UNO-148 V2

Fanless DIN-Rail Edge Controller feature with 13th Gen Intel® Core™ i CPU



Features

- Intel 13th Gen Core i7/i5/i3 Processor with 8GB DDR5 memory
- Port isolation for 8 x DI, 8 x DO, 4 x COM
- Supports 2*M.2 M key 2280 NVMe SSD storage (support RAID), and M.2 E Key 2230 Wi-Fi modules
- Modular design for optional iDoor extension
- Onboard TPM 2.0 provides hardware-based security
- IEC 61010-2 standard compliant
- Ruggedized DIN-Rail kit Modular design for optional iDoor extension
- Non memory SKU with easy assembly design available

Introduction

Advantech's UNO-100 series are DIN-rail integrated controller that feature a modular design for flexible configuration according to specific usage requirements.

UNO-148 V2 is equipped with an 13th Generation Intel® Core™ i Processor with 8GB DDR5 RAM, and 3 x LAN, 4 x COM, 3 x USB 3.2, 1 x USB 2.0, 8 x DI, 8 x DO, and 2 x DP 1.4. The controller also supports 1 x full-size mini PCIe, 2 x M.2 M Key, 1 x M.2 E key, and 1 x nano SIM card slot for convenient expansion to satisfy diverse industrial applications. Compliant with IEC 61010-1 safety requirements for industrial use, UNO-148 V2 can be equipped with an optional second-stack extension kit that supports Advantech's iDoor technology for integrating additional industrial Fieldbus, wireless communication, I/O, and peripheral modules.

Specifications

General

- **Certification** CE, FCC, UL61010-2-201, CCC, BSMI
- **Dimensions (W x D x H)** 53 x 140 x 200 (1.4 x 5.5 x 7.8 in)
- **Form Factor** Regular size
- **Enclosure** Aluminum housing
- **Mount Option** DIN Rail
- **Weight (Net)** 1.8 kg / 3.96 lb
- **Power Requirement** 10~36V_{DC}
- **Power Consumption** 41W (typical), 63W (max.)
  - For UNO-148-IS2EA (iDoor + SATA): 72max.
  - For UNO-148-P11EB (PCIE x4): 87max.
- **OS Support** Windows 10 2021 LTSC, Windows 11, AdvLinux (Ubuntu 22.04)

System Hardware

- **BIOS** AMI UEFI 256Mbit
- **Watchdog Timer** Programmable timer with 255 intervals (1 ~ 255 sec)
- **Security** TPM2.0
- **Processor** I3-1315UE: 6 cores
  I5-1335UE: 10 cores
  I7-1365UE: 10 cores
- **Memory** 8 GB DDR5 SODIMM-4800
  (up to 64 GB with 2 x slots)
  UNO-148-DXNBA w/o memory installed
  (DDR5 SODIMM 4800; up to 64 GB with 2 x slots)
- **Graphics Engine** CPU i3 &i5: Intel UHD/i7: Iris X
- **Ethernet** LAN A: Intel® i226-IT GbE, IEEE 802.3AZ/802.1AS
  LAN B: Intel® i226-IT GbE, IEEE 802.3AZ/802.1AS
  LAN C: Intel® i219-LM GbE, IEEE 802.3AZ/802.1AS
- **TSN** Supported via i226 LAN port
  IEEE 802.1Qav/802.Qbv
- **LED Indicators** 1 x Power, 1 x RTC battery, 1 x LAN (active, status), and 1 x programmable indicator
- **Expansion** 1 x Full-sized mPCIe (PCIe/USB 2.0 signals)
  1 x nano SIM card slot
  1 x M.2 (E key) for 2230 Wi-Fi modules (PCIe +USB signals)
  2 x M.2 (M key) for 2280 NVMe (PCIe x4 signals)

I/O

- **Isolated Serial Ports** 4 x RS-232/422/485 (terminal block)
  50 ~115.2 kbps (isolation protection: 2500 V_{DC})
- **LAN** 1 x 10/100/1000BASE-T Fast Ethernet (RJ45)
  2 x 10/100/1000/2500BASE-T Fast Ethernet (RJ45)
- **USB** 2 x USB 3.2 (Gen2), 1 x USB 3.2 (Gen1), 1 x USB 2.0
- **Isolated DI/O** 8 x Digital input channels with 2500 V_{DC} isolation protection
  - Wet contact: Logic 0: 10 ~ 30 V_{DC}/ Logic 1: 0 ~ 3 V_{DC}
  - Dry contact: Logic 0: Shorted to GND/ Logic 1: Open

  8 x Digital output channels
  - Output voltage: 5 ~ 30 V_{DC}
  - Output capability sink: 500 mA max./channel
- **Displays** 2 x DP 1.4, up to 3840 x 2160 (4K) @ 60 Hz
- **Power Connector** 1 x 2-pin terminal block

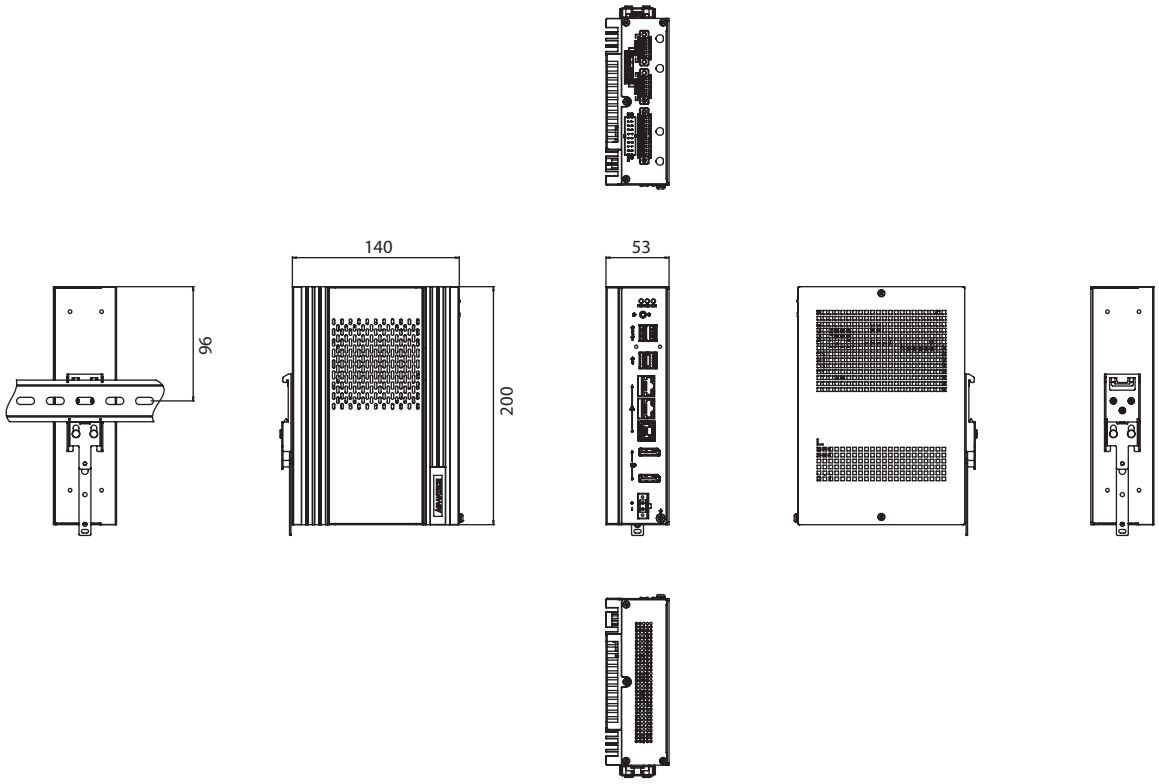
Environmental

- **Operating Temperature** For TDP @ 15W, -20 ~ 60 °C/-4 ~ 140 °F with 0.7 m/s airflow
- **Storage Temperature** -40 ~ 85 °C/-40 ~ 185 °F
- **Relative Humidity** 95% RH @ 40 °C/104 °F, non-condensing
- **Shock Protection** Operating, IEC 60068-2-27, 50G, half sine, 11ms
- **Vibration Protection** Operating, IEC 60068-2-64, 2Grms, random, 5 ~ 500Hz, 1hr/axis (SSD)
  Operating, IEC 60068-2-64, 0.3Grms, random, 5 ~ 500Hz, 1hr/axis (HDD)
- **Ingress Protection** IP20

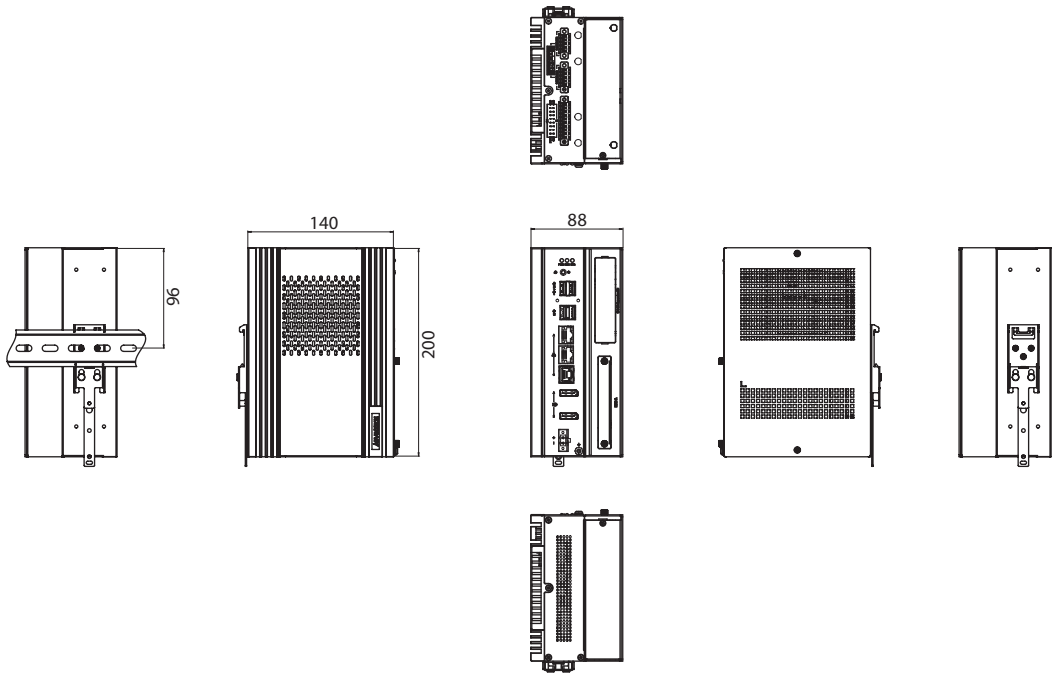
All product specifications are subject to change without notice.

Dimensions

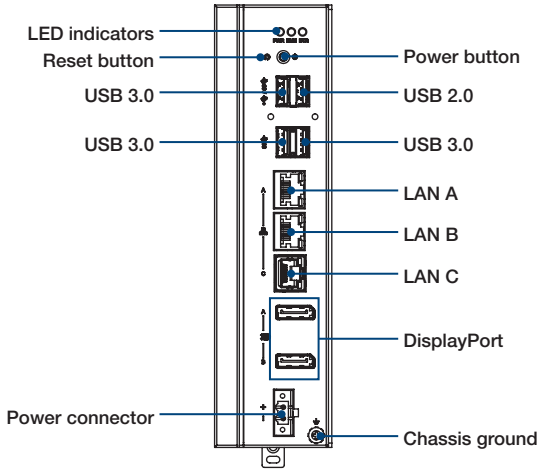
Unit: mm



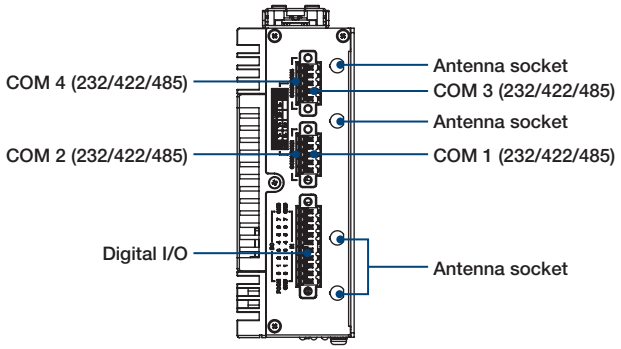
(With optional extension kit)



Front I/O



Top I/O



Ordering Informtion

- **UNO-148-D73BU** DIN-rail controller with Intel® Core™ i7-1365UE 10 cores (up to 4.9 GHz), 8 GB DDR5, 3 x LAN, 4 x COM, 4 x USB, 8 x DI/O, US Region
- **UNO-148-D7NBA** DIN-rail controller with Intel® Core™ i7-1365UE 10 cores (up to 4.9 GHz), 3 x LAN,4 x COM, 4 x USB, 8 x DI/O
- **UNO-148-D5NBA** DIN-rail controller with Intel® Core™ i5-1335UE 10 cores (up to 4.5 GHz), 3 x LAN,4 x COM, 4 x USB, 8 x DI/O
- **UNO-148-D3NBA** DIN-rail controller with Intel® Core™ i3-1315UE 6 cores (up to 4.5GHz), 3 x LAN,4 x COM, 4 x USB, 8 x DI/O

Extension Kit

- **UNO-148-IS2EA** Extension kit with 1 x iDoor slot + 2.5" SSD/HDD Storage slot
- **UNO-148-P11EB** Extension kit with 1 xPCIe x4 slot

(Refer to the extension kit datasheet for more details)

Embedded OS

- **20701WLH1S0001** Img W11 LTSC x64 v7.01 B005 for UNO-148_V2 High
- **20701WLV1S0001** Img W11 LTSC x64 v7.01 B005 for UNO-148_V2 Value
- **20701WX1HS0011** Img W10 LTSC x64 v6.09 B013 for UNO-148_V2 High
- **20701WX1VS0011** Img W10 LTSC x64 v6.09 B013 for UNO-148_V2 Value
- **20701U22DS0005** Image AdvLinuxTu-IOTG_x64 V4.0.6 for UNO1 series

Optional Accessories

DIN-Rail Power Supply

- **96PSD-A120W24-MN** A/D 100 ~ 240V, 120W, 24V NDR DIN rail
- **PSD-A120W24** DIN rail A/D 100 ~ 240V, 120W, 24V

Adapter & Power Cable

- **96PSA-A120W24T2-4** Adaptor A/D 100-240V 120W 24V C14 cord end 62368
- **1702002600** Power cable US plug, 1.8 M (industrial grade)
- **1702002605** Power cable EU plug, 1.8 M (industrial grade)
- **1702031801-11** Power cable UK plug, 1.8 M (industrial grade)
- **1700000596-11** Power cable China/Australia plug, 1.8 M (industrial grade)

System Fan kit

- **98R1U148201** UNO-148 V2-FAN KIT

Thermal kit

- **98R1U148200** Thermal kit for UNO-148V2 add-on NVME
- **98R1U148202** Thermal kit for UNO-148V2 2nd RAM(16GB/below)
- **98R1U148203** Thermal kit for UNO-148V2 2nd RAM(32GB/above)
- **98R1U148204** Thermal kit for UNO-148V2 Hailo module (968DD00320)

UNO-MXM-CB01 (MXM carrier stack): need to order GPU module separately as P/N listed below

- **SKY-MXM-A1000-4SLA** Quadro A1000 MXM 4GB Discrete mode Type A 35W (need to add 98R1X200000)
- **SKY-MXM-2000A-8SLA** Quadro 2000A MXM 8GB Discrete mode TypeA 35W (need to add 98R1X200000)

Extension kit



Advantech offers an optional second-stack extension kit for expanding the system functionalities

UNO-148-IS2EA

2nd Stack extension kit with 1 x iDoor slot + 1 x 2.5" SSD/HDD slot



Specifications

General	
Ports	1 x iDoor Slot 1 x 2.5 SSD/HDD
Interface (signal)	mPCIe (PCIe / USB2.0) 2.5"SSD/HDD (SATA)
Dimensions (W x D x H)	35 x 140 x 200 mm/1.4 x 5.5 x 7.8 in
Weight	0.4 kg (0.8 lb)

Ordering Information

Part Number	Description
UNO-148-IS2EA	UNO-148 2nd-stack extension kit with 1 x iDoor + 1 x 2.5" SSDHDD

Supported iDoor Modules

iDoor Industrial Fieldbus Communication	
PCM-26D2CA-AE	2-port isolated CANBus mPCIe,CANopen, DB9
PCM-26D1DB-MBE/SBE	1-port Hilscher netX100 FieldBus mPCIe,PROFIBUS, DB9, Master/Slave
PCM-26R2PN-MBE/SBE	2-Port Hilscher netX100 FieldBus mPCIe, PROFINET,RJ45, Master/Slave
PCM-26R2EC-MBE/SBE	2-port Hilscher netX100 FieldBus mPCIe, EtherCAT, RJ45,Master/ Slave
PCM-26R2EI-MBE/SBE	2-port Hilscher netX100 FieldBus mPCIe, EtherNet/IP, RJ45,Master/Slave
Industrial I/O & Peripheral	
PCM-24D2R4-BE	2-port isolated RS-422/485, mPCIe, DB9
PCM-24D2R2-BE	2-port isolated RS-232, mPCIe, DB9
PCM-24D4R4-BE	4-port non-isolated RS-422/485 mPCIe, DB37 cable
PCM-24D4R2-BE	4-port non-isolated RS-232 mPCIe, DB37 cable
PCM-24R1TP-BE	1-port Gigabit Ethernet, Intel® i225, mPCIe, RJ45
PCM-34R1TP-AE	1-port Gigabit Ethernet, Intel® i225, M.2 B+M key (3042 ,PCIe*1), RJ45
PCM-24R2PE-AE	2-port Gigabit Ethernet, IEEE 802.3af (PoE)- compliant,mPCIe, RJ45
PCM-24R2GL-AE	2-port Gigabit Ethernet, Intel® i350, mPCIe, RJ45
PCM-34R2GL-AE	2-port Gigabit Ethernet, Intel® i350, M.2 B+M key (2242, PCIe*1), RJ45
PCM-27D24DI-AE	24-channel isolated digital I/O with counter mPCIe, DB37
PCM-37D24DI-AE	24-channel isolated digital I/O, M.2 B+M key (3042, PCIe*1), DB37
PCM-2300MR-BE	MR4A16B, MRAM, 4 MB, mPCIe
PCM-23U1DG-CE	USB slot w/ lock for USB dongle, half-size mPCIe
PCM-24U2U3-BE	2-port USB 3.0, mPCIe, USB-A type
iDoor Wired/Wireless Communication	
PCM-24S2WF-CE	Wi-Fi 802.11 a/b/g/n 2T2R w/Bluetooth 5.0, M.2/mPCIe, antennas
PCM-24S34G-CE	LTE/HSPA+/GPRS and GPS, full-size mPCIe, 4G/GPS antennas

Extension kit



Advantech offers an optional second-stack extension kit for expanding the system functionalities

UNO-148-P11EB

Second-stack extension kit with 1 x PCIe x4 expansion kit



Specifications

General	
Ports	1 x PCIe x4 slot
Dimensions (W x D x H)	35 x 140 x 200mm (1.4 x 5.5 x 7.8 in)
Weight	0.5 kg/1.1 lb

Notes

1. When UNO-148-P11EB is installed, the PCIe signals of the mPCIe port (Mini1) and SATA signals of the M.2 B-key (CN14) socket are occupied by the expansion kit and cannot be used.
2. Because of the power used by PCIe x4, the recommended power input for UNO-148 is 24 V_{DC} (±20%).

Ordering Information

Part Number	Description
UNO-148-P11EB	UNO-148 Second-stack Extension kit, 1 PCIe x4 slot