

LCD TV SERVICE MANUAL

Model list

DLC-3211UT

DLC-3711UT

DLC-2611UT

KONKA GROUP CO,LTD.

Digital Flat Display Division

IMPORTANT SERVICE SAFETY INFORMATION

Operating the receiver outside of its cabinet or with its back removed involves a shock hazard. Those who are thoroughly familiar with precautions necessary when working on high voltage equipment should only perform work on these models.

Exercise care when servicing this chassis with power applied. If carelessly contacted, can cause serious shock or result in damage to the chassis. Maintain interconnecting ground lead connections between chassis, escutcheon, picture tube tag and tuner when operating chassis.

When it is necessary to make measurements or tests with AC power applied to the receiver chassis, an Isolation Transformer must be used as a safety precaution and to prevent possible damage to transistors. The Isolation Transformer should be connected between the TV line cord plug and the AC power outlet.

It is important to maintain specified values of all components and anywhere else in the receiver that could cause a rise in operating supply voltages. No changes should be made to the original design of the receiver.

Components shown in the shaded areas on the schematic diagram and/or identified by in the replacement parts list should be replaced only with exact factory recommended replacement parts. The use of unauthorized substitute parts may create shock, fire, or other hazards.

Before returning the receiver to the user, perform the following safety checks:

1. Inspect all lead dress to make certain that leads are not pinched or that hardware is not lodged between the chassis and other metal parts in the receiver.
2. Replace all protective devices such as non-metallic control knobs, insulating fish papers, cabinet backs, adjustment and compartment covers of shields, isolation resistor-capacitor networks, mechanical insulators etc.
3. To be sure that no shock hazard exists, a check for the presence of leakage current should be made at each exposed metal part having a return path to the chassis (antenna, cabinet metal, screw heads knobs and/or shafts, escutcheon, etc.) in the following manner.

Plug the AC line cord directly into a 100~240V, AC receptacle. (Do not use an Isolation Transformer during these checks.) All checks must be repeated with the AC line cord plug connection reversed. (If necessary, a non-polarized adapter plug must be used only for the purpose of completing these checks.)

PLEASE READ BEFORE ATTEMPTING SERVICE

1. Use an Isolation Transformer when performing any service on this chassis.
2. Never disconnect any leads while receiver is in operation.
3. Disconnect all power before attempting any repairs.
4. Do not short any position of the circuit while the power is on.
5. For safety reasons, replace components only with identical replacement parts (SEE PARTS LIST).
6. Before alignment, warm up the TV for at least 30 minutes.
7. When removing a PCB or related component, after unfastening or changing a wire, be sure to put the wire back in its original position.
8. Inferior silicon grease can damage IC's and transistors. When replacing IC's and transistors, use only specified silicon grease. Remove all old silicon when applying new silicon.

A. SPECIFICATION

Color System : NTSC_M、 ATSC/Free QAM

Sound System : BTSC/SAP

Frequency range: Antenna(2~69)、 Cable(2~135)

Audio output power 10%THD 10W X 2

Antenna Impedance 75 Ω (Unbalance)

Power Consumption 160W(26") , 180W(32"), 200W(37")

Power Supply : AC~110-240V, 60Hz

item	Port list
1	RF ANTENNA & Cable
3	Composite
4	S_VIDEO
5	Y、Cb/Pb、Cr/Pr
6	VGA
7	HDMI
8	SPDIF(OUT)
9	AC Input

ADJUSTMENT MANUAL

I . TEST NOTE

1. Please follow the pointed test steps and choose the right test equipment to conduct adjustment, otherwise good effect of Unit could not be obtained. The unit should be warmed up for 30 minutes before adjustment and every parameter should be adjusted repeatedly till the optimum value obtained, the pointed voltage value should be ensured during test to get satisfied test result.
2. Test environment
 - 1) Temperature : 15°C-35°C
 - 2) Relative Humidity: 45-75%
 - 3) Air pressure: 86-106Kpa
- 3 Test equipments (The following equipment should be calibrated before testing)
 - 1) Computer 1 set
 - 2) Multi-meter (VICTOR VC9801) 1 set
 - 3) Video Signal Generator (Chroma Model 2227/2327) 1 set
 - 4) Color Analyzer (Chroma Model 7120) 1 set
 - 5) TV Video Signal Generator (FLUKE PM54200) 1 set
 - 6) ATSC signal Generator (SFU) 1 set
- 4 Factory mode adjustment
 - 4.1 Enter factory mode adjustment

Using the remote control, press INPUT button once first , then press “2580” digital keys , and you can see manufacture menu on the LCD panel.
 - 4.2 factory menu operation method

Press the “ . ” key to select the page. Press the “▽△” to select the item you desired change, and press the “< >” to set the value.
 - 4.3 exit the factory menu

Press “Exit” to exit the factory menu , the value you have changed will be save automatically.
 - 4.4 White calibration adjustment
 - 1 Receive black or white signal under TV、 AV or HDMI mode, adjusting brightness and contrast to set the brightness to 15 Nit in dark area and 90 Nit in bright area.
 - 2 Adjust white balance. Press “ . ” button to select the page adjusting White calibration , Press the “▽△” to select the item you desired change, and press the “< >” to set the values as follow.

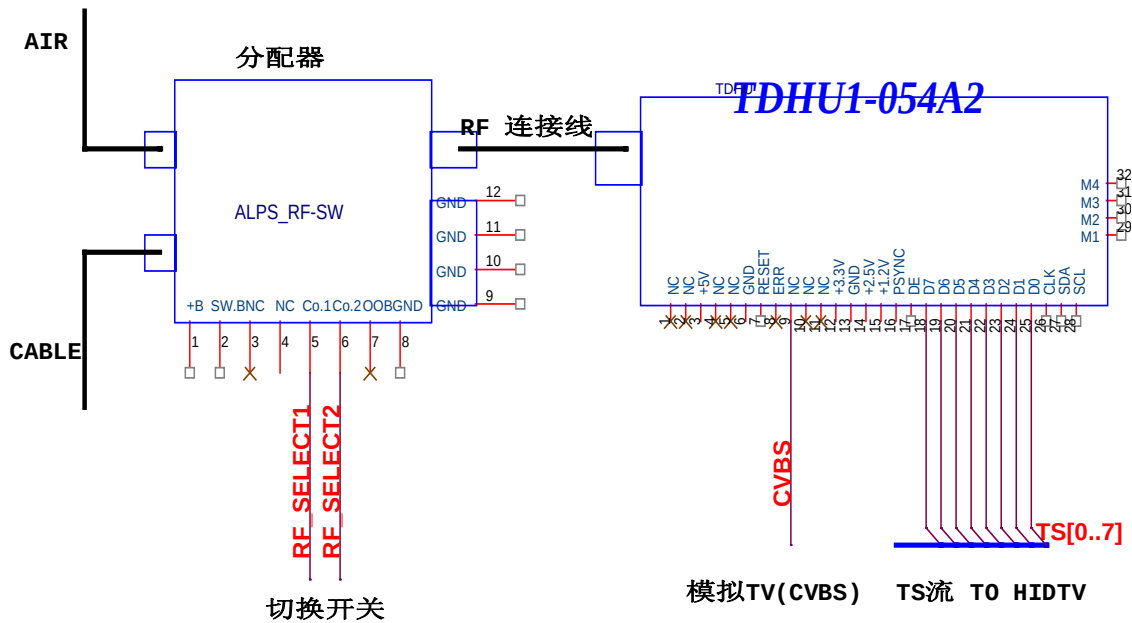
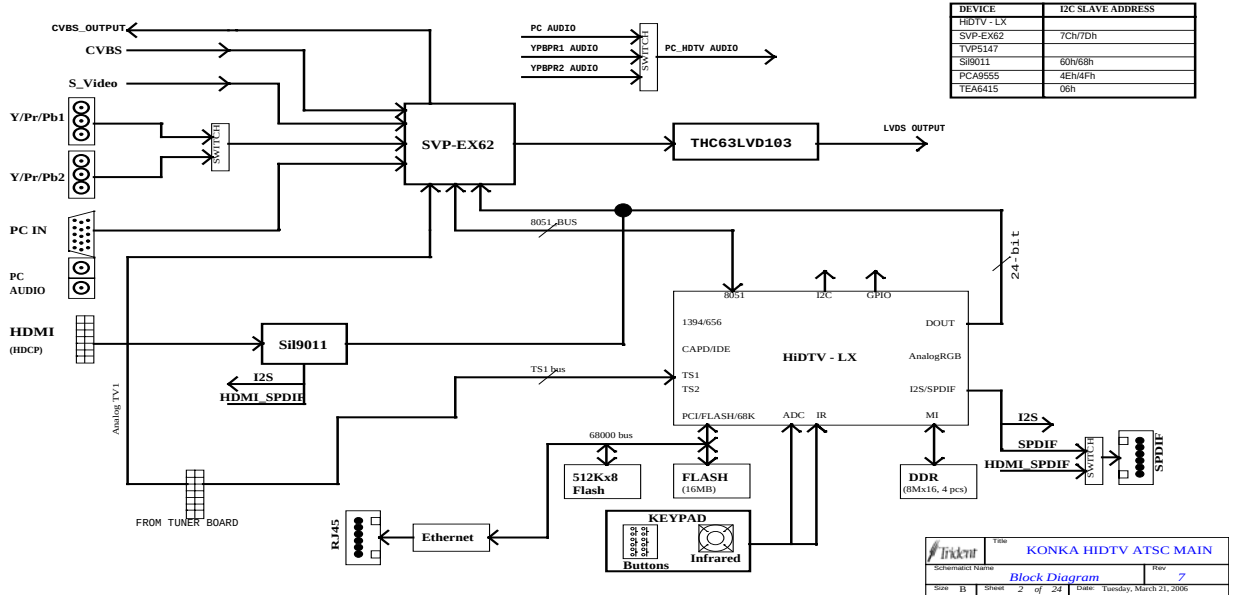
Red Offset 1000

Green Offset 1000

Blue Offset 1000
 - 3 Then adjusting “Red gain、 Green gain、 Blue gain” to adjust the chromaticity coordinates of black and white to fit the requirement.

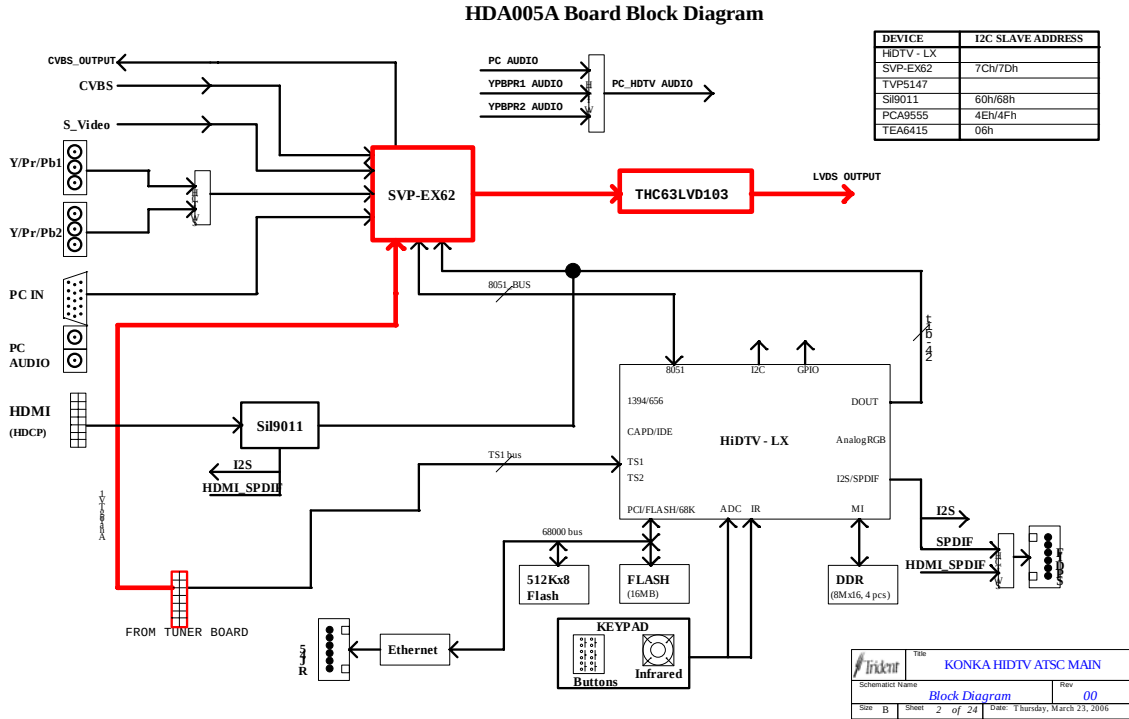
BLOCK DIAGRAM

HDA005A Board Block Diagram

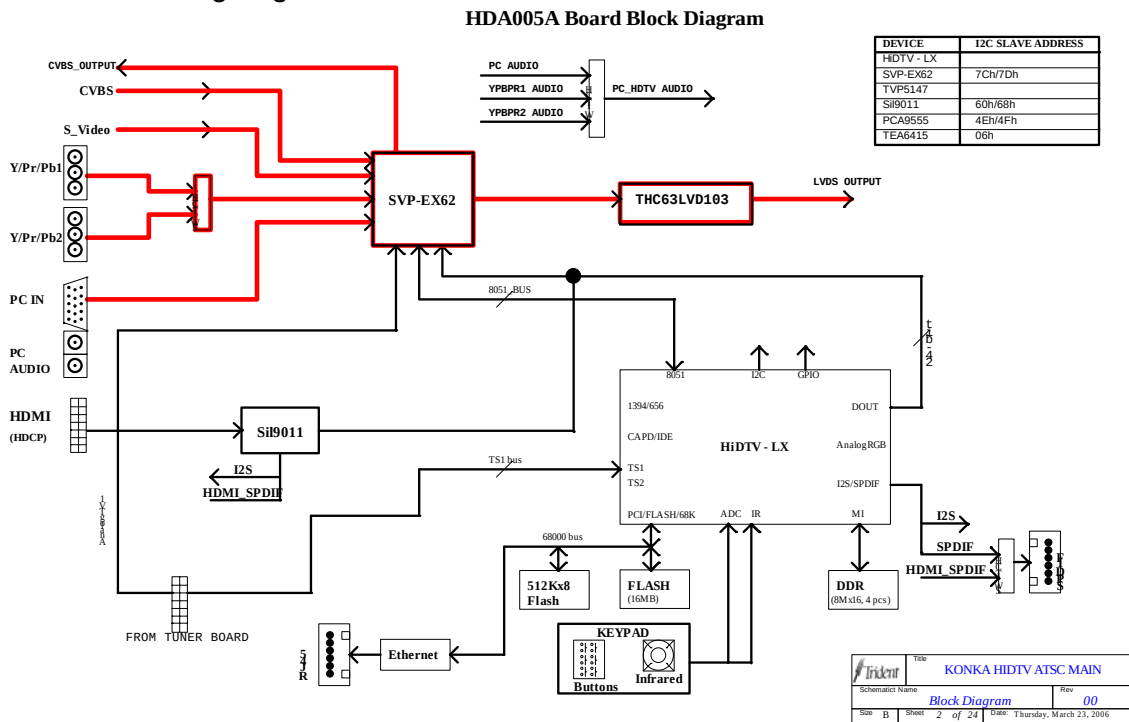


Signal flow chart

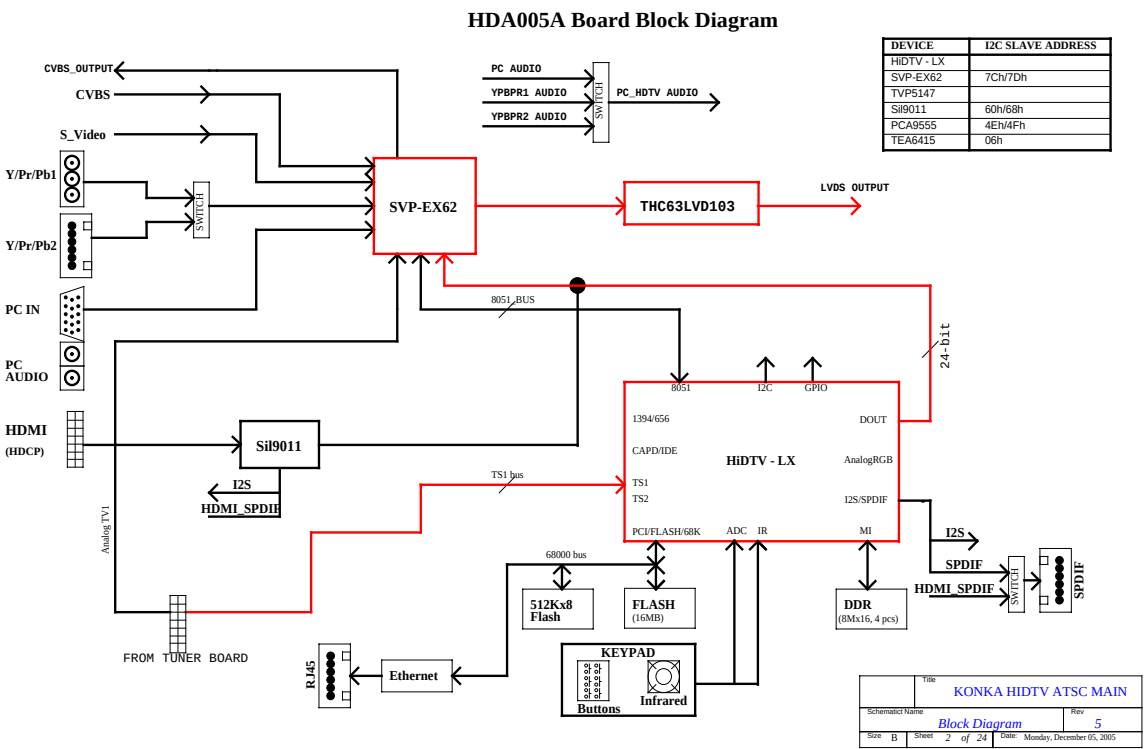
Analog TV signal flow chart:



Other analog signal flow chart:

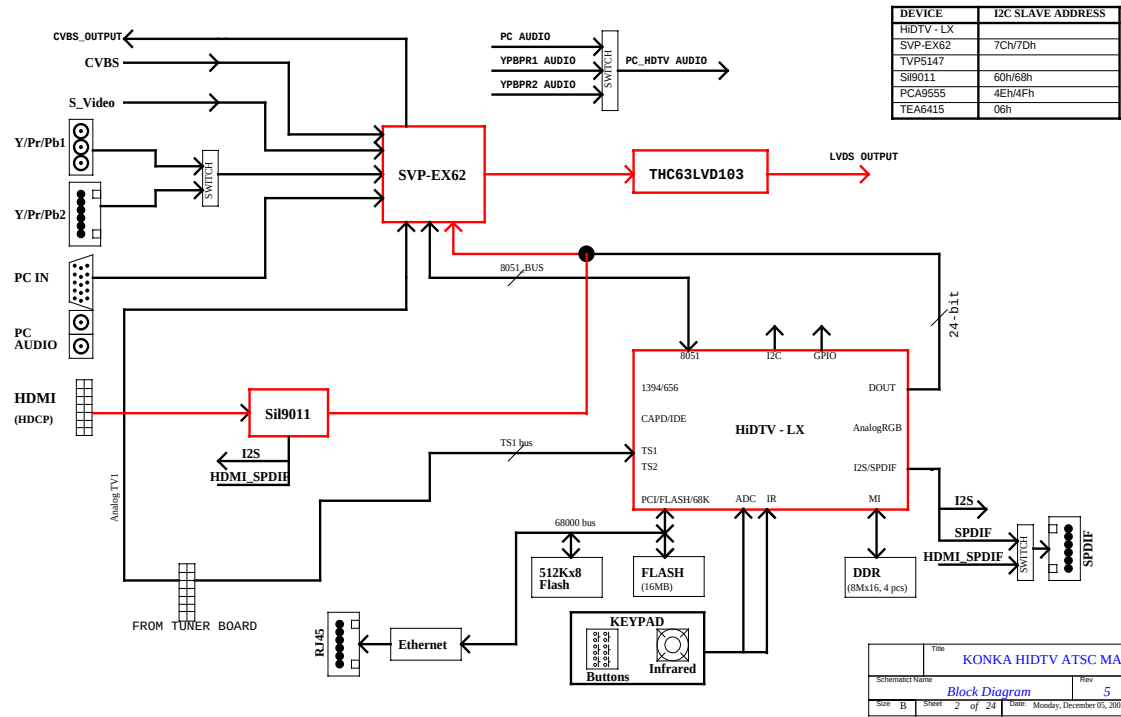


Digital TV signal flow chart:



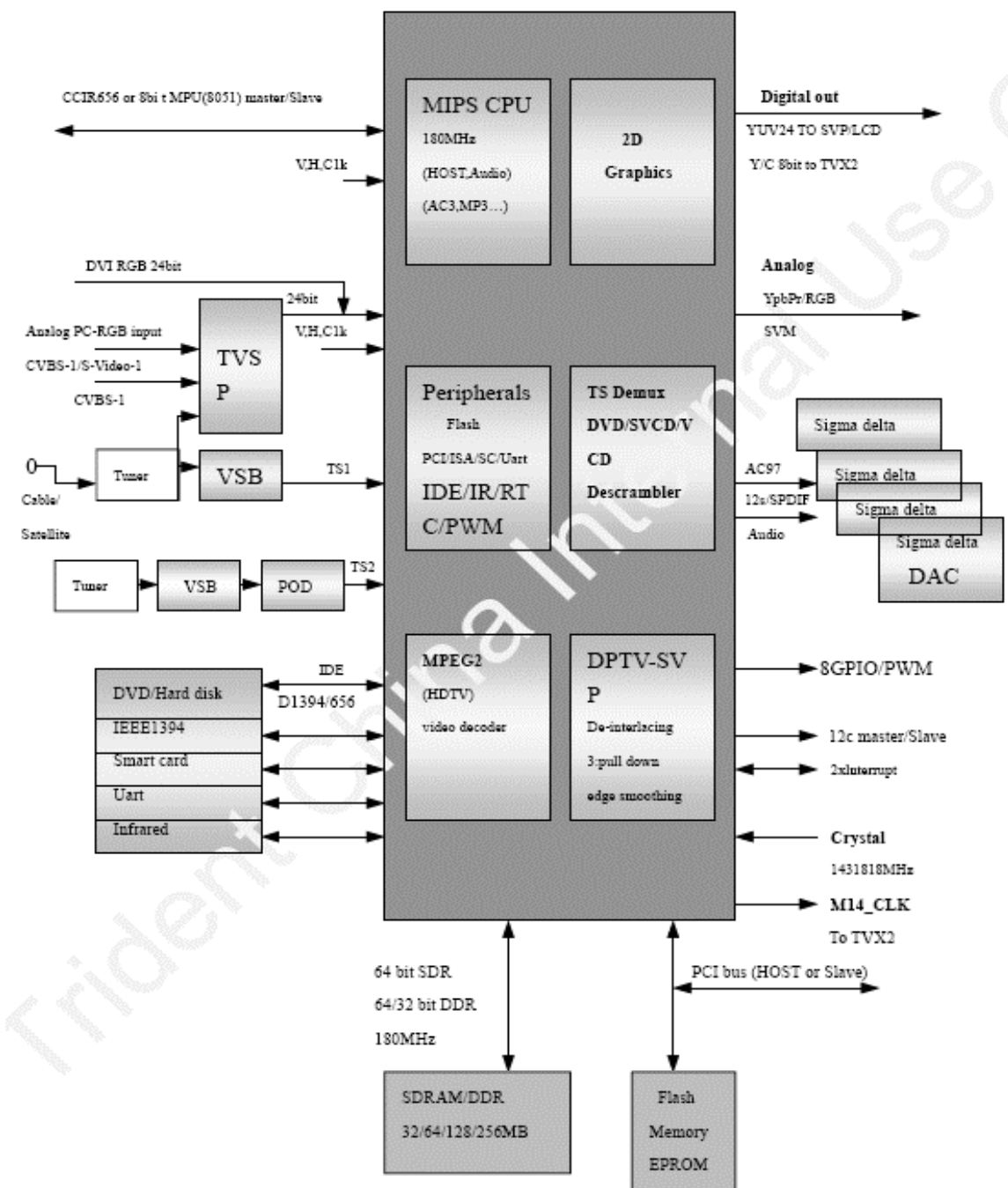
HDMI signal flow chart:

HDA005A Board Block Diagram

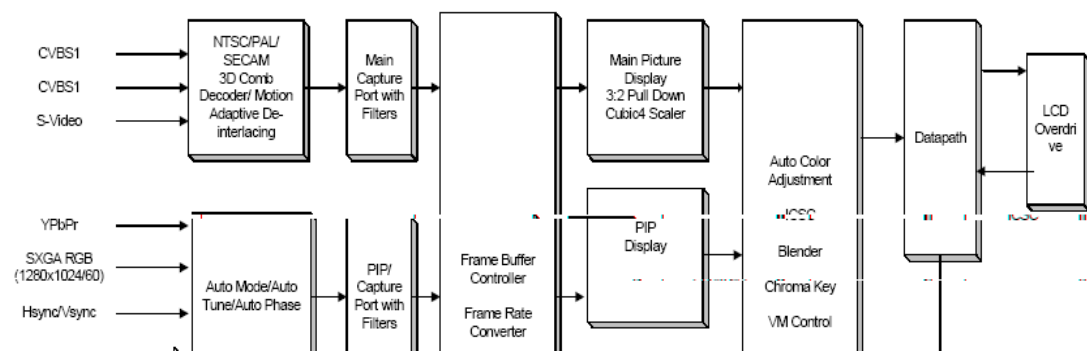


IC BLOCK DIAGRAM

1 U15
(HiDTV)



2 U9 (SVP_EX62)



3 U11(Sil9011)

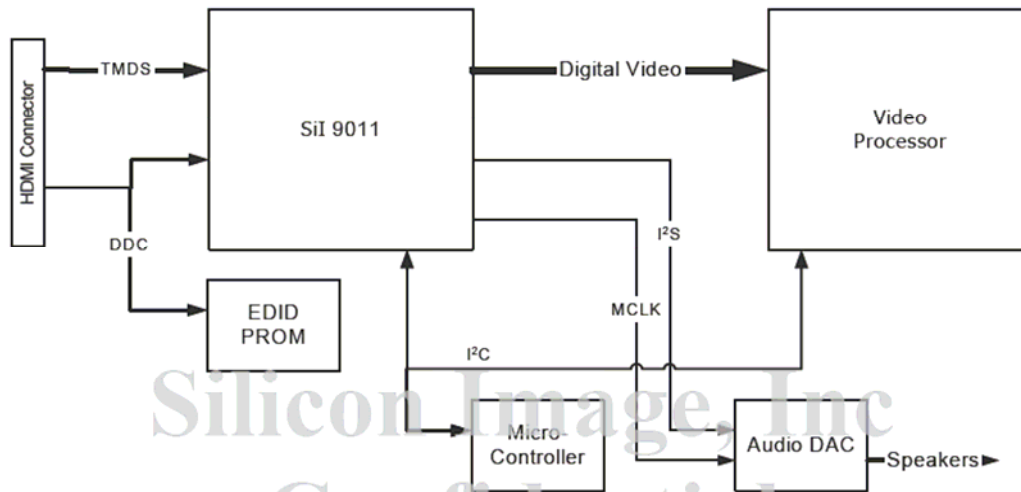


Figure 2. DTV Block Diagram

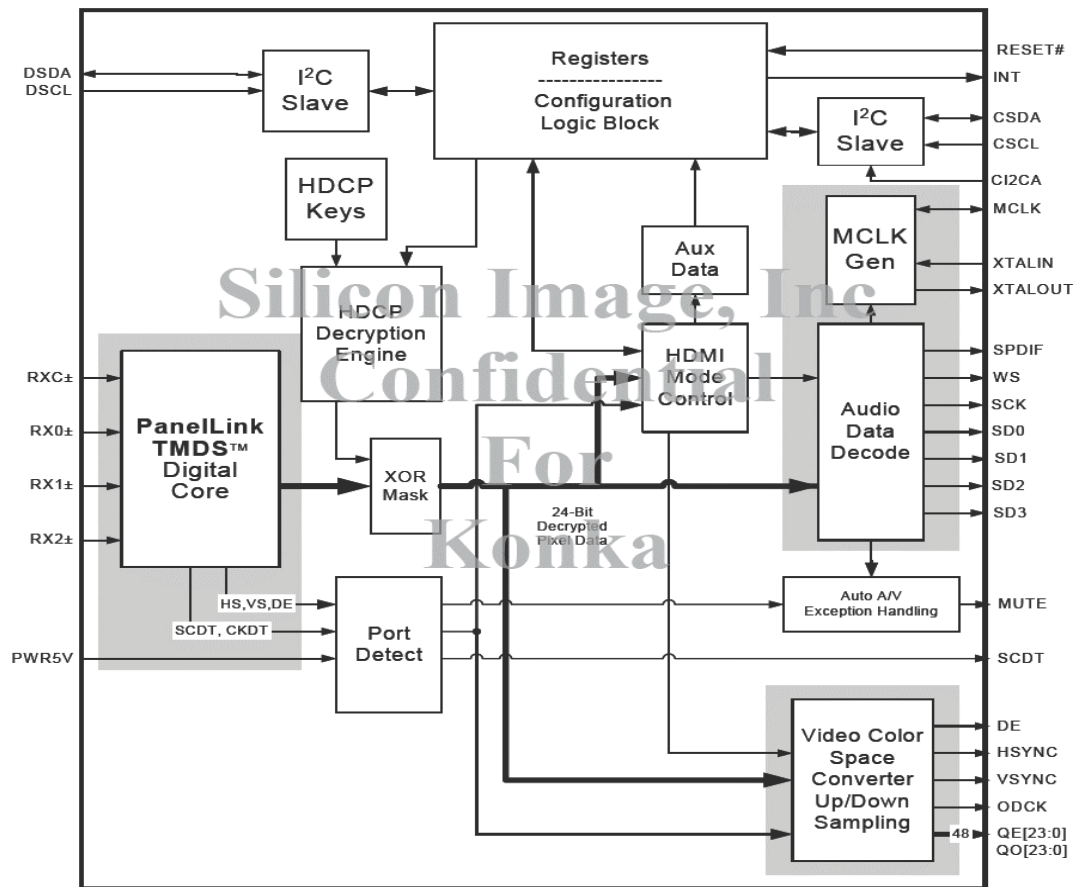


Figure 3. Functional Block Diagram

Trouble Shooting

Key IC list

Item	Type	Circuit No.	Qty.
1	HiDTV (CPU & MPEG2 Decoder)	U15	1
2	SVP_EX62 (Decoder & Scaler)	U9	1
3	HY5DU281622ET (DDR)	U16、U17、 U18、U19、 U501、U502	6
4	Sil9011 (HDMI Receiver)	U11	1
5	28F128J3C-120 (FLASH)	U20	1

8	MSP4450G (Sound processor)	N9	1
9	V103 (Change TTL to LVDS)	U30	1
10	Tuner	N1	1
11	RF-SW (Antenna & Cable SW)	N3	1
12	MP1430 (DC-DC)	U1、 U3、 U4	1
13	PCA9555DB (GPIO expender)	U38	1

Preparing to bring-up the System

Step1: Check if there is any power (12V, 5V, 5VSB, 3.3V, 2.5V, 1.8V, ...) shortage before power up refer to circuit diagram.

Step2: Turn on power supply and measure all power levels: 12V, 5V, 5VSB, 3.3V, 2.5V, and 1.8V refer to circuit diagram.

Step3: Measure all clock signals

14.318 MHz(Y4)

RTC 32.768 KHz crystal is sine wave with 0.5V P-P(Y3).

27 MHz crystal(Y5)

33 MHz_OSC (Y9) is a square wave and is critical for system reliability.

Step4: Measure EX(62)_RST, HiDTV_RST, PCI_RST, WARM_RST, RTC_RST, and VCCH_RST.

VCCH_RST(IR), WARM_RST, and RTC_RST should be equally delayed for about 1 second after power up.

EX_RST should have about 230 ms, and HiDTV_RST should have about 240 ms delay after power up.

Step5: Check if Boot ROM CS#, OE#, D0..D7, A0, A1, A2,pins toggle or not. If not, HiDTV to Boot ROM traces maybe open or short. It is most likely that the HiDTV BGA chip was not mounted correctly.

Step6: Plug in the UART connector, and check if there is any message that shows up on the terminal screen.

If not, then plug in the PCI Extension card and set up the logic analyzer to check the boot ROM and the PCI bus activity.

PCI buses such as PCI_CLK, AD31..0, C/BE3..0#. FRAME#, IRDY#, DEVSEL#, TRDY#, STOP#, SERR#, REQ#, GNT#, RST#, INTA(and B,C,D for multi-function device)#, and ROM_OE# need to be setup.

Step7: Logic analyzer is a very powerful and required tool to debug microprocessor based systems.

HP 16500C(100 MHz state, 500 MHz timing) should be good enough to serve the HiDTV debugging purpose.

Additional laboratory demonstrations will be arranged if necessary.

Step8: Check flash programming reliability.

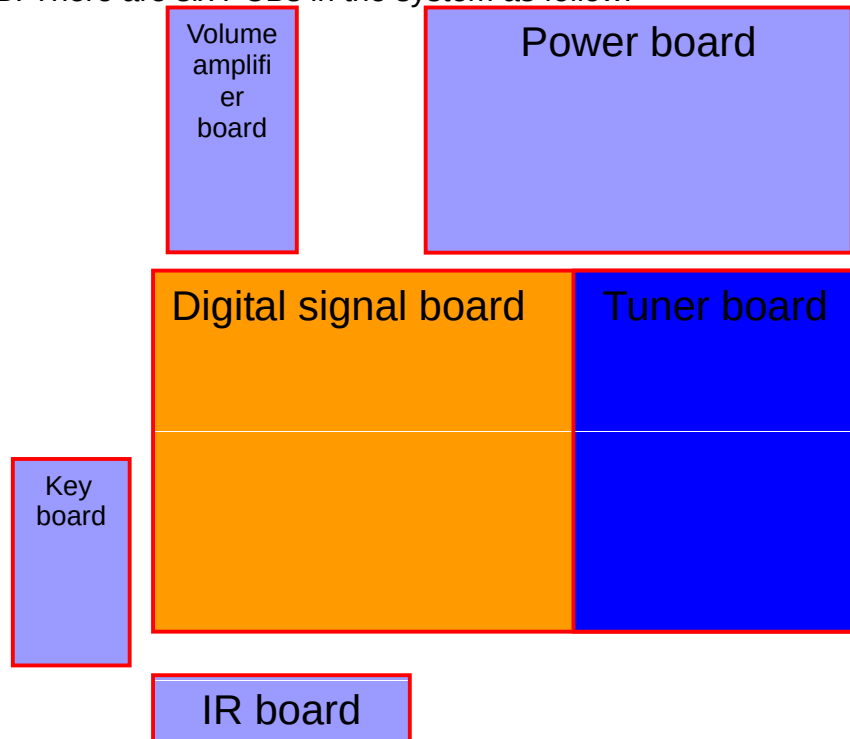
Check all video inputs and signal quality.

Check DDR memory reliability.

Check power ON/OFF, cold/warm reset stability.

Check the low voltage(1.7 V)/high temperature (40 degree C) environment test.

Step9: If you can not find out the reason of trouble, we advise you to change the PCB. There are six PCBs in the system as follow:



Power board: Supply the power(12V,5V,24V);

Digital signal board: CPU, MEGE2 decoder, analog decoder, scaler

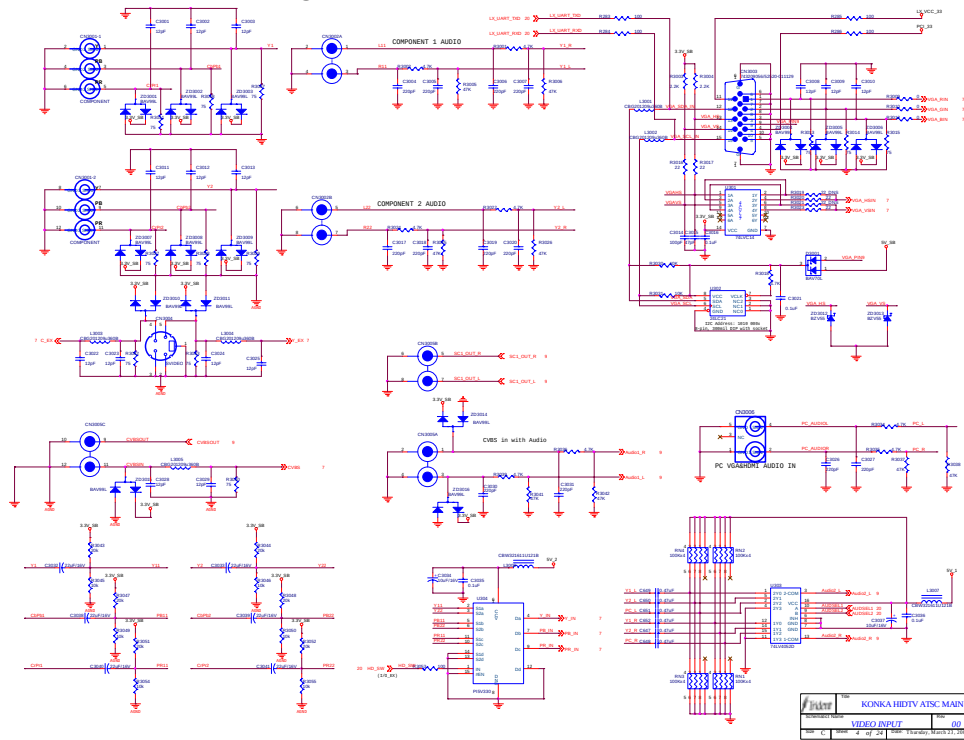
Tuner board: TV receiver, demodulator, sound preprocessor.....

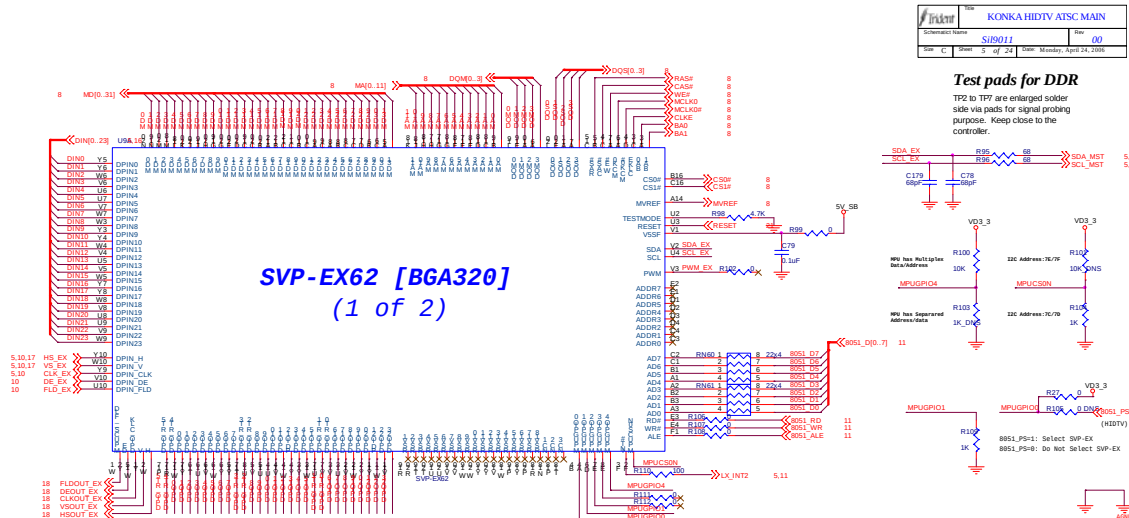
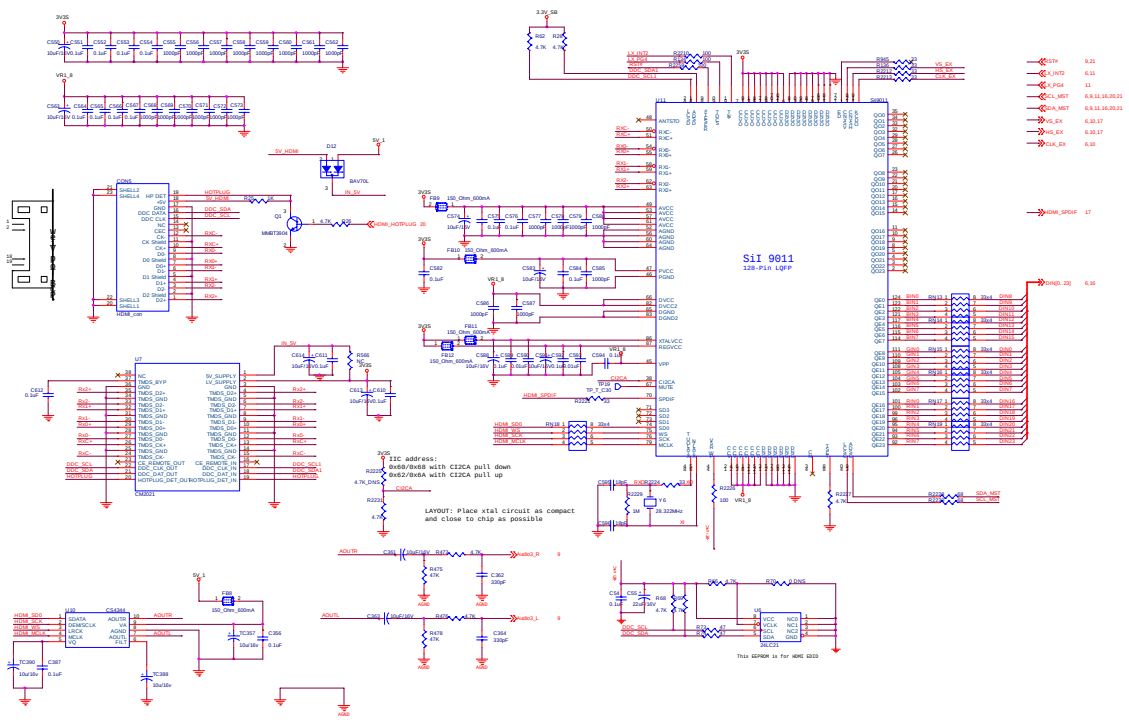
Key board: User menu interface;

IR board: IR receiver.

You can change anyone of them to deal with the trouble according to your judgement.

The circuit diagram

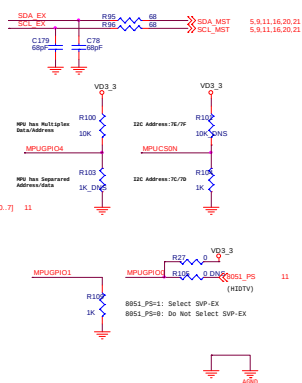


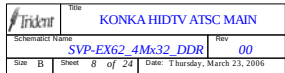
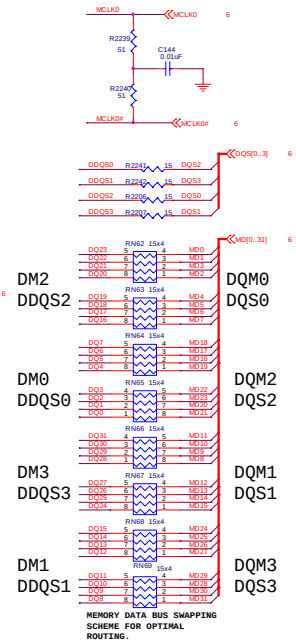
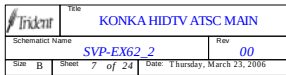


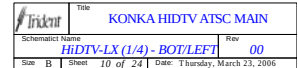
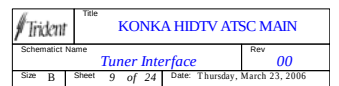
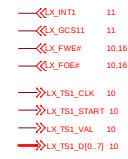
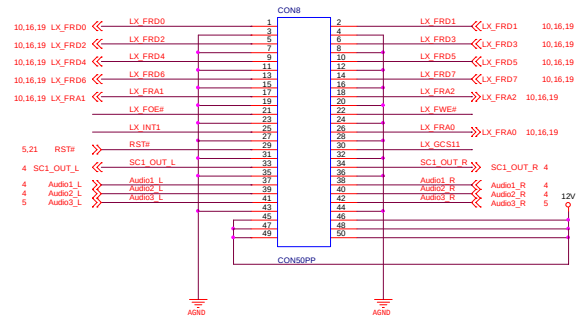
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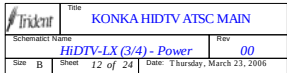
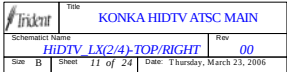
Test pads for DDR

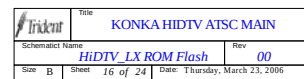
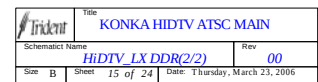
T72 to T77 are entered solder side via pads for signal probing purpose. Keep close to the controller.

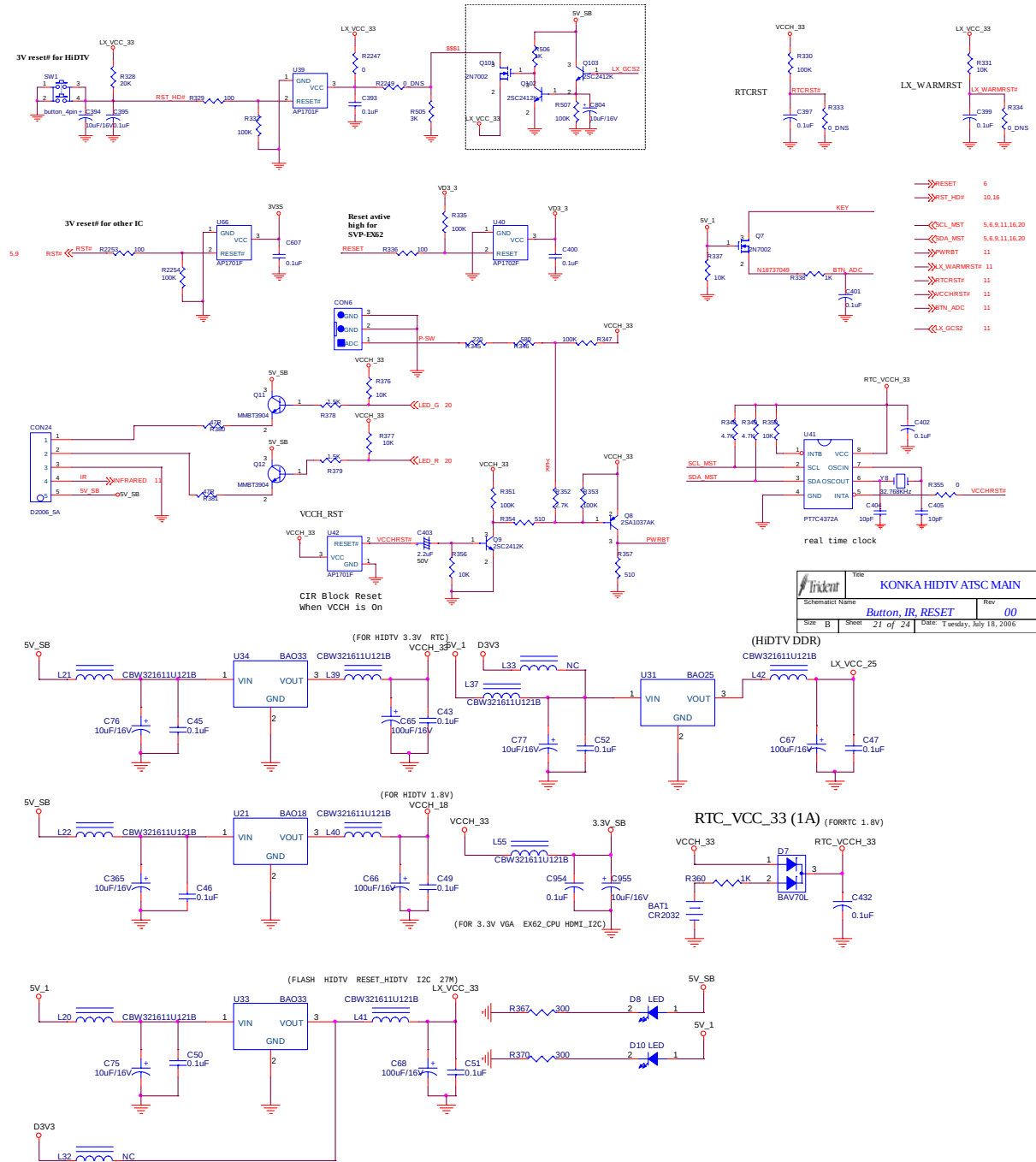








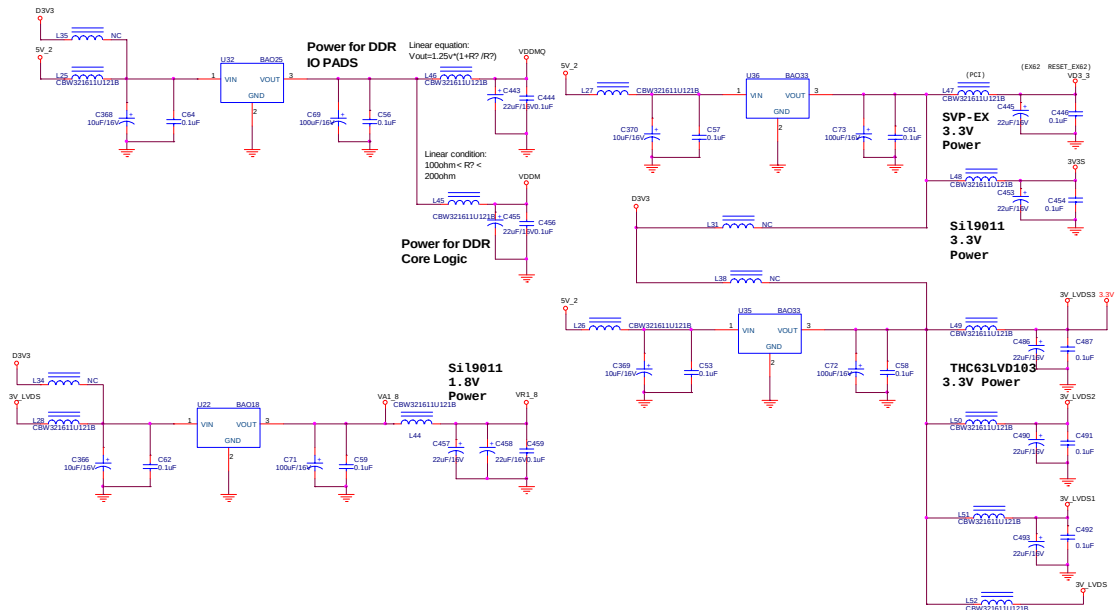




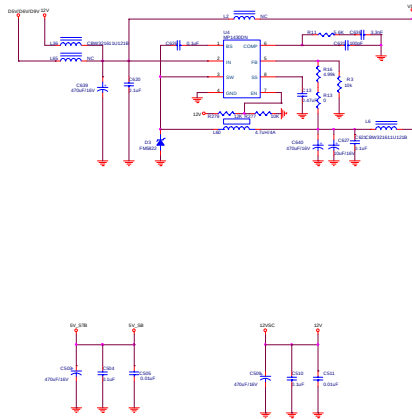
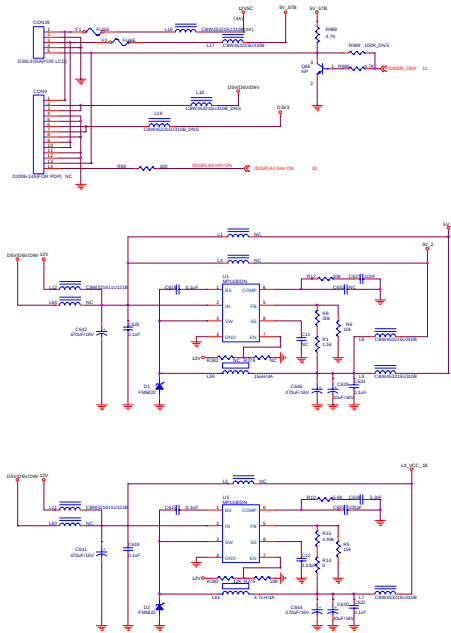
RESET	6
RESET_HD#	10,16
CL_MST	5,6,9,11,16,20
DA_MST	5,6,9,11,16,20
WDRBT	11
X_X_WARMIST#	11
WTCRST#	11
WCCRST#	11
WTRN_ADC	11
X_GCS2	11

Title		KONKA HIDTV ATSC MAIN	
Schematic Name		Button_IR_RESET	
Rev		00	
Size	B	Sheet	21 of 24
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Title		KONKA HIDTV ATSC MAIN	
Schematic Name		Power Supply - 1	
Rev		00	
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Schematic Name	Power Supply - 2
Rev	00
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Date	Thursday, March 23, 2006



KONKA HDTV ATSC MAIN	
Schematic Name	Power Supply - 3
Rev	00
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