Raspberry Pi AI Kit

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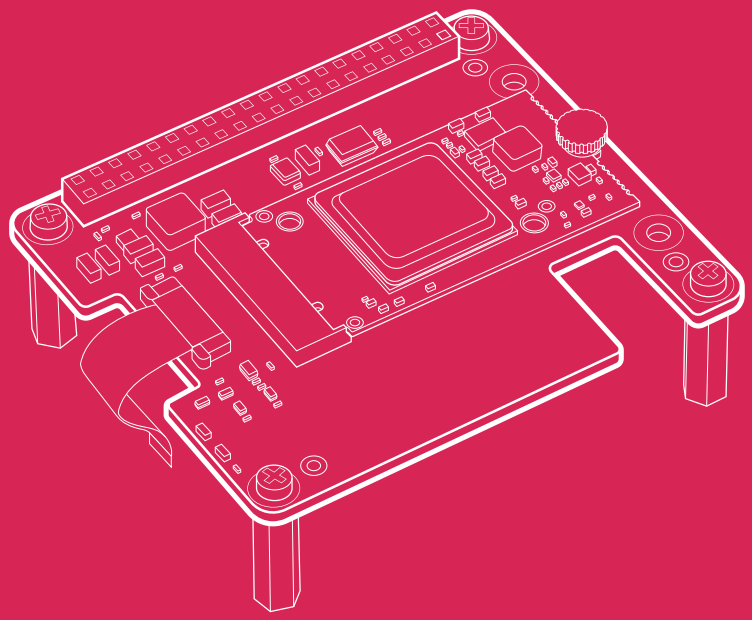

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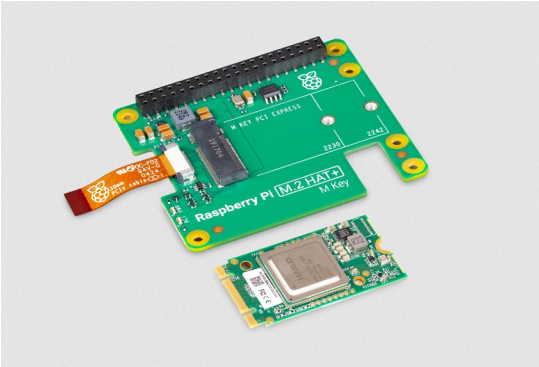
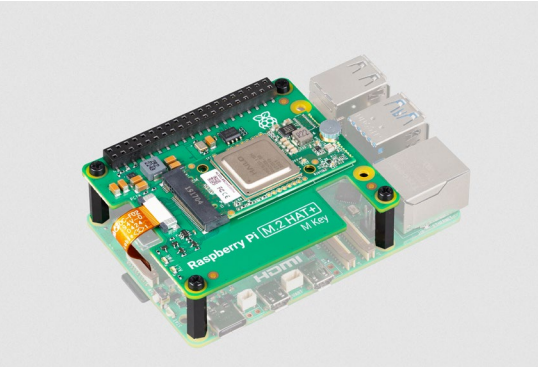
Overview





The Raspberry Pi AI Kit bundles the Raspberry Pi M.2 HAT+ with a Hailo AI acceleration module for use with Raspberry Pi 5. It provides an accessible, cost-effective, and power-efficient way to integrate high-performance AI. Explore applications including process control, security, home automation, and robotics. Contains:

- a Hailo AI module containing a Neural Processing Unit (NPU)
- a Raspberry Pi M.2 HAT+, to connect the AI module to your Raspberry Pi 5
- a thermal pad pre-fitted between the module and the M.2 HAT+
- a mounting hardware kit
- a 16mm stacking GPIO header

The AI module is a 13 tera-operations per second (TOPS) neural network inference accelerator built around the Hailo-8L chip. The module uses the M.2 2242 form factor, and comes pre-installed in the M.2 HAT+, to which it connects through an M key edge connector. The M.2 HAT+ communicates between the AI module's M.2 interface and the Raspberry Pi 5's PCIe 2.0 interface.

When the host Raspberry Pi 5 is running an up-to-date Raspberry Pi OS image, it automatically detects the Hailo module and makes the NPU available for AI computing tasks. The built-in `rpicam-apps` camera applications in Raspberry Pi OS natively support the AI module, automatically using the NPU to run compatible post-processing tasks.

Specification

Features:	Contains a neural network inference accelerator capable of 13 tera-operations per second (TOPS) Fully integrated into Raspberry Pi's camera software stack Thermal pad pre-fitted between module and HAT+ spreads heat across components, improving performance Conforms to Raspberry Pi HAT+ specification Supplied with 16mm stacking header, spacers, and screws to enable fitting on Raspberry Pi 5 with Raspberry Pi Active Cooler in place
Operating temperature:	0℃ to 50℃ (ambient)
Compliance:	For a full list of local and regional product approvals, please visit pip.raspberrypi.com

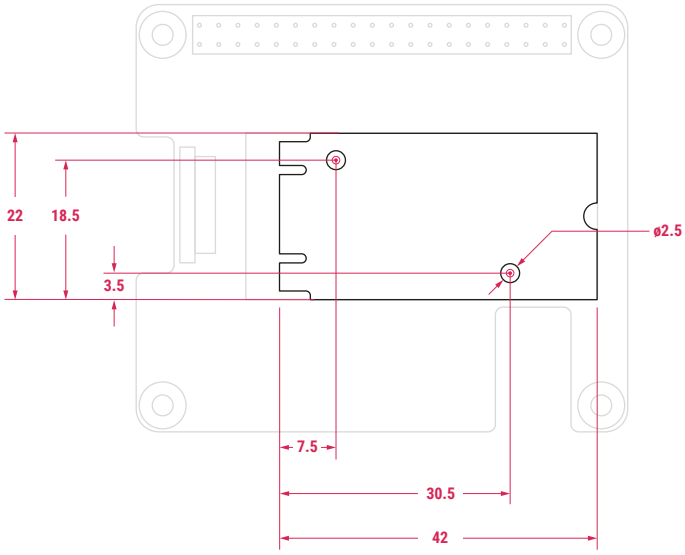
For more information on the Raspberry Pi AI Kit, see the AI Kit documentation

For more information on the Hailo AI module, see the Hailo AI module product page

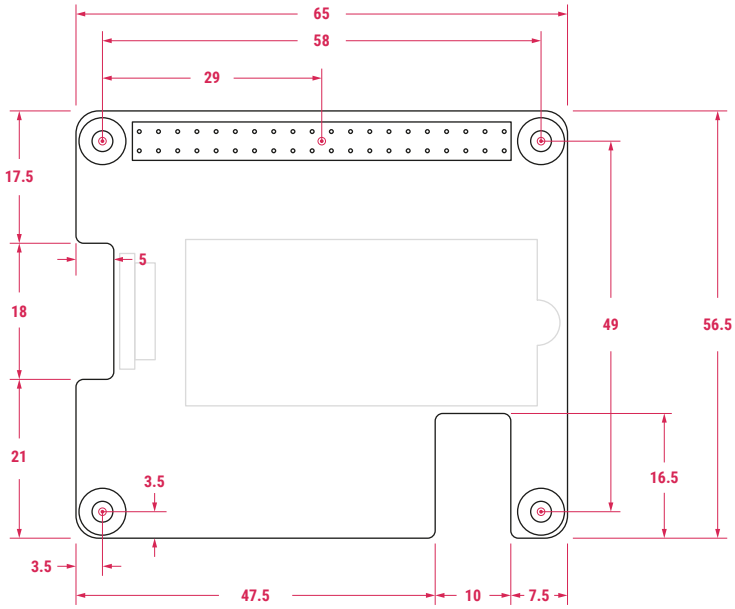
For more information on the M.2 HAT+, see the M.2 HAT+ documentation

Physical specification

Hailo AI module



M.2 HAT+



Note:

All dimensions in mm

All dimensions are approximate and for reference purposes only. The dimensions shown should not be used for producing production data

The dimensions are subject to part and manufacturing tolerances

Dimensions may be subject to change

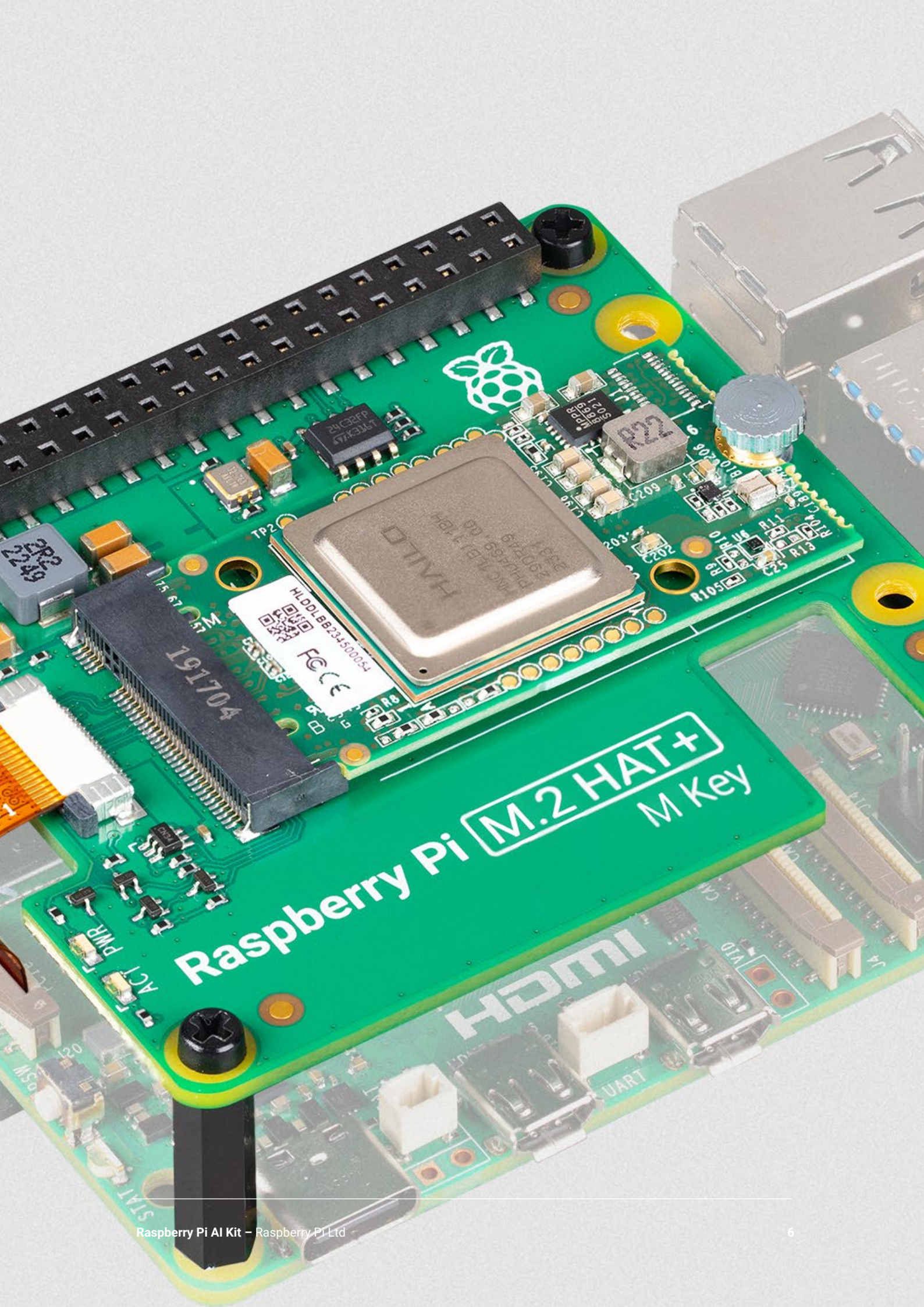
WARNINGS

- The Hailo AI module shall only be connected to a Raspberry Pi M.2 HAT+ via the M.2 key interface.
- The Raspberry Pi M.2 HAT+ shall only be connected to a Raspberry Pi via the PCIe interface and GPIO header.
- This product should be operated in a well-ventilated environment, and if used inside a case, the case should not be covered.
- Whilst in use, this product should be firmly secured, and should not be contacted by conductive items.
- The connection of incompatible devices to the Raspberry Pi AI Kit may affect compliance, 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.
- The cables and connectors of all peripherals used with this product must have adequate insulation so that relevant safety requirements are met.
- Operation of this device requires adult supervision.

SAFETY INSTRUCTIONS

To avoid malfunction or damage to this product, please observe the following:

- Do not expose to water or moisture, or place on a conductive surface whilst in operation.
- Do not expose to heat from any source; Raspberry Pi computers and the Raspberry Pi AI Kit are designed for reliable operation at normal ambient temperatures.
- Take care whilst handling to avoid mechanical or electrical damage to the printed circuit board and connectors.
- Whilst it is powered, avoid handling the printed circuit board, or only handle it by the corners to minimise the risk of electrostatic discharge damage.


Raspberry Pi
M.2 HAT+
M Key
HDMI
UART
PWR
ACT



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