

SERVICE MANUAL

LCD Color Television ***50L2353D(N)***

REVISION HISTORY

REV	Date	Reason for Change
1	Dec/19/2014	Addition of "AFTER MAIN PCB REPLACEMENT".

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12. DESTINATION SETTING CHANGE

IMPORTANT NOTICE

WARNING:

You are requested that you shall not modify or alter the information or data provided herein without prior written consent by Toshiba. Toshiba shall not be liable to anybody for any damages, losses, expenses or costs, if any, incurred in connection with or as a result of such modification or alteration.

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Toshiba shall not be liable for any damages, losses, expenses or costs, if any, incurred in connection with or as a result of use of any information or data provided herein.

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 30°C to 40°C (54°F to 72°F). 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

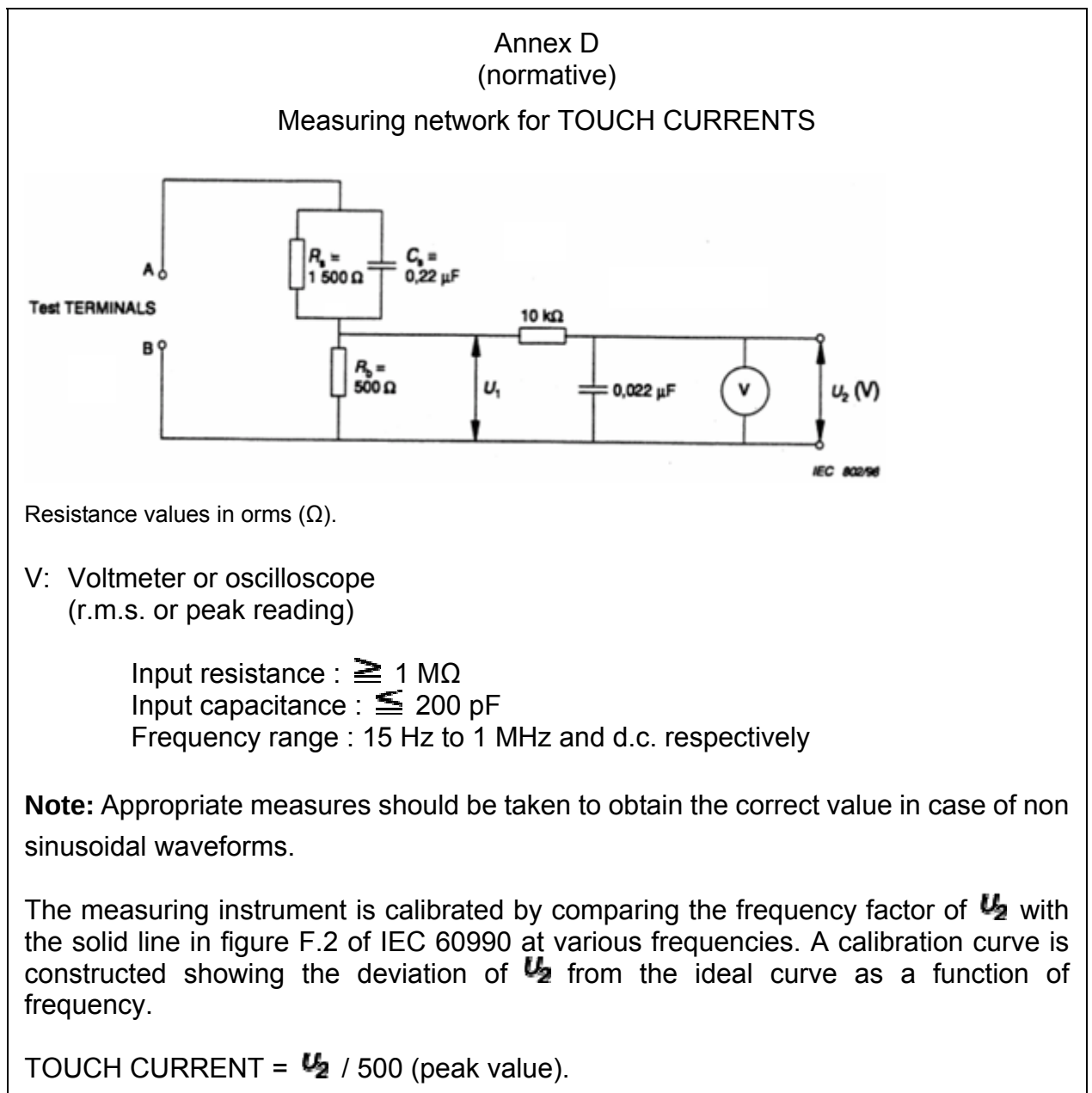
WARNING: BEFORE SERVICING THIS CHASSIS, READ THE "SAFETY PRECAUTION" AND "PRODUCT SAFETY NOTICE" INSTRUCTIONS BELOW.

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.



- 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.

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.

HOTEL MODE

(1/5)

		Function	Setting *off(normal set)		Information
1	1	Hotel Mode On/Off	Off/On	Off	Hotel mode enable *On: hotel mode on
	2	Panel Lock	Off/On	Off	Inhibit all buttons which are on TV body *On: not available Side key
	3	Panel Lock W/O Input Selector Keys.	Off/On	Off	Inhibit all buttons which are on TV body only disable input key *On: not available Side key only disable input key
	4	Disable Remote Control	Off/On	Off	Inhibit the remote control. *Setting is enable at the Service mode. *On: not available remote control
	5	Disable All Menu	Off/On	Off	*On: All of user menu will be disabled. *Off: All of user menu will work normally.
	6	Disable Setup Menu	Off/On	Off	Inhibit set up menu *On: set up menu Inhibit
	7	Setup Menu W/O Lang.	Off/On	Off	Inhibit display set up menu except for language setting. *There is only language setting at the Setup menu. *On: only lang. display at setup menu.

	8	Max Volume Setting	0~100[dec]	100	Max volume control Max vol setting Method: Setting 100 volume, and turning and choice this value.
	9	Digital Tuner	Off/On	On	DTV source selection depends on Digital Tuner setting. *On: enable DTV *Off: hide DTV
	10	USB Port	Off/On	On	MEDIA source selection depends on USB port setting. *On: enable MEDIA in inputs menu *Off: hide MEDIA in inputs menu *Off (Enable 5V): Disable USB, but enable the 5V power.
	11	TV to USB	NO/YES	NO	It will clone the data of TV to USB disk. The data includes user setting, the setting of hotel mode and channel table.
	12	USB to TV	NO/YES	NO	It will clone the data of USB disk to TV. The data includes user setting, the setting of hotel mode and channel table.
	13	Disable NIT Update	Off/On	Off	*On: enable NIT update *Off: disable NIT update
	14	Detect SCART	On / Off	On	ON: Pin8 will go on normal operation and it is going to switch between sources automatically. Off: Pin8 is ignored and the automatic source switching would be enabled.

2	1	Fixed Pos/Video	Off/ On(AC)/ On	Off	Remote control power button on or TV power switch (on side body) on, then display goes to fixed POS/Video (= nearly equal #9) *On: fixed pos/video set *On (AC): TV tunes to preset "Pos/Video" (channel or input) only when AC power is applied. When TV is powered on by power button, tune to the last channel or input.
			ATV(0~99)/SCART/AV/ YPBPR/HDMI1/HDMI2/ PC/DTV		*TV, Component, AV,..., PC,HDMI,...Off TV:1~255[dec] (normal:0) DTV: depends on channel auto tuning
	2	Fixed Volume	Off/On	Off	Remote control power button on or TV power switch(on side body) on , then forced volume setting
			0~100[dec] (normal:50)		*101~ : not available
	3	Fixed Picture Mode	Off/On	Off	Remote control power button on or TV power switch(on side body) on, then picture mode is selected
			0:Dynamic(Default) 1:Standard 2:Mild 3:Movie 4:Memory		*On: Fixed selectable Pic.
	4	Welcome Message	Off/On	Off	Remote control power button on or TV power

			1:Default 2:8 Sec. 3:15 Sec.		switch(on side body) on, then fixed "Welcome to our hotel" Message is displayed. 'Until first operation' means that first event for TV occur (ex. Ch up).
	5	Update Welcome Message	YES/NO	NO	It will update the logo, when TV on the new logo show. *Using USB, user replaces the user original message with the default welcome message. As below is message, the file limitation items: 1. File format should be JPG file. 2. JPG Resolution <= 1360 x 768. 3. JPG file size < 64KB. 4. JPG file name is "Hotel_Logo.jpg".
	6	Teletext	Off/On	On	Teletext functions are depend on Teletext setting *On: enable Teletext functions and operation *Off: disable Teletext functions and operation
	7	ATV/DTV P+/P-	Off/On	Off	*On: enable ATV/DTV P+/P- *Off: disable ATV/DTV P+/P
	8	TV Power	Disabled/ On/ Standby	Disabled	*Disabled: TV returns to previous Standby/On state when AC power is applied. *On: Power TV on when AC power is applied. *Standby: Put TV in Standby when AC power is applied.
	9	Reset Menu	YES/NO	NO	Set to default all setting in Hotel mode menu

How to enter Hotel Mode.

- 1) Press "MUTE" button on the remote, and display [mute].
- 2) Within 2 sec, press "MUTE" button on the remote again, and hold the button down for 3 sec.
- 3) Then, press "INPUT" button on the TV side. Then hotel mode menu will appear.

How to exit Hotel mode.

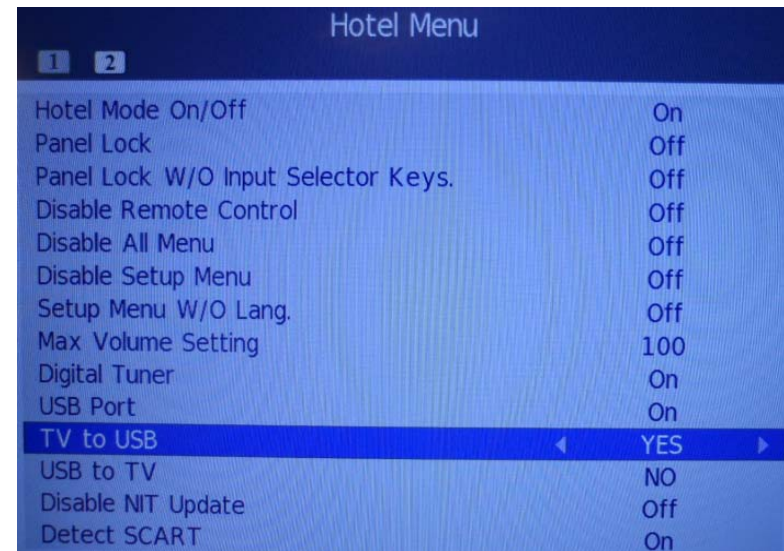
Turn the TV power off

Copying Hotel Mode Setting

(1/4)

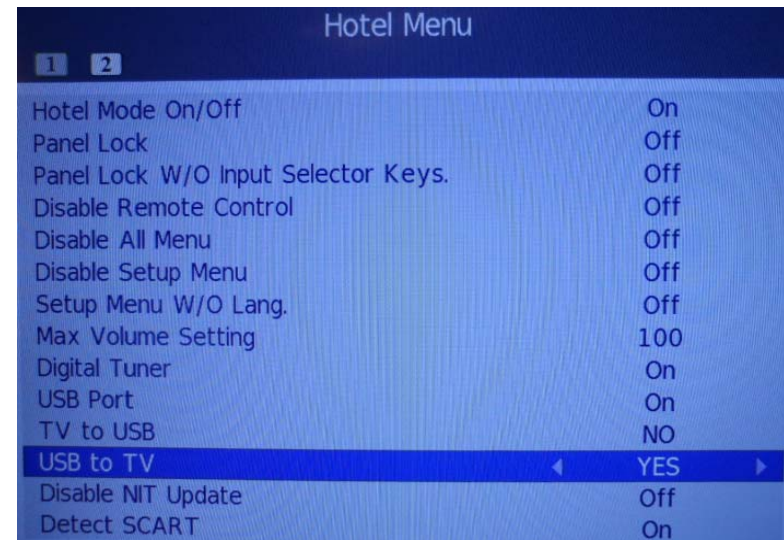
TV to USB:

Copying a BIN file into USB flash.



USB to TV:

Copying a BIN file into TV.



TV to USB Step :

1. Insert USB flash disk into TV USB port.
2. Please press “MUTE” key twice (MUTE icon disappear) , at the same time, press “SOURCE” by keypad for a while.
->“Hotel Menu” will come out.
3. Select the item “TV to USB” and press Left or Right button to choose “YES”. Then press “OK” button.
->The hotel settings will copy into USB disk with file name **HOTEL_xxx23xxx.BIN**
4. Once copy is finished. The OSD message “**Please wait...**” will disappear then shown "**OK!** " message.

Copying Hotel Mode Setting

(3/4)

USB to TV Step (method 1) :

1. Insert USB disk with available file into TV USB port.
2. Please press “MUTE” key twice (MUTE icon disappear) , at the same time, press “SOURCE” by keypad for a while.
->“Hotel Menu” will come out.
3. Selecting the item “USB to TV ” and press Left or Right button to choose “YES”. Then press “OK” button.
->The hotel settings will copy from USB to TV with file name **HOTEL_xxx23xxx.BIN**.
4. Once copy is finished. The OSD message “**Please wait...**” will disappear then shown "**Please remove USB memory, then TV will be reset automatically**" message.

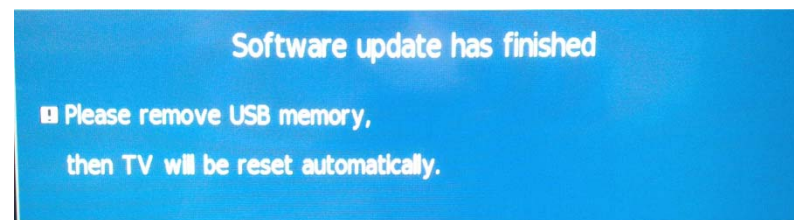
USB to TV Step (method 2) :

1. Insert USB disk with available file into TV USB port.
2. Please reboot (AC Off/On) TV to update hotel settings automatically.
→the set will shown “Hotel Mode Settings Update Please Wait”.
3. The OSD message “Please wait...” will disappear then shown “Update is finished .Please remove USB memory, then TV will be reset automatically.”
4. Please remove USB disk then turn AC Off/On to reboot TV.
The new settings will be active.

Firmware Upgrade – USB

(1/2)

1. Copying a firmware BIN file to USB disk. (root directory)
2. Plug in USB disk to TV USB port.
3. Reboot (AC Off/On) TV to update F/W automatically.
4. During firmware upgrade will have display a OSD on LCD screen and power status LED will be blinking.
5. When F/W upgrade is finished, a message on screen will be shown then unplug USB disk.
6. TV will be reset automatically.



Definition of Firmware file name

(2/2)

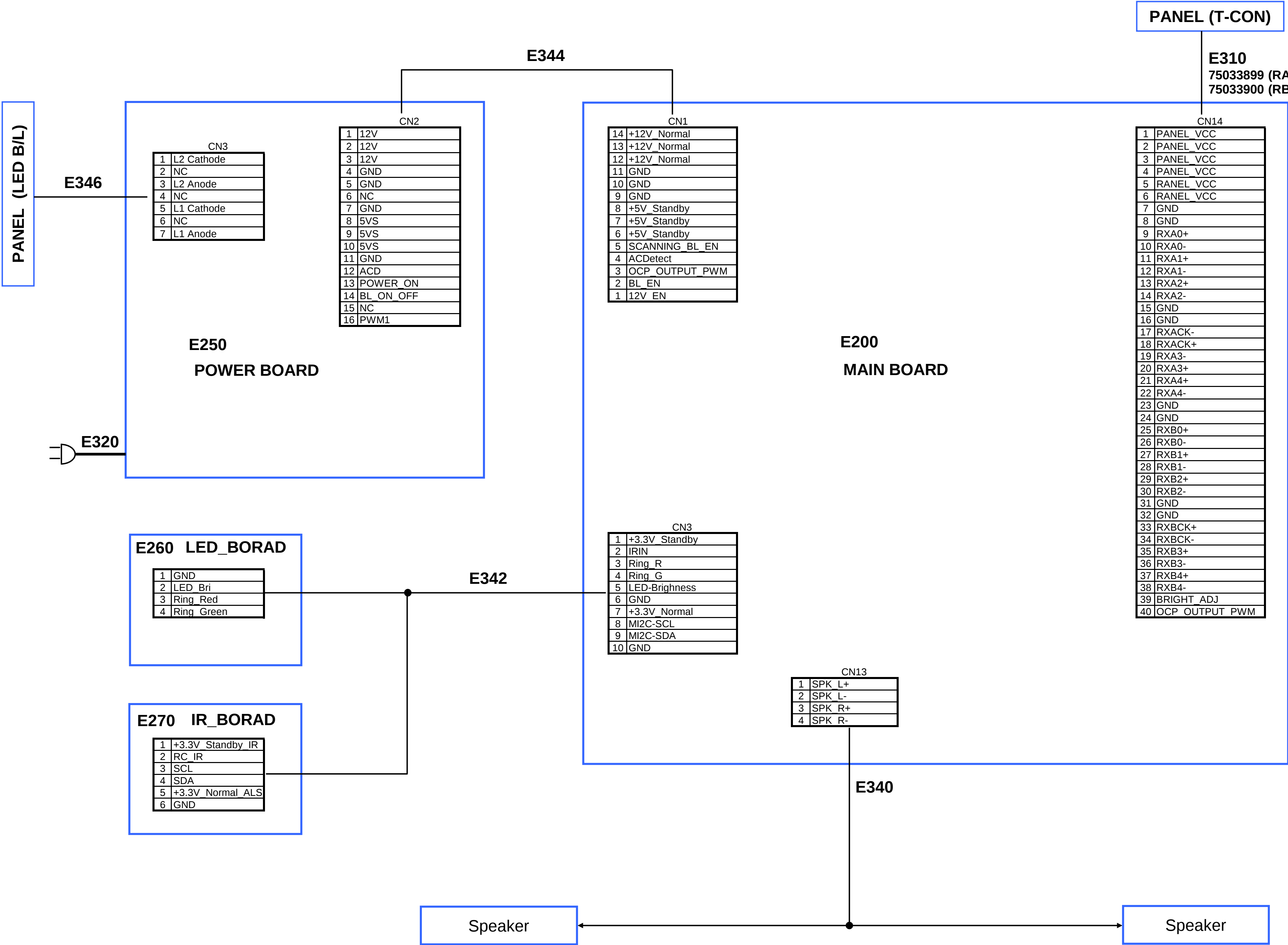
File name: xxx23xxx_001_REV00.bin.

xx: for all TV size.

x23xxx: model series.

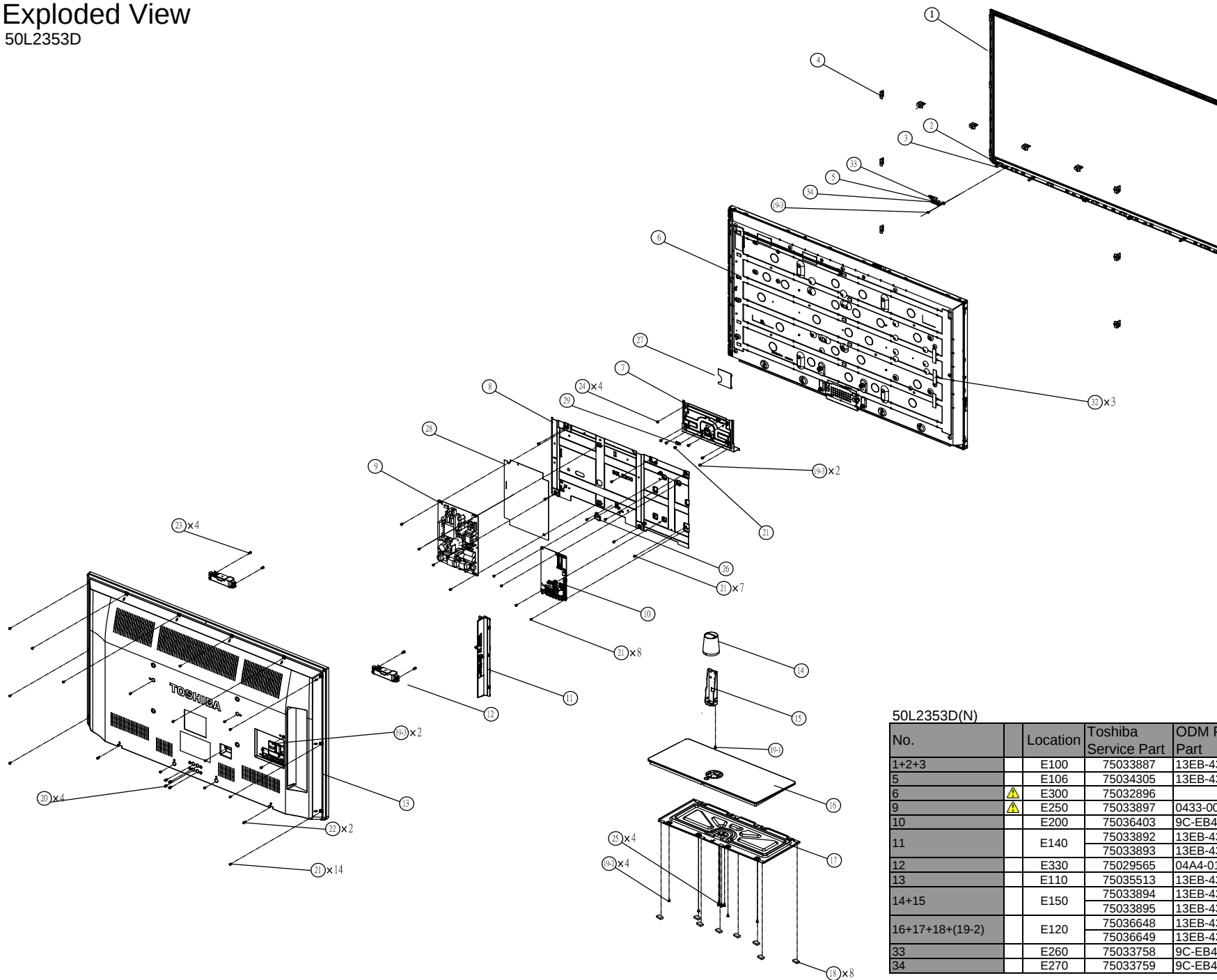
001 : firmware version ex 001 is 0.01, 100 is 1.00

REV00: fixed for revision 00



Exploded View

50L2353D



Note:
Please see PPL put on Web-PRESS for the latest information or other parts.

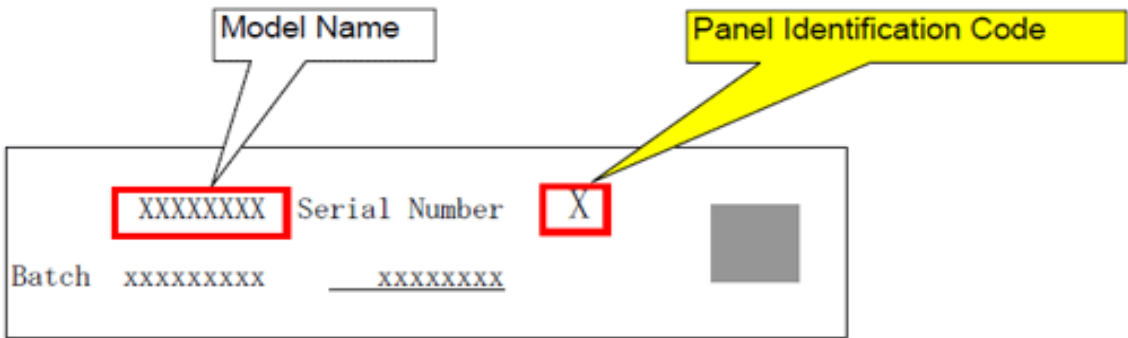
SAFETY PRECAUTION
The parts identified by ⚠ mark are critical for safety. Replace only with part number specified. The mounting position of replacement is to be identical with originals. The substitute replacement parts which do not have the same safety characteristics as specified in the parts list may create shock, fire or other hazards.

50L2353D(N)

No.	Location	Toshiba Service Part	ODM Partner Part	Description
1+2+3	E100	75033887	13EB-43B0601	FRONT COVER (FRONT BEZEL)
5	E106	75034305	13EB-43Q0W11	SUPPORT FOR SMALL BOARD
6	⚠ E300	75032896		LCD PANEL, LG, LC500DUE-SFR1
9	⚠ E250	75033897	0433-008C000	POWER BOARD ASSY
10	E200	75036403	9C-EB40M0370	MAIN BOARD ASSY
11	E140	75033892	13EB-43B0H01	SIDE KEY BEZEL ASSY
		75033893	13EB-43B0A01	
12	E330	75029565	04A4-012X000	SPEAKER (LEFT AND RIGHT)
13	E110	75035513	13EB-43Q1211	BACK COVER ASSY
14+15	E150	75033894	13EB-43B0901	NECK ASSY
		75033895	13EB-43B0K01	
16+17+18+(19-2)	E120	75036648	13EB-43B0C11	STAND ASSY
		75036649	13EB-43B0P11	
33	E260	75033758	9C-EB40S0250	LED BOARD ASSY
34	E270	75033759	9C-EB40S0270	IR BOARD ASSY

PANEL IDENTIFICATION

Serial No. part printed on Rating Label



Panel Identification Code

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

AFTER MAIN PCB REPLACEMENT

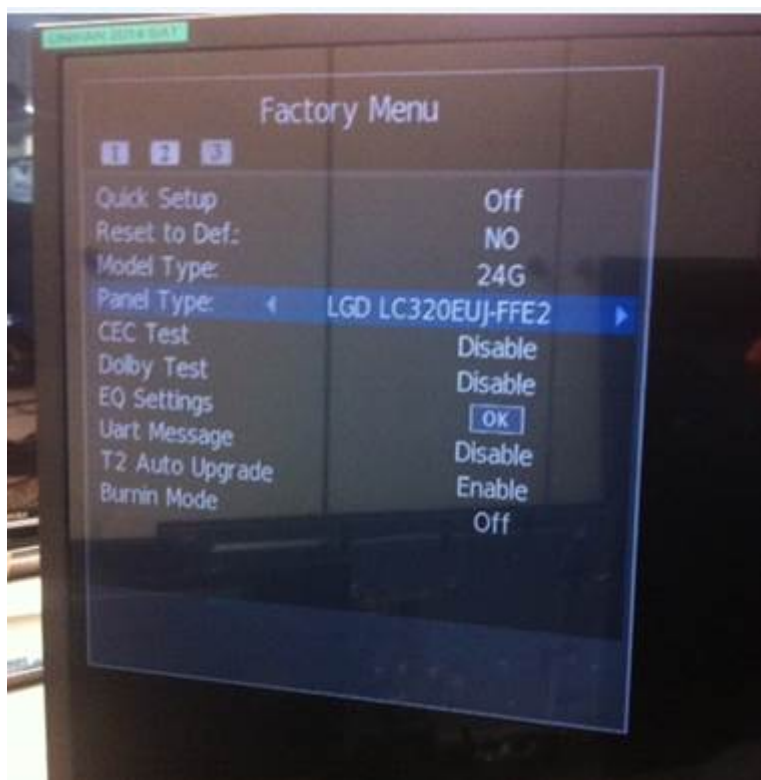
The following setting must be checked after PCB replacement to make sure, that PCB setting corresponds to the panel type:

1. Enter Factory Menu:

- MENU
- Applications
- Sleep Timer + "2766"

2. Go to page 3 and select the proper panel type (take care of the full panel name, not only panel vendor name).

Panel type can be found on the panel serial number sticker.



3. Press EXIT to leave the factory mode (please make sure you have selected the proper panel type, before you press EXIT !).

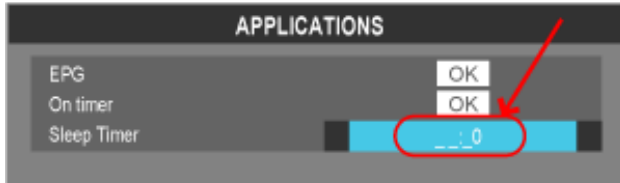
4. If the proper panel type was set, TV will come up with proper picture after TV restart.

PLEASE TAKE CARE: set may come up with NO PICTURE at all when wrong panel was selected and it will be very difficult/impossible to adjust the proper settings afterwards.

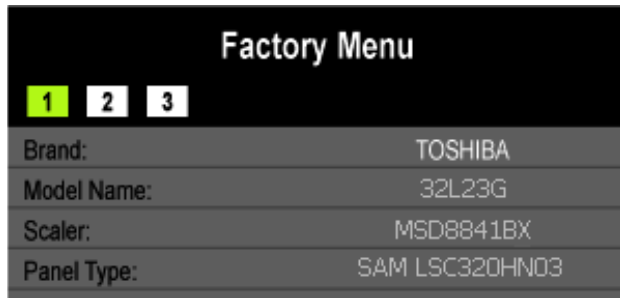
DESTINATION SETTING CHANGE

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.



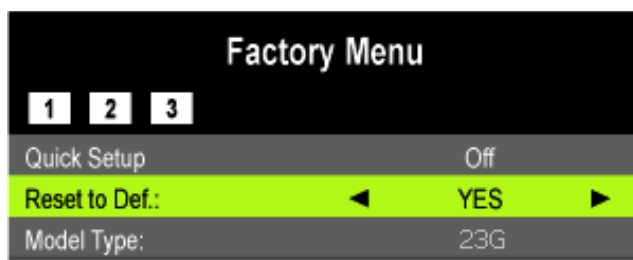
3. Move to Tag "3" by Right/Left Arrow key on the Remote.
4. Select "Model Type" cell.



5. Select the appropriate model type by Right/Left Arrow key on the Remote.



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



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REV. 01
Dec/19/2014

	5	4	3	2	1	
D 						D
C 						C
B 						B
A 						A

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REVISION HISTORY

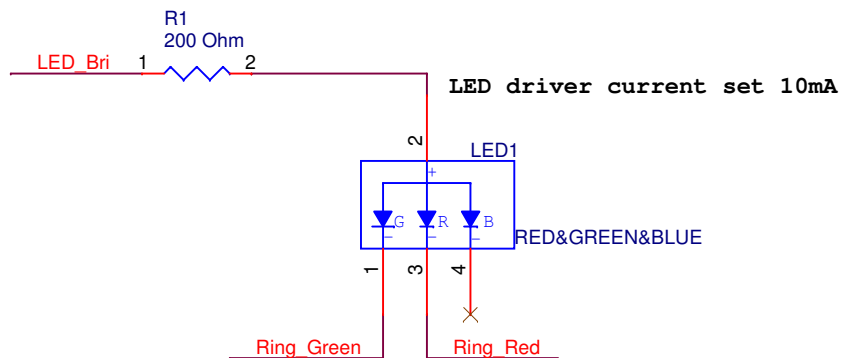
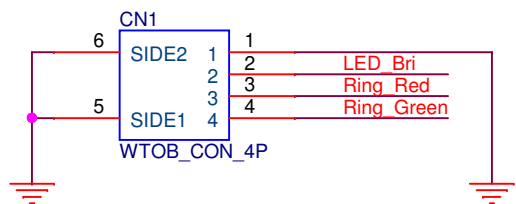
Date	Author	Ver	Comments
2012/09/03	Jeff/Webb	1.00	For SR stage.
2012/12/17	Jeff/Webb	1.01	For MP stage.

Unihan		Title :	Contents&History
LED BOARD		Engineer:	Jeff Y Hslao/Webb Chen
Size	Project Name		Rev
B	L2300		1.01
Date: Monday, March 18, 2013		Sheet	1 of 2

[illegible][illegible][illegible][illegible]

Power On mode-----Green

Standby mode-----Red



Unihan		Title : LED	
LED BOARD		Engineer: Jeff Y Hsiao/Webb Chen	
Size	Project Name		Rev
A	L2300		1.01
Date: Monday, March 18, 2013		Sheet	2 of 2

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REVISION HISTORY

Date	Author	Ver	Comments
2012/08/27	Jeff/Jerry	1.00	For SR stage.
2012/09/14	Jeff/Jerry	1.01	For SR2 stage.
2012/10/20	Jeff/Jerry	1.02	For ER stage.
2012/11/07	Jeff/Jerry	1.03	For ER2 stage.
2012/11/21	Jeff/Jerry	1.03a	For PR stage.

Unihan

Title :

Contents&History

MAIN BOARD

Engineer: Jeff Y Hsiao/Jerry Lo

Size

B

Project Name

L2300

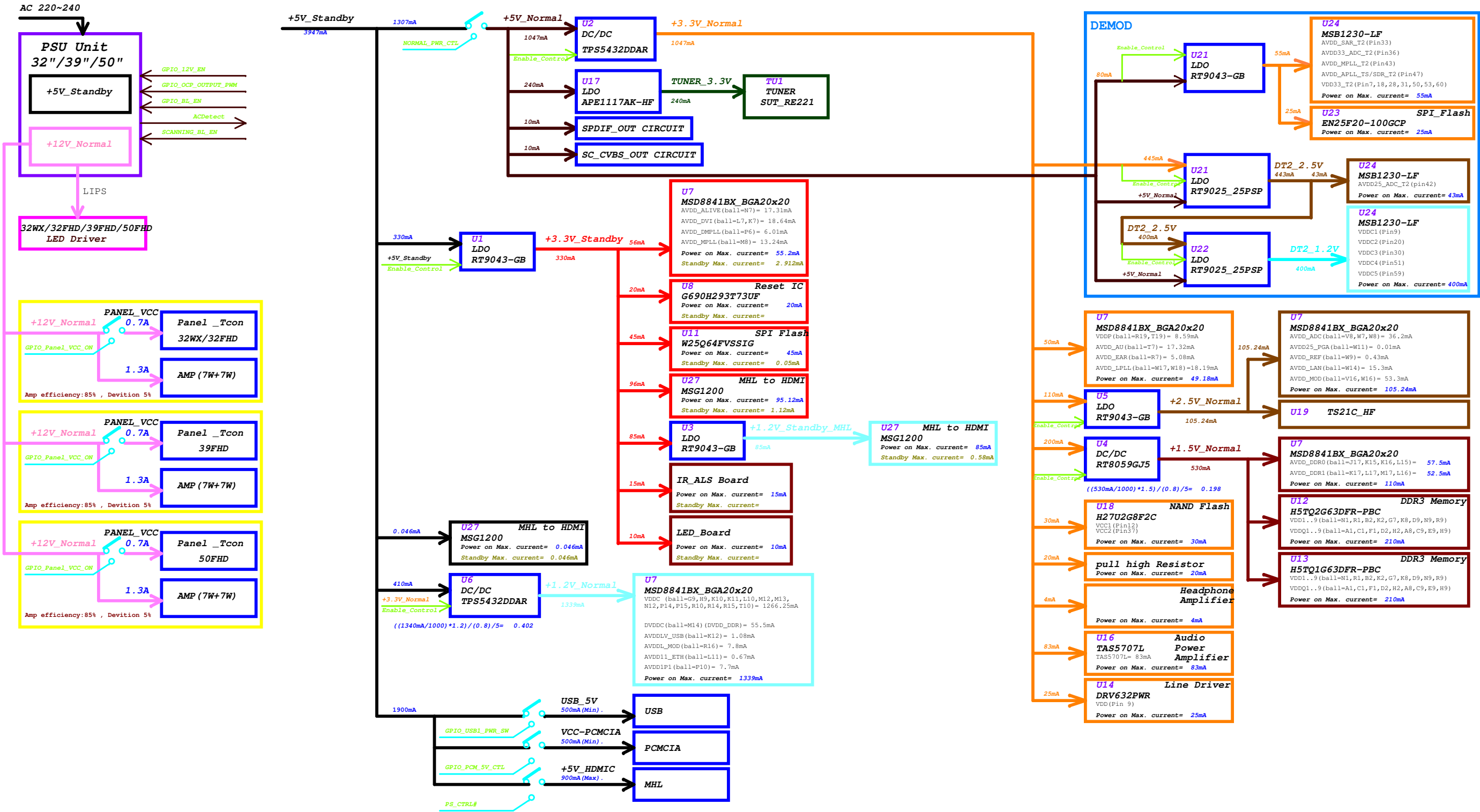
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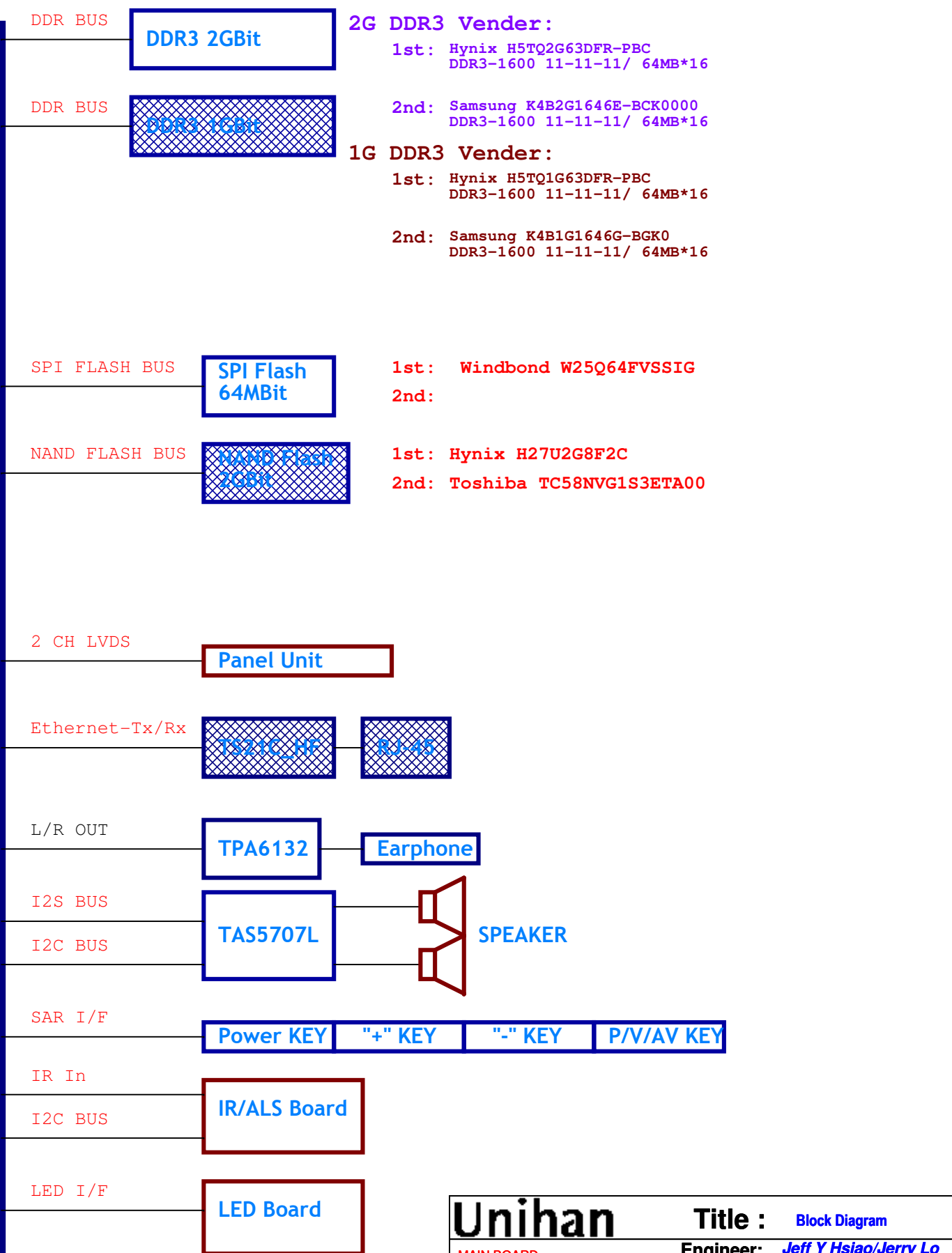
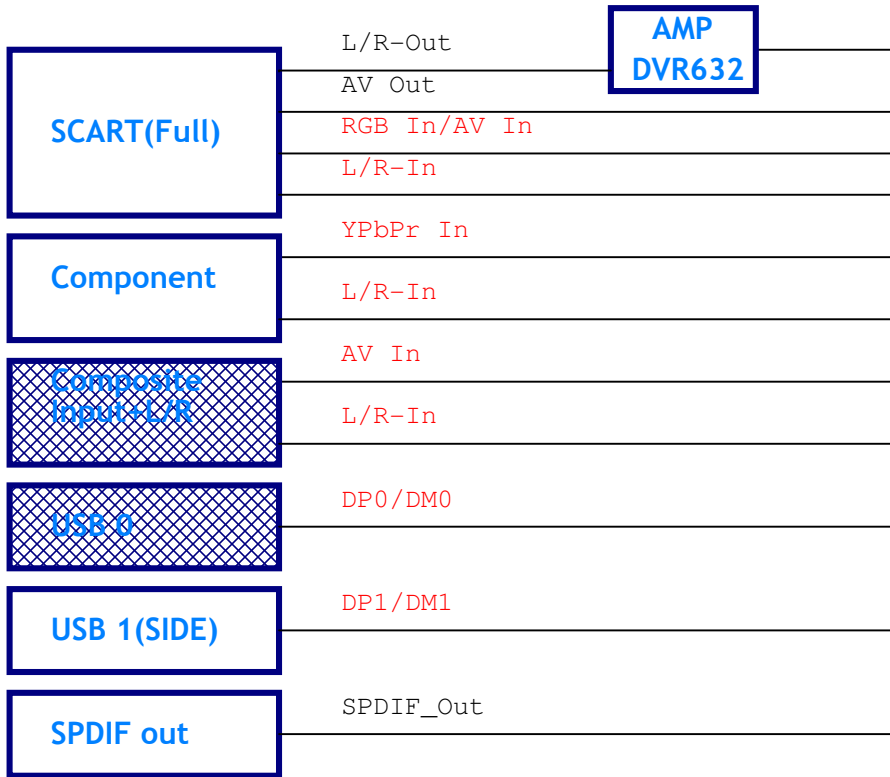
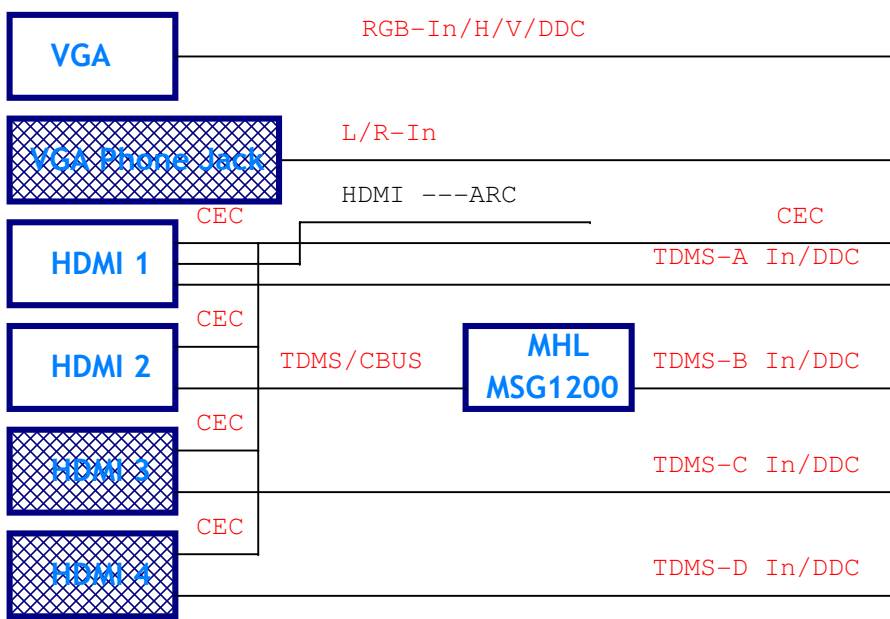
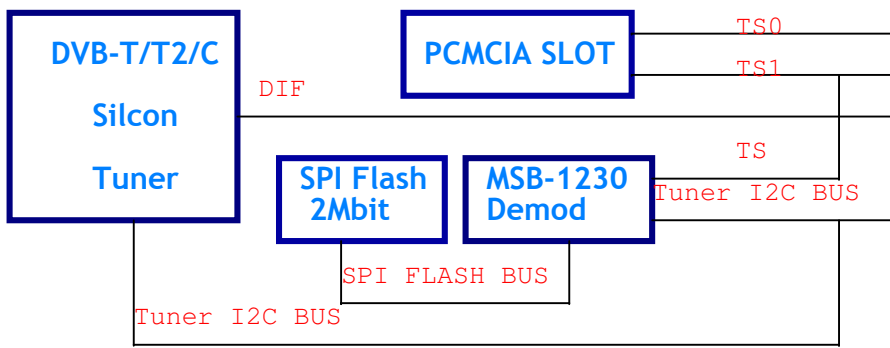
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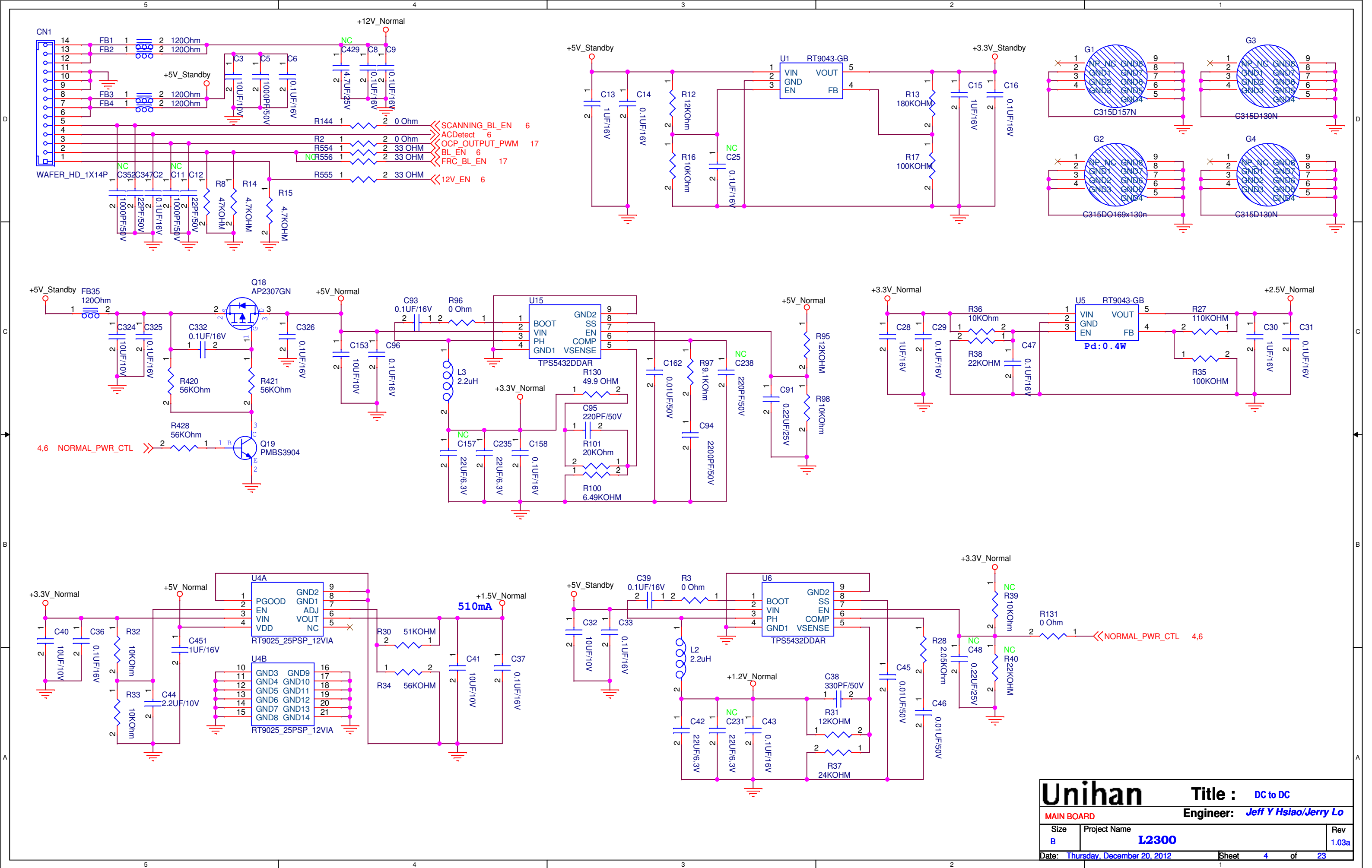
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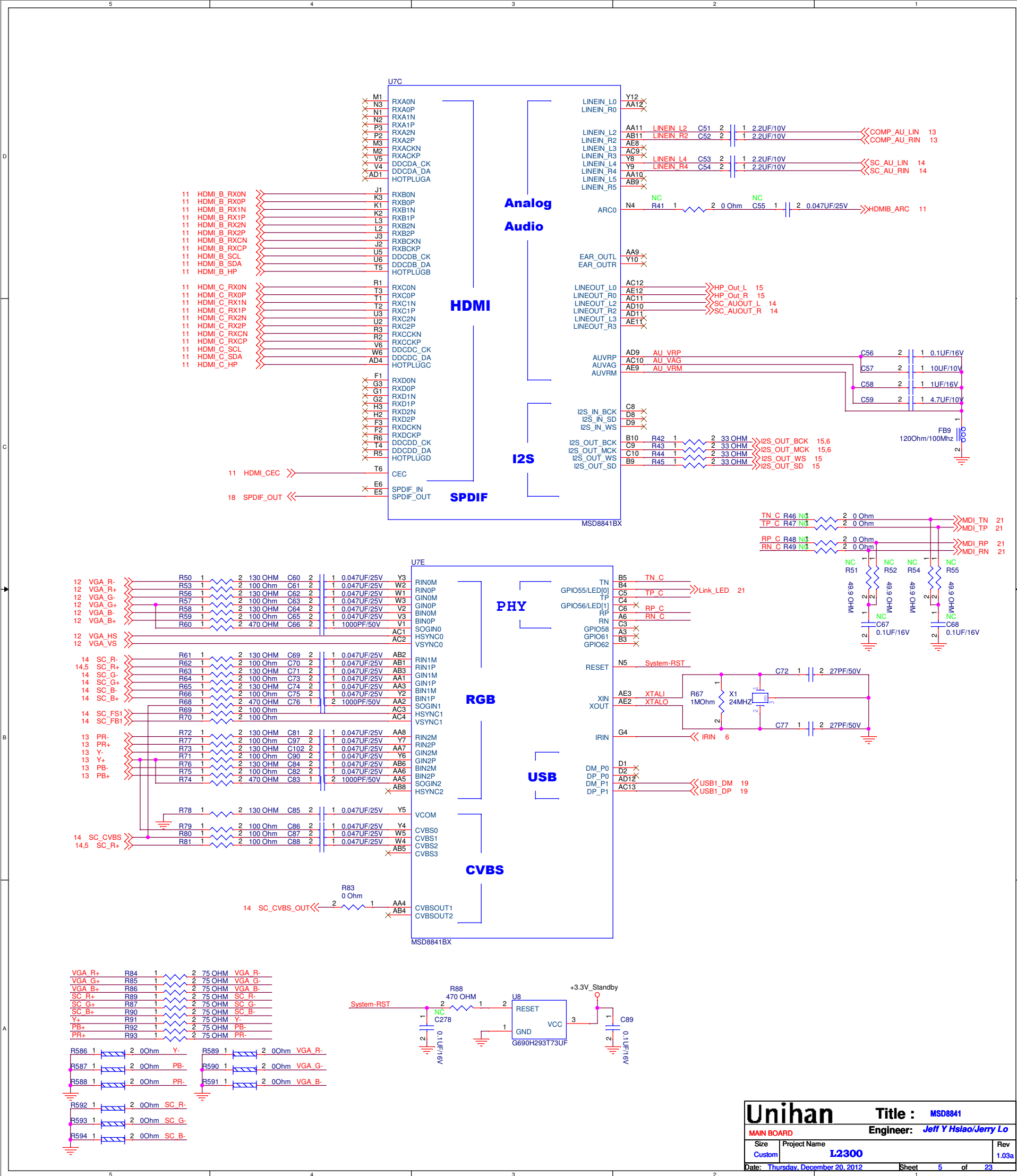
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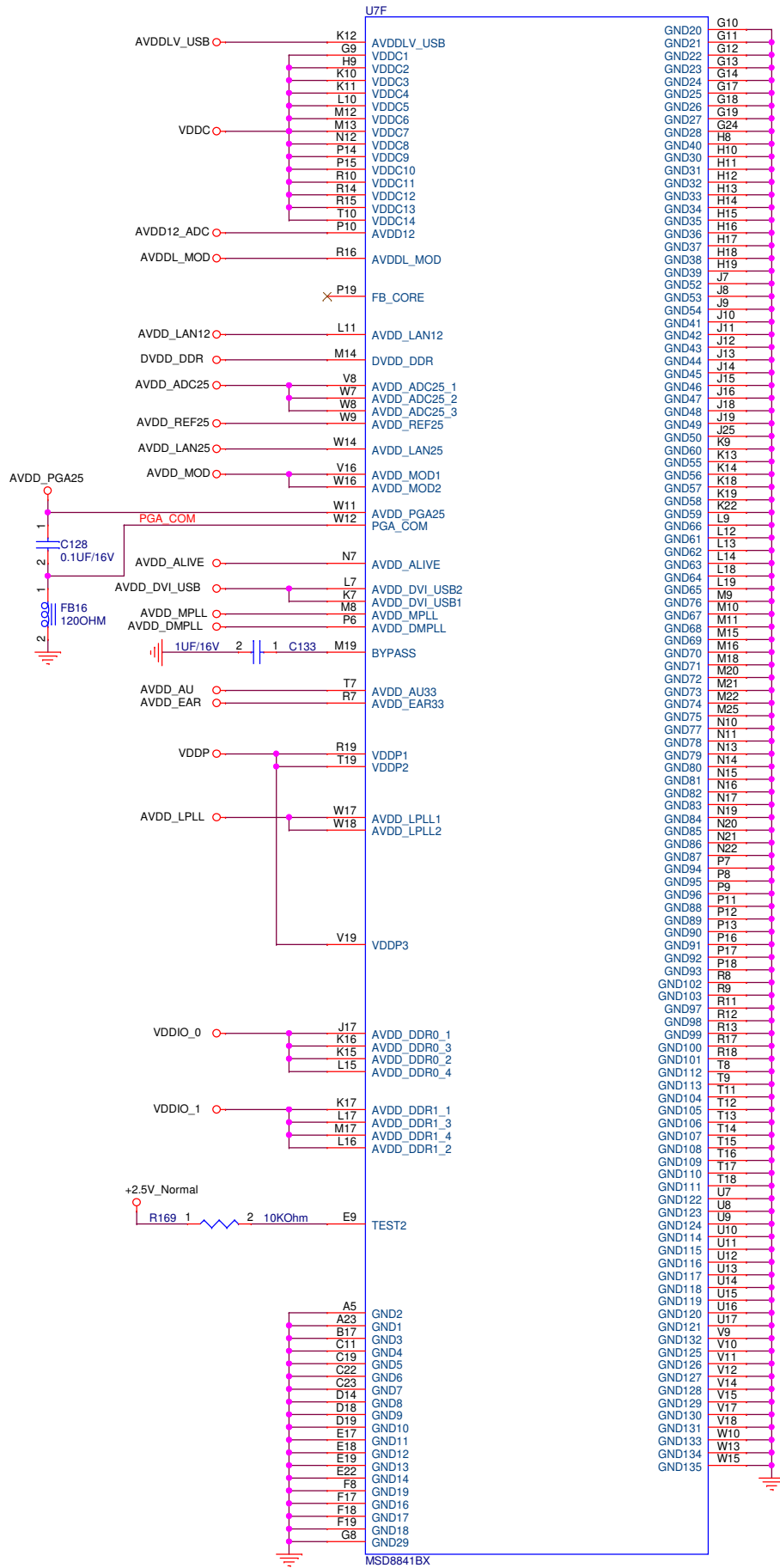
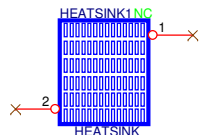
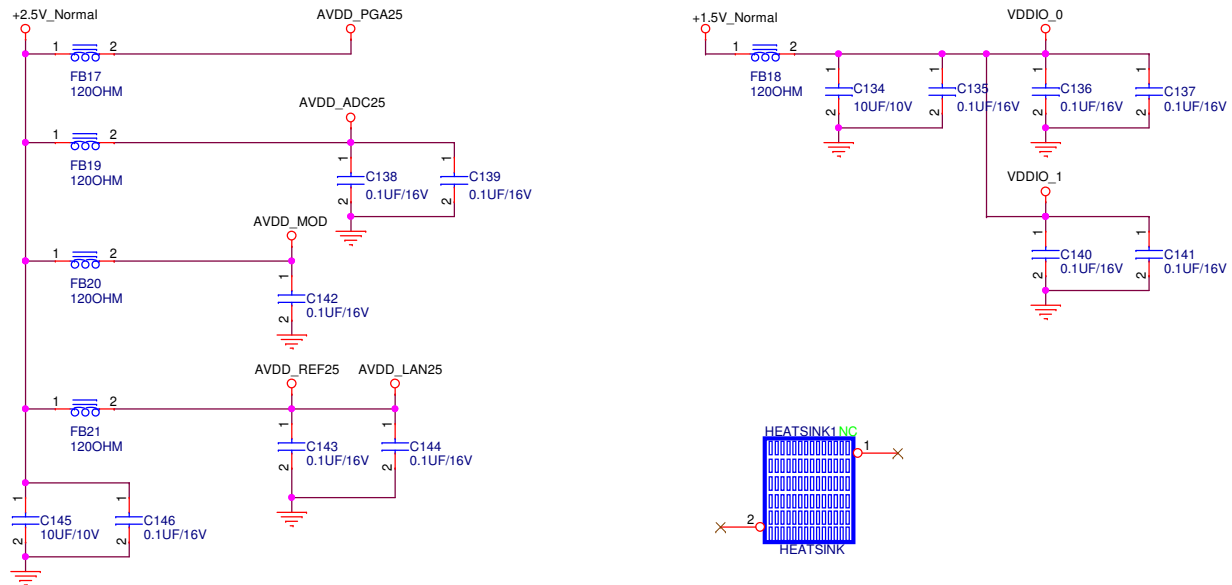
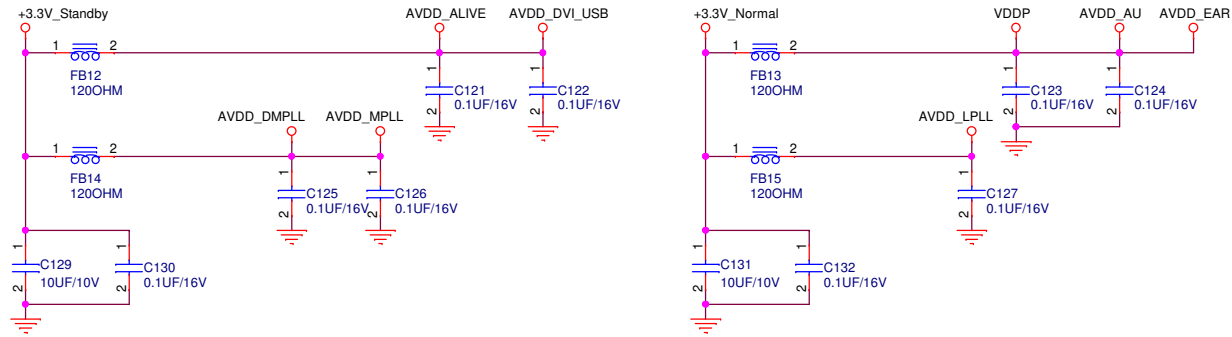
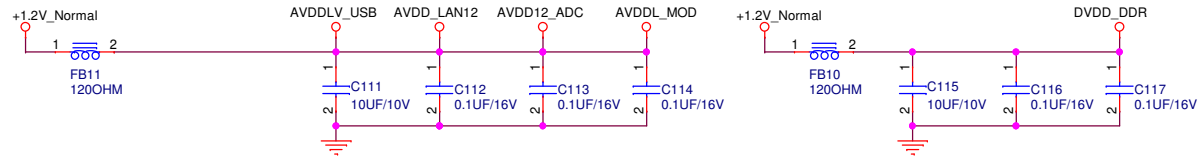
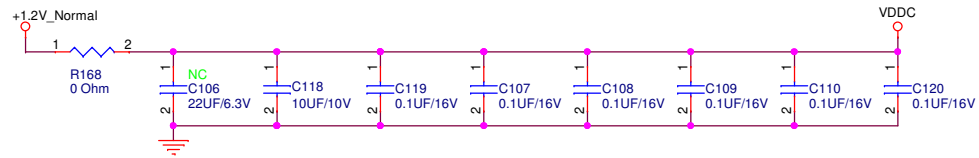
TV System Power Budget Block Diagram

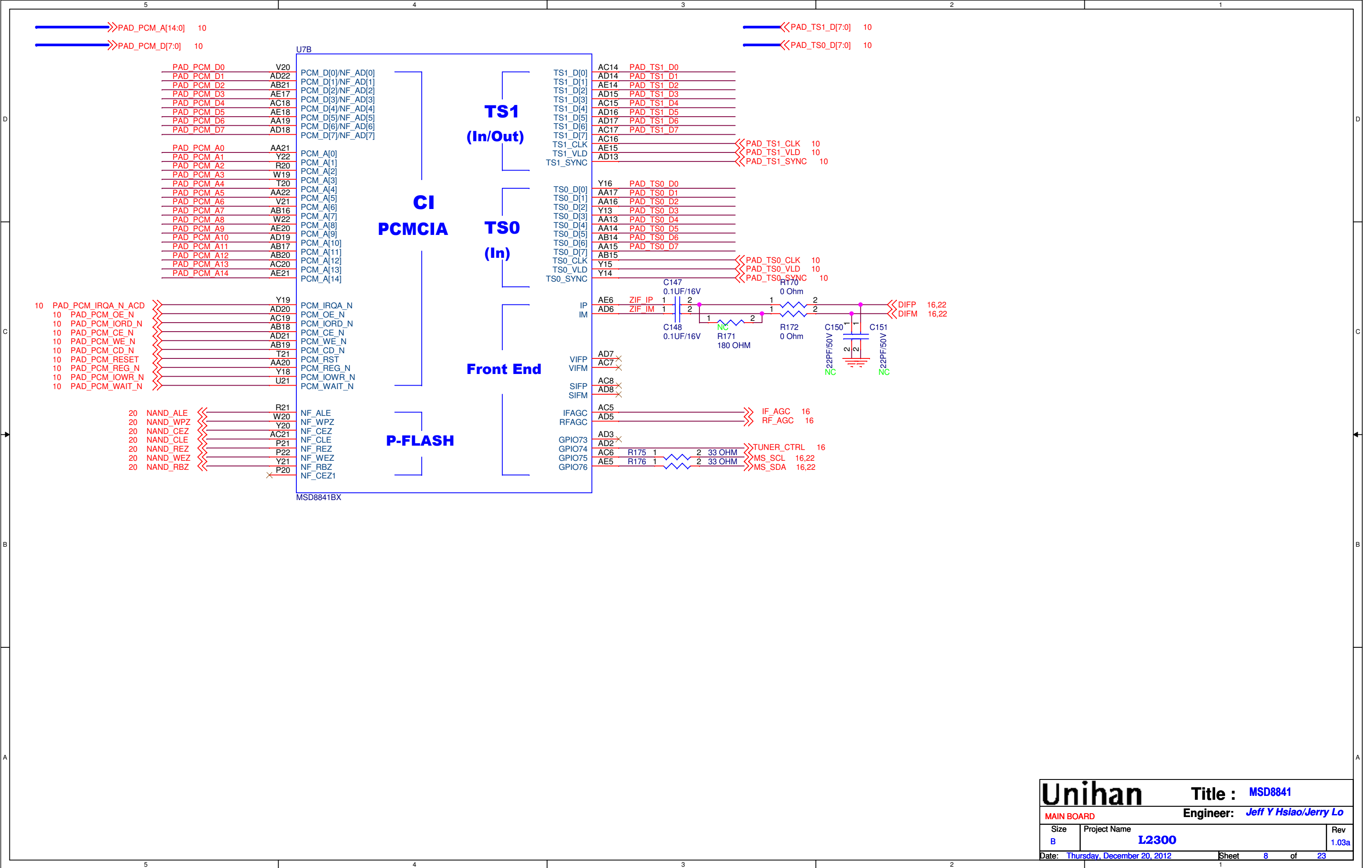


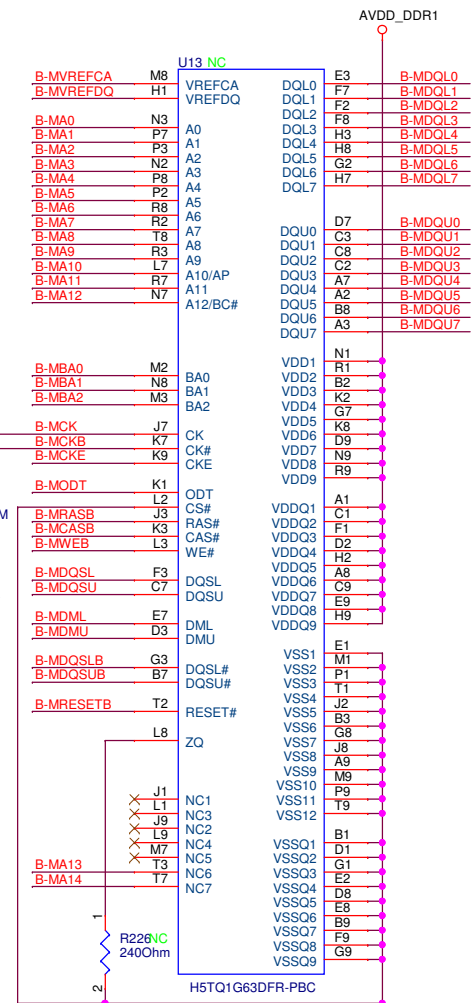
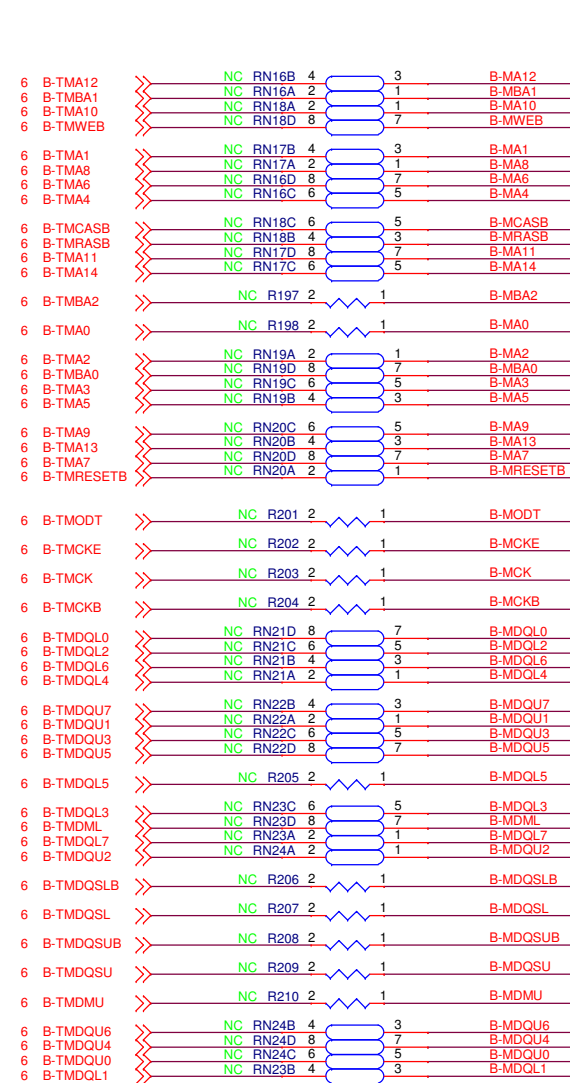
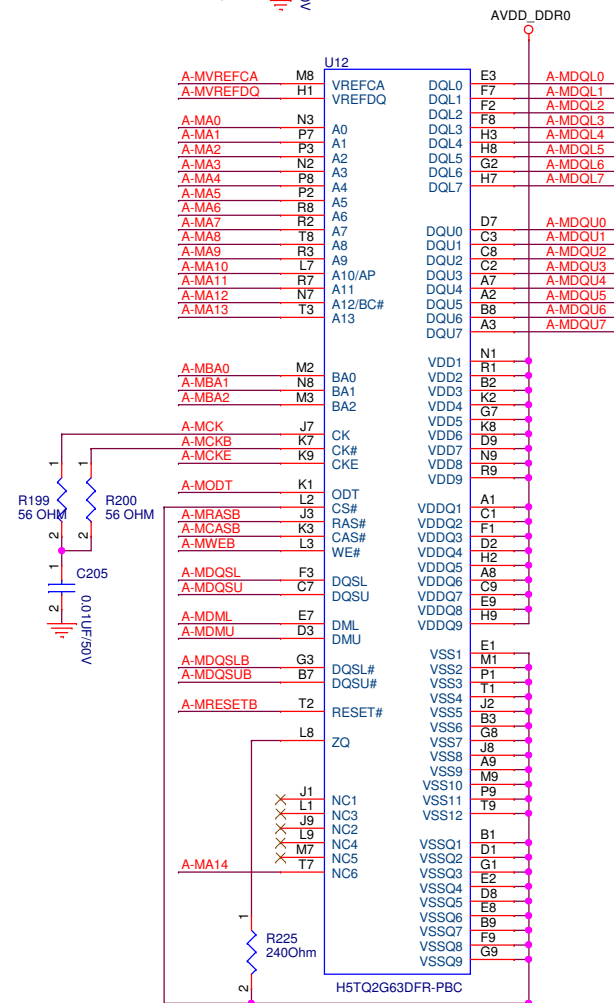
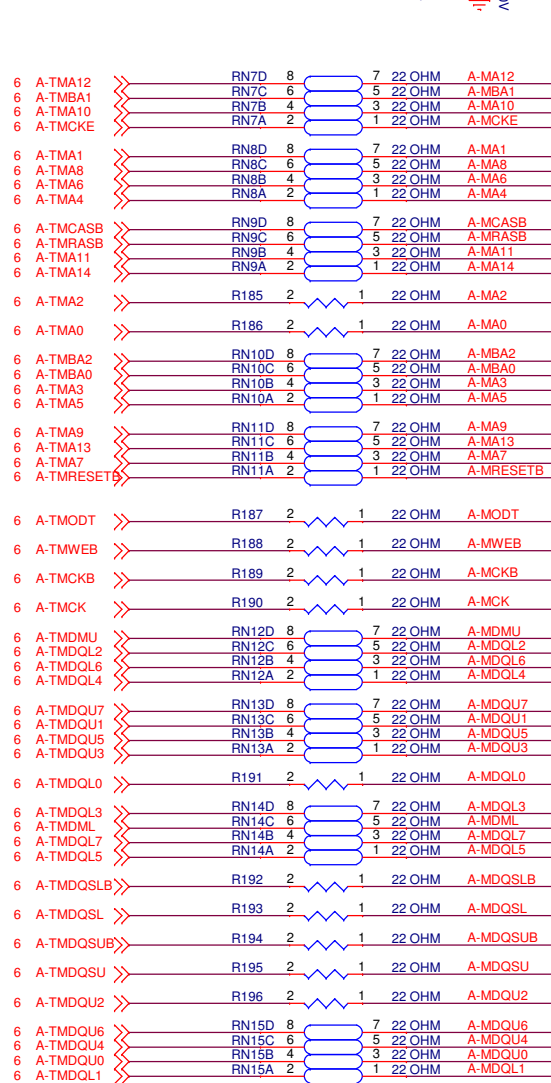
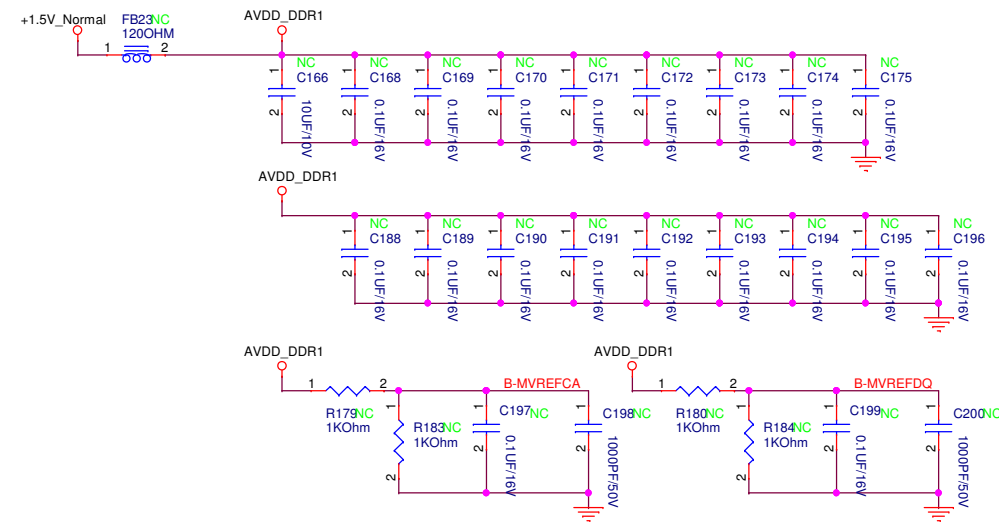
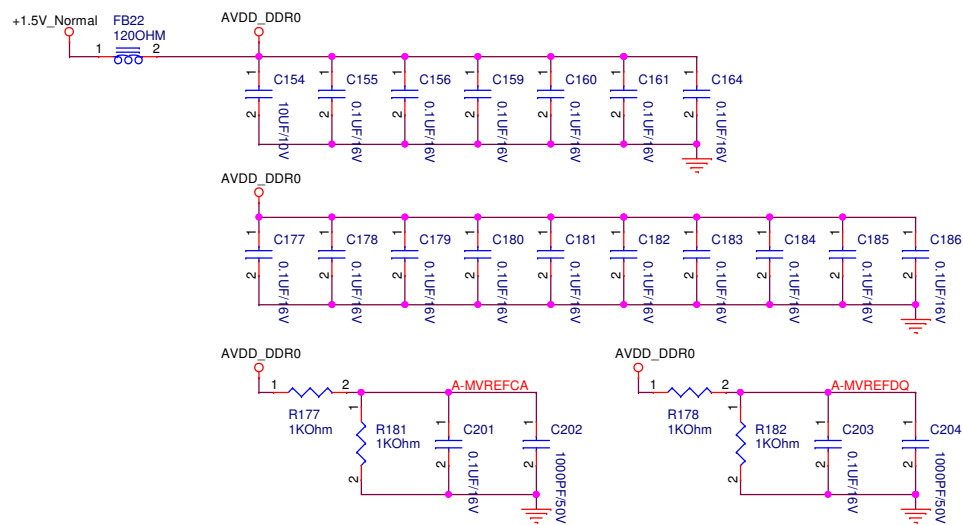












Unihan

Title : DDR3

MAIN BOARD

Engineer: Jeff Y Hsiao/Jerry Lo

Size

Project Name

C

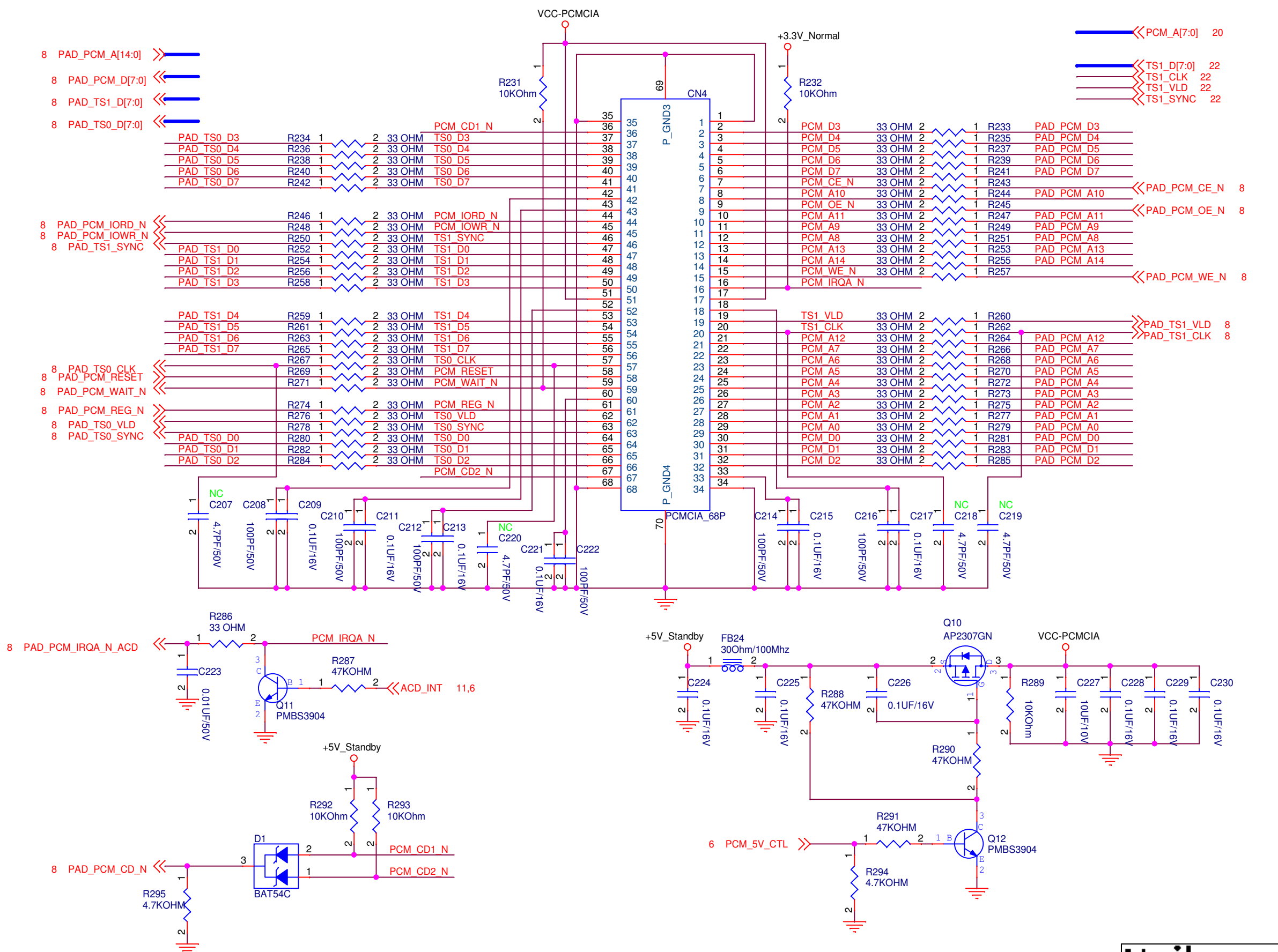
L2300

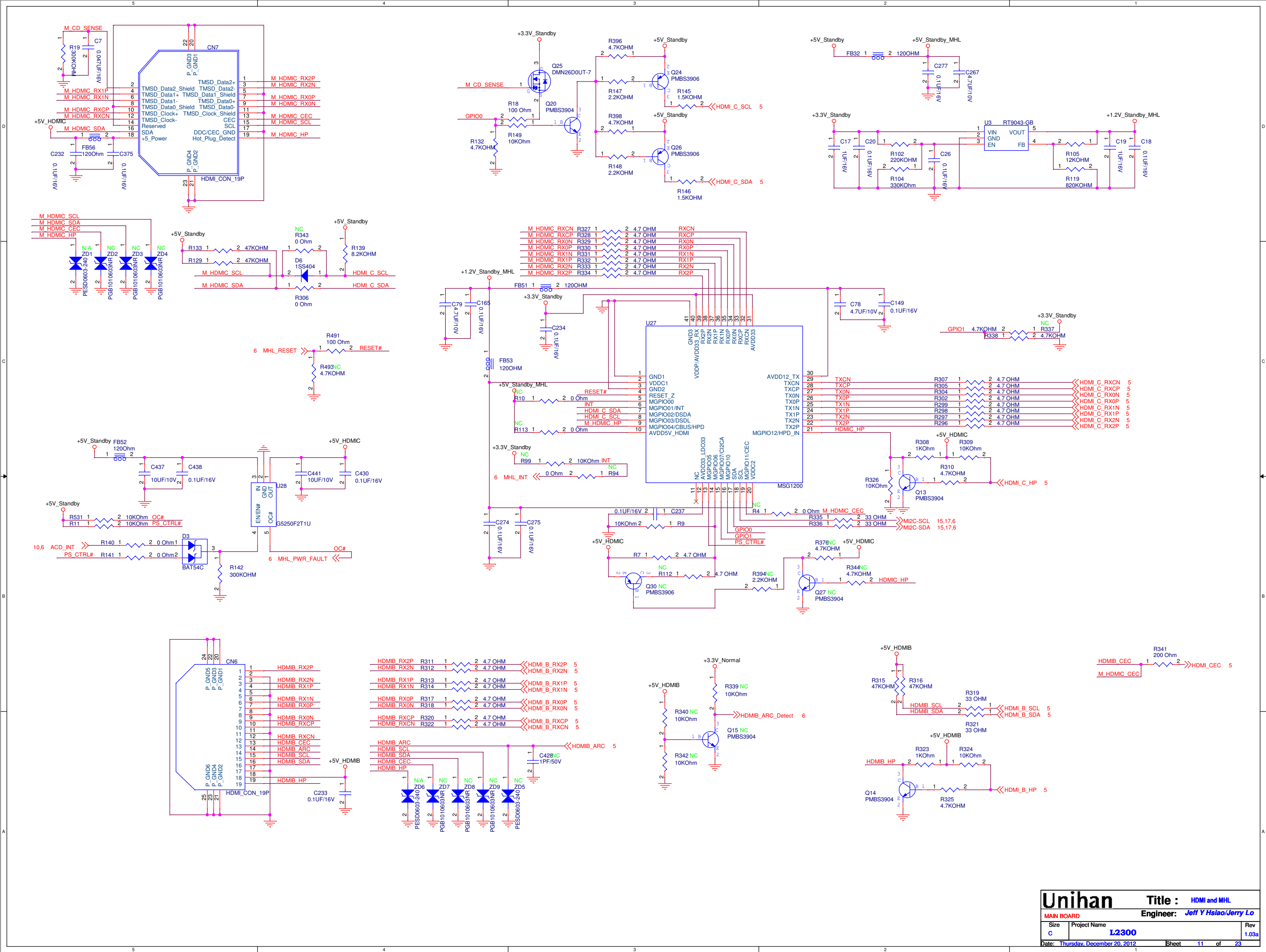
Rev

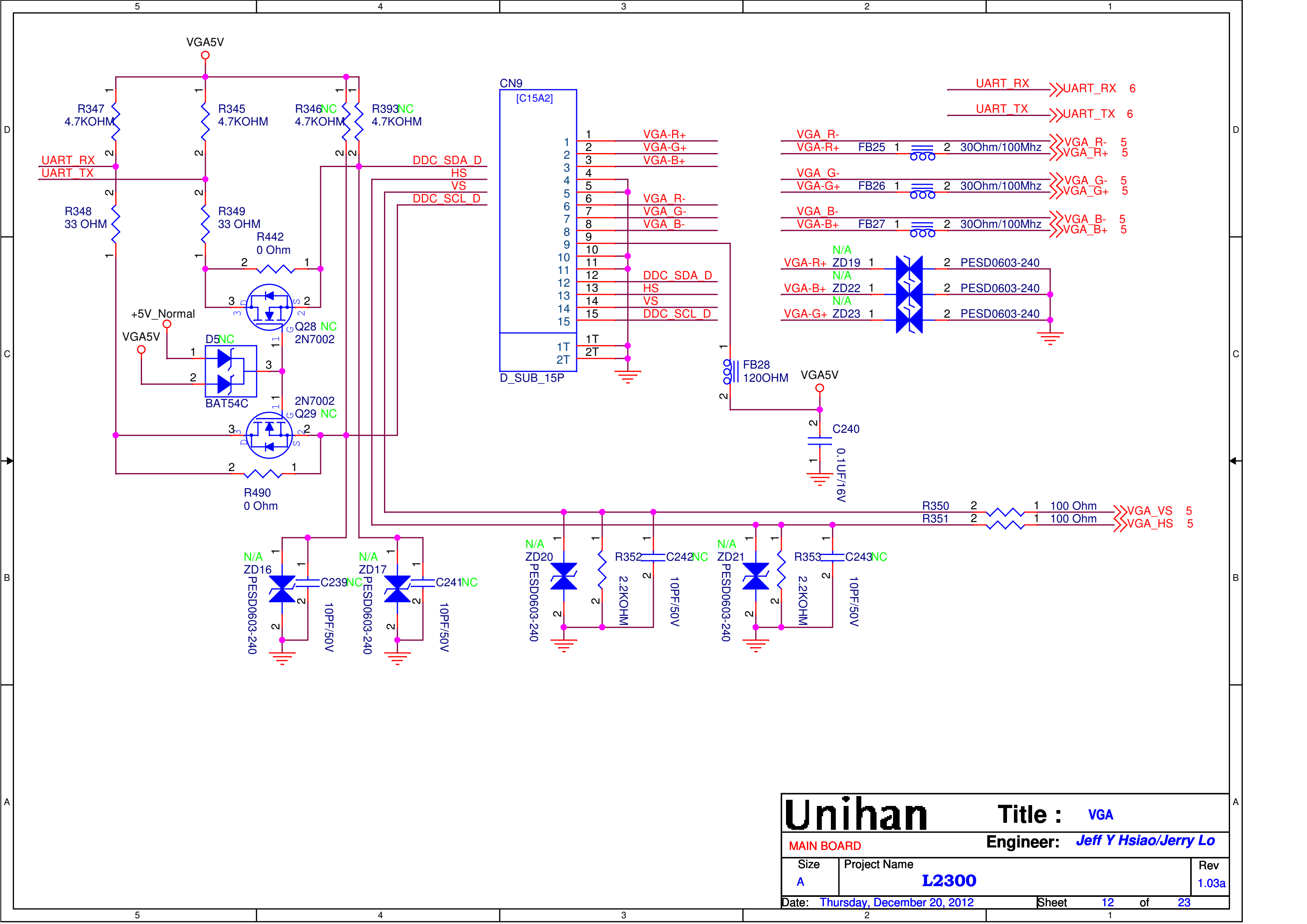
1.03a

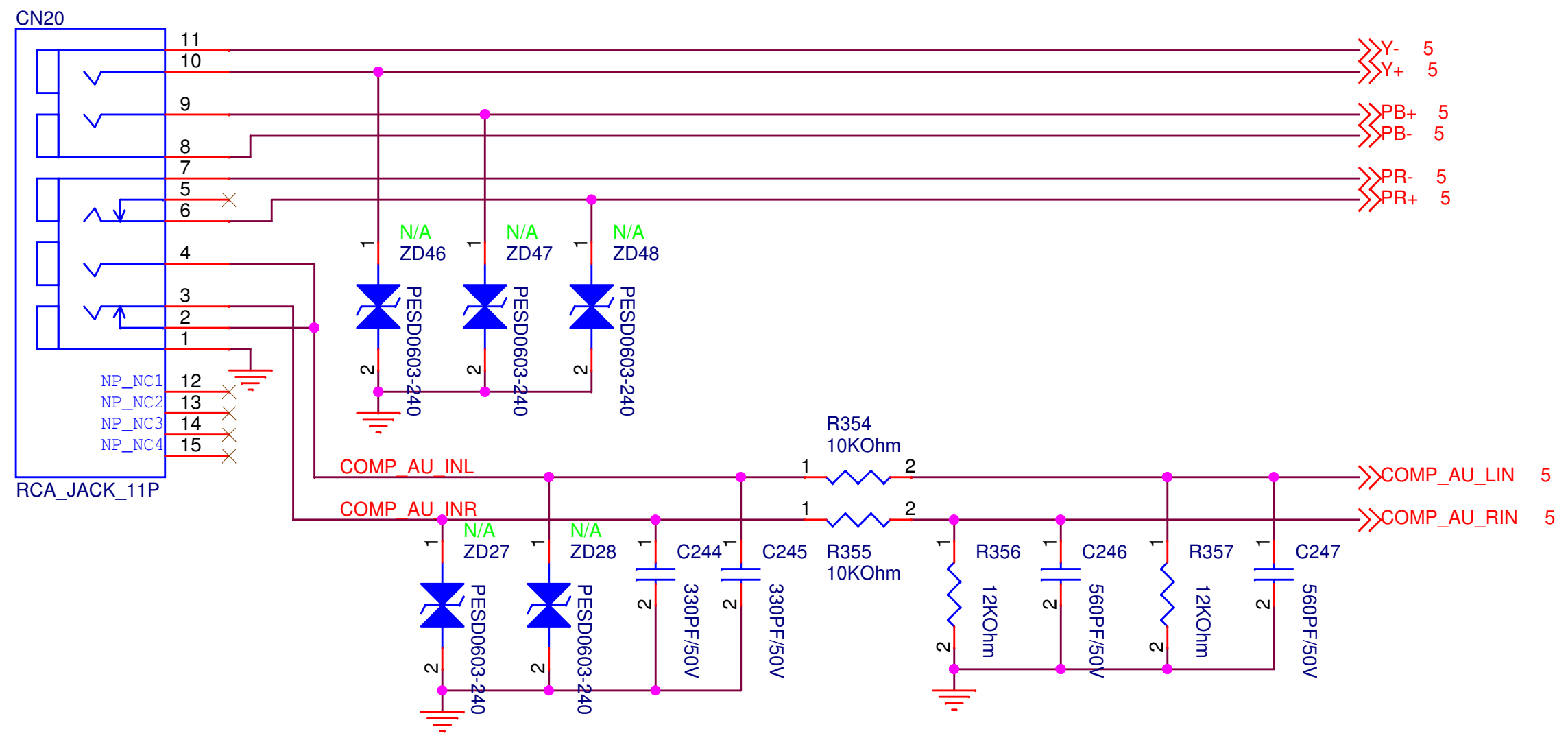
Date: Thursday, December 20, 2012

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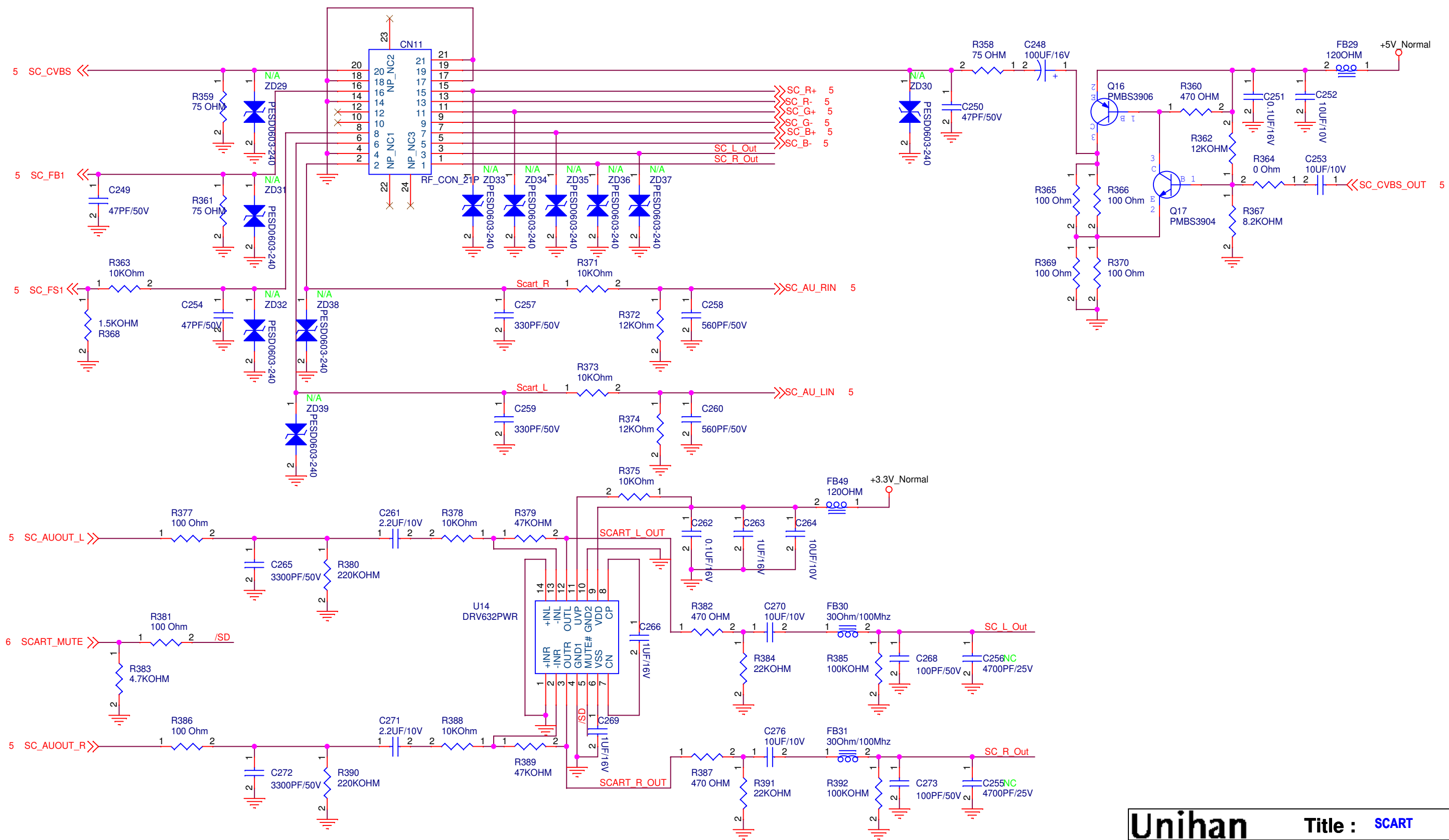




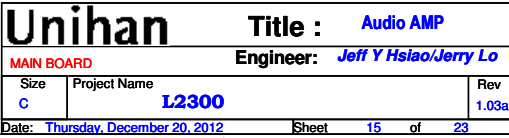


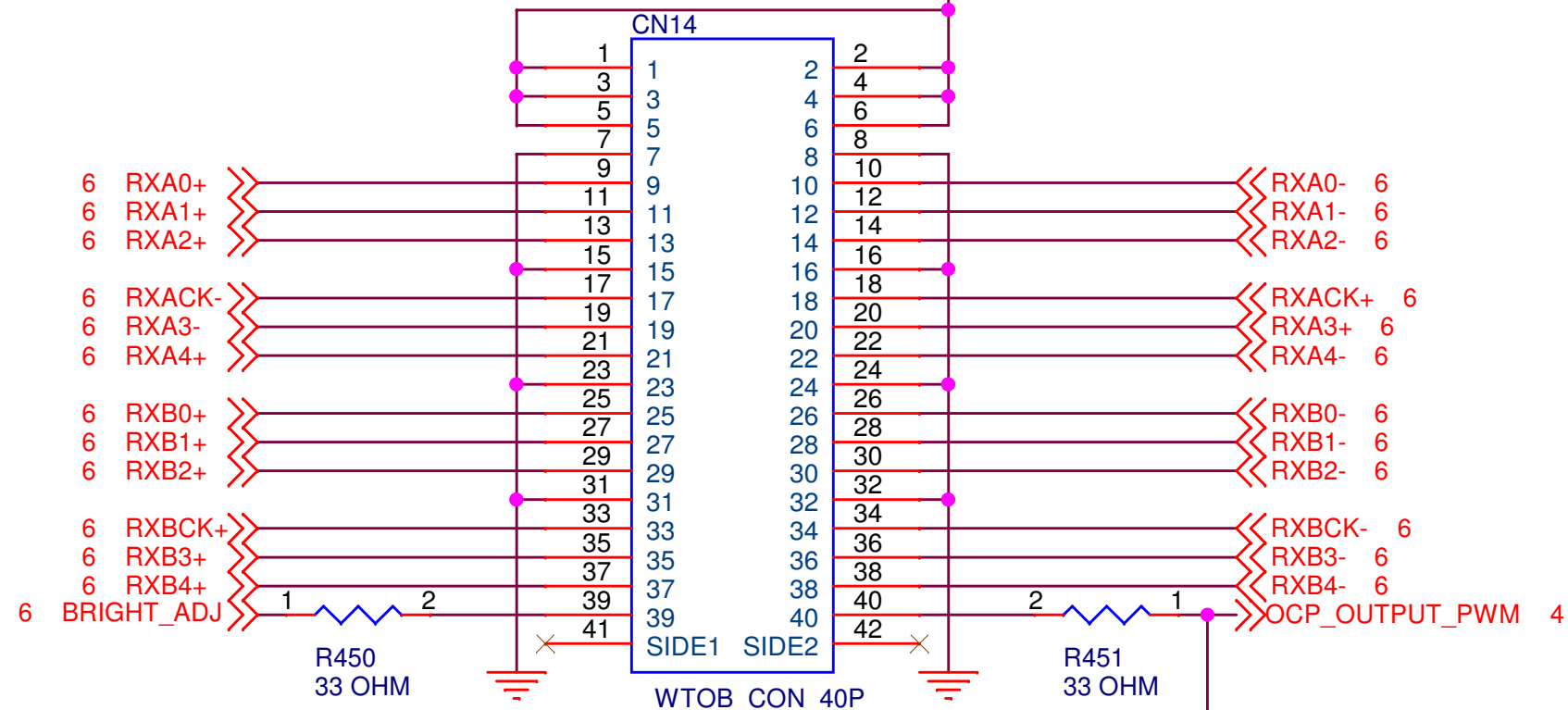
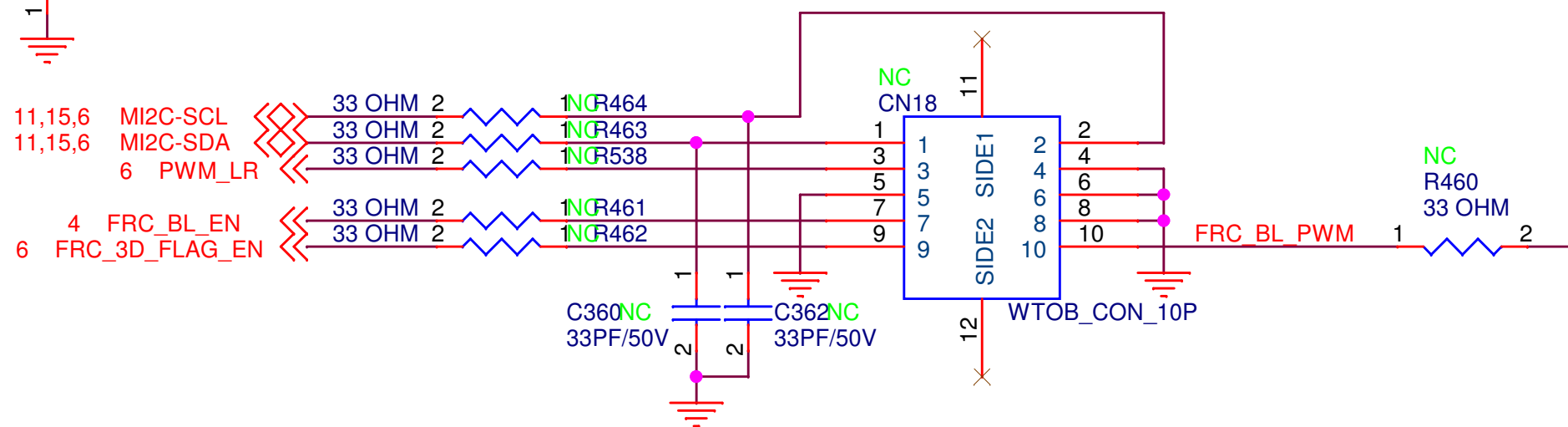
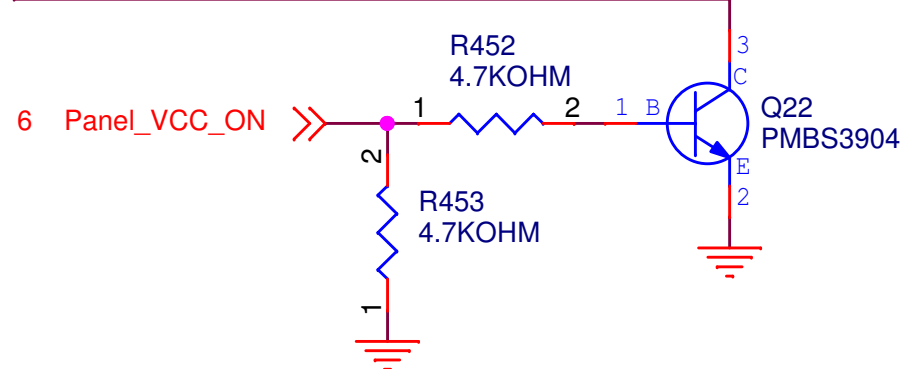
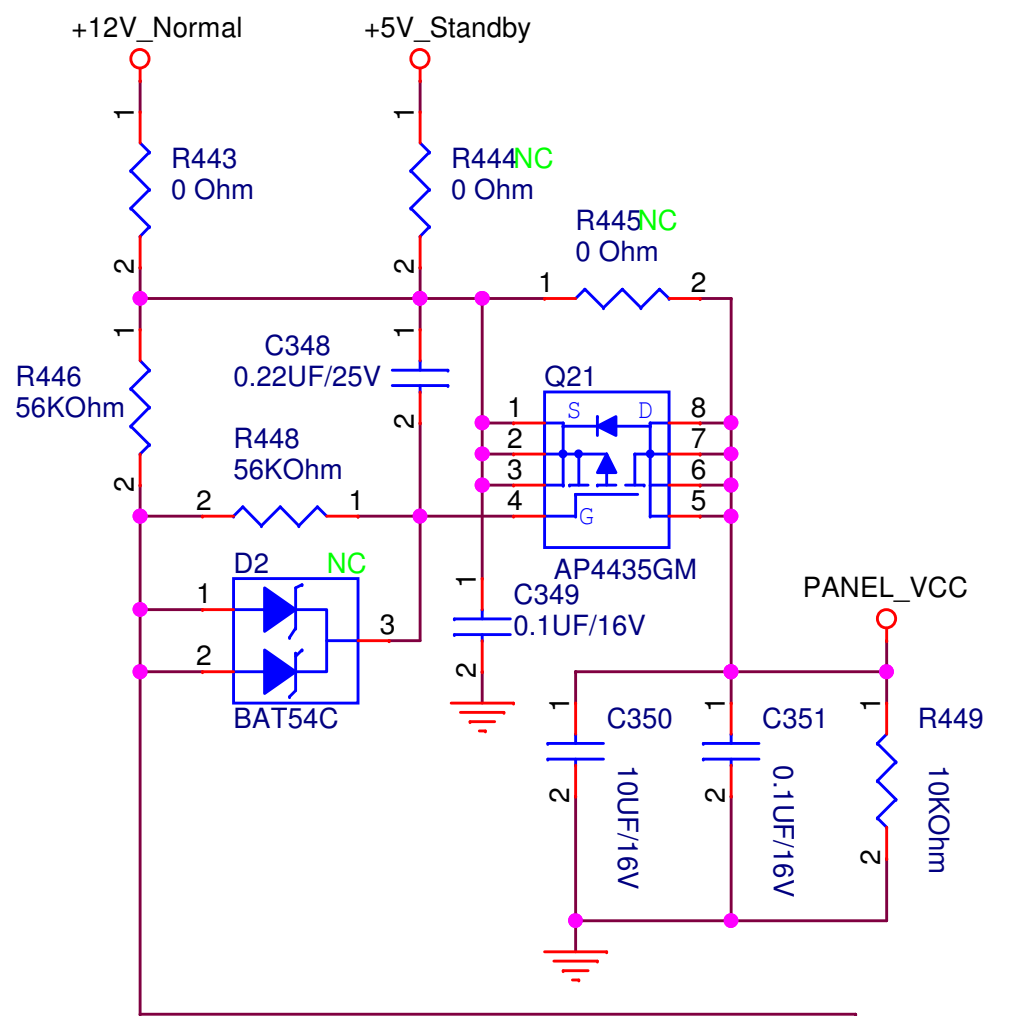


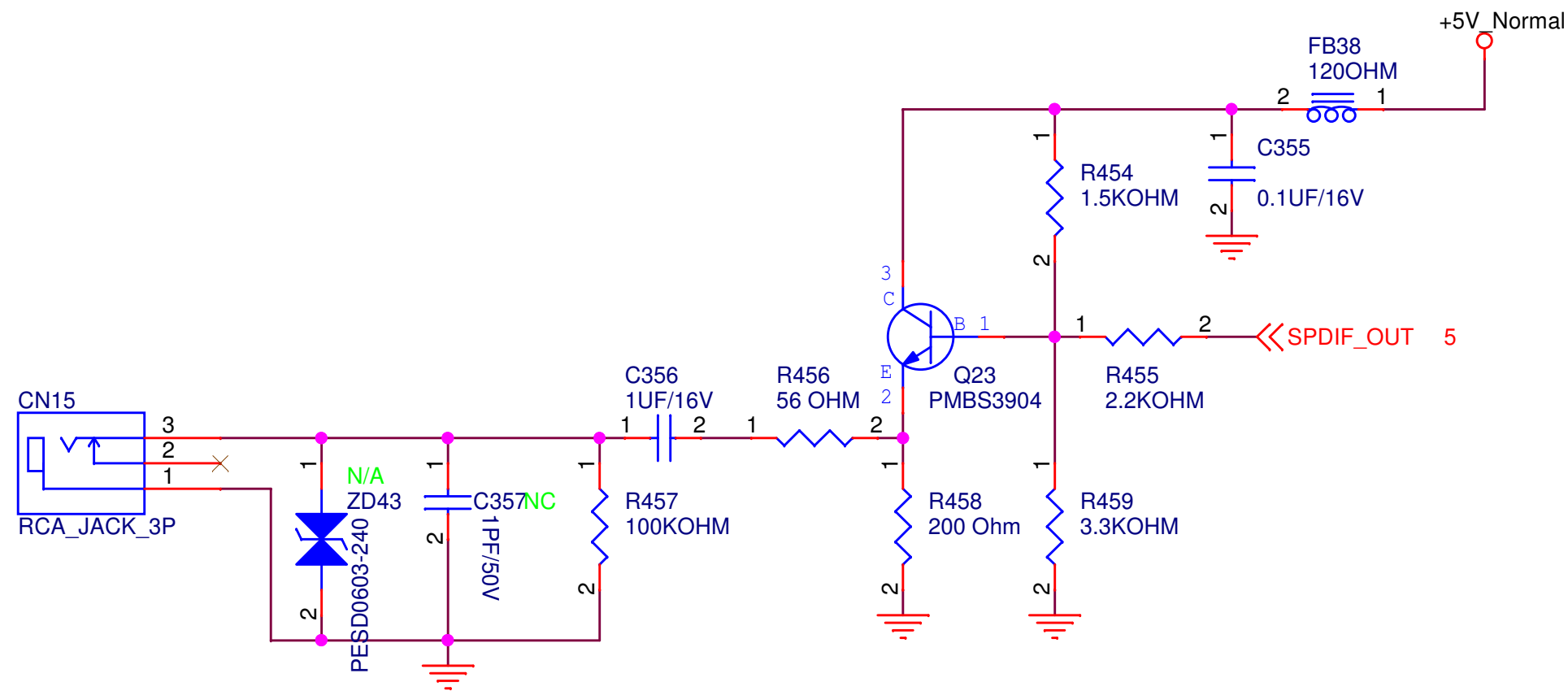
UniHan		Title : COMPONENT	
MAIN BOARD		Engineer: Jeff Y Hsiao/Jerry Lo	
Size A	Project Name L2300		Rev 1.03a
Date: Thursday, December 20, 2012		Sheet 13 of 23	



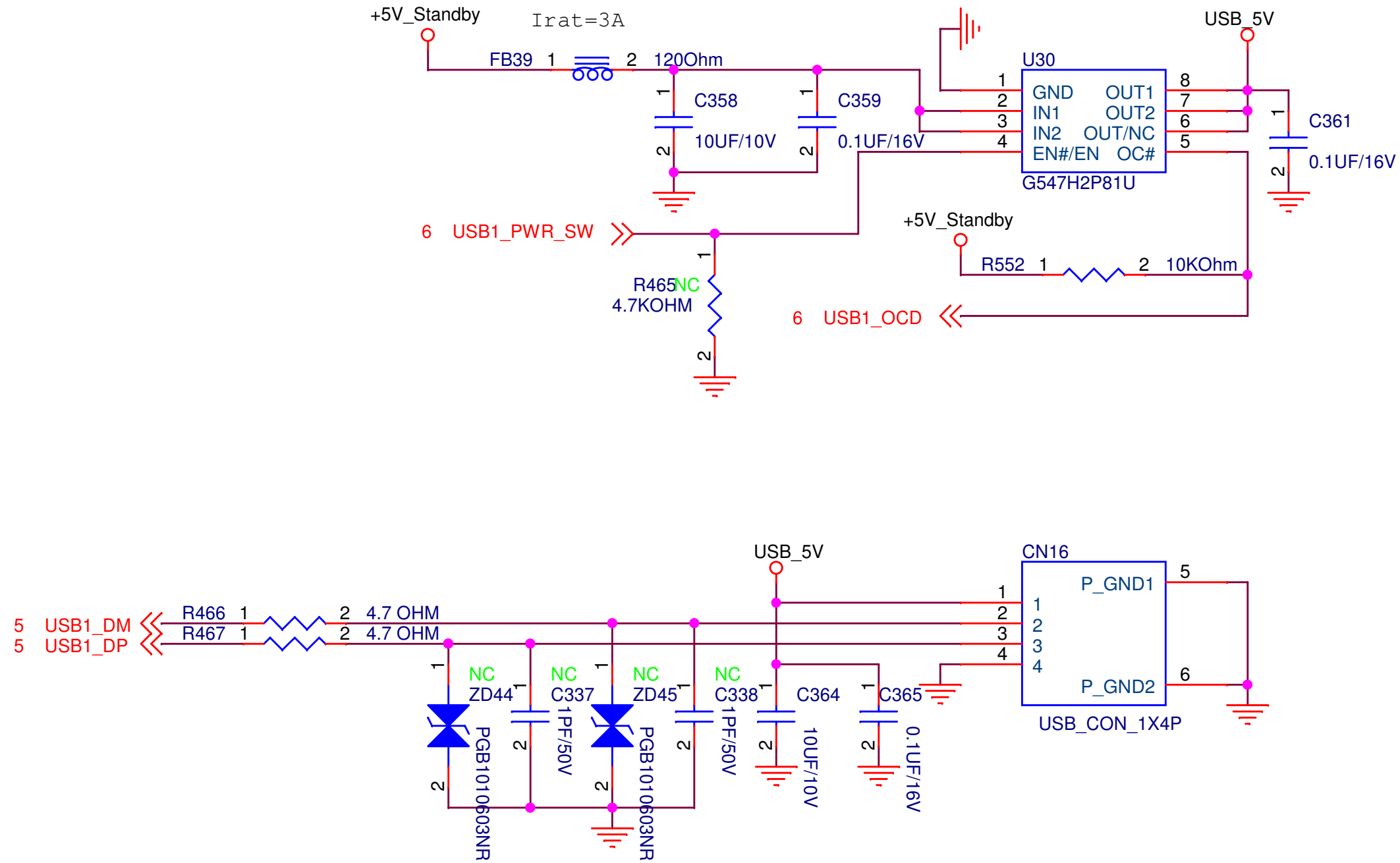
UniHan		Title : SCART	
MAIN BOARD		Engineer: Jeff Y Hsiao/Jerry Lo	
Size B	Project Name L2300		Rev 1.03a
Date: Thursday, December 20, 2012	Sheet	14	of 23



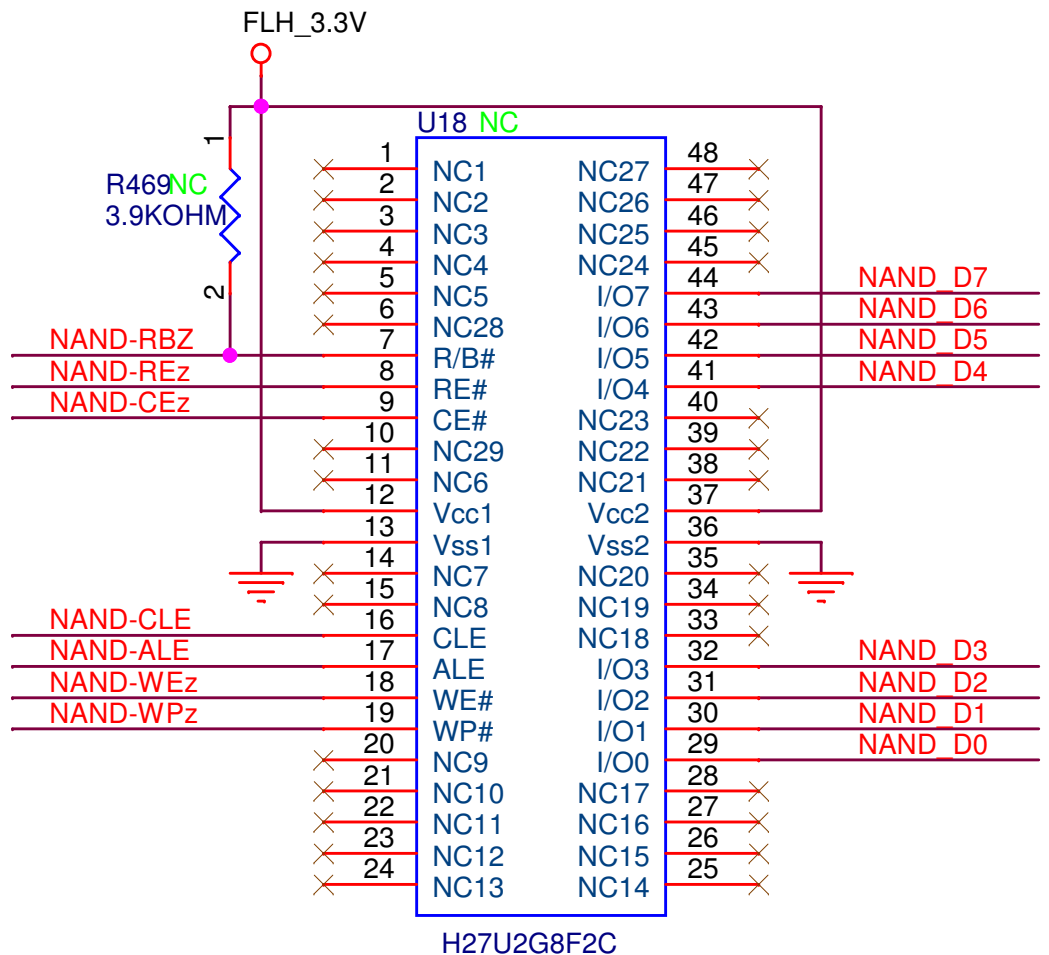
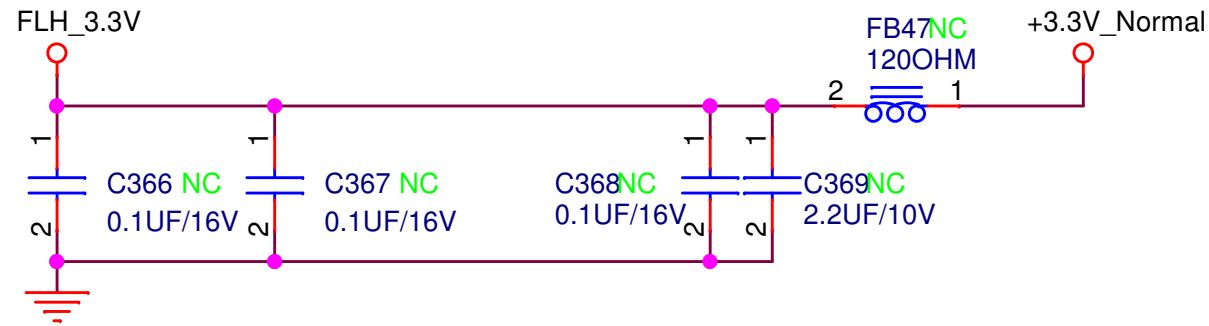




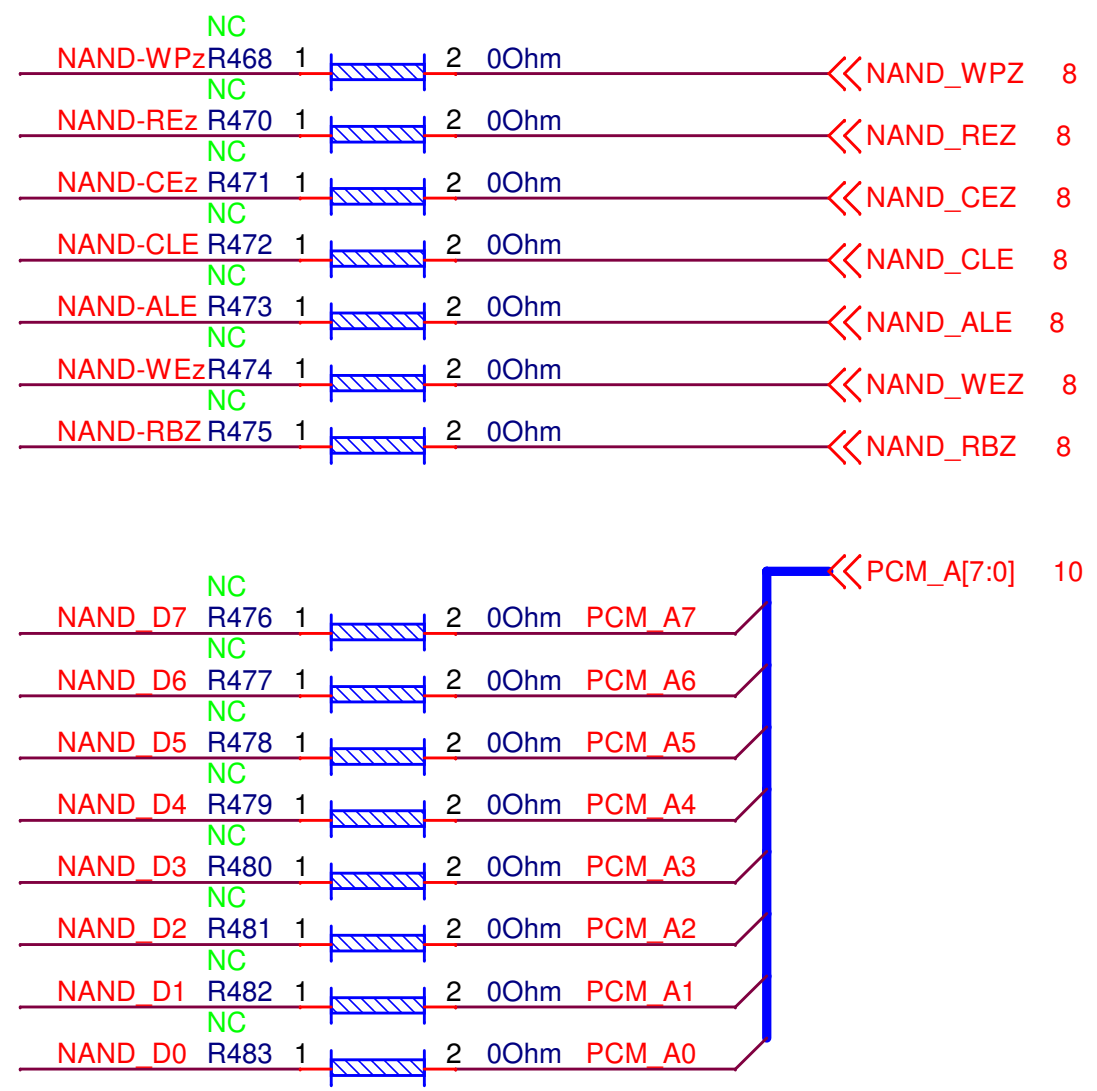
Unihan		Title : SPDIF OUT	
MAIN BOARD		Engineer: Jeff Y Hsiao/Jerry Lo	
Size A	Project Name L2300		Rev 1.03a
Date: Thursday, December 20, 2012		Sheet 18 of 23	

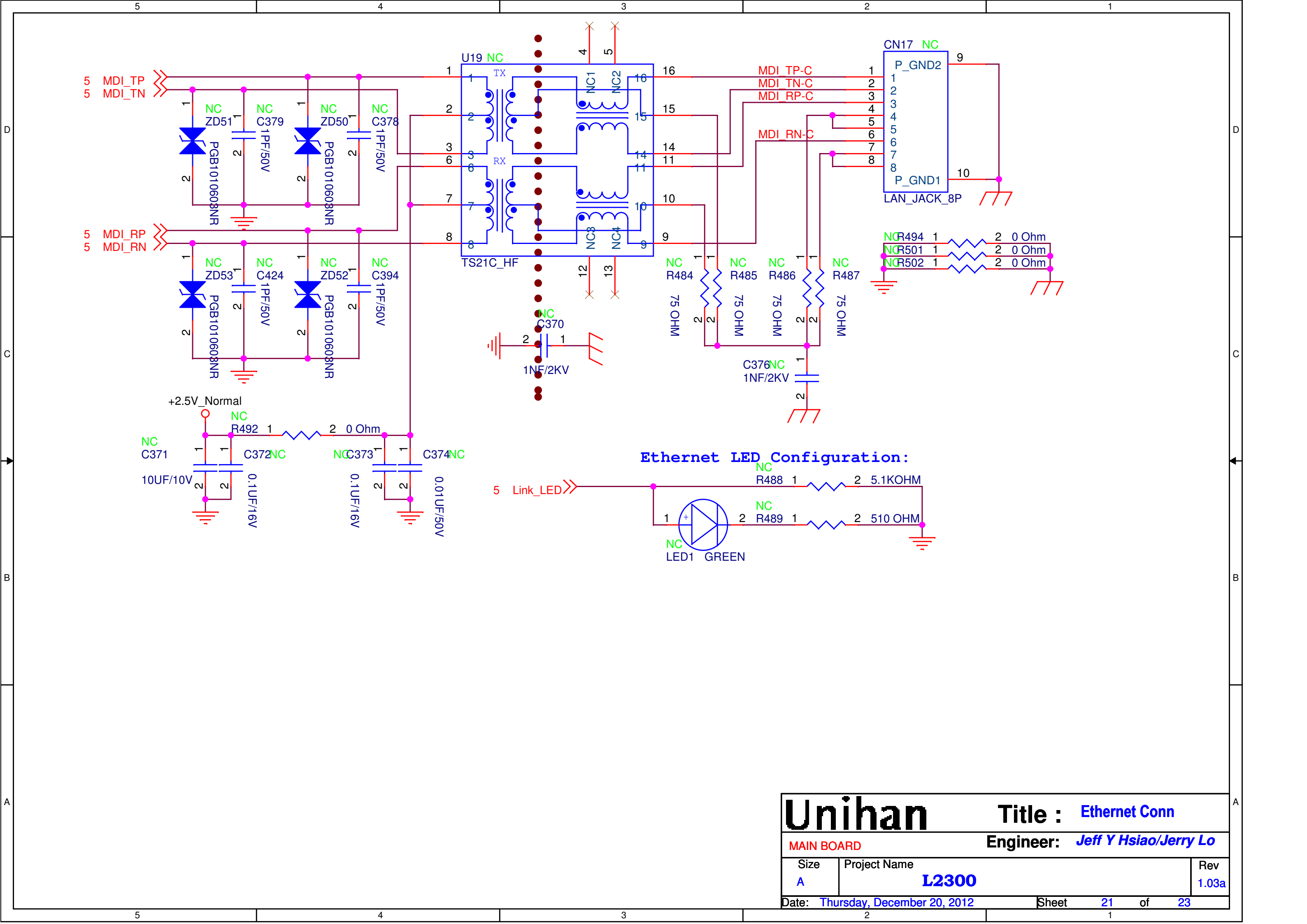


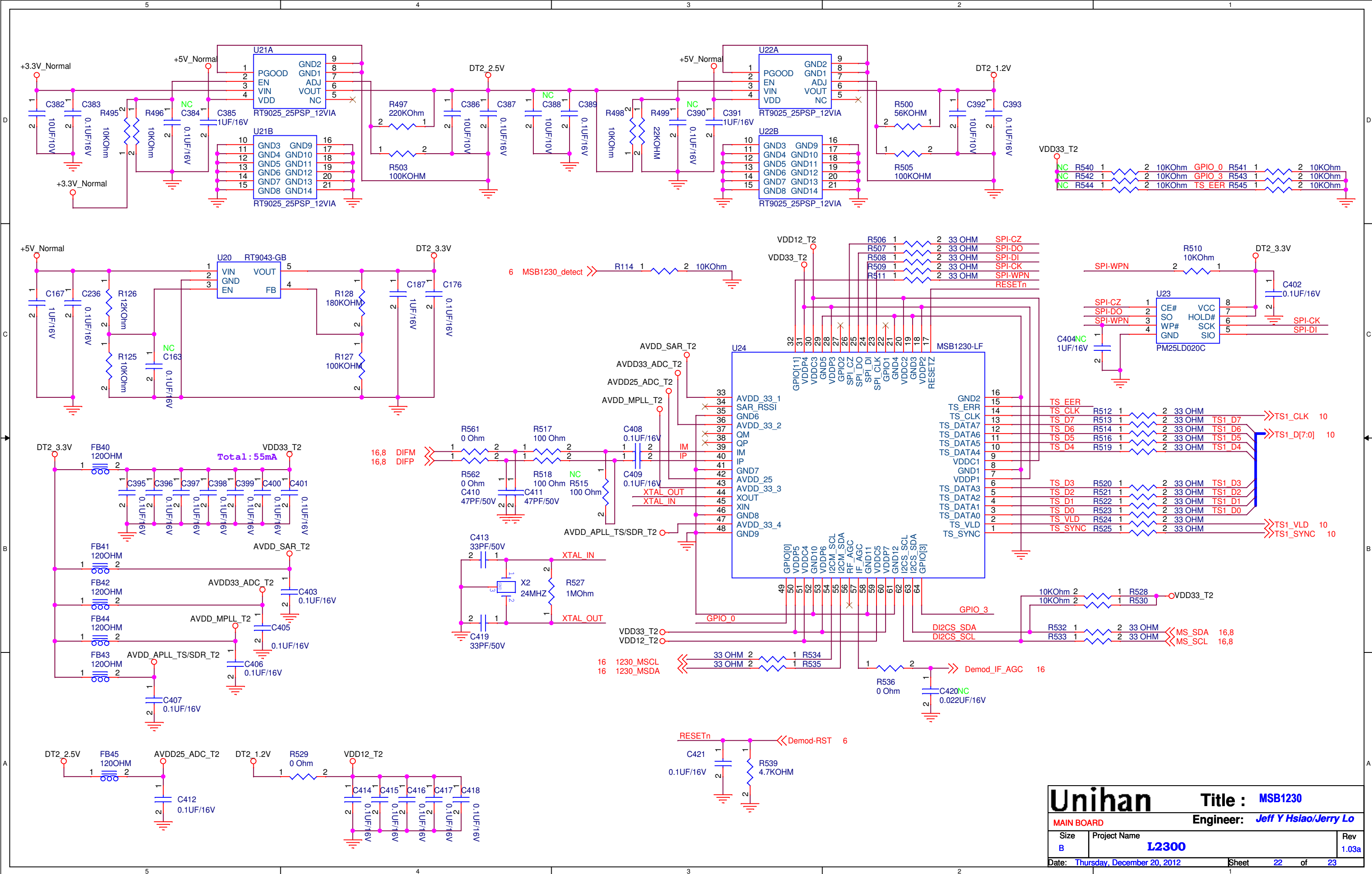
Unihan		Title : USB	
MAIN BOARD		Engineer: Jeff Y Hsiao/Jerry Lo	
Size A	Project Name L2300		Rev 1.03a
Date: Thursday, December 20, 2012		Sheet 19	of 23

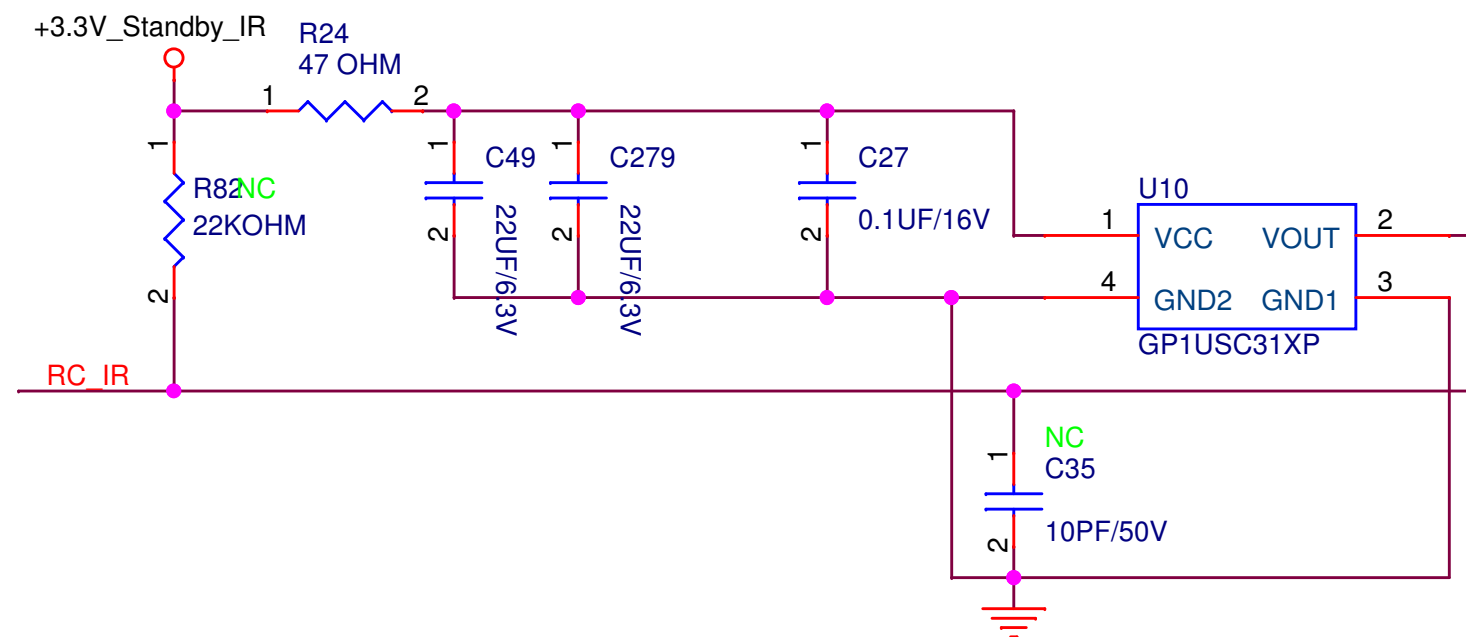
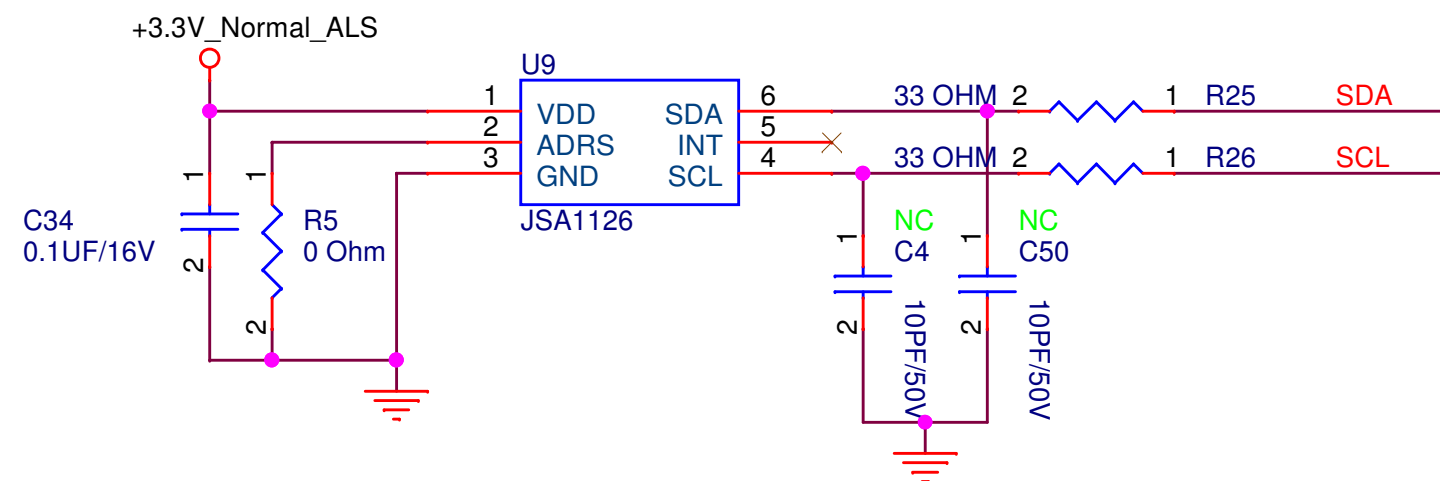
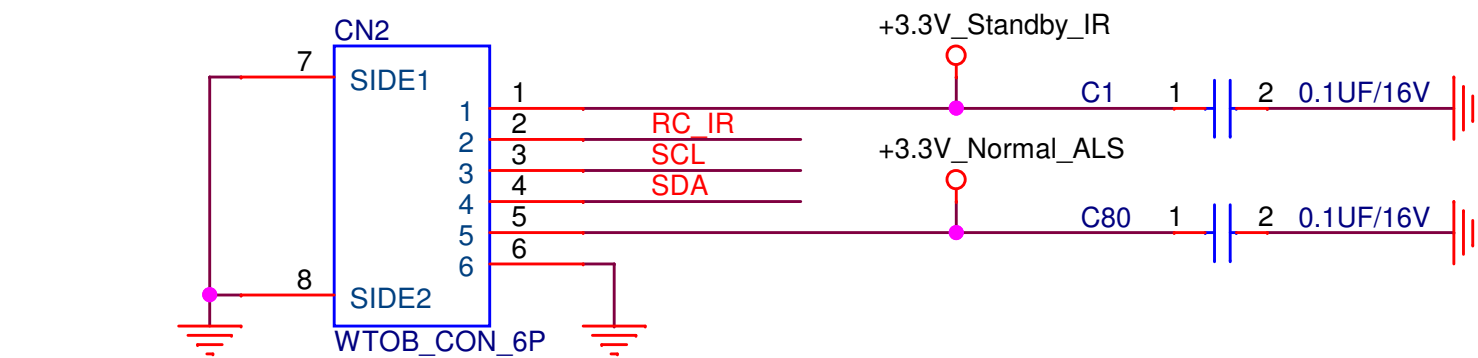


1Gbit: Hynix-----0500-00SJ000









Uni han		Title : IR_ALS	
MAIN BOARD		Engineer: Jeff Y Hsiao/Jerry Lo	
Size A	Project Name L2300		Rev 1.03a
Date: Thursday, December 20, 2012		Sheet 23 of 23	

Subject: PCB Outline Drawing

Part No.: BK.01191.001

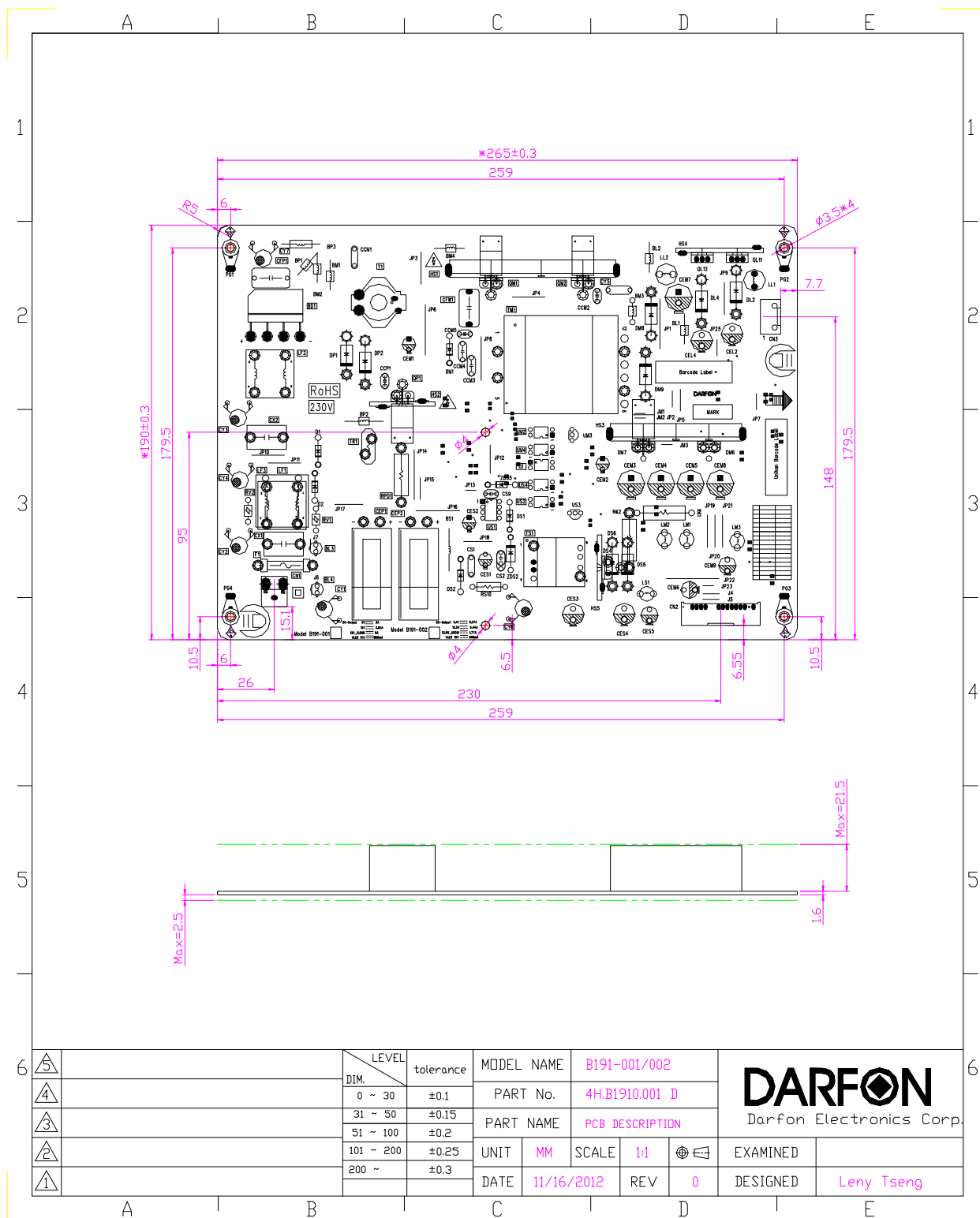
Rev.: 0

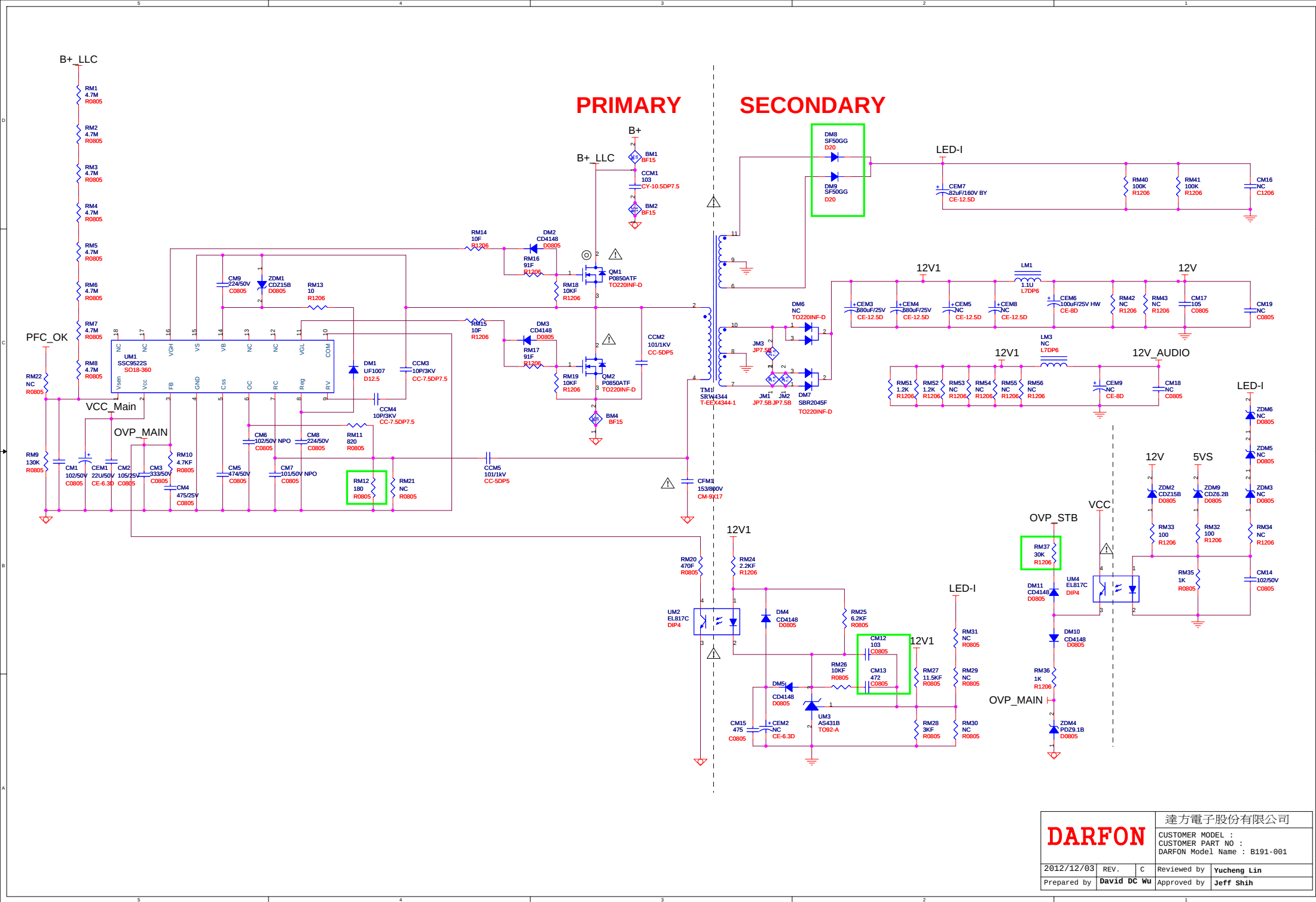
Doc. No.: 209-C002

Project Code: BK.01191.001

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Model Name: B191-001





DARFON				達方電子股份有限公司	
CUSTOMER MODEL :				B191-001	
CUSTOMER PART NO :				B191-001	
2012/12/03	REV.	C	Reviewed by	yucheng Lin	
Prepared by	David DC Wu	Approved by	Jeff Shih		

