THOMSON

SERVICE MANUAL

CHASSIS MT62F

Contents

This manual is the latest at the time of printing, and does not include the modification which may be made after the printing, by the constant improvement of product.

F11 MT62F FDS

		24FS3246	26HS3246	32FS3246	37FS3246	40FS3246
	Picture					
Market	Going Price Euro at Intro.					
	Target Volume (K)					
	Intro date/month/qtr.	Apr. 2010	Apr. 2010	Apr. 2010	Apr. 2010	Apr. 2010
	Project Start date					
	Key Distrubution Channel/s	MM, BG, CH, TS	MM, BG, CH, TS	MM, BG, CH, TS	MM, BG, CH, TS	MM, BG, CH, TS
Set Level	Type Classification	Small Screen	Small Screen	Small Screen	Large Screen	Large Screen
	Sizes	24W	26W	32W	37W	40W
	Chassis platfrom	MT62F	MT62F	MT62F	MT62F	MT62F
	Styling	F11	F11	F11	F11	F11
Panel Level	Panel Type	LCD	LCD	LCD	LCD	LCD
	BLU	CCFL	CCFL	CCFL	CCFL	CCFL
	Resoulution	FHD	HD	FHD	FHD	FHD
	60Hz/120Hz	60Hz	60Hz	60Hz	60Hz	60Hz
	Contrast Ratio	Supplier to specify	Supplier to specify	Supplier to specify	Supplier to specify	Supplier to specify
	Brightness	400nits or Less	400nits or Less	400nits or Less	400nits or Less	400nits or Less
	View Angle	Supplier to specify	Supplier to specify	Supplier to specify	Supplier to specify	Supplier to specify
	Anti reflex coated glass	Supplier to specify	Supplier to specify	Supplier to specify	Supplier to specify	Supplier to specify
	Dynamic Contrast	Yes	Yes	Yes	Yes	Yes
	Light sensor	Yes	Yes	Yes	Yes	Yes
	Backlight Control	Yes	Yes	Yes	Yes	Yes
Front End + Digital requirement	Anlogue/Digital	2 in 1	2 in 1	2 in 1	2 in 1	2 in 1
	MPEG2	Yes	Yes	Yes	Yes	Yes
	MPEG4	Yes	Yes	Yes	Yes	Yes
	DVB-T/ T2/ C frontend	DVB-T/C	DVB-T/C	DVB-T/C	DVB-T/C	DVB-T/C
	DVB-S/S2	No	No	No	No	No
	MHEG 1.06	No	No	No	No	No
	CI(PCMCIA)	Yes	Yes	Yes	Yes	Yes
	CI+	Yes	Yes	Yes	Yes	Yes
	OAD	Yes	Yes	Yes	Yes	Yes
	DVBT CVBS output	Yes	Yes	Yes	Yes	Yes
Picture	Comb Filter	3D	3D	3D	3D	3D
	De-interlacing	3D	3D	3D	3D	3D
Sound	Sound Output	2 X 3W	2 X 3W	2 X 5W	2 X 5W	2 X 5W
	No of Speakers	2	2	2	2	2
	Mono/Stereo/BBE	Stereo	Stereo	Stereo	Stereo	Stereo
Feature	MEMC	No	No	No	No	No
	Teletext	Teletext 1.5	Teletext 1.5	Teletext 1.5	Teletext 1.5	Teletext 1.5
	No of pages(Teletext)	1000p	1000p	1000p	1000p	1000p
	Close Caption	No	No	No	No	No
	HD Video Playback	Yes	Yes	Yes	Yes	Yes
	MP3 Playback	Yes	Yes	Yes	Yes	Yes
	Photo viewer	Yes	Yes	Yes	Yes	Yes
	OSD Languages	English, Spain, French, German, Italy, Czech, Croatian, Danish, Hungarian, Dutch, Norwegian, Polish, Portuguese, Romanian, Slovak, Slovenian, Serbian, Finnish, Swedish, Turkish, Greek, Bulgarian, Russian,Latvian,Lithuanian,Estonian, Ukrainian	English, Spain, French, German, Italy, Czech, Croatian, Danish, Hungarian, Dutch, Norwegian, Polish, Portuguese, Romanian, Slovak, Slovenian, Serbian, Finnish, Swedish, Turkish, Greek, Bulgarian, Russian,Latvian,Lithuanian,Estonian, Ukrainian	English, Spain, French, German, Italy, Czech, Croatian, Danish, Hungarian, Dutch, Norwegian, Polish, Portuguese, Romanian, Slovak, Slovenian, Serbian, Finnish, Swedish, Turkish, Greek, Bulgarian, Russian,Latvian,Lithuanian,Estonian, Ukrainian	English, Spain, French, German, Italy, Czech, Croatian, Danish, Hungarian, Dutch, Norwegian, Polish, Portuguese, Romanian, Slovak, Slovenian, Serbian, Finnish, Swedish, Turkish, Greek, Bulgarian, Russian,Latvian,Lithuanian,Estonian, Ukrainian	English, Spain, French, German, Italy, Czech, Croatian, Danish, Hungarian, Dutch, Norwegian, Polish, Portuguese, Romanian, Slovak, Slovenian, Serbian, Finnish, Swedish, Turkish, Greek, Bulgarian, Russian,Latvian,Lithuanian,Estonian, Ukrainian
	PIP/PAT/PAP/PIC/PAC	PAT/PAP	PAT/PAP	PAT/PAP	PAT/PAP	PAT/PAP
	Color tone adjustment	No	No	No	No	No
	Switch on Time	8 seconds	8 seconds	8 seconds	8 seconds	8 seconds
	PVR	Yes	Yes	Yes	Yes	Yes
	OAD	Yes	Yes	Yes	Yes	Yes
	12V\24V DC input	No	No	No	No	No
	ECO	NO	NO	Yes	Yes	Yes
	Build-in IB	NO	NO	NO	NO	NO
	PC capability (up to maximum	WXGA	WXGA	WXGA	WXGA	WXGA
Rear Connectivity	Rear CVBS in	1	1	1	1	1
	Rear CVBS out	No	No	No	No	No
	Rear YPbPr	1	1	1	1	1
	Rear HDMI	2	2	2	2	2
	Audio Output	No	No	No	No	No
	SCART 1	Yes	Yes	Yes	Yes	Yes
	SCART 2	No	No	No	No	No
	PC Input	Yes	Yes	Yes	Yes	Yes
	SPDIF	coaxial	coaxial	coaxial	coaxial	coaxial
	Headphone jack	Yes(PC Input)	Yes(PC Input)	Yes(PC Input)	Yes(PC Input)	Yes(PC Input)
	Ethernet (RJ-45)	No	No	No	No	No
	Jack audio in 3.5mm	Yes	Yes	Yes	Yes	Yes
	USB connector	No	No	No	No	No
Side Connectivity	Side CVBS in	No	No	No	No	No
	Side HDMI	1	1	1	1	1
	Side Headphone	1	1	1	1	1
	Side USB	Yes	Yes	Yes	Yes	Yes
Local Keyboard	No of keys	6	6	6	6	6
	Front/Side	Side	Side	Side	Side	Side
Mechanical	Front Cabinet	HG spray paint	HG spray paint	HG spray paint	HG spray paint	HG spray paint
	Back Cabinet	As Moulded	As Moulded	As Moulded	As Moulded	As Moulded
	DVD slot in	No	No	No	No	No
	Remote control	TBD	TBD	TBD	TBD	TBD
	Table Top Stand	Yes	Yes	Yes	Yes	Yes
	Hard switch	No	No	No	No	No
	Swivel Stand	No	No	Yes	Yes	Yes
Misc	Voltage Range	230V	230V	230V	230V	230V
	Standby Power	< 1W	< 1W	< 0.3W	< 0.3W	< 0.3W
	VESA Mount	Yes	Yes	Yes	Yes	Yes
	Desination	Whole Europe	Whole Europe	Whole Europe	Whole Europe	Whole Europe

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TCL WW R&D
FPD CENTER

Factory Alignment Specification of normal SIACP

For MT5362 serial

Version：V0.2

For the following Chassis：

MT62L:A mini edition of MT62B

MT62S: MT62B + MS6M20(MEMC module) for super slim LCD

MT62F:A full function edition of MT62B

PREPARED BY : Wei Lin DATE : 2010-04-16

APPROVED BY : DATE :

Disclosure

The information contained in this document is proprietary to TCL SZ FPD lab and shall not be disclosed by the recipient to third persons without the written permission of the team leader or GM of R&D.

Revision History

Status, Ver	Date, Drafter	Description of changes
V0.10	2010-02-07	This is the first version of normal SIACP • HDMI as the main absolute input • The password of factory menu is 9735
V0.20	2010-04-14	• Upgrade specs for High Pot. and Insulating Resistance Tests • Upgrade USB upgrade SW method

These chassises are designed for European LCD TV with MPEG4. The main chip is from Mediatec (MT5362 series) and supports below inputs and outputs:

class	item	MT62L	MT62S	MT62F	
input & output	**ATV** (PAL B/G D/K I, SECAM B/G D/K L/L)	√	√	√	
	DTV (DVB-T,DVB-C,DVB-S)	DVB-T	DVB-T DVB-C	DVB-T DVB-C DVB-S	
	HDMI (480i/p, 576i/p, 720p up to 1080i/p, compliant v1.2. with HDCP)	2	5	3	
	VGA		√	√	
	VGA/DVI audio	√	Share with CMP	√	
	CMP (YPrPb can support from 480i up to 1080p,audio)	√	√	√	
	SCART1 (CVBS & RGB,audio)	√	√	√	
	SCART2 (CVBS & YC,audio)				
	Side AV or back AV (CVBS,audio)			Back AV	
	USB player (picture,video,audio)	Picture	Picture, Video, audio	Picture, Video, audio	
	SCART1 output (CVBS,audio)	√	√	√	
	SCART2 output (CVBS,audio)				
	Headphone output			√	
	SPDIF output	Coaxial	Optical	Coaxial	
function	**MEMC**		√		
	CI+		√	√	
Others	**Serial connector**	P5	P16	P3	
	I2C connector of MEMC module		PM3		

Serial connector of MT5362 definition:

Pin1:VCC Pin2:RXD Pin3:TXD Pin4:GND

I2C connector of MEMC definition:

Pin1:VCC Pin2:GND Pin3:SCL Pin4:SDA

INFO:

↳ All tests and measurements mentioned hereafter have to be carried out at a normal mains voltage (**220 ~ 240 VAC**)
↳ All voltages have to be measured with respect to ground, unless otherwise stated
↳ All final tests have to be done on a complete set including LCD panel in a room with temperature of **25+/-7°C**
↳ The White Balance (color temperature) has to be performed into subdued lighted room after at least **1 hour** of warm-up/burn-in. This is applicable for both Alignment and Picture Performance evaluation at OQA in order to be set free of any temperature drift (colorimetry vs time)

1. Electrical Assembly Alignment

1.1. *Preconditions – DC/DC Check*

Before power on, please check the board according to the relevant block diagram and circuit diagram, and make sure that no serious error should destroy the board. For example,the output of DC/DC and LDO should not shorted to ground.

Supply a suited voltage and power on , then check the voltage according to the relevant block diagram , circuit diagram and voltage spec . the error should less than 5% .For example, the voltage for main chip(DV33, AV33,DV18,DV11,etc.), the voltage for DDR (DDRV) , the voltage for amplifier(AUDIO_PWR),etc. Only the standby voltage is necessary if there is no software in the flash .

1.2. *SW download*

Download the latest release MT62_SW into the flash using MTK SW tool. See Appendix❷ "**How to download FLASH SW**". Or upgrade the SW from USB port See Appendix❸**" How to upgrade FLASH SW from USB"**.

Download the latest release MEMC_SW (skip this step if no MEMC module on the chassis). See Appendix❻ "**How to download FLASH SW for MEMC module**".

1.3. Panel ID check and modify

There is different ID stored in the NVM depended on different Panels. Modify it with Hyper terminal if the initial ID or a wrong ID make the set can not display clearly. See Appendix❺. It can be checked and modified in **Factory menu**->**Feature**->**Panel ID** if the set can display clearly . The set should be restart if the panel ID is changed .

1.4. Functional Test

Once the boards (chassis, KB, IR, PSU…) and the panel are well interconnected, connect all external generator devices to relevant inputs/outputs below according to their respective test patterns format and check picture content and sound quality accordingly:

Source	**Test signal** (generator)	**Test pattern** (format/image)
Analog /Digital Tuner	RF cable	Full Band (VHF/UHF) + CATV DVB-T
Composite(CVBS)	Chroma/Fluke	PAL Half Color & Gray bars
SCART1 (CVBS) SCART1 (RGB)	Chroma/Fluke	PAL Half Color & Gray bars Half Color & Gray bars
SCART2 (CVBS) SCART2 (Y/C)	Chroma/Fluke	PAL Half Color & Gray bars
VGA	Chroma/QuantumData	1024x768@60Hz

		Half Color & Gray bars
CMP (YPrPb)	Chroma/QuantumData	1080i@60Hz Half Color & Gray bars
HDMI	DVD with HDMI compliancy	Movie 720p@60Hz
Headphone	RF cable	First channel
Loud Speakers	RF cable	First channel
SCART1 (CVBS out)	RF cable	First channel
SCART2 (CVBS out)	Chroma/Fluke	PAL Half Color & Gray bars

Audio tones can be defined by the factory (ie: 1KHz & 3KHz, sweep, …).
Picture video formats can be changed by the factory according to their own standard.

1.5. ADC Calibration

To ensure the ADC performance, the error of "generator+cable" must be less than 2%. The following inputs require an ADC calibration for the time being.

- **VGA**(skip this step if no VGA input on the chassis)

Provide a test signal **1024×768@60Hz** with **WhiteBlack squares**.

Select the corresponding **FactoryMenu**-> ***ADC Calibration***-> **Auto Color** , then press "**OK**" key on RemoteControl to start. Value of status will change to "**OK**" if succeed.

- **CMP**

Provide a test signal **720p@60Hz** with **100% 8 steps ColorBar**.

Select the corresponding **FactoryMenu**-> ***ADC Calibration***-> **Auto Color** , then press "**OK**" key on RemoteControl to start. Value of status will change to "**OK**" if succeed.

- **Scart RGB**

Provide a test signal **PAL 576i** with **100% 8 steps ColorBar**.

Select the corresponding **FactoryMenu**-> ***ADC Calibration***-> **Auto Color** , then press "**OK**" key on RemoteControl to start. Value of status will change to "**OK**" if succeed.

The mean of status value:

"**NONE**"**=** no input is successful in ADC calibration.

"**OK**"**=** current input is successful in ADC calibration.

"**NOK**"**=** current input is fail in ADC calibration.

"**ALL**"**=** all inputs required are successful in ADC calibration.

R Gain, G Gain, B Gain, R Offset, G Offset, B Offset in **FactoryMenu**-> ***ADC Calibration page*** can be fine-tuned if necessary but not required.

1.6. DDC & EDID Test

The E-EDID data structure are according to VESA Enhanced EDID 1.3 (and EIA/CEA-861B for HDMI).

Both VGA and HDMI have their own separate bin files:

For EDID check, it's needed to check whether the correct EDID is downloaded by checking corresponding EDID NVM Checksum or read them out to check bit by bit if it is in line with the released EDID bin file.

1.7. HDCP Test

For HDCP compliancy, it's needed to check whether the HDCP key has been well set.

1.8. CI+ Key activation and test(This step is only for the models with CI+ function)

Select factory menu-> **Update CI+ Credential**-> **Update CI+ Credential** , then press "**OK**" key on RemoteControl to active the CI+ KEY. The Valid(CI+ state) state turn to "Yes" and Cus Code(Custom Code), Serial Num display if succeed. Download the CI+ Key and try to active it again if fail.

2. Final Assembly Alignment

2.1. FactoryMenu

Follow the below steps to pop-up the Factory Menu in case of "**FactoryKey**" is disable:
- press RemoteControl key "**MENU**" to display main menu
- Select "Picture" and press "**OK**" key to enter the picture submenu
- Select "Contrast" item
- press the subsequence RemoteControl keys "**9**", "**7**", "**3**" and "**5**"

Press RemoteControl key "**Blue**" To pop-up the Factory Menu in case of "**FactoryKey**" is enable.

The status of "**FactoryKey**" can be changed in **FactoryMenu**->**System**-> **FactoryKey**

Press RemoteControl "**OK**" key or "**RIGHT**" key to enter the submenu.
Press RemoteControl "**Menu**" key to go back to the root menu.
Press RemoteControl "**RIGHT**"or "**LEFT**" key to change the values.
Press RemoteControl "**OK**" key run the function.
Press RemoteControl "**Exit**" key exit the factorymenu.

2.2. Entering to "P" Mode

Turned on the factory key to enter into "P" mode.The TV will display "P" in bottom left corner in "P" mode.

2.3. White Balance Alignment

Make sure that the picture mode is **"vivid**", enter to **"P" mode**(turned on the factory key) and **switch off** "**Pic. Enhance**" in **Factory Menu**-> **WD Alignment** before white balance alignment .

VGA,**CMP**,**SCART RGB**,**DTV**,**CVBS_PAL** Color Coordinates are relative to HDMI.

CVBS_SECAM and **CVBS_NTSC** Color Coordinates are relative to CVBS_PAL.

Warm and **Cool** Color Coordinates are relatives to **Normal** mode.

Only **HDMI(YUV 720p@60Hz)** input requires color temperature adjustment. **All the Relative Matrix Offsets** should be set while doing alignment.

- **Expected Targets and Tolerances**

The measured parameters should be "x, y" coordinates.

The White Balance alignment should be performed using a contact less analyzer (ei: Minolta CA-210). The analyzer may not touch the screen surface, and measurement must be performed in a

dark environment keeping the probe(s) at 90+/-2° from the panel.

The result should measure up the relevant spec.

The alignment have to fulfill the requirements in Application Form.

- **Alignment FlowChart**

Provide a test signal on the input and align the WB as described inside attached document ensuring first that the BackLight value is matching below table:

MTK_EuroAlignmentFlowchart.doc

2.4. High Pot. and Insulating Resistance Tests

At the end of the process, a High Pot. and an Insulating Resistance tests are required for matching Safety Electrical requirements (ei: xxxx)

- **High Voltage Withstanding requirements**

- "Voltage" ⇨ **3500 VAC**
- "Max Leakage Current" ⇨ **10 mA**
- "Test Time" ⇨ **5 sec**

- **Insulating Resistance requirements**

- "Voltage" ⇨ **DC500V**
- "Threshold Max" ⇨
- "Threshold Min" ⇨ **4MΩ**
- "Test Time" ⇨ **3 sec**

3. Factory default settings

Do the "Reset shop" before packing.The detail of reset shop follow OOB setting.

"Factory Menu" Definition

1). System

Item	Sub-item	Value	Note
System	Factory Key	Off/On	OFF: hotkey is invalid ON : hotkey(blue key) is availability
	Power Mode	Boot/Standby/ Last Status	Boot: Enter power on mode Standby: Enter standby mode Last Status: power on according to last status
	Burning Mode	Off/On	Select panel On with left/right key, Press "EXIT" key to enter the burning mode; Press "Menu" key on keyboard to exit the burning mode
	Pre-Frequency Poland	Run	Press "OK" key to run
	Pre-Frequency Huizhou	Run	Press "OK" key to run
	Pre-Frequency Thailand	Run	Press "OK" key to run
	Reset User		Clear date of NVM in user menu,except the value of language / related installation/Factory setting,then set to the default value.
	Reset All		clear NVM values，and set to default value。
	Reset Shop		Clear date of NVM in user menu,include the value related installation,and Clear date of factory menu except the item of Balance and sound ,set to default value

2). Feature

Item	Sub-item	Value/Sub-item	Note
Feature	FleshTone	Off/On	
	Adaptive Luma Control	Off/On	
	Light sensor	Off/On	Some models have have no this feature.
	Adaptive Backlight	Auto/Low/Mid/High (it should be "On/Off " in 26 inch and smaller ones)	Set the backlight mode
		Backlight Low	Set the backlight value of Low mode
		Backlight Mid	Set the backlight value of Mid mode
		Backlight High	Set the backlight value of High (or Off) mode
		ADP low control point	Set the low point in dynamic backlight control curve
		ADP mid control point	Set the mid point in dynamic

			backlight control curve
		ADP high control point	Set the high point in dynamic backlight control curve
	White Peak Limitator	Off/On	
	TunerAGC	-44~127	
	Project ID	ID	Select panel ID with left/right key, restart the set to take effect.

In MT62F and MT62S chassises:

There is no "Adaptive Backlight" item, "Auto/Low/Mid/High" "Backlight" "ADP low control point" "ADP mid control point" "ADP high control point" are in the "feature" page. There is only "Backlight" item instead of "Backlight Low" "Backlight Mid" "Backlight High". It set the backlight value of current backlight mode.

3). ADC Calibration

Item	Sub-item	Value	Note
ADC Calibration	Source	HDMI,etc	VGA\CMP\scart RGB require Calibration
	Auto color	Run	Press "OK" key to run
	Status	NONE / NOK / OK / ALL	NONE:No source has been calibrated NOK:Current source hasn't been calibrated OK: Current source has been calibrated ALL:All sources have been calibrated
	R Gain		For fine tune ADC manually.
	G Gain		
	B Gain		
	R Offset		
	G Offset		
	B Offset		

4). WD Alignment

Item	Sub-item	Value	Note
WD Alignment	Pic. Enhance	ON/OFF	Press "Right" key to switch off all of the items in the feature submenu. This should be done before white balance alignment. If it's off, the way to switch it on is to reset user/shop or set on the features in Feature sub-item manually.
	Source	HDMI,etc	For balance source: HDMI,VGA,DTV,PAL,SECAM,NTSC,Scart RGB,CPM, HDMI
	Color Temperature	Normal /Warm/Cool	The value of Warm and cool is the offset of Normal mode.
	R Gain		R White balance
	G Gain		G White balance

	B Gain		B White balance
	R Offset		R Gray balance
	G Offset		G Gray balance
	B Offset		B Gray balance
	Scaling Brightness		
	Scaling Contrast		
	Scaling Saturation		
	Auto phase	Run	Press “OK” key to adjust the signal to avoid the ripple in CMP source, it is not necessary.

5). Sound

Item	Sub-item	Value	Note
Sound	VOL_0	0	
	VOL_10	5	
	VOL_50	20	
	VOL_90	145	
	VOL_100	255	

6). Version info

Item	Sub-item	Value	Note
Version info	Project:	***	
	Panel:	***	
	MT62 Ver:	***	
	Date:	***	
	MCU Ver:	***	

7) . Factory Clone& User Clone (MT62S,MT62F have no this function now)

Select “Factory Clone” in the factory menu to ernter the factory clone menu

Item	Sub-item	Value	Note
Fac Clone	TV TO USB(Factory)	DO	Press “Right” key to copy the data(WB,ADC,picture setting,etc) to USB
	USB TO TV(Factory)	DO	Press “Right” key to set the data(WB,ADC,picture setting,etc) from USB

Enter another password “6” “4” “0” “5” in “menu” -> “picture” -> “contrast” status to ernter the user clone menu

	Value	Note
TV TO USB(user)	DO	Press “Right” key to copy the data(channel map,picture setting,etc) to USB
USB TO TV(user)	DO	Press “Right” key to set the data(channel map,picture setting,etc) from USB

8) . Update CI+ Credential (only for the chassises with CI+ function)

Item	Sub-item	Value	Note
Update CI+ Credential	Update CI+ Credential	DO	Press “OK” key to active the CI+ KEY
	Update from USB	DO	Press “OK” key to download the CI+ KEY from USB
	Erase CI+ Credential	DO	Press “OK” key to erase the CI+ KEY
	Valid		Show the CI+ state
	Cus Code		Show the CI+ custom code
	Serial Num		Show the CI+ serial number

Appendix ❶ "How to download MCU SW"

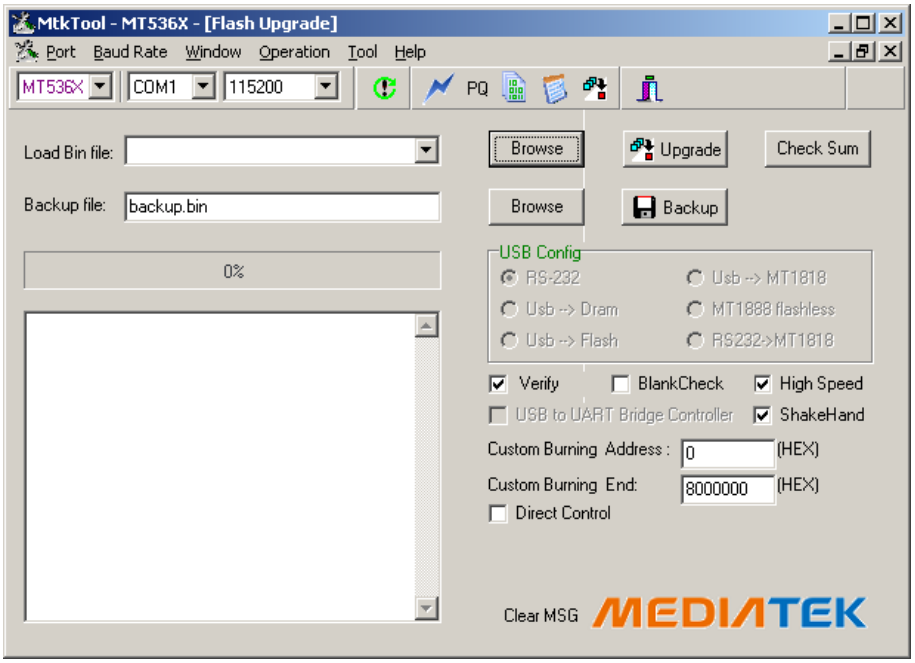
Prepare WT_MCU_ISP SW tool for update.

1. Connect the PC to the serial connector on board using a special serial device(USB or COMx).
2. Provide the a correct voltage to the board.
3. Start "Weltrend MCU ISP.exe" and download the MCU SW. (please see file *Visio-ISPToolGuide_ver090.pdf)*

Appendix ❷ "How to download FLASH SW"

Prepare MTK SW tool for update.

1. Connect the PC to the serial connector on board using a special serial device (USB or COMx).
2. Provide the a correct voltage to the board
3. Start "**MTKTOOL.exe**" application under MTKxx folder, and set the parameters as below picture(notice:select MT836X chassiss):



4. Press "Browse" button to select the corresponding SW bin file to upload
5. Press "Upgrade" button to start downloading the SW and wait the gauge displayed "100%" that means the SW has been successfully downloaded.
   In the meanwhile, all operations such erasing flash and so… are parsed into the debug window script.
6. Once the SW is downloaded, switch-off/on the chassis board and wait few seconds for eeprom update.

See Appendix❸" **How to upgrade FLASH SW from USB"**

Upgrade with loader:

1. Save the new software file(*.pkg) in the root directory of USB, and modify it's name as upgrade.pkg.
2. Plug in the USB when TV set is "power off" or "standby" (TV set should be on "standby" status if using a touch sensing keyboard).

3. Press down “power” key on keyboard, power on if it is on “power off” status , release the “power” key 2~5 second later , the LED on IR board will flash after upgrade begin, the TV set will start up if upgrade succeed.The LED is on but no flash if upgrade fail,check the set and try again.

Upgrade without loader(The TV set should be able to display normally):

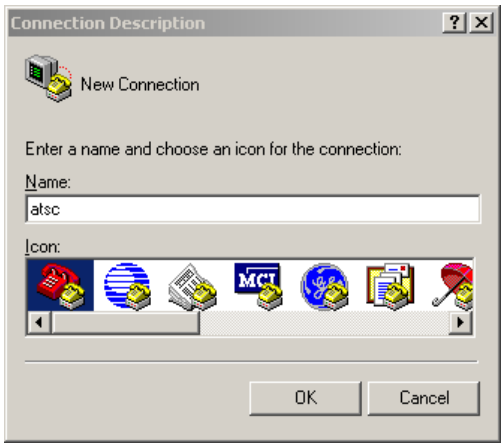
1. Save the new software file(*.pkg) in the root directory of USB, and modify it’s name as upgrade.pkg.
2. Plug in the USB.
3. Upgrade the SW follow the indication display on the screen

Appendix ❺ “Modify panel ID with Hyper terminal”

①. Connect the PC to the board using a special serial device (USB or COMx).
②. Provide a correct voltage to the board
③. Save the password file “password for hyperTerminal.txt” to your computer.

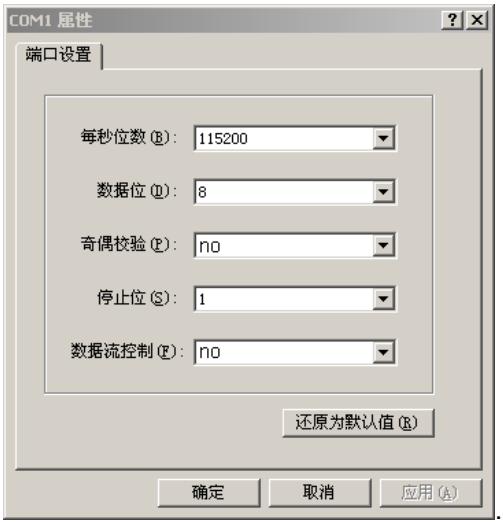
D:\MT62\调试说明\
已发布\password f

④. Start HyperTerminal “HyperTrm.exe” in your computer.
⑤. Fill the name.



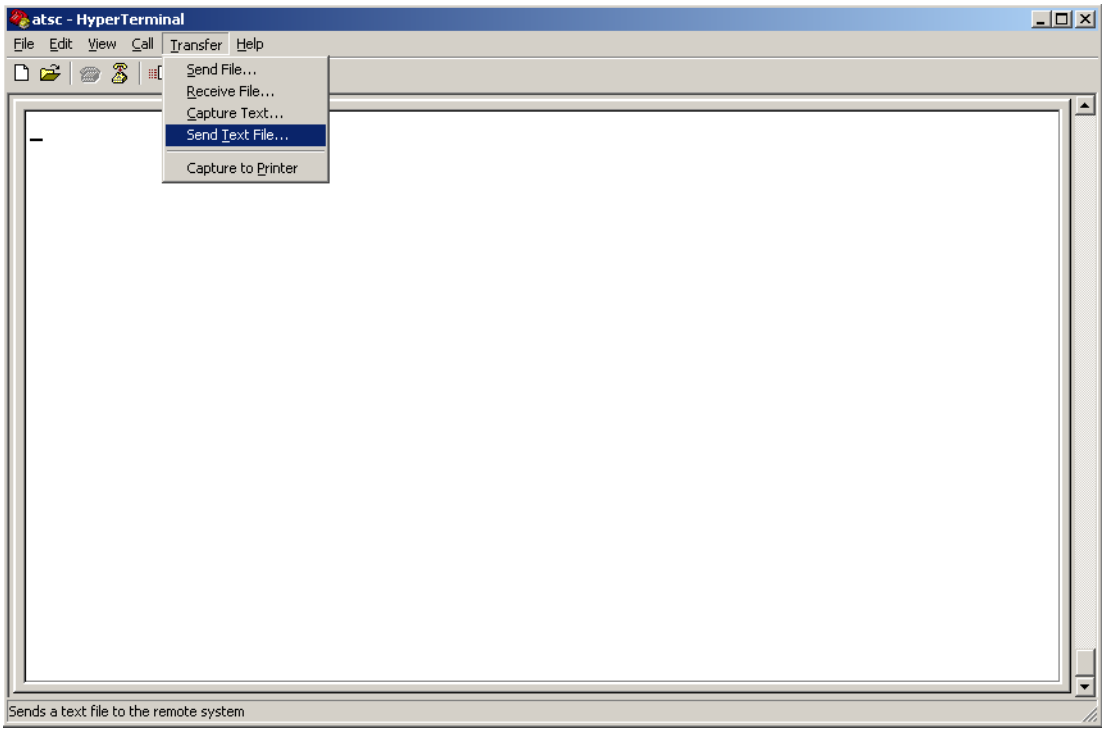
⑥. Select the Com Port you are using.

⑦. Set the items as below picture.

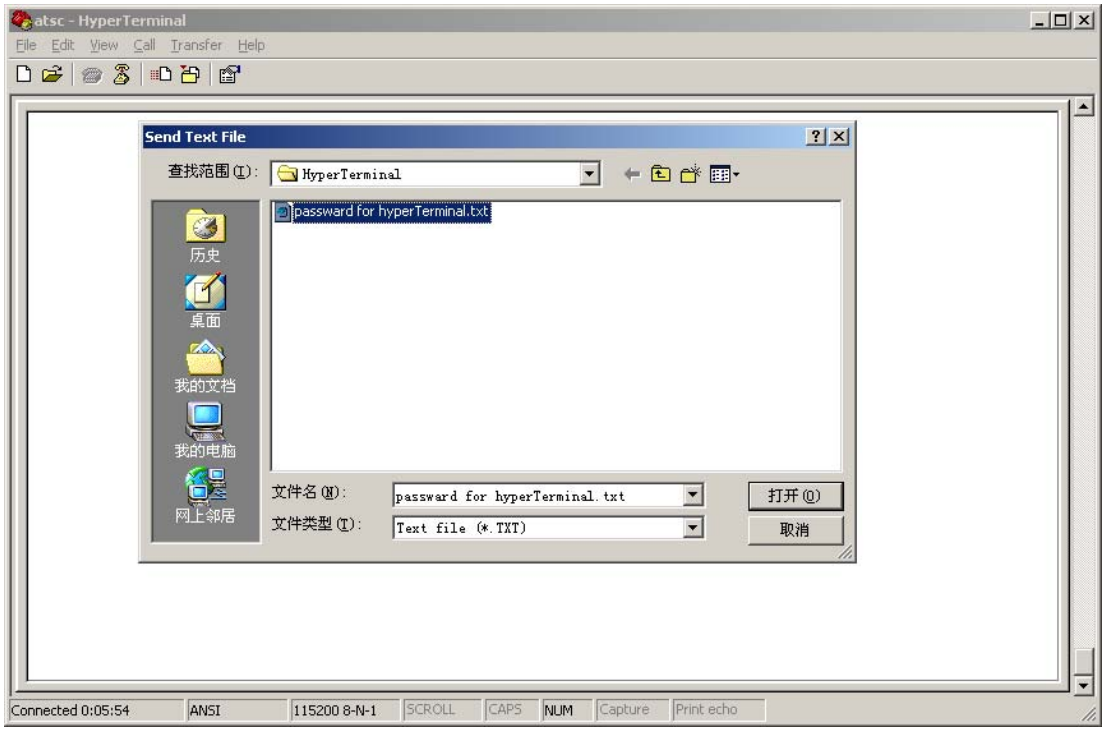


Select “File->Save->” to Save the setting. Then start HyperTerminal “atsc.ht” in your computer instead of step ③ to ⑦ later

⑧. Send the password.

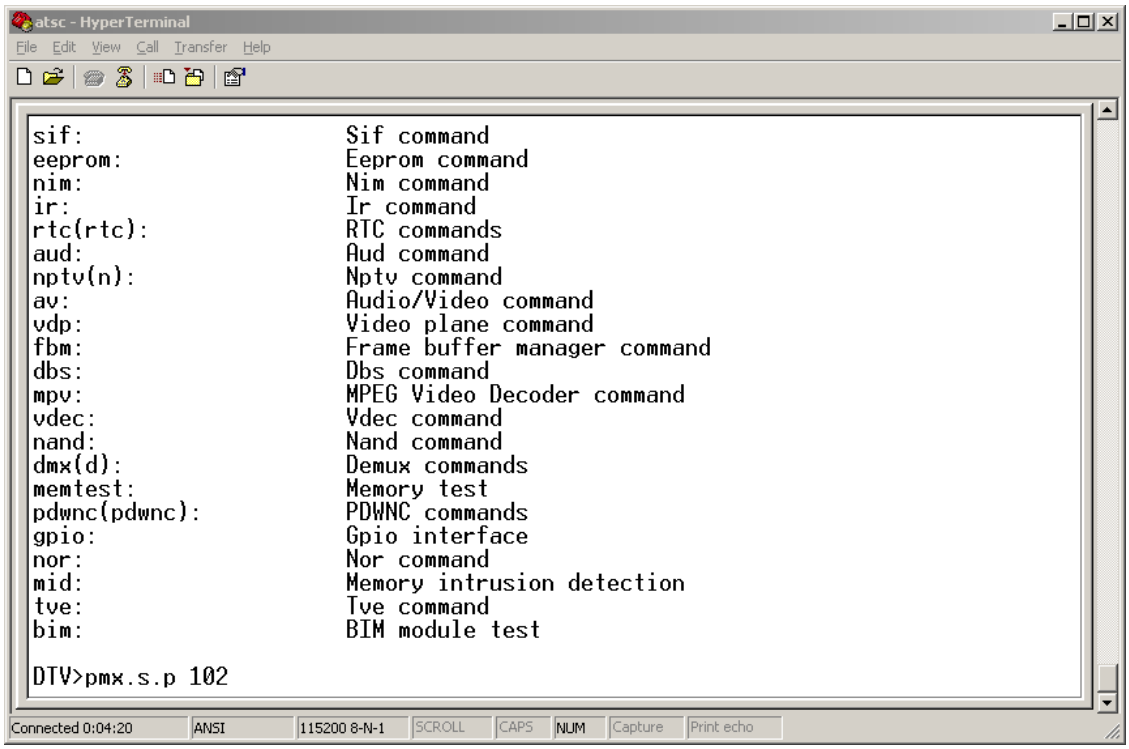


⑨. Select the password file saved in your computer.

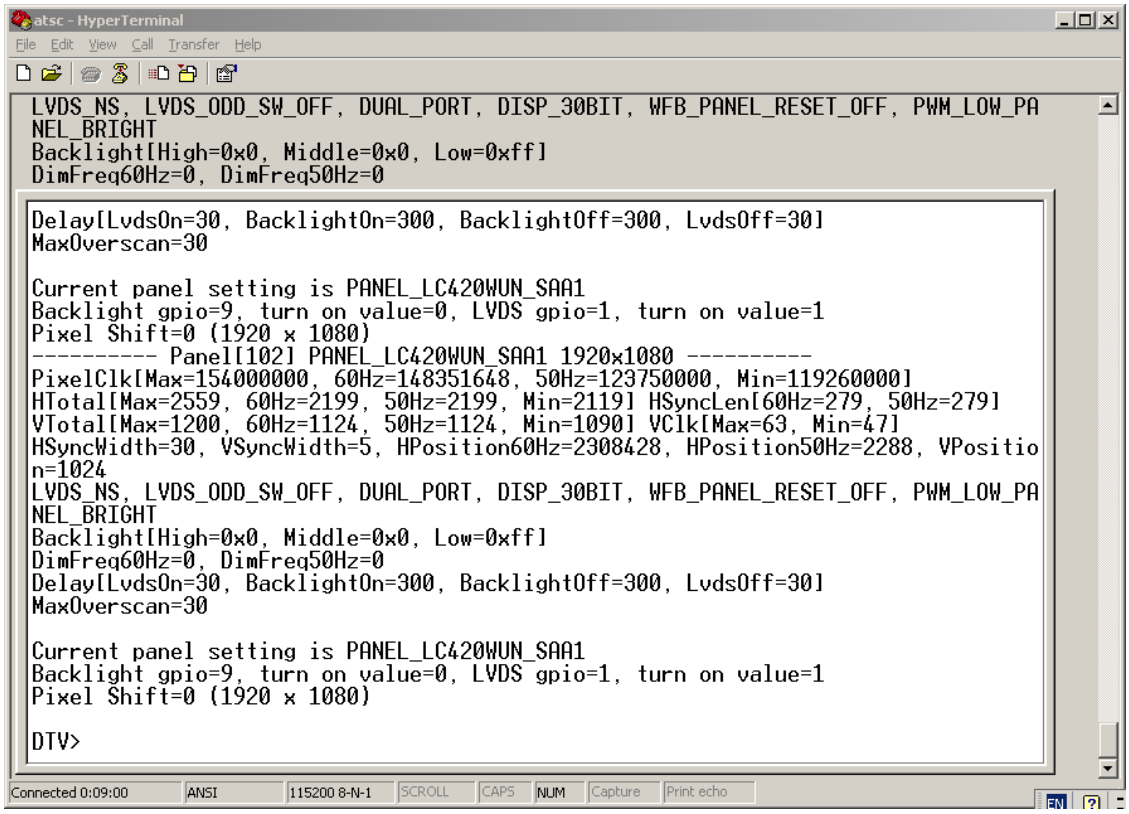


⑩. Under the folder “DTV>” enter “pmx.s.p +ID”,e.g.: pmx.s.p 102

See the panel ID in another document <Panel list for MT62>.



⑪. Press “Enter”, the panel signal will be printed in the window

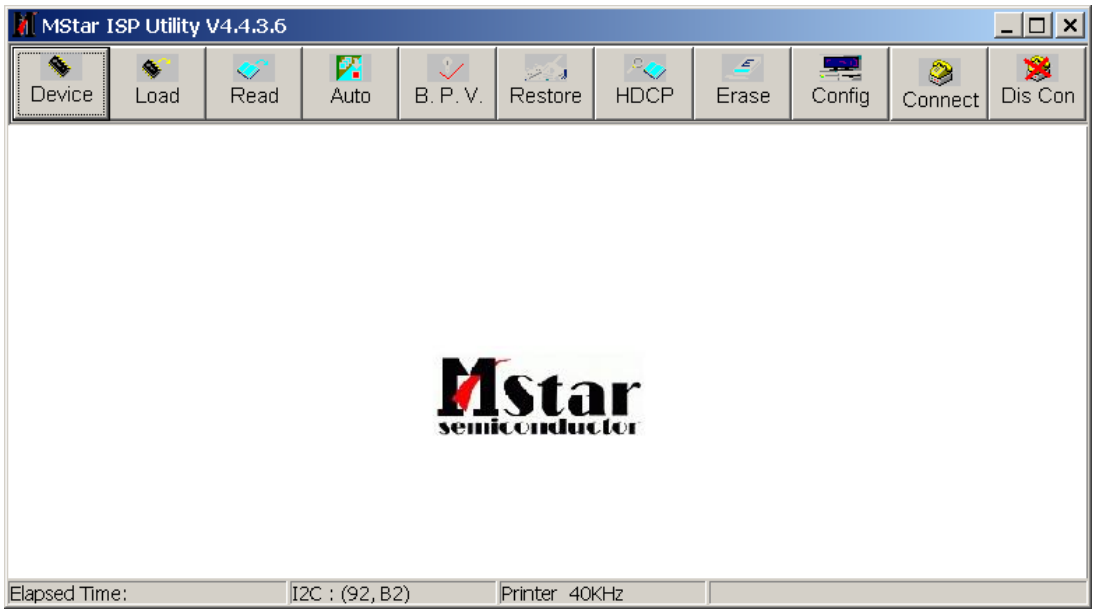


Appendix ❻ "How to download FLASH SW for MEMC module"

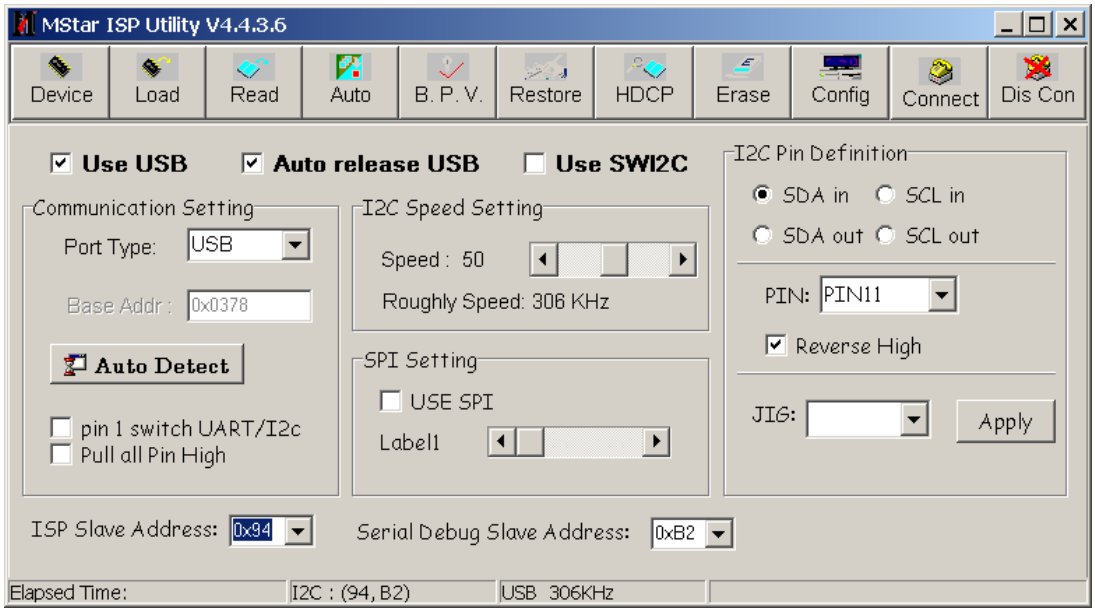
Prepare MSTAR SW tool for update:

- Install the driver:CDM_Setup.exe
- Save the MS_TV folder to your PC,

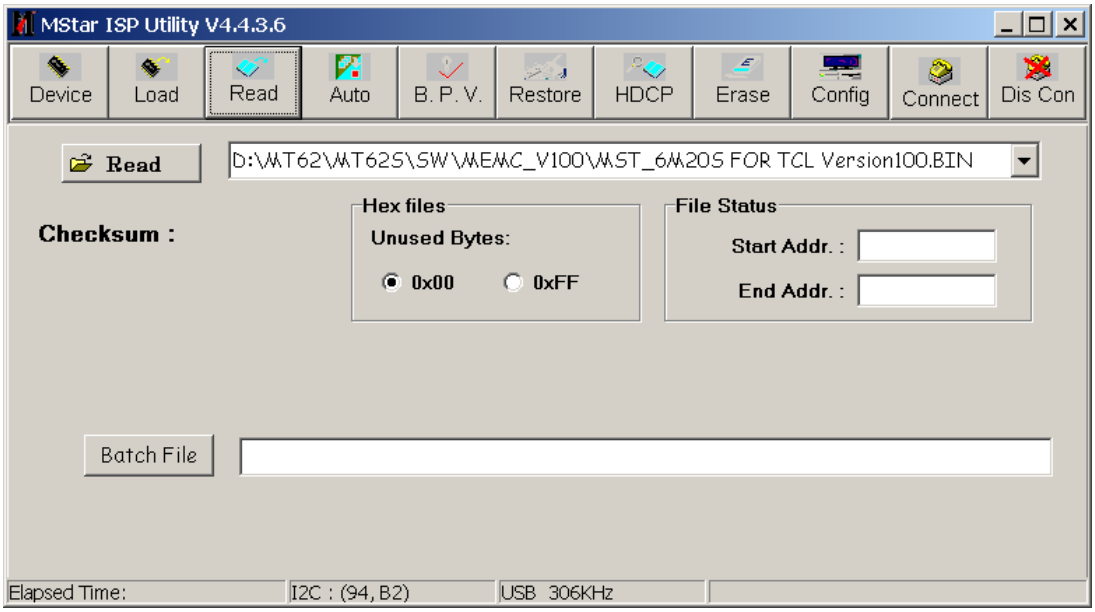
1. Connect the PC to the I2C connector on board using a special I2C device (USB or COMx).
2. Provide a correct voltage to the board.
3. Start "**ISP_Tool.exe**" application under MS_TV folder:



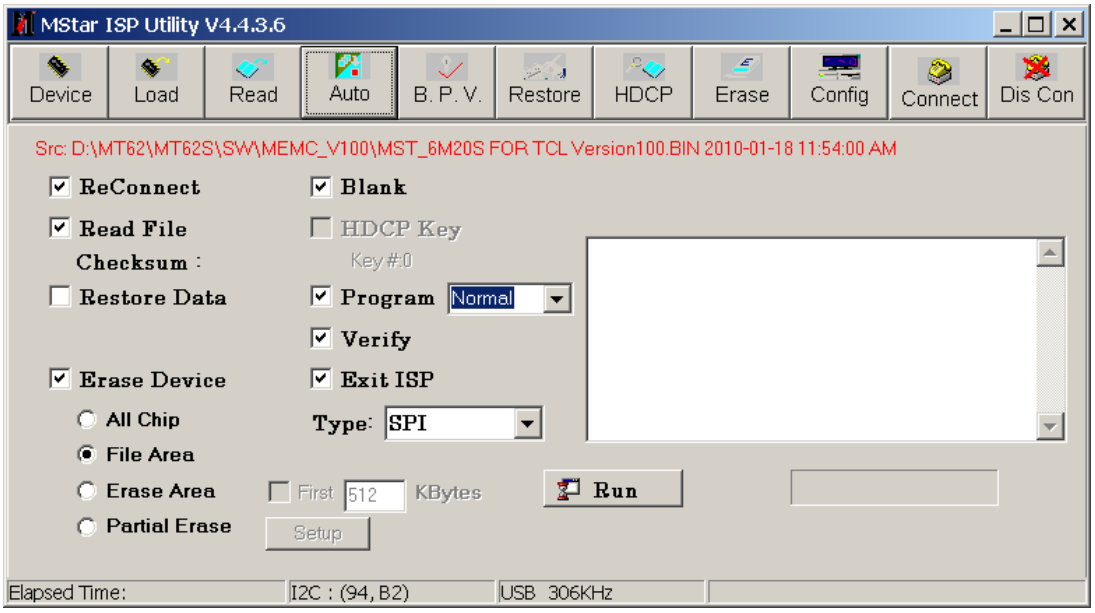
4. Press "config" button On the Menu to enter the corresponding page, change the ISP slave address to "0x94" and confirm that if the Port Type is correct, correct it if not.



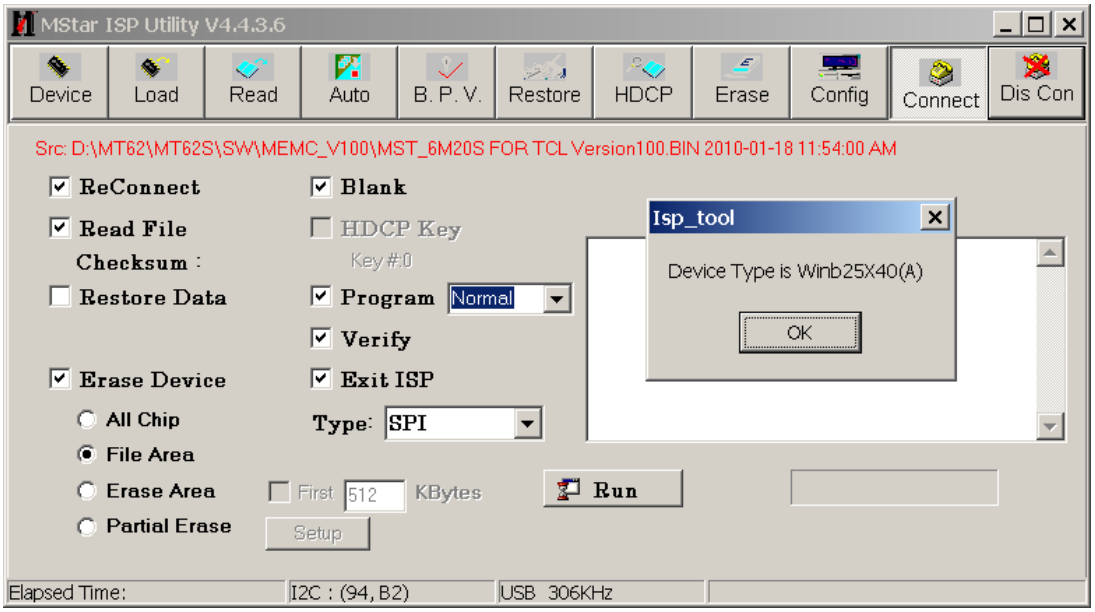
5. Press “Read” button on the Menu to enter the corresponding page and Press “Read” button on this page to load the software(*.bin) on your PC



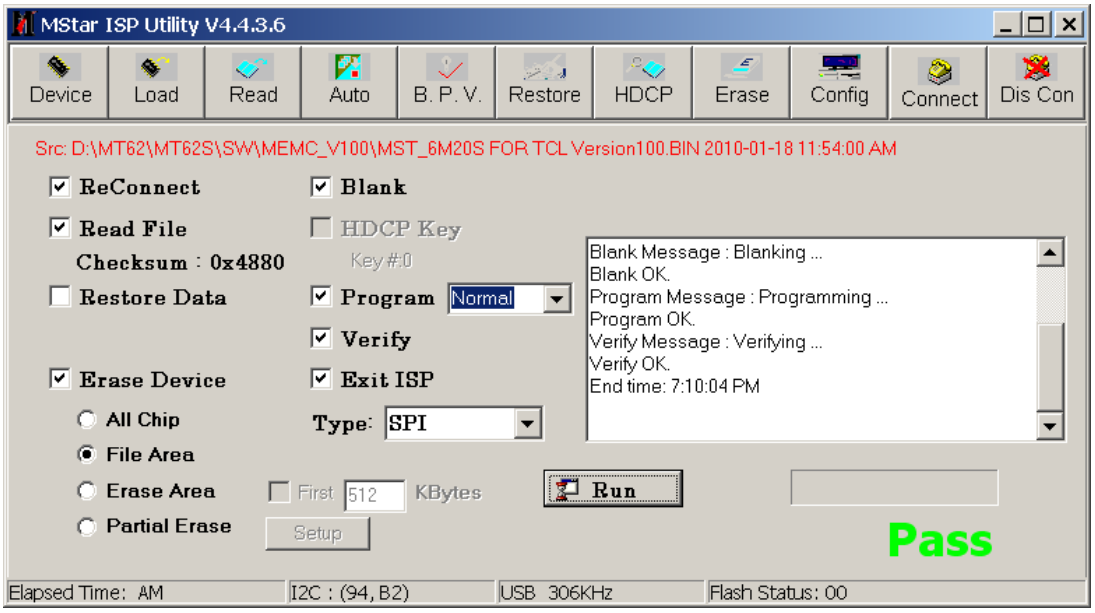
6. Press “Auto” button on the Menu to enter the corresponding page



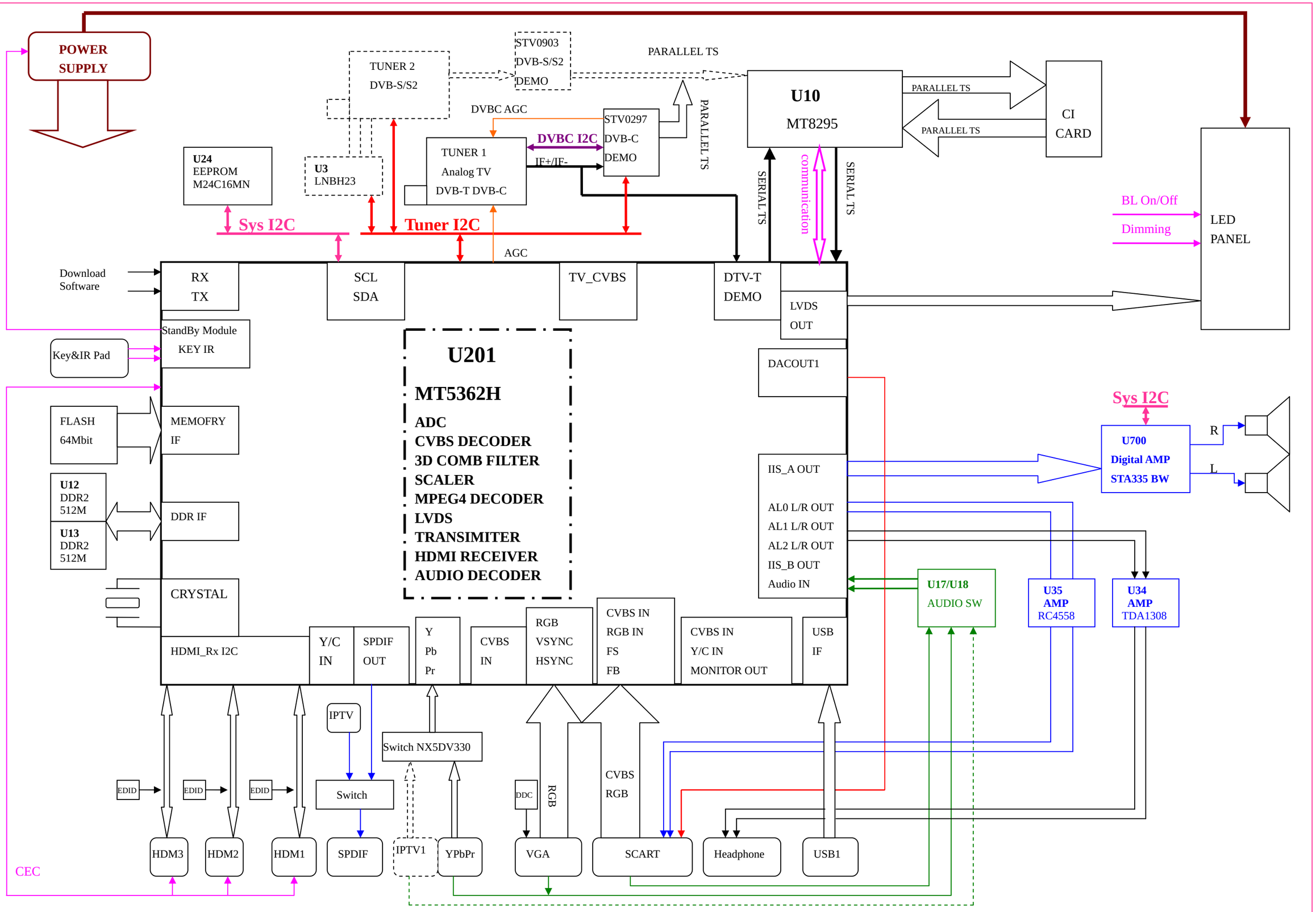
7. Press “Conect” button on the Menu. A message will popup to tell you the result. Press “OK” button to close the message. If fail to connect with “Can’t find the Device Type!! ” Message ,Check the hardware and parameters setting of the ISP_Tool , Press “Dis Con” button , then “Conect” button again, until it identify the flash memory IC.



8. Press “Run” button in the current page to download the software.”Pass” will display on the right bottom corner if succeed.


MStar ISP Utility V4.4.3.6
Device
Load
Read
Auto
B. P. V.
Restore
HDCP
Erase
Config
Connect
Dis Con
Src: D:\MT62\MT62S\SW\MEMC_V100\MST_6M20S FOR TCL Version100.BIN 2010-01-18 11:54:00 AM
ReConnect
Blank
Read File
HDCP Key
Checksum : 0x4880
Key #:0
Restore Data
Program
Normal
Verify
Erase Device
Exit ISP
All Chip
Type:
SPI
File Area
Erase Area
First
512
KBytes
Partial Erase
Setup
Run
Blank Message : Blanking ...
Blank OK.
Program Message : Programming ...
Program OK.
Verify Message : Verifying ...
Verify OK.
End time: 7:10:04 PM
Pass
Elapsed Time: AM
I2C : (94, B2)
USB 306KHz
Flash Status: 00

MT62F BLOCK DIAGRAM_V1.1, Mar 2010



12V
L29 200R
L30 200R
C53 4U7 16V
C75 1000U 16V
C563 NC/470U 16V
C230 0.1U
GND
about 1mm
5V_OUTSIDE
R4 NC
5VOUT
C231 0.1U
R448 10K
D11 LL4148
Q47 BT3904
U16
BOOT PHASE
DRIVE UGATE
FB GND
VCC LGATE
RT8110
D13N03LT
G2 S2 G1 S1
D2B D2A D1B D1A
Q38
L1 15UH
C250 1U
C243 0.01U
R459 2X 68R
C74 1000U 16V
C564 NC/470U 16V
C52 4U7
C244 0.1U
L32 200R
L33 200R
R456 10R
C440 1000P
R445 220R
+5V
U9
AS1117-3.3
VIN OUT GND/ADJ
C233 100U 6V3
C236 0.1U
U33
NC/AIC1084
VIN VOUT ADJ/GND
3V3_D
R3 330R
C72 100U 6V3
C234 0.1U
DV33A
L34 200R
DV33
U7
AS1117AD
AV125
1V25
R2 120R
C71 100U 6V3
C225 0.1U
U8
NC/LD1117S33
R5 2R7
R1 2R7
C232 0.1U
3V3_A
AV33
C461 47U 6V3
C235 0.1U
C80 NC/100U 6V3
C239 0.1U
U31
AZ1084
U6
AS1117-2.5
2V5
AV25
C238 0.1U
C81 100U 6V3
C237 0.1U
L95 120R
STB_POWER
U811
NC/RT9166-33
IN OUT GND
3V3_SB
+3V3SB
C872 NC/100U 6V3
C826 0.1U
C809 100U 6V3
C225 0.1U
C824 1U
U1
AS1117-5
TUNER_5V
5V_TUNER
12V
R52 6R8
R51 6R8
8V
0R/NC
R3
C19 100U 16V
C8 47U 16V
C136 0.1U
C18 100U 16V
C135 0.1U
R420 8K2
D14 LL4148
+5V
D8 NC/LL4148
CI_VCC
D10 LL4148
TUNER_5V
8V
D9 LL4148
R374 2K2
R375 4K7
+3V3SB
Q16 BT3906
R414 4K7
PWR_PROTECT
R381 4K7
D13 LL4148
DV33
D12 LL4148
AV33
R373 1K8
D5 LL4148
AV25
CI_DV18
D7 LL4148
R415 2K2
Z92
Z91
AUDIO_PWR
12V_IN
MAIN_PWR
24V_MAYBE
R11 0R
R9 NC/0R
R10 NC/0R
STB_POWER
Z95 Z94 Z203 Z96
L114 200R
STB_POWER
ON/OFF_PWR
PAN_ON/OFF
PANEL_DIM
P19
Z211
+5VOUT
Back Light circuit
HI => POWER_OFF
LO = > POWER_ON
+3V3SB
+5V
R471 4K7
R431 10K
BL ON/OFF
L113 600R
PAN_ON/OFF
GPIO_9
R470 10K
Q29 BT3904
R583 47K
AV33
R467 3K9
+5V
R466 NC/1K
D21 LL4148
DIMMING
R460 10K
R170 NC/0R
VBR_EXT
PANEL_DIM
GPIO_7
R446 4K7
6K8 R453
Q28 BT3904
C240 1U
600R L112
AUDIO_PWR
C463 0.1U
24V_MAYBE
C462 0.1U
+5VOUT
C456 0.1U
PAN_ON/OFF
C442 0.1U
PANEL_DIM
C438 0.1U
12V
L118 30R
C446 0.1U
C82 100U 16V
C172 4U7
R483 100K
C219 0.01U
U20
BS SS
IN EN
SW COMP
GND FB
MP1482
C123 0.1U
C246 3300P
C174 NC/3300P
R482 2K2
1V8
DDRV
L151 NC/10UH
R105 0R
L8 15UH
R107 510K
R555 10K
C50 4U7
C62 470U 16V
C76 470U 6V3
C561 NC/470U
C448 0.1U
R556 10K
1V1
DV11
L152 NC/10UH
L38 0R
R106 0R
L9 15UH
L150 30R
C451 0.1U
C83 100U 16V
C50 4U7
R557 100K
C251 0.01U
U21
MP1484
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C253 3300P
C175 NC/3300P
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C76 470U 6V3
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R484 10K

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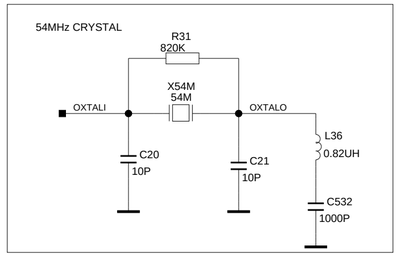

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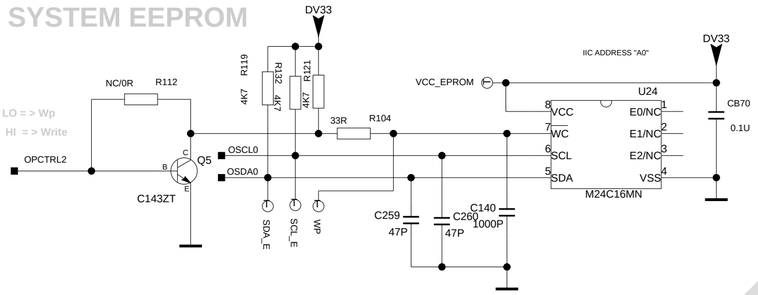
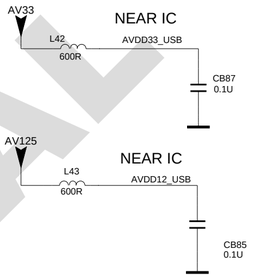
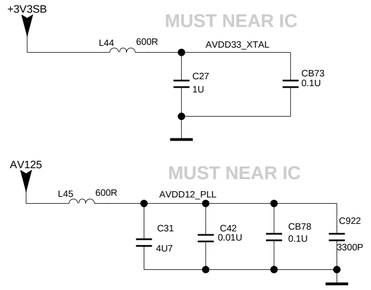


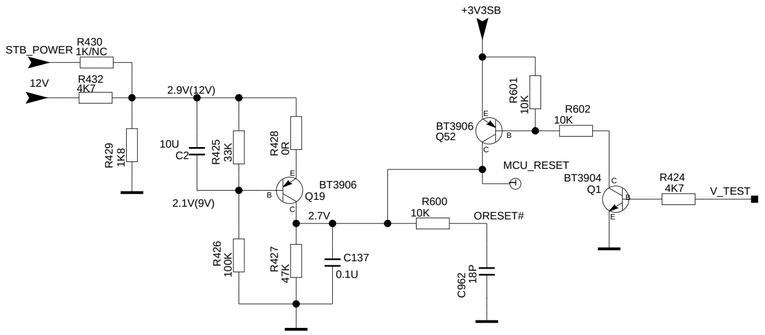
AV33 / AV125 NEAR IC



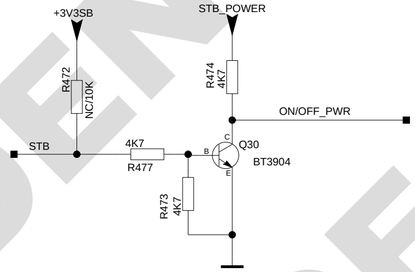
+3V3SB MUST NEAR IC / AV125 MUST NEAR IC



System Reset#



+3V3SB / STB_POWER / ON/OFF_PWR



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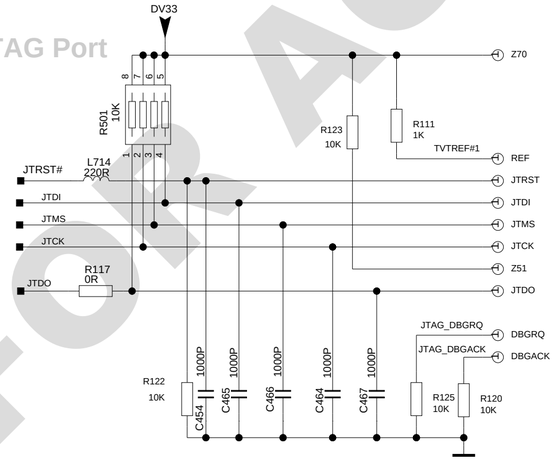

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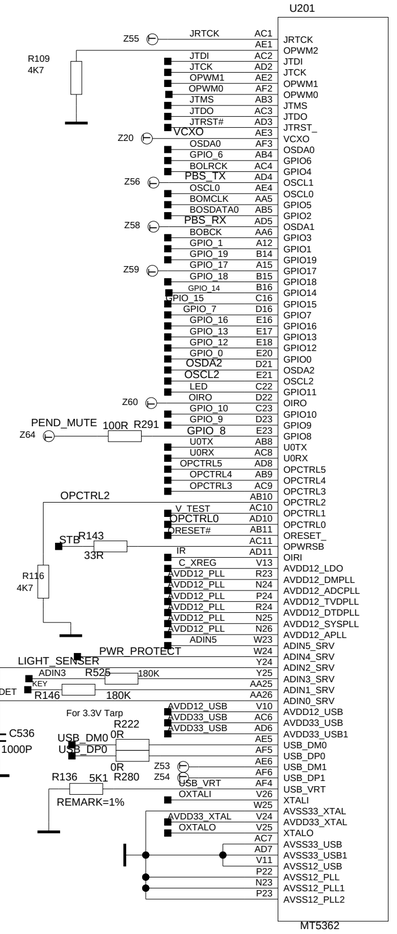

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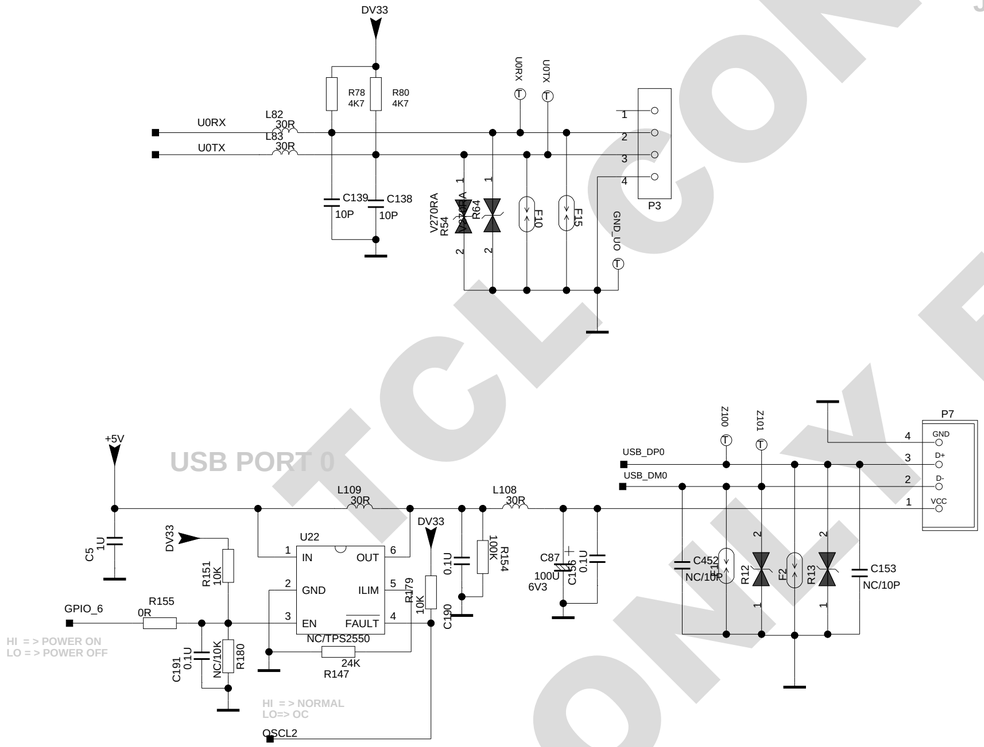

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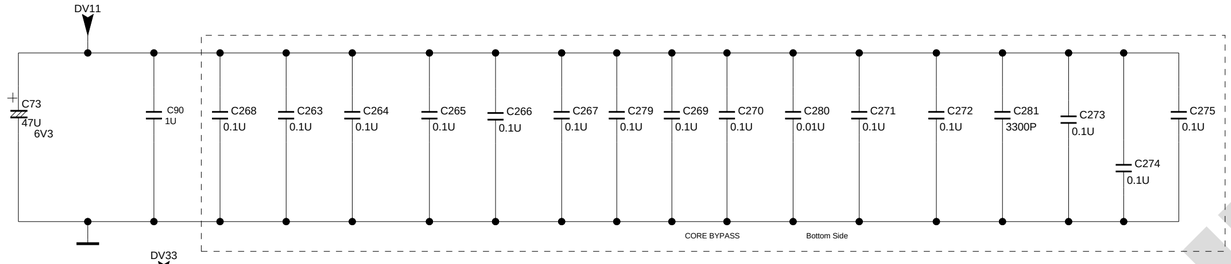
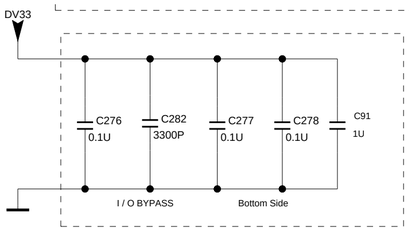
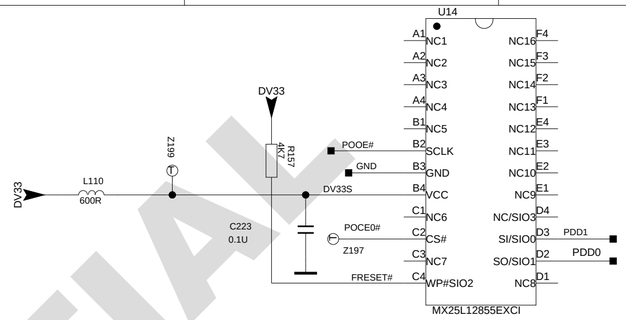
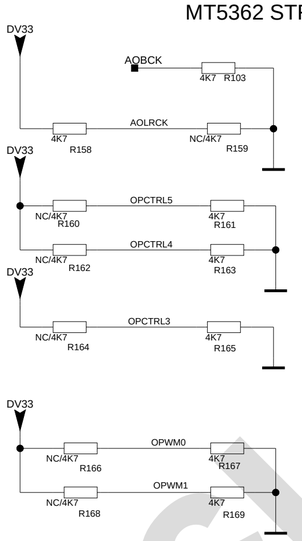






MT5362 STRAPPING MODE



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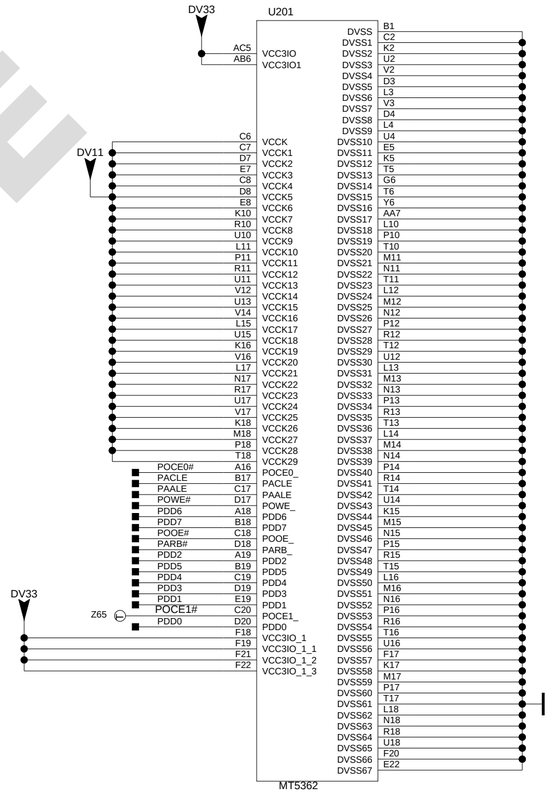
Normal mode	0	0	0
ICE mode	0	0	1
CPU model mode	0	1	0

Trap Mode	OPCTRL5	OPCTRL4
Core Reset 1us	0	0
Core Reset 3.3V	0	1
SCAN mode	1	0
Core Reset 0.9V	1	1

Strapping Mode	OPCTRL3(O)	OPCTRL2(O)
XTAL 54MHz	0	0
XTAL 27MHz	1	0

Strapping Mode	OPWM0(O)	OPWM1(O)
Nor Boot	0	0
NAND Boot	0	1
large NAND Boot	1	0



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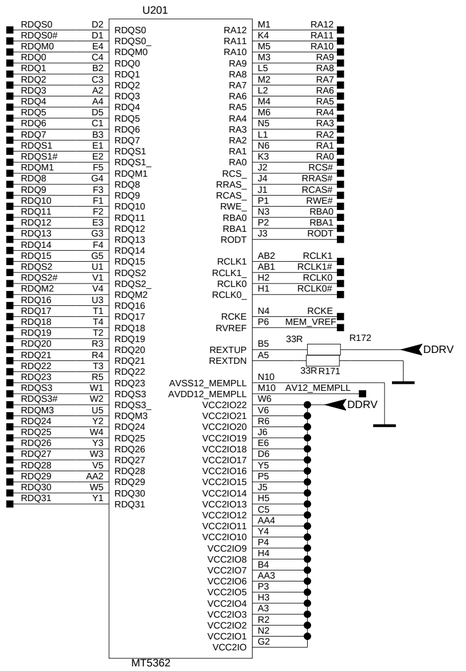

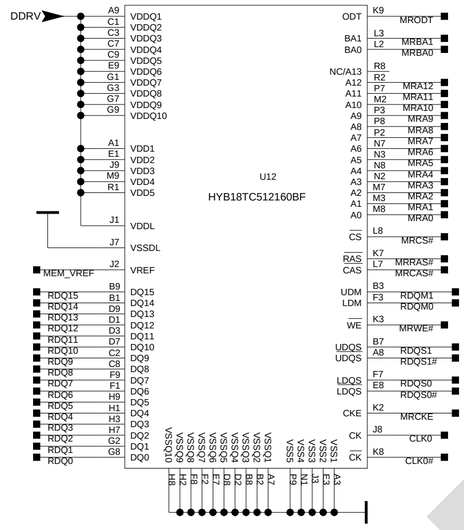

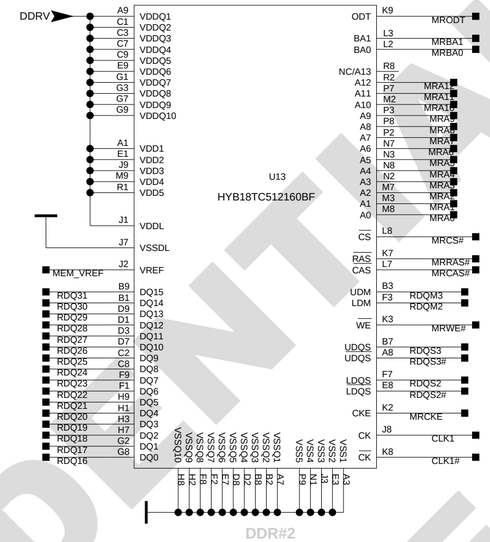

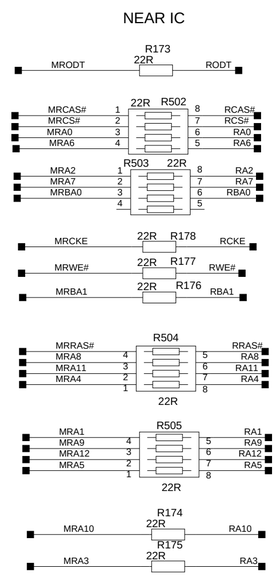

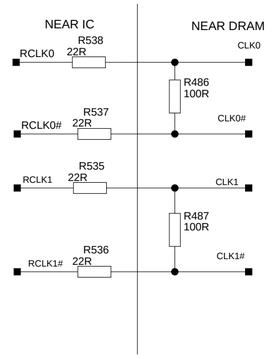

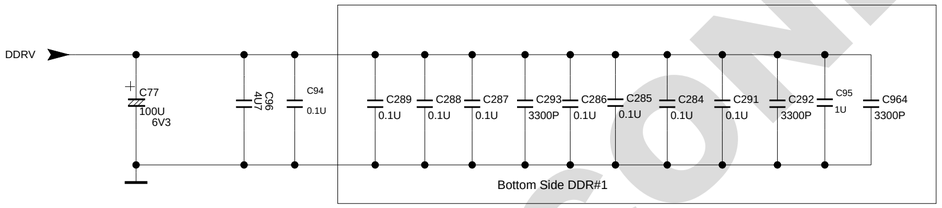

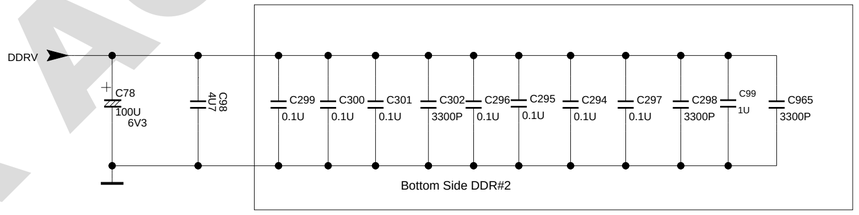

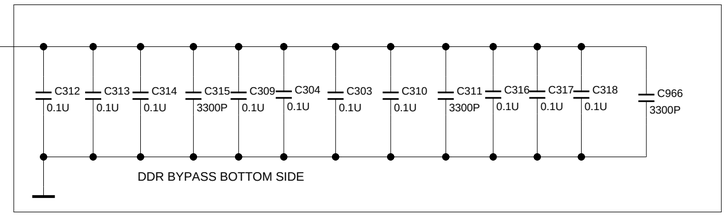

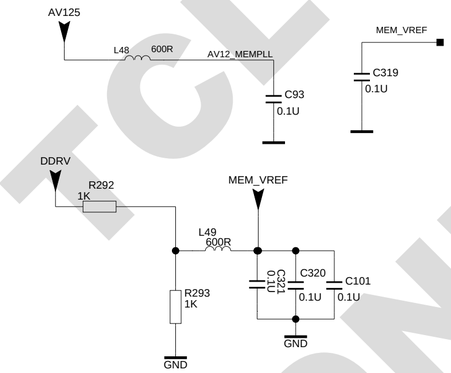

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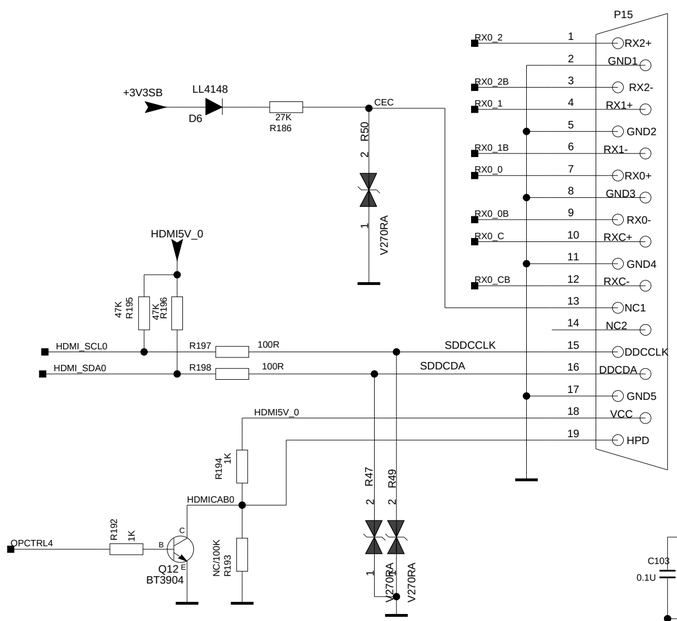

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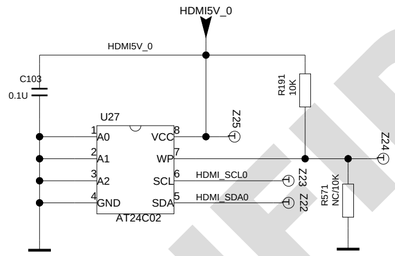

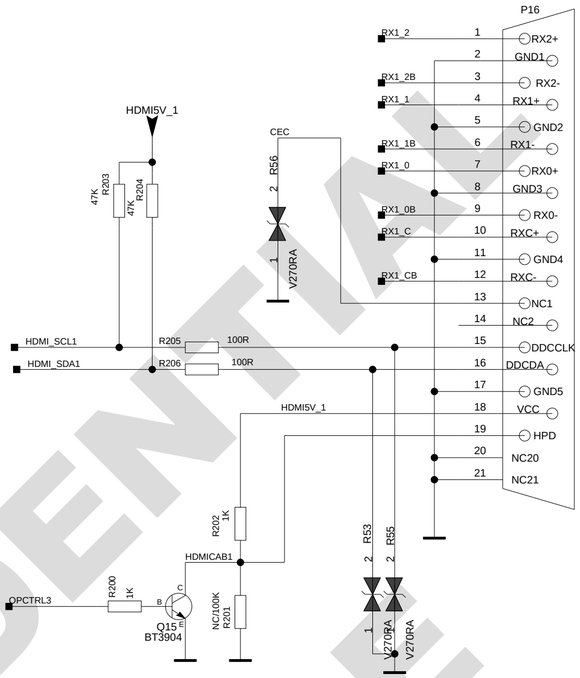

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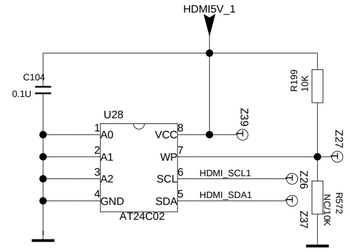

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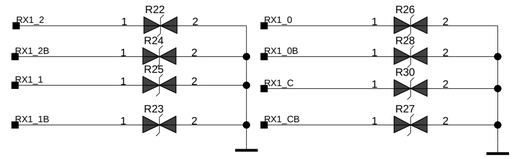

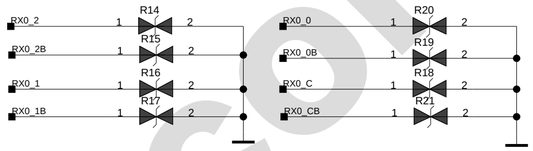

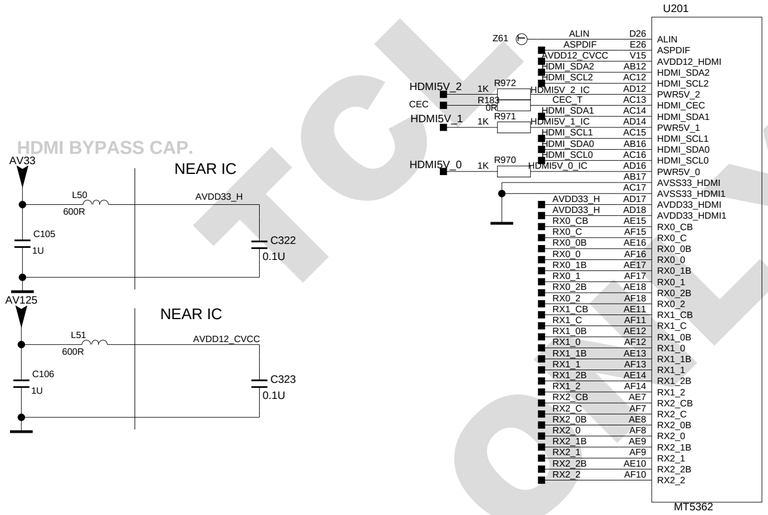

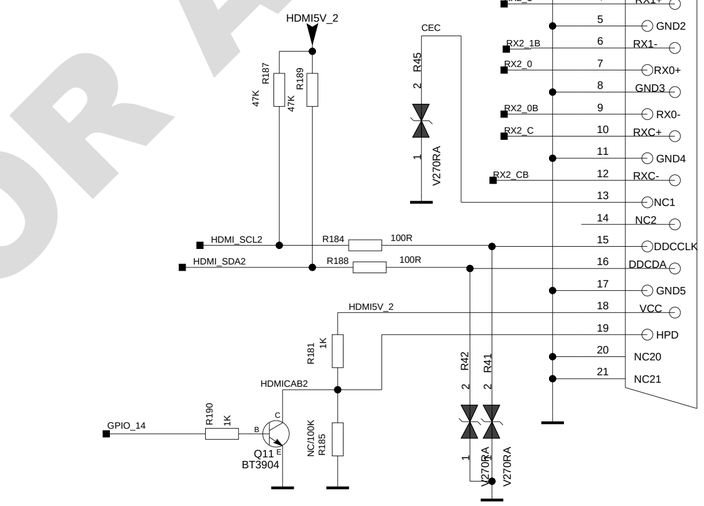

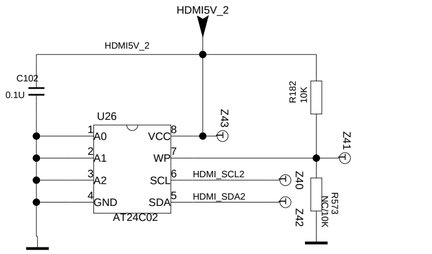

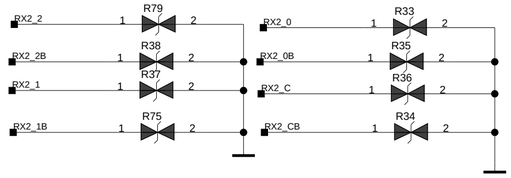

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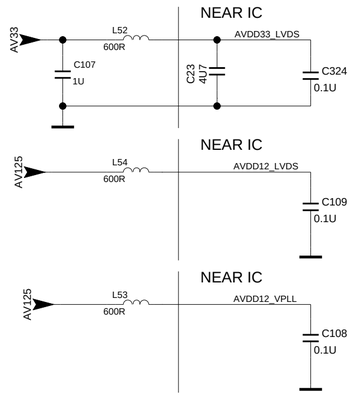

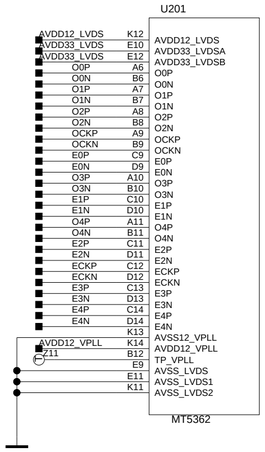

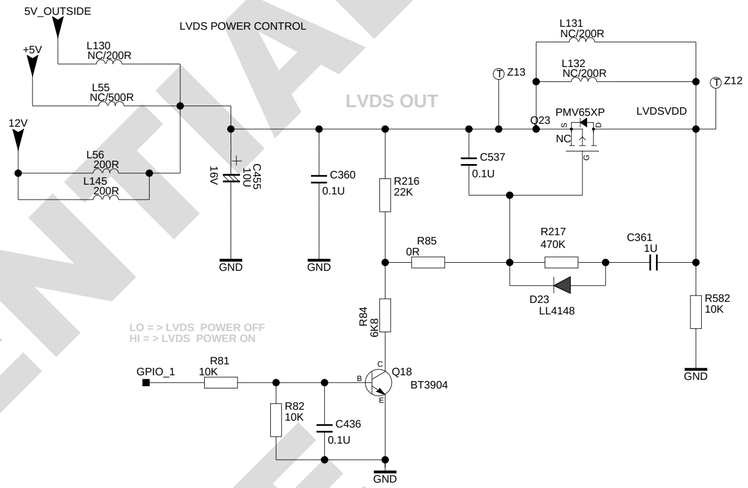

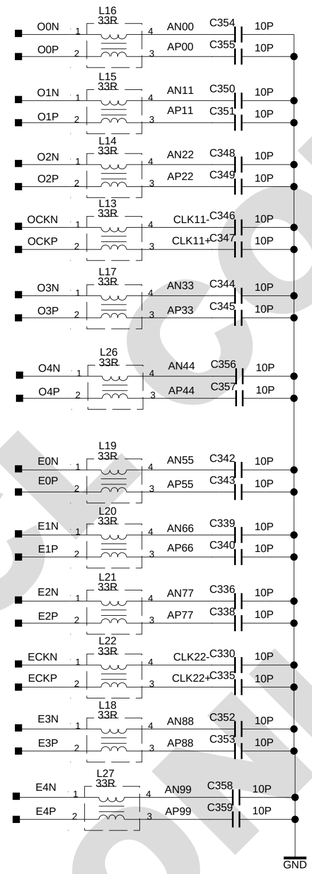

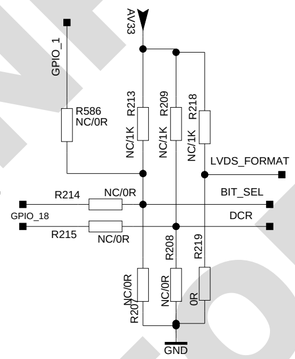

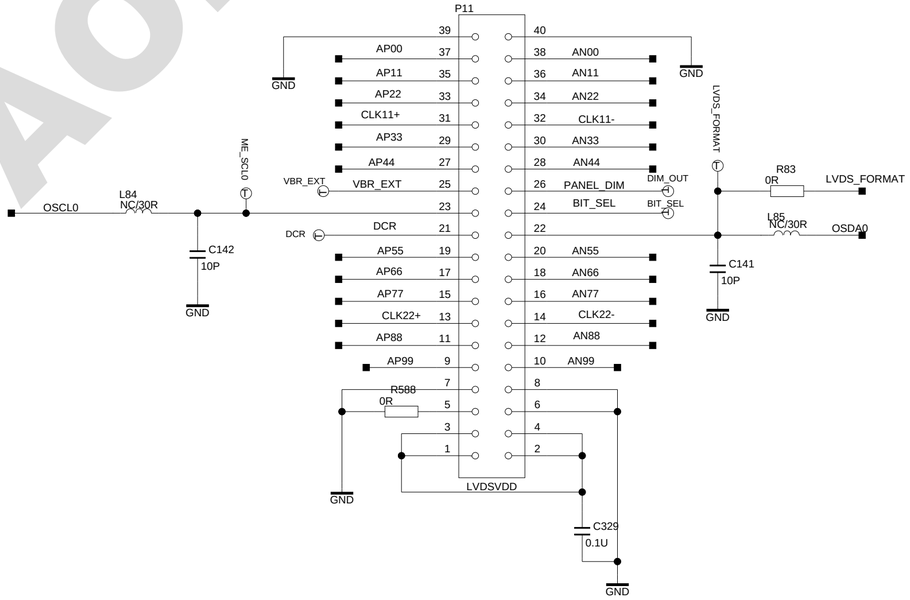

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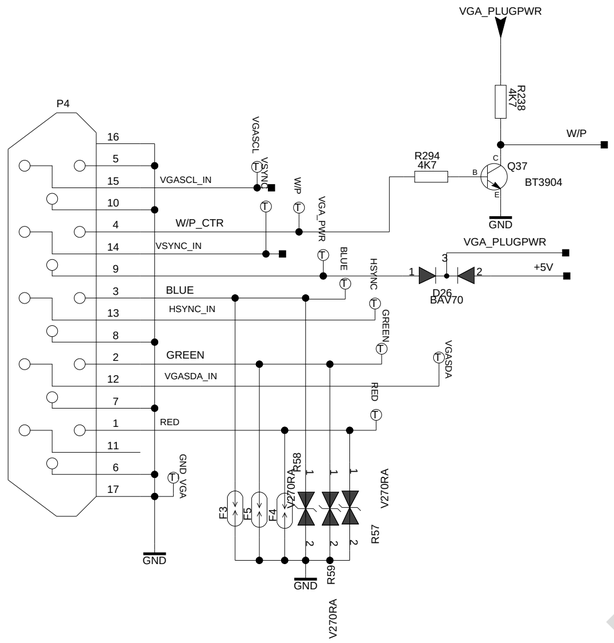

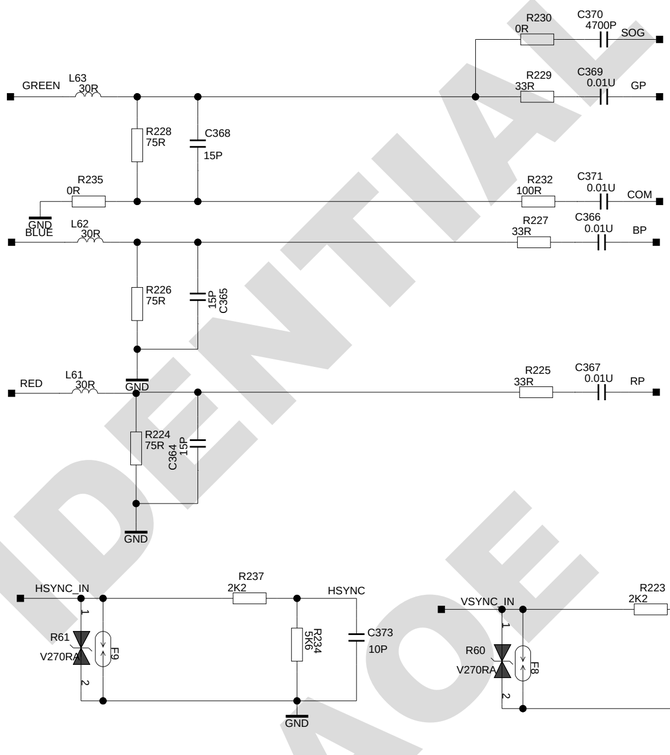

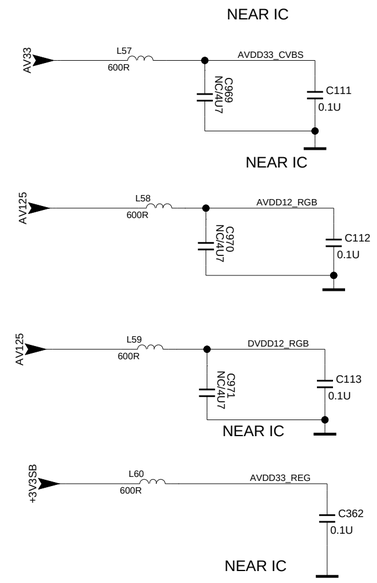

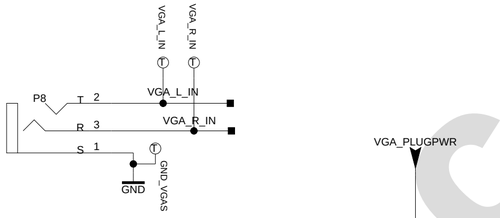

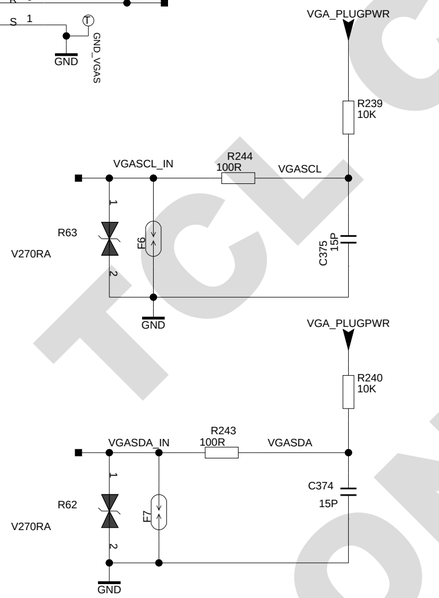

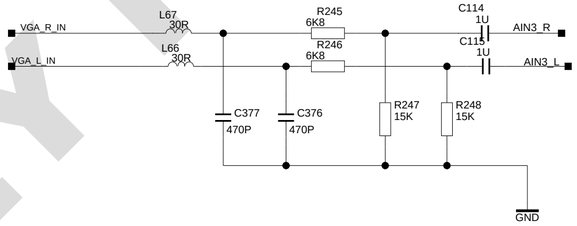

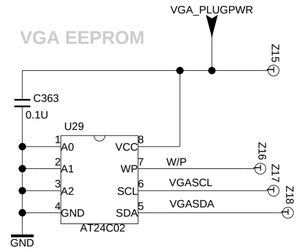

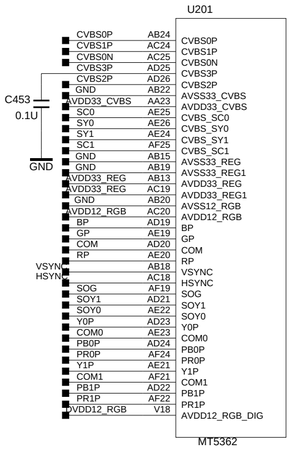

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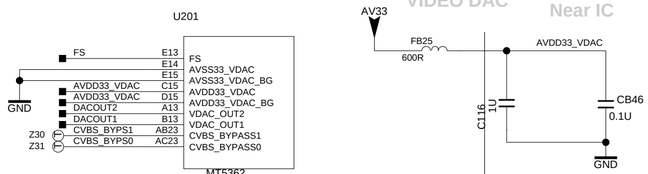

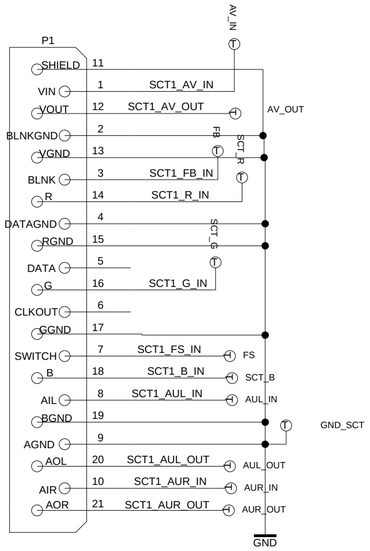

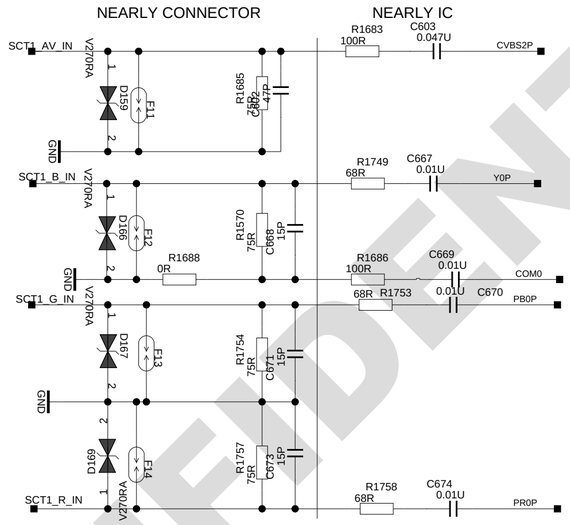

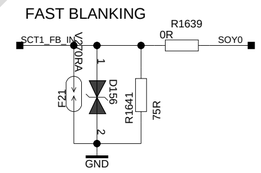

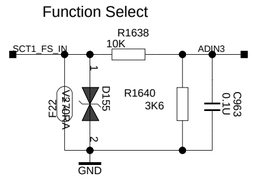

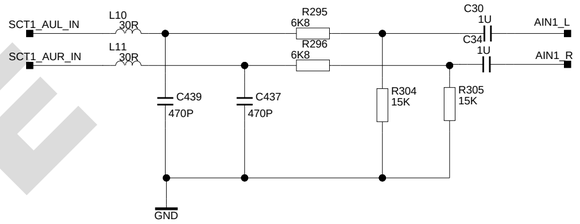

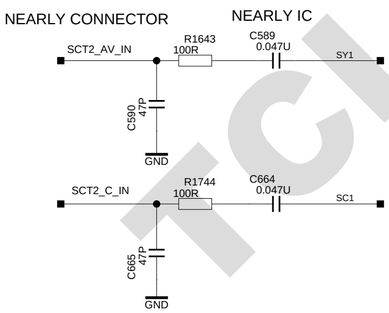

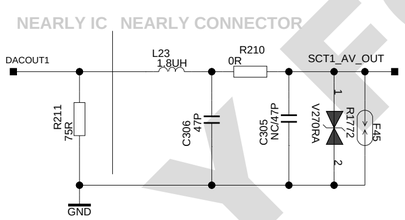

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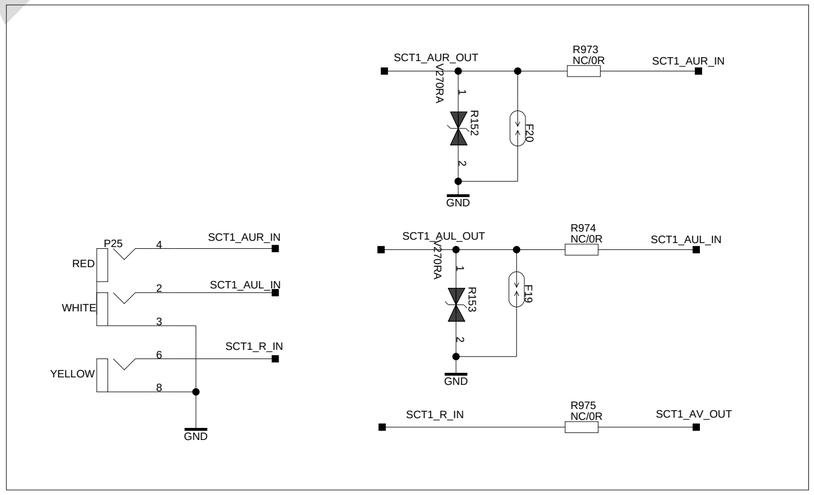

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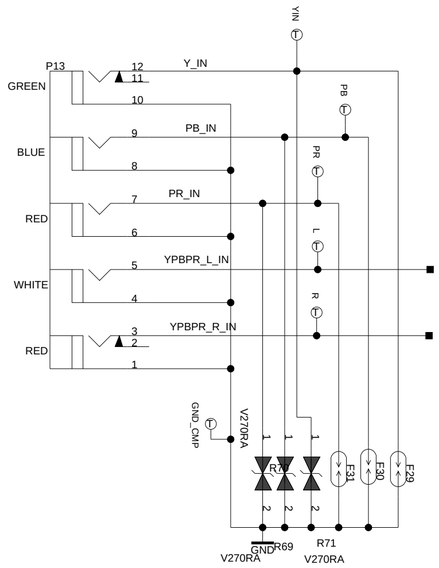

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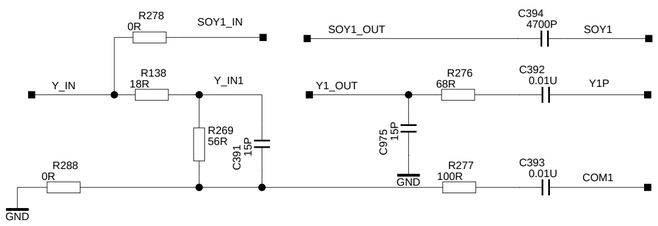

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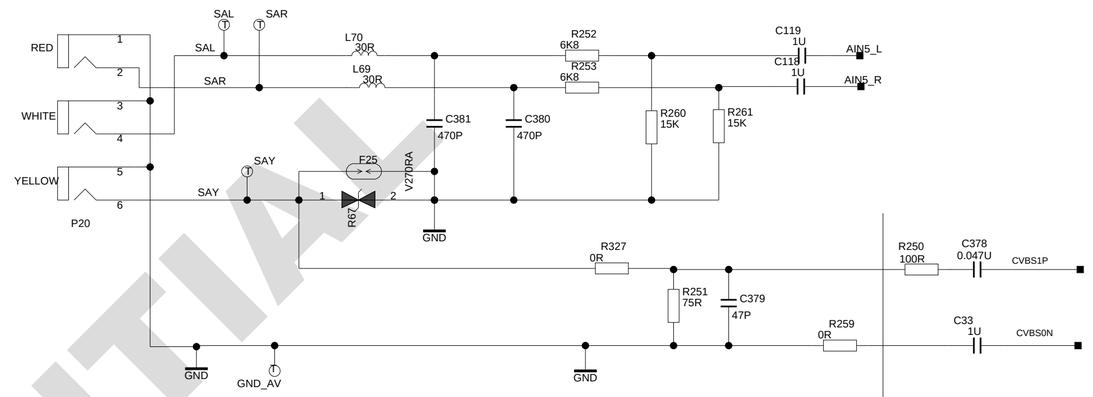

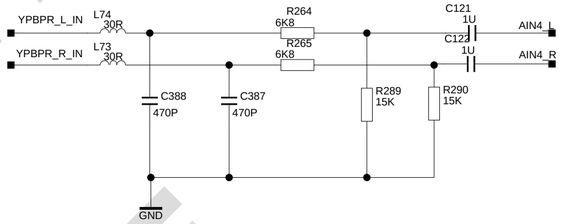

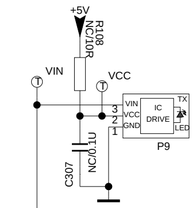

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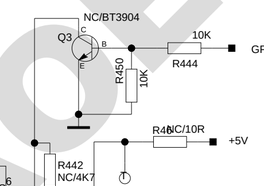

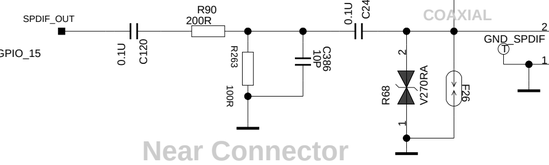

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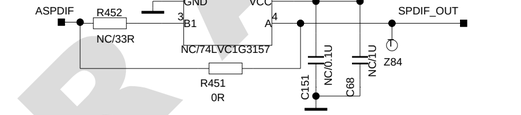

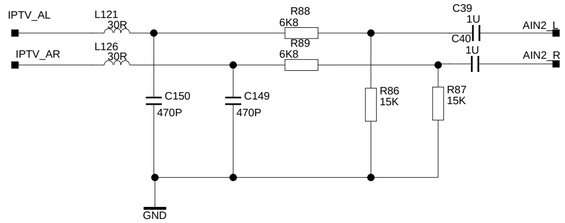

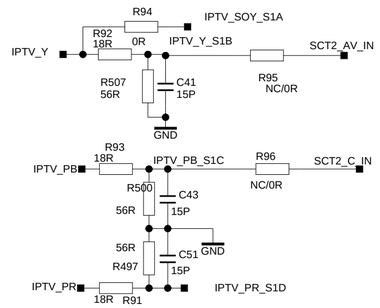

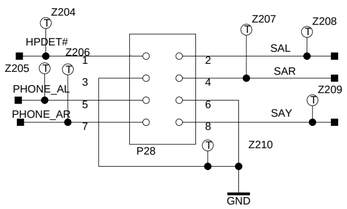

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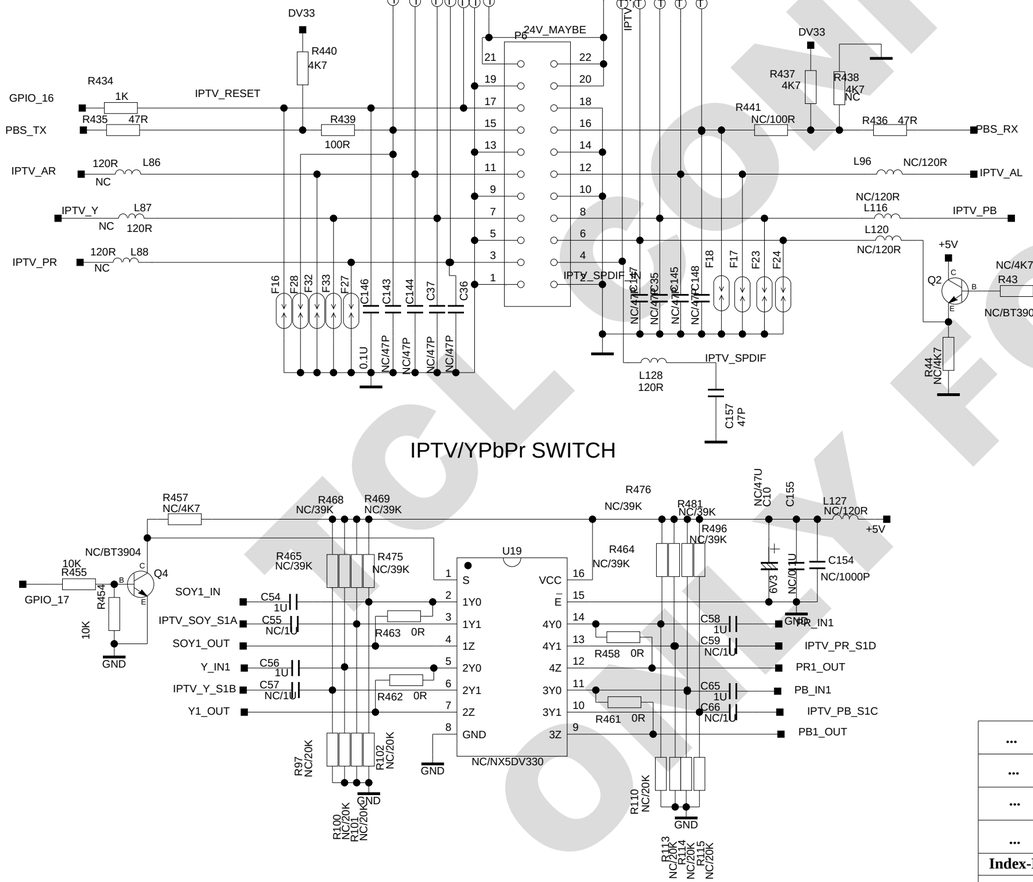

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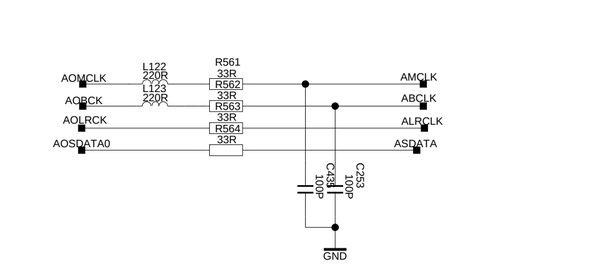

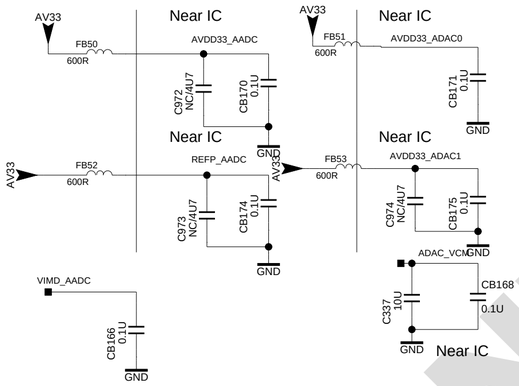

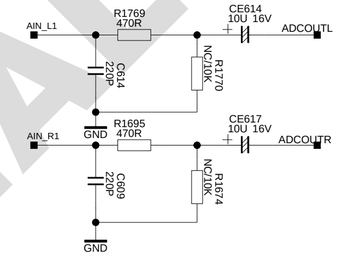

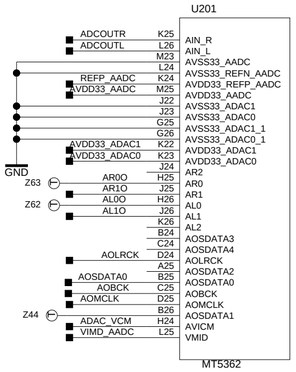

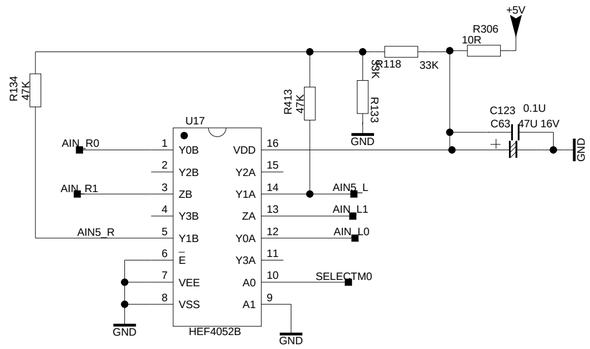

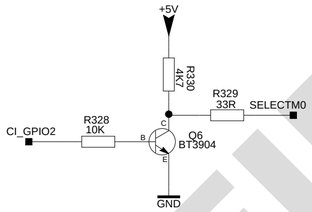

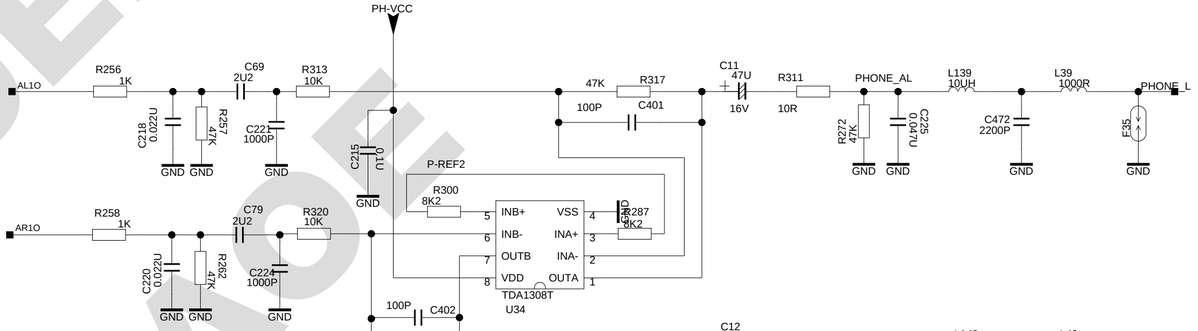

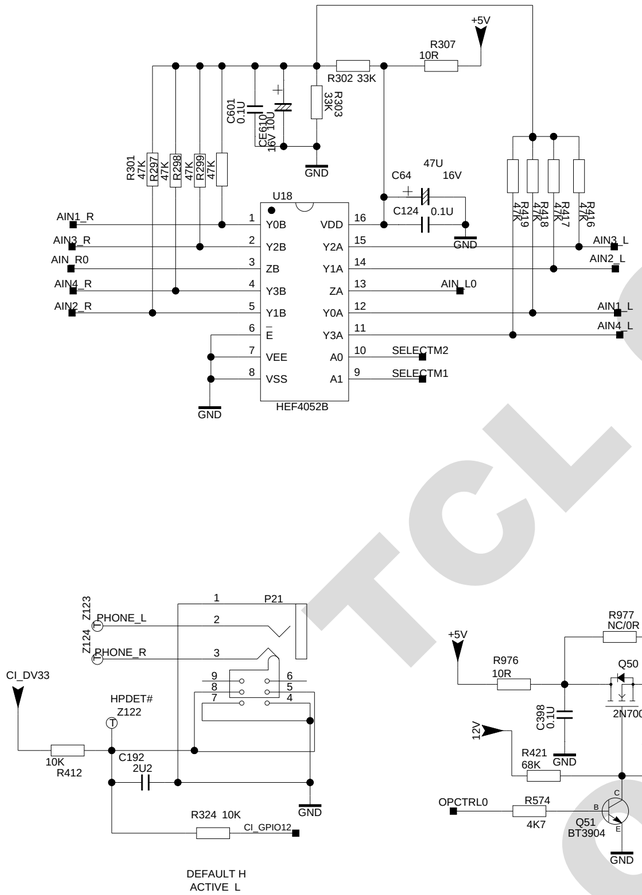

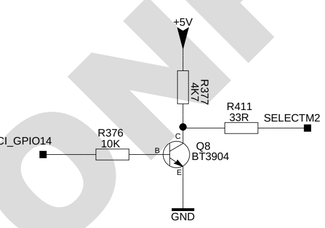

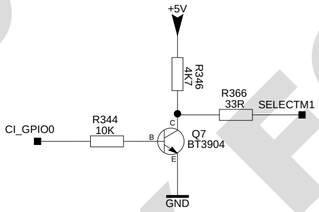

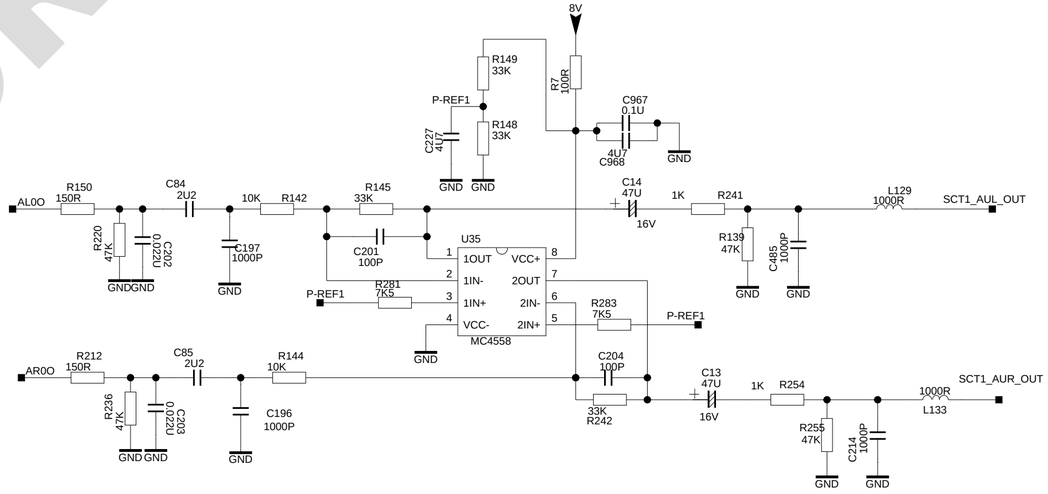

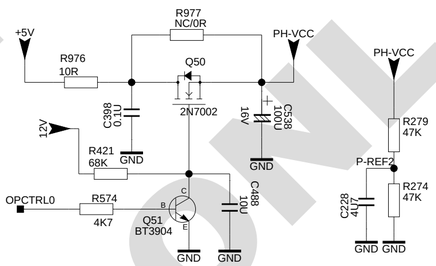

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...	DD-MM	...	...	...	DESIGNATION	Tel +86-755-3331xxxx Fax +86-755-3331xxxx
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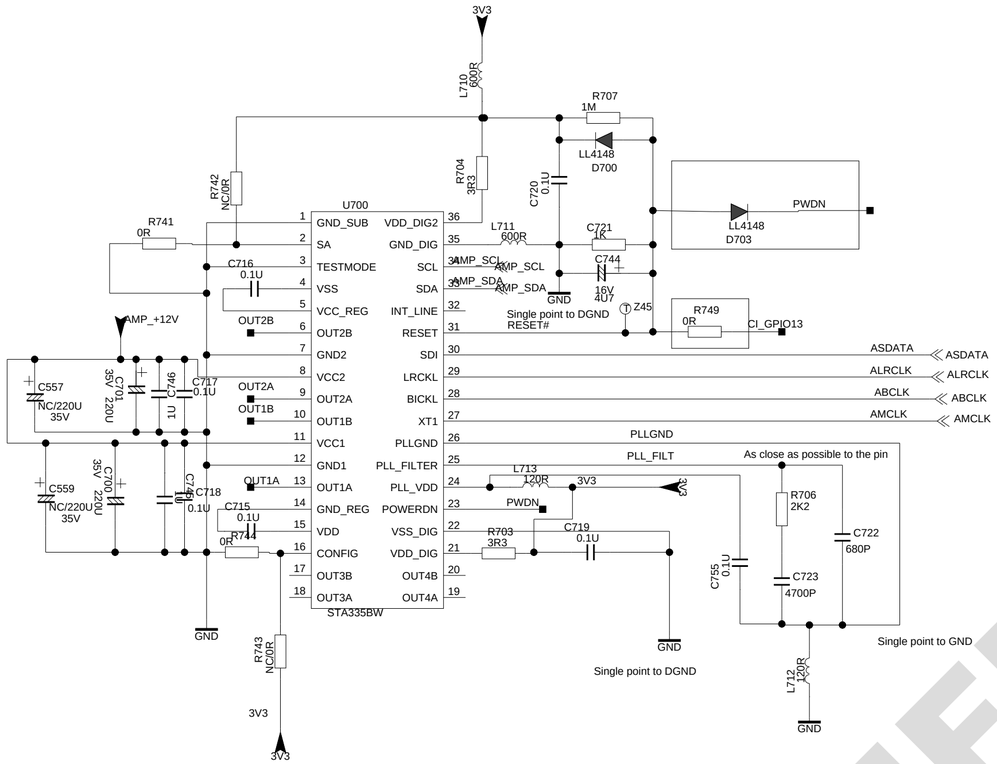

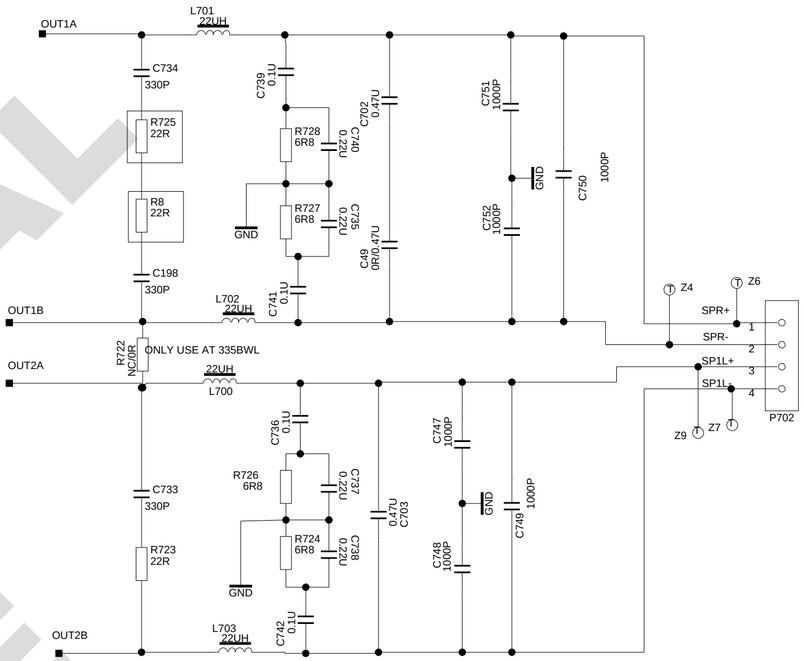

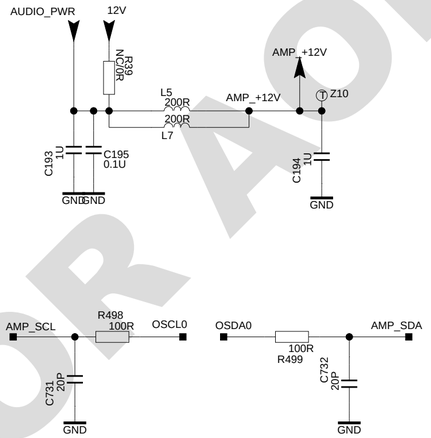

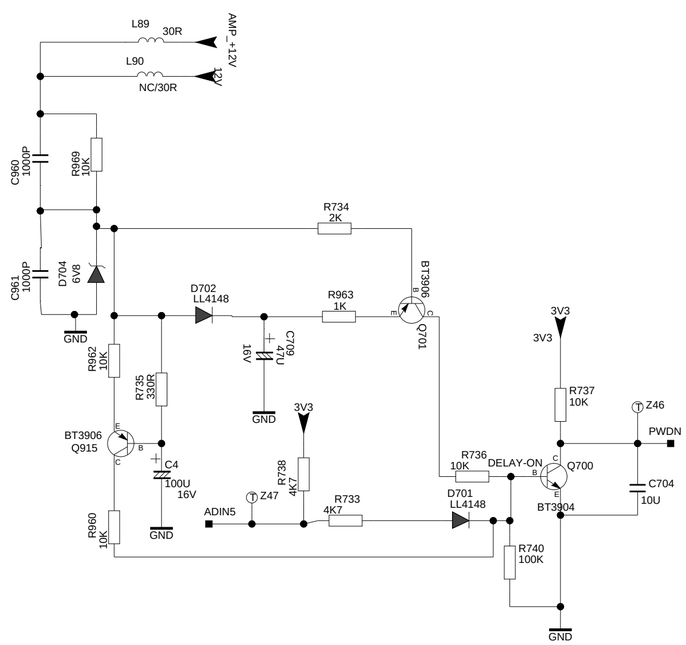

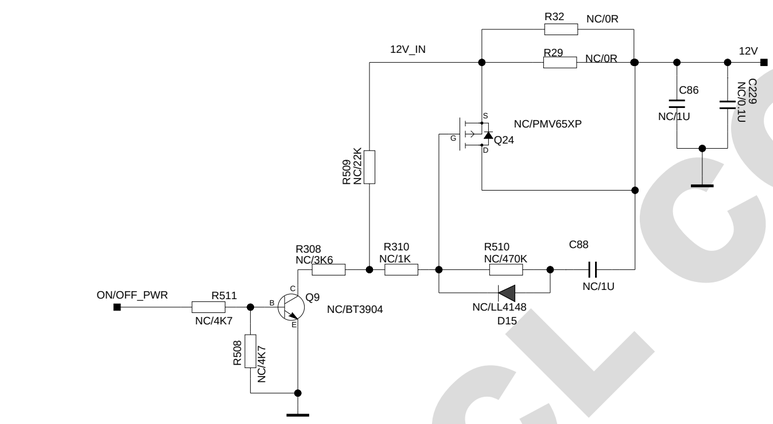

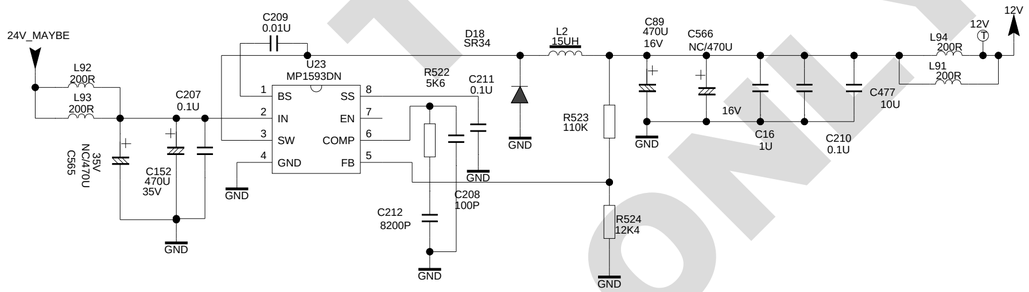

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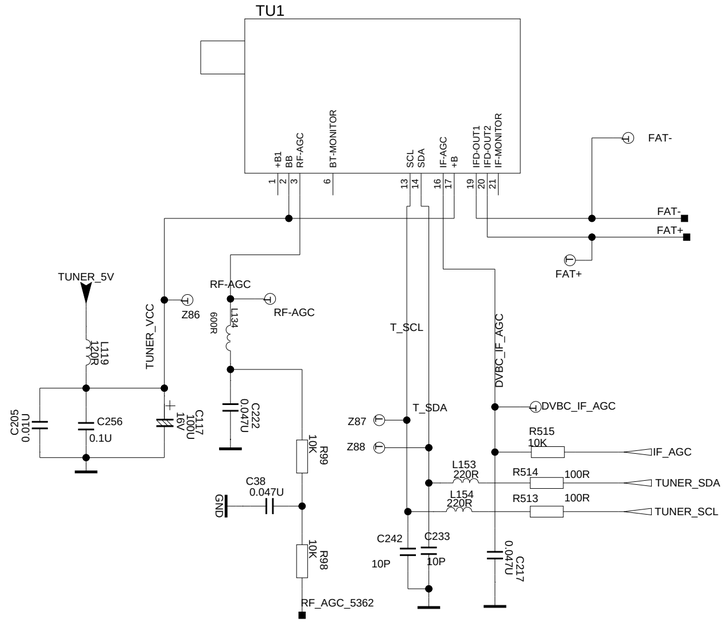

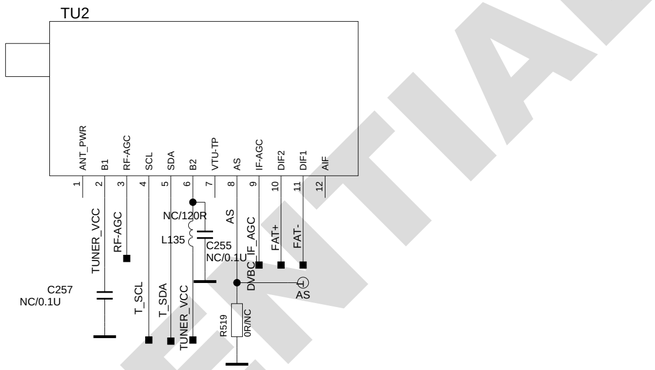

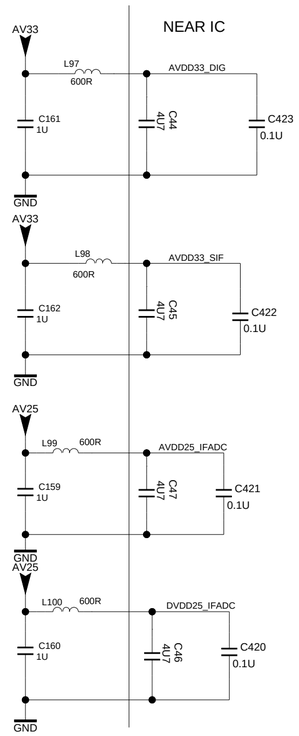

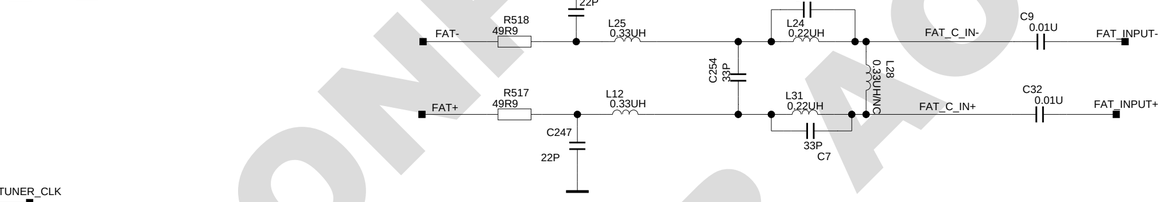

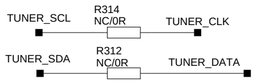

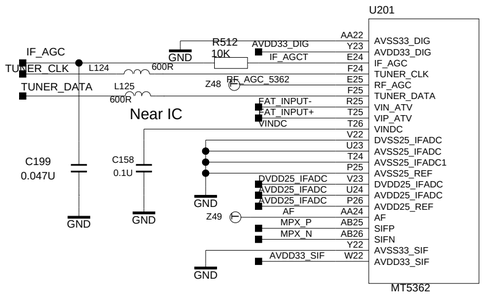

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CLOSE TO CI CONNECTOR

CI_INSYNC
CI_INVALID
+5V
+5V
CI_VCC
+5V
CI_DV33
C466 10P
C487 10P
R386 10K
R387 10K
R388 10K
R389 10K
R392 4K7
GND
CI_INPACK#
CI_IOIS16#
CI_CD1#
CI_CD2#
CI_IREQ#
CI_VS1#
PARB#
R383 10K
R385 10K
C425 0.1U
C426 0.1U
CI_VCC
CI_VCC
CI_DV33
R390 10K
R391 10K
R394 4K7
CI_WAIT#
CI_VS2#
CI_CE#

CLOSE TO CI CONNECTOR

+5V
CI_VCC
L101 NC/30R
L102 30R
C48 1U
C165 0.1U
C164 0.1U
R380 100K
C67 100U 6V3
C163 0.1U
U15
IN
OUT
GND
ILIM
EN
FAULT
TPS2550
CI_GPIO9
R382 0R
CI_GPIO8
C166 0.1U
R379 10K
R410 24K

Pin MUX Strapping

Strapping	R1716	R1719
Support CI	NS	4.7K
NO Support CI	4.7K	NS

CLOSE TO MT8295
CLOSE TO MT8295
CLOSE TO MT536X
CLOSE TO MT8295
CLOSE TO MT8295
CLOSE TO MT8295
CLOSE TO MT8295

GND
CI_DV33
CI_GPIO1
CI_GPIO2
CI_GPIO0
R393 4K7
R589 4K7
R394 4K7
C167 27P
C168 27P
R398 1M
27M
X27M1
C283 0.1U
NC/4K7
R396 4K7
R397 0R
GPIO_10
C494 220P
L71 120R
L41 120R
L103 120R
L64 120R
TS_SYNC_IN
TS_D0_IN
TS_CLK_IN
TS_VALID_IN
C491 10P
C492 10P
C427 10P
C493 10P
R493 33R
R494 33R
R488 33R
R495 33R
C496 220P
R551 NC/4K7
C495 220P
R399
R400
CI_INT
CI_CE#
0R
0R
GPIO_13
GPIO_0
R516 4K7
U10
MT8295BN
R401 100R
C428 10P
CI_INCLKA
R409 100R
R407 100R
R408 100R
C434 10P
C432 10P
C433 10P
CI_CE1##
CI_OE##
CI_WE##
P17
R402 100R
R403 100R
R404 100R
R405 0R
R406 0R
C430 10P
C429 10P
C431 10P
CI_IORD##
CI_IOWR##
CI_OUTCLK
CI_INPACK#
CI_DV18
CI_AV18
L107 600R
C186 1U
C184 0.1U
C185 0.1U
CI_DV18
CI_AV33
L106 600R
C183 1U
C182 0.1U
C181 0.1U
CI_DV18
CI_AV18
L107 600R
C187 0.1U
C189 1U
C188 0.1U
CI_DV33
CI_AV33
L106 600R
C183 1U
C182 0.1U
C181 0.1U
DV33
CI_DV33
L105 600R
C180 4U7
C179 4U7
C178 0.1U
C177 0.1U
C176 0.1U
C173 0.1U
C171 0.1U
C170 0.1U
C169 0.1U

EXTERNAL CI FUNCTION
MT536X INTERNAL DVB-T DEMOD
SERIAL TS INPUT TO MT8295

U201
MT5362
TS_VALID_IN B20
TS_CLK_IN A21
TS_D0_IN B21
TS_SYNC_IN C21
TS_CLK_OUT A22
TS_SYNC_OUT B22
TS_VALID_OUT B23
TS_D0_OUT A24
CI_MIVAL
CI_MCLKI
CI_MDI0
CI_MISTRT
CI_MCLKO
CI_MOSTRT
CI_MOVAL
CI_MDO0

TS_CLK_OUT
TS_SYNC_OUT
TS_VALID_OUT
TS_D0_OUT
L104 120R
R489 33R
R490 33R
R491 33R
R492 33R
TS0INCLK
TS0INSYNC
TS0INVALID
TS0INDATA0
C424 10P

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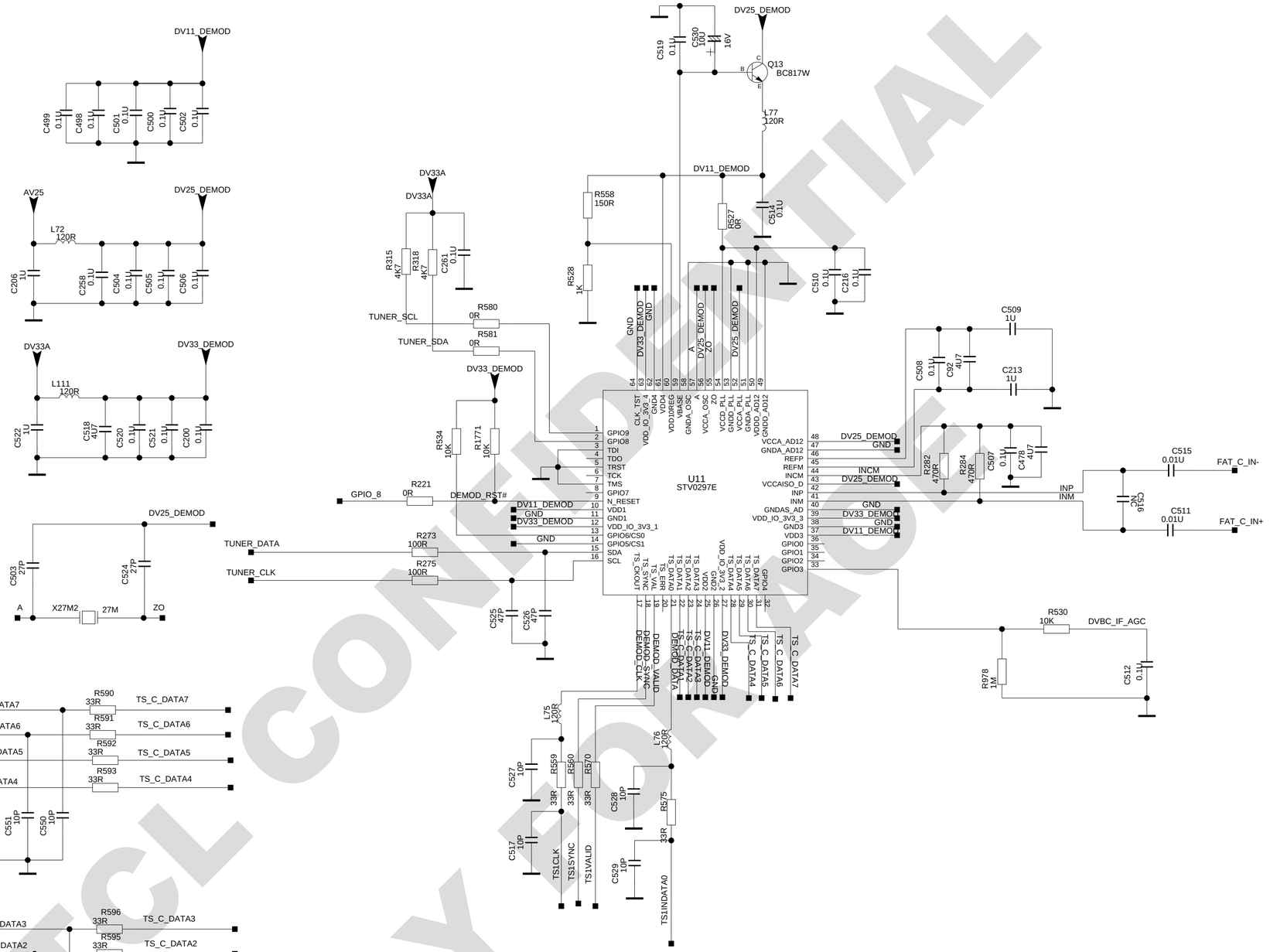

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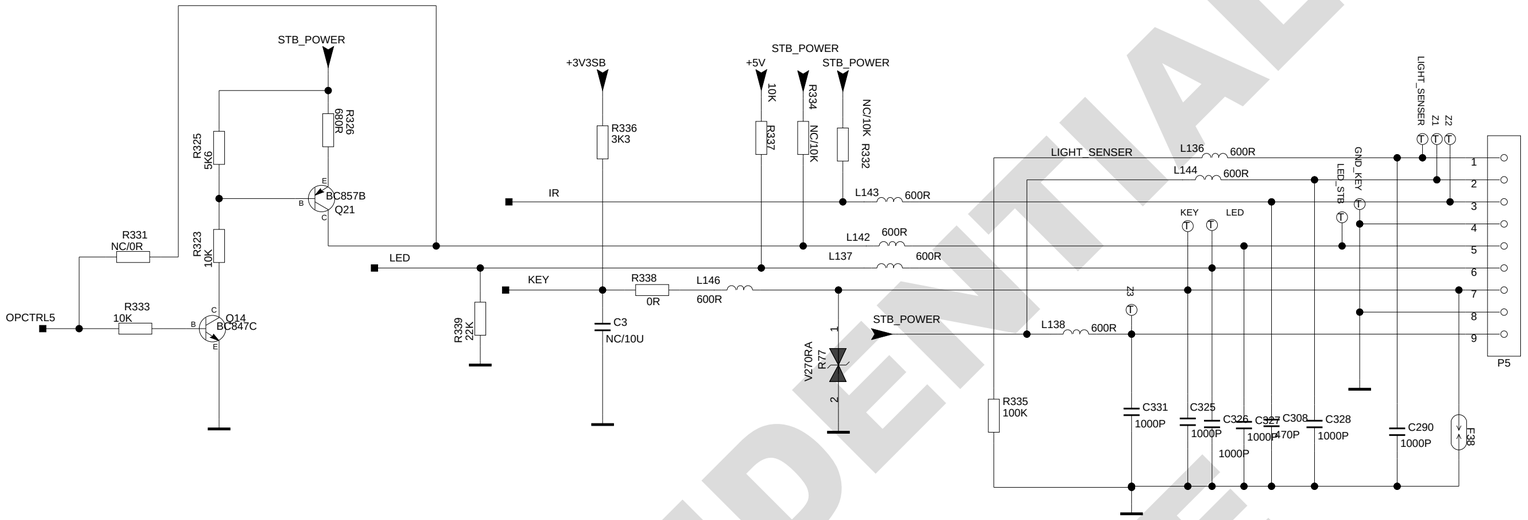
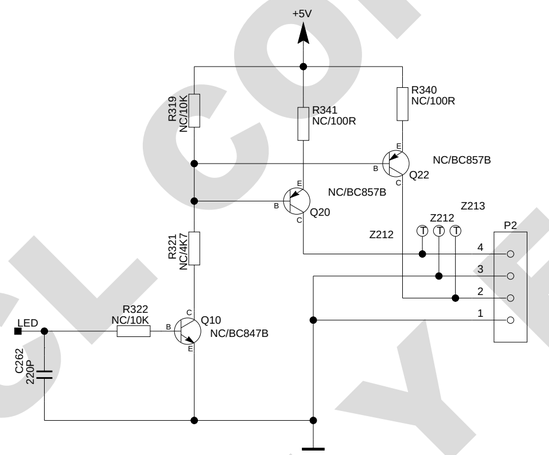


R584,C539 FOR PWM TOUCH KEY ONLY,R504 IS 0 OHM IN OTHER KEY MODE.



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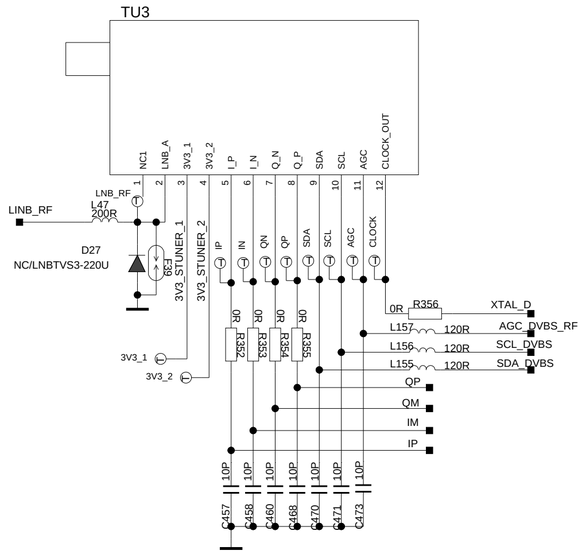

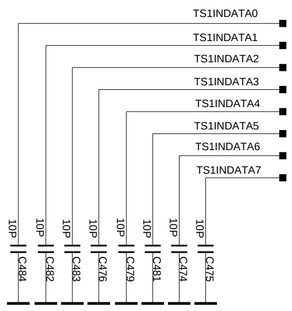

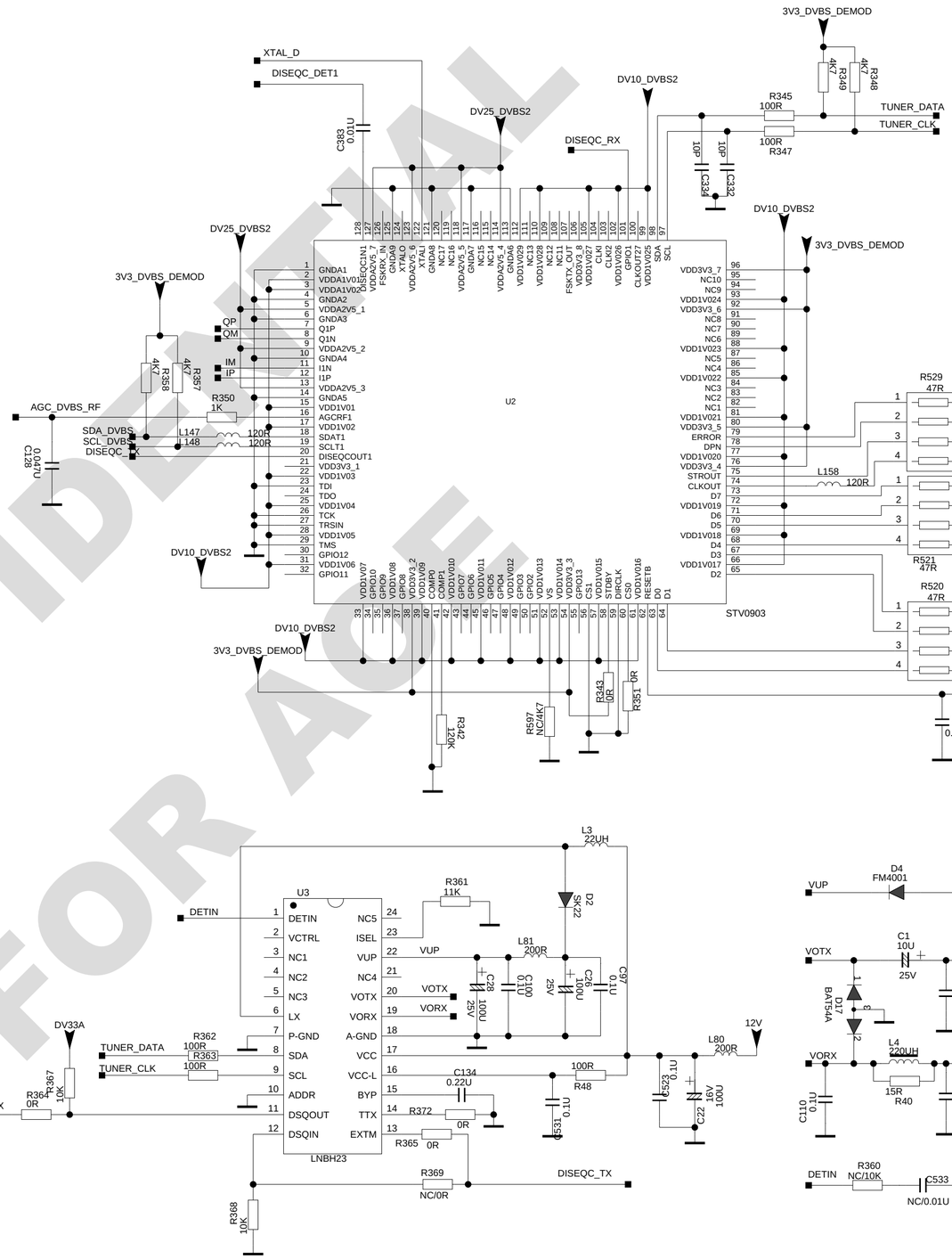

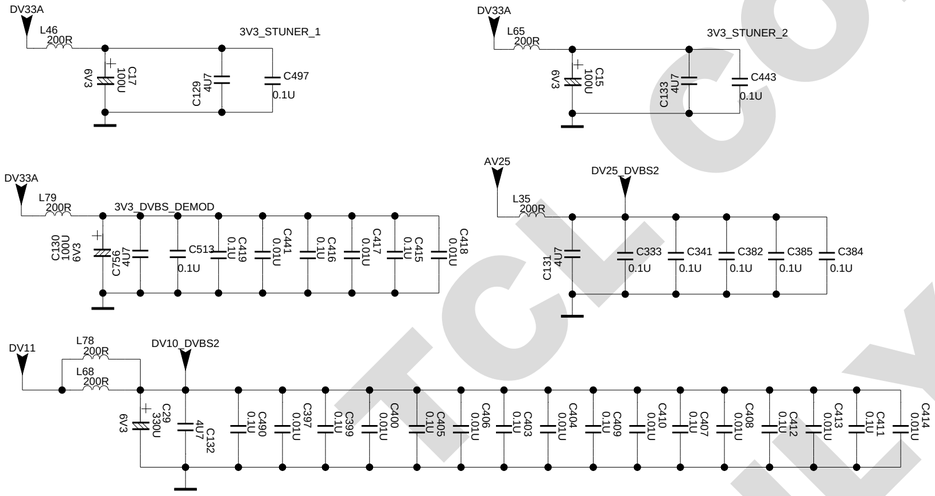

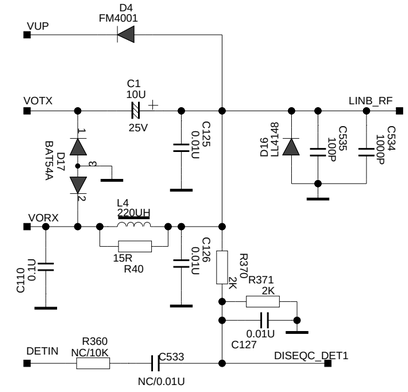

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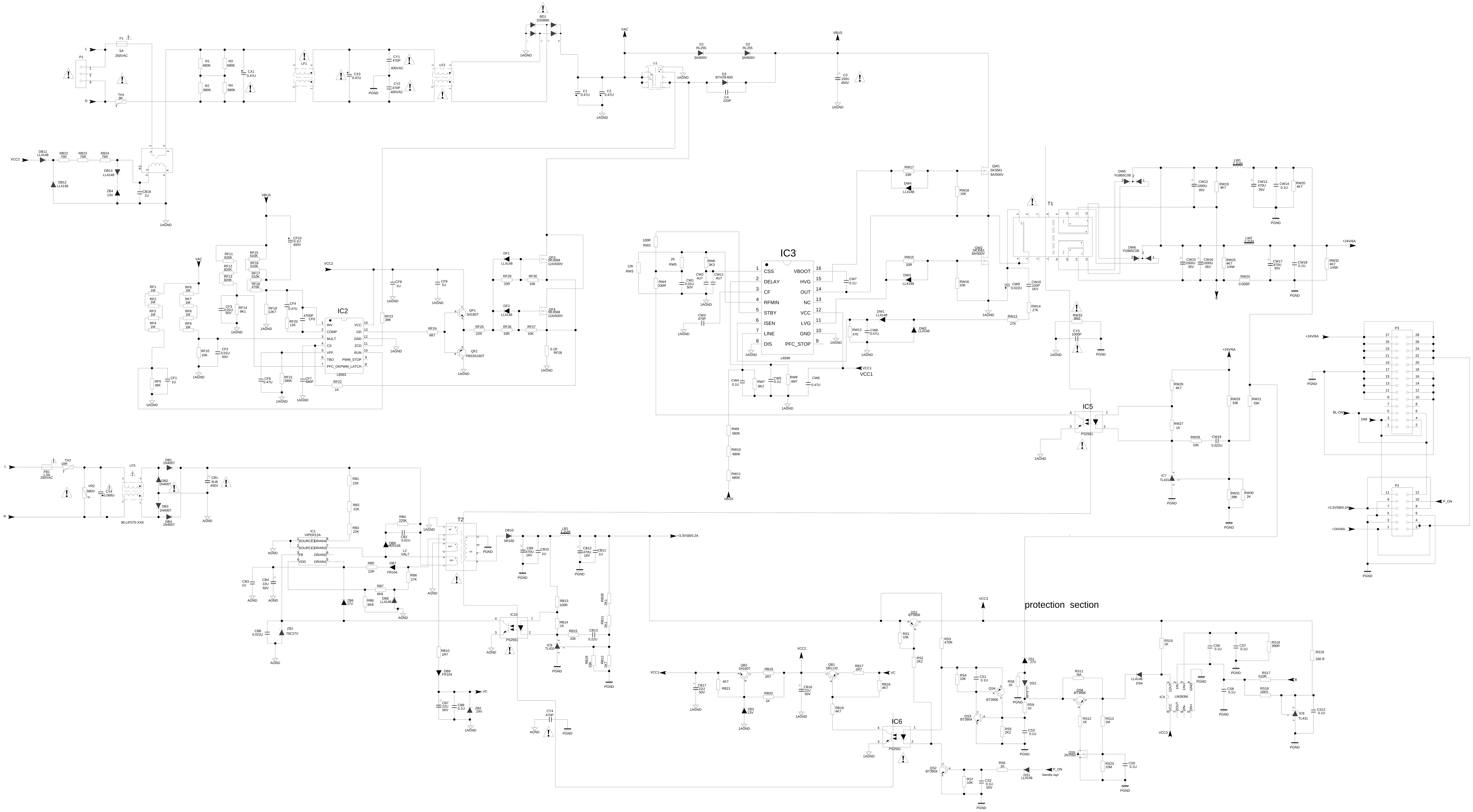
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L6599
IC5
PS2561
IC6
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T2
IC1
VIPER12A
IC10
+24V/6A
+3.3VSB/0.2A
VCC1
VCC2
VCC3
VBUS
VAC
P_ON
BL-ON
DIM
Standby sign
PGND
1AGND
AGND