

# IBOX-104V2-2L6C-12TH



- Enhanced graphics and immersive, engaging video, up to 2.47x times faster graphics performance vs. 11th Gen Intel® Core™ Processors.
- Fast AI with hardware acceleration and Xe Architecture, up to 96 execution units and Vector Neural Network Instructions (VNNI) on the CPU for a high degree of parallelization in AI workloads.
- Intel® Deep Learning Boost (Intel® DL Boost) with VNNI instructions on the CPU and int8/dp4 instructions on the GPU to accelerate AI inferencing workloads with the Intel® Distribution of OpenVINO™ toolkit.
- Up to two video decode boxes, support for up to 48 simultaneous 1080p streams.
- Modular Expansion for Easy Maintenance, it comes with three M.2 slots for wireless cards (5G/4G, Wi-Fi, Bt, and GNSS) and M.2 SSD.
- Full sealed and 44mm Ultra-thin design with aluminum alloy cooling enclosure, dustproof, anti-vibration and anti-interference;
- Supports VESA and wall mounting for different applications;



The actual appearance is subject to the final configuration.

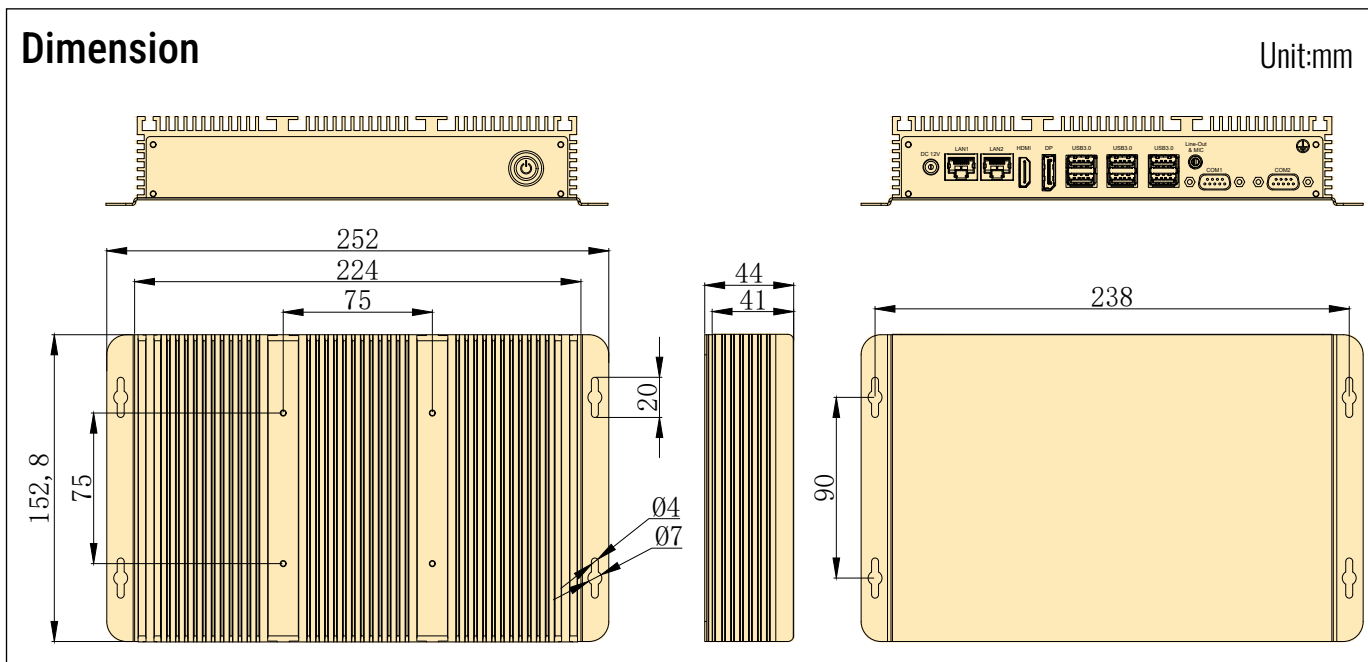
## Specifications

Model	IBOX-104V2-2L6C-12TH			
Supported OS	Windows 10 IoT Enterprise 2021 LTSC, Windows 10 (21H2), Windows 11 (21H2) or later, Linux Kernel 5.17 or later			
CPU	Alder Lake-P	Intel® Core™ i3-1215U, Turbo Fre. 4.40GHz	Intel® Core™ i5-1235U, Turbo Fre. 4.40GHz	Intel® Core™ i7-1255U, Turbo Fre. 4.70GHz
	Cores & Threads	2* P-cores, 4* E-Cores, 8 Threads	2* P-cores, 8* E-Cores, 12 Threads	2* P-cores, 8* E-Cores, 12 Threads
	Graphics	Intel® UHD Graphics for 12th Gen Intel® Processors, up to 64Eus, 1.10 GHz	Intel® Iris® Xe Graphics eligible, up to 80 Eus, 1.20 GHz	Intel® Iris® Xe Graphics eligible, up to 96 Eus, 1.25 GHz
RAM	SO-DIMM	1 * Non-ECC SO-DIMM Slot, support DDR4-3200MHz, up to 32GB		
Storage	M.2	1 * M.2 Key-M Slot (PCIe x4/ SATA, Default PCIe x4, Support PCIe x4 NVMe, 2280)		
	SATA	1 * SATA3.0 7P Connector (With 1 * SATA Power Wafer)		
I/O INTERFACE	COM	1 * RS232/RS485/TTL (COM6, Wafer, 3 lanes, optional DB9 connector); 3 * RS232/TTL (COM3/4/5, Wafer, 3 lanes, optional DB9 connector); [1] 2 * RS232 (COM1/2, Wafer, Full lanes, optional DB9 connector)		
	Ethernet	1 * Intel® i219 GbE LAN (10/100/1000 Mbps, RJ45); 1 * Intel® i226 GbE LAN, (10/100/1000/2500 Mbps, RJ45)		
	USB	6 * USB3.0 (TYPE-A, Rear IO); 3 * USB2.0 (Wafer, Internal) [2][3]		
	Video	1 * HDMI (TYPE-A), max resolution up to 2048*1080@60Hz 1 * DP++ (TYPE-A), max resolution up to 4096*2304@60Hz		
	Audio	Realtek Audio HAD Codec, 1 * Line-Out + MIC 2in1 3.5mm Jack; 1 * Amplifier Wafer, 3-W (per channel) into a 4-Ω Loads		
	SIM	1* Built-in SIM card slot connected to M.2 Key-B slot		
	Power Supply	1 * DC 12V Power Input Φ2.5mm Thread Jack (2P Terminal Block Optional, DC24V BOM Optional) 1 * DC 12V Power Input ATX 2*2P Connector		
	Other	1 * 8-bit GPIO wafer; 1* Remote Switch wafer; 1* Reset wafer; 1* PWR LED; 1* HDD LED; 1 * CMOS Clear Jumper		
Extended Capabilities	Additional Internal Interface	1 * M.2 Key-E Slot (PCIe+USB2.0, Default PCIe, Support WIFI, 2230) [1] 1 * M.2 Key-B Slot (PCIe + USB3.0 + USB2.0, Support 5G/4G, 2242/3052) [2]		
	Environment	Operating Temp.	-10 ~ 50 °C w/ 0.7m/s Airflow	
Physical Characteristics	Storage Temp.	-40 ~ 85 °C (-40~185 °F)		
	Relative Humidity	40 °C @ 95%, Non-Condensing		
	Dimensions	250* 44* 153 mm (W* H* D) (It has a higher version with 49mm solution)		
Regulation	Net Weight	1.5 KG		
	EMC	CE/FCC Class B, CCC		
	Safety	CE-LVD, RoHS, CCC		

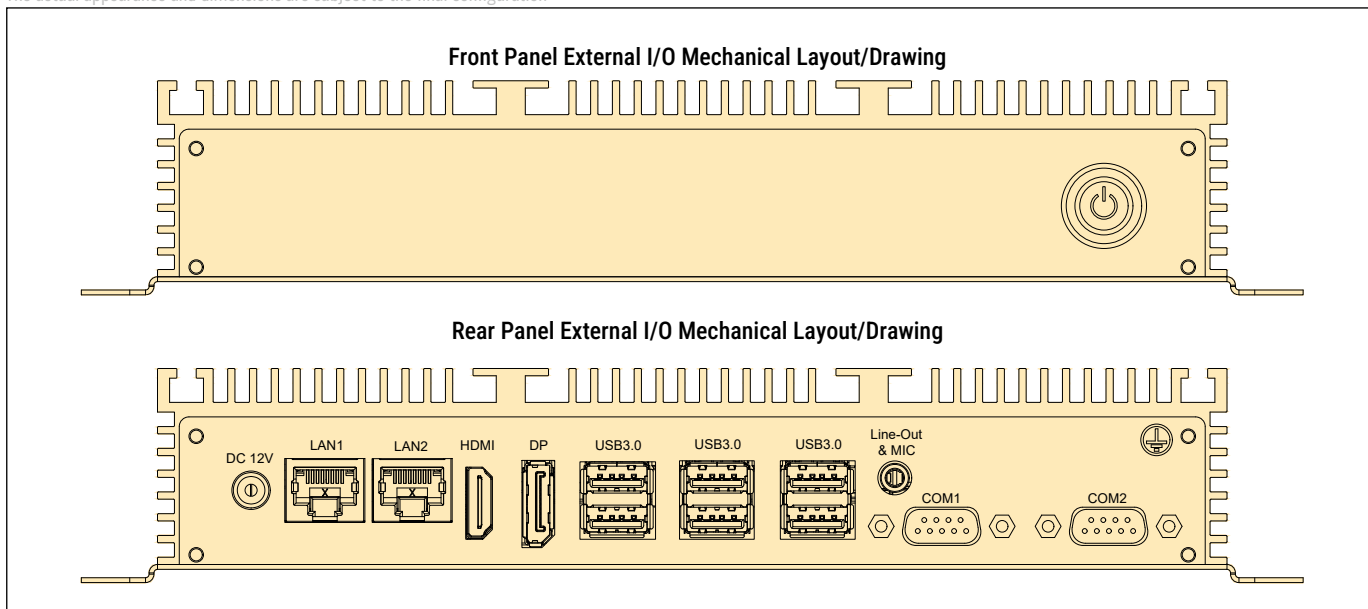
[1]: TTL signal of COM3/4/5/6 come from the same IC. They must be RS232 or TTL at the same time.

[2]: One of USB2.0 signal for M.2\_KEYB\_SSD/WWAN1 colay with F\_USB2. They can't be used at the same time. (resistor selectable)

[3]: One of USB2.0 signal for M.2\_KEYE\_WLAN1 colay with F\_USB2. They can't be used at the same time. (resistor selectable)



The actual appearance and dimensions are subject to the final configuration



## Ordering Information

SO-DIMM Socket	M.2 2280 M-key Slot	SATA 3.0	M.2 3052 B-key Slot	M.2 2230 E-key Slot	RS232/485/TTL DB9 Connector	RS232/TTL Header	RS232 Header	GbE LAN
1	1	1	1	1	1	3	2	2
USB 3.0	USB 2.0 Headers	HDMI	DP++	Line Out+ Mic In	Built-in SIM Card Slot	8-bit GPIO Wafer	Power Supply	
6	3	1	1	1	1	1	1	DC 12V

## Processors Info & Available List

CPU	Code Name	P-Cores/ E-Cores	Total Threads	P/E Core Max Turbo Fre.	Cache	Base Power/ Max Turbo- Power	Memory Types	Integrated Graphics
Intel® Core™ i3-1215U	Alder Lake-P	2/4	8	4.40 / 3.3 GHz	10 MB Intel® Smart Cache	15W / 55W	DDR4	Intel® UHD Graphics; 64Eus
Intel® Core™ i5-1235U	Alder Lake-P	2/8	12	4.40 / 3.5 GHz	12 MB Intel® Smart Cache	15W / 55W	DDR4	Intel® Iris® Xe Graphics; 24Eus
Intel® Core™ i7-1255U	Alder Lake-P	2/8	12	4.70 / 3.5 GHz	12 MB Intel® Smart Cache	15W / 55W	DDR4	Intel® Iris® Xe Graphics; 24Eus

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**Packing list**

Default Items	Qty
IBOX-104V2-2L6C-12TH Unit	1
AC-to-DC Adapter	1
Power cable 3-pin 150cm	1

**Options for default items**

Optional Items	Qty
Power cable 3-pin 150cm, USA type	-
Power cable 3-pin 150cm, EU type	-
Power cable 3-pin 150cm, UK type	-
VESA mount kits	-

**Optional accessories or internal modules for unit**

Optional Items	Max Qty	Description
DC9-30V TO DC 12V PWR module	1	Phoenix Terminal connector, Power supply voltage conversion module, connected by header
Isolated RS-232	6	DB9 or Phoenix Terminal connector, connected by header
Isolated 8-bit GPIO, 9-24V	1	Phoenix Terminal connector, connected by header
4G Module	1	Connected by M.2 interface
WiFi Module without AP mode	1	Connected by M.2 interface
Dual channel CAN-Bus Module	1	Connected by M.2 interface

!! Note: As this product has expansion slots, please consult sales for the specific maximum number of expandable interfaces.