

SERVICE MANUAL

LCD Color Television

32AV934G Ver. 1.00

Updating history

Currently there are no updates available.
Please check back at a later time for any future updates.

IMPORTANT NOTICE

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GREEN PRODUCT PROCUREMENT

The EC is actively promoting the WEEE & RoHS Directives that define standards for recycling and reuse of Waste Electrical and Electronic Equipment and for the Restriction of the use of certain Hazardous Substances. From July 1, 2006, the RoHS Directive will prohibit any marketing of new products containing the restricted substances.

Increasing attention is given to issues related to the global environmental. Toshiba Corporation recognizes environmental protection as a key management tasks, and is doing its utmost to enhance and improve the quality and scope of its environmental activities. In line with this, Toshiba proactively promotes Green Procurement, and seeks to purchase and use products, parts and materials that have low environmental impacts.

Green procurement of parts is not only confined to manufacture. The same green parts used in manufacture must also be used as replacement parts.

LEAD-FREE SOLDER

This product is manufactured using lead-free solder as a part of a movement within the consumer products industry at large to be environmentally responsible. Lead-free solder must be used in the servicing and repair of this product.

**WARNING: This product is manufactured using lead free solder.
DO NOT USE LEAD BASED SOLDER TO REPAIR THIS PRODUCT!**

The melting temperature of lead-free solder is higher than that of leaded solder by 86°F to 104°F (30°C to 40°C). Use of a soldering iron designed for lead-based solders to repair product made with lead-free solder may result in damage to the component and or PCB being soldered. Great care should be made to ensure high-quality soldering when servicing this product especially when soldering large components, through-hole pins, and on PCBs as the level of heat required to melt lead-free solder is high.

SAFETY INSTRUCTION

WARNING: BEFORE SERVICING THIS CHASSIS, READ THE "SAFETY PRECAUTION" AND "PRODUCT SAFETY NOTICE" INSTRUCTIONS BELOW.

Safety Precaution

WARNING: SERVICING SHOULD NOT BE ATTEMPTED BY ANYONE UNFAMILIAR WITH THE NECESSARY PRECAUTIONS ON THIS RECEIVER. THE FOLLOWING ARE THE NECESSARY PRECAUTIONS TO BE OBSERVED BEFORE SERVICING THIS CHASSIS.

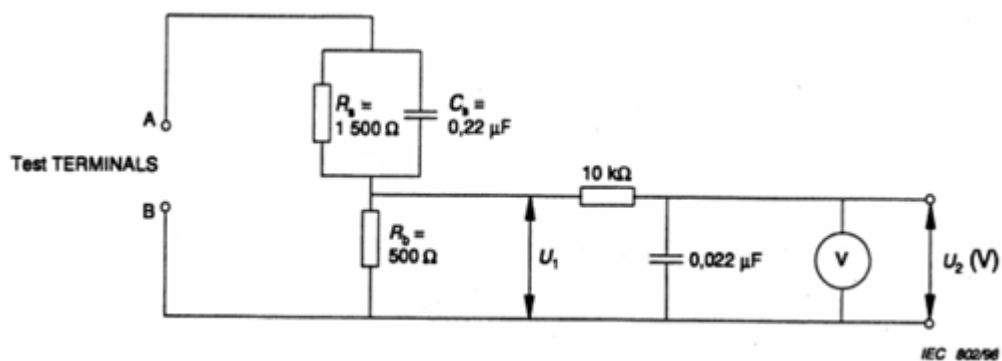
1. An isolation transformer should be connected in the power line between the receiver and the AC line before any service is performed on the receiver.
2. Always disconnect the power plug before any disassembling of the product. It may result in electrical shock.
3. When replacing a chassis in the cabinet, always be certain that all the protective devices are put back in place, such as nonmetallic control knobs, insulating covers, shields, isolation resistor-capacitor network, etc.
4. Always keep tools, components of the product, etc away from the children, These items may cause injury to children.
5. Depending on the model, use an isolation transformer or wear suitable gloves when servicing with the power on, and disconnect the power plug to avoid electrical shock when replacing parts. In some cases, alternating current is also impressed in the chassis, so electrical shock is possible if the chassis is contacted with the power on.
6. Always use the replacement parts specified for the particular model when making repairs. The parts used in products require special safety characteristics such as inflammability, voltage resistance, etc. therefore, use only replacement parts that have these same characteristics. Use only the specified parts when the ⚠ mark is indicated in the circuit diagram or parts list.
7. Parts mounting and routing dressing of wirings should be the same as that used originally. For safety purposes, insulating materials such as isolation tube or tape are sometimes used and printed circuit boards are sometimes mounted floating. Also make sure that wirings is routed and clamped to avoid parts that generate heat and which use high voltage. Always follow the manufactured wiring routes / dressings.
8. Always ensure that all internal wirings are in accordance before re-assembling the external casing after a repairing completed. Do not allow internal wiring to be pinched by cabinets,

panels, etc. Any error in reassembly or wiring can result in electrical leakage, flame, etc., and may be hazardous.

9. NEVER remodel the product in any way. Remodeling can result in improper operation, malfunction, or electrical leakage and flame, which may be hazardous.
10. Touch current check. (After completing the work, measure touch current to prevent an electric shock.)
 - Plug the AC cord directly into the AC outlet. Do NOT use an isolation transformer for this check.
 - Connect a measuring network for touch currents between each exposed metallic part on the set and a good earth ground such as a water pipe.

Annex D
(normative)

Measuring network for TOUCH CURRENTS



V: Voltmeter or oscilloscope
(r.m.s. or peak reading)

Input resistance : $\geq 1 \text{ M}\Omega$

Input capacitance : $\leq 200 \text{ pF}$

Frequency range : 15 Hz to 1 MHz and d.c. respectively

Note: Appropriate measures should be taken to obtain the correct value in case of non sinusoidal waveforms.

The measuring instrument is calibrated by comparing the frequency factor of U_2 with the solid line in figure F.2 of IEC 60990 at various frequencies. A calibration curve is constructed showing the deviation of U_2 from the ideal curve as a function of frequency.

TOUCH CURRENT = $U_2 / 500$ (peak value).

- The potential at any point (TOUCH CURRENT) expressed as voltage U_1 and U_2 does not exceed the following value:

The part or contact of a TERMINAL is not HAZARDOUS LIVE if:

- a) The open-circuit voltage should not exceed 35 V (peak) a.c. or 60 V d.c. or, if a) is not met.
- b) The measurement of the TOUCH CURRENT shall be carried out in accordance with IEC 60990, with the measuring network described in **Annex D** of this standard.

The TOUCH CURRENT expressed as voltages U_1 and U_2 , does not exceed the following values:

- for a.c. : $U_1 = 35$ V (peak) and $U_2 = 0.35$ V (peak);
- for d.c. : $U_1 = 1.0$ V

Note: The limit values of $U_2 = 0.35$ V (peak) for a.c. and $U_1 = 1.0$ V for d.c. correspond to the values 0.7 mA (peak) a.c. and 2.0 mA d.c.

SAFETY INSTRUCTION

Product Safety Notice

Many electrical and mechanical parts in this chassis have special safety-related characteristics. These characteristics are often passed unnoticed by a visual inspection and the protection afforded by them cannot necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this manual and its supplements; electrical components having such features are identified by the international hazard symbols on the schematic diagram and the parts list. Before replacing any of these components, read the parts list in this manual carefully. The use of substitute replacement parts which do not have the same safety characteristics as specified in the parts list may create electrical shock, fire, or other hazards.

SAFETY INSTRUCTION

Handling the LCD Module

Safety Precaution

In the event that the screen is damaged or the liquid crystal (fluid) leaks, do not breathe in or drink this fluid.

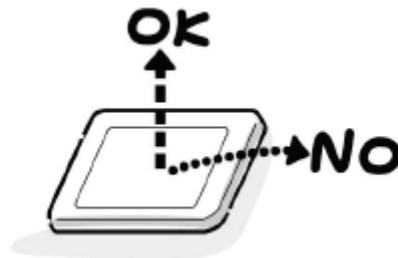
Also, never touch this fluid. Such actions could cause toxicity or skin irritation. If this fluid should enter the mouth, rinse the mouth thoroughly with water. If the fluid should contact the skin or clothing, wipe off with alcohol, etc., and rinse thoroughly with water. If the fluid should enter the eyes, immediately rinse the eyes thoroughly with running water.

Precautions for Handling the LCD Module

CAUTION: The metal edges of the LCD module are sharp, handle it with care.

The LCD module can easily be damaged during disassembly or reassembly; therefore, always observe the following precautions when handling the module.

1. When attaching the LCD module to the LCD cover, position it appropriately and fasten at the position where the display can be viewed most conveniently.



2. Carefully align the holes at all four corners of the LCD module with the corresponding holes in the LCD cover and fasten with screws. Do not strongly push on the module because any impact can adversely affect the performance. Also use caution when handling the polarized screen because it can easily be damaged.



3. If the panel surface becomes soiled, wipe with cotton or a soft cloth. If this does not remove the soiling, breathe on the surface and then wipe again.

the coming, breathe on the surface and then wipe again.

If the panel surface is extremely soiled, use a CRT cleaner as a cleaner. Wipe off the panel surface by drop the cleaner on the cloth. Do not drop the cleaner on the panel. Pay attention not to scratch the panel surface.



4. Leaving water or other fluids on the panel screen for an extended period of time can result in discoloration or stripes. Immediately remove any type of fluid from the screen.



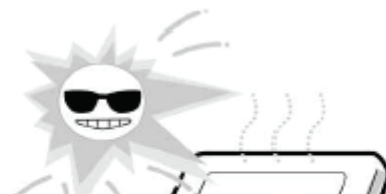
5. Glass is used in the panel, so do not drop or strike with hard objects. Such actions can damage the panel.



6. CMOS-LSI circuitry is used in the LCD module, so avoid damage due to static electricity. When handling the module, use a wrist ground or anchor ground.



7. Do not expose the LCD module to direct sunlight or strong ultraviolet rays for an extended period of time.





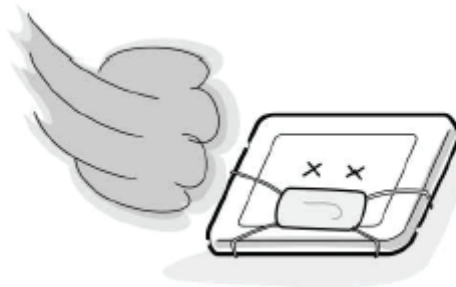
8. Do not store the LCD module below the temperature conditions described in the specifications. Failure to do so could result in freezing of the liquid crystal due to cold air or loss of resilience or other damage.



9. Do not disassemble the LCD module. Such actions could result in improper operation.



10. When transporting the LCD module, do not use packing containing epoxy resin (amine) or silicon resin (alcohol or oxim). The gas generated by these materials can cause loss of polarity.



PANEL (T-CON)

PANEL INVERTER

1	24V
2	24V
3	24V
4	24V
5	24V
6	GND
7	GND
8	GND
9	GND
10	GND
11	BRIGHT ADJ
12	INV ON OFF

1	12V
2	12V
3	12V
4	GND
5	GND
6	GND
7	5VSB
8	5VSB
9	5VSB
10	ACD
11	BD PS ON
12	BRIGHT ADJ
13	INV ON OFF
14	PS ON

PSU Unit

1	+12V NORMAL
2	+12V NORMAL
3	+12V NORMAL
4	GND
5	GND
6	GND
7	+5V Standby
8	+5V Standby
9	+5V Standby
10	ACDetect
11	GND
12	OCF OUTPUT PWM
13	INVERTER ON OFF
14	STANDBY

1	PANEL_VCC
2	PANEL_VCC
3	PANEL_VCC
4	PANEL_VCC
5	OD_OCP_SEL
6	PANEL_VCC
7	RXE4+
8	GND
9	RXE3+
10	RXE4-
11	RXEC+
12	RXE3-
13	GND
14	RXEC-
15	RXE2+
16	GND
17	RXE1+
18	REX2-
19	REX0+
20	REX1-
21	GND
22	REX0-
23	RXO4+
24	GND
25	RXO3+
26	RXO4-
27	RXOC+
28	RXO3-
29	GND
30	RXOC-
31	RXO2+
32	GND
33	RXO1+
34	RXO2-
35	RXO0+
36	RXO1-
37	GND
38	RXO0-
39	BRIGHT ADJ
40	OCF OUTPUT PWM

MAIN BOARD

1	+5V STBY
2	IRIN
3	GND
4	LED ON OFF
5	LED ON OFF
6	LED TIMER

IR_LED BORAD

1	GND
2	LED TIMER
3	LED ON OFF
4	LED ON OFF
5	IRIN
6	+5V Standby

1	SPK R-
2	SPK R+
3	SPK L-
4	SPK L+

Speaker

Speaker

TROUBLESHOOTING GUIDE

UNDER CONSTRUCTION

Note: Please check back in the future.

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FIRMWARE UPDATING PROCEDURE

Firmware Upgrade - USB

USB upgrade flow

1. Firmware upgrade.
Copy a Firmware BIN file to USB disk (root directory) with FAT 32.
For example the naming as below.
xx_xV_xL_DB_933x_022_REV00.bin, shall have difference version of firmware number show on red.
2. Plug USB disk into TV USB port.
3. IR key MENU → SETUP → Software Upgrade → USB Upgrade.
During F/W upgrade will display percent on the screen when is finished will shown a message on LCD screen then unplug USB disk. TV will auto reset and power on again.

Note:

Not allow copy more then 1 versions of firmware in USB disk.

MODEL ID and PANEL ID

Panel ID in Global Serial No.

Total digits	YWK	Model ID	SERIAL	Panel ID
Max 14	YWK	xxx	*****	**
	<u>3 digits</u>	<u>3 digits</u>	<u>6 digits</u>	<u>2digits</u>
			(A00001~Z99999)	

YWK

Y : Year	8	2008
	9	2009
	A	2010
	B	2011
	C	2012
	⋮	⋮
	⋮	⋮
WK : Week	01	WK01
	02	WK02
	03	WK03
	04	WK04
	⋮	⋮
	⋮	⋮
	53	WK53

Model/Panel Information

Model	Model ID	Panel ID	Panel
19EL933RB	K86	L1	LC185EXE-TEA1
19EL934RB	K87	L1	LC185EXE-TEA1
23EL933RK	L22	K1	LTM230HT10
23EL934RK	L23	K1	LTM230HT10

26EL933B	K90	L1	LC260EXN-SDA3
26EL933G	K91	L1	LC260EXN-SDA3
26EL933RB	K93	L1	LC260EXN-SDA3
26EL934G	K94	L1	LC260EXN-SDA3
32EL933B	L27	L1	LC320EXN-SEA1
32EL933G	K96	L1	LC320EXN-SEA1
32EL933N	K98	L1	LC320EXN-SEA1
32EL933RB	K99	L1	LC320EXN-SEA1
32EL934G	L01	L1	LC320EXN-SEA1
32EL934RB	L02	L1	LC320EXN-SEA1
32HL933B	L17	K1	LTA320HN03
32HL933G	L16	K1	LTA320HN03
32HL933N	L30	K1	LTA320HN03
32HL933RK	L18	K1	LTA320HN03
40HL933B	L20	K1	LTA400HM22
40HL933G	L19	K1	LTA400HM22
40HL933N	L31	K1	LTA400HM22
40HL933RK	L21	K1	LTA400HM22

Model	Model ID	Panel ID	Panel
32AV933G	L03	L1	LC320WXN-SCC1
		K1	LTA320AP05-D
32AV933N	L28	L1	LC320WXN-SCC1
		K1	LTA320AP05-D
32AV933RB	L05	L1	LC320WXN-SCC1
		K1	LTA320AP05-D
32AV934G	L06	L1	LC320WXN-SCC1
		K1	LTA320AP05-D
32AV934RB	L07	L1	LC320WXN-SCC1
		K1	LTA320AP05-D
32LV933G	L08	A1	T315HW04 V4(REV.6)
32LV933N	L10	A1	T315HW04 V4(REV.6)
32LV933RB	L11	A1	T315HW04 V4(REV.6)
40LV933G	L12	K1	LTA400HM01-R

40LV933N	L29	C1	V400HJ2-L01
		K1	LTA400HM01-R
		C1	V400HJ2-L01
40LV933RB	L14	K1	LTA400HM01-R
		C1	V400HJ2-L01

Panel vendor Information (Panel ID)

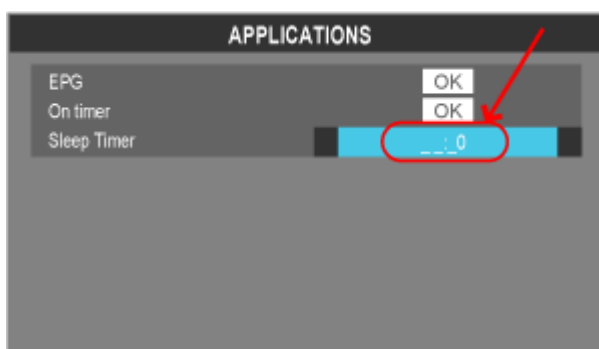
Marking	Panel Vendor	Marking	Panel Vendor	Marking	Panel Vendor
A	AUO	J		S	SHARP
B		K	SAMSUNG	T	
C	CMO	L	LPL/LGD	U	
D		M		V	
E		N		W	
F		P	CPT	X	
G		Q		Y	
H	IPS	R		Z	

When the panel version is updated within the same panel vender, the last digit will be incremented by 1.

DESTINATION SETTING CHANGE

Whenever replacing the Main PCB with new one, perform this procedure.

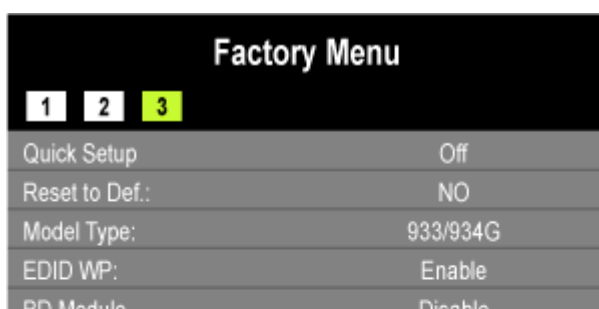
1. IR Key MENU → APPLICATIONS → Sleep Timer → OK.
2. When display __ : __ 0 input 4 numbers 2766.



The Factory menu will display.



3. Move to Tag "3" by Right/Left Arrow key on the Remote.
4. Select "Model Type" cell.



BD Module	Disable
USB Port	USB 1
CEC Test	Disable
Dolby Test	Disable
EQ Settings	OK
Burnin Mode	Off
Update Mode	Normal

5. Select the appropriate model type by Right/Left Arrow key on the Remote. Model type is written on the rating label.



6. Select "Reset to Def".
7. Select "Yes" and press "OK" button on the Remote.

Factory Menu		
1	2	3
Quick Setup	Off	
Reset to Def.:	◀	YES ▶
Model Type:	933/934G	
EDID WP:	Enable	
BD Module	Enable	
USB Port	USB 1	
CEC Test	Disable	
Dolby Test	Disable	
EQ Settings	OK	
Burnin Mode	Off	
Update Mode	Normal	

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PARTS LIST

Precaution

WARNING: BEFORE SERVICING THIS CHASSIS, READ THE "**SAFETY PRECAUTION**" AND "**PRODUCT SAFETY NOTICE**".

CAUTION: The international hazard symbols "" in the schematic diagram and the parts list designate components which have special characteristics important for safety and should be replaced only with types identical to those in the original circuit or specified in the parts list.

The mounting position of replacements is to be identical with originals.
Before replacing any of these components, read carefully the "**SAFETY PRECAUTION**" AND "**PRODUCT SAFETY NOTICE**".

Do not degrade the safety of the receiver through improper servicing.

Note:

- The part number must be used when ordering parts, in order to assist in processing, be sure to include the Model number and Description.
- The PC board assembly with * mark is no longer available after the end of the production.

Abbreviations

Capacitors CD : Ceramic Disk

Resistors CF : Carbon film
OMF : Oxide Metal Film
PF : Plastic Film
CC : Carbon Composition
VR : Variable Resistor
EL : Electrolytic
MF : Metal Film
FR : Fusible Resistor

All CD and PF capacitors are $\pm 5\%$, 50 V and all resistor, $\pm 5\%$, 1/6 W unless otherwise noted.

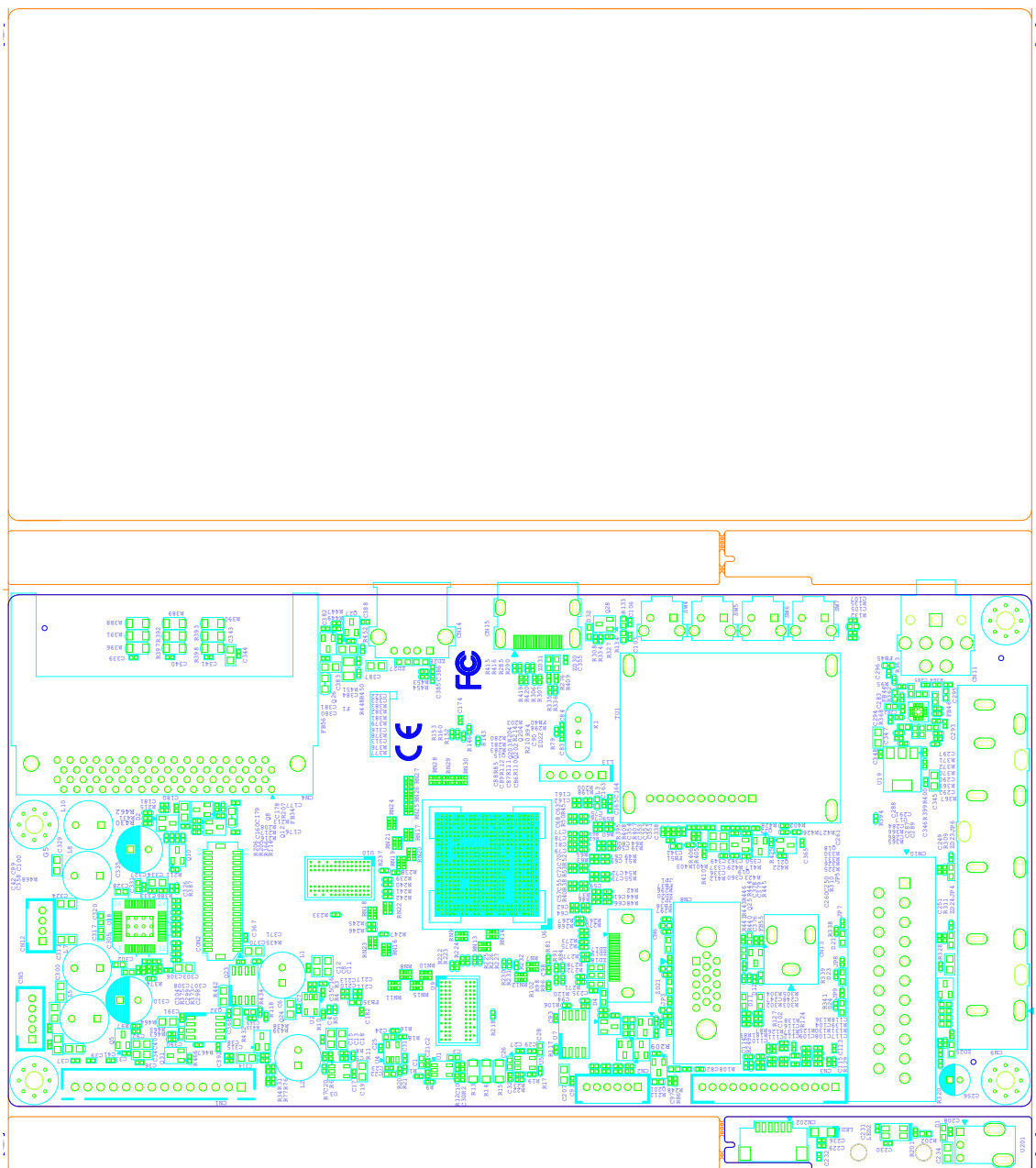
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REVISION HISTORY

Date	Author	Ver	Comments
2011/09/07	CM/Jason	1.00	For SR stage.

Unihan

Title : Contents & History

Engineer:

MAIN BOARD

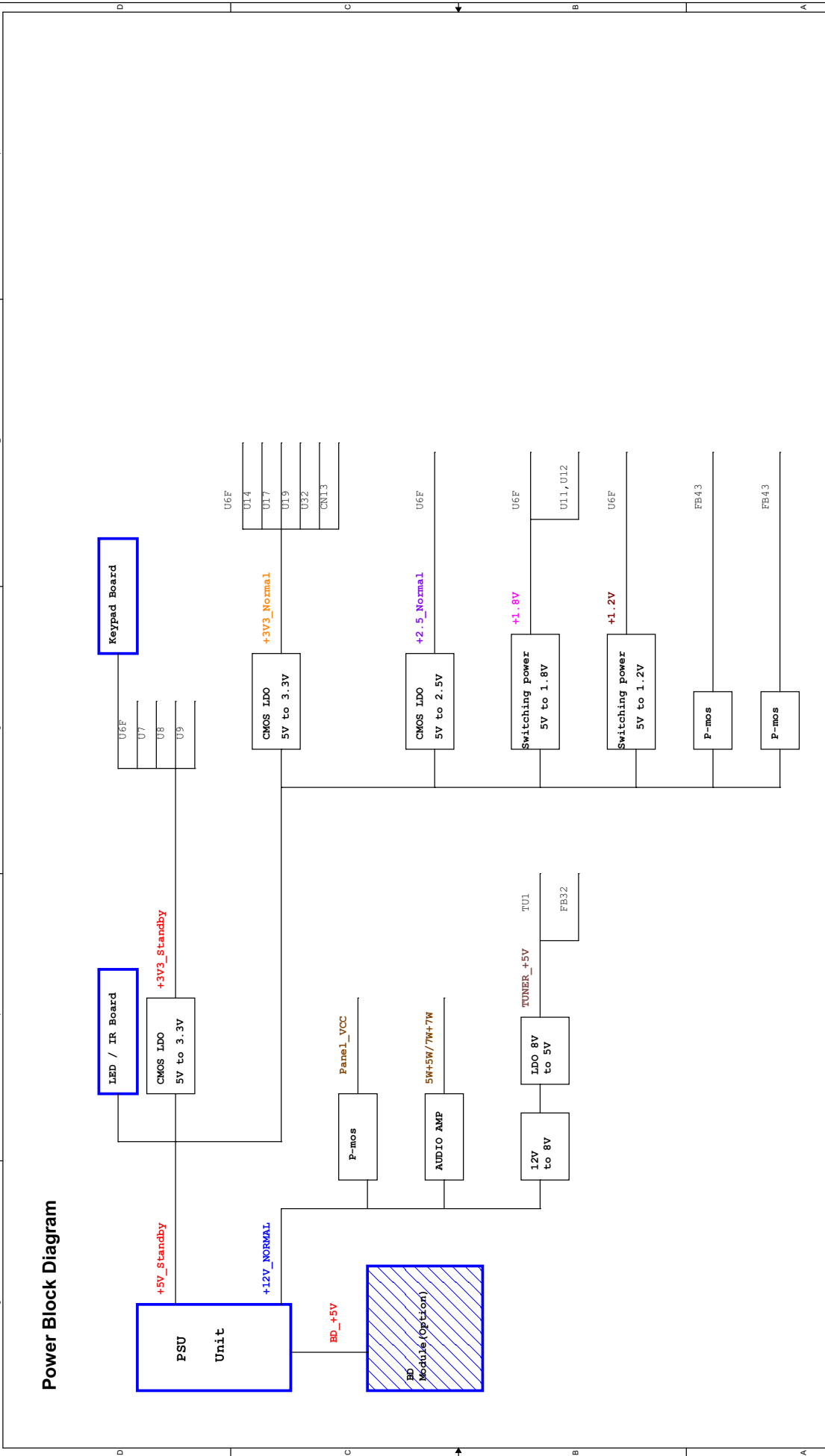
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Project Name: xxxA(L)V933/xxB(H)V933

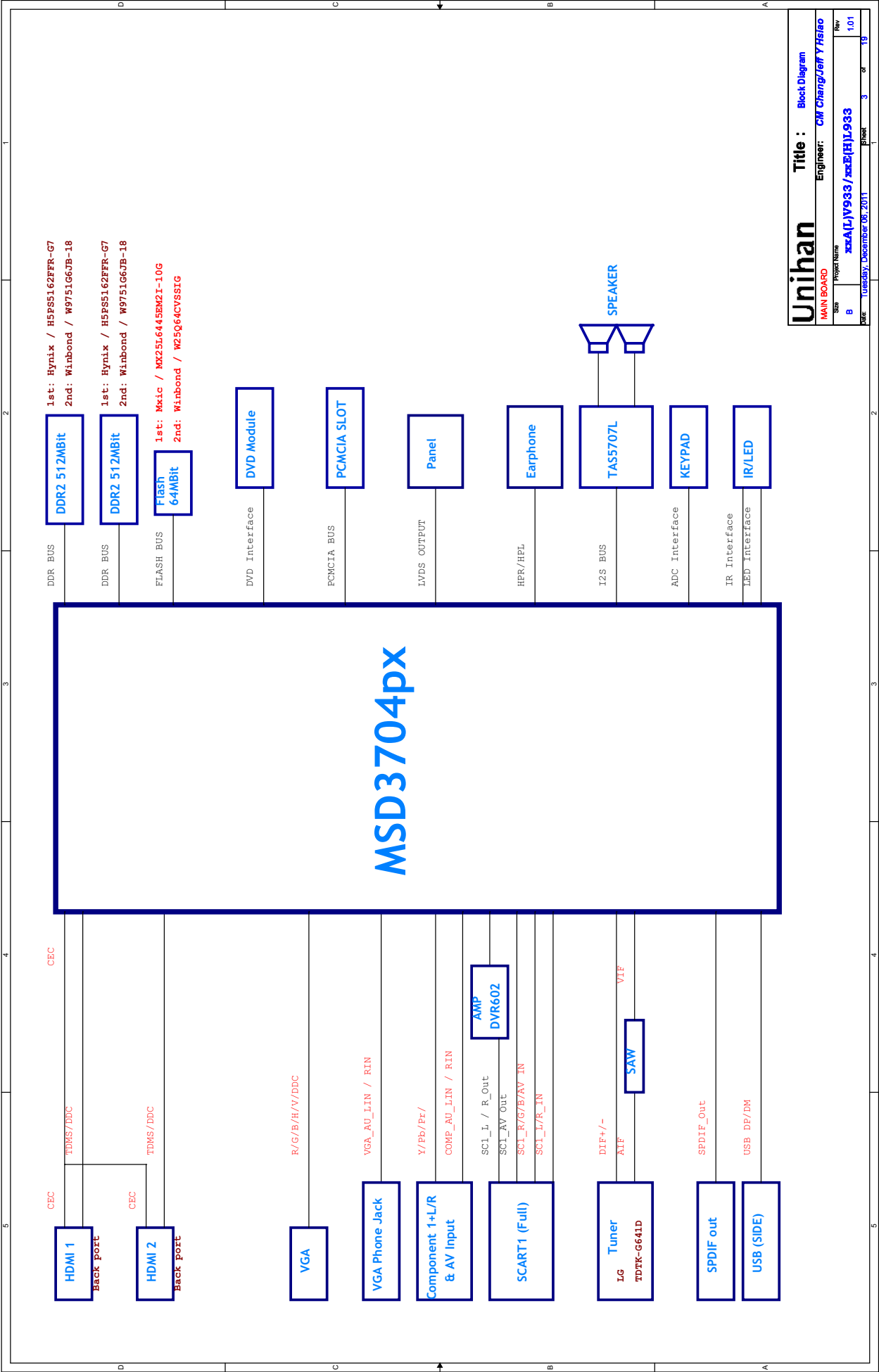
Rev: 1.01

Date: Tuesday, December 06, 2011

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Unihan		Title : Power Budget	
MAIN BOARD		Engineer: CW Chang/Jeff Y Hsiao	
Size	Project Name		Rev
B	xxA(L)V933 / xxE(H)V933		1.01
Date: Tuesday, December 06, 2011	Sheet	2	of 19



Uniha

Title : Block Diagram

Engineer: CM Chang/Jeff Y Hsiao

MAN BOARD

Size Project Name

B xxx4(L)V933/xxx4(H)L933

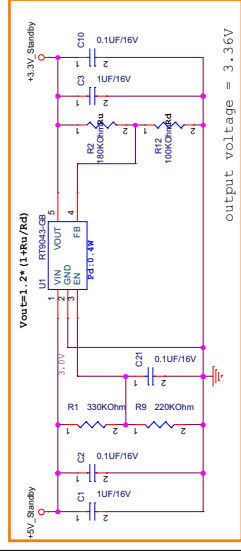
Rev

1.01

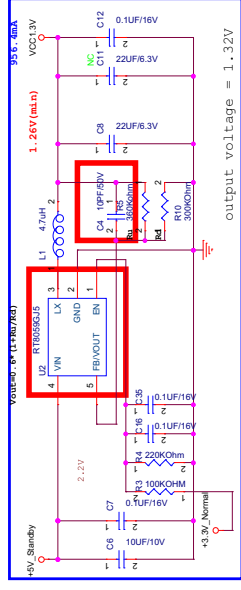
Date Tuesday, December 06, 2011

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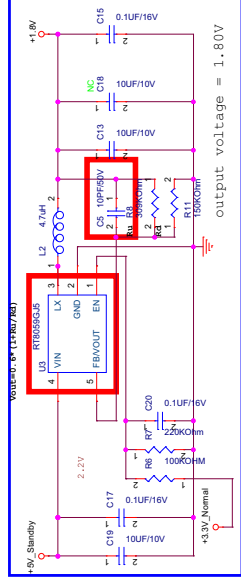
3.3V Standby Power



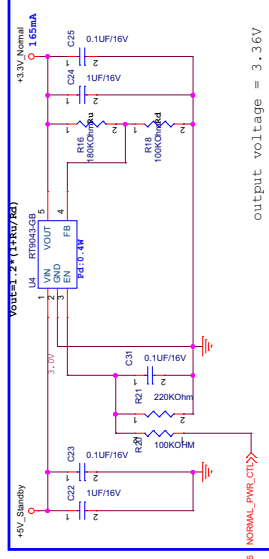
1.3V Normal Power



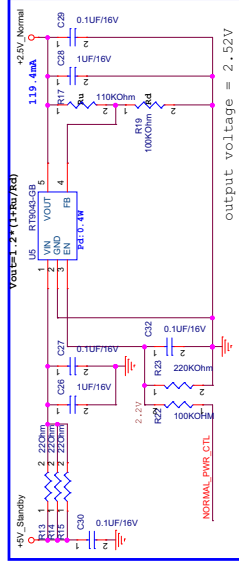
1.8V Normal Power



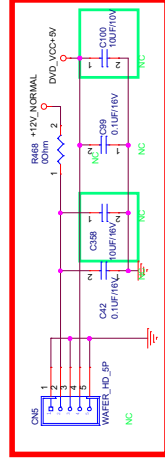
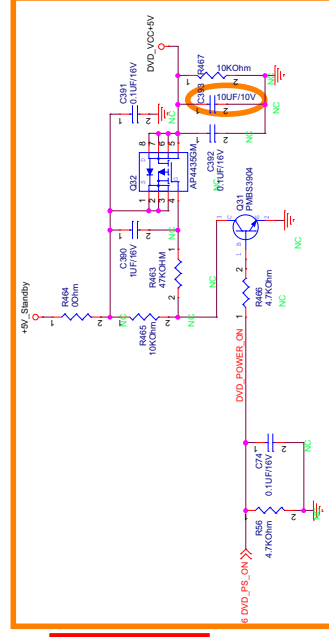
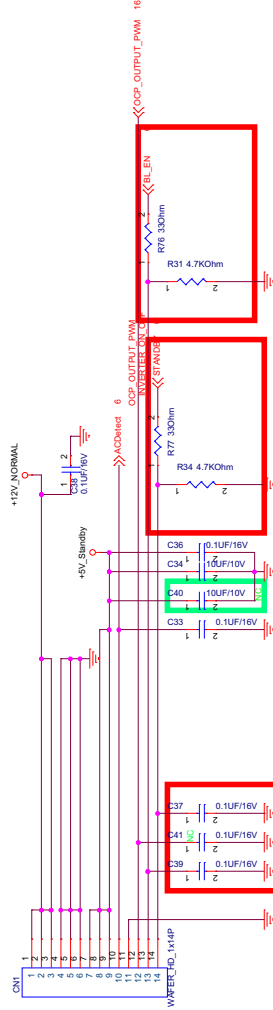
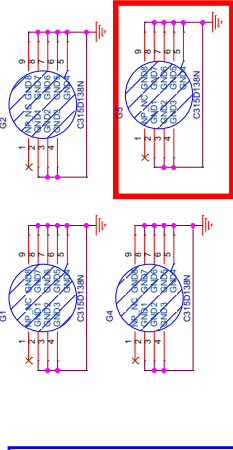
3.3V Normal Power

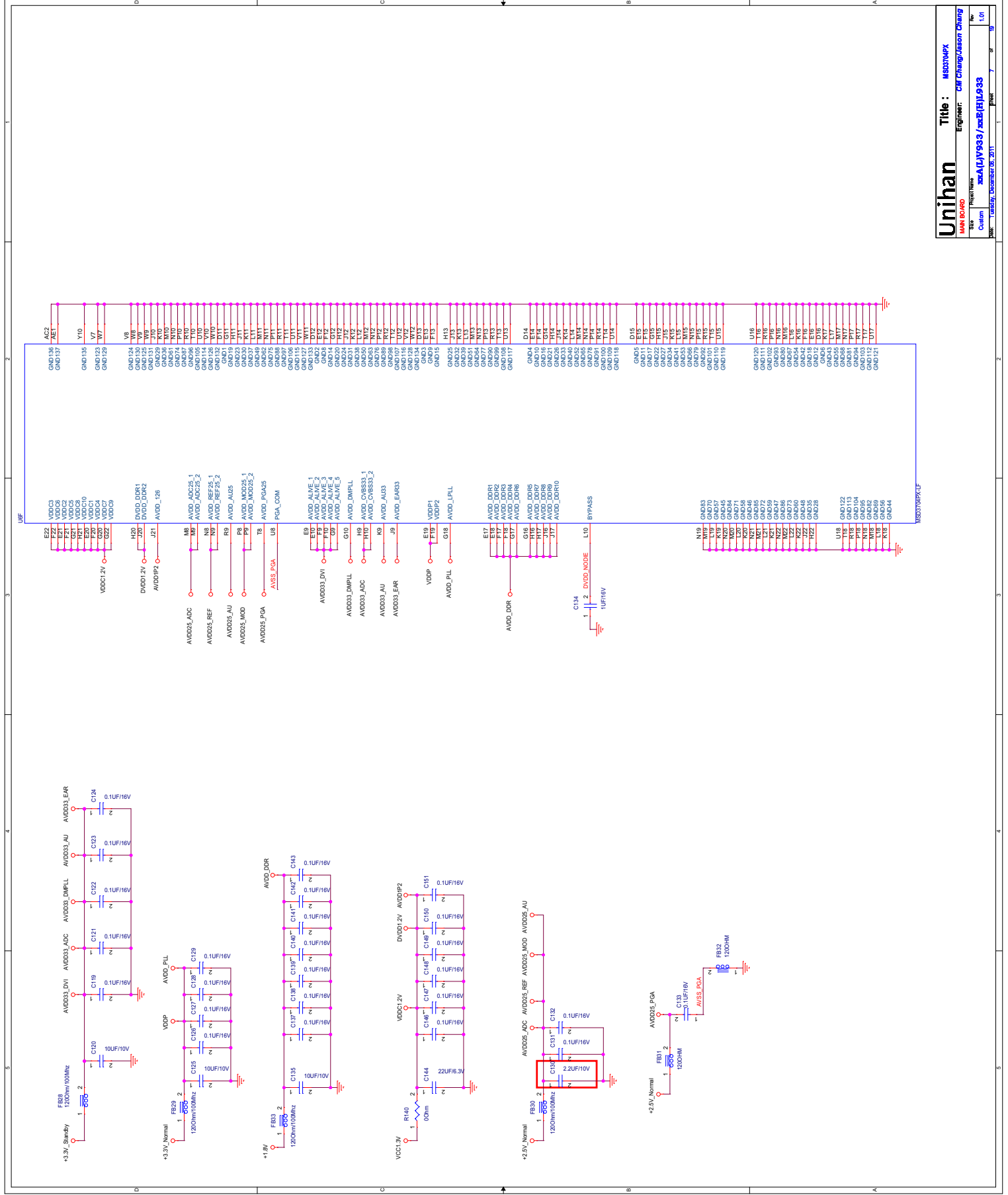


2.5V Normal Power

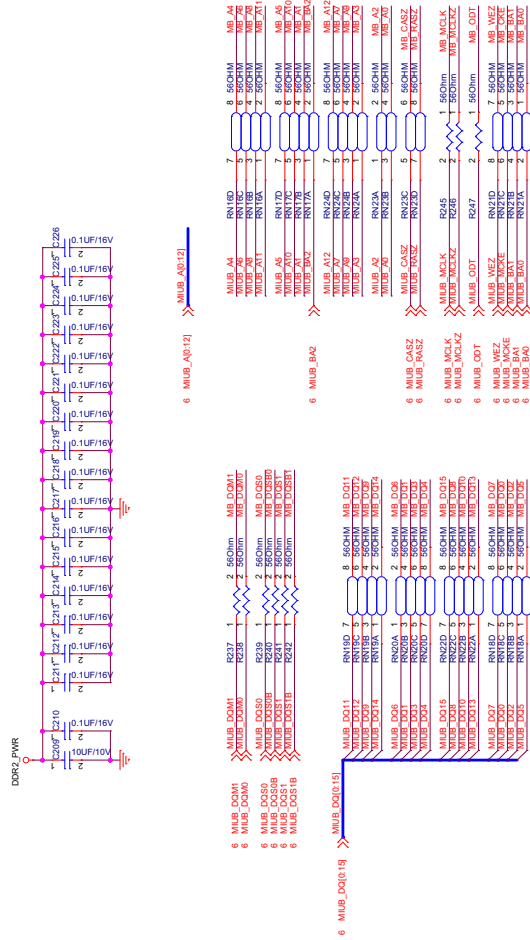
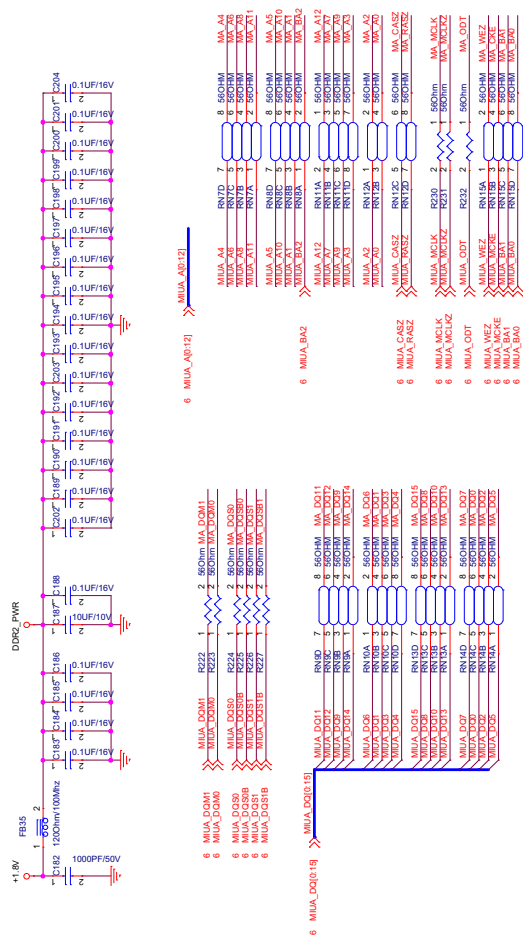
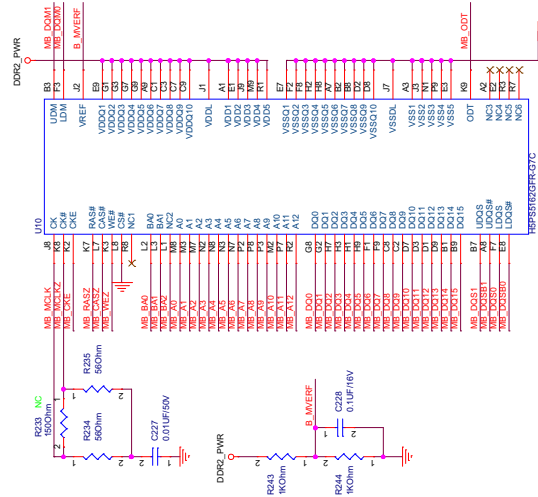
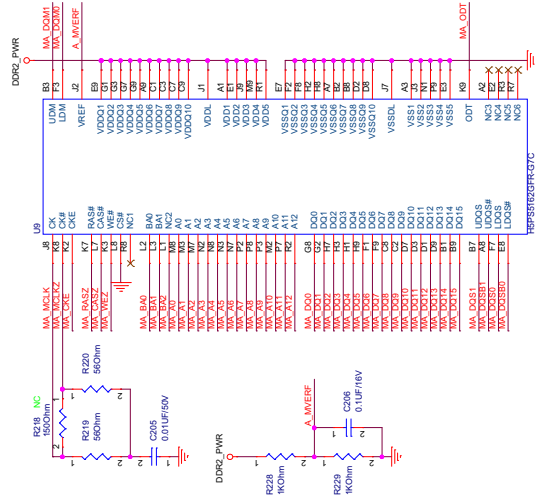


2.5V Normal Power

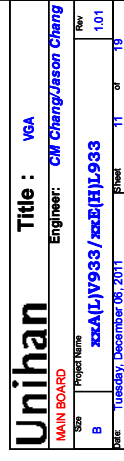




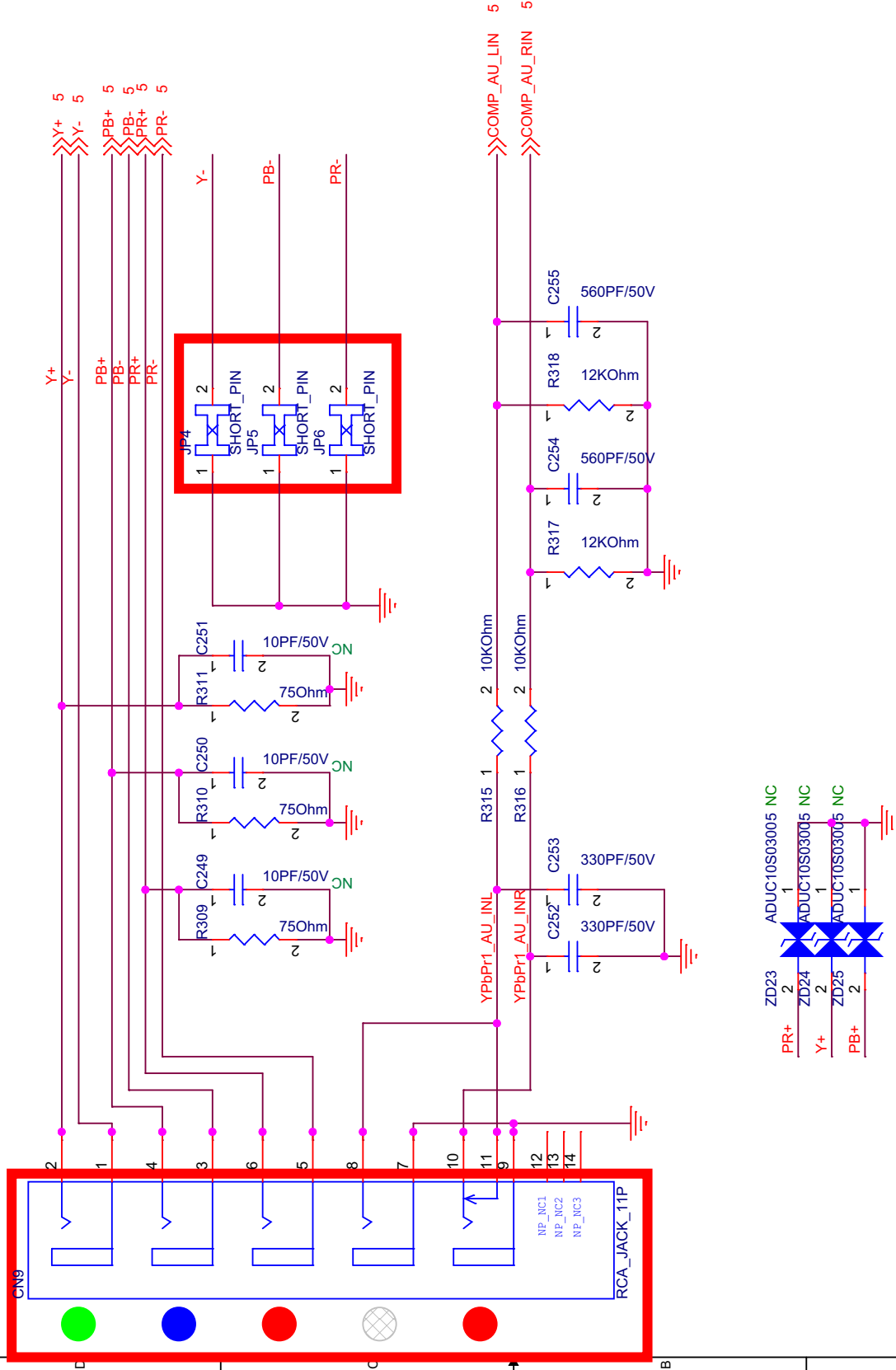








COMPONENT (Y Mix CVBS Input)



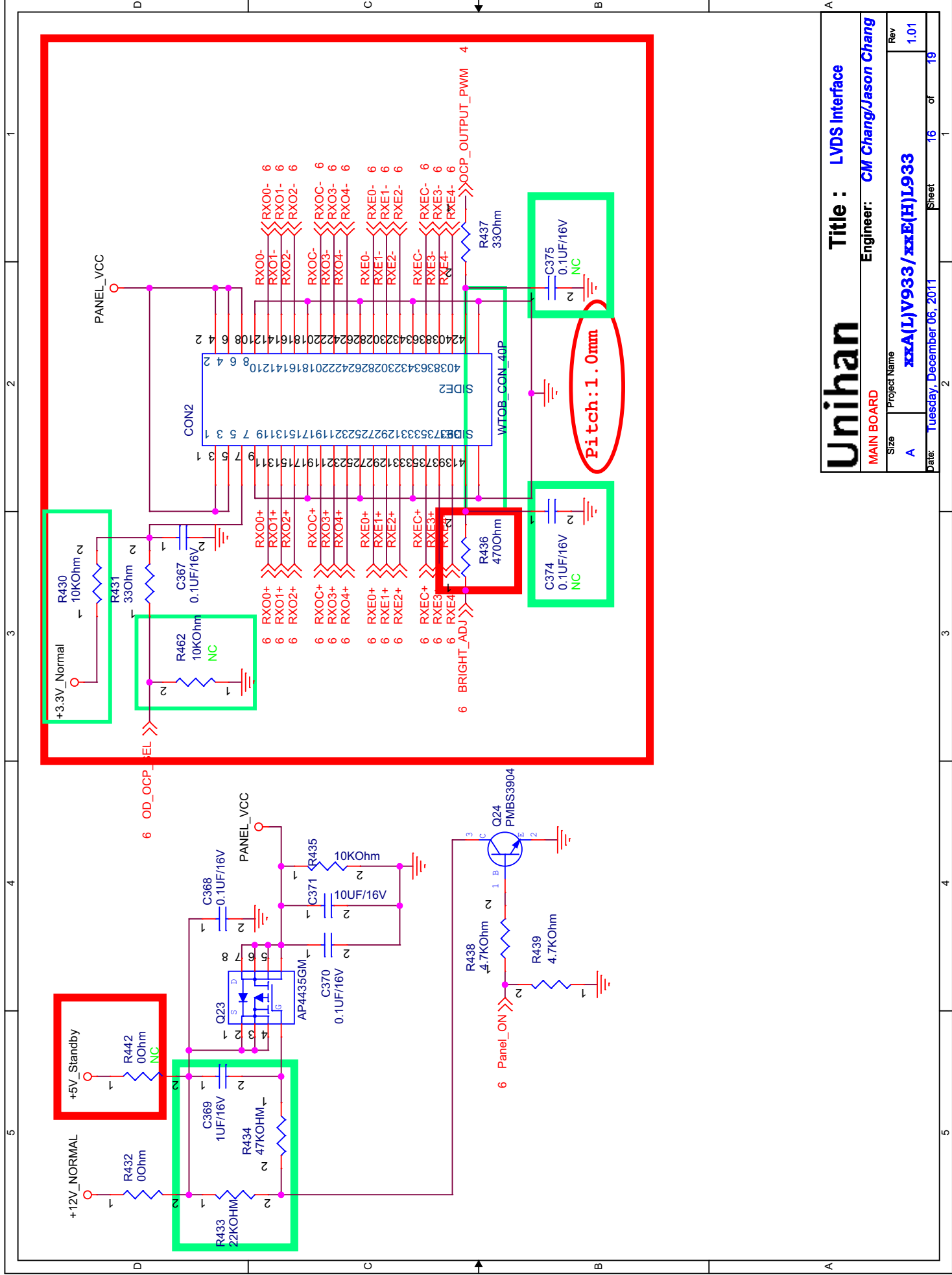
Unihan

Title : COMPONENT& CVBS

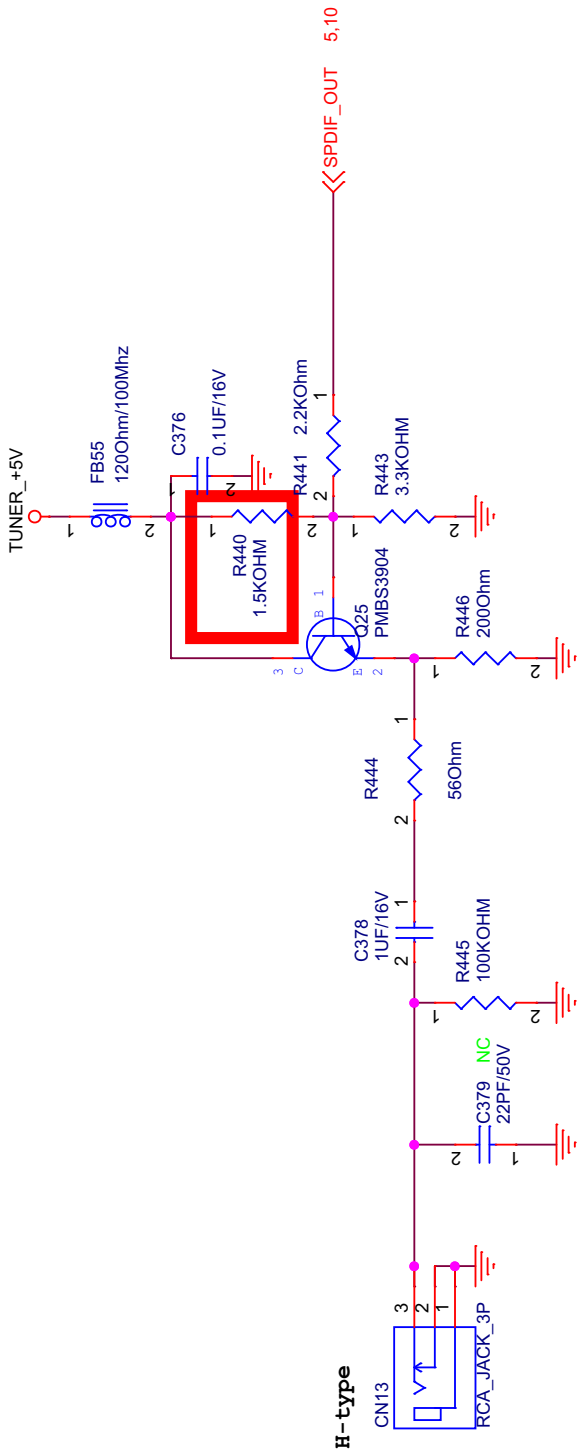
MAIN BOARD Engineer: CM Chang/Jason Chang

Size	Project Name	Rev
A	xxA(L)V933/xxE(H)L933	1.01
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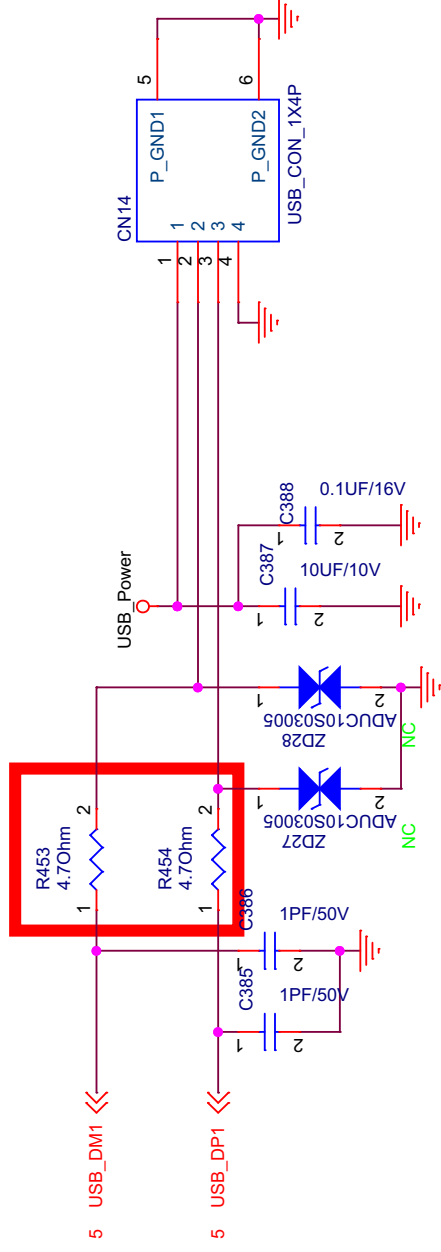
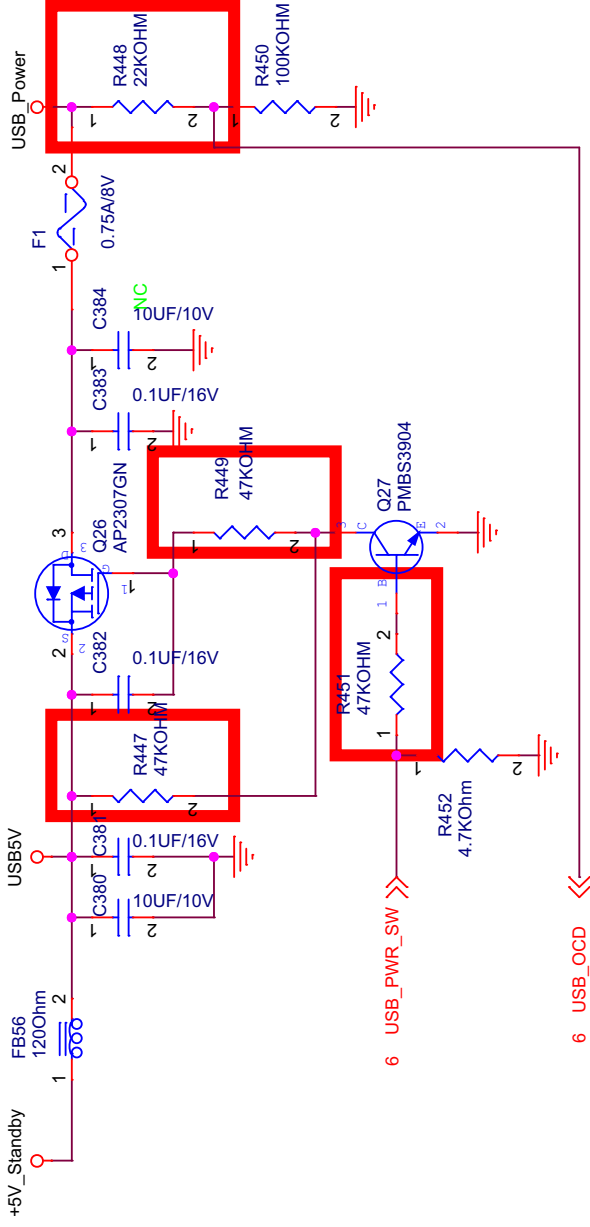




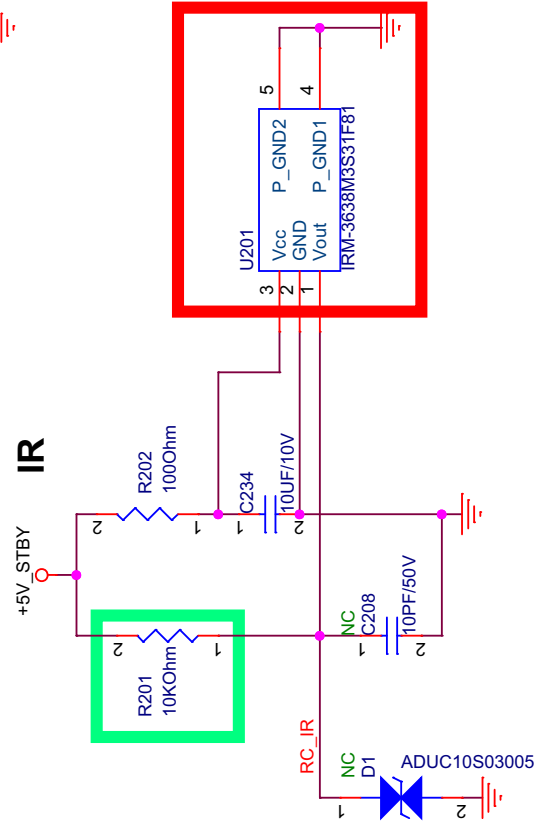
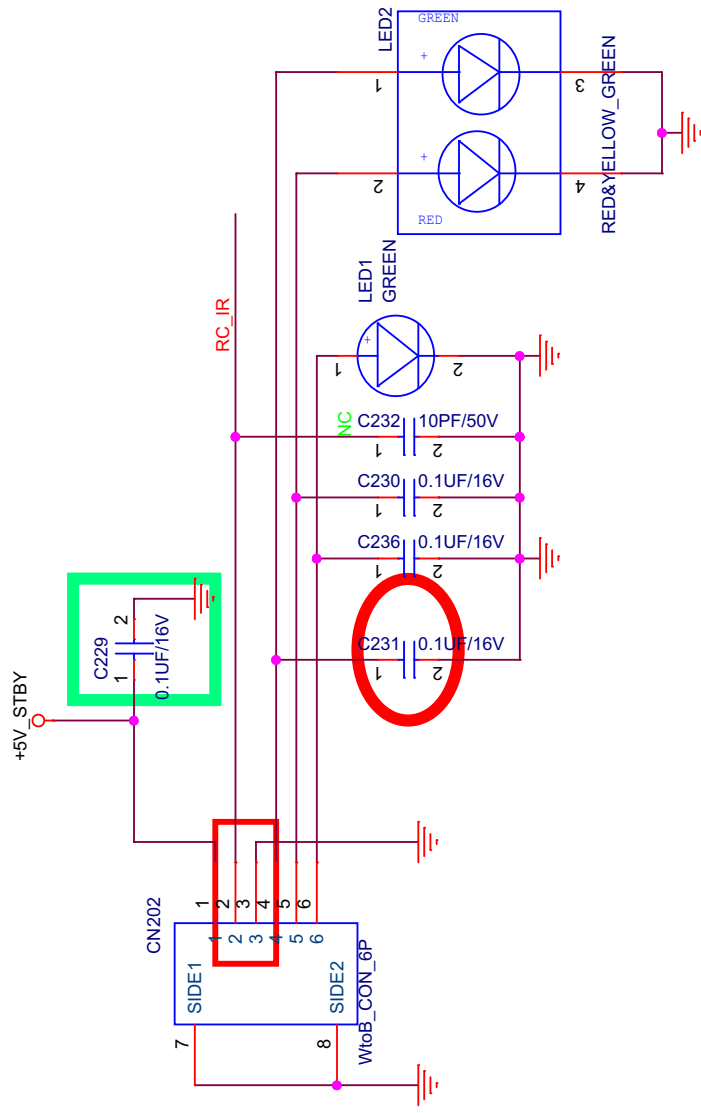
Unihan		Title : LVDS Interface	
MAIN BOARD		Engineer: CM Chang/Jason Chang	
Size	Project Name	Rev	
A	xxA(L)V933/xxE(H)L933	1.01	
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Unihan		Title : SPDIF OUT	
MAIN BOARD		Engineer: CM Chang/Jason Chang	
Size	Project Name	Rev	
A	xxA(L)V933/xxE(H)L933	1.01	
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Unihan		Title : USB	
MAIN BOARD		Engineer: CM Chang/Jason Chang	
Size	Project Name	Rev	
A	xxA(L)V933/xxE(H)L933	1.01	
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Unihan

Title: IR

MAIN BOARD **Engineer:** **CM Chang/Jason Chang**

Size	Project Name	Rev
A	xxA(L)V933/xxE(H)L933	1.01

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