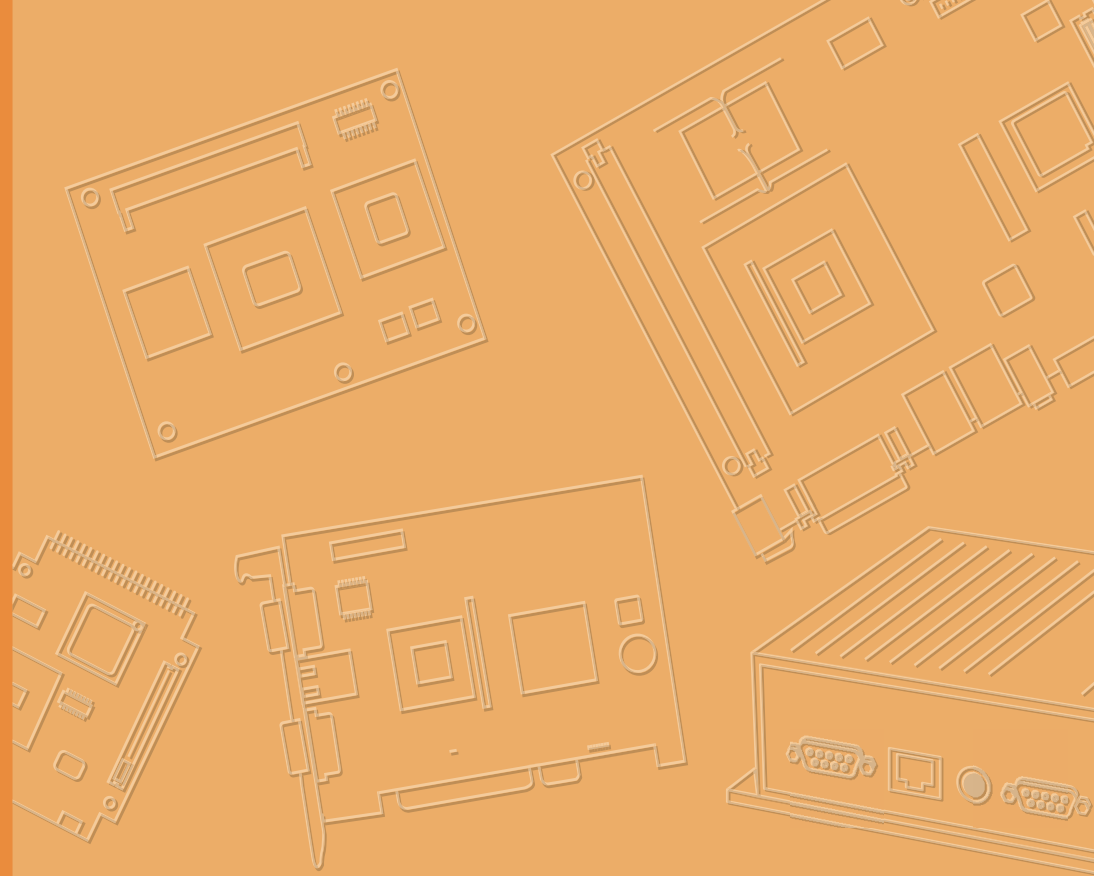


User Manual



UTC-318

**Ubiquitous Touch Computer
with 18.5" TFT LCD and Intel[®]
Core[™] i Processor**

ADVANTECH

Enabling an Intelligent Planet

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This manual is for UTC-318.

Declaration of Conformity

FCC Class A

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 in residential installations. 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 again, the user is encouraged to attempt to correct the interference by implementing one or more of the following measures:

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

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



Packing List

Before installing UTC-318, please ensure that the following materials have been shipped:

- 1 x UTC-318
- Accessories for UTC-318
 - 1 x Warranty card
 - 1 x Adapter
 - 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 require 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 comprehensive 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 this 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 should be located near the equipment and easily accessible.
5. Protect this equipment from humidity.
6. Place this equipment on a reliable surface during installation. Dropping or letting the device 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 the power source 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 liquids into the openings of 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 qualified 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 keep 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 stored in a controlled environment.
16. Batteries that are incorrectly replaced are at risk of exploding. Replace only with the same or equivalent type recommended by the manufacturer. Discard used batteries according to the manufacturer's instructions.
17. In accordance with IEC 704-1:1982 specifications, the sound pressure level at the operator's position does not exceed 70 dB (A).

DISCLAIMER: These instructions are provided in accordance with IEC 704-1. Advantech disclaims all responsibility for the accuracy of any statements contained herein.

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Chapter 1

General Information

This chapter gives background information regarding UTC-318.

- Introduction
- System Specifications
- LCD Specifications
- Optional Modules
- Dimensions

1.1 Introduction

UTC-318 is a multi-purpose all-in-one computer equipped with a wide format, touch-based LCD panel. The system can be easily integrated with additional peripherals and display systems to support diverse self-service operations and interactive signage applications at various locations. Additionally, with the removable frame design, the system can be panel mounted for control operations.

1.2 System Specifications

1.2.1 General

- **Dimensions (L x H x D):** 475 x 295 x 43.5 mm (18.7 x 11.61 x 1.71 in)
- **Weight:** 5 kg (11 lb)
- **Power adapter:** AC/DC (standard) 12 V, 84 W
Input voltage: 100 ~ 240 V_{AC}
Output voltage: 12 V @ 7 A
- **Disk drive housing:** Supports one 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-318E)/Core™ i5-6300U (UTC-318F) with 3 MB L3 cache/Core™ i5-8365UE (UTC-318H) L3 Cache 3MB
 - Intel® Celeron® J1900 (UTC-318D)/Pentium® N4200 (UTC-318G) with 2 MB L2 cache
- **System chipset:** Intel® Core™ i5-6300U/i5-4300U/Pentium® N4200/Celeron® J1900/Core™ i5-8365UE
- **System memory:**
 - 1 x 204-pin SODIMM DDR3L 1333 MHz up to 8 GB (UTC-318D/E)
 - 1 x 260-pin SODIMM DDR4 2133 MHz up to 16 GB (UTC-318F)
 - 1 x 204-pin SODIMM DDR3L 1866 MHz up to 8GB (UTC-318G)
 - 1 x 260pin SO-DIMM DDR4 2400 MHZ up to 32GB (UTC-318H)
- **Serial ports:** 1 x RS-232 COM, 1 x RS-232/422/485
- **USB ports:**
 - Supports up to 5 x USB 2.0/1 x USB 3.0 (UTC-318D)
 - Supports up to 2 x USB 2.0/4 x USB 3.0 (UTC-318E/F/G)
 - Supports up to 6 x USB 3.1 (UTC-318H)
- **Bus expansion slot:**
 - Full-size MiniPCIe for Wireless LAN card (UTC-318D/E/F)
 - M.2 2230 for Wireless LAN card (UTC-318G/H)
- **Watchdog timer:** Single-chip watchdog timer with 255 interval levels, setup using 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-318E)
 - LAN1 Intel® I219LM, LAN2 Intel® WGI211AT (UTC-318F/H)
 - LAN1 Intel® WGI211AT, LAN2 Intel® WGI211AT (UTC-318D/G)
- **Speed:** 1000 Mbps
- **Interface:** 2 x RJ45
- **Wake-on-LAN:** Supports wake-on-LAN with ATX power control and LAN teaming (in fault tolerance)

1.2.5 Touchscreen (Optional)

Type	5-wire analog resistive (resistive flat glass)/projected capacitive touch panel (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 ~ 95% @ 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 M4 screws; supports landscape and portrait modes

Note! *The minimum length of the screws should be 6mm+ A (the thickness of the plate); the maximum length of the screws should be 9.3mm + A (the thickness of the plate).*



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




Note! *Please follow the recommendations provided in the user manual when installing UTC-318.*



1.2.7 LCD Specifications

- **Display type:** 18.5" TFT LCD
- **Max. resolution:** 1366x768 (1920x1080 optional)
- **Colors:** 16.7M
- **Pixel pitch (H x V):** 300 x 300 um
- **Viewing angle:** 170°/160°
- **Luminance:** 250cd/m² (350cd/m² optional)

Note!  The color LCD panel integrated with UTC-318 is of high quality and reliable. However, the display may contain a few defective pixels that do not always illuminate. Even with the most up-to-date technology, it is impossible to completely eliminate defective pixels. Advantech is actively working to improve this technology.

1.3 Optional Modules

- **Memory:**
 - 1 x 204-pin SODIMM DDR3L 1333 MHz up to 8 GB (UTC-318D/E)
 - 1 x 260-pin SODIMM DDR4 2133 MHz up to 16 GB (UTC-318F)
 - 1 x 204-pin SODIMM DDR3L 1866 MHz up to 8 GB (UTC-318G)
 - 1 x 260pin SO-DIMM DDR4 2400 MHZ up to 32GB (UTC-318H)
- **HDD:** 2.5" SATA HDD
- **Operating system:**
 - WES 7P (32 bit) UTC-318D/F
 - WES 7E (32 bit) UTC-318D/F
 - Windows Pro Embedded 7 SP1 (64 bit) UTC-318D/F
 - WE8S (64 bit) UTC-318D/F
 - Windows Embedded 8.1 Industry Pro (64 bit)
 - Windows 10 IoT Enterprise (64 bit)
 - Linux (UTC-318D/E/F/G/H)
 - Android 6.0 (only UTC-318D)
 - Android 10.0 (only UTC-318G)
- **Touchscreen:** 5-wire analog resistive (resistive flat glass)/projected capacitive touch panel (PCAP flat glass)/glass panel
- **Power cord:** 1702002600 (US) 1702002605 (Europe)
- **Wireless LAN module:**

Part Number	Description
1750008953-01 (UTC-318D/E/F)	Metal antenna D.B 2.4+5G WLAN MHF1/113 BLK L350
968EMW0071/ EWM-W157H01E (UTC-318D/E/F)	Wireless 802.11abgn AR9382 2T2R full-size DNXA-1/802.11 a/b/g/n/ac,RTL8821AE, with BT4.0
EWM-W163M201E (UTC-318G/H)	802.11 a/b/g/n/ac,QCA6174A,2T2R,w/BT4.1,M.2
1750008954-01 (UTC-318G/H)	Metal antenna D.B 2.4+5G WLAN MHF4/113 BLK L350

1.4 Dimensions

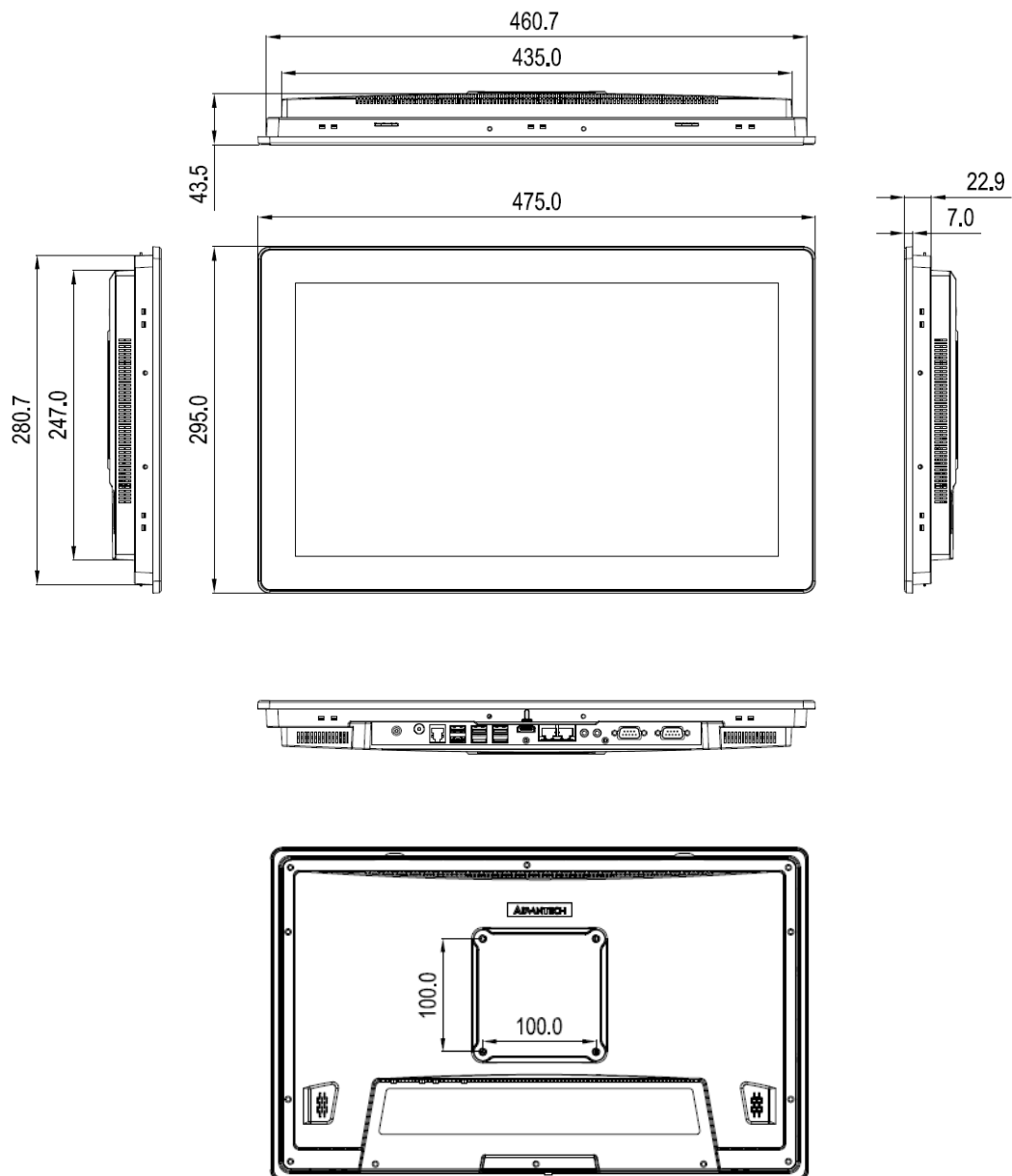


Figure 1.1 UTC-318 Dimensions

Chapter 2

System Setup

This chapter details the processes for setting up UTC-318.

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

2.1 Quick Tour

Before setting up UTC-318, take a moment to familiarize yourself with the location and functions of the controls, drives, connectors, and ports.

When the UTC-318 is upright, the front panel should appear as shown in Figure 2.1.

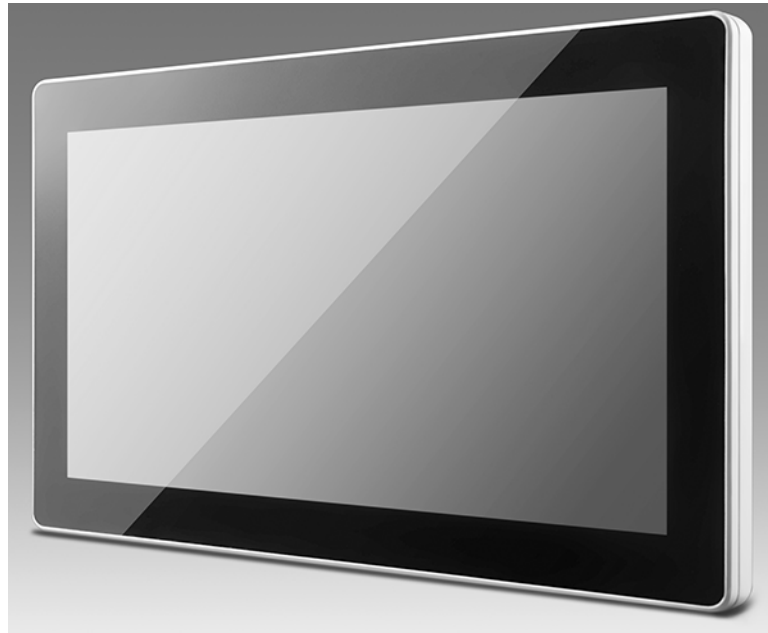


Figure 2.1 UTC-318 Front View

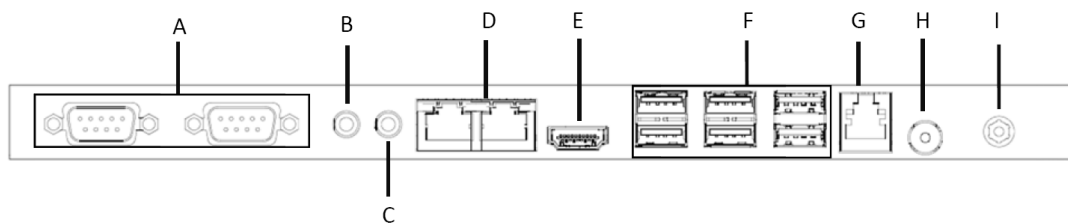
Located at the rear of UTC-318 is the I/O section, as shown in Figure 2.2.

(The I/O section comprises serial, Ethernet, USB, HDMI, Line-Out/Mic-In, RJ11, and DC-In ports, as well as a power button.)



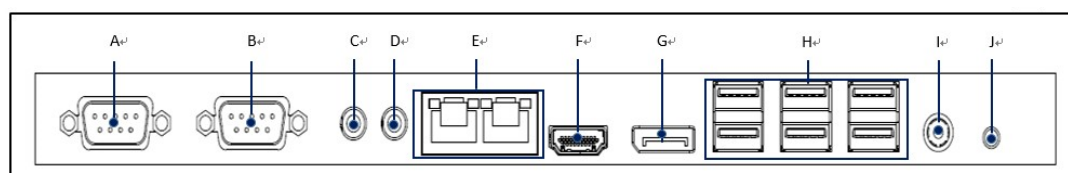
Figure 2.2 UTC-318 Rear View

UTC-318D/E/F/G IO Port



- | | |
|-------------|--|
| A. COM port | B. Line-Out |
| C. Mic-In | D. Gigabit LAN x 2 |
| E. HDMI | F. 4 x USB 3.0, 2 x USB 2.0 (UTC-318E/F/G) |
| G. RJ11 | 1 x USB 3.0, 5 x USB 2.0 (UTC-318D) |
| I. DC-In | H. Power button |

UTC-318H IO Port



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

2.2 Installation Procedures

2.2.1 Connecting the Power Cord

UTC-318 can be powered by a DC electrical outlet. When handling power cords, ensure to only hold the plug ends. Please refer to Figure 2.3 when connecting the male plug of the power cord to the UTC-318 DC inlet.

2.2.2 Connecting a Keyboard or Mouse

Before powering on the device, connect a keyboard or mouse to the relevant port in the I/O section.

2.2.3 Switching on the Power

The power button is located at the rear of the UTC-318, as shown in Figure 2.3.



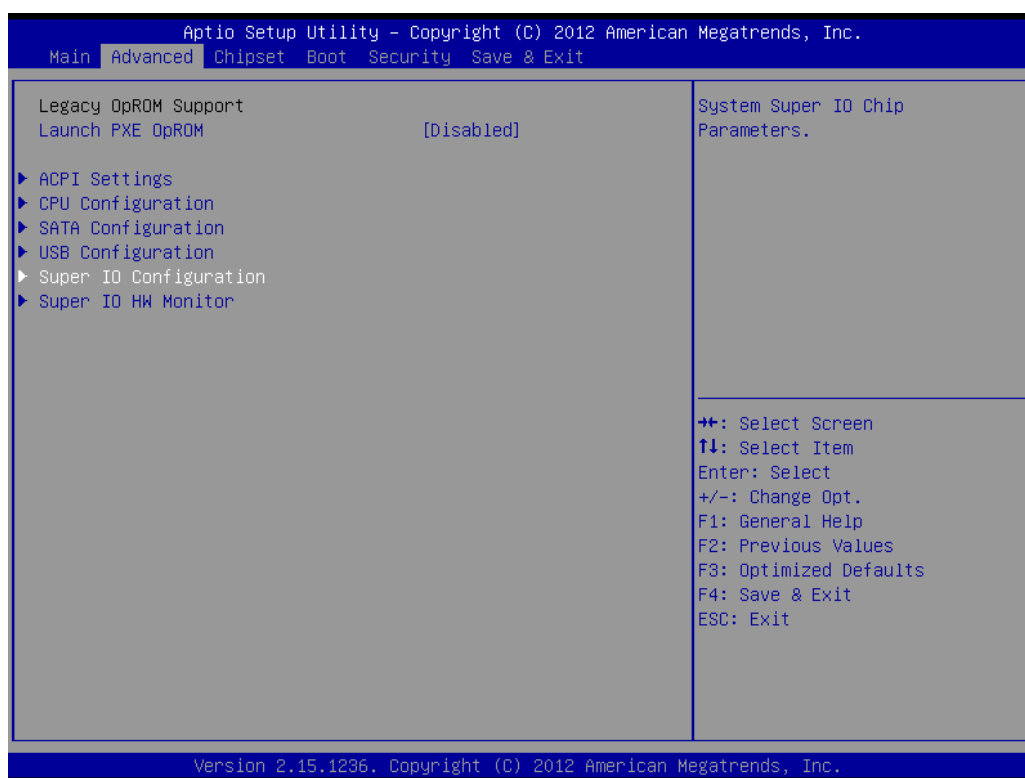
Figure 2.3 Connecting the Power Cord to the DC Inlet

2.3 BIOS Setup Utility

This equipment is likely to have been set up and configured by the dealer prior to delivery. Nonetheless, users may still need to use the UTC-318's BIOS setup utility to adjust the system configuration data, such as the current date and time or hard drive type. The setup program is stored in read-only memory (ROM) and can be accessed by pressing "Del" immediately after powering on or resetting the computer.

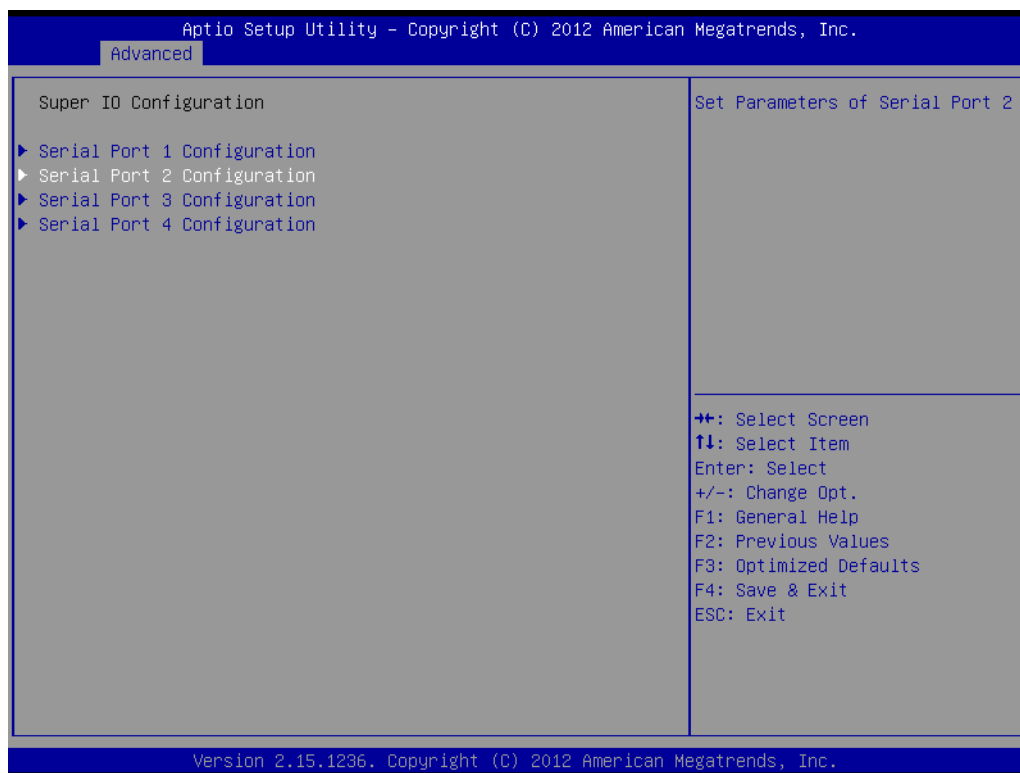
The settings specified in the setup program are recorded in a special area of memory called CMOS RAM. This memory is backed up by a battery to ensure the settings are retained when the system is powered off or reset. When the power is turned on, the system reads the settings stored in CMOS RAM and compares them to the results of the equipment check conducted during the power on self-test (POST). If an error is detected, an onscreen error message will be displayed, and users will be prompted to run the setup program.

COM2 RS232/RS422/RS485 Selection

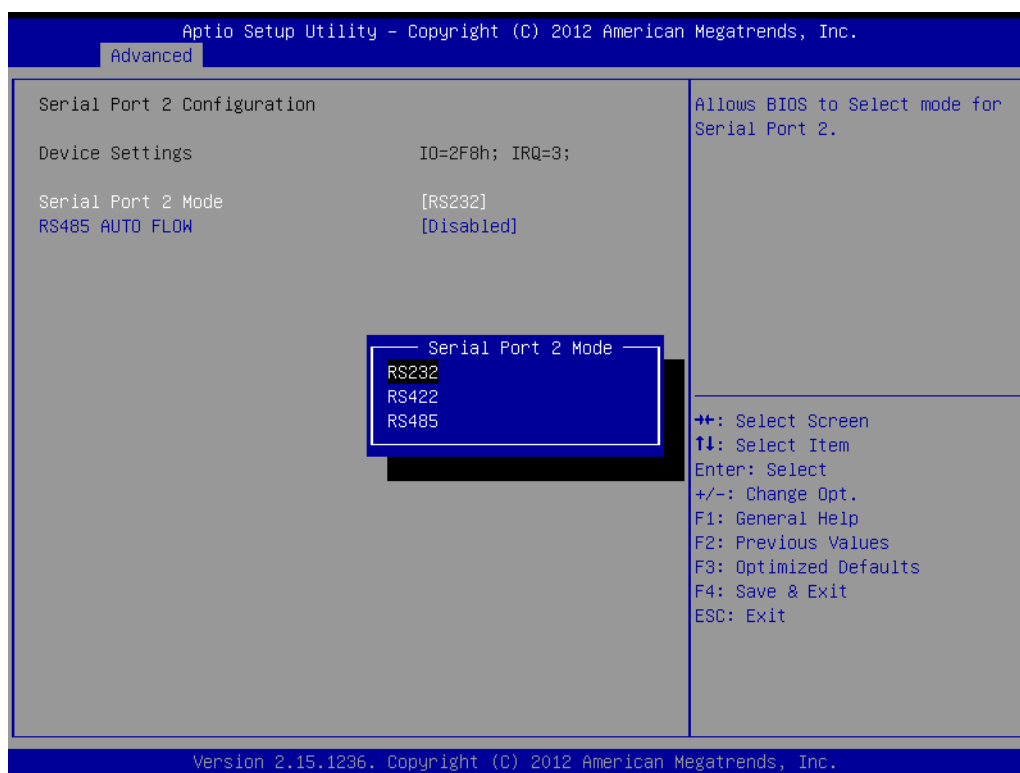


Enter the BIOS setup menu → Advanced → Super IO Configuration

Select "Serial Port 2 Configuration"



Change Serial Port 2 Mode [RS-232/422/485]



2.4 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. The guidelines provided below will assist users in determining the necessary steps for installing an operating system.

Note! *Some distributors and system integrators may pre-install system software before shipping UTC-318.*



For software installation, an installed HDD is required. Software can be loaded on the UTC-318 using either of the 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 necessary, insert the operating system installation or setup disk into the system disk drive.

The UTC-318 BIOS utility supports system bootup directly from the CD-ROM drive. Users can also insert the system installation CD into the CD-ROM drive.

Power on or reset the system by pressing “Ctrl+Alt+Del”. UTC-318 will automatically load the operating system from the disk or CD-ROM.

If presented with a setup or installation program’s opening screen, follow the onscreen instructions. The setup program will guide users through preparing the hard drive and installing the operating system. If presented with an operating system command prompt, such as A:\>, partition and format the hard drive before manually copying the operating system files to the hard drive. Refer to the operating system user manual for instructions regarding partitioning and formatting a hard drive.

2.5 Driver Installation

After installing the system software, users can set up the Ethernet, chipset, graphics, audio, USB 3.0, and touchscreen functions. All necessary drivers can be downloaded from the Advantech website.

Note! *The drivers and utilities used for UTC-318 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 the UTC-318 hardware installation process.

- HDD Installation
- mSATA Card Installation
- WLAN Installation

3.1 Introduction

UTC-318 is a touch-based computer housed in a plastic enclosure. The system's rear cover must be removed in order to install an HDD, DRAM, or mini SATA card, or to conduct hardware maintenance/upgrades.

Warning! Do not remove the rear cover until you have verified that no power is flowing within UTC-318. The power must be switched off and the power cord unplugged when servicing UTC-318.



3.2 HDD Installation

The UTC-318 internal controller can support one 2.5" SATA HDD. The SATA controller accelerates data transfers and allows the SATA HDD to exceed 150 MB. To install an HDD, follow the instructions below.

1. Detach and remove the rear cover.
2. Insert the HDD into the metal bracket and tighten the screws to affix in place (see Figure 3.1).
3. The HDD cable (SATA 7P+1*5P-2.5/SATA(15+7)P) should be located next to the metal brace. Connect one end of the HDD cable to the motherboard (SATA1/SATA Power) and the other end to the SATA HDD.
4. Replace the rear cover and tighten the screws to secure in place.

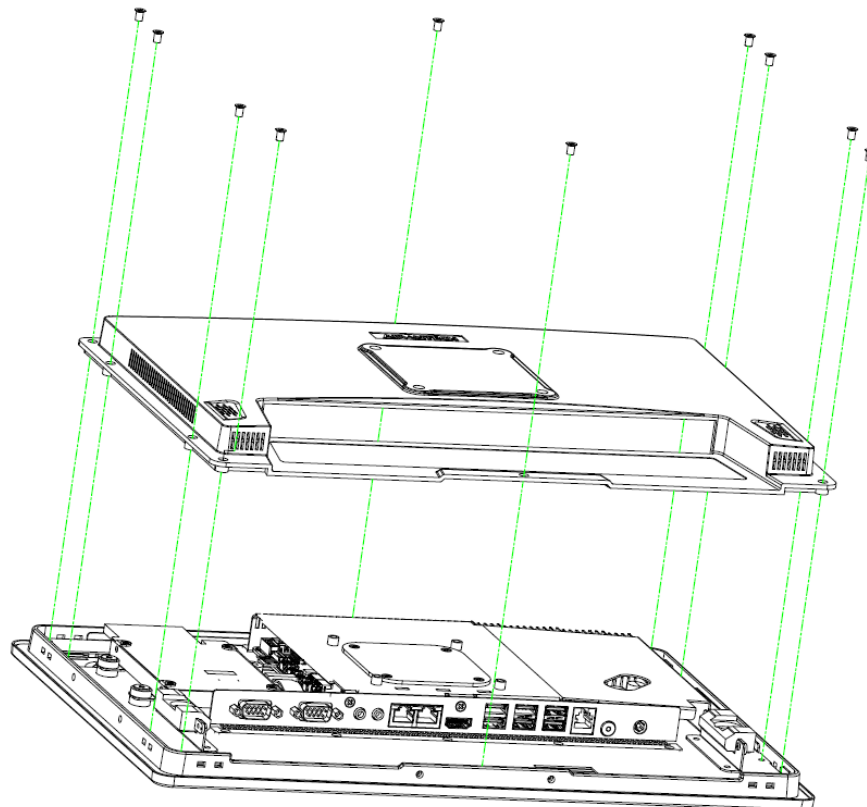


Figure 3.1 Installing an HDD

3.3 mSATA/m.2 Card Installation

1. Remove the 10 screws on the rear cover.
2. Remove the 6 screws on the reinforced board.
3. Insert an mSATA/m.2 card into the slot.
4. Replace and tighten the screws on the reinforced board.
5. Replace the rear cover and secure in place with screws.

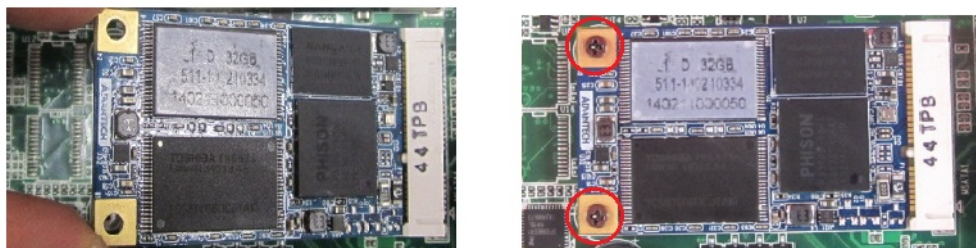
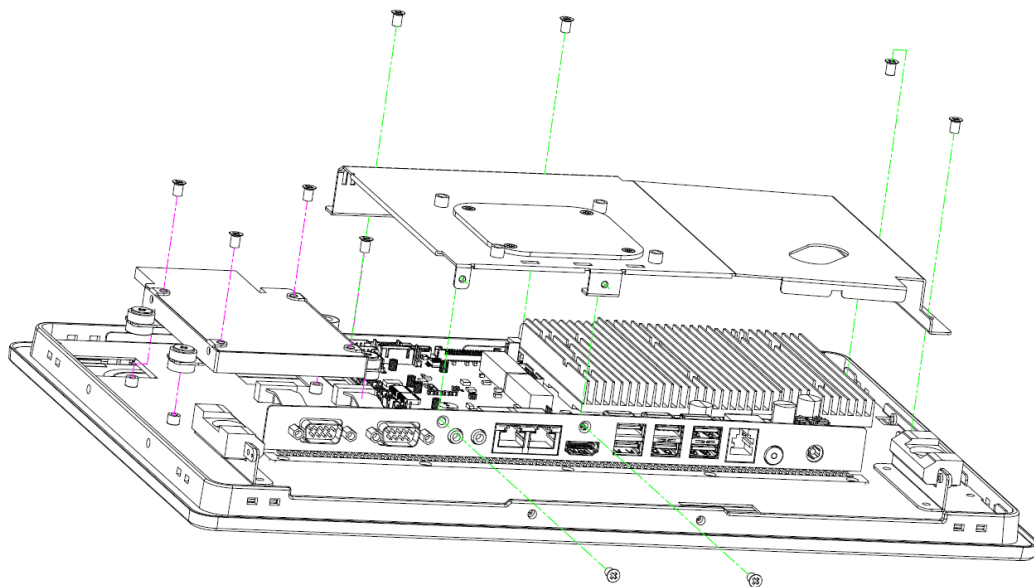
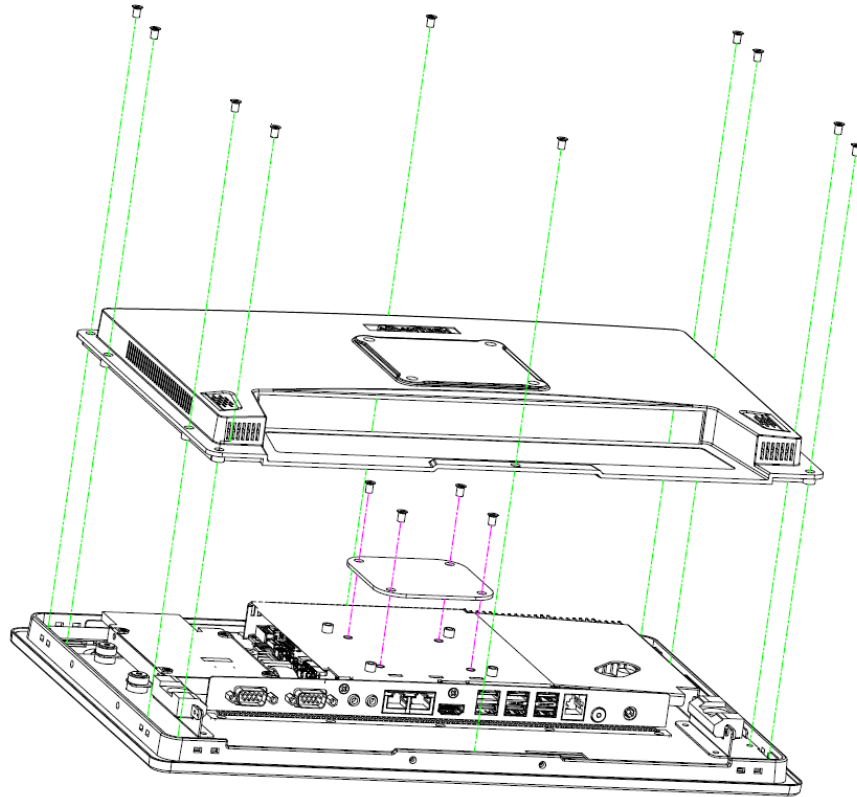


Figure 3.2 Installing an mSATA/m.2 Card

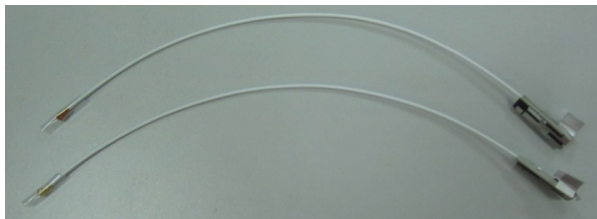
3.4 WLAN Installation

Reserve two locations for the internal antenna on the LCD frame inside machine. Users can choose the location according to their requirements.

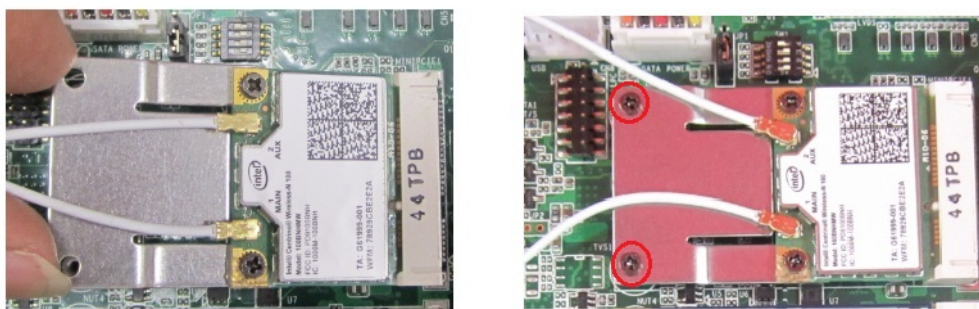
1. Remove the 10 screws from the rear cover.



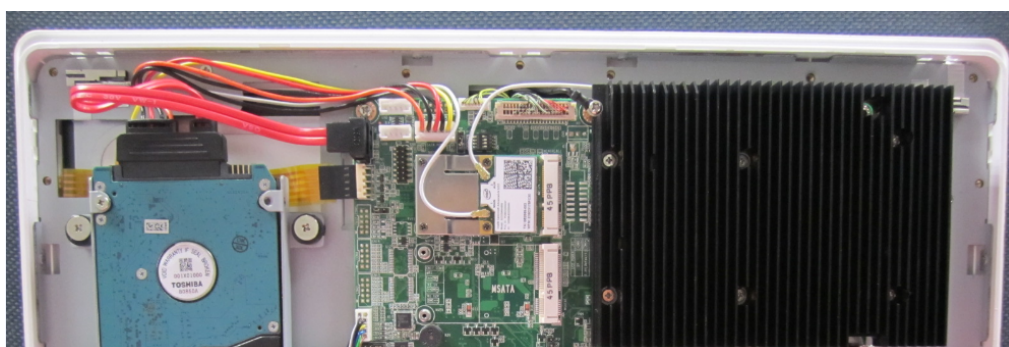
2. Remove the 6 screws on the reinforced board.
3. Connect a coaxial cable (Advantech part number: 1750008953-01 for UTC-318D/E/F, 170008954-01 for UTC-318G/H) to "connector" on the WLAN card.



4. Install the WLAN card into the slot of the motherboard.



5. The wireless antenna cable should be routed as shown below.



Chapter 4

Jumper and Connector Settings

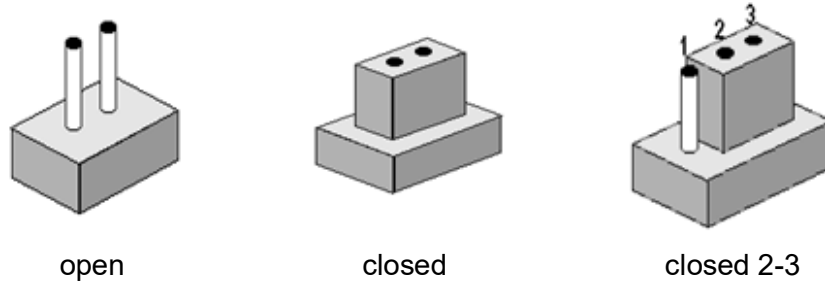
This chapter provides instructions for setting jumpers and connecting peripherals, switches, and indicators.

- Jumpers and Connectors
- Function Description
- Jumper and Connector Locations

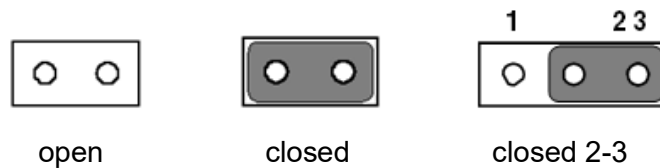
4.1 Jumpers and Connectors

4.1.1 Setting Jumpers

Users can configure UTC-318 according to their specific application requirements 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. With 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. If you have any concerns regarding the optimum hardware configuration for your application, contact your local distributor or sales representative before making any changes.

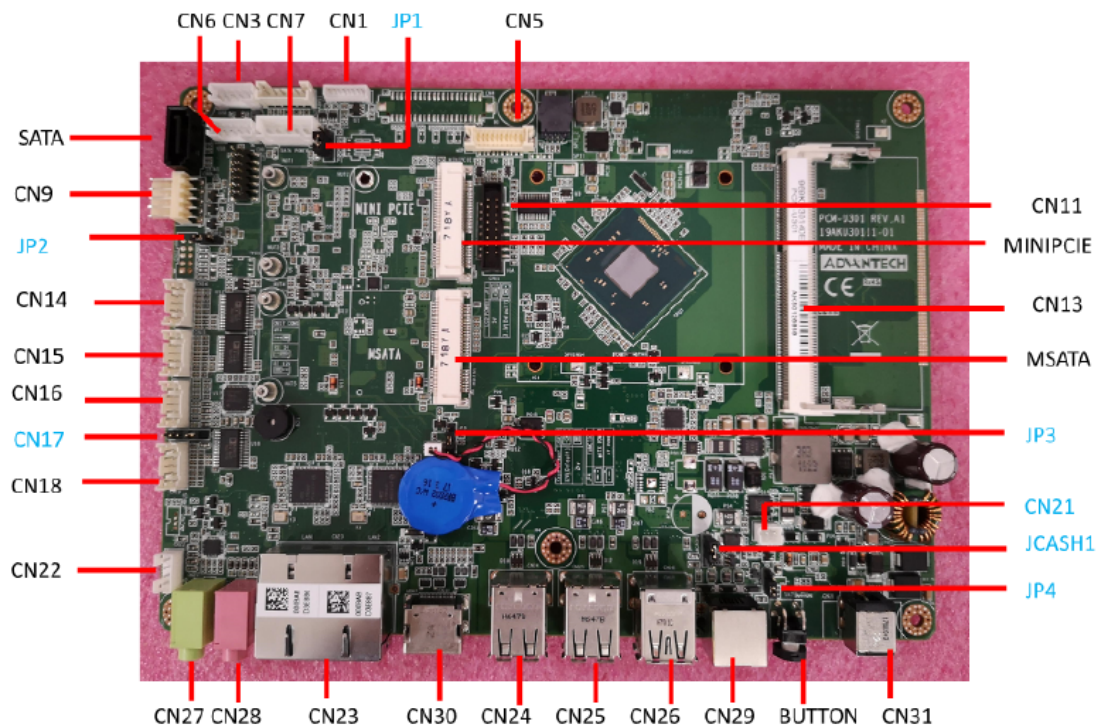
4.1.2 Jumpers and Connectors

Table 4.1: Jumper and Connector Functions

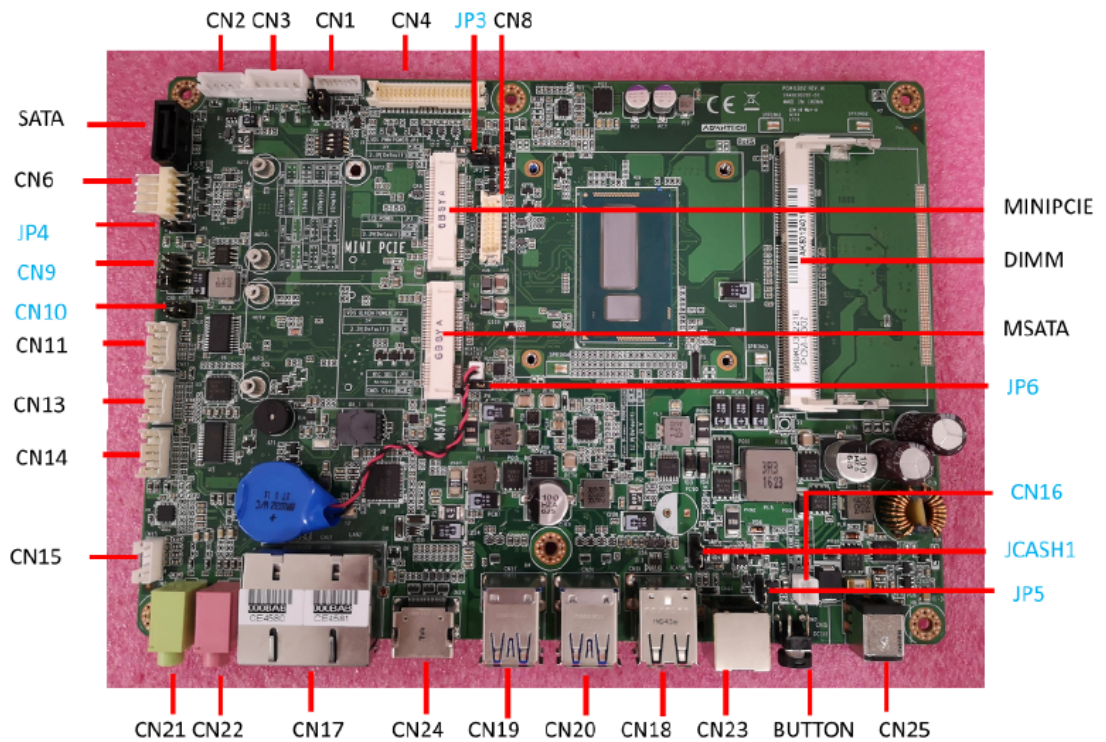
CN1(DE),CN2(FGH)	Back_Light
CN3(D),CN38(H),CN39(H)	Internal USB
CN4(DEFG),LVDS1(H)	LVDS
CN5(D),CN8(EFG), CN9(H)	Edp
CN11(DF),CN10(G)	VGA
SATA,SATA1(H)	SATA
CN7(D),CN3(EFG),CN25(H)	SATA POWER
CN23(H)	SATA LED
CN8(D),CN5(G)	Internal USB
CN9(D),CN6(EG,)CN26(F),CN41(H)	Touch
CN13(D),DIMM(EFG),CN1(H)	DR3L/4 SODIMM
MINIPCIE1(DEF)	MINIPCIE
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 Locating Jumpers and Connectors

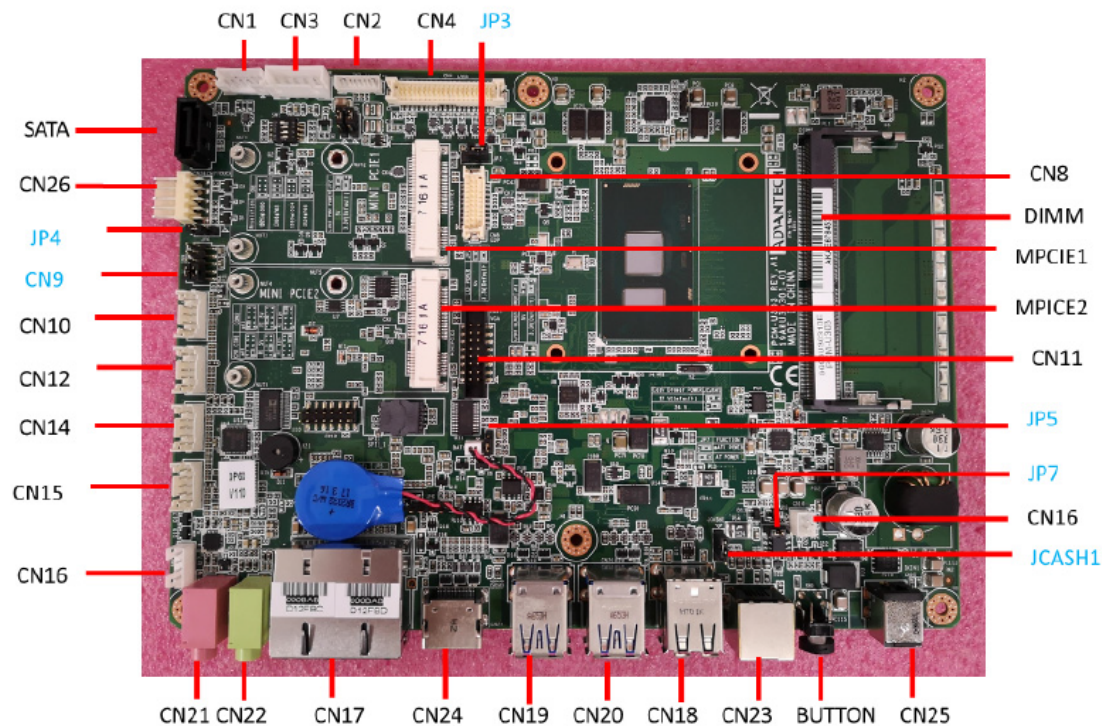
PCM-U301 (UTC-318D)



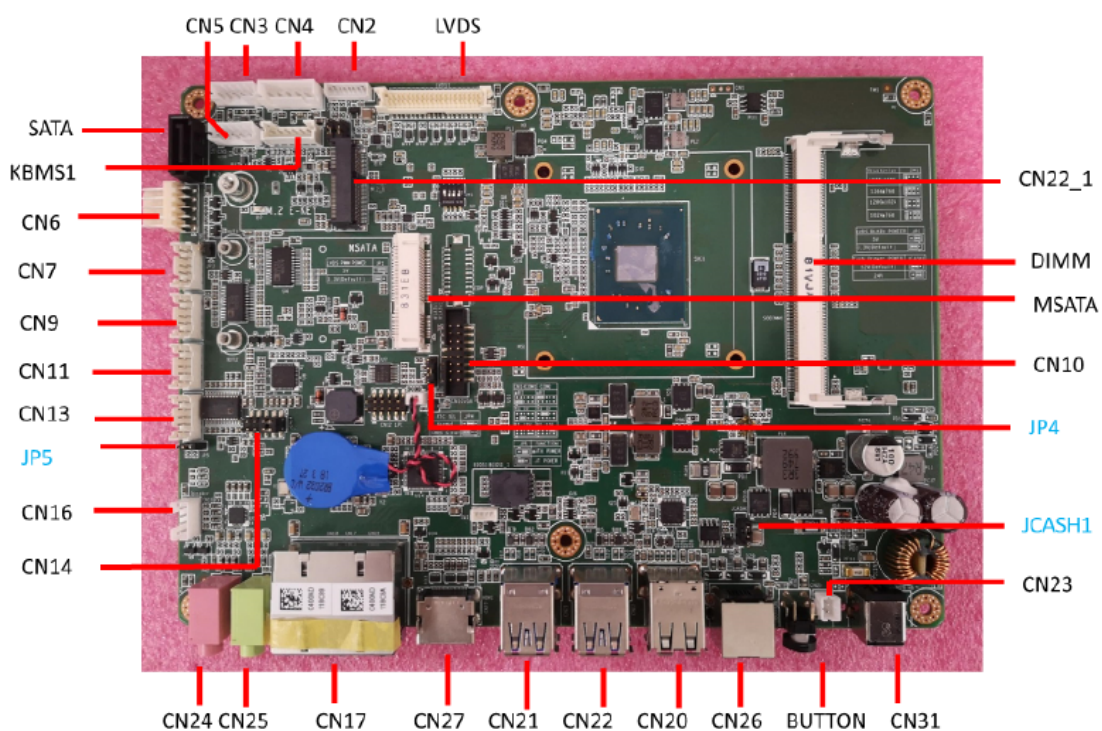
PCM-U302 (UTC-318E)



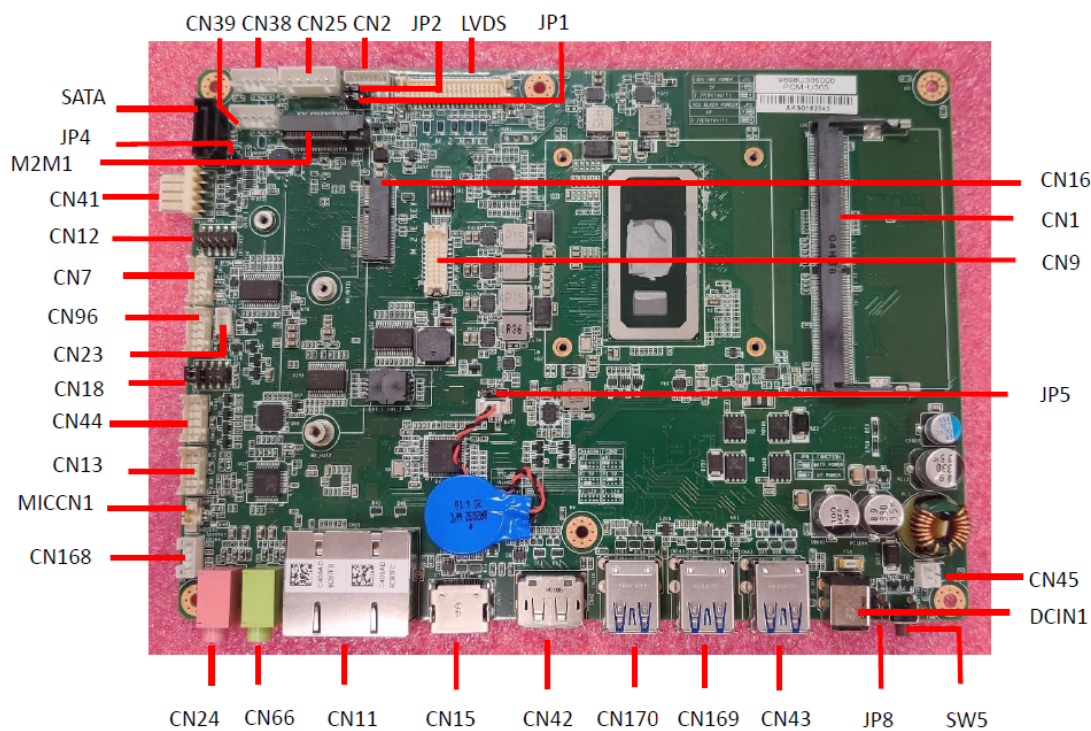
PCM-U303 (UTC-318F)



PCM-U304 (UTC-318G)



PCM-U305 (UTC-318H)



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

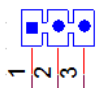


Table 4.4: JP1(H):PWM POWER

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

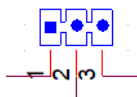
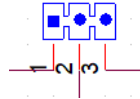
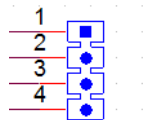


Table 4.5: JP2(H):BKLT Enable POWER

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

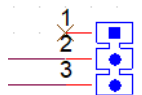


Table 4.8: JP4(H):TS POWER

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

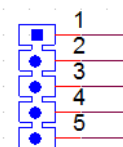
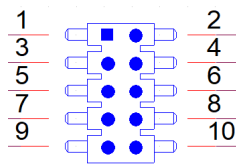
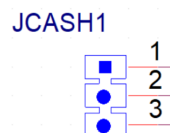


Table 4.11: CN9(EF),CN14(G),CN18(H):COM1,COM2 Ring

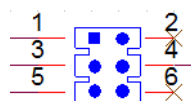
Part Number	1653005261
Footprint	HD_5x2P_79
Description	PIN HEADER 5x2P 2.0mm 180D(M) SMD 21N22050
Setting	Function
(1-3)	COM1 RING
(2-4)	COM2 RING
(3-5)*	COM1 RI output +5V
(4-6)*	COM2 RI output +5V
(7-9)*	COM1 RI output +12V
(8-10)*	COM2 RI output +12V

**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**

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

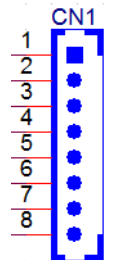


Table A.2: CN3(D):Internal USB

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

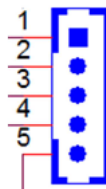
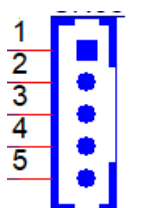


Table A.3: CN38(H),CN39(H):Internal USB

Part Number	1655305020
Footprint	WHL5V-2M
Description	WAFER BOX 2.0mm 5P 180D(M) DIP A2001WV2-5P
Pin	Pin name
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)
Pin	Pin name
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+-
23	GND

Table A.4: CN4(DEFG):LVDS

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

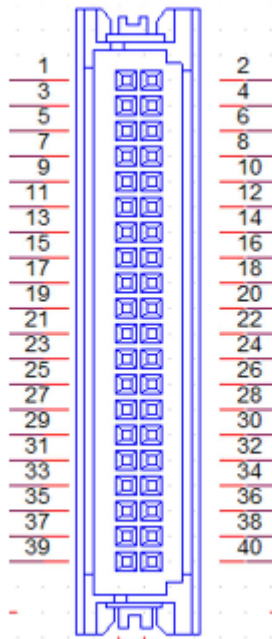


Table A.5: LVDS1(H):LVDS	
Part Number	1653006918-01
Footprint	SPH20X2
Description	(DEL20)Wafer 2x20P/1.25mm/(M)/NY9T/VA/GFL/S/WH
Pin	Pin name
1	+3.3V
2	+3.3V
3	GND
4	GND
5	GND
6	GND
7	LVDS0_D0-
8	LVDS1_D0-
9	LVDS0_D0+
10	LVDS1_D0+
11	GND
12	GND-
13	LVDS0_D1-
14	LVDS1_D1-
15	LVDS0_D1+
16	LVDS1_D1+
17	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

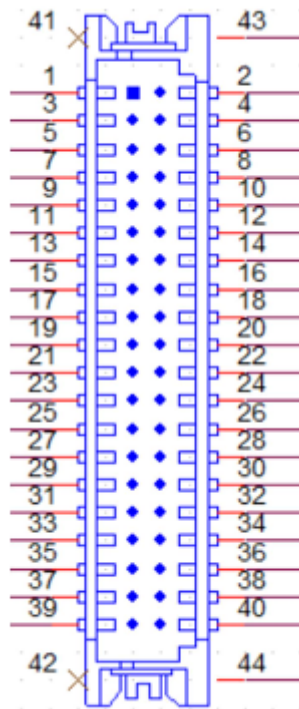


Table A.6: CN5(D),CN3(EF),CN9(H):eDP

Part Number	1653006914-01
Footprint	WB10x2P-S1.25
Description	WTB 2x10P 1.25mm 180D(M) SMD W/P DF13E-20DP-1.25
Pin	Pin name
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

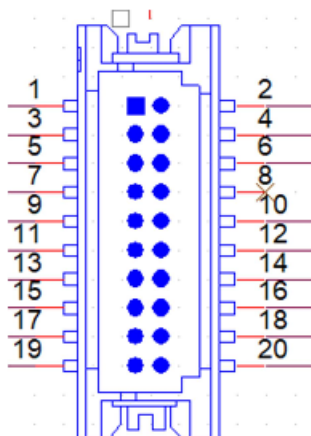


Table A.7: CN3(G) eDP

Part Number	1653006914-01
Footprint	WB10x2P-S1.25
Description	WTB 2x10P 1.25mm 180D(M) SMD W/P DF13E-20DP-1.25
Pin	Pin name
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

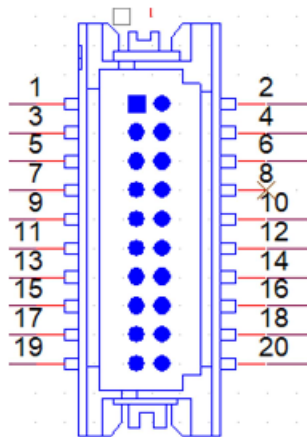


Table A.8: CN11(DF),CN10(G) VGA	
Part Number	1653208260
Footprint	HD_8x2P_79_BOX
Description	BOX HEADER 8x2P 2.00mm 180D(M) SMD 23N6850
Pin	Pin name
1	VGA_R
2	+5V
3	VGA_G
4	GND
5	VGA_B
6	NC
7	NC
8	VGA_DDAT
9	GND
10	VGA_HS
11	GND
12	VGA_VS
13	GND
14	VGA_DCLK
15	GND
16	GND

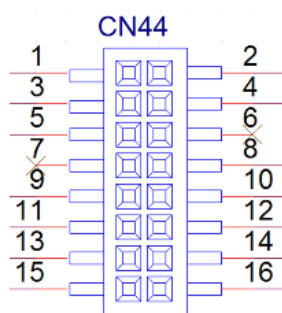
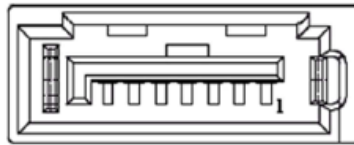


Table A.9: SATA(DEFG):SATA

Part Number	1654004659
Footprint	WF_5P_98_BOX_D
Description	WAFER BOX 5P 2.5mm 180D(M) DIP 2503-WS-5
Pin	Pin name
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

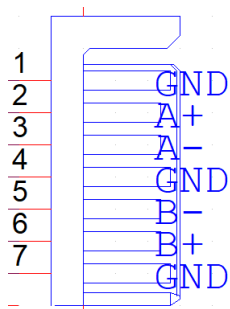
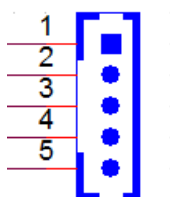


Table A.11: CN7(D),CN3(EFG),CN25(H):SATA POWER

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
Pin	Pin name
1	+5VSB
2	+5V
3	SATA0_LED
4	GND

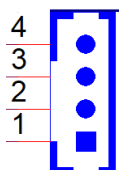
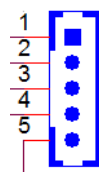
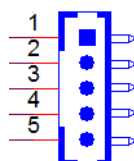


Table A.13: CN8(D),CN5(G):Internal USB

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

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
Pin	Pin name

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
Pin	Pin name
1	MPCIE1_WAKE#
2	+3.3VSB
3	NC
4	GND
5	NC
6	NC
7	MPCIE1_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

Table A.17: MINIPCI1(DEF):MINIPCI1

36	USB_D-
37	GND
38	USB_D+
39	+3.3VSB
40	GND
41	+3.3VSB
42	NC
43	NC
44	NC
45	NC
45	NC
47	NC
48	NC
49	NC
50	GND
51	NC
52	+3.3VSB

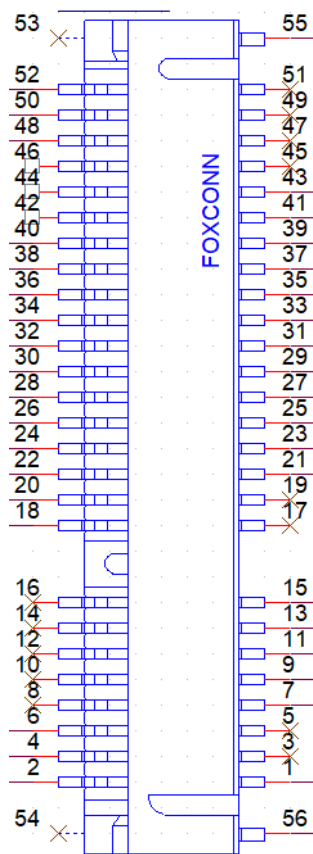


Table A.18: MSATA1(DEFG):MSATA	
Part Number	1654002538
Footprint	FOX_AS0B226-S68K7F
Description	MINI PCI E 52P 6.8mm 90D SMD AS0B226-S68Q-7H
Pin	Pin name
1	NC
2	+3.3V
3	NC
4	NC
5	NC
6	NC
7	NC
8	NC
9	GND
10	NC
11	NC
12	NC
13	NC
14	NC
15	GND
16	NC
17	NC
18	GND
19	NC
20	NC
21	GND
22	NC
23	SATA1_RX+
24	+3.3V
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

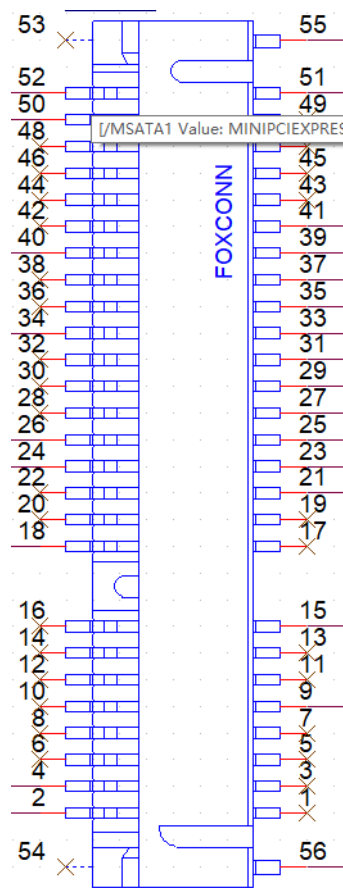
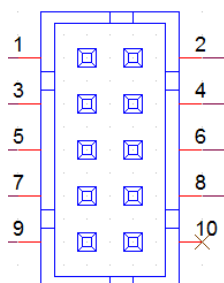


Table A.19: CN14(D),CN10(F),CN7(GH):COM4

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

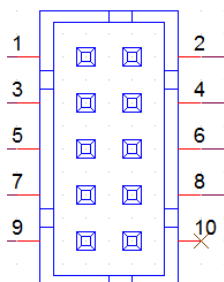
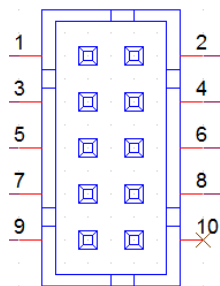


Table A.21: CN11(E):CSAFE

Part Number	1655000197
Footprint	WF_5x2P_79_BOX_D_P1R
Description	1655_WF_5x2P_79_BOX_D_P1R_0.Normal
Pin	Pin name
1	LINE_IN1_L
2	LINE_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
Pin	Pin name
1	422/485 TX-
2	422/485 TX+
3	422 RX+
4	422 RX-
5	GND
6	DSR#
7	RTS#
8	CTS#
9	RI#

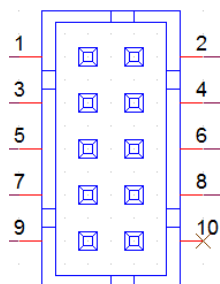
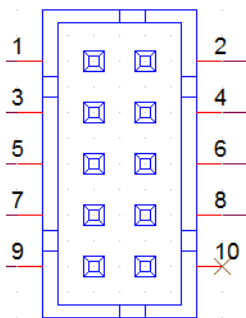


Table A.23: CN18(D),CN14(E),CN15(F),CN13(GH):COM1

Part Number	1655000197
Footprint	WF_5x2P_79_BOX_D_P1R
Description	1655_WF_5x2P_79_BOX_D_P1R_0.Normal
Pin	Pin name
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
Pin	Pin name
1	PSIN
2	GND

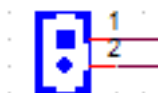
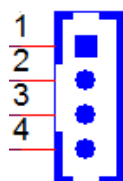


Table A.25: CN22(D),CN15(E),CN16(FG),CN168(H):SPEAKER

Part Number	1655304020
Footprint	WF_4P_79_BOX_R1_D
Description	WAFER BOX 2.0mm 4P 180D(M) W/LOCK A2001WV2-4P
Pin	Pin name
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
Pin	Pin name
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

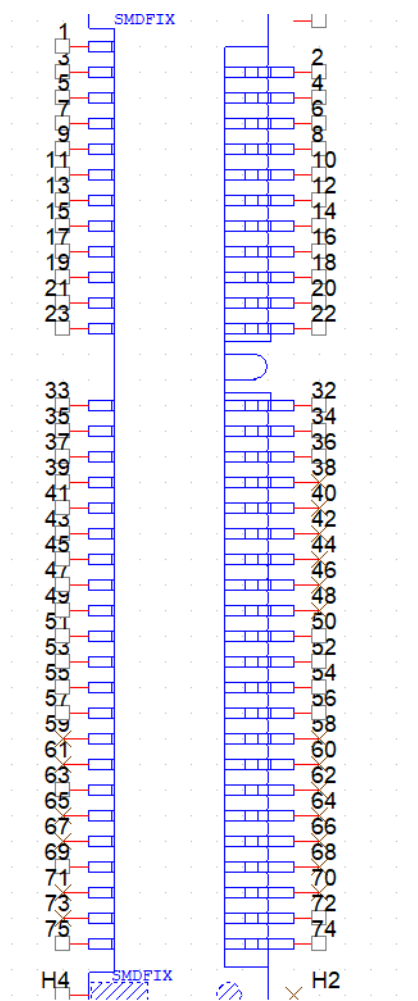


Table A.27: CN16(H):M.2_2230

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
Pin	Pin name
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#

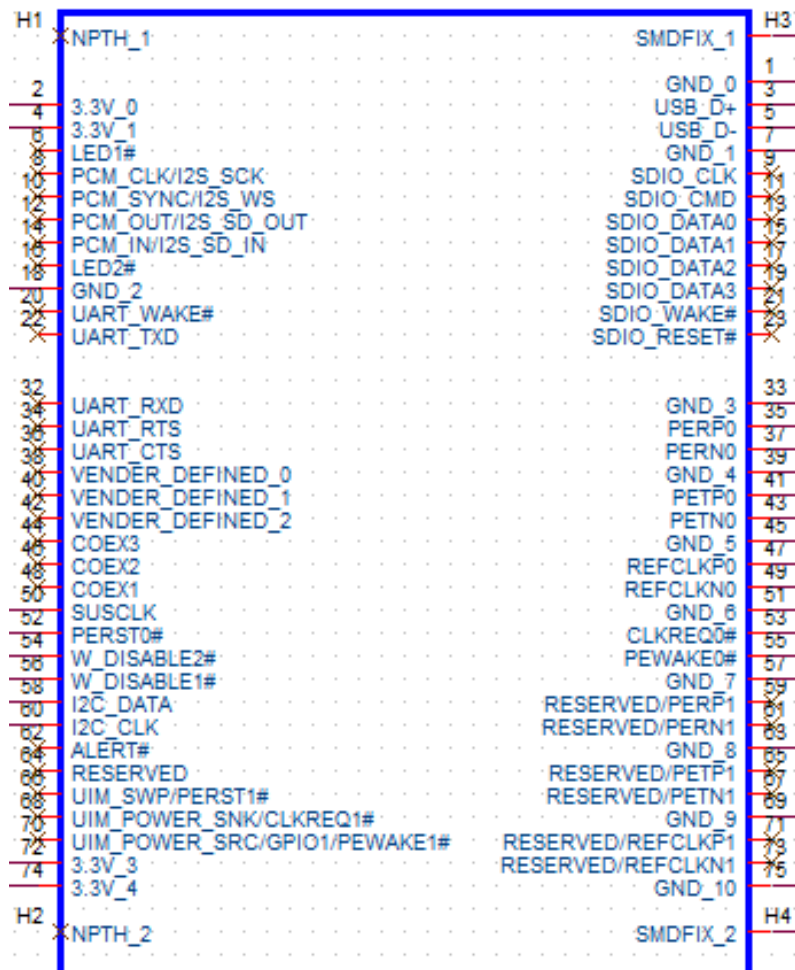


Table A.28: M2M1(H):M.2_2280

Part Number	1654012187-02
Footprint	NGFF_75P_AS0BC21-S85BM-7H
Description	NGFF 75P 0.5mm 90D(F) H=8.5mm SMD 2E0BC21-S85BM-7H
Pin	Pin name
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
Pin	Pin name

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
Pin	Pin name

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
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+

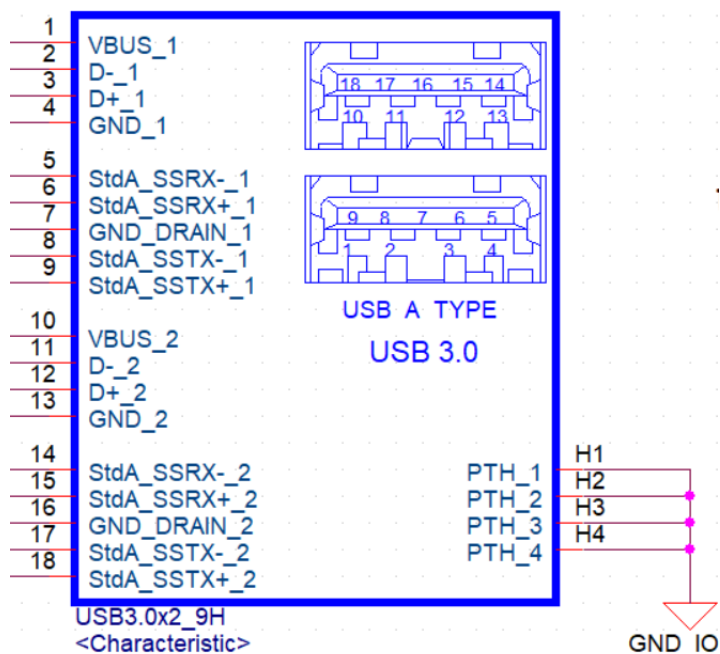


Table A.32: CN20(EF),CN22(G):External USB

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+

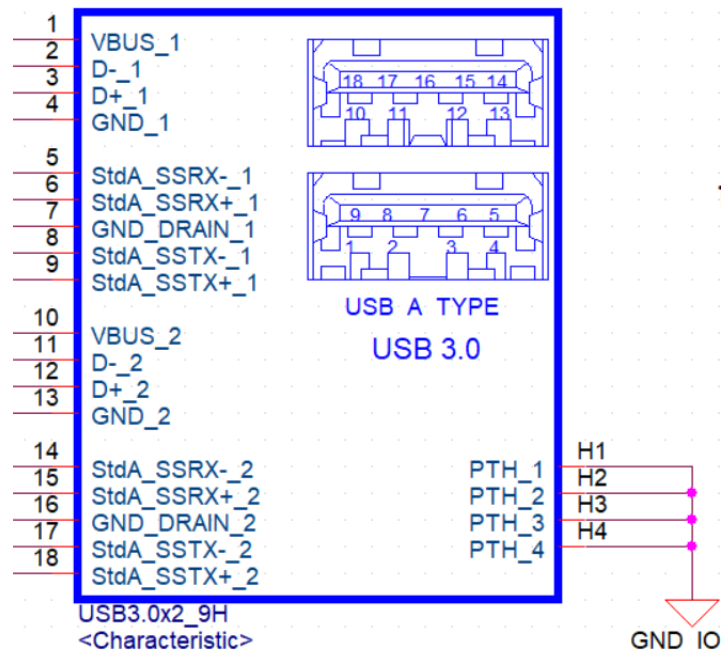


Table A.33: CN24,CN25 (D),CN18(EF),CN20(G):External USB

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

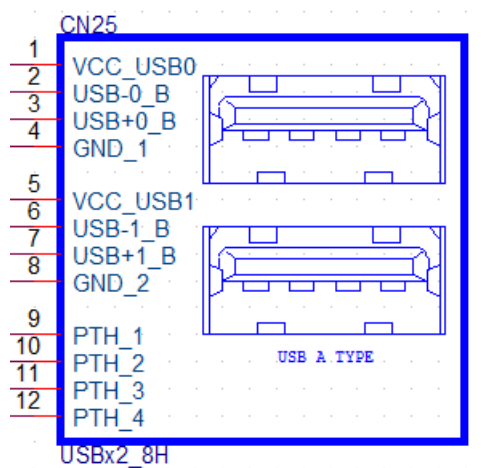


Table A.34: CN26(D):External USB

Part Number	1654010199
Footprint	USB_13P_UEA1112C-UHS6-4F
Description	USB Conn. 2.0+3.0 13P 90D(F) DIP UEA1112C-UHS6-4
Pin	Pin name
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

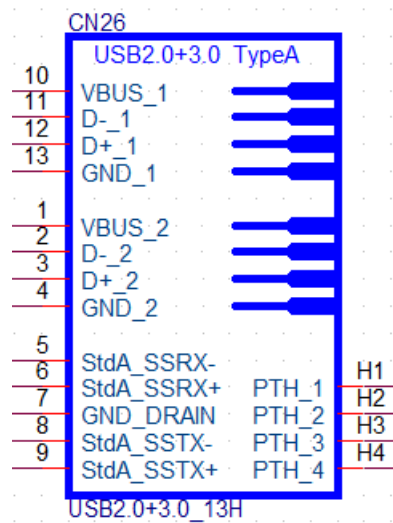


Table A.35: CN170(H),CN169(H),CN43(H):External USB

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
Pin	Pin name
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+

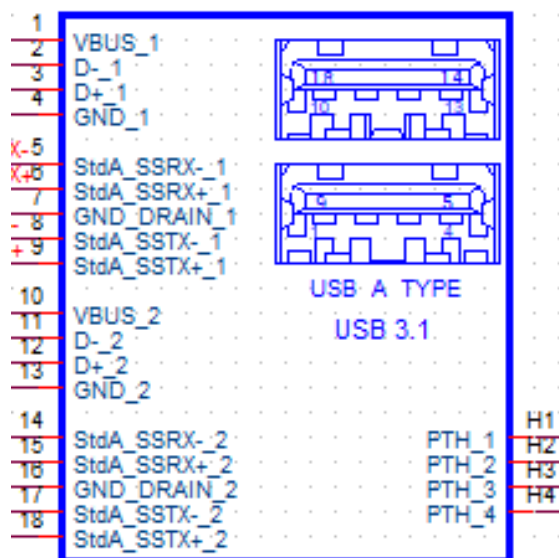
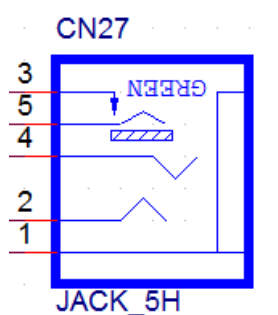


Table A.36: CN27(D),CN21(E),CN22(F),CN25(G),CN66(H):Line-out

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

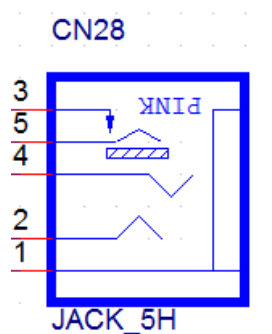


Table A.38: CN30(D),CN24(EF),CN27(G),CN15(H):HDMI	
Part Number	1654011175-01
Footprint	HDMI_19P_QJ51191-LFB4-7F
Description	HDMI Conn. 19P 0.5mm 90D(F) SMD QJ51191-LFB4-7F
Pin	Pin name
1	HDMI_TX0+
2	GND
3	HDMI_TX0-
4	HDMI_TX1+
5	GND
6	HDMI_TX1-
7	HDMI_TX2+
8	GND
9	HDMI_TX2-
10	HDMI_TX3+
11	GND
12	HDMI_TX3-
13	NC
14	NC
15	HDMI_CLK
16	HDMI_DAT
17	GND
18	+5V
19	HDMI_DET

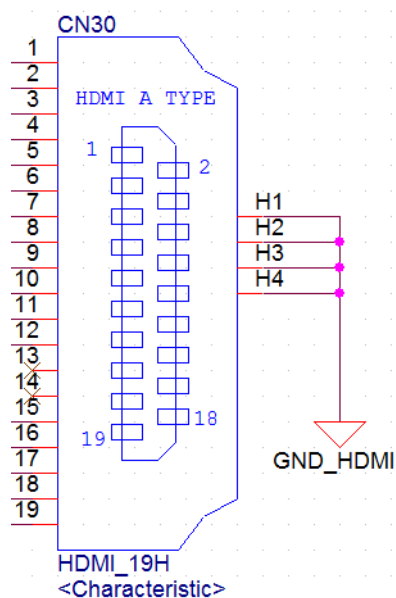


Table A.39: CN42(H):DP

Part Number	1654006275
Footprint	DPCON_20P_3VD11203-H7A0-4H
Description	DisplayPort Conn. 20P 1.40mm 90D DIP 3VD11203
Pin	Pin name
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

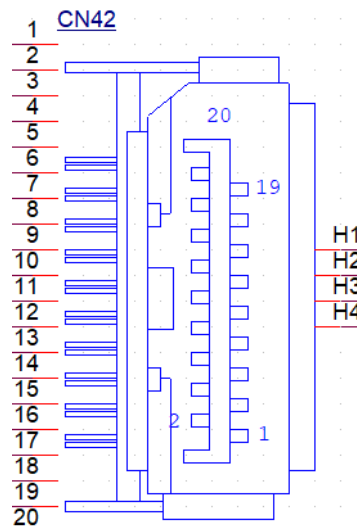
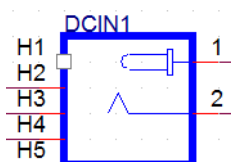


Table A.40: CN31(DG),CN25(EF),DCIN1(H):DC-IN

Part Number	1652005624
Footprint	PJ_2P_2DC-G213B200
Description	DC POWER JACK 2.5mm 90D(M) DIP 2DC-G213B200
Pin	Pin name
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
Pin	Pin name
1	GND
2	Drawer_A
3	Drawer_state
4	Power
5	Drawer_B
6	GND

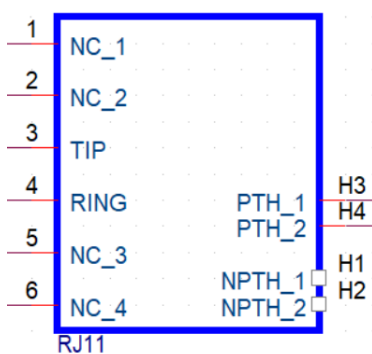
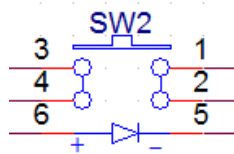
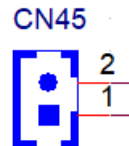


Table A.42: BUTTON:Power Button

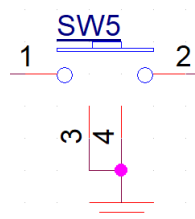
Part Number	1600000055
Footprint	SW_6P_TC003-N11AABRGXX-RK_D
Description	PUSH SW DIP 6P W/LED WO/Pb TC003-N11AABRGXX-RK
Pin	Pin name
1	GND
2	GND
3	ATX_PWRBTN#
4	ATX_PWRBTN#
5	+5V
6	GND

**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
Pin	Pin name
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
Pin	Pin name
1	ATX_PWRBTN#
2	GND
3	GND
4	GND





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