TPC-B610

Modular TPC - Computing Box Module with Intel® 10th Gen. Core™ i CPU Socket (LGA1200)

Features

- High Performance Computing Box powered by Intel® 10th Gen. Core™ i CPU Socket (LGA1200) with fanless design
- 6 x Panel Modules (IP66) ranging from 15" to 23.8" in selection
- Dual Channel Memory slots (DDR4) support up to 64GB in total
- Comprehensive I/Os, including 6 x USB, 2 x COM, 2 x RJ45...etc
- Supports Expansion via 1 x PCIe x16, 1 x mPCIe, 2 x M.2 (NVMe, SATA, 5G)
- Supports Storage via 2 x 2.5" HDD/SSD (RAID 0/1), 2 x M.2 (2242/2280)
- Supports Fieldbus protocols/GPS/GPRS/Wi-Fi capabilities via iDoor technology
- Supports Diverse system I/O, DIO, PoE...etc. via iDoor technology
- Supports TPM 2.0 hardware security

Introduction

Advantech's TPC-B610 is the highest performance Panel PC solution to date for your future-proof Industry 4.0 application. This Modular Computing Box, with its iconic fanless design, is powered by 10th Gen. Intel Core i Socket (LGA1200), a total of 64GB DDR4, comprehensive I/Os including 6 x USBs, greatest expansion via PCIe x16 and bountiful Storage through M.2 SATA/NVME and 2 x 2.5" HDD/SSD slots, living up to your high-end processing and calculation demands. With an easy pairing with Panel Module, a premium Panel PC system with IP66-grade, ranging from 15" to 23.8" up to FHD resolution, is born to meet your corporate expectation.

*For other Modular Series TPC/FPM family members, please find 'TPC-B500', 'TPC-B200'and 'FPM-B700' on Advantech's official website.

Specifications

General

BIOS	AMI UEFI
Certification	BSMI, CCC, CE, FCC Class A, CB/UL
Cooling System	Fanless design
Dimensions (W x H x D)	269 x 224 x 70 (mm)
Enclosure	Die cast aluminum alloy
Mounting	VESA Mount, Desktop, Wall or Panel Mount
OS Support	Win10 LTSC, Linux
Security	TPM 2.0 (built-in)
Power Consumption	Typ. 74W; Max. 187W (without Panel Module)
Power Input	24 V_{DC} ± 20%
Watchdog Timer	15-255 sec (system)
Weight (Net)	4.5 kg (9.92 lbs)

System Hardware

CPU	Intel® 10th Gen. Core™ i Socket CPU (LGA1200)
Memory	Dual channel DDR4 SO-DIMM, ECC supported.** (Each channel supports up to 32G, 2933 MHz)
LAN	2 x 10/100/1000BASE-T (LAN A: i219, LAN B: i210***)
Expansion Slot	1 x PCIe x16 1 x PCI** 1 x PCIe x4** 1 x Full-size mini PCIe 1 x M.2 3052 (5G) 1 x SIM card slot
Storage Slot*	1 x M.2 M key 2280 (SATA or NVMe PCIex4)** 1 x M.2 B key 2242 (SATA) 2 x 2.5" SSD/ HDD (SATA, Max. 7mm)**
I/O	1 x RS-232/422/485 (COM 1) 1 x RS-232 (COM 2) 5 x USB 3.2 (Gen 1) 1 x USB 2.0 1 x Displayport 1.2 1 x Audio line out/Mic in

Environment

Humidity	10 ~ 95% RH @ 40°C, non-condensing
Ingress Protection	IP66 (for optional panel module with "Panel Mount")
Operating Temperature	35W CPU: -10~50°C (14~122°F) (w/ 0.7 m/s airflow) 65W CPU: -10~40°C (14~104°F) (w/ 0.7 m/s airflow)
Storage Temperature	-20~70°C (-4~158°F)

*TPC-B610 supports only wide temperature (~85°C or wider) M.2 storage.
PCI and **M.2 2280 (SATA) is only for TPC-B610H-A00A.
PCIex4, **NVMe**, **RAID 0/1** and **ECC** are only for TPC-B610W-A00A.
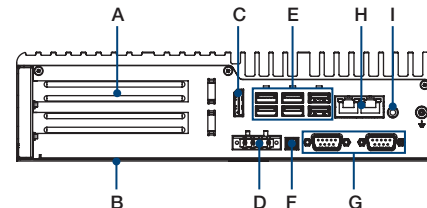***iBMC** supported.

- **Vibration Protection**   With SSD: 1 Grms (5 ~ 500 Hz) (Operating, random vibration)

Note 1: Operating Temperature is based on 1 x Industrial SSD without PCI expansion cards. When combined with FPM-D24W-BE, the operating temp. is -10~40°C for both types of CPUs.
Note 2: IP66 is applicable for Panel Mount.
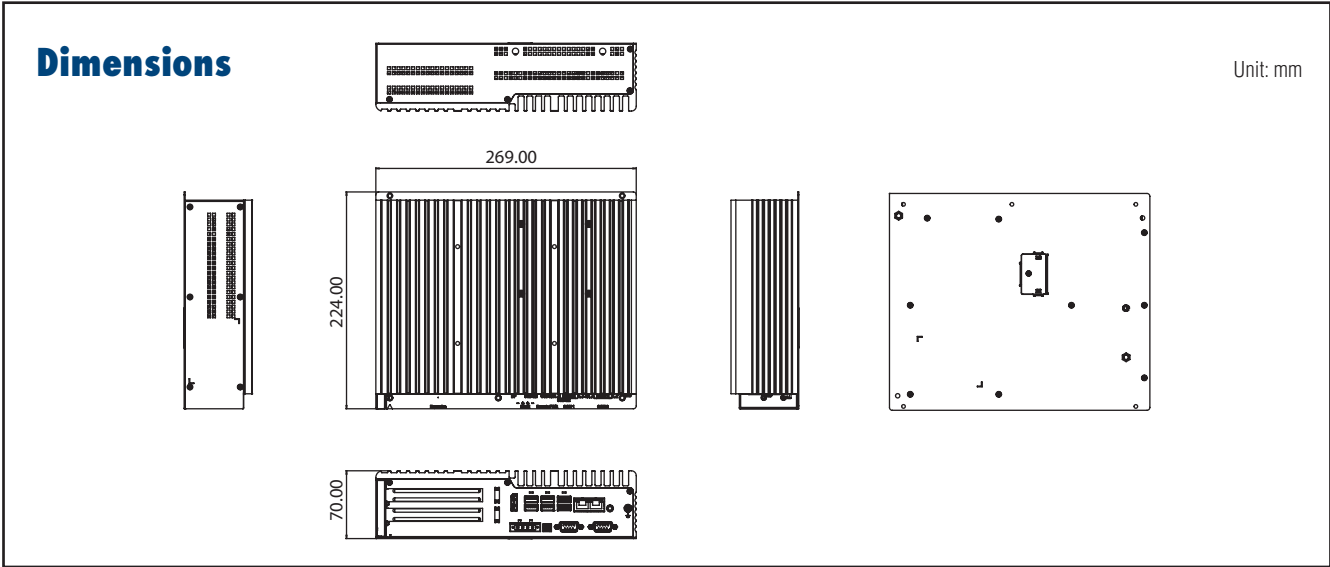
Power Consumption with Panel Module

Item	Power Consumption		Screen Size	Resolution	Aspect Ratio
	Typ.	Max.			
TPC-B610	73W	187W	N/A	N/A	N/A
w/ FPM-D15T-BE	87W	201W	15"	1024x768	4:3
w/ FPM-D17T-BE	97W	211W	17"	1280x1024	
w/ FPM-D15W-BE	91W	205W	15.6"	1920x1080	16:9
w/ FPM-D18W-BE	84W	198W	18.5"	1366x768	
w/ FPM-D21W-BE	87W	201W	21.5"	1920x1080	
w/ FPM-D24W-BE	99W	213W	23.8"	1920x1080	

Rear View

A. PCI expansion slots
B. 2.5" HDD/SSD slots
C. Displayport 1.2
D. Power Receptor
E. USB (5 x 3.2, 1 x 2.0)
F. Remote Power
G. RS-232/422/485 (COM 1), RS-232 (COM 2)
H. RJ45 (10/100/1000BASE-T)
I. Audio line out/Mic in

Note 1: The max. dimension of PCI expansion cards supported is 191 x 111.15 x 34.80 mm.
Note 2: If the two slots are to be used simultaneously, the max. dimension supported is 191 x 111.15 x 14.47 mm for each PCI expansion card.
Note 3: The max. power consumption of PCI expansion card supported is 75W.

Dimensions

Unit: mm

269.00

224.00

70.00

Ordering Information

- **TPC-B610H-A00A** Intel® 10th Gen. Core™ i CPU Socket (LGA1200), H420E, PCIex16, PCI
- **TPC-B610W-A00A** Intel® 10th Gen. Core™ i CPU Socket (LGA1200), W480E, PCIex16, PCIex4, NVMe, RAID 0/1, ECC

Processor (TDP 35W)

CPU	i7-10700TE	i5-10500TE	i3-10100TE	G6400TE	G5900TE
Cores	8	6	4	2	2
Base Frequency	2.00 GHz	2.30 GHz	2.30 GHz	3.20 GHz	3.00 GHz
Turbo Frequency	4.40 GHz	3.70 GHz	3.60 GHz	N/A	N/A

Processor (TDP 65W)

CPU	i7-10700E	i5-10500E	i3-10100E	G6400E (58W)	G5900E (58W)
Cores	8	6	4	2	2
Base Frequency	2.90 GHz	3.10 GHz	3.20 GHz	3.80 GHz	3.20 GHz
Turbo Frequency	4.50GHz	4.20 GHz	3.80 GHz	N/A	N/A

Panel Module

P/N	FPM-D15T-BE	FPM-D17T-BE	FPM-D15W-FBE	FPM-D18W-BE	FPM-D21W-BE	FPM-D24W-BE
Description	15" XGA TFT LED LCD	17" SXGA TFT LED LCD	15.6" FHD TFT LED LCD	18.5" HD TFT LED LCD	21.5" FHD LED LCD	23.8" FHD TFT LED LCD
Dimension w/ TPC-B610 (L x W x H) (mm)	383.2 x 328.3 x 97.5	410.4 x 364.4 x 98.3	419.7 x 290 x 100.3	488 x 330 x 100.3	558.4 x 370.8 x 100.3	595.9 x 395.1 x 100.3

*For more information about the panel module, please refer to "FPM-Display Module" Data Sheet.

Optional Accessories

- **96PSA-A230W24P4-3** 230W 24V_DC_ Power Supply
- **1702002600** Power cable (US) 1.8 M
- **1702002605** Power cable (EU) 1.8 M
- **1702031801** Power cable (UK) 1.8 M
- **1700000596-11** Power cable (China/Australia) 1.8 M

Embedded OS

- **20703WX9ES0048** Win10 LTSC Entry (G5900TE/E)
- **20703WX9VS0036** Win10 LTSC Value (Core i3/i5, G6400TE/E)
- **20703WX9HS0032** Win10 LTSC High (Core i7)
- **Advantech Linux**

iDoor Modules

- **PCM-24S2WF-BE** 802.11 a/b/g/n/ac 2T2R w/BT4.1, Atheros QCA6174A
- **PCM-24D2R4-BE** Isolated RS-422/485, DB9 x 2, (USB type)
- **PCM-24D2R2-BE** Isolated RS-232, DB9 x 2, (USB type)
- **PCM-24R1TP-BE** 1-Port Gigabit Ethernet, Intel® 82574L, mPCIe, RJ45
- **PCM-27D24DI-AE** Digital I/O, 16 DI / 8 DO, Isolation, DB37 x 1
- **PCM-26D2CA-AE** 2-Port Isolated CANBus mPCIe, CANOpen, DB9
- **PCM-24R2PE-AE** Intel i350, GbE, PoE IEEE 802.3af, PD, RJ45 x 2

*For TPC-B610, "PCM-28P1AD" is needed for iDoor module installation.
**iDoor module ocuppies one PCI expansion slot.
***For more information about iDoor Module, please find "Advantech iDoor Module" on Advantech's official website.

Application Software

WebAccess/SCADA	Advantech WebAccess/SCADA is a 100% browser-based IIoT software platform aimed at supervisory control and data acquisition (SCADA) operations. WebAccess/SCADA provides open interfaces that allow our customers and partners to develop unique IoT applications for different vertical markets. In addition to supporting traditional SCADA functions, the platform features an HTML5-based user interface and intelligent dashboard to facilitate cross-platform, cross-browser data analysis. Moreover, WebAccess/SCADA not only offers built-in widgets, but is also equipped with an innovative Widget Builder that enables customers to build their own widgets.
WebAccess/HMI	Advantech WebAccess/HMI is human-machine interface (HMI) software based on Microsoft's Windows operating system. This software features excellent communication and monitoring capabilities, supports more than 350 PLC communication protocols, and offers a wide choice of screen design objects to satisfy diverse integrations of factory automation and HMI operation and monitoring requirements.

Please note: If some optional modules are offered with the system, additional system certificates may be required in certain regions/countries.
Please contact Advantech for certificate compliance.