



SYS-E100-12T-H

Getting Started Guide for AWS IoT Core

Revision 1.0

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Document Revision History

Date	Revision	Description
4/18/2023	1.0	Initial release.

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1 Overview

The Supermicro SuperServer E100-12T is a compact edge server comprised of the CSE-E101 chassis and the X12STN-H-WOHS motherboard with Intel® Core™ i7-1185GRE processors to support a wide range of performance requirements and use-cases.

It is specifically suited for applications such as IoT Edge computing, IoT gateway, Smart Building, machine automation, digital signage, and medical/healthcare.

2 Hardware Description

2.1 Data Sheet

Datasheet link:

[E100-12T-H | IoT | Products | Super Micro Computer, Inc.](#)

Quick Start Guide:

https://www.supermicro.com/QuickRefs/superserver/Box_PC/QRG-2459.pdf

2.2 Standard Kit Contents

Unit consists of the SYS-E100-12T-H (a single-piece device, motherboard with CPU/chassis are assembled).

The AC Power adapter MCP-250-10137-0N with AC cable is also included.

It is recommended to order the system with DRAM and SSD pre-installed.

For purchase requests, please follow the web link and click “Get pricing”

https://www.supermicro.com/en/products/system/Box_PC/SYS-E100-12T-H.cfm

2.3 User Provided Items

- Keyboard, mouse, monitor and related cable (HMDI, USB-A or USB-C)
- Network connection via RJ45 ethernet cable

If not pre-installed, the user also needs to provide and install DRAM and SSD storage (please refer the datasheet and quick start guide for tested material lists).

https://www.supermicro.com/en/products/system/Box_PC/SYS-E100-12T-H.cfm

2.4 3rd Party Purchasable Items

N/A

2.5 Additional Hardware References

https://www.supermicro.com/en/products/system/Box_PC/SYS-E100-12T-H.cfm

3 Setting up your Development Environment

3.1 Installation Tools

1. AWS SDK

The [AWS SDK](#) helps take the complexity out of coding by providing APIs for many AWS services including AWS IoT Core. All AWS SDKs are enabled for IoT Core. The single, downloadable package includes the code library, code samples, and documentation.

2. AWS IoT Device SDK

The [AWS IoT Device SDK](#) helps you to easily and quickly connect your hardware device or your mobile device to AWS IoT Core. It offers enhanced features so that you can seamlessly interact with the device gateway and the device shadow that will enable you to quick start your development. The Device SDK supports a variety types of devices, from basic to industrial hardware devices.

3. The AWS IoT Device Client is a free, open-source, and modular device-side reference implementation. It allows you to easily connect your devices to AWS IoT Core, and access AWS IoT Device Management and AWS IoT Device Defender features by default. It is written in C++ and can be compiled and installed on Embedded Linux-based IoT devices.

4. To get started on your device, download the AWS IoT Device Client source code from [GitHub](#) and learn more using the [readme](#).

3.2 Other Software Required to Develop and Debug Applications for the Device

N/A

3.3 Other Prerequisites

N/A

3.4 Additional Software References

N/A

4 Setting Up your Hardware

User Manual: [MNL-2459.pdf \(supermicro.com\)](https://supermicro.com/MNL-2459.pdf)

Front View

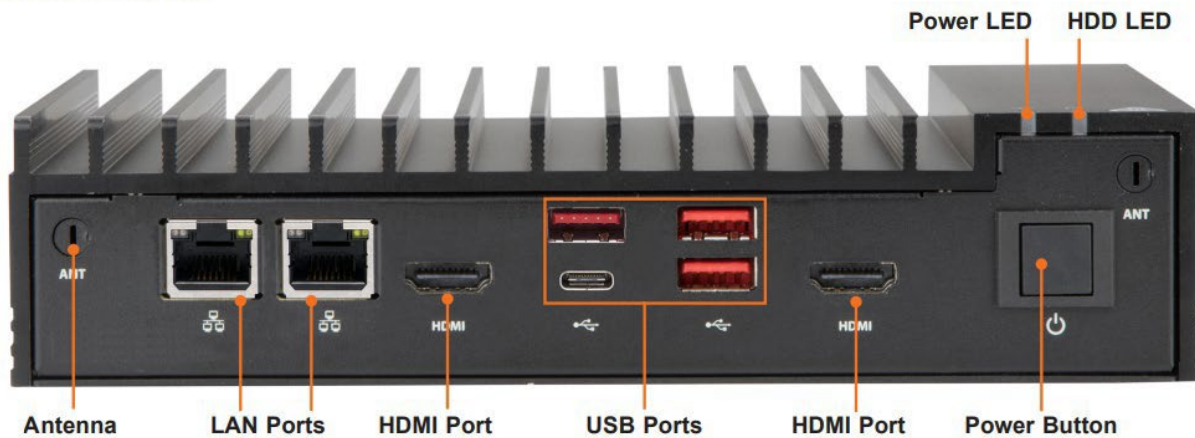


Figure 1-1. Front View

System Features: Front	
Item	Description
Antenna	WiFi antenna
LAN Ports	2.5GbE LAN ports (Intel I225-IT)
HDMI Ports	Left port: HDMI 2.0b (4K60Hz), Right port: HDMI 1.4b
USB Ports	USB 3.2 ports, lower left port is USB C port
Power Button	System on/off button
Power LED	Indicates power is being supplied to the system
HDD LED	Indicates data is being written to the storage drives.

Rear View

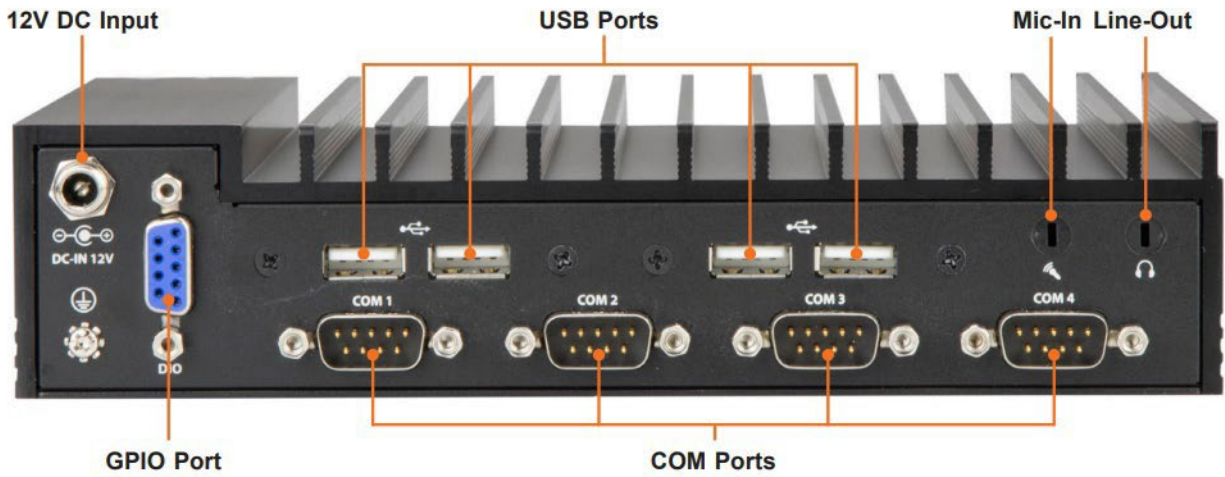
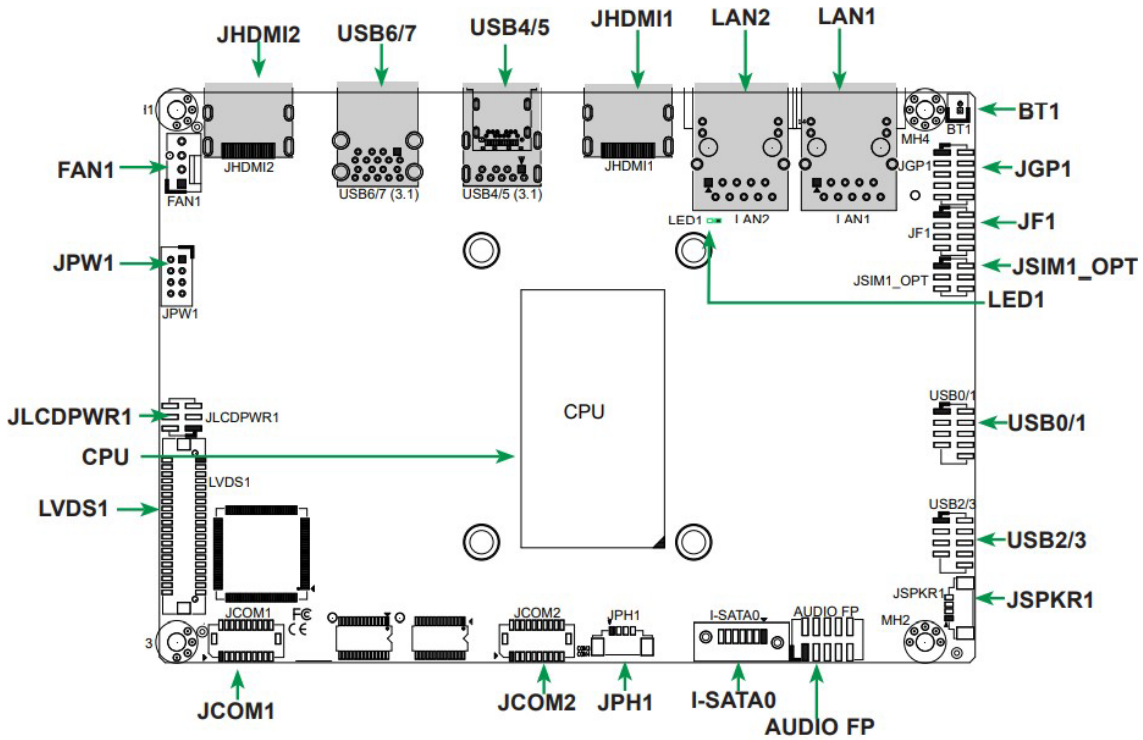
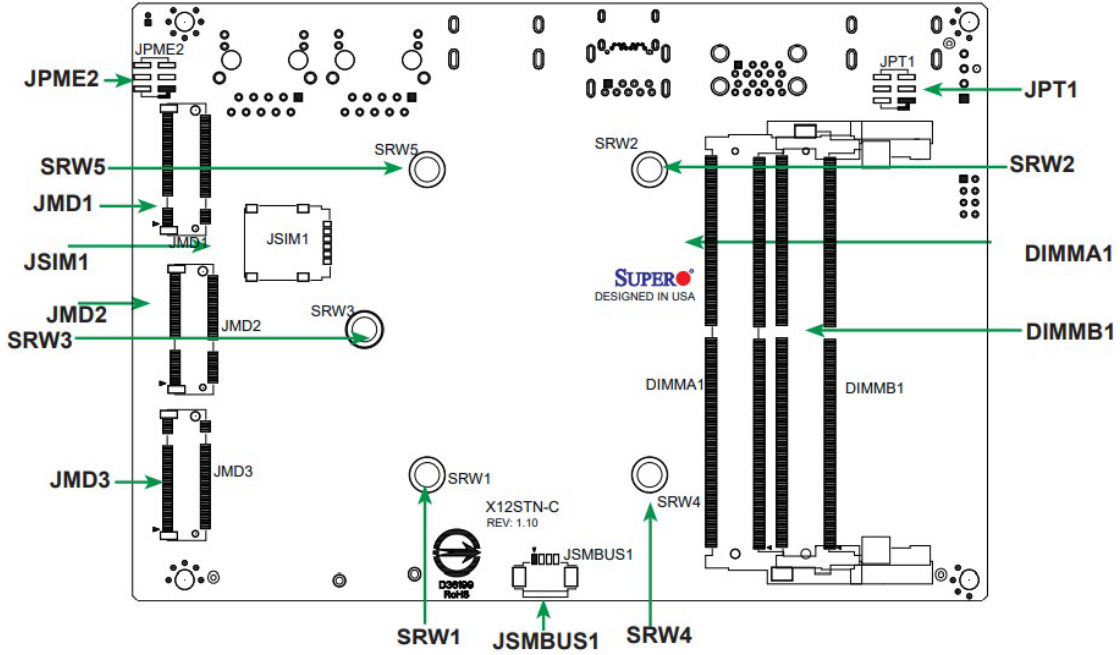


Figure 1-2. Rear View

System Features: Rear	
Item	Description
12VDC Input	Power input for system
GPIO Port	General Purpose Digital Input/Output port
COM Ports	COM1 and COM2: RS232/422/485 serial ports COM3 and COM4: RS232 serial ports
USB Ports	USB 2.0 ports
Mic-In	Microphone jack (optional)
Line-Out	Line out jack for audio (optional)



Top Layout



Bottom Layout

Quick Reference Table

Jumper	Description	Default Setting
JLCDPWR1	LVDS Panel VCC Power Source Selection	Pins 1-3 (3.3V)
JPME2	CMOS	Pins 1-3
JPME2	Manufacturing Mode	Pins 4-6 (Normal)
JPT1	TPM Enable	Pins 1-3 (Enable)
JPT1	Force Power On	Pins 2-4 (Force power on)
JSIM1_OPT	SIM Detect Option	Pins 2-4 (Normal)

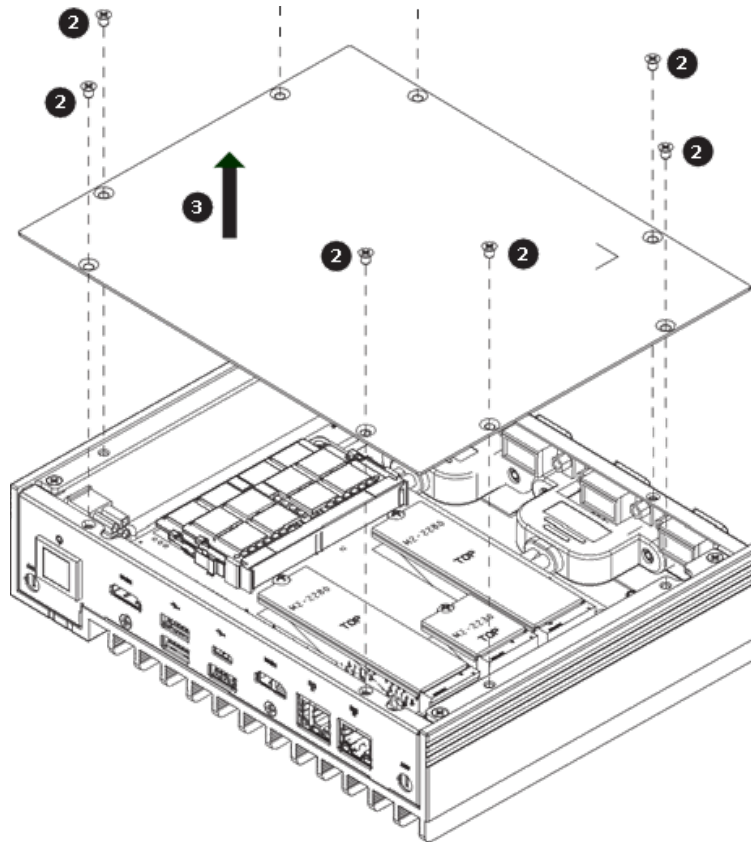
LED	Description	Status
LED1	Onboard Power LED	Green: System On Off: System Off (power cable not connected)

Connector	Description
AUDIO FP	Front Panel Audio Header (Mic-In/Line-Out)
BT1	Battery Connector
FAN1	System Fan Header
I-SATA0	SATA 3.0 Port
JCOM1: COM1/COM2	COM Header (two RS232/RS422/RS485 ports)
JCOM2: COM3/COM4	COM Header (two RS232 ports)
JF1	Front Control Panel Header (Power/HDD LED, Reset, Power button)
JGP1	8-bit General Purpose I/O Header
JHDMI1	Back Panel HDMI 2.0b Port
JHDMI2	Back Panel HDMI 1.4b Port
JMD1	M.2 Slot B-Key 2280/2242/3042 (SATA 3.0 or PCIe / USB 3.1 /USB 2.0)
JMD2	M.2 Slot E-Key 2230 (PCIe / USB 2.0 / CVNi)
JMD3	M.2 Slot M-Key 2280/2242 (Gen4 PCIe x4)
JPH1	4-pin HDD Power Connector
JPW1	8-pin 12-24V Power Connector
JSIM1	JSIM1 Nano SIM Card Slot (bottom side)
JSMBUS1	System Management Bus Header
JSPKR1	Audio Speaker Output with 3W Amplifier
LAN1, LAN2	2.5 GbE Ethernet Ports
LVDS1	Dual Channel 48-bit LVDS Connector
SRW1 ~ SRW5	M.2 Mounting Holes
USB0/1	Front Accessible USB 2.0 Headers
USB2/3	Front Accessible USB 2.0 Headers
USB5	Front Panel USB 3.1 Type C Port (supports DP1.4a with alt. mode)
USB4/6/7	Front Panel USB 3.1 Type A Ports

Supported Drivers: <https://www.supermicro.com/wdl/driver/>

4.1 Accessing the System

The CSE-E101-03 features a removable bottom cover to access the inside of the chassis.



4.2 Removing the Bottom Cover

1. Remove power from the system.
2. Remove the eight screws that hold the cover in place.
3. Lift the cover up and off the chassis.

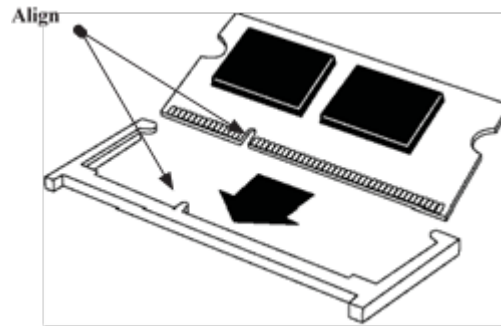
Caution: Except for short periods of time, do not operate the server without the cover in place. The chassis cover must be in place to prevent misuse.

4.3 Installing Memory

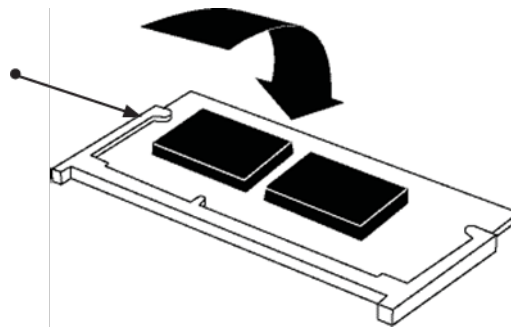
Caution: Exercise extreme care when installing or removing DIMM modules to prevent damage.

SO-DIMM Installation

1. Remove the bottom cover as described in the previous section.
2. Position the SO-DIMM module's bottom key so it aligns with the receptive point on the slot.

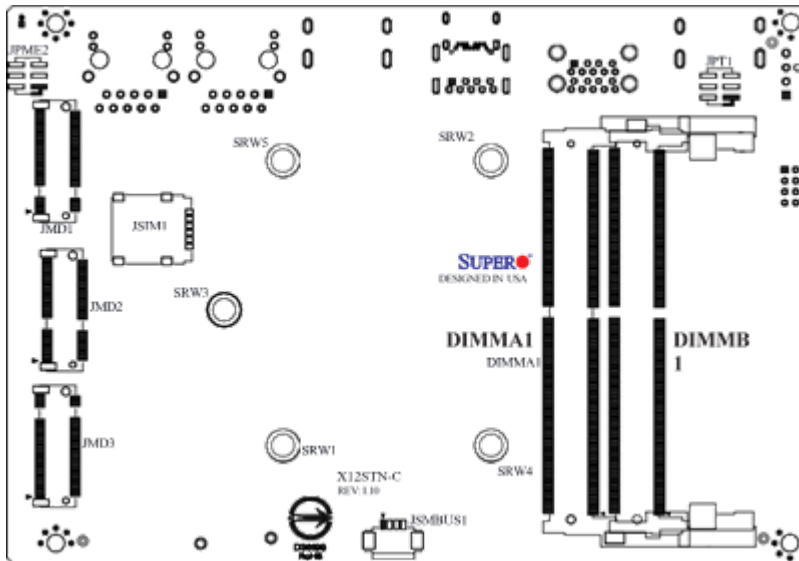


3. Insert the SO-DIMM module vertically at about a 45 degree angle. Press down until the module locks into place.



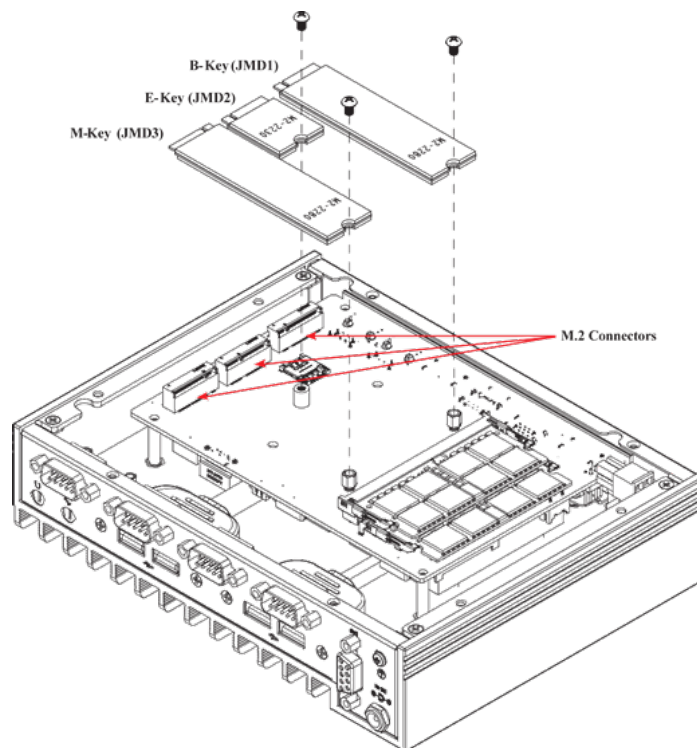
SO-DIMM Removal

1. Push the side clips at the end of the slot to release the SO-DIMM module.
2. Pull the SO-DIMM module up to remove it from the slot.



5 Solid State Storage

This motherboard supports internally mounted solid state storage cards by means of three M.2 slots. When an M.2 NVMe storage card is installed, an accompanying heatsink (optional) must also be installed to prevent the card from overheating.



Installing an M.2 Card

1. Gently insert the M.2 card into the connector.
2. Use a screw to secure the M.2 card to the standoff.

6 Driver Installation

The Supermicro website contains drivers and utilities for your system at:

<https://www.supermicro.com/wdl/driver/>

Some of these must be installed, such as the chipset driver.

After accessing the website, go to <https://www.supermicro.com/wdl/CDR/Images/> and locate the ISO file for your motherboard. Download this file to a USB flash drive or a DVD. (You may also use a utility to extract the ISO file if preferred.)

Another option is to go to the Supermicro website at <http://www.supermicro.com/products/>. Find the product page for your motherboard, and "Download the Latest Drivers and Utilities".

Insert the flash drive or disk and the screenshot shown below should appear.



Note: Click the icons showing a hand writing on paper to view the readme files for each item. Click the computer icons to the right of these items to install each item (from top to the bottom) one at a time. After installing each item, you must re-boot the system before moving on to the next item on the list. The bottom icon with a CD on it allows you to view the entire contents.

7 Setting up your AWS Account and Permissions

Refer to the online AWS documentation at [Set up your AWS Account](#). Follow the steps outlined in the sections below to create your account and a user and get started:

- [Sign up for an AWS account](#)
- [Create a user and grant permissions](#)
- [Open the AWS IoT console](#)

Pay special attention to the Notes.

8 Create Resources in AWS IoT

Refer to the online AWS documentation at [Create AWS IoT Resources](#). Follow the steps outlined in these sections to provision resources for your device:

- [Create an AWS IoT Policy](#)
- [Create a thing object](#)

Pay special attention to the Notes.

9 Provisioning the Device with Credentials

All the required credentials for the device are created after the previous step. You will need to save the certificates and keys files in your device, and they will be used afterwards to connect to AWS IoT Core.

10 Building and Running the Demo

To test device connectivity to AWS IoT Core, please follow the steps outlined here

[Use your Windows or Linux PC or Mac as an AWS IoT device - AWS IoT Core \(amazon.com\)](#).

11 Debugging and Troubleshooting

Please refer to the user manual and FAQ section for your product using the links below

User Manual

https://www.supermicro.com/manuals/superserver/Box_PC/MNL-2459.pdf

FAQ

[Online Support | Support - Super Micro Computer, Inc.](#)

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