IRIV SmartHub CM5

(IRIV-SH5)

IR4.0 CM5 Industrial Controller

Datasheet

Rev 1.3
Dec 2025

Contents

1. Features

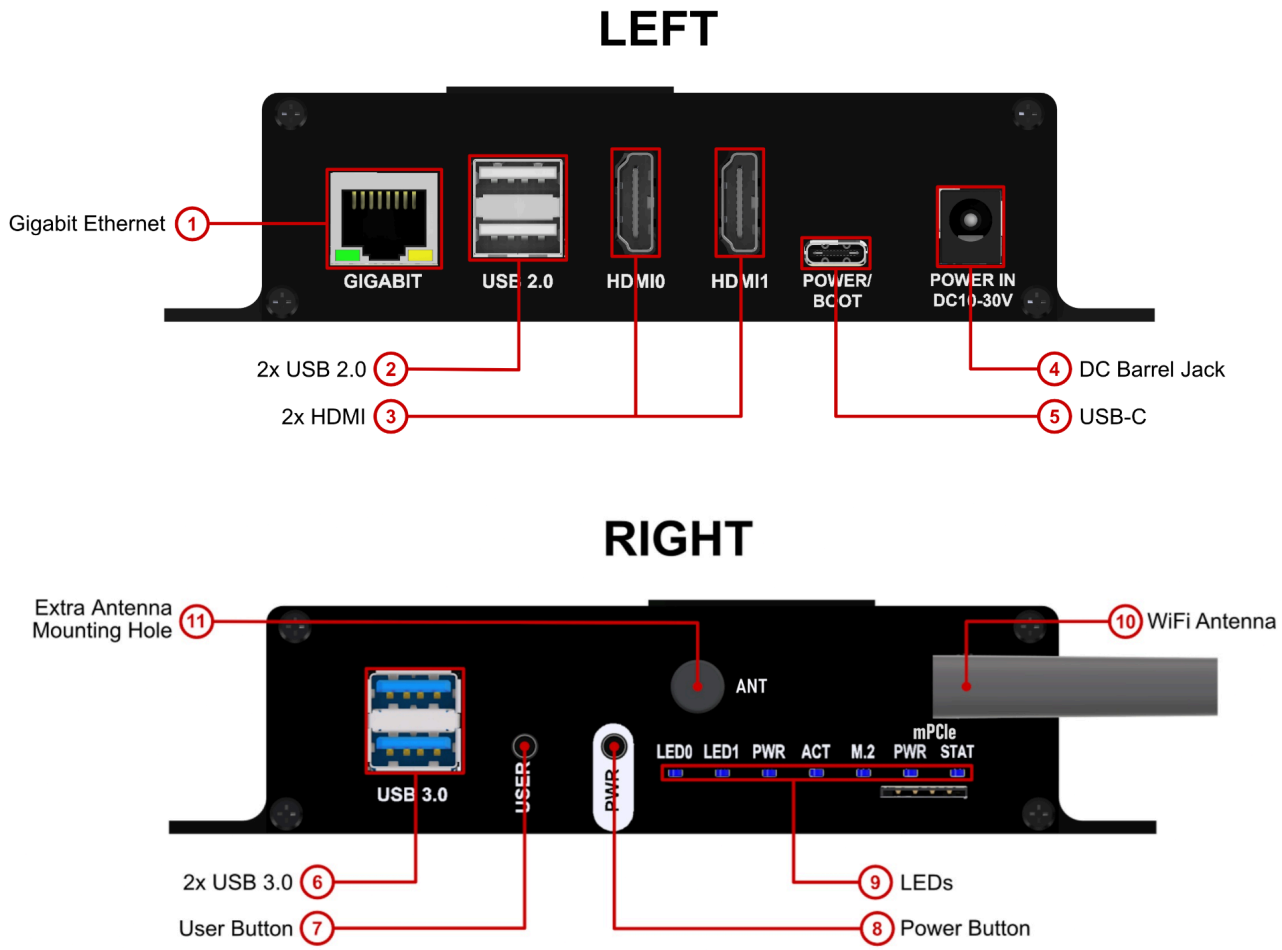
Features	Description
CPU	Broadcom BCM2712, Quad-Core Cortex-A76 64-bit SoC @ 2.4GHz
RAM	2GB/4GB/8GB/16GB
Storage	16GB/32GB/64GB eMMC, expandable via M.2 NVMe SSD
Wireless	2.4GHz / 5.0GHz IEEE 802.11 b/g/n/ac WiFi, Bluetooth 5.0, BLE
Interfaces	2x full size HDMI 2.0 (up to 4K@60Hz)
	2x USB 3.0 port
	2x USB 2.0 port
	1x USB-C (for boot and power)
	1x RJ45 Gigabit Ethernet (10/100/1000M)
	1x M.2 Key-M socket for NVMe SSD
	1x mini PCIe socket (Only USB2.0 is connected to this port. PCIe signal is not available).
Power Supply	DC 10-30V surge protected
Additional Features	Coin Cell Battery Holder CR2032 for RTC
	1x programmable button, 1x power button
	2x programmable LED
	1x active buzzer
Enclosure	Metal enclosure, fanless design
Dimension	147mm x 94mm x 35.7mm (metal enclosure only, excluding antenna)

2. Specifications

No.	Parameters		Min	Max	Unit
1	Power Input Voltage	DC Barrel Jack (Surge Protected up to 60V 20ms)	10	30	VDC
		USB-C	4.9	5.2	VDC
2	Power Consumption ** USB load not included.*	When running stress test command *"stress-ng --cpu 4 --cpu-method fft"*	-	6	W
3	USB 3.0 port total output current		-	2	A
4	USB 2.0 port total output current		-	1	A
5	Operating Temperature		-20	60	℃

3. Layout

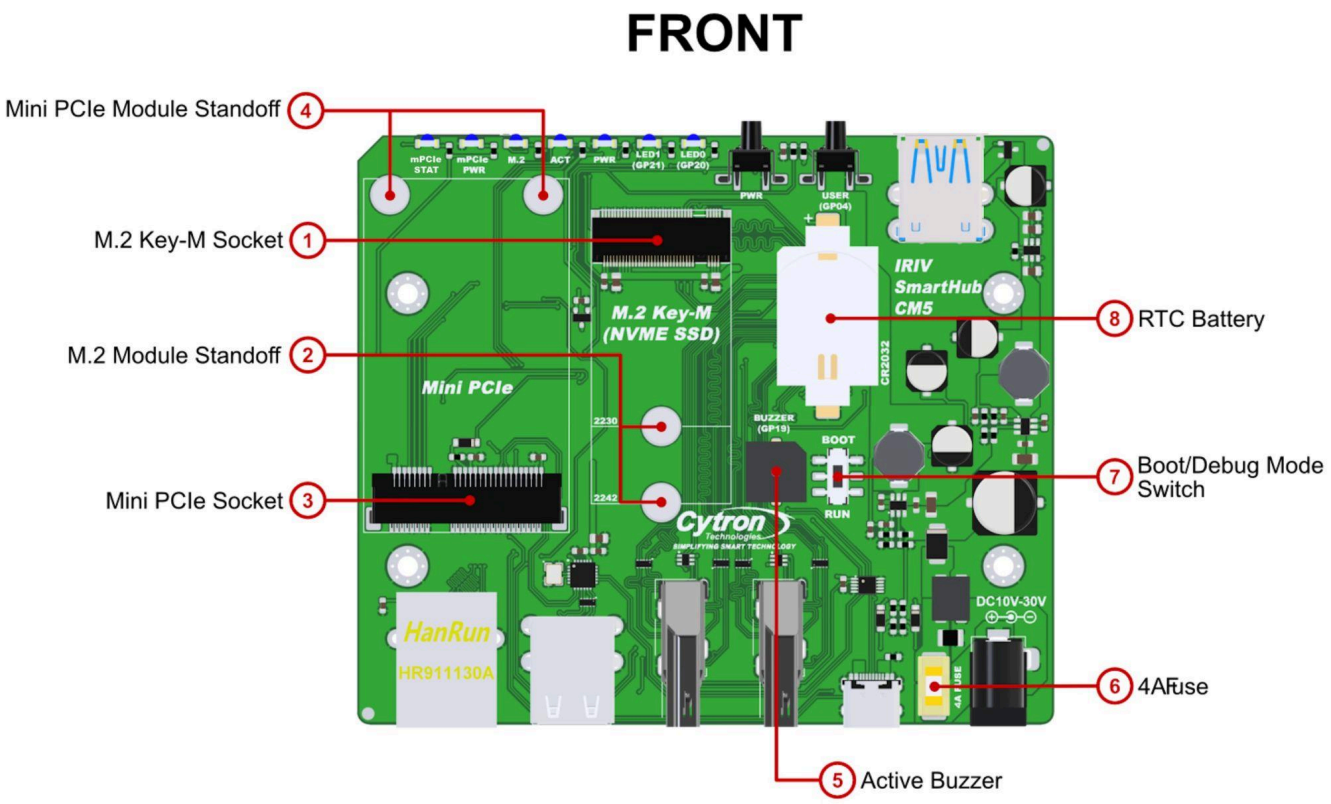
3.1 External Layout

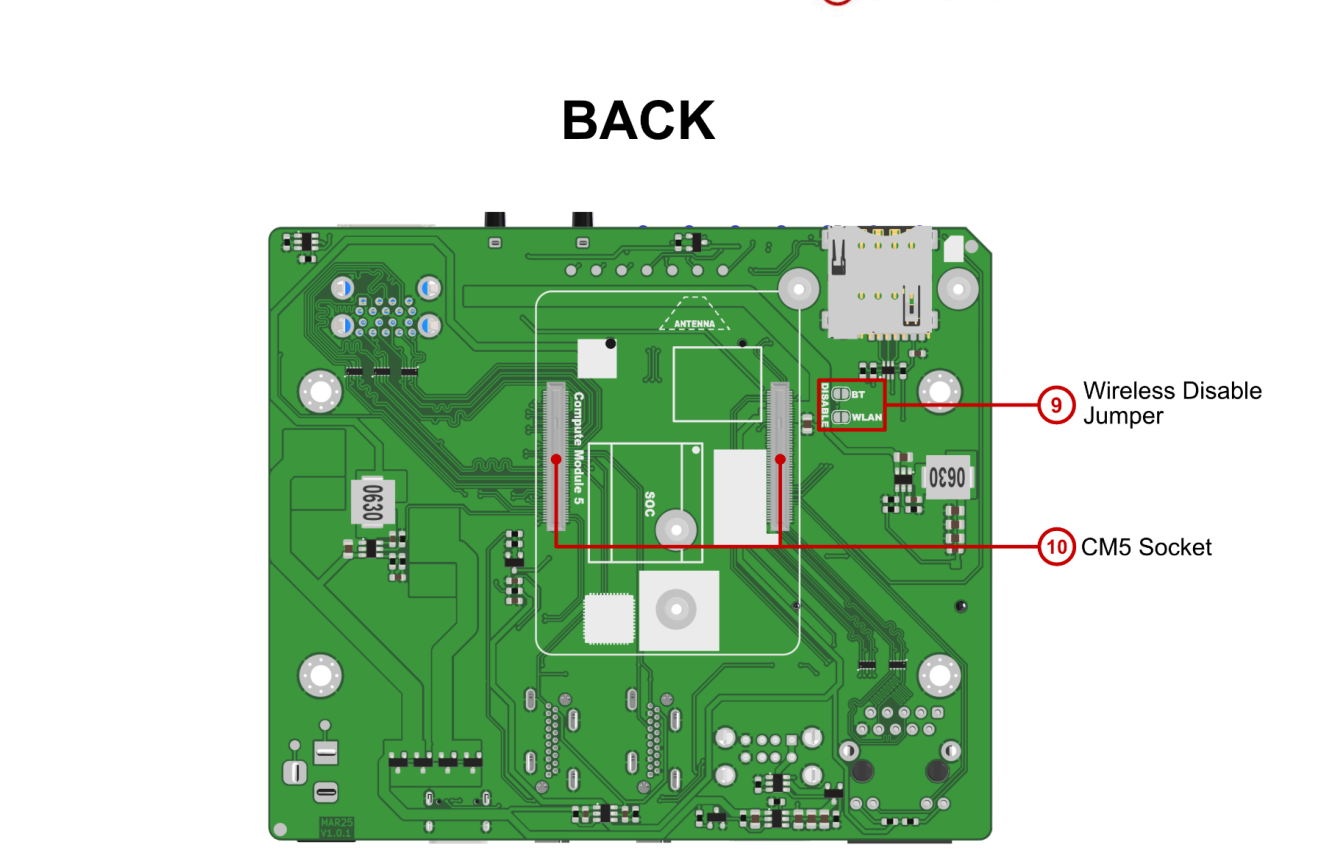


No.	Function	Description
1	**Gigabit Ethernet**	This is the default 10/100/1000M Gigabit Ethernet of CM5. Mapped to eth0 in Raspberry Pi OS.
2	**USB 2.0 Ports**	2x USB 2.0 host capable of running at 480Mbps. Maximum current for both ports is 1000mA.
3	**HDMI**	Full-size Type-A HDMI for external display. Up to 4K resolutions.
4	**DC Barrel Jack**	Power up the IRIV SmartHub CM5 using a DC Jack power adaptor, voltage range DC10-30V, with the current rating recommended of more than 2A.
5	**USB-C**	This port is dual-function and selectable via the onboard boot/power. **Boot** - Used to load the OS image into the eMMC of CM5. **Power** - Power up the IRIV SmartHub CM5, recommended USB-C power adapter 5V 5A.
6	**USB 3.0 Ports**	2x USB 3.0 host capable of running at 5 Gbps.

		The maximum current for both ports is 2000mA.
7	**User Button**	User programmable button. Connected to GPIO4. It can be programmed to be a safe shutdown button.
8	**Power Button**	Single press to turn on the IRIV SmartHub CM5. Double-press or long-press to turn off IRIV SmartHub CM5.
9	**LEDs**	**LED0** - User programmable LED 0. Controlled by GPIO20. **LED1** - User programmable LED 1. Controlled by GPIO21. **PWR** - CM4 power. Same as the red LED on Pi 5. **ACT** - CM4 activity. Same as the green LED on Pi 5. **M.2** - NVME SSD activity.
10	**WiFi Antenna**	Antenna for CM5 WiFi and Bluetooth.
11	**Extra Antenna Mounting Hole**	Extra mounting holes for the antennas.

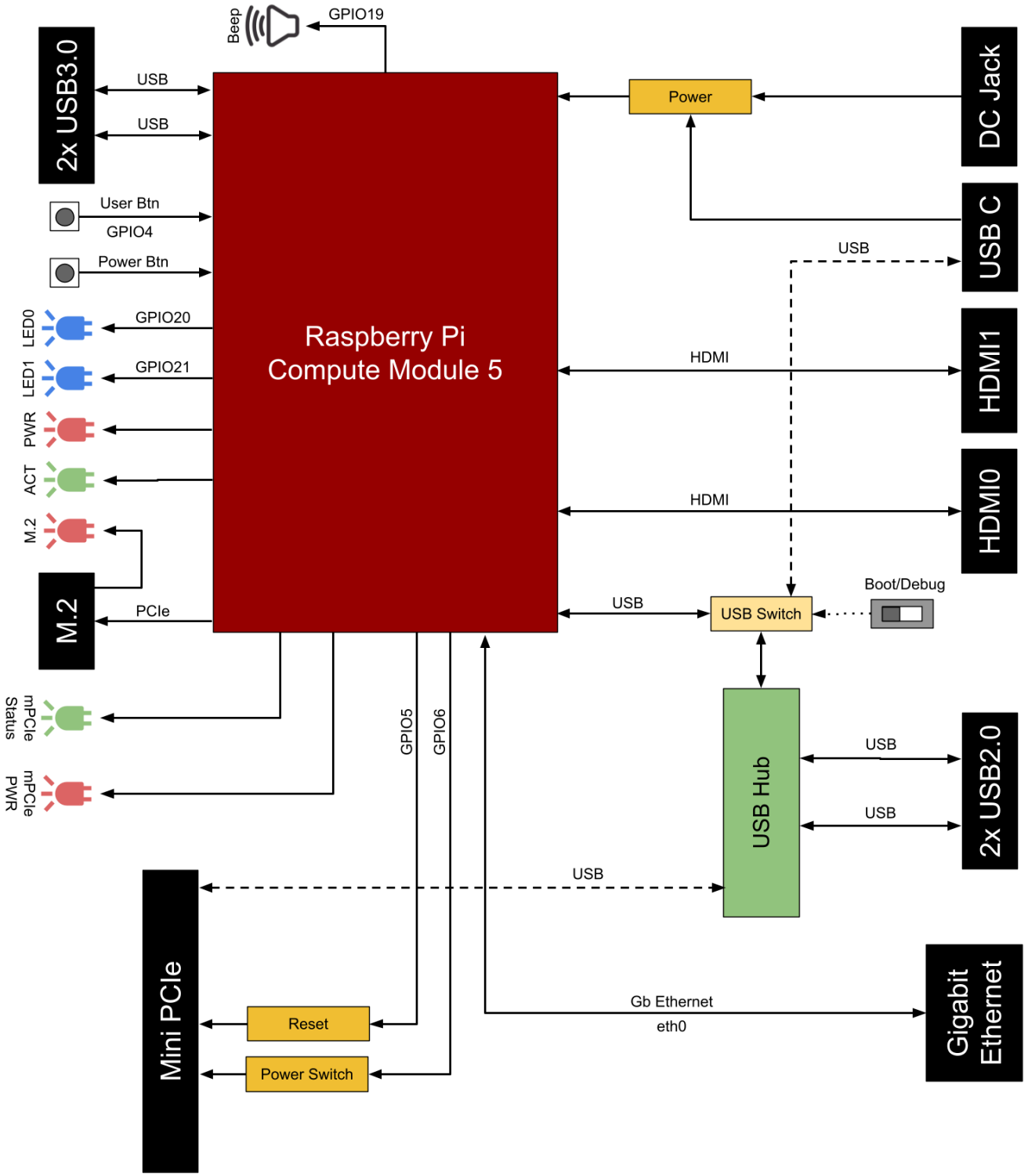
3.2 Internal Board Layout



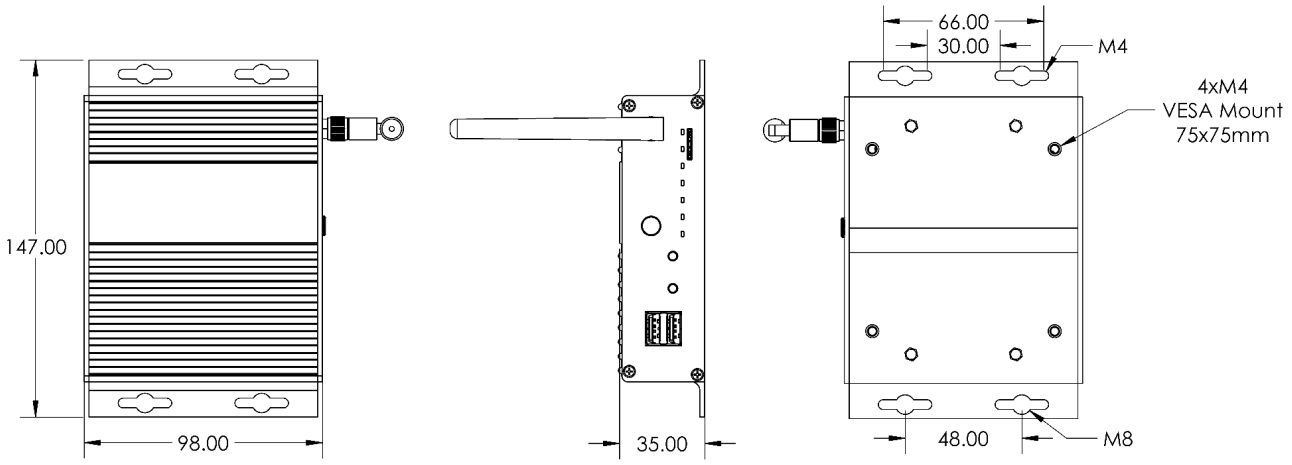


No.	Function	Description
1	**M.2 Key-M Socket**	M.2 Key-M Socket for PCIe module (Gen 2 1-lane PCIe). Support NVME SSD size 2230 & 2242 (Bootable). ＊ *M.2 SATA SSD is not supported.*
2	**M.2 Module Standoff**	Standoff for mounting the 2230 or 2242 M.2 PCIE module.
3	**Mini PCIe Socket**	Mini PCIe Socket. - Only the USB 2.0 interface is available. There is no PCIe interface. - Power to the Mini PCIe socket can be turned on/off via GPIO6. - The Mini PCIe module can be reset by pulling GPIO5 low.
4	**Mini PCIe Module Standoff**	Standoff for mounting the mini-PCIe module.
5	**Active Buzzer**	User programmable active piezo buzzer. Controlled by GPIO19. Beep when output is high.
6	**4A Fuse**	4-Amp replaceable fuse for the power input.
7	**Boot/Run Mode Switch**	Select whether to use the USB-C for boot (to install the OS on the CM5) or run.
8	**RTC Battery**	Insert a CR2032 coin cell to keep the built-in RTC on CM5 running when the system is powered off.
9	**Wireless Disable Jumper**	Solder and short the jumper together to disable WiFi or Bluetooth (BT).
10	**CM5 Socket**	Mount the CM5 on the CM5 Socket by following the graphical silkscreen orientation.

4. Block Diagram



5. Dimension



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