

PRODUCT SPECIFICATION

TYPE: LED TV CONTROL BOARD
MODEL: CV72690-B42

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History of Revision

No.	PCBA Rev.	Details of Change	Author	Issue Date
00	13	Initial Release	WENZAN.YAN	Mar.25th.2024

1. DESCRIPTION

- CV72690-B42 is a digital and analog TV control board, It can receive the PAL/SECAM/NTSC analogue television signals and DVB-C/T/T2/S2 digital television signals, It is suitable for the market in Europe market.

CV72690-B42是数模一体电视控制板，可接收PAL/SECAM/NTSC制式的模拟电视信号和DVB-C/T/T2/S2制式的数字电视信号。适用于欧洲市场。

- CV72690-B42's power part is an energy-efficient ultrathin DC-line switching power supply unit, with backlight power under 45W, The main promotion backlight voltage is between 30V-110V,And single backlight output. It fits to 32" -42" LED backlight panel.

CV72690-B42采用的高效率开关电源，匹配背光功率45W以下，匹配背光电压为30V-110V，单路背光输出,支持32寸-42寸LED背光屏。

2. FEATURES

- HDMI1、HDMI2、HDMI3、supports CEC, HDMI3 support ARC.

HDMI1、HDMI2、HDMI3、支持CEC，HDMI3支持ARC。

- Supports USB update and playing multimedia and JPEG.

支持USB升级软件，播放多媒体和JPEG。

3. CHARACTERISTICS

PANEL	Type	TFT-LCD/LED
	Resolution	Max 1920X1080
	Interface	Single/Double LVDS
	Voltage	12V/5V
ATV	Receiving range	47.25MHz – 867.25MHz

	Input Impedance	75Ω	
	Video System	PAL, NTSC,SECAM	
	Sound System	BG, DK, I, L/L'	
		NICAM/FM/AM/A2	
DTV	Receiving range	DVB-T/T2: VHF (42MHz – 230MHz), UHF (474MHz - 862MHz)	
		S2(950MHz – 2150MHz)	
	Input Impedance	75 Ω	
	Video System	MPEG-2 MP@ML, MPEG-2 MP@HL, H.264, H.265:Main/Main-10 profile @L4.1,Support 8-bit/10bit color depth	
	Bandwidth	7MHz/8MHz	
	Modulation	DVB-T: COFDM 2/8K, QPSK, 16QAM, 64QAM	
		DVB-T2: QPSK, 16QAM, 64QAM, 256QAM	
		DVB-C: 16QAM, 32QAM, 64QAM, 128QAM, 256QAM	
		DVB-S2: QPSK, 8PSK	
Sound System	MPEG-1 Layer 1/2, MPEG-2 Layer 2, DD, DD+		
AV	Color system	PAL/NTSC/ SECAM	
	Video Level	1Vp-p@75ohm	
HDMI	Format	480i, 480p, 576i, 576p, 720p, 1080i, 1080p	
Processor	CPU	ARM CA53 Quad-core @max 1GHz	
	GPU	Mali-G52-2EE MC1	
	O/S	VIDAA OS 7.1	
	DDR	Built-in 1GB DDR3	
	eMMC Flash	4GB(Byte)	
SUPPORT WLAN	CHIPSET	MT7603U/MT7663U	
	Max Data Rate	300Mbps	
	Operating Frequency	2.4GHz&5GHZ	
	Communications Standard	IEEE 802.11b/g/n/a/ac	
	External support list	MT7603U/MT7663U	
RJ45 NETWORK	10/100M auto-identification and DHCP		
AUDIO INPUT	CVBS Audio	Audio Level	0.2----2 Vrms
	Component Audio		
AUDIO OUTPUT	Frequency response	100Hz-20KHz @±3dB (1KHz -12dB reference signal)	
	Max Output Power	2*8W @ 8ohm THD+N<10%@1KHz (Audio Input:0.5Vrms)	
Keyboard	Power, Menu, Source, CH+, CH-, VOL+, VOL-		
Standby	≤ 0.5W		

The optional items are marked with “*”.

4. FUNCTION CONFIGURATION

25W Backlight standard configuration is as follows

25W 背光功率标准配置如下:

配置一 (欧洲 25W) / OPTION 1 (Europe 25W)

功能: 1GB DDR3, 4GB EMMC, 带 2T2R WiFi 模块, 不带 WiFi 天线, 带 ARC, 带 CEC, 12V 屏供电, 不带天线馈电, 不带 EEPROM, USB 供电不带 5V 限压电路, 带 MS12

电源: AC 输入 176V 到 264V, 背光电压范围在 30V~85V 之间, 背光插座 2PIN2.0+3PIN2.0 立式并联不带卡扣, 带 EMI

FUNCTIONS: 1G DDR3, 4G EMMC,SUPPORT 2T2R WIFI module , WITHOUT WIFI ANTENNA , SUPPORT ARC&CEC, PANEL POWER 12V, WITHOUT ANTENNA FEED POWER, WITHOUT EEPROM, WITHOUT USB_5V Voltage limiting circuit,WITH MS12

POWER: AC INPUT 176V-264V, BACKLIGHT VOLTAGE 30V-85V, BACKLIGHT CONNECTOR 2PIN 2.0+3PIN 2.0

Vertical parallel connection WITHOUT BUCKLE,WITH EMI

FRONT VIEW



RJ45, OPTICAL(光纤), RCA AV, TV1(S2), TV2(T/T2/C)

SIDE VIEW



HDMI3(ARC), HDMI2(UART), HDMI1, USB(双层) , CI, EARPHONE

45W Backlight standard configuration is as follows

45W 背光功率标准配置如下:

配置二 (欧洲 45W) / OPTION 2 (Europe 45W)

功能: 1GB DDR3, 4GB EMMC, 带 2T2R WiFi 模块, 不带 WiFi 天线, 带 ARC, 带 CEC, 12V 屏供电, 不带天线馈电, 不带 EEPROM, USB 供电不带 5V 限压电路, 带 MS12

电源: AC 输入 176V 到 264V, 背光电压范围在 35V~110V 之间, 背光插座 2PIN2.0+3PIN2.0 立式并联不带卡扣, 带 EMI

FUNCTIONS: 1G DDR3, 4G EMMC,SUPPORT 2T2R WIFI module , WITHOUT WIFI ANTENNA , SUPPORT ARC&CEC, PANEL POWER 12V, WITHOUT ANTENNA FEED POWER, WITHOUT EEPROM, WITHOUT USB_5V Voltage limiting circuit,WITH MS12

POWER: AC INPUT 176V-264V, BACKLIGHT VOLTAGE 35V-110V, BACKLIGHT CONNECTOR 2PIN 2.0+3PIN

2.0 Vertical parallel connection WITHOUT BUCKLE,WITH EMI

FRONT VIEW



RJ45, OPTICAL(光纤), RCA AV, TV1(S2), TV2(T/T2/C)

SIDE VIEW



HDMI3(ARC), HDMI2(UART), HDMI1, USB(双层), CI, EARPHONE

5. MEDIA FORMAT MODE

Media	Codec format	Max code rate	Specification	profile	File Extension
MOVIE	AVS	20 Mbps	1920x1080@60 FPS	baseline@level6.0	TS
	AVS+	100 Mbps	1920x1080@60 FPS	broadcasting @level6.0.3.08.60	
	H264	50 Mbps	1920x1080@60 FPS	BP, MP, HP @level4.2	AVI, TS, MPEG, MP4, MOV, M2TS, MKV, FLV, MTS, M4V, ASF, F4V, 3GP, 3G2, TRP
	H265	50 Mbps	1920x1080@60 FPS 10bit	Main/Main-10@L4 .1, high tier	TS, MP4, MOV, MKV
	MPEG-1	80 Mbps	1920x1080@30 FPS	MP@LL, ML, HL	AVI, MPEG, DAT, M1V, M2V
	MPEG-2	80 Mbps	1920x1080@30 FPS	MP@LL, ML, HL	AVI, TS, MPEG, M2TS, M2T, VOB, M2V, TP, TRP, M2P
	MPEG-4	50 Mbps	1920x1080@30 FPS	SP@L0-3, ASP@L0-5	AVI, TS, MP4, MOV, ASF, 3GP, 3G2
	VC1	45 Mbps	1920x1080@30 FPS	AP@L0~3, SP@LL, ML, MP@LL, ML, HL	AVI, TS, M2TS, MKV, ASF
	VP6	40 Mbps	1920x1080@30 FPS	-	AVI, FLV
	VP8	40 Mbps	1920x1080@30 FPS	-	WEBM
	VP9	30 Mbps	1920x1080@60 FPS 10bit	Profile 2 (only 8bit/10bits)	WEBM
	MJPEG	150 Mbps	1920x1088@30 FPS	-	AVI, MOV
SOUND	AAC	24 kbps ~ 576 kbps	8 kHz ~ 96 kHz	-	MKA, M4A, AVI, MP4, MOV, TS
	AC3	32 kbps ~ 640 kbps	32 kHz, 44.1 kHz, 48 kHz	-	MKA, AVI, MP4, TS
	ADPCM	384 kbps	8 kHz ~ 44.1 kHz	-	WAV
	APE	max 1411 kbps	max 48 kHz	-	APE
	DTS	max 6Mbps	max 48 kHz	-	MKA, AVI, MP4
	DTS HD	max 24.567Mbps	max 192 kHz	-	MKA, MP4

	EAC3	32 ~ 6Mbps	32 kHz, 44.1 kHz, 48 kHz	-	TS, MP4
	FLAC	max 1411 kbps	max 192 kHz	-	MKA, OGG, MOV
	MID	max 320 kbps	max 48 kHz	-	MID
	MPEG	32 kbps ~ 320 kbps	8 kHz ~ 48 kHz	-	MP3, MKA, AVI, MP4, MPG, OGG, MOV
	PCM	max 320 kbps	8 kHz ~ 192 kHz	-	WAV, MKA, AVI, OGG, MOV
	TrueHD	max 18Mbps	2 kHz, 44.1 kHz, 48 kHz, 96 kHz	-	TS
	Vorbis	max 256 kbps	8 kHz ~ 48 kHz	-	OGG, MKA, MOV
PICTURE	png	-	8K*8K	-	-
	jpeg	-	baseline 8K*8K, progressive 4K*4K	-	-
	bmp	-	8K*8K	-	-
	gif	-	8K*8K	-	-

Note:

The product includes the following optional patent technology: DD, DD+, DTS, WMA, WMV, RM, RMVB etc.

Related patent license should be provided if you need to use these patents. The above patent using authorization is subject to our actual confirmation.

(本产品包括如下可选的专利技术: DD, DD+, DTS, WMA, WMV, RM, RMVB 等, 如您需要开通这些功能, 请提前提供相关专利许可给到我司。以上专利使用授权以我司实际确认为准。)

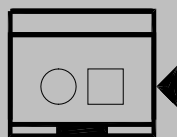
6. ELECTRICAL CHARACTERISTICS

6.1 Input Electrical Specifications

Input	Minimum	Nominal	Maximum	Unit
Voltage	90	100/240	264	Vac
Current	—	—	2.0	A
Frequency	47	50/60	63	Hz
Efficiency	≥80%min(Full load with input AC voltage of 240Vac @ 50Hz)			
Standby Power Consumption	≤0.5W At 240Vac input and no load condition			
Inrush current	Cannot be damaged components			
Leakage Current	Less Than 0.35mA, 240Vac input			
Input Fuse	T3.15AL/250VAC			

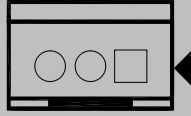
6.2 LED Driver Power Output Connector&output characteristics

PJ24 / PJ22: 2PIN-2.0

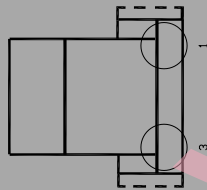


NO.	SYMBOL	DESCRIPTION
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1	LED+	LED+ Power Supply
2	LED-	LED- Power Supply

PJ23 / PJ25: 3PIN-2.0

NO.	SYMBOL	DESCRIPTION
1	LED+	LED+ Power Supply
2	NC	NC
3	LED-	LED- Power Supply

PCON1: AC INPUT CONNECTOR

NO.	SYMBOL	DESCRIPTION
1	L	LIVE (火线)
2	NC	NC
2	N	NEUTRAL (零线)

7. PROTECTION CAPABILITY**LED Short Protection: (LED 短路保护)**

Auto restart (自动恢复)

LED Open Protection: (LED 开路保护)

Shut down or auto restart (关断或自动恢复)

Fuse protection (保险丝过流保护)

The Fuse inside the power supply shall open when the AC input current is over the rated current of fuse. This Fuse protection will cause switching power supply to fail.

(当 AC 输入电流超过电源内置保险丝的额定电流时，保险丝必须熔断，呈开路状态，保险丝保护启动后电源将不能启动。)

8. INTERNATIONAL STANDARDS**EMI standards (EMI 标准)**

The power supply shall compliance with the following radio disturbance Criterion.

该电源应符合下列无线电干扰标准。

Sound and television broadcast receivers and associated equipment

EN55013	Sound and television broadcast receivers and associated equipment radio disturbance characteristics limits and methods of measurement
GB13837	声音和电视广播接收机及有关设备无线电干扰特性限值和测试方法
FCC CFR 47 Part 15 subpart B 美国联邦通信法规第 47 卷 15 章内无意式的辐射器材的相关规定	

EMS standards (EMS 标准)

- Electrostatic Discharge Immunity Test: IEC-1000-4-2 8KV, Criteria B
(防静电测试标准: IEC-1000-4-2 touch discharge $\pm 4\text{KV}$, air discharge $\pm 8\text{KV}$, Criteria B)
- EFT/Burst Immunity Test: IEC-1000-4-4 1KV, Criteria B
(快速脉冲群测试标准: IEC-1000-4-4 1KV, Criteria B)

Safety Compliance (安规依据)

Design to meet : IEC60950 / 2005; IEC60065

(设计依据: IEC60950 / 2005; IEC60065)

Isolation (绝缘性能)

Insulation resistance (绝缘阻抗)

Input To Output	DC500V 50M Ω min (at room temperature)
Input To PG	DC500V 50M Ω min (at room temperature)

Insulation voltage (绝缘耐压)

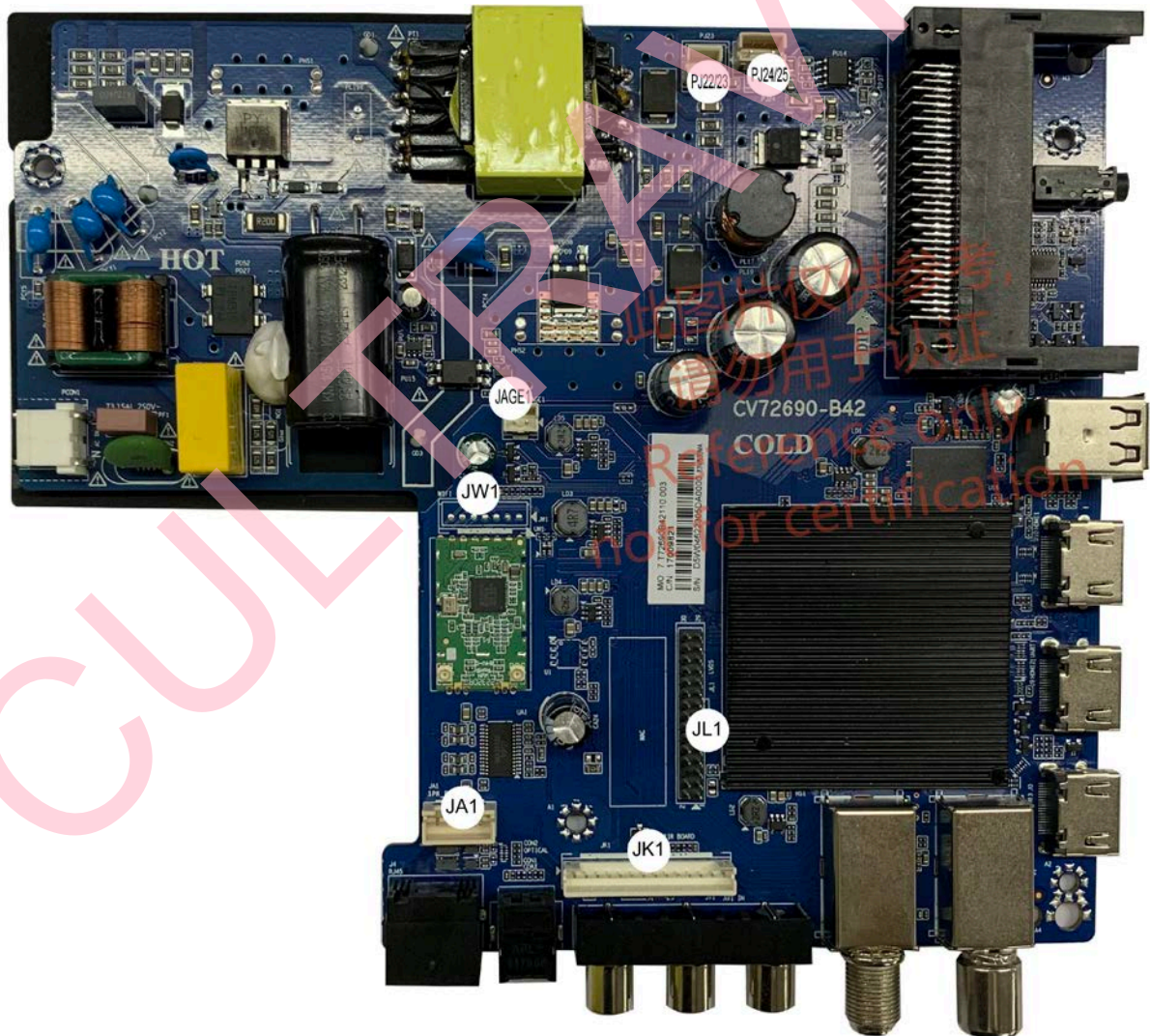
Input To Output	3000Vac 50Hz 1minute $\leq 10\text{mA}$
Input To PG	1500Vac 50Hz 1minute $\leq 10\text{mA}$

9. INTERFACE DEFINITION

The picture is for a reference only,the actual item is the standard.

The optional connectors and terminals are marked with“*”.

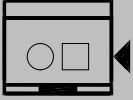
JAGE1:	12V AGING TEST CONNECTOR
JL1:	LVDS CONNECTOR
JA1:	SPEAKE CONNECTOR
JK1:	KEY&IR CONNECTOR
JW1:	*EXT WIFI CONNECTOR
PJ22/PJ23 3/PJ24/PJ25:	LED BLACK_LIGHT CONNECTOR



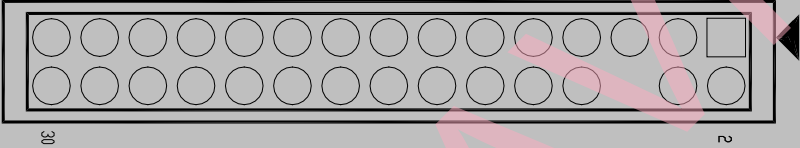
The optional connectors and terminals are marked with "*".

All jack recognize the square pad as first pin.

JAGE1 POWER SUPPLY CONNECTOR (2PIN/2.0)

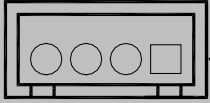
		
NO.	SYMBOL	DESCRIPTION
1	+12V	+12V Power Supply
2	GND	Ground

JL1 LVDS INTERFACE(2×15PIN/2.0) (LVDS 插针接口)

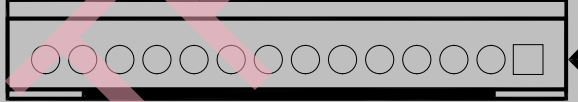
		
NO.	SYMBOL	DESCRIPTION
1	VCC	Power Supply for Panel
2	VCC	
3	VCC	
4	GND	Ground
5	GND	
6	NC	NC
7	RX00-	LVDS ODD 0- Signal
8	RX00+	LVDS ODD 0+ Signal
9	RX01-	LVDS ODD 1- Signal
10	RX01+	LVDS ODD 1+ Signal
11	RX02-	LVDS ODD 2- Signal
12	RX02+	LVDS ODD 2+ Signal
13	GND	Ground
14	GND	
15	RXOC-	LVDS ODD Clock- Signal
16	RXOC+	LVDS ODD Clock+ Signal
17	RX03-	LVDS ODD 3- Signal
18	RX03+	LVDS ODD 3+ Signal
19	RXE0-	LVDS EVEN 0- Signal
20	RXE0+	LVDS EVEN 0+ Signal
21	RXE1-	LVDS EVEN 1- Signal
22	RXE1+	LVDS EVEN 1+ Signal

23	RXE2-	LVDS EVEN 2- Signal
24	RXE2+	LVDS EVEN 2+ Signal
25	GND	Ground
26	GND	
27	RXEC-	LVDS EVEN Clock- Signal
28	RXEC+	LVDS EVEN Clock+ Signal
29	RXE3-	LVDS EVEN 3- Signal
30	RXE3+	LVDS EVEN 3+ Signal

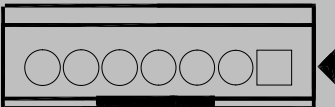
JA1 SPEAKER CONNECTOR(4PIN / 2.54 / BTL) (喇叭输出接口)

		
NO.	SYMBOL	DESCRIPTION
1	ROUT+	Audio R+ Channel Output
2	ROUT-	Audio R- Channel Output
3	LOUT-	Audio L- Channel Output
4	LOUT+	Audio L+ Channel Output

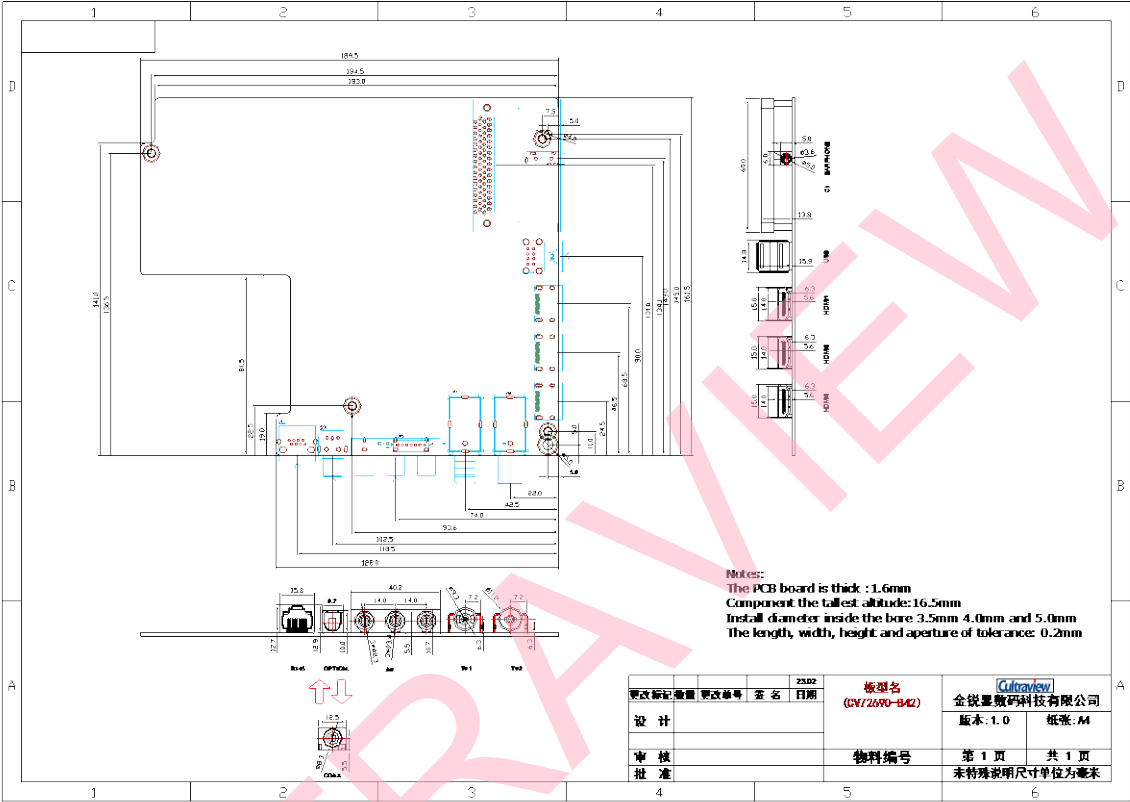
JK1 KEY&IR BOARD CONNECTOR(14PIN / 2.0) (按键、遥控控制接口)

		
NO.	SYMBOL	DESCRIPTION
1	GND	Ground
2	K7	Key7(Reserved)
3	K6	POWER
4	K5	VOL+
5	K4	VOL-
6	K3	INPUT
7	K2	CH+
8	K1	CH-
9	K0	MENU
10	GND	Ground
11	IR	IR Receiver
12	LED_G	Green Indicator
13	LED_R	Red Indicator
14	+5V	+5V DC Power Supply

***JW1 7P-EXT_WIFI CONNECTOR (7PIN/2.0) (7PIN 外置 WIFI 接口)**

		
NO.	SYMBOL	DESCRIPTION
1	WF-WAKE	WIFI-WAKE
2	GND	Ground
3	DP	WIFI Data+
4	DM	WIFI Data-
5	VCC	+5V/+3.3V DC Power for WIFI(Default 5V)
6	RST/EN	RESET/ENABLE
7	BT-WAKE	BT-WAKE

10. CONFIGURATION



11. APPLICATION REQUIREMENT

- Relative humidity $\leq 80\%$.
- Store temperature $-10 \sim +60\text{ }^{\circ}\text{C}$.
- Use temperature $0 \sim +40\text{ }^{\circ}\text{C}$.
- Don't force, distort or disassemble the product.
- Don't power on before all interface has been correctly connected.
- Avoid to using long conductive wire which may affect performance and image quality.
- Authentication of assembly machine mostly depends on the matching, please use complete machine to test and confirm.
- In order to avoid the I2C-bus address conflict, please contact our hardware engineer before using the I2C interface to communicate with peripheral device.



The product has limited ESD protection. It should be placed in conductive foam to prevent electrostatic damage during storage or handing.

12. EXCURSUS

Keyboard and remote definition

