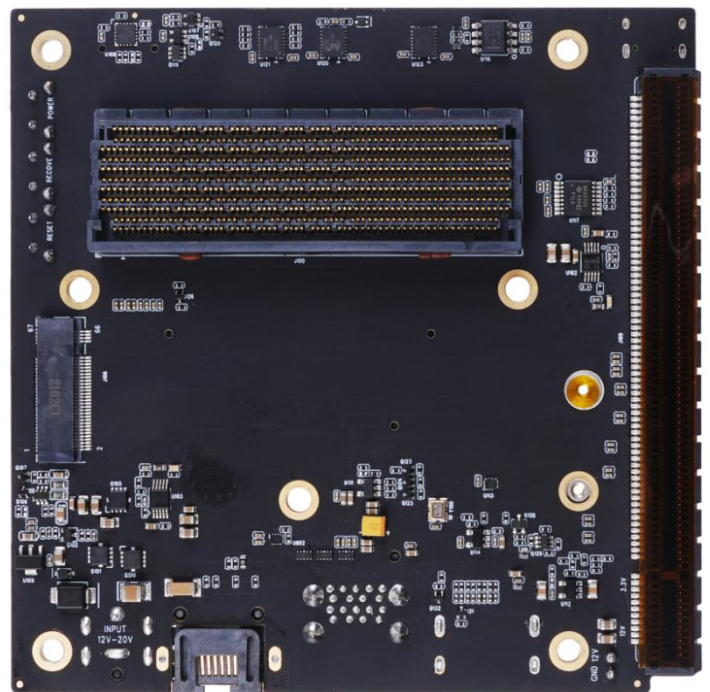
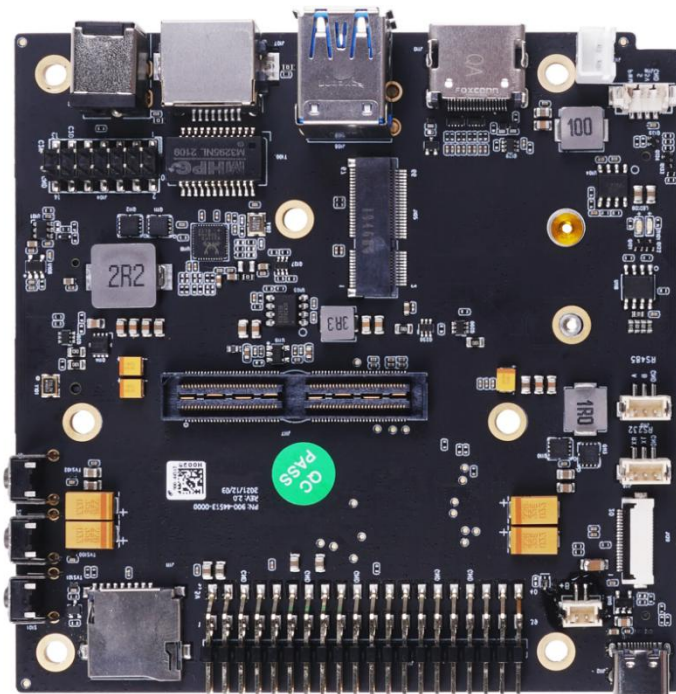
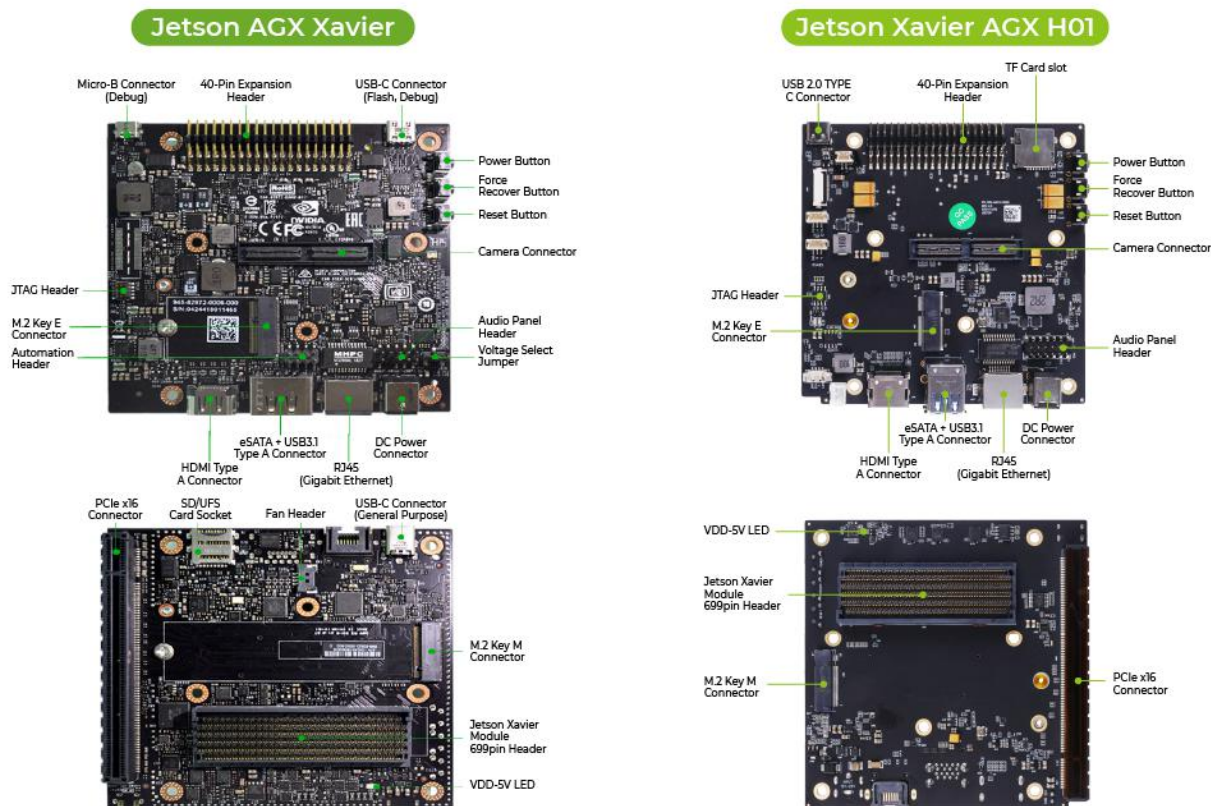


# AGX H01 Kit Datasheet

Carrier Board(Front and Back)



## Comparison with official Jetson AGX Xavier carrier board



The H01 kit carrier board provides several connectors with industry standard pin outs to support additional functionality beyond what is integrated on the main platform board. This includes 1 HDMI 2.0, 1 USB 3.0, 1 USB 2.0(W/OTG), M.2KEYE (2240 size), WiFi module connector, can, GPIO,I2C,FAN connector etc.

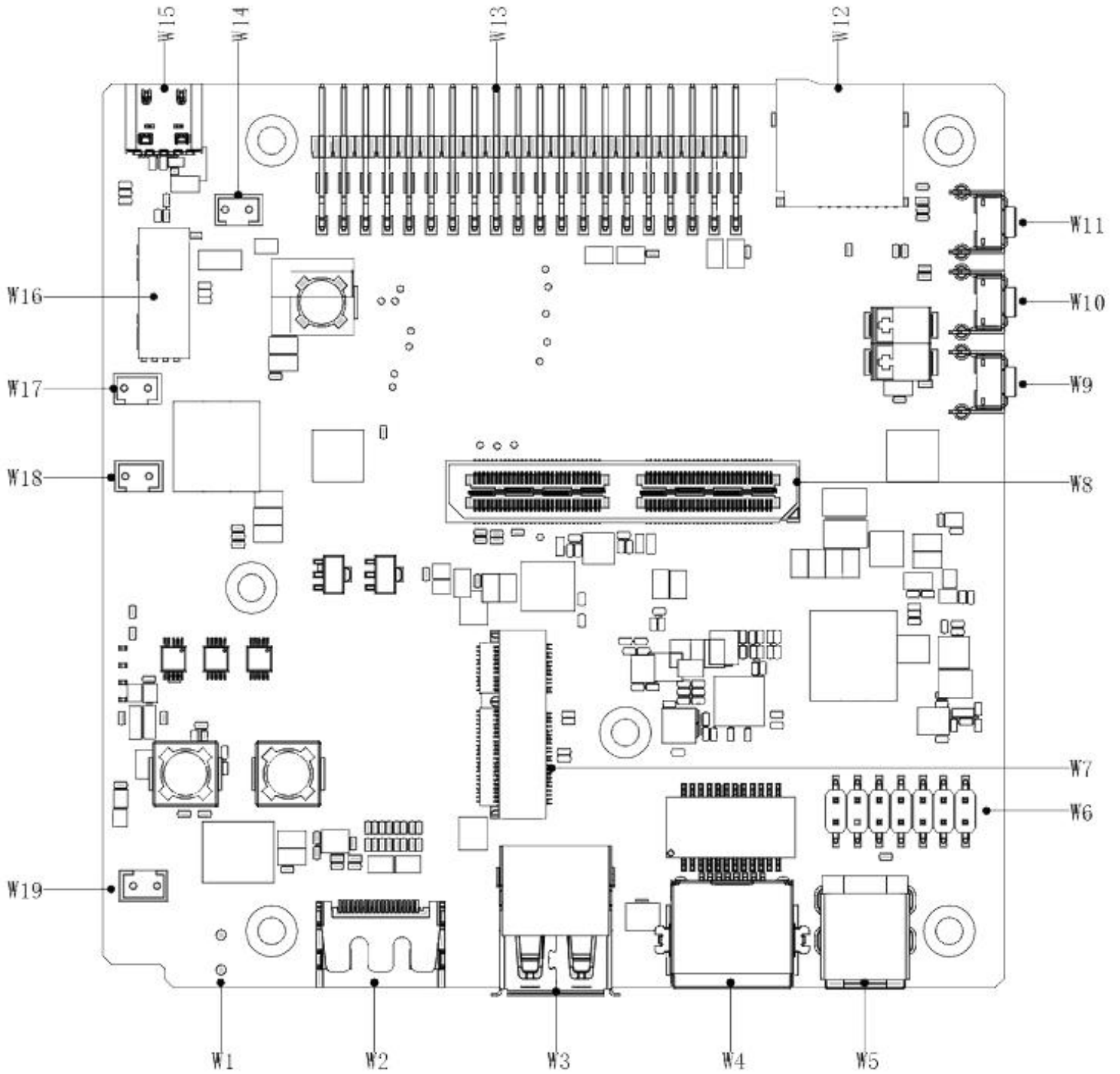
## Product Features and Specifications

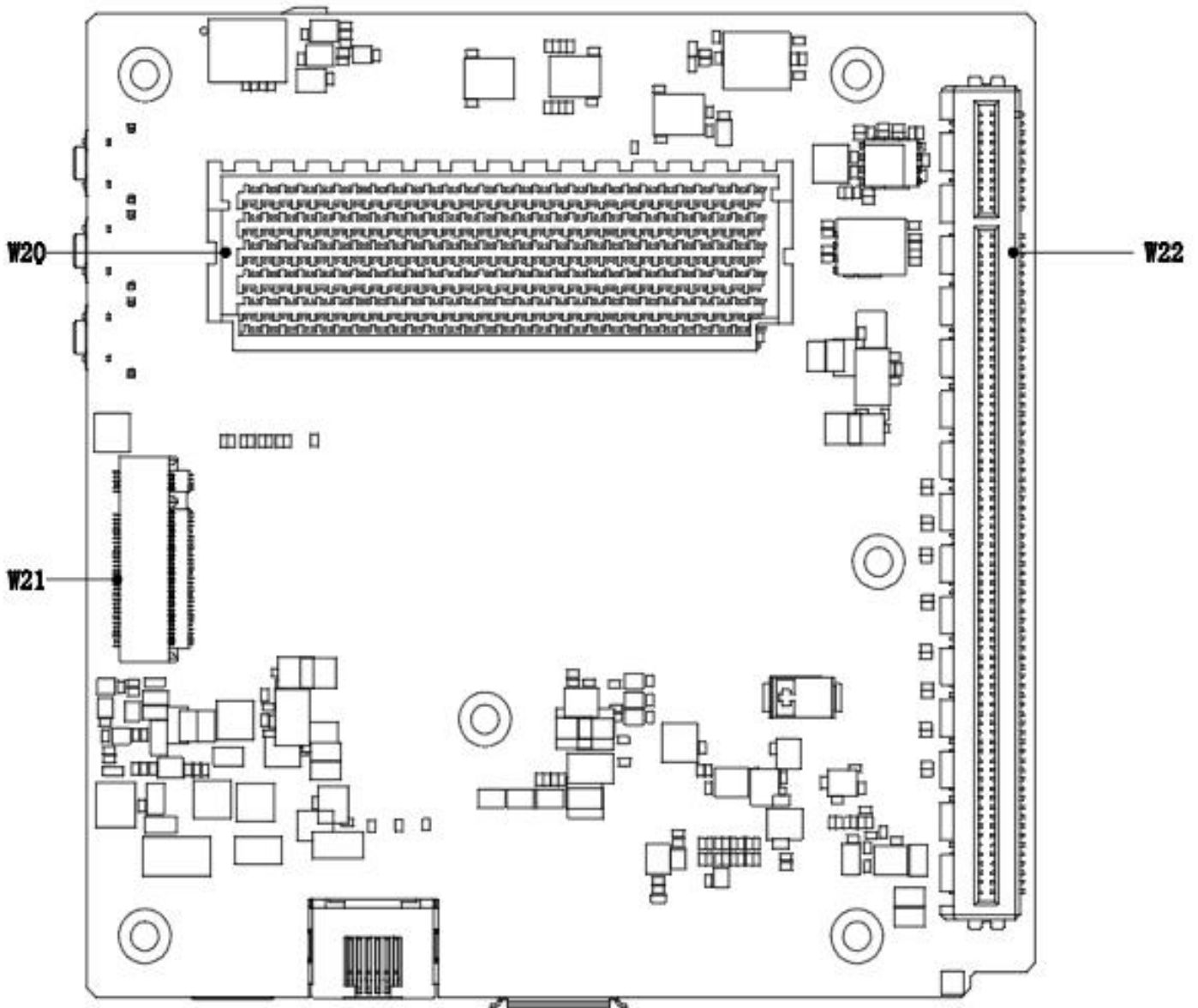
<b>Module Compatibility</b>	NVIDIA Jetson Xavier AGX
<b>PCB Size / Overall Size</b>	105mm x 105mm
<b>Display</b>	1x HDMI

<b>Ethernet</b>	1x Gigabit Ethernet (10/100/1000)
<b>USB</b>	2x USB 3.0 Type A (Integrated USB 2.0) 1x USB 2.0 Type C
<b>M.2 KEY M</b>	1x M.2 KEY M Interface
<b>M.2 KEY E</b>	1x M.2 KEY E Interface
<b>Camera</b>	120P connector
<b>164 PCI extend connector</b>	164P BTB extend connector: PCIE:x8,x4,x2
<b>TF_CARD</b>	1x TF_CARD
<b>USB 3.0</b>	ZIF 20P 0.5mm pitch
<b>SPI Bus</b>	1X SPI Bus(+3.3V Level)
<b>FAN</b>	1 x FAN(5V PWM)
<b>CAN</b>	1x CAN, 1CAN transceiver
<b>RS485</b>	1 x RS485(3P 1.5mm pitch)
<b>RS232</b>	1 x RS232(3P 1.5mm pitch)
<b>Misc.</b>	1x System Control 1x POWER Control 2x I2C Link (+3.3V I/O) 1x UART(+3.3V Level) 1X SPI Bus(+3.3V Level) 6x GPIO(+3.3V Level) 1x LED STATE
<b>Power Requirements</b>	+10---+20V DC Input @ 8A
<b>Operating Temperature</b>	-25 °C to +80 °C

## Connector Description

Carrier Board Front and Back layout and interface:





Designator	Connector	Description
W1	DC Power 12V	2.54mm pitch 2pins DC connector
W2	HDMI Port	HDMI Right Angle Vertical Connector
W3	USB 3.0 Type A	USB 3.0 Link 1 Type A Connector
W4	Gigabit Ethernet	RJ45 Gigabit Ethernet Connector (10/100/1000)
W5	DC Power Input Jack	13*10*10mm 6pins DC connector

W6	MCU control flare	2.54PITCH-2X7
W7	M.2 KEY E connector	67 pins M.2 KEY E connector
W8	CAMERA connector	CON_B2B_120_F_NORM-CON_QSH_SMT_2X60
W9	RESET KEY	
W10	RECOVERY KEY	
W11	POWER KEY	
W12	TF Card Slot	TF Card Slot
W13	Multifunctional port	2.54mm pitch 40 pins Multifunctional port
W14	RTC BATTERY connector	CON, 1.5mm PITCH, 2PIN, 5.1mm,SMD
W15	USB 2.0	USB 2.0 Link TYPE C Connector
W16	USB 3.0 expansion port	FPC 0.5MM 20P H=2MM
W17	RS232 connector	1.5mm PITCH, 3PIN, 5.1mm,SMD
W18	RS485 connector	1.5mm PITCH, 3PIN, 5.1mm,SMD
W19	FAN connector	CON, 1.25mm PITCH, 4PIN, 4.7mm.SMD
W20	NVIDIA Jetson AGX Xavier	CON_B2B_699E
W21	M.2 KEY M connector	67 pins M.2 KEY M connector
W22	CON_PCI_EXPRESS	CON_PEX_164_SMT_ST_P010

## DC Power Input Jack Pin Description ( W1 )

PIN	Signal Name	PIN	Signal Name
1	VDD_12V	2	GND

## HDMI Jack Pin Description ( W2 )

PIN	Signal Name	PIN	Signal Name
1	HDMI2_TXD2_CON_P	2	GND
3	HDMI2_TXD2_CON_N	4	HDMI2_TXD1_CON_P
5	GND	6	HDMI2_TXD1_CON_N

7	HDMI2_TXD0_CON_P	8	GND
9	HDMI2_TXD0_CON_N	10	HDMI2_TXC_CON_P
11	GND	12	HDMI2_TXC_CON_N
13	HDMI2_CEC_CON	14	NC
15	HDMI2_DDC_SCL_5V0	16	HDMI0_DDC_SDA_5V0
17	GND	18	VDD_5V0_HDMI_CON
19	HDMI2_HPD_CON	20,21,22,23	GND

## Dual USB3.0 Pin Description (W3)

PIN	Signal Name	PIN	Signal Name
1	VDD_5V0_IO	2	USB2_N
3	USB2_P	4,21,22	GND
5	USB2_RX_N	6	USB2_RX_P
7	GND	8	DSP2_TX_N1
9	DSP2_TX_P1	10	VDD_5V0_IO
11	USB1_N	12	USB1_P
13	GND	14	USB1_RX_N
15	USB1_RX_P	16,19,20,21,22	GND
17	DSP1_TX_N1	18	DSP1_TX_P1

## Gigabit Ethernet Pin Description (W4)

PIN	Signal Name	PIN	Signal Name
1	RJ45_TD_P	2	RJ45_TD_N
3	RJ45_RD_P	4	RJ45_TD1_P
5	RJ45_TD1_N	6	RJ45_RD_N
7	RJ45_RD1_P	8	RJ45_RD1_N
9	CGND	10	CGND

## DC Power Input Jack Pin Description(W5)

PIN	Signal Name	PIN	Signal Name
1	VCC_DCIN	2,3,4,5,6	GND

Note: when power on, the LED light will be red. Power input range:DC +10V(8A)~+20V(5A)

## MCU\_CONTROL Pin Description(W6)

PIN	Signal Name	PIN	Signal Name
1	SYS_RST_IN	2	GND
3	FORCE_RECOVERY	4	GND
5	CVM_PRSENT1	6	BUTTON_POWER_ON
7	ACOK	8	GND
9	UART3_TX_DEBUG	10	UART3_RX_DEBUG
11	C2D	12	3V3_AO
13	C2K	14	GND

## M 2 KEY E Pin Description (W7)

PIN	Signal Name	PIN	Signal Name
1	GND	2	VDD_3V3
3	USBDN2_DP(NC)	4	VDD_3V3
5	USBDN2_DN (NC)	6	NC
7	GND	8	I2S2_CLK
9	NC	10	I2S2_FS
11	NC	12	I2S2_DIN
13	NC	14	I2S2_DOUT
15	NC	16	NC
17	NC	18	GND
19	NC	20	BT_M2_WAKE
21	NC	22	UART5_RXD
23	NC	24	UART5_TXD
25	GND	26	UART5_CTS
27	PCIE7_TX7_P	28	UART5_RTS
29	PCIE7_TX7_N	30	NC
31	GND	32	NC
33	PCIE7_RX7_P	34	NC
35	PCIE7_RX7_N	36	NC
37	GND	38	NC
39	PEX_CLK3_P	40	NC
41	PEX_CLK3_N	42	CLK_32K
43	GND	44	PEX_L3_RST_N
45	PEX_L3_CLKREQ_N	46	W_DISABLE2
47	PEX_WAKE_N	48	W_DISABLE1
49	GND	50	I2C1_DAT
51	NC	52	I2C1_CLK
53	NC	54	M2_E_ALERT
55	GND	56	NC
57	NC	58	NC
59	NC	60	NC
61	GND	62	NC
63	NC	64	VDD_3V3
65	NC	66	VDD_3V3
67	GND	68	GND



## CAMERA Pin Description(W8)

PIN	Signal Name	PIN	Signal Name
1	CSI_0_D0_P	2	CSI_1_D0_P
3	CSI_0_D0_N	4	CSI_1_D0_N
5	GND	6	GND
7	CSI_0_CLK_P	8	CSI_1_CLK_P
9	CSI_0_CLK_N	10	CSI_1_CLK_N
11	GND	12	GND
13	CSI_0_D1_P	14	CSI_1_D1_P
15	CSI_0_D1_N	16	CSI_1_D1_N
17	GND	18	GND
19	CSI_2_D0_P	20	CSI_3_D0_P
21	CSI_2_D0_N	22	CSI_3_D0_N
23	GND	24	GND
25	CSI_2_CLK_P	26	CSI_3_CLK_P
27	CSI_2_CLK_N	28	CSI_3_CLK_N
29	GND	30	GND
31	CSI_2_D1_P	32	CSI_3_D1_P
33	CSI_2_D1_N	34	CSI_3_D1_N
35	GND	36	GND
37	CSI_4_D0_P	38	CSI_6_D0_P
39	CSI_4_D0_N	40	CSI_6_D0_N
41	GND	42	GND
43	CSI_4_CLK_P	44	CSI_6_CLK_P
45	CSI_4_CLK_N	46	CSI_6_CLK_N
47	GND	48	GND
49	CSI_4_D1_P	50	CSI_6_D1_P
51	CSI_4_D1_N	52	CSI_6_D1_N
53	GND	54	GND
55	NC	56	NC
57	NC	58	NC
59	CSI_5_D0_P	60	CSI_7_D0_P
61	CSI_5_D0_N	62	CSI_7_D0_N
63	GND	64	GND

65	CSI_5_CLK_P	66	CSI_7_CLK_P
67	CSI_5_CLK_N	68	CSI_7_CLK_N
69	GND	70	GND
71	CSI_5_D1_P	72	CSI_7_D1_P
73	CSI_5_D1_N	74	CSI_7_D1_N
75	I2C_GP3_CLK	76	NC
77	I2C_GP3_DAT	78	NC
79	GND	80	GND
81	2.8V	82	2.8V
83	2.8V	84	TEST PIONT
85	CAM_AF_PWDN	86	NC
87	I2C_GP2_CLK	88	CAM1_MCLK03
89	I2C_GP2_DAT	90	GPIO15_CAM1_PWDN
91	CAM0_MCLK02	92	GPIO16_CAM1_RST
93	CAM0_PWDN	94	CAM2_MCLK04
95	CAM0_RST	96	NC
97	NC	98	NC
99	GND	100	GND
101	TEST PIONT	102	1.8V
103	NC	104	NC
105	I2C_GP4_CLK	106	NC
107	I2C_GP4_DAT	108	3.3V
109	TEST PIONT	110	3.3V
111	NC	112	NC
113	NC	114	NC
115	GND	116	GND
117	TEST PIONT	118	3.3V
119	GPIO25_VDD_SYS_EN	120	3.3V
121-128	GND		

## Button Pin Description(W9/W10/W11)

- 1) W9---- (RESET)
- 2) W10---- (RECOVERY)
- 3) W11---- (POWER KEY)

## TF CARD Slot Pin Description(W12)

PIN	Signal Name	PIN	Signal Name
1	SDCARD_D2	2	SDCARD_D3
3	SDCARD_CMD	4	VDD_3V3
5	SDCARD_CLK	6	GND
7	SDCARD_D0	8	SDCARD_D1
9	SD_DET	10,11,12,13	GND

## Multifunctional port Pin Description (W13)

PIN	Signal Name	PIN	Signal Name
1	+3.3V	2	VDD_5V
3	I2C_GP5_DAT_3V3	4	VDD_5V
5	I2C_GP5_CLK_3V3	6	GND
7	MCLK05_3V3	8	UART1_TX_3V3
9	GND	10	UART1_RX_3V3
11	UART1_RTS_3V3	12	I2S3_SCLK_3V3
13	PWM01_3V3	14	GND
15	GPIO27_PWM2_3V3	16	GPIO8_AO_DMIC_IN_DAT
17	VDD_3V3	18	GPIO35_PWM3_3V3
19	SPI1_MOSI_3V3	20	GND
21	SPI1_MISO_3V3	22	GPIO17_3V3
23	SPI1_SCK_3V3	24	SPI1_CS0_3V3
25	GND	26	SPI1_CS1_3V3
27	I2C_GP2_DAT_3V3	28	I2C_GP2_CLK_3V3
29	CAN0_H	30	GND
31	CAN0_L	32	GPIO9_CAN1_GPIO0
33	CAN1_DOUT	34	GND
35	I2S3_FS_3V3	36	UART1_CTS_3V3
37	CAN1_DIN	38	I2S3_SDIN_3V3
39	GND	40	I2S3_SDOUT_3V3

**Note:**

UART1 and SPI0 are converted to 3.3V logic level by the level conversion circuit on the carrier board  
 GPIO11\_3V3, SPI1\_CS1\_3V32 are 3.3v level

## RTC BATTERY CONNECTOR (W14)

PIN	Signal Name	PIN	Signal Name
1	VCC RTC	2,3,4	GND

## USB-2.0 TYPE C (W15)

PIN	Signal Name	PIN	Signal Name
A1, A12, B1, B12	GND	A4, A9, B4, B9	VBUS
A5, B5	USB ID	A6, B6	USB D+
A7, B7	USB D-		

## 20 PIN 0.5mm ZIF,USB3.0(W16)

- Can support 625MB / s transmission speed as official's USB 3.1 connector

PIN	Signal Name	PIN	Signal Name
1,2,3,4,5	VDD_5V	6	GND
7	USBDN1_DN	8	USBDN1_DP
9	GPIO4	10	GND
11	USB3_TX_N	12	USB3_TX_P
13	GND	14	USB3_RX_N
15	USB3_RX_P	16	GND
17	GPIO5	18	GND
19	GND	20	GND

## RS232 Connector (W17)

PIN	Signal Name	PIN	Signal Name
1	RS232_RX5	2	RS232_TX5
3	GND		

## RS485 Connector (W18)

PIN	Signal Name	PIN	Signal Name
1	RS485_A	2	RS485_B
3	GND		

## FAN CONNECTOR (W19)

PIN	Signal Name	PIN	Signal Name
1	GND	2	VDD_5V
3	FAN_TACH	4	FAN_PWM

## NVIDIA AGX Xavier connector (W20)

699PIN module connector to connect module and carrier board.

## M 2 KEY M (W21)

PIN	Signal Name	PIN	Signal Name
1	GND	2	3.3V
3	GND	4	3.3V
5	UPHY_RX5_N	6	NC
7	UPHY_RX5_P	8	NC
9	GND	10	NC
11	UPHY_TX5_N	12	3.3V
13	UPHY_TX5_P	14	3.3V
15	GND	16	3.3V
17	UPHY_RX4_N	18	3.3V
19	UPHY_RX4_P	20	NC
21	GND	22	NC
23	UPHY_TX4_N	24	NC
25	UPHY_TX4_P	26	NC
27	GND	28	NC
29	UPHY_RX3_N	30	NC
31	UPHY_RX3_P	32	NC
33	GND	34	NC
35	UPHY_TX3_N	36	NC
37	UPHY_TX3_P	38	NC
39	GND	40	I2C_GP4_CLK
41	UPHY_RX2_N	42	I2C_GP4_DAT
43	UPHY_RX2_P	44	GPIO34_M2_KEYM_ALERT
45	GND	46	NC
47	UPHY_TX2_N	48	NC
49	UPHY_TX2_P	50	PEX_L0_RST_N
51	GND	52	PEX_L0_CLKREQ_N
53	PEX_CLK0_N	54	GPIO29_M2_KEYM_PEWAKE
55	PEX_CLK0_P	56	NC

57	GND	58	NC
59	NC	60	32.768KHz OUT
61	NC	62	3.3V
63	GND	64	3.3V
65	GND	66	3.3V
67	GND	68	GND

## PCIE X16 Connector (W22)

PIN	Signal Name	PIN	Signal Name
B9	PEX0_JTAG_TRST	B1,B2,A2,A3,B3	VDD_12V
A5	SPI2_SCK	A6	SPI2_MISO
A7	SPI2_MOSI	A8	SPI2_CS0
B8,A9,A10,B10	VDD_3V3	B5	I2C_GP3_CLK_PEX_LVS
B6	I2C_GP3_DAT_PEX_LVS	A1,B4,A4,B7,A12,B13,A15	GND
B17	NC	B12	PEX_L5_CLKREQ_N_R
B16,B18,A18	GND	B11	PEX_WAKE_N_R
A11	PEX_L5_RST_N_R	A13	PCIE_REFCLK_P
A14	PCIE_REFCLK_N	A16	NVHS0_RX0_P
A17	NVHS0_RX0_N	B14	NVHS_PEX0_TX0_P
B15	NVHS_PEX0_TX0_N	A21	NVHS0_RX1_P
A22	NVHS0_RX1_N	B31	NC
A19	NC	B30	NC
A32	NC	B19	NC
B20	NVHS_PEX0_TX1_N	B22,B21	GND
A25	NVHS0_RX2_P	A26	NVHS0_RX2_N
B25,B26	GND	B23	NVHS_PEX0_TX2_P
B24	NVHS_PEX0_TX2_N	A23,A24	GND
A29	NVHS0_RX3_P	A30	NVHS0_RX3_N
B29,A31	GND	B27	NVHS_PEX0_TX3_P
B28	NVHS_PEX0_TX3_N	A27,A28	GND
A35	NVHS0_RX4_P	A36	NVHS0_RX4_N
B35,B36	GND	B33	NVHS_PEX0_TX4_P
B34	NVHS_PEX0_TX4_N	A20,A34	GND
B48	NC	A33	NC
A31,B32	GND	A39	NVHS0_RX5_P
A40	NVHS0_RX5_N	B39,B40	GND
B37	NVHS_PEX0_TX5_P	B38	NVHS_PEX0_TX5_N
A37,A38	GND	A43	NVHS0_RX6_P
A44	NVHS0_RX6_N	B43,B44	GND
B41	NVHS_PEX0_TX6_P	B42	NVHS_PEX0_TX6_N

A41,A42	GND	A47	NVHS0_RX7_P
A48	NVHS0_RX7_N	B47,B49	GND
B45	NVHS_PEX0_TX7_P	B46	NVHS_PEX0_TX7_N
A45,A46	GND	A52	NC
A53	NC	B52,B53	GND
B50	NC	B51	NC
A49,A51	GND	B81	NC
A50	NC	B82	NC
A82	GND	A56	NC
A57	NC	B56,B57	GND
B54	NC	B55	NC
A54,A55	GND	A60	NC
A61	NC	B60,B61	GND
B58	NC	B59	NC
A58,A59	GND	A64	NC
A65	NC	B64,B65	GND
B62	NC	B63	NC
A62,A63	GND	A68	NC
A69	NC	B68,B69	GND
B66	NC	B67	NC
A66,A67	GND	A72	NC
A73	NC	B72,B73	GND
B70	NC	B71	NC
A70,A71	GND	A76	NC
A77	NC	B76,B77	GND
B74	NC	B75	NC
A74,A75	GND	A80	NC
A81	NC	B80,A82	GND
B78	NC	B79	NC
A78,A79	GND	165,166	GND

