HAIER

COLOR TELEVISION

SERVICE MANUAL

PART # TV-8888-34

HAIER AMERICA TRADING, LLC
www.haieramerica.com

Service Manual

For P42S6A-C1 / P42S6A-C2



● Features

- Built in tuner
- Digital interface(DVI 1.0)
- Auto Pixel shift for reduce image sticking
- Graphic and video double window
- 8W-2CH speaker out ,subwoofer out
- PC/DVI input resolution up to 1280*1024
- HDTV signal interface
- Power management function

Haier group

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2.Features

- Built in tuner
- Digital interface(DVI 1.0)
- Auto Pixel shift for reduce image sticking
- Graphic and video double window
- 8W-2CH speaker out ,subwoofer out
- PC/DVI input resolution up to 1280*1024
- HDTV signal interface
- Power management function
- Motion adaptive 3D Y/C Separation for composite NTSC video signal
- 4H adaptive comb filter for PAL composite video signal
- Multi-stand color decoder PAL/NTSC/SECAM
- Multi-stand video sync processing
- Multi-stand sound process with Turbo sound
- Video window on graphic background
- Graphic window on video background
- Independent scale factors in vertical and horizontal
- Graphic signal full sync processing
- Motion-weighted interpolation for video source
- Bad-edit detection/correction

3. Safety measures and Attention

1. Observation and measures carefully：

When in repair service , should pay attention to these safety measures and the description Of the service menu.。

2.Preparation:

The preparation for repair in a defective PDP is necessary , ex：stable working table , repair Tools , measuring equipments , replace parts……etc。

3.Pay attention to electrical shock:

Because the PDP is using the AC power source , and the power board contents high voltage , so to preventing the high voltage shock is necessary . Such as , using a isolated transformer , plastic glove , charged components should be discharged first . The high voltage is supplied to inferior components , so when repair the PDP should pay more attentions.

4.Using the specified components:

Some components provide fire-resist and endure high-voltage. So when replace these parts , should use the same characteristic components. So when replace a component should according to the BOM form for a assigned component.

5.Stable the components and recovery the wiring :

Some components are using isolated sleeve or adhesive tape to isolate from the electric board . Moreover the interior wiring should be arranged again to prevent the interference from given out heat components and high voltage components .So after repairing , should recover the same layout of the PDP.

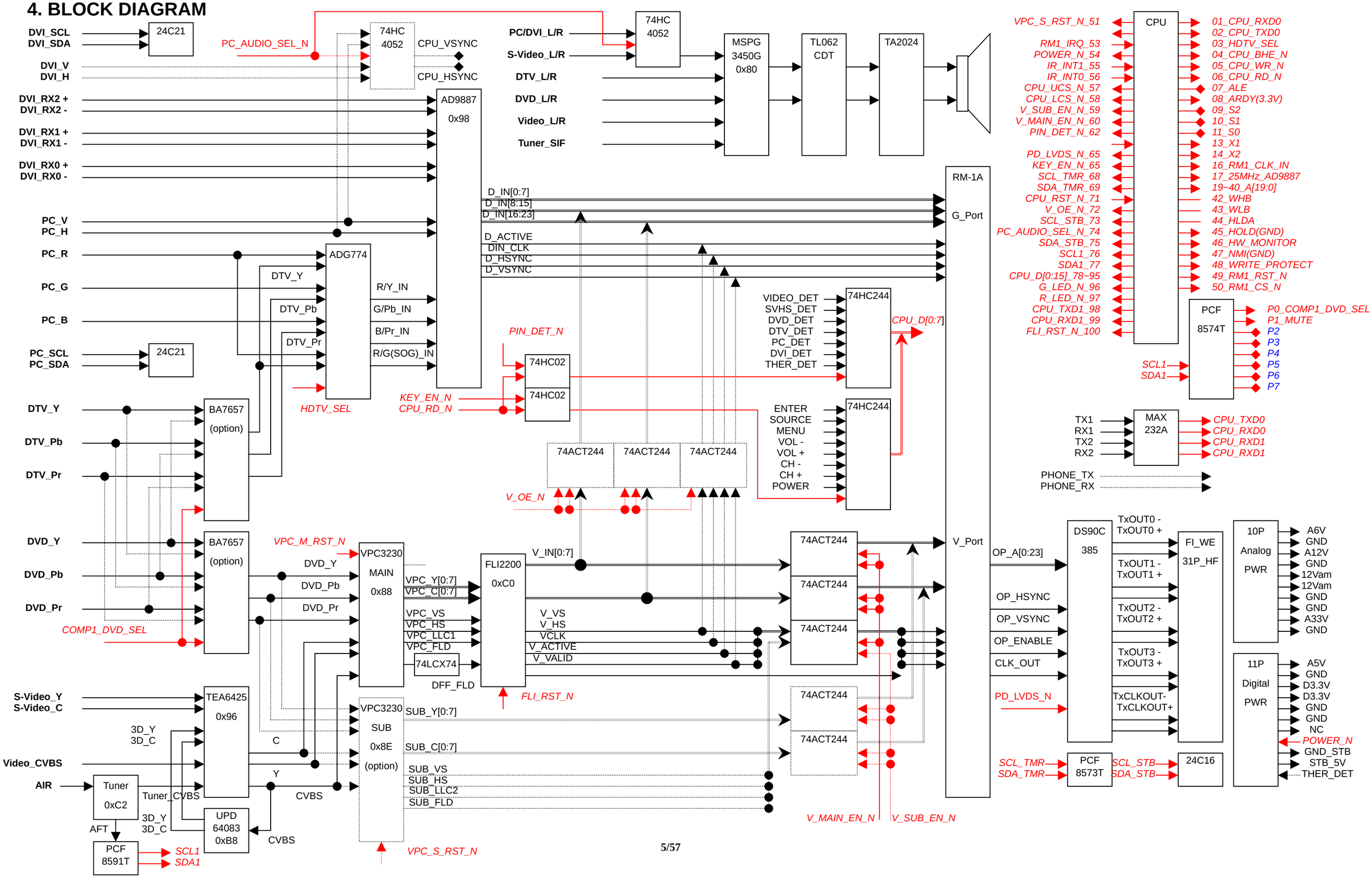
6.Integrity of the electric circuit :

Use the specified components to replace the defective parts . Under any circumstance，do not try to modified the electric circuit .

7.Safety check after repairing：

After repairing , should check the screws and the wiring condition .Checking the quality of repairing components . The insulation test of the metal component , power cord to make sure the safety of repairing.

4. BLOCK DIAGRAM



5. IC DESCRIPTION

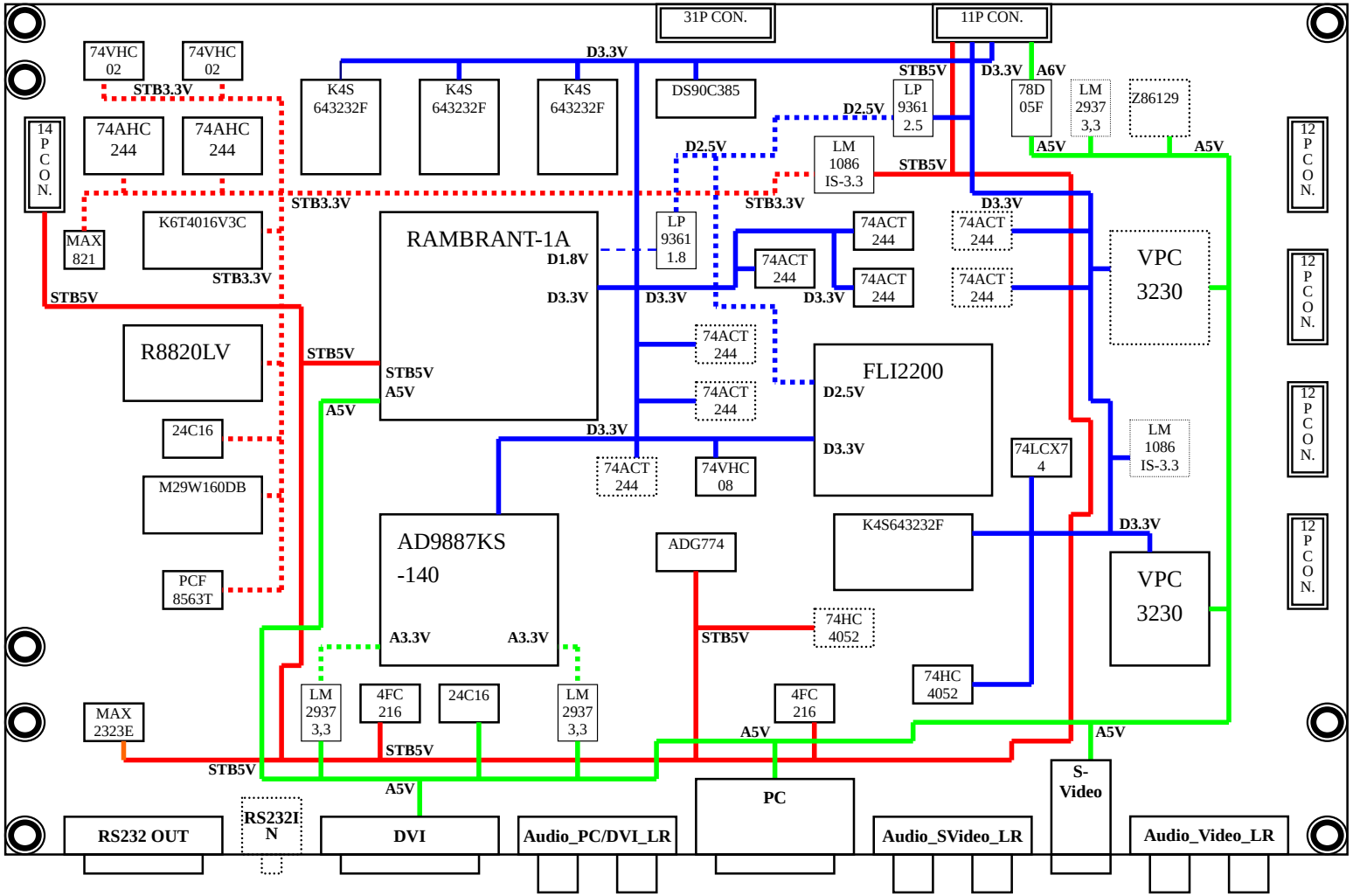
Name	Package	Description	Manufacture
KIA78D05F	DPAK	Regulator	KEC
KIA78D09F	DPAK	Regulator	KEC
LP3961EMP-2.5	SOT 223-5	Regulator	NATIONAL
LM1086ISX_3.3V	TO-263	Regulator	NATIONAL
LP3961EMP-1.8	SOT 223-5	Regulator	NATIONAL
R8820LV	PQFP 80	MICOM 1) Multiplexed address and data bus which is compatible with 80c186 microprocessor 2) Supports nonmultiplexed address bus[A19 : A0] 3) 1M byte memory address space 4) 64K byte I/O Spaec	RDC
M29W160DB	TSOP	FLASH MEMORY	ST
M24C16	SOP 8	EEPROM	ST
74VHC08	SOP 8	2 input AND Gate	FAIRCHILD
AD9887KST	MQFP	RGB Graphics Processing	ANALOG DEVICES
		Scan Converters	
		Aanlog Interface	
		1) 140 MSPS Maximum Conversion Rate	
		2) 330 MHz Analog Bandwidth	
		3) Full sync processing	
		4) Midscale Clamping	
		5) 4:2:2 Output Format Mode	
		Digital Interface	
		1) 112MHz Operation(2pixels/clock mode)	
		2) High skew tolerance of 1 full input clock	
		3) Sync Detect for "hot plugging"	

Name	Package	Description	Manufacture
DS90C385	TSSOP	LVDS Transmitter +3.3V Programmable LVDS Transmitter 24-BIT Flat Panel Display Link-85 MHz , +3.3V Programmable LVDS Transmitter 18-Bit Flat Display Link-85 Mhz	NATIONAL
MAX821	SOT143	Power-on Reset	MAXIM
74AHC244	SOP	Octal Buffer and Line Driver	PHILIPS
74VHC02	SOP	Quad 2-Line NOR Gate	FAIRCHILD
74LCX74	TSSOP	D-Type Flip-Flop	ST
VPC3230D	QFP	Comb Filter Video Processor 1) High-performance adaptive 4H comb filter Y/C separator With adjustable vertical peaking 2) Multi-standard color decoder PAL/NT/SECAM 3) Line-locked clock, data and sync, or 656-output interface 4) peaking,contrast, brightness,color saturation and tint for RGB/YCrCb and CVBS/S-VHS 5) PIP processing for picture sizes whit 8 bit resolution 6) 15 predefined PIP display configuration and expert mode	MICRONAS
FLI2200	TQFP	Digital component video deinterl 1) Motion-adaptive video deinterlacing selects optimal filtering on a per-pixel basis 2) Supports 525/60(NTSC), 625/50(PAL/SECAM) 3) Accepts up to 1100 pixels/line 4) 8/10-bit , 16/20-bit YUV,24/30-bit RGB or YCbCr/YPbPr Progressive output option 5) High-order filtering produces smooth chroma output in 4:2:2 to 4:4:4 or 4:4:4 to 4:2:2 conversion	FAROUDJA

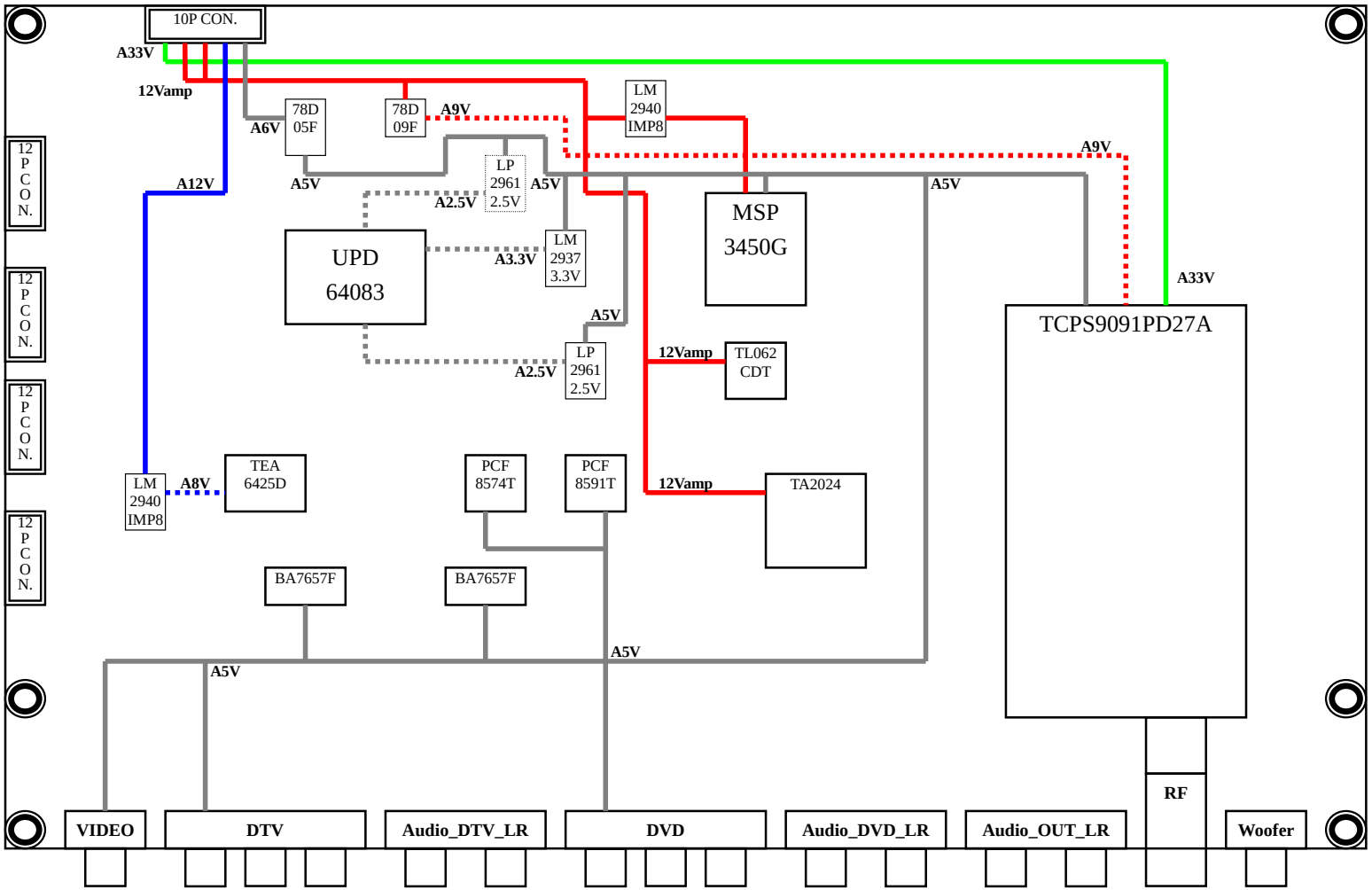
Name	Package	Description	Manufacture
MAX232ACSE	SOP	RS232 Transceivers	MAXIM
TCPS9091PD27A	tuner	Tuner	SEC
24C21	SOIC	EEPROM	ST
74HC4052	SOP	4-Channel Analog DE/Multiplexer	PHILIPS
BA7657F	SOP	Switch ic	ROHM
74ACT244	TSSOP	Octal Buffer and Line Driver	FAIRCHILD
PCF8563T	SOP	CMOS Real-time Clock	PHILIPS
K4S643232f	TSOP	DRAM	Samsung Elec.
K6T4016V3C	TSOP	SRAM	Samsung Elec.
TEA6425D	SO20L	Video Cellular Matrix	ST
KIA78D09F	DPAK	Regulator	KEC
RM1A-A	BGA-352	scaler	OPLUS
PCF8574T	SOT162	Remote 8-bit I/O Expander	PHILIPS
TA2024	PSOP30	Digital Audio Amplifier Driver	TRIPATH
TL062CDT	SO8	J-FET Dual Operational Amplifiers	ST
MSP3450G	PQFP80	Multistandard sound processor family	MICRONAS
UPD64083GF	QFP100	Three-dimensional Y/C separation lsi with on-chip memory 1) upd64083 realizes a high precision Y/C separation 2) noise reduction by three-dimension signal processing for NTSC signal 3) on-chip 4-Mbit memory for flame delay,2ch of high precision intermal 10-bit A/D converter, and adapting 10-bit signal processing and high picture quality 4) upd64083 is completely single-chip system of 3D Y/C separation 5) This LSI includes the wide	NEC

6. IC layout &power map

6.1 IC layout & power map(digital board)



6.2 IC layout & power map(analog board)



7.Panel interface

7.1 Output signal timing_60HZ

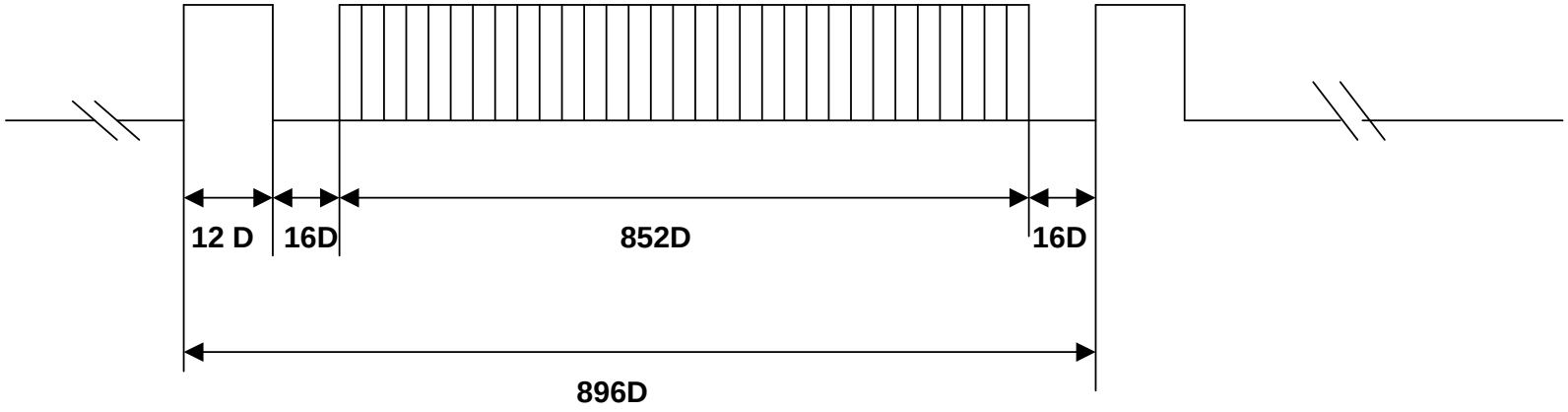
SIGNAL	TIMING	SIGNAL	TIMING
Dot Clock	27 M HZ		
H-Frequency	31.05HZ	V-Frequency	59.99 HZ
H-Total	896 dots	V-Total	533 H
H-Front Porch	16 dots	V-Front Porch	12 H
H-Sync	12 dots	V-Sync	2 H
H-Back Porch	16 dots	V-Back Porch	29 H
H-Active	852 dots	V-Active	480 H
H-Sync Polarity	P	V-Sync Polarity	P

7.2 Output signal timing_50HZ

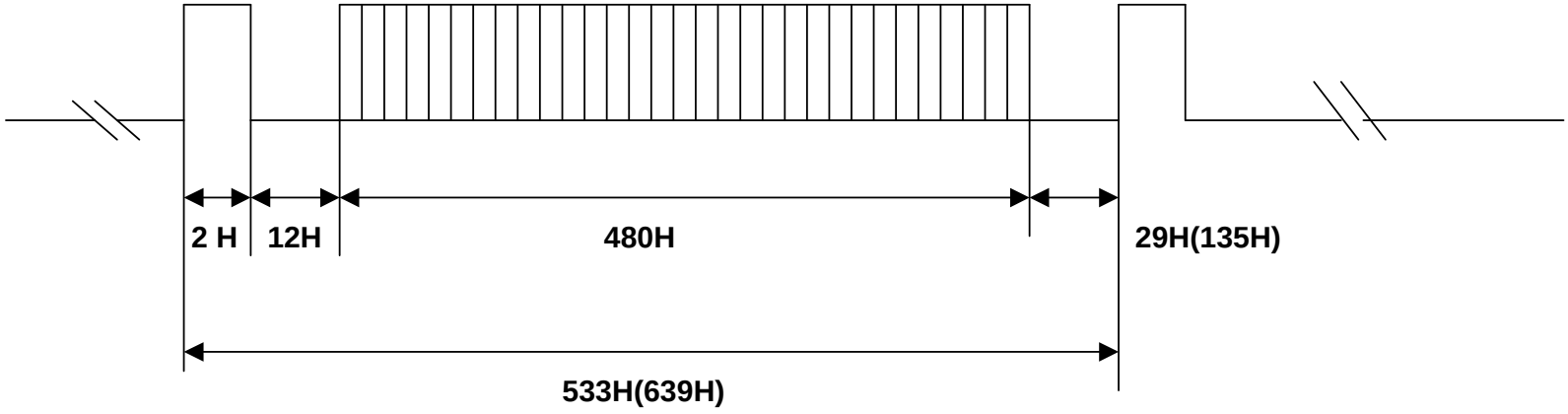
SIGNAL	TIMING	SIGNAL	TIMING
Dot Clock	27 M HZ		
H-Frequency	31.05HZ	V-Frequency	50 HZ
H-Total	896 dots	V-Total	639 H
H-Front Porch	10 dots	V-Front Porch	12 H
H-Sync	24 dots	V-Sync	2 H
H-Back Porch	10 dots	V-Back Porch	135 H
H-Active	852 dots	V-Active	480 H
H-Sync Polarity	P	V-Sync Polarity	P

7.3 Output signal timing diagram

HORIZONTAL TIMING DIAGRAM



VERTICAL TIMING DIAGRAM



7.4 LVDS bit mapping

Pin Name	signal	Pin Name	signal	Pin Name	signal	Pin Name	signal
TXIN0	R0	TXIN7	G0	TXIN14	G5	TXIN21	B4
TXIN1	R1	TXIN8	G1	TXIN15	B0	TXIN22	B5
TXIN2	R2	TXIN9	G2	TXIN16	B6	TXIN23	FIELD
TXIN3	R3	TXIN10	G6	TXIN17	B7	TXIN24	HSYNC
TXIN4	R4	TXIN11	G7	TXIN18	B1	TXIN25	VSYNC
TXIN5	R7	TXIN12	G3	TXIN19	B2	TXIN26	ENABLE
TXIN6	R5	TXIN13	G4	TXIN20	B3	TXIN27	R6

7.5 Panel connect pin configuration

PIN NO.	signal	PIN NO.	signal	PIN NO.	signal	PIN NO.	signal
1	GND	9	GND	17	GND	25	N.C.
2	GND	10	GND	18	GND	26	GND
3	Txout0-	11	Txout2-	19	Txout3-	27	N.C.
4	Txout0+	12	Txout2+	20	Txout3+	28	GND
5	Gnd	13	GND	21	GND	29	N.C.
6	Gnd	14	GND	22	GND	30	GND
7	Txout1-	15	TxCLKout0-	23	GND	31	N.C.
8	Txout1+	16	TxCLKout0+	24	GND		

8.Power interface

PIN NUMBER	DIGITAL BOARD INPUT POWER(CN6001)	ANALOG BOARD INPUT POWER(CN1000)
1	A5V	A6V
2	GND	GND
3	D3.3V	A12V
4	D3.3V	GND
5	GND	12VAMP
6	GND	12VAMP
7	NC	GND
8	POWER-N	GND
9	GND	A33V
10	STB5V	GND
11	THER_DET	

9.Inspections on major ICs

9.1R8820LV(DIGITAL:U9102)-MICOM

(1)Check whether the proper power is supplied(3.3v)

(2)Check whether the No.71 Reset pin’s output is high.

(3)Check I2C-BUS (I2C :PINS 76 and 77)

(4)Check whether the inputs/outputs betwenR8820LV and MEMORY(U9101,U9103) are normal.

(5)Check whethet the 25MHZ clock is connected to pins 13 and 14.

9.2VPC3230(digital:U9513)_Check when the input mode is set for TV,VIDEO,S-VIDEO,DVD

(1) Check whether the proper power is supplied.(5v,3.3v)

(2) Check whether the No.15 Reset pin’s output is high.

(3) Check the I2C-bus(pin 13 and 14).

(4) Check whethet the output clock of llc1(pin 28) is 13.5M HZ.

(5) Check the output on VPC_h sync(pin56),VPC_VYNC(PIN57),VPC_FIELD(PIN53).

(6) Check whethet the 20.25Mhz clock is connected to pins 62 and 63.

(7) Check the digital data outputs.

9.3 TEA6425D(ANALOG:U1002)

-VIDEO Switching IC_Check when the input mode is set for TV,VIDEO,S-VIDEO

(1) Check whether the proper power is supplied.(8v)

(2) Check the I2C bus (pin2 and pin4).

(3) Check whether the inputs/outputs are normal.

9.4 MDIN-150(digital :U9507)

-DEINTERLACE_Check when the input mode is for TV,VIDEO ,S-VIDEO,DVD.

(1) Check whether the proper power is supplied(3.3v,2.5v)

(2) Check whether the NO.209 Reset pin's output is high.

(3) Check the I2C-bus (pins 62 and 64).

(4) Check whether the 27Mhz clock is connected to pins 186 and 187.

(5) Check whether the data inputs are normal.

VPC-CLK(pin 195):13.5MHZ,VPC_HSYNC(pin 189):15.75Khz,

VPC_VSYNC(pin 188):60HZ,VPC_FIELD(pin 194)

(6) Check whether the data outputs are normal.

V_CLK(pin159):27MHZ,V_HYNC(pin 165):31.5Khz,V_VSYNC(pin 168):60HZ,V_ACTIVE (pin 164),D_V_VALID(pin163)

(7) Check whether the inputs and outputs between MDIN-150 and MEMORY (U9501) are normal.

9.5 TCP9091PD27A(ANALOG:U1001)_Check when the input mode is set for TV

(1) Check whether the proper power is supplied .(33V,5V)

(2) Check the I2C bus (pin 2 and 4).

(3) Check whether the inputs/outputs are normal.

9.6 AD9887AKS(digital:U9201)-A/D CONVERTER_Check when the input mode is DTV,PC,DVI.

(1) Check whether the proper power is supplied(3.3V)

(2) Check I2C bus (pins 91 and 92).

(3) Check whether the inputs/outputs are normal.

INPUT:

PC INPUT:pin119®,110(G),100(B),81(VSYNC),82(HSYNC)

DTV INPUT:pin119(Pr),110Y,100(Pb),

DVI INPUT:pin 59(Rx1+),60(Rx1-),62(Rx0+),63(Rx0-),65(RXC+),66(RXC-),56(RX2+),57(RX2-)

OUTPUT:

Pin 134(DIN_CLK),135(DIN_ACTIVE),139(D_HSYNC),138(D_VYSNC)

9.7 ADG774BR(DIGITAL:U9202)-Switching IC_Check when the input mode is for TV and PC.

(1) Check whether the proper power is supplied (5v).

(2) Check the SEL_PIN(PIN1:DVI HIGH;PC:LOW)

(3) Check whether the inputs/outputs are normal.

9.8REMBRANDT-1A(DIGITAL:U9001)-SCALER IC-Check the all input image and SOD

(1) Check whether the proper power is supplied.(5v,3.3v,1.8v)

Because it is BGA IC ,measure the R or C parts on the power terminals.

(2) Check whether the inputs and outputs between R8820LV and MEMORY (U9006,U9007,U9008) are normal.

(3) Check whether the outputs of MDIN-150 and AD9887AKS are input into REMBRANDT-1A are normal.

(4) Check whether the data inputs/outputs are normal.

PinAD8(RM1_IRQ),AE9(OCLK_OUT),AF8(RST_N),AF5(OP_EN),OD5(OP_HSYNC),

PinAC5(OP_VSYNC),AE6(OP_FIELD),AD6(OPLL_CLK_IN),AC7(OP_FIELD_3D)

9.9DS90C385(DIGITAL:IC603)-LVDS TRANSMITTER

(1) Check whether the proper power is supplied (3.3v).

(2) Check whether the power down pin’s (pin 32)output is high.

(3) Check whether the outputs of REMBRANDT-1A are input into DSC90385 normally.

(4) Check whether the LVDS data outputs are normal.

9.10UPD64083GF_3BA(ANALOG:U9700)-3D COMB FILTER

-Check when the input mode is for TV (NTSC) and Video(NTSC)

(1) Check whether the proper power is supplied (3.3V,2.5V).

(2) Check I2C bus (pin 59 and 60).

(3) Check whether the 20 M HZ CLOCK is connected to pins 47 and 48,

(4) Check whether the data inputs are normal.

Input::AY1(pin 88)

Output::ACO(pin83),AYO(pin 84)

9.11SP3450G(ANALOG:U6002)-Multi stand sound processor

(1) Check whether the proper power is supplied (5v,8v).

(2) Check I2C bus (pin 2 and 3).

(3) Check whether the 18.432 M HZ clock is connected to pins 71 and 72.

(4) Check whether the inputs/outputs are normal

INPUT:SIF(pin 67),SC1_IN_R(pin 57),SC1_IN_L(pin 56),SC2_IN_R(pin 54),SC2_IN_L(pin 53),SC3_IN_R(pin51),SC3_IN_L(pin50),SC4_IN_R(pin48),SC4_IN_L(pin 47),

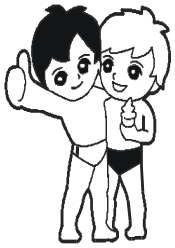
OUTPUT:audio out L,R(pin 33,34),DACM L,R(PIN 27,28),DACM SUB(pin 30)

9.12 TA2024(ANALOG:U6000)-Digital Audio Ampifier Driver

(1) Check whether the proper power is supplied (12V).

(2) Check whether the inputs/outputs are normal.

Sincere Forever



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