

SPECIFICATION SHEET

1. GENERAL DESCRIPTION AND SCOPE

This is the detailed specification of ASUS TINKER BOARD. In this document you can find the detailed product specification, and design data as reference.

2. REFERENCE DOCUMENTS

EMC:

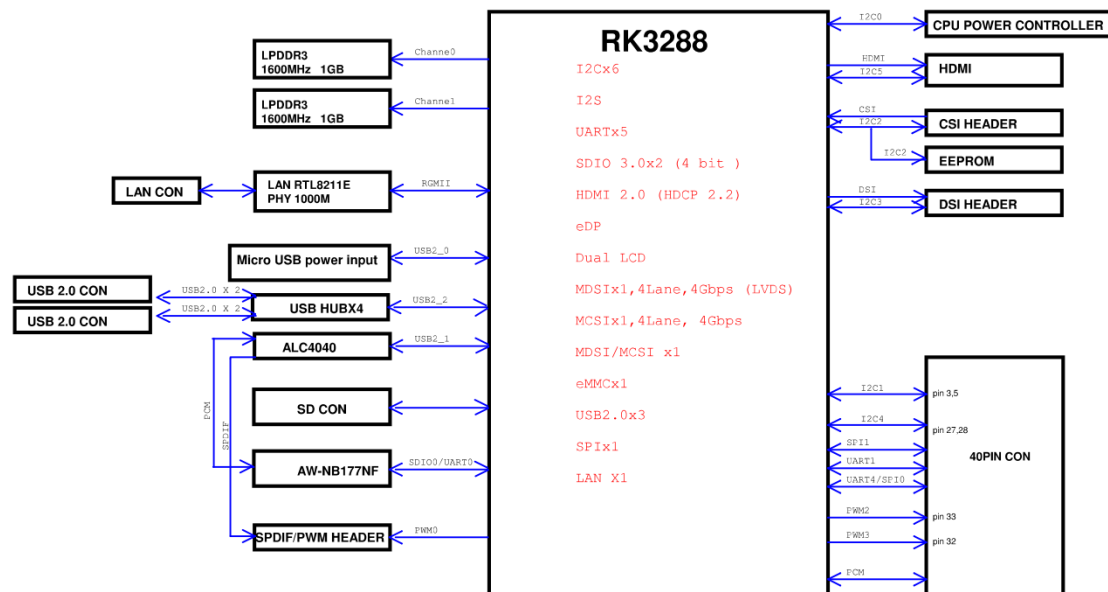
- IEC 61000-3-2
- IEC 61000-3-3
- IEC 61000-4-2
- IEC 61000-4-3
- IEC 61000-4-4
- IEC 61000-4-5
- IEC 61000-4-6
- IEC 61000-4-8
- IEC 61000-4-11

SAFETY:

- EN 55022
- EN 61000-3-2
- EN 61000-3-3
- EN 55024

3. PRODUCT OVERVIEW

TINKER BOARD Block Diagram



4. SPECIFICATION

ASUS Tinker Board S	
Processor	Rockchip RK3288 Cortex-A17 Quad-core SoC
GPU	ARM Mali-T760 MP4 GPU
Display	1 x HDMI with CEC hardware ready
	1 x 15-pin MIPI DSI supports up to HD
Memory Size	Dual-CH LPDDR3 2GB
Storage	16GB eMMC onboard
	Micro SD(TF) card slot
Connectivity	RTL8211E-VB-CG GB LAN
	802.11 b/g/n wireless & BT 4.0 + EDR
Audio	RTL ALC4040 Codec with 1 x 3.5mm audio jack *Supports audio jack plug-in detection
USB	4 x USB 2.0 ports
Camera Interface	1 x 15-pin MIPI CSI slot for camera
Internal Headers	1 x 40-pin headers includes: <ul style="list-style-type: none"> - up to 28 x GPIO pins - up to 2 x SPI bus - up to 2 x I2C bus - up to 4 x UART - up to 2 x PWM - up to 1 x PCM/I2S w/ Slave Mode support - 2 x 5V power pins - 2 x 3.3V power pins - 8 x ground pins
	1 x 2-pin Power-on header 1 x 2-pin eMMC recovery header
	1 x 2-pin contact points includes: <ul style="list-style-type: none"> - 1 x PWM signal - 1 x S/PDIF signal
Power Connector	5V/2~3A Micro USB power input *Supports low power voltage input detection
OS Support	Debian / Android
Dimension	3.37" x 2.125"
Operating Temp.	0°C~60°C

Power Supply

The tinker board requires 5V/2~3A power via the micro-USB port. The exact amount of current (mA) the tinker board requires will depend on what's connected to it. For general use, a 2A power supply from a reputable retailer will provide ample power to run your tinker board.

Typically, tinker board uses between 700 to 1000mA, depending on which peripherals are connected. It may use as little as 500mA when no peripherals are attached. Maximum power for the tinker board is 1A. If you need to connect a USB device to bring power requirements above 0.5A, then you must connect to it via an externally powered USB hub.

USB

The tinker board is equipped with four USB 2.0 ports. These are connected to the GL852G USB Hub from the upstream USB port via the RK3288.

The USB ports enable the attachment of peripherals such as keyboards, mice and webcams. This provides the board with additional functionality.

There are some differences between the USB hardware on the tinker board and the USB hardware on desktop computers, laptops and tablets.

The USB host port inside the tinker board is for power supply only, RK3288, was originally intended to be used in the mobile market, e.g. the single USB port on a phone for connection to a PC, or to a single device. In essence, the OTG hardware is simpler than the equivalent hardware on a PC.

OTG typically supports communication to all types of USB devices, but to provide an adequate level of functionality for most of the USB devices that one might plug into a tinker board, the system software has to do more work.

Supported USB Devices

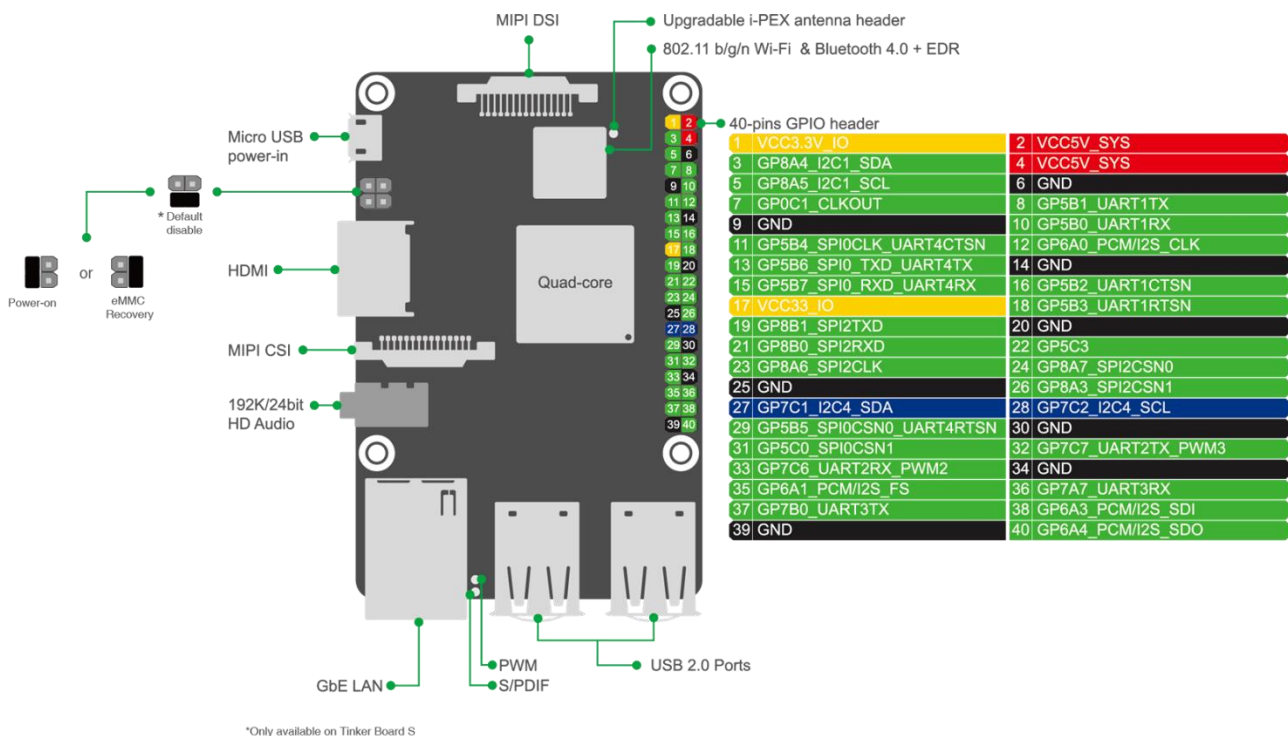
In general, every device supported by Linux can be used with the tinker board (exceptions are detailed below). Linux offers a comprehensive driver database that supports legacy hardware for most operating systems. TinkerOS and its Debian kernel have a large number of in-box drivers for common peripherals & devices.

If you have a device and wish to use it with a tinker board, then plug it in. Chances are that it will be compatible. If you're running a graphical interface (such as an LXDE desktop environment in the

OS), then it's likely that an icon or other message will pop up to announce the new device.

USB Port Power Limits

The device advertises its own power requirements to the USB host when it is first connected. In theory, the actual power consumed by the device should not exceed stated specification. It should be noted that hot-swapping high-powered devices into the tinker board's USB ports may result in a brownout, which may cause the tinker board to reset.



GPIO

One powerful feature of the Tinker Board is the row of available GPIO (general purpose input/output) pins along the edge of the board. These pins are a physical interface between the Tinker Board and the outside world. At the simplest level, you can think of them as switches that can be turned on or off. Of the 40 pins, 28 are GPIO pins (shared with SPI/UART/I2C pins). The Tinker Board is equipped with one SPI bus that offers two chip selects. The SPI bus is available on the onboard 40-pin header.

5. HARDWARE SCHEMATICS

Please refer to appendix A.

6. 3D DRAWING

Please refer to appendix B.

7. COMPATIBILITY

Please refer to appendix C.

8. RELIABILITY

Please refer to appendix D.