

LCD TV CONTROL BOARD SPECIFICATION

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ONE) REVISION HISTORY

VERSION NO.	DATE	PAGE	REVISION DESCRIPTION
2.0	2013 . 11. 01	ALL	FIRST PUBLISH

TWO) GENERAL DESCRIPTION

This TV board is suitable for worldwide analog TV system PAL/NTSC/SECAM , which is compatible with LCD panel mainstream manufacturers,such as SAMSUNG, CMO, AU, LGP, SHARP, BOE etc.It can reappear real world image color and sound. main IC adopts MSTAR single chip TSUMVV59XU-Z1 program.

- Ø Can compatible with three-in-one screw holes structure and dam board.
- Ø TV system support PAL+SECAM/NTSC system, optional full standard system.
- Ø Max supports FULL HD 1920X1080 resolution TFT-LCD screen.
- Ø Support 1*AV input, 1*VGA interface, support 1920X1080@60Hz input.
- Ø 1*high-definition digital multimedia port (HDMI) 1.3A, HDCP1.2 and DVI 1.0.
- Ø 1*USB, supports Audio (MP3、WMA), Video (AVI、RM、RMVB MPEG1~4) ,image (JPEG、BMP、PNG), text file (TXT)
- Ø Dynamically adjust picture's color , contrast ratio, definition and so on
- Ø Brightness, chroma instantaneous improvement function , black / white level extensions function , color compensation function.
- Ø Supports control of treble or bass ,Stereo input.
- Ø Rating of Audio loudspeaker output is 2W*2(8ohm).
- Ø Automatically detect input video format.
- Ø Reliable EMC and treatment measure of anti-static.

SERVICE MODE:

- 1 Press Menu ,then the LCD will have menu on the screen,
 - 2 Press the number keys 8,8,9,6 ,a menu appears on the screen ,
 - 3 Select SYSTEM SETTING and enter,
 - 4 Select Panel Setting ,tone 1,2,3,4 After the the screen is ok, press ESC ,Done!
- Hope can help you

THREE) FEATURES SPECIFICATION

IC	TSUMVV59XU-Z1		
MARKET	CHINA		
OSD LANGUAGE	Default Chinese/English, French, German, Italian , Spanish , Portuguese		
PANEL	Interface	Single Dual LVDS, 2X15 needle	
	Resolution	Max 1920x1080@60Hz	
Video Input	TV	Received frequency	49MHz – 863MHz
		Input impedance	75Ω
		Color system	PAL, SECAM/NTSC
		Sound system	BG, DK, I, L/M,N
	PC Input	R,G,B+H/V	Max 1920x1080@60Hz
	HDMI	480i, 480p, 576i, 576p, 720p, 1080i, 1080p	
	Component	No	
	USB	USB document support format	
	Video	Color system	PAL/SECAM/NTSC
		Video range	1.0 Vp-p ±5%
Audio input	Computer	Earphone input	0.2 – 1.5 Vrms
	Video	L/R RCA Input	0.2 – 1.5 Vrms
	Component	Not support	
Audio output	Frequency Response	100Hz - 15000Hz @±3dB (1KHz 0dB benchmark signal)	
	Loudspeaker output	2x2W(8 ohm) THD+N<10%	
Power	Input requirement	Single +12v	
	Screen power	3.3V, 5V, 12V	
	Power management	Low power consumption mode, stand by <1W (depending on the power supply)	
Key interface	Menu,CH+,CH-,VOL+,VOL-,information source, stand by		
Port	Input	USB	1 USB horizontal socket
		HDMI	1 HDMI terminal
		Computer	1 D-SUB 15 pin terminal
		PC-RGB Audio	1 earphone socket (black)
		Video	1 RCA terminal (yellow)
		Audio	2 RCA terminals(white, red)
		TV	1 IEC connector 75Ω
		Aberration	No

FOUR)PC-RGB、HDMI、YPBPR SUPPORT MODE TABLE

This section lists mode for common model.

PC-RGB mode table

Mode	Resolution	Horizontal Frequency (KHz)	Field Frequency (Hz)	Standard
WUXGA	1920*1080	74.6	60	
WSXGA+	1680*1050	65.3	60	
WXGA+	1440*900	56.7	60	VESA
WXGA	1360*768	47.7	60	VESA
SXGA	1280*1024	63.5	60	VESA
		80.0	75	
XGA	1024*768	48.4	60	VESA
		56.5	70	
		60.0	75	
SVGA	800*600	37.9	60	VESA
		47.2	72	
		46.9	75	
VGA	640*480	31.5	60	Industry VESA VESA
		37.9	72	
		37.5	75	
DOS	640*480	31.5	60	Industry VESA
	720*400	31.5	70	

HDMI、YPBPR mode table

Mode	Resolution	Horizontal Frequency (KHz)	Field Frequency (Hz)
480p	720*480	31.47	59.94
			60.00
480i	720*480	15.73	59.94
			60.00
576p	720*576	31.26	50.00
576i	720*576	15.63	50.00
720p/60	1280*720	44.96	59.94
			60.00
1080i	1920*1080	28.13	50.00
			60.00
1080p/60	1920*1080	67.75	50.00
			60.00

FIVE) USB document support format

Document Type	Supported File Format	File Extensions
PICTURE	JPEG、BMP、PNG	Jpg,bmp,png
MOVIE	MPEG1、MPEG2、MPEG4、H264、RM、RMVB、MOV MJPEG、VC1、DivX、FLV	dat,mpg,mpeg,ts,trp,tp,m2ts,Vob,mp4,rm,rmvb,mkv,Divx,avi,asf,wmv,flv,swf,Motion JPEG
MUSIC	WMA、MP3、M4A (AAC)	mp3,m4a,asf,ogg
TEXT	ANST、UNICODE GB、UTF8	txt

Picture document format

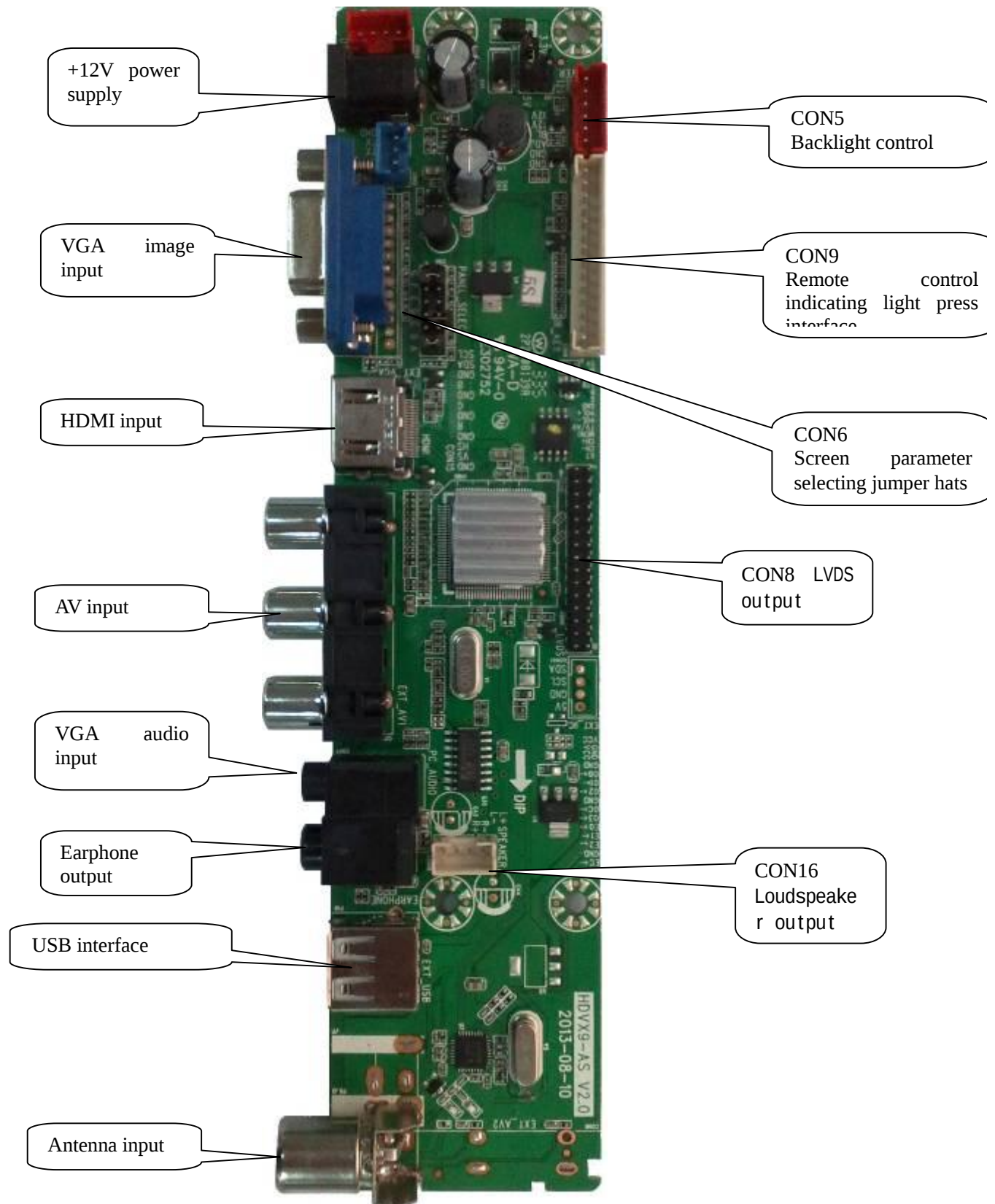
Related Parameters Document Type	Compression option	Supported Rang
JPEG	Progressive JPEG	1024x768
	Baseline("standard")	15360*8640
	Baseline optimized	15360*8640
BMP		9600*6400
PNG	No interlacing	9600*6400
	Interlaced	1200*800

Film document format

File type	Support specification
dat,mpg,mpeg,ts,trp,tp,m2ts,Vob,mp4,rm,rmvb,mkv,Divx,avi,asf,wmv,flv,swf	1080P @ 30fps
Motion JPEG	640X480 @ 30fps

Note: this solution defaulted use chip for closed dolby decoding support, so the part of the music or movies audio part , there will be no voice due to using of dolby compressed format,belongs to the normal phenomenon, if want to take dolby support, customers must be dolby members ,when in the production with dolby sound decoding chip, and at the same time MSTAR vendors inspection customer membership,offer the quantity to the dolby company, dolby company contact member collection authorized patent fee (about 1-2 dollars per), related matters please contact consulting sales

SIX) PRODUCT LAYOUT SPECIFICATION



SEVEN) PRODUCT KEY INTERFACE DESCRIPTION

All connectors default square foot pad for one (the face of the socket gap in the direction of the right for the first foot) , pin definitions can consult the surface of the PCB silk screen

Ø **CON9 (14PIN/2.0MM beige socket):** Remote controller /Indicator lamp key interface

Pin NO	Definition	Description
1	K7	NO definition
2	CH-	Program-
3	CH+	program+
4	MENU	menu
5	TV/AV	source
6	VOL-	Sound -
7	VOL+	Sound+
8	GND	ground
9	LED-G	Indicator lamp _Green
10	LED-R	Indicator lamp _Red
11	STB	power
12	GND	ground
13	IR-IN	Remote controller receiving input
14	+5V-S	Receiving power supply

Ø **CON16 (4PIN/2.54MM Rice Yellow socket):** Amplifier loudspeaker output

Pin NO	Definition	Description
1	R+	Right loudspeaker positive output +
2	R-	Right loudspeaker negative output +
3	L-	Left loudspeaker negative output -
4	L+	Left loudspeaker positive output +

Ø **CON5 (6PIN/2.0MM red socket):** INVERTER socket

Pin NO	Definition	Description
1	GND	Ground
2	GND	Ground
3	ADJ	Backlight brightness adjust
4	ON/OFF	Backlight on-off control
5	+12V	Power source
6	+12V	Power source

Ø **CON16 (4PIN/2.0MM Rice Yellow socket):** USB extend interface socket

Foot NO.	Definition	Description
1	+5V	+5V power supply
2	USB2_D-	USB data-
3	USB2_D+	USB data+
4	GND	ground

Ø **CON8 (2 X 20PIN/2.0mm Double row pin strip) : LVDS output socket**
 Ø

Pin NO	Definition	Description
1	VCC	Screen power supply
2	VCC	Screen power supply
3	VCC	Screen power supply
4	GND	Ground
5	GND	Ground
6	GND	Ground
7	TXA0M	LVDS odd number line to 0 negative electrode
8	TXA0P	LVDS odd number line to 0 positive electrode
9	TXA1M	LVDS odd number line to 1 negative electrode
10	TXA1P	LVDS odd number line to 1 positive electrode
11	TXA2M	LVDS odd number line to 2 negative electrode
12	TXA2P	LVDS odd number line to 2 positive electrode
13	GND	Ground
14	GND	Ground
15	TXACKM	LVDS odd number line clock negative electrode
16	TXACKP	LVDS odd number line clock positive electrode
17	TXA3M	LVDS odd number line to 3 negative electrode
18	TXA3P	LVDS odd number line to 3 positive electrode
19	TXB0M	LVDS Even number line to 0 negative electrode
20	TXB0P	LVDS Even number line to 0 positive electrode
21	TXB1M	LVDS Even number line to 1 negative electrode
22	TXB1P	LVDS Even number line to 1 positive electrode
23	TXB2M	LVDS Even number line to 2 negative electrode
24	TXB2P	LVDS Even number line to 2 positive electrode
25	GND	Ground
26	GND	Ground
27	TXBCKM	LVDS Even number line clock negative electrode
28	TXBCKP	LVDS Even number line clock positive electrode
29	TXB3M	LVDS Even number line to 3 negative electrode
30	TXB3P	LVDS Even number line to 3 positive electrode

Ø **CON3 (4PIN/2.0MM red socket): +12Vpower socket**

Pin NO	Definition	Description
1	12V	12V power supply
2	12V	12V power supply
3	GND	ground
4	GND	ground

Ø CN6 (2X7PIN 2.0MM pin): multi-resolution by changing jumper cat

item	resolution	A	B	C	D	E	F	G	
1	1920X1080-8-1	■ ■	■ ■	□ □	□ □	□ □	□ □	□ □	■ ■ Need to add jumper cat □ □ Indicates no jumper cat
2	1920X1080-6-2	■ ■	□ □	■ ■	□ □	□ □	□ □	□ □	
3	1680X1050-8-1	■ ■	□ □	□ □	■ ■	□ □	□ □	□ □	
4	1440X900-8-1	■ ■	□ □	□ □	□ □	■ ■	□ □	□ □	
5	1280X1024-8-1	■ ■	□ □	□ □	□ □	□ □	■ ■	□ □	
6	1366X768-8-1	□ □	■ ■	□ □	□ □	□ □	□ □	□ □	
7	1366X768-6-2	□ □	□ □	■ ■	□ □	□ □	□ □	□ □	
8	1024X768-8-1	□ □	□ □	□ □	■ ■	□ □	□ □	□ □	
9	1024X768-6-2	□ □	□ □	□ □	□ □	■ ■	□ □	□ □	
10	800X600-8-1	□ □	□ □	□ □	□ □	□ □	■ ■	□ □	
11	1024X600-6-2	■ ■	□ □	□ □	□ □	□ □	□ □	□ □	
12	1920X1200-6-2	■ ■	■ ■	□ □	□ □	□ □	□ □	■ ■	
13	1920X1080-8-2	■ ■	□ □	■ ■	□ □	□ □	□ □	■ ■	
14	1680X1050-6-2	■ ■	□ □	□ □	■ ■	□ □	□ □	■ ■	
15	1600X1200-8-1	■ ■	□ □	□ □	□ □	■ ■	□ □	■ ■	
16	1600X900-8-1	■ ■	□ □	□ □	□ □	□ □	■ ■	■ ■	
17	1600X900-6-2	□ □	■ ■	□ □	□ □	□ □	□ □	■ ■	
18	1440X900-6-2	□ □	□ □	■ ■	□ □	□ □	□ □	■ ■	
19	1400X1050-6-2	□ □	□ □	□ □	■ ■	□ □	□ □	■ ■	
20	1280X1024-8-2	□ □	□ □	□ □	□ □	■ ■	□ □	■ ■	
21	1280X800-6-2	□ □	□ □	□ □	□ □	□ □	■ ■	■ ■	
22	1024X768-8-2	■ ■	□ □	□ □	□ □	□ □	□ □	■ ■	
23	1024X768-6X2-1	□ □	□ □	□ □	□ □	□ □	□ □	■ ■	

Eight) The requirement of transportation、storage and operation

- Ø Operating temperature: $0\sim+40^{\circ}\text{C}$
- Ø Storage temperature: $-20\sim+60^{\circ}\text{C}$
- Ø Relative humidity: $\leq 80\%$
- Ø When assemble the complete machine, don't make the board to bend and deformation, don't stress it.
- Ø When assemble the complete machine, pay attention to control the safety instance about the board、power、high-voltage switchboard and panel
- Ø Pay attention to the distortion when assemble the complete machine and transportation
- Ø In order to achieve the better EMC effect, we advise that using the twisted pair to connect the board and panel, as far as possible use the shielding line. If have the condition, put the magnet ring on the wire that close to the end of board

Nine) product PCB size and structure chart description

. +PCB The detailed size of PCB according to the structure chart

- Ø **PCB** thickness+high of the highest part = 16.0mm (single-layer board)
- Ø Specification of screw hole: diameter 3.5mm screw hole, see the following structure of page

