something that you should pay special attention to while using the product.

Warning: This mark indicates that there is a caution or warning and it is something that could damage your property or product.

Online Resources

The listed websites are links to the online product information and technical support.

Resources	URL
Lanner	http://www.lannerinc.com
Product Resource	http://www.lannerinc.com/download-center
RMA	http://eRMA.lannerinc.com

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Federal Communication Commission Interference Statement

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. 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. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

FCC Caution

- Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.
- This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Operations in the 5.15-5.25GHz band are restricted to indoor usage only.
This device meets all the other requirements specified in Part 15E, Section 15.407 of the FCC Rules.

Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

Note: The country code selection is for non-US model only and is not available to all US model. Per FCC regulation, all WiFi product marketed in US must fixed to US operation channels only.

Safety Guidelines

Follow these guidelines to ensure general safety:

- Keep the chassis area clear and dust-free during and after installation.
- Do not wear loose clothing or jewelry that could get caught in the chassis. Fasten your tie or scarf and roll up your sleeves.
- Wear safety glasses if you are working under any conditions that might be hazardous to your eyes.
- Do not perform any action that creates a potential hazard to people or makes the equipment unsafe.
- Disconnect all power by turning off the power and unplugging the power cord before installing or removing a chassis or working near power supplies
- Do not work alone if potentially hazardous conditions exist.
- Never assume that power is disconnected from a circuit; always check the circuit.

Lithium Battery Caution:

- Risk of Explosion if Battery is replaced by an incorrect type. Dispose of used batteries according to the instructions.
- Installation only by a trained electrician or only by an electrically trained person who knows all English Installation and Device Specifications which are to be applied.
- Do not carry the handle of power supplies when moving to another place.

Operating Safety

- Electrical equipment generates heat. Ambient air temperature may not be adequate to cool equipment to acceptable operating temperatures without adequate circulation. Be sure that the room in which you choose to operate your system has adequate air circulation.
- Ensure that the chassis cover is secure. The chassis design allows cooling air to circulate effectively. An open chassis permits air leaks, which may interrupt and redirect the flow of cooling air from internal components.
- Electrostatic discharge (ESD) can damage equipment and impair electrical circuitry. ESD damage occurs when electronic components are improperly handled and can result in complete or intermittent failures. Be sure to follow ESD-prevention procedures when removing and replacing components to avoid these problems.
- Wear an ESD-preventive wrist strap, ensuring that it makes good skin contact. If no wrist strap is available, ground yourself by touching the metal part of the chassis.
- Periodically check the resistance value of the antistatic strap, which should be between 1 and 10 megohms (Mohms).

Mounting Installation Precaution

Environment:

- Do not install and/or operate this unit in any place that flammable objects are stored or used in.

- If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient. Therefore, consideration should be given to installing the equipment in an environment compatible with the maximum ambient temperature (Tma) specified by the manufacturer.
- Installation of the equipment (especially in a rack) should consider the ventilation of the system's intake (for taking chilled air) and exhaust (for emitting hot air) openings so that the amount of air flow required for safe operation of the equipment is not compromised.
- To avoid a hazardous load condition, be sure the mechanical loading is even when mounting.
- Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of the circuits might have on over-current protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.
- Reliable earthing should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit (e.g. use of power strips).

Installation & Operation:

- The installation of this product must be performed by trained specialists; otherwise, a non-specialist might create the risk of the system's falling to the ground or other damages.
- Lanner Electronics Inc. shall not be held liable for any losses resulting from insufficient strength for supporting the system or use of inappropriate installation components.

Consignes de sécurité

Suivez ces consignes pour assurer la sécurité générale :

- Laissez la zone du châssis propre et sans poussière pendant et après l'installation.
- Ne portez pas de vêtements amples ou de bijoux qui pourraient être pris dans le châssis. Attachez votre cravate ou écharpe et remontez vos manches.
- Portez des lunettes de sécurité pour protéger vos yeux.
- N'effectuez aucune action qui pourrait créer un danger pour d'autres ou rendre l'équipement dangereux.
- Coupez complètement l'alimentation en éteignant l'alimentation et en débranchant le cordon d'alimentation avant d'installer ou de retirer un châssis ou de travailler à proximité de sources d'alimentation.
- Ne travaillez pas seul si des conditions dangereuses sont présentes.
- Ne considérez jamais que l'alimentation est coupée d'un circuit, vérifiez toujours le circuit. Cet appareil génère, utilise et émet une énergie radiofréquence et, s'il n'est pas installé et utilisé conformément aux instructions des fournisseurs de composants sans fil, il risque de provoquer des interférences dans les communications radio.

Avertissement concernant la pile au lithium

- Risque d'explosion si la batterie est remplacée par un type incorrect. Mettre au rebus les batteries usagées selon les instuctions.
- L'installation doit être effectuée par un électricien formé ou une personne formée à l'électricité connaissant toutes les spécifications d'installation et d'appareil du produit.
- Ne transportez pas l'unité en la tenant par le câble d'alimentation lorsque vous déplacez l'appareil.

Sécurité de fonctionnement

L'équipement électrique génère de la chaleur. La température ambiante peut ne pas être adéquate pour refroidir l'équipement à une température de fonctionnement acceptable sans circulation adaptée. Vérifiez que votre site propose une circulation d'air adéquate.

- Vérifiez que le couvercle du châssis est bien fixé. La conception du châssis permet à l'air de refroidissement de bien circuler. Un châssis ouvert laisse l'air s'échapper, ce qui peut interrompre et rediriger le flux d'air frais destiné aux composants internes.
- Les décharges électrostatiques (ESD) peuvent endommager l'équipement et gêner les circuits électriques. Des dégâts d'ESD surviennent lorsque des composants électroniques sont mal manipulés et peuvent causer des pannes totales ou intermittentes. Suivez les procédures de prévention d'ESD lors du retrait et du remplacement de composants.
- Portez un bracelet anti-ESD et veillez à ce qu'il soit bien au contact de la peau. Si aucun bracelet n'est disponible, reliez votre corps à la terre en touchant la partie métallique du châssis.
- Vérifiez régulièrement la valeur de résistance du bracelet antistatique, qui doit être comprise entre 1 et 10 mégohms (Mohms).

This equipment must be grounded. The power cord for product should be connected to a socket-outlet with earthing connection.

Battery Precautions

- Lithium Battery Caution: There is danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type. Dispose of batteries according to the manufacturer's instructions.
- Disposal of a BATTERY into fire or a hot oven, or mechanically crushing or cutting of a BATTERY can result in an EXPLOSION.
- Leaving a BATTERY in an extremely high temperature surrounding environment can result in an EXPLOSION or the leakage of flammable liquid or gas.
- A BATTERY subjected to extremely low air pressure may result in an EXPLOSION or the leakage of flammable liquid or gas.

Cet équipement doit être mis à la terre. La fiche d'alimentation doit être connectée à une prise de terre correctement câblée.

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CHAPTER 1: PRODUCT OVERVIEW

The NCA-1515, a desktop network appliance powered by Intel® Atom® C3000 (codenamed Denverton) CPU, features robust performance and Intel's QuickAssist Technology, offering cryptographic acceleration and commercial-grade LAN functions in a 231mm x 200mm x 44mm (WxDxH) form factor.

- Intel® Atom® C3000 (Denverton)
- Max. 4x GbE RJ45 w/ 1 Pair of Gen3 Bypass, 2x GbE SFP w/ LED & 2x GbE RJ45 (See SKU)
- 2x 260-pin SODIMM (by SKU), DDR4 2400/2133/1866MHz ECC SODIMM, Max. 32GB
- 1x RJ45 Console, 2x USB 2.0, 1x Onboard EMMC 8G, 2x Nano SIM for M.2
- 2x Mini-PCIe (PCIe / USB 2.0), 1x M.2 2242 B Key (USB 3.0)

Package Content

Your package contains the following items:

- 1x NCA-1515 Network Appliance
- 1x Power Adapter
- 1x Power Cable (the provided plug type will vary by region)
- 4x Rubber Pads

Note:
(1) If any component is missing or damaged, please contact your dealer immediately for assistance. (2) The supplied power adapter and power cable are dedicated to this product only; do not use them with devices other than this model.

Ordering Information

SKU No.	Specification
NCA-1515A	C3758, 2x DDR4 ECC SODIMM, 4x GbE RJ45 w/ 1 Pair of Gen3 Bypass, 2x GbE SFP w/ LED & 2x GbE RJ45, w/BMC, 60W Adapter
NCA-1515B	C3558, 2x DDR4 ECC SODIMM, 4x GbE RJ45 w/ 1 Pair of Gen3 Bypass & 2x GbE SFP w/ LED, w/ BMC, 60W Adapter
NCA-1515C	C3308, 1x DDR4 ECC SODIMM, 4x GbE RJ45 w/o Bypass, 36W Adapter

Note: Intel® Atom® C3000 processor supports only 2400Mhz RAM. (To use memory with lower frequencies, please check with your sales representative)

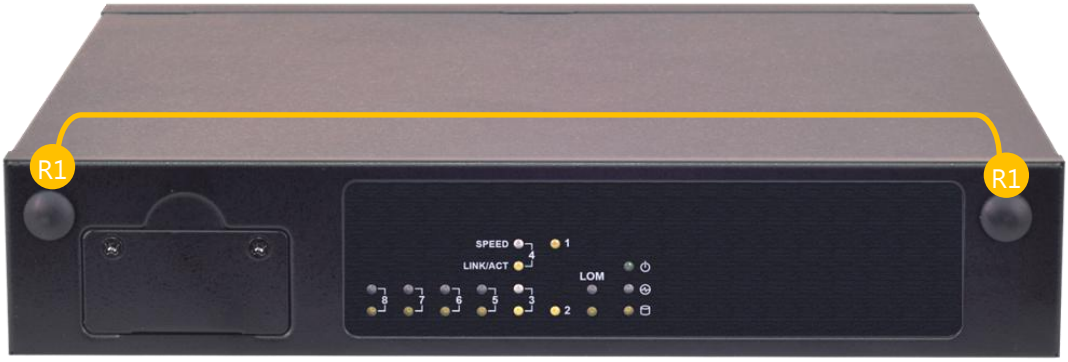
Optional Accessory

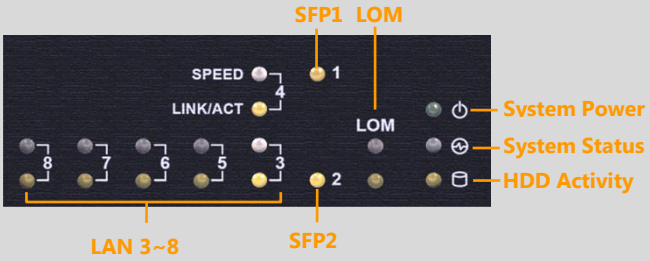
- 1U Rack-mount kit (Ear Bracket)
- HDD Kit
- Wall Mount Kit

System Specifications

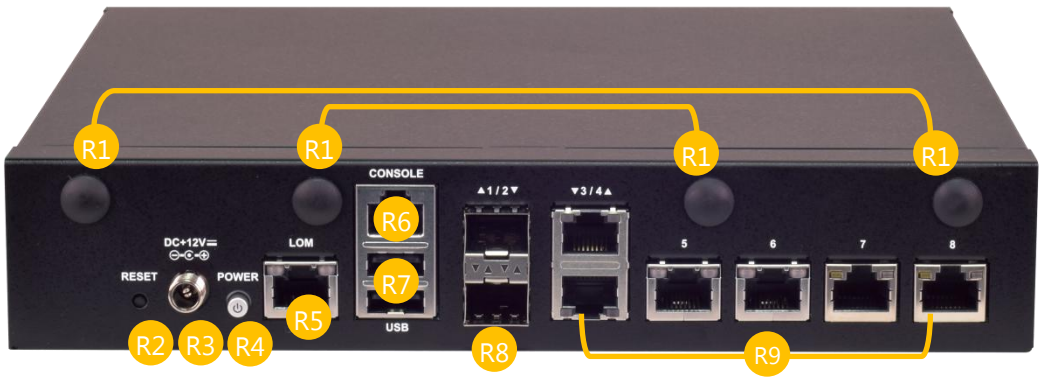
Form Factor		Desktop
Platform	Processor Options	Intel® Atom® C3000 (Denverton)
	CPU Socket	Onboard
	Chipset	SoC
	Security Acceleration	Intel® QuickAssist Technology
BIOS		AMI SPI Flash BIOS
System Memory	Technology	DDR4 2400/2133MHz ECC DIMM
	Max. Capacity	32GB
	Socket	2x 260-pin SODIMM
Networking	Ethernet Ports	4x GbE RJ45 Intel® SoC Integrated MAC 2x GbE RJ45 Intel® i350 and (by SKU) 2x GbE SFP Intel® i350 (by SKU)
	Bypass	1 Pair of Gen3 (by SKU)
	NIC Module Slot	N/A
LOM	IO Interface	1x RJ45 (By SKU)
	OPMA slot	Yes
I/O Interface	Reset Button	1
	LED	Power/Status/Storage
	Power Button	1x ATX Power Switch
	Console	1x RJ45
	USB	2x USB 2.0
	LCD Module	N/A
	Display	N/A
	Power input	1x DC Jack
Storage	HDD/SSD Support	1x 2.5" Bay (Optional)
	Onboard Slots	1x EMMC 8GB
Expansion	PCIe	N/A
	mini-PCIe	2x Mini-PCIe (PCIe/USB2.0), 1x M.2 2242 B Key (USB3.0)
	SIM Card Slot	2x Nano SIM for M.2
Miscellaneous	Watchdog	Yes
	Internal RTC with Li-Battery	Yes
	TPM	TPM 2.0
Cooling	Processor	Passive CPU heatsink
	System	1x Cooling Fan w/ Smart Fan
Environmental Parameters	Temperature	0~40°C Operating -20~70°C Non-Operating
	Humidity (RH)	5 to 90% Operating 5 to 95% Non-Operating
System Dimensions	(WxDxH)	231 x 200 x 44 mm
	Weight	1.2 kg
Package Dimensions	(WxDxH)	358 x 135 x 290 mm
	Weight	2.75 kg
Power	Type/Watts	36W or 60W Power Adapter (By SKU)
	Input	AC 100~240V @50~60 Hz
Approvals and Compliance		RoHS, CE/FCC Class A, UL

Front Panel



No.	Description	
F1	SIM Card Slot	Insert 1x SIM card for LTE module here
F2	LED Indicators	

Rear Panel

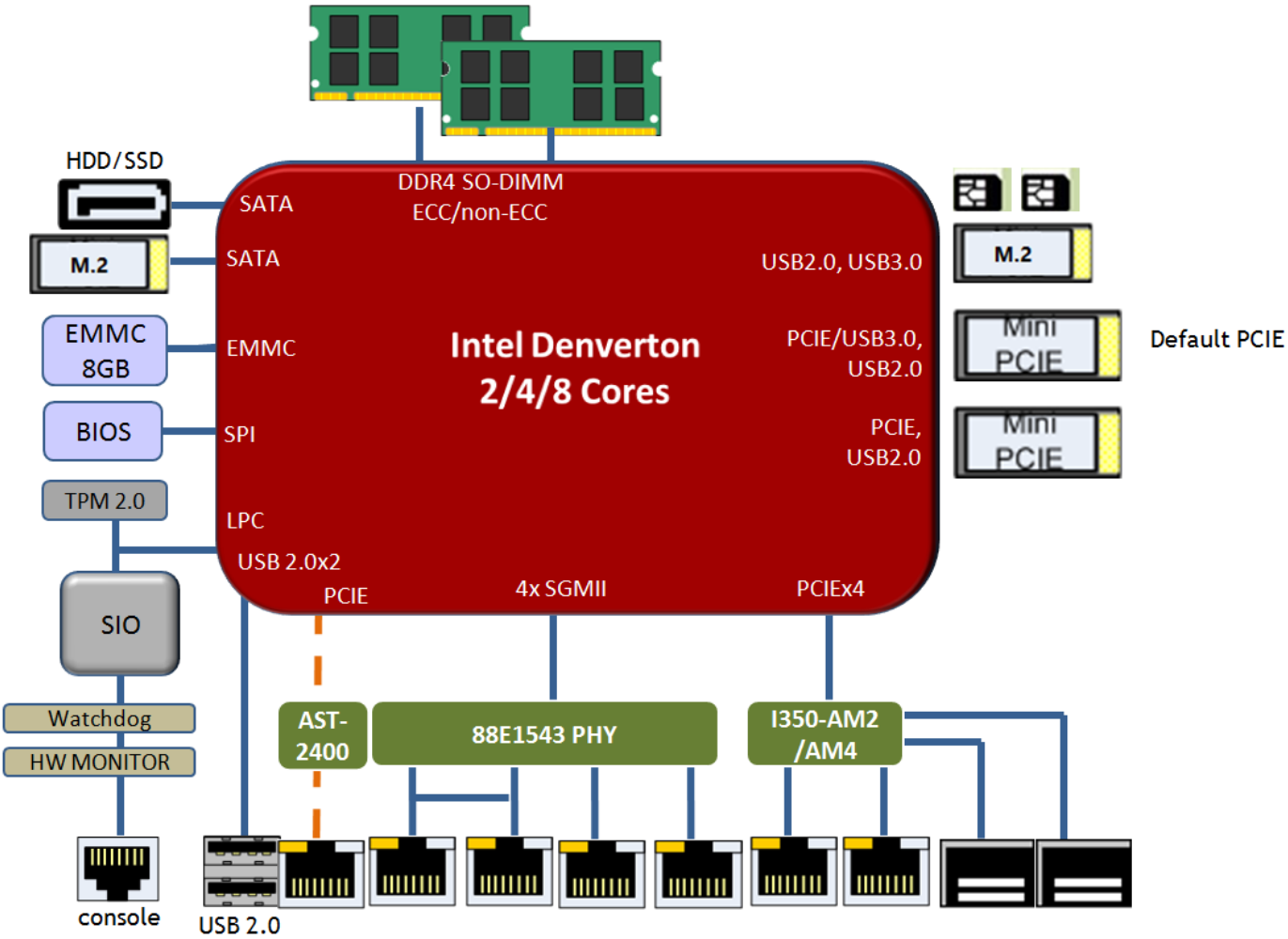


No.	Description	
R1	Antenna Port	SMA connector for the Wifi or LTE module
R2	Reset Button	Press to perform a reset
R3	DC-Jack	Power Supply
R4	Power Button	Press to power on/off the system
R5	LOM Port	1x dedicated management channel for device maintenance
R6	Console Port	1x GbE RJ45 console port
R7	USB Ports	2x Type A USB 2.0 port
R8	SFP Port	2x 1G SFP port
R9	GbE Ports	6x GbE RJ45 Ports

CHAPTER 2: MOTHERBOARD INFORMATION

Block Diagram

The block diagram indicates how data flows among components on the motherboard. Please refer to the following figure for your motherboard's layout design.



CHAPTER 3 HARDWARE INSTALLATION

Installing Nano SIM Card

The SIM slot on front panel supports a dual-SIM LTE module, with the primary SIM socket on the left and the secondary SIM socket on the right. The SIM sockets support push-push mechanism, allowing inserting and ejecting the SIM card to be as easy as one push.

1. Loosen the two screws that secure the SIM slot cover and remove the slot cover. With the angled corner facing inward, push the SIM card all the way in until it clicks into place.

2. To remove the SIM card, use your fingertip to push it a little to have the card automatically ejected.

Rack-mounting the System

With the Rack-mount Kit, this system can be fixed onto rack posts. Please contact Lanner's sales representative for purchasing this kit.

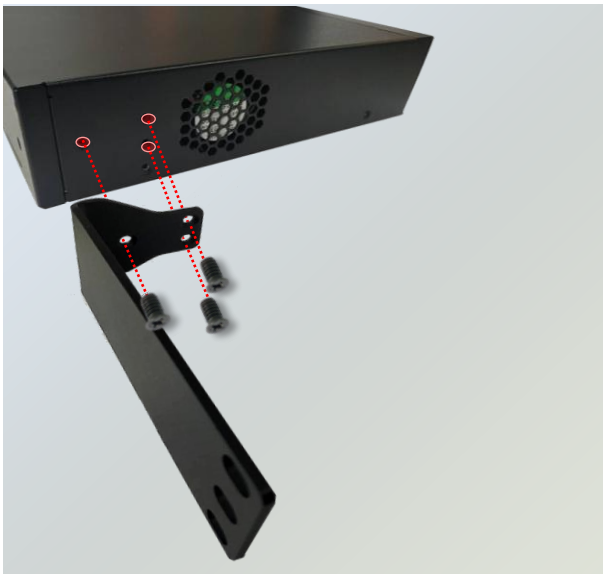
What's in the Rack-mount Kit

Check the kit contents for the following items:

- 1x pair of Ear Brackets
- 6x Screws for the fixture of the ear brackets
- 4x Screws for securing the system on the rack

Attaching the Assembly to the Chassis

1. On one side of the system, align the ear bracket to the screw holes on the side panel and fix it using three screws.
2. Secure the other ear bracket to the other side of the system.



Installing the System to the Rack

3. In the rack, install a shelf to support the system (recommended). Hold the system with its front facing you, lift and carefully insert the system into the rack. Attach the brackets to the rail rack using screws and/or retainer nuts.

Wall-mounting the System

With the Wall-mount Kit, this system can be fixed on the wall surface. Please contact Lanner's sales representative for purchasing this kit.

What's in the Wall-mount Kit?

Check the kit contents for the following items:

- 1x pair of Wall Brackets

Wall Brackets

Screws

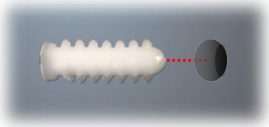
- 1x Screw Pack

1. Flip over the system; fix both wall brackets onto the bottom with four screws as shown in the picture.

2. On the wall, measure the exact place where you want to hang the system and drill four holes.

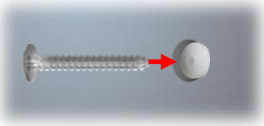
3. Insert the wall plugs into the holes, and then insert the long screws into the wall screws.

2



M4 x 2mm

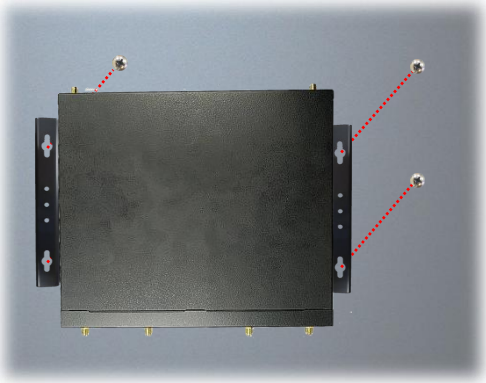
3



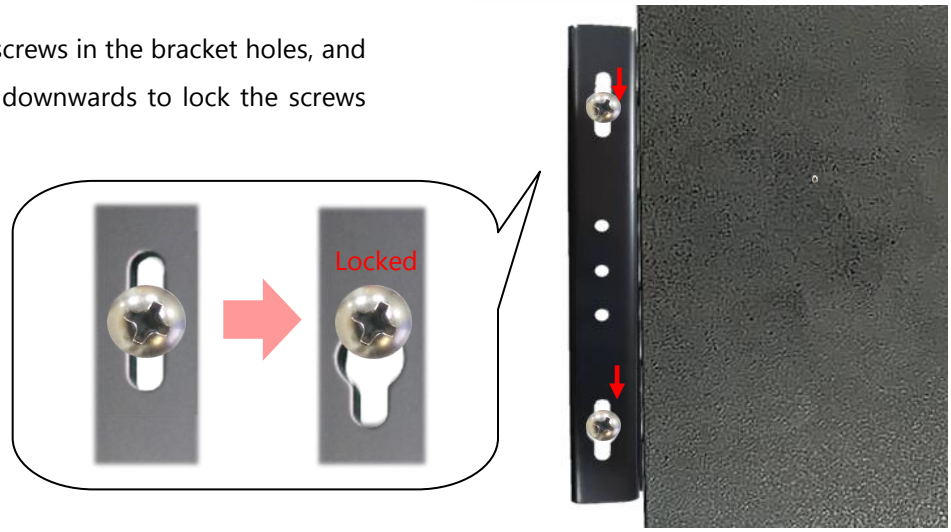
M3 x 19.5mm

(The demonstrated screw type can fit in general drywall or shelves. Please identify the wall type and select the suitable fixing approach to fix this system to the wall, and consult a qualified trained person if you are unsure.)

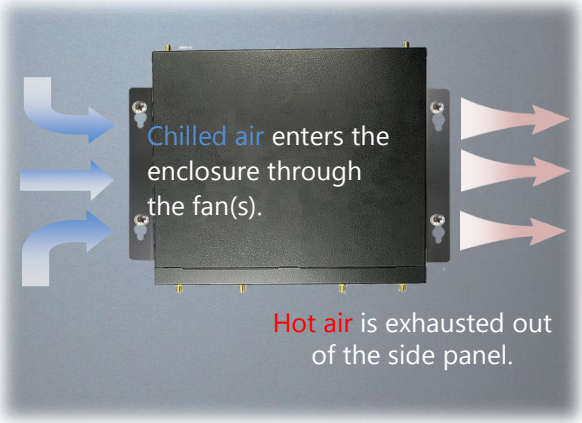
4. Align the four screw holes on the system's wall brackets with the four long screws you just installed on the wall.



Engage the four screws in the bracket holes, and push the system downwards to lock the screws into position.



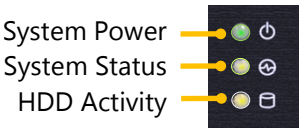
Make sure you make enough room for airflow ventilation of the system's intake and exhaust openings by removing as many obstructions as possible or through proper cable management.



CHAPTER 4: BIOS SETUP

APPENDIX A: LED INDICATOR EXPLANATIONS

The status explanations of LED indicators on Front Panel are as follows:



- **System Power**

Solid Green	*The system is powered on*
Off	*The system is powered off*

- **System Status**

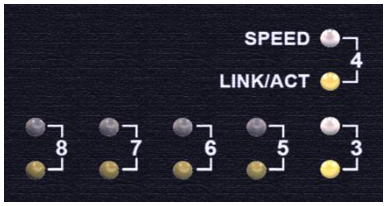
This LED indicator is programmable. You could program it to display the operating status of the behaviors described below:

Solid Green	*Defined by GPIO*
Solid Red	*Defined by GPIO*
Off	*Defined by GPIO*

- **HDD Activity Status**

Blinking Amber	*Data access activities*
Off	*No data access activities*

- **RJ45 LAN Status**



Upper LED (Speed)	*Solid Green*	*Operating as a 100 Mbps connection*
	Solid Amber	*Operating as a Gigabit connection (1000 Mbps)*
	Off	*No link has been established*
Lower LED (Link Status)	*Solid Amber*	*Link has been established and there is no activity on this port*
	Blinking Amber	*Link has been established and there is activity on this port*
	Off	*No link has been established*

- **SFP Port**

Solid Amber	*Link has been established and there is no activity on this port*
Blinking Amber	*Link has been established and there is activity on this port*
Off	*No link has been established*

APPENDIX B: TERMS AND CONDITIONS

Warranty Policy

1. All products are under warranty against defects in materials and workmanship for a period of one year from the date of purchase.
2. The buyer will bear the return freight charges for goods returned for repair within the warranty period; whereas the manufacturer will bear the after service freight charges for goods returned to the user.
3. The buyer will pay for the repair (for replaced components plus service time) and transportation charges (both ways) for items after the expiration of the warranty period.
4. If the RMA Service Request Form does not meet the stated requirement as listed on "RMA Service", RMA goods will be returned at customer's expense.
5. The following conditions are excluded from this warranty:
   - Improper or inadequate maintenance by the customer
   - Unauthorized modification, misuse, or reversed engineering of the product
   - Operation outside of the environmental specifications for the product.

RMA Service

Requesting an RMA#

1. To obtain an RMA number, simply fill out and fax the "RMA Request Form" to your supplier.
2. The customer is required to fill out the problem code as listed. If your problem is not among the codes listed, please write the symptom description in the remarks box.
3. Ship the defective unit(s) on freight prepaid terms. Use the original packing materials when possible.
4. Mark the RMA# clearly on the box.

Note: Customer is responsible for shipping damage(s) resulting from inadequate/loose packing of the defective unit(s). All RMA# are valid for 30 days only; RMA goods received after the effective RMA# period will be rejected.

RMA Service Request Form

When requesting RMA service, please fill out the following form. Without this form enclosed, your RMA cannot be processed.

RMA No:	Reasons to Return: ◻ Repair(Please include failure details) ◻ Testing Purpose
Company:	Contact Person:
Phone No.	Purchased Date:
Fax No.:	Applied Date:
Return Shipping Address: _____	
Shipping by: ◻ Air Freight ◻ Sea ◻ Express_____ ◻ Others:_____	

Item	Model Name	Serial Number	Configuration

Item	Problem Code	Failure Status

*Problem Code:

01:D.O.A.
02: Second Time R.M.A.
03: CMOS Data Lost
04: FDC Fail
05: HDC Fail
06: Bad Slot
07: BIOS Problem
08: Keyboard Controller Fail
09: Cache RMA Problem
10: Memory Socket Bad
11: Hang Up Software
12: Out Look Damage
13: SCSI
14: LPT Port
15: PS2
16: LAN
17: COM Port
18: Watchdog Timer
19: DIO
20: Buzzer
21: Shut Down
22: Panel Fail
23: CRT Fail
24: Others (Pls specify)

Request Party

Authorized Signature / Date

Confirmed By Supplier

Authorized Signature / Date