QUANTUM N4P5000 HACKBOARD Single Board Computers User Guide

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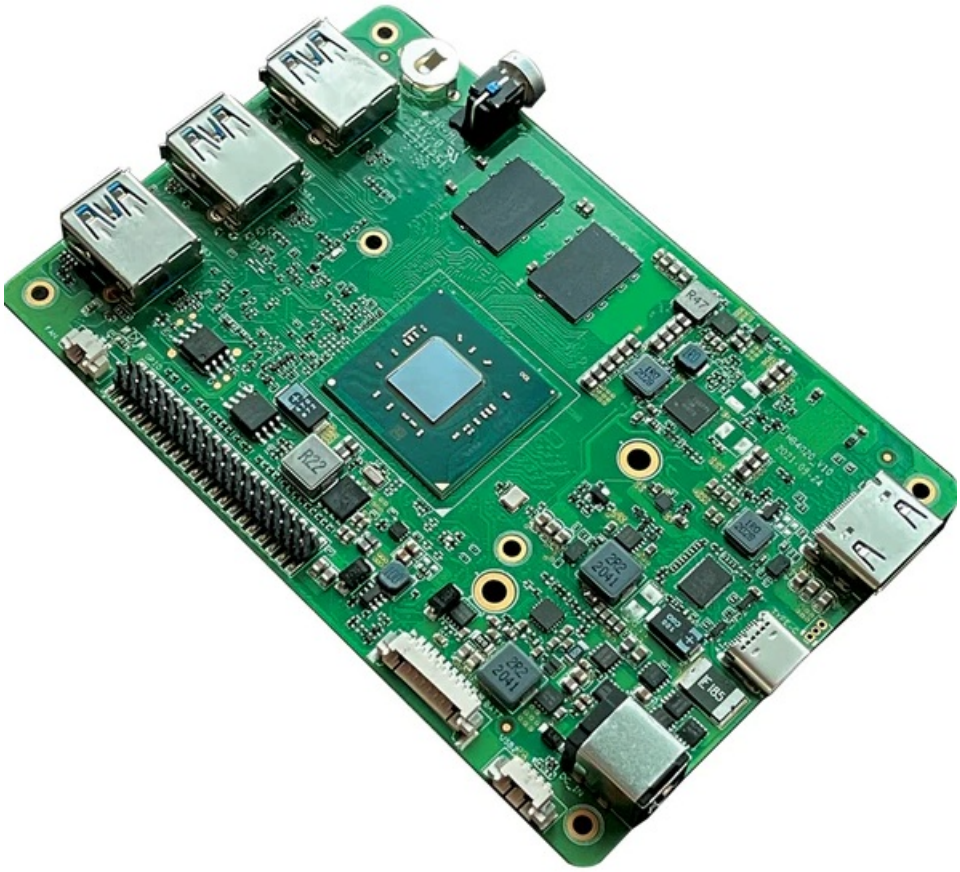
QUANTUM

QUANTUM N4P5000 HACKBOARD Single Board Computers



Product Information

Specifications:

- Date: 2023-05-17
- Color Mode: 4C (CMYK)
- Paper Weight: 157g
- Dimensions: 76*122mm

Product Usage Instructions

GPIO Configuration
Refer to Figure 3 for the GPIO male ports.

Use of Product

Important Note: HACKBOARD Single Board Computers are not designed, intended, or authorized for use with life support, life-sustaining, nuclear, or other critical applications that could result in personal injury, loss of life, or catastrophic property damage if the product fails.

Warnings
Follow these warnings to ensure safe and proper usage of the product:

- This product must only be connected to an external power supply rated at 12V/3A DC.
- The external power supply used with HACKBOARD must comply with relevant regulations and standards of the country of intended use.

- Operate this product in a well-ventilated environment. If used inside an approved case, ensure the case is not covered.
- Place the product on a stable, flat, non-conductive surface during use. Avoid contact with conductive items.
- Connecting incompatible devices to the GPIO connection may affect compliance and cause damage to the unit, potentially invalidating the warranty.
- All peripherals used with this product should comply with relevant safety and performance standards for the country of use.
  This includes keyboards, monitors, and mice when used in conjunction with HACKBOARD.
- If peripherals are connected without including the cable or connector, make sure the cable or connector offers adequate insulation and operation to meet the relevant performance and safety requirements.

Regulatory Compliance Information

European Union Compliance Statement:
Hackboard has been tested and complies with all relevant provisions of the RoHS Directive 2011/65/EU and the amendment 2015/863/EU. It also conforms to the test standards IEC 62321 and REACH EC1907/2006.

In addition, Hackboard has been tested and conforms with the following CE European Standards:

- CE – RED Testing Standard EN301489
- EN300328
- EN62368
- CE – EMC Testing Standard EN55032
- CE – LVD Testing Standard EN62368

USA Compliance Statement:
Hackboard has been tested and complies with all relevant provisions of the Federal Communications Commission (FCC) 2BAIC-N4P5000. It also complies with part 15B of the FCC rules (FCC SDOC) and all provisions of Proposition 65 in the state of California.

Bluetooth Statement:
Hackboard utilizes Bluetooth Technology.

Disposal and Recycling
To ensure proper disposal, Hackboard should be disposed of separately from household waste as it is considered Electronic Equipment (EEE).

Safety Instructions
To prevent malfunction or damage to the product, observe the following safety instructions:

- Avoid exposing the product to water, moisture, or placing it on a conductive surface while in operation.
- Do not expose the product to heat from any source and use it only at normal ambient room temperatures.
- Handle the product with care to avoid mechanical or electrical damage to the printed circuit board and connectors.
- Do not handle the printed circuit board while it is powered on. Only handle it by the edges to minimize the risk of electrostatic discharge damage and exposure to heat generated from the CPU. Take care not to impact the board or connectors.

FAQ (Frequently Asked Questions)

- **Q: Can I use HACKBOARD for life support or critical applications?**
  A: No, HACKBOARD Single Board Computers are not designed or authorized for use with life support, life-sustaining, nuclear, or critical applications.
- **Q: What is the required external power supply rating for HACKBOARD?**
  A: HACKBOARD should only be connected to an external power supply rated at 12V/3A DC.
- **Q: Can I cover the approved case of HACKBOARD?**
  A: No, if used inside an approved case, ensure that the case is not covered to maintain proper ventilation.
- **Q: Can I connect incompatible devices to the GPIO connection?**
  A: No, connecting incompatible devices may affect compliance and cause damage to the unit, potentially invalidating the warranty.
- **Q: Are there any specific safety instructions for handling HACKBOARD?**
  A: Yes, follow the safety instructions provided in the user manual. Avoid exposing the product to water, moisture, heat, and handle it with care to prevent mechanical or electrical damage.

Overview

Congratulations on your purchase of HACKBOARD™ HB2 Setting a new standard for Single Board Computers (SBCs) around the world. Developed by Quantum Engineering it's an amalgamation of 30+ years of combined experience.

HB2 provides speed, reliability and a digital 4K multimedia experience that is unmatched. The hardware platform comes either with Linux Debian as standard or Microsoft Windows 11 Pro With the addition of a 40-Pin GPIO HB

provides infinite customisation and a full range of additional connectivity through the use of Python.

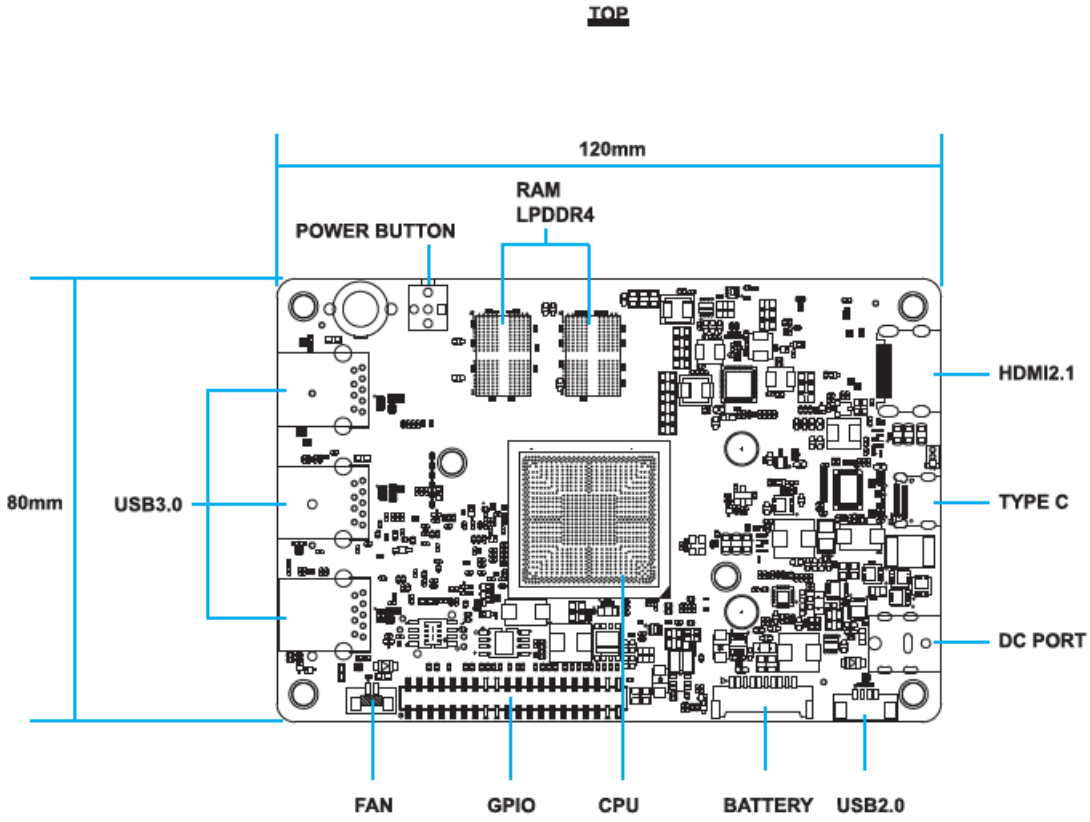
Key Features

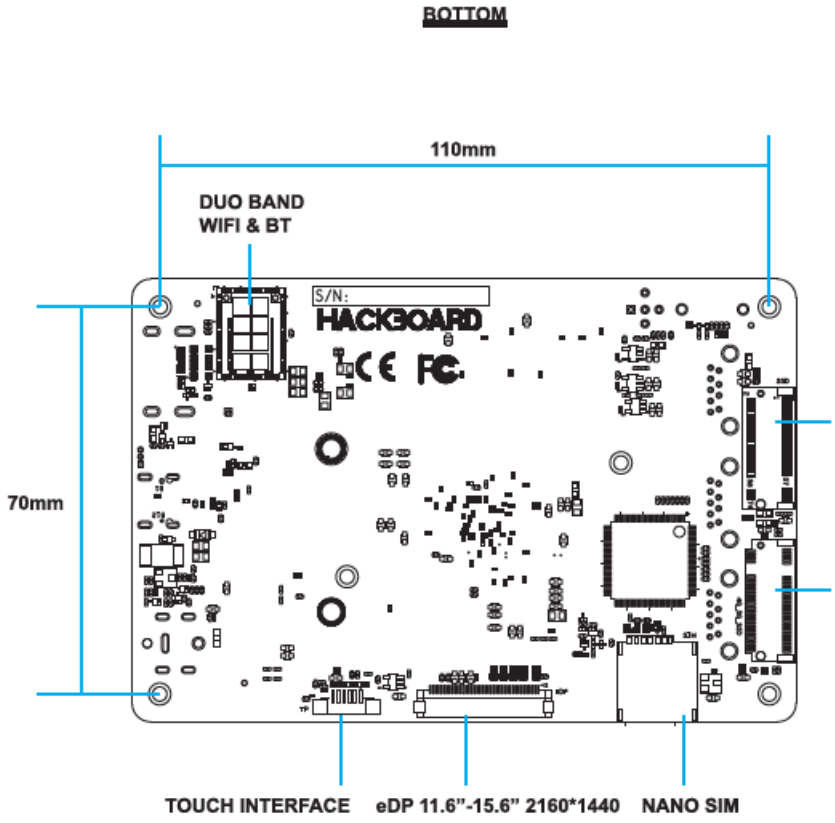
- Processor Intel Celeron N4020
    - 64 – Bit Dual Core Processor – speed up to 2.8 GHz
- Memory 4GB DDR4 RAM
- Storage
    - M.2 A – M.2 SATA NGFFm 64 GB eMMC
    - M.2 B – M.2 SATA NGFFm
- Connectivity Intel Dual Band Wireless – AC9560 TBA
    - Delivers speeds up to 1.73Mbps Dual Mode
    - Bluetooth 5.1
- SIM CARD Standard SIM Card adaptor
    - 4G Wireless Module – Optional – Regional SIM card required
        - LTE(FDD-TDD)/WCDMA/TD-SCDMA/GSM/GPRS/EDGE TriBand
    - 5G Wireless Module – Optional – Regional SIM Card required
        - LTE(FDD-TDD-ENDC/SA)/3GPPR15/QPSK/SA/NSA
- USB C Functions limited to the following :-
    - Output to HB Screens power supply and mobile phone charge 5V-3A
    - LAN using correct supported interface
    - Audio, using correct interface
    - Mouse and Keyboard
    - Note HB USBC will not accept powering to the main board
- USB 3.0 3 o USB 3.0
- USB 2.0 On board – 5 Pin connection port
- GPIO 40 Pin GPIO FM Socket (IO refer to gure 2)
- Video & Sound HDMI 1.4 (4K) Max Resolution 4092×2160@30Hz
- Audio Digital Audio supplied through BT / USB C & 3 with commercially available adaptor and headsets Speaker Connection 5 Pin
- Multimedia Processor Graphics Intel HD Graphics 600
    - Graphics Video Max Memory 8GB
    - Graphics base Frequency 200 MHz
    - Graphics burst frequency 650 MHz
        - Direct X 12
        - Open GL 4.4
        - Intel Quick Sync Video
- eDP Embedded display port 11 .6″-15.6″ (2160×1440
- Touch Touch Screen interface (USB 2.0) TBA
- Thermal IC control Embedded thermal software control
- Heatsink Aluminium Anodised Black – Fitted with gasket – Optional
- Fan 2 Pin fan connection 5v 0.2-0.25a
- Software Optional Windows 11 Pro
    - Python for Windows 11

    - Linux Debian
- Input Power 12V 3A (5.5 x 2.1 mm Diameter Jack Socket)
- Battery On board 10 Pin internal battery supply port
- Other Battery Power cell to provide memory backup – up to 18 Months (PMIC) Alkaline 3v CR927 type
- Power Button Power button ON/OFF/STANDBY plus status indication 2 Colour LED
- Environment 0-50C
- Compliance Certified
- FCC No 2BAIC-N4P5000
- CE

Board Layout

Critical components – General Assembly (GA)





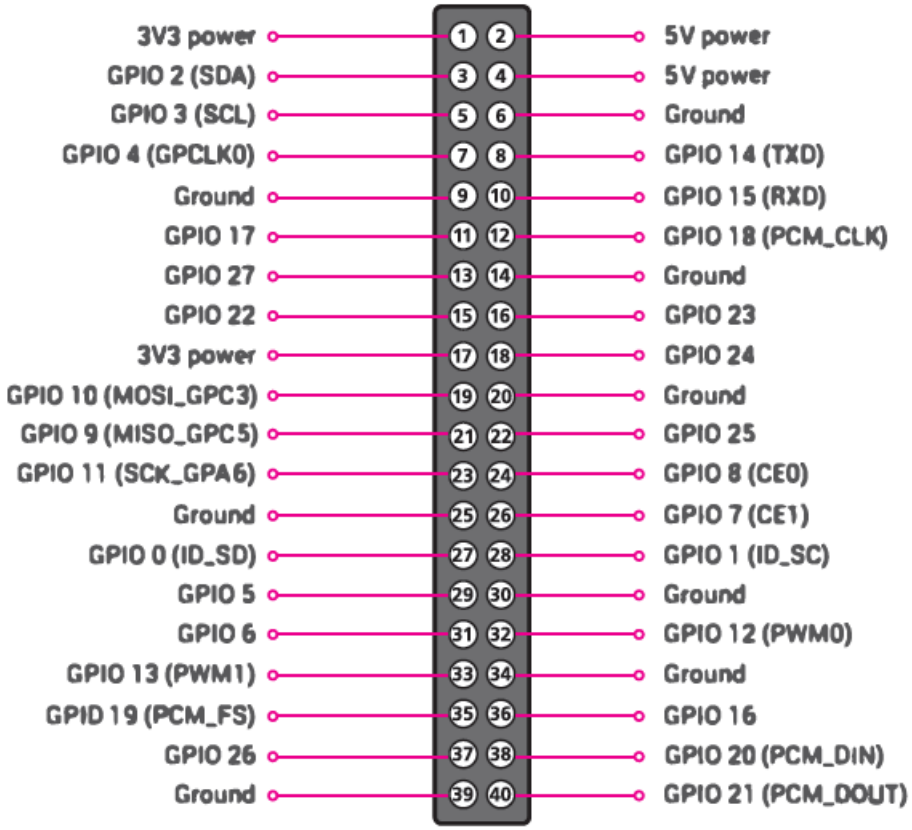
FCC

Any changes or modifications not expressly approved by the party responsible for compliance could void the user’s authority to operate this equipment.
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. This equipment should be installed and operated with a minimum distance 20cm between the radiator and your body.

NOTE:
This equipment has been tested and found to comply with the limits for a Class B digital device, under 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 by 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

GPIO Configuration



Use of Product

HACKBOARD Single Board Computers are not designed, intended or authorized for use with life support, life-sustaining, nuclear, or other applications in which the failure of such products could reasonably be expected to result in personal injury, loss of life or catastrophic property damage

Warnings

- This product should only be connected to an external power supply rated at 12V/3A DC.
- Any external power supply used with BACKBOARD 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 an approved case, the case should not be covered.
- This product should be placed on a stable, at, non-conductive surface in use and should not be contacted by conductive items.
- The connection of incompatible devices to the GPIO connection may a ect compliance and result in damage to the unit and invalidate the warranty.
- All peripherals used with this product 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 when used in conjunction with HACKBOARD.
- Where peripherals are connected that do not include the cable or connector, the cable or connector must o er adequate insulation and operation in order that the relevant performance and safety requirements are met.

Regulatory Compliance Information

European Union Compliance statement Hackboard has been tested to comply with or exceeds all relevant provisions of the RoHS Directive 2011/65/EU and the amendment 2015/863/EU to test standard IEC 62321 and REACH EC1907/2006
In addition Hackboard has been tested and conforms with the following CE European Standards

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USA Compliance Statement

Hackboard has been tested to comply with or exceeds all relevant provisions of Federal Communications Commission (FCC) 2BAIC-N4P5000
Hackboard has been tested and complies with part 15B of the FCC rules (FCC SDOC) Hackboard complies with all the provisions of Proposition 65 in the state of California Bluetooth* Statement Hackboard uses Bluetooth* Technology

Disposal and recycling

In common with all Electronic Equipment (EEE) Hackboard should be disposed of separately from household waste

The separate collection and recycling of this product at the time of dispersal will help to conserve natural resources and ensure that it is recycled in a safe manner that protects human health and the environment

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Documents / Resources

	QUANTUM N4P5000 HACKBOARD Single Board Computers [pdf] User Guide N4P5000 HACKBOARD Single Board Computers, N4P5000, HACKBOARD Single Board Computers, Single Board Computers, Board Computers, Computers

References

- User Manual