UP Connect Plus

Maker Board
UPCR-CPL3

User's Manual 1st Ed

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Packing List

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

Item	Quantity
● UP Connect Plus	1
● Adapter Board I	1
● Adapter Board II	1
● Standoff	12

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

About this Document

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 product page on AAEON.com for the latest version of this document.

Safety Precautions

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.

FCC Statement

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, the user is 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 into an outlet on a circuit different from that to which the receiver is connected.

—Consult the dealer or an experienced radio/TV technician for help.

- Any changes or modifications not expressly approved by the party responsible for compliance could void the authority to operate equipment.

- This device and its antenna must not be co-located or operating in conjunction with any other antenna or transmitter.

- End-users and installers must be provided with antenna installation instructions and transmitter operating conditions for satisfying RF exposure compliance.

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

This device complies with Part 15 of 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.

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 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr(VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
印刷电路板 及其电子组件	O	O	O	O	O	O
外部信号 连接器及线材	O	O	O	O	O	O
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。 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。 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。						

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	O	O	O	O	O	O
Wires & Connectors for External Connections	O	O	O	O	O	O
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. 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. **Note: The Environment Friendly Use Period as labeled on this product is applicable under normal usage only**						

Table of Contents

Chapter 1

Product Specifications

1.1 Specifications

System	
VPU	—
Ethernet	Intel I211-AT x 3 (A10-001)
	Intel I210-IT for wide temperature x 3 (A10-002)
Power Requirement	12V5A
Power Supply Type	12VDC from M/B
Power Consumption (Typical)	Max 13.5W w/o 5G module
Dimensions (L x W)	3.54" x 2.2" (90 mm x 56 mm)
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C)
Operation Humidity	10 ~ 80% relative humidity, non-condensing
Certification	CE/FCC Class A
OS Support	Microsoft Windows 10
	Linux: ubilinux, Ubuntu, Yocto
	Android-IA 9.0

I/O	
Ethernet	001: Intel® I211-AT x 3
	002: Intel® I210-IT for wide temperature
USB	USB 3.0 Type A x 1
SATA	—
Expansion Slot	Micro SIM card
	DOCKING I
	DOCKING II
	UART x 1
	SPI x 1
	M.2 3042/3052 B-Key slot

Chapter 2

Hardware Information

2.1   Dimensions

2.2   Jumpers and Connectors

Top side

CN1

CN9

CN2

CN4

CN8

LAN4   LAN3   LAN2   CN10

Bottom side

CN11

CN13
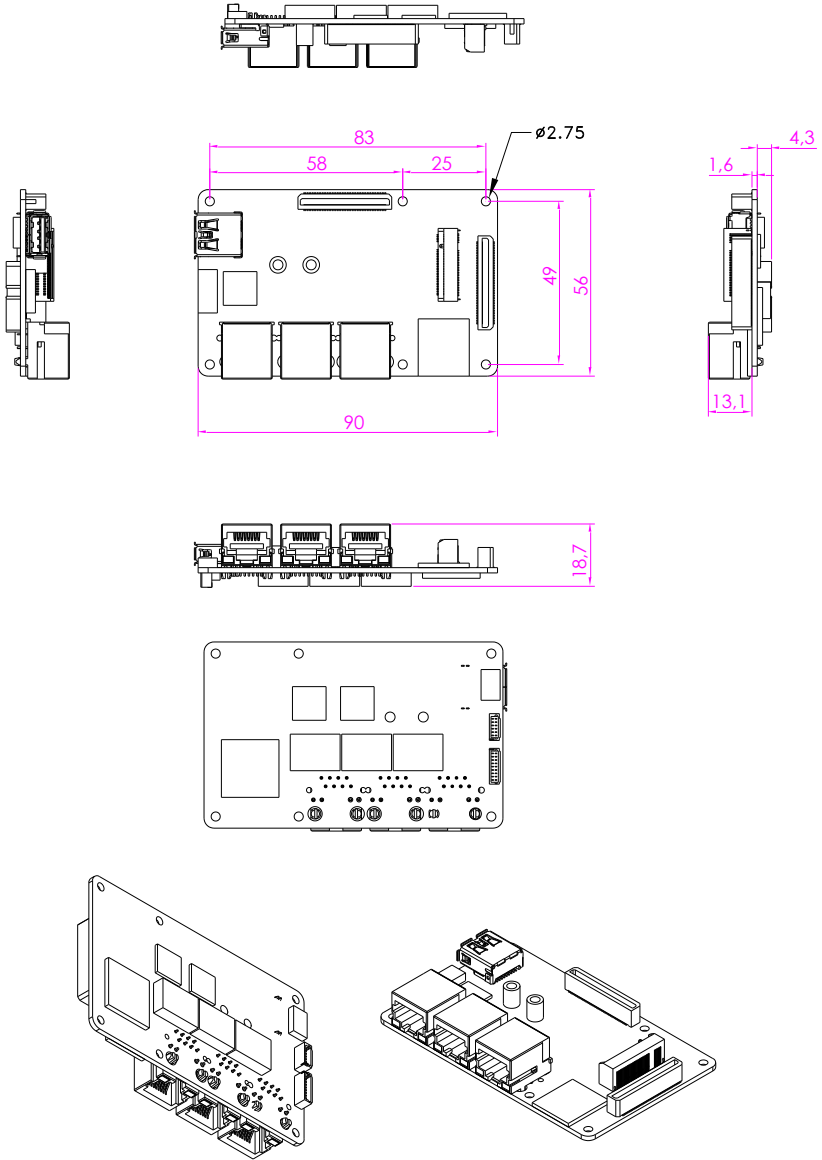
2.3   List of Switches and Connectors

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

| Reference	Function	Connector Type
CN1	Docking I	(TF)Board-Board Connector.100P.180D(F).SMD.Pitch=0.5mm.H=6.05mm. Panasonic.AXK5S00347YG
CN2	USB3.0	(TF)USB3.0 Connector.Single Port.Type A.9P.90D(F).SMD.Trontek.930-00406-A91-22
CN4	Docking II	(TF)Board-Board Connector.100P.180D(F).SMD.Pitch=0.5mm.H=6.05mm.
CN8	WHL Function Connector	(TF)Wafer Box.10P.90D(M).SMD.1.0mm.PINREX.710-74-10TWR6
CN9	M.2 Key B Slot	(TF)M.2 KEY-B SLOT.75P.90D(F).SMD.H=8.5mm.FOXCONN.2E0BC21-S
CN10	SIM Slot	(TF).Micro SIM Card Socket.SMD.6P.90D.FEMALE.SHENG DA.CS-0025-06135.Push-Push type
CN11	UART	(TF)Wafer Box.6P.180D.(M).SMD.1.0mm.w/ CAP.CATCH.1204-700-06SMR
CN13	SPI	(TF)WAFER BOX.9P.180D(M).SMD.1.0mm.w/CAP.PINREX.710-H73-0
LAN2	LAN	(TF)RJ45.12P.90D(F).Notch down.W/LED(L-G:R-O/G).DIP.UDE.RC1-1Q00000D
LAN3	LAN	(TF)RJ45.12P.90D(F).Notch down.W/LED(L-G:R-O/G).DIP.UDE.RC1-1Q00000D
LAN4	LAN	(TF)RJ45.12P.90D(F).Notch down.W/LED(L-G:R-O/G).DIP.UDE.RC1-1Q00000D

2.3.1   Docking I (CN1)
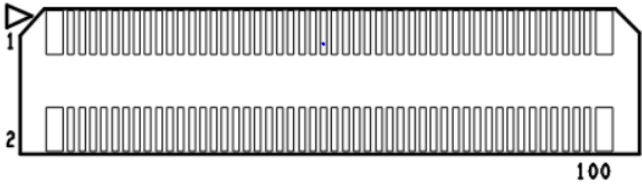
Pin	Signal Description	Pin	Signal Description
1	+V5A_CON	2	+V5A_CON
3	+V5A_CON	4	+V5A_CON
5	+V5A_CON	6	+V5A_CON
7	+V5A_CON	8	+V5A_CON
9	GND	10	GND
11	PLTRST_PNLBKLEN	12	LPSS_UART1_RTS
13	NC	14	LPSS_UART1_CTS
15	PM_SLP_S3#3V3	16	LPSS_UART1_TXD
17	PCIE_CLKREQ3#	18	LPSS_UART1_RXD
19	NC	20	GND
21	GND	22	NC
23	SIO_SPI_0_TXD	24	NC
25	SIO_SPI_0_RXD	26	NC
27	SIO_SPI_0_CLK	28	NC
29	SIO_SPI_0_FS0	30	NC
31	SIO_SPI_0_FS1	32	ISH_GPIO_0
33	GND	34	NC
35	NC	36	NC
37	NC	38	NC
39	NC	40	NC

Pin	Signal Description	Pin	Signal Description
41	NC	42	NC
43	GND	44	NC
45	NC	46	NC
47	NC	48	NC
49	NC	50	GND
51	NC	52	NC
53	GND	54	NC
55	NC	56	GND
57	NC	58	NC
59	GND	60	NC
61	NC	62	GND
63	NC	64	NC
65	GND	66	NC
67	NC	68	GND
69	NC	70	NC
71	GND	72	GND
73	I2C_SDA0	74	NC
75	I2C_SCL0	76	NC
77	GND	78	NC
79	NC	80	NC
81	NC	82	ISH_GPIO_11
83	GND	84	ISH_GPIO_12
85	NC	86	ISH_GPIO_13
87	NC	88	ISH_GPIO_14
89	GND	90	NC
91	NC	92	NC

Pin	Signal Description	Pin	Signal Description
93	NC	94	GND
95	NC	96	NC
97	NC	98	NC
99	NC	100	NC

2.3.2   USB 3.0 (CN2)
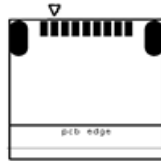
Pin	Signal	Pin	Signal
1	+V5A_USB_1	2	USB2_C_DN2
3	USB2_C_DP2	4	GND
5	USB3_RXN_CON_P2	6	USB3_RXP_CON_P2
7	GND	8	USB3_TXN_CON_P2
9	USB3_TXP_CON_P2		
H1	GND	H2	GND

2.3.3   Docking II (CN4)
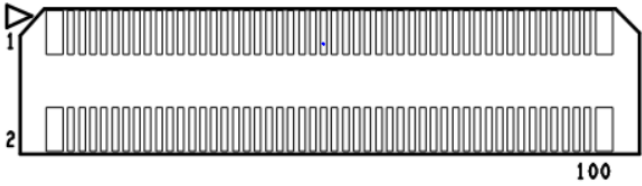
Pin	Signal Description	Pin	Signal Description
1	+12V	2	+12V
3	+12V	4	+12V
5	+12V	6	+12V
7	+12V	8	+12V
9	NC	10	NC
11	NC	12	GND
13	NC	14	NC
15	NC	16	NC
17	GND	18	GND
19	NC	20	NC
21	NC	22	NC
23	GND	24	GND
25	NC	26	NC
27	NC	28	NC
29	GND	30	GND
31	PCIE_REFCLK0_P	32	PCIE_REFCLK1_P
33	PCIE_REFCLK0_N	34	PCIE_REFCLK1_N
35	GND	36	GND
37	PCIE_RXP0	38	PCIE_RXP1

Pin	Signal Description	Pin	Signal Description
39	PCIE_RXN0	40	PCIE_RXN1
41	GND	42	GND
43	PCIE_TXP0	44	PCIE_TXP1
45	PCIE_TXN0	46	PCIE_TXN1
47	GND	48	GND
49	PCIE_REFCLK2_P	50	PCIE_P3_USB3_P4_TXP
51	PCIE_REFCLK2_N	52	PCIE_P3_USB3_P4_TXN
53	GND	54	GND
55	PCIE_TXP2	56	PCIE_P3_USB3_P4_RXP
57	PCIE_TXN2	58	PCIE_P3_USB3_P4_RXN
59	GND	60	GND
61	PCIE_RXP2	62	SATA_P1_USB3_P5_RXN
63	PCIE_RXN2	64	SATA_P1_USB3_P5_RXP
65	GND	66	GND
67	PCIE_P4_USB3_P3_TXP	68	SATA_P1_USB3_P5_TXN
69	PCIE_P4_USB3_P3_TXN	70	SATA_P1_USB3_P5_TXP
71	GND	72	GND
73	PCIE_P4_USB3_P3_RXP	74	NC
75	PCIE_P4_USB3_P3_RXN	76	NC
77	GND	78	GND
79	USB2_DP3	80	NC
81	USB2_DN3	82	NC
83	GND	84	GND
85	USB2_DP4	86	NC
87	USB2_DN4	88	NC
89	GND	90	GND

Pin	Signal Description	Pin	Signal Description
91	NC	92	TP
93	PLTRST_PNLBKLEN	94	NC
95	PCIE_WAKE0_N	96	PCIE_CLKREQ0#
97	PCIE_WAKE1_N	98	PCIE_CLKREQ1#
99	PCIE_WAKE2_N	100	PCIE_CLKREQ2#

2.3.4   WHL Function Connector
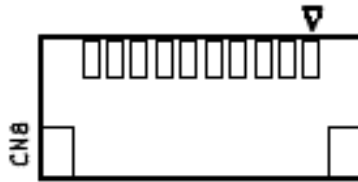
Pin	Signal Description	Pin	Signal Description
1	NC	2	I2C_SCL0
3	I2C_SDA0	4	GND
5	PM_SLP_S3#_3P3	6	PCIE_CLKREQ3#
7	ISH_GPIO_12	8	ISH_GPIO_13
9	ISH_GPIO_14	10	ISH_GPIO_11

2.3.5   M.2 B-Key Slot (3042/3052) for 4G/5G Module (CN9)
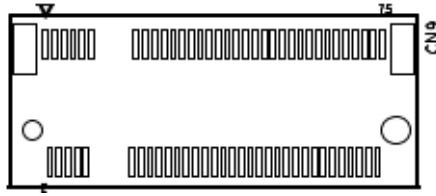
Pin	Signal Description	Pin	Signal Description
1	NC	2	+3.3V_NGFF_3052
3	GND	4	+3.3V_NGFF_3052
5	GND	6	FULL_CARD_POWER
7	5G_DP	8	5GPW_EN
9	5G_DN	10	NC
11	GND		**M.2 B-Key**
M.2 B-Key		20	NC
21	NC	22	NC
23	5G_Wake_Host	24	NC
25	NC	26	NC
27	GND	28	NC
29	PCIE_P3_USB3_P4_RXN_C	30	P_UIM_RST
31	PCIE_P3_USB3_P4_RXP_C	32	P_UIM_CLK
33	GND	34	P_UIM_DAT
35	PCIE_P3_USB3_P4_TXN_C	36	P_UIM_PWR
37	PCIE_P3_USB3_P4_TXP_C	38	PCIe_BOOT_Disable
39	GND	40	NC
41	PERn0_R-	42	NC

Pin	Signal Description	Pin	Signal Description
43	PERp0_R+	44	NC
45	GND	46	NC
47	PETn0_T-	48	NC
49	PETp0_T+	50	BUF_PLT_RST#
51	GND	52	PCIE_CLKREQ2#
53	CLK_PCIE_M2_3042_N	54	PCIE_WAKE2_N
55	CLK_PCIE_M2_3042_P	56	NC
57	GND	58	NC
59	NC	60	NC
61	NC	62	NC
63	NC	64	NC
65	NC	66	NC
67	WWAN_RESET	68	NC
69	M.2_3052_DET	70	+3.3V_NGFF_3052
71	GND	72	+3.3V_NGFF_3052
73	GND	74	+3.3V_NGFF_3052
75	GND		

2.3.6   SIM Slot without Detect (Push-Push Type) (CN10)
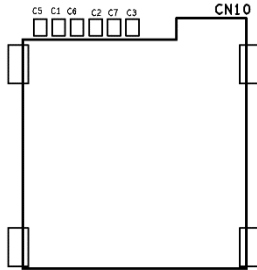
Pin	Signal	Pin	Signal
1	NC	2	+3.3V_NGFF_3052
3	GND	4	+3.3V_NGFF_3052
5	GND	6	FULL_CARD_POWER

2.3.7   UART (CN11)
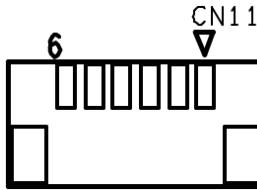
Pin	Signal	Pin	Signal
1	GND	2	CTSA
3	UART_VCC	4	TXA
5	RXA	6	RTSA
7	GND	8	GND

2.3.8   SPI (CN12)
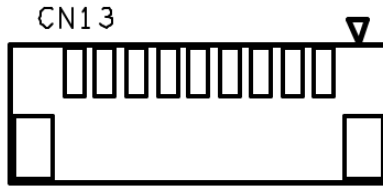
Pin	Signal	Pin	Signal
1	+V3.3S	2	+V5S
3	GND	4	CS0
5	MISO	6	MOSI
7	CLK	8	INT_GPIO
9	CS1	10	GND
11	GND		

2.3.9   LAN2 Port (LAN2)
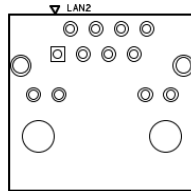
Pin	Signal	Pin	Signal
1	LAN2_TMDI0+	2	LAN2_TMDI0-
3	LAN2_TMDI1+	4	LAN2_TMDI2+
5	LAN2_TMDI2-	6	LAN2_TMDI1-
7	LAN2_TMDI3+	8	LAN2_TMDI3-

Pin	Signal	Pin	Signal
9	LAN2_LED_1000#	10	LAN2_LED_100#
11	LAN2_ACTLEDN	12	LAN2_ACTLEDP
H1	NC	H2	NC
H3	GND_CHASSIS_LAN	H4	GND_CHASSIS_LAN

2.3.10   LAN3 Port (LAN3)
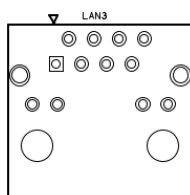
Pin	Signal	Pin	Signal
1	LAN3_TMDI0+	2	LAN3_TMDI0-
3	LAN3_TMDI1+	4	LAN3_TMDI2+
5	LAN3_TMDI2-	6	LAN3_TMDI1-
7	LAN3_TMDI3+	8	LAN3_TMDI3-
9	LAN3_LED_1000#	10	LAN3_LED_100#
11	LAN3_ACTLEDN	12	LAN3_ACTLEDP
H1	NC	H2	NC
H3	GND_CHASSIS_LAN	H4	GND_CHASSIS_LAN

2.3.11   LAN4 Port (LAN4)
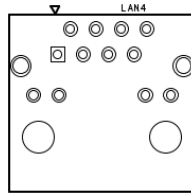
Pin	Signal	Pin	Signal
1	LAN4_TMDI0+	2	LAN4_TMDI0-
3	LAN4_TMDI1+	4	LAN4_TMDI2+
5	LAN4_TMDI2-	6	LAN4_TMDI1-
7	LAN4_TMDI3+	8	LAN4_TMDI3-
9	LAN4_LED_1000#	10	LAN4_LED_100#
11	LAN4_ACTLEDN	12	LAN4_ACTLEDP
H1	NC	H2	NC
H3	GND_CHASSIS_LAN	H4	GND_CHASSIS_LAN

Chapter 3

Drivers Installation

3.1 Driver Download and Installation

Drivers can be downloaded from the Up Community website at:

<p align="center">https://www.up-community.org</p>

Go to the Downloads section and search by product to find the relevant drivers for your product.