

MS-V089 -- G73GT/G84, 128/256 Mb DDR3-136pin, DVI-I,SD/HDTV,VIVO,HDMI

SUMMARY:

Rev History

- 1. Base on V069-100 to Modify HDMI change to internal support
- 2. BGA-136 DDRIII
- 3. Dual MS-11 for NVVDD and FBVDD
- 4.MS-V1 implement (Hardware Monitor +GPIO+DPTOUT)

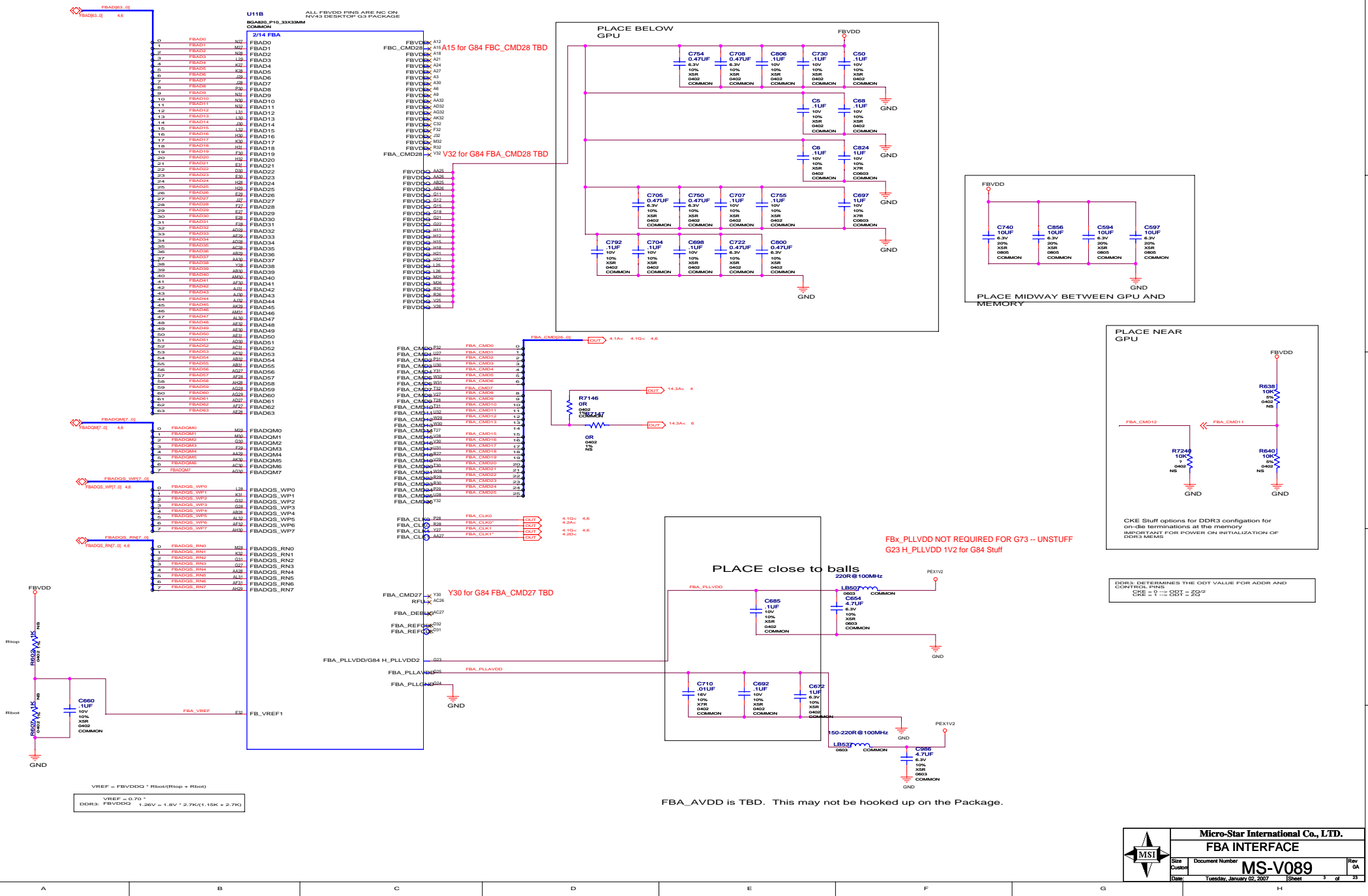
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- Page 3: FBA INTERFACE
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- Page 5: FBA DECOUPLING
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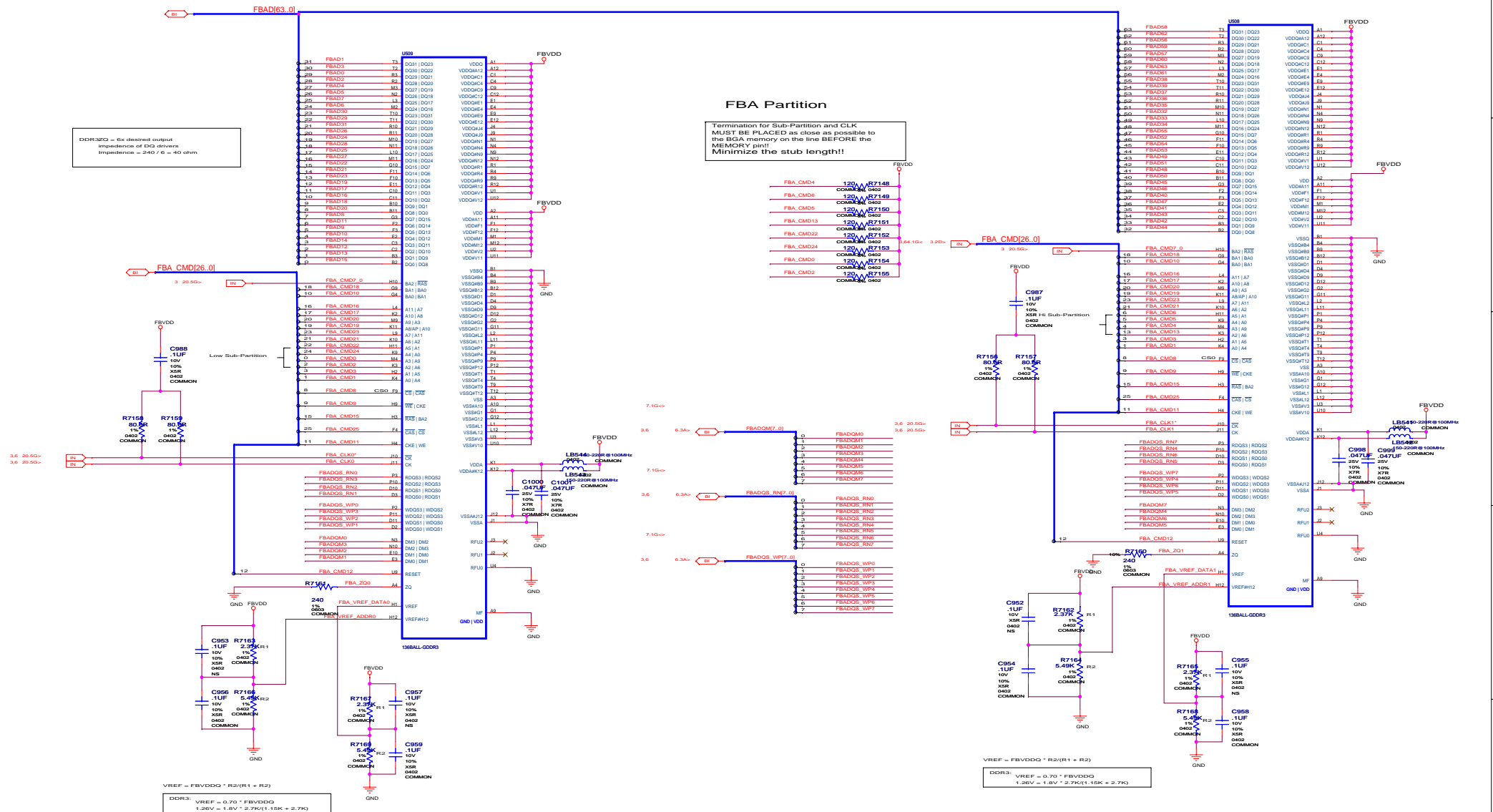
OA

- Page 3 Enable G23pin H\_PLLVDD 1V2 for G84 only
- Page 11 reserve G84 SLI circuit
- Page 12,13,14 reserve DAC\_Vref power for G84 DACA,B,C
- Page 16 reserve 1V8 for G84 IFPAB\_PLLVDD
- Page 17 reserve 1V8 for G84 IFPCD\_PLLVDD
- Page 18 reserve 1V2 for G84 PLLVDD and VID\_PLLVDD
- Page 20 reserve MIOB\_CTL3 new strap for G84 PCI\_DEVID\_4
- Page 20 reserve ROM\_SI pull-down resistor required if MIOA VDDQ=2.5V for G84
- Page 21add 1V8 power for G84
- Page 22,23 Reserve MS-V1co-lay circuit



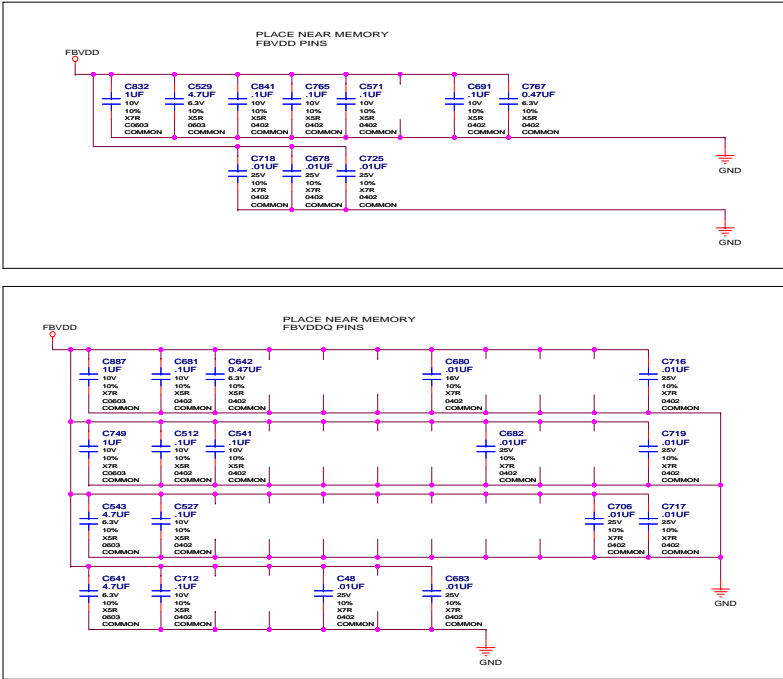


Framebuffer: Partition A  
16Mx32 BGA136 DDR3

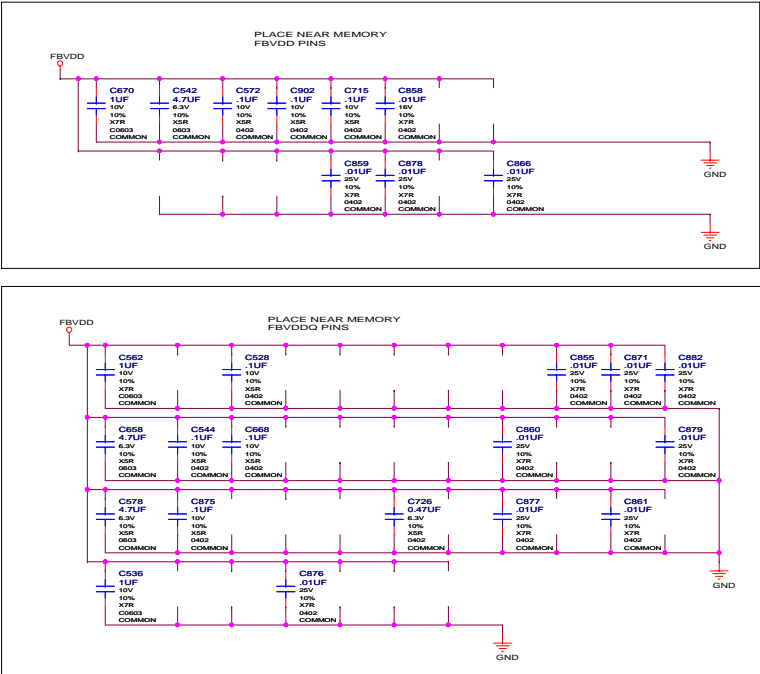


FRAME BUFFER: PARTITION A  
DECOUPLING

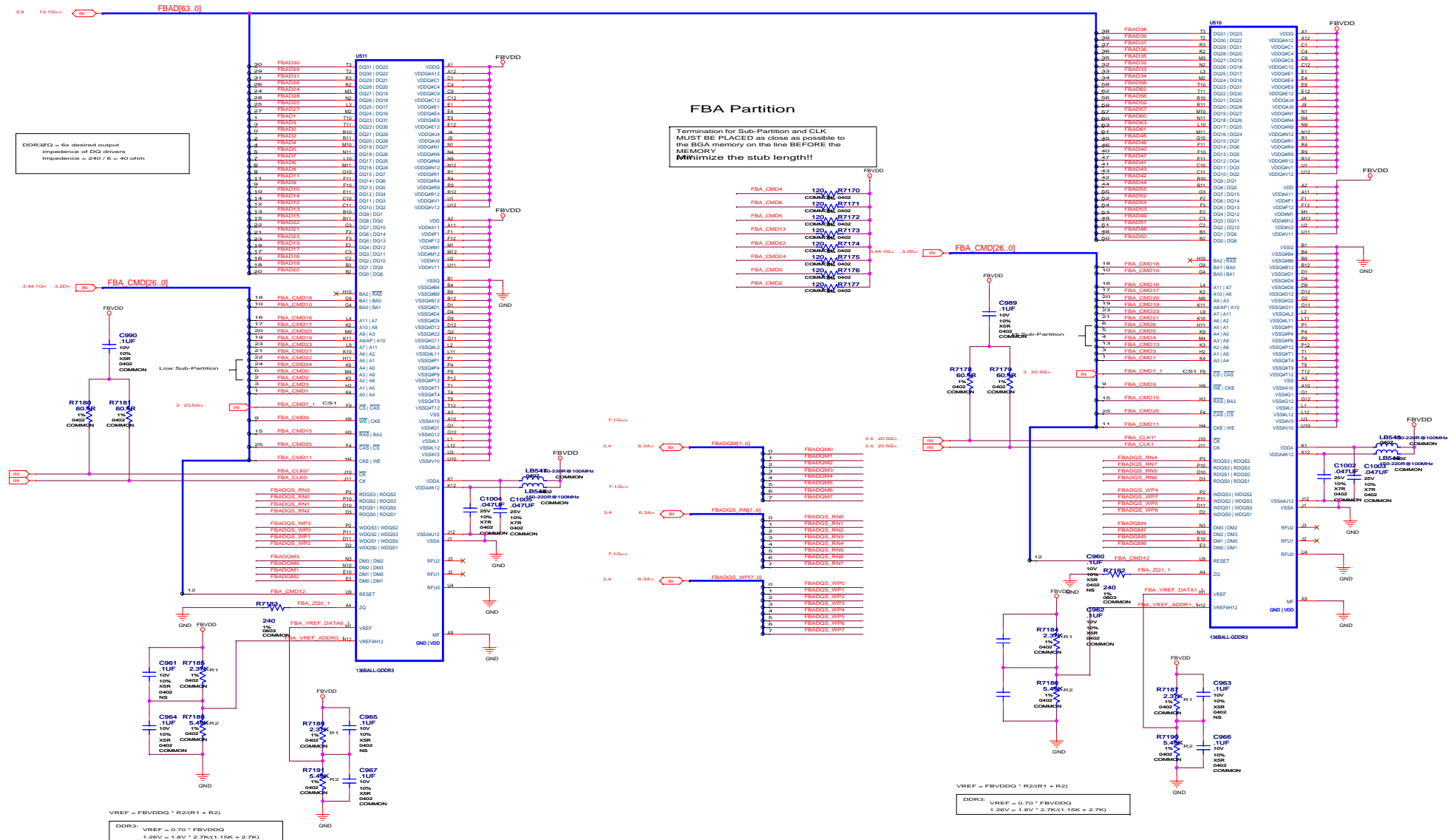
Decoupling for FBA 0..31



Decoupling for FBA 32..63



FrameBuffer: Partition A  
16Mx32 BGA136 DDR3



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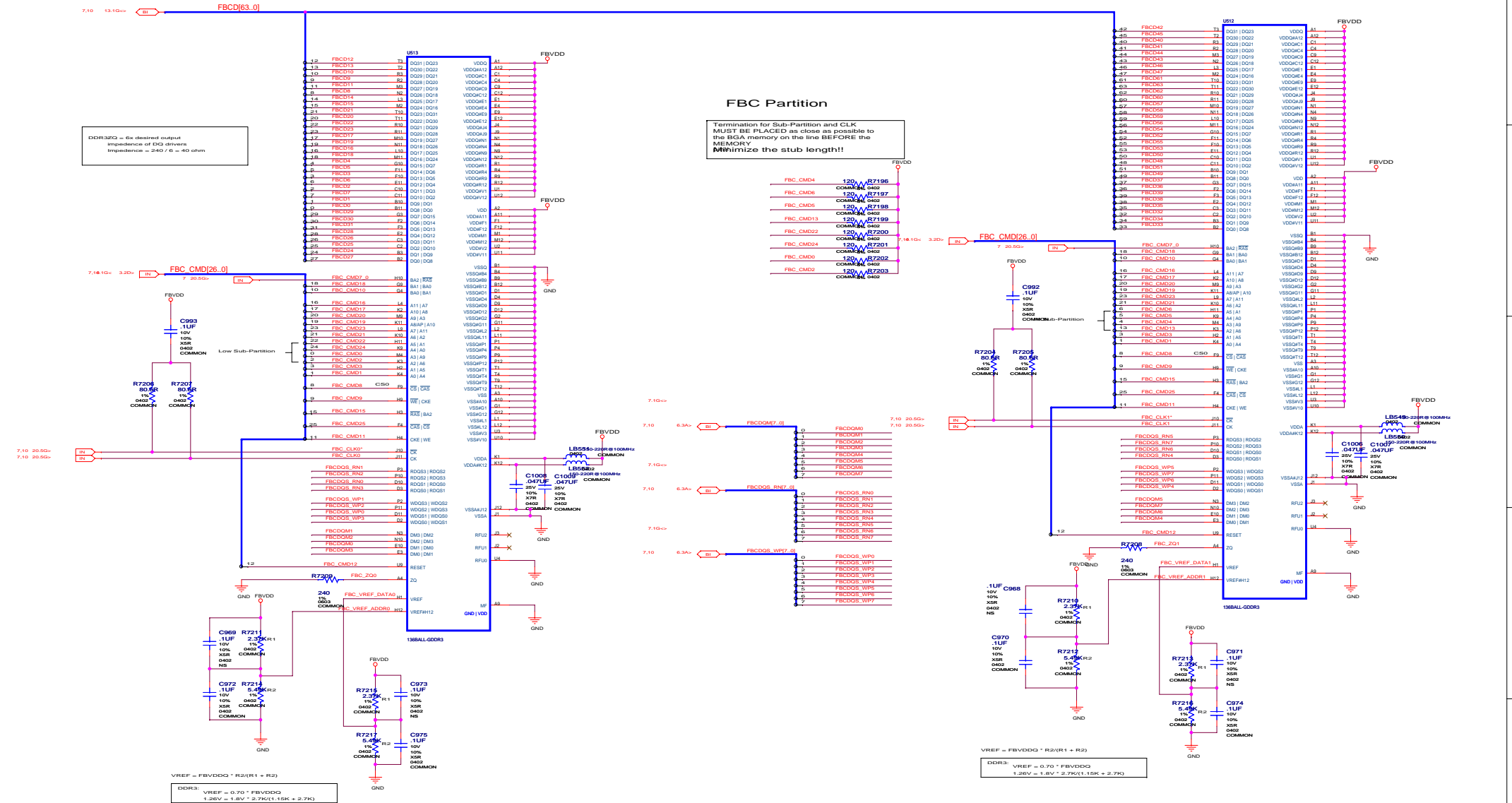
FB A

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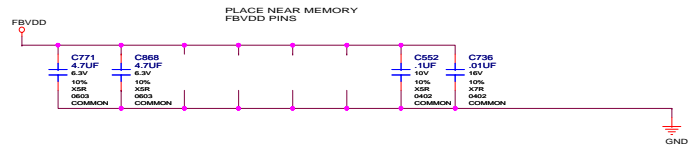
FRAMEBUFFER: PARTITION  
C 16Mx32 BGA136 DDR3



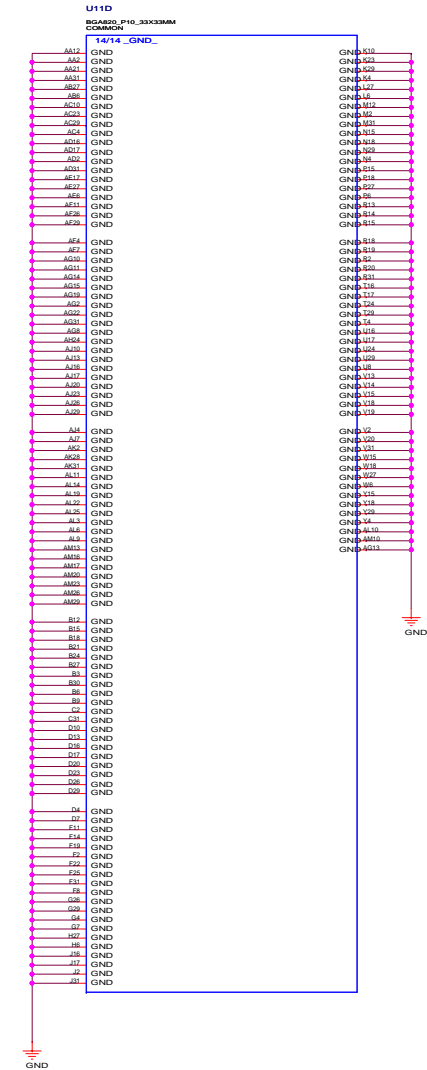
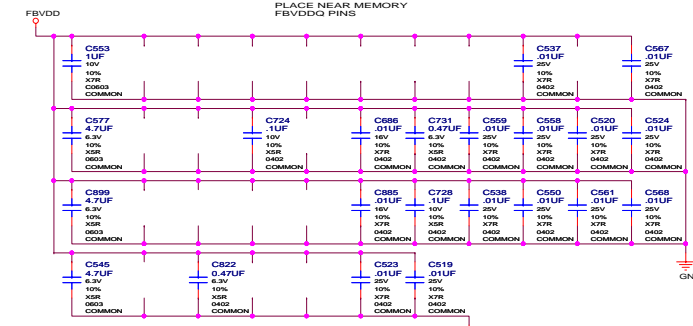
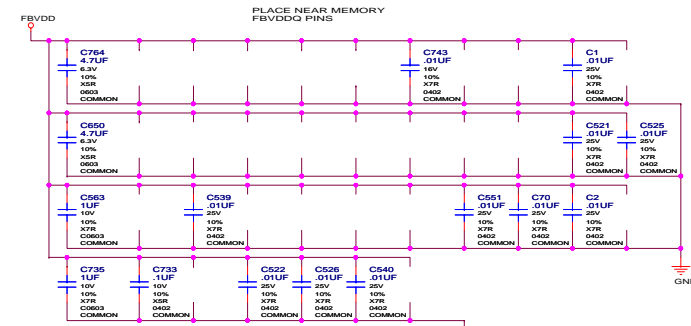
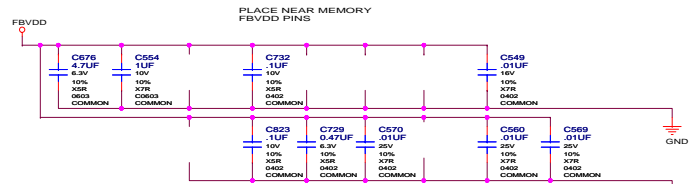


# FRAMEBUFFER: PARTITION C DECOUPLING

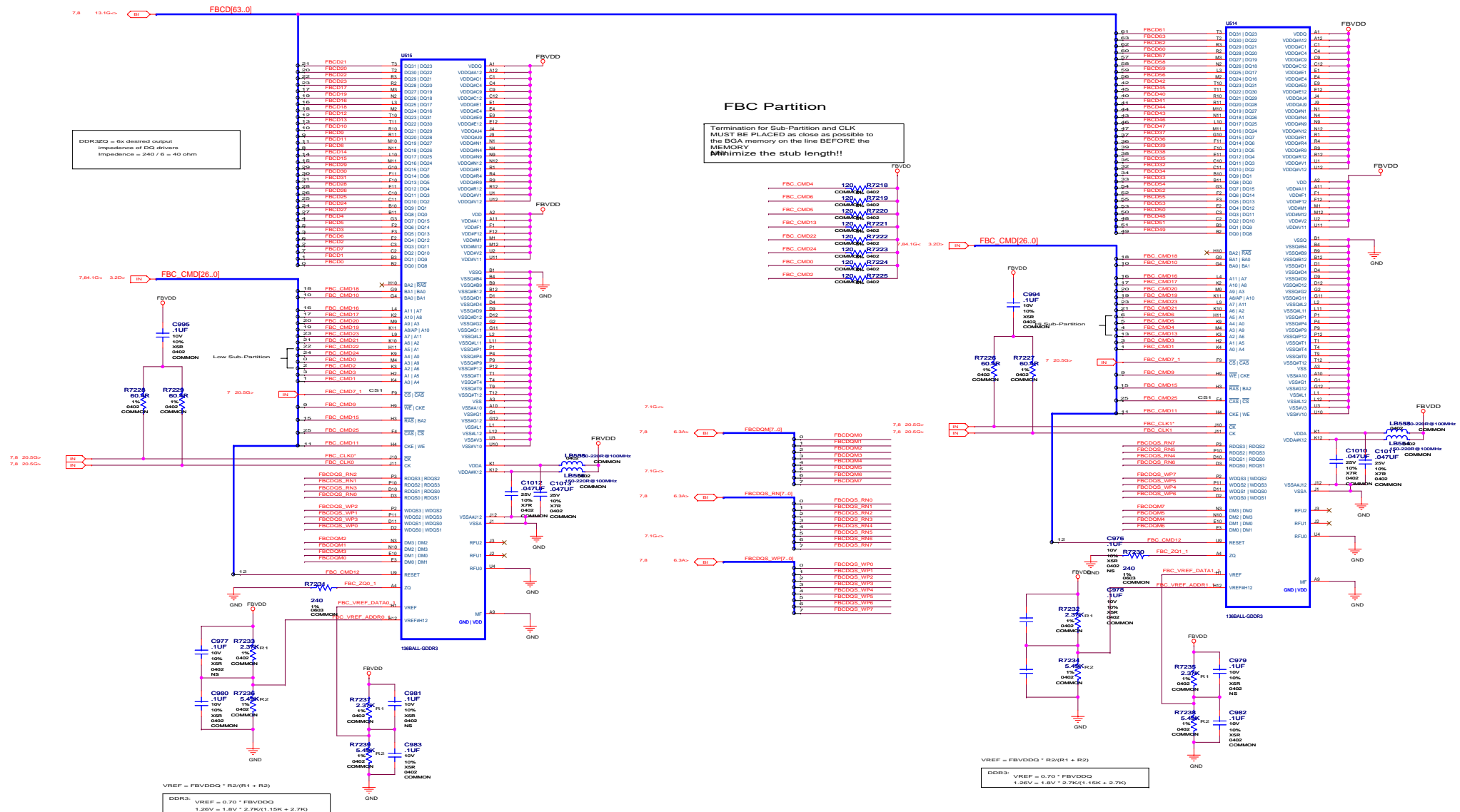
## Decoupling for FBC 0..31



## Decoupling for FBC 32..63



FRAMEBUFFER: PARTITION  
C 8Mx32 BGA136 DDR3



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FB C:

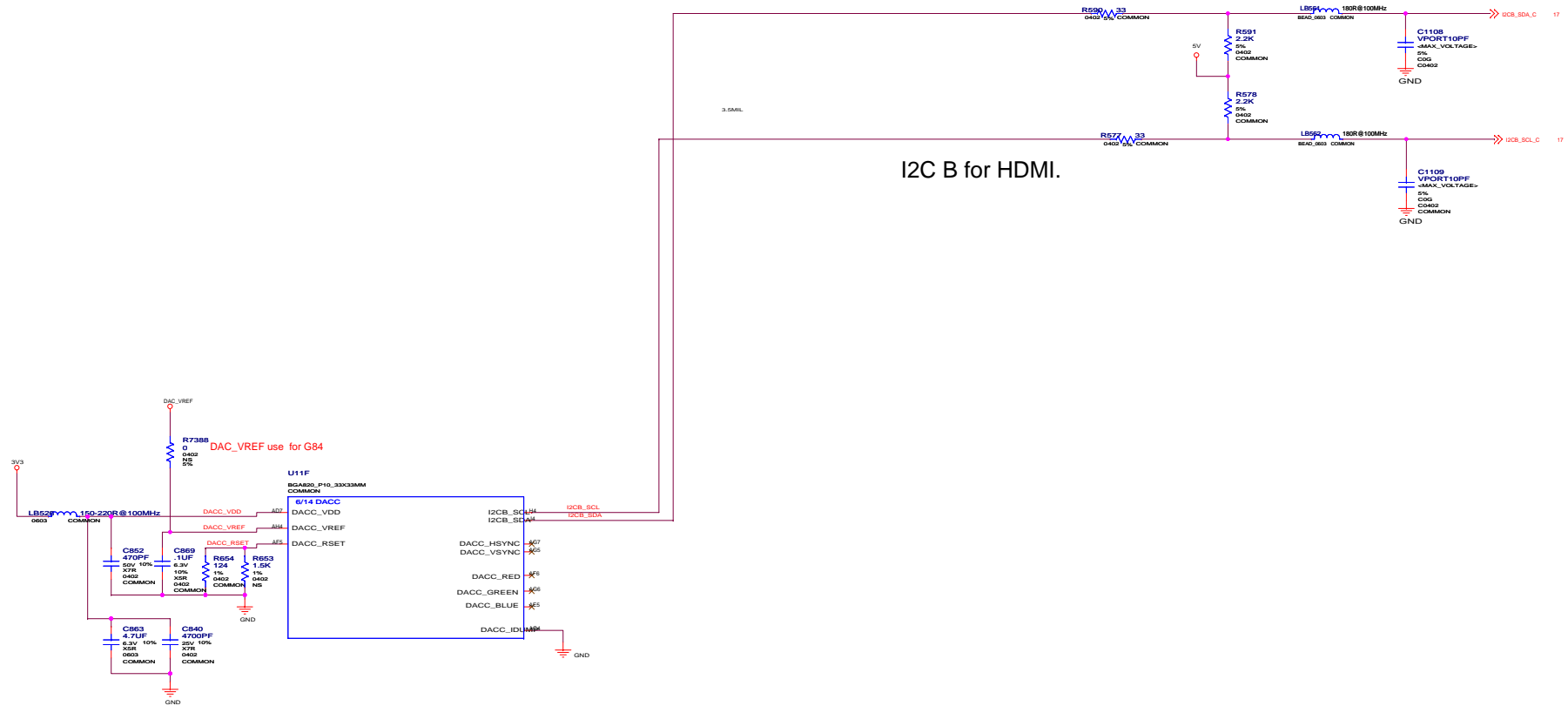
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## Secondary Display (DACC), HDMI



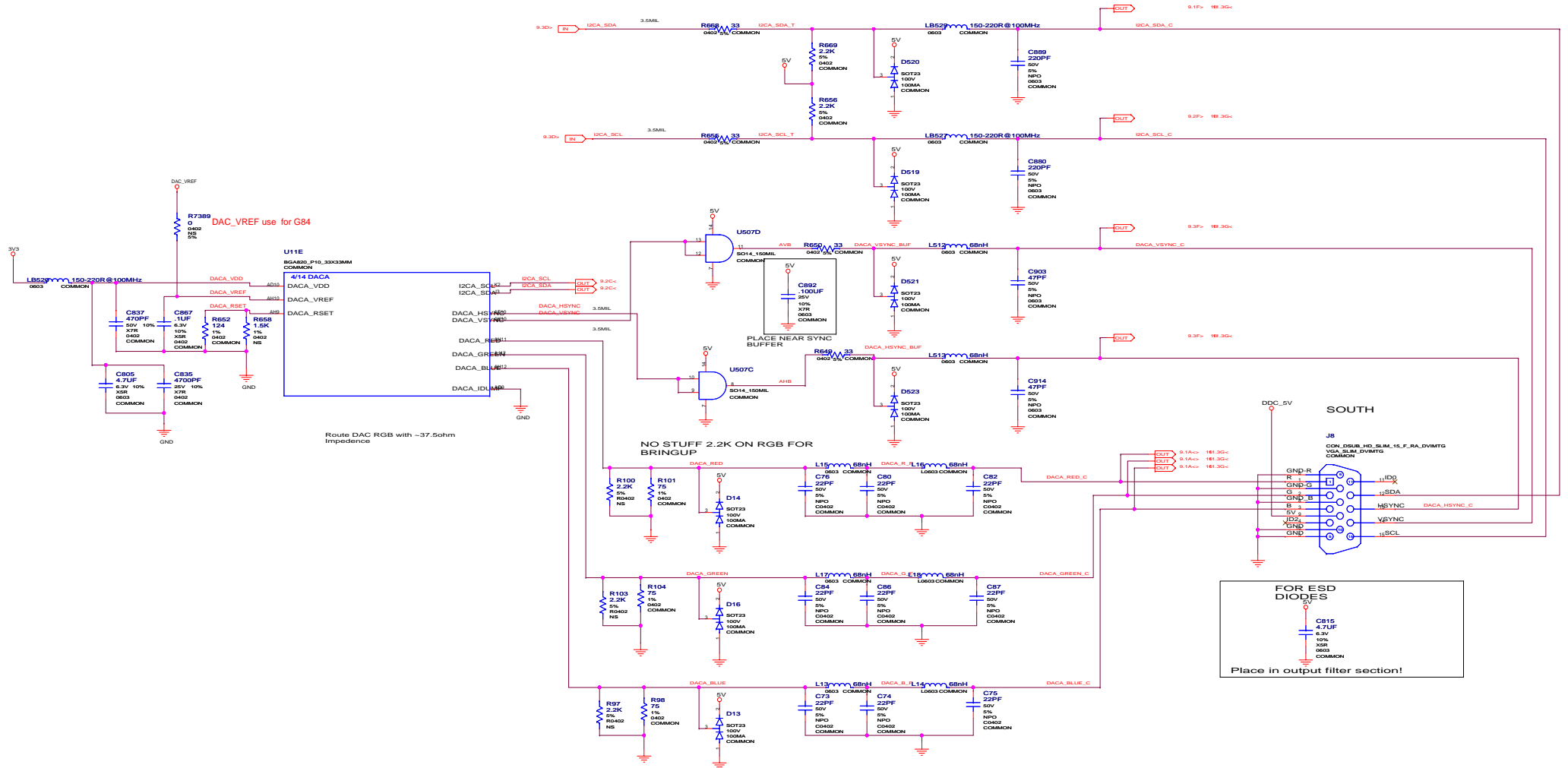
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DACC

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# Primary Display (DACA), Slim DB15

## DACA RGB-FILTER



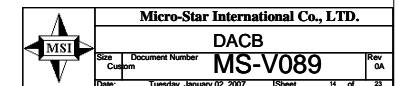
**FILTER NOTES:**

SD: USE  
L=1.8UH

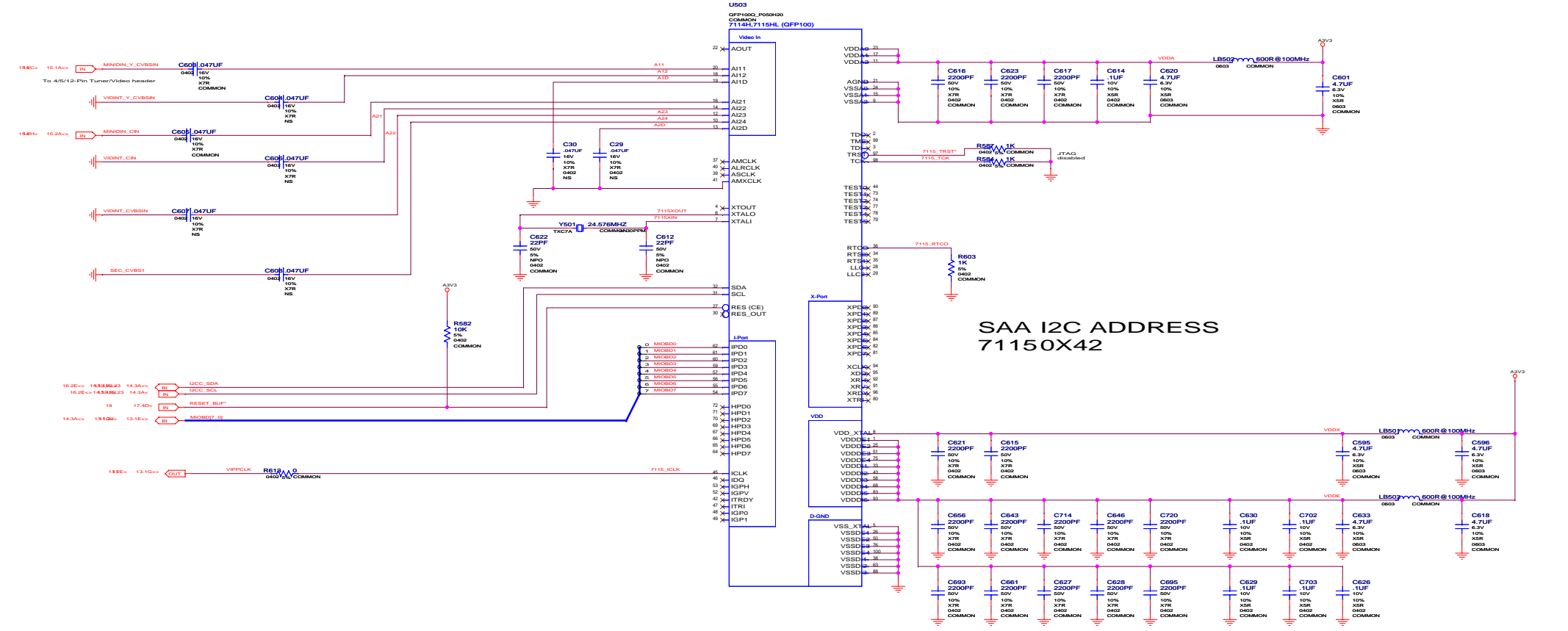
HD: USE  
L=?



For STEREO GLASSES 3pin MiniDIN  
only: Stuff bead!  
And replace 0 Ohm resistor with 220PF cap!

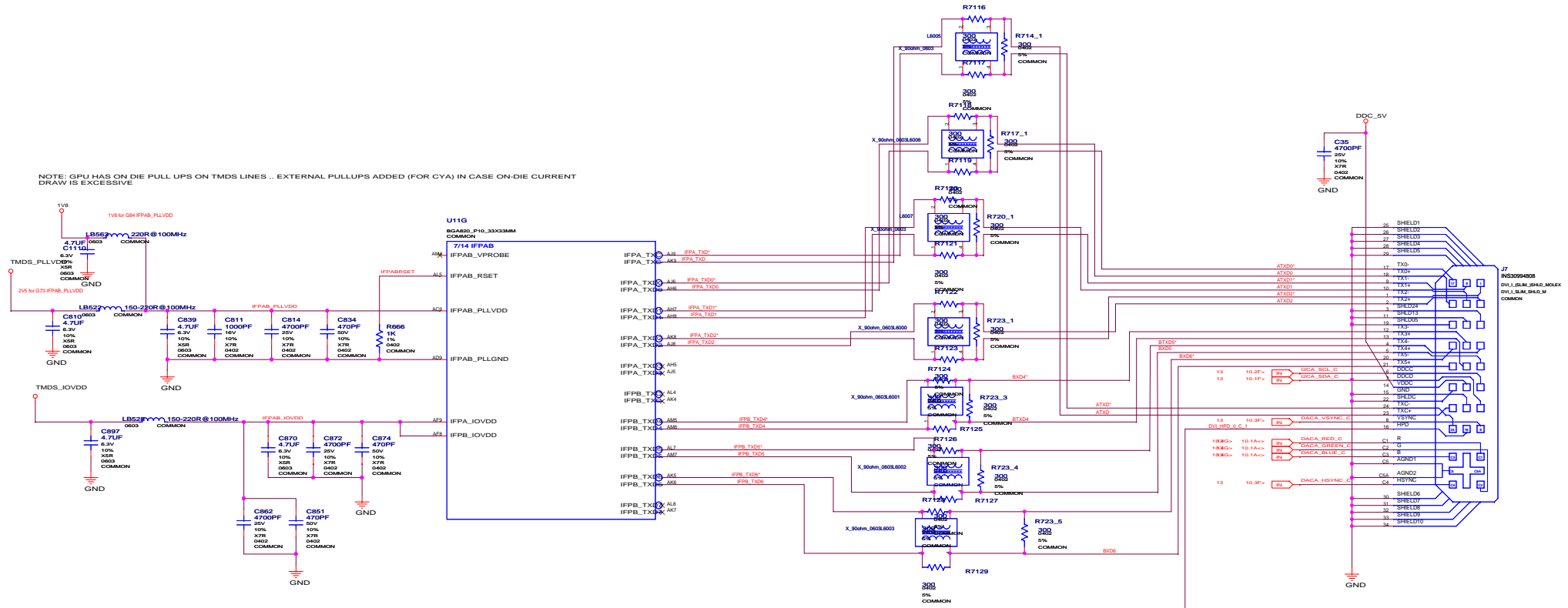


PHILIPS  
VIDEO  
CAPTURE

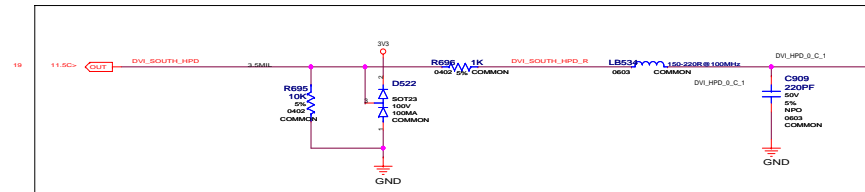


INTERNAL  
TMDS .. LINK A  
& B

NOTE: GPU HAS ON DIE PULL UPS ON TMDS LINES .. EXTERNAL PULLUPS ADDED (FOR CYA) IN CASE ON-DIE CURRENT DRAW IS EXCESSIVE



## Hotplug Detection



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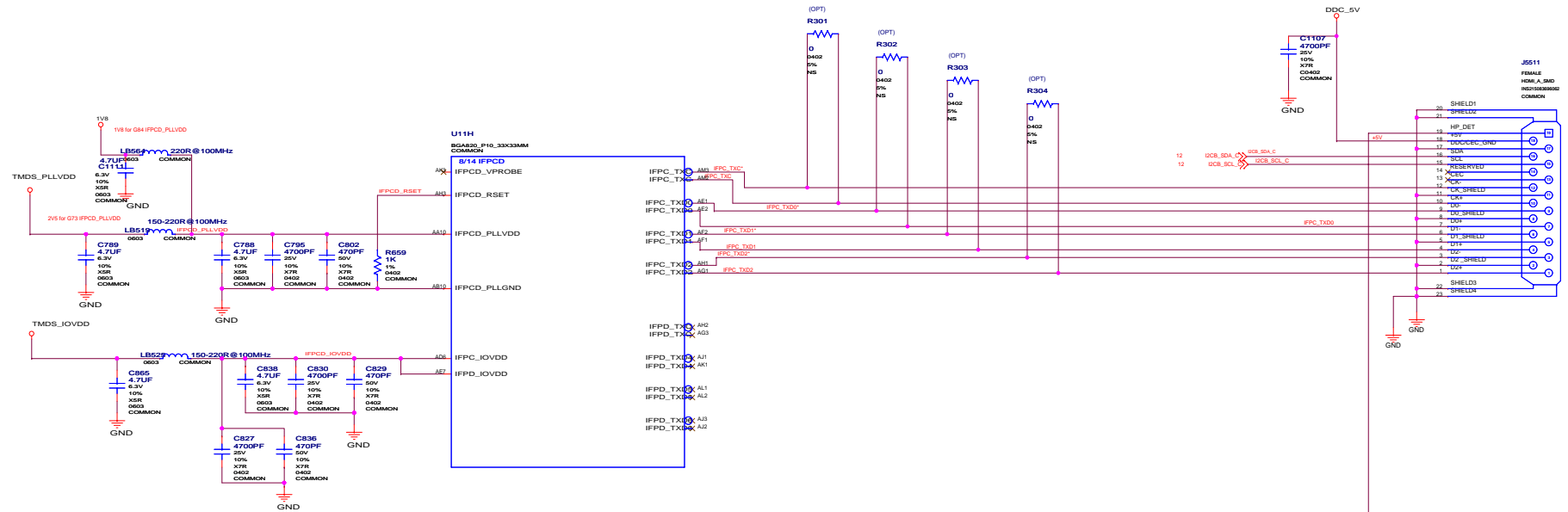
**TMDS LINK A & B**

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Custom			0

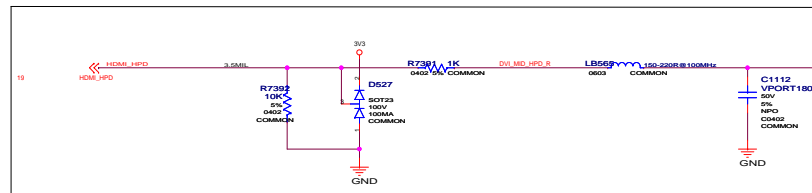
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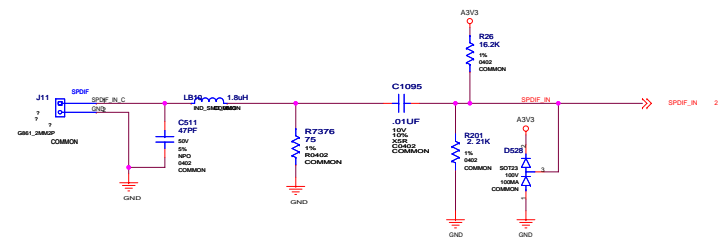


# INTERNAL TMDS .. LINK C & D



## Hotplug Detection

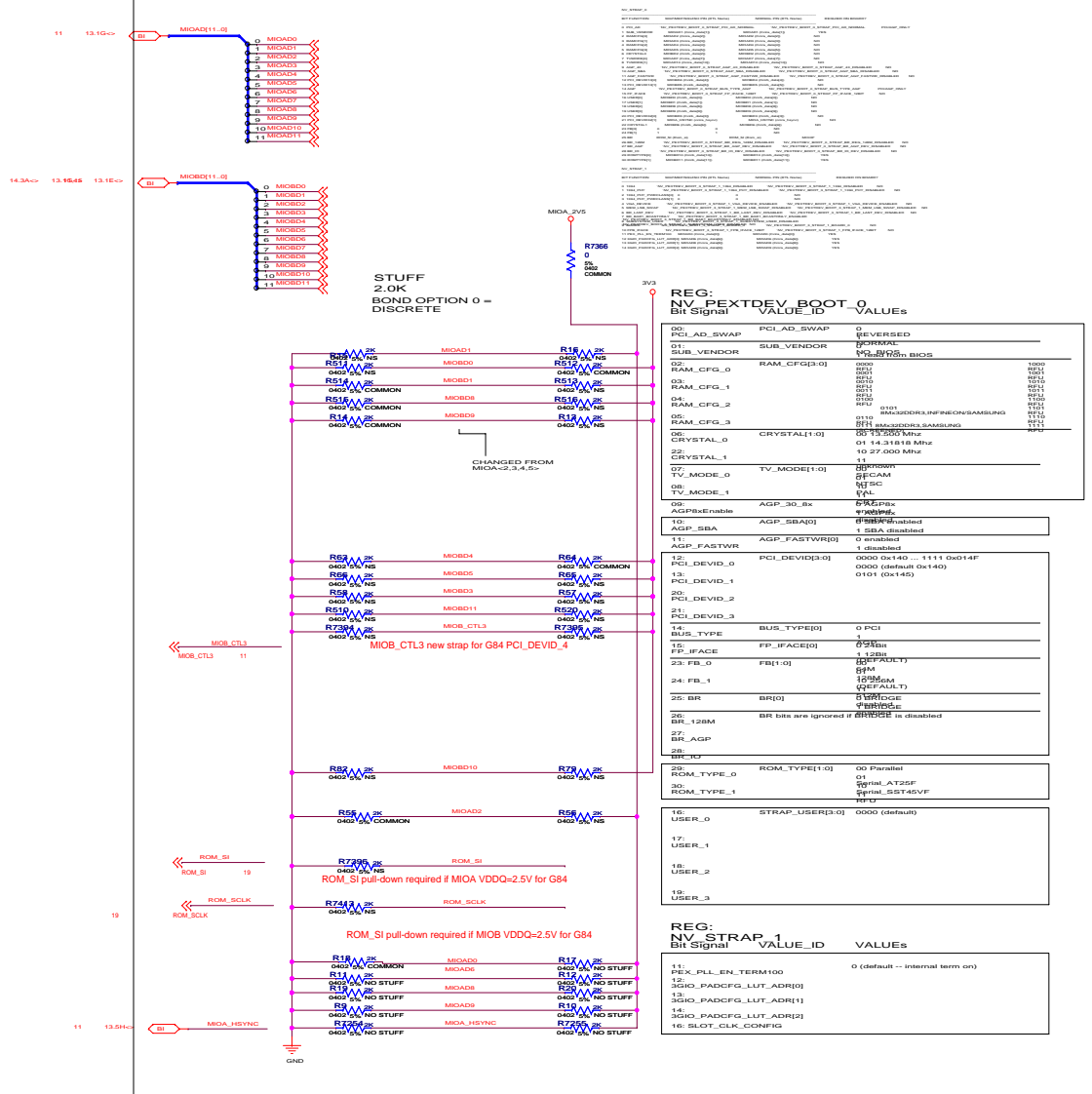






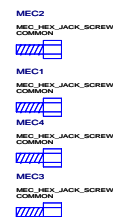
BIOS,  
Straps,  
Straps  
Misc

Assembly:  
BIOS

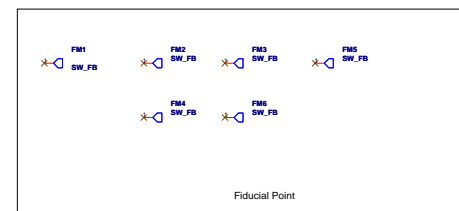
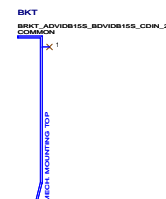


## Mechanical parts

NEED FANSINK SYMBOL  
FOR P216



155-00002-0000-000 SCREW PHIL PAN HD SS MACH 4-40  
3/16

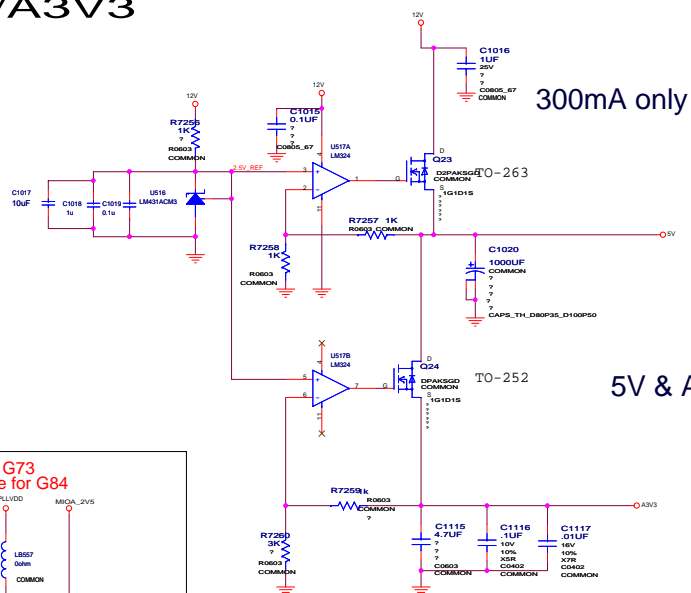
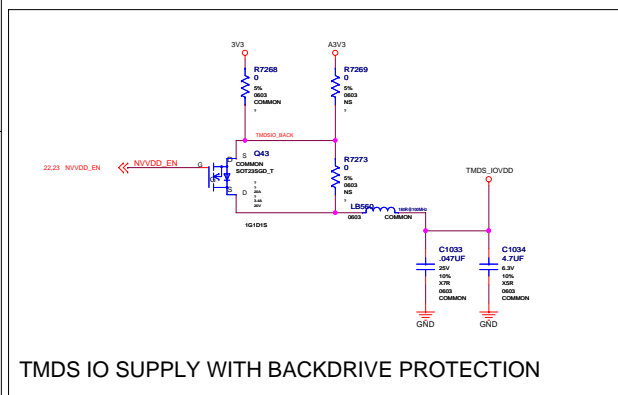
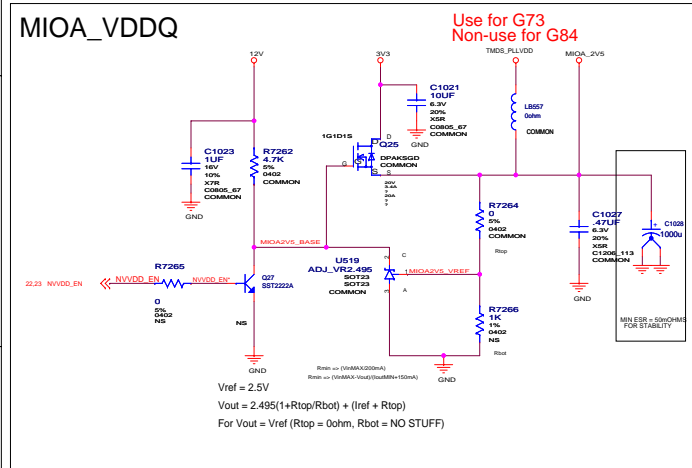
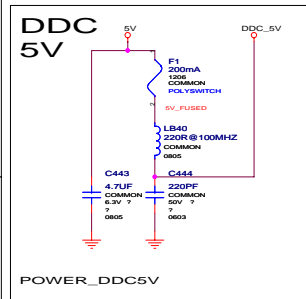


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### Straps/Mechanical

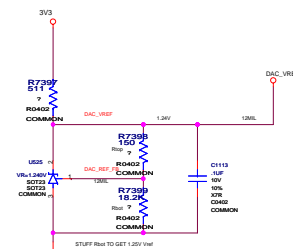
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# Power Supply TMD5/A3V3

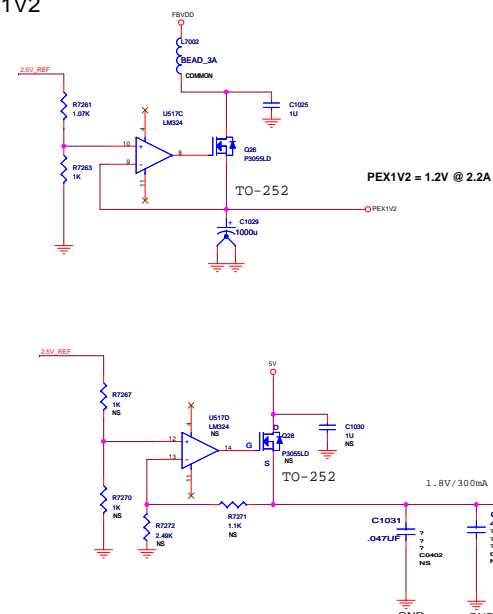


5V & A3V3

## DAC V\_REFERENCE SUPPLY for G84



## PEX1V2



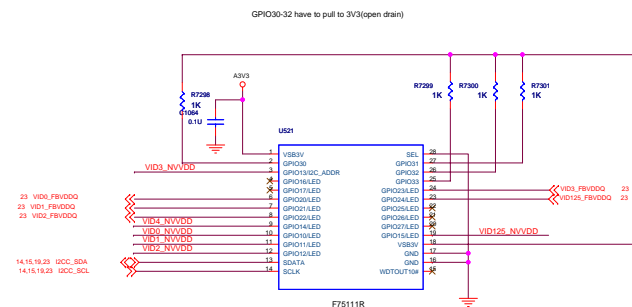
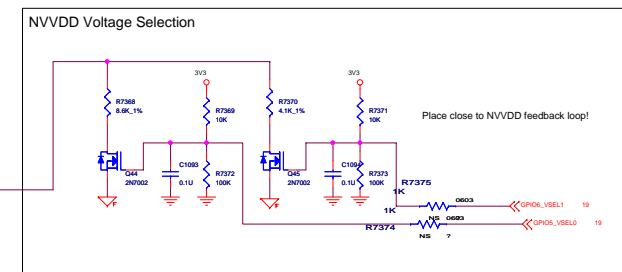
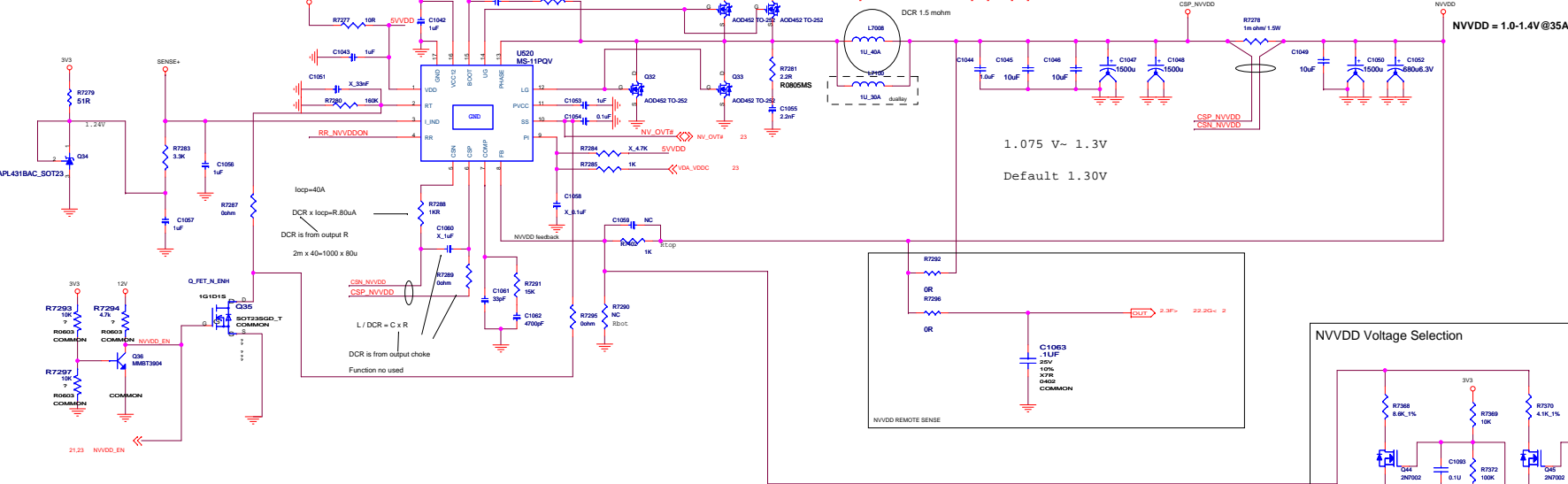
1V8 Supply use for G84 Non-use for G73

$$V_{out} = V_{ref}(1 + R_{top}/R_{bot})$$

$$V_{out} = 1.25(1 + 1.1K/2.49K) = 1.8V$$

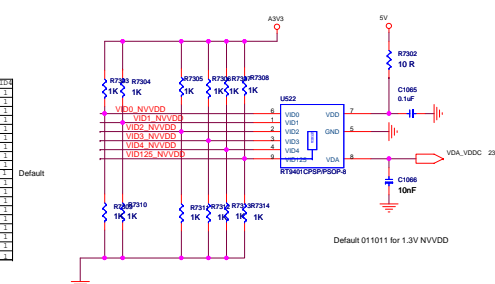
## NVVDD with MS-11

```
Rcsn= DCR*Icop/80uA =  
1mohm*40Amp/80uA=499 ohm  
  
I_ind= (Iocp*DCR/Rcsn )*4  
= (40A*1mohm/499ohm)*4=80uA  
  
R_ind=V_ind/I_ind= 1V/80uA=  
3.3K
```



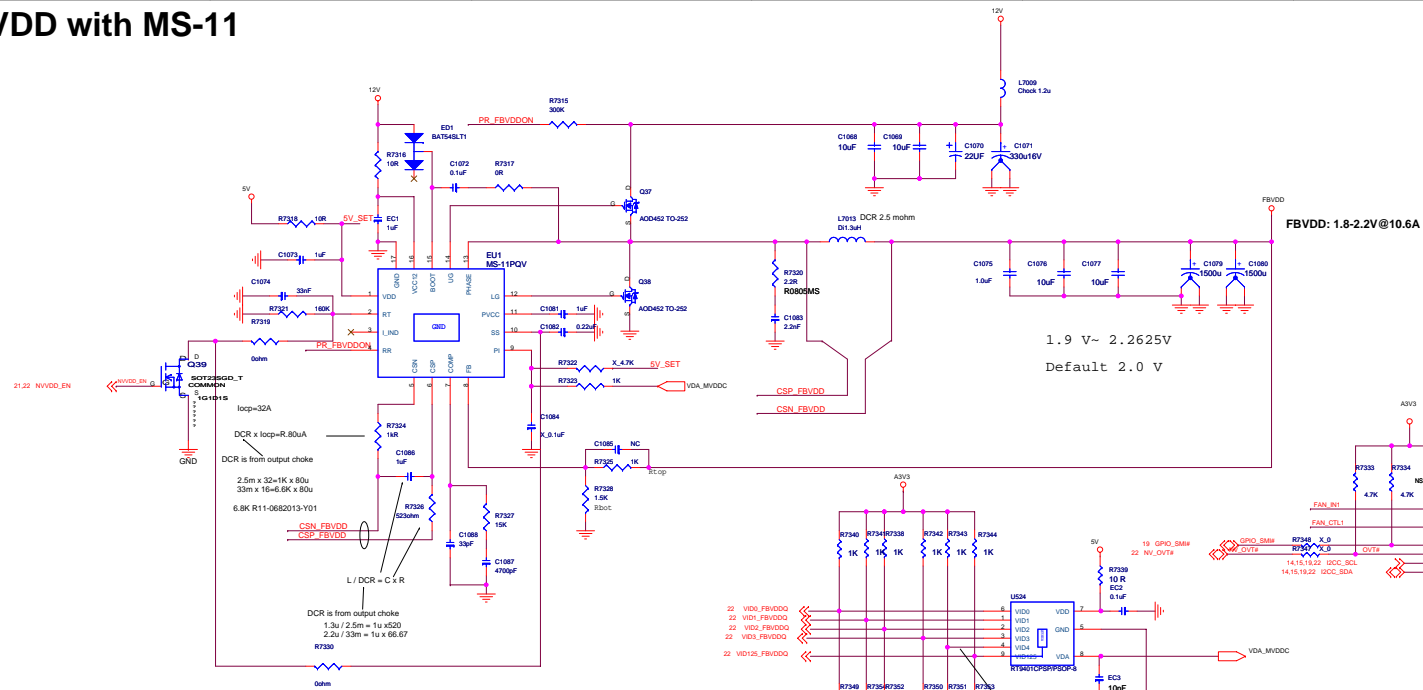
```
NVVD_ GPIO:10~15
FBVD_ GPIO:20~24
DACA_ RESET---GPIO:25~28
DACC_ RESET---GPIO:30~32
```

V <sub>DC</sub> (V)	I <sub>D1</sub> (A)	I <sub>D2</sub> (A)	I <sub>D3</sub> (A)	I <sub>D4</sub> (A)	I <sub>D5</sub> (A)
0.1875V	0	1	1	0	0
0.200V	1	0	1	0	1
0.2125V	0	0	1	0	1
0.225V	1	1	0	0	1
0.2375V	0	1	0	0	1
0.250V	1	0	0	0	1
0.2625V	0	0	0	0	1
0.275V	1	1	1	1	0
0.287V	0	1	1	1	0
0.300V	1	0	1	1	0
0.3125V	0	0	1	1	0
0.325V	1	0	0	1	0
0.3375V	0	1	0	1	0
0.350V	1	0	0	1	0
0.3625V	0	0	0	1	0
0.375V	1	1	1	0	0
0.3875V	0	1	1	0	0
0.400V	1	0	1	0	0

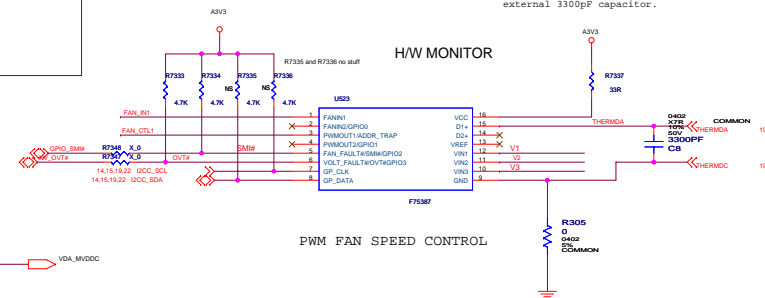


### NVVDD 1.30V For G73 GT default 101101

## FBVDD with MS-11



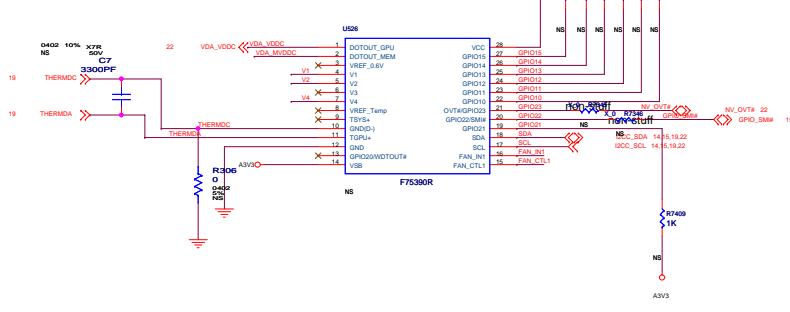
Place an external 3300pF input filter capacitors across THERMDA, THERMDC and close to the MS\_V1. Near the pin D- (Pin# 9) Must Be placed a through hole into the GND Plane before connect to the external 3300pF capacitor.



Reserve MS-V1 circuit

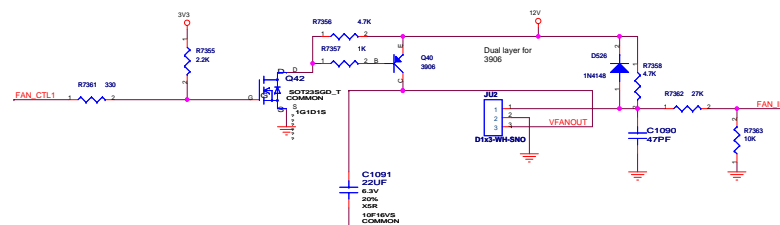
Place an external 3300pF input filter capacitors across THERMDA, THERMDC and close to the MS\_V1. Near the pin D- (Pin# 10) Must Be placed a through hole into the GND Plane before connect to the external 3300pF capacitor.

## TEMPERATURE MONITOR

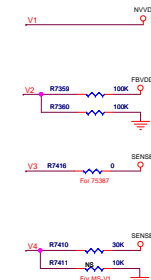
[illegible]

FB  
Foc  
Tel

## PWM FAN SPEED CONTROL



### VOLTAGE SENSING CIRCUIT



MS-V1 V4 monitor 0~510mV

