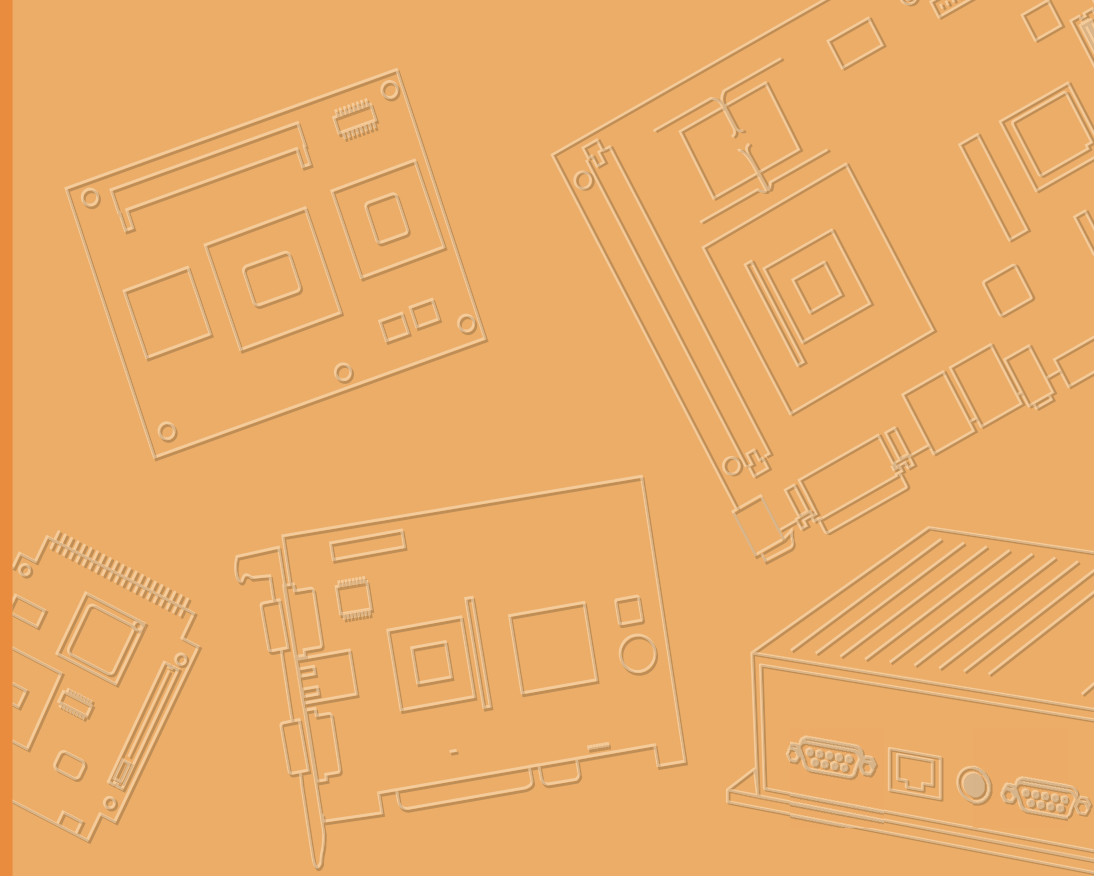


User Manual



# UTC-320

Ubiquitous Touch Computer  
with 21.5" TFT LCD and Intel®  
Processor

**ADVANTECH**

*Enabling an Intelligent Planet*

**VICPAS**  
HMI Parts Center

## Copyright

The documentation and the software included with this product are copyrighted 2021 by Advantech Co., Ltd. All rights are reserved. Advantech Co., Ltd. reserves the right to improve the products described in this manual at any time without notice. No part of this manual may be reproduced, copied, translated, or transmitted in any form or by any means without the prior written permission of Advantech Co., Ltd. The information provided in this manual is intended to be accurate and reliable. However, Advantech Co., Ltd. assumes no responsibility for its use, nor for any infringements of the rights of third parties that may result from its use.

## Acknowledgements

Award is a trademark of Award Software International, Inc. Intel® and Celeron® are trademarks of Intel Corporation.

IBM, PC/AT, PS/2 and VGA are trademarks of International Business Machines Corporation.

Intel® and Pentium® are trademarks of Intel Corporation.

Microsoft Windows® is a registered trademark of Microsoft Corp. RTL is a trademark of Realtek Semiconductor Co., Ltd.

All other product names or trademarks are properties of their respective owners.

For more information about this or other Advantech products, visit our website at <http://www.advantech.com>

For technical support and customer service, visit our support website at <http://support.advantech.com>

This manual is for UTC-320.

# Declaration of Conformity

## FCC Class A

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, users are encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment to an outlet on a circuit that differs from the one to which the receiver is connected.
- Consult your dealer or an experienced radio/TV technician for assistance.

**Warning!** *Any changes or modifications to the equipment that are not expressly approved by the relevant standards authority may void your authority to operate the equipment.*



- Replacement of a BATTERY with an incorrect type that can defeat a SAFE-GUARD (for example, in the case of some lithium BATTERY types).
- Disposal of a BATTERY into fire or a hot oven, or mechanically crushing or cutting of a BATTERY, that can result in an explosion.
- Ensure to connect the power cord to a socket-outlet with earthing connection.

## Packing List

Before setting up the product, please ensure that the following items were included:

- 1 x UTC-320
- Accessories for UTC-320
  - 1 x Warranty card
  - 1 x Power adapter
  - 1 x SATA cable
  - 1 x 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

## Safety Instructions

1. Read these safety instructions carefully.
2. Retain this user manual for future reference.
3. Disconnect the equipment from all power 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 it fall may cause damage.
7. The openings on the enclosure are for air convection. Protect the equipment from overheating. Do not cover the openings.
8. Ensure that the voltage of the power source 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 the equipment is not used for a long time, disconnect it from the power source to avoid damage from transient overvoltage.
12. Never pour liquid into an opening in the device. 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 service personnel:
  - The power cord or plug is damaged.
  - Liquid has penetrated into the equipment.
  - The equipment has been exposed to moisture.
  - The equipment does not work well, or you cannot get it to work according to the user's manual.
  - The equipment has been dropped and damaged.
  - The equipment has obvious signs of breakage.
15. Do not leave the equipment in an environment with a storage temperature of below -20 °C (-4 °F) or above 60 °C (140 °F) as this may damage the components. The equipment should be kept in a controlled environment.
16. **CAUTION:** Batteries are at risk of exploding if incorrectly replaced. Replace only with the same or equivalent type, as recommended by the manufacturer. Discard used batteries according to the manufacturer's instructions.
17. In accordance with IEC 704-1:1982, the sound pressure level at the operator's position does not exceed 70 dB (A).

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



# Contents

<b>Chapter 1</b>	<b>General Information .....</b>	<b>1</b>
1.1	Introduction .....	2
1.2	General Specifications .....	2
1.2.1	General .....	2
1.2.2	Standard PC Functions .....	2
1.2.3	Audio Function .....	3
1.2.4	LAN Function .....	3
1.2.5	Touchscreen (Optional) .....	3
1.2.6	Environment .....	3
1.3	LCD Specifications .....	4
1.4	Optional Modules .....	5
1.5	Dimensions .....	6
	Figure 1.1 UTC-320 System Dimensions .....	6
<b>Chapter 2</b>	<b>System Setup .....</b>	<b>7</b>
2.1	Quick Tour .....	8
	Figure 2.1 UTC-320 Front View .....	8
	Figure 2.2 UTC-320 Rear View .....	8
2.2	Installation Procedures .....	10
2.2.1	Connecting the Power Cord .....	10
2.2.2	Connecting a Keyboard or Mouse .....	10
2.2.3	Switching on the Power Supply .....	10
	Figure 2.3 Power Cord to DC Input .....	10
2.3	BIOS Setup .....	11
2.4	Software Installation .....	13
2.4.1	Method 1: Ethernet .....	13
2.4.2	Method 2: External USB CD-ROM .....	13
2.5	Driver Installation .....	13
<b>Chapter 3</b>	<b>Hardware Installation and Upgrades ...</b>	<b>15</b>
3.1	Introduction .....	16
3.2	HDD Installation .....	16
	Figure 3.1 Installing Primary 2.5" HDD .....	16
3.3	mSATA/m.2 Installation .....	17
	Figure 3.2 Installing an mSATA/m.2 Card .....	17
3.4	WLAN Installation .....	18
<b>Chapter 4</b>	<b>Jumper and Connector Settings .....</b>	<b>21</b>
4.1	Jumpers and Connectors .....	22
4.1.1	Jumper Configuration .....	22
4.1.2	Jumper and Connector Functions .....	23
	Table 4.1: Jumper and Connector Functions .....	23
4.1.3	Jumper and Connector Locations .....	24
4.2	Jumpers .....	27
4.2.1	Jumper List .....	27
	Table 4.2: Jumper List .....	27
4.2.2	Jumper Settings .....	27

Table 4.3: P1(D),JP3(EF):LCD POWER .....	27
Table 4.4: JP1(H):PWM POWER.....	27
Table 4.5: JP2(H):BKLT Enable POWER .....	28
Table 4.6: JP3(D),JP6(E),JP5(F),JP4(G):Clear CMOS.....	28
Table 4.7: JP5(H):Clear CMOS .....	28
Table 4.8: JP4(H):TS POWER .....	29
Table 4.9: JP4(D),JP5(EG),JP7(F),JP8(H):AT/ATX POWER SEL 29	
Table 4.10: CN17(D):COM1 Ring .....	29
Table 4.11: CN9(EF),CN14(G),CN18(H):COM1,COM2 Ring .....	30
Table 4.12: JCASH1: CASH DRAWER POWER SEL .....	30
Table 4.13: CN10: CSAFE Power .....	30

## Appendix A I/O Pin Assignments ..... 31

A.1	Pin Assignments .....	32
	Table A.1: CN1(DE),CN2(FGH):Back Light.....	32
	Table A.2: CN3(D):Internal USB.....	32
	Table A.3: CN38(H),CN39(H):Internal USB.....	33
	Table A.4: CN4(DEFG):LVDS .....	33
	Table A.5: LVDS1(H):LVDS.....	35
	Table A.6: CN5(D),CN3(EF),CN9(H):eDP .....	37
	Table A.7: CN3(G) eDP .....	38
	Table A.8: CN11(DF),CN10(G) VGA .....	39
	Table A.9: SATA(DEFG):SATA .....	39
	Table A.10:SATA1(H):SATA.....	40
	Table A.11:CN7(D),CN3(EFG),CN25(H):SATA POWER .....	40
	Table A.12:CN23(H):SATA LED .....	41
	Table A.13:CN8(D),CN5(G):Internal USB .....	41
	Table A.14:CN9(D),CN6(EG),CN26(F),CN41(H):Touch .....	42
	Table A.15:CN13(D),DIMM(EG):DDR3L SODIMM .....	42
	Table A.16:DIMM(F),CN1(H):DDR4 SODIMM .....	42
	Table A.17:MINIPCIE1(DEF):MINIPCIE.....	43
	Table A.18:MSATA1(DEFG):MSATA .....	45
	Table A.19:CN14(D),CN10(F),CN7(GH):COM4 .....	47
	Table A.20:CN15(D) , CN12(F),CN9(G),CN96(H):COM3 .....	47
	Table A.21:CN11(E):CSAFE .....	48
	Table A.22:CN16(D),CN13(E),CN14(F),CN11(G),CN44(H):COM2 48	
	Table A.23:CN18(D),CN14(E),CN15(F),CN13(GH):COM1 .....	49
	Table A.24:CN21(D),CN16(EF),CN23(G),CN45(H):Power on Switch .....	49
	Table A.25:CN22(D),CN15(E),CN16(FG),CN168(H):SPEAKER	50
	Table A.26:M.2_1(G):M.2_2230 .....	50
	Table A.27:CN16(H):M.2_2230 .....	52
	Table A.28:M2M1(H):M.2_2280 .....	53
	Table A.29:CN23(D),CN17(EFG):LAN1/LAN2 .....	54
	Table A.30:CN11(H):LAN1/LAN2 .....	54
	Table A.31:CN19(EF),CN21(G):External USB .....	55
	Table A.32:CN20(EF),CN22(G):External USB .....	56
	Table A.33:CN24,CN25 (D),CN18(EF),CN20(G):External USB	57
	Table A.34:CN26(D):External USB.....	58
	Table A.35:CN170(H),CN169(H),CN43(H):External USB .....	59
	Table A.36:CN27(D),CN21(E),CN22(F),CN25(G),CN66(H):Line- out .....	60
	Table A.37:CN28(D),CN22(E),CN21(F),CN24(GH):MIC-IN .....	60
	Table A.38:CN30(D),CN24(EF),CN27(G),CN15(H):HDMI .....	61
	Table A.39:CN42(H):DP .....	62
	Table A.40:CN31(DG),CN25(EF),DCIN1(H):DC-IN .....	63



Table A.41:CN29(D),CN23(EF),CN26(G):RJ11 .....	63
Table A.42:BUTTON:Power Button .....	64
Table A.43:CN45(H):Power Button.....	64
Table A.44:SW5(H):Power Button .....	64



# Chapter 1

## General Information

This chapter provides general information about UTC-320.

- Introduction
- General Specifications
- LCD Specifications
- Dimensions

## 1.1 Introduction

UTC-320 is a multi-purpose all-in-one computing system equipped with a wide format, touch-based LCD panel. The system can be easily integrated with key peripherals and display systems for diverse self-service and interactive signage applications. Moreover, with the provision of a removable frame, UTC-320 can also be wall or panel mounted for control applications.

## 1.2 General Specifications

### 1.2.1 General

- **Dimensions (L x H x D):** 520.2 x 316.1 x 45.9 mm/20.4 x 12.44 x 1.8 in
- **Weight:** 6.5 kg/14.3 lb
- **Power adaptor:** AC/DC (standard) 12 V, 84 W  
Input voltage: 100 ~ 240 V<sub>AC</sub>  
Output voltage: 12 V @ 7 A
- **Disk drive housing:** Supports 1 x 2.5" SATA HDD
- **Front panel:** IP65 rating for protection from water and dust

### 1.2.2 Standard PC Functions

- **CPU:**
  - Intel® Core™ i5-4300U (UTC-320E)/ Core™ i5-6300U (UTC-320F) with 3 MB L3 cache/ Core™ i5-8365UE (UTC-320H) L3 Cache 3MB
  - Intel® Celeron® J1900 (UTC-320D)/ Pentium® N4200 (UTC-320G) with 2 MB L2 cache
- **BIOS:** AMI 16 MB Flash BIOS via SPI
- **System chipset:** Intel®Core™ i5-8365UE/ Core™ i5-6300/ Core™ i5-4300U/ Pentium® N4200/ Celeron® J1900
- **System memory:**
  - 1 x 204-pin SODIMM DDR3L 1333 MHz up to 8 GB (UTC-320D/E)
  - 1 x 260-pin SODIMM DDR4 2133 MHz up to 16 GB (UTC-320F)
  - 1 x 204-pin SODIMM DDR3L 1866 MHz up to 8 GB (UTC-320G)
  - 1 x 260pin SO-DIMM DDR4 2400 MHZ up to 32GB (UTC-320H)
- **Serial ports:** 1 x RS-232 COM, 1 x RS-232/422/485
- **USB ports:**
  - Supports up to 5 x USB 2.0/1X USB 3.0 (UTC-320D)
  - Supports up to 2 x USB 2.0/4 x USB 3.0 (UTC-320E/F/G)
  - Supports up to 6 x USB 3.1 (UTC-320H)
- **Bus Expansion slot::**
  - Full-size MiniPCIe (UTC-320D/E/F)
  - Full-size MiniPCIe for mSATA (UTC-320D/E/F/G)
  - M.2 2230 for Wireless LAN card (UTC-320G)
  - M.2 2230 for Wireless LAN card (UTC-320G/H)
  - M.2 2242/M.2 2280 for NVMe storage (UTC-320H)
- **Watchdog timer:** Single-chip 255-level interval timer, setup via software
- **Power management:** Full ACPI (Advanced Configuration and Power Interface) 2.0 Supports S0, S1, S3,S4, S5

### 1.2.3 Audio Function

- **Audio:** High-definition (HD) audio, 2 x (2 W) speakers
- Optional - Audio output function

### 1.2.4 LAN Function

- **Chipset:**
  - LAN1 Intel® I218LM, LAN2 Intel® WGI211AT (UTC-320E)
  - LAN1 Intel® I219LM, LAN2 Intel® WGI211AT (UTC-320F/H)
  - LAN1 Intel® WGI211AT, LAN2 Intel® WGI211AT (UTC-320D/G)
- **Speed:** 1000 Mbps
- **Interface:** 2 x RJ45
- **Wake-on-LAN:** Supports Wake-on-LAN with ATX power control, also supports LAN teaming (in fault tolerance)

### 1.2.5 Touchscreen (Optional)

Type	5-wire analog resistive (resistive flat glass)/Projected capacitive touch (PCAP flat glass)
Light Transmission	80%
Controller	USB interface
Durability (touches in a lifetime)	36 million

### 1.2.6 Environment

- **Operating temperature:** 0 ~ 40 °C (32 ~ 104 °F)
- **Storage temperature:** -20 ~ 60° C (-4 ~ 140 °F)
- **Relative humidity:** 10 ~ 90% @ 40 °C (non-condensing)
- **Shock:** 10 G peak acceleration (11 ms duration)
- **Certification:**  
EMC: CE, FCC, BSMI, VCCI  
Safety: UL, CB, CCC, BSMI
- **Vibration:** 5 ~ 500 Hz 0.5 Grms random vibration
- **VESA support:** 100 x 100 mm (3.93 x 3.93 in) with 8 x M4 screws; supports landscape and portrait modes .

**Caution!** Use suitable mounting apparatus to avoid personal injury.



**Note!** Follow the instructions provided in the user manual to install UTC-320.





### 1.3 LCD Specifications

- **Display type:** 21.5" TFT LCD
- **Max. resolution:** 1920 x 1080
- **Colors:** 16.7 M
- **Pixel pitch (H x V):** 248.25 x 248.25 um
- **View angle:** 178°/178°
- **Luminance:** 250 cd/m<sup>2</sup>

**Note!** *The UTC-320 color LCD is high quality and reliable. However, it may contain a few defective pixels that do not always illuminate. With current technology, it is impossible to completely eliminate defective pixels. Advantech is actively working to improve this technology.*



## 1.4 Optional Modules

- **Memory:**
  - 1 x 204-pin SODIMM DDR3L 1333 MHz up to 8 GB (UTC-320D/E)
  - 1 x 260-pin SODIMM DDR4 2133 MHz up to 16 GB (UTC-320F)
  - 1 x 204-pin SODIMM DDR3L 1866 MHz up to 8GB (UTC-320G)
  - 1 x 260pin SO-DIMM DDR4 2400 MHZ up to 32GB (UTC-320H)
- **Operating system:**
  - WES 7P (32 bit) (UTC-320D/F)
  - WES 7E (32 bit) (UTC-320D/F)
  - Windows Pro Embedded 7 SP1 (64 bit) (UTC-320D/F)
  - WE8S (64 bit) UTC-320D/F
  - Windows Embedded 8.1 Industry Pro (64 bit)
  - Windows 10 IoT Enterprise (64 bit)
  - Linux (UTC-320D/E/F/G/H)
  - Android 6.0 (only UTC-320D)
  - Android 10.0 (only UTC-320G)
- **Touchscreen:** Analog Resistive 5-wires (Res. Flat Glass) / Projected Capacitive Touch Panel (Pcap. Flat Glass)
- **Power cord:** 1702002600 (US) 1702002605 (Europe)
- **Wireless LAN module:**

Part Number	Description
EWM-W157H01E (UTC-320D/E/F)	802.11 a/b/g/n/ac,RTL8821AE, with BT4.0
1750008953-01 (UTC-320D/E/F)	Metal antenna D.B 2.4+5G WLAN MHF1/113 BLK L350
EWM-W163M201E (UTC-320G/H)	802.11 a/b/g/n/ac,QCA6174A,2T2R,w/BT4.1,M.2
1750008954-01 (UTC-320G/H)	Metal antenna D.B 2.4+5G WLAN MHF4/113 BLK L350

# 1.5 Dimensions

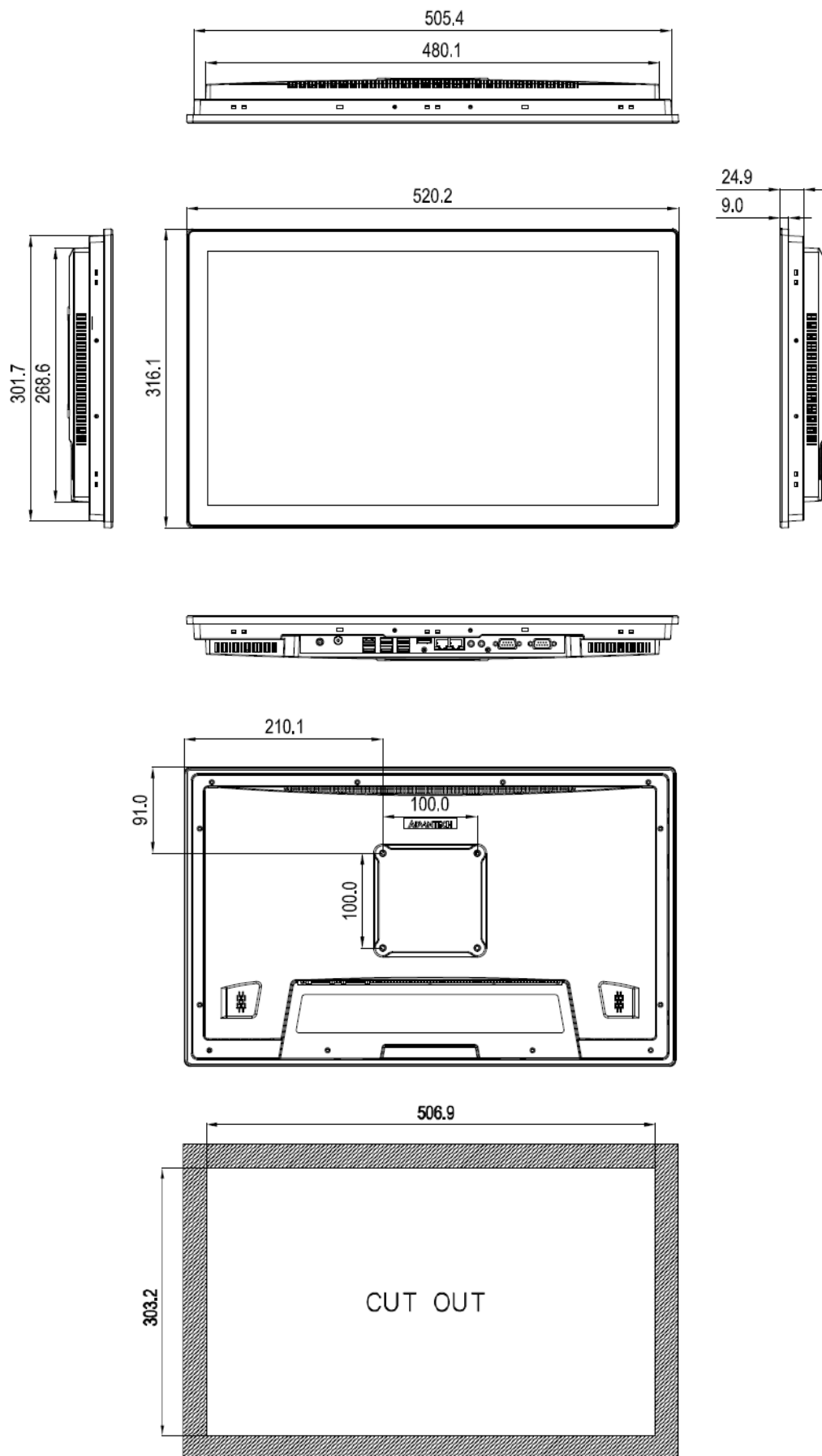


Figure 1.1 UTC-320 System Dimensions



# Chapter 2

## System Setup

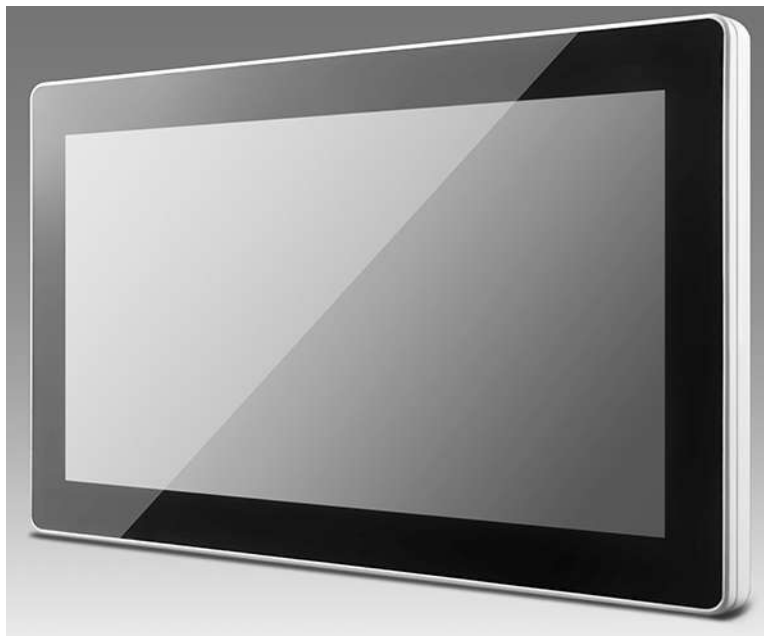
This chapter explains the initial setup of UTC-320.

- Quick Tour
- Installation Procedures
- BIOS Setup
- Software Installation
- Driver Installation

## 2.1 Quick Tour

Before setting up UTC-320, take a moment to familiarize yourself with the locations and purposes of the controls, drives, connectors, and ports (as shown in the figures below).

When UTC-320 is placed upright on a desk top, the front panel should appear as shown in Figure 2.1.



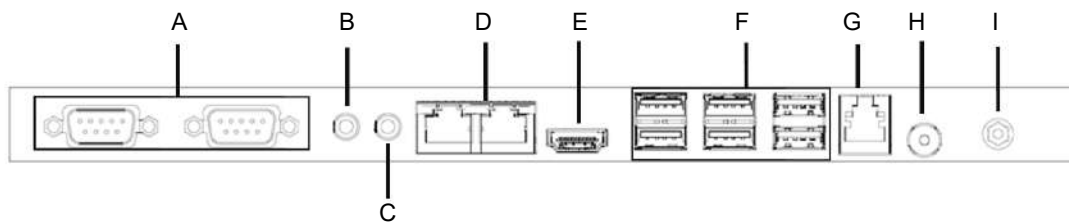
**Figure 2.1 UTC-320 Front View**

Located at the rear of UTC-320 is an I/O section that includes serial ports, Ethernet ports, USB ports, HDMI ports, Line-Out/Mic-In, RJ11, DC-In, and a power button. The rear view of UTC-320 is shown in Figure 2.2.



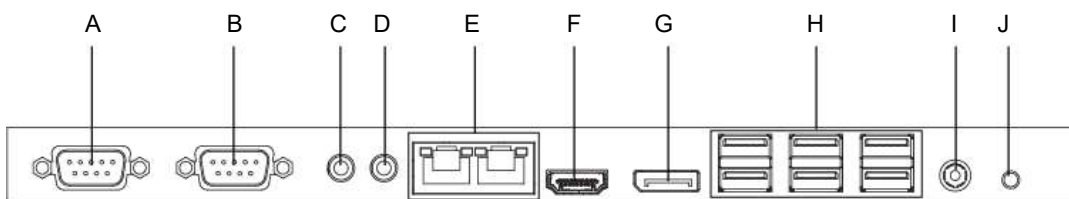
**Figure 2.2 UTC-320 Rear View**

### UTC-320D/E/F/G I/O Port



- A. COM port
- B. Line-Out (Mic-in UTC-320G)
- C. Mic-In (Line-out UTC-320G)
- D. 2 x Gigabit LAN
- E. HDMI/VGA
- F. 4 x USB 3.0, 2 x USB 2.0 (Core™ and Pentium®)  
5 x USB 2.0, 1 x USB 3.0 (Celeron®)
- G. RJ11 (optional)
- H. Power button
- I. DC-In

### UTC-320H Port



- A. COM1
- B. COM2
- C. Mic-In
- D. Line-out
- E. LAN ports x 2
- F. HDMI
- G. DP
- H. USB 3.1 x 6
- I. DC input 12-30 V
- J. Power button

## 2.2 Installation Procedures

### 2.2.1 Connecting the Power Cord

UTC-320 can be powered by a DC electrical outlet. Hold only the plug ends when handling power cords. Figure 2.3 shows how to connect the male plug of the power cord to the DC inlet of UTC-320.

### 2.2.2 Connecting a Keyboard or Mouse

Before you start the computer, please connect keyboard port on the I/O section of the UTC-320.

### 2.2.3 Switching on the Power Supply

When you look at the rear side of the UTC-320, you will see the power switch as shown in Figure 2.3.



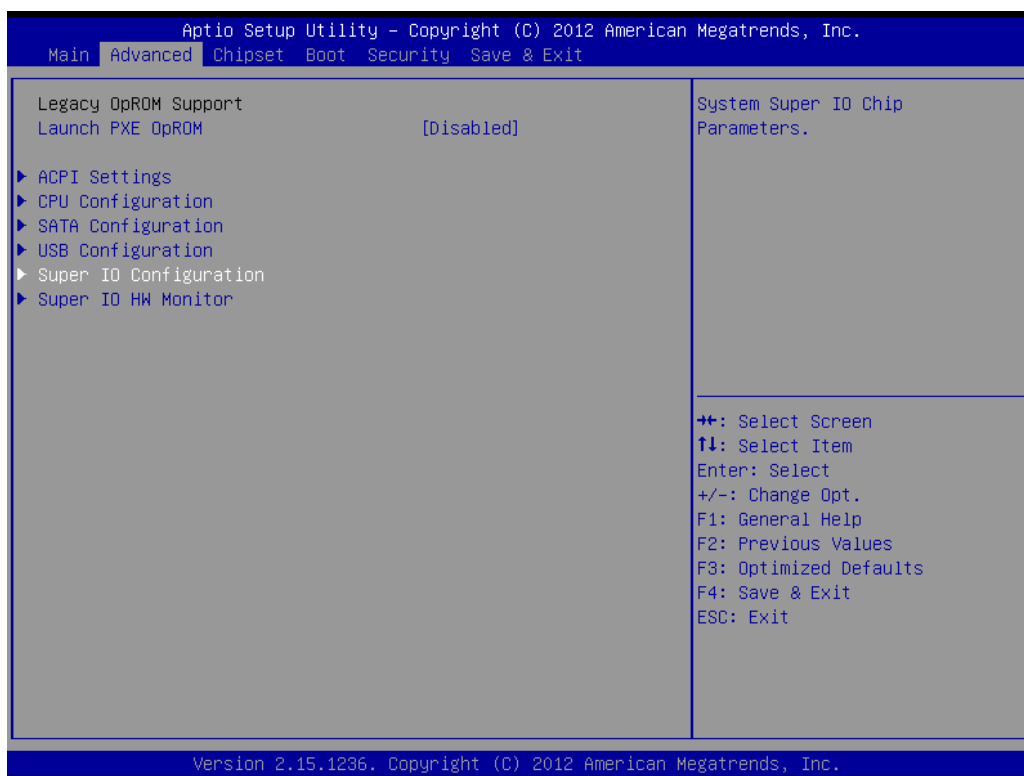
**Figure 2.3 Power Cord to DC Input**

## 2.3 BIOS Setup

The UTC-320 system is likely to have been setup and configured by your dealer prior to delivery. However, users may still find it necessary to use the UTC-320 BIOS setup program to adjust the system configuration data, such as the current date/time or hard drive type. The setup program is stored in read-only memory (ROM) and can be accessed when powering on or rebooting the system. Simply pressing the “Del” key immediately after system bootup.

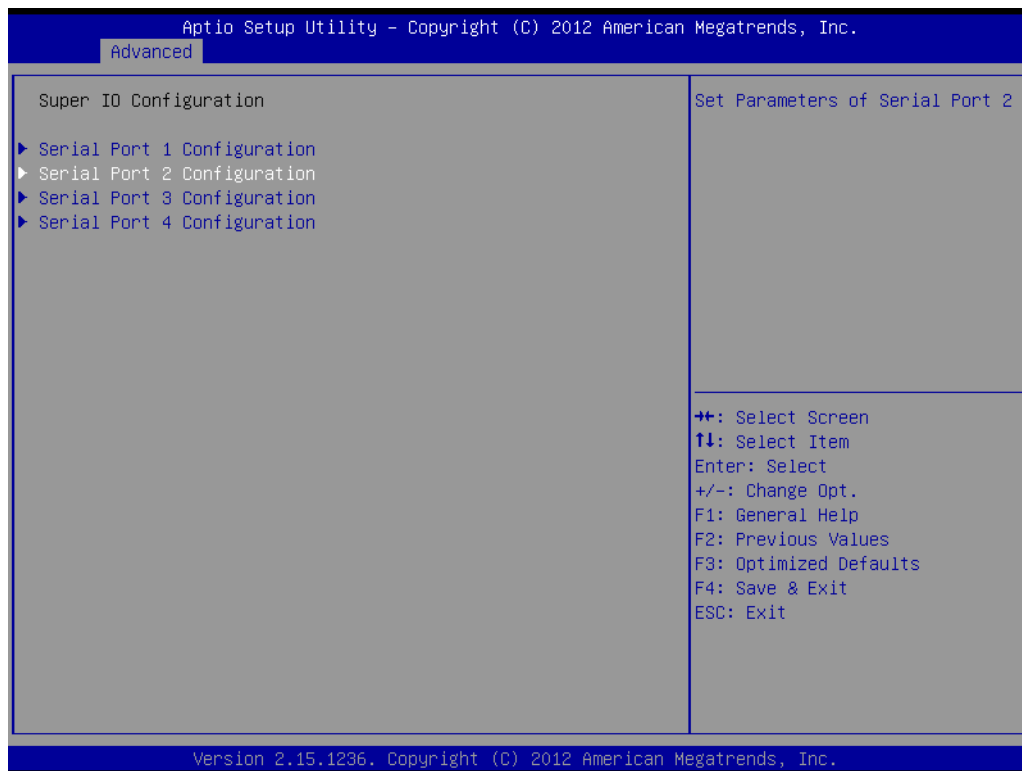
The settings specified in the BIOS are recorded in a special area of memory called CMOS RAM. This memory is backed up by a battery to ensure the data is retained following a system reset/power on. Upon bootup, the system reads the settings stored in CMOS RAM and compares them to the results of the equipment check conducted during the power on self-test (POST). If a discrepancy is identified, an error message will be displayed on screen, and users will be prompted to run the setup program.

### COM2 RS-232/422/485 Selection

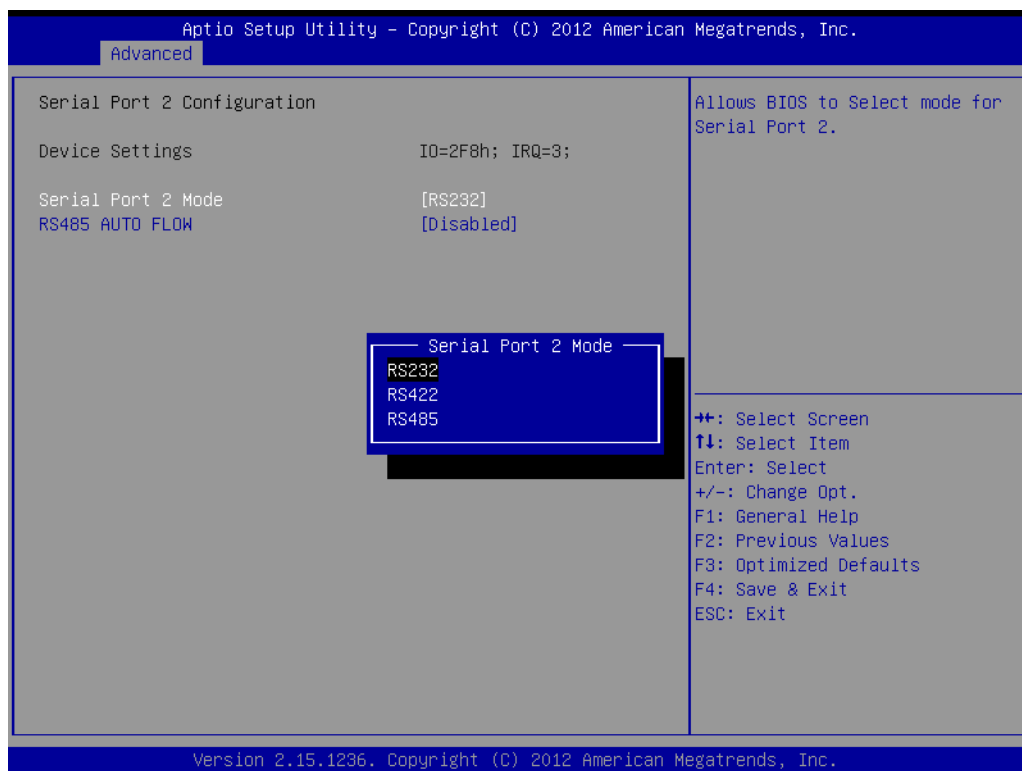


Enter the BIOS setup utility → Advanced → Super IO Configuration

## Select "Serial Port 2 Configuration"



## Configure the Serial Port 2 mode [RS-232/422/485]



## 2.4 Software Installation

Recent releases of operating systems (OS) from major vendors include setup programs that load automatically and guide users through hard disk preparation and operating system installation. The guidelines below will help you determine the steps necessary to install an OS on the UTC-320 hard drive.

**Note!** *Some distributors and system integrators may have pre-installed software on UTC-320 prior to shipment.*



An HDD must be installed to enable software installation. Software can be loaded on to the UTC-320 system using any of the four following methods:

### 2.4.1 Method 1: Ethernet

Download software to the HDD via the Ethernet port.

### 2.4.2 Method 2: External USB CD-ROM

If required, insert the OS installation or setup disk into the disk drive until the release button pops out.

The UTC-320 BIOS utility supports system boot-up from the CD-ROM drive. The system installation CD-ROM can be inserted into the CD-ROM drive.

Power on or reset the system by pressing “Ctrl+Alt+Del” simultaneously. The system will automatically load the OS from the disk or CD-ROM.

A setup program or installation wizard should automatically pop up. Follow the onscreen messages provided. The setup program guides users through HDD preparation and OS installation.

If the system displays a command line prompt, such as A:\>, users must partition and format the hard drive before manually copying the OS files to the hard drive. Refer to the OS user manual for instructions on partitioning and formatting a hard drive.

## 2.5 Driver Installation

After installing the system software, users can configure the Ethernet, chipset, graphics, audio, USB 3.0, and touchscreen functions.

All drivers are available for download from the Advantech website [www.advantech.com](http://www.advantech.com)

**Note!** *The UTC-320 drivers and utilities are subject to change without notice.*



*If in doubt, check the Advantech website or contact our application engineers for the latest information regarding drivers and utilities.*





# Chapter 3

## Hardware Installation and Upgrades

This chapter explains how to install the system hardware.

- Overview
- HDD Installation
- mSATA Installation
- WLAN Installation

## 3.1 Introduction

The UTC-320 is a PC-based computer that is housed in a plastic enclosure. To install an HDD, DRAM, or mini SATA card, simply remove the rear cover. Similarly, any maintenance or hardware upgrades can be easily completed after removing the rear cover.

**Warning!** Do not remove the rear cover until you have verified that no power is flowing within UTC-320. The power source must be switched off and the power cord unplugged when servicing UTC-320.



## 3.2 HDD Installation

UTC-320 features an internal controller that is compatible with one 2.5" SATA HDD. This controller offers faster data transfers and supports SATA HDDs that exceed 150 MB. Follow the instructions below for installation.

1. Detach and remove the rear cover.
2. Install an HDD in the metal bracket and tighten the affixing screws (see Figure 3.1).
3. The HDD cable (SATA 7P + 1 x 5P-2.5/SATA(15+7)P) is located next to the metal bracket. Connect the HDD cable to the motherboard (SATA1/SATA Power) and the SATA HDD.
4. Replace the rear cover and tighten the affixing screws.

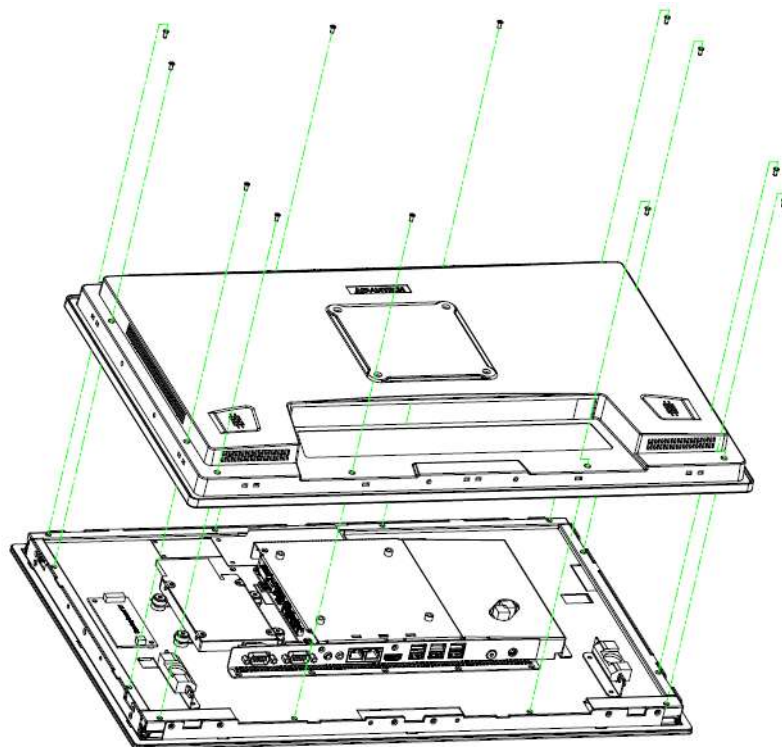


Figure 3.1 Installing Primary 2.5" HDD

### 3.3 mSATA/m.2 Installation

1. Remove the 12 screws on the rear cover.
2. Remove the 6 screws on the reinforced board.
3. Insert an mSATA/m.2 card into the mSATA/m.2 slot
4. Replace and tighten the screws on the reinforced board.
5. Replace and secure the rear cover.

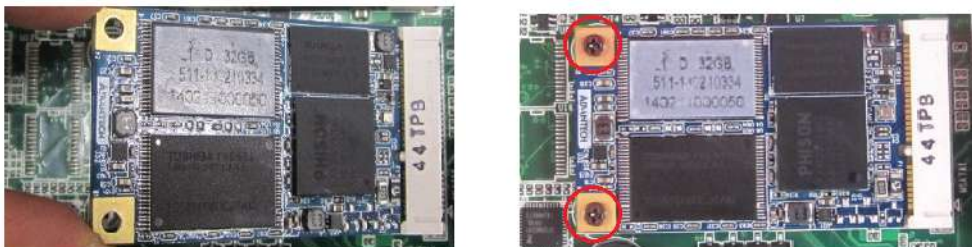
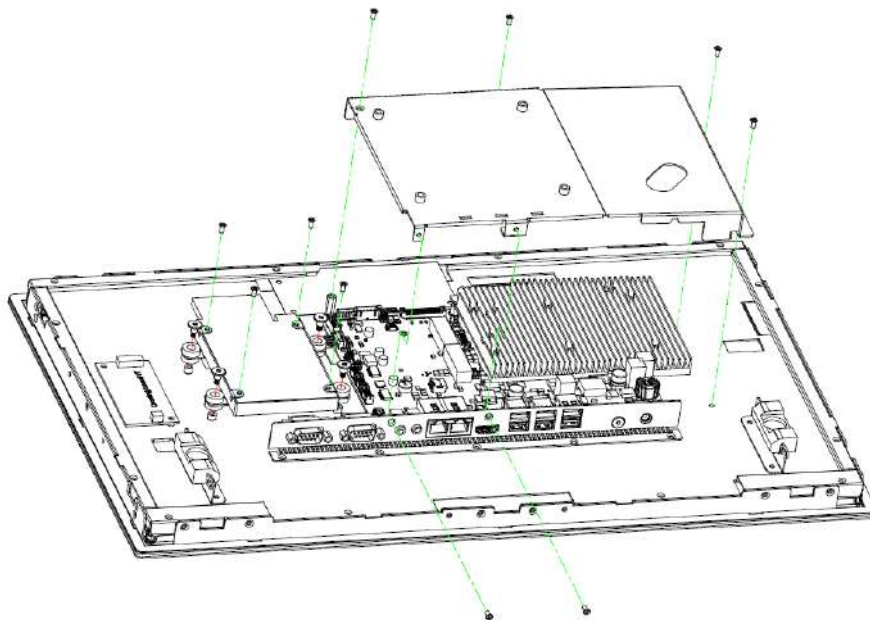
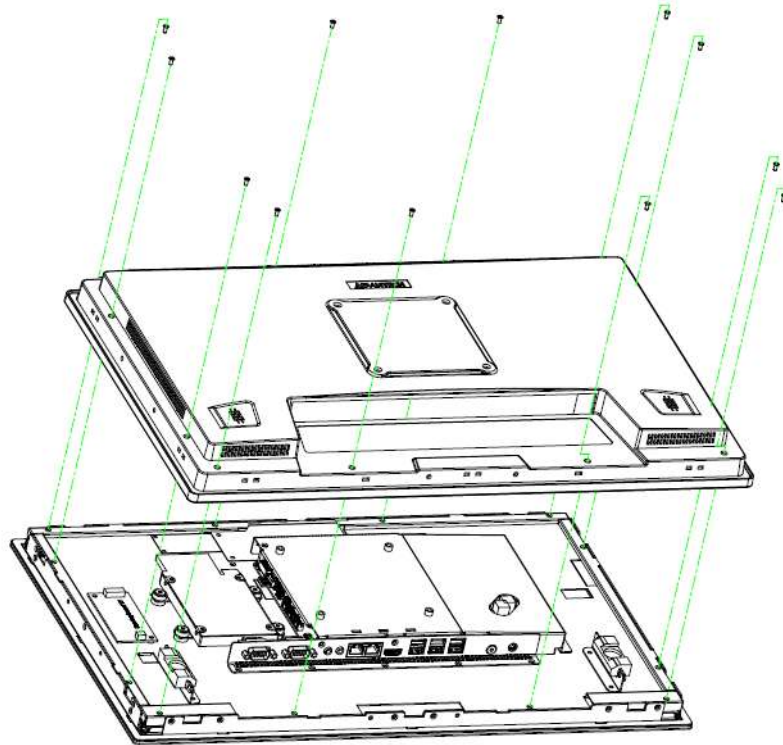


Figure 3.2 Installing an mSATA/m.2 Card

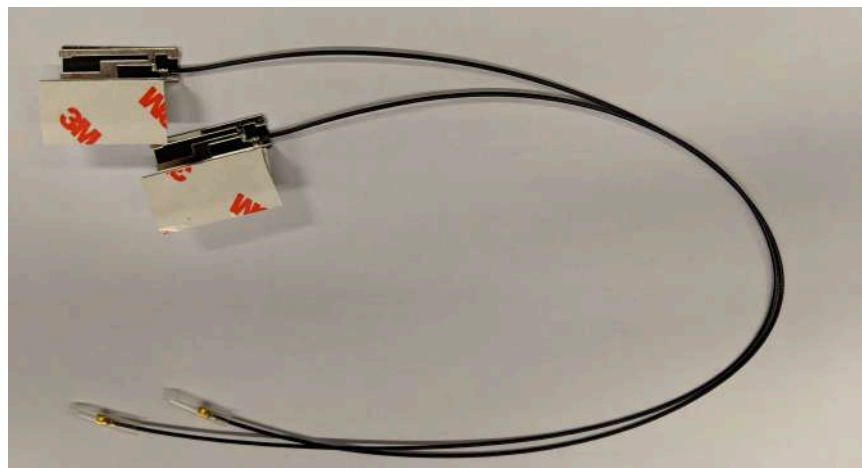
## 3.4 WLAN Installation

Two locations are reserved for attaching an external antenna, one is by the I/O port and the other is on the rear cover. Users can choose the antenna location according to their requirements.

1. Remove the 12 screws from the rear cover.



2. Remove the 6 screws on the reinforced board.







# Chapter 4

## Jumper and Connector Settings

This chapter provides details for setting jumpers and connecting peripherals, switches, and indicators.

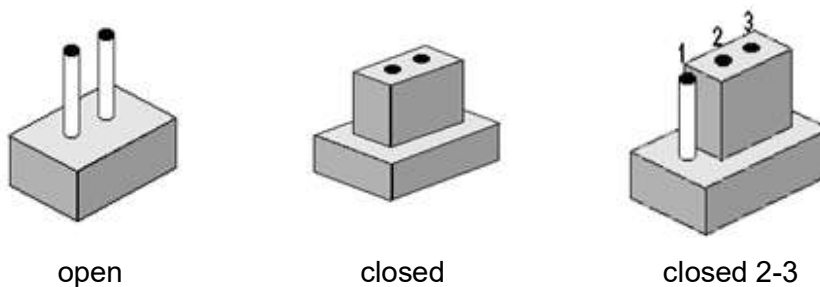
- Jumpers and Connectors
- Jumper and Connector Functions
- Jumper and Connector Locations



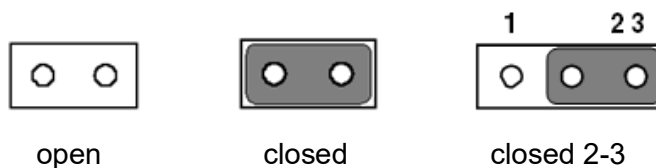
## 4.1 Jumpers and Connectors

### 4.1.1 Jumper Configuration

Users can configure UTC-320 according to their application needs by setting jumpers. A jumper is the simplest type of electrical switch and consists of two metal pins and a small metal clip (typically protected by a plastic cover) that slides over the pins to connect them. To close a jumper, connect the pins with the clip. To open a jumper, simply remove the clip. Some jumpers have three pins, labeled 1, 2, and 3. For this type of jumper, connect either Pins 1 and 2, or Pins 2 and 3.



The jumper settings are schematically depicted below.



A pair of needle-nose pliers may be helpful when working with jumpers. For advice regarding the optimum hardware configuration for specific applications, contact your local distributor or sales representative.

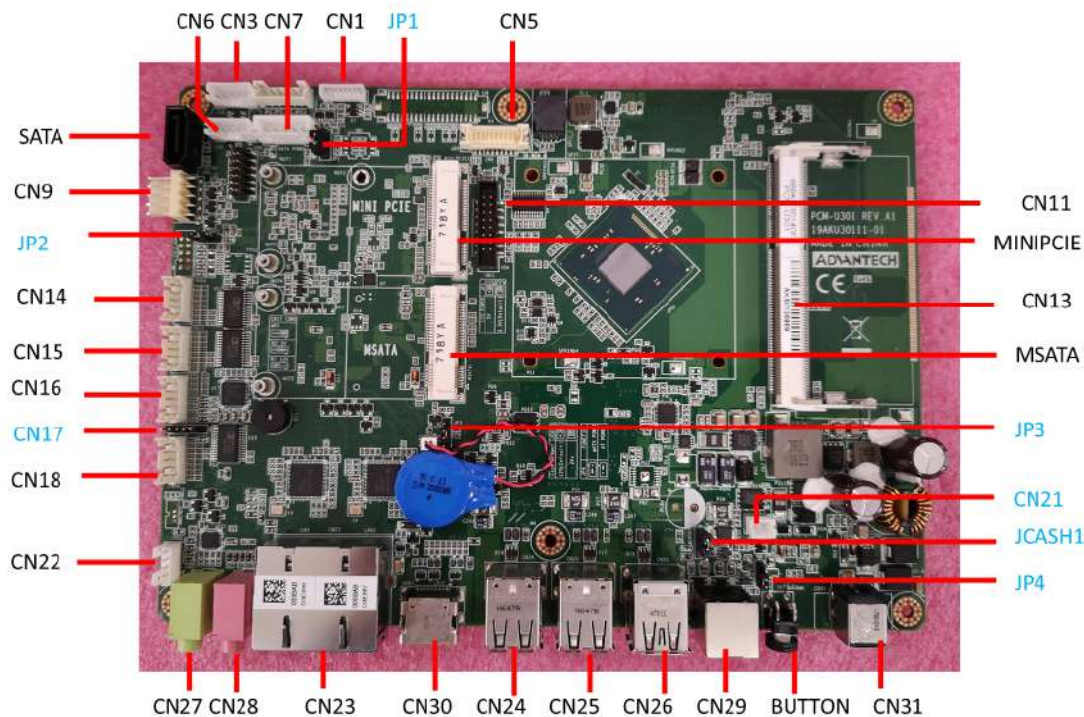


## 4.1.2 Jumper and Connector Functions

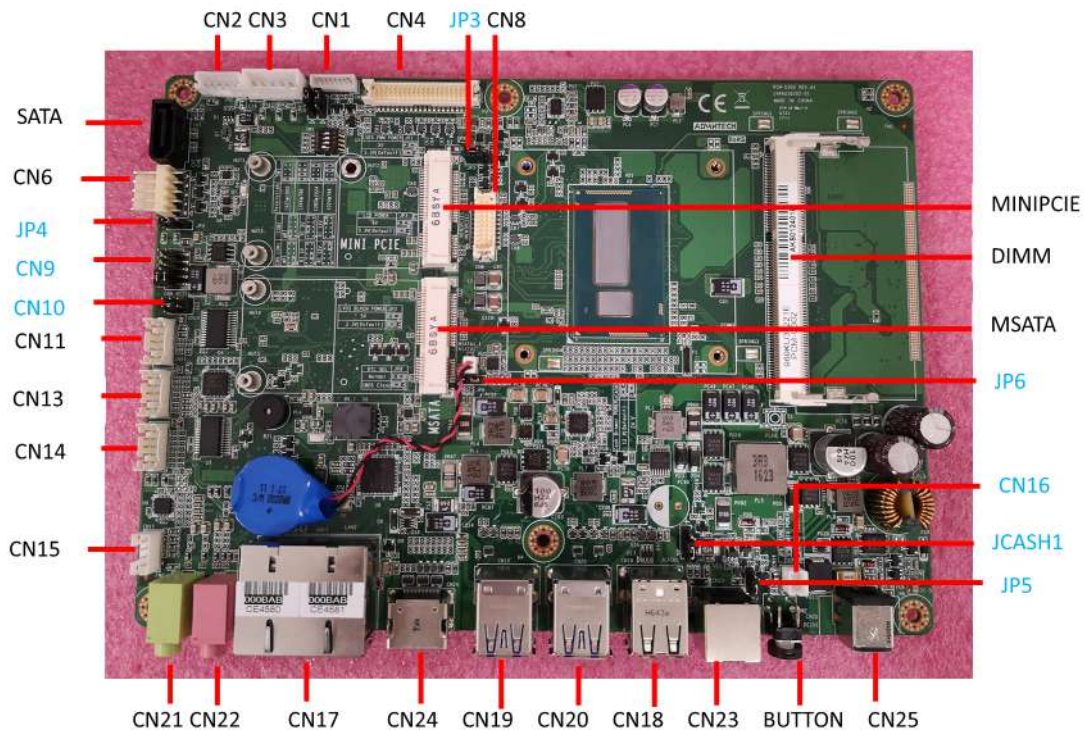
Table 4.1: Jumper and Connector Functions	
CN1(DE),CN2(FGH)	Back_Light
CN3(D),CN38(H),CN39(H)	Internal USB
CN4(DEFG),LVDS1(H)	LVDS
CN5(D),CN8(EFG), CN9(H)	Edp
CN11(DF),CN10(G)	VGA
SATA,SATA1(H)	SATA
CN7(D),CN3(EFG),CN25(H)	SATA POWER
CN23(H)	SATA LED
CN8(D),CN5(G)	Internal USB
CN9(D),CN6(EG,)CN26(F),CN41(H)	Touch
CN13(D),DIMM(EFG),CN1(H)	DR3L/4 SODIMM
MINIPICIE1(DEF)	MINIPICIE
MSATA1(DEFG)	MSATA
CN14(D),CN10(F),CN7(GH)	COM4
CN15(D),CN12(F),CN9(G),CN96(H)	COM3
CN11(E)	CSAFE
CN16(D),CN13(E),CN14(F),CN11(G),CN44(H)	COM2
CN18(D),CN14(E),CN15(F),CN13(GH)	COM1
CN21(D),CN16(EF),CN23(G),CN45(H)	Power on switch
CN22(D),CN15(E),CN16(FG),CN168(H)	Speaker
M.2_1(G),CN16(H)	M.2(2230)
M2M1(H)	M.2(2280)
CN23(D),CN17(EFG),CN11(H)	LAN1/LAN2
CN24(D),CN19(EF),CN21(G),CN170(H)	External USB
CN25(D),CN20(EF),CN22(G),CN169(H)	External USB
CN26(D),CN18(EF),CN20(G),CN43(H)	External USB
CN27(D),CN21(E),CN22(F),CN25(G),CN66(H)	Line-out
CN28(D),CN22(E),CN21(F),CN24(GH)	MIC-IN
CN30(D),CN24(EF),CN27(G),CN15(H)	HDMI
CN42(H)	DP
CN31(DG),CN25(EF),DCIN1(H)	DC-IN
CN29(D),CN23(EF),CN26(G)	RJ11
BUTTON,SW5(H),CN45(H)	Power button

### 4.1.3 Jumper and Connector Locations

#### PCM-U301 (UTC-320D)

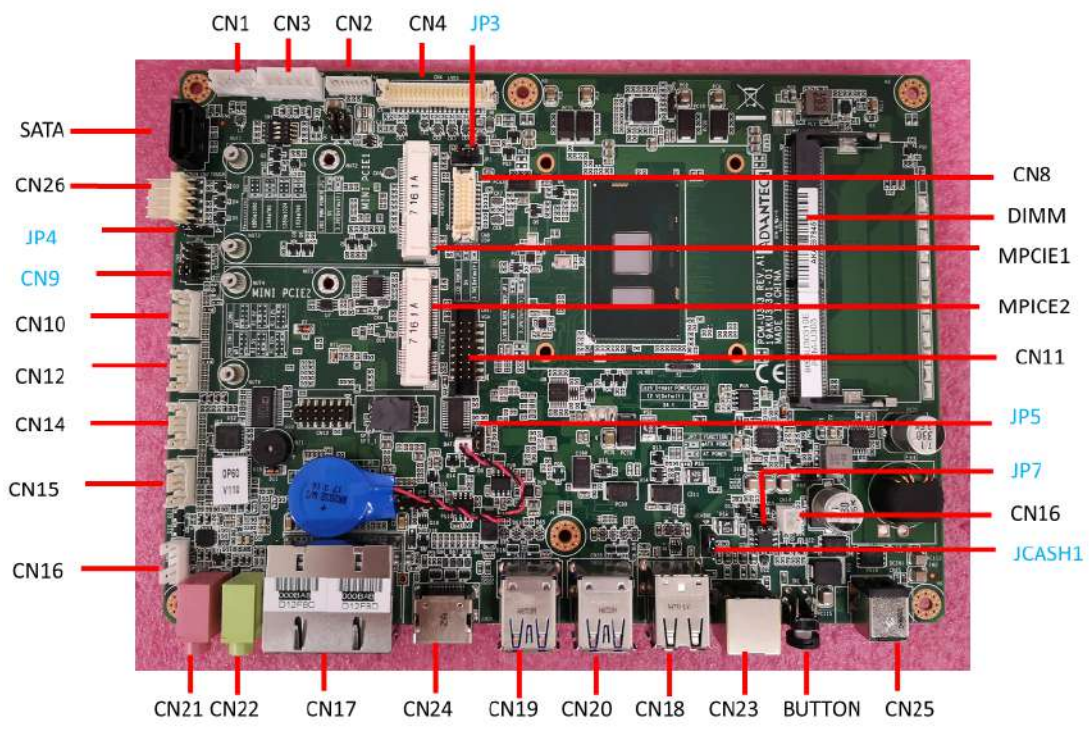


#### PCM-U302 (UTC-320E)

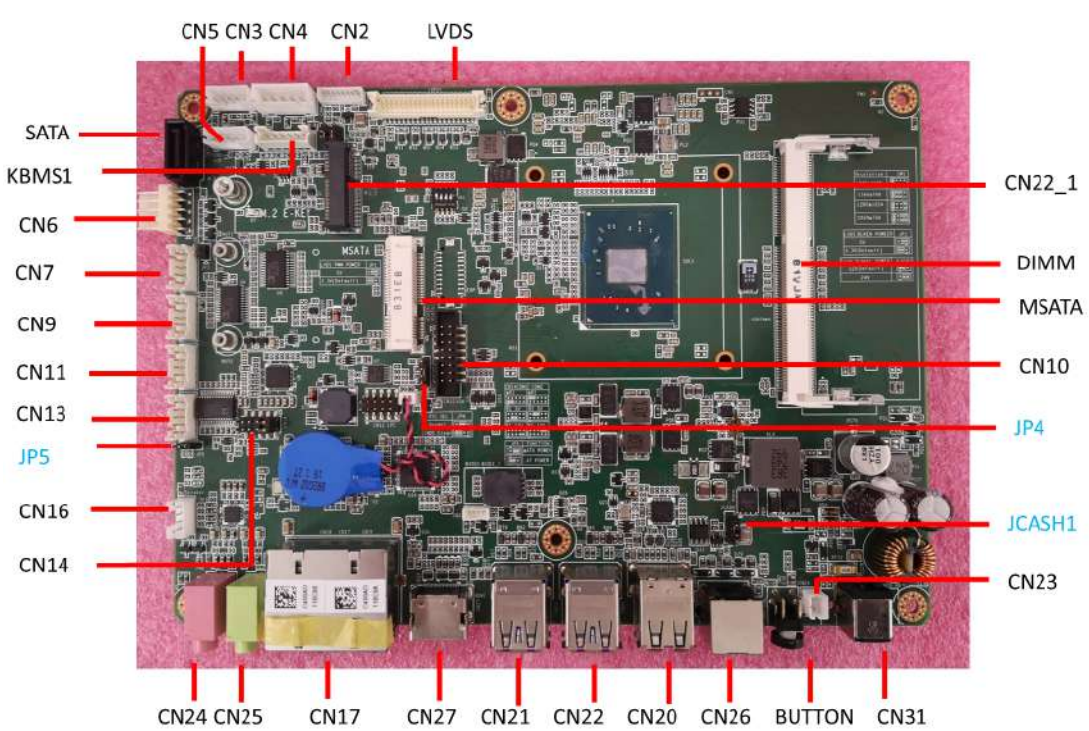




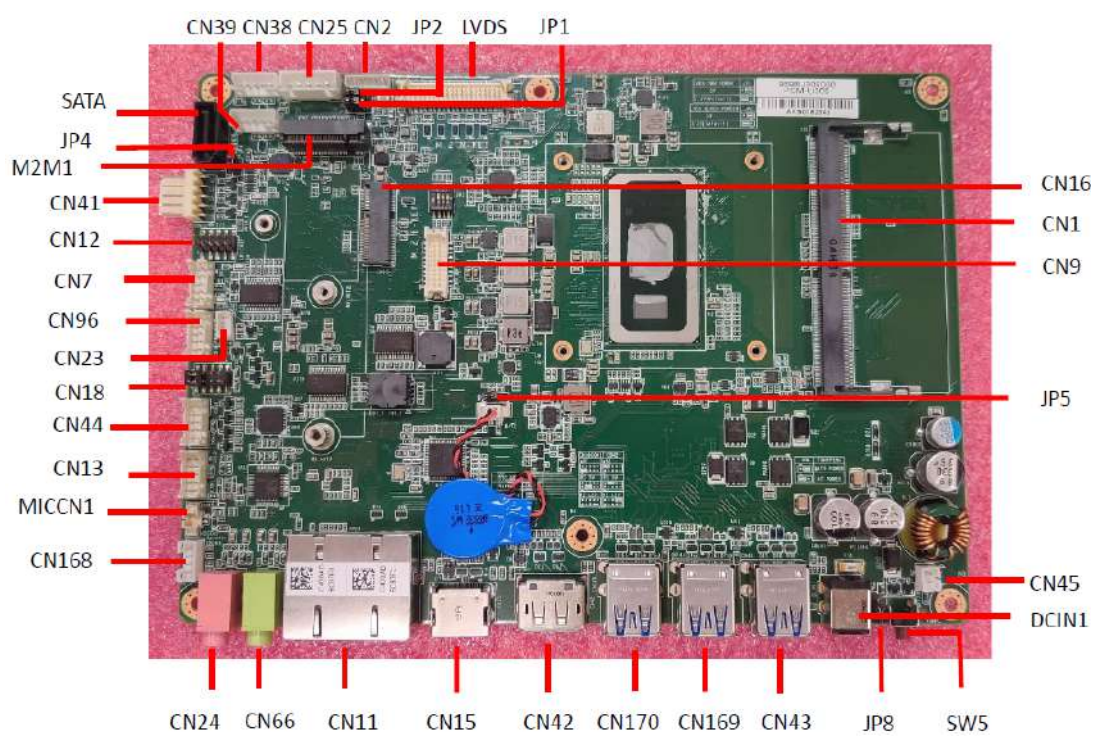
**PCM-U303 (UTC-320F)**



**PCM-U304 (UTC-320G)**



**PCM-U305 (UTC-320H)**



## 4.2 Jumpers

### 4.2.1 Jumper List

Table 4.2: Jumper List	
JP1(DH),JP3(EF)	LCD POWER
JP3(D),JP6(E),JP5(FH),JP4(G)	Clear CMOS
JP4(H)	TS POWER
JP4(D),JP5(EG),JP7(F),JP8(H)	AT/ATX POWER SEL
CN17(D),CN9(EF),CN14(G),CN18(H)	COM1,COM2 RING
JCASH1	Cash drawer power
CN10(E)	CSAFE POWER
JP1(H)	PWM Power
JP2(H)	BKLT_EN Power

### 4.2.2 Jumper Settings

Table 4.3: P1(D),JP3(EF):LCD POWER	
Part Number	1653003100
Footprint	HD_3x1P_100_D
Description	PIN HEADER 3x1P 2.54mm 180D(M) DIP 205-1x3GS
Setting	Function
(1-2)	5V
(2-3)*	3.3V

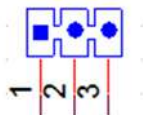
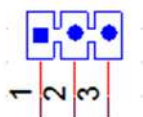
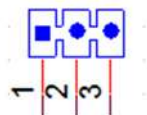


Table 4.4: JP1(H):PWM POWER	
Part Number	1653003101
Footprint	HD_3x1P_79_D
Description	PIN HEADER 3x1P 2.0mm 180D(M) DIP 2000-13 WS
Setting	Function
(1-2)	5V
(2-3)*	3.3V



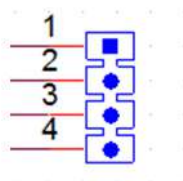
**Table 4.5: JP2(H):BKLT Enable POWER**

Part Number	1653003101
Footprint	HD_3x1P_79_D
Description	PIN HEADER 3x1P 2.0mm 180D(M) DIP 2000-13 WS
Setting	Function
(1-2)	5V
(2-3)*	3.3V



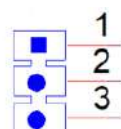
**Table 4.6: JP3(D),JP6(E),JP5(F),JP4(G):Clear CMOS**

Part Number	1653004101
Footprint	HD_4x1P_79_D
Description	PIN HEADER 4x1P 2.0mm 180D(M) DIP 21N12050
Setting	Function
(2-3)*	Normal
(3-4)	Clear CMOS



**Table 4.7: JP5(H):Clear CMOS**

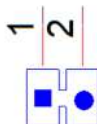
Part Number	1653003101
Footprint	HD_3x1P_79_D
Description	PIN HEADER 3x1P 2.0mm 180D(M) DIP 2000-13 WS
Setting	Function
(1-2)*	Normal
(2-3)	CMOS Clear





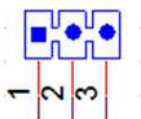
**Table 4.8: JP4(H):TS POWER**

Part Number	1653002101-02
Footprint	HD_2x1P_79_D
Description	PIN HEADER 2x1P 2.0mm 180D(M) DIP 21N12050
Setting	Function
(1-2)	3.3V



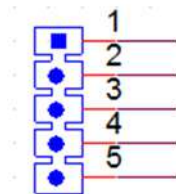
**Table 4.9: JP4(D),JP5(EG),JP7(F),JP8(H):AT/ATX POWER SEL**

Part Number	1653003101
Footprint	HD_3x1P_79_D
Description	PIN HEADER 3*1P 180D(M) 2.0mm DIP 2000-13 WS
Setting	Function
(1-2)	AT
(2-3)*	ATX



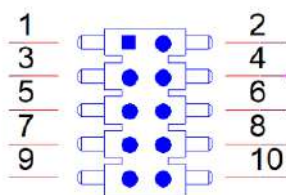
**Table 4.10: CN17(D):COM1 Ring**

Part Number	1653005101
Footprint	HD_5x1P_79_D
Description	PIN HEADER 5x1P 2.0mm 180D(M) DIP 1140-000-05SN
Setting	Function
(1-2)	RING
(3-4)*	COM1 RI output +5V
(4-5)*	COM1 RI output +12V



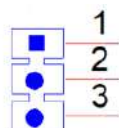
**Table 4.11: CN9(EF),CN14(G),CN18(H):COM1,COM2 Ring**

Part Number	1653005261
Footprint	HD_5x2P_79
Description	PIN HEADER 5x2P 2.0mm 180D(M) SMD 21N22050
Setting	Function
(1-3)	COM1 RING
(2-4)	COM2 RING
(3-5)*	COM1 RI output +5V
(4-6)*	COM2 RI output +5V
(7-9)*	COM1 RI output +12V
(8-10)*	COM2 RI output +12V



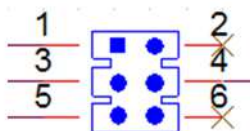
**Table 4.12: JCASH1: CASH DRAWER POWER SEL**

Part Number	1653003100
Footprint	HD_3x1P_100_D
Description	PIN HEADER 3x1P 2.54mm 180D(M) DIP 1130-000-03S
Setting	Function
(1-2)	12V
(2-3)*	24V



**Table 4.13: CN10: CSAFE Power**

Part Number	1653003201
Footprint	HD_3x2P_79_D
Description	PIN HEADER 3x2P 2.0mm 180D(M) DIP 21N22050
Setting	Function
(1-3) *	CSAFE output +5V
(3-4)	CSAFE output +9V
(3-5)	CSAFE output +12V





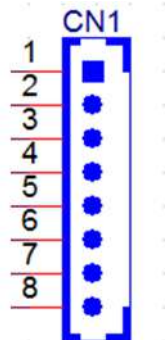
# Appendix **A**

## I/O Pin Assignments

## A.1 Pin Assignments

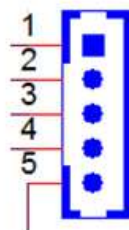
**Table A.1: CN1(DE),CN2(FGH):Back Light**

Part Number	1655004512-01
Footprint	WF_8P_49_BOX_D
Description	WAFER BOX 8P 1.25mm 180D(M) DIP A1251WV0-8P
Pin	Pin name
1	+12V_INVERTER
2	+12V_INVERTER
3	GND
4	GND
5	BKLT_EN
6	BRIGHT1
7	+12V_INVERTER
8	GND



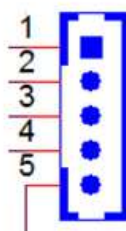
**Table A.2: CN3(D):Internal USB**

Part Number	1655000453
Footprint	WHL5V-2M-24W1140
Description	WAFER BOX 2.0mm 5P 180D(M) DIP WO/Pb JIH VEI
Pin	Pin name
1	+5V
2	D-
3	D+
4	GND
5	GND



**Table A.3: CN38(H),CN39(H):Internal USB**

Part Number	1655305020
Footprint	WHL5V-2M
Description	WAFER BOX 2.0mm 5P 180D(M) DIP A2001WV2-5P
<b>Pin</b>	<b>Pin name</b>
1	+5V
2	D-
3	D+
4	GND
5	GND



**Table A.4: CN4(DEFG):LVDS**

Part Number	1653920200
Footprint	SPH20X2
Description	B/B Conn. 40P 1.25mm 90D SMD DF13-40DP-1.25V(91)
<b>Pin</b>	<b>Pin name</b>
1	+3.3V or +5V
2	+3.3V or +5V
3	GND
4	GND
5	+3.3V or +5V
6	+3.3V or +5V
7	LVDS0_D0-
8	LVDS1_D0-
9	LVDS0_D0+
10	LVDS1_D0+
11	GND
12	GND-
13	LVDS0_D1-
14	LVDS1_D1-
15	LVDS0_D1+
16	LVDS1_D1+
17	GND
18	GND
19	LVDS0_D2-
20	LVDS1_D2-
21	LVDS0_D2+
22	LVDS1_D2+-

**Table A.4: CN4(DEFG):LVDS**

23	GND
24	GND
25	LVDS0_CLK-
26	LVDS1_CLK-
27	LVDS0_CLK+
28	LVDS1_CLK+
29	GND
30	GND
31	LVDS0_DDC_SC
32	LVDS0_DDC_SD
33	GND
34	GND
35	LVDS0_D3-
36	LVDS1_D3-
37	LVDS0_D3+
38	LVDS1_D3+
39	+3.3V or +5V
40	+3.3V or +5V

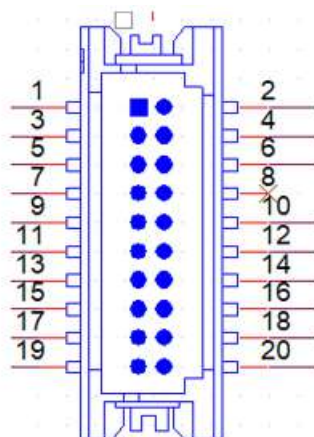


<b>Table A.5: LVDS1(H):LVDS</b>	
Part Number	1653006918-01
Footprint	SPH20X2
Description	(DEL20)Wafer 2x20P/1.25mm/(M)/NY9T/VA/GFL/SWH
<b>Pin</b>	<b>Pin name</b>
1	+3.3V
2	+3.3V
3	GND
4	GND
5	GND
6	GND
7	LVDS0_D0-
8	LVDS1_D0-
9	LVDS0_D0+
10	LVDS1_D0+
11	GND
12	GND-
13	LVDS0_D1-
14	LVDS1_D1-
15	LVDS0_D1+
16	LVDS1_D1+
17	GND
18	GND
19	LVDS0_D2-
20	LVDS1_D2-
21	LVDS0_D2+
22	LVDS1_D2+-
23	GND
24	GND
25	LVDS0_CLK-
26	LVDS1_CLK-
27	LVDS0_CLK+
28	LVDS1_CLK+
29	GND
30	GND
31	LVDS0_D3-
32	LVDS1_D3-
33	LVDS0_D3+
34	LVDS1_D3+
35	UD
36	RL
37	+5V
38	+5V
39	GND
40	GND
43	GND
44	GND



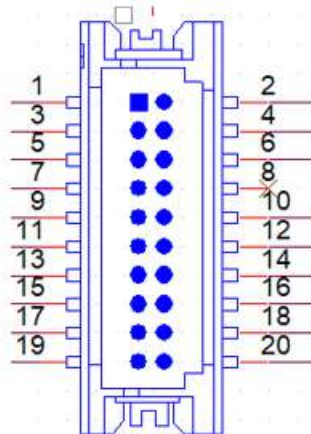
**Table A.6: CN5(D),CN3(EF),CN9(H):eDP**

Part Number	1653006914-01
Footprint	WB10x2P-S1.25
Description	WTB 2x10P 1.25mm 180D(M) SMD W/P DF13E-20DP-1.25
<b>Pin</b>	<b>Pin name</b>
1	GND
2	GND
3	TXN0
4	TXN3
5	TXP0
6	TXP3
7	GND
8	NC
9	TXN1
10	GND
11	TXP1
12	AUX-
13	GND
14	AUX+
15	TXN2
16	GND
17	TXP2
18	HPD
19	LCD_POWER
20	LCD_POWER



**Table A.7: CN3(G) eDP**

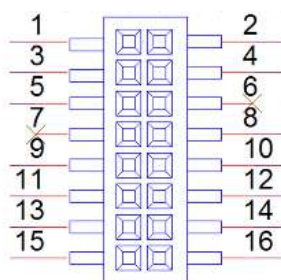
Part Number	1653006914-01
Footprint	WB10x2P-S1.25
Description	WTB 2x10P 1.25mm 180D(M) SMD W/P DF13E-20DP-1.25
<b>Pin</b>	<b>Pin name</b>
1	+5V_LCD
2	+5V_LCD
3	TXN0
4	GND
5	TXP0
6	TXN3
7	GND
8	TXP3
9	TXN1
10	GND
11	TXP1
12	AUX-
13	GND
14	AUX+
15	TXN2
16	GND
17	TXP2
18	HPD
19	+V3.3_LCD
20	+V3.3_LCD





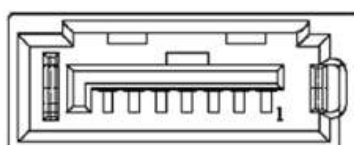
**Table A.8: CN11(DF),CN10(G) VGA**

Part Number	1653208260
Footprint	HD_8x2P_79_BOX
Description	BOX HEADER 8x2P 2.00mm 180D(M) SMD 23N6850
<b>Pin</b>	<b>Pin name</b>
1	VGA_R
2	+5V
3	VGA_G
4	GND
5	VGA_B
6	NC
7	NC
8	VGA_DDAT
9	GND
10	VGA_HS
11	GND
12	VGA_VS
13	GND
14	VGA_DCLK
15	GND
16	GND



**Table A.9: SATA(DEFG):SATA**

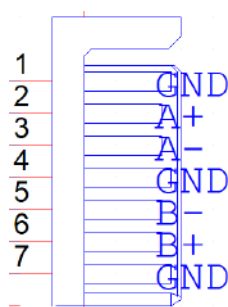
Part Number	1654004659
Footprint	WF_5P_98_BOX_D
Description	WAFER BOX 5P 2.5mm 180D(M) DIP 2503-WS-5
<b>Pin</b>	<b>Pin name</b>
1	GND
2	TX+
3	TX-
4	GND
5	RX+
6	RX-
7	GND



**Table A.10: SATA1(H):SATA**

Part Number	1654013471-01
Footprint	sata_7p_watm-07dbn4a3b8uw_d
Description	SATA 7P/1.27mm/(F)/NY46/VA/G15u/D/BK/H8.45mm

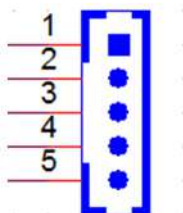
Pin	Pin name
1	GND
2	TX+
3	TX-
4	GND
5	RX-
6	RX+
7	GND



**Table A.11: CN7(D),CN3(EFG),CN25(H):SATA POWER**

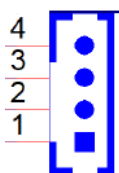
Part Number	1659254005
Footprint	SATA_7P_WATM-07DBN4A3B8UW_D
Description	Serial ATA 7P 1.27mm 180D(M) DIP WATM-07DBN4A3B8

Pin	Pin name
1	+3.3V
2	GND
3	+5V
4	GND
5	+12V



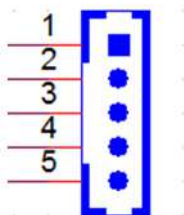
**Table A.12: CN23(H):SATA LED**

Part Number	1655000170
Footprint	WF_4P_49_BOX_R1_D
Description	WAFER 1.25mm 4P 180D DIP A1251WV0-4P
<b>Pin</b>	<b>Pin name</b>
1	+5VSB
2	+5V
3	SATA0_LED
4	GND



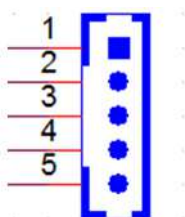
**Table A.13: CN8(D),CN5(G):Internal USB**

Part Number	1655000453
Footprint	WHL5V-2M-24W1140
Description	WAFER BOX 2.0mm 5P 180D(M) DIP WO/Pb JIH VEI
<b>Pin</b>	<b>Pin name</b>
1	+5V
2	D-
3	D+
4	GND
5	GND



**Table A.14: CN9(D),CN6(EG),CN26(F),CN41(H):Touch**

Part Number	1655005110
Footprint	WF_5P_100_RA_D
Description	WAFER 5P 2.54mm 90D(M) DIP 2542-WR-5
<b>Pin</b>	<b>Pin name</b>
1	Y+
2	Y-
3	SENSE
4	X+
5	X-



**Table A.15: CN13(D),DIMM(EG):DDR3L SODIMM**

Part Number	1651002087-11
Footprint	DDR3_204P_AS0A626-N2S6-7H
Description	DDR3 SODIMM H=5.2mm STD 204P SMD AS0A626-H2S6-7H
<b>Pin</b>	<b>Pin name</b>

**Table A.16: DIMM(F),CN1(H):DDR4 SODIMM**

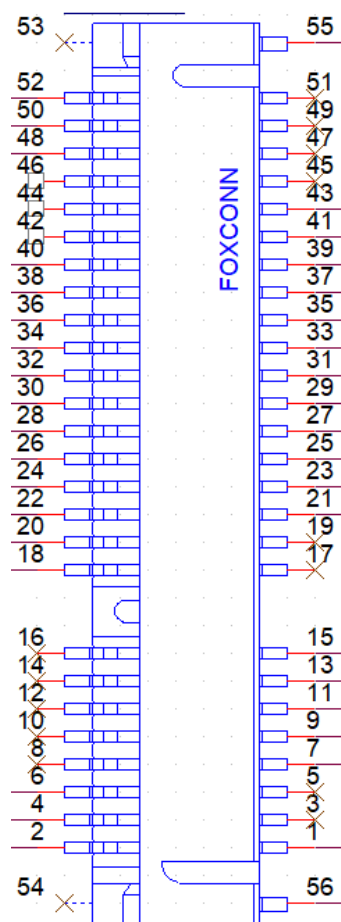
Part Number	1651002829-01
Footprint	SODIMMDDR4_260P_AS0A826-H2SB
Description	DDR4 SODIMM H=5.2mm 260P SMD AS0A826-H2SB-7H STD
<b>Pin</b>	<b>Pin name</b>

**Table A.17: MINIPCIE1(DEF):MINIPCIE**

Part Number	1654002538
Footprint	FOX_AS0B226-S68K7F
Description	MINI PCI E 52P 6.8mm 90D SMD AS0B226-S68Q-7H
<b>Pin</b>	<b>Pin name</b>
1	MPCIE1_WAKE#
2	+3.3VSB
3	NC
4	GND
5	NC
6	NC
7	MPCIE_CLKREQ#
8	NC
9	GND
10	NC
11	CLK_MINI_PCIE-
12	NC
13	CLK_MINI_PCI+
14	NC
15	GND
16	NC
17	NC
18	GND
19	NC
20	MPCIE1_DISABLE#
21	GND
22	PLTRST#
23	PCIE_RX-
24	+3.3VSB
25	PCIE_RX+
26	GND
27	GND
28	+1.5V
29	GND
30	SMB_CLK_MPCIE1
31	PCIE_TX-
32	SMB_DAT_MPCIE1
33	PCIE_TX+
34	GND
35	GND
36	USB_D-
37	GND
38	USB_D+
39	+3.3VSB
40	GND
41	+3.3VSB
42	NC

**Table A.17: MINIPCIE1(DEF):MINIPCIE**

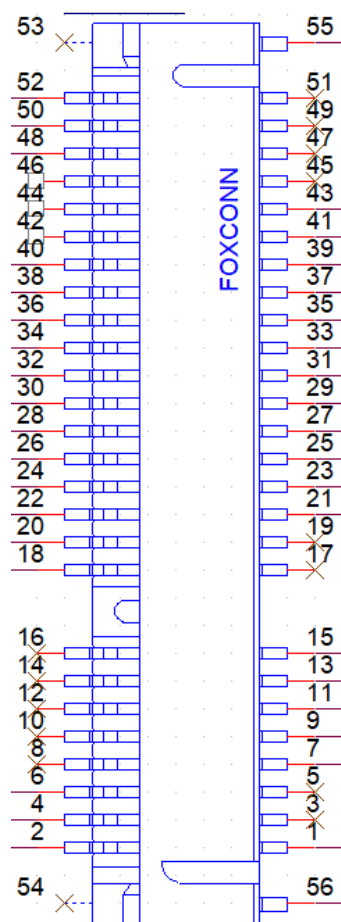
43	NC
44	NC
45	NC
45	NC
47	NC
48	NC
49	NC
50	GND
51	NC
52	+3.3VSB



<b>Table A.18: MSATA1(DEFG):MSATA</b>	
Part Number	1654002538
Footprint	FOX_AS0B226-S68K7F
Description	MINI PCI E 52P 6.8mm 90D SMD AS0B226-S68Q-7H
<b>Pin</b>	<b>Pin name</b>
1	NC
2	+3.3V
3	NC
4	NC
5	NC
6	NC
7	NC
8	NC
9	GND
10	NC
11	NC
12	NC
13	NC
14	NC
15	GND
16	NC
17	NC
18	GND
19	NC
20	NC
21	GND
22	NC
23	SATA1_RX+
24	+3.3V
25	SATA1_RX-
26	GND
27	GND
28	NC
29	GND
30	NC
31	SATA1_TX-
32	NC
33	SATA1_TX+
34	GND
35	GND
36	NC
37	GND
38	NC
39	+3.3V
40	GND
41	+3.3V
42	NC

**Table A.18: MSATA1(DEFG):MSATA**

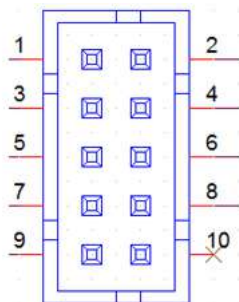
43	NC
44	NC
45	NC
45	NC
47	NC
48	NC
49	NC
50	GND
51	+3.3V
52	+3.3V





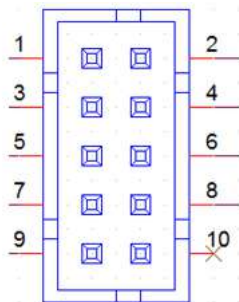
**Table A.19: CN14(D),CN10(F),CN7(GH):COM4**

Part Number	1655000197
Footprint	WF_5x2P_79_BOX_D_P1R
Description	1655_WF_5x2P_79_BOX_D_P1R_0.Normal
<b>Pin</b>	<b>Pin name</b>
1	DCD
2	RXD
3	TXD
4	DTR#
5	GND
6	DSR#
7	RTS#
8	CTS#
9	RI#



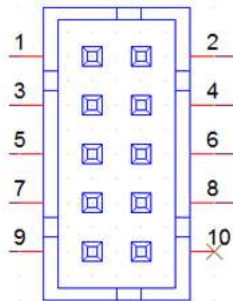
**Table A.20: CN15(D) ,CN12(F),CN9(G),CN96(H):COM3**

Part Number	1655000197
Footprint	WF_5x2P_79_BOX_D_P1R
Description	1655_WF_5x2P_79_BOX_D_P1R_0.Normal
<b>Pin</b>	<b>Pin name</b>
1	DCD
2	RXD
3	TXD
4	DTR#
5	GND
6	DSR#
7	RTS#
8	CTS#
9	RI#



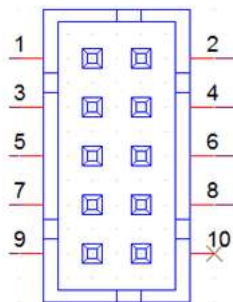
**Table A.21: CN11(E):CSAFE**

Part Number	1655000197
Footprint	WF_5x2P_79_BOX_D_P1R
Description	1655_WF_5x2P_79_BOX_D_P1R_0.Normal
<b>Pin</b>	<b>Pin name</b>
1	LINE_IN1_L
2	LINIE_IN1_R
3	COM3_RX+
4	COM3_TX
5	V_CSAFE
6	COM3_CTS#
7	GND
8	GND
9	



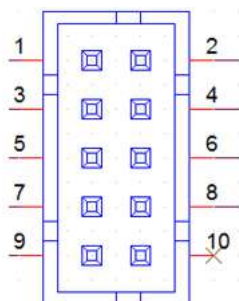
**Table A.22: CN16(D),CN13(E),CN14(F),CN11(G),CN44(H):COM2**

Part Number	1655000197
Footprint	WF_5x2P_79_BOX_D_P1R
Description	1655_WF_5x2P_79_BOX_D_P1R_0.Normal
<b>Pin</b>	<b>Pin name</b>
1	422/485 TX-
2	422/485 TX+
3	422 RX+
4	422 RX-
5	GND
6	DSR#
7	RTS#
8	CTS#
9	RI#



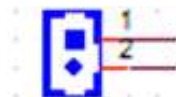
**Table A.23: CN18(D),CN14(E),CN15(F),CN13(GH):COM1**

Part Number	1655000197
Footprint	WF_5x2P_79_BOX_D_P1R
Description	1655_WF_5x2P_79_BOX_D_P1R_0.Normal
<b>Pin</b>	<b>Pin name</b>
1	DCD
2	RXD
3	TXD
4	DTR#
5	GND
6	DSR#
7	RTS#
8	CTS#
9	RI#



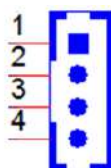
**Table A.24: CN21(D),CN16(EF),CN23(G),CN45(H):Power on Switch**

Part Number	1655302020
Footprint	WF_2P_79_BOX_R1_D
Description	WAFER BOX 2P 2.0mm 180D(M) DIP A2001WV2-2P
<b>Pin</b>	<b>Pin name</b>
1	PSIN
2	GND



**Table A.25: CN22(D),CN15(E),CN16(FG),CN168(H):SPEAKER**

Part Number	1655304020
Footprint	WF_4P_79_BOX_R1_D
Description	WAFER BOX 2.0mm 4P 180D(M) W/LOCK A2001WV2-4P
<b>Pin</b>	<b>Pin name</b>
1	AUD_OUTA-
2	AUD_OUTA+
3	AUD_OUTB+
4	AUD_OUTB-



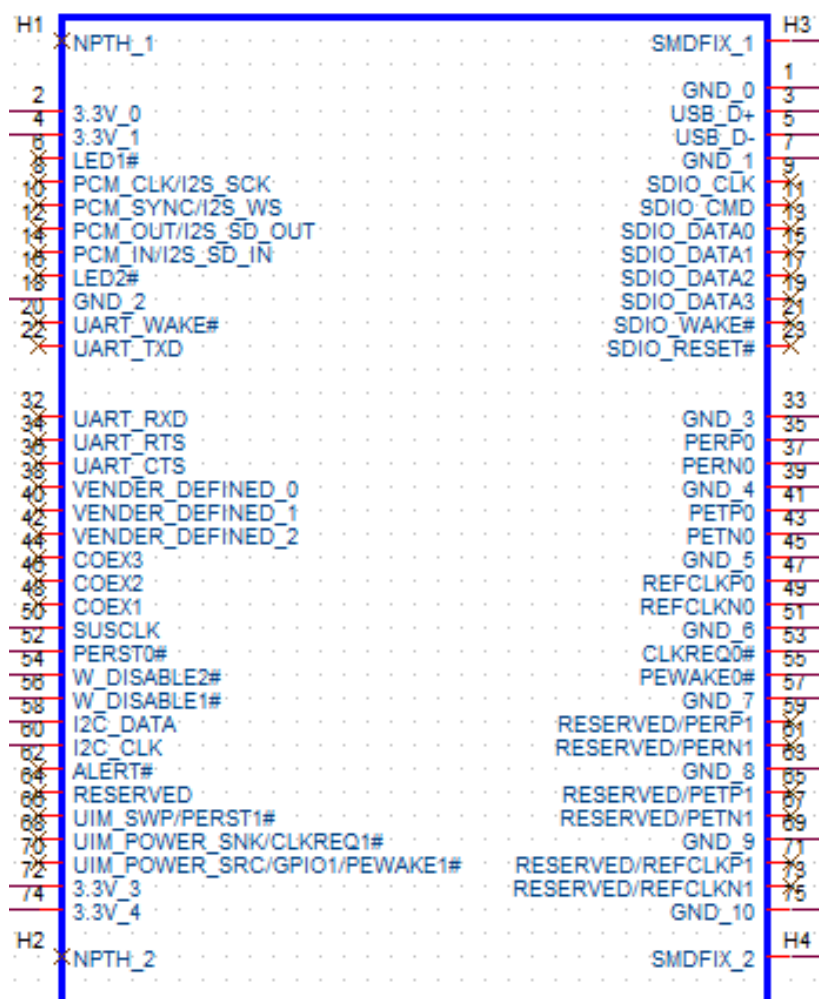
**Table A.26: M.2\_1(G):M.2\_2230**

Part Number	1654012663-01
Footprint	NGFF_75P_APCI0163-P001A
Description	NGFF 75P 0.5mm 90D(F) H=8.5mm SMD APCI0163-P001A
<b>Pin</b>	<b>Pin name</b>
1,7,33,39,45,51	GND
18,57,63,69,75	GND
3	USB_D+
2,4,72,74	3.3V
5	USB_D-
35	PCIE_TX+
37	PCIE_TX-
41	PCIE_RX-
43	PCIE_RX+
47	CLK_100M+
49	CLK_100M-
55	PCIE_WAKE#
9,11,13,15,17,19,21,23	NC
61,63,65,67,71,73	NC
6,8,10,12,14,16,20,22	NC
32,34,36,38,40,42,44	NC
46,48,58,60,62,64,66	NC
68,70	NC

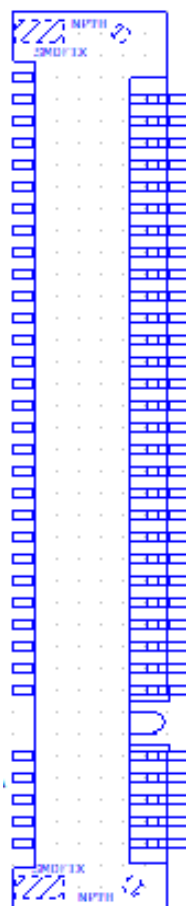


**Table A.27: CN16(H):M.2\_2230**

Part Number	1654013690-01
Footprint	NGFF_75P_APCI0085-P003A
Description	NGFF 75P/0.5/F/LCP+40GF/RA/G10u/S/BK/H3.0/E Key
<b>Pin</b>	<b>Pin name</b>
1,7,18,33,39,45	GND
51,57,63,69,75,H4	GND
57,71,73,75,H3,H4	GND
2,4,72,74	3.3V
50	SUSCLK_z_EKEY
54	BT_DISABLE#
56	WIFI_DISABLE#
58	I2C0_KEYE_DAT
60	I2C0_KEYE_CLK
3	USB8_z_P+
5	USB8_z_P-
35	PCIE_M2_z_TX7+
37	PCIE_M2_z_TX7-
47	CLK_M2E_z_PCIE+
49	CLK_M2E_z_PCIE-
53	PCIE_a_CLKREQ2#



<b>Table A.28: M2M1(H):M.2_2280</b>	
Part Number	1654012187-02
Footprint	NGFF_75P_AS0BC21-S85BM-7H
Description	NGFF 75P 0.5mm 90D(F) H=8.5mm SMD 2E0BC21-S85BM-7H
<b>Pin</b>	<b>Pin name</b>
1,3,9,15,21,27	GND
33,39,45,51	GND
57,71,73,75,H4	GND
5,17,29,41	PERN
7,19,31,43	PERP
11,23,35,47	PETN
13,25,37,49	PETP
2,4,12,14,16	3.3V
18,70,72,74	3.3V
49	SATA1_C_TX+
47	SATA1_C_TX-
43	SATA1_C_RX-
41	SATA1_C_RX+
55	CLK5_M2M+
53	CLK5_M2M-
50	M2_2280_RST#
52	M2_2280_CLKREQ#
54	M2_2280_WAKE#
68	CLK32K_M2_2280
6,8,20,22,24,26	NC
28,30,32,34,36	NC
40,42,44,46	NC
48,56,58	NC



**Table A.29: CN23(D),CN17(EFG):LAN1/LAN2**

Part Number	1652003274
Footprint	RJ45_28P_RTB-19GB9J1A
Description	PHONE JACK RJ45 28P DIP RTB-19GB9J1A
<b>Pin</b>	<b>Pin name</b>

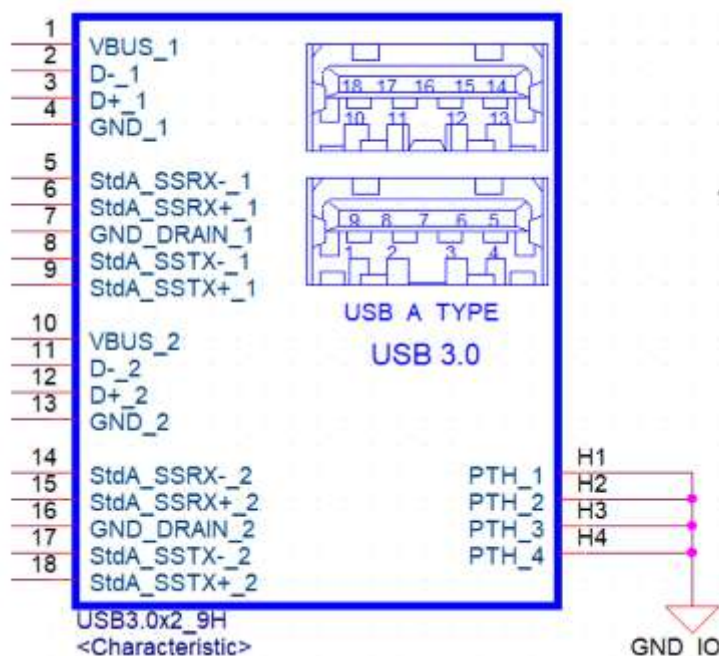
**Table A.30: CN11(H):LAN1/LAN2**

Part Number	1652006625-01
Footprint	RJ45_28P_RTB-19GB9J4A
Description	PHONE JACK RJ45 28P 2.54mm DIP RTB-19GB9J4A
<b>Pin</b>	<b>Pin name</b>



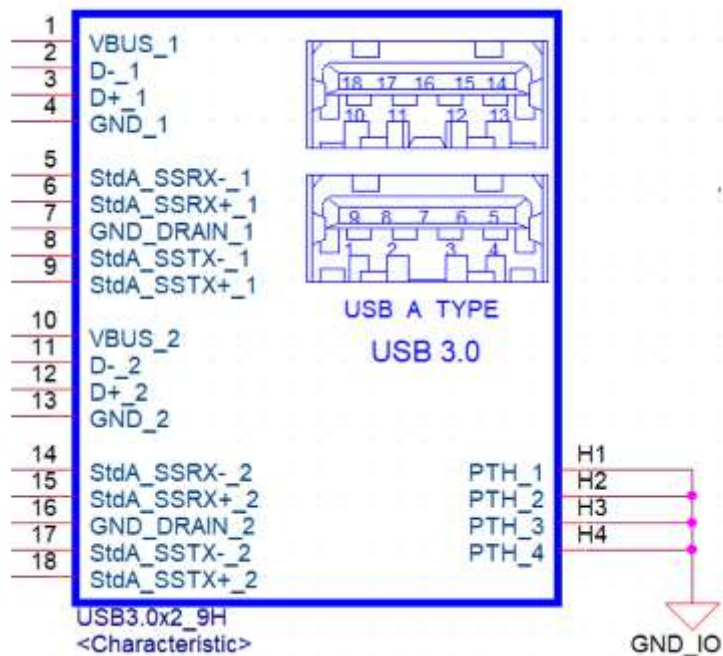
**Table A.31: CN19(EF),CN21(G):External USB**

Part Number	1654010969-01
Footprint	USB_9x2P_UEA1112C-8HS6-4F
Description	USB CONN. 18P 2.0mm 90D(F) DIP UEA1112C
<b>Pin</b>	<b>Pin name</b>
1	+5V
2	D-
3	D+
4	GND
5	RX_D-
6	RX_D+
7	GND
8	TX_D-
9	TX_D+
10	+5V
11	D-
12	D+
13	GND
14	RX_D-
15	RX_D+
16	GND
17	TX_D-
18	TX_D+



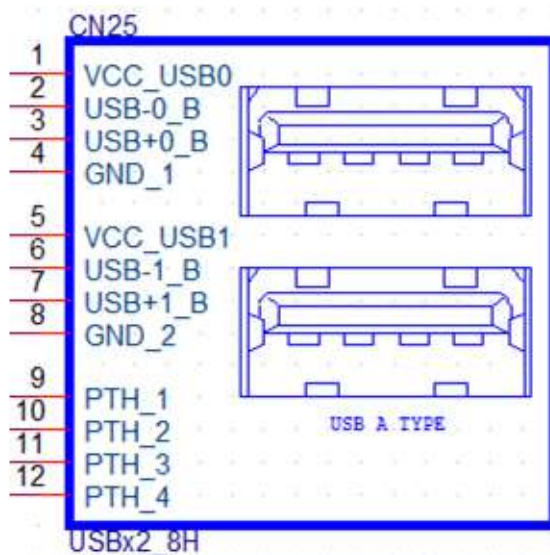
**Table A.32: CN20(EF),CN22(G):External USB**

Part Number	1654010969-01
Footprint	USB_9x2P_UEA1112C-8HS6-4F
Description	USB CONN. 18P 2.0mm 90D(F) DIP UEA1112C
Pin	Pin name
1	+5V
2	D-
3	D+
4	GND
5	RX_D-
6	RX_D+
7	GND
8	TX_D-
9	TX_D+
10	+5V
11	D-
12	D+
13	GND
14	RX_D-
15	RX_D+
16	GND
17	TX_D-
18	TX_D+



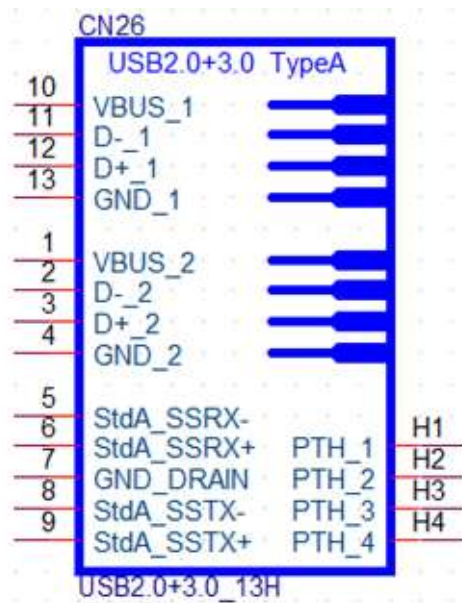
**Table A.33: CN24,CN25 (D),CN18(EF),CN20(G):External USB**

Part Number	1654009513
Footprint	USB_8P_UB1112C-8FDE-4F
Description	USB CONN. 8P 2.0mm 90D DIP UB1112C-8FDE-4F
<b>Pin</b>	<b>Pin name</b>
1	+5VSB
2	D-
3	D+
4	GND
5	+5VSB
6	D-
7	D+
8	GND



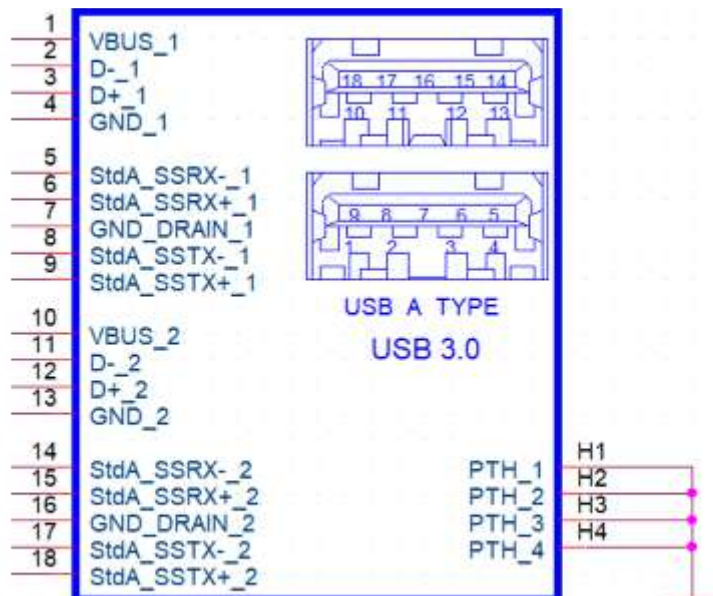
**Table A.34: CN26(D):External USB**

Part Number	1654010199
Footprint	USB_13P_UEA1112C-UHS6-4F
Description	USB Conn. 2.0+3.0 13P 90D(F) DIP UEA1112C-UHS6-4
<b>Pin</b>	<b>Pin name</b>
1	+5VSB
2	D0-
3	D0+
4	GND
5	RX_D-
6	RX_D+
7	GND
8	TX_D-
9	TX_D+
10	+5VSB
11	D1-
12	D1+
13	GND



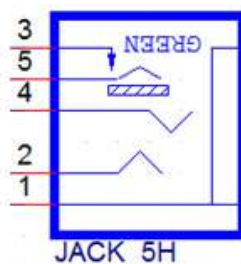
**Table A.35: CN170(H),CN169(H),CN43(H):External USB**

Part Number	1654013480-01
Footprint	USB_9x2P_USB5-18F5-BNR0-10
Description	USB 3.1 2x9P/2.0mm/PA66/(F)/RA/G30u/D/BU/H15.69
<b>Pin</b>	<b>Pin name</b>
1	+5V
2	D5-
3	D5+
4	GND
5	RX-
6	RX+
7	GND
8	TX-
9	TX+
10	+5V
11	D6-
12	D6+
13	GND
14	RX-
15	RX+
16	GND
17	TX-
18	TX+



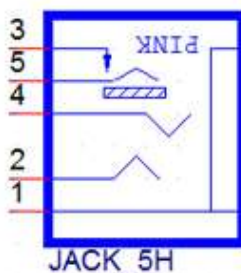
**Table A.36: CN27(D),CN21(E),CN22(F),CN25(G),CN66(H):Line-out**

Part Number	1652001586
Footprint	KUONYI_PJ-2508PC-5-L
Description	PHONE JACK 5P 3.5φ 90D(F) AZALIA GREEN DIP WO/P
Pin	Pin name
1	GND
2	OUT_L
3	JD
4	OUT_R
5	GND



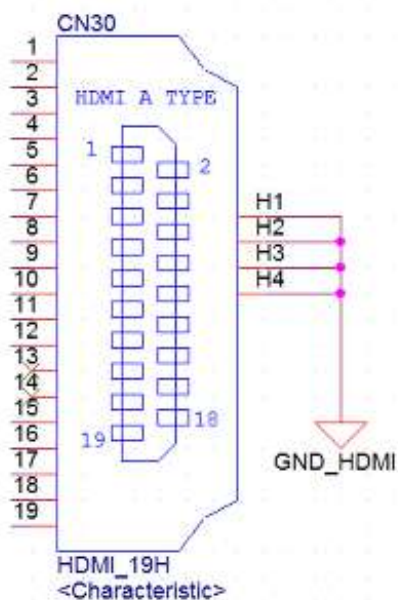
**Table A.37: CN28(D),CN22(E),CN21(F),CN24(GH):MIC-IN**

Part Number	1652001584
Footprint	KUONYI_PJ-2508PA-5-L
Description	PHONE JACK 5P 3.5φ 90D(F) AZALIA PINK DIP WO/Pb
Pin	Pin name
1	GND
2	MIC_L
3	JD
4	MIC_R
5	GND



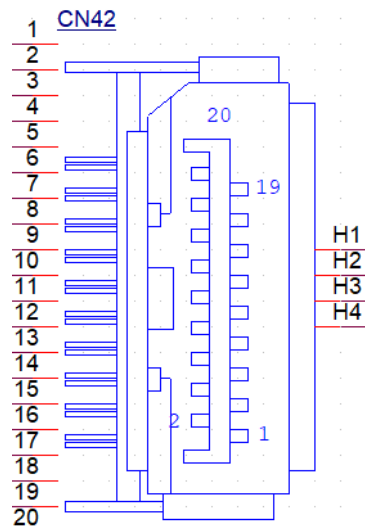
**Table A.38: CN30(D),CN24(EF),CN27(G),CN15(H):HDMI**

Part Number	1654011175-01
Footprint	HDMI_19P_QJ51191-LFB4-7F
Description	HDMI Conn. 19P 0.5mm 90D(F) SMD QJ51191-LFB4-7F
<b>Pin</b>	<b>Pin name</b>
1	HDMI_TX0+
2	GND
3	HDMI_TX0-
4	HDMI_TX1+
5	GND
6	HDMI_TX1-
7	HDMI_TX2+
8	GND
9	HDMI_TX2-
10	HDMI_TX3+
11	GND
12	HDMI_TX3-
13	NC
14	NC
15	HDMI_CLK
16	HDMI_DAT
17	GND
18	+5V
19	HDMI_DET



**Table A.39: CN42(H):DP**

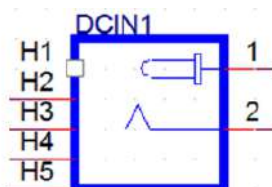
Part Number	1654006275
Footprint	DPCON_20P_3VD11203-H7A0-4H
Description	DisplayPort Conn. 20P 1.40mm 90D DIP 3VD11203
<b>Pin</b>	<b>Pin name</b>
2,5,8,11,14,16,19	GND
1	DP_TX0+
3	DP_TX0-
4	DP_TX1+
6	DP_TX1-
7	DP_TX2+
9	DP_TX2-
10	DP_TX3+
12	DP_TX3-
13	DP_AUX_EN#
15	DP1_AUX+
17	DP1_AUX-
18	DDP2_DP_HPD
20	3.3V





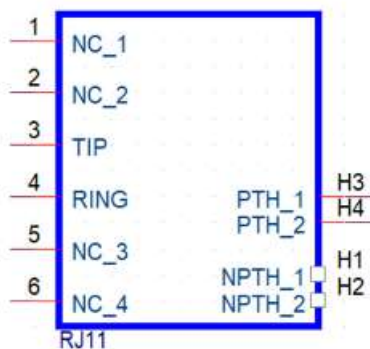
**Table A.40: CN31(DG),CN25(EF),DCIN1(H):DC-IN**

Part Number	1652005624
Footprint	PJ_2P_2DC-G213B200
Description	DC POWER JACK 2.5mm 90D(M) DIP 2DC-G213B200
<b>Pin</b>	<b>Pin name</b>
1	DC_IN
2	GND



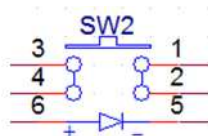
**Table A.41: CN29(D),CN23(EF),CN26(G):RJ11**

Part Number	1652005977-02
Footprint	S RJ11_6P_RJ1201-66N024R0
Description	PHONE JACK RJ11 6P6C 90D(F) DIP 6u RJ1201-66N024
<b>Pin</b>	<b>Pin name</b>
1	GND
2	Drawer_A
3	Drawer_state
4	Power
5	Drawer_B
6	GND



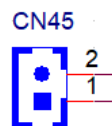
**Table A.42: BUTTON:Power Button**

Part Number	1600000055
Footprint	SW_6P_TC003-N11AABRGXX-RK_D
Description	PUSH SW DIP 6P W/LED WO/Pb TC003-N11AABRGXX-RK
<b>Pin</b>	<b>Pin name</b>
1	GND
2	GND
3	ATX_PWRBTN#
4	ATX_PWRBTN#
5	+5V
6	GND



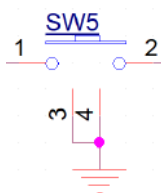
**Table A.43: CN45(H):Power Button**

Part Number	1655302020
Footprint	WF_2P_79_BOX_R1_D
Description	WAFER BOX 2P 2.0mm 180D(M) DIP A2001WV2-2P
<b>Pin</b>	<b>Pin name</b>
1	GND
2	ATX_PWRBTN#



**Table A.44: SW5(H):Power Button**

Part Number	1600002384
Footprint	SW_2P_EL TSA-63_D
Description	PUSH SW EL TSA-63N-H DIP 4P 7.4x6.65x8.5mm
<b>Pin</b>	<b>Pin name</b>
1	ATX_PWRBTN#
2	GND
3	GND
4	GND





**ADVANTECH**

*Enabling an Intelligent Planet*

**[www.advantech.com](http://www.advantech.com)**

Please verify specifications before quoting. This guide is intended for reference purposes only.

All product specifications are subject to change without notice.

No part of this publication may be reproduced in any form or by any means, such as electronically, by photocopying, recording, or otherwise, without prior written permission from the publisher.

All brand and product names are trademarks or registered trademarks of their respective companies.

© Advantech Co., Ltd. 2021