LATTEPANDA **LATTEPANDA**

LattePanda
Alpha
/Delta

User Manual

Please read this manual carefully
before using this products.

Due to the products improve continuously,
if there is any change, sorry for no further notice.

Time to take action

FC CE ✓(RoHS)

Contents

We're honored that you've chosen LattePanda Alpha/Delta - the most powerful hackable computer runs Windows 10 and compatiable with Linux, so please accept our heartfelt thanks.

The ultimate single board computer for your big idea.
The LattePanda Team

For more information, please visit docs.lattepanda.com

Specification

	LattePanda Alpha	LattePanda Delta
Dimension	115mm * 78mm * 14mm	115mm * 78mm * 14mm
CPU	Intel® Core™ m3-8100Y Processor 1.1GHz~3.4GHz	Intel® Celeron® Processor N4100 1.1GHz~2.4GHz
GPU	Intel® UHD Graphics 615 300MHz~900MHz	Intel® UHD Graphics 600 200MHz~700MHz
RAM	8GB	4GB
Flash	0GB/64GB eMMC 5.0	32GB eMMC 5.0
WiFi	802.11ac 1x1 2.4Ghz, 5Ghz dual band	802.11ac 1x1 2.4Ghz, 5Ghz dual band
BT	Bluetooth 4.2	Bluetooth 5.0
Ethernet	1000M PCIe WOL supported	1000M PCIe WOL supported
Display	HDMI/DP/eDP	HDMI/DP/eDP
Other Interfaces	USB TYPE-C DC power input Battery port Audio port USB 3.0 x3 MircoSD I2C/I2S/RS232/USB2.0	USB TYPE-C DC power input Audio port USB 3.0 x3 MircoSD I2C/I2S/RS232/ USB2.0 USB JST Port
Coprocessor	ATmega 32U4	ATmega 32U4
M.2 M-key	NVMe/SATA/PCIe 4x	*PCIe 2x
M.2 E-key	PCIe 2x/USB2.0/UART/PCM	PCIe 2x/USB2.0/UART

*Compatible with NVMe and PCIe SSD

Warning

Please use the PD power adapter specified.

Any external power supply used with the LattePanda shall comply with relevant regulations and standards applicable in the country of intended use.

This product should be operated in a well ventilated environment and, if used inside a case, the case should not be covered.

This product should be placed on a stable, flat, non-conductive surface during use and should not be contacted by conductive items.

Connecting incompatible devices to the GPIO connector may affect compliance or result in damage to the unit and invalidate the warranty.

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.

Instructions for safe use

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

Do not expose to water or moisture.

Do not place on a conductive surface whilst in operation.

Do not expose to heat from any source; the LattePanda is designed for reliable operation at normal ambient room temperatures.

Take care whilst handling to avoid mechanical or electrical damage to the printed circuit board and connectors.

Avoid handling the printed circuit board while it is powered. Only handle by the edges to minimize the risk of electrostatic discharge damage.

The LattePanda is **not designed to** be powered from a USB port on other connected equipment, if this is attempted it may malfunction.

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

FCC 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.

NOTE: 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.

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

This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

* Operation in the band **5150-5250 MHz** is only for indoor use to reduce the potential for harmful interference to co-channel mobile satellite systems.

CE statement

Hereby, DFROBOT declares that this LattePanda Alpha is in compliance with the essential requirements and other relevant provisions of Directive 2014/53/EU.
The full test of the EU declaration of conformity is available at the following internet address: www.lattepanda.com
Frequency band:
2402MHz ~2480MHz for BT
2412MHz ~ 2472MHz for 2.4G Wi-Fi
5180MHz~5825MHz for 5G Wi-Fi
EIRP Power (Max) :
6.34dBm for BT
14.75dBm for 2.4G Wi-Fi
12.72dBm for 5G Wi-Fi
Name of manufacturer: DFRobot
Address: Room 615,Building Y1,112 liangxiu road,Pudong, Shanghai Municipality,China
Contact person: LattePanda team

5.15-5.35GHz band is restricted to indoors operations only in the following countries:

AT	BE	BG	CH	CY	SI	LU
CZ	DE	DK	EE	EL	SK	MT
ES	FI	FR	HR	HU	TR	NL
IE	IS	IT	LI	LT	UK	NO
LV						

Getting started
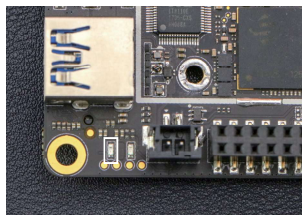
Power on your LattePanda

We suggest you using the Type-C PD power adapter attached. LattePanda Alpha/Delta has two power port. And Alpha has an extra 7.8v Li-polymer battery port.
You can power it by PD adapter, 12v DC input or recommended battery (alpha only).
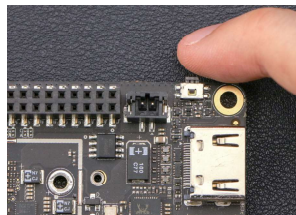
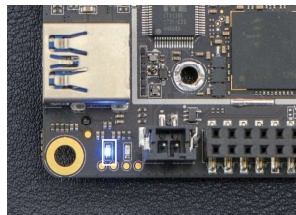### ▌ Power-on step
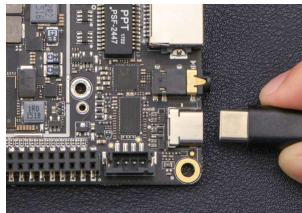
STEP1

Connect with power adapter .

STEP2

Wait few seconds until the blue LED start blinking.

STEP3

Hold the power button for 3 seconds.
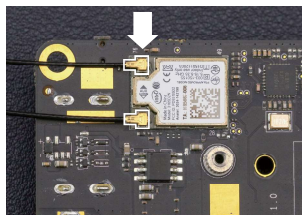

STEP4

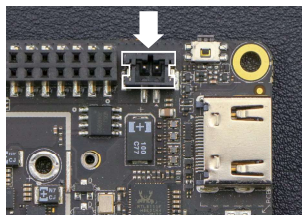Until the LED lights up again.

STEP5

Wait for the system start .
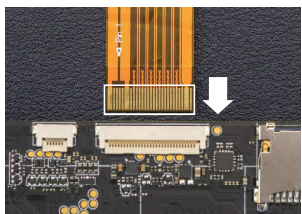
Connect to Wifi/BT antenna

Note : Delta board only need one antenna.
Install the Wi-Fi & BT antenna by plugging the round shaped end into the socket.

Using cooling fan

Connect with the fan using this port.
You can control the fan start by set the temperature threshold in the BIOS.

Insert FPC

Note: Please connect it with LattePanda BEFORE Power-On. And make sure the Golden Finger face the right side as shown in the figure.

Using USB TYPE-C port
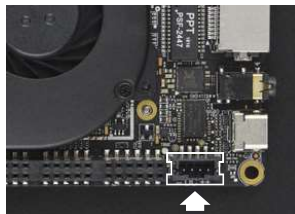
Standard power - 3A @ 12 volts The voltage range of JST PH2.0 - 4p power input connector is 10~15 volts.

Using DC power port
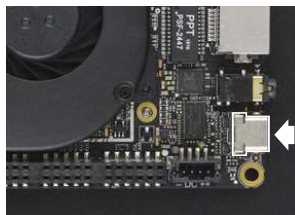
With USB-C™ port for connecting to displays, power and USB3.0.

Using M.2 socket

There are two M.2 sockets on the LattePanda Alpha& Delta, one M key and one E key. Both sockets have the 2280 size mounting screw.

Control D13

Red LED D13 is controlled by the digital pin 13 on built-in Arduino, which can be turn off by set Pin 13 as low-level or disable the Arduino power in BIOS.

Using Real-time Clock

LattePanda uses button cell for powering the RTC，so the board can continue to keep time while the primary source of power is off or unavailable. The specification of the battery is CR927 (3V).
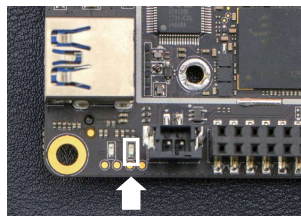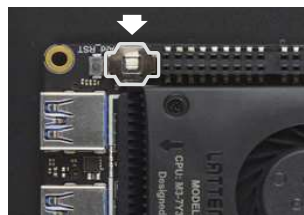
Please visit docs.lattepanda.com for more information

FAQ

Q:	A:
Can not boot up	Check the power supply connect tight again.
Blue LED doesn't turn off	Wait few minutes and confirm the Auto power on function switch on
Cooling fan doesn't start	Check the bios setting and change the cooling fan temperature setting
No screen output	Re-tight the display cable and wait few minutes until the system start completely Confirm the voltage of RTC battery. Low voltage will cause the system takes a long time to start up.

If you meet the problem that cannot be resolved, please visit：
https://www.lattepanda.com/forum/
and describing the problem as specific as possible

CUSTOMER SERVICE

Please let us know as soon as possible if you have any problems with your LattePanda - we will do everything in our power to make it right. All faulty products can be replaced within 180 days (including working days and holidays). Any reports of problems with an order shipped more than 180 days ago cannot be serviced free.

Appendix

Arduino RESET

RTC Battery (CR927)

POWER/SW

FAN (5v) — GND

Top header block (outer labels): RXD1, TXD1, SDA, SCL, A6, A7, A0, A1, A2

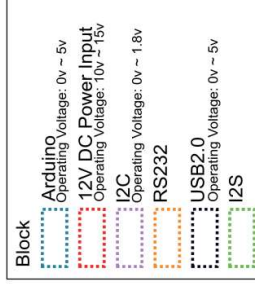**Top pin row:** RTC, 3.3V, 3.3V, 5V, 5V, GND, WP, MISO, CS#, X, 5V, MOSI, GND, D0, D1, D2, D3~, D4, D5~, D6~, D18, D19, D20, 5V, 5V

Second pin row: GND, GND, GND, GND, MCSI, CLK, HOLD, VCC, X, MISO, SCK, RESET, D7, D8, D9~, D10~, D11~, D12, D13~, D21, D22, D23, GND, GND

Lower labels: A8, A9, A10, A11, D13 LED, A3, A4, A5

LATTEPANDA

POWER LED — D13 LED

SW — GND

Bottom pin row (upper): GND, SW, S4, S0, TXD, SCLK, 3.3V, 3.3V, GND, SCL, SDA, 1.8v, X, SGND, DTR, TXD, RXD, DCD, X, GND, D-, D+, 5V, DC_IN, DC_IN

Bottom pin row (lower): GND, RST, S5, S3, GND, RXD, SFRM, MCLK, GND, GND, GND, GND, X, RI, CTS, RTS, DSR, X, GND, GND, GND, GND, GND, GND, DC_IN, DC_IN

Type

Color	Type
GND	GND
	Power
	Serial Pin (Ardno Part)
	Digital Pin (PWM: ~)
	Analog Pin
	Functional
	Serial Pin (CPU Part)

Block

- Arduino — Operating Voltage: 0v ~ 5v
- 12V DC Power Input — Operating Voltage: 10v ~ 15v
- I2C — Operating Voltage: 0v ~ 1.8v
- RS232
- USB2.0 — Operating Voltage: 0v ~ 5v
- I2S

P.S.

CPU States :
S0: Power ON
S3: Sleep
S4: Hibernate
S5: Shutdown
SW: Power Switch

Operating Voltage 5V

USB2.0

| GND | D- | D+ | 5V |

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eDP

| GND | GND | TX1_DN | TX1_DP | GND | TX0_DN | TX0_DP | GND | AUX_DN | AUX_DP | GND | 3.3V | 3.3V |

| NC | GND | GND | EDP_HPD | BL_GND | BL_GND | BL_GND | BL_GND | BL_ENABLE | BL_PWM | CSI_USB_DP | CSI_USB_DN | NC | BL_PWR | BL_PWR | BL_PWR | CSI_USB |

Operating Voltage 1.8V

Touch Panel

| I2C_SCL | I2C_SDA | GND | RESET | INT | 3.3V |

1

Type

| GND | Power | Functional | Serial Pin (CPU Part) |

M.2 **M**-key 2280 connector

PCIe 2x

PCIe 4x
SATA
NVMe

1

M.2 **E**-key 2280 connector

PCM

PCIe 2x
USB2.0
UART

1

LATTEPANDA

Available on LattePanda Alpha only

Available on LattePanda Delta only