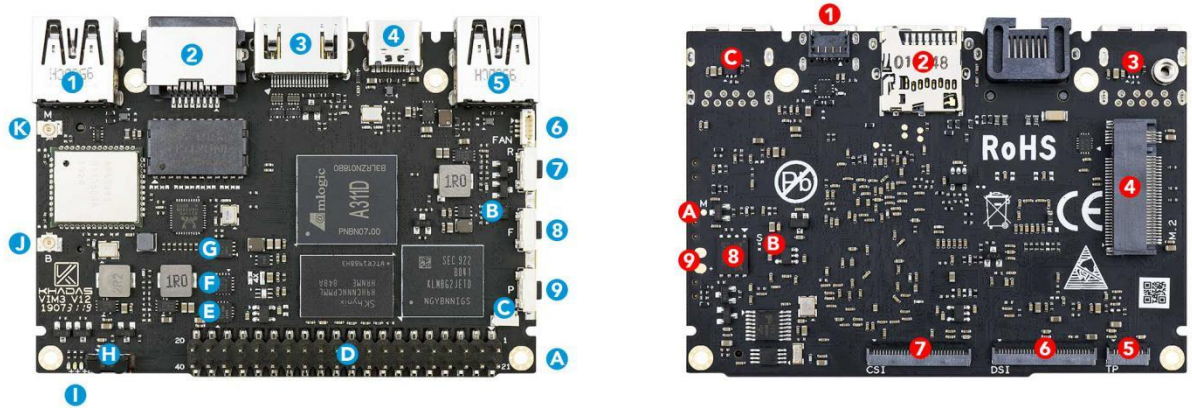


VIM3 Instructions

VIM3 Interfaces



Front (Blue)

Component	Purpose
1 USB-A	USB 3.0 port that swaps to 2.0 when PCI-E is active, 900mA output
2 RJ-45	Gigabit LAN port that supports Wake-On-LAN
3 HDMI	HDMI port supporting CEC
4 USB-C	USB-C port with USB power delivery (5-20V input) and 2.0 speeds
5 USB-A	USB 2.0 port that supports 500mA output
6 Fan Header	4-wire fan header utilising pulse width modulation
7 Reset Button	Force reboot your VIM3 in the event of a system freeze
8 Function Button	Press this 3 times in 2 seconds to enter MaskROM mode
9 Power Button	This button turns on your VIM3
A M2 Hole	M2 clearance holes for a case, or adding a heatsink
B G-Sensor	6-axis accelerometer
C RTC Header	A header for connecting a real-time clock (button) battery
D 40-Pin GPIO	General input/output pins for VIM3's SoC, or plugging-in a Toneboard
E GPIO Expander	Increases VIM3's available I/O beyond what A311D can provide
F MCU	STM8S003 micro-controller with programmable EEPROM
G WOL Switch	Power switch activated via Wake-On-LAN
H Infrared Module	2-channel infrared receiver for the Khadas IR remote
I LEDs	Indicator LEDs
J IPEX Antenna	Wi-Fi and Bluetooth antenna connector
K IPEX Antenna	Wi-Fi and Bluetooth antenna connector

Back (Red)

	Component	Purpose
1	VIN	5-12V power input, supports Power-Over-Ethernet via M2X Extension
2	Micro-SD Slot	Molex Slot, spec version 2.x/3.x/4.x (SDSC/SDHC/SDXC)
3	Current Limit Switch	Prevents damage to VIM3 due to faulty loading conditions
4	M.2 Slot	PCIe 2.0 (x1 lane), supports M.2 2280 NVMe SSDs
5	TP	10-pin 0.5mm pitch FPC connector for touch input
6	MIPI-DSI	30-pin, 0.5mm pitch FPC connector for 4-lane 1080P displays
7	MIPI-CSI	30-pin, 0.5mm pitch, 4-lane, dual cameras, 8MP image signal processing
8	SPI Flash	Flash memory module that interfaces over SPI
9	XPWR Pads	Connect an external power switch using these pads
A	M-Register	Allows the EMMC to enter MaskROM mode
B	S-Register	Allows the SPI Flash to enter MaskROM mode
C	Current Limit Switch	Prevents damage to VIM3 due to faulty loading conditions

VIM3 Buttons

Reset	Function	Power	Purpose
x			Force Reboot VIM3
	x		Enter Upgrade Mode (TST)
		x	Power ON/Wake Up VIM3
x		x	Enter Upgrade Mode (KEYS)
x	x	x	Erase EMMC

VIM3 Indicator LEDs

Colour	Behaviour	Meaning
Blue	OFF	Power source disconnected
	Solid ON	Power source connected, SBC turned off
White	OFF	SBC turned off
	Solid ON	SBC turned on
Red	None	None

The above behaviours are default out-of-the-box, and can be altered by a user. For example the white LED can be made to blink or breathe. For more information on how to program them via your favourite OS (each OS is different), please consult with experts at forum.khadas.com.

How To Boot Into Upgrade Mode

There are 4 ways to boot into Upgrade Mode:

1. Keys Mode (Side-Buttons)
2. Serial Mode
3. TST Mode (Recommended)
4. MRegister Mode

Keys Mode (U-Boot is Running Normally)

1. Power on VIM3.
2. Long press the POWER key without releasing it.
3. Short press the 'Reset' key and release it.
4. Count for 2 to 3 seconds, then release the POWER key to enter into Upgrade Mode. You will see the sys-led turn ON when you've entered Upgrade Mode.

Serial Mode (For Developers)

1. Refer this [guide](#) to setup your serial tool for VIM3.
2. Once again, make sure you've done the correct connections and setup. Hit any keys at the moment of bootup to stop autoboot. This step will let VIM3 boot into U-Boot Mode.
3. Type `run update` in the terminal of U-Boot as below. You will see the sys-led turn ON when you've entered Upgrade Mode.

```
kvim3# run update
```

TST Mode (Recommended)

1. Power-on VIM3.
2. Quickly press the Function key 3 times in 2 seconds, then release the key.
3. You will see the Power-LED (Blue) blink for about 3 seconds. After the Power-LED (Blue) turns OFF, this indicates that the board is in Upgrade Mode (Maskrom Mode).

MRegister Mode

1. Power on VIM3.
2. Use a tweezer to short-circuit the two pads of the M register, and without releasing...
3. Short press the Reset key and then release it, to boot into upgroup mode

FCC Modular Usage Statement

Note 1: This module certified com. plies with RF exposure requirements under mobile or fixed

condition; this module is to be installed only in mobile or fixed applications

A mobile device is defined as a transmitting device designed to be used in other than fixed locations and to generally be used in such a way that a separation distance of at least 20 centimeters is normally maintained between the transmitter's radiating structure(s) and the body of the user or nearby persons. Transmitting devices designed to be used by consumers or workers that can be easily re-located, such as wireless devices associated with a personal computer, are considered to be mobile devices if they meet the 20 centimeter separation requirement.

A fixed device is defined as a device is physically secured at one location and is not able to be easily moved to another location.

Note 2: Host product manufacturers must provide in their user manual the required RF exposure

information for mobile & fixed usage of this module. Host product manufacturers must use the following RF exposure statement in their user manual "This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20 cm between the radiator and all persons.

This transmitter must not be co-location or operating in conjunction with any other antenna or transmitter."

Note 3: Any modifications made to the module will void the Grant of Certification, this module is limited to OEM installation only and must not be sold to end-users, end-user shall have no manual instructions to remove or install the device, only software or operating procedure shall be placed in the end-user operating manual of final products.

Note 4: Additional testing and certification may be necessary when multiple modules are used.

Note 5:The module may be operated only with the integral chip antenna with which it is authorized.

Note 6: To ensure compliance with all non-transmitter functions the host manufacturer is responsible for ensuring compliance with the module(s) installed and fully operational. For example, if a host was previously authorized as an unintentional radiator under the Supplier's Declaration of Conformity procedure without a transmitter certified module and a module is added, the host manufacturer is responsible for ensuring that the after the module is installed and operational the host continues to be compliant with the part 15B unintentional radiator requirements. Since this may depend on the details of how the module is integrated with the host, the manufacturer shall provide guidance to the host manufacturer for compliance with the part 15B requirements.

Note 7: The FCC ID label on the final system must be labeled with "Contains FCC ID: 2AVFM-VIM3" or " Contains transmitter module FCC ID: 2AVFM-VIM3".

Note 8: The FCC rule/s for this module are CFR 47 Part 15 Subpart C.

Note 9: This modular transmitter is only FCC authorized for the specific rule parts listed on its grant. The host product manufacturer is responsible to any other FCC rules that apply to the host not covered by the modular. transmitter grant of certification. The final host product will require Part 15 Subpart B compliance when the modular transmitter is installed.

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.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

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 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.

The device has been evaluated to meet general RF exposure requirement. The device can be used in portable exposure condition without restriction.