LATTEPANDA

LATTEPANDA

LATTEPANDA SIGMA

User Manual

Please read this manual carefully before using this product.

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techsupport@lattepanda.com

http://docs.lattepanda.com

http://www.lattepanda.com/forum

Due to continuous improvement of the product, if there were any changes, sorry for no further notice.

LATTEPANDA

We are honored that you have chosen the LattePanda Sigma, our most powerful product ever. Please accept our heartfelt thanks.

A Hackable Single Board Server with Mighty Power

LattePanda Team

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For more tutorial information, please visit:
http://docs.lattepanda.com

Specification

Processor	CPU	Intel® Core™ i5-1340P
	Cores / Threads	12C(4P+8E) / 16T
	Max Turbo Frequency	4.60 GHz(Performance-core), 3.4 GHz(Efficient-core)
	L2 Cache	12 MB
	Base Power	28W
	Graphics	Intel® Iris® Xe Graphics
	Max Dynamic Frequency	1.45 GHz
	Execution Units	80
	Co-processor	Microchip® ATmega32U4-MU
Memory	Technology	Dual-Channel LPDDR5-6400
	Capacity	16GB/32GB
Storage	Drive Form Factor	M.2 SSD (NVMe/SATA), SATA Drive
Wireless	Wireless Form Factor	M.2 Wireless Module (PCIe/CNVio)
Display	HDMI Port	HDMI 2.1, Up to 4096 x 2304 @ 60Hz
	USB Type-C Port	DP 1.4a, Up to 7680 x 4320 @ 60Hz (One Monitor)
	Embedded Display Port	eDP 1.4b, Up to 4096 x 2304 @ 120Hz
Expansion Slot	M.2 M Key	Type 2280, Supports PCIe 3.0 x4 Type 2280, Supports PCIe 4.0 x4
	M.2 B Key	SATA III/PCIe 3.0 x1, USB2.0, USB3.0, SIM
	M.2 E Key	Type 2230, Supports PCIe 3.0 x1, USB2.0, Intel CNVio

External I/O	USB Type-A	2 x USB2.0 (480Mbps) 2 x USB3.2 Gen 2 (10Gbps)
	USB Type-C HDML	2 x Thunderbolt™ 4 (40Gbps) HDMI 2.1
	Ethernet	2 x 2.5GbE RJ45 Ports (Intel® i225-V Gigabit Ethernet Controller, Supports 10/100/1000/2500 Mbps, WOL)
	Power	5.5mm x 2.5mm DC Jack
	Audio	3.5mm Microphone Headphone Combo Connector
Internal I/O	Sim Card	Micro Sim Card Slot
	USB 2.0	2.0mm Pitch 4-Pin Connector, 480Mbps
	Fan	1.27mm Pitch,12V 4-Wire Fan Connector, PWM Control
	SATA	SATA 6.0 Gb/s Data Connector, 2.0mm Pitch 4-Pin Power Connector
	Front Panel	2.54mm Pitch 9-Pin Header, Supports Power, Reset, Power LED, HDD LED
	Front Audio Panel	2.54mm Pitch 9-Pin Header, Supports High Definition Audio (HD), Line-Out, Mic-in
	COM	2.54mm Pitch 9-Pin Header, Supports RS232, RS485 2.54mm Pitch 34-Pin Header,

Internal I/O	GPIO	2.54mm Pitch 34-Pin Header, Including ATmega32U4 I/O Pins, 5V Power Pins, S0/S3/S4 State Pins
	eDP	0.5mm Pitch 40-Pin Connector, 4 Lanes
Security	TPM	Built-in TPM (2.0)
Power	Power Input	5.5mm x 2.1mm DC Jack: DC 12~20V USB Type C: PD 20V
	Power Adapter	19V DC, 4.74A, 90W
	RTC Battery	CR1220 Battery Holder: 3V 1.27mm Pitch 2-Pin Connector: 3V
Operating System	Microsoft Windows	Windows 10, Windows 11
	Linux	Ubuntu
Environment	Operating Temperature	0~40°C
	Relative Humidity	0%~80%RH
Dimension	Form Factor	3.5", 146 x 102 mm

Warning !

All changes or modifications to the board not explicitly approved by LattePanda could cause the board to malfunction and could void the warranty.

Instructions for Safe Use

To avoid malfunction or damage to your LattePanda, please observe the following:

Avoid plugging or unplugging power supplies before handling the board and/or connecting cables.

Avoid unplugging power when the system is running to minimize the risk of damage.

Avoid using metal components such as screws near the board when connecting to a power supply. Otherwise, it may cause short circuits.

If the board has become wet, never connect it to any external power supply unit or battery.

The LattePanda board, like any other electronic product, is an electrostatic sensitive device: high voltages caused by static electricity could damage some or all the devices and/or components on-board.

All peripherals used with the LattePanda should comply with relevant standards for the country of use and be marked accordingly to ensure that safety and performance requirements are met. These articles include but are not limited to keyboards, monitors, and mice used in conjunction with the LattePanda.

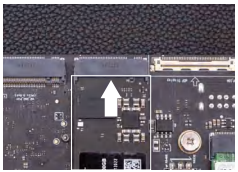
The cable or connector used must offer adequate insulation and operation in order that the requirements of the relevant performance and safety requirements are met.

Quick Start

Before you start

Make sure you have the following accessories:

- An M.2 NVMe SSD
- An M.2 Wireless Network Module(optional)
- An HDMI Cable
- An External Monitor
- A Keyboard and a Mouse
- A Power Adapter

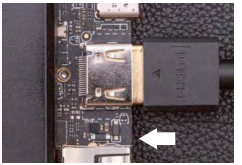


STEP1

Install an M.2 NVMe SSD (Type 2280) to the M.2 M key slot.

STEP2

Install a wireless network module. If you don’ t need wireless connection, you can skip this step.



STEP3

Connect an HDMI display.

STEP4

Connect your keyboard and mouse to the LattePanda Sigma through any of the USB connectors, and connect the power adapter (provided) to the LattePanda Sigma.

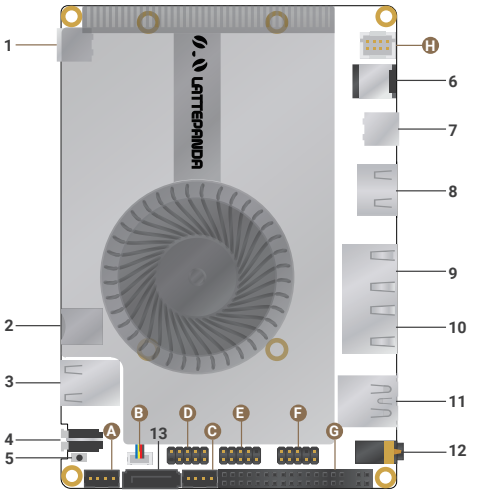
NOTE: LattePanda Sigma has two power ports: USB Type C port and DC Jack.
LattePanda Sigma can be supplied with a 12V~20V DC power adapter or a USB Type C PD Power adapter.
A minimum 90W of power adapter is recommended.

STEP5

Press the power button and you will notice the blue power LED turn on. Wait a few seconds until it boots into the operating system.

Connectors Introduction

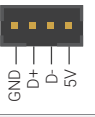
Board Layout(Top)



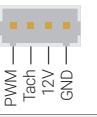
Item	Description
1	Thunderbolt™ 4 Port
2	Micro Sim Card Slot
3	USB 2.0 Port x2
4	Power Button with blue LED
5	Co-processor Reset Button
6	5.5mm x 2.5mm DC Jack
7	Thunderbolt™ 4 Port

Item	Description
8	HDMI 2.1
9	2.5GbE RJ45 Port
10	2.5GbE RJ45 Port
11	USB 3.2 Gen2 Port (10Gbps) x2
12	3.5mm Stereo Headset Jack
13	SATA DATA

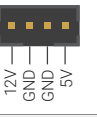
A USB 2.0



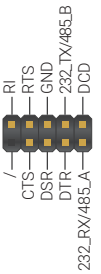
B CPU Fan



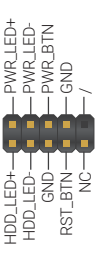
C SATA Power



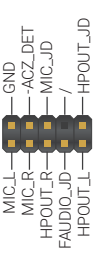
D COM(RS232/485)



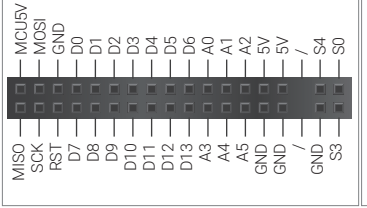
E Front Panel



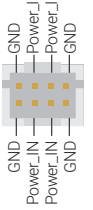
F Front Audio Panel



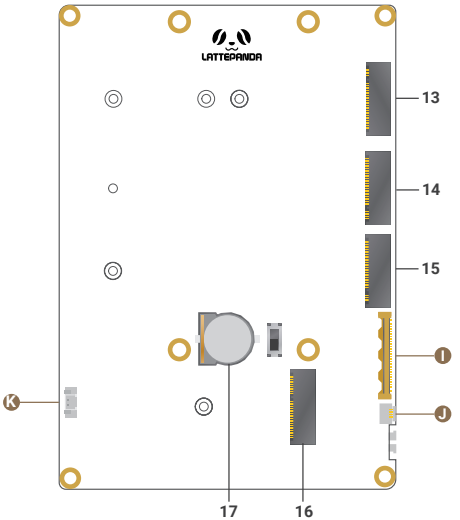
G GPIO



H Power IN



Board Layout(Bottom)



Item	Description
13	M.2 B key, Type 2242/2252/2280, Supports SATA III/PCIe 3.0 x1, USB2.0, USB3.0, SIM
14	M.2 M key, Type 2280, Supports PCIe 3.0 x4
15	M.2 M key, Type 2280, Supports PCIe 4.0 x4
16	M.2 E key, Type 2230, Supports PCIe 3.0 x1,USB2.0, Intel CNVio
17	RTC Battery

I eDP Display Connector

PIN	Signal	PIN	Signal
1	NC-Reserved	21	LCD_VCC
2	H_GND	22	BIST
3	Lane3_N	23	LCD_GND
4	Lane3_P	24	LCD_GND
5	H_GND	25	LCD_GND
6	Lane2_N	26	LCD_GND
7	Lane2_P	27	HPD
8	H_GND	28	BL_GND
9	Lane1_N	29	BL_GND
10	Lane1_P	30	BL_GND
11	H_GND	31	BL_GND
12	Lane0_N	32	BL_ENABLE
13	Lane0_P	33	BL_PWM_DIM
14	H_GND	34	NC - RESERVED
15	AUX_CH_P	35	NC - RESERVED
16	AUX_CH_N	36	BL PWR
17	H_GND	37	BL PWR
18	LCD_VCC	38	BL PWR
19	LCD_VCC	39	BL PWR
20	LCD_VCC	40	NC_RESERVED

J Touch Panel Connector

PIN	Signal
1	3.3V
2	INT
3	RESET
4	GND
5	I2C_SDA
6	I2C_SCL

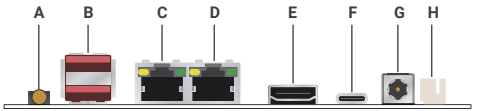
K RTC Battery Connector

PIN	Signal
1	+BAT
2	GND

Front Panel

Item	Description
A	Thunderbolt™ 4 Port
B	Micro Sim Card Slot
C	USB 2.0 Port x2
D	Power Button with blue LED
E	Co-processor Reset Button

4.Back Panel



Item	Description
A	3.5mm Stereo Headset Jack
B	USB 3.2 Gen2 Port (10Gbps) x2
C	2.5GbE RJ45 Port
D	2.5GbE RJ45 Port
E	HDMI 2.1
F	Thunderbolt™ 4 Port
G	5.5mm x 2.5mm DC Jack
H	8-Pin Power Supply Header

WiFi and Bluetooth Connection Guide

Hardware Preparation

1. Ensure you have the following accessories:

- Wireless Module with M.2 E Key (e.g. Intel AX211)
- 2.4G/5G Dual-frequency Antenna with IPEX4

2. Hardware Installation Steps:

- Properly insert the wireless module into the M.2 E key slot on the board
- Connect the antenna to the corresponding port on the wireless module (usually marked as MAIN and AUX)
- Ensure the antenna connections are secure

2.4G/5G WiFi Connection Setup

1. After starting the Windows OS, it will automatically recognize the wireless module
2. Click on the network icon at the bottom right corner of the taskbar

3. In the network list that appears, select the WiFi network you wish to connect to. Both 2.4G and 5G networks are supported and can be used as needed. Generally:

- 2.4 GHz network: Suitable for longer distance connections with better wall penetration
- 5 GHz network: Suitable for high-speed connections at close range, supporting higher data transfer rates

4. Enter the network password
5. Click "Connect" to complete the WiFi connection

Bluetooth Connection Setup

1. Click on the Bluetooth icon at the bottom right corner of the taskbar
2. Ensure Bluetooth is enabled (if not, click the "Bluetooth" switch to turn it on)
3. Click "Add Bluetooth or other device"
4. Select "Bluetooth"
5. Put the Bluetooth device you want to connect in pairing mode
6. In the list of available devices displayed, select your device
7. Follow the on-screen instructions to complete the pairing process

Precautions

1. Ensure the antennas are installed correctly and securely, or it may affect signal quality
2. After the first installation, OS may take a few minutes to install necessary drivers. If installation is unsuccessful, manually download and install drivers from the wireless module manufacturer's official website
3. If interference occurs when using 2.4 GHz WiFi and Bluetooth, it is recommended to adjust the wireless router's channel settings

FAQ

Q:	A:
Can not boot up	1. LattePanda Sigma does not have onboard storage devices. Please ensure that the hard disks are installed. 2. Check again that the power adapter is tightly connected, and the input voltage is within the required range. 3. Try disconnecting the power for a few seconds, then connect it and turn on the device again.
Suddenly shuts down or restarts while running	Ensure that the power of the power adapter is not less than 90W. Otherwise, LattePanda Sigma will suddenly shut down or restart due to insufficient power supply.
Blue LED doesn't tun off	Wait few minutes, and confirm the auto power on function in BIOS is disabled.
No screen output	1. Re-tight the display cable and wait few minutes until the system start completely. 2.Confirm the voltage of RTC battery is enough. Low voltage or no battery will cause the operating system to take too long to boot. 3. If there is no screen when using a Type C display, Pls find an HDMI display to test.
Cooling fan doesn't start	1.The default setting is that the fan automatically starts when the temperature reaches the startup threshold. 2.Check the BIOS Fan settings and change the cooling fan temperature setting.
Access BIOS setup	Short press the power button and keep pressing Delete key on the keyboard until you see the BIOSSetup Menu.

Information and Assistance

What should I do if something goes wrong with the product?

LattePanda DOCS: visit http://docs.lattepanda.com/ to get all information on the product.

LattePanda Forum: join to the community(https://www.lattepanda.com/forum/) of LattePanda users. Users can search the multiple topics of the community, and look for other users that had the same kind of problem - and how they solved it. It is also possible to post new topics to ask for specific help.

Repair service: it is possible to contact LattePanda Tech Support(techsupport@lattepanda.com) and send the faulty product to the LattePanda Warranty Department under LattePanda explicit approval.

Customer Service

1.The warranty on this product lasts for **180days**.

2.LattePanda warrants that each LattePanda product that you purchase is free from defects in materials and workmanship under normal use during the warranty period.

3. LattePanda will repair or replace any product found defective upon receipt, or which becomes defective within the standard warranty period, after the inspection by LattePanda After-sales department.

4.To comply with Microsoft's licensing regulations, LattePanda Warranty Policy does not cover software-related issues, including the loss of Product Key during your operation. It' s highly recommended to backup your data and Product Key.

To issue a RMA request or need technical support, Please contact techsupport@lattepanda.com.

FCC Statement

1.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.

2. Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

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 or more 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 Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. In order to avoid the possibility of exceeding the FCC radio frequency exposure limits, Human proximity to the antenna shall not be less than 20cm (8 inches) during normal operation.