

深圳金亚太科技有限公司
Shenzhen Geniatech Co.,Ltd.
SPECIFICATION

SOM-3566-OSM-

深圳金亚太科技有限公司

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SPECIFICATION

MODEL:SOM-3566-OSM



Confirmation

REVISION HISTORY					
VERSION	DATE	BOARD ID	PAGE	DESCRIPTION	AUTHOR
V1.0	2022/4/8		16	Initial Spec	
V1.1	22/7/20		17	Modify Some Pins Definitions	

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CONTENT

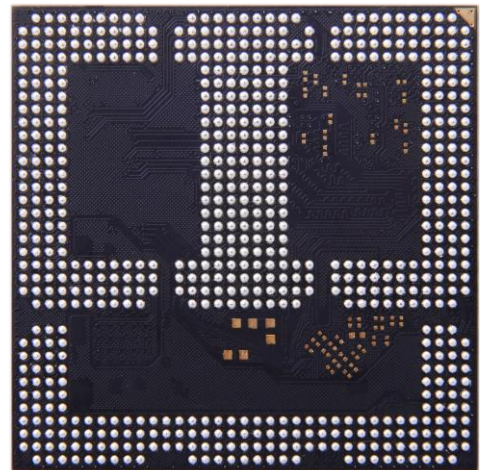
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1. GENERAL DESCRIPTION

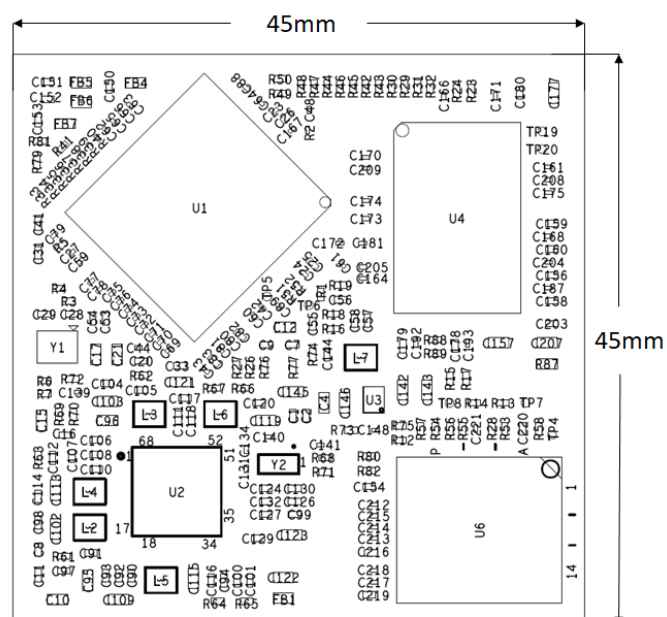
SOM-3566-OSM is a new core board model based on RK3566 developed by Rockchip. RK3566 is a high-performance and low power quad-core application processor designed for personal mobile internet device and AIoT equipments, with powerful hard decoding capability and rich interfaces, can quickly realize project 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) the size is only 45mm x 45mm, which can save more precious space
- (II) Rockchip RK3566 with Quad-core Cortex-A55 and Mali-G52 GPU
- (III) 2GB RAM (1GB/4GB/8GB optional), 16GB eMMC flash (8GB/32GB/64GB/128GB optional)
- (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.
- (VI) With rich interfaces such as I2C, UART, SPI, SDIO3.0, USB2.0, PWM, RMII, I2S(supports 8-way digital microphone array input), and others
- (VII) Supports Android, Linux multiple operating system, the performance is stable and reliable
- (VIII) With immersion gold process pin, corrosion resistant, 2 studs fixed, stable operation at commercial (0 °C ~60 °C) working temperature for 7X24 hours

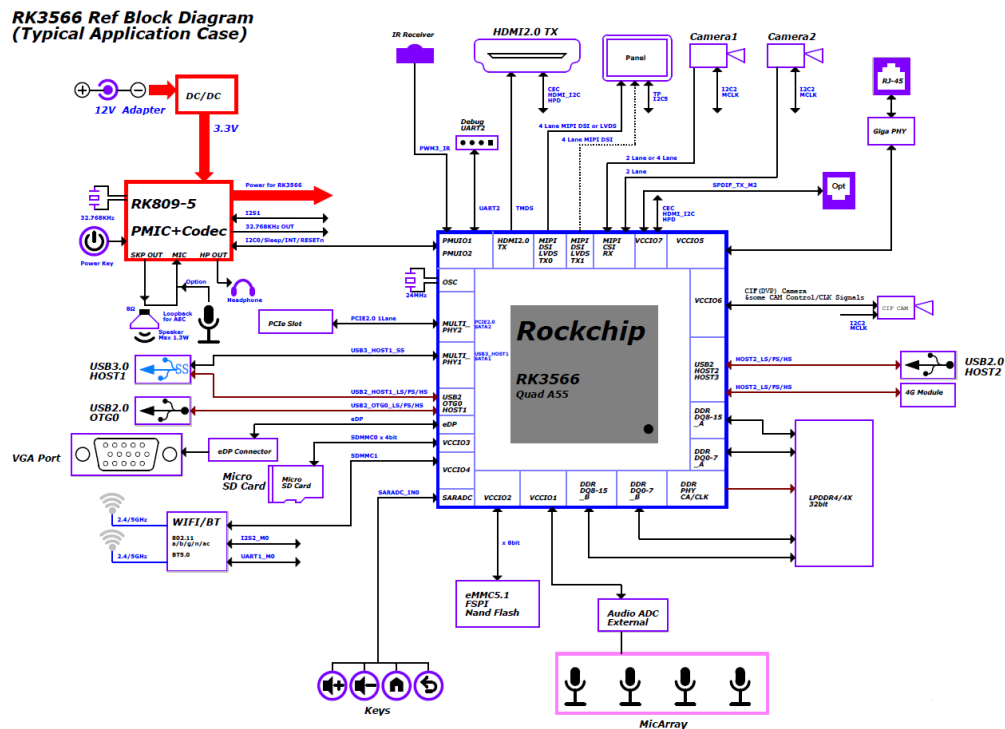
Below pictures are for reference only:



3.1 DIMENSION



3.2 BLOCK DIAGROM



4. FEATURES

Chipset	Rockchip RK3566	
Market area	Global	
OSD Language	English/Chinese(multi language OSD)	
Processor	CPU	Quad-core Cortex-A55
	GPU	Mali-G52 GPU
	RAM	2GB(1GB/4GB/8GB optional)
	ROM	16GB (8G/32G/64GB/128GB Optional)
Network	Ethernet	RJ45, 1000M
	WiFi	Extend WiFi & Bluetooth via SDIO3.0

Display	Support eDP/MIPI-DSI interface, Resolution up to 1920x1080
USB	1 x USB Host 3.0, 1 x USB OTG 2.0, 2 x USB Host 2.0
Audio	1 x SPDIF, for audio output 1 x 8ch I ² S /TDM, 1x8ch PDM, 1x2ch I ² S/PCM
Interface	I2C, UART, SPI, SDIO3.0, USB2.0, PWM, RMII, I2S (Support 8-way digital microphone array input)
Dimensions	45 mm *45 mm
Adapter	DC input voltage 5V

5. Support Formats

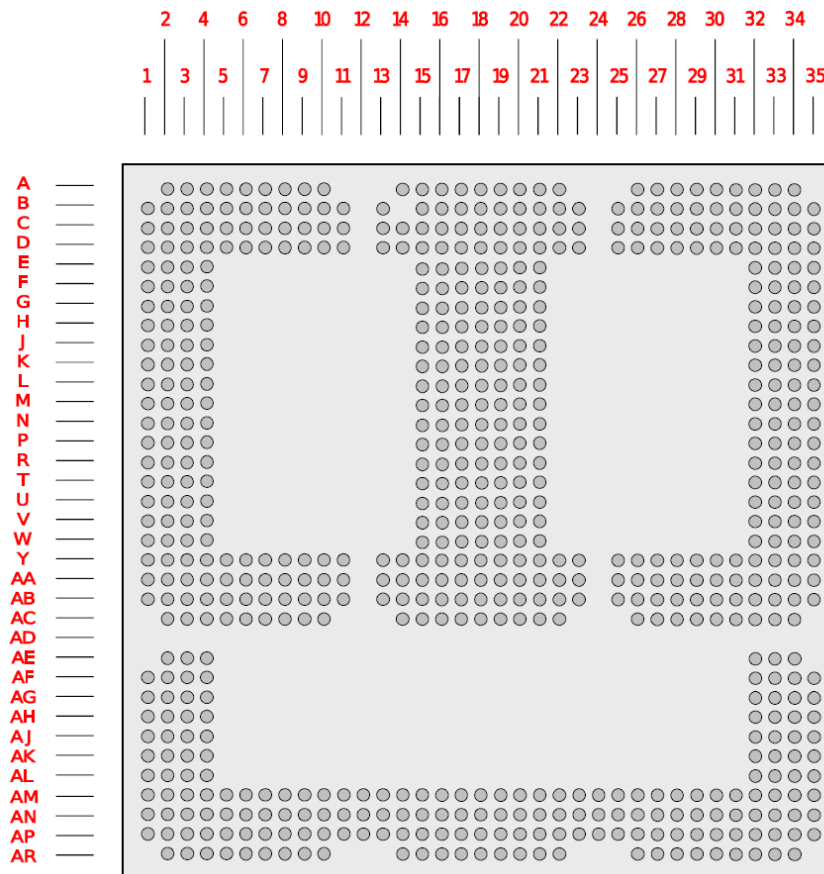
Video Decoder

- 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_HOST1_SSTXP	A9	USB3_HOST1_SSTXN
A10	GND	A14	UART1_RX_M0
A15	NC	A16	NC
A17	NC	A18	NC
A19	NC	A20	NC
A21	NC	A22	NC
A26	GND	A27	NC
A28	NC	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_HOST1_SSRXP	B11	USB3_HOST1_SSRXN
B13	UART1_TX_M0	B15	NC
B16	NC	B17	NC
B18	NC	B19	NC
B20	NC	B21	NC
B22	PMIC_32KOUT_WIFI	B23	NC
B25	NC	B26	NC
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	MIPI_MCLK_B	C3	VCC5V0_IN
C4	I2C2_SDA_M1	C5	I2C2_SCL_M1
C6	PCIE20_CLKREQn_M2	C7	PCIE20_WAKEn_M2
C8	NC	C9	NC
C10	USB_HOST_PWREN_H	C11	GND
C13	UART1_RTSn_M0	C14	UART1_CTSn_M0
C15	GND	C16	NC
C17	GND	C18	NC
C19	GND	C20	NC
C21	GND	C22	NC
C23	NC	C25	GND
C26	NC	C27	NC
C28	NC	C29	NC
C30	NC	C31	LCD_BL_PWM
C32	GND	C33	EDP_TX_AUXP
C34	EDP_TX_AUXN	C35	GND
D1	GND	D2	NC
D3	GPIO1_A2	D4	GPIO1_A3
D5	GND	D6	PCIE20_PERSTn_M2
D7	GPIO0_A0	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	GPIO0_B0
D18	GND	D19	GPIO0_D6
D20	NC	D21	SDMMC1_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	NC	D32	NC
D33	NC	D34	GND
D35	NC	E1	NC
E2	GND	E3	GPIO1_B3
E4	NC	E15	GND
E16	NC	E17	GPIO0_B7
E18	PWM7_IR	E19	GPIO2_C0
E20	SDMMC1_CMD	E21	GND
E32	NC	E33	NC
E34	NC	E35	NC
F1	NC	F2	NC
F3	NC	F4	NC
F15	NC	F16	GND
F17	GPIO_B6	F18	PWM0_M1
F19	GPIO2_B7	F20	GND
F21	SDMMC1_CLK	F32	NC
F33	GND	F34	NC
F35	GND	G1	NC
G2	NC	G3	CAMERAB_PDN_L
G4	CAMERAB_RST_L	G15	GMAC1_TXD1_M0
G16	GMAC1_TXD3_M0	G17	GPIO0_B5
G18	PWM6	G19	GPIO3_D1
G20	SDMMC1_D0	G21	SDMMC1_D1
G32	NC	G33	NC
G34	GND	G35	NC
H1	NC	H2	GND
H3	NC	H4	GND
H15	GMAC1_TXD0_M0	H16	GMAC1_TXD2_M0

H17	GPIO0_C0	H18	NC
H19	GPI03_D2	H20	SDMMC1_D2
H21	SDMMC1_D3	H32	GND
H33	NC	H34	NC
H35	NC	J1	NC
J2	NC	J3	NC
J4	NC	J15	GMAC1_TXCLK_M0
J16	GND	J17	GPIO0_D3
J18	NC	J19	GPI03_D3
J20	GND	J21	SDMMC1_DET
J32	CIF_8BIT_D0	J33	GND
J34	NC	J35	GND
K1	NC	K2	NC
K3	NC	K4	NC
K15	GMAC1_RXD0_M0	K16	GMAC1_TXEN_M0
K17	GPIO0_D3	K18	NC
K19	GPI03_D4	K20	SDMMC0_CLK
K21	SDMMC0_CMD	K32	CIF_8BIT_D1
K33	NC	K34	GND
K35	NC	L1	NC
L2	GND	L3	NC
L4	GND	L15	GMAC1_RXD1_M0
L16	NC	L17	GPIO0_D5
L18	GND	L19	GPI03_D5
L20	SDMMC0_D0	L21	SDMMC0_D1
L32	CIF_8BIT_D2	L33	NC
L34	NC	L35	NC
M1	NC	M2	NC
M3	NC	M4	NC
M15	GMAC1_RXDV_CRS_M0	M16	GND
M17	VDD_CPU	M18	SARADC_VIN2
M19	VCCA1V8_PMU	M20	GND
M21	SDMMC0_D2	M32	CIF_8BIT_D3
M33	CIF_8BIT_D4	M34	NC
M35	GND	N1	NC
N2	NC	N3	NC
N4	NC	N15	GMAC1_RXD2_M0

N16	NC	N17	MCU_JTAG_TCK
N18	SARADC_VIN3	N19	MCU_JTAG_TMS
N20	SDMMC0_D3	N21	NC
N32	CIF_8BIT_D5	N33	CIF_8BIT_D6
N34	GND	N35	NC
P1	NC	P2	GND
P3	NC	P4	GND
P15	GMAC1_RXD3_M0	P16	NC
P17	MCU_JTAG_TDI	P18	GND
P19	NC	P20	NC
P21	NC	P32	CIF_8BIT_D7
P33	CAMERAF_RST_L	P34	CAMERAF_PDN_L
P35	NC	R1	GND
R2	NC	R3	NC
R4	NC	R15	GMAC1_RXCLK_M0
R16	GND	R17	MCU_JTAG_TDO
R18	NC	R19	MCU_JTAG_TRSTn
R20	GND	R21	NC
R32	CAMERAF2_PDN_L	R33	CIF_CLKOUT
R34	NC	R35	NC
T1	NC	T2	NC
T3	NC	T4	NC
T15	GMAC1_MDIO_M0	T16	GMAC1_MDC_M0
T17	NC	T18	NC
T19	NC	T20	NC
T21	SDMMC0_DET_L	T32	CIF_8BIT_CLKIN
T33	CIF_8BIT_HREF	T34	GND
T35	NC	U1	NC
U2	GND	U3	NC
U4	GND	U15	FSPI_D0
U16	FSPI_CLK	U17	RESETn
U18	VCC_1V8	U19	RECOVER
U20	NC	U21	NC
U32	GPIO4_C2	U33	GPIO4_C3
U34	NC	U35	NC
V1	GND	V2	NC
V3	NC	V4	NC

V15	FSPI_D1	V16	GND
V17	PMIC_EXT_EN	V18	I2S2_MCLK_M0
V19	I2S2_SDI_M0	V20	GND
V21	NC	V32	GPIO4_C4
V33	GPIO4_C5	V34	NC
V35	NC	W1	PCIE20_REFCLKP
W2	NC	W3	GND
W4	NC	W15	FSPI_D3
W16	eMMC_RSTn/FSPI_D2/FLASH_WPn	W17	NC
W18	I2S2_LRCK_TX_M0	W19	I2S2_SDO_M0
W20	I2S2_SCLK_TX_M0	W21	NC
W32	GPIO4_C6	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	ETH1_REFCLKO_25M_M0
Y14	GMAC1_MCLKINOUT_M0	Y15	FSPI_CS0n
Y16	VDD_LOGIC	Y17	VCC5V0_SYS
Y18	GND	Y19	NC
Y20	VDD_NPU	Y21	SPI1_CLK_M1
Y22	SPI1_MISO_M1	Y23	SPI1_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	NC	AA14	GND
AA15	I2C3_SCL_M0	AA16	I2C3_SDA_M0

AA17	GND	AA18	NC
AA19	GND	AA20	I2C4_SCL_M0
AA21	I2C4_SDA_M0	AA22	GND
AA23	SPI1_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	USB_OTG0_DM
AB14	USB_OTG0_ID	AB15	GND
AB16	USB_A_VBUS	AB17	NC
AB18	NC	AB19	NC
AB20	NC	AB21	GND
AB22	NC	AB23	USB3_HOST1_DM
AB25	CIF_8BIT_VSYNC	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	USB_OTG0_DP	AC15	NC
AC16	USB_OTG_PWREN_H	AC17	NC
AC18	NC	AC19	NC
AC20	NC	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	HDMITX_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	LVDS_TX0_CLKN
AN13	LVDS_TX0_CLKP	AN14	NC
AN15	GND	AN16	NC
AN17	NC	AN18	GND
AN19	NC	AN20	NC
AN21	GND	AN22	LCD_BL_PWM
AN23	NC	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	LVDS_TX0_D3N	AP12	LVDS_TX0_D3P
AP13	GND	AP14	LVDS_TX0_D2N
AP15	LVDS_TX0_D2P	AP16	GND
AP17	LVDS_TX0_D0N	AP18	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	LVDS_TX0_D1N	AR16	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: commercial (0 °C ~60 °C)
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.