

# AIOT-IGWS01

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Industrial Automation IoT Gateway

User's Manual 3<sup>rd</sup> Ed

## Copyright Notice

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## Packing List

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Before setting up your product, please make sure the following items have been shipped:

| Item          | Quantity |
|---------------|----------|
| ● AIoT-IGWS01 | 1        |

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

## About this Document

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This User's Manual contains all the essential information, such as detailed descriptions and explanations on the product's hardware and software features (if any), its specifications, dimensions, jumper/connector settings/definitions, and driver installation instructions (if any), to facilitate users in setting up their product.

Users may refer to the [AAEON.com](http://AAEON.com) for the latest version of this document.

## Safety Precautions

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Please read the following safety instructions carefully. It is advised that you keep this manual for future references

1. All cautions and warnings on the device should be noted.
2. Make sure the power source matches the power rating of the device.
3. Position the power cord so that people cannot step on it. Do not place anything over the power cord.
4. Always completely disconnect the power before working on the system's hardware.
5. No connections should be made when the system is powered as a sudden rush of power may damage sensitive electronic components.
6. If the device is not to be used for a long time, disconnect it from the power supply to avoid damage by transient over-voltage.
7. Always disconnect this device from any AC supply before cleaning.
8. While cleaning, use a damp cloth instead of liquid or spray detergents.
9. Make sure the device is installed near a power outlet and is easily accessible.
10. Keep this device away from humidity.
11. Place the device on a solid surface during installation to prevent falls
12. Do not cover the openings on the device to ensure optimal heat dissipation.
13. Watch out for high temperatures when the system is running.
14. Do not touch the heat sink or heat spreader when the system is running
15. Never pour any liquid into the openings. This could cause fire or electric shock.
16. As most electronic components are sensitive to static electrical charge, be sure to ground yourself to prevent static charge when installing the internal components. Use a grounding wrist strap and contain all electronic components in any static-shielded containers.

17. If any of the following situations arises, please the contact our service personnel:
  - i. Damaged power cord or plug
  - ii. Liquid intrusion to the device
  - iii. Exposure to moisture
  - iv. Device is not working as expected or in a manner as described in this manual
  - v. The device is dropped or damaged
  - vi. Any obvious signs of damage displayed on the device
18. **DO NOT LEAVE THIS DEVICE IN AN UNCONTROLLED ENVIRONMENT WITH TEMPERATURES BEYOND THE DEVICE'S PERMITTED STORAGE TEMPERATURES (SEE CHAPTER 1) TO PREVENT DAMAGE.**

### **Warning!**



This device complies with Part 15 FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received including interference that may cause undesired operation.

### **Caution:**

*There is a danger of explosion if the battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions and your local government's recycling or disposal directives.*

### **Attention:**

*Il y a un risque d'explosion si la batterie est remplacée de façon incorrecte. Ne la remplacer qu'avec le même modèle ou équivalent recommandé par le constructeur. Recycler les batteries usées en accord avec les instructions du fabricant et les directives gouvernementales de recyclage.*



## China RoHS Requirements (CN)

产品中有毒有害物质或元素名称及含量

AAEON Main Board/ Daughter Board/ Backplane

| 部件名称   | 有毒有害物质或元素 |           |           |                 |               |                 |
|--|-----------|-----------|-----------|-----------------|---------------|-----------------|
|  | 铅<br>(Pb) | 汞<br>(Hg) | 镉<br>(Cd) | 六价铬<br>(Cr(VI)) | 多溴联苯<br>(PBB) | 多溴二苯醚<br>(PBDE) |
| 印刷电路板<br>及其电子组件  | ○         | ○         | ○         | ○               | ○             | ○               |
| 外部信号<br>连接器及线材   | ○         | ○         | ○         | ○               | ○             | ○               |
| <p>O: 表示该有毒有害物质在该部件所有均质材料中的含量均在 SJ/T 11363-2006 标准规定的限量要求以下。</p> <p>X: 表示该有毒有害物质至少在该部件的某一均质材料中的含量超出 SJ/T 11363-2006 标准规定的限量要求。</p> <p>备注: 此产品所标示之环保使用期限, 系指在一般正常使用状况下。</p> |           |           |           |                 |               |                 |

## China RoHS Requirement (EN)

Poisonous or Hazardous Substances or Elements in Products

AAEON Main Board/ Daughter Board/ Backplane

| Component   | Poisonous or Hazardous Substances or Elements |              |              |                              |                                |                                       |
|---|---|--------------|--------------|------------------------------|--------------------------------|---------------------------------------|
|   | Lead (Pb)                                     | Mercury (Hg) | Cadmium (Cd) | Hexavalent Chromium (Cr(VI)) | Polybrominated Biphenyls (PBB) | Polybrominated Diphenyl Ethers (PBDE) |
| PCB & Other Components  | ○   | ○            | ○            | ○                            | ○                              | ○                                     |
| Wires & Connectors for External Connections   | ○   | ○            | ○            | ○                            | ○                              | ○                                     |
| <p>O: The quantity of poisonous or hazardous substances or elements found in each of the component's parts is below the SJ/T 11363-2006-stipulated requirement.</p> <p>X: The quantity of poisonous or hazardous substances or elements found in at least one of the component's parts is beyond the SJ/T 11363-2006-stipulated requirement.</p> <p><b>Note:</b> The Environment Friendly Use Period as labeled on this product is applicable under normal usage only</p> |   |              |              |                              |                                |                                       |

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# Chapter 1

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Product Features, Applications, Specifications

## 1.1 Product Features

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- Intel® Atom™ x5-Z8350 SoC
- Onboard 2GB DDR3L Memory, 32GB eMMC Storage
- Gigabit LAN x 1, HDMI x 1
- USB 2.0 x 4, USB 3.0 OTG x 1, COM x 2 (RS-232/422/485 x 2)
- Optional Wi-Fi, Bluetooth, and 3G for Connectivity

## 1.2 Product Applications

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Immensely sophisticated and compact, AAEON AIOT gateway systems are edge devices which deliver faster and more flexible communication to various industrial IoT applications by offering multiple connectivity protocols like BT, WiFi and 3G.

They are ideal for data collection, aggregation, and transmission, and because of their robust design, they can be used in energy metering, smart city deployment, and transportation. Harnessing the power of the IoT in lightweight, palm-sized boxes, AAEON AIOT gateway systems are poised to offer maximum value and communication to cloud-based networks in a smart industrial context.

## 1.3 Specifications

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### System

- CPU Intel® Atom™ x5-z8350 SoC
- Chipset Processor integrated
- System Memory Onboard 2GB DDR3L-1600 memory
- Power Requirement 5V DC Only
- Storage 32 GB eMMC on board x 1
- Audio HDMI Audio x 1
- Power Supply Type DC-In
- Power Consumption (Typical) 5DC @ 6A
- Dimensions (L x W) 130 x 95 x 44.2 mm (L x W x H)
- Operating Temperature 0°C ~ 50°C
- Operation Humidity 0% ~ 90% relative humidity, non-condensing
- Certification CE Class A/FCC
- Ethernet Realtek RTL8111G-CG

## Display

- **Graphics** Intel® HD 400 Graphics ,12 EU GEN 8, up to 500MHz  
Support DX\*11.1/12, Open GL\*4.2, Open CL\*1.2  
OGL  
ES3.0, H.264, HEVC (decode), VP8

## I/O

- **HDMI** HDMI x 1
- **USB** USB2.0 x 4  
USB 3.0 OTG x 1
- **COM** COM x 2 (RS-232/422/485) x 2
- **Expansion Slot (Optional)** USB interface for WiFi Moduex 1  
USB interface for Bluetooth module x 1  
Mini PCIe slot for 3G module x 1  
Micro SIM Socket x 1

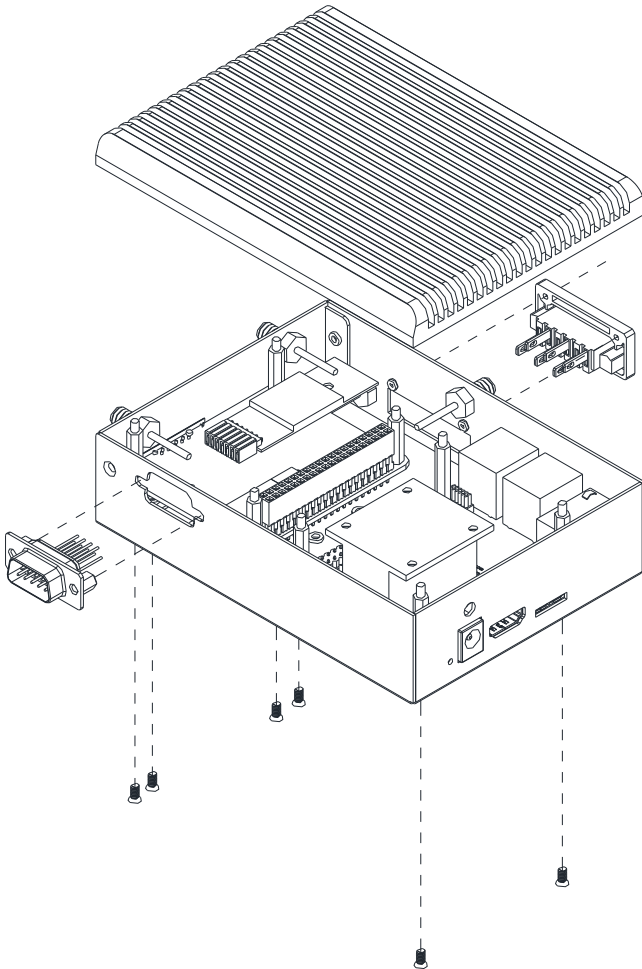


# Chapter 2

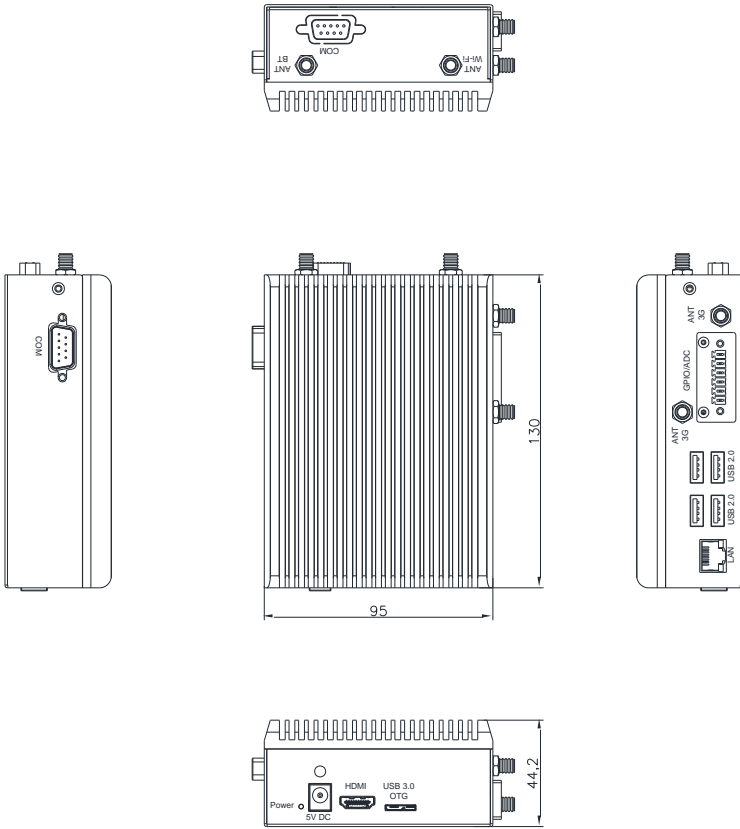
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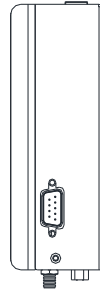
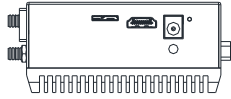
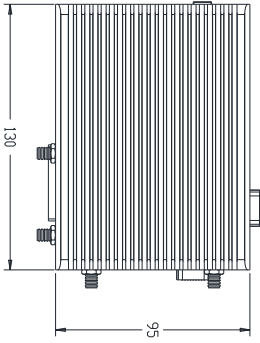
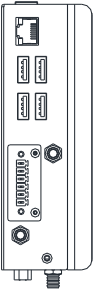
Hardware Information

## 2.1 Dimensions

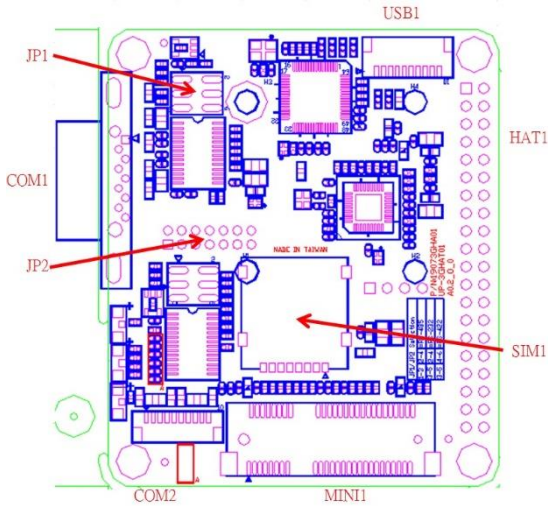
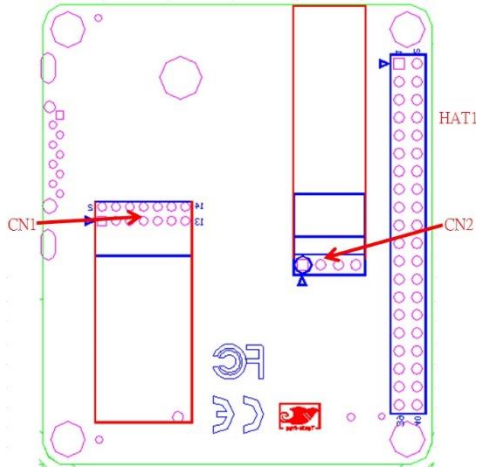


## 2.1.1 I/O Location





## 2.2 Jumpers and Connectors for the UP-CHT01



## 2.3 List of Switches and Connectors for the UP-CHT01

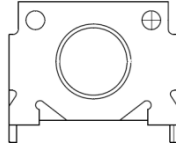
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Please refer to the table below for all of the board's jumpers that you can configure for your application.

| Label | Function                |
|-------|-------------------------|
| SW1   | Power Button            |
| CN1   | RTC Battery Wafer       |
| CN6   | USB 3.0 Micro Connector |
| CN7   | USB 2.0 1x10P Wafer     |
| CN8   | USB Type A Connector 1  |
| CN9   | USB Type A Connector 2  |
| CN10  | RJ45 LAN Connector      |
| CN11  | HDMI Connector          |
| CN12  | HAT 40 GPIO Connector   |
| CN14  | Reset Pin Header        |
| CN30  | DC Jack                 |
| CN31  | MIPI DSI Connector      |
| CN32  | MIPI CSI Connector      |
| CN33  | Power Button Wafer      |
| CN34  | Update CPLD Header      |

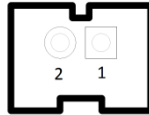
| Label | Connector Type  |
|-------|---|
| SW1   | (TF) Push Button Switch.HCH.PTS-099                           |
| CN1   | (TF) WAFER BOX 2P:180D.1.25mm.CATCH.1201-700-02S              |
| CN6   | (TF) Micro USB 3.0 Conn.10P:90D.B-type.ATTEND.209E-BE01       |
| CN7   | (TF)Wafer Box.10P:90D.1.0mm.CATCH.1204-700-10RM               |
| CN8   | (TF)USB CONNECTOR DUAL PORT.8P:TechBest.KS-002D-ANB(2.0)-L    |
| CN9   | (TF)USB CONNECTOR DUAL PORT.8P:TechBest.KS-002D-ANB(2.0)-L    |
| CN10  | (TF) RJ45.14P:90D.W/TF & LED.UDE.RB1-1A5BAK1A                 |
| CN11  | (TF)HDMI CONN.19P:90D(F).A TYPE.FOXCONN.QJ51191-LFB4-7F       |
| CN12  | (TF) PIN HEADER.2*20P:180D.(M).2.54mm.DIP                     |
| CN14  | (TF) PIN HEADER.2*1P:180D.(M).2.0mm.DIP                       |
| CN30  | (TF)DC Power Jack.3P:90D(M).DIP2.0mm.COXOC.416AEWTJ02004PA    |
| CN31  | (TF)FPC/FFC Conn.41P:90D(F).0.6mm.Hirose.FH35C-41S-0.3SHW(50) |
| CN32  | (TF)FPC/FFC Conn.21P:90D(F).0.6mm.Hirose.FH35C-21S-0.3SHW(50) |
| CN34  | (TF)PIN HEADER.6*2P:180D(M).1.27mm.Astron.C27-4112-206-1G-R   |
| CN33  | (TF)WAFER BOX.2P:180D.(M).1.25mm.CATCH.1201-700-02S           |

### 2.3.1 Power Button (SW1)



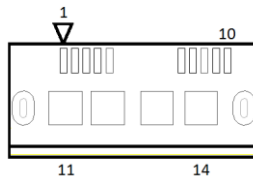
| Position | Function  |
|----------|-----------|
| SW10     | Power on  |
| SW11     | (default) |

### 2.3.2 RTC Battery Wafer (CN1)



| Pin | Signal      |
|-----|-------------|
| 1   | +V_COIN_BAT |
| 2   | GND         |

### 2.3.3 USB 3.0 Micro Connector (CN6)

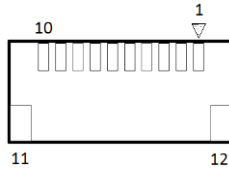


| Pin | Signal  | Pin | Signal         |
|-----|---------|-----|----------------|
| 1   | USB_VCC | 8   | GND            |
| 2   | USB2_D- | 9   | CROSSBAR_TX1_N |
| 3   | USB2_D+ | 10  | CROSSBAR_TX1_P |
| 4   | USB2_ID | 11  | GND            |



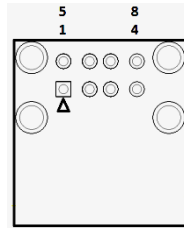
|   |                |    |     |
|---|----------------|----|-----|
| 5 | GND            | 12 | GND |
| 6 | CROSSBAR_RX1_N | 13 | GND |
| 7 | CROSSBAR_RX1_P | 14 | GND |

### 2.3.4 USB 2.0 x 10P Wafer (CN7)



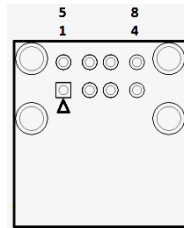
| Pin | Signal         | Pin | Signal         |
|-----|----------------|-----|----------------|
| 1   | USB_VCC        | 7   | USB_HSIC_P4_D+ |
| 2   | USB_HSIC_P3_D- | 8   | GND            |
| 3   | USB_HSIC_P3_D+ | 9   | UART0_RXD      |
| 4   | GND            | 10  | UART0_TXD      |
| 5   | USB_VCC        | 11  | GND            |
| 6   | USB_HSIC_P4_D- | 12  | GND            |

### 2.3.5 Dual USB Type A Connector 1 (CN8)



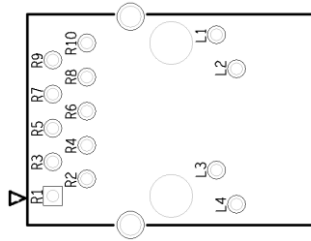
| Pin | Signal     | Pin | Signal     |
|-----|------------|-----|------------|
| 1   | USB_VCC    | 5   | USB_VCC    |
| 2   | USB2_P1_D- | 6   | USB2_P2_D- |
| 3   | USB2_P1_D+ | 7   | USB2_P2_D+ |
| 4   | GND        | 8   | GND        |

### 2.3.6 Dual USB Type A Connector 2 (CN9)



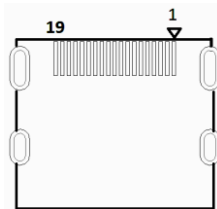
| Pin | Signal     | Pin | Signal         |
|-----|------------|-----|----------------|
| 1   | USB_VCC    | 5   | USB_VCC        |
| 2   | USB2_P3_D- | 6   | USB_HSIC_P2_D- |
| 3   | USB2_P3_D+ | 7   | USB_HSIC_P2_D+ |
| 4   | GND        | 8   | GND            |

### 2.3.7 RJ-45 LAN Connector (CN10)



| Pin | Signal     | Pin | Signal        |
|-----|------------|-----|---------------|
| R1  | LAN1_MDI0+ | R8  | LAN1_MDI2-    |
| R2  | LAN1_MDI0- | R9  | LAN1_MDI3+    |
| R3  | LAN1_MDI1+ | R10 | LAN1_MDI3-    |
| R4  | LAN1_MDI1- | L1  | LAN_ACTLEDP   |
| R5  | LAN1_MDI2+ | L2  | LAN_ACTLEDN   |
| R6  | LAN1_MDI2- | L3  | LAN_LINK100#  |
| R7  | LAN1_MDI2+ | L4  | LAN_LINK1000# |

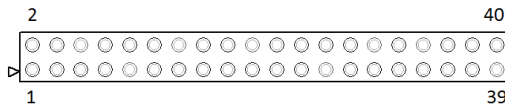
### 2.3.8 HDMI Connector (CN11)



| Pin | Signal            | Pin | Signal            |
|-----|-------------------|-----|-------------------|
| 1   | DDI2_TX0_HDMI_DP+ | 11  | GND               |
| 2   | GND               | 12  | DDI2_CLK_HDMI_DN- |
| 3   | DDI2_TX0_HDMI_DN- | 13  | HDMI_CEC_D        |

|    |                   |    |                  |
|----|-------------------|----|------------------|
| 4  | DDI2_TX1_HDMI_DP+ | 14 | NC               |
| 5  | GND               | 15 | DDI2_DDC_CLK     |
| 6  | DDI2_TX1_HDMI_DN- | 16 | DDI2_DDC_DAT     |
| 7  | DDI2_TX2_HDMI_DP+ | 17 | GND              |
| 8  | GND               | 18 | +5V_HDMI         |
| 9  | DDI2_TX2_HDMI_DN- | 19 | DDI2_TYPE_C_HPDP |
| 10 | DDI2_CLK_HDMI_DP+ |    |                  |

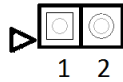
### 2.3.9 HAT 40 GPIO Connector (CN12)



| Pin | Signal          | Pin | Signal          |
|-----|-----------------|-----|-----------------|
| 1   | 3V3 POWER       | 2   | 5V POWER        |
| 3   | GPIO0/I2C1_SDA  | 4   | 5V POWER        |
| 5   | GPIO1/I2C1_SCL  | 6   | GND             |
| 7   | GPIO2/ADC-INPUT | 8   | GPIO15/UART_TX  |
| 9   | GND             | 10  | GPIO16/UART_RX  |
| 11  | GPIO3           | 12  | GPIO17/I2S_CLK  |
| 13  | GPIO4           | 14  | GND             |
| 15  | GPIO5           | 16  | GPIO18          |
| 17  | 3V3 POWER       | 18  | GPIO19          |
| 19  | GPIO6/SPI_MOSI  | 20  | GND             |
| 21  | GPIO7/SPI_MISO  | 22  | GPIO20          |
| 23  | GPIO8/SPI_CLK   | 24  | GPIO21/SPI_CS0N |
| 25  | GND             | 26  | GPIO22/SPI_CS1N |
| 27  | GPIO9/I2C0_SDA  | 28  | GPIO23/I2C0_SCL |
| 29  | GPIO10          | 30  | GND             |

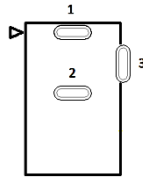
|    |                |    |                    |
|----|----------------|----|--------------------|
| 31 | GPIO11         | 32 | GPIO24/PWM0        |
| 33 | GPIO12/PWM1    | 34 | GND                |
| 35 | GPIO13/I2S_FRM | 36 | GPIO25             |
| 37 | GPIO14         | 38 | GPIO26/I2S_DATAIN  |
| 39 | GND            | 40 | GPIO27/I2S_DATAOUT |

### 2.3.10 Reset Pin Header (CN14)



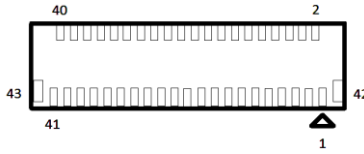
| Pin | Signal       |
|-----|--------------|
| 1   | PMU_RSTBTN_N |
| 2   | GND          |

### 2.3.11 DC Jack (CN30)



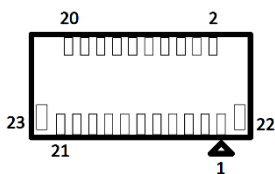
| Pin | Signal |
|-----|--------|
| 1   | +V5    |
| 2   | GND    |
| 3   | GND    |

### 2.3.12 MIPI DSI Connector (CN31)



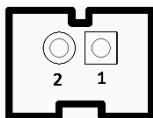
| Pin | Signal          | Pin | Signal      | Pin | Signal           |
|-----|-----------------|-----|-------------|-----|------------------|
| 1   | MDSI_A_DATA1_DN | 16  | DDI0_TX0_DP | 31  | DDI0_HPD_CONN    |
| 2   | MDSI_A_DATA1_DP | 17  | DDI0_TX0_DN | 32  | DDI0_BKLT_R_CTRL |
| 3   | GND             | 18  | GND         | 33  | DDI0_VDD_EN      |
| 4   | MDSI_A_CLK_DN   | 19  | DDI0_TX1_DP | 34  | DDI0_BKLT_EN     |
| 5   | MDSI_A_CLK_DP   | 20  | DDI0_TX1_DN | 35  | NC               |
| 6   | GND             | 21  | GND         | 36  | NC               |
| 7   | MDSI_A_DATA0_DN | 22  | DDI0_TX2_DP | 37  | +3.3V            |
| 8   | MDSI_A_DATA0_DP | 23  | DDI0_TX2_DN | 38  | +3.3V            |
| 9   | GND             | 24  | GND         | 39  | +3.3V            |
| 10  | I2C2_3P3_SCL    | 25  | DDI0_TX3_DP | 40  | +3.3V            |
| 11  | I2C2_3P3_SDA    | 26  | DDI0_TX3_DN | 41  | +3.3V            |
| 12  | GND             | 27  | GND         | 42  | GND              |
| 13  | DDI1_DDC_C_CLK  | 28  | DDI0_AUX_DP | 43  | GND              |
| 14  | DDI1_DDC_C_DAT  | 29  | DDI0_AUX_DN |     |                  |
| 15  | GND             | 30  | GND         |     |                  |

### 2.3.13 MIPI CSI Connector (CN32)



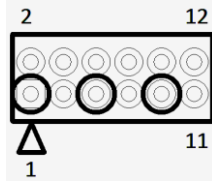
| Pin | Signal          | Pin | Signal        |
|-----|-----------------|-----|---------------|
| 1   | GND             | 13  | GND           |
| 2   | MCSI_1_DATA1_DN | 14  | CAM_MCLK      |
| 3   | MCSI_1_DATA1_DP | 15  | GND           |
| 4   | GND             | 16  | I2C2_SOC_SCL  |
| 5   | MCSI_1_CLK_DN   | 17  | I2C2_SOC_SDA  |
| 6   | MCSI_1_CLK_DP   | 18  | CAM_RST_N     |
| 7   | GND             | 19  | FLASH_RESET_N |
| 8   | MCSI_1_DATA0_DN | 20  | +2.8V         |
| 9   | MCSI_1_DATA0_DP | 21  | GND_CAM       |
| 10  | GND             | 22  | GND           |
| 11  | +1.2V           | 23  | GND           |
| 12  | +1.8V           |     |               |

### 2.3.14 Power Button Wafer (CN33)



| Pin | Signal        |
|-----|---------------|
| 1   | PWR_SW#_CTL_R |
| 2   | GND           |

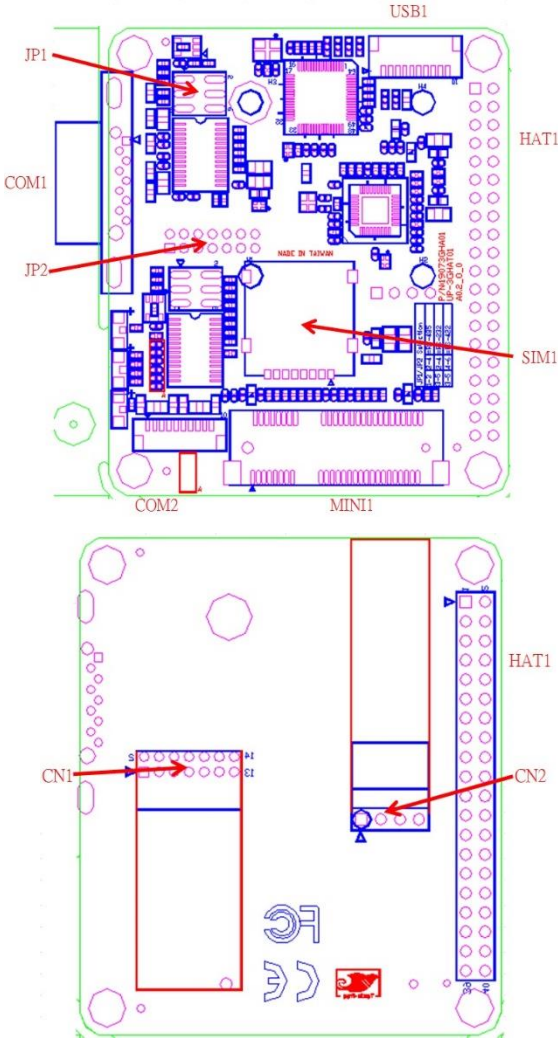
### 2.3.15 Update CPLD Header (CN34)



| Pin | Signal       | Pin | Signal   |
|-----|--------------|-----|----------|
| 1   | CHT_GPIO_TMS | 2   | CPLD_TMS |
| 3   | CHT_GPIO_TDI | 4   | CPLD_TDI |
| 5   | CHT_GPIO_TCK | 6   | CPLD_TCK |
| 7   | CHT_GPIO_TDO | 8   | CPLD_TDO |
| 9   | FAN_PWM      | 10  | +1.8V    |
| 11  | +5V          | 12  | GND      |



## 2.4 Jumpers and Connectors for the UP-3GHAT01



## 2.5 List of Switches and Connectors for the UP-3GHAT01

Please refer to the table below for all of the board's jumpers that you can configure for your application.

| Label | Function                     | Connector Type     |
|-------|------------------------------|--------------------|
| JP1   | RS-232/422/485 Select Header | 222-97-03GBE1      |
| JP2   | RS-232/422/485 Select Header | 222-97-03GBE1      |
| CN1   | Wifi pin7 Header             | 22Y8242-14D10B-01G |
| CN2   | BT pin4 Header               | 22N8561-04R10B-01G |
| HAT1  | 5V IN Header                 | 22N8562-40SA2B-01G |
| USB1  | USB 2.0 Header               | 1204-700-10RM      |
| COM1  | RS-232/422/485 DB9 Connector | 3117-000-09P       |
| COM2  | RS-232/422/485 Connector     | 1204-700-10SMR     |
| SIM1  | SIM Card Connector           | 80440GIH-081T-12CL |
| MINI1 | Mini PCIe Connector          | AS0B226-S68Q-7H    |

### 2.5.1 RS-232/422/485 Select Header (JP1/JP2)

| Position | Function         |
|----------|------------------|
| 3-5, 4-6 | RS-422           |
| 3-5, 2-4 | RS-232 (default) |
| 1-3, 2-4 | RS-485           |

## 2.5.2 Wifi Header (CN1)

---

| Pin | Signal       | Pin | Signal       |
|-----|--------------|-----|--------------|
| 1   | USB2_WF_TX   | 2   | USB2_WF_TX   |
| 3   | WF_PWM       | 4   | WF_PWM       |
| 5   | USB2_WF_DN_L | 6   | USB2_WF_DN_L |
| 7   | USB2_WF_PN_L | 8   | USB2_WF_PN_L |
| 9   | GND          | 10  | GND          |
| 11  | USB2_WF_LED# | 12  | USB2_WF_LED# |
| 13  | NC           | 14  | NC           |

## 2.5.3 BT Header (CN2)

---

| Pin | Signal       |
|-----|--------------|
| 1   | BT_PWM       |
| 2   | USB2_BT_DN_L |
| 3   | USB2_BT_PN_L |
| 4   | GND          |

## 2.5.4 5V IN Header (HAT1)

---

| Pin | Signal | Pin | Signal  |
|-----|--------|-----|---------|
| 1   | +3.3V  | 2   | +5V     |
| 3   | NC     | 4   | +5V     |
| 5   | NC     | 6   | GND     |
| 7   | NC     | 8   | HAT_TXD |
| 9   | GND    | 10  | HAT_RXD |

|    |       |    |     |
|----|-------|----|-----|
| 11 | G_LED | 12 | NC  |
| 13 | Y_LED | 14 | GND |
| 15 | NC    | 16 | NC  |
| 17 | +3.3V | 18 | NC  |
| 19 | NC    | 20 | GND |
| 21 | NC    | 22 | NC  |
| 23 | NC    | 24 | NC  |
| 25 | GND   | 26 | NC  |
| 27 | NC    | 28 | NC  |
| 29 | NC    | 30 | GND |
| 31 | NC    | 32 | NC  |
| 33 | NC    | 34 | GND |
| 35 | NC    | 36 | NC  |
| 37 | NC    | 38 | NC  |
| 39 | GND   | 40 | NC  |

### 2.5.5 USB 2.0 Header (USB1)

| Pin | Signal    |
|-----|-----------|
| 1   | USB_VCC   |
| 2   | USB2_D-   |
| 3   | USB2_D+   |
| 4   | GND       |
| 5   | USB_VCC   |
| 6   | USB2_D-   |
| 7   | USB2_D+   |
| 8   | GND       |
| 9   | UART0_RXD |

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|    |           |
|----|-----------|
| 10 | UART0_TXD |
|----|-----------|

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### 2.5.6 RS-232/422/485 DB9 Connector (COM1)

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| Pin | Signal                   |
|-----|--------------------------|
| 1   | DCDA / RS422TX- / RS485- |
| 2   | RXA / RS422TX+ / RS485+  |
| 3   | TXA / RS422RX+           |
| 4   | DTRA / RS422RX-          |
| 5   | GND                      |
| 6   | DSRA                     |
| 7   | RTSA                     |
| 8   | CTSA                     |
| 9   | RIA                      |

### 2.5.7 RS-232/422/485 Connector (COM2)

---

| Pin | Signal                   |
|-----|--------------------------|
| 1   | DCDB / RS422TX- / RS485- |
| 2   | RXB / RS422TX+ / RS485+  |
| 3   | TXB / RS422RX+           |
| 4   | DTRB / RS422RX-          |
| 5   | GND                      |
| 6   | DSRB                     |
| 7   | RTSB                     |
| 8   | CTSB                     |
| 9   | RIB                      |

|    |    |
|----|----|
| 10 | NC |
|----|----|

### 2.5.8 SIM Card Connector (SIM1)

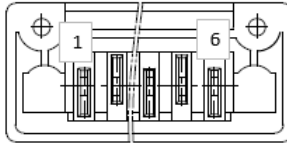
| Pin | Signal Description | Pin | Signal Description |
|-----|--------------------|-----|--------------------|
| C1  | P_UIM_PWRF         | C8  | NC                 |
| C2  | P_UIM_RSTC         | C7  | P_UIM_DATC         |
| C3  | P_UIM_CLKC         | C6  | P_UIM_VPPC         |
| C4  | NC                 | C5  | GND_UIM            |

### 2.5.9 Mini PCIe Connector (MINI1)

| Pin | Signal | Pin | Signal    |
|-----|--------|-----|-----------|
| 1   | NC     | 2   | P3V_3G    |
| 3   | NC     | 4   | GND       |
| 5   | NC     | 6   | NC        |
| 7   | NC     | 8   | P_UIM_PWR |
| 9   | GND    | 10  | P_UIM_DAT |
| 11  | NC     | 12  | P_UIM_CLK |
| 13  | NC     | 14  | P_UIM_RST |
| 15  | GND    | 16  | P_UIM_VPP |
| 17  | NC     | 18  | GND       |
| 19  | NC     | 20  | 3G_EN     |
| 21  | GND    | 22  | 3G_RST    |
| 23  | NC     | 24  | P3V_3G    |
| 25  | NC     | 26  | GND       |
| 27  | GND    | 28  | NC        |

|    |     |    |                 |
|----|-----|----|-----------------|
| 29 | GND | 30 | NC              |
| 31 | NC  | 32 | NC              |
| 33 | NC  | 34 | GND             |
| 35 | GND | 36 | USB2_HUB1_P1_DN |
| 37 | NC  | 38 | USB2_HUB1_P1_DP |
| 39 | NC  | 40 | GND             |
| 41 | NC  | 42 | WLAN_LED        |
| 43 | NC  | 44 | WLAN_LED        |
| 45 | NC  | 46 | WLAN_LED        |
| 47 | NC  | 48 | NC              |
| 49 | NC  | 50 | GND             |
| 51 | NC  | 52 | P3V_3G          |

## 2.5.10GPIO/ADC Connector Pin Assignments



| Pin | Signal Description    |
|-----|-----------------------|
| 1   | ADC(HAT40 ADC0/GPIO2) |
| 2   | GND                   |
| 3   | GPIO1(HAT40 GPIO10)   |
| 4   | GPIO2(HAT40 GPIO14)   |
| 5   | GPIO3(HAT40 GPIO25)   |
| 6   | GND                   |

**Remark:** If you want to control the CPLD function, please refer to the information in this link: <https://wiki.up-community.org/Ubuntu>



# Chapter 3

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Drivers Installation

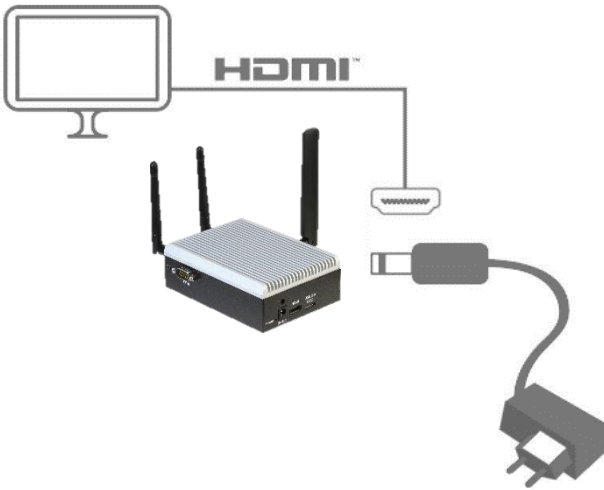
## 3.1 Driver Download and Installation

---

### Step 1 Basic setup of the system and accessories

Please make sure the following items are properly connected

1. The power adapter in 3A-4A@5V. 5.5/2.1mm DC is properly connected with the system and power outlet
2. The HDMI cable in type A male connector is properly connected with the system and display
3. The keyboard & mouse to control your up board



### Step 2 Prepare your bootable drive with the operating system of choice

For the Windows 10 operating system:

#### Step 2.1 Download the Windows 10 operating system

Please prepare a bootable USB with MS Windows 10 Installer follow this link:

<https://www.microsoft.com/en-us/software-download/windows10>

**Remark :**

Please noted that the MS Windows license is not included; you can buy a license from the Microsoft Store or from your sales representative.

**Step 2.2**

Please use the following link to download a driver for the Windows 10 operating system

<https://downloads.up-community.org/download/microsoft-windows-10-64-bit-drivers/>

**Remark:**

Windows 10 drivers installation guides are available at:

<https://downloads.up-community.org/download/up-board-windows-10-installation-guide/>

For Linux Ubuntu 16.04:

Please follow the steps on <https://wiki.up-community.org/Ubuntu> to install Linux Ubuntu 16.04 and driver

**Step 3 Install 3G HAT driver**

**Step 3.1** Download 3G HAT driver per operating system in the following link

[https://up-shop.org/up-peripherals/125-3gwifibtmodule.html?search\\_query=3G+HAT&results=5](https://up-shop.org/up-peripherals/125-3gwifibtmodule.html?search_query=3G+HAT&results=5)

**Step 4 Download driver for optional connection module**

**Step 4.1** download WIFI driver

Please access [www.aaeon.com](http://www.aaeon.com) to download WIFI driver

**Step 4.2** Download Bluetooth driver

Please access

[https://up-shop.org/up-peripherals/119-bluetooth-kit-for-up.html?search\\_query=wifi&results=17](https://up-shop.org/up-peripherals/119-bluetooth-kit-for-up.html?search_query=wifi&results=17) to download Bluetooth driver

**Step 4.3** Download 3G/4G module driver

3G module driver

[https://up-shop.org/home/99-mpcie-3g-module-kit.html?search\\_query=%2B4G%2Bmodule&results=20](https://up-shop.org/home/99-mpcie-3g-module-kit.html?search_query=%2B4G%2Bmodule&results=20)

4G module driver

Please contact your sales representative for a link to download 4G module driver