

SynQuacer E-series Assembly Instructions

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Socionext Inc.

Update history

Date	Version	Revisions
'18/Feb/23th	1.0	Newly created
'18/Mar/06th	1.1	Amended errors
'18/May/02nd	1.2	Add counter measure for Graphic Card hung up issue Add standalone install method for OS installation Add power consumption and weight in specification
'18/May/07th	1.3	Add available memory specifications

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Thank you very much for purchasing the SynQuacer E-Series.

Please read this manual carefully before using the product, and use this product correctly.

This manual contains information necessary for assembling, setting up, configuring and maintaining this product.

Be sure to keep this manual in a place that is easy to access, for quick reference.

1. Before Assembly

1. Read this instruction and the safety manual "For the Safe Use of This Product:Read This Manual First" through before beginning work.
2. Prepare a sufficient amount of working space for the case, motherboard, tools and so on. This kit contains large parts such as the chassis case, but also very small parts like screws. Use caution not to lose any parts, and work in a place that is out of the reach of small children.
3. Use a screwdriver that matches the screw and diameter (a #2 screwdriver can be used).
4. Use caution not to injure yourself while assembling this product. Many of the parts in this kit have sharp edges, such as the case. Use sufficient caution not to injure yourself while assembling this product. We recommend the use of protective gloves.
5. Take care to avoid static electricity. Static electricity may damage electronic components. For this reason, touch a metal part (such as the case) to discharge the static electricity in your body before working.
6. Do not touch the metal contact points while working. The oil from your fingers may adhere to the points, which can cause poor contact. Also, the static electricity residue in your body may discharge and damage electronic components.
7. Use care while working, in order to avoid damaging the electronic components. Damage to even the smallest part may make this product non-operational.
8. Check the direction of the connectors, and do not apply force when connecting them. Many connectors are designed so that they cannot be inserted in the wrong direction. However, some connectors could be inserted in the wrong direction with excessive force.
Doing so may of course damage the connector. Also, improperly inserting a connector is dangerous, as this may cause electrical current to flow, causing a fire or similar hazard.
9. To avoid damaging internal electronic components, remove the power cable from the outlet if the power is turned on, and wait for at least 20 seconds before starting your work.
10. Make sure that the inside of the PC is sufficiently cool when working, as some of the parts inside will still be hot right after the power is turned off.
11. This manual lists the necessary settings that must be made to operate the computer.
As for any other functions, users should confirm how to use them before using this product. Making improper settings or using the computer in the wrong way could cause a hardware malfunction or failure, so use caution.
Please consult with the Customer Support at Socionext if you are unclear about anything.
URL : <http://www.socionext.com/en/> → [Contact US] → [Inquiry Form]
12. In the event of unexpected trouble such as abnormal noise, unusual smells or smoke, immediately turn off the power, remove the power cable from the power outlet or tap, and contact our Customer Support. If the above symptoms have occurred, the unit may heat up abnormally. We ask that you exercise the utmost care to avoid being burned by accident.

2. About this Product

■ Overview

This product is an evaluation kit for software developers, consisting of a single board computer with an SC2A11 (ARM Cortex-A53, 24-core) CPU.

With MicroATX specs, the board can be installed in a case and connected to a keyboard, mouse, network and external display, offering the same degree of usability as that of a PC. The computer also features a RTC, which can retain time of day settings.

Debian OS is recommended for use with this computer, as it has been tested in operation.

■ Reference documentation

Overview explanation

<http://www.socionext.com/en/products/assp/SynQuacer/Edge/>

Technical documentation from Linaro

<https://github.com/96boards/documentation/wiki/Developerbox-Getting-Started>

Explains how to install using Debian.

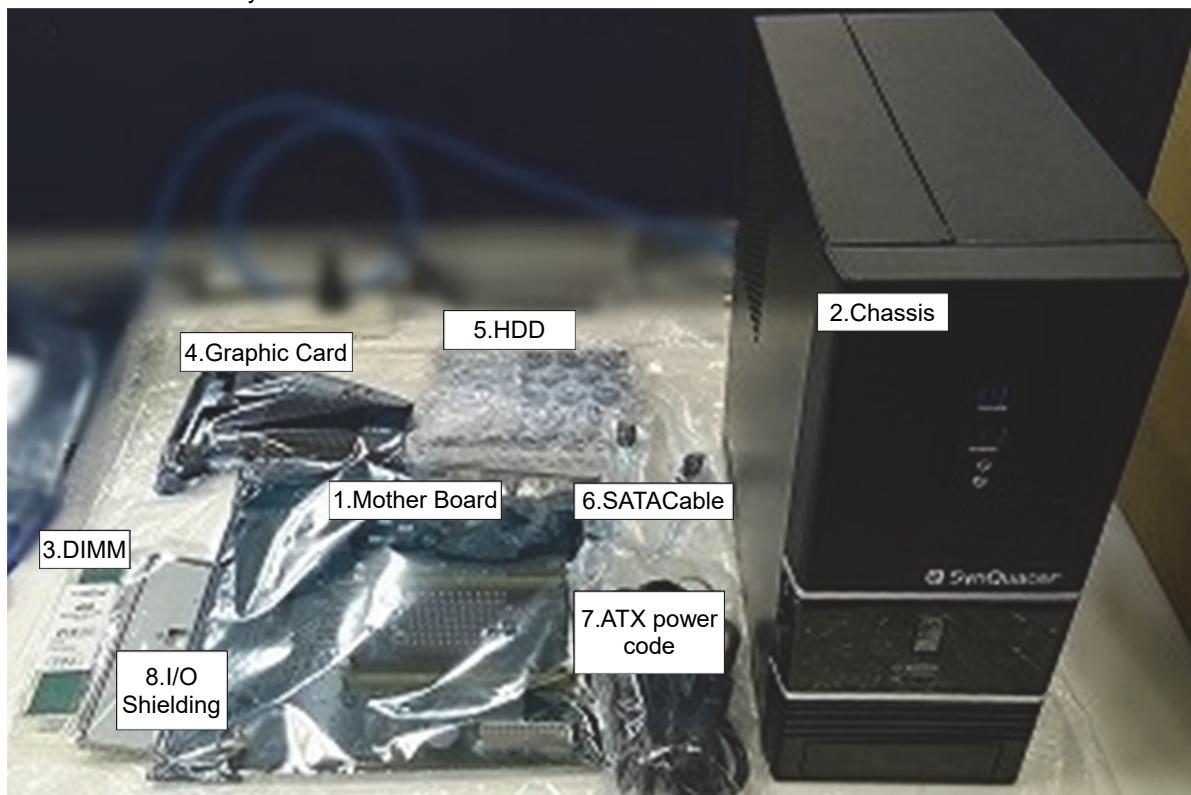
Please refer to this material.

3. Parts Included in this Kit

- Package contents

Check whether the parts listed below are included in the package.

1. Mother Board (*1)
2. Chassis (*2)
P/N: BK623
(INWIN industrial PC case: MicroATX mini-tower case IW-BK623/300-H E USB 3.0 Black with 300W SFX power supply)
URL: <http://in-win.com.tw/Corporate/zh/goods.php?act=view&id=BK623>
3. DIMM
P/N: CT4G4DFS824A (Crucial 4GB DDR4-2400 UDIMM)
URL: <http://www.crucial.com/usa/en/ct4g4dfs824a>
4. Graphic Card
P/N: GT710-SL-1GD5 (GeForce GT 710 video card)
URL: <https://www.asus.com/us/Graphics-Cards/GT710-SL-1GD5/>
5. HDD
P/N: WD10EZEX (1TB SATA600 7200)
URL: <https://www.wdc.com/products/internal-storage/wd-blue-pc-desktop-hard-drive.html>
6. SATA cable
7. ATX power cord (*3)
8. I/O Shielding
9. Others(Manuals and other document)
 - For the Safe Use of This Product:Read This Manual First
 - Product Warranty/Warranty Provisions
 - Assembly Manual



- (*1) Please read the points of caution regarding the motherboard, listed in "Points of caution regarding the parts included in this kit" below.
- (*2) A set of screws is included with the chassis.
- (*3) The shipped product includes a plug type A (<http://www.iec.ch/worldplugs/typeA.htm>) power cord.

Shape of included power plug



■ Points of caution regarding the parts included in this kit

1. PCIe interface

This interface is not guaranteed to work with all PCIe devices.

1-1. Overview of PCIe interface limitations for use

This PCIe interface has three limitations for use, as shown below.

1-1-1. This interface supports memory access at a 32-bit width of data or below.

1-1-2. This interface only supports 32-bit aligned and 32-bit data size I/O access transactions with PCIe.

1-1-3. Power management functions are not supported.

1-2. Graphic Card.

When using a graphics card, apply the following patch.

<https://github.com/Linaro/rpk/commit/0b80cf5a08ae3b116c85f3958c039e72d2e03cf2>

Graphics cards that have been confirmed to work with this product after the patch is applied are shown below.

Manufacturer	Model number	URL
ELSA	Geforce GT710 LP 2GB Passive	http://www.elsa-jp.co.jp/products/productstop/graphicsboard/geforce/entry/geforce_gt710_lp_2gb_passive/ (Only in Japanese)
ZOTAC	9600GT ECO 512MB 256BIT DDR3 (ZT-96TES3G-FSL)	http://zotacusa.com/specsheet/ZT-96TES3G-FSL.pdf
ASUS	Extreme N6600LE Silencer/TD/256M	https://www.asus.com/Graphics-Cards/Extreme_N6600LE_SilencerTD256M/specifications/
MSI	N680 GTX-PM2D2GD5	https://www.msi.com/Graphics-card/N680GTX_Twin_Frozr_2GD5OC_.html
PNY	VCGGTX580XPB	http://www.pny.com/File%20Library/Support/PNYS%20Products/LEGACY/GeForce%20Graphics/PNY-GeForce-GTX-580-Liquid-Cooled-1536MB-Brochure.pdf

1-3. SSD

SSDs (NVMe) that have been confirmed to work with this product are shown below.

Manufacturer	Model number	URL
Samsung	MZ-V6E500B/IT	http://www.samsung.com/semiconductor/ministe/ssd/product/consumer/960evo/

2. Graphic Card

With the combination of ASUS Graphic Card and nouveau driver, issue that the screen hangs up while using may happen. As a provisional counter measure, please try the following;

2-1. Disable “Screen Saver”

Please move to setting by [Menu] → [Preference] → [Screen Saver], and select “Disable ScreenSaver”.

2-2. Update nouveau driver configuration

Please update nouveau driver configuration with the following command;

```
# echo "options nouveau config=NvClkMode=15" >> /etc/modprobe.d/nouveau.conf
# update-initramfs -u -k all
# reboot
```

2-3. Command input through the console (Available via network or USB serial port(*))

The system is in operation even during the screen hangs up.

Please execute the following command through network console.

```
> sudo systemctl restart lightdm
```

(*)If you use USB serial port as the console,add following parameter on the kernel startup.
console=ttyAMA0,115200

3. Autoboot function

When the Autoboot function is enabled, the power is turned on automatically only by connecting the power cable.

To select enable/disable the Autoboot function, set the MCU jumper as below.



4. Out-of-the-box defects and replacement

In the event of a faulty part, a replacement part will be shipped to the user for replacement and repair. Please register as a user according to the product warranty once the product has arrived. After you have completed your user registration, parts replacements will be free for six months, and will be chargeable for the following six months (the warranty period will finish after one year). Please refer to the warranty regulations on a separate document.

■ What you need to prepare

You will need to prepare the following items in order to assemble and use this product.

- A network environment with access to the Internet (required for installation)
- External display (VGA/DVI//HDMI interfaces are available)
- Keyboard (connected via USB)
- Mouse (connected via USB)
- Phillips head screwdriver (#2)

The following items are not strictly required, but we recommend that you make them available.

Gloves

Thick paper or cloth (to protect the workspace from being scratched by the case)

■ Screws and screwdrivers

Screwdriver to use

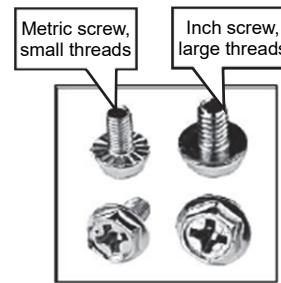
Use a Phillips head screwdriver (#2).

Using any other kind of screwdriver may damage the screw threads, resulting in injury while working.

Screws to use

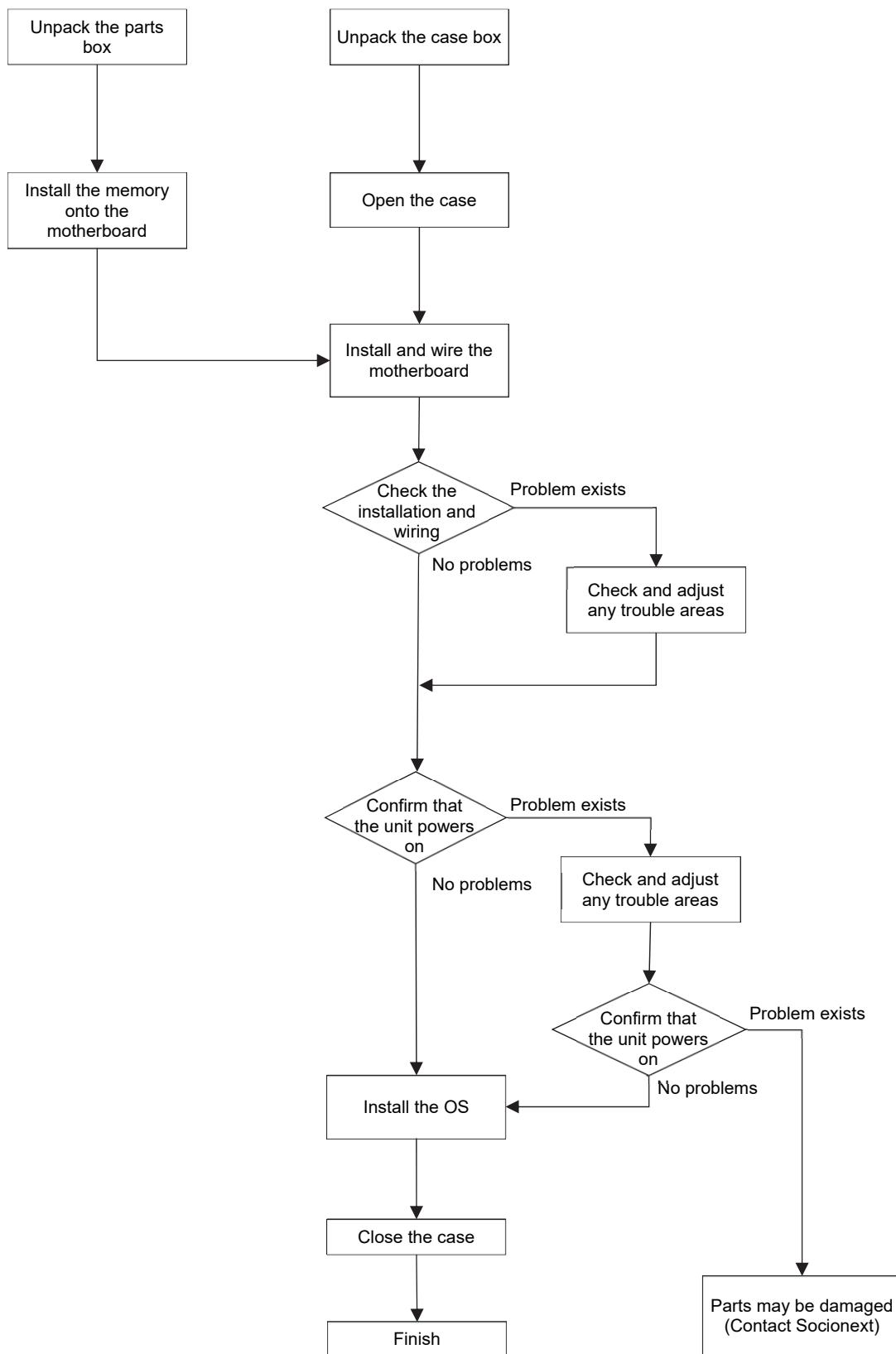
This kit contains two kinds of screws (with inch screw threads and metric screw threads). Use the inch screws when assembling this product.

The screws with larger screw threads are inch screws. Separate out the screws before working, to avoid damaging the parts due to using the wrong screws.



4. Assembly

4-1. Workflow



4-2. Unpack the packaging box

The packaging box includes two boxes, one for the case and one for all parts aside from the case.



1. Case

Remove the case from the box, and take off the cushioning material.



2. All parts aside from case

The parts are separated into two box shaped cushionings, one on top of the other.

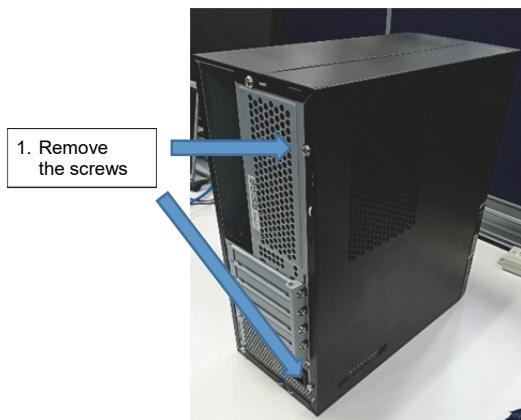


4-3. How to open and close the case

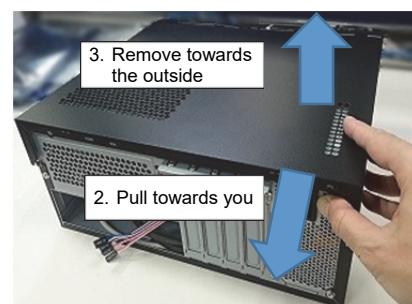
When doing the assembly work, first open the case and place it on its side.

■ How to open the case

1. Remove the two screws at right, as seen from the rear.



2. Place your hand on the side cover (the right side of the case) and pull it towards you.
The side cover may feel a little stiff when pulled. Do not use excessive force when pulling, in order to avoid injury.
3. Remove the side cover you pulled out towards the outside.
4. Place the case on its side.



■ How to close the case

1. Fit the cover that you removed onto the chassis by sliding it a bit towards the rear, and install the cover by sliding it towards the front of the case. When doing this, fit the cover over the tabs at the center and at the front of the case by pulling carefully, installing the cover snugly onto the front side.



The cover may feel a little stiff when installing. Do not use excessive force when pulling, in order to avoid injury.

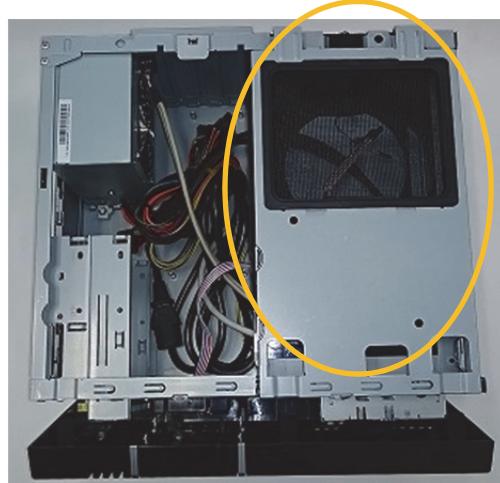
2. Use the screws that you removed when opening the case to fasten the side cover on.

CAUTION

There are sharp edges on the rear side of the side cover and inside the case. Also note that you will need to apply some force to open and close the case. Use caution not to injure yourself by getting your hands pinched or cut by the case or cover. Use gloves if necessary.

4-4. Preparing to install the motherboard (including removal of the optical drive bracket)

In order to install the motherboard, you will need to remove the optical drive bracket assembly in the case.



1. Removing the front bezel

Remove the tabs (3) to allow the front bezel to fall forward, so that it can be removed.

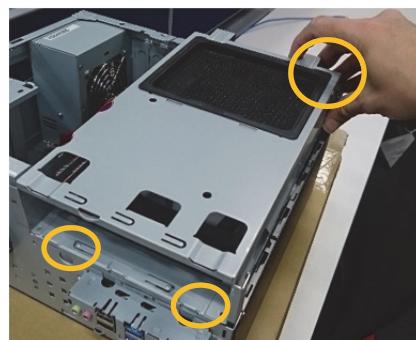


2. Removing the optical drive bracket

First, remove the front screw (1).



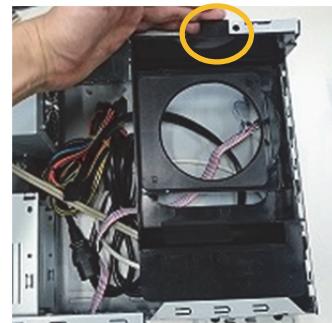
Next, using the front hook for leverage, lightly grasp the corner of the bracket and pull the bracket up to remove it.



⚠ CAUTION

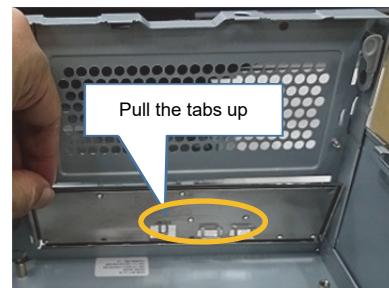
**Do not remove the black cover as well — remove the bracket.
You will not be able to remove both at the same time.**

3. Removing the optical drive bracket cover
Pull the rear knob up to remove the bracket cover.



4. Installing the I/O panel
Fit the I/O shield onto the rear part of the case to install.
After this, pull the tabs up on the LAN connector side and the USB connector side.

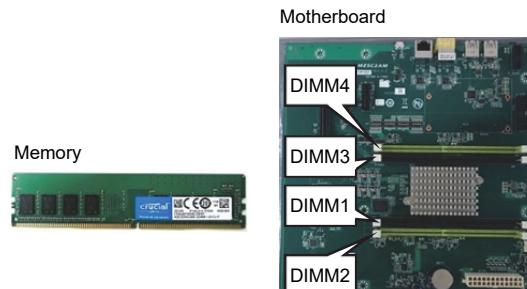
Having done this, you will be able to install the motherboard.



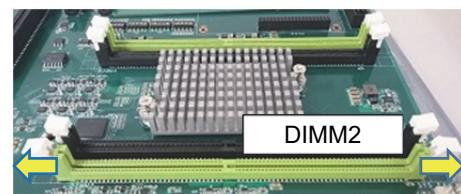
4-5. Preparing to install the motherboard (installing the memory)

Before installing the motherboard into the case, install the memory. One memory module is included.

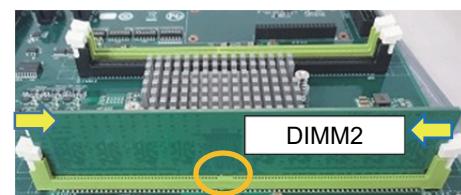
- The motherboard and memory are packaged inside of an antistatic bag. Take them out and place them on the bag.



- Release the locking mechanism on the memory slot (DIMM2).



- Insert the memory into the memory slot (DIMM2).
 - Line up the key (notch).
 - Insert the memory straight until it firmly fits into the base of the socket.
 - Move the locking mechanism back in to lock the memory in place.



Reference:

When expanding the memory, install as below:

Spec.	DDR4-2133	
Available memories	4GB, 1rank, UDIMM (Maximum configuration 8GB = 4GB x 2) 16GB, 2rank, RDIMM (Maximum configuration 64GB = 16GB x 4)	
Available Slots	1pc.	DIMM2
	2pcs.	DIMM2/DIMM4
	4pcs.	DIMM1/DIMM2/DIMM3/DIMM4
Remarks	If you use with multiple installation, use the same kind of memories. Also, you can not install 3pcs.	

⚠ CAUTION

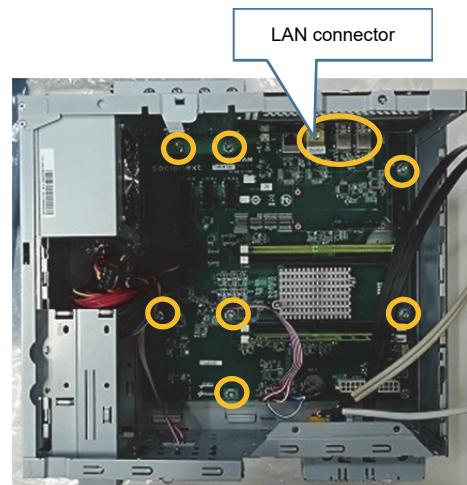
Before installing the memory, touch the case to discharge any static electricity from your body. Also, when holding the memory and motherboard, hold them on the edges of both sides, and do not touch the metal parts directly with your hands. Doing so may cause poor contact or electrostatic damage.
If you are having trouble installing, do not use more force than is necessary. Remove the memory temporarily and then try installing once more.

4-6. Installing and wiring the motherboard

1. Installing the motherboard

- Pull out the cable included with the power supply and the cable coming from the case front panel.
- Place the motherboard inside, while making sure that the LAN connector and USB connector are protruding from the I/O shield.

After this, fix the motherboard in place using the inch screws (7).



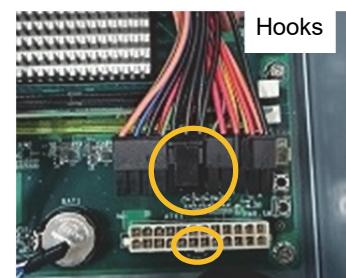
2. Connecting the power cable

The power cable is separated into two parts, one with 20 pins and the other with four pins. Assemble both parts together so that they make a 24-pin connector.



The parts have an interlocking rail so that they can be slide together.

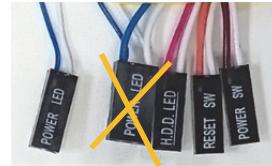
Insert the connector so that the hook is aligned with the motherboard.



CAUTION

The connector is designed so that it cannot be inserted in the wrong direction. If you are having trouble inserting the connector, do not use more force than is necessary. Try inserting it again. Using too much force may damage the connector, causing an electrical short in the power supply which may start a fire or similar hazard.

- The front cable (LED) connectors have markings that show their connection type. Use the POWER LED (for 2-pin), HDD LED, RESET SW and POWER SW connectors.



Insert each connector into the pins as follows.

Connector	Pin
HDD LED	SATA-LED
POWER LED	PWR-LED
RESET SW	J-RST-SW
POWER SW	J-PWR-SW



Insert with the markings facing down. Use caution, as these connectors can be inserted the wrong way.

- Connecting the front cable (USB)

There are two types of USB front cables, but only the black cable (USB3) will be used.

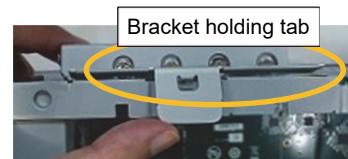
The connector has tabs and is designed so that it cannot be inserted in the wrong direction, so line up the tabs.

This is plugged into the blue USB port on the front cable side.



- Installing the graphics card

Release the holding tab on the expansion slot bracket with your finger.

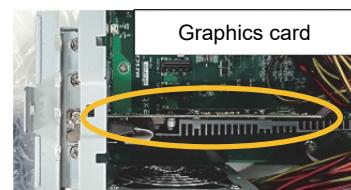


Loosen the inch screw to remove the expansion slot bracket, and insert the graphics card into the expansion slot.

Make sure that the card is inserted all the way into the expansion slot.

Last, replace and tighten the inch screw, and move the holding tab on the expansion slot bracket back to its original position.

(The expansion slot bracket should be kept for future use.)



4-7. Installing the hard disk

1. Install the SATA cable onto the motherboard (SATA1 side).



2. Install the hard disk into the hard disk bay.

There are two types of screw holes (for the FDD and for the HDD). Use the HDD screw holes, and tighten the screws.



3. Slide the hard disk into the hard disk bay, and tighten the screws.



4. Connect the SATA cable and the power cable to the hard disk.



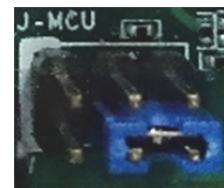
4-8. Jumper setting

Set the Autoboot function with the MCU jumper.
For the location of the jumper, please refer to "Part Names".

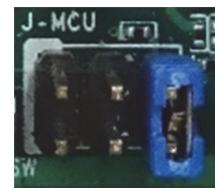
Disable → Connect the power plug and turn on the power after turning on the power switch
Enable → Power on immediately when connecting the power plug.

Please set according to purpose.

Disable



Enable

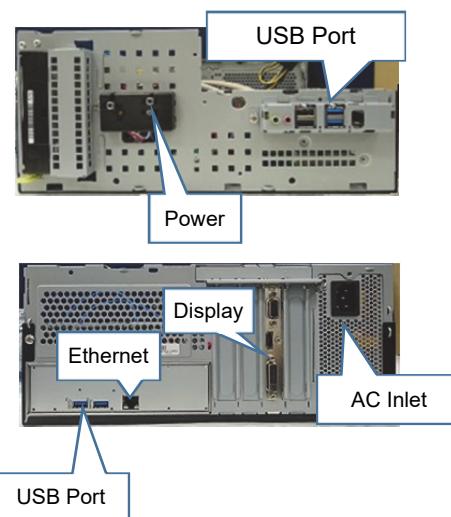


4-9. Preparations before turning on the power

Before turning on the power, first check your wiring and related work.

- Check the memory installation
Is the memory card firmly inserted into the socket?
- Power cable (24-pin connector)
Are the connectors inserted firmly in place?
- Front cables (LED, USB)
Are the connectors inserted into their proper locations, and are they inserted firmly in place?
- Graphics card
Is the graphics card firmly inserted into the slot?
- Hard disk
Are the SATA and power cables firmly inserted into their connectors?

If there are no problems with the above, connect the external keyboard, mouse (both USB), display (VGA), network cable and power cable.



CAUTION

- For the keyboard and mouse, you can use the blue USB port (USB 3.0) on the front and the back. The black USB port (USB 2.0) on the front will not work.

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4-10. Turning the power on and off

The power can be turned on by pressing the power button.

Check the following.

- The power supply fan should operate, and the power LED should light.
- The “Linaro 96Boards” logo screen should appear on the display.
- There should be no unusual smells, sounds or heat coming from the unit when operating.

If the unit does not operate normally, check the wiring and installation.

To turn off the power, use the desktop power button, or input “shutdown -h now” command as root.



⚠ CAUTION

1. **If you hear any unusual sounds or smell something burning, immediately remove the power plug from the outlet.**
Failure to do so may result in mechanical failure or bodily injury.
2. **When checking the inside of the unit, take sufficient care not to cut your fingers on the pins or on the sharp edges of the metal. Check the unit as far as you personally can—do not strain yourself.**

4-11. OS installation

4-11.1. Network install

The example below shows the use of UEFI to install Debian.

The steps to take are listed at <https://ascinema.org/a/146683>. Other information related to this system is shown at <https://github.com/96boards/documentation/wiki/Developerbox-Getting-Started>. Please refer to this.

4-11-2.Standalone install (Without network connection)

■ Media preparation and install

1)Download iso image.
<http://people.linaro.org/~riku.voipio/ERP-17.12.1-arm64-DVD-1.iso>

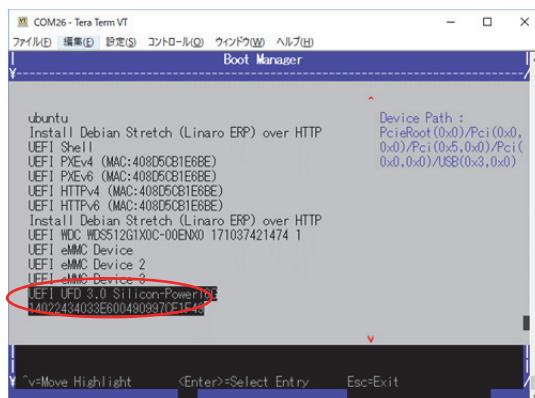
2)Prepare the install media on the
 USB memory downloaded by 1).
 (Recommended)

You can also use CD/DVDs.

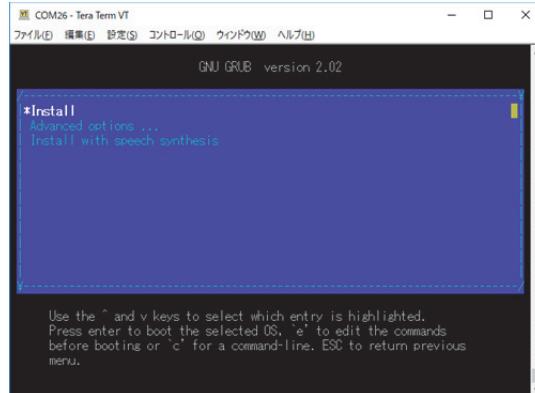
3)Please disconnect the network
 cable from this machine.

4)Connect the install media prepared
 by 2),then boot this machine..

5) Please select installation media
 from [Boot Manager] of UEFI menu.



6)Continue the installation.

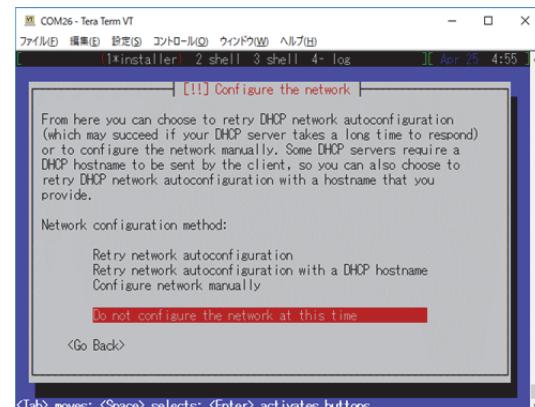


■ Supplementary information

7)The network configuration

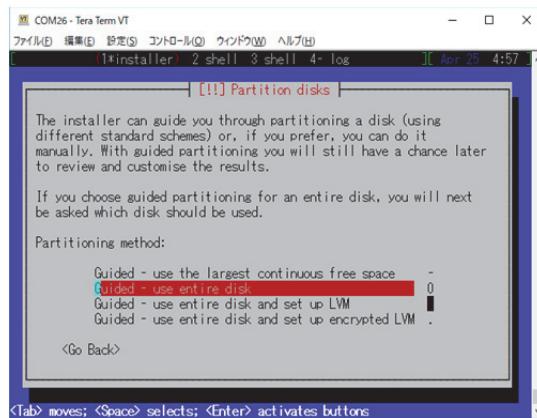
Because it is a standalone
 environment, so no need to set up the
 network.

Select "Do not configure the network
 at this time".



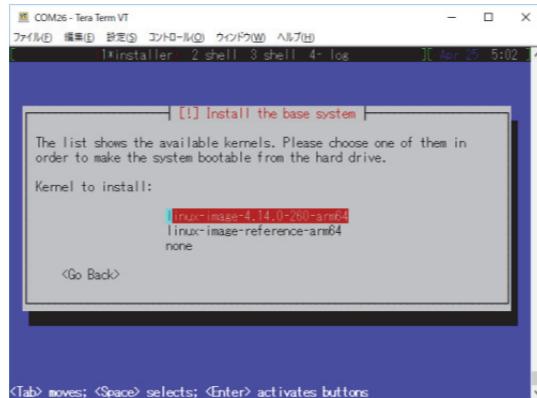
8)The disk partition configuration

Although there are multiple choices, it is recommended to select "use entire disk".



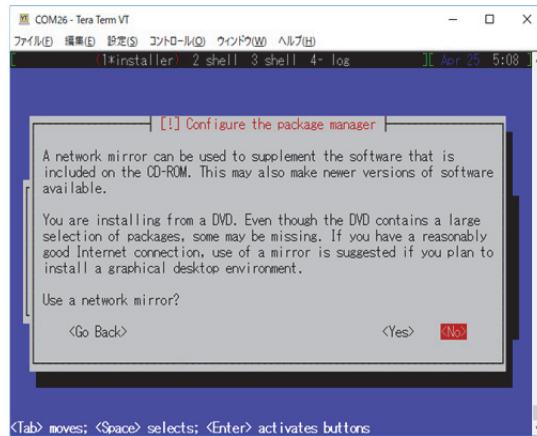
9)The kernel to install

If the available kernel is displayed, select "linux-Image-4.14.0-260-arm64".



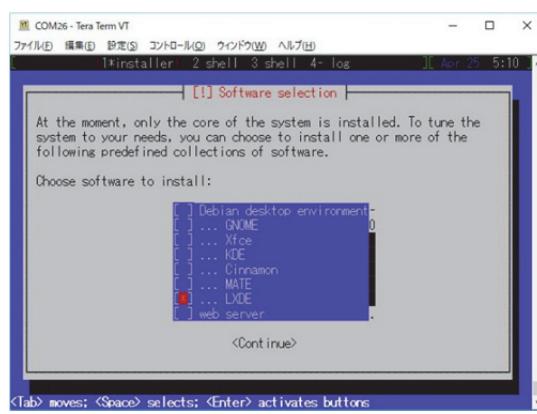
10)The network mirror

For the case of configuration view of the network mirror for adding the file to the installation from the media is displayed, select "No".



11)Select the desktop

It is recommended to select "LXDE" for the desktop.



■ Finish the install and reboot

12) After finishing the install, reboot this machine. Select “debian”, in case Boot Manager is displayed during booting.

■ The Debian configuration

13) The kernel update and header install

If the network function
works:

a) Add below two lines to /etc/apt/sources.list
deb http://deb.debian.org/debian/ stretch main contrib non-free
deb-src http://deb.debian.org/debian/ stretch main contrib non-free

b) Add below line to /etc/apt/sources.list.d/
deb http://obs.linaro.org/ERP:/17.12:/synquacer/ERP-17.12/ ./

c) Type below command to prepare the kernel update.
apt-get update

d) Type below command to update the kernel.
apt-get install linux-image-4.14.0-275-arm64

e) Type below command to install the kernel header.
apt-get install linux-headers-4.14.0-275-all

If the network function
does not work correctly:

f) Download the deb file from the following URL, and copy into this machine by
USB memory or other media.

<http://obs.linaro.org/ERP:/17.12:/synquacer/ERP-17.12/arm64/>

image-4.14.0-281-arm64_4.14.32.linaro.281-1_arm64.deb

g) Type below command to update the kernel.

dpkg -i linux-image-4.14.0-281-arm64_4.14.32.linaro.281-1_arm64.deb
(As revision may be updated, please modify the .deb file name exactly same
as downloaded one)

h) Type below command to install the kernel header.
apt-get install linux-headers-4.14.0-281-all

14) Update the configuration of the nouveau driver

Type the following command to update the nouveau driver.

```
# echo "options nouveau config=NvClkMode=15" >> /etc/modprobe.d/nouveau.conf
# update-initramfs -u -k all
# reboot
```

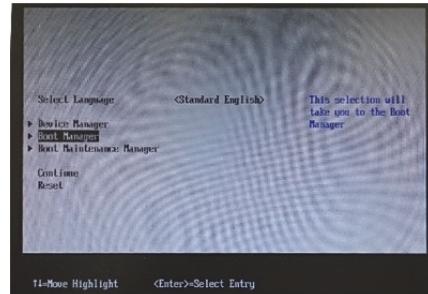
4-12. Using UEFI

- Enter the boot options.

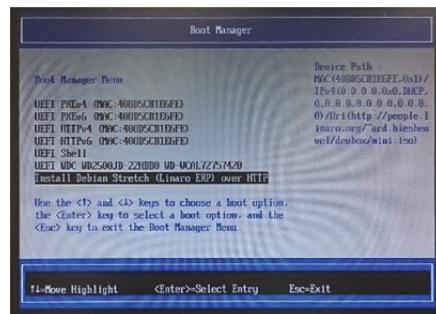
The boot options screen will display when the computer is booted up. Press ESC to enter the boot options.



- Enter the Boot Manager.



- Enter the “Install Debian Stretch(Linaro ERP) over HTTP” option.



For the following steps, refer to <https://asciinema.org/a/146683>.

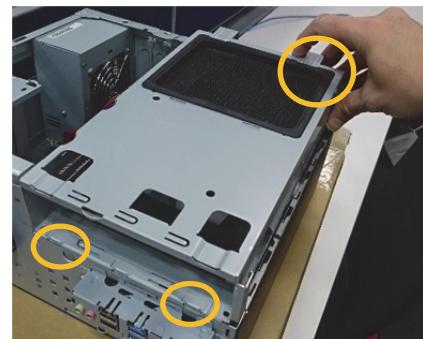
4-13. Assembling the case

1. Installing the optical drive bracket

Move the cables to the side in order to install the optical drive bracket.

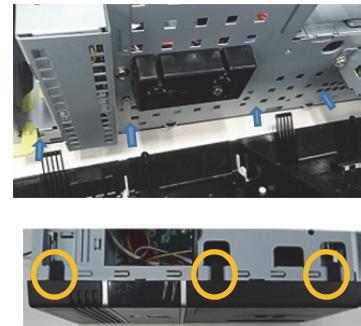


Install the optical drive bracket by performing the steps in reverse that you used to remove the bracket.

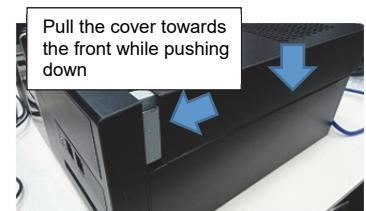


2. Installing the front bezel

Hook the tabs of the lower part of the front bezel onto the holes in the chassis, and hook the tabs of the upper part of the front bezel onto the outer side of the chassis to fix it in place.



3. Last, close the case.



5. Using the Computer

5-1. Turning on the power

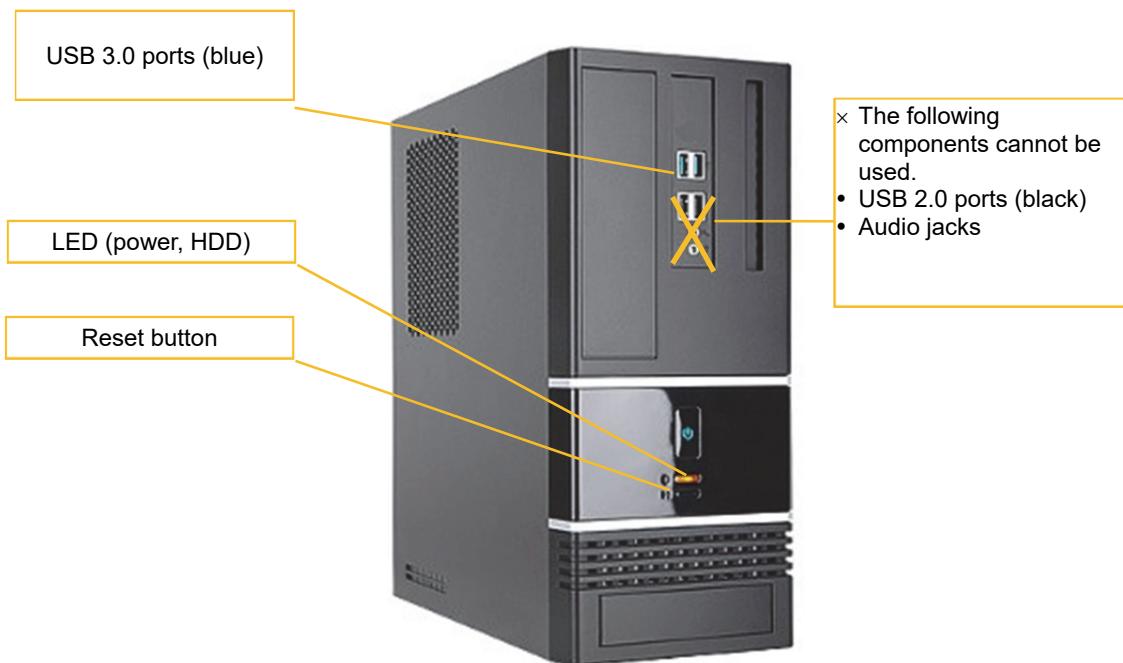
After plugging the power plug into the outlet, turn on the power by pressing the power button. However, if Autoboot is enabled, power is turned on simply by inserting the power plug into the outlet.

5-2. Turning off the power

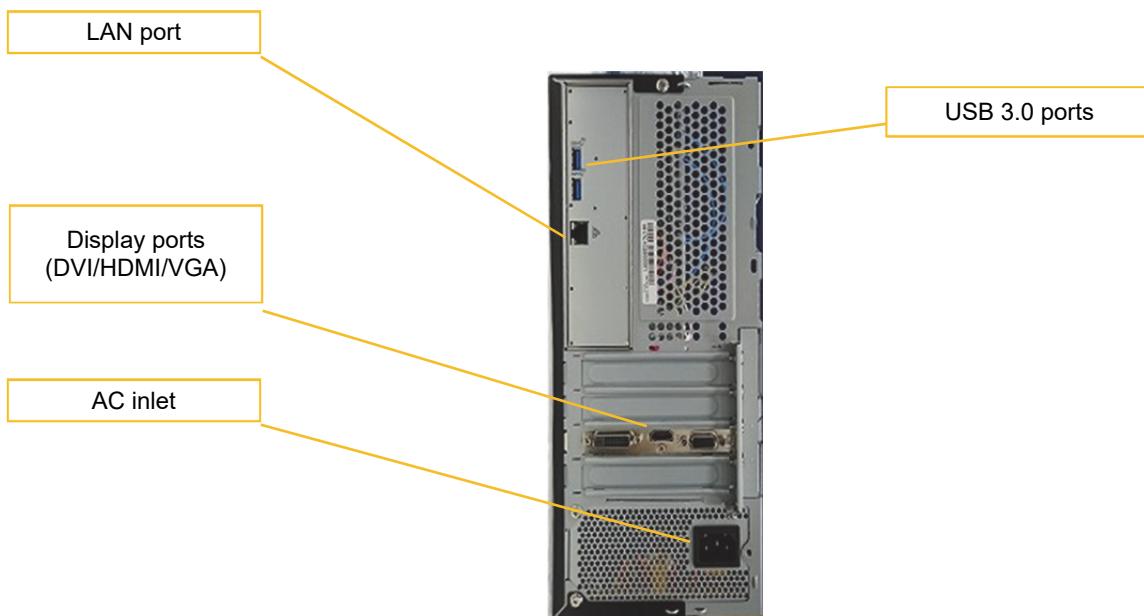
To turn off the power, use the desktop power button, or input “shutdown –h now” command as root.

6. Part Names

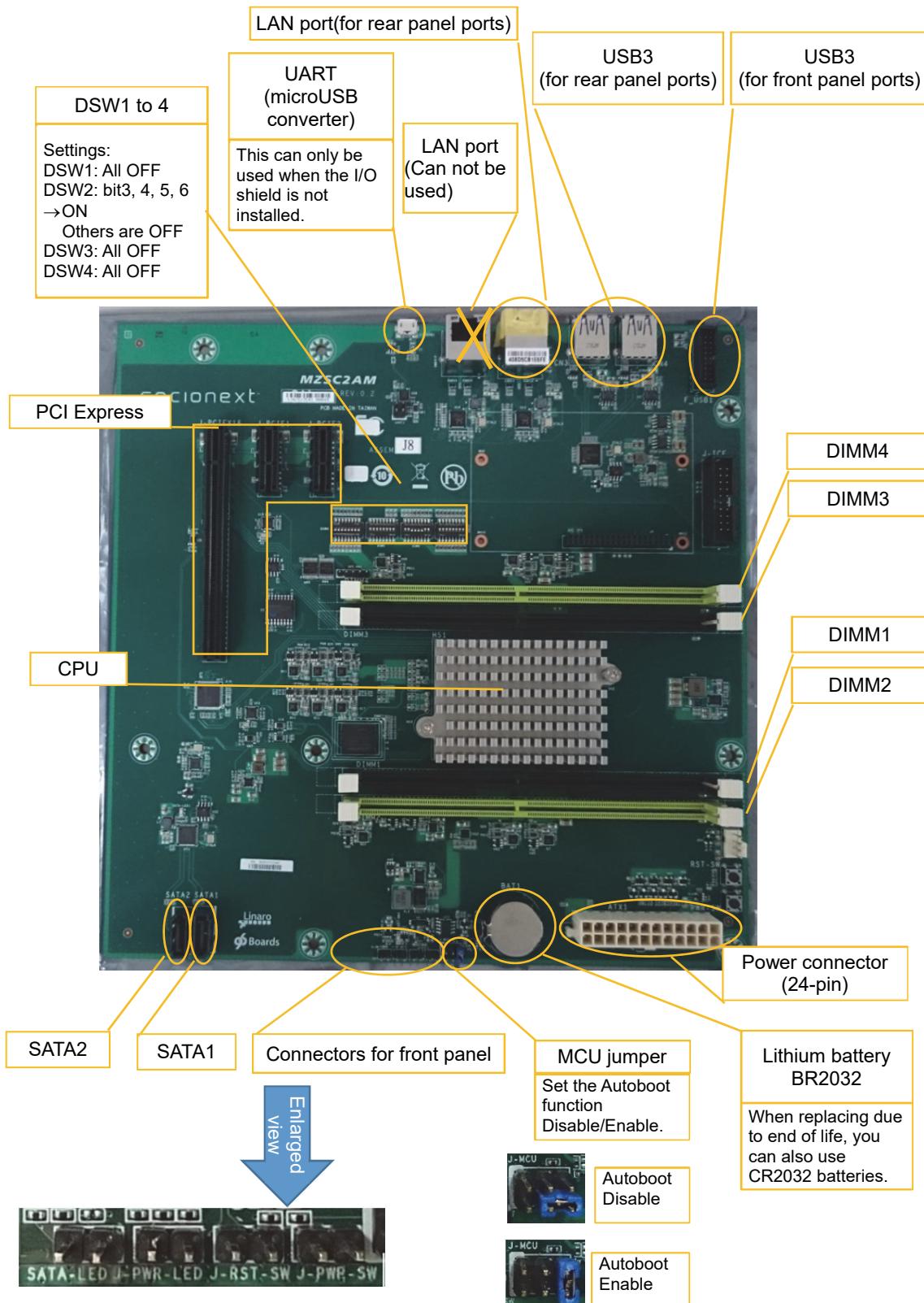
■ Front side



■ Back side



■ Motherboard



7. Items to Periodically Inspect

Inspect the computer once every six months to a year, for the following symptoms.

- Unusual sounds coming from the power supply fan
- Power cord or plug are unusually hot
- Power cord has a deep scratch or is deformed
- Computer will not boot up, even when the power plug is inserted
- Strange odors or smoke
- Foreign matter or water has gotten into the unit
- Other abnormality or failure

If you notice any of these problems, remove the power plug from the outlet and be sure to contact the Customer Support at Socionext for inspection and repair, to avoid the risk of product failure or accidents.

URL : <http://www.socionext.com/en/> → [Contact US] → [Inquiry Form]

8. Recommended Storage Locations and Methods of Care

8-1. Recommended storage locations

Use this computer by setting it up in a location specified by the conditions below.

Recommended storage conditions

Use this computer in a location that falls within these conditions.

Indoors

Within 10°C to 35°C^(*)

Within a humidity range of 20 to 80% (no condensation)

- ^(*) This computer may fail to start up when used in a room that is excessively cold (at or below 10°C) .

If this happens, unplug the power cable, warm up the room and wait for a few hours before trying to power up the unit again.

This will prevent condensation from occurring inside of the unit due to sudden changes in temperature, which could lead to short circuits in the components and cause the product to fail.

Using the computer outside of these conditions may lead to an accident such as a fire, damage to the computer, or other trouble such as failure to start up.

This product is not suitable for use in the following locations.

- Places exposed to direct sunlight or heat, such as places located close to a stove or other heating apparatus
- Places with high humidity, such as near an aquarium or other places next to water
- Places that are subject to strong magnetic fields, such as powerful magnets, electromagnetic cookers and so on
- Places where at least 10 cm of space is not available between the rear/front panels of this unit and the wall
- Places subject to vibration or impact
- Outdoor locations or dusty places
- Places that are unstable, or which could be bumped into by people or other objects

Cautions during use

- Do not block the ventilation ports.
- Do not tug on the cables when removing them from the connectors. Be sure to grasp the connector when removing the cables.
- If you hear any unusual sounds or smell something burning, immediately stop using this computer, shut down the power and remove the power plug from the outlet. Do not forcibly bend or place objects on top of the power or signal cords.
- When using a power strip or similar apparatus, be sure that the electrical capacity of the devices connected to the power strip does not exceed the capacity of the power strip itself.
- Do not spill any beverages or food on this unit.
- Be sure to take sufficient breaks when using the computer for long periods of time. We recommend taking a break for 10 minutes per hour.
- Stop using the computer if you feel any discomfort or pain while using this computer for long periods of time.
- Remove the power plug from the outlet when the unit will not be used for a long period of time.
- This unit does not support 24 hours operation per day.

8-2. Caring for this Product

- This product is made up of precision components. Use care in cleaning this product in order to avoid product failure and related troubles, as well as to keep it in good working order for a long time. Be sure to remove the power plug from the outlet when cleaning this unit, and disconnect it from the peripherals.
- Use a dry cloth to wipe any dirt off the surface of the unit. For particularly soiled spots, use a damp cloth that has been thoroughly wrung out for wiping. Do not use a damp cloth to wipe any parts of this unit through which power flows, including the USB ports, network ports, the power inlet and so on.
- Use an electric vacuum cleaner to remove any dust from the ventilation holes on the chassis or power supply, or on the power supply fan. If excessive dust has adhered to the unit, use a brush, used toothbrush or similar utensil along with the vacuum cleaner to completely remove the dust. Excessive dust may prevent the unit from dissipating heat properly, which will lead to mechanical failure. We thus recommend periodic care.

9. Disposal of this Product

■ Inside of Japan

1. This product may not be disposed of as larger non-recyclable refuse, and is considered to be the same as a DIY computer. Please make an application with the PC3R Promotion Association if you wish to return this product for recycling (chargeable).
<http://www.pc3r.jp/e/home/index.html>

■ Countries outside of Japan

Dispose of this product by following the laws of your respective country.

10. Troubleshooting

Before determining that something has failed, check the following points.

Symptoms	Possible causes	What to do
The unit will not power up.	The power cable may not be properly connected.	Check whether the power cable is firmly inserted into the power outlet and the AC inlet. To confirm that the power cable is fully inserted, we recommend that you pull the cable out and then plug it in once more.
	The room temperature is too cold (at or below 10°C)	Warm up the room sufficiently before starting up the unit. (→Refer to Page 25 “8-1.Recommended storage locations”)
The unit powers up, but nothing displays on the screen.	The display may not be properly connected.	Check whether the cable that connects the display to the computer is firmly connected. To confirm that the power cable is fully inserted, we recommend that you pull the cable out and then plug it in once more. Also, check the display settings, to see whether the display is powered up and whether the signal from the computer is being received.
The computer cannot connect to the Internet.	The LAN cable may not be plugged in.	Check whether the LAN cable is firmly connected.
	The LAN cable or cable connector may be damaged.	Replace the LAN cable.
	Network devices such as hubs are not powered up.	Check the manual for your network devices, and turn on the power.
	The network devices are not operating properly.	Check the manual for your network devices, and check whether the devices are working normally.

Symptoms	Possible causes	What to do
USB devices (keyboard, mouse) are not working.	The cables may not be properly connected.	Check whether the cables are properly inserted into the ports. Note that only the USB 3.0 ports (blue connectors) can be used, and other ports are unavailable.
	You are using a USB hub to connect to other devices.	There may not be enough power to supply all of the USB devices that are connected. Try removing all USB devices except for the keyboard and the mouse from the hub, or use a USB hub with a separate power supply.
	The connected devices (keyboard, mouse) are not working.	Try using a different keyboard or mouse that you know is working.
	The above measures have not solved the problem.	Reboot the computer, and try reconnecting the USB devices.
The computer freezes up and becomes inoperable at high temperatures, such as during the summer.	There may be foreign material (such as dust) or other objects blocking the ventilation ports, reducing the cooling efficiency and causing the internal temperature of the computer to rise.	Remove any foreign material or objects blocking the ventilation ports.

11. Q&A

- Q. The computer will not enter “Install Debian Stretch(Linaro ERP) over HTTP” from the UEFI menu.
A. You cannot install Debian without connecting to a valid network via the LAN port. Check the connections.

- Q. Installation via Install Debian Stretch (Linaro ERP) over HTTP via Proxy server will fail.
A. When installing via Proxy server, it may not work. In this case please install in an environment not going through Proxy server.

- Q. Just turn on the power plug then turn on the power.
A. The Autoboot function may be enabled. Check the setting of the MCU jumper.

12. Specifications

Part name	SynQuacer E-Series (conforms to 96Boards Enterprise Edition specifications)
Factor	MicroATX
CPU	SynQuacer SC2A11 (Arm Cortex-A53, 24-core)
Memory	DDR4-2133 (Minimum configuration: 4 GB × 1/UDIMM/without ECC; maximum configuration: 16 GB × 4/RDIMM/with ECC)
Time function	Built-in real-time clock
I/O	USB3 × 4, Gigabit Ethernet × 1 VGA × 1/DVI-D × 1/HDMI × 1 (video card) SATA × 2
Power supply	PCIe Gen2 (RC only): 1 lane × 2, 16 lanes × 1 (used by graphics card) 100 to 240 V/300 W (maximum)
Power consumption	About 30 W (In case GT710-SL-1GD5 Graphic Card, WD10EZEX HDD and 4GB DDR4-2400 memory is mounted on Mother Board.)
Operating environment	Temperature: 10°C to 35°C; humidity: 20 to 80% (no condensation)
Dimensions	323 × 140 × 322 mm
Weight	5.80 kg (It contains Chassis, Mother Board, Graphic Card, HDD and memory.)

13. Use of this Product in Unsupported Countries

Depending on the country used, legal procedures may be required. Please comply with laws and regulations and use it at your own risk.

14. Inquiries

- Technical inquiries
URL : <http://www.socionext.com/en/> → [Contact US] → [Inquiry Form]

- Technical reference documents
Please refer to <https://github.com/96boards/documentation/wiki/Developerbox-Getting-Started>.

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Japan