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First Edition
October 2021

TINKER BOARD R2.0 Series

Innovatively enjoy a whole new digital experience

享受創新的數位體驗

享受创新的数字体验

Profitez d'une toute nouvelle expérience numérique et innovante

Наслаждайтесь новыми инновационными технологиями

いまだかつてない新感覚のデジタル体験を提供します。

Sperimentate un'esperienza di interazione digitale completamente nuova!

Иновативно, наслаждавайте се на изцяло ново цифрово изживяване

Zcela nový převratný digitální zážitek

Nyd en hel ny digital oplevelse

Geniet innovatief van een volledig nieuwe digitale ervaring

Naudi innovatiivselt kogu uut digitaalset kogemust

Nauti innovatiivisesta, aivan uudesta digitaalisesta kokemuksesta

Genießen Sie ein rundum neues Digitalerlebnis

Καινοτομική απόλαυση μιας εξολοκλήρου νέας εμπειρίας

Vadonatúj digitális élmény

Menikmati pengalaman digital yang benar-benar baru secara inovatif

Тольгымен жаңа сандық тәжірибеге инновациялық түрде қол жеткізіңіз

완전히 새로운 디지털 세계를 획기적으로 즐겨보세요.

Gūstiet pilnīgi jaunu digitālo baudījumu inovatīvā veidā

Mėgaukitės visiškai naujais skaitmeniniais potyriais

Få glede av en helt ny, innovativ digital opplevelse

Korzystaj z zupełnie nowego cyfrowego rozwiązania

Desfrute de uma nova experiência digital de forma inovadora

Bucurați-vă în cel mai inovator mod de noua experiență digitală

Inovativno uživajte u celom, novom, digitalnom iskustvu

Inovativne si vychutnávajte úplne nový digitálny zážitok

Sea el primero en disfrutar de una nueva experiencia digital total

Innovativ njutning av en helt ny digital opplevelse

Tamamen yeni yaratıcı bir dijital deneyim yaşayın

Tận hưởng trải nghiệm số hoàn toàn mới theo cách cải tiến

เพลิดเพลินกับการสร้างสรรค์ประสบการณ์ดิจิทัลใหม่ทั้งหมด

استمتع بتجربة رقمية جديدة تمامًا وبشكل مبتكر

HDMI[™]
HIGH-DEFINITION MULTIMEDIA INTERFACE



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Thank you for purchasing ASUS Tinker Board R2.0 Series!

Tinker Board is more than a dream for the DIY-obsessed: it's a gateway to new ideas and new relationships. Experienced makers will love Tinker Board's performance-to-price ratio and strong brand heritage, while novices and younger users will appreciate its accessibility and ease of use. But all will come together to create — Together We Make!

Package contents

Check your Tinker Board R2.0 or Tinker Board S R2.0 package for the following items:

1 x Tinker Board R2.0 or Tinker Board S R2.0	1 x Heatsink*
1 x Shielding bag	1 x Quick start guide

- * Beware of high temperatures when only using the bundled heat sink.

Safety Information

- Power supply used with the Tinker shall comply with relevant regulations and applicable standards.
- DO NOT overclock the board, as this may cause damage to the board.
- Ensure that the board is placed in a well ventilated environment.
- The board should be placed on a flat, stable, non-conductive surface.
- Avoid handling the board while powered. Handle the board by the edges to minimize risk of Electronic Static Damage (ESD).
- Do not use both the system Micro USB power-in jack and the 40-pin GPIO +5V pins (pin 2 and 4, red) for power input at the same time. Please refer to the **Top view** illustration for the location of the pins.
- If you wish to use the 40-pin GPIO +5V (pin 2 and 4, red) as a power input source, please make sure the power input rating for each pin complies with the standard of +5V / 3A (+/-5% deviation). A power rating value that exceeds the rating valued mentioned, or an unstable power source may result in damage to your system or hardware. Please refer to the **Top view** illustration for the location of the pins.

ASUS Tinker Board R2.0 Series specifications summary

	Tinker Board R2.0	Tinker Board S R2.0
Processor	Rockchip RK3288-CG.W Arm® Cortex®-A17 Quad-core SoC* * The CPU will operate at full capacity, take note of heat dissipation and AC adaptor stability.	
GPU	ARM® Mali™-T760 MP4 GPU	
Display	1 x HDMI™** supports up to 4K 1 x 15-pin MIPI DSI supports up to HD * HDMI™ supports a maximum resolution of up to 4K, and the iGPU only supports H.264/H.265 4K hardware decoders.	
Memory Size	Dual-CH LPDDR3 2/4GB	
Storage	Micro SD(TF) card slot	Micro SD(TF) card slot 16/32 GB eMMC
Connectivity (optional)	Realtek RTL8211E-VB-CG (A version) or Realtek RTL8211F-CG (B version) GB LAN 802.11 b/g/n wireless & BT 4.2 + EDR	
Audio	1 x HDMI audio output Realtek ALC4030U Codec with 1 x 3.5mm audio jack (with Mic & plug-in detection) 1 x S/PDIF TX pin 1 x PCM/I2S pins (from GPIO)	
USB	4 x USB 2.0 ports	
Camera Interface	1 x 15-pin MIPI CSI-2 (2lane)	
Internal Headers	1 x 40-pin header includes: - 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 1 x 2-pin Power-on header 1 x 2-pin eMMC recovery header 1 x 2-pin contact points includes: - 1 x PWM signal - up to 1 x PCM/I2S - 2 x 5V power pins - 2 x 3.3V power pins - 8 x ground pins - 1 x S/PDIF signal	
Power Connector	5V/2.5-3A Micro USB power input * Supports low power voltage detection.	
OS Support	Debian 10 (32-bit) Android 11 or latest version available (32-bit)	
Dimension	3.37" x 2.125" (85 x 56 mm)	

Getting Started

Booting from onboard eMMC

Requirement:

- 1 x Micro USB cable with data transfer function
- 1 x Tinker Power Supply* or other qualified 5V/3A power supply**
- 1 x Monitor with HDMI cable
- 1 x Keyboard and Mouse set

* The Tinker Power Supply is purchased separately.

** Ensure that the cable is able to deliver up to 3A of power current.

- 1 Connect the Tinker Board R2.0 to a PC using a Micro USB cable, then wait for the PC to recognize the device.
- 2 Download the TinkerOS image from the Tinker Board website and burn it into the Tinker Board S using a third-party ISO software, such as *Win32DiskImager* or *Etcher*.
- 3 Connect the power supply, keyboard, mouse, and monitor to your Tinker Board R2.0 to boot up.

Booting from external Micro SD card

Requirement:

- 1 x Micro SD card with at least 8GB capacity
- 1 x Tinker Power Supply* or other qualified 5V/3A power supply**
- 1 x Monitor with HDMI cable
- 1 x Keyboard and Mouse set

* The Tinker Power Supply is purchased separately.

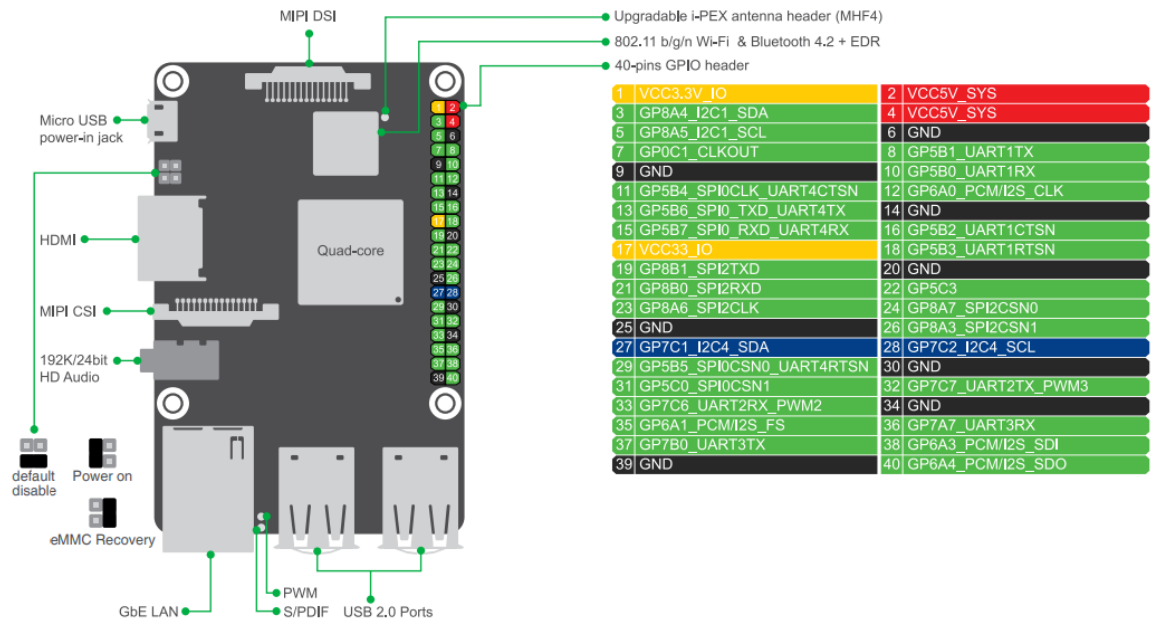
** Ensure that the cable is able to deliver up to 3A of power current.

- 1 Insert the micro SD card into a Windows® PC
- 2 Download the TinkerOS image from the Tinker Board website and burn it into the micro SD card using a third-party ISO software, such as *Win32DiskImager* or *Etcher*.
- 3 Insert the bootable micro SD card into your Tinker Board R2.0, then connect the power supply, keyboard, mouse, and monitor to boot up.

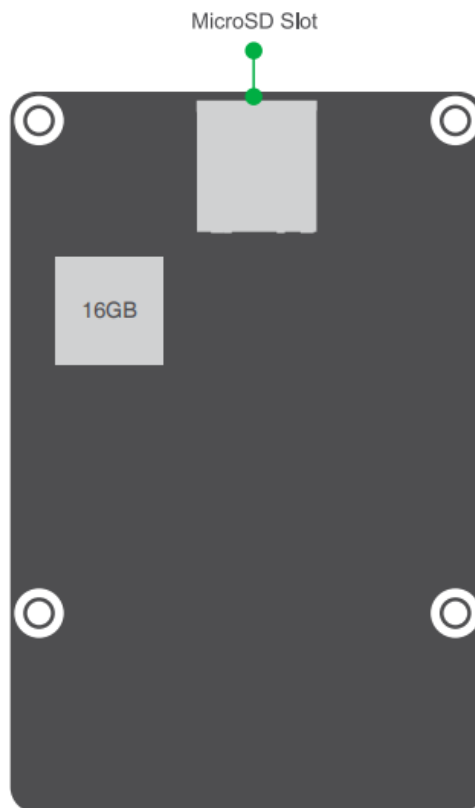


If the eMMC cannot be recognized, please refer to www.asus.com for more details on eMMC Recovery.

Top view



Bottom view



Notices

Federal Communications Commission Interference Statement

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 to 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.



Any changes or modifications not expressly approved by the grantee of this device could void the user's authority to operate the equipment.

Compliance Statement of Innovation, Science and Economic Development Canada (ISED)

This device complies with Innovation, Science and Economic Development Canada licence exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

CAN ICES-003(B)/NMB-003(B)

Déclaration de conformité de Innovation, Sciences et Développement économique Canada (ISED)

Le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

CAN ICES-003(B)/NMB-003(B)

End Product Labeling

This transmitter module is authorized only for use in device where the antenna may be installed such that 20cm may be maintained between the antenna and users. The final end product must be labeled in a visible area with the following:

Contains FCC ID: TLZ-NM430SM and Contains IC: 6100A-NM430SM

Précautions d'emploi de l'appareil :

- a. Soyez particulièrement vigilant quant à votre sécurité lors de l'utilisation de cet appareil dans certains lieux (les avions, les aéroports, les hôpitaux, les stations-service et les garages professionnels).
- b. Évitez d'utiliser cet appareil à proximité de dispositifs médicaux implantés. Si vous portez un implant électronique (stimulateurs cardiaques, pompes à insuline, neurostimulateurs...), veuillez impérativement respecter une distance minimale de 15 centimètres entre cet appareil et l'implant pour réduire les risques d'interférence.
- c. Utilisez cet appareil dans de bonnes conditions de réception pour minimiser le niveau de rayonnement. Ce n'est pas toujours le cas dans certaines zones ou situations, notamment dans les parkings souterrains, dans les ascenseurs, en train ou en voiture ou tout simplement dans un secteur mal couvert par le réseau.
- d. Tenez cet appareil à distance du ventre des femmes enceintes et du bas-ventre des adolescents.

RF exposure warning

This equipment must be installed and operated in accordance with provided instructions and the antenna(s) used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter. End-users and installers must be provide with antenna installation instructions and transmitter operating conditions for satisfying RF exposure compliance.

Radio Frequency (RF) Exposure Information

The radiated output power of the Wireless Device is below the Industry Canada (IC) radio frequency exposure limits. The Wireless Device should be used in such a manner such that the potential for human contact during normal operation is minimized.

This device has also been evaluated and shown compliant with the IC RF Exposure limits under mobile exposure conditions. (antennas are greater than 20cm from a person's body).

Informations concernant l'exposition aux fréquences radio (RF)

La puissance de sortie émise par l'appareil de sans fil est inférieure à la limite d'exposition aux fréquences radio d'Industry Canada (IC). Utilisez l'appareil de sans fil de façon à minimiser les contacts humains lors du fonctionnement normal.

Ce périphérique a également été évalué et démontré conforme aux limites d'exposition aux RF d'IC dans des conditions d'exposition à des appareils mobiles (antennes sont supérieures à 20 cm à partir du corps d'une personne).

KC: Korea Warning Statement

B급 기기 (가정용 방송통신기자재)

이 기기는 가정용(B급) 전자파적합기기로서 주로 가정에서 사용하는 것을 목적으로 하며, 모든 지역에서 사용할 수 있습니다.

Simplified UKCA Declaration of Conformity

ASUSTek Computer Inc. hereby declares that this device is in compliance with the essential requirements and other relevant provisions of The Radio Equipment Regulations 2017 (S.I. 2017/1206). Full text of UKCA declaration of conformity is available at <https://www.asus.com/support/>.

The WiFi operating in the band 5150-5350MHz shall be restricted to indoor use for the country listed below:

UK

UKCA RF Output table (The Radio Equipment Regulations 2017)

AW-NM430SM:

Items	Maximum Radio-Frequency Output Table	
WiFi	2412 - 2472 MHz	17 (dBm)
Bluetooth	2402 - 2480 MHz	6 (dBm)

CE

Simplified EU Declaration of Conformity

ASUSTek Computer Inc. hereby declares that this device is in compliance with the essential requirements and other relevant provisions of Directive 2014/53/EU. Full text of EU declaration of conformity is available at <https://www.asus.com/support/>.

Déclaration simplifiée de conformité de l'UE

ASUSTek Computer Inc. déclare par la présente que cet appareil est conforme aux critères essentiels et autres clauses pertinentes de la directive 2014/53/EU. La déclaration de conformité de l'UE peut être téléchargée à partir du site internet suivant : <https://www.asus.com/support/>

Vereinfachte EU-Konformitätserklärung

ASUSTek COMPUTER INC erklärt hiermit, dass dieses Gerät mit den grundlegenden Anforderungen und anderen relevanten Bestimmungen der Richtlinie 2014/53/EU übereinstimmt. Der gesamte Text der EU-Konformitätserklärung ist verfügbar unter: <https://www.asus.com/support/>

Dichiarazione di conformità UE semplificata

ASUSTek Computer Inc. con la presente dichiara che questo dispositivo è conforme ai requisiti essenziali e alle altre disposizioni pertinenti con la direttiva 2014/53/EU. Il testo completo della dichiarazione di conformità UE è disponibile all'indirizzo: <https://www.asus.com/support/>

Упрощенное заявление о соответствии европейской директиве

ASUSTek Computer Inc. заявляет, что устройство соответствует основным требованиям и другим соответствующим условиям директивы 2014/53/EU. Полный текст декларации соответствия ЕС доступен на <https://www.asus.com/support/>

إعلان التوافق المبسط الصادر عن الاتحاد الأوروبي

تقر شركة ASUSTek Computer أن هذا الجهاز يتوافق مع المتطلبات الأساسية والأحكام الأخرى ذات الصلة الخاصة بتوجيه 2014/53/EU. يتوفر النص الكامل لإعلان التوافق الصادر عن الاتحاد الأوروبي على:

<https://www.asus.com/support/>