

Service  
Service  
**Service**

**TPM20.1E**  
**LA**

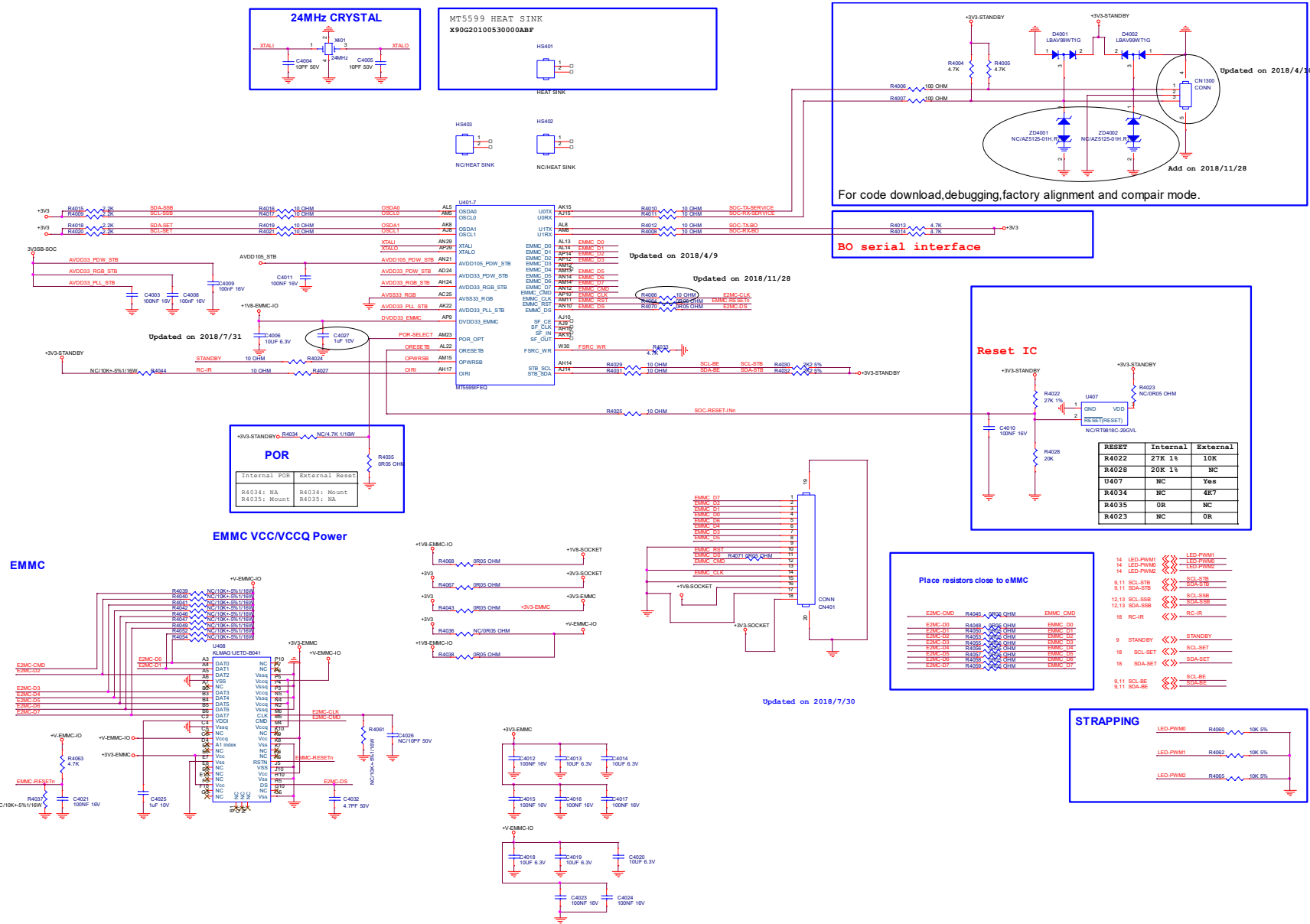


# Service Manual

Chassis name	Platform	Model name		
TPM20.1E LA	MTK5599	43PUS8505/12	58PUS8535/12	
		43PUS8535/12	58PUS8545/12	
		43PUS8545/12	58PUS8555/12	
		43PUS8555/12	58PUS9005/12	
		43PUS9235/12	65PUS8505/12	
		50PUS8505/12	65PUS8505/60	
		50PUS8505/60	65PUS8505/62	
		50PUS8505/62	65PUS8535/12	
		50PUS8535/12	65PUS8545/12	
		50PUS8545/12	65PUS8555/12	
		50PUS8555/12	65PUS9435/12	
		50PUS9005/12	70PUS8505/12	
		55PUS9435/12	70PUS8535/12	
		58PUS8505/12	70PUS8545/12	
		58PUS8505/60	70PUS8555/12	
		58PUS8505/62	70PUS9005/12	

# 9.4 B 715GA006M SSB( For 85x5 & 9xx5 Series)

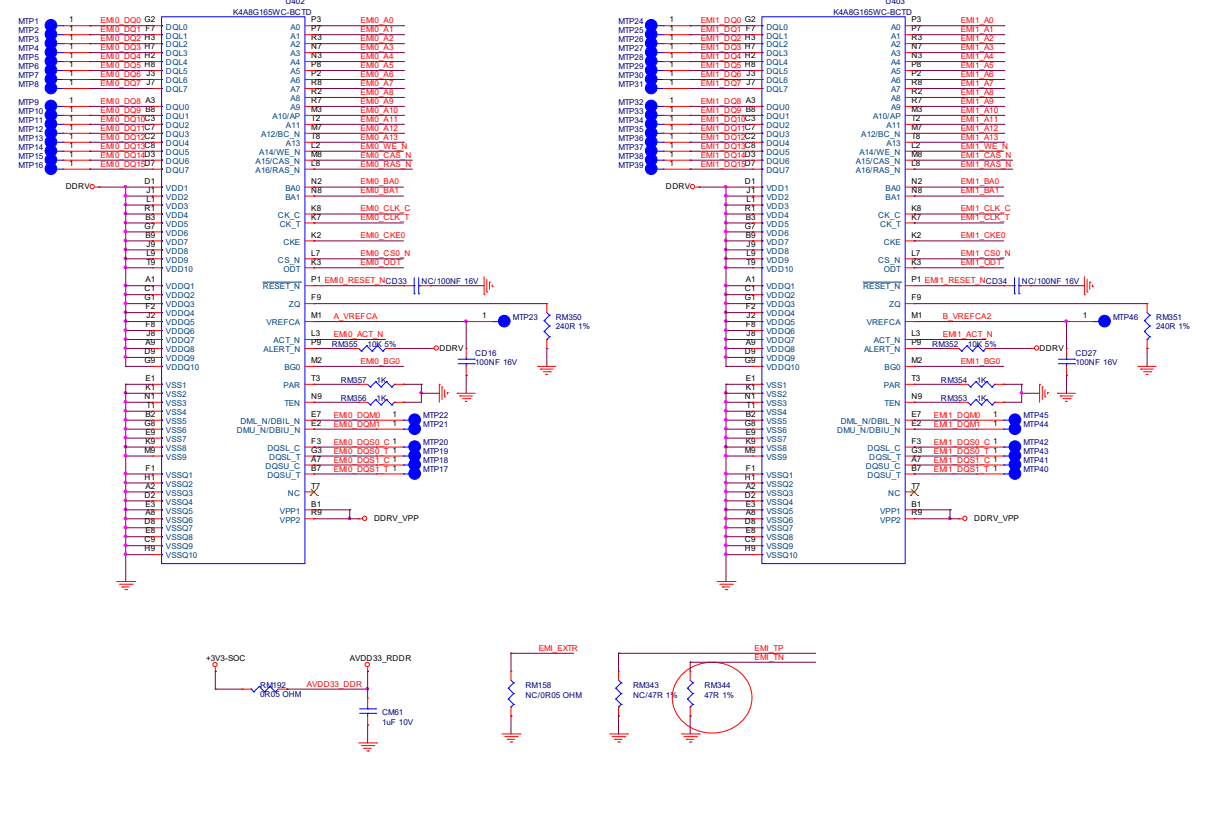
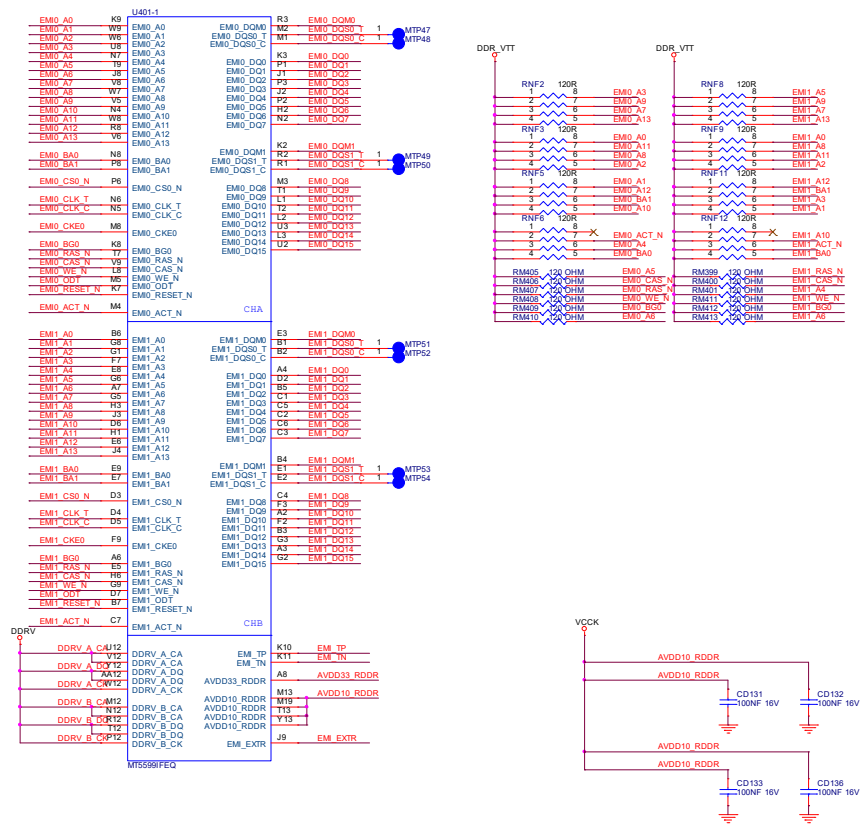
## 9-4-1 SOC-EMMC



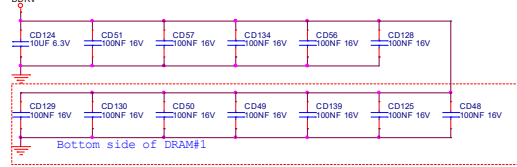
### 9-4-2 SOC-DDR4-1-2

### DDR4#1

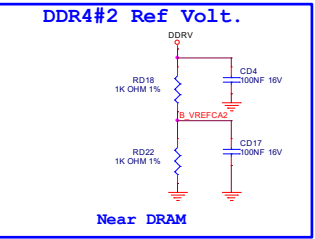
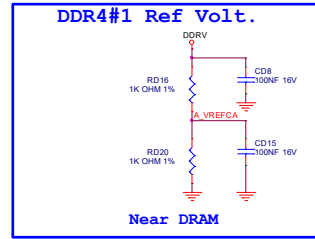
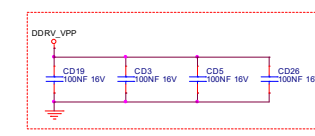
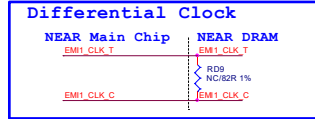
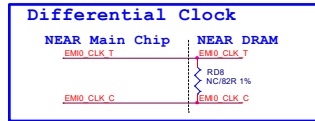
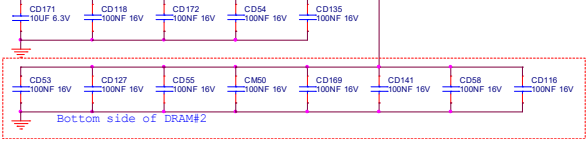
### DDR4#2



### DRAM#1 Bypass Cap



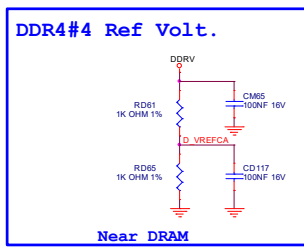
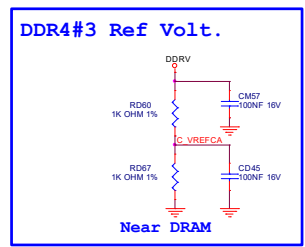
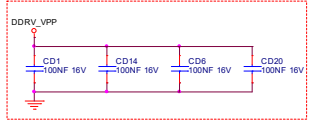
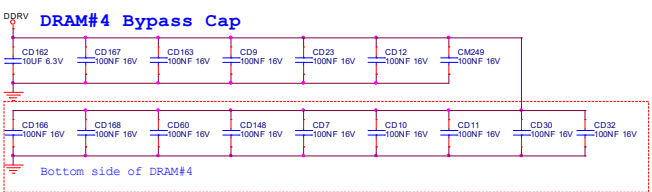
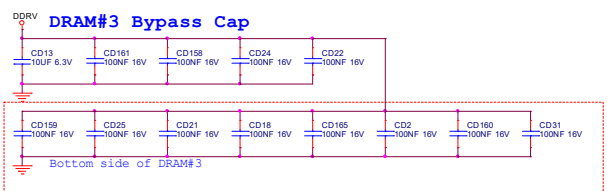
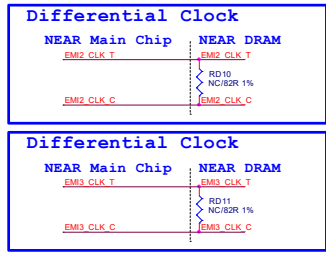
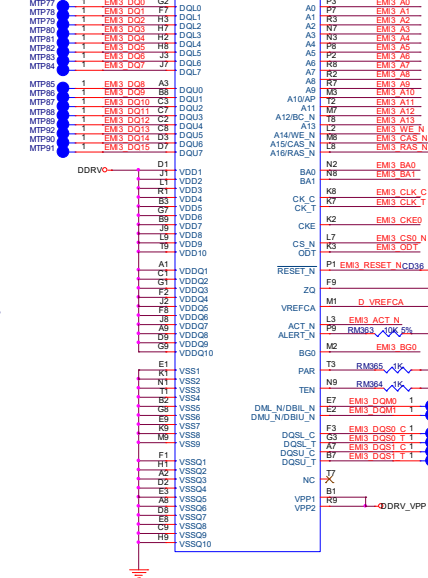
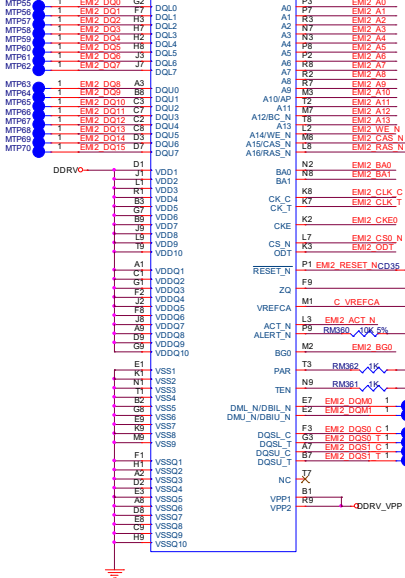
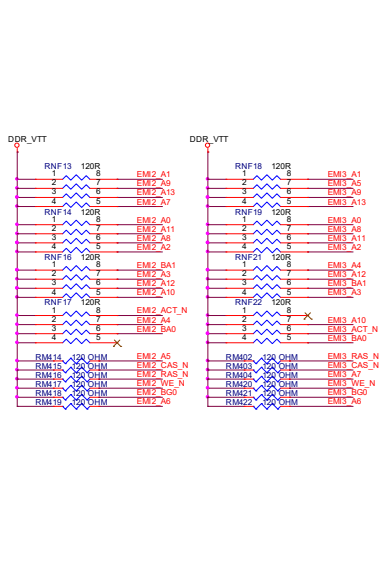
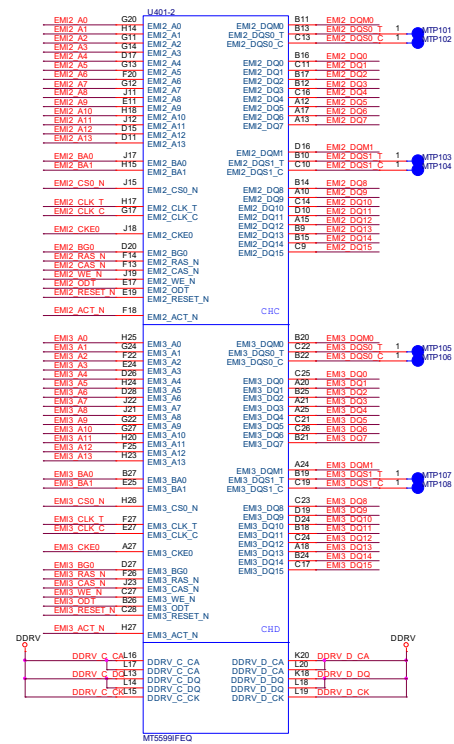
### DRAM#2 Bypass Cap



9-4-3 SOC-DDR4-3-4

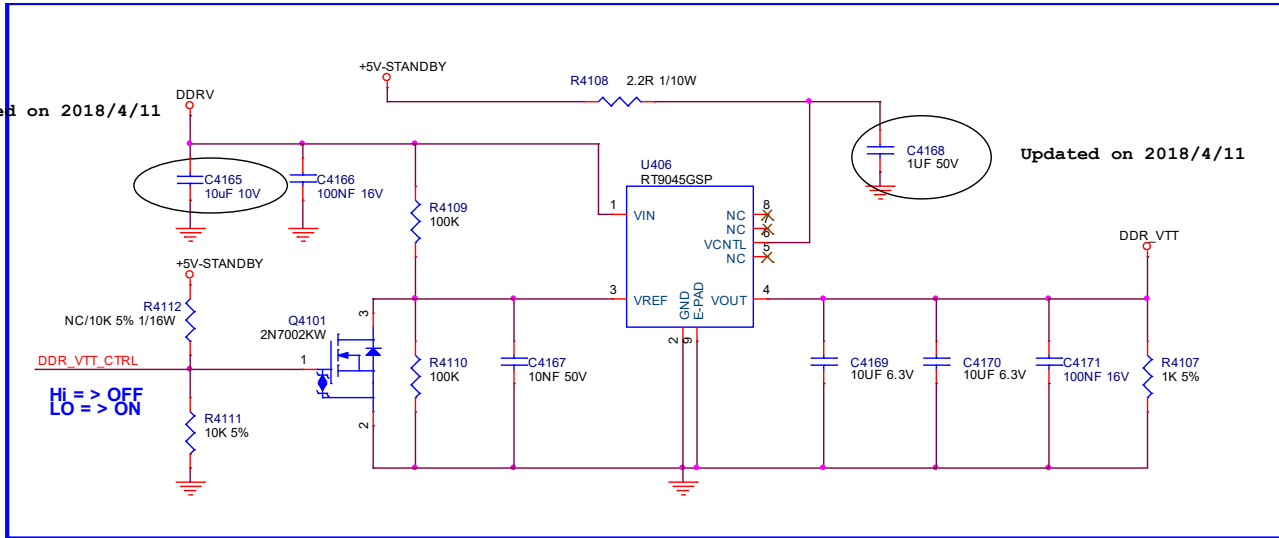
DDR4#3

DDR4#4



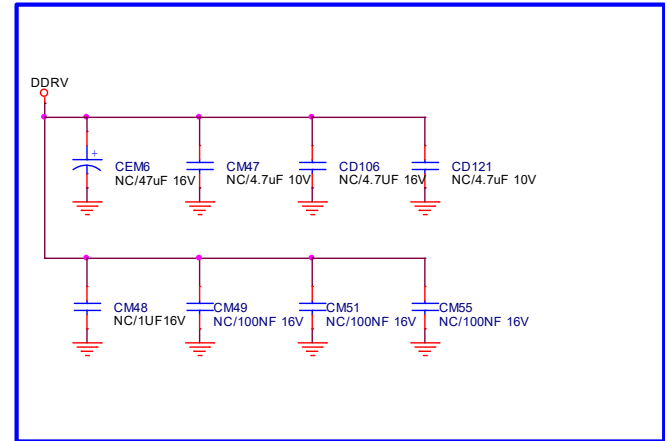
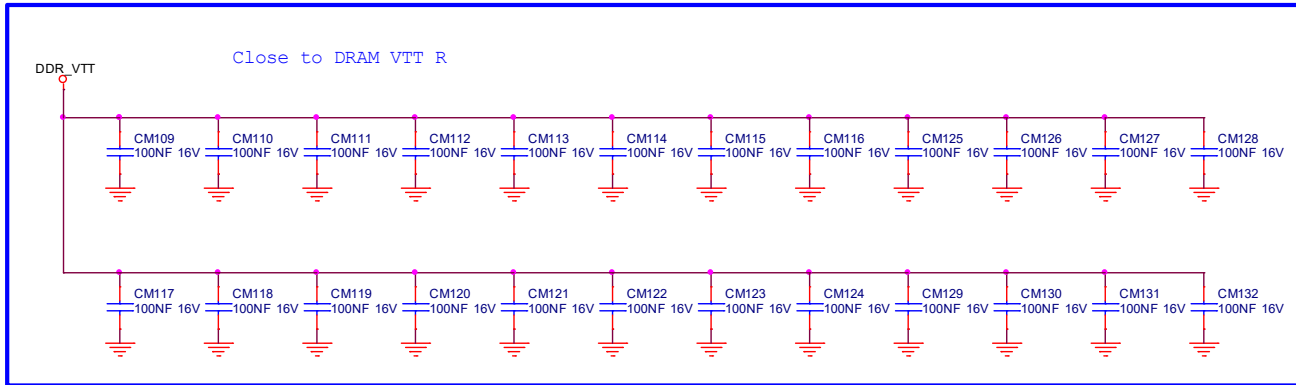
### 9-4-4 DDR POWER

Updated on 2018/4/11



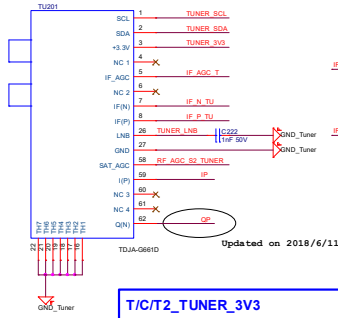
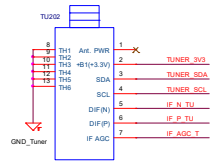
Updated on 2018/4/11

14 DDR\_VTT\_CTRL<<>> DDR\_VTT\_CTRL

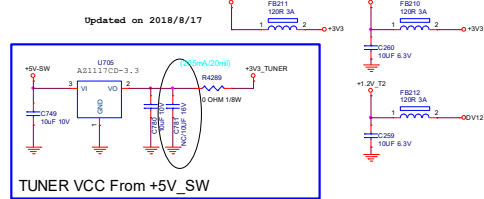
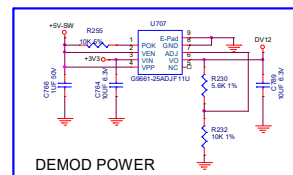
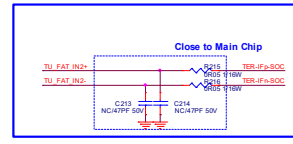
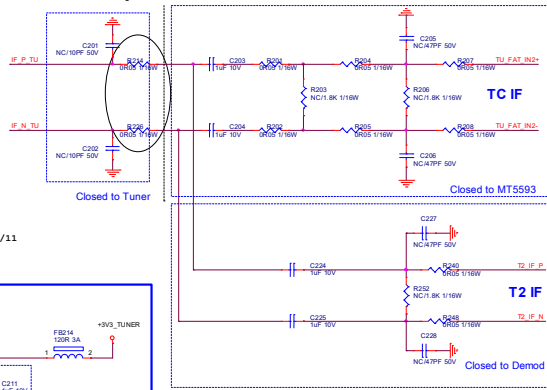


9-4-5 FE-TUNER-DEMOD

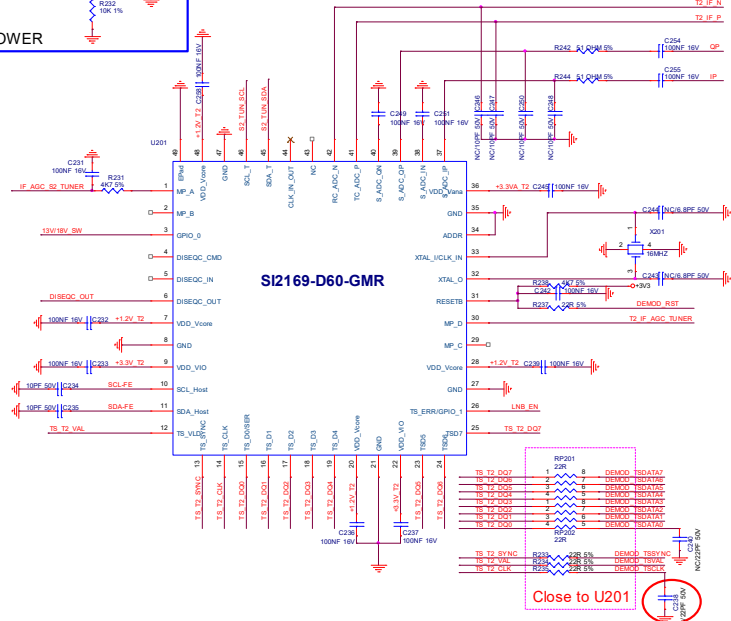
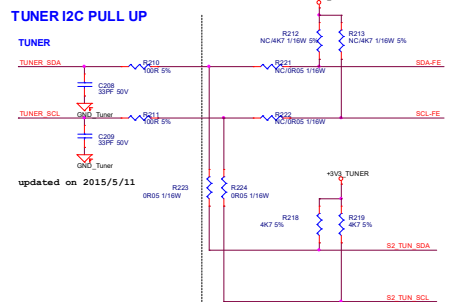
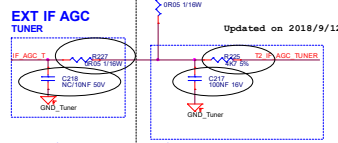
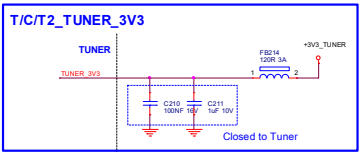
TUNER



Updated on 2018/8/3



- 17 TER-IF+SOC
- 17 TER-IF+SOC
- 10 TUNER\_LNB
- 17 ACC-ANA-SOC
- 17 SCLFE
- 17 SDAIFE
- 14 DEMO\_RST
- 14 DEMO\_TSDATA
- 14 DEMO\_TSDATA0
- 14 DEMO\_TSDATA1
- 14 DEMO\_TSDATA2
- 14 DEMO\_TSDATA3
- 14 DEMO\_TSDATA4
- 14 DEMO\_TSDATA5
- 14 DEMO\_TSDATA6
- 14 DEMO\_TSDATA7
- 14 DEMO\_TSDATA8
- 14 DEMO\_TSDATA9
- 10.14 LNB\_EN
- 10.14 TUN\_LNB
- 10 15V18V\_SW
- 10 LNB\_SW
- 10 DISEQC\_OUT
- 14 DEMO\_RST
- 14 DEMO\_TSDATA
- 14 DEMO\_TSDATA0
- 14 DEMO\_TSDATA1
- 14 DEMO\_TSDATA2
- 14 DEMO\_TSDATA3
- 14 DEMO\_TSDATA4
- 14 DEMO\_TSDATA5
- 14 DEMO\_TSDATA6
- 14 DEMO\_TSDATA7
- 14 DEMO\_TSDATA8
- 14 DEMO\_TSDATA9
- 10.14 LNB\_EN
- 10.14 TUN\_LNB
- 10 15V18V\_SW
- 10 LNB\_SW
- 10 DISEQC\_OUT



Close to U201

Updated on 2018/9/12

Updated on 2018/9/12

updated on 2015/5/11

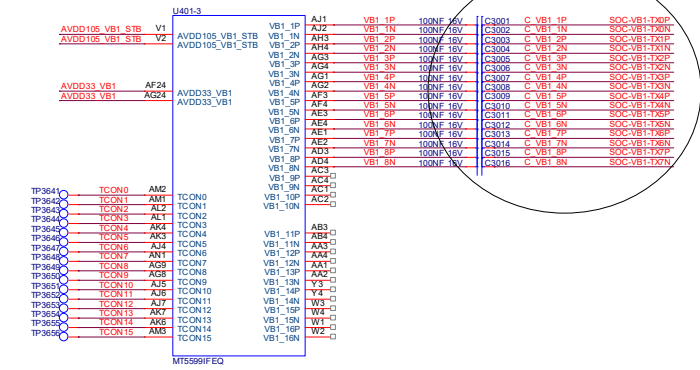
# DVB-T/T2 Demodulator

Model	Demod	R223/R224	R221/R222	R220/R217/C215/C216	R225/C217	R229/C219	C249/C251
H	NC	NC	Yes	NC	NC	NC	NC
T	T/C/T2 Si2168	Yes	NC	NC	Yes	NC	NC
<del>T</del>	<del>T/C/S2 Si2167</del>	<del>Yes</del>	<del>NC</del>	<del>Yes</del>	<del>NC</del>	<del>Yes</del>	<del>Yes</del>
<del>T</del>	<del>S2 Si2166</del>	<del>NC</del>	<del>Yes</del>	<del>Yes</del>	<del>NC</del>	<del>Yes</del>	<del>Yes</del>
S	T/C/T2/S2 Si2169	Yes	NC	Yes	Yes	Yes	Yes

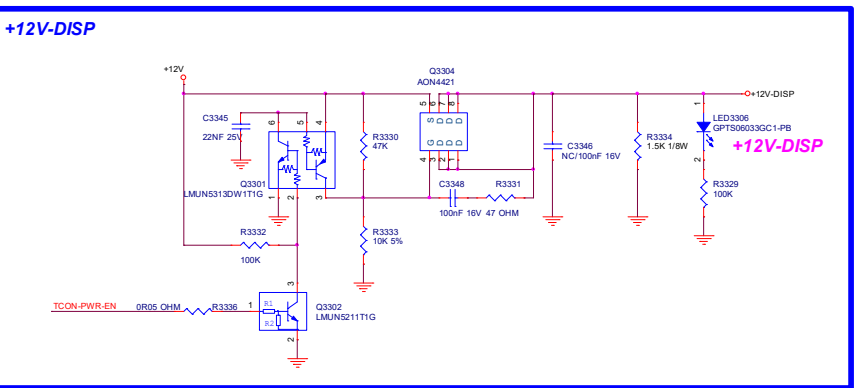
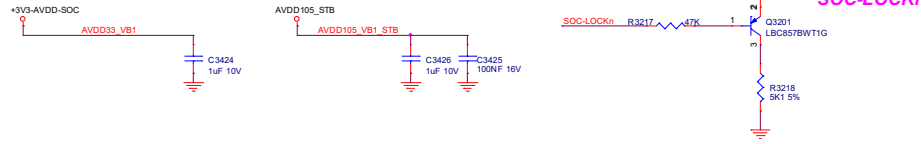
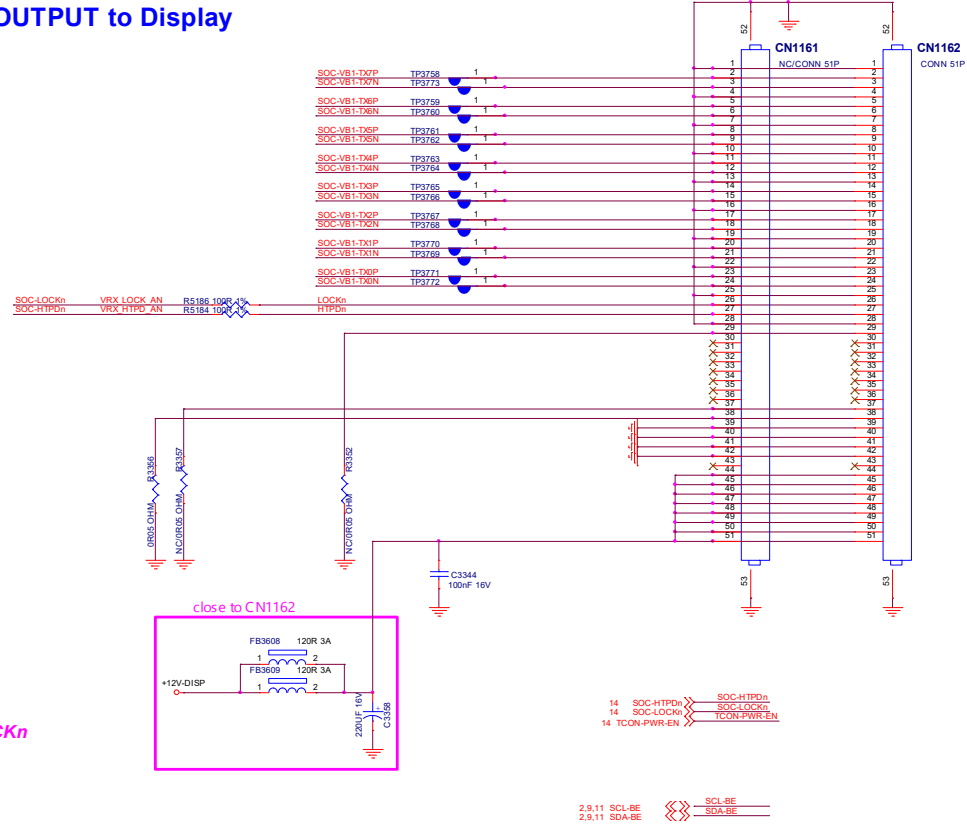
9-4-6 SOC-VB1-OUT

MT5599 Vx1 OUTPUT

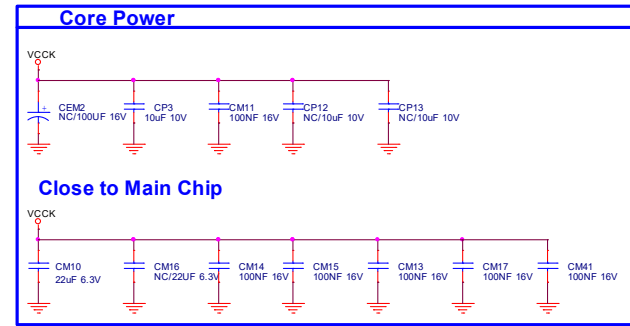
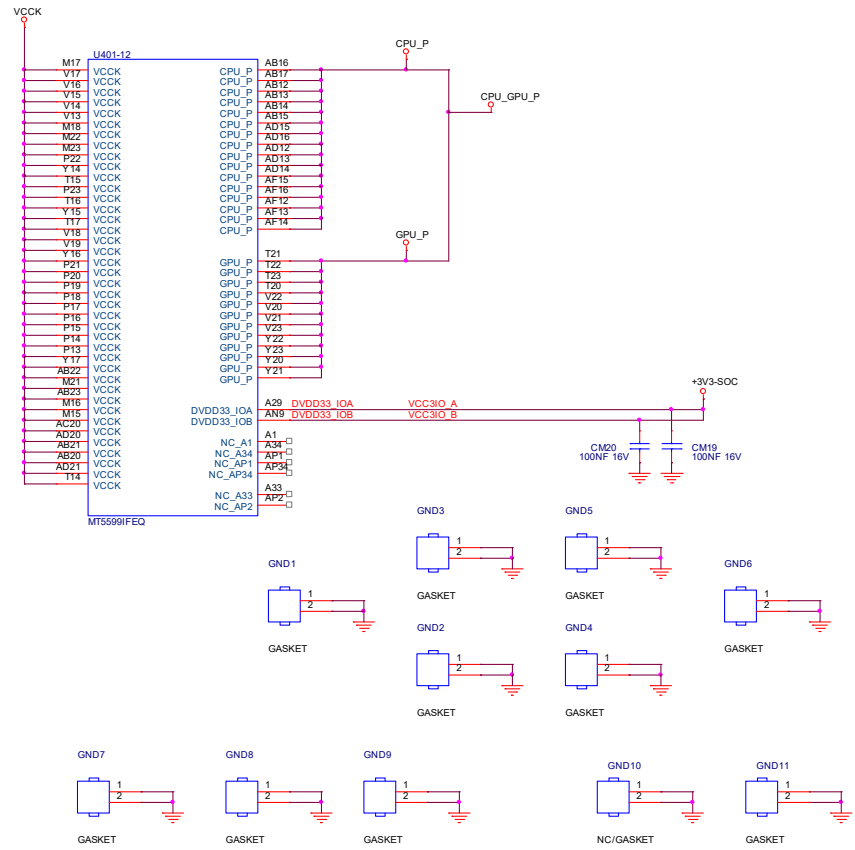
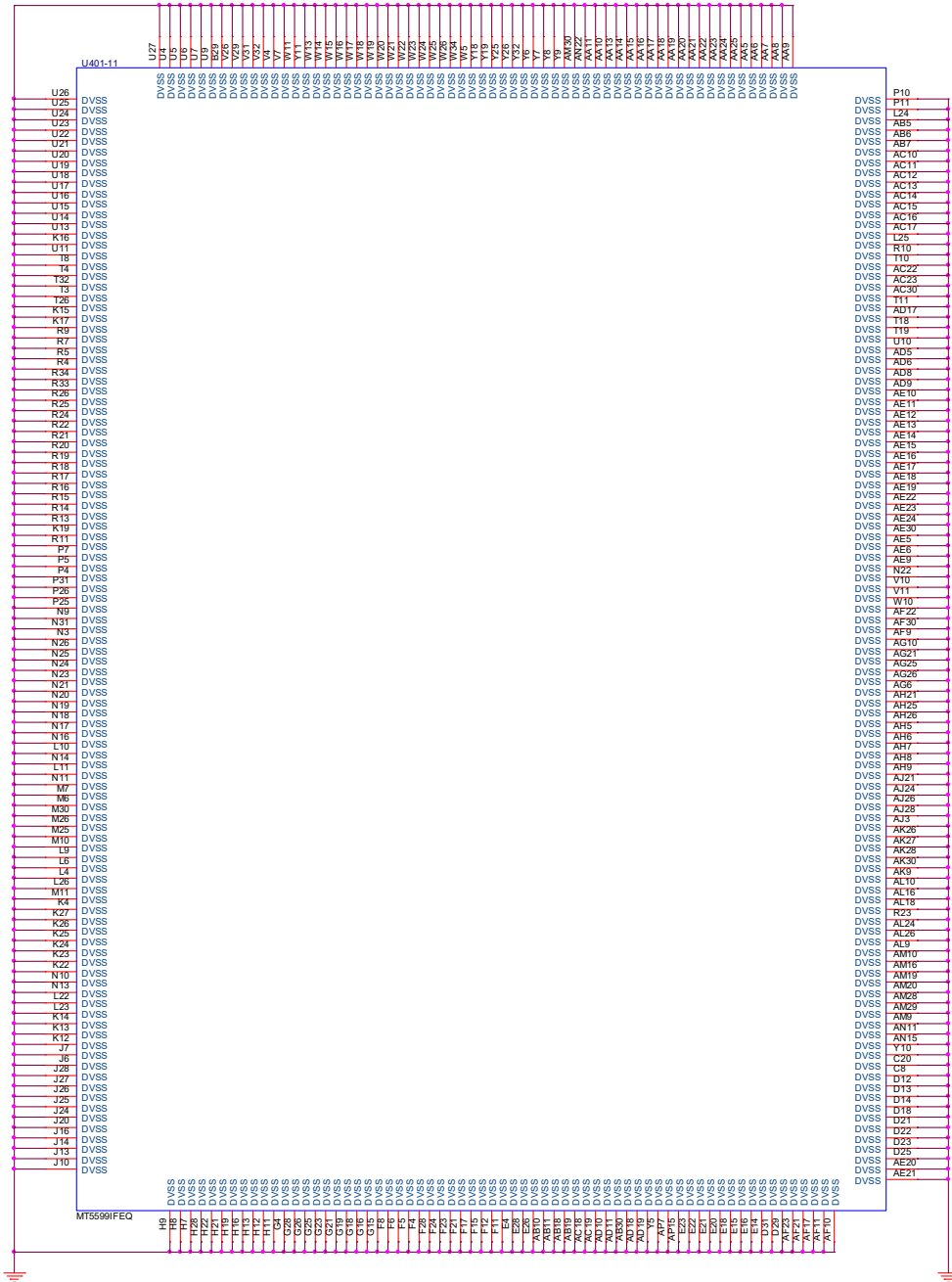
Updated on 2018/3/30



V-BY-1 OUTPUT to Display



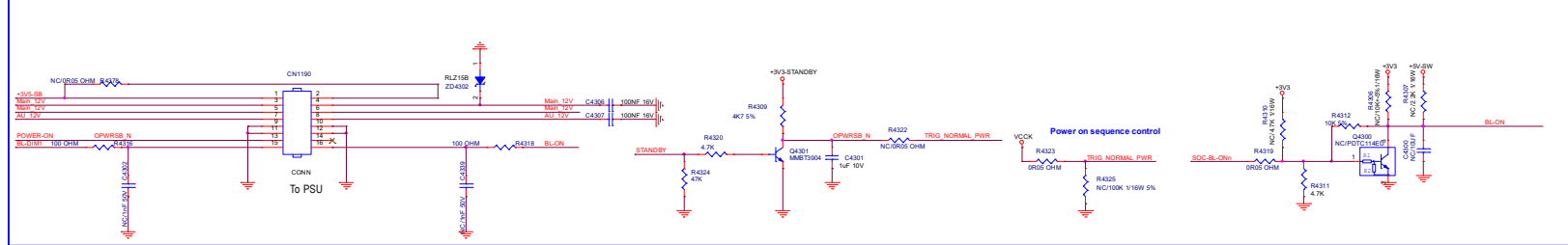
# 9-4-7 DCDC-SOC-VCCK-DVSS



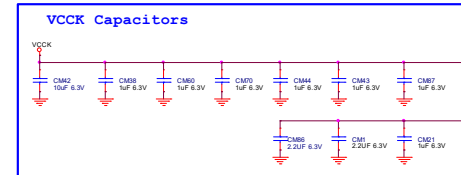
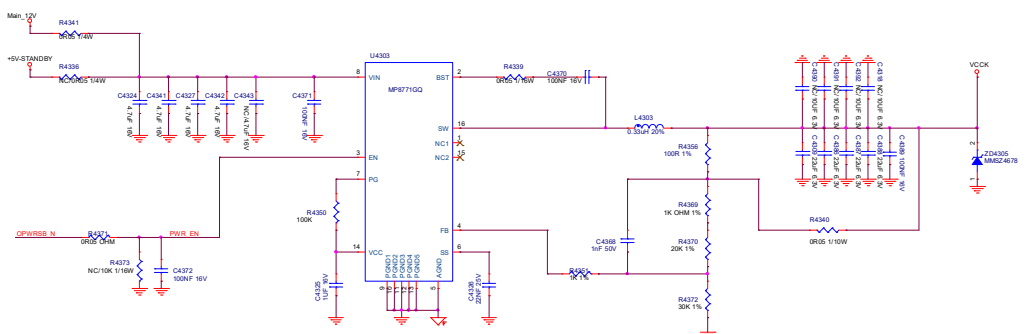
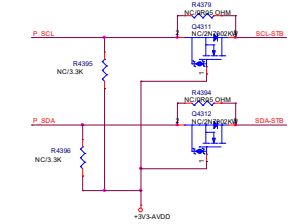
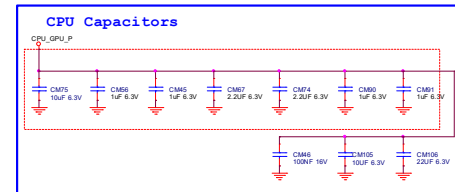
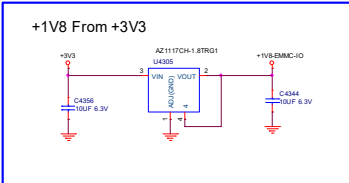
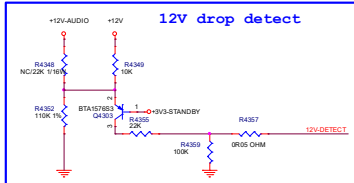
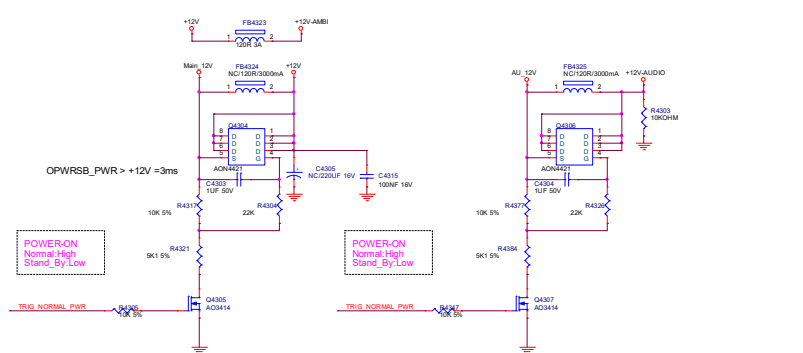
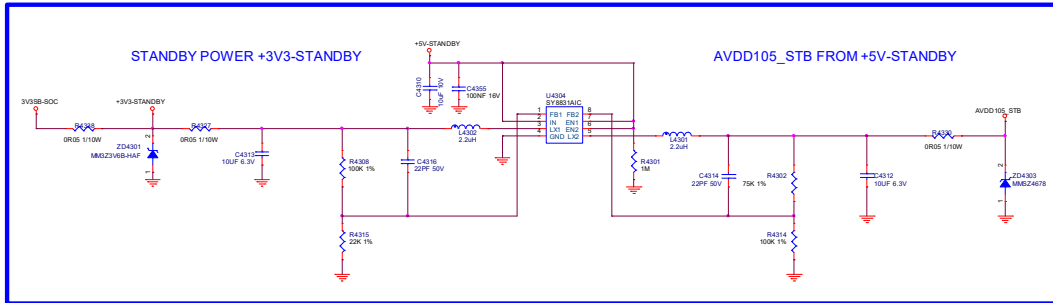


# 9-4-8 DCDC-SYSTEM-POWER1

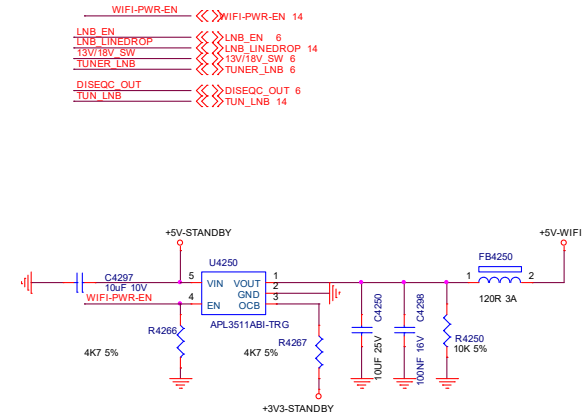
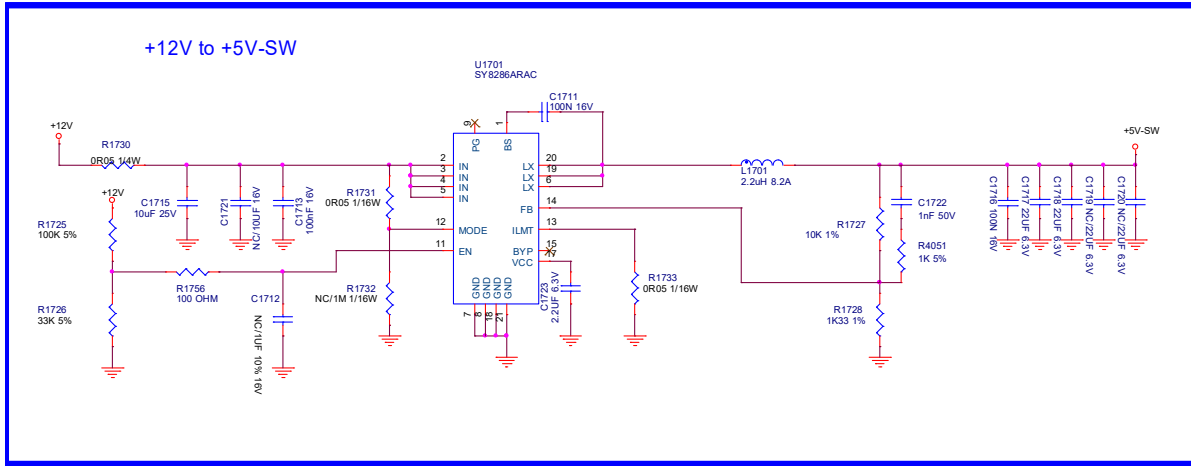
## DC POWER INPUT



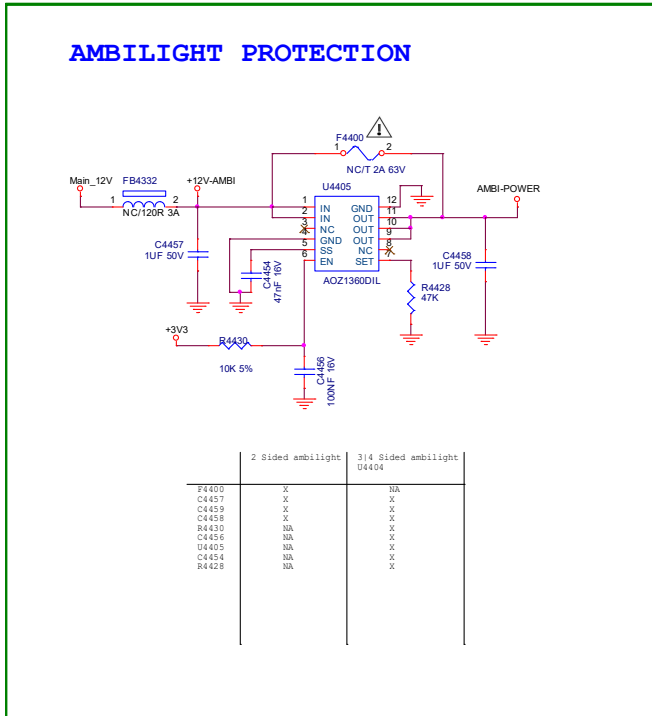
- 12V-DETECT <<> 12V-DETECT 12.14
- SOC-BL-ON <<> SOC-BL-ON 14
- BL-DIM <<> BL-DIM 14
- STANDBY <<> STANDBY 2
- SCL-STB <<> SCL-STB 2.11
- SDA-STB <<> SDA-STB 2.11
- OPWRSS\_N <<> OPWRSS\_N 11



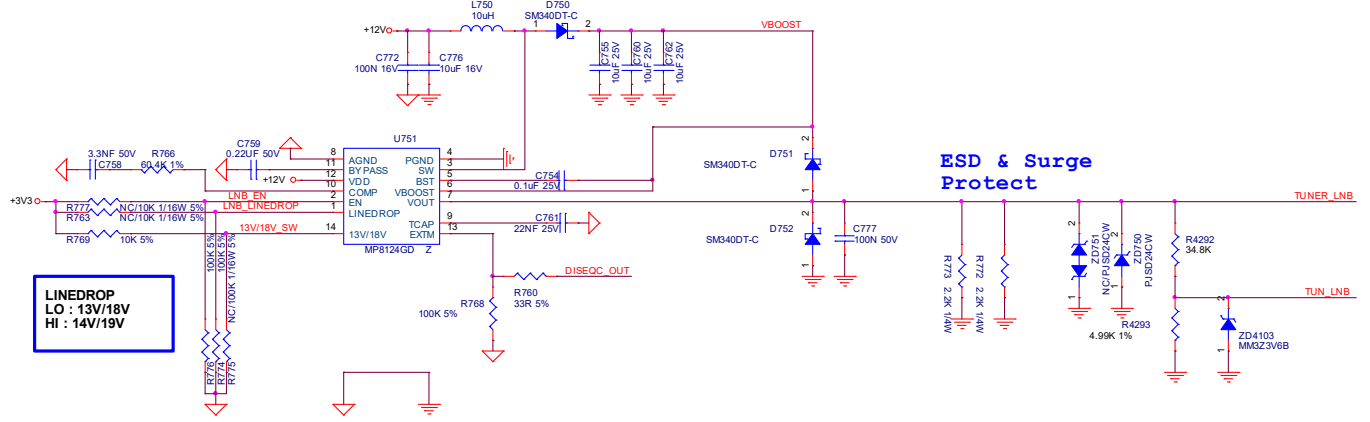
### 9-4-9 DCDC-SYSTEM-POWER2



- WIFI-PWR-EN <<> WIFI-PWR-EN 14
- LNB\_EN <<> LNB\_EN 6
- LNB\_LINEDROP <<> LNB\_LINEDROP 14
- 13V/18V\_SW <<> 13V/18V\_SW 6
- TUNER\_LNB <<> TUNER\_LNB 6
- DISEQC\_OUT <<> DISEQC\_OUT 6
- TUN\_LNB <<> TUN\_LNB 14

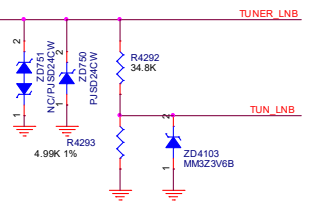


### LNB POWER SUPPLY

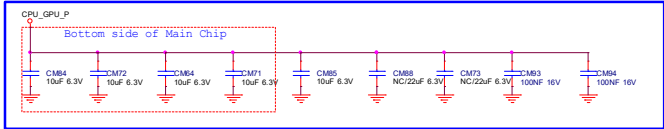
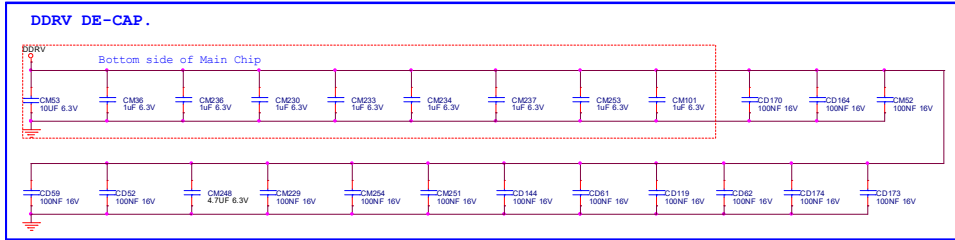
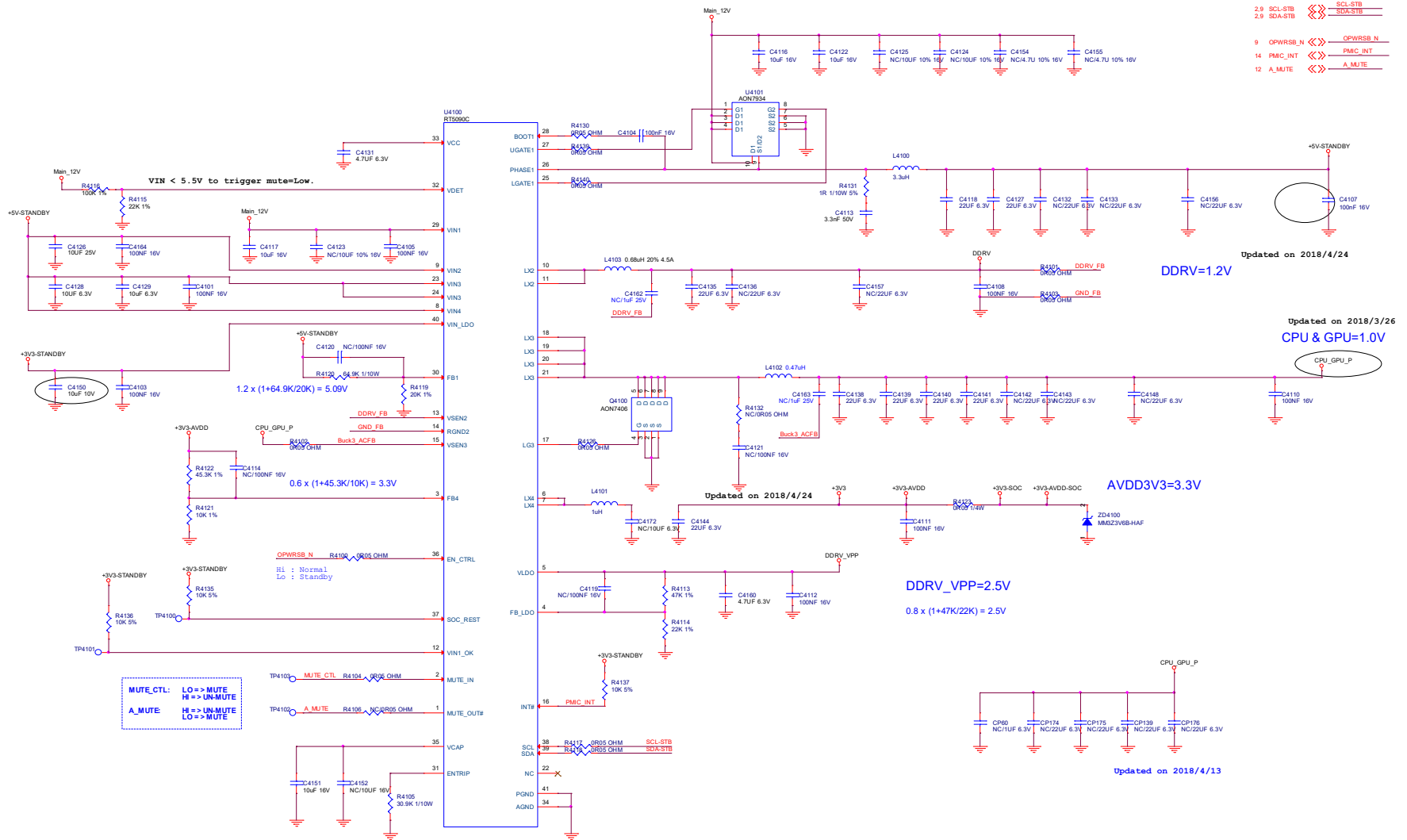


LINEDROP  
LO : 13V/18V  
HI : 14V/19V

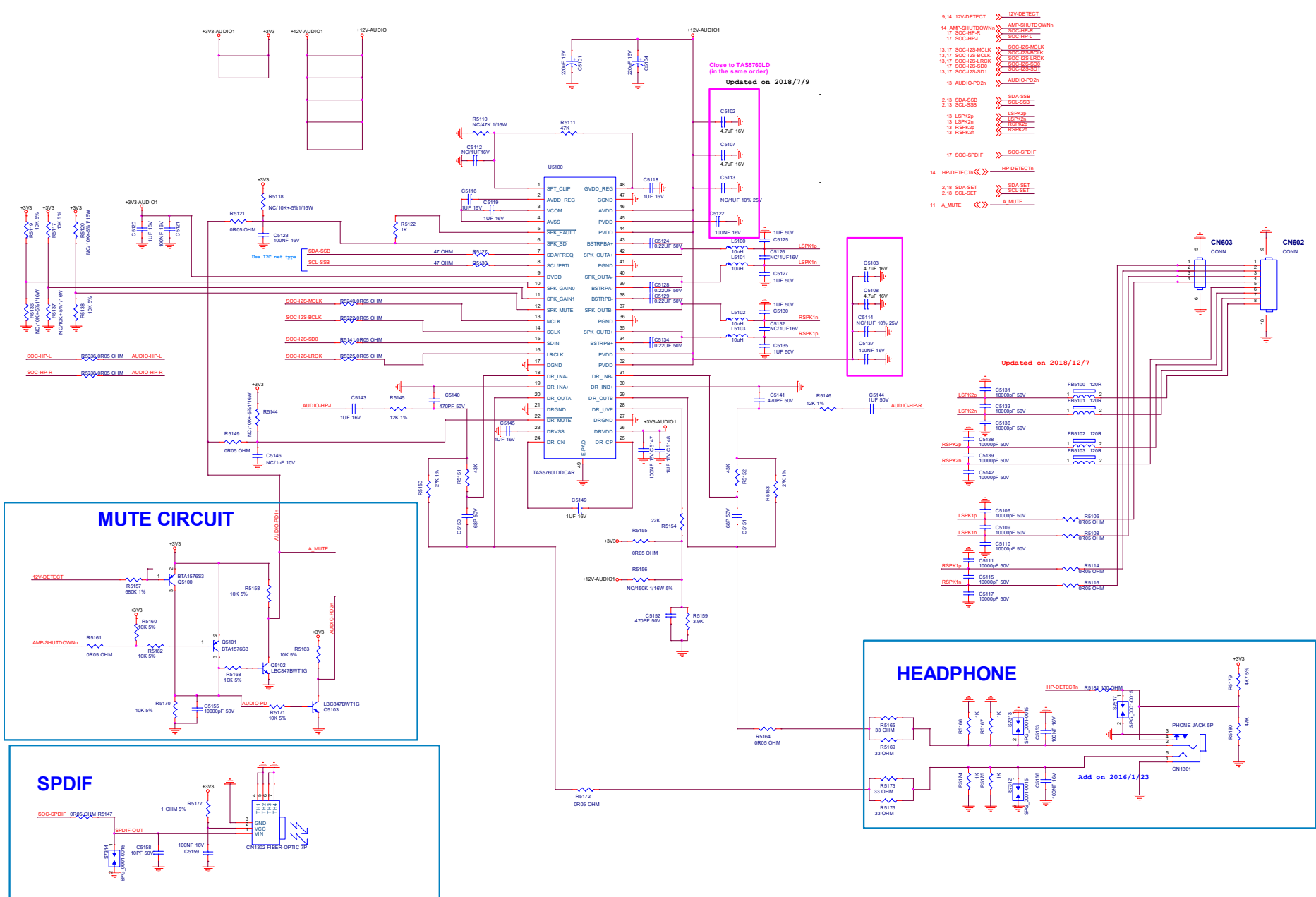
### ESD & Surge Protect



# 9-4-10 DCDC-SYSTEM-POWER3



# 9-4-11 AUDIO-1st-CLASS-D-AMP

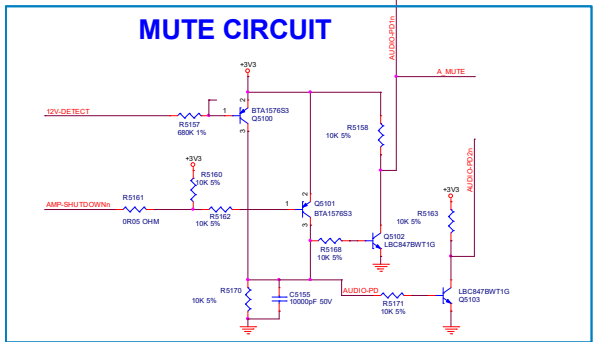


- 9,14 12V-DETECT <>> 12V-DETECT
- 14 AMP\_SHUTDOWN <>> AMP\_SHUTDOWN
- 17 SOC-HP-L <>> SOC-HP-L
- 17 SOC-HP-R <>> SOC-HP-R
- 13,17 SOC-2S-MCLK <>> SOC-2S-MCLK
- 13,17 SOC-2S-BCLK <>> SOC-2S-BCLK
- 13,17 SOC-2S-LRCLK <>> SOC-2S-LRCLK
- 13,17 SOC-2S-SDI <>> SOC-2S-SDI
- 13,17 SOC-2S-SDO <>> SOC-2S-SDO
- 13 AUDIO\_PD2H <>> AUDIO\_PD2H
- 2,13 SDA-SSB <>> SDA-SSB
- 2,13 SCL-SSB <>> SCL-SSB
- 13 LSPK2L <>> LSPK2L
- 13 LSPK2R <>> LSPK2R
- 13 RSPK2L <>> RSPK2L
- 13 RSPK2R <>> RSPK2R
- 17 SOC\_SPDIF <>> SOC\_SPDIF
- 14 HP-DETECTL <>> HP-DETECTL
- 2,18 SDA-SET <>> SDA-SET
- 2,18 SCL-SET <>> SCL-SET
- 11 A\_MUTE <>> A\_MUTE

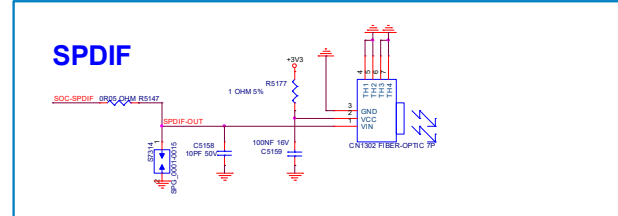
Close to TAS5760LD  
(in the same order)  
Updated on 2018/7/9

Updated on 2018/12/7

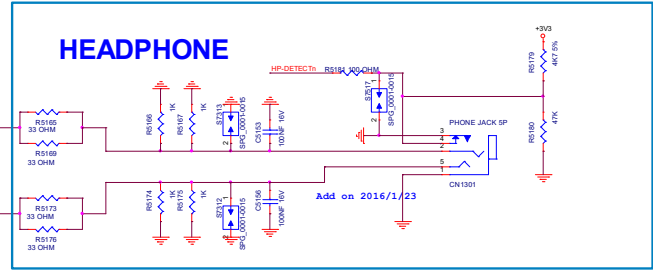
## MUTE CIRCUIT



## SPDIF

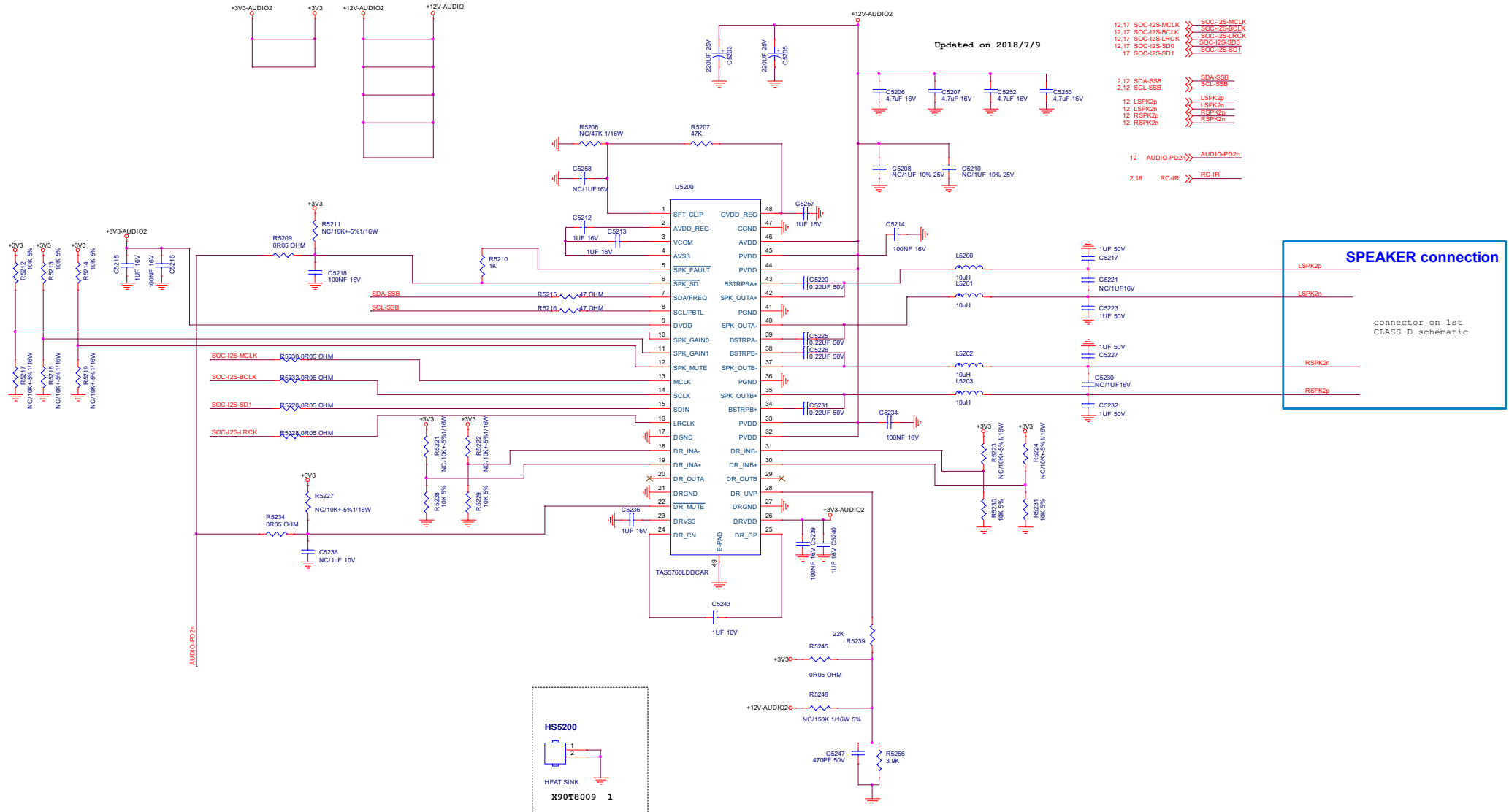


## HEADPHONE

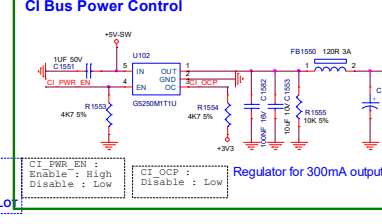
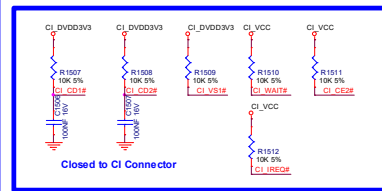
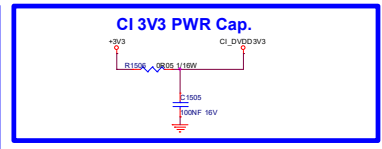
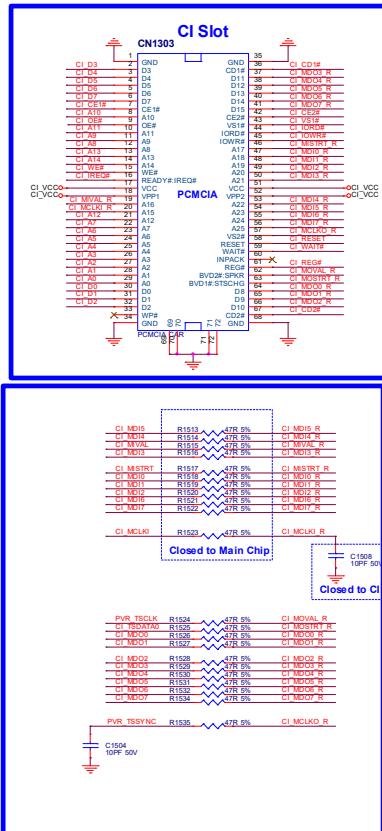
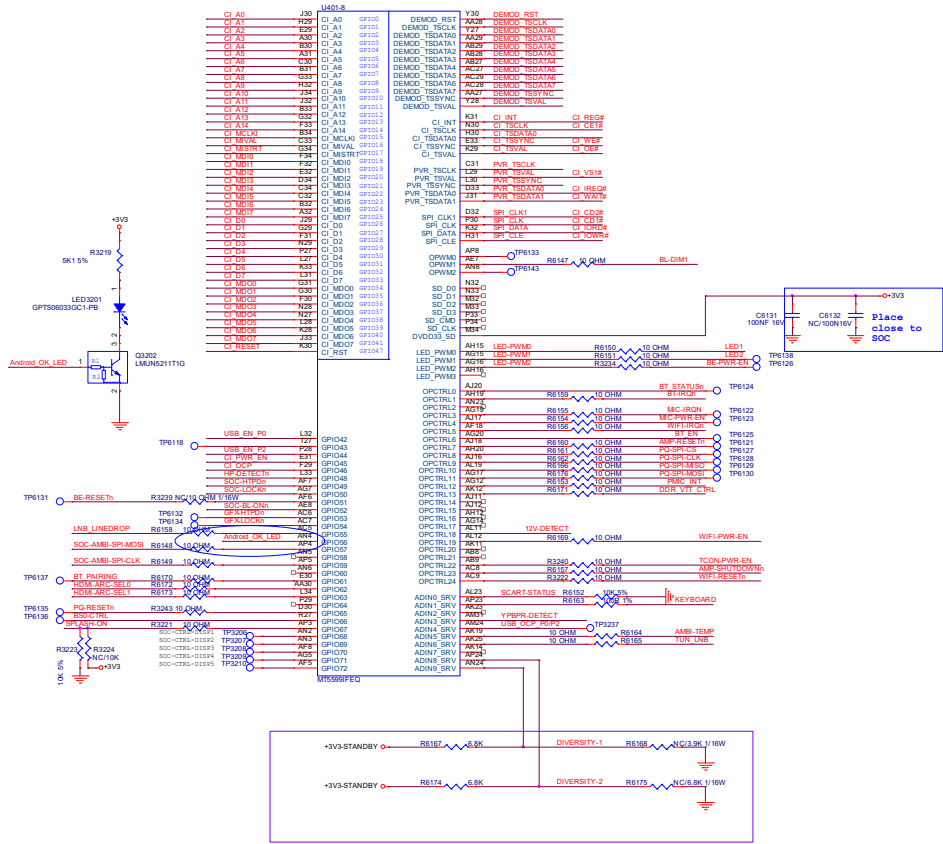


Add on 2016/1/23

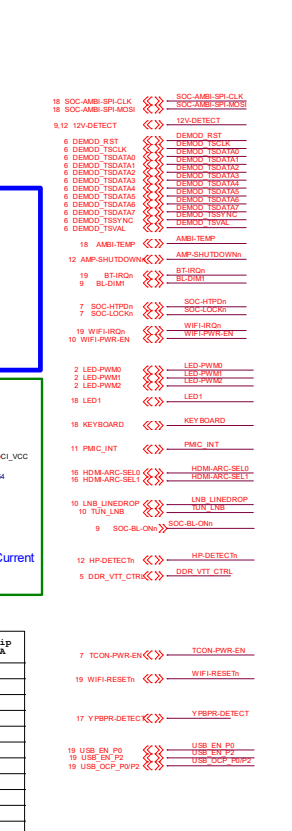
# 9-4-12 AUDIO-2nd-CLASS-D-AMP



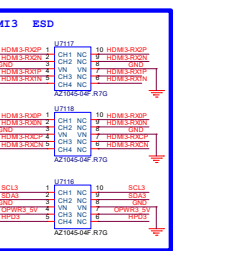
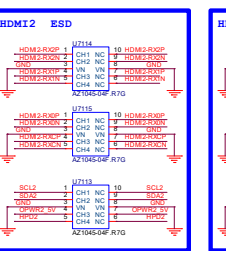
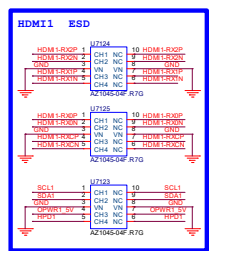
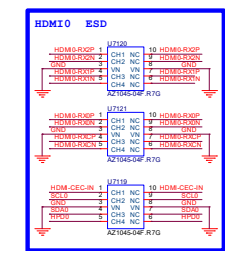
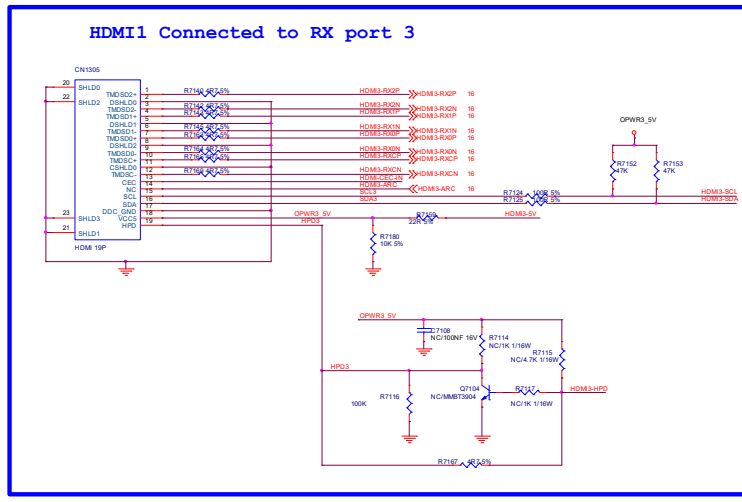
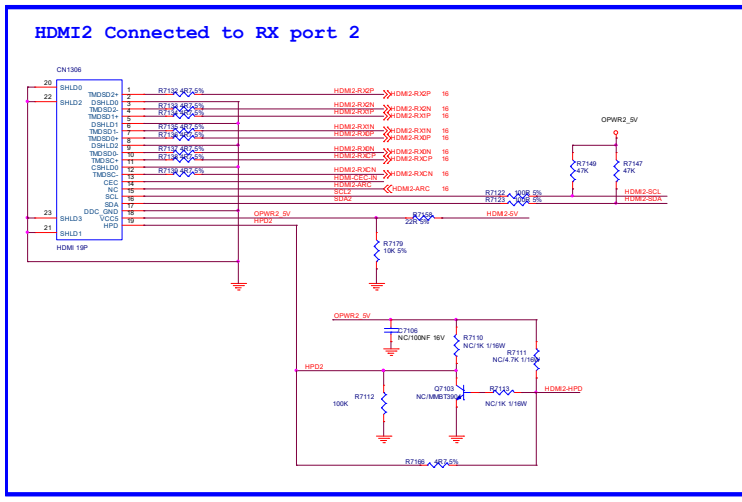
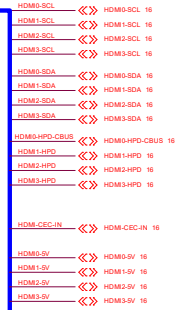
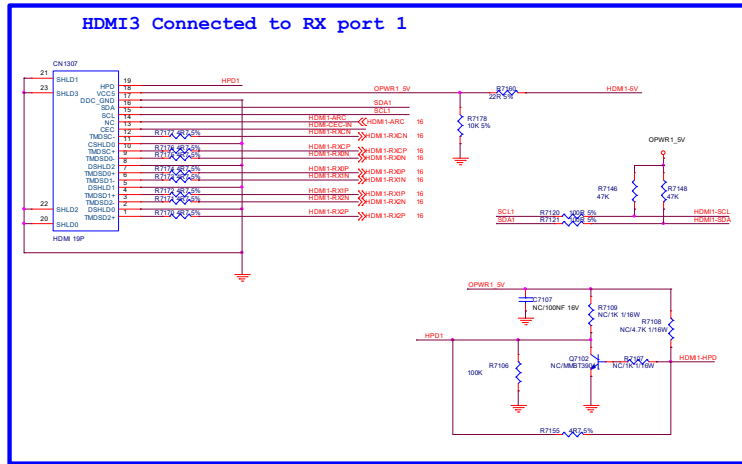
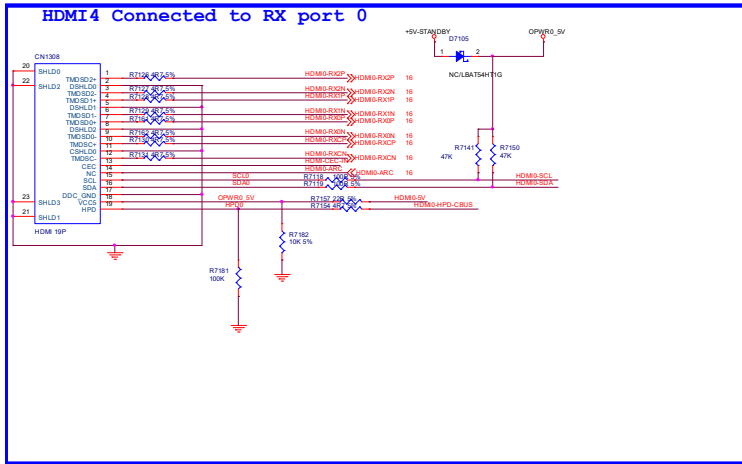
# 9-4-13 PCMCIA



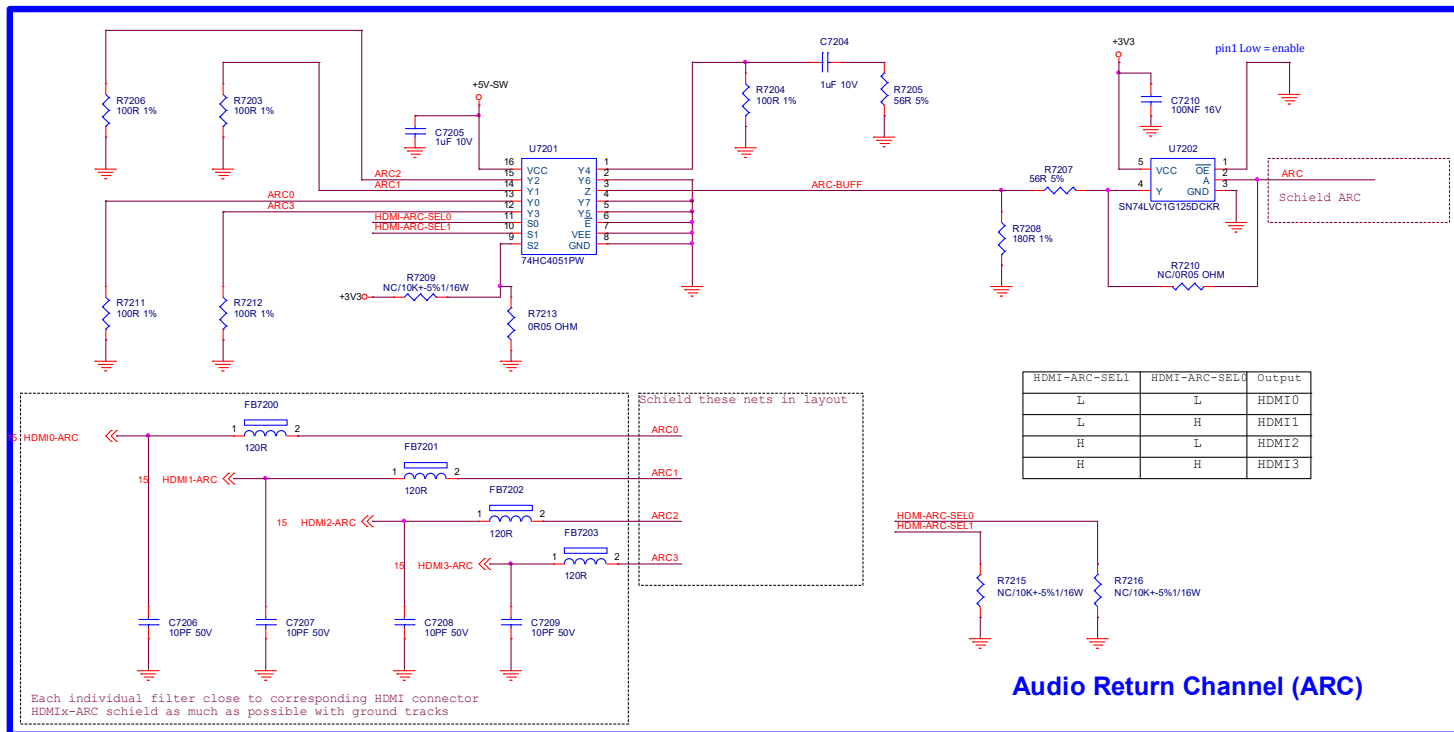
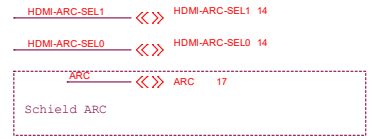
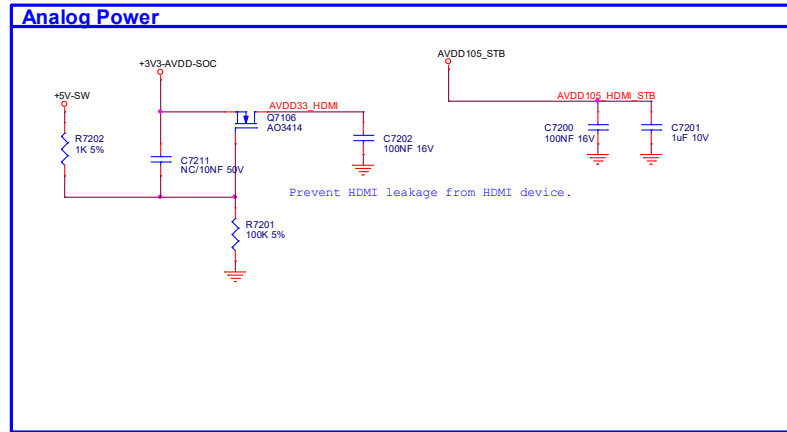
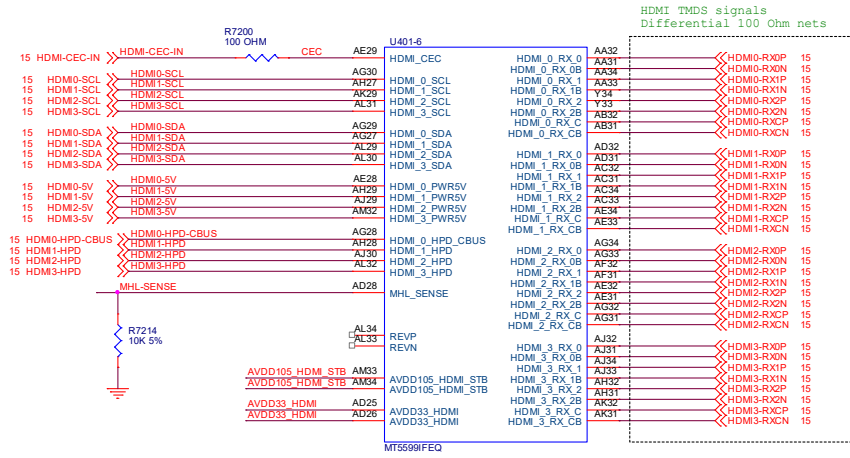
Parrel TS Output to PCMCIA damping used to close Main Chip	Parrel TS Output to Main Chip damping used to close PCMCIA
CI_MISTR	CI_MOSTRR
CI_MIVAL	CI_MOVAL
CI_MCLKI	CI_MOCLKI
CI_MDIO	CI_MODO
CI_MDI	CI_MDOI
CI_MDI2	CI_MDOI2
CI_MDI3	CI_MDOI3
CI_MDI4	CI_MDOI4
CI_MDI5	CI_MDOI5
CI_MDI6	CI_MDOI6
CI_MDI7	CI_MDOI7



# 9-4-14 HDMI-INPUTS

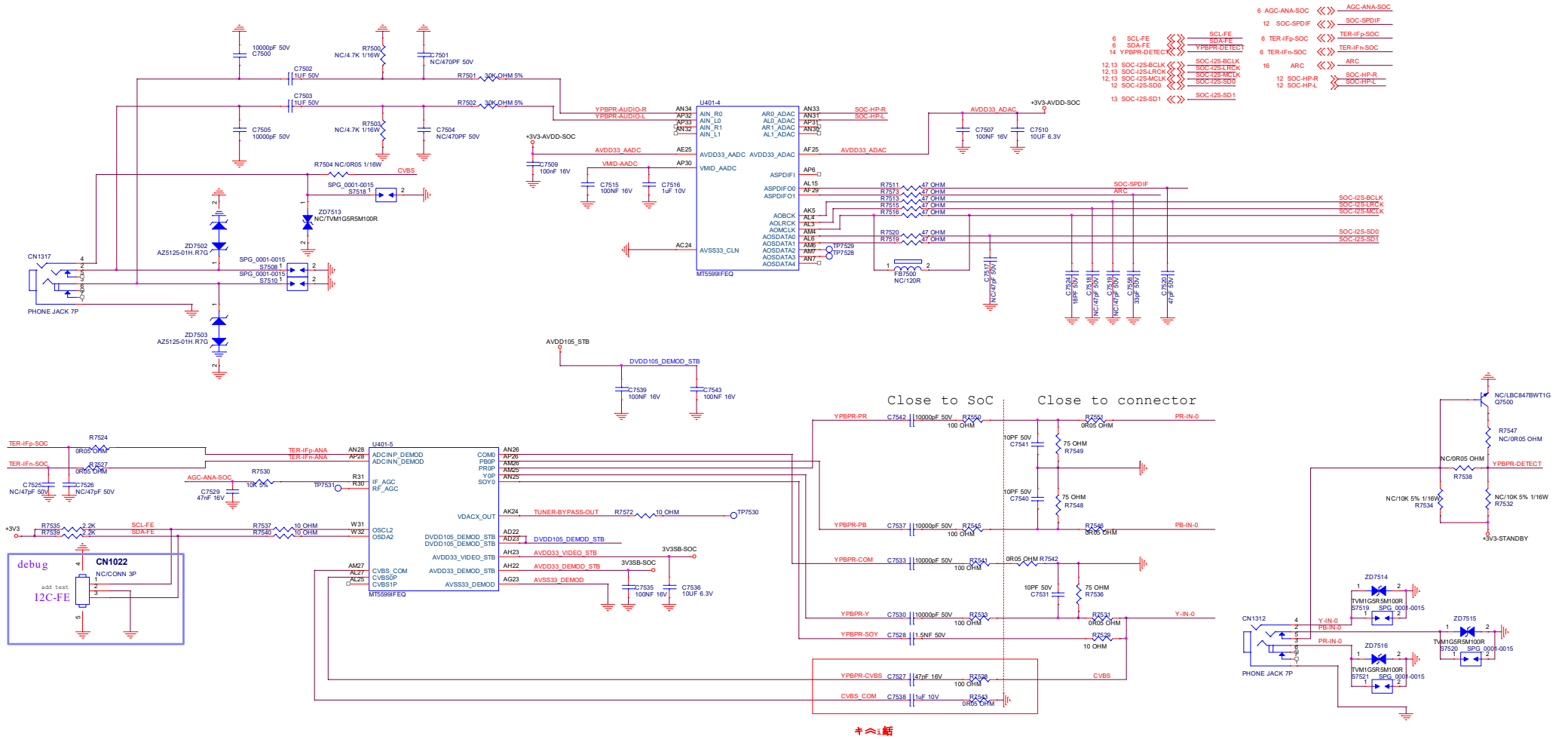


### 9-4-15 HDMI-SOC-ARC

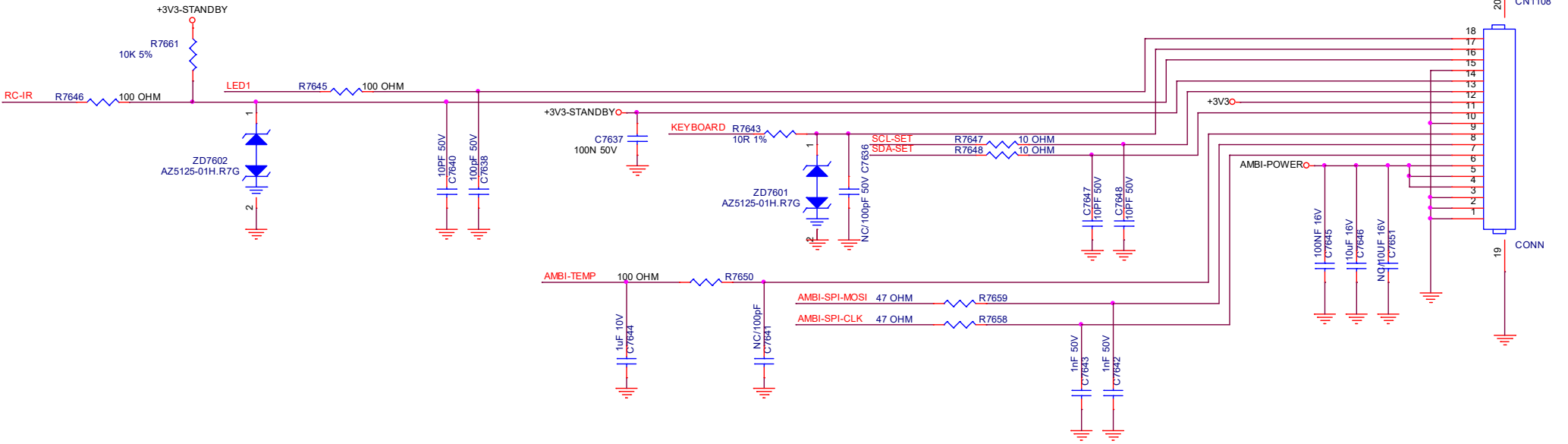
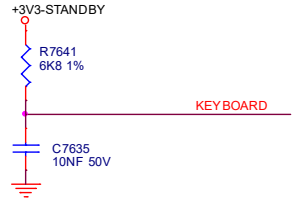
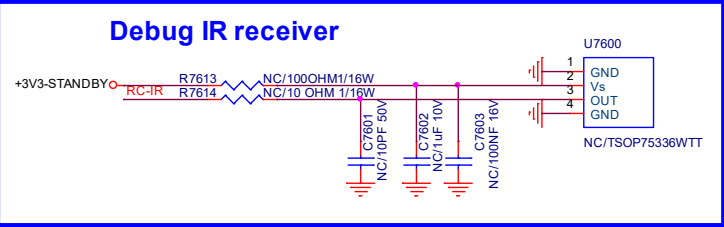
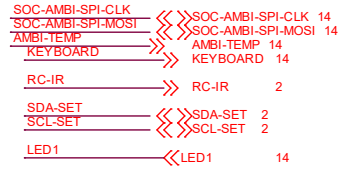




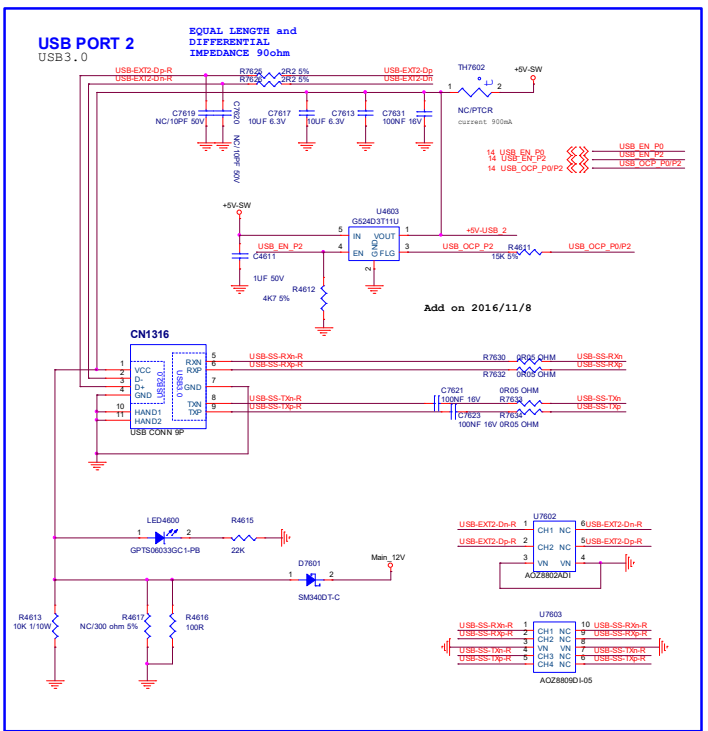
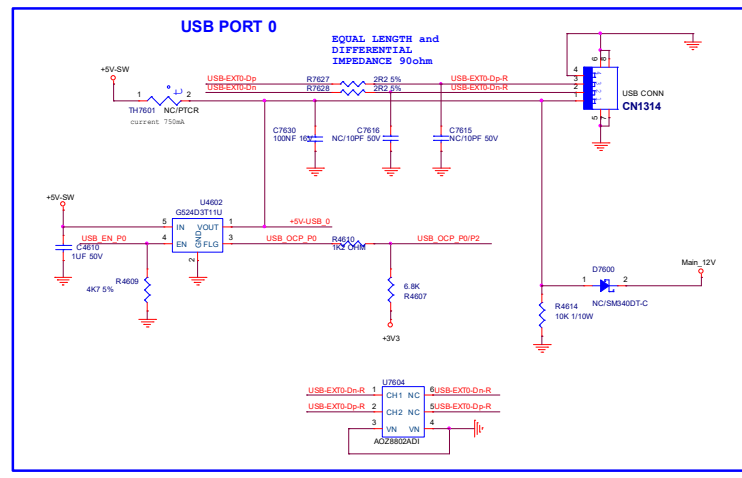
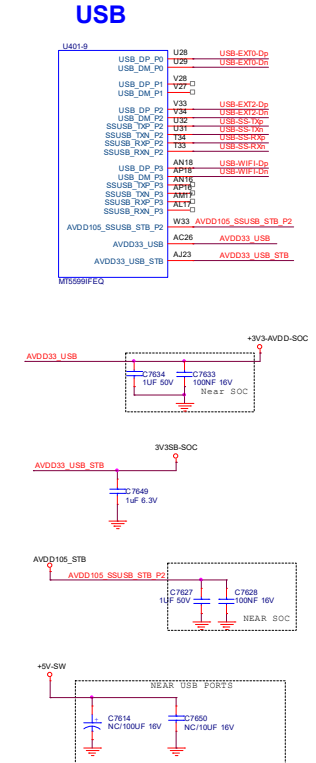
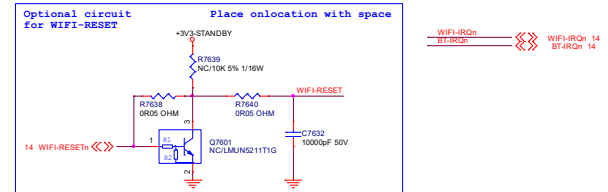
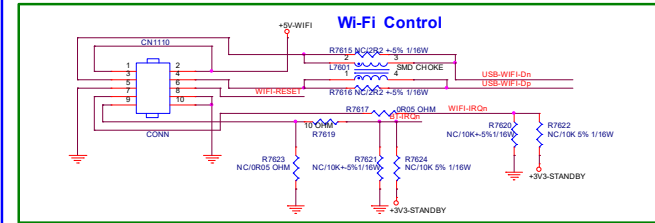
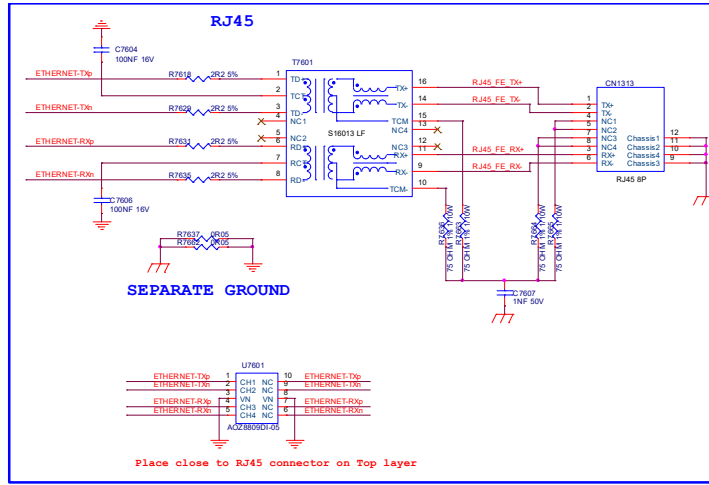
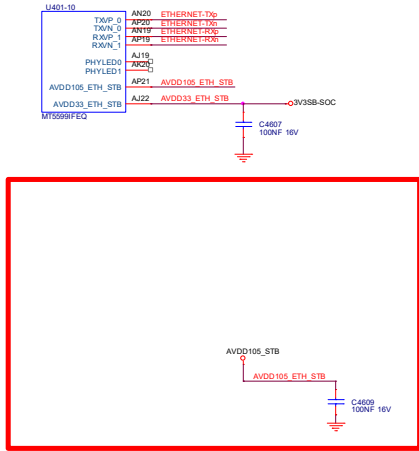
9-4-16 SCART-YPbPr-CVBS



# 9-4-17 CTRL-CONNECTORS

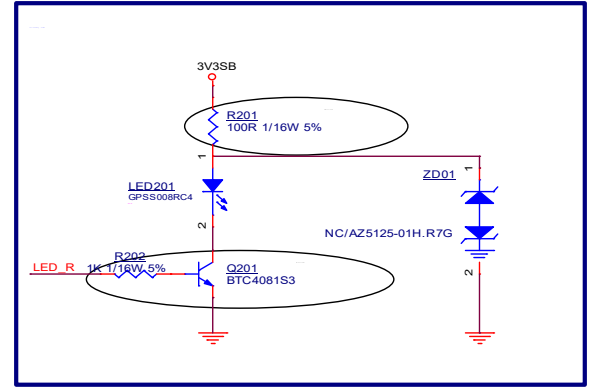
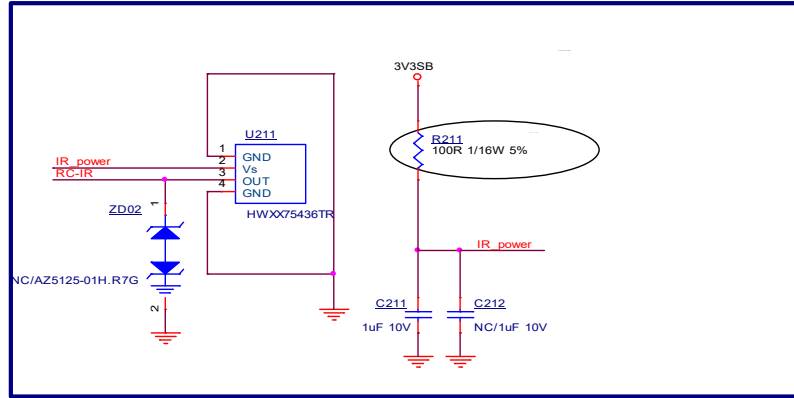
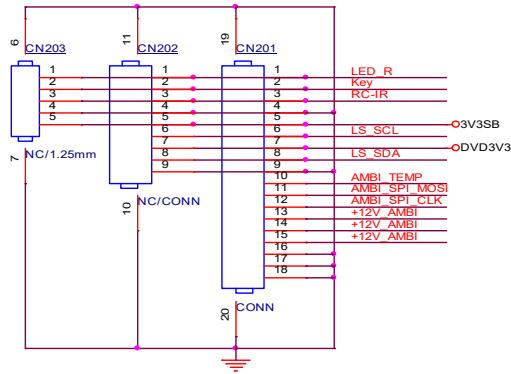
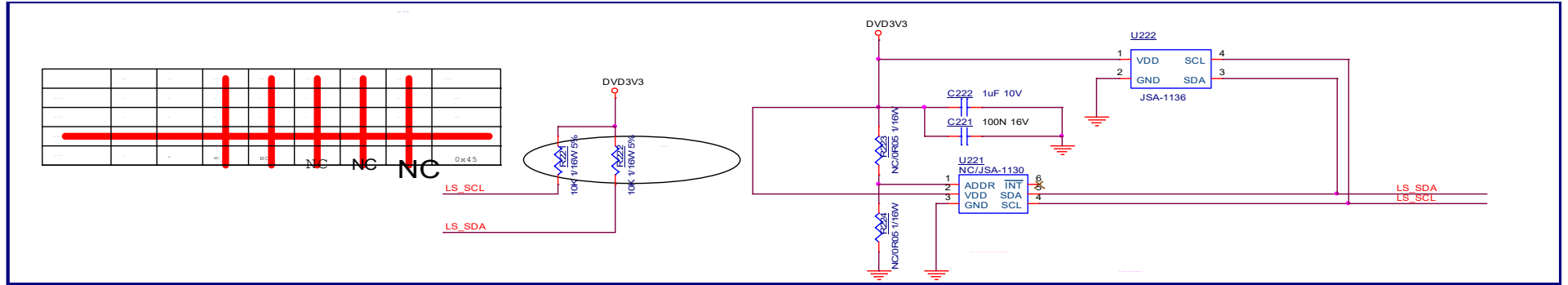


## 9-4-18 CTRL-ETHERNET-PHY

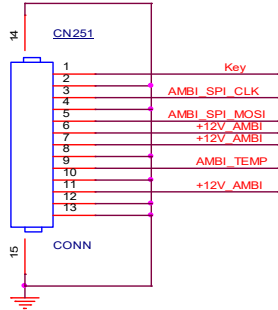


# 9.5 E 715GA039 IR Board

## 9-5-1 IR&STB LED&Light sensor



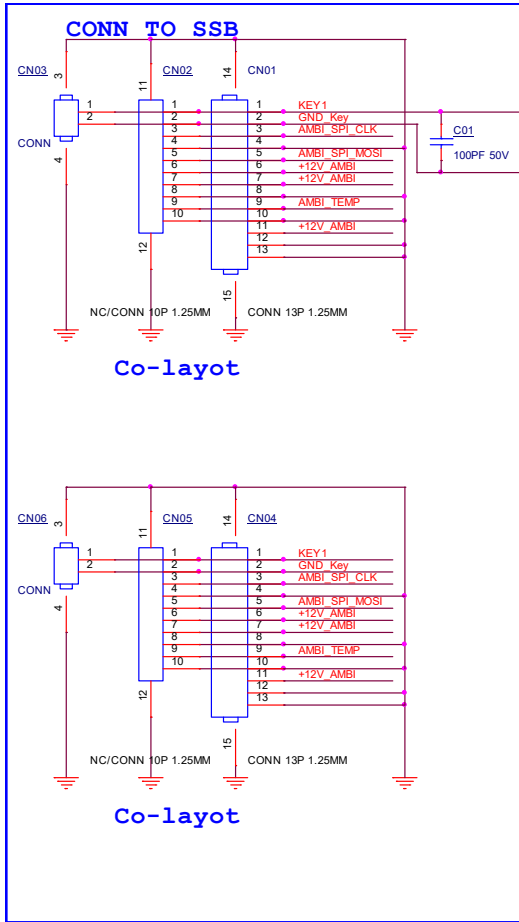
- Key
- AMBI\_TEMP
- AMBI\_SPI\_MOSI
- AMBI\_SPI\_CLK
- +12V\_AMBI



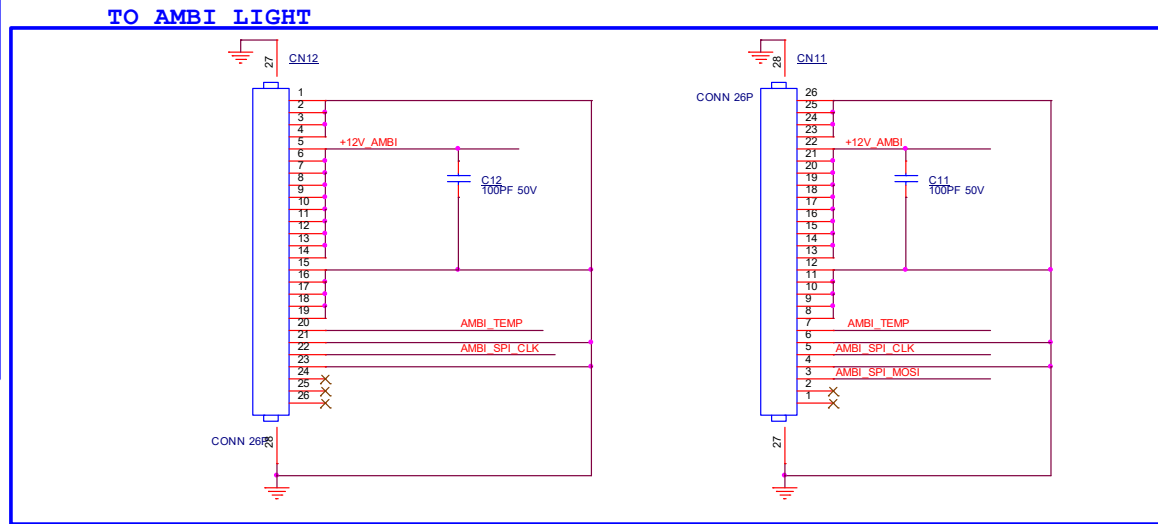
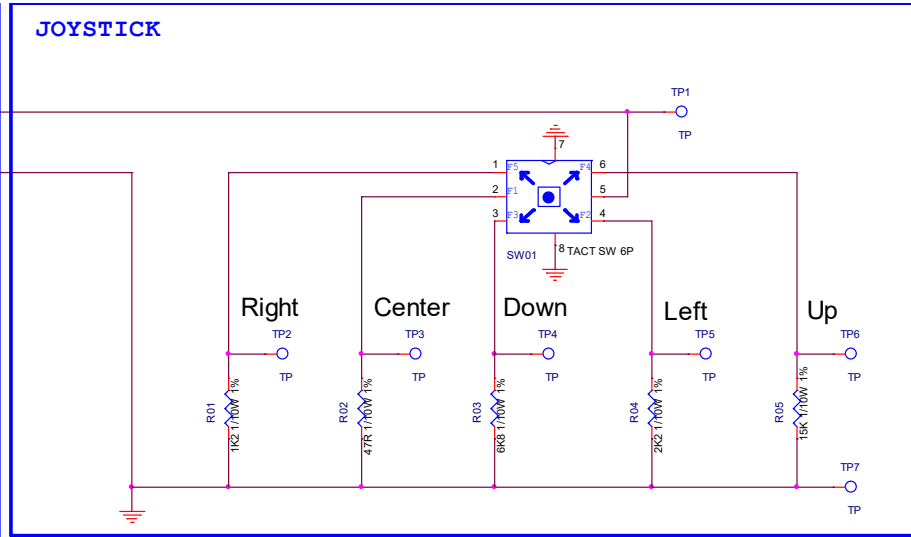
- LED\_R TP1
- Key TP2
- RC-IR TP3
- 3V3SB TP4
- DVD3V3 TP5
- LS\_SCL TP6
- LS\_SDA TP7
- TP8

## 9.6 E 715GA334 Keyboard control panel

### 9-6-1 Key



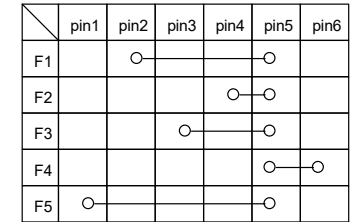
Parts location  
 Top: CN01/CN02/CN03/R01/R02/R03/CN11/CN12  
 Bottom: CN04/CN05/CN06/C01/R04/R05/C11/C12



### Joystick key define

Direction	switch	Key function	Resistance	Voltage	Range
Center	2-5 short	Menu	0R	0V	0.0 to 0.22 V
Right	1-5 short	CH+	1K2	0.5V	0.39 to 0.60 V
Left	4-5 short	CH-	2K2	0.81V	0.67 to 0.95 V
Down	3-5 short	VOL-	6K8	1.65V	1.41 to 1.87 V
Up	6-5 short	VOL+	15K	2.27V	1.93 to 2.58 V
NA	NA	No function	NA	3.3V	3.135 to 3.465V

### Joystick circuit diagram

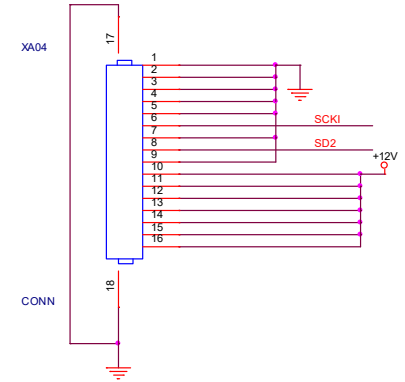
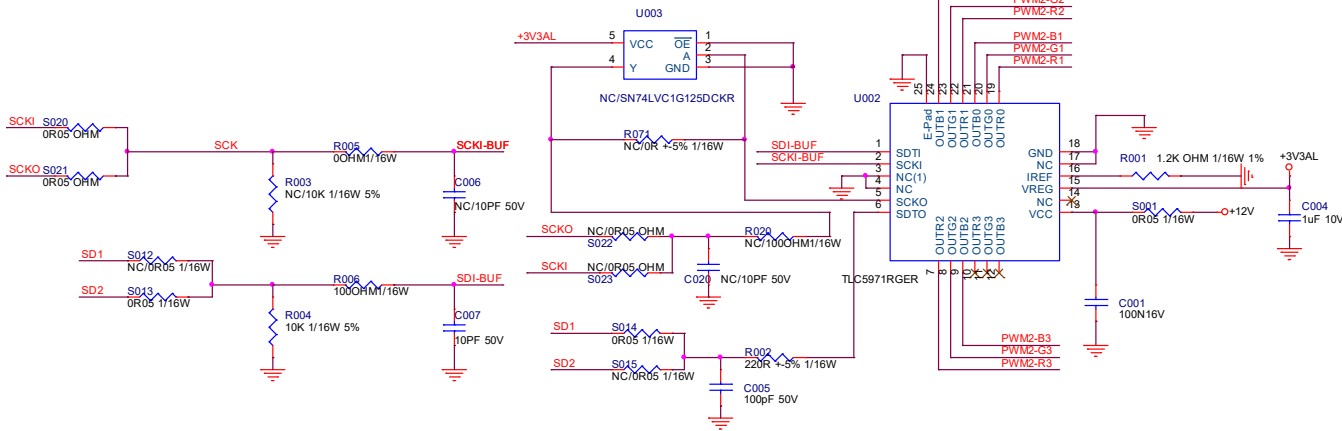
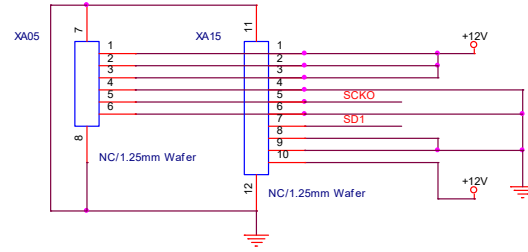
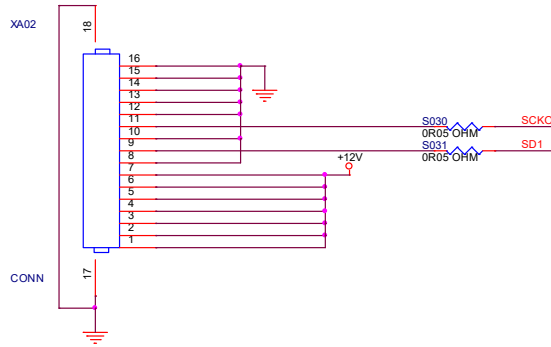


### Joystick diversity for AL

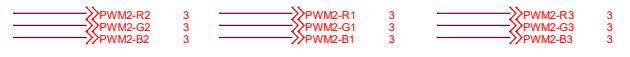
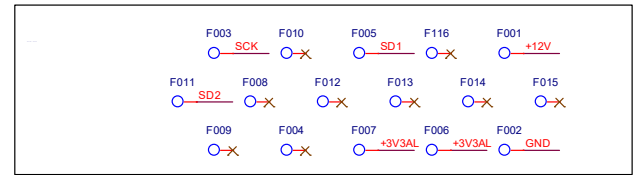
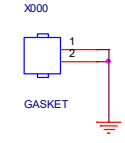
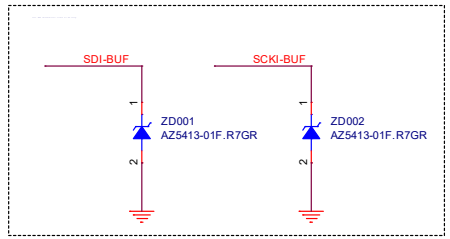
	CN03	C07	R9	R10
AL2	N	N	N	N
AL3/AL4	Y	Y	Y	Y

# 9.7 B 715GB157 AMBI Panel (For 43" 85x5/9xx5 Series)

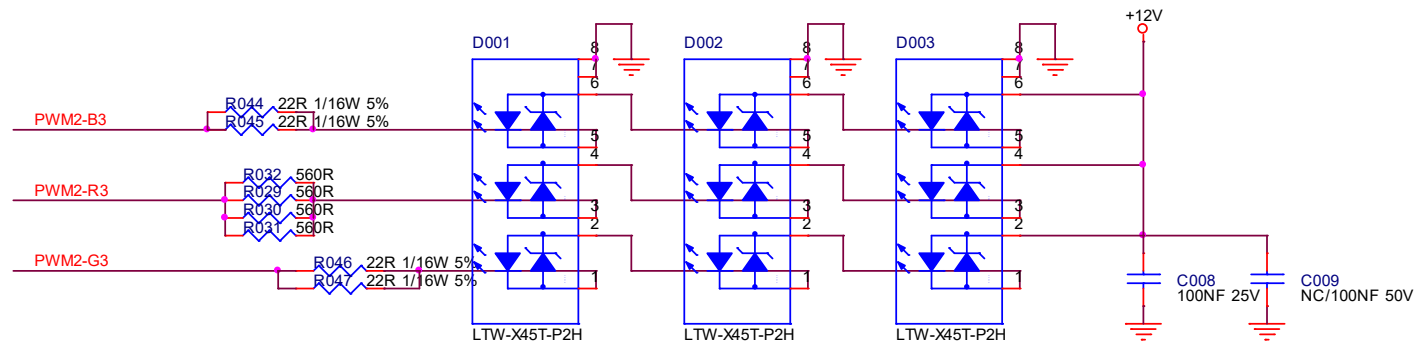
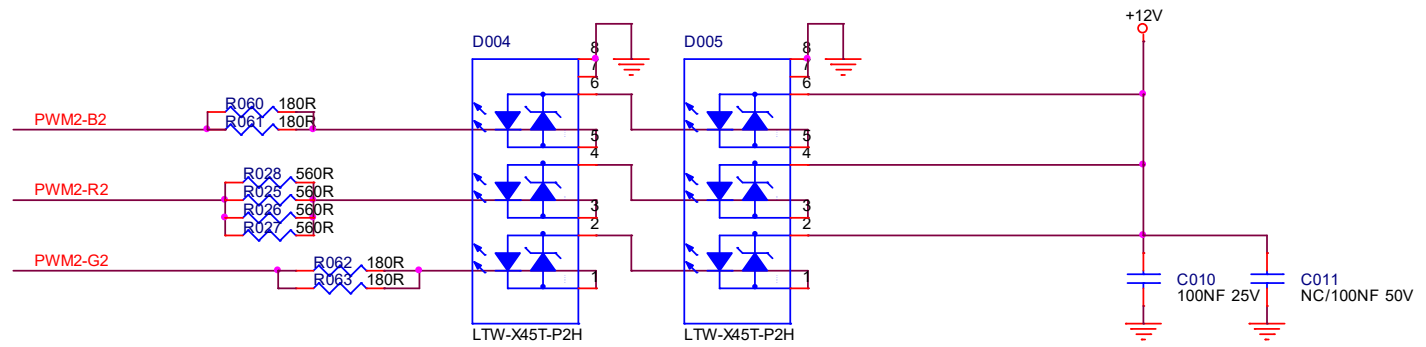
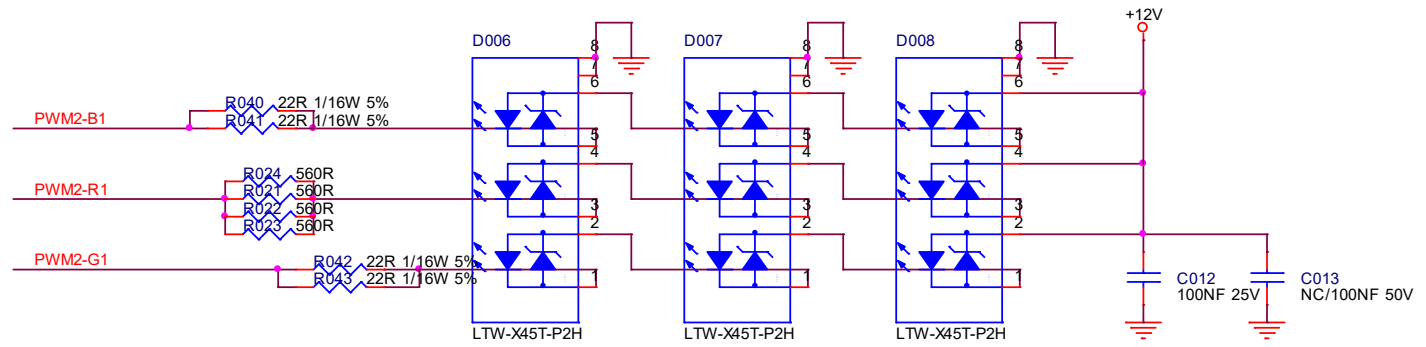
9-7-1 TLC5971



(XA02:IN, XA04:OUT)	-	-	-	-
(XA02:OUT, XA04:IN)	-	-	-	-

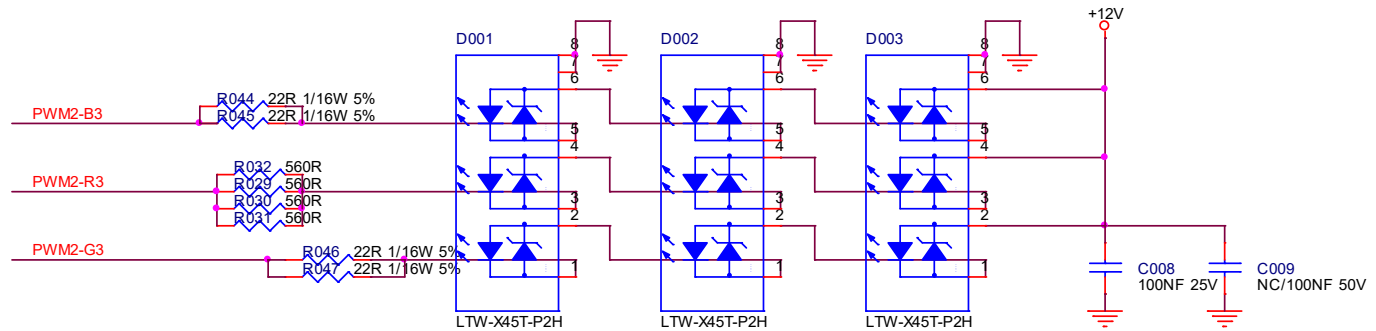
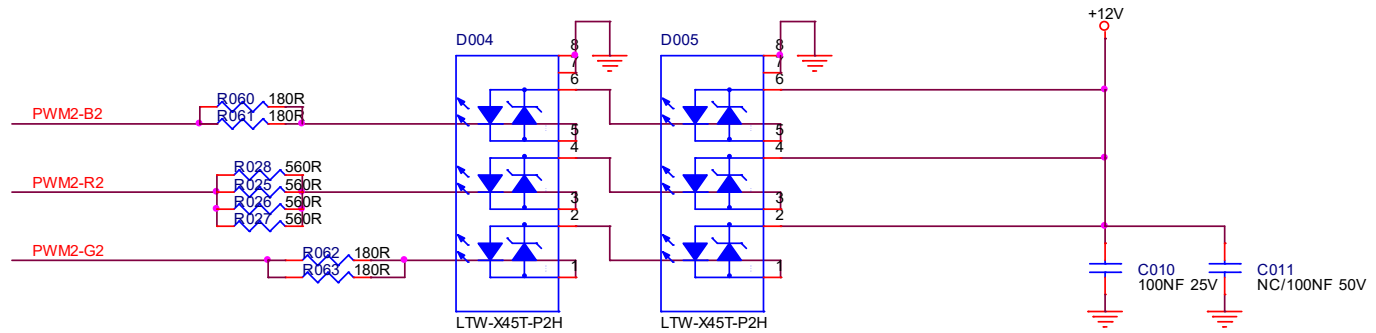
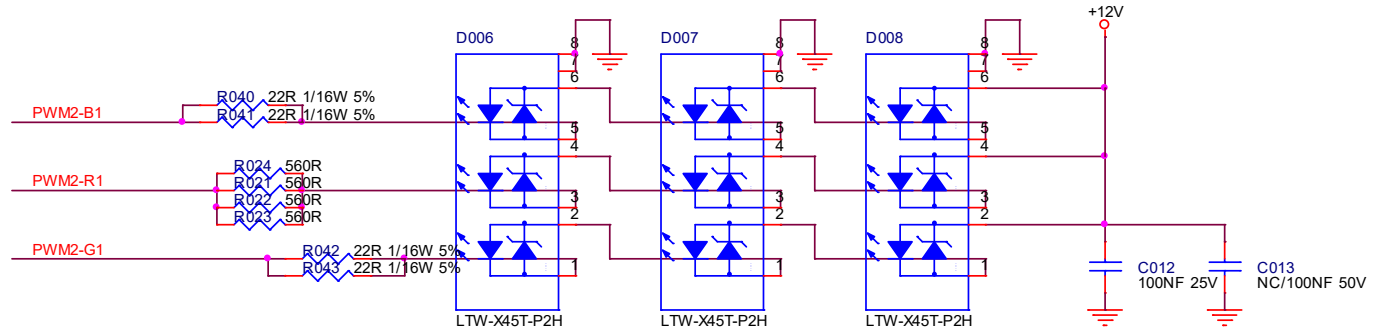


9-7-2 Ambilight 8-LED



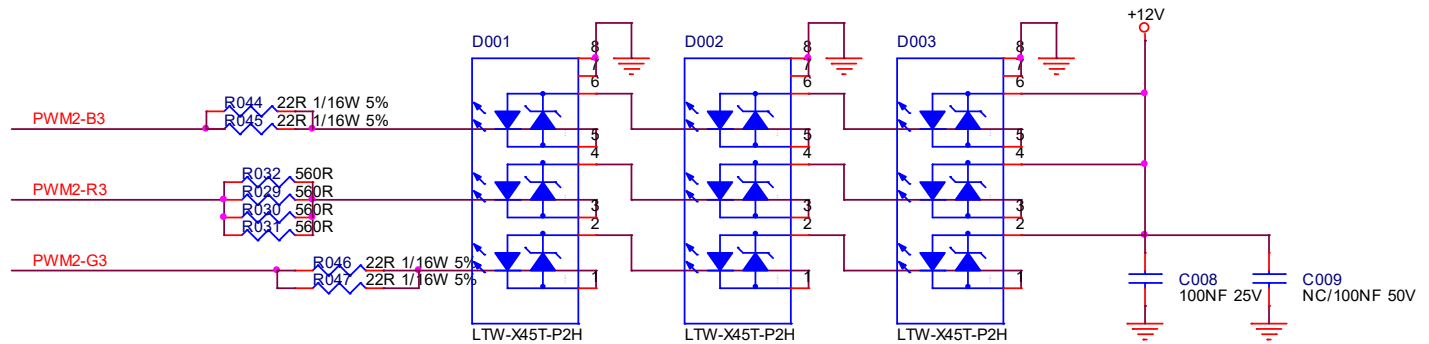
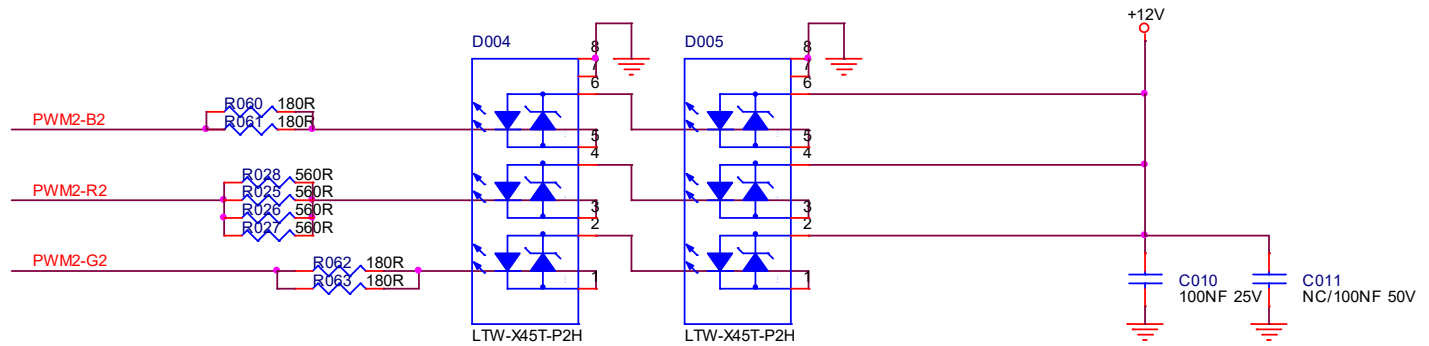
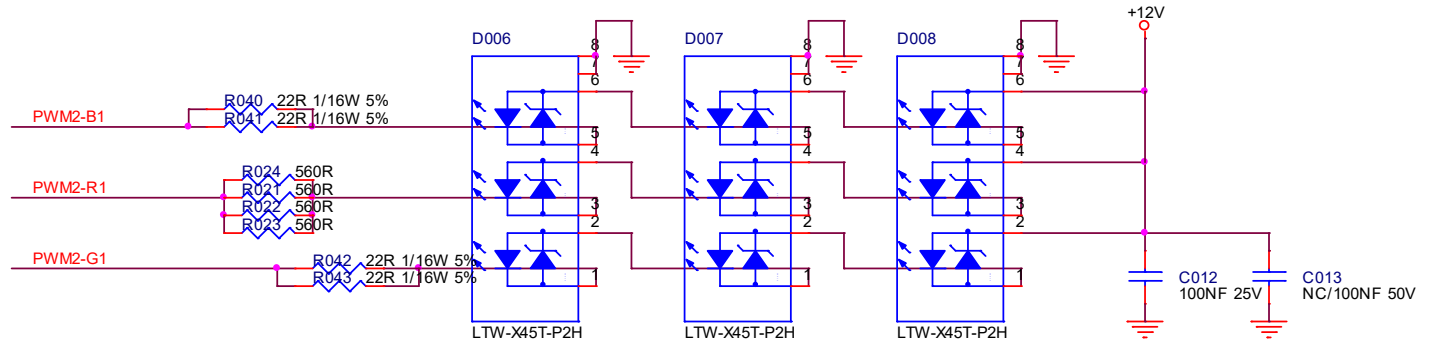
## 9.8 715GB158 AMBI Panel (For 43" 85x5/9xx5 Series)

### 9-8-1 TLC5971



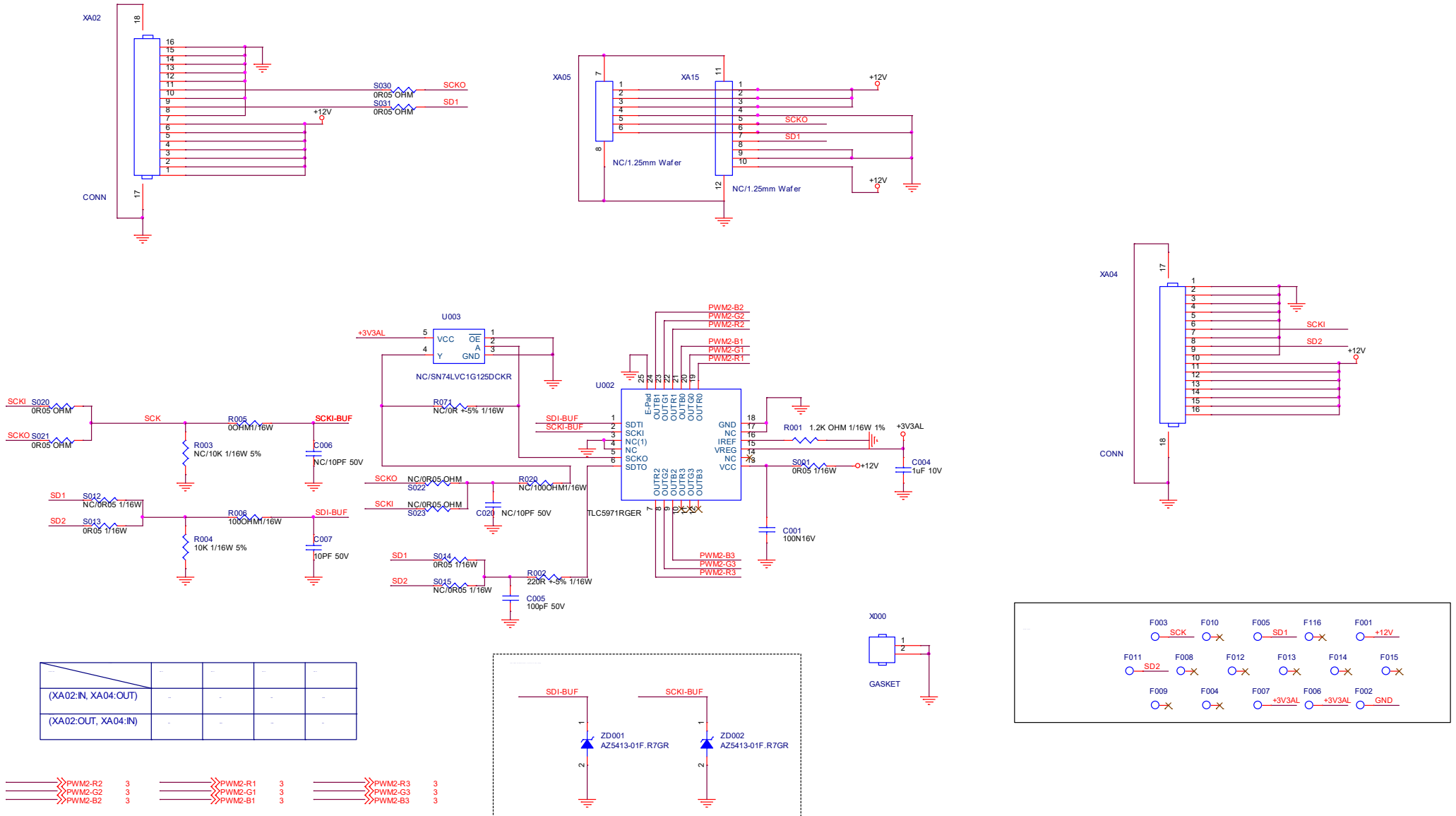


9-8-2 Ambilight 8-LED

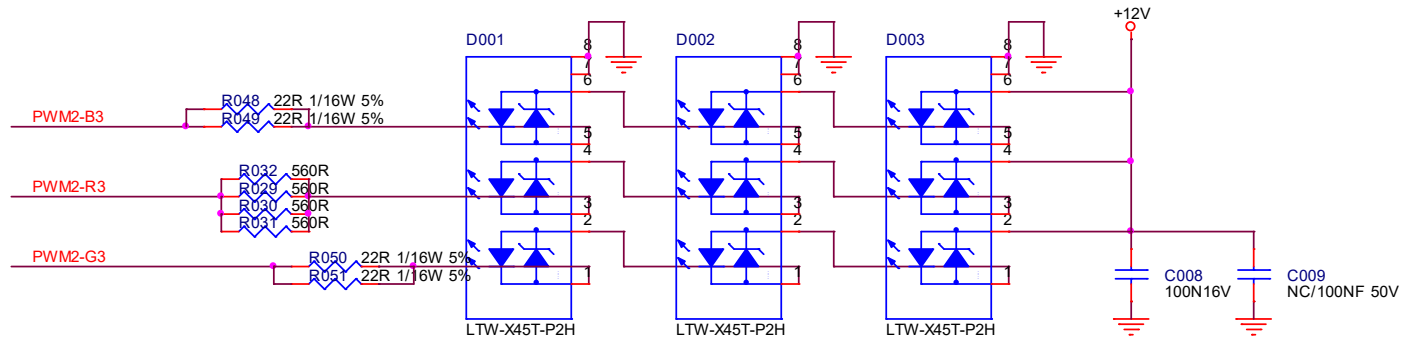
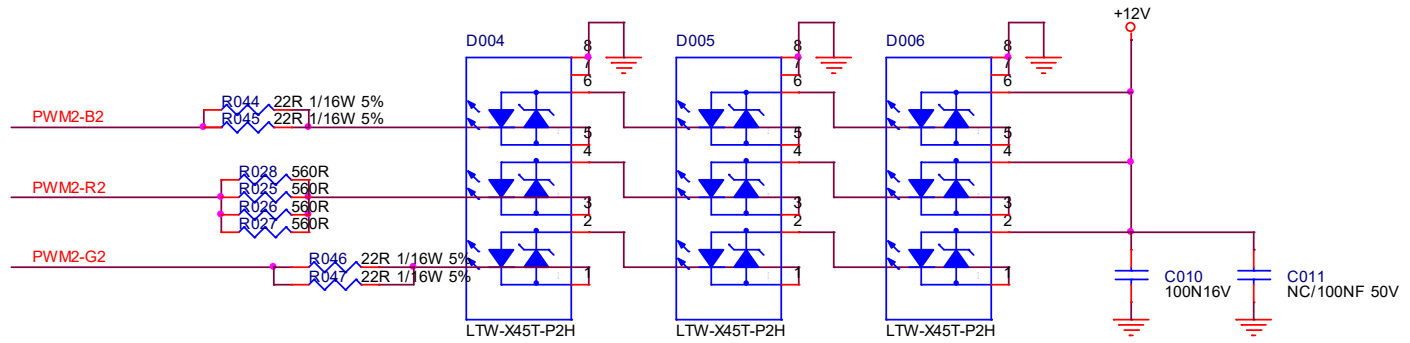
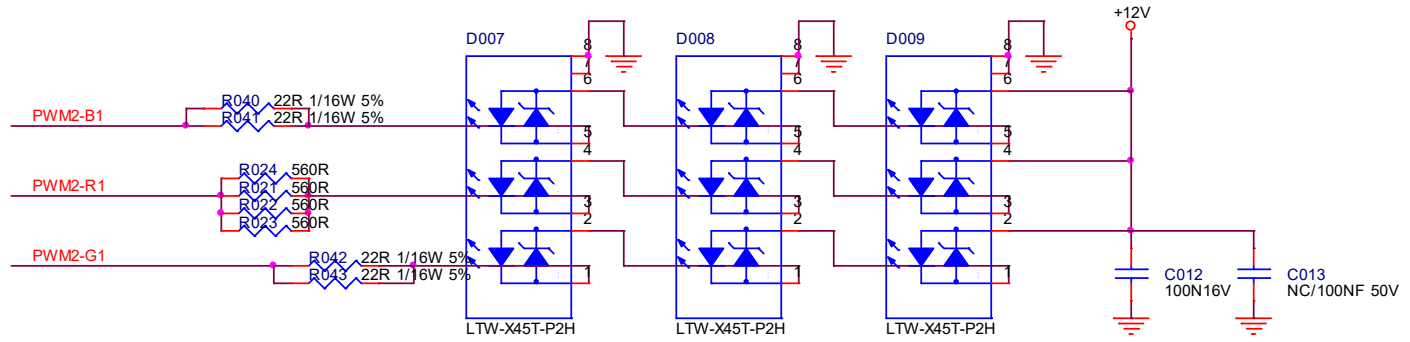


# 9.9 715GB174 AMBI Panel (For 50" 85x5/9xx5 & 65" 85x5/9xx5 Series)

## 9-9-1 TLC5971

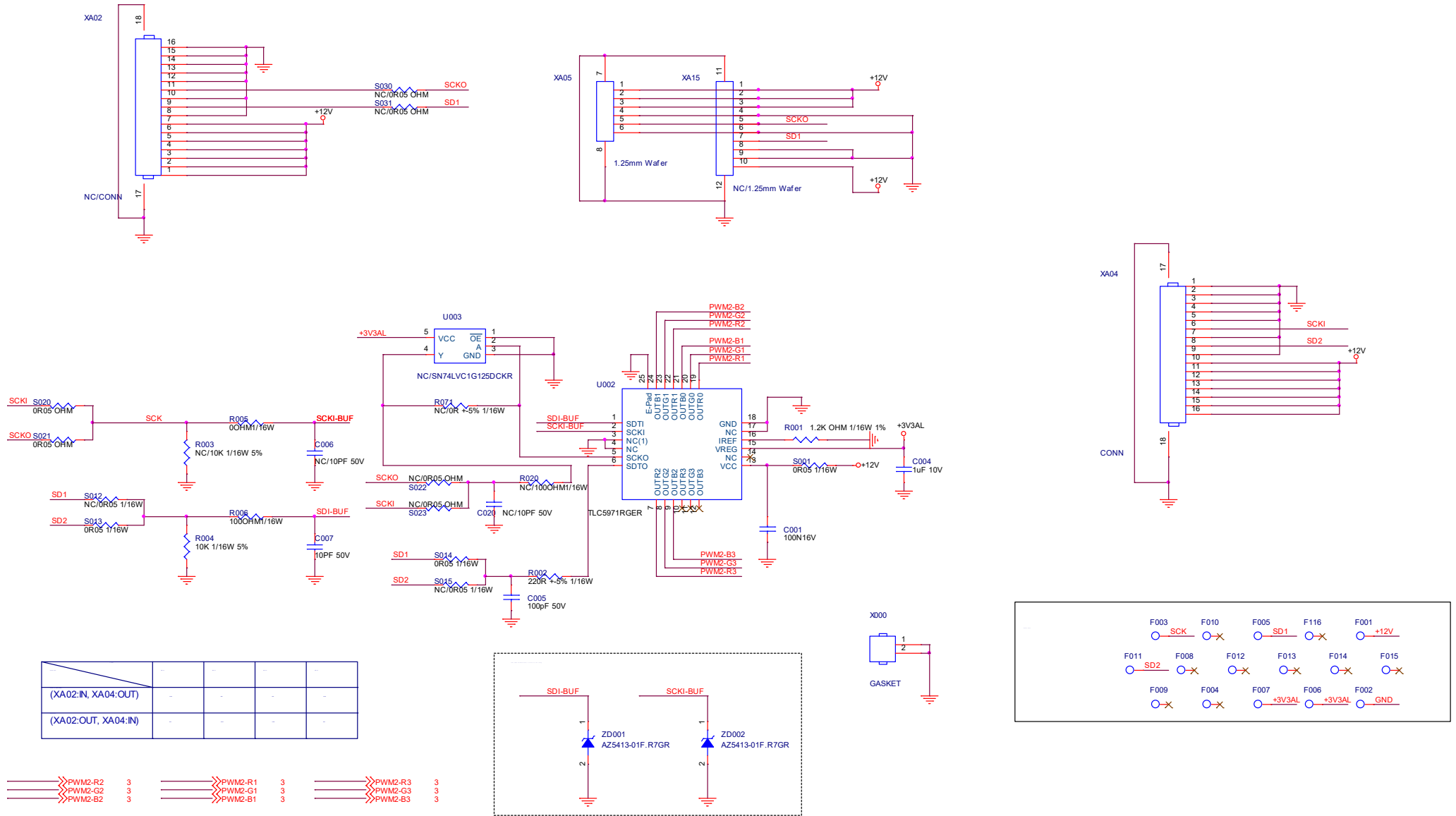


9-9-2 Ambilight 9-LED

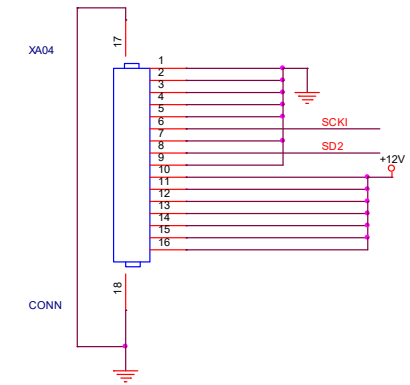
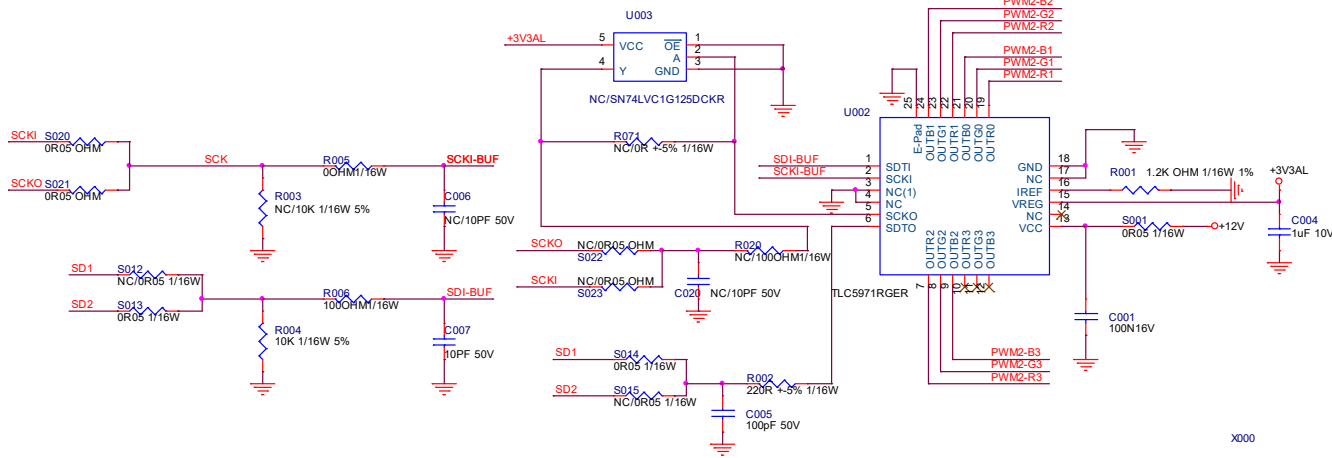
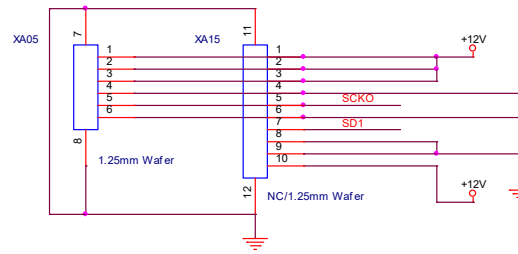
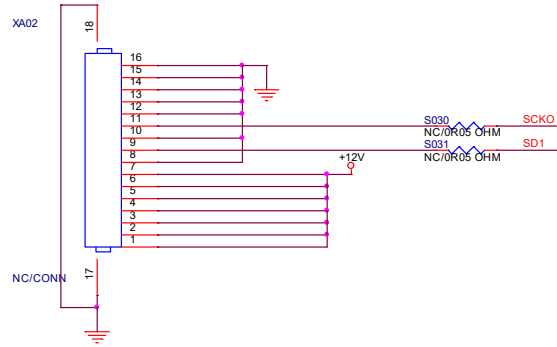


# 9.10 715GB175 AMBI Panel (For 50" 85x5 Series)

## 9-10-1 TLC5971

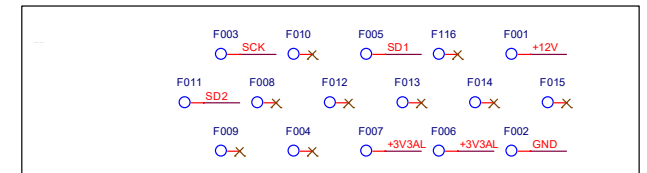
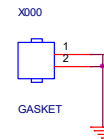
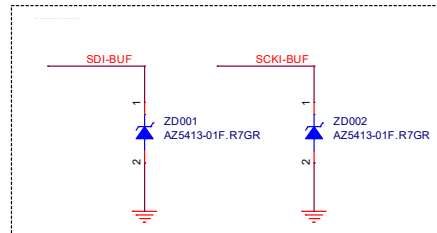


9-10-2 Ambilight 9-LED



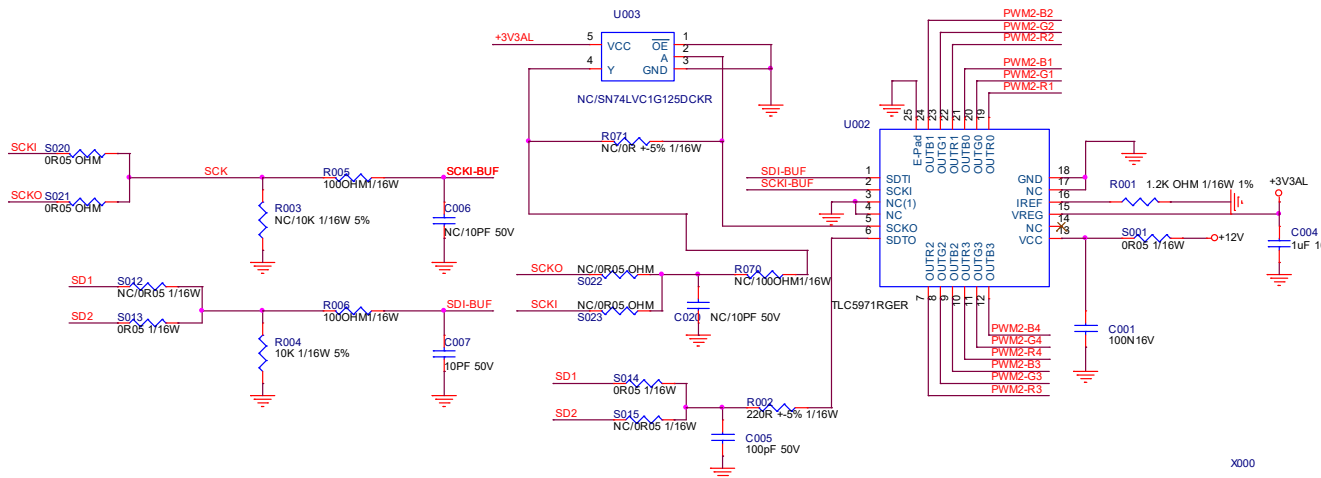
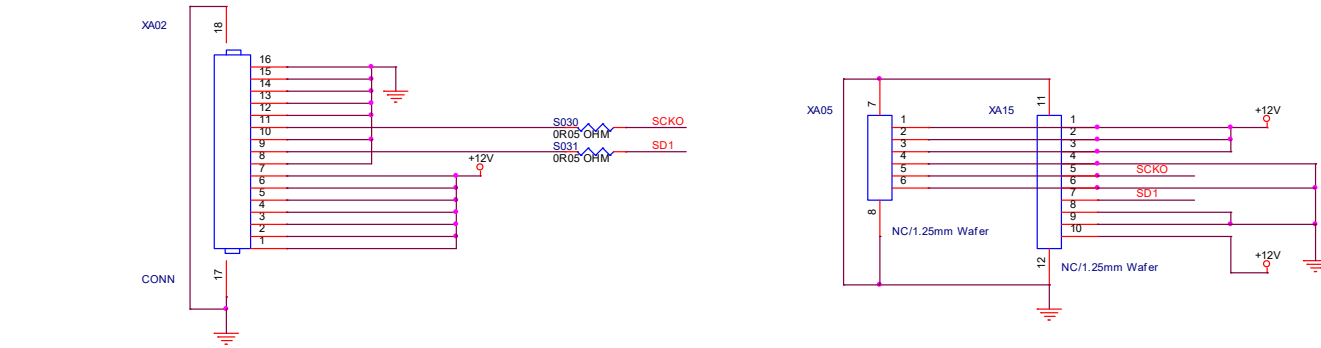
(XA02:IN, XA04:OUT)	-	-	-	-
(XA02:OUT, XA04:IN)	-	-	-	-

- ▶▶▶ PWM2-R2 3
- ▶▶▶ PWM2-G2 3
- ▶▶▶ PWM2-B2 3
- ▶▶▶ PWM2-R1 3
- ▶▶▶ PWM2-G1 3
- ▶▶▶ PWM2-B1 3
- ▶▶▶ PWM2-R3 3
- ▶▶▶ PWM2-G3 3
- ▶▶▶ PWM2-B3 3

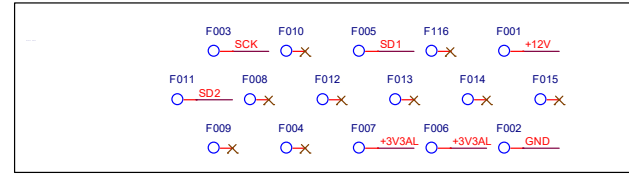
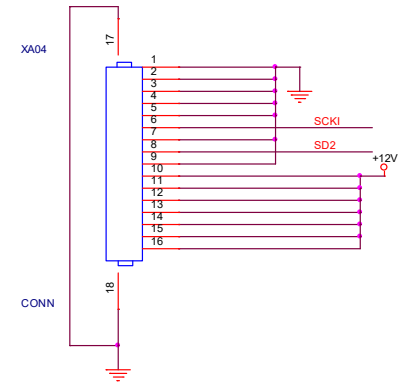
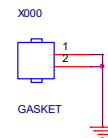
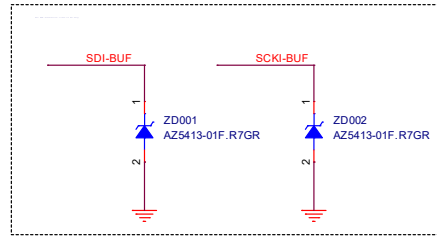


# 9.11 715GB194 AMBI Panel (For 50" 85x5/9xx5 & 70" 85x5/9xx5 Series)

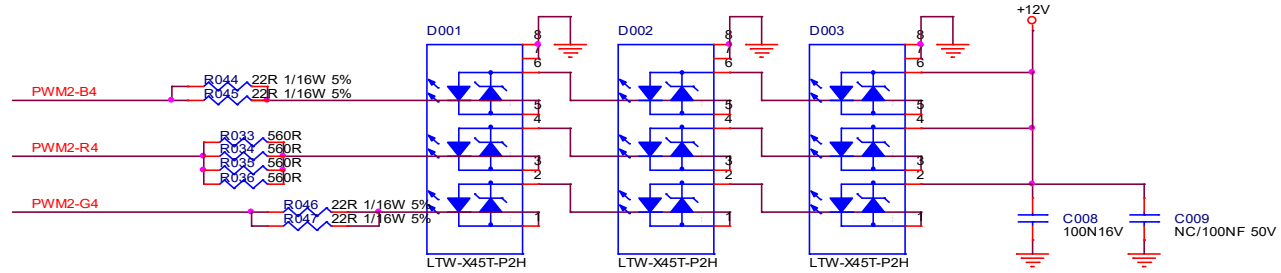
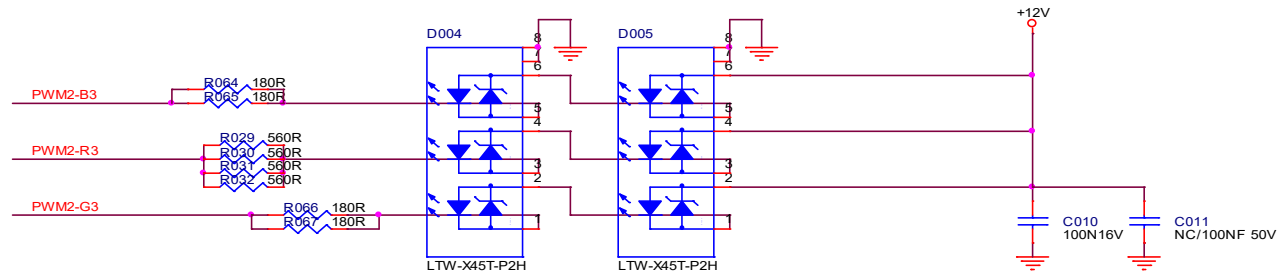
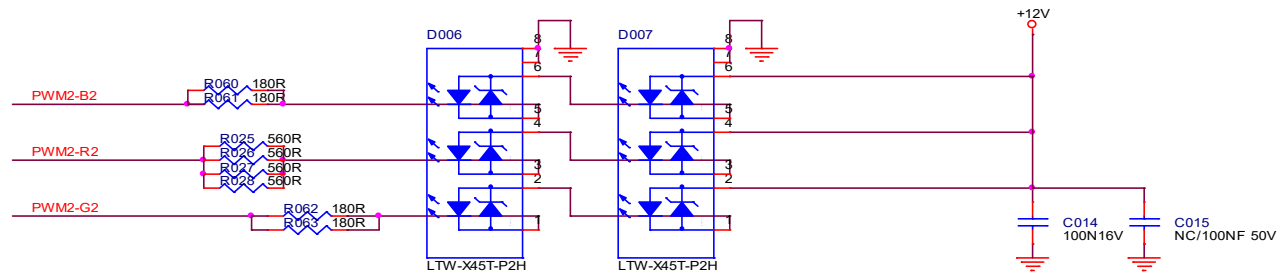
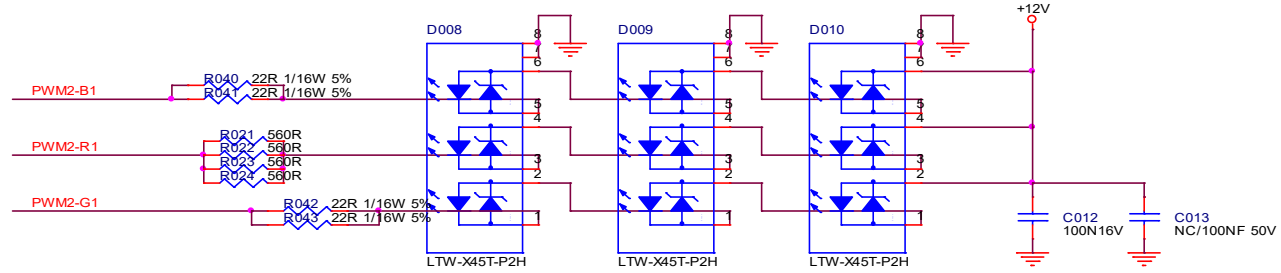
## 9-11-1 TLC5971



(XA02:IN, XA04:OUT)	-	-	-
(XA02:OUT, XA04:IN)	-	-	-

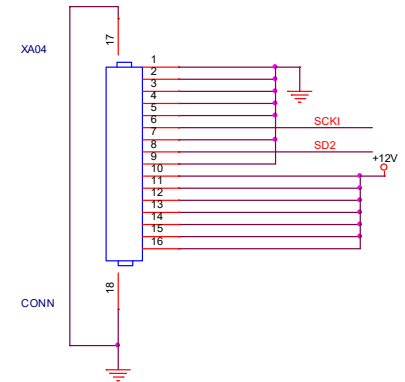
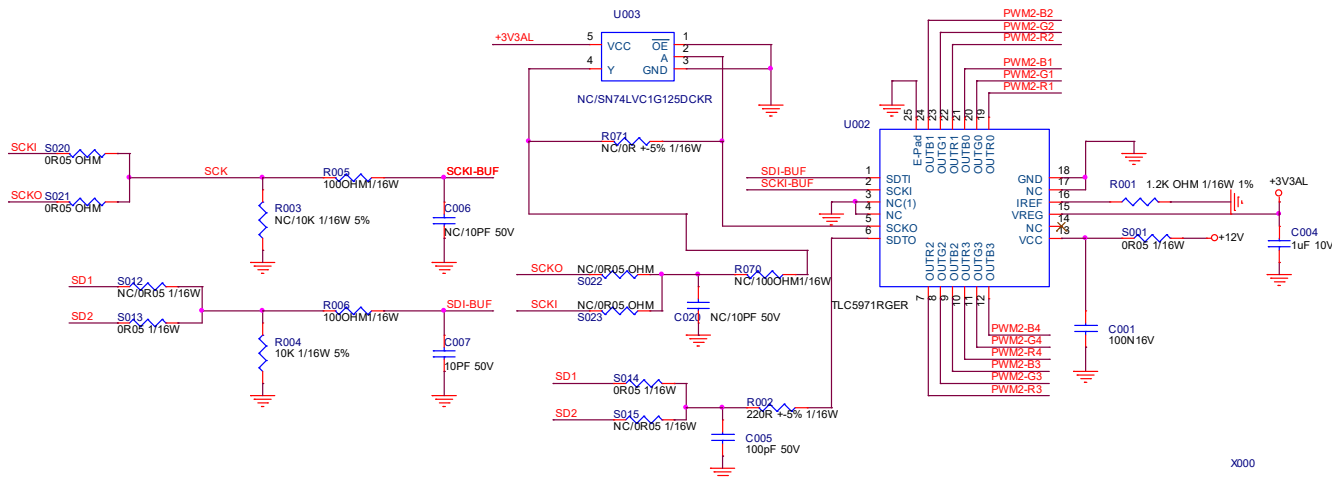
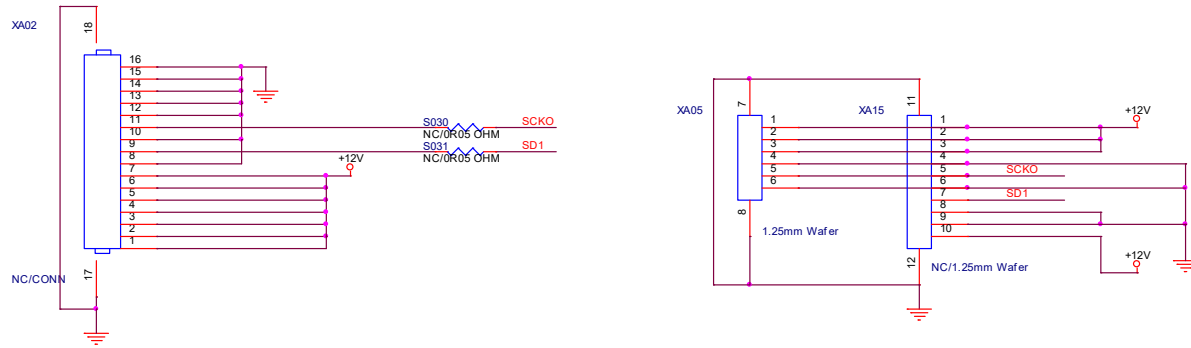


### 9-11-2 Ambilight 10-LED



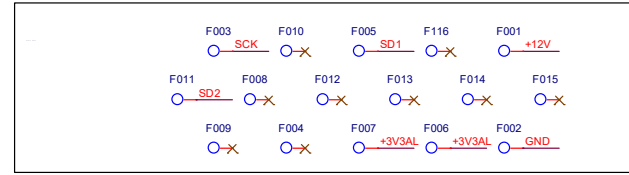
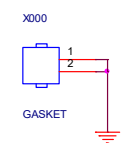
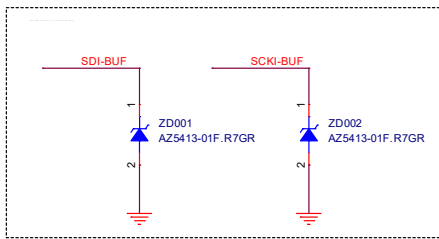
# 9.12 715GB195 AMBI Panel (For 55" 9435 Series)

## 9-12-1 TLC5971



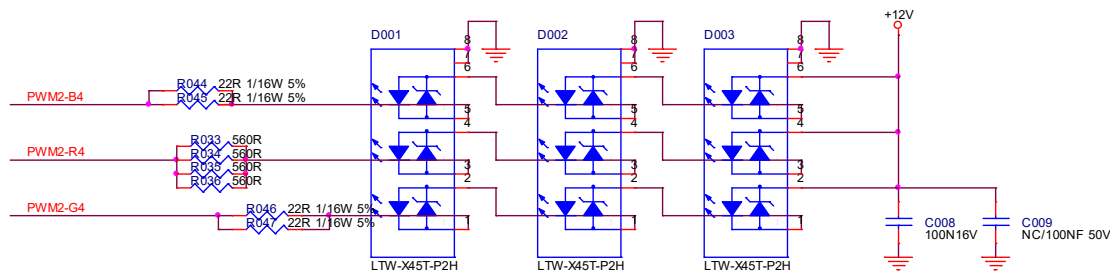
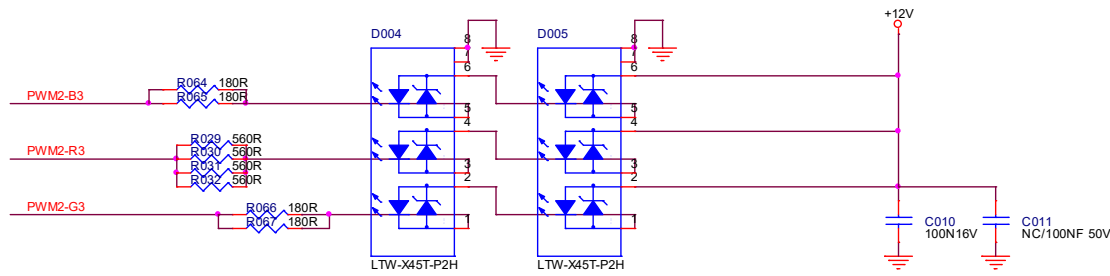
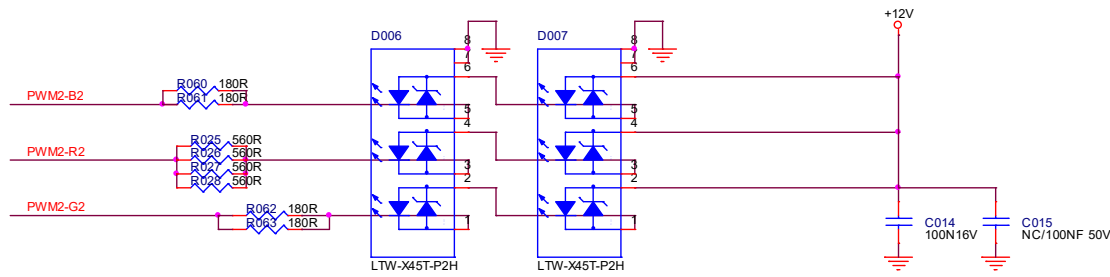
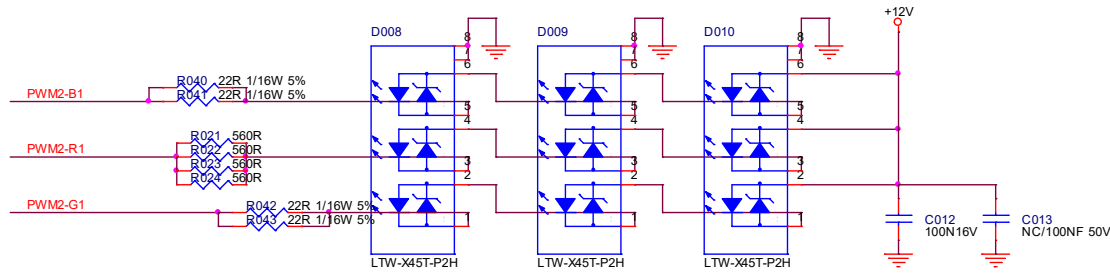
(XA02:IN, XA04:OUT)			
(XA02:OUT, XA04:IN)			

- PWM2-R1 3
- PWM2-G1 3
- PWM2-B1 3
- PWM2-R2 3
- PWM2-G2 3
- PWM2-B2 3
- PWM2-R3 3
- PWM2-G3 3
- PWM2-B3 3
- PWM2-R4 3
- PWM2-G4 3
- PWM2-B4 3



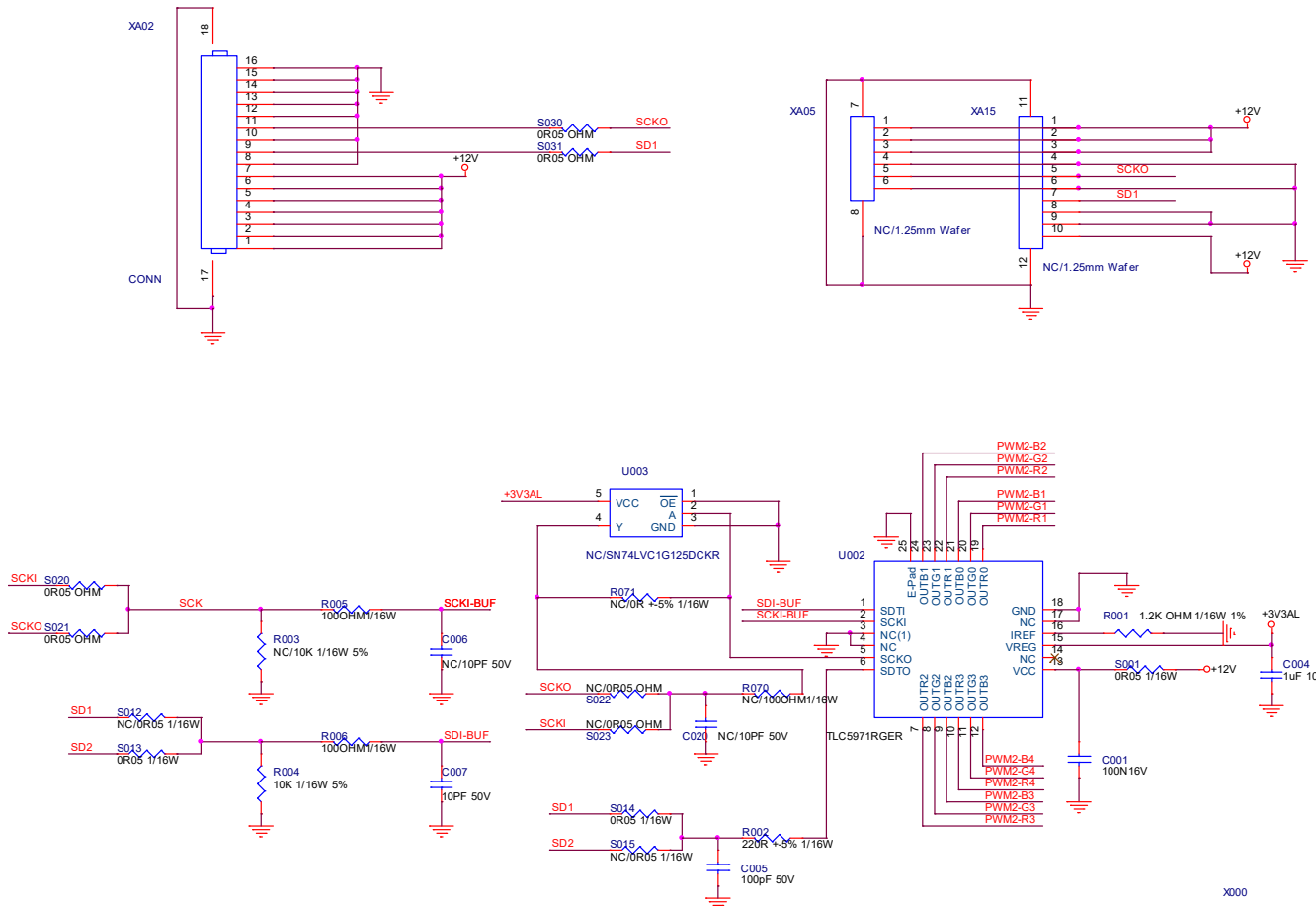


### 9-12-2 Ambilight 10-LED

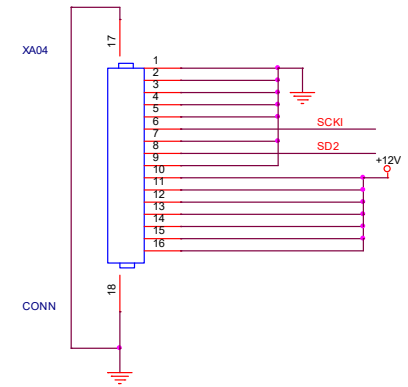
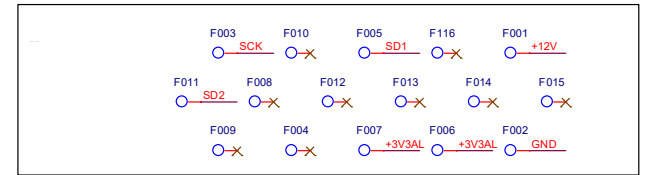
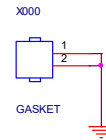
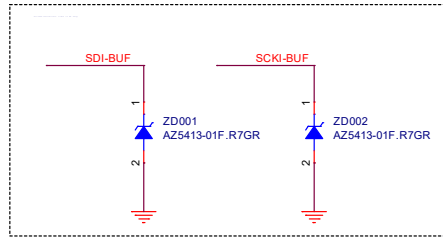


### 9.13 715GB205 AMBI Panel (For 55" 9435 & 58" 85x5/9xx5 Series)

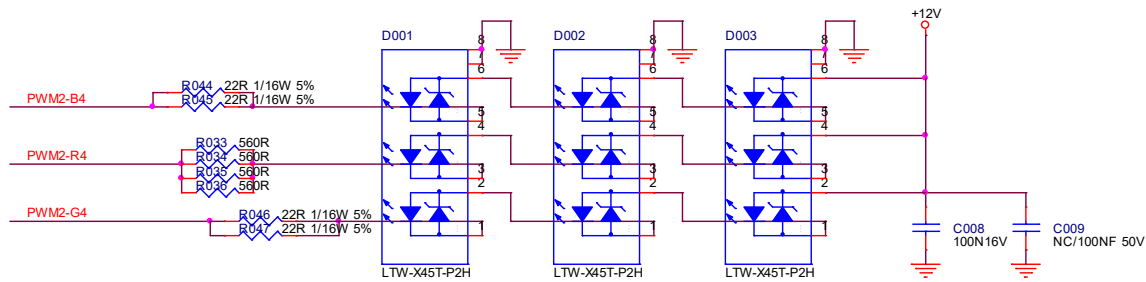
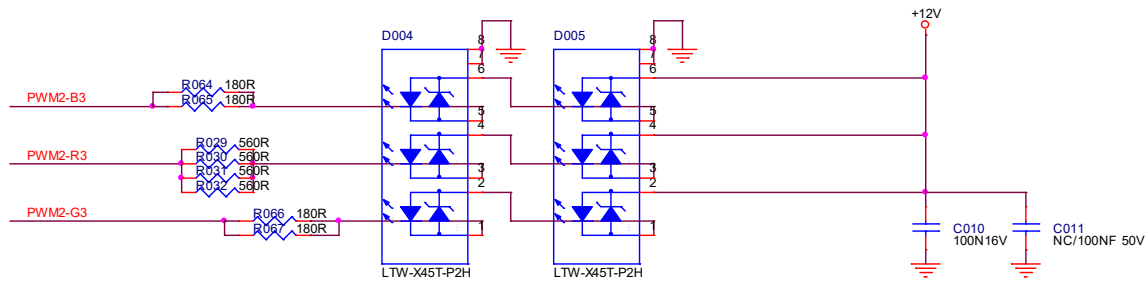
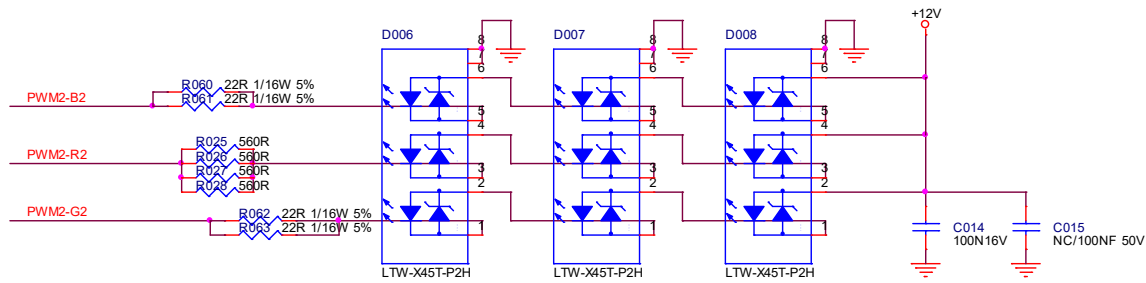
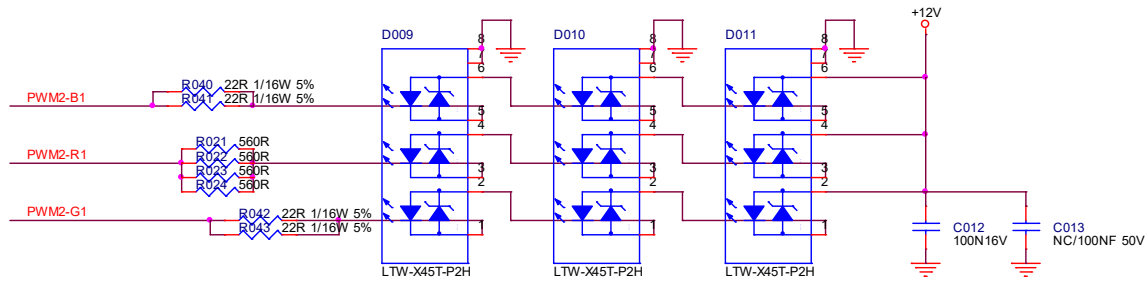
#### 9-13-1 TLC5971



(XA02:IN, XA04:OUT)	-	-	-	-
(XA02:OUT, XA04:IN)	-	-	-	-



9-13-2 Ambilight 11-LED



>>>PWM2-R1 2  
 >>>PWM2-G1 2  
 >>>PWM2-B1 2

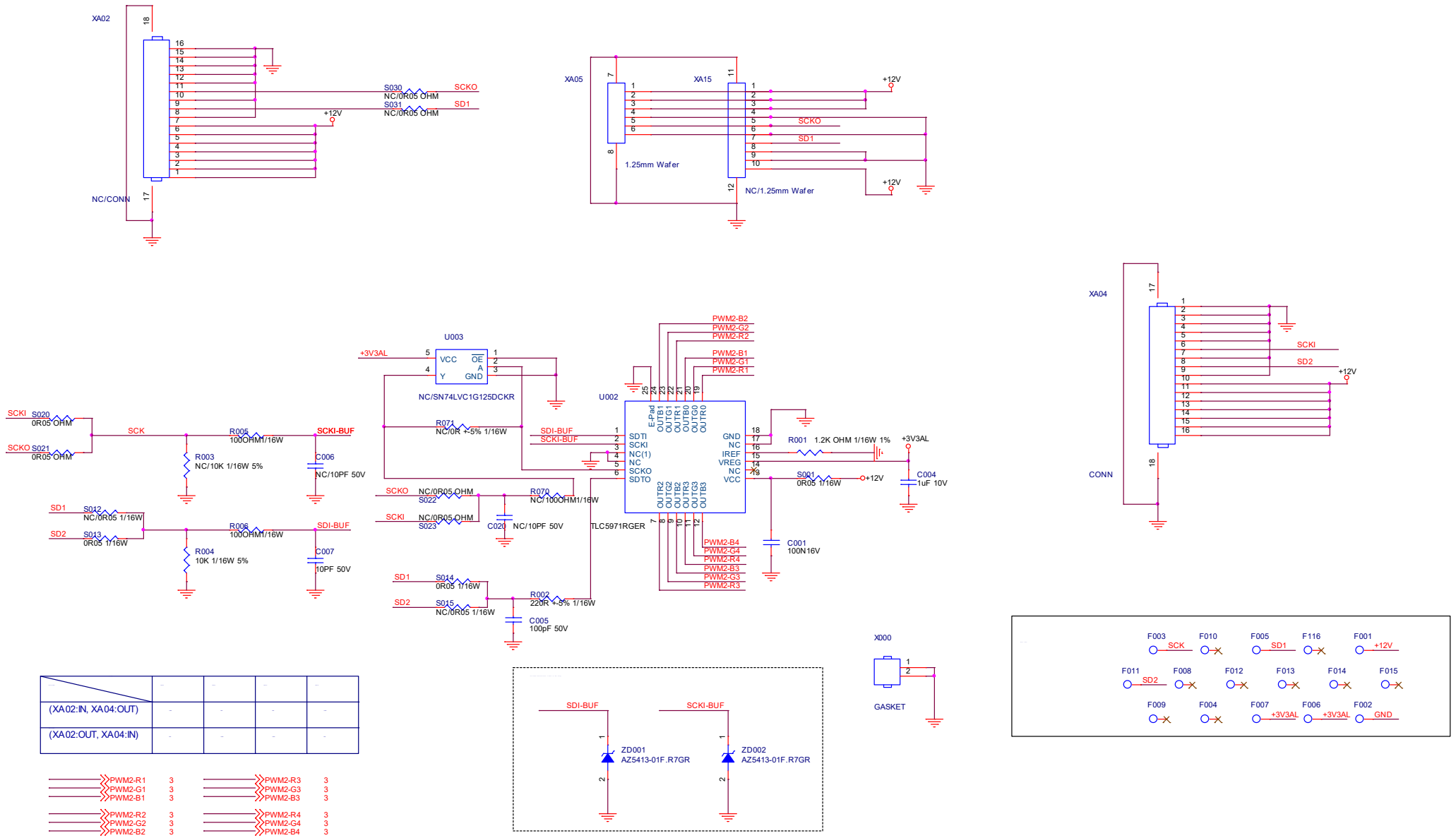
>>>PWM2-R2 2  
 >>>PWM2-G2 2  
 >>>PWM2-B2 2

>>>PWM2-R3 2  
 >>>PWM2-G3 2  
 >>>PWM2-B3 2

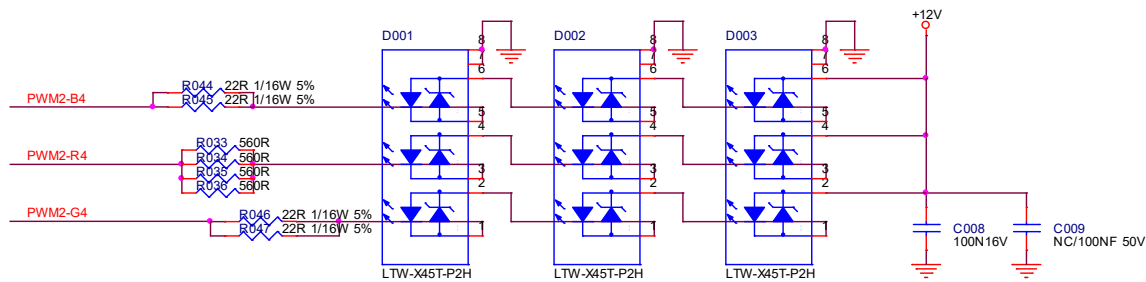
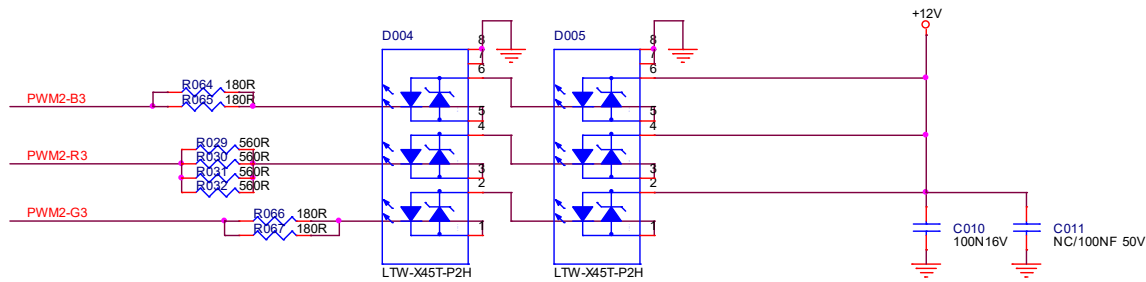
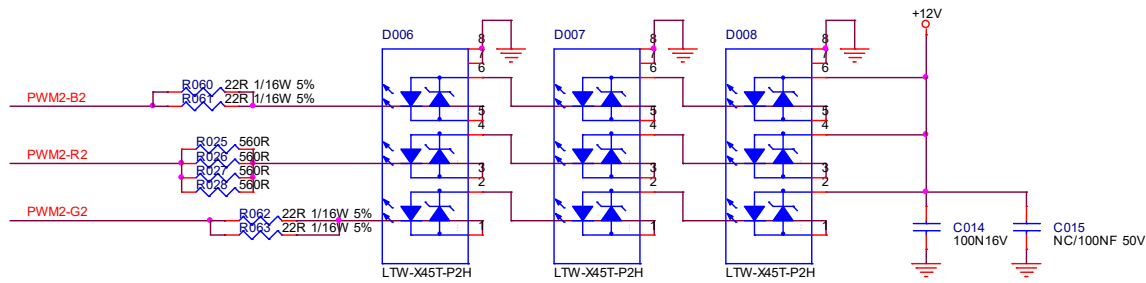
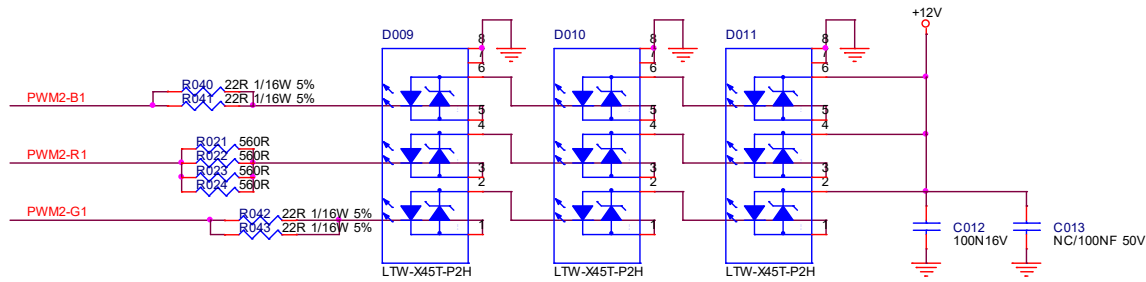
>>>PWM2-R4 2  
 >>>PWM2-G4 2  
 >>>PWM2-B4 2

# 9.14 715GB206 AMBI Panel (For 55" 9435 & 58" 85x5/9xx5 Series)

## 9-14-1 TLC5971



9-14-2 Ambilight 11-LED



>>>PWM2-R1 2  
 >>>PWM2-G1 2  
 >>>PWM2-B1 2

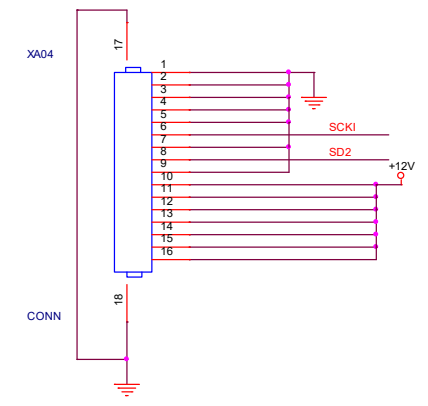
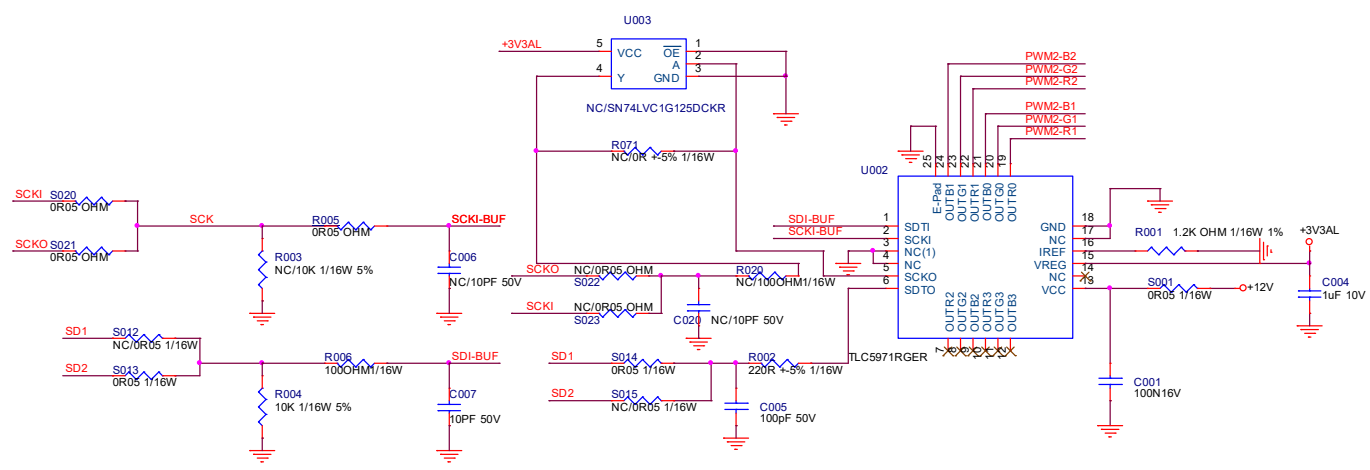
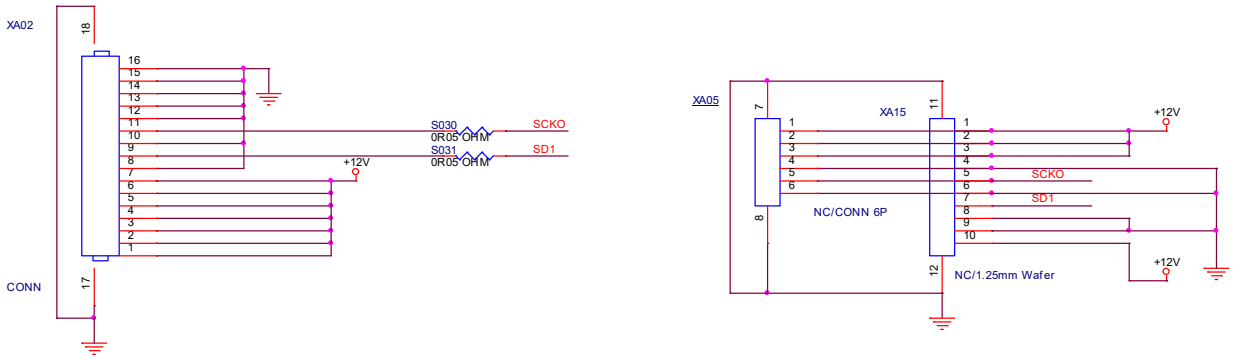
>>>PWM2-R2 2  
 >>>PWM2-G2 2  
 >>>PWM2-B2 2

>>>PWM2-R3 2  
 >>>PWM2-G3 2  
 >>>PWM2-B3 2

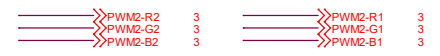
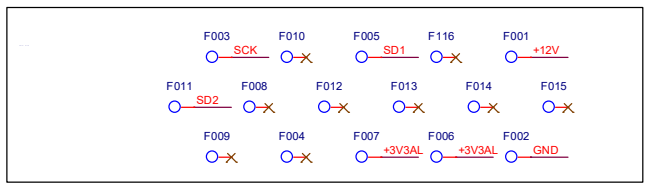
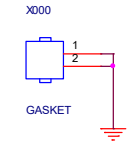
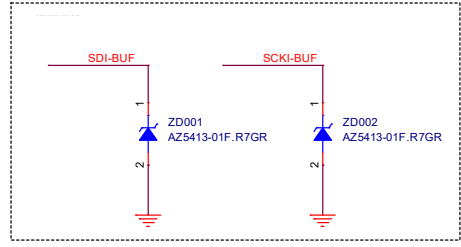
>>>PWM2-R4 2  
 >>>PWM2-G4 2  
 >>>PWM2-B4 2

# 9.15 715GB086 AMBI Panel (For 50"/58" 9005 & 65"/70" 85x5/9xx5 Series)

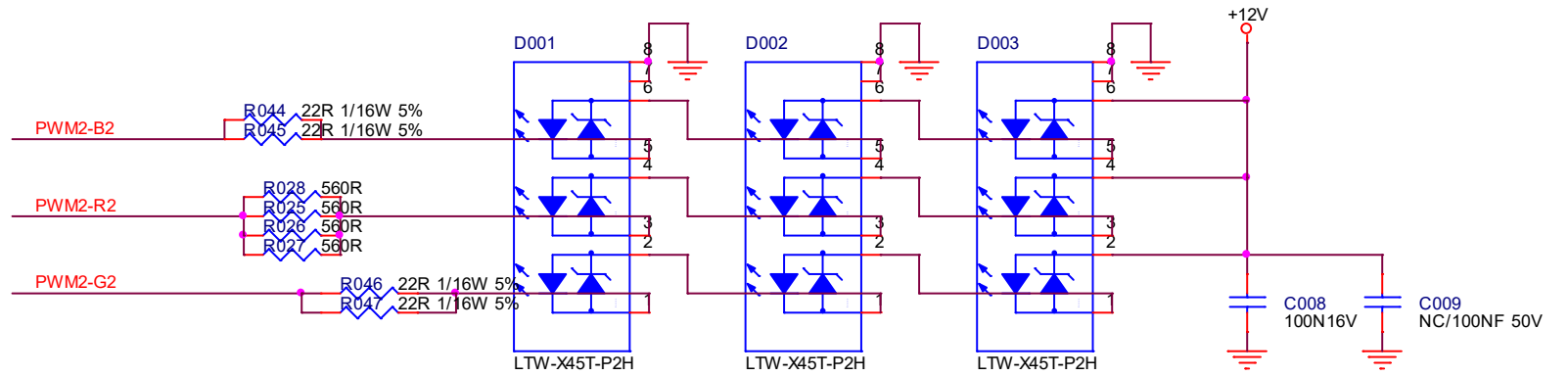
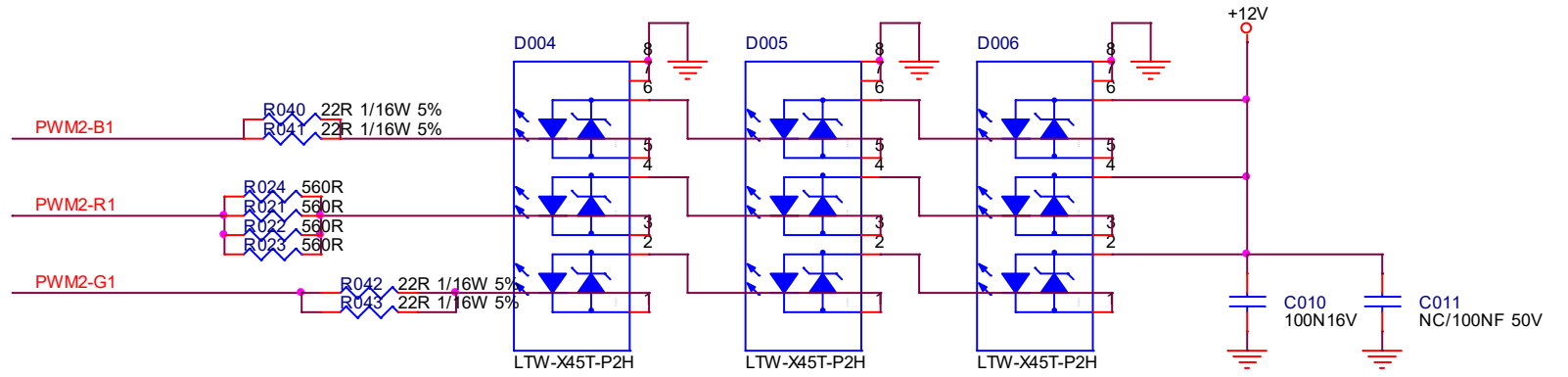
## 9-15-1 TLC5971



(XA02:IN, XA04:OUT)	-	-	-	-
(XA02:OUT, XA04:IN)	-	-	-	-

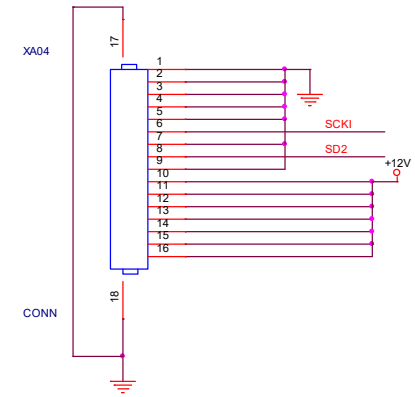
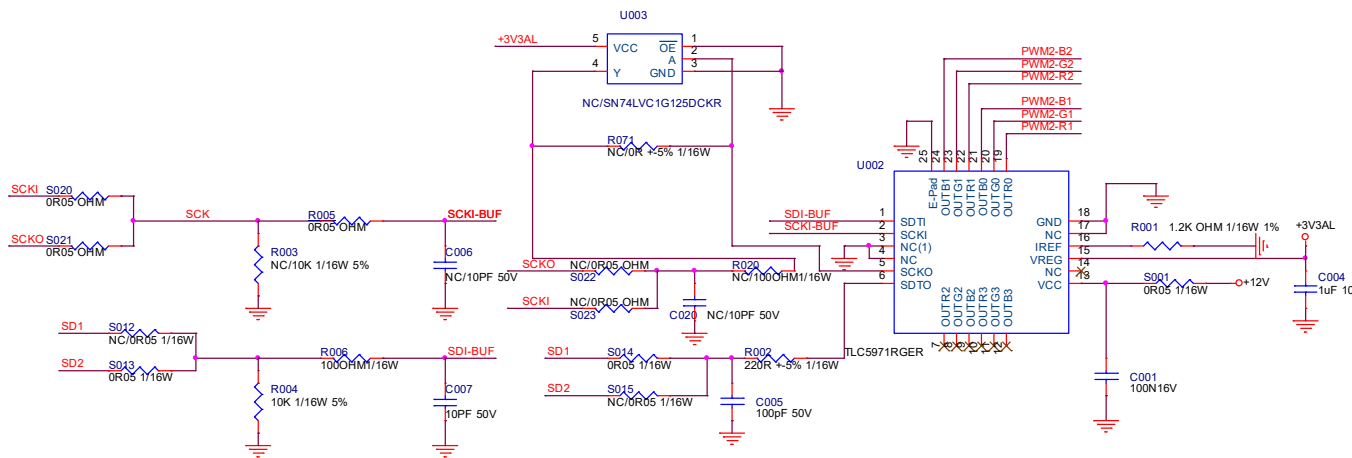
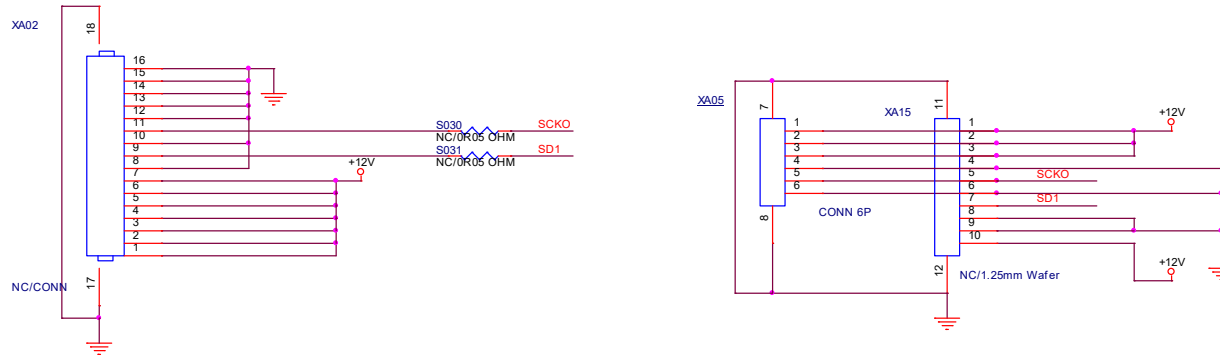


9-15-2 Ambilight 6-LED

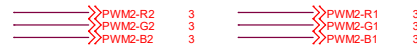
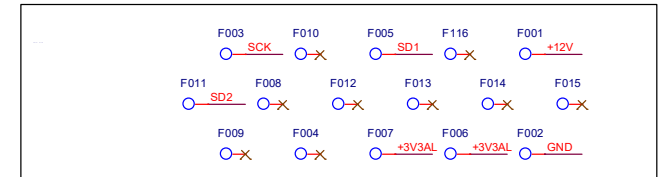
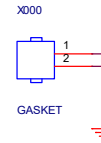
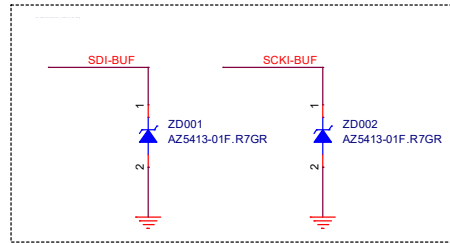


# 9.16 715GB087 AMBI Panel (For 65"/70" 85x5 & 65" 9435 Series)

9-16-1 TLC5971

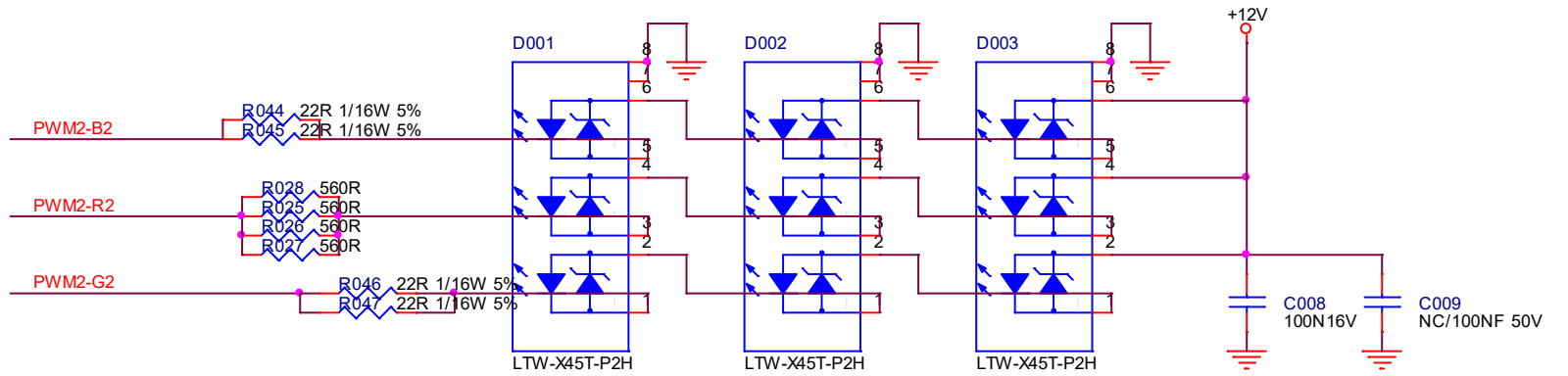
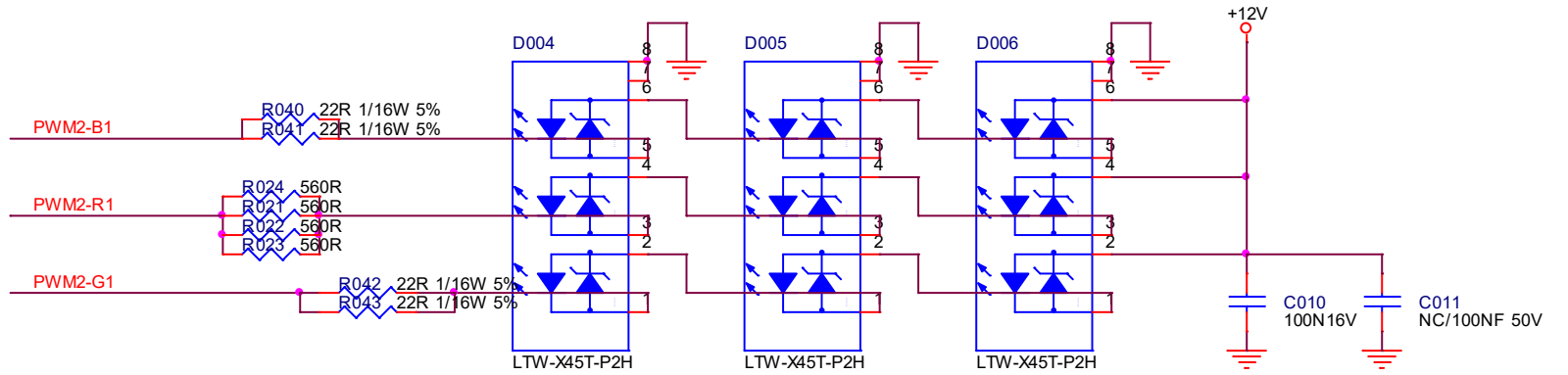


(XA02:IN, XA04:OUT)	-	-	-	-
(XA02:OUT, XA04:IN)	-	-	-	-



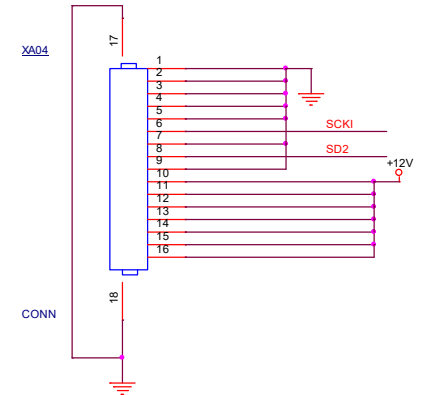
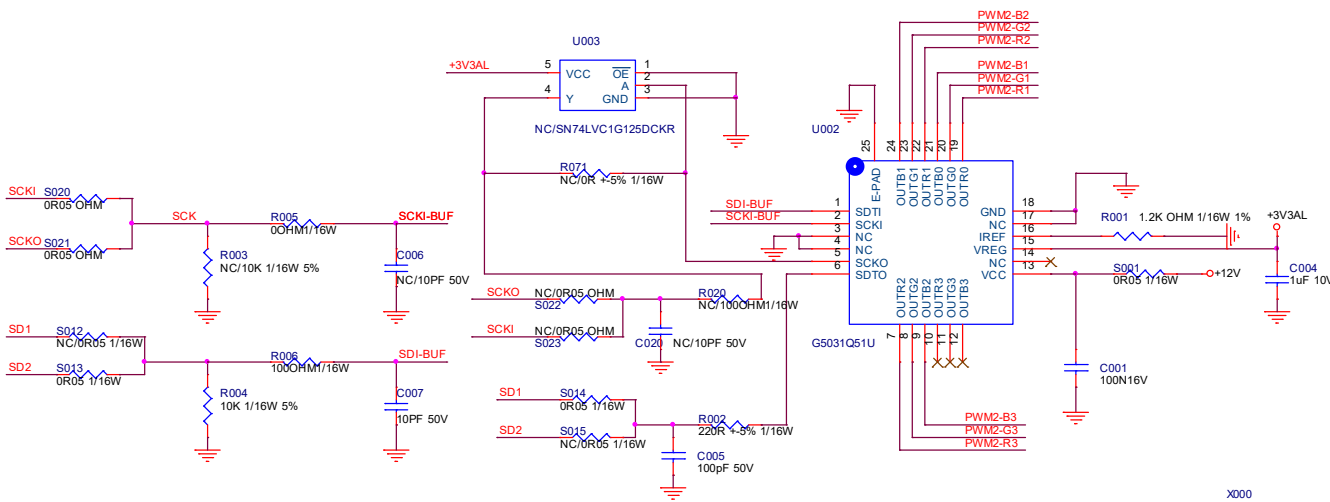
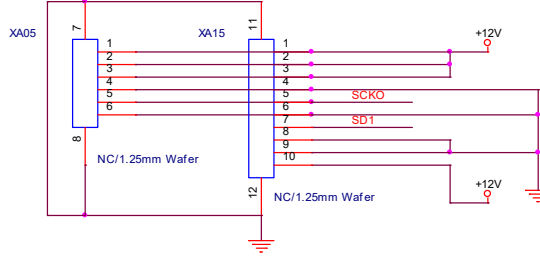
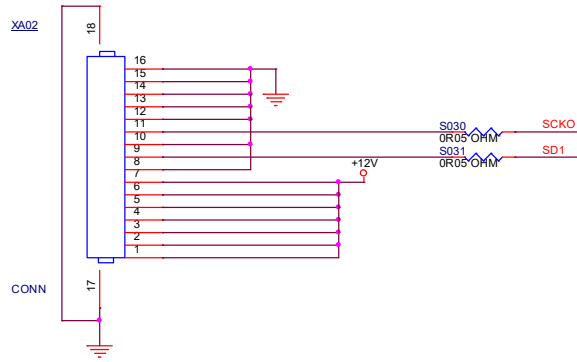


9-16-2 Ambilight 6-LED

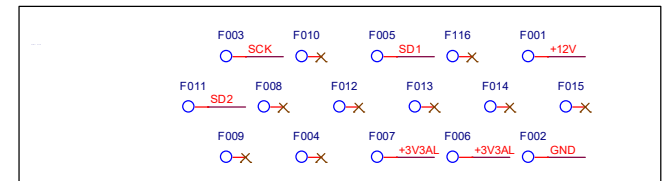
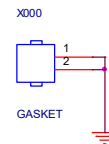
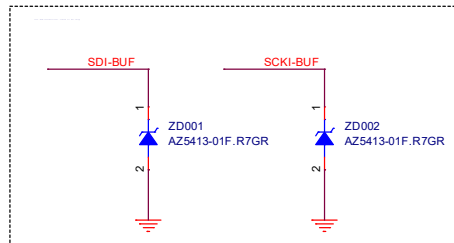


# 9.17 A 715B129 AMBI Panel (For 65" 70" 85x5 & 65" 9435 & 65" 9005 Series)

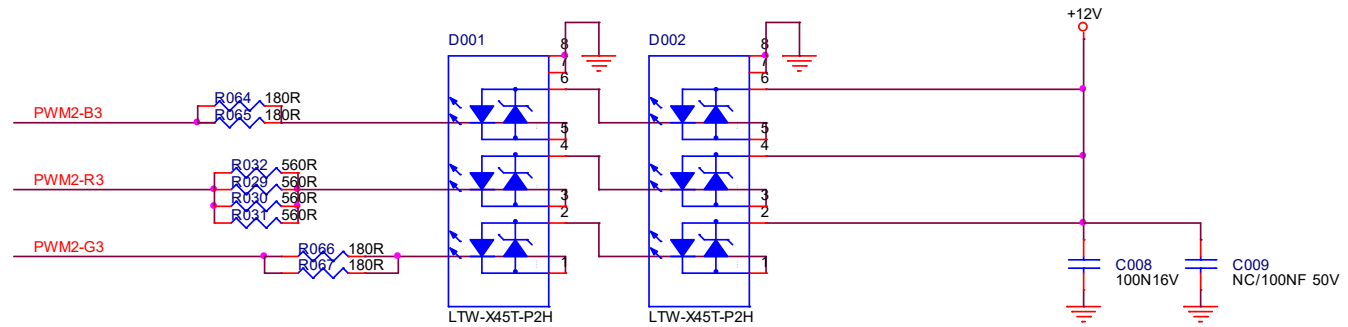
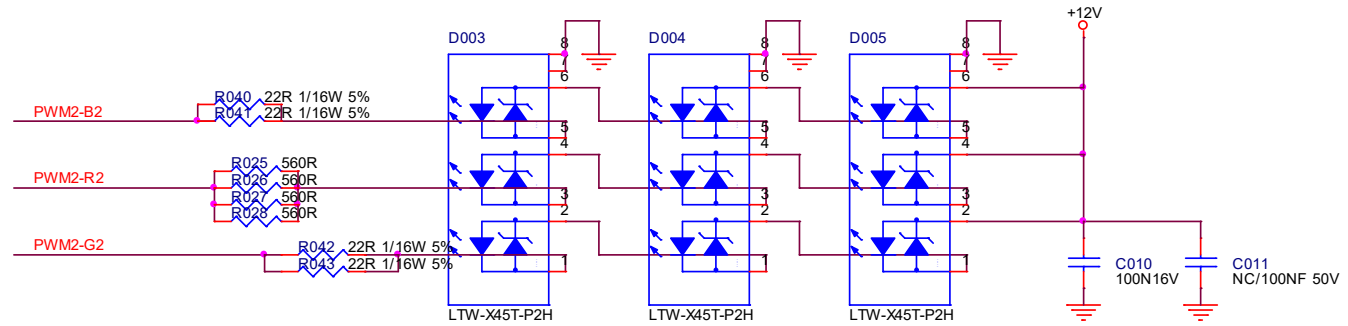
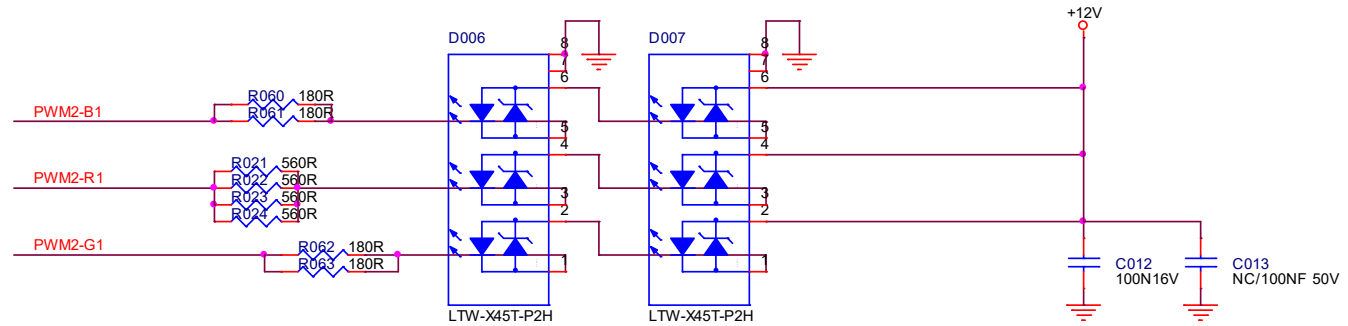
9-17-1 TLC5971



(XA02:IN, XA04:OUT)	-	-	-	-
(XA02:OUT, XA04:IN)	-	-	-	-

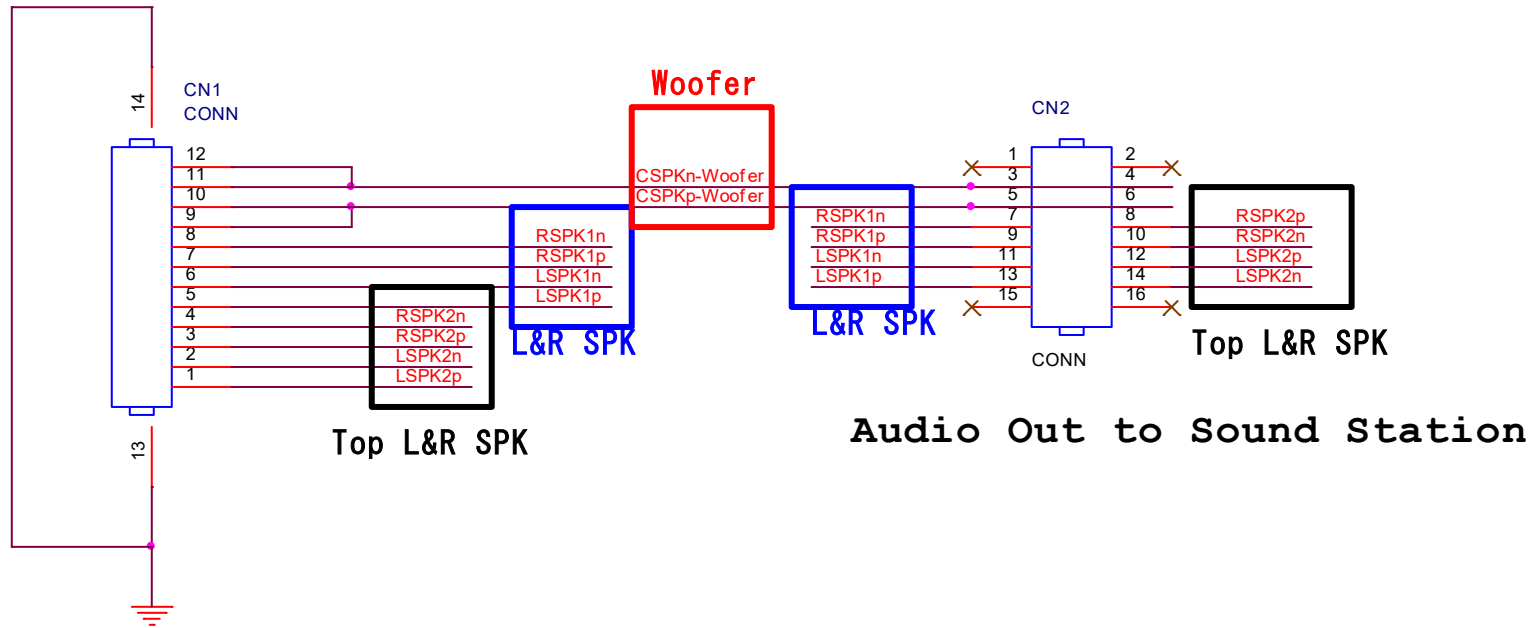


9-17-2 Ambilight 7-LED



### 9.18 A 715GA823 Audio board (For 55"/65" 9435 Series)

9-18-1 sound board



Audio IN from SSB