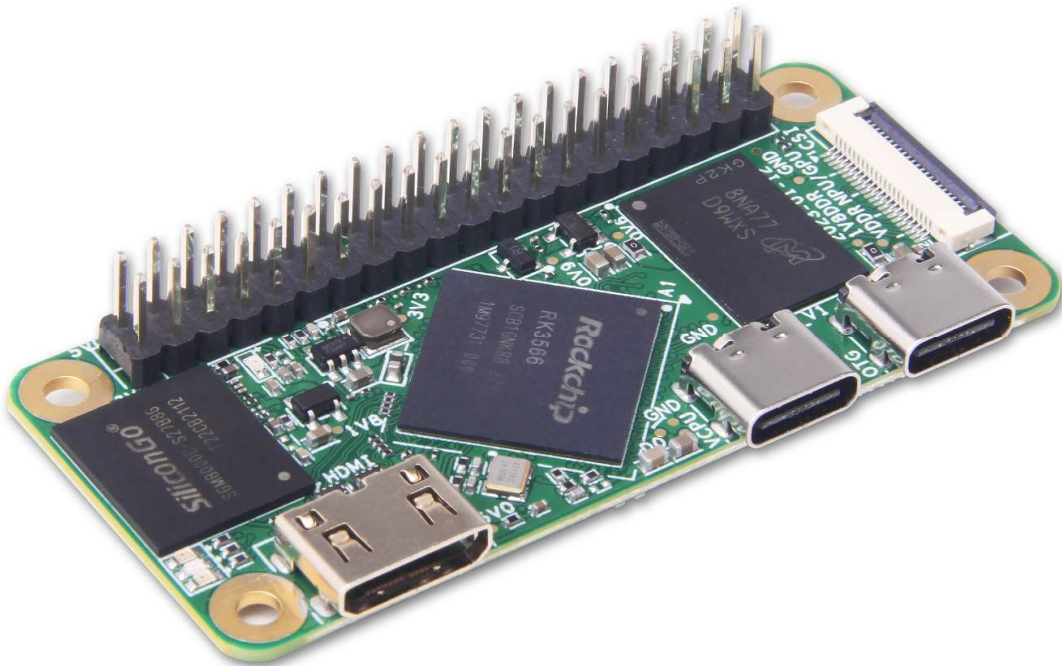


深圳金亚太科技有限公司

Shenzhen Geniatech Co.,Ltd.

SPECIFICATION

MODEL:XPI-3566-ZERO



Confirmation

APPROVED BY GENIATECH		
PREPARED BY 编写	CHECKED BY 审核	APPROVED BY 批准

Please return the original copy after approved by your company with seal and signature.
请在贵公司盖章并签字后寄回正本一份。

APPROVED BY CUSTOMER		
COMMENTS 确认意见	APPROVED BY 批准签字	COMPANY SEAL 盖章

Website: www.geniatech.com

Address: Room 02-04, 10/F, Block A, Building 8, Shenzhen International Innovation Valley,
Dashi Road, Nanshan District, Shenzhen, Guangdong, China

CONTENT

1. GENERAL DESCRIPTION	4
2. PRODUCT OVERVIEW	5
3. BOARD DIMENSIONS.....	6
4. FEATURES.....	6
5. Connectors Definition.....	7
5.1 40 Pin GPIO header(J1)	7
5.2 MIPI CSI Connector	8
6. HARDWARE BLOCK.....	9
7. SUPPORT FORMATS.....	9
8. PRECAUTIONS FOR USE	11

Revision History

VERSION	DATE	BOARD ID	PAGE	DESCRIPTION	AUTHOR
V1.0	20230325			Initial Version	

1. GENERAL DESCRIPTION

The XPI-3566-ZERO is a microcomputer product developed by Geniatech based on the Rock-Chip 3566 platform, and XPI-3566-ZERO has the same form factor of Raspberry Pi Zero & Zero 2 W. According to the definition of Raspberry Pi Zero, this is suitable for the field of smart home applications, programming education for teenagers and other IoT projects.

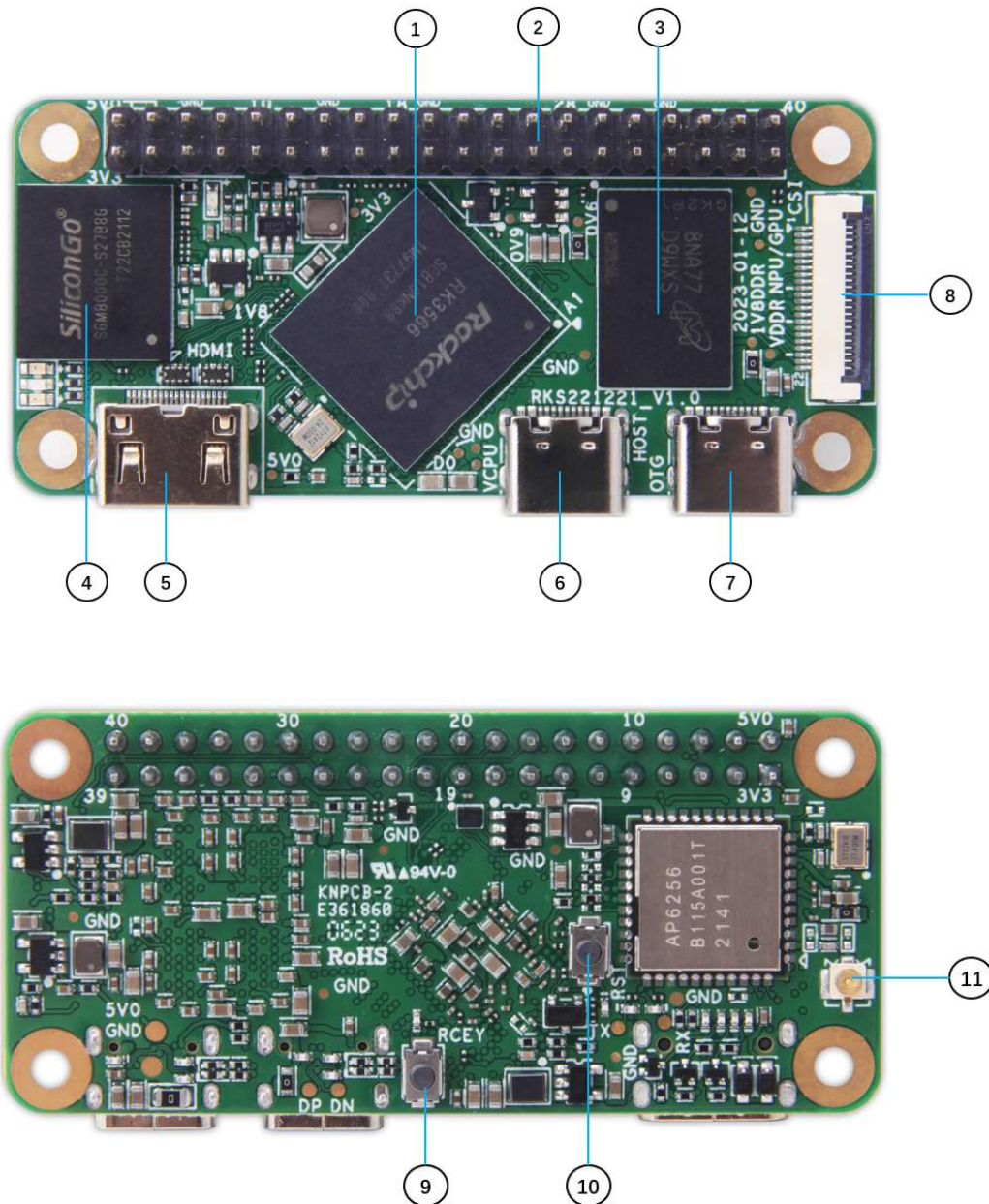
This product's key features including a Rock-Chip RK3566 high-performance and low power 64-bit quad-core processor, HDMI display support at resolutions up to 4KP60, hardware video decode at up to 4KP60, hardware video encode at up to 1080P60, 512MB LPDDR, up to 8GB, Type-C for USB OTG, Bluetooth 5.0, dual-band 2.4/5 GHz wireless LAN.

Below is the detailed specification

- (I) 65mm*30mm, less than the half size of a bank card
- (II) Rockchip RK3566 with Quad-core Cortex-A55 up to 1.8GHz
- (III) 512MB LPDDR RAM(up to 8GB) , 8GB eMMC flash (up to 128GB)
- (IV) 1 *Type-C for USB Host with 5VDC input, 1 *Type-C for USB OTG, 1*MIPI-CSI, 1* Extension GPIO interface
- (V) Support Android 11.0, Linux (Debian 10) or Raspberry PI OS.
- (VI) 2.4GHz&5GHz Wi-Fi WLAN & Blue tooth 5.0

2. PRODUCT OVERVIEW

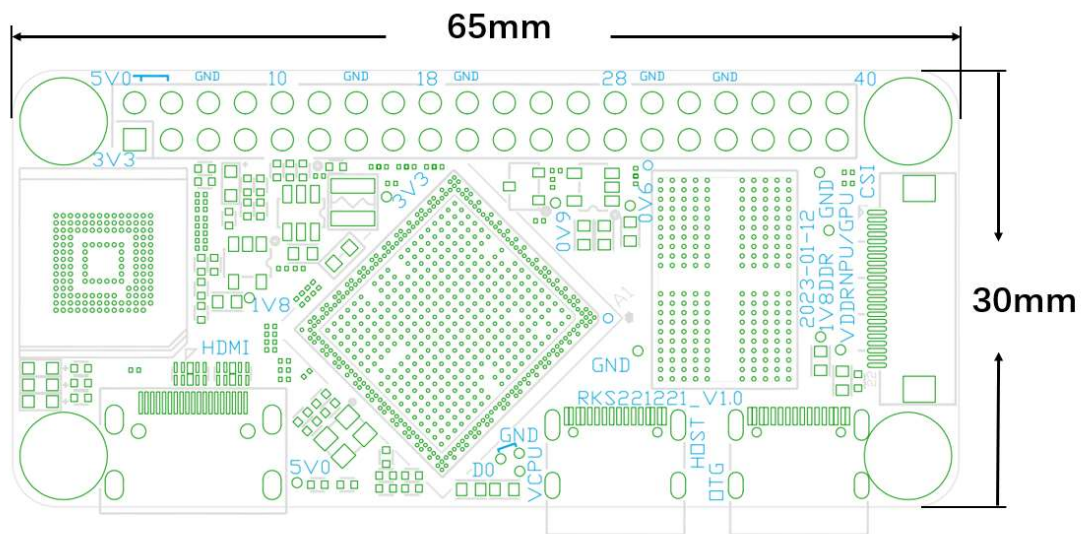
Below picture is for reference only, please prevail in kind.



No.	Name	Description
1	RK3566 SOC	*1
2	40 Pin GPIO header	*1
3	LPDDR4	*1
4	eMMC Flash	*1
5	HDMI Connector	*1 Mini HDMI

6	DC IN	*1(5VDC/2A & USB2.0 Host)
7	Type-C connector	*1 Type-C supports USB 2.0 OTG function,
8	MIPI CSI Connector	*1
9	SW1	*1(Power on key)
10	SW2	*1(Rest on key)
11	Antenna port	*1 IPEX port

3. BOARD DIMENSIONS



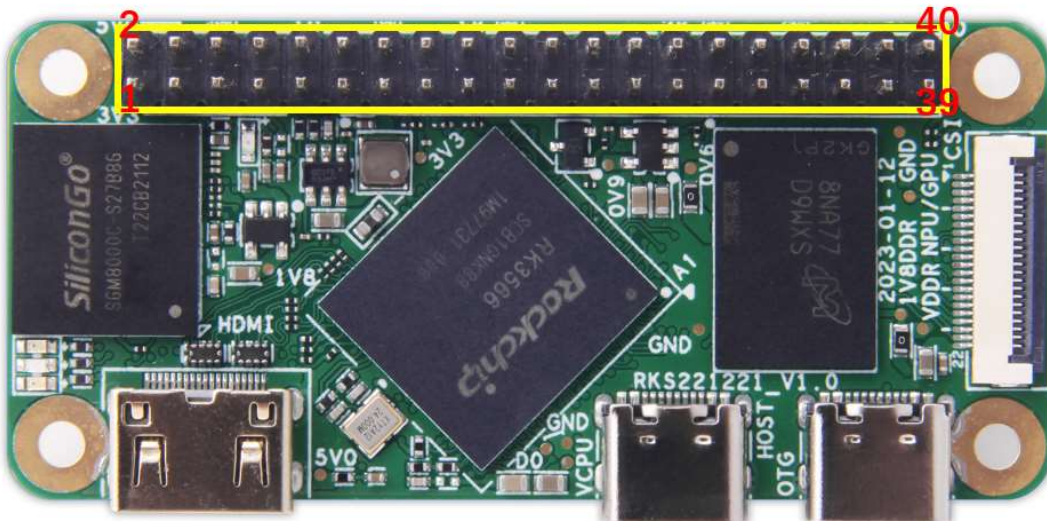
4. SPECIFICATIONS

CHIPSET	RK 3566	
MARKET AREA	Global	
Processor	OS	Android 11/Debian 10 /Raspberry PI OS
	CPU	Quad-core ARM Cortex-A55 CPU up to 1.8GHz
	GPU	ARM G52 2EE GPU; Supports OpenGL ES 1.1/2.0/3.2. OpenCL 2.0. Vulkan 1.1 Embedded high-performance 2D acceleration hardware
	NPU	Integrated RKNN NPU AI accelerator, 1Tops@INT8 Supports one-click switching of Caffe/TensorFlow/TFLite/ONNX/PyTorch/Keras/Darknet

	LPDDR4	512MB (up to 8GB optional)
	EMMC FLASH	8GB eMMC (up to 128GB Optional)
NETWORK	WiFi	WIFI Module 2.4G/5.8G
	Bluetooth	BT5.0(integrated in the WiFi module)
Interface	HDMI Out	*1 Mini HDMI
	Type-C	*1 USB 2.0 OTG
	DC IN	*1 (5VDC/2A & USB 2.0 Host)
	MIPI-CSI	*1
	GPIO	*1 Standard 40-pin GPIO header Can be expanded to UART, SPI, I2C ,PWM function
Adapter	DC 5V / 2A	
Dimensions	65*30mm	

5. Connectors Definition

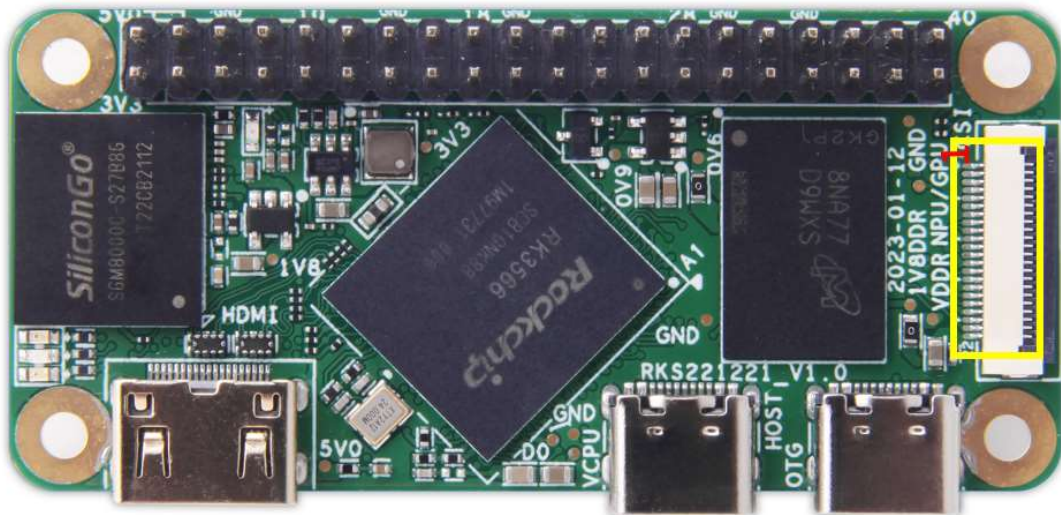
5.1 40 Pin GPIO header(J1)



Pin	Definition	Pin	Definition
1	VCC3V3_IO	2	VCC5V0_SYS
3	I2C1_SDA/GPIO8_A4	4	VCC5V0_SYS
5	I2C1_SCL/GPIO8_A5	6	GND
7	GPIO0C1_CLKOUT	8	UART1_TX/ GPIO5_B1
9	GND	10	UART1_RX/ GPIO5_B0
11	UART4_CTSN/GPIO5_B4_SPI0CLK	12	I2S_CLK/GPIO6_A0_PCM
13	UART4_TX/GPIO5_B6_SPI0_TXD	14	GND

15	UART4_RX/ GPIO5_B7_SPIO_RXD	16	UART1_CTSN/ GPIO5_B2
17	VCC3V3_IO	18	UART1_RTSN/ GPIO5_B3
19	SPI2_TXD/GPIO8_B1	20	GND
21	SPI2_RXD/GPIO8_B0	22	GPIO5_C3
23	SPI2_CLK/GPIO8_A6	24	SPI2_CSN0/GPIO8_A7
25	GND	26	SPI2_CSN1/GPIO8_A3
27	I2C4_SDA/GPIO7_C1	28	I2C4_SCL/GPIO7_C2
29	SPIO_CSN0/GPIO5_B5_UART4RTSN	30	GND
31	SPIO_CSN1/GPIO5_C0	32	UART2TX_PWM3/GPIO7_C7
33	UART2RX_PWM2/GPIO7_C6	34	GND
35	I2S2_FS/GPIO6_A1_PCM	36	UART3RX/GPIO7_A7
37	UART3_TX/GPIO7_B0	38	I2S_SDI/GPIO6_A3-PCM
39	GND	40	I2S_SDO/GPIO6_A4-PCM

5.2 MIPI CSI Connector

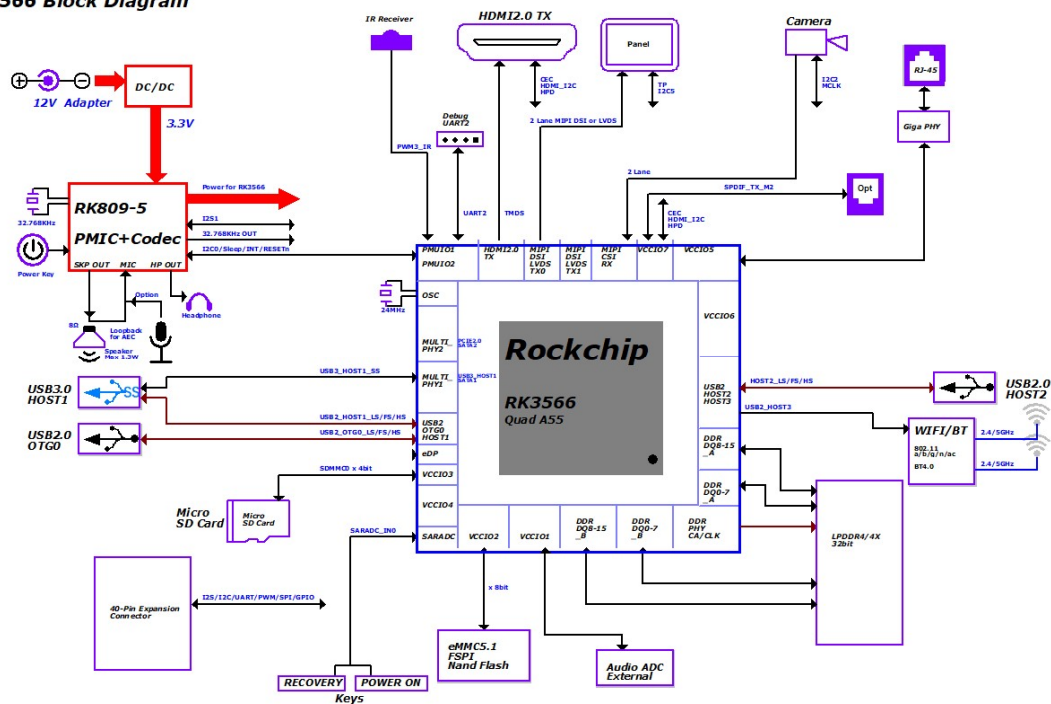


Pin	Definition	Pin	Definition
1	GND	2	MIPI_CSI_RX_D0N
3	MIPI_CSI_RX_D0P	4	GND
5	MIPI_CSI_RX_D1N	6	MIPI_CSI_RX_D1P
7	GND	8	MIPI_CSI_RX_CLKON
9	MIPI_CSI_RX_CLK0P	10	GND
11	MIPI_CSI_RX_D2N	12	MIPI_CSI_RX_D2P
13	GND	14	MIPI_CSI_RX_D3N
15	MIPI_CSI_RX_D3P	16	GND
17	MIPI_CAM_PDNO_L_GPIO4_B2	18	MIPI_CAM_RST0_L_GPIO3_D5

19	GND	20	I2C2_SCL_M1
21	I2C2_SDA_M1	22	VCC_3V3

6.HARDWARE BLOCK

XPI-3566 Block Diagram



7.SUPPORT FORMATS

Audio

- I2S0 with 8 channel
 - Up to 8 channels TX and 8 channels RX path
 - Audio resolution from 16bits to 32bits
 - Sample rate up to 192KHz
 - Provides master and slave work mode, software configurable
 - Support 3 I2S formats (normal, left-justified, right-justified)
 - Only for HDMI inside
- I2S1 with 8 channel
 - Up to 8 channels TX and 8 channels RX path
 - Audio resolution from 16bits to 32bits

- Sample rate up to 192KHz
- Provides master and slave work mode, software configurable
- Support 3 I2S formats (normal, left-justified, right-justified)
- Support 4 PCM formats (early, late1, late2, late3)
- I2S and PCM mode cannot be used at the same time
- I2S2/I2S3 with 2 channel
 - Up to 2 channels TX and 2 channels RX path
 - Audio resolution from 16bits to 32bits
 - Sample rate up to 192KHz
 - Provides master and slave work mode, software configurable
 - Support 3 I2S formats (normal, left-justified, right-justified)
 - Support 4 PCM formats (early, late1, late2, late3)
 - I2S and PCM mode cannot be used at the same time
- PDM
 - Up to 8 channels
 - Audio resolution from 16bits to 24bits
 - Sample rate up to 192KHz
 - Support PDM master receive mode
- TDM
 - supports up to 8 channels for TX and 8 channels RX path
 - Audio resolution from 16bits to 32bits
 - Sample rate up to 192KHz v Provides master and slave work mode, software configurable
 - Support 3 I2S formats (normal, left-justified, right-justified)
 - Support 4 PCM formats (early, late1, late2, late3)
- Voice Activity Detection(VAD)
 - Support read voice data from I2S/PDM
 - Support voice amplitude detection v Support Multi-Mic array data storing
 - Support a level combined interrupt

Video Codec

- 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@60fps (4096x4096@10fps with TILE)
 - Support YUV/RGB video source with rotation and mirror

JPEG CODEC

- JPEG decoder
 - Decoder size is from 48x48 to 65536x65536
 - Support YUV400/YUV411/YUV420/YUV422/YUV440/YUV444
 - Support 1920x1080@120fps
 - Support MJPEG
- JPEG encoder
 - Baseline Non-progressive
 - up to 8192x8192
 - up to 90 million pixels per second

8. PRECAUTIONS FOR USE

1. Relative humidity: 10% ~ 90% .
2. Storage temperature: 0 ~ 85°C
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.