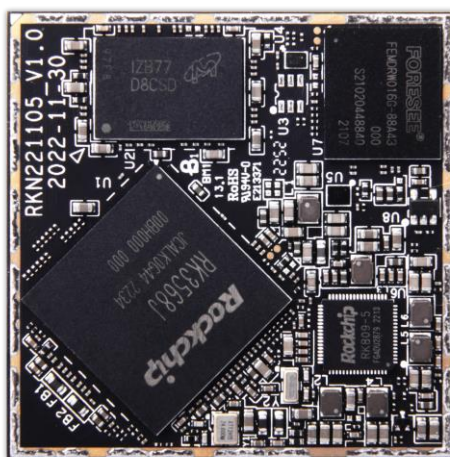


深圳金亚太科技有限公司

Shenzhen Geniatech Co.,Ltd.

SPECIFICATION

MODEL:SOM-3568J-OSM



Confirmation

REVISION HISTORY					
VERSION	DATE	BOARD ID	PAGE	DESCRIPTION	AUTHOR
V1.0	2022/10/8		17	Initial Spec	

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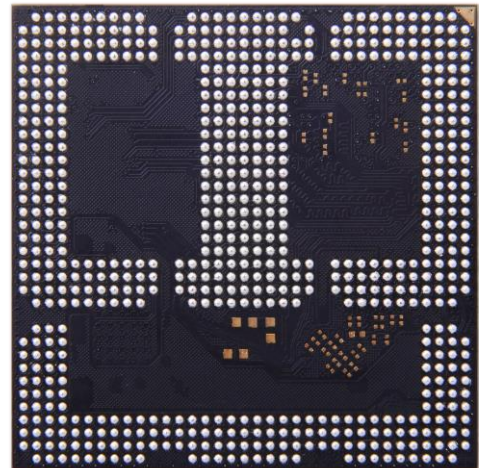
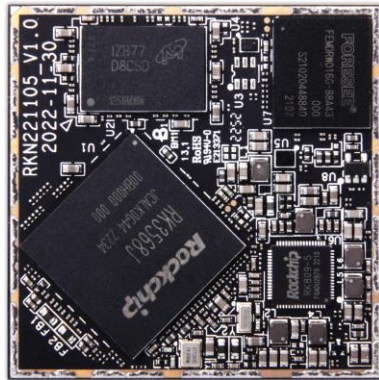
1. GENERAL DESCRIPTION

SOM-3568J-OSM is a new core board model based on RK3568J developed by Rockchip. RK3568J is a high-performance and low power quad-core application processor designed for personal mobile internet device and AIoT equipment, with powerful hard decoding capability and rich interfaces, can quickly realize project research and production only by expanding the functional baseplate, which can be applied to AIOT Internet of Things equipment, vehicle-mounted central control, entertainment/game equipment, commercial display equipment and other application fields. Below is the detailed specification:

- (I) Designed by the OSM V1.1 standard, the size is only 45mm x 45mm (Size-L), which can save more precious space
- (II) Rockchip RK3568J with Quad-core Cortex-A55 and Mali-G52-2EE GPU
- (III) Support up to 8GB RAM, 128GB eMMC flash
- (IV) Supports MIPI-DSI/eDP interface, and multi-format 4K 60fps video decoding (H.265, H.264, VC-1, MPEG-1/2/4, VP8), 1080P (H.264, VP8 format) video encoding.
- (V) With rich interfaces such as I2C, UART, SPI, SDIO3.0, USB2.0, PWM, RMII, I2S(supports 8-way digital microphone array input), and others
- (VI) Supports Android, Linux multiple operating system, the performance is stable and reliable
- (VII) Stable operation at extended commercial (-40 °C ~ 85°C) working temperature for 7X24 hours
- (VIII)

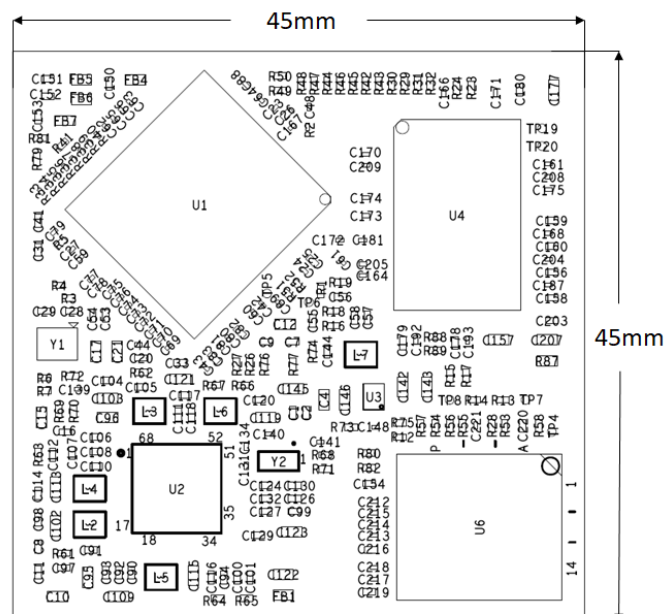
2. PRODUCT PICTURES

Below pictures are for reference only:

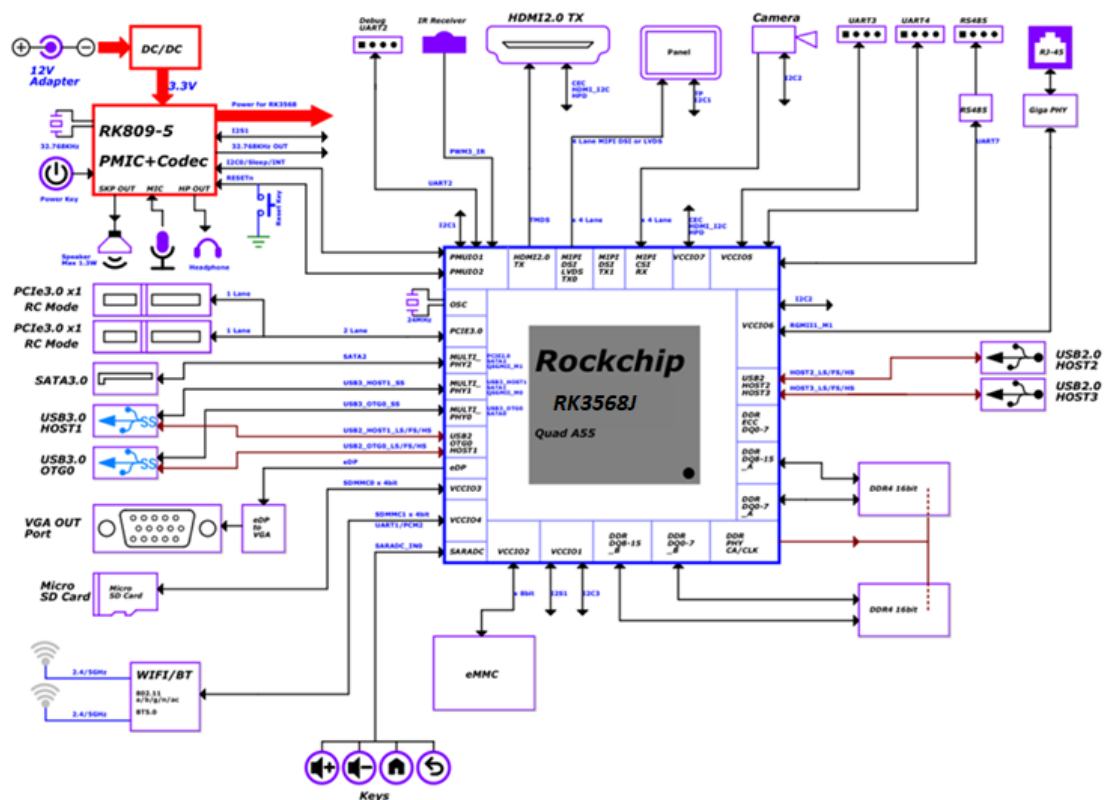


3. BOARD VIEW

3.1 DIMENSION



3.2 BLOCK DIAGROM



4. FEATURES

Chipset	Rockchip RK3568J	
Market area	Global	
OSD Language	English/Chinese(multi language OSD)	
Processor	CPU	Quad-core Cortex-A55
	GPU	Mali-G52-2EE GPU
	RAM	2GB (4GB/8GB Optional)
	ROM	16GB (8G/32G/64G/128G Optional)
Network	Ethernet	2 x RJ45, 1000M

	WiFi	Extend WiFi & Bluetooth via SDIO3.0
Display	Support HDMI/eDP/MIPI-DSI interface, Resolution up to 4k@60Hz	
USB	1 x USB Host 3.0 , 1 x USB OTG 3.0, 2 x USB Host 2.0	
Audio	for audio output 2 x 8ch I ² S /TDM, 1x8ch PDM, 2x2ch I ² S/PCM,1x8ch SPDIF	
Interface	I2C, UART, SPI, SDIO3.0, USB3.0,USB2.0, PWM,CAN, RMII, I2S (Support 8-way digital microphone array input)	
Dimensions	45 mm *45 mm	
Adapter	DC input voltage 5V	

5. Support Formats

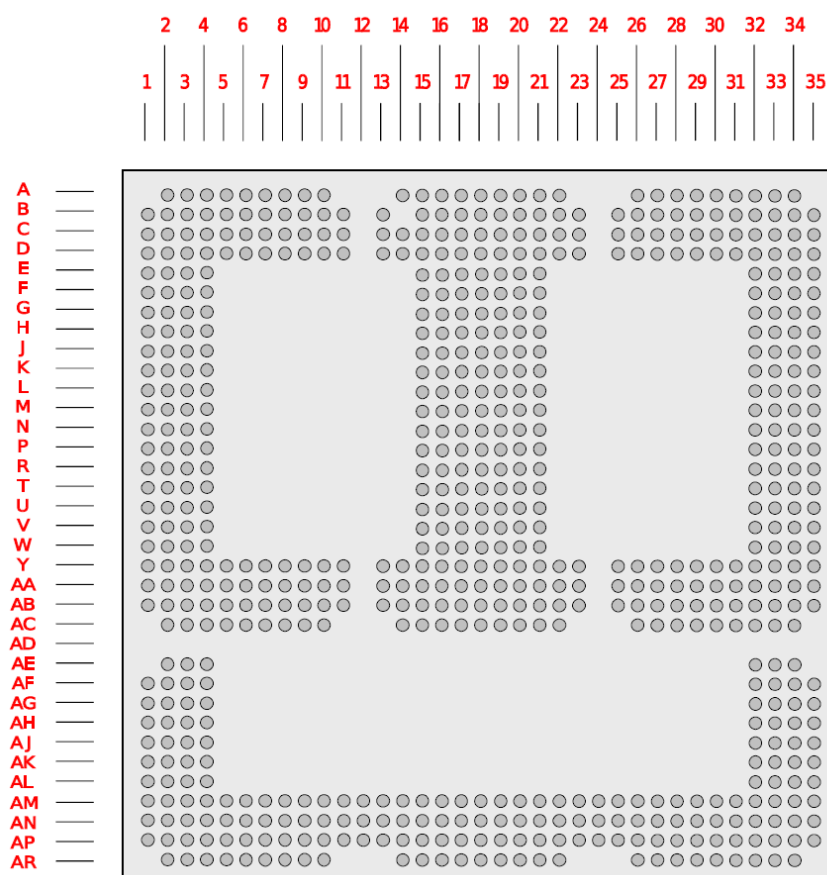
Video Decoder

- H.265 HEVC/MVC Main10 Profile yuv420@L5.1 up to 4096x2304@60fps
- H.264 AVC/MVC Main10 Profile yuv400/yuv420/yuv422/@L5.1 up to 4096x2304@60fps
- VP9 Profile0/2 yuv420@L5.1 up to 4096x2304@60fps
- VP8 version2, up to 1920x1088@60fps
- VC1 Simple Profile@low, medium, high levels, Main Profile@low, medium, high levels, Advanced Profile@level0~3, up to 1920x1088@60fps
- MPEG-4 Simple Profile@L0~6, Advanced Simple Profile@L0~5, up to 1920x1088@60fps
- MPEG-2 Main Profile, low, medium and high levels, up to 1920x1088@60fps
- MPEG-1 Main Profile, low, medium and high levels, up to 1920x1088@60fps
- H.263 Profile0, levels 10-70, up to 720x576@60fps

Video Encoder

- H.264/AVC BP/MP/HP@level4.2, up to 1920x1080@60fps
- H.265/HEVC MP@level4.1, up to 1920x1080@100fps (4096x4096@10fps with TILE)
- Support YUV/RGB video source with rotation and mirror

6. Module Pin Definition



PIN	Default function	PIN	Default function
A2	MIPI_CSI_RX_D1N	A3	MIPI_CSI_RX_D1P
A4	GND	A5	MIPI_CSI_RX_D2N
A6	MIPI_CSI_RX_D2P	A7	GND
A8	USB3_OTG0_SSTXP	A9	USB3_OTG0_SSTXN
A10	GND	A14	UART8_RX_M0
A15	NC	A16	NC
A17	NC	A18	NC
A19	NC	A20	NC
A21	NC	A22	NC
A26	GND	A27	USB3_HOST1_SSTXP
A28	USB3_HOST1_SSTXN	A29	GND
A30	EDP_TX_D0P	A31	EDP_TX_D0N
A32	GND	A33	EDP_TX_D2P
A34	EDP_TX_D2N	B1	MIPI_CSI_RX_D0P

B2	GND	B3	MIPI_CSI_RX_CLK0N
B4	MIPI_CSI_RX_CLK0P	B5	GND
B6	MIPI_CSI_RX_D3N	B7	MIPI_CSI_RX_D3P
B8	GND	B9	GND
B10	USB3_OTG0_SSRXP	B11	USB3_OTG0_SSRXN
B13	UART8_TX_M0	B15	NC
B16	NC	B17	NC
B18	NC	B19	NC
B20	NC	B21	NC
B22	ETH1_REFCLKO_25M_M1	B23	NC
B25	USB3_HOST1_SSRXP	B26	USB3_HOST1_SSRXN
B27	GND	B28	GND
B29	VDDA0V9_PMU	B30	GND
B31	EDP_TX_D1P	B32	EDP_TX_D1N
B33	GND	B34	EDP_TX_D3P
B35	EDP_TX_D3N	C1	MIPI_CSI_RX_D0N
C2	CIF_CLKOUT	C3	I2C2_SDA_M1
C4	I2C2_SDA_M1	C5	VCC_DDR
C6	GMAC1_MDC_M1	C7	GMAC1_MDIO_M1
C8	NC	C9	NC
C10	USB_HOST_PWREN2_H	C11	GND
C13	UART8_RTSn_M0	C14	UART8_CTSn_M0
C15	NC	C16	NC
C17	GND	C18	NC
C19	GND	C20	VCCIO_SD
C21	GND	C22	NC
C23	NC	C25	GND
C26	USB_HOST_PWREN3_H	C27	NC
C28	NC	C29	NC
C30	NC	C31	eDP_BL_PWM_GPIO_C4
C32	GND	C33	EDP_TX_AUXP
C34	EDP_TX_AUXN	C35	GND
D1	GND	D2	NC
D3	HP_DET_L_GPIO3_C2	D4	PCIE30X1_WAKEn_M1_GPIO2_D3
D5	GND	D6	NC
D7	NC	D8	GND
D9	NC	D10	USB2_HOST2_DP

D11	USB2_HOST2_DM	D13	UART4_TX_M0
D14	UART4_RX_M0	D15	UART4_RTSn_M0
D16	UART4_CTSn_M0	D17	WIFI_PWREN_GPIO0_D5
D18	GND	D19	DVP_PWREN0_H_GPIO0_B0
D20	NC	D21	SDMMC0_PWREN
D22	UART2_RX_M0_DEBUG	D23	UART2_TX_M0_DEBUG
D25	USB2_HOST3_DP	D26	USB2_HOST3_DM
D27	NC	D28	GND
D29	NC	D30	NC
D31	eDP_BL_EN	D32	NC
D33	NC	D34	GND
D35	NC	E1	NC
E2	GND	E3	PCIE30X1_CLKREQn_M1_GPIO2_D2
E4	PCIE30X2_WAKEn_M1_GPIO2_D5	E15	GND
E16	NC	E17	WIFI_REG_ON_H_GPIO3_D5
E18	LCD1_BL_PWM5	E19	GMAC0_RSTn_GPIO3_B7
E20	SDMMC0_CMD	E21	GND
E32	NC	E33	NC
E34	NC	E35	NC
F1	GMAC1_TXD1_M1	F2	GMAC1_TXD3_M1
F3	LCD1_PWREN_H_GPIO0_C3	F4	LCD1_BLEN_H_GPIO0_C2
F15	NC	F16	GND
F17	WIFI_WAKE_HOST_H_GPIO3_D4	F18	PWM3_IR
F19	GMAC0_INT/PMEB_GPIO3_C0	F20	GND
F21	SDMMC0_CLK	F32	NC
F33	GND	F34	NC
F35	GND	G1	GMAC1_TXD0_M1
G2	GMAC1_TXD2_M1	G3	MIPI_CAM0_PDN_L_GPIO3_C4
G4	MIPI_CAM0_RST_L_GPIO3_C5	G15	GMAC0_TXD1
G16	GMAC0_TXD1	G17	BT_REG_ON_H_GPIO2_D7
G18	PWM8_M0	G19	GMAC1_RSTn_GPIO3_B0
G20	SDMMC0_D0	G21	SDMMC0_D1
G32	NC	G33	NC
G34	GND	G35	NC
H1	GMAC1_TXCLK_M1	H2	GND
H3	NC	H4	GND
H15	GMAC0_TXD0	H16	GMAC0_TXD2

H17	HOST_WAKE_BT_H_GPIO3_A1	H18	PWM9_M0
H19	GMAC1_INT/PMEB_GPIO3_A7	H20	SDMMC0_D2
H21	SDMMC0_D3	H32	GND
H33	NC	H34	NC
H35	NC	J1	NC
J2	GMAC1_TXEN_M1	J3	NC
J4	NC	J15	GMAC0_TXCLK
J16	GND	J17	WAKE_HOST_H_GPIO3_A0
J18	NC	J19	TP_RST_L_GPIO0_B6
J20	GND	J21	SDMMC0_DET_L
J32	NC	J33	GND
J34	NC	J35	GND
K1	GMAC1_RXD1_M1	K2	GMAC1_RXER_M1/GPIO4_B2
K3	NC	K4	NC
K15	GMAC0_RXD0	K16	GMAC0_TXEN
K17	SPI3_CS0_M1_GPIO4_C4	K18	NC
K19	TP_INT_L_GPIO0_B5	K20	SDMMC2_CLK_M0
K21	SDMMC2_CMD_M0	K32	NC
K33	NC	K34	GND
K35	PCIE30_TX0P	L1	GMAC1_RXDV_CRS_M1
L2	GND	L3	NC
L4	GND	L15	GMAC0_RXD1
L16	NC	L17	GPIO1_B3
L18	GND	L19	SPK_CTL_H_GPIO3_C3
L20	SDMMC2_D0_M0	L21	SDMMC2_D1_M0
L32	NC	L33	PCIE30X1_PERSTn_M2
L34	PCIE30_RX0P	L35	PCIE30_TX0N
M1	GMAC1_RXD2_M1	M2	NC
M3	NC	M4	NC
M15	GMAC0_RXDV_CRS	M16	GND
M17	VCCIO4	M18	SARADC_VIN2
M19	VDD_CPU	M20	GND
M21	SDMMC2_D2_M0	M32	NC
M33	NC	M34	PCIE30_RX0N
M35	GND	N1	GMAC1_RXD3_M1
N2	NC	N3	NC
N4	NC	N15	GMAC0_RXD2

N16	NC	N17	ARMJTAG_TCK
N18	SARADC_VIN3	N19	ARMJTAG_TMS
N20	SDMMC2_D3_M0	N21	NC
N32	NC	N33	NC
N34	GND	N35	NC
P1	GMAC1_RXCLK_M1	P2	GND
P3	NC	P4	GND
P15	GMAC0_RXD3	P16	NC
P17	NC	P18	GND
P19	NC	P20	NC
P21	NC	P32	NC
P33	NC	P34	NC
P35	NC	R1	GND
R2	NC	R3	NC
R4	NC	R15	GMAC0_RXCLK
R16	GND	R17	NC
R18	NC	R19	NC
R20	GND	R21	NC
R32	NC	R33	NC
R34	NC	R35	NC
T1	NC	T2	PCIE20_WAKEn_M1
T3	NC	T4	NC
T15	GMAC0_MDIO	T16	GMAC0_MDC
T17	RECOVERY	T18	Working_LEDEN_H_GPIO0_B7
T19	RK809_32KOUT_WIFI	T20	VCCIO6
T21	NC	T32	NC
T33	NC	T34	GND
T35	NC	U1	NC
U2	GND	U3	NC
U4	GND	U15	FSPI_D0
U16	FSPI_CLK	U17	RESETn
U18	VCC_1V8	U19	NC
U20	NC	U21	NC
U32	PCIE30X2_CLKREQn_M1_GPIO2_D4	U33	GPIO1_B0
U34	NC	U35	NC
V1	GND	V2	PCIE20_PERSTn_M1
V3	NC	V4	NC

V15	FSPI_D1	V16	GND
V17	PMIC_EXT_EN	V18	I2S3_MCLK_M0
V19	NC	V20	GND
V21	I2S3_SDI_M0	V32	GPIO1_B1
V33	GPIO1_B2	V34	NC
V35	NC	W1	PCIE20_REFCLKP
W2	PCIE20_CLKREQn_M1	W3	GND
W4	NC	W15	FSPI_D3
W16	FSPI_D2	W17	NC
W18	I2S3_LRCK_M0	W19	NC
W20	I2S3_SCLK_M0	W21	I2S3_SDO_M0
W32	NC	W33	NC
W34	GND	W35	NC
Y1	PCIE20_REFCLKN	Y2	GND
Y3	VCC_3V3	Y4	NC
Y5	NC	Y6	NC
Y7	NC	Y8	VCC5V0_SYS
Y9	VCC5V0_SYS	Y10	VCC5V0_SYS
Y11	VCC5V0_SYS	Y13	GMAC0_MCLKINOUT
Y14	TH0_REFCLKO_25M	Y15	FSPI_CS0n
Y16	VCCA1V8	Y17	VCC5V0_SYS
Y18	GND	Y19	NC
Y20	VDD_LOGIC	Y21	SPI3_CLK_M1
Y22	SPI3_MISO_M1	Y23	SPI3_MOSI_M1
Y25	VCC5V0_SYS	Y26	VCC5V0_SYS
Y27	VCC5V0_SYS	Y28	VCC5V0_SYS
Y29	NC	Y30	NC
Y31	NC	Y32	NC
Y33	NC	Y34	NC
Y35	NC	AA1	GND
AA2	NC	AA3	NC
AA4	GND	AA5	NC
AA6	NC	AA7	GND
AA8	GND	AA9	PMIC_PWRON
AA10	GND	AA11	GND
AA13	GMAC1_MCLKINOUT_M1	AA14	GND
AA15	I2C3_SCL_M1	AA16	I2C3_SDA_M0

AA17	GND	AA18	NC
AA19	GND	AA20	I2C5_SCL_M0
AA21	I2C5_SCL_M0	AA22	GND
AA23	SPI3_CS0_M1	AA25	GND
AA26	GND	AA27	GND
AA28	GND	AA29	NC
AA30	NC	AA31	NC
AA32	GND	AA33	VDD_GPU
AA34	NC	AA35	NC
AB1	PCIE20_RXP	AB2	PCIE20_RXN
AB3	GND	AB4	MIPI_DSI_TX1_D3P
AB5	MIPI_DSI_TX1_D3N	AB6	GND
AB7	MIPI_DSI_TX1_CLKP	AB8	MIPI_DSI_TX1_CLKN
AB9	GND	AB10	MIPI_DSI_TX1_D0N
AB11	MIPI_DSI_TX1_D0P	AB13	USB3_OTG0_DM
AB14	USB3_OTG0_ID	AB15	GND
AB16	USB3_OTG0_VBUSDET	AB17	CAN0_RX_M0
AB18	NC	AB19	CAN1_RX_M0
AB20	NC	AB21	GND
AB22	NC	AB23	USB3_HOST1_DM
AB25	NC	AB26	NC
AB27	NC	AB28	GND
AB29	NC	AB30	NC
AB31	GND	AB32	NC
AB33	NC	AB34	GND
AB35	NC	AC2	PCIE20_TXP
AC3	PCIE20_TXN	AC4	GND
AC5	MIPI_DSI_TX1_D2P	AC6	MIPI_DSI_TX1_D2N
AC7	GND	AC8	MIPI_DSI_TX1_D1P
AC9	MIPI_DSI_TX1_D1N	AC10	GND
AC14	USB3_OTG0_DP	AC15	NC
AC16	USB_OTG_PWREN_H	AC17	CAN0_TX_M0
AC18	NC	AC19	CAN1_TX_M0
AC20	USB_HOST_PWREN1_H	AC21	NC
AC22	USB3_HOST1_DP	AC26	NC
AC27	GND	AC28	NC
AC29	NC	AC30	GND

AC31	NC	AC32	NC
AC33	GND	AC34	NC
AE2	GND	AE3	NC
AE4	VCC5V0_SYS	AE32	NC
AE33	NC	AE34	GND
AF1	NC	AF2	NC
AF3	NC	AF4	VCC5V0_SYS
AF32	NC	AF33	NC
AF34	NC	AF35	GND
AG1	NC	AG2	NC
AG3	GND	AG4	VCC5V0_SYS
AG32	NC	AG33	NC
AG34	NC	AG35	NC
AH1	NC	AH2	GND
AH3	VCC5V0_SYS	AH4	VCC5V0_SYS
AH32	NC	AH33	NC
AH34	GND	AH35	NC
AJ1	NC	AJ2	NC
AJ3	VCC5V0_SYS	AJ4	VCC5V0_SYS
AJ32	NC	AJ33	NC
AJ34	NC	AJ35	GND
AK1	NC	AK2	NC
AK3	GND	AK4	VCC5V0_SYS
AK32	NC	AK33	NC
AK34	NC	AK35	NC
AL1	NC	AL2	GND
AL3	HDMI_TX2P_PORT	AL4	HDMI_TX2N_PORT
AL32	NC	AL33	NC
AL34	GND	AL35	NC
AM1	NC	AM2	NC
AM3	HDMI_TX1P_PORT	AM4	HDMI_TX1N_PORT
AM5	HDMI_TX0P_PORT	AM6	HDMI_TX0N_PORT
AM7	HDMI_TXCLKP_PORT	AM8	HDMI_TXCLKN_PORT
AM9	HDMI_TX_HPDIN	AM10	HDMI_TX_CEC_M0
AM11	NC	AM12	NC
AM13	GND	AM14	NC
AM15	NC	AM16	GND

AM17	NC	AM18	NC
AM19	GND	AM20	NC
AM21	NC	AM22	GND
AM23	HDMITX_SDA	AM24	HDMITX_SCL
AM25	NC	AM26	NC
AM27	NC	AM28	NC
AM29	NC	AM30	NC
AM31	NC	AM32	NC
AM33	NC	AM34	NC
AM35	GND		
AN1	NC	AN2	NC
AN3	GND	AN4	NC
AN5	NC	AN6	GND
AN7	NC	AN8	NC
AN9	GND	AN10	NC
AN11	GND	AN12	MIPI_DSI_TX0_CLKN/LVDS_TX0_CLKN
AN13	MIPI_DSI_TX0_CLKP/LVDS_TX0_CLKP	AN14	LCD0_PWREN_H_GPIO0_C7
AN15	GND	AN16	NC
AN17	NC	AN18	GND
AN19	NC	AN20	NC
AN21	GND	AN22	LCD0_BL_PWM4
AN23	LCD0_BLEN_H_GPIO0_D6	AN24	NC
AN25	NC	AN26	NC
AN27	NC	AN28	NC
AN29	NC	AN30	NC
AN31	NC	AN32	NC
AN33	GND	AN34	NC
AN35	NC		
AP1	NC	AP2	GND
AP3	NC	AP4	NC
AP5	GND	AP6	NC
AP7	NC	AP8	GND
AP9	NC	AP10	NC
AP11	MIPI_DSI_TX0_D3N/LVDS_TX0_D3N	AP12	MIPI_DSI_TX0_D3P/LVDS_TX0_D3P
AP13	GND	AP14	MIPI_DSI_TX0_D2N/LVDS_TX0_D2N
AP15	MIPI_DSI_TX0_D2P/LVDS_TX0_D2P	AP16	GND
AP17	MIPI_DSI_TX0_D0N/LVDS_TX0_D0N	AP18	MIPI_DSI_TX0_D0P/LVDS_TX0_D0P

AP19	GND	AP20	NC
AP21	NC	AP22	GND
AP23	NC	AP24	NC
AP25	GND	AP26	NC
AP27	NC	AP28	GND
AP29	NC	AP30	NC
AP31	GND	AP32	NC
AP33	NC	AP34	GND
AP35	NC		
AR2	NC	AR3	NC
AR4	NC	AR5	NC
AR6	NC	AR7	NC
AR8	NC	AR9	NC
AR10	NC	AR14	GND
AR15	MIPI_DSI_TX0_D1N/LVDS_TX0_D1	AR16	MIPI_DSI_TX0_D1P/LVDS_TX0_D1P
AR17	GND	AR18	NC
AR19	NC	AR20	GND
AR21	NC	AR22	NC
AR26	GND	AR27	NC
AR28	NC	AR29	GND
AR30	NC	AR31	NC
AR32	GND	AR33	NC
AR34	NC		

7. Precautions for use

1. Relative humidity: 10% ~ 90% .
2. Storage temperature: -10 ~ 125℃
3. Operation temperature: Extended commercial (-40℃ ~ 85℃)
4. Do not squeeze、distort or disassemble the board.
5. Keep the board away from static electricity .
6. Keep the board away from water and other liquid.
7. Clean the board with soft and clean dry cloth when it's dirty.
8. Don't use long connect wires which may affect performance and image quality.