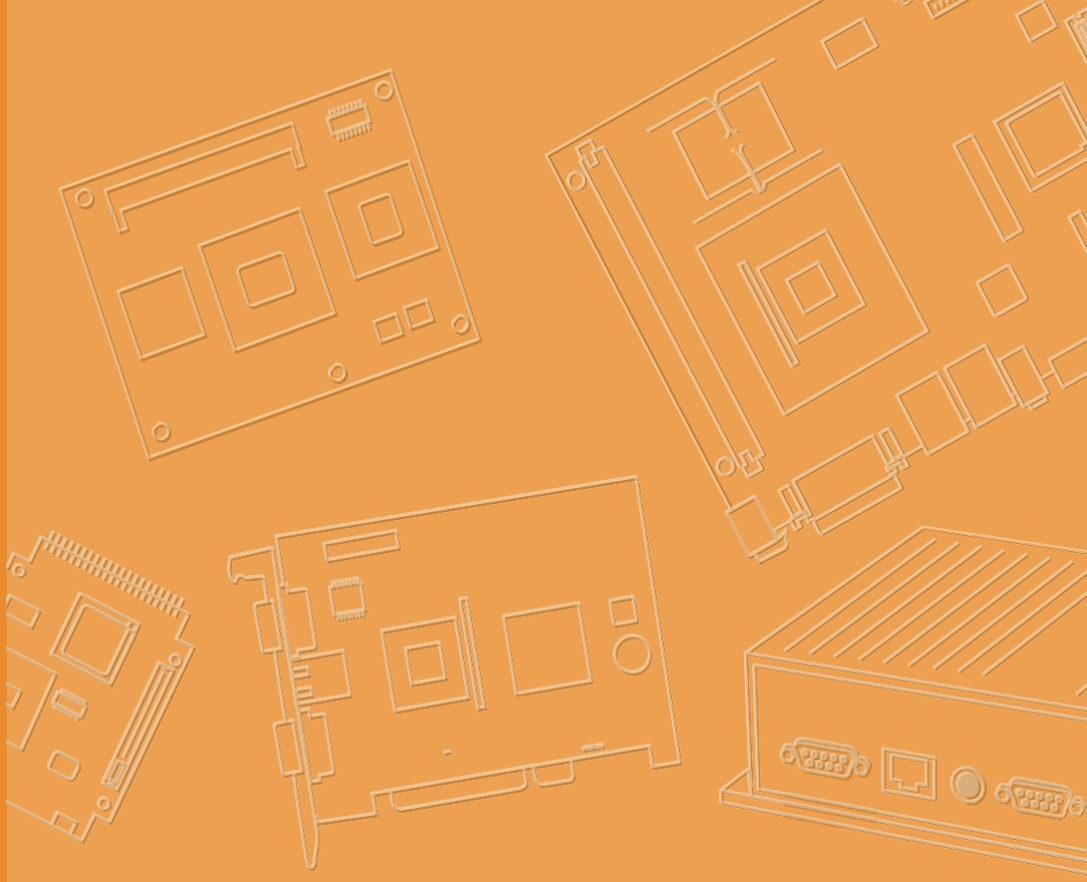

User Manual

UTC-200 Series

7”/10.1”/21.5”/31.5”
Opened-Frame Touch Computer

ADVANTECH

Enabling an Intelligent Planet

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For technical support and service, please visit our support website at

http://support.advantech.com

This manual is for UTC-200 Series

Part No. xxx Edition 1

Printed in Taiwan March 2019

Declaration of Conformity

FCC Class A

Note! *This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in such cases users will be required to correct the interference at their own expense.*

Warning! *Any modifications to this device that are not approved by the relevant standards authority may void the authority granted to the user by the FCC to operate this equipment.*

Packing List

Before installing the UTC system, check that the following materials have been included in the shipment:

- UTC-200 Series Opened Frame Touch Computer
- Accessories
  - Adaptor
  - Extended Brackets
  - SATA cable (UTC-220/232 Only)
  - Packet of screws

If any of these items are missing or damaged, contact your distributor or sales representative immediately.

Technical Support and Assistance

1. Visit the Advantech website at http://support.advantech.com to obtain the latest product information.
2. Contact your distributor, sales representative, or Advantech's customer service center for technical support if you need additional assistance. Please have the following information ready before calling:
   - Product name and serial number
   - Description of your peripheral attachments
   - Description of your software (operating system, version, application software, etc.)
   - A complete description of the problem
   - The exact wording of any error messages

Warnings

Warning! *Batteries are at risk of exploding if incorrectly installed. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.*

Warning!

- *Input voltage rated 12V/7A (UTC-207/210/220)*
- *Input voltage rated 100 ~ 240 VAC 50/60 Hz for UTC-232*
- *Use a 3V/195mA lithium battery*
- *Packing: The unit should be carried with both hands and handled*
- *Maintenance: Use only approved products or a dry applicator to*
- *CompactFlash: Turn off the system power before inserting or removing the CompactFlash storage card.*

Contact information

Manufacturer

Advantech Co., Ltd.

No.1, Alley 20, Lane 26, Rueiguang Road Neihu District, Taipei, Taiwan 114, R.O.C.

TEL: (02) 2792-7818

EU Distributor

Advantech Europe GmbH Kolberger Straße 7 D-40599 Düsseldorf, Germany

Tel: 49-211-97477350

Fax: 49-211-97477300

Safety Instructions

1. Read these safety instructions carefully.
2. Retain this user manual for future reference.
3. Disconnect the equipment from all AC outlets before cleaning. Use only a damp cloth for cleaning. Do not use liquid or spray detergents.
4. For pluggable equipment, the power outlet socket must be located near the equipment and easily accessible.
5. Protect the equipment from humidity.
6. Place the equipment on a reliable surface during installation. Dropping or letting the equipment fall may cause damage.
7. The openings of the enclosure are for air convection. Protect the equipment from overheating. Do not cover the openings.
8. Ensure that the voltage is correct before connecting the equipment to a power outlet.
9. Position the power cord away from high-traffic areas. Do not place anything over the power cord.
10. All cautions and warnings on the equipment should be noted.
11. If unused for a long time, disconnect the equipment from the power source to avoid damage from transient overvoltage.
12. Never pour liquid into an opening. This may cause fire or electrical shock.
13. Never open the equipment. For safety reasons, the equipment should be opened only by qualified service personnel.
14. If one of the following occurs, have the equipment checked by authorized service personnel:
    - The power cord or plug is damaged.
    - Liquid has penetrated the equipment.
    - The equipment has been exposed to moisture.
    - The equipment is malfunctioning or does not operate according to the user manual.
    - The equipment has been dropped and damaged.
    - The equipment shows obvious signs of breakage.
15. Do not store the equipment in an environment where the temperature fluctuates below -20 °C (-4 °F) or above 60 °C (140 °F) as this may cause damage. The equipment should be stored in a controlled environment.
16. Batteries are at risk of exploding if incorrectly installed. Replace only with the same or equivalent type recommended by the manufacturer. Discard used batteries according to the manufacturer's instructions.
17. Use only the recommended mounting apparatus to avoid damage due to falling.
18. The sound pressure level at the operator position does not exceed 70 dB (A) in accordance with the IEC 704-1:1982.

DISCLAIMER: These instructions are provided according to IEC 704-1 standards. Advantech disclaims all responsibility for the accuracy of any statements contained herein.

Warning! *Because of the risk of electric shock, do not remove the equipment*

cover during operation or when connected to a power outlet.

Caution! *To avoid short circuits and otherwise damaging the device, do not allow fluids to come in contact with the device. If fluids are accidentally spilled on the equipment, remove the affected unit from service as soon as possible and contact service personnel to verify that personal safety is not compromised. If the computer clock is unable to maintain accurate time or the BIOS configuration resets to default, check the battery.*

Caution! *Do not replace the battery yourself. Contact a qualified technician or your retailer. The computer is equipped with a battery-powered real-time clock circuit. There is a danger of explosion if the battery is incorrectly replaced. Replace only with same or equivalent type recommended by the manufacturer. Discard used batteries according to the manufacturer's instructions.*

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Chapter 1

General Information

1.1 Introduction

UTC-200 series comes with a full range of screen sizes from 7” to 31.5”. With its opened-frame, fanless and low power design, it’s suitable to be embedded into any type of equipment as a HMI such as self-ordering, showroom interactive signage, self-service kiosks, and public service terminals, as well as to support diverse digital retail, hospitality, healthcare, education, entertainment, and information processing applications. Featuring a protective enclosure, advanced touchscreen technology, wireless capabilities, and rich I/O, the high-performance UTC series can also be integrated with a wide range of optional peripherals and accessories according to specific application requirement

1.2 Specification

1.2.1 UTC-207

Processor System	CPU	Intel® Celeron® N3350 (UTC-207G)	Intel® Pentium® N4200 (UTC-207G)
	Base Frequency	1.10 GHz (Dual-Core)	1.10 GHz (Quad-Core)
	Cache	L2 Cache 1MB	L2 Cache 2MB
	Memory	1 x SO-DIMM DDR3L 1866 MHz up to 8 GB	1 x SO-DIMM DDR3L 1866 MHz up to 8 GB
	Storage	1 x M.2 2242 SSD	
	Network (LAN)	2 x Gigabit Ethernet ports (Supports Wake on LAN)	
	I/O ports	2 x RS-232 COM (COM2 RS-232/422/485) 2 x USB3.0 / 2 x USB3.0 (optional) 2 x Gigabit Ethernet ports (1 with PoE)	
	Stereo Speaker	1 x 2W	
	Bus expansion	1 x M.2 key2230, 1 x M.2 key2242	
	Dimensions (W x H x D)	180 x 116.5 x 32.5 mm	
	Weight	0.95kg (2.09lbs)	
OS Support		Win 10 IoT Enterprise 64bit Android 6.0 Linux Ubuntu 18.04	
Environmental Specifications	Operating Temperature	0 ~ 40 °C (32 ~ 104 °F)*	0 ~ 40 °C (32 ~ 104 °F)*
	Relative Humidity	10 ~ 95% @ 40 °C non-condensing	
	Vibration	0.5G	
	Shock	10G peak acceleration (11 msec. duration)	
	Certification	CE, FCC	
Power Supply	DC Input Rating	12 V/3 A ~ 24 V/1.5 A, 36W ITE Adapter	
	PoE	Optional IEEE 802.3at/30W	
	Power consumption	Typical: 25W Max.: 34W	
LCD Display	Size/Type	7" TFT LCD with LED backlight	
	Max.Resolution	800 x 480	
	Max. Color	262K	
	Pixel Pitch (um)	192.6 x 179	
	Brightness (cd/m²)	450	
	View Angle	140°/ 160°	
Touch Screen Option (PE/GE)	Type	Projected Capacitive. Glass Panel	
	Light Transmission	80% ± 5% / 90%	
	Controller	USB Interface	

1.2.2 UTC-210

Processor System	CPU	Intel® Celeron® N3350 (UTC-210G)	Intel® Pentium® N4200 (UTC-210G)
	Base Frequency	1.10 GHz (Dual-Core)	1.10 GHz (Quad-Core)
	Cache	L2 Cache 1MB	L2 Cache 2MB
	Memory	1 x SO-DIMM DDR3L 1866 MHz up to 8 GB	1 x SO-DIMM DDR3L 1866 MHz up to 8 GB
	Storage	1 x 2.5 internal SATA storage bay / 1 x M.2 2242 SSD	
	Network (LAN)	2 x Gigabit Ethernet ports (Supports Wake on LAN)	
	I/O ports	2 x RS-232 COM (COM2 RS-232/422/485) 2 x USB3.0 / 2 x USB3.0 (optional) 2 x Gigabit Ethernet ports (1 with PoE)	
	Stereo Speaker	1 x 2W	
	Bus expansion	1 x M.2 key2230, 1 x M.2 key2242	
	Dimensions (W x H x D)	247 x 165.6 x 33.2 mm	
	Weight	1.3kg (2.87lbs)	
OS Support		Win 10 IoT Enterprise 64bit Android 6.0 Linux Ubuntu 18.04	
Environmental Specifications	Operating Temperature	0 ~ 40 °C (32 ~ 104 °F)*	0 ~ 40 °C (32 ~ 104 °F)*
	Relative Humidity	10 ~ 95% @ 40 °C non-condensing	
	Vibration	0.5G	
	Shock	10G peak acceleration (11 msec. duration)	
	Certification	CE, FCC	
Power Supply	DC Input Rating	12 V/3 A ~ 24 V/1.5 A, 36W ITE Adapter	
	PoE	Optional IEEE 802.3at/30W	
	Power consumption	Typical 25W Max. 34W	
LCD Display	Size/Type	10.1" TFT LCD with LED backlight	
	Max.Resolution	1280 x 800	
	Max. Color	16.7M	
	Pixel Pitch (um)	169.5 x 169.5	
	Brightness (cd/m²)	350	
	View Angle	170°/ 170°	
Touch Screen Option (PE/GE)	Type	Projected Capacitive. Glass Panel	
	Light Transmission	80% ± 5% / 90%	
	Controller	USB Interface	

1.2.3 UTC-220

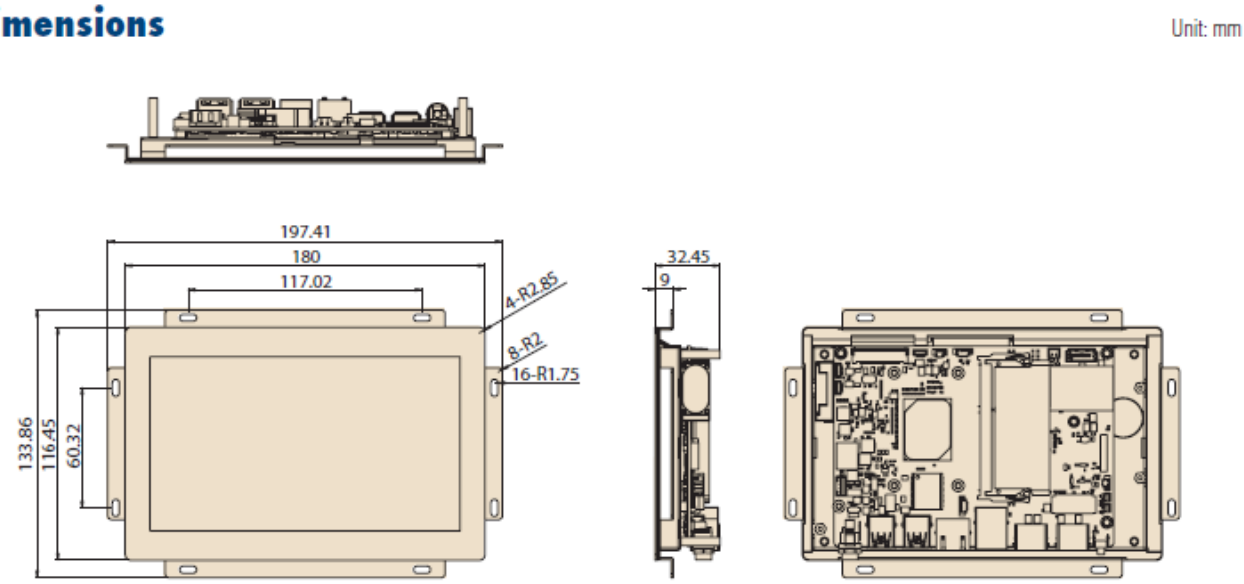
Processor System	CPU	Intel® Core™ i5-6300U (UTC-220F) Intel® Core™ i3-6100U (Available)*	Intel® Pentium® N4200 (UTC-220G) Intel® Atom® E3950 (Available)*
	Base Frequency	2.4GHz (Dual-Core)	1.1 GHz (N4200/Quad-Core) 1.6 GHz (E3950/Quad-Core)
	Cache	L3 Cache 3MB	L2 Cache 2MB
	Memory	2 x SO DIMM DDR3L 1600MHz up to 16 GB	1 x SO-DIMM DDR3L 1867 MHz
	Storage	1 x 2.5 internal SATA HDD bay	1 x 2.5 internal SATA HDD bay
	Network (LAN)	2 x Gigabit Ethernet ports (Supports Wake on LAN)	
	I/O ports	2 x RS-232 COM (RS-422/485)* 2 x USB 2.0 / 2 x USB 3.0 2 x Gigabit Ethernet (RJ-45) 1 x VGA 1 x HDMI Audio Line-out x 1, Mic-in x 1	2 x RS-232 COM (RS-422/485)* 2 x USB 2.0 / 2 x USB 3.0 2 x Gigabit Ethernet (RJ-45) 1 x VGA 1 x HDMI Audio Line-out x 1, Mic-in x 1
	Stereo Speaker	10W x 2 (optional)	
	Bus expansion	Full-size MiniPCIe/mSATA	
	Dimensions (W x H x D)	21.5": 515.04 x 310.91 x 42.20(mm)	
	Weight	21.5": 5.8kg	
OS Support		WES 7P 32bit WES 7E 32bit Windows Pro Embedded 7 SP1 64bit WE8S 64bit Windows Embedded 8.1 Industry Pro 64bit Win 10 IoT Enterprise Linux Ubuntu 16.04	Win 10 IoT Enterprise Android 6.0 Linux Ubuntu 17.04
Environmental Specifications	Operating Temperature	0 ~ 40° C (32 ~ 104° F)	
	Relative Humidity	10 ~ 95% @ 40° C non-condensing	
	Vibration	0.5G	
	Shock	5G peak acceleration (11 msec. duration)	
	EMC/ Safety	CE, FCC	
Power Supply	Input Rating	12 V/7 A (84 W ITE Adapter)	
	Power consumption	Typical 45W Max. 65W	
LCD Display	Size/Type	21.5" TFT LCD with LED backlight	
	Max.Resolution	21.5": 1920 x 1080	
	Max. Color	16.7M	
	Pixel Pitch (um)	21.5": 248.25 x 248.25	
	Brightness (cd/m²)	250 (Optional 400)	
	View Angle	178°/178°	
Touch Screen Option (PE/RE/GE)	Type	Projected Capacitive. Analog Resistive 5-wires / Glass Panel	
	Light Transmission	80% ± 2% / 80% ± 5% / 90%	
	Controller	USB Interface / USB Interface / -	

1.2.4 UTC-232

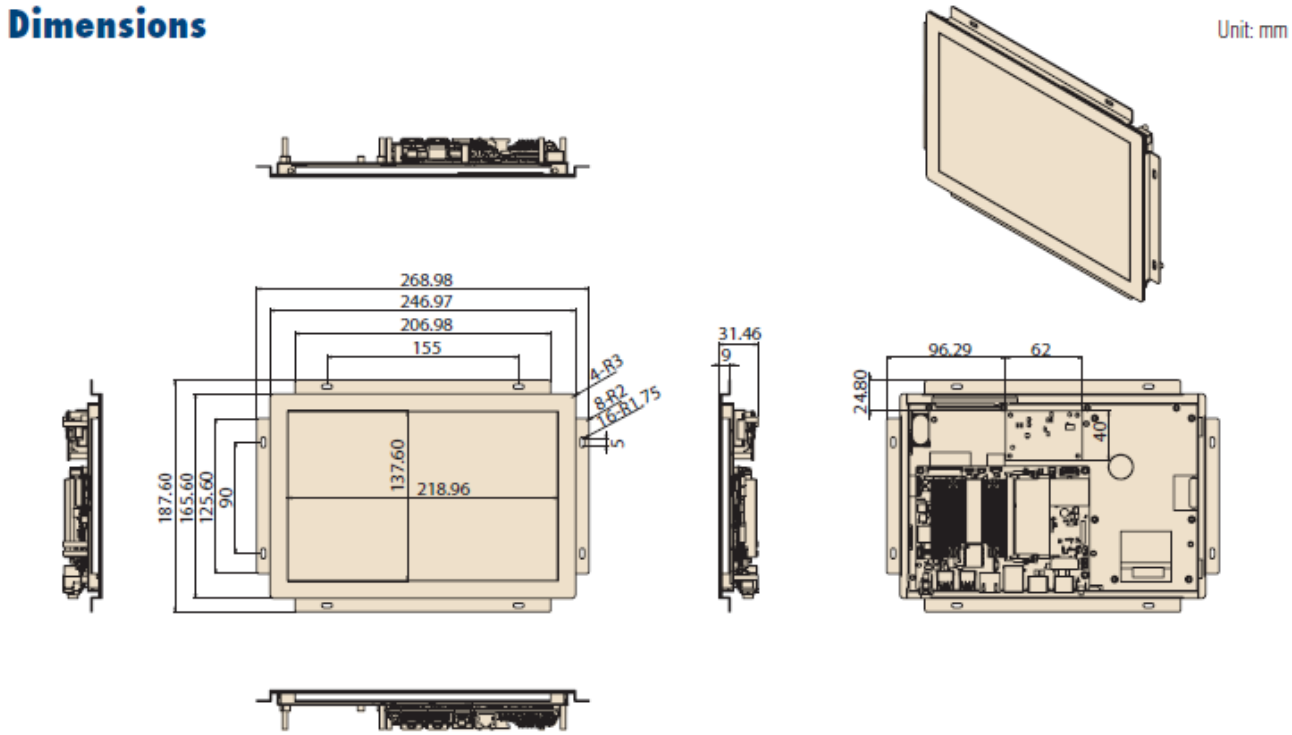
Processor System	CPU	Intel® Core™ i5-6300U (UTC-232F) Intel® Core™ i3-6100U (Available)*	Intel® Pentium N4200 (UTC-232G) Intel® Atom E3950 (Available)*
	Base Frequency	2.4GHz (Dual-Core)	1.1 GHz (N4200/Quad-Core) 1.6 GHz (E3950/Quad-Core)
	Cache	L3 Cache 3MB	L2 Cache 2MB
	Memory	2 x SO DIMM DDR3L 1600MHz up to 16 GB	1 x SO-DIMM DDR3L 1867 MHz
	Storage	1 x 2.5 internal SATA HDD bay	1 x 2.5 internal SATA HDD bay
	Network (LAN)	2 x Gigabit Ethernet ports (Supports Wake on LAN)	
	I/O ports	2 x RS-232 COM (RS-422/485)* 2 x USB 2.0 / 2 x USB 3.0 2 x Gigabit Ethernet (RJ-45) 1 x VGA 1 x HDMI Audio Line-out x 1, Mic-in x 1	2 x RS-232 COM (RS-422/485)* 2 x USB 2.0 / 2 x USB 3.0 2 x Gigabit Ethernet (RJ-45) 1 x VGA 1 x HDMI Audio Line-out x 1, Mic-in x 1
	Stereo Speaker	10W x 2 (optional)	
	Bus expansion	Full-size MiniPCIe/mSATA	
	Dimensions (W x H x D)	760.80 x 455.25 x 57.6(mm)	
	Weight	15kg	
OS Support		WES 7P 32bit WES 7E 32bit Windows Pro Embedded 7 SP1 64bit WE8S 64bit Windows Embedded 8.1 Industry Pro 64bit Win 10 IoT Enterprise Linux Ubuntu 16.04	Win 10 IoT Enterprise Android 6.0 Linux Ubuntu 17.04
Environmental Specifications	Operating Temperature	0 ~ 40° C (32 ~ 104° F)	
	Relative Humidity	10 ~ 95% @ 40° C non-condensing	
	Vibration	0.5G	
	Shock	5G peak acceleration (11 msec. duration)	
	EMC/ Safety	CE, FCC	
Power Supply	Input Rating	12 V/7 A (84 W ITE Adapter)	
	Power consumption	Typical 45W Max. 65W	
LCD Display	Size/Type	31.5" TFT LCD with LED backlight	
	Max.Resolution	1920 x 1080	
	Max. Color	16.7M	
	Pixel Pitch (um)	363.75 x 363.75	
	Brightness (cd/m²)	300 (Optional 400)	
	View Angle	178°/178°	
Touch Screen Option (PE/RE/GE)	Type	Projected Capacitive. Glass Panel	
	Light Transmission	80% ± 2% / 80% ± 5% / 90%	
	Controller	USB Interface / USB Interface / -	

1.3 Dimensions

1.3.1 UTC-207



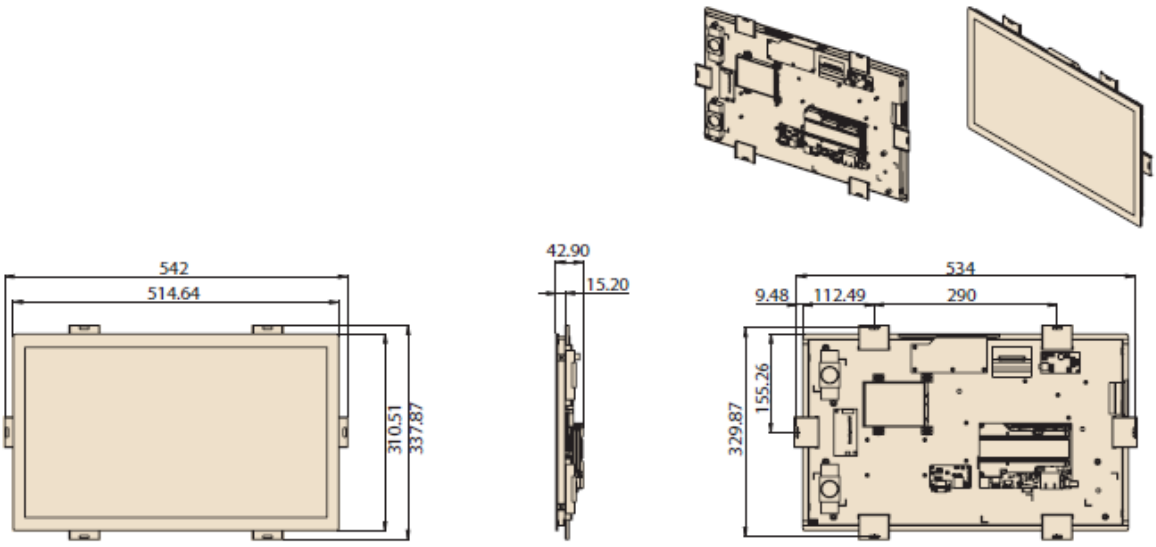
1.3.2 UTC-210



1.3.3 UTC-220

Dimensions

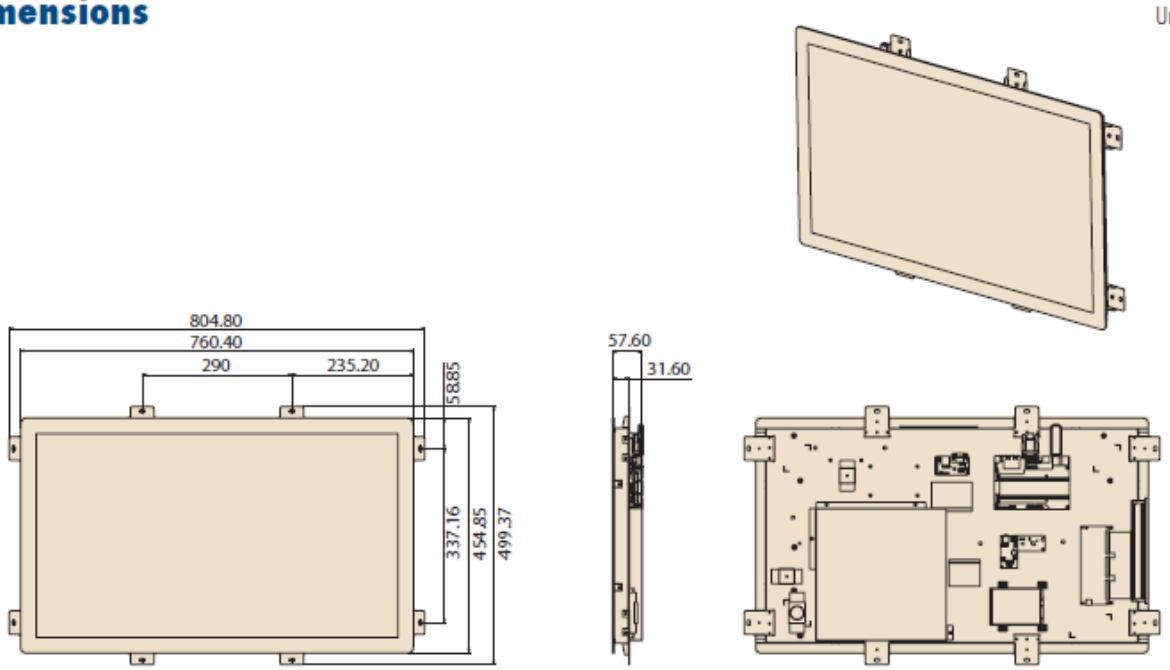
Unit: mm



1.3.4 UTC-232

Dimensions

Unit: mm



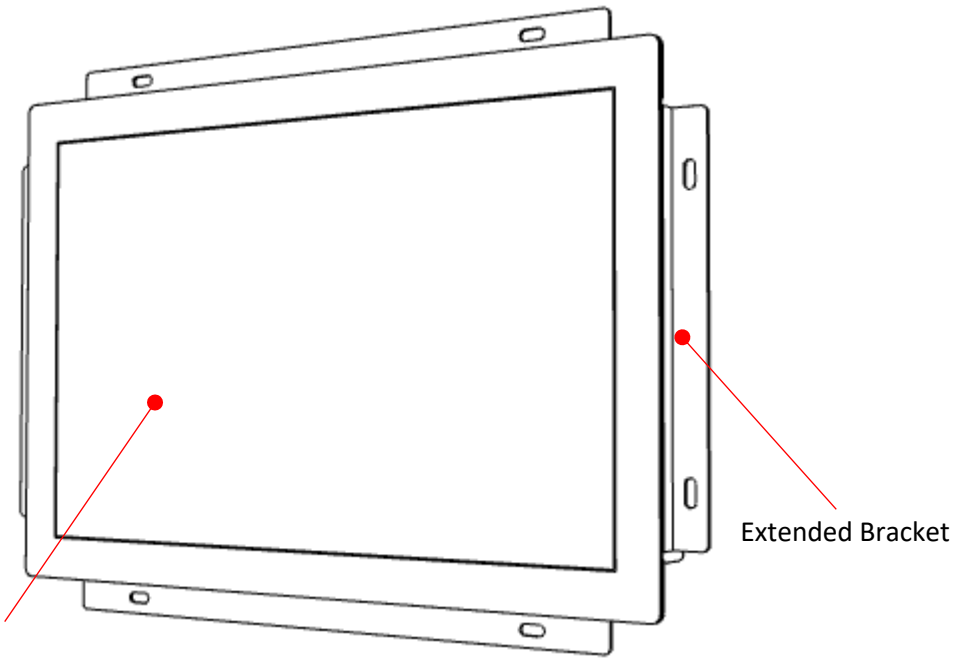
Chapter 2

Quick Start Tour

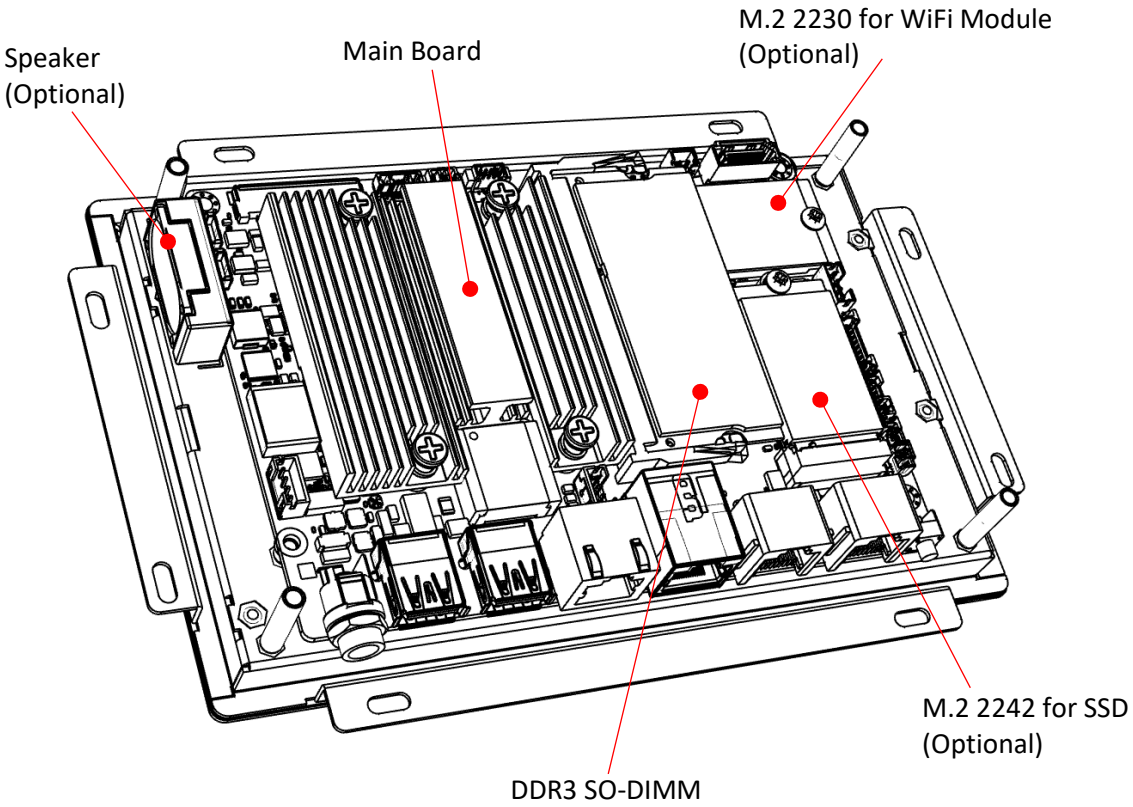
2.1 Feature Overview

2.1.1 UTC-207

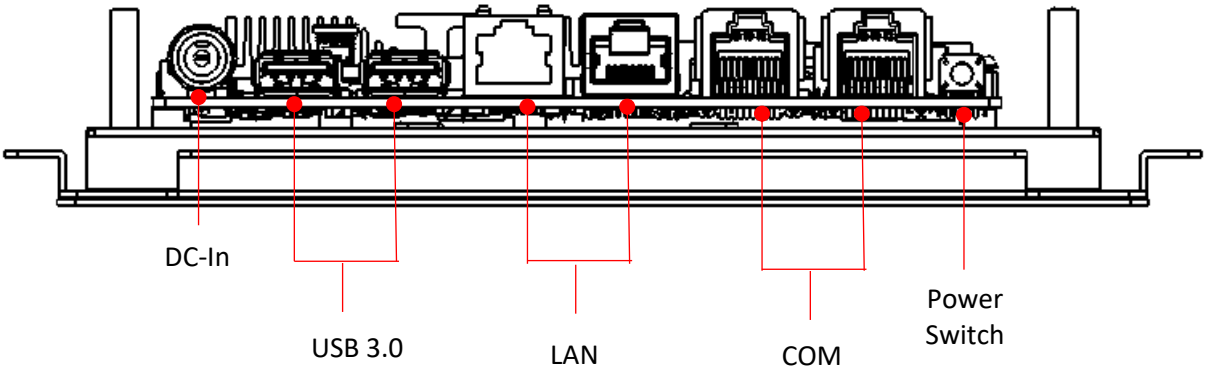
Front View



Rear View

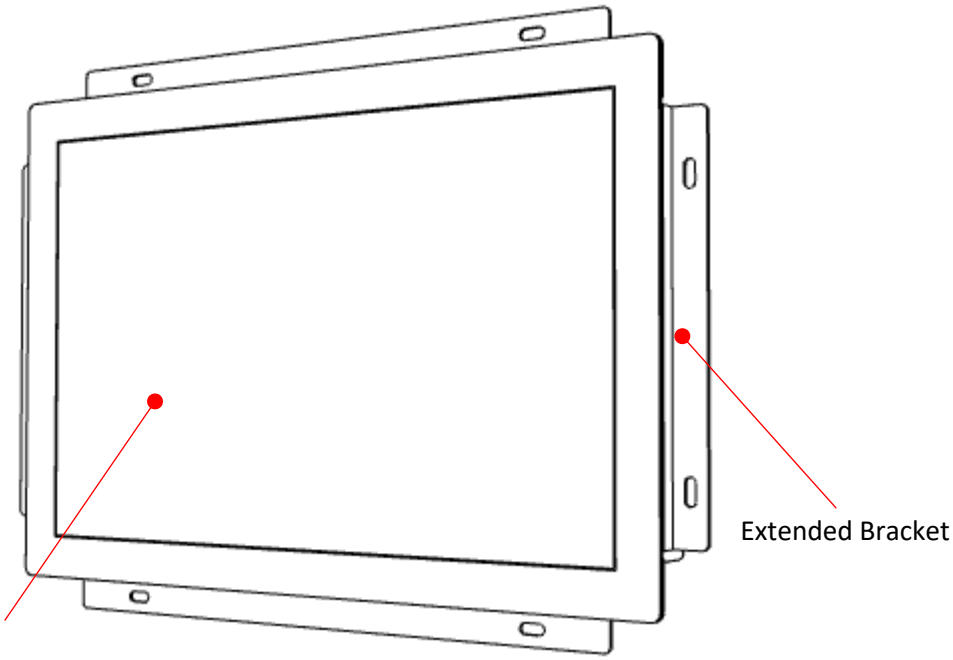


Coastline I/O Locations



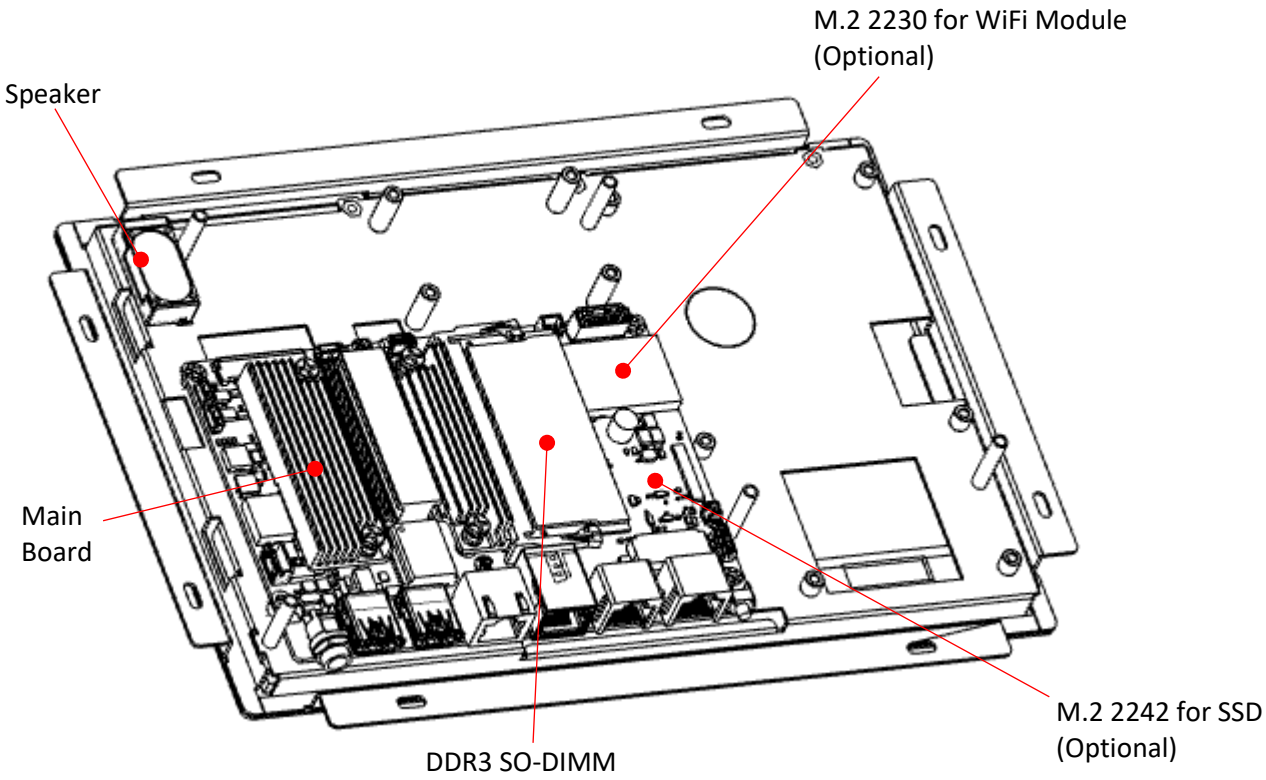
2.1.2 UTC-210

Front View

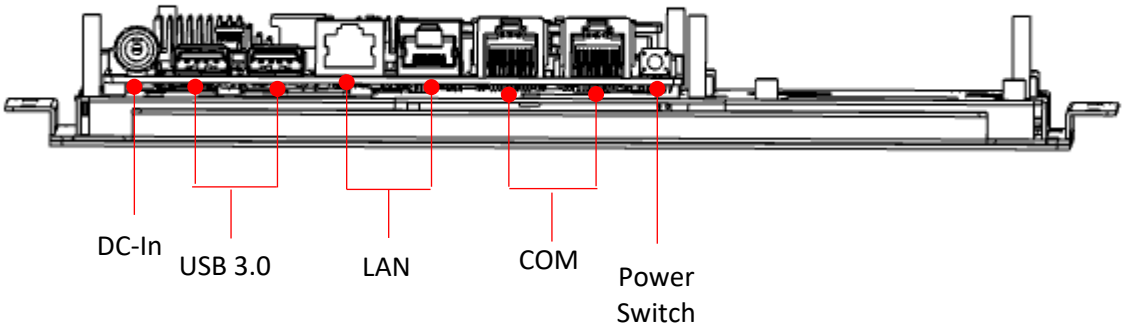


10” LCD Panel with PCap Touch

Rear View

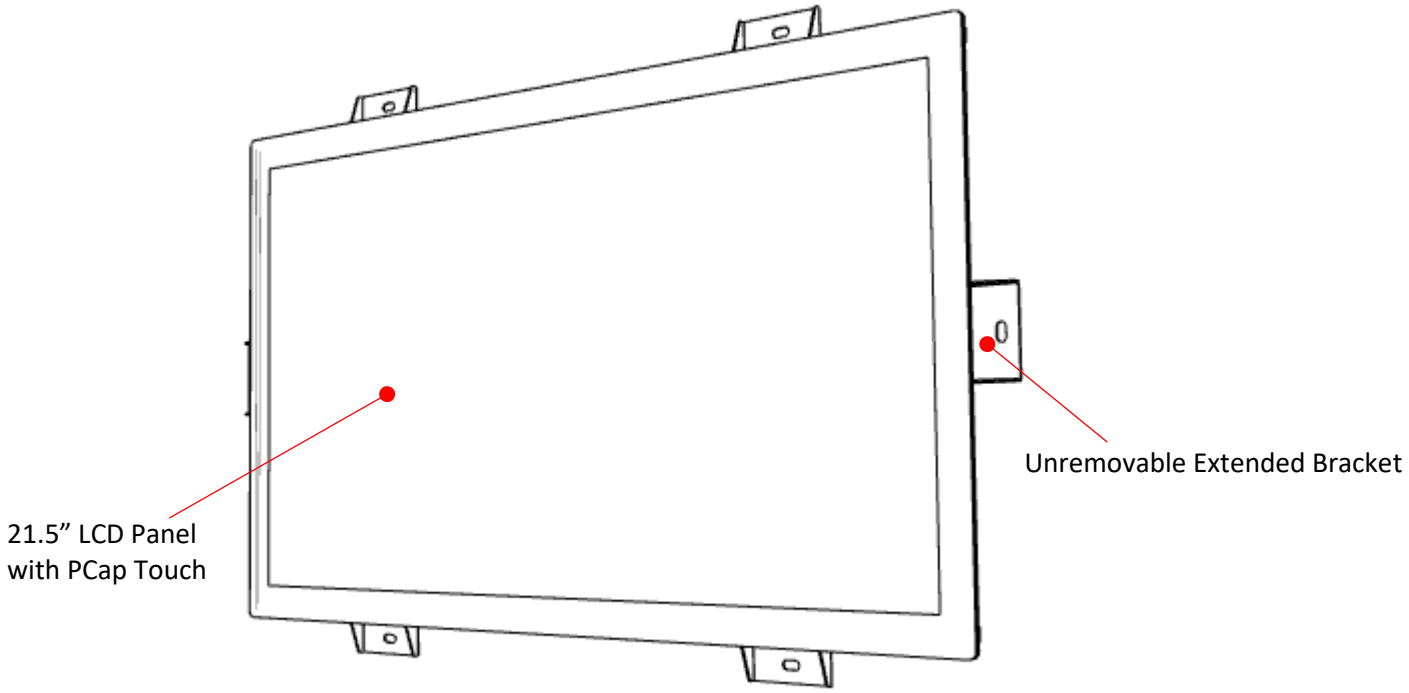


Coastline I/O Locations

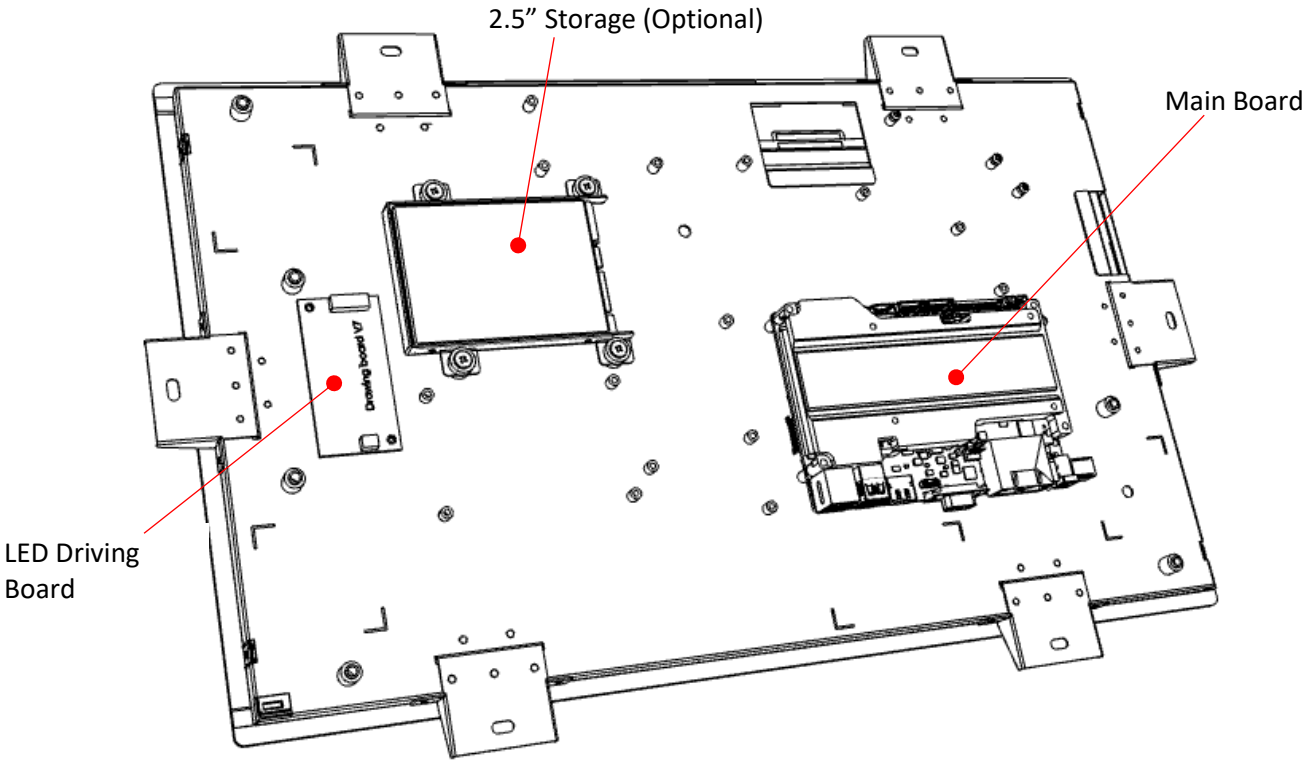


2.1.3 UTC-220

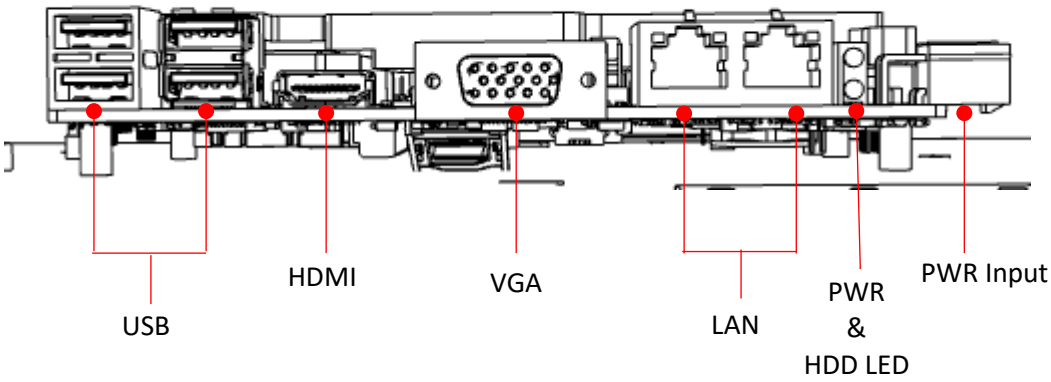
Front View



Rear View

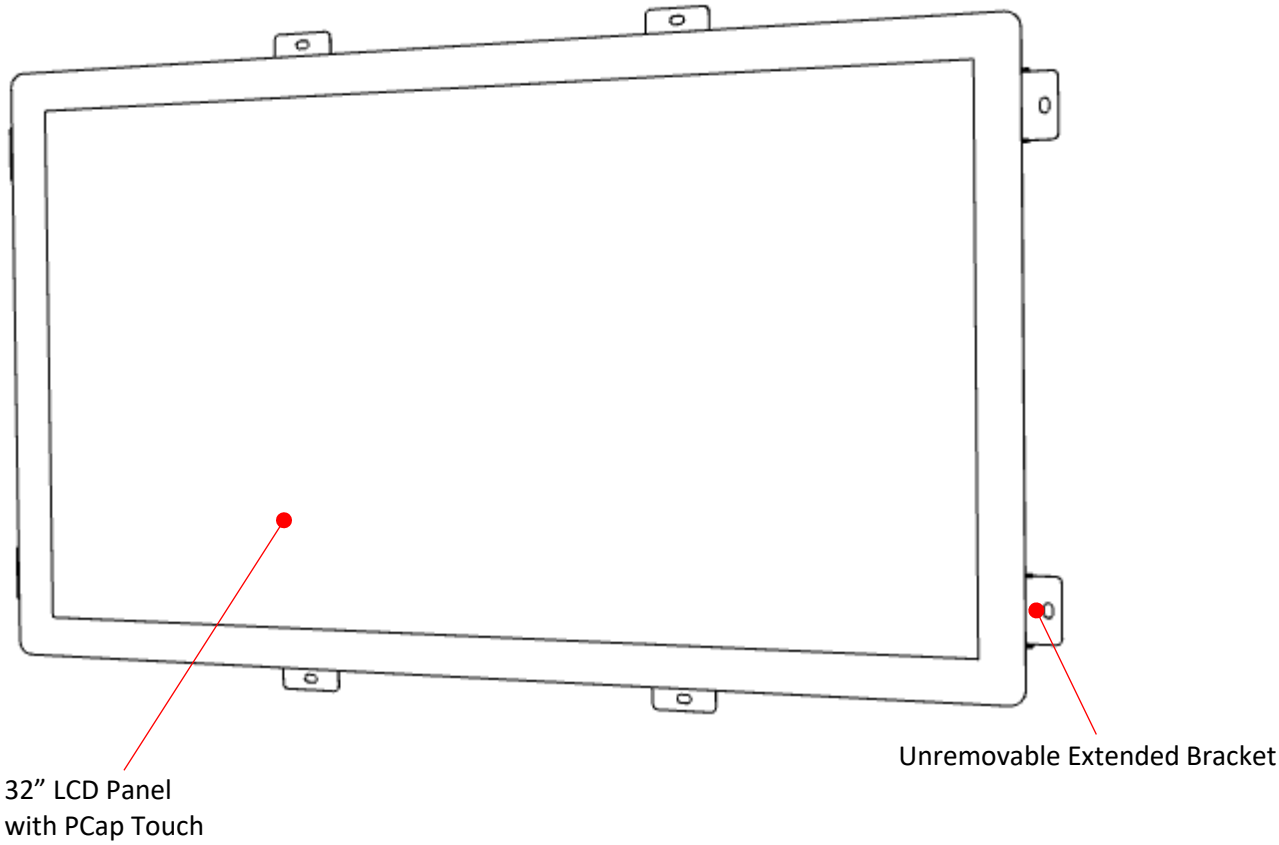


Main Board Coastline I/O Locations

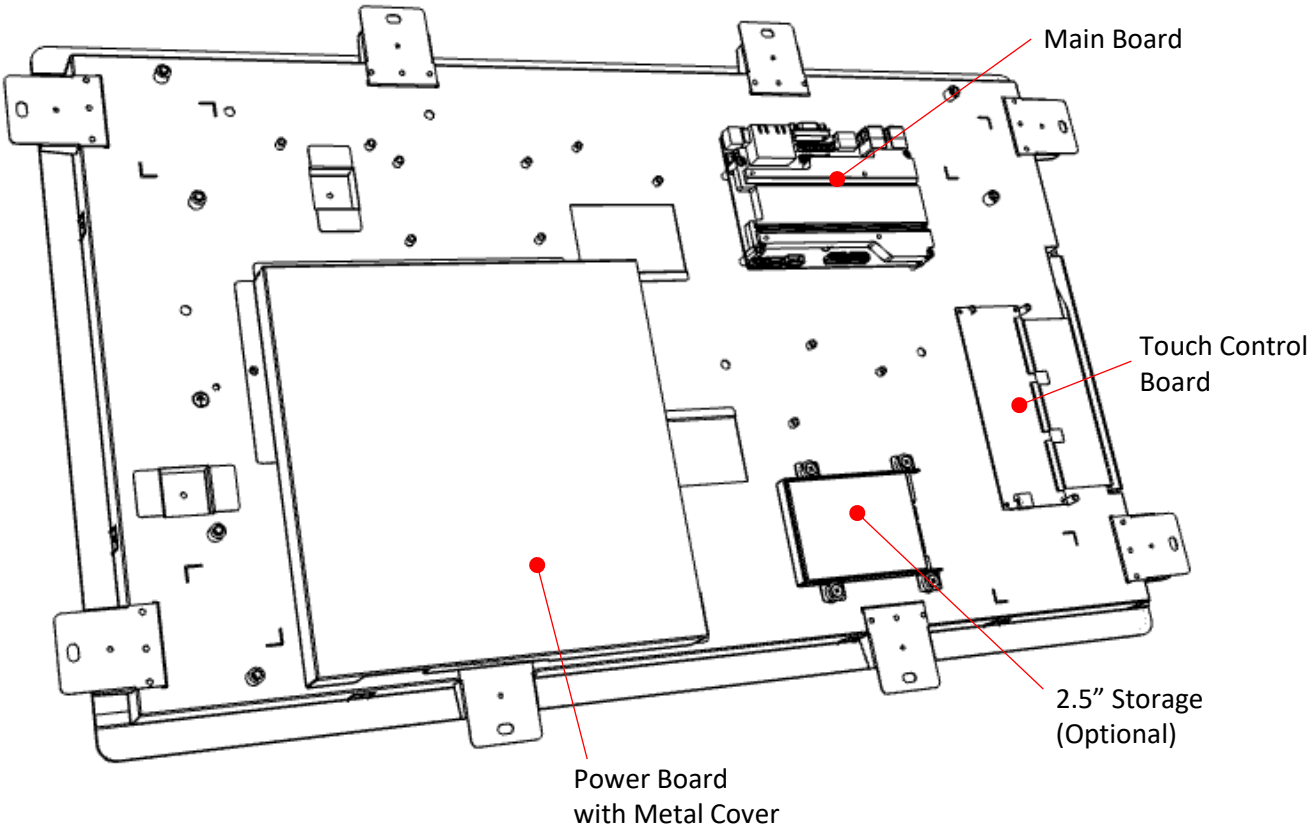


2.1.4 UTC-232

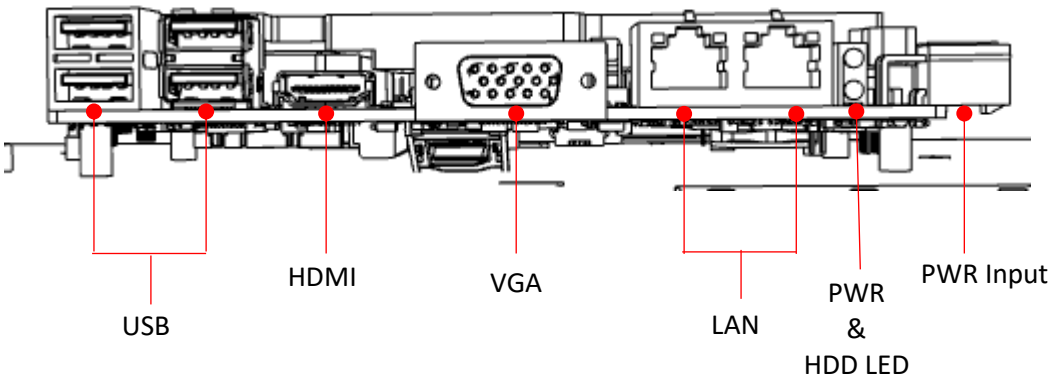
Front View



Rear View

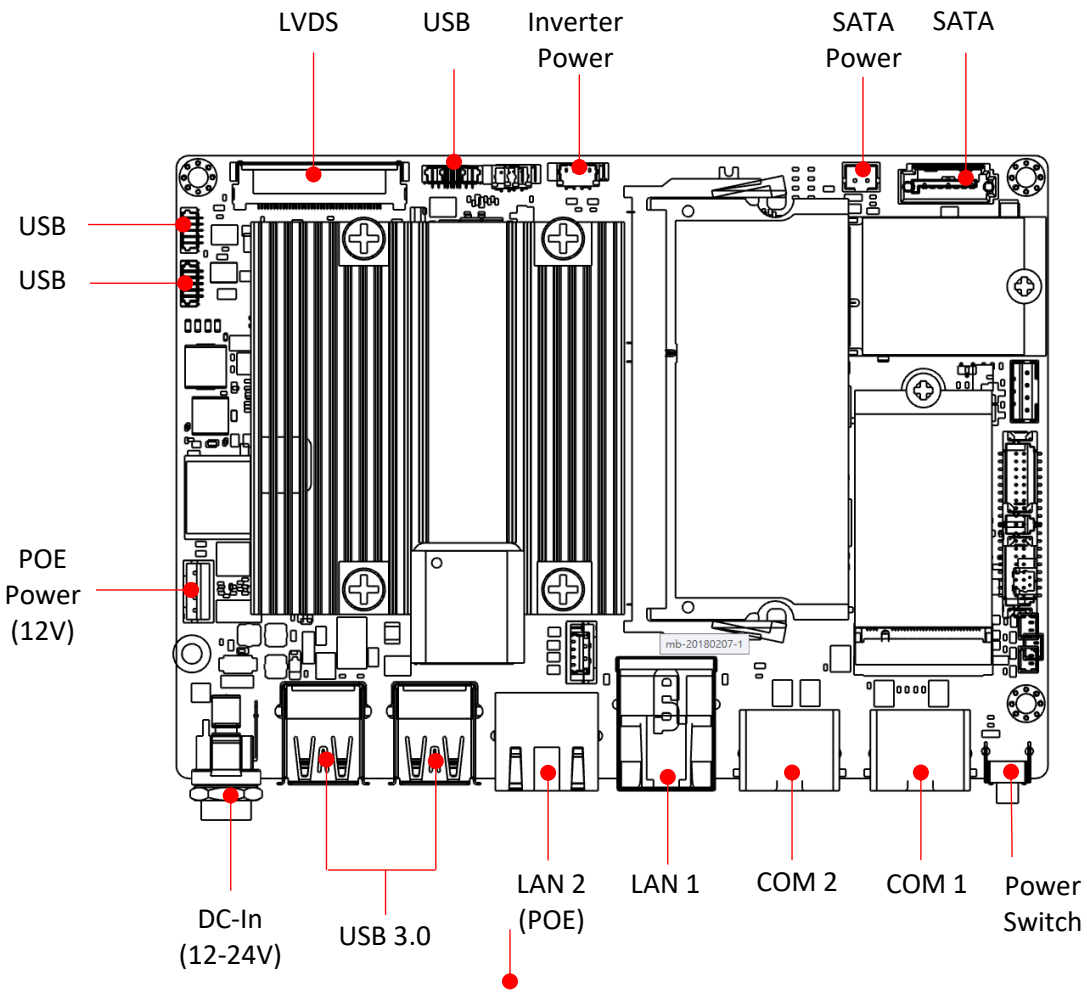


Main Board Coastline I/O Locations

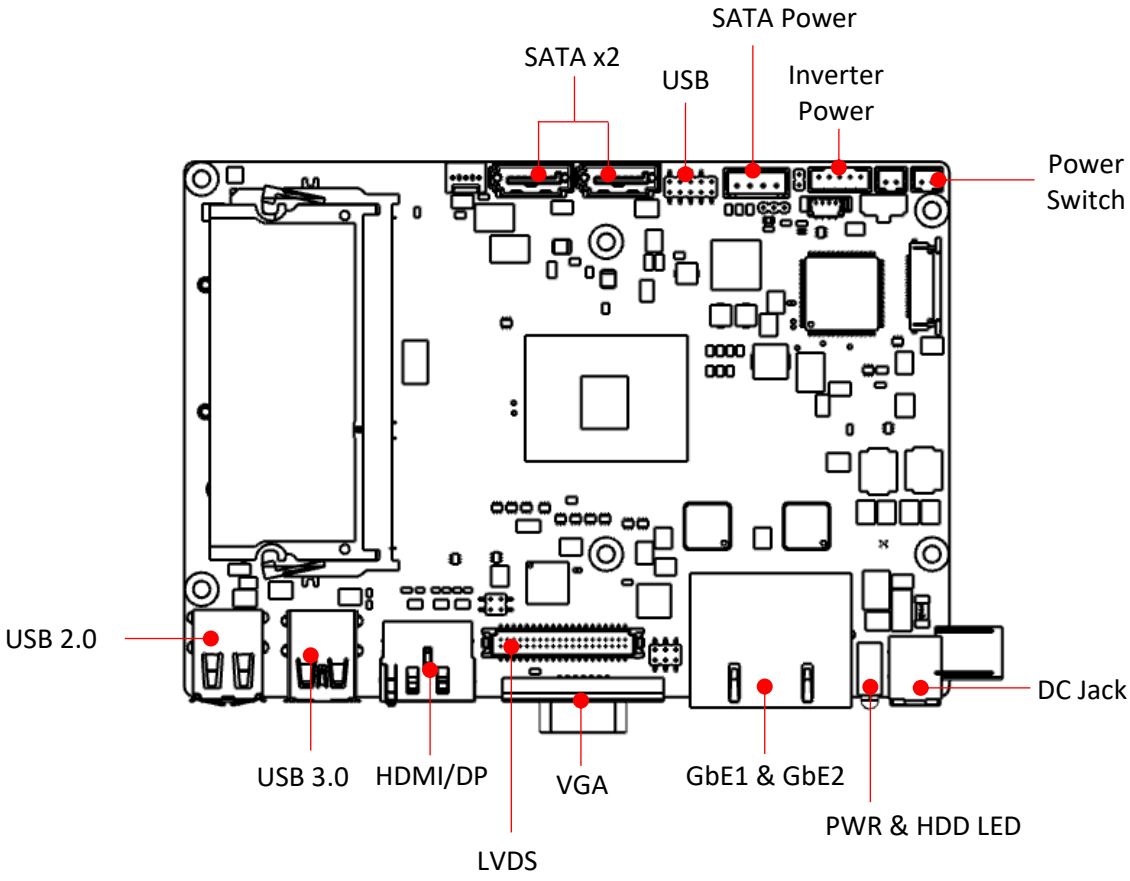


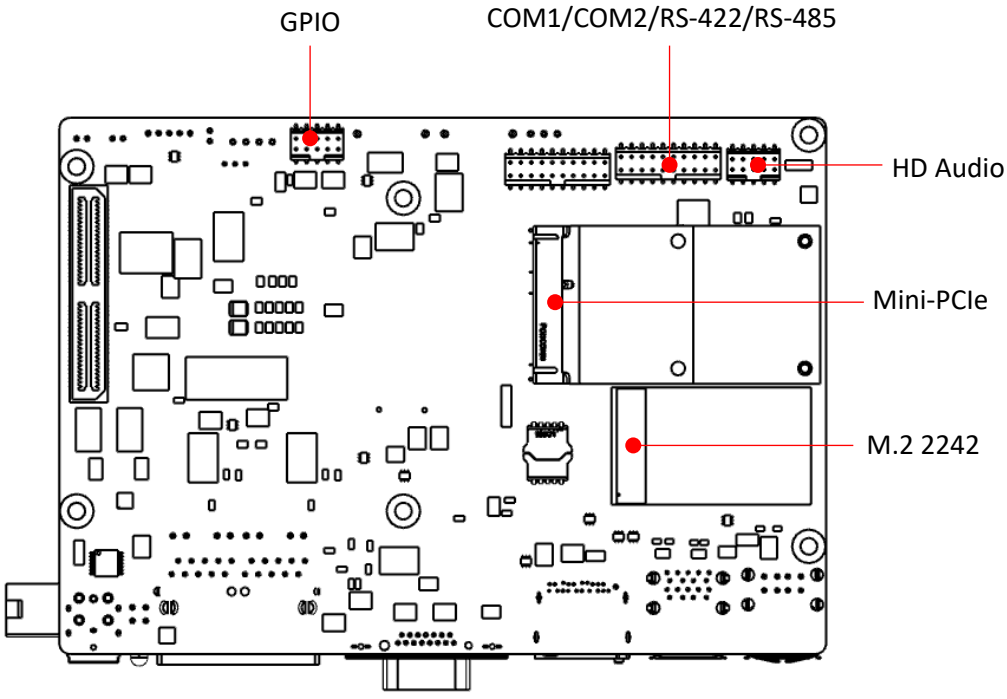
2.2 UTC-200 M/B Onboard Connectors

2.2.1 PCM-8523 Apollolake M/B (For UTC-207G/210G)

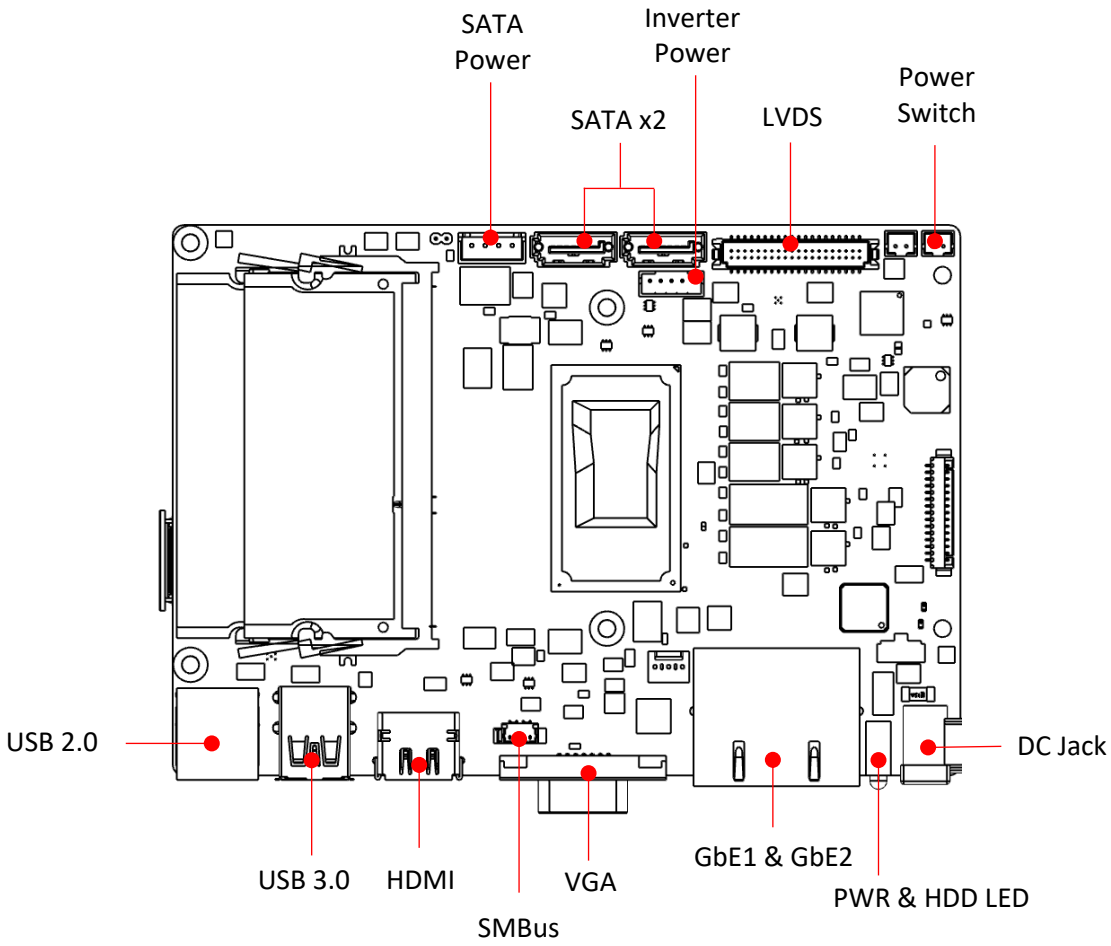


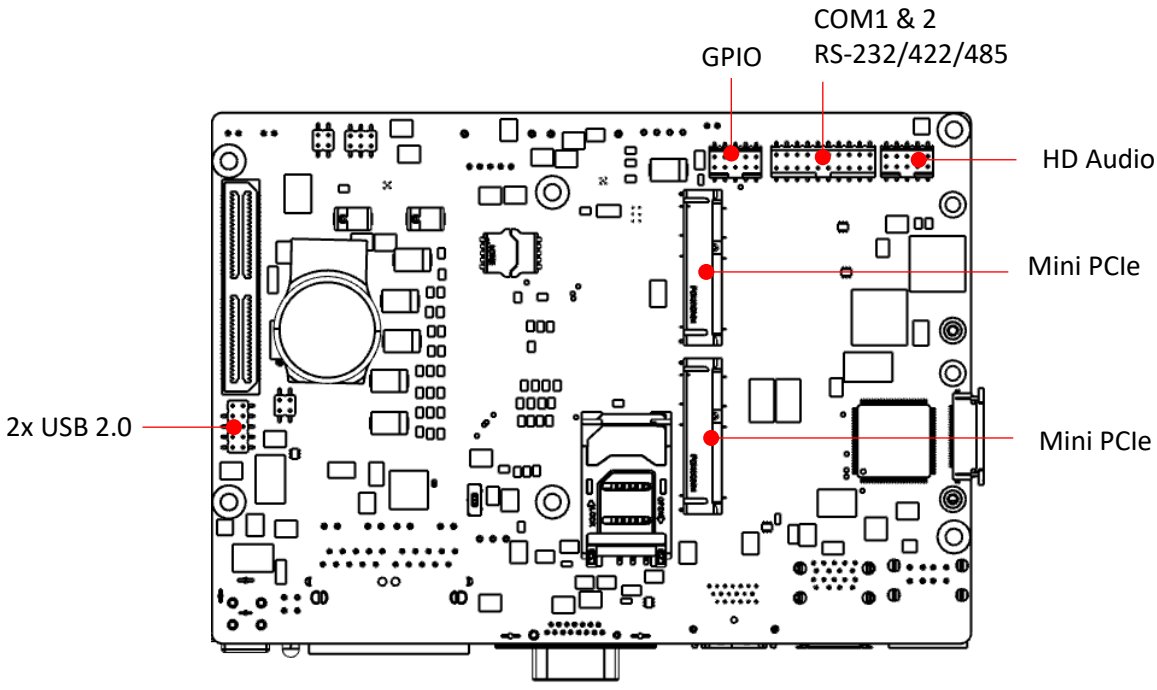
2.2.2 MIO-5350 Apollolake M/B (For UTC-220G/232G)





2.2.3 MIO-5272 Skylake M/B (For UTC-220F/232F)





2.3 Setup Procedure

2.3.1 System Power On

For the UTC-207/210/220 model, connect the system to a power adaptor with 12V/7A input voltage. For the UTC-232 models, connect the system to an AC power cable.
Hold power cords by the plugs ends only. Refer to Section 2.1 for the location of the DC/AC power input and power switch.
Connect the power cord to activate the system.

2.3.2 BIOS Setup

For most UTC series, the system setup and configuration will be completed by the dealer or system integrator prior to delivery. However, users may still need to access the BIOS setup program to adjust the system configuration, such as the date/ time or hard drive type. The setup program is stored in read-only memory (ROM) and can be accessed following system reset or by pressing the “Del” key after powering on the computer. The settings selected in the setup program are recorded in CMOS RAM memory, which is backed up by a battery to ensure the settings are retained after the system is powered off. When booting up, the system compares the settings stored in CMOS RAM with the POST self test results. If a discrepancy is found, an error mes- sage is displayed on screen and users are prompted to run the setup program.

2.3.3 System Software Installation

Recent releases of operating systems from major vendors include setup programs that load automatically and guide users through hard disk preparation and operating system installation. Some distributors and system integrators may have already installed software prior to shipping the product.

Note! *Before software or driver installation, the system must be equipped with additional storage that users must purchase separately.*

2.3.4 Driver Installation

After installing the system software, users can set up the Ethernet, XGA, audio, and touchscreen functions.

Note! *The relevant drivers and utilities are subject to change without notice.*

Download the latest drivers for UTC series products from the Advantech website at http://support.advantech.com or contact our application engineers for further assistance

Chapter 3

Configuration Upgrade

3.1 Introduction

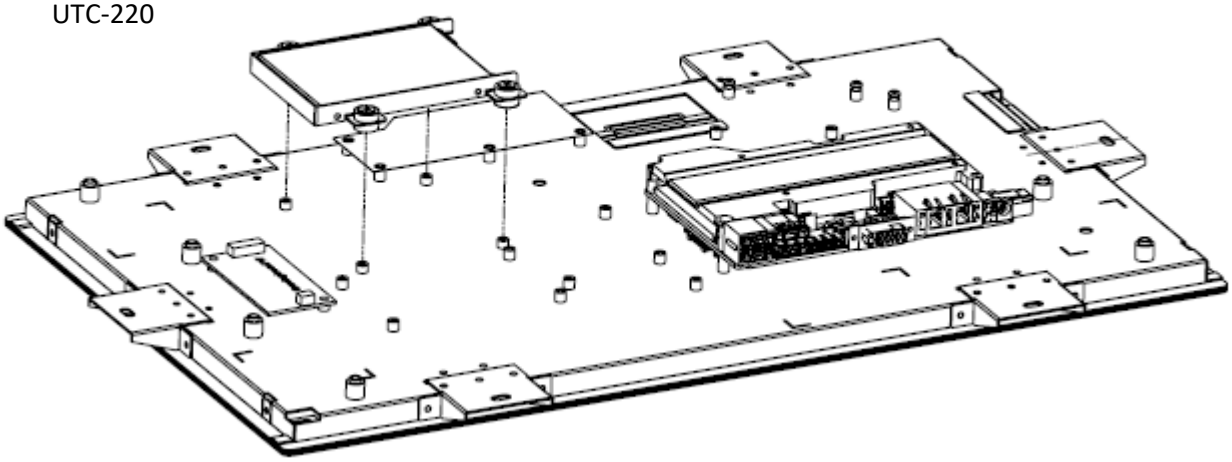
Advantech's UTC series systems are PC-based computers housed in an aluminum enclosure. To perform system maintenance or hardware upgrades, such as installing an HDD, DRAM, or CompactFlash (A/B models only), simply remove the unit's rear cover.

Warning! *Do not remove the rear cover until you have verified that power is not flowing within the device. The system power should be switched off and the power cord unplugged before opening the device enclosure.*

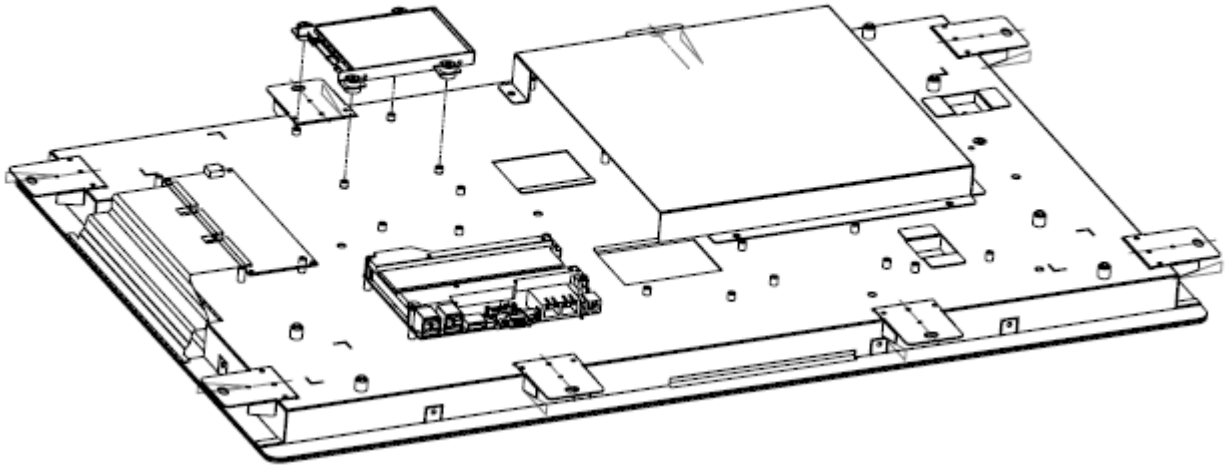
3.2 Installing a 2.5" SATA HDD/SSD(For UTC-220/232)

UTC systems feature a 2.5" SATA HDD bay reserved for customizable storage. To install a 2.5" SATA HDD, follow the steps below.
Insert the SATA HDD into the metal bracket and fasten in place with screws.
Use a power cable to connect the SATA HDD to the power supply unit.
Use a SATA data cable to connect the SATA HDD to the motherboard.
Replace the rear cover and tighten the screws.

UTC-220

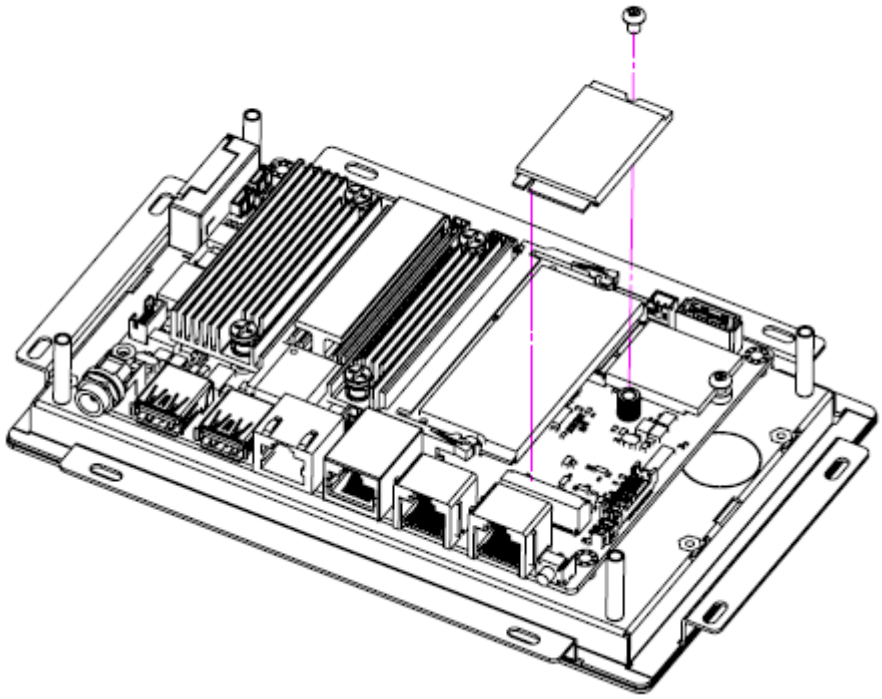


UTC-232



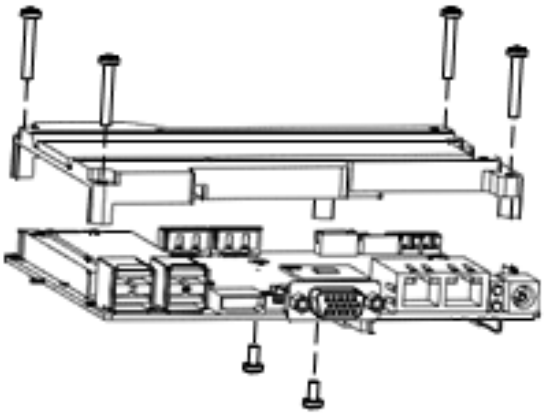
3.3 Installing a M.2 SSD (For UTC-207/210)

Insert the SSD into the M.2 slot located on the upside of the motherboard and fasten the screw.



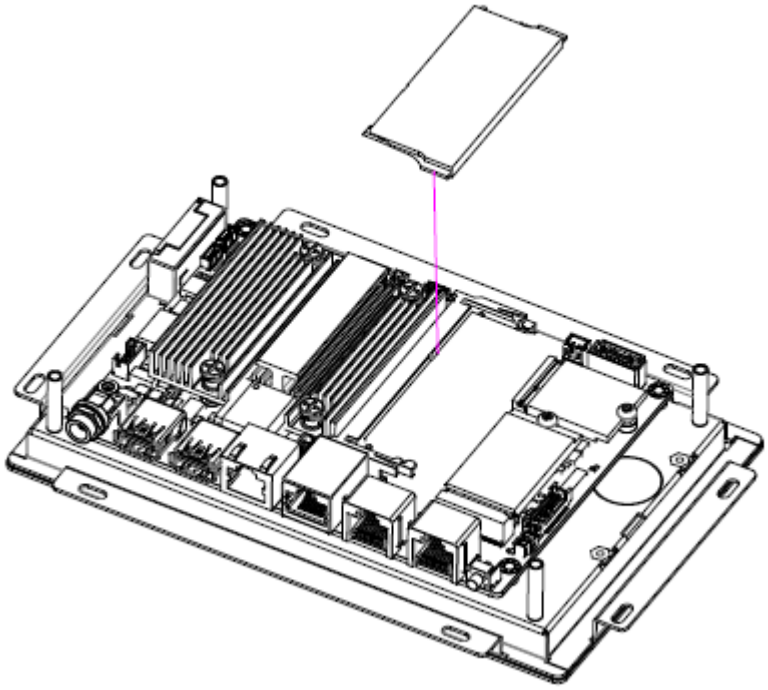
3.4 Installing a Memory Module for UTC-220/232

Remove the 4 screws from the DRAM memory module heatsink.
Turn the memory module over and remove the 2 screws on the underside.
Install the DRAM module into the SODIMM socket.



3.5 Installing a Memory Module for UTC-207/210

Install the DRAM module into the SODIMM socket.

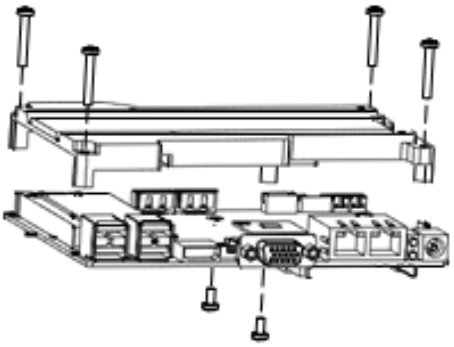


3.6 Installing a WiFi Mini PCIe/M.2 Card (Optional)

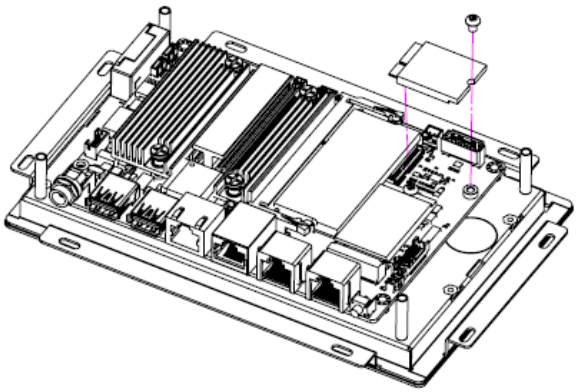
For UTC-220/232, remove the 4 screws holding the heatsink in place.
Insert the WLAN card into the mini PCIe slot located on the underside of the motherboard.
Connect a coaxial cable to ANT1 and ANT2 ports on the WLAN card.
For UTC-207/210, insert the WLAN card into the M.2 slot located on the upside of the motherboard.
Install the antenna on SMA connector on chassis exterior.

Note! *If the motherboard is removed from the chassis and the cables detached and reattached, Pin 1 of the header can be located by aligning the red*

side of the ribbon cable to the edge indicated by a small triangle marking on the PCB.



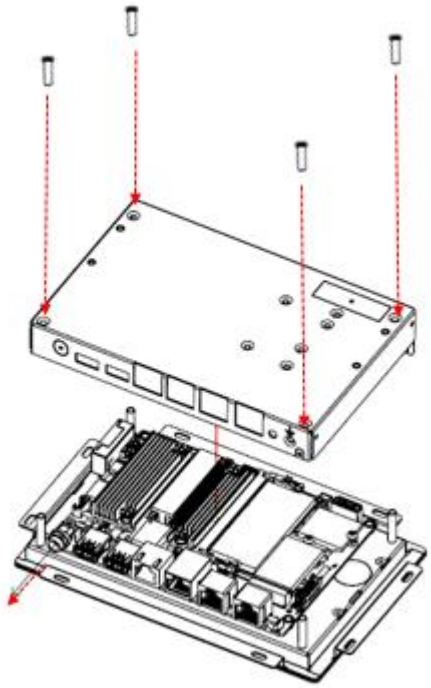
MIO board for UTC-220/232



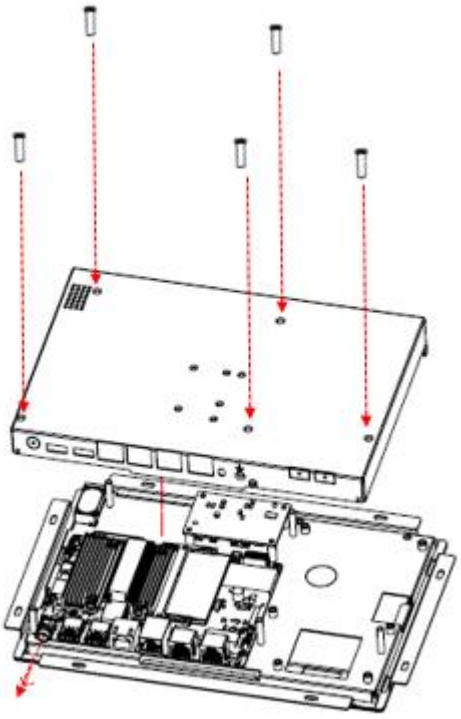
PCM board for UTC-207/210

3.7 Installing a Back Cover for UTC-207/210 (Optional)

For UTC-207/210, could install the optional back cover.
Remove the washer from the DC-in connector and put the cover on the rear side. Fasten the screws at the rear side of the cover.



UTC-207



UTC-210

Chapter 4

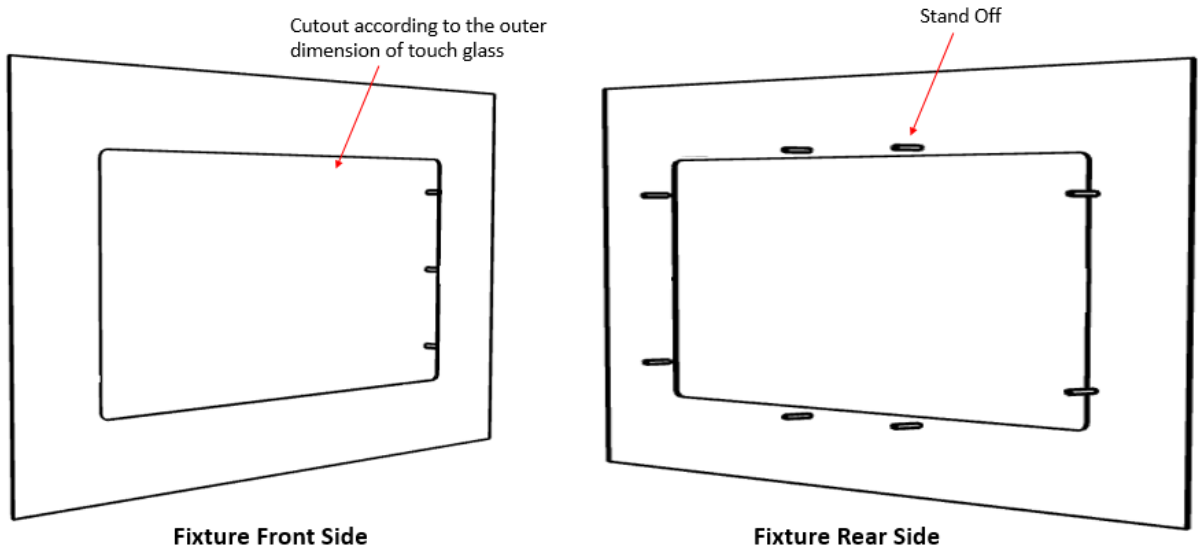
Mounting Guide

4.1 Introduction

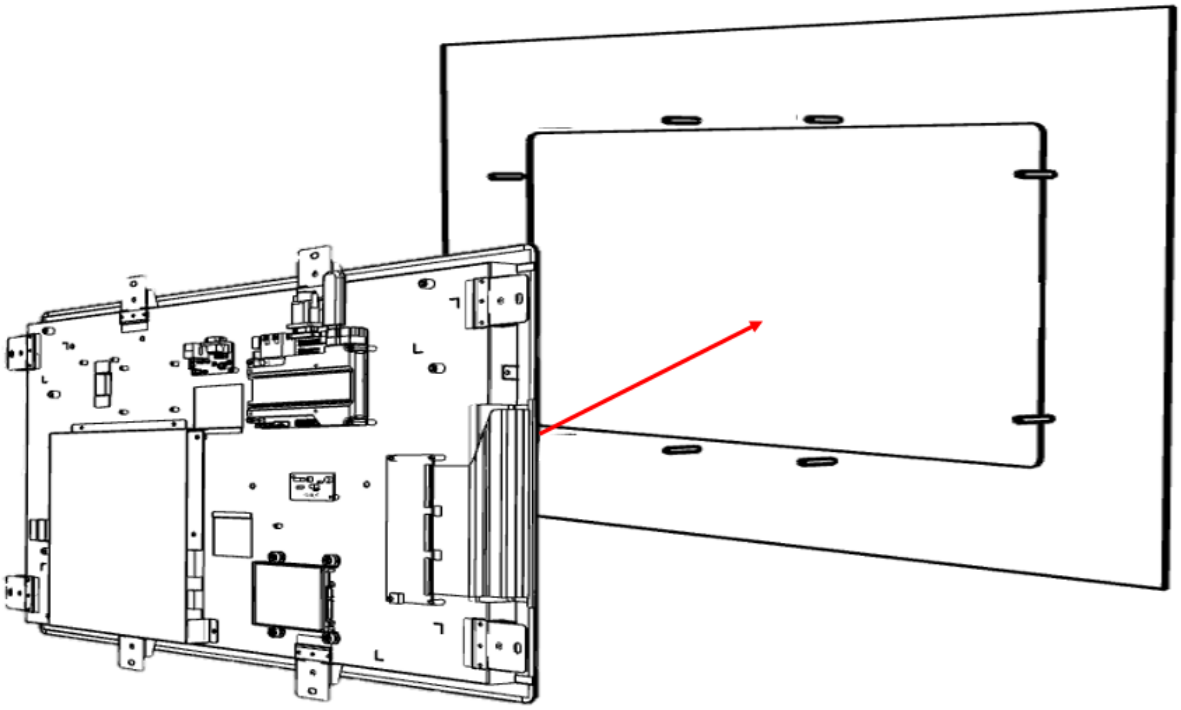
With UTC-200 opened-frame design, it's suitable to be embedded into any type of equipment and chassis with different mounting type.

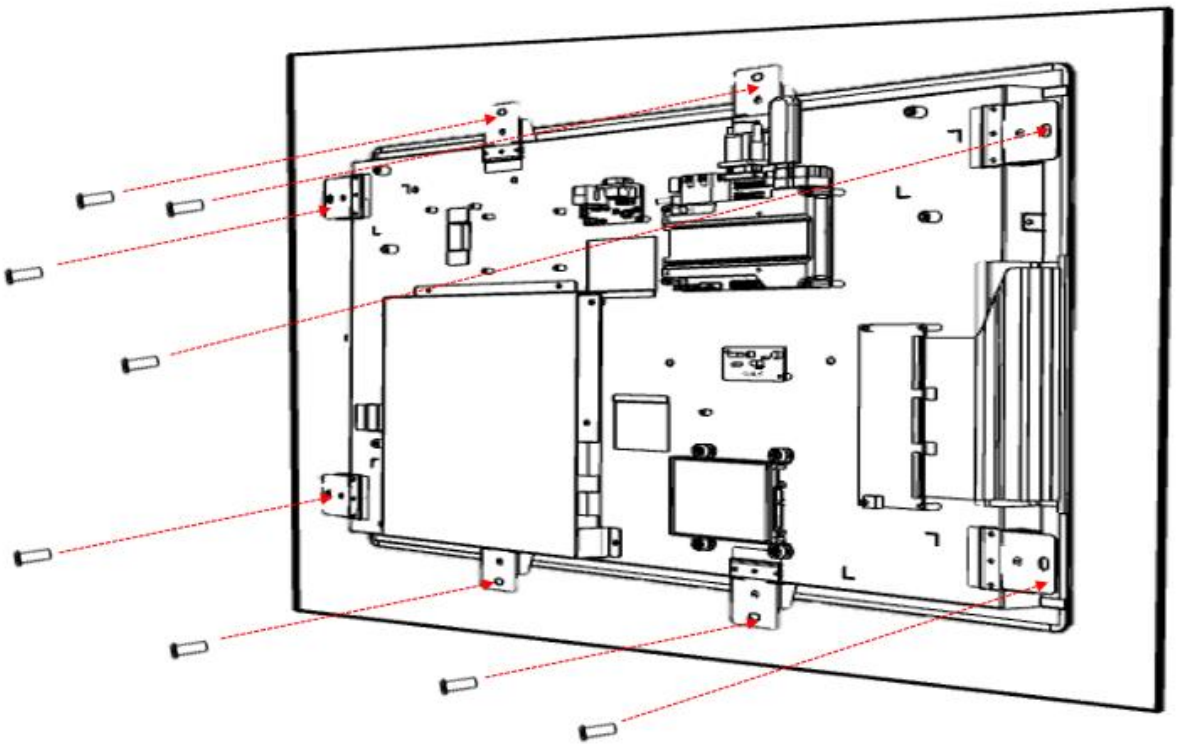
4.2 Rear Mount

Step 1. Make the cutout and add stand off from the rear side of the fixture



Step 2 Place the UTC-2xx from the rear side of the fixture and fasten the screws





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