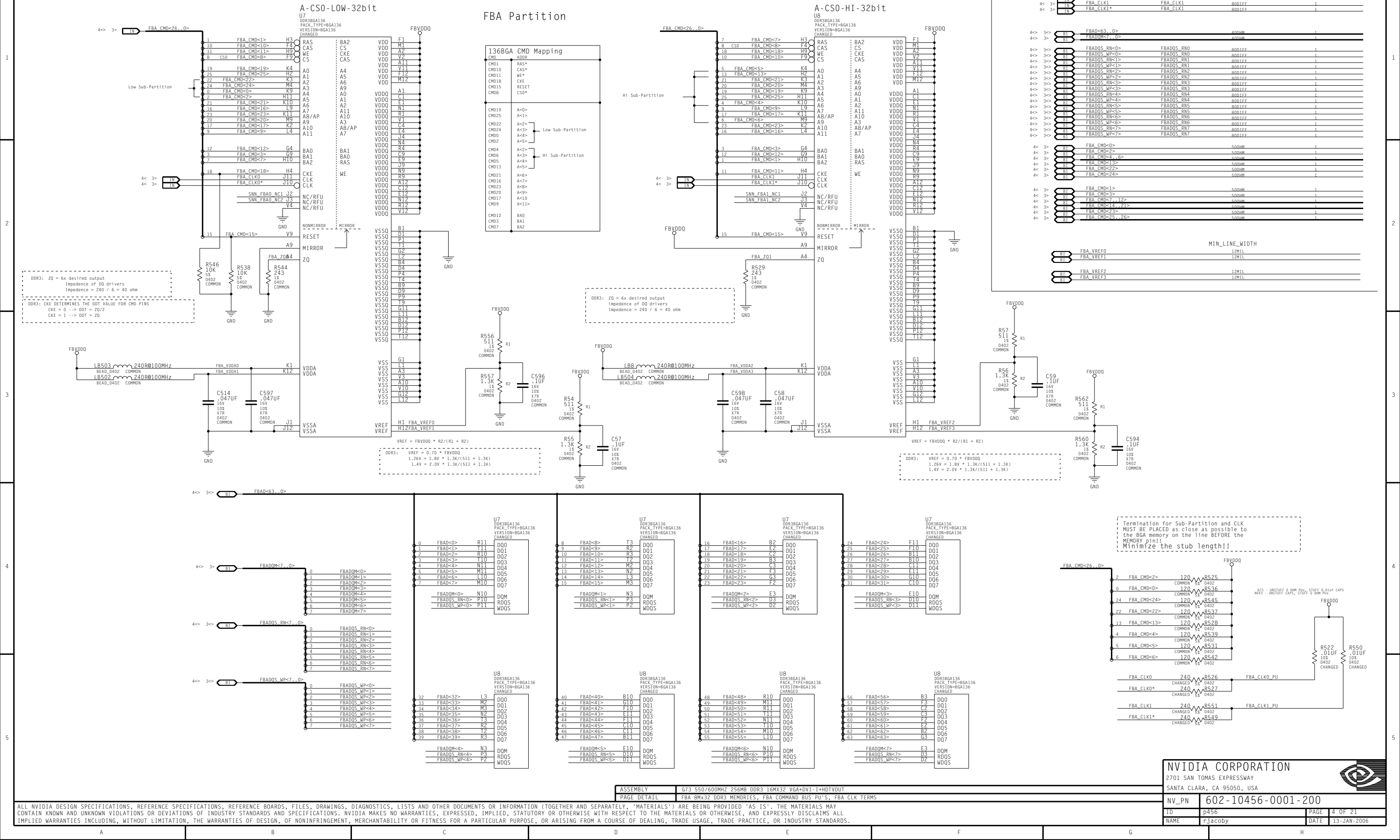
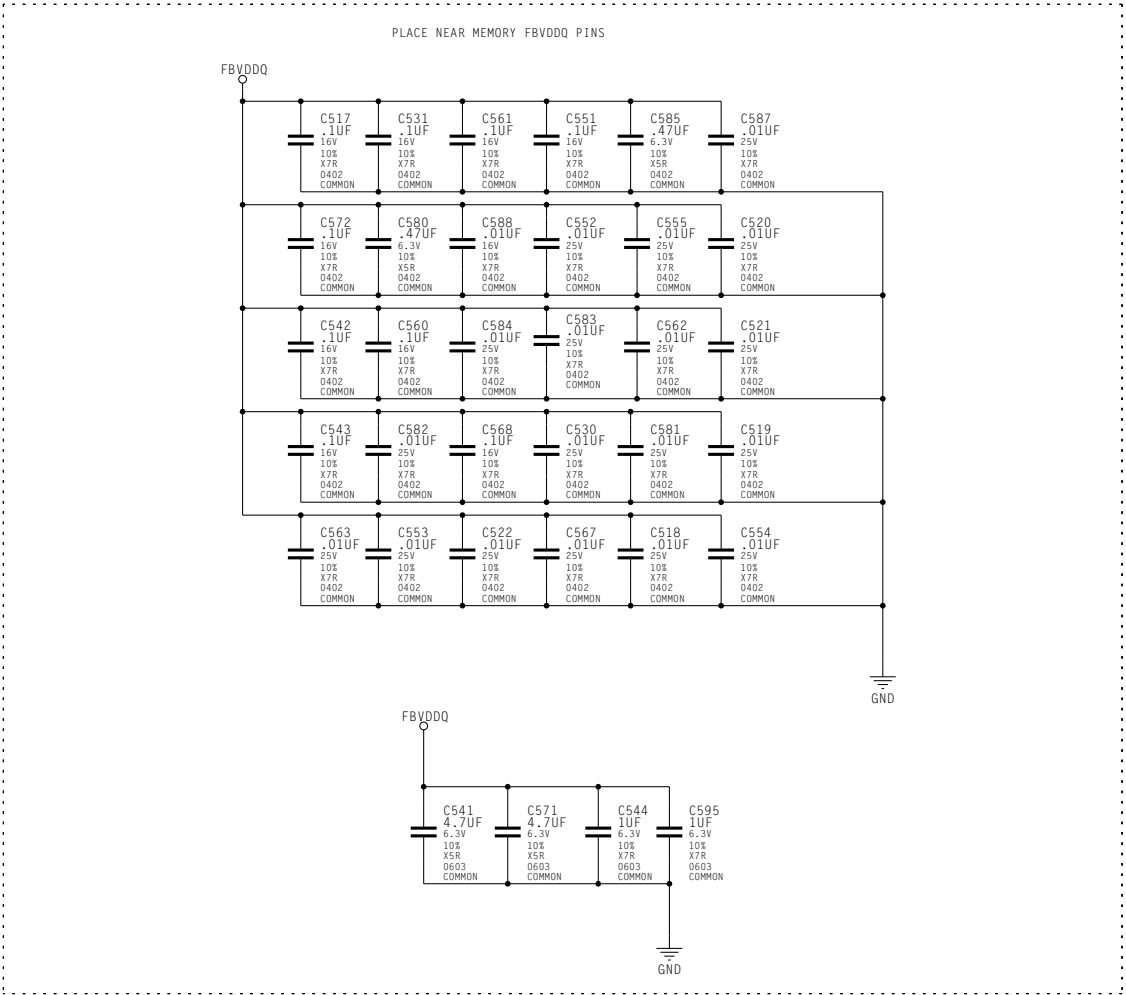


# FrameBuffer: Partition A 8Mx32 BGA136 DDR3

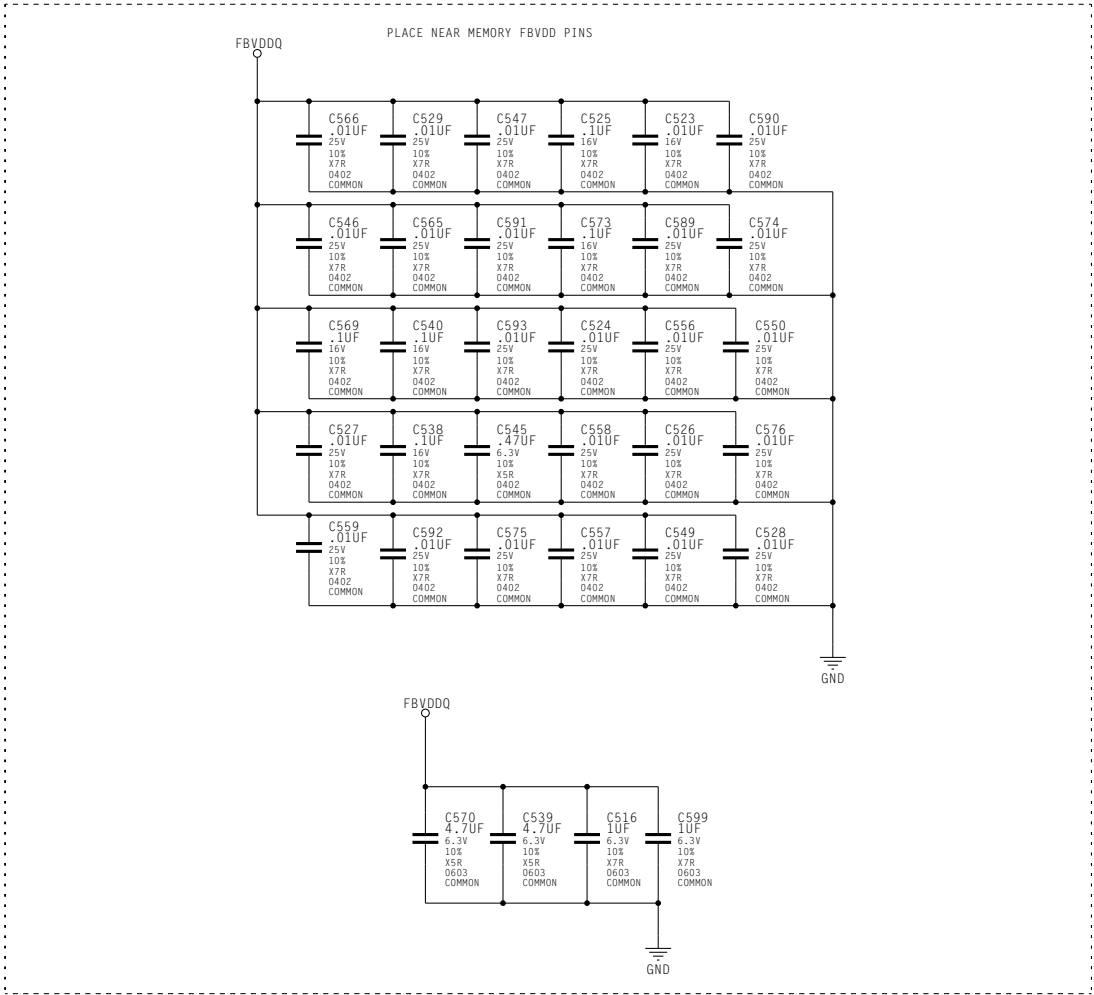


FRAME BUFFER: PARTITION A DECOUPLING

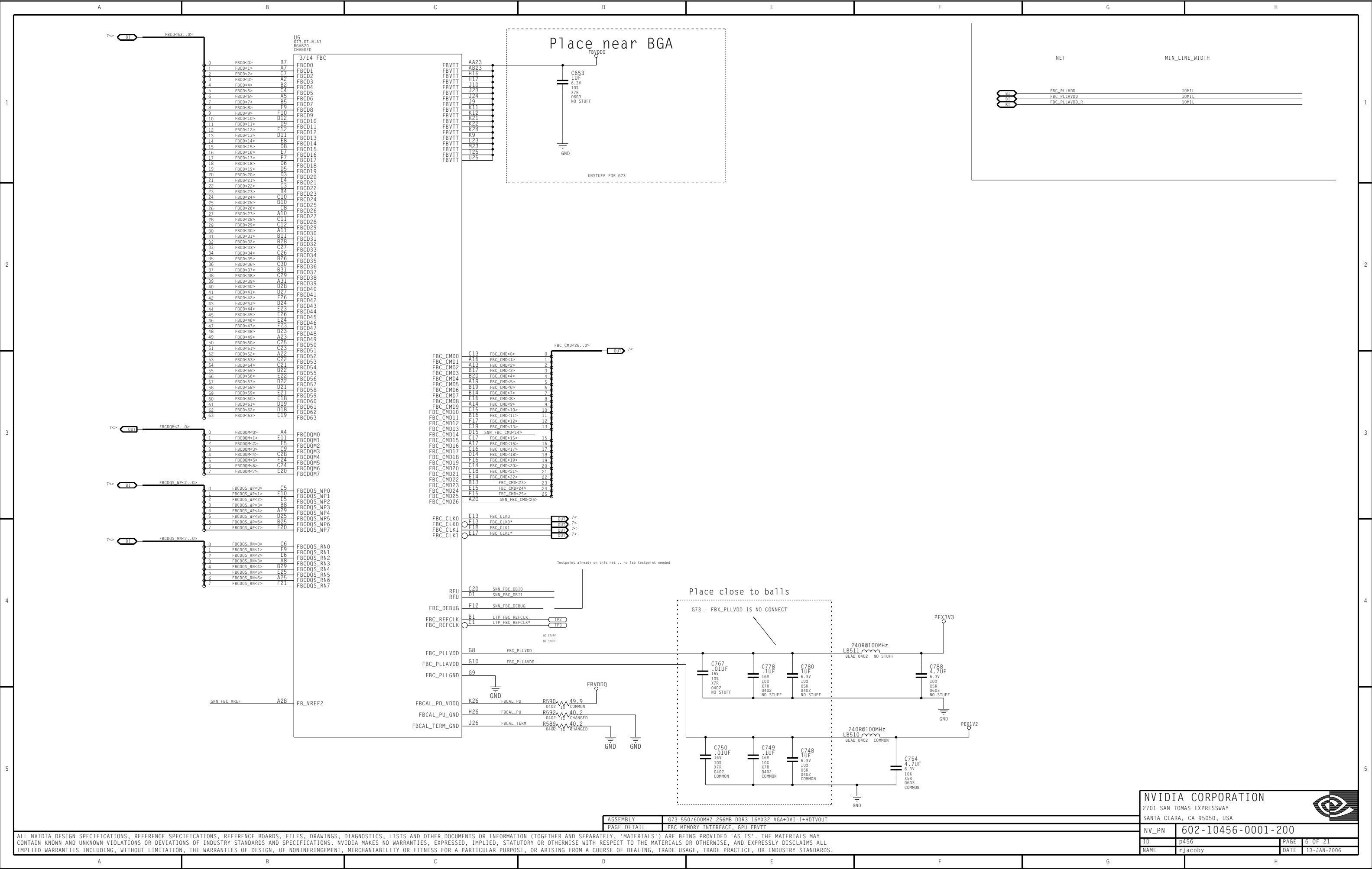
Decoupling for FBA 0..31



Decoupling for FBA 32..63

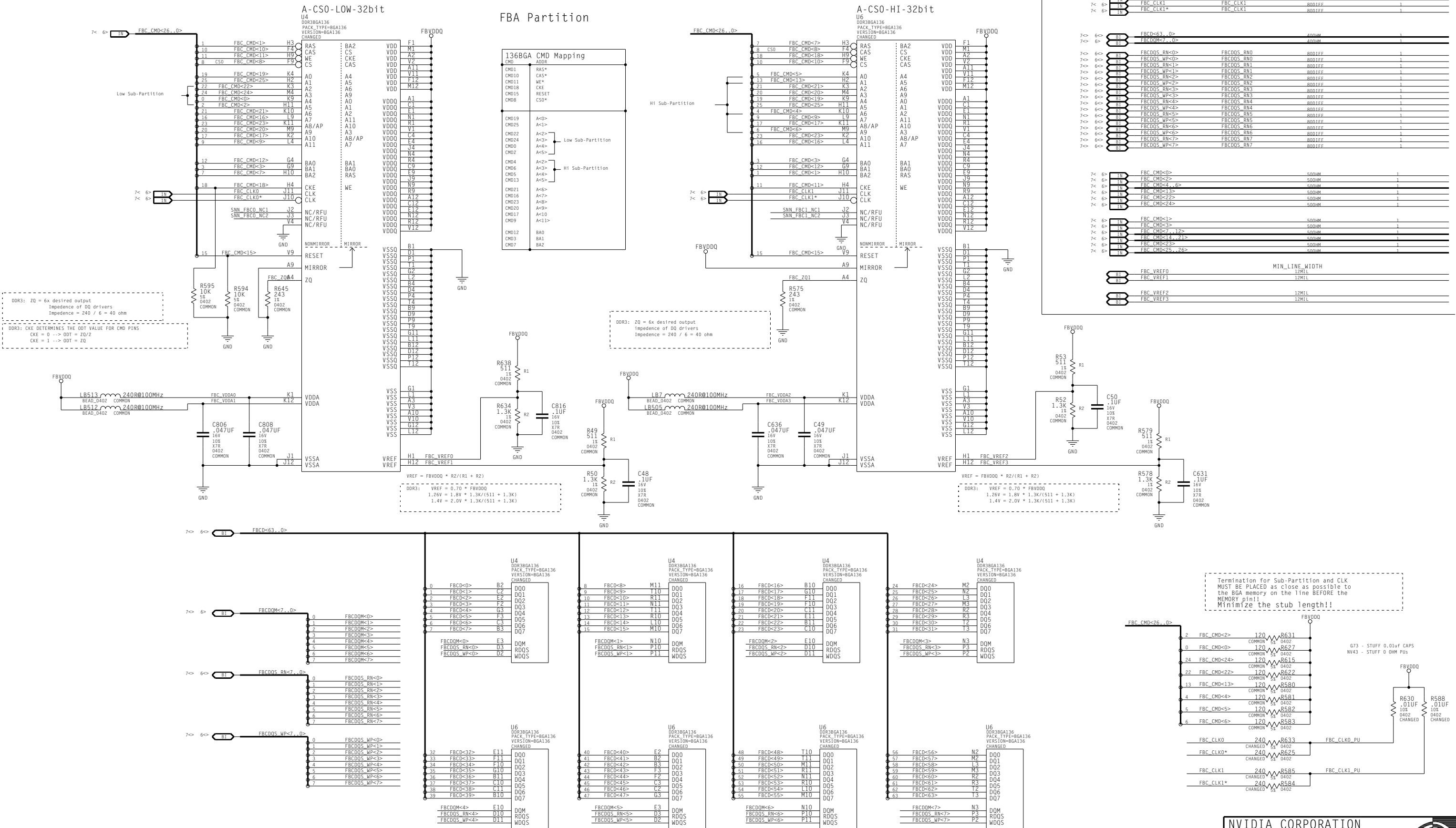


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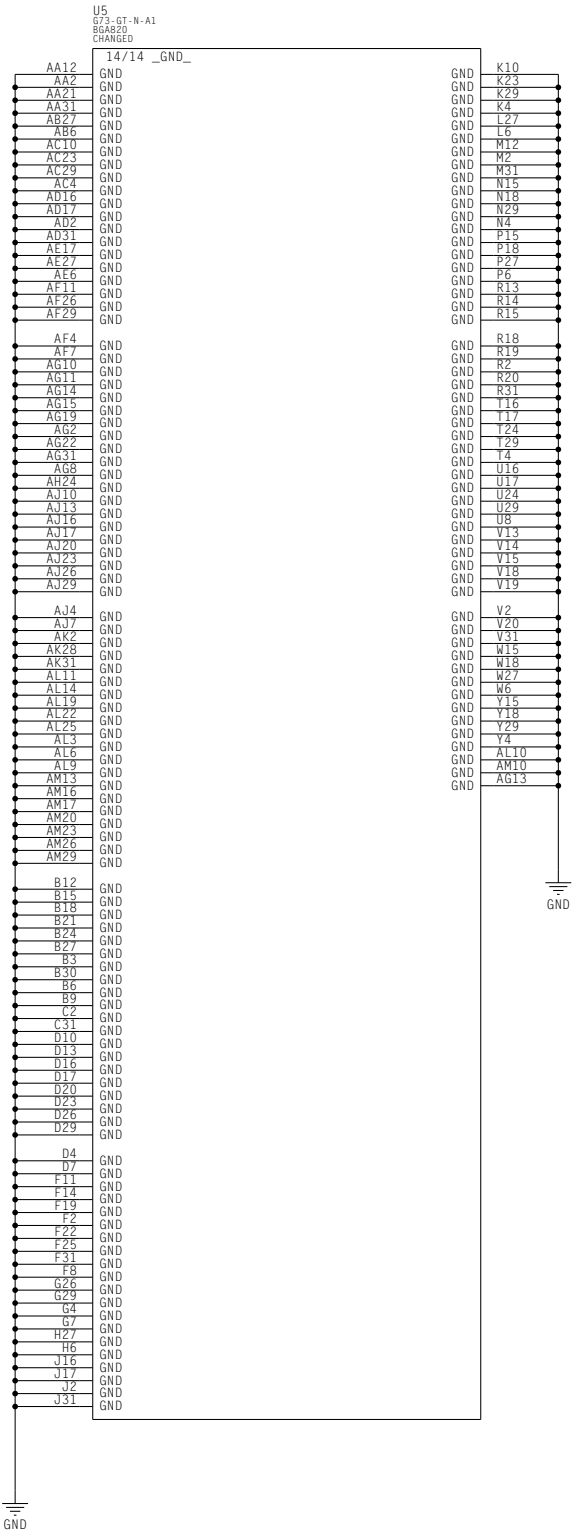
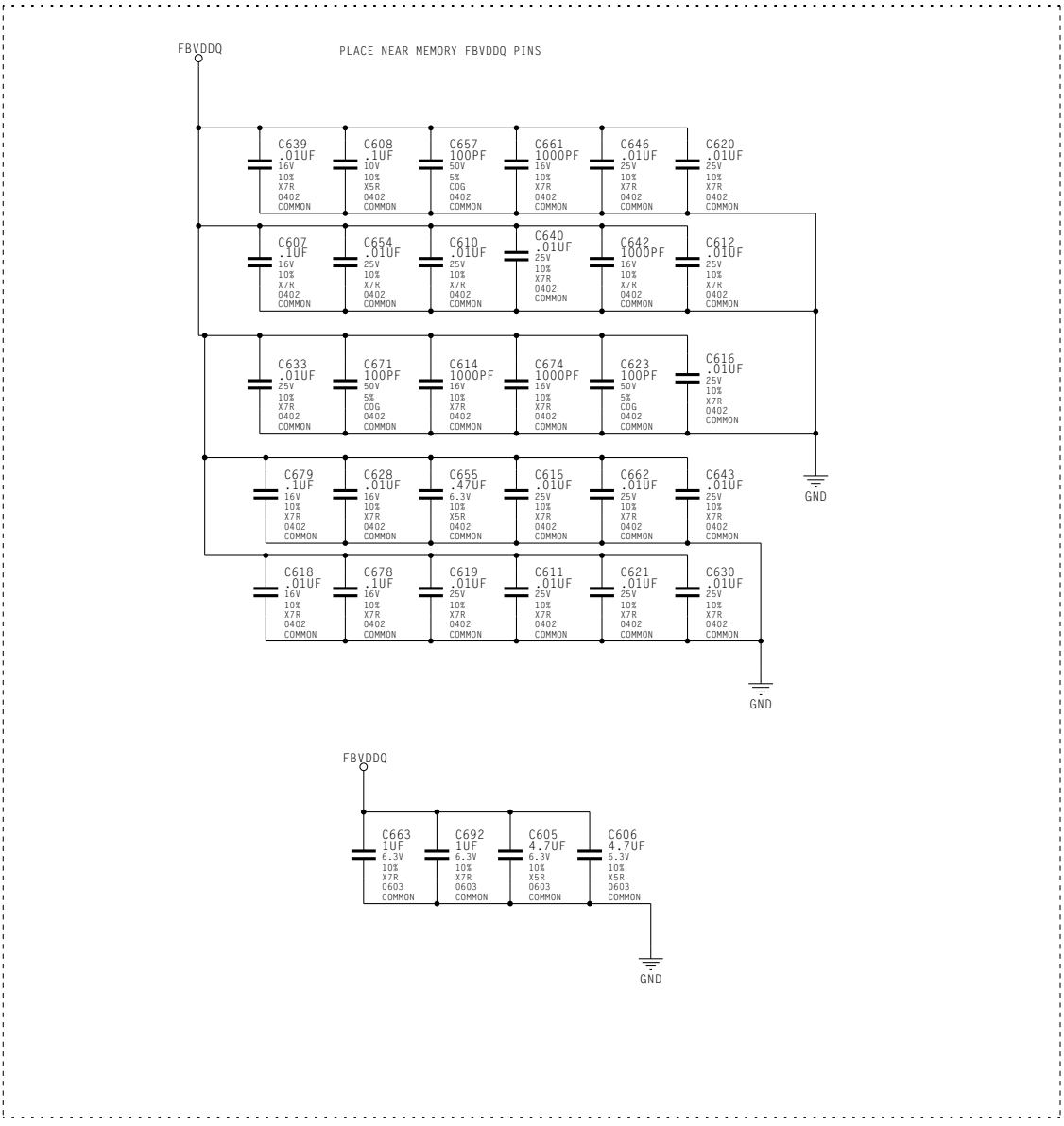
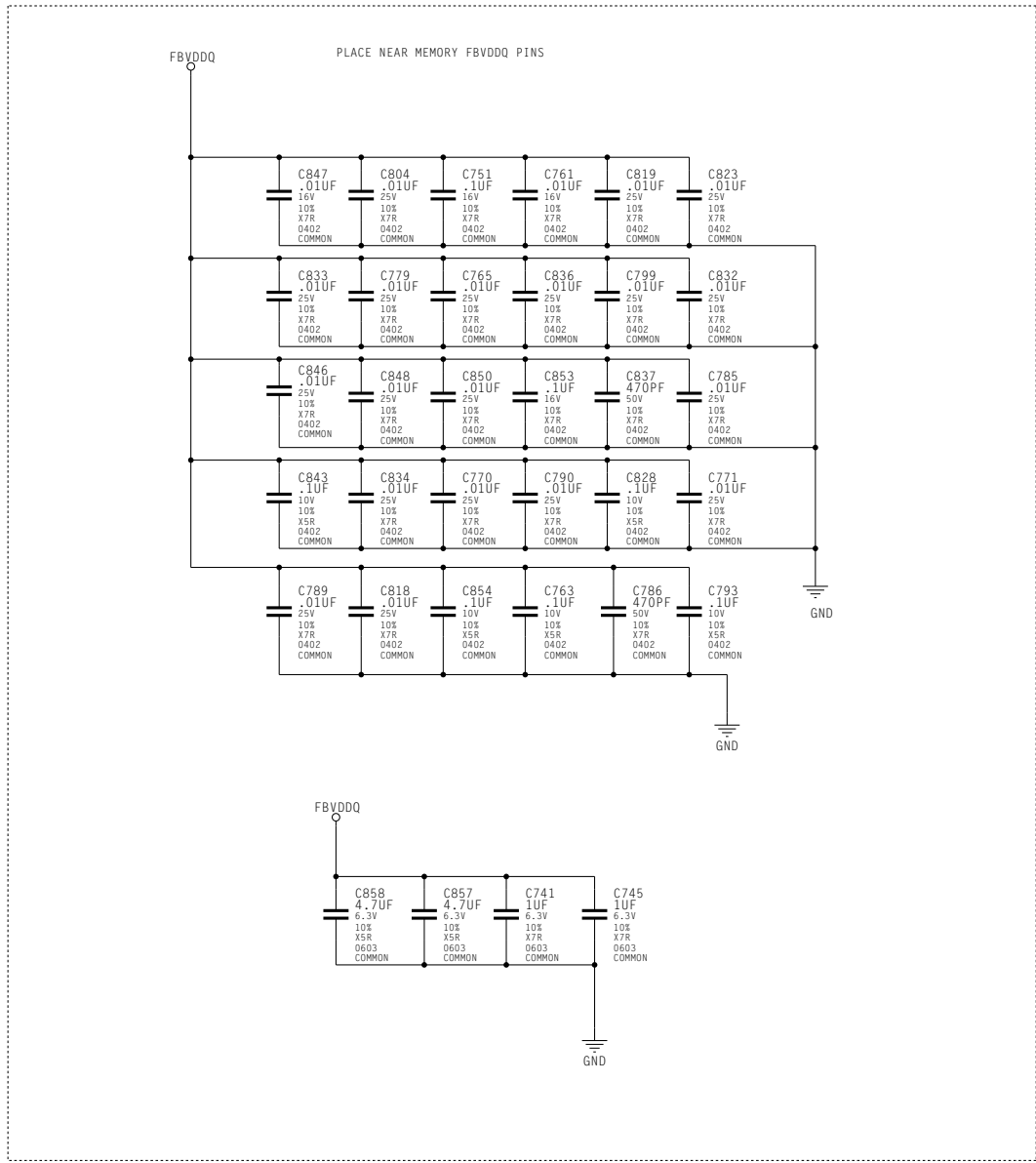
FRAMEBUFFER: PARTITION C 8Mx32 BGA136 DDR3



FRAMEBUFFER: PARTITION C DECOUPLING

Decoupling for FBC 0..31

Decoupling for FBC 32..63

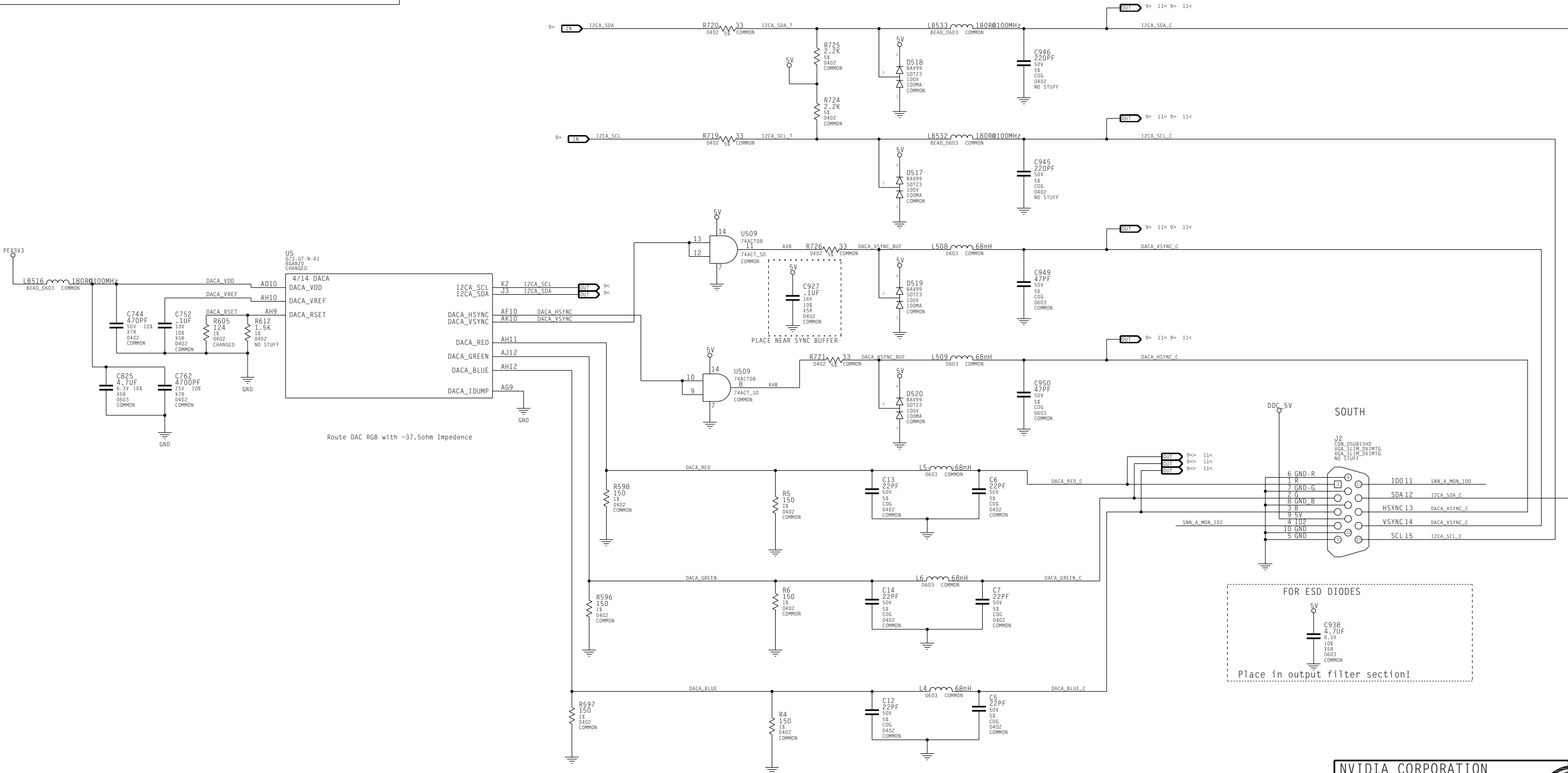




Primary Display (DACA), Slim DB15

DACA RGB-FILTER

NET_NAME	NV_CRITICAL_NET	IMPEDANCE	MIN_LINE_WIDTH
DACA_VDD			12MIL
DACA_VREF			12MIL
DACA_RSET			12MIL
DACA_RED	1	75OHM	
DACA_GREEN	1	75OHM	
DACA_BLUE	1	75OHM	
DACA_RED_C	1	75OHM	
DACA_GREEN_C	1	75OHM	
DACA_BLUE_C	1	75OHM	



Route DAC RGB with ~37.5ohm Impedance

FOR ESD DIODES

Place in output filter section!

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NAME	rjacob	DATE	13-JAN-2006

1

## 1

## 2



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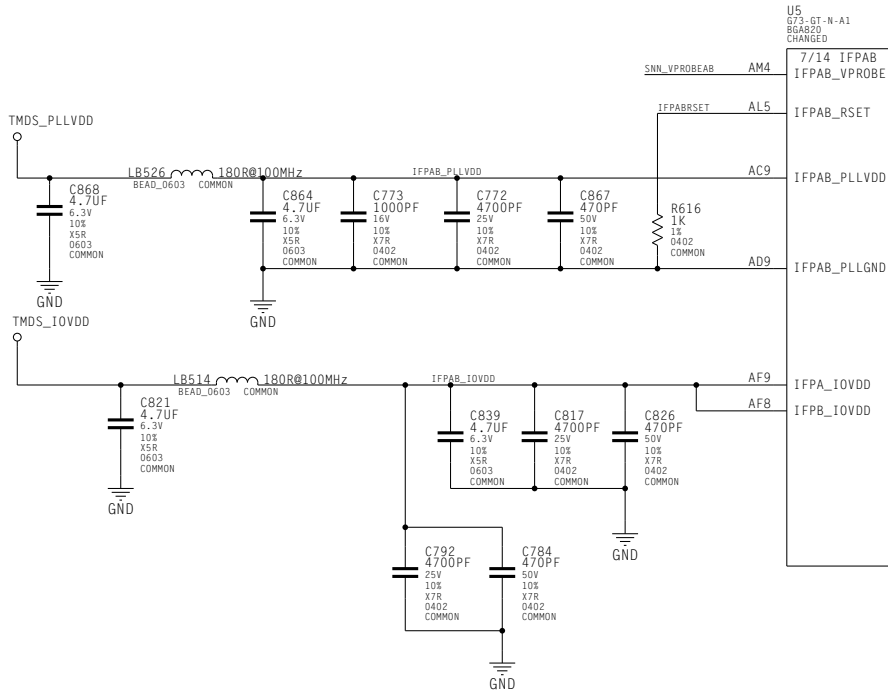
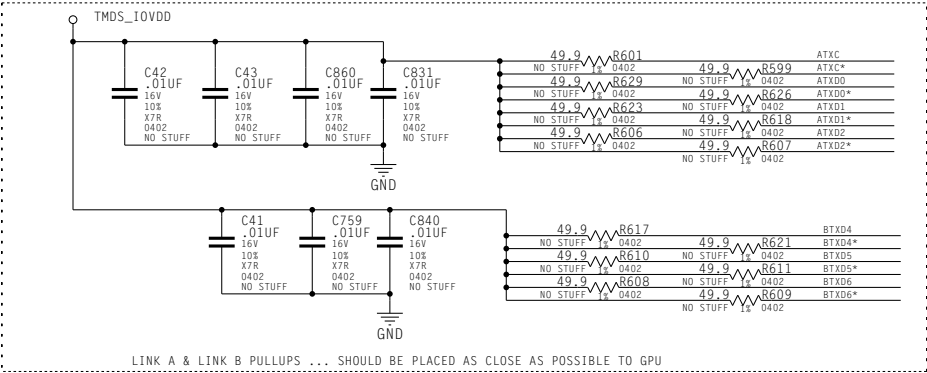
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5

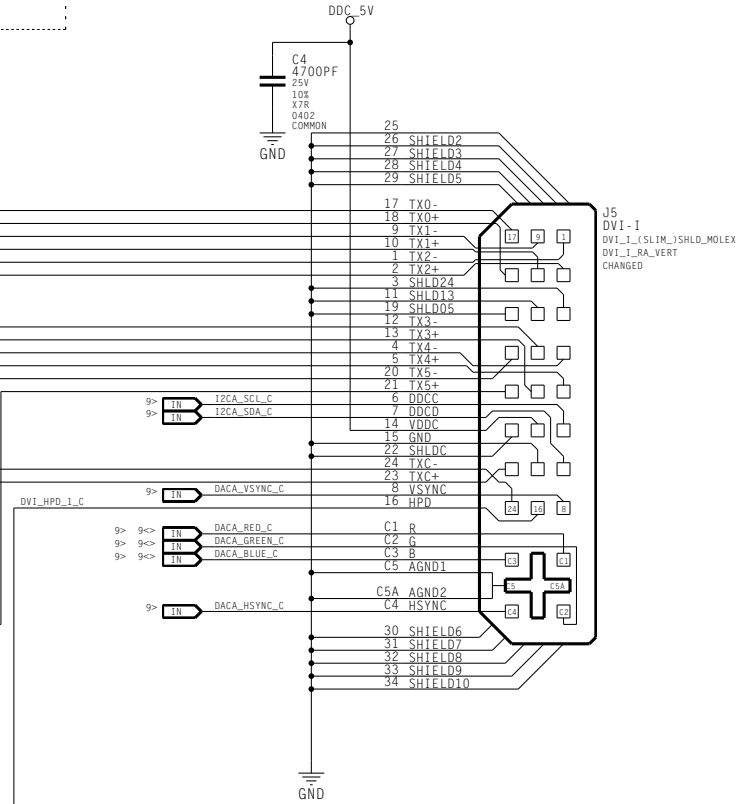
INTERNAL TMDS .. LINK A & B

G73 - UNSTUFF PU's

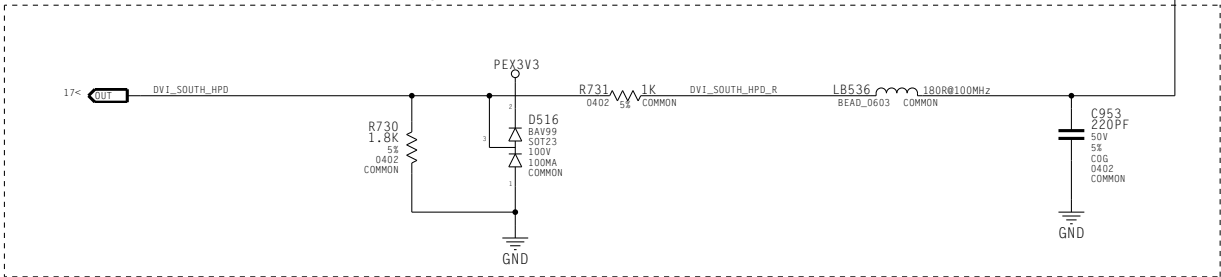
NOTE: GPU HAS ON DIE PULL UPS ON TMDS LINES .. EXTERNAL PULLUPS ADDED (FOR CYA) IN CASE ON-DIE CURRENT DRAW IS EXCESSIVE



NETNAME	DIFF PAIR NAME	NV_CRITICAL_NET	NV_IMPEDANCE
IFPA_TXC	ATXC*	1	1000IEFF
IFPA_TXC	ATXC	1	1000IEFF
IFPA_TXD0	ATXD0*	1	1000IEFF
IFPA_TXD0	ATXD0	1	1000IEFF
IFPA_TXD1	ATXD1*	1	1000IEFF
IFPA_TXD1	ATXD1	1	1000IEFF
IFPA_TXD2	ATXD2*	1	1000IEFF
IFPA_TXD2	ATXD2	1	1000IEFF
IFPA_TXD3	SNN_ATXD3*		
IFPA_TXD3	SNN_ATXD3		
IFPB_TXC	SNN_BTXC*		
IFPB_TXC	SNN_BTXC		
IFPB_TXD4	BTXD4*	1	1000IEFF
IFPB_TXD4	BTXD4	1	1000IEFF
IFPB_TXD5	BTXD5*	1	1000IEFF
IFPB_TXD5	BTXD5	1	1000IEFF
IFPB_TXD6	BTXD6*	1	1000IEFF
IFPB_TXD6	BTXD6	1	1000IEFF
IFPB_TXD7	SNN_BTXD7*		
IFPB_TXD7	SNN_BTXD7		



Hotplug Detection



NETNAME	MIN_LINE_WIDTH	VOLTAGE
IFPAB_PLLVDD	12MIL	2.5V
TMDS_I0VDD	12MIL	3.3V
IFPAB_I0VDD	12MIL	3.3V
IFPABRSET	12MIL	
TMDS_I0BACK	12MIL	

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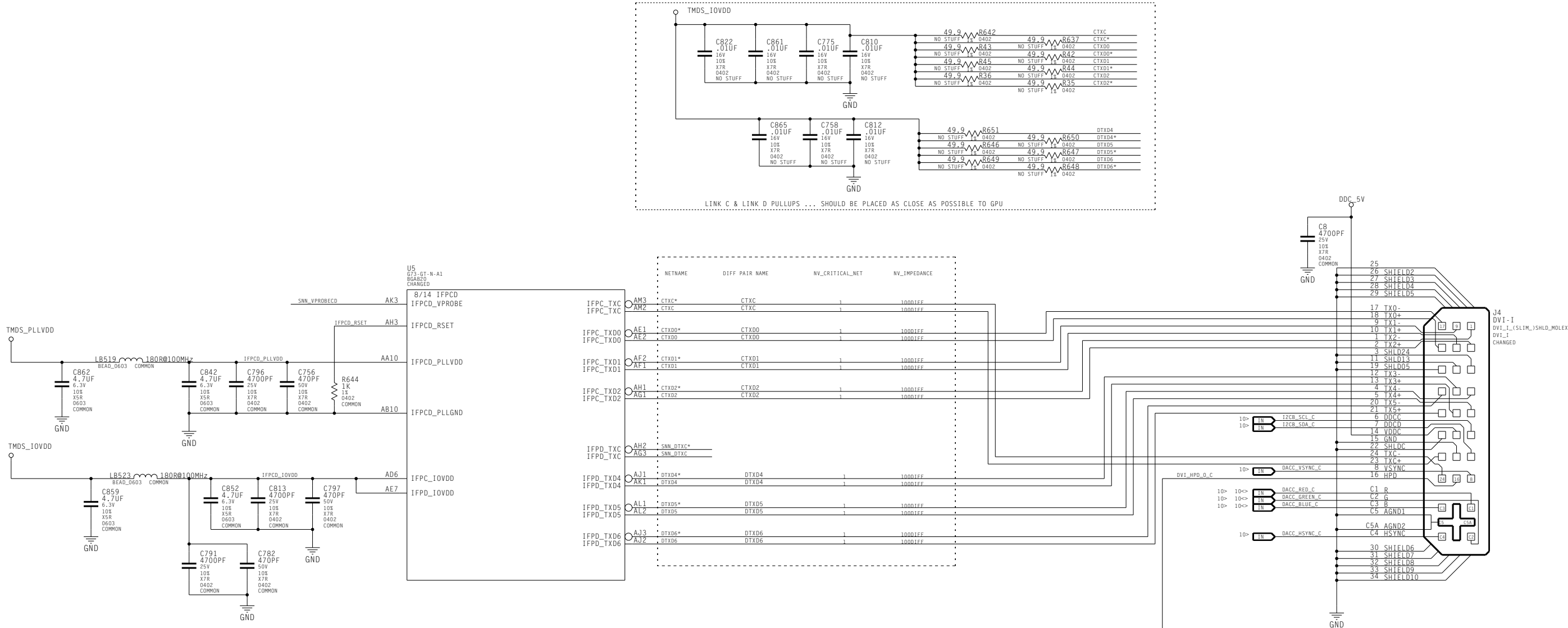


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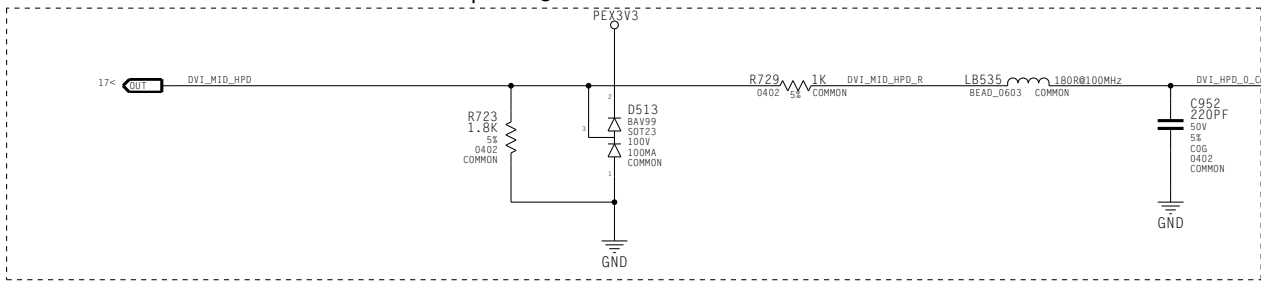
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INTERNAL TMDS .. LINK C & D



Hotplug Detection



NETNAME	MIN_LINE_WIDTH	VOLTAGE
IFPCD_RSET	12MIL	
IFPCD_PLLVDD	12MIL	2.5V
IFPCD_I0VDD	12MIL	3.3V

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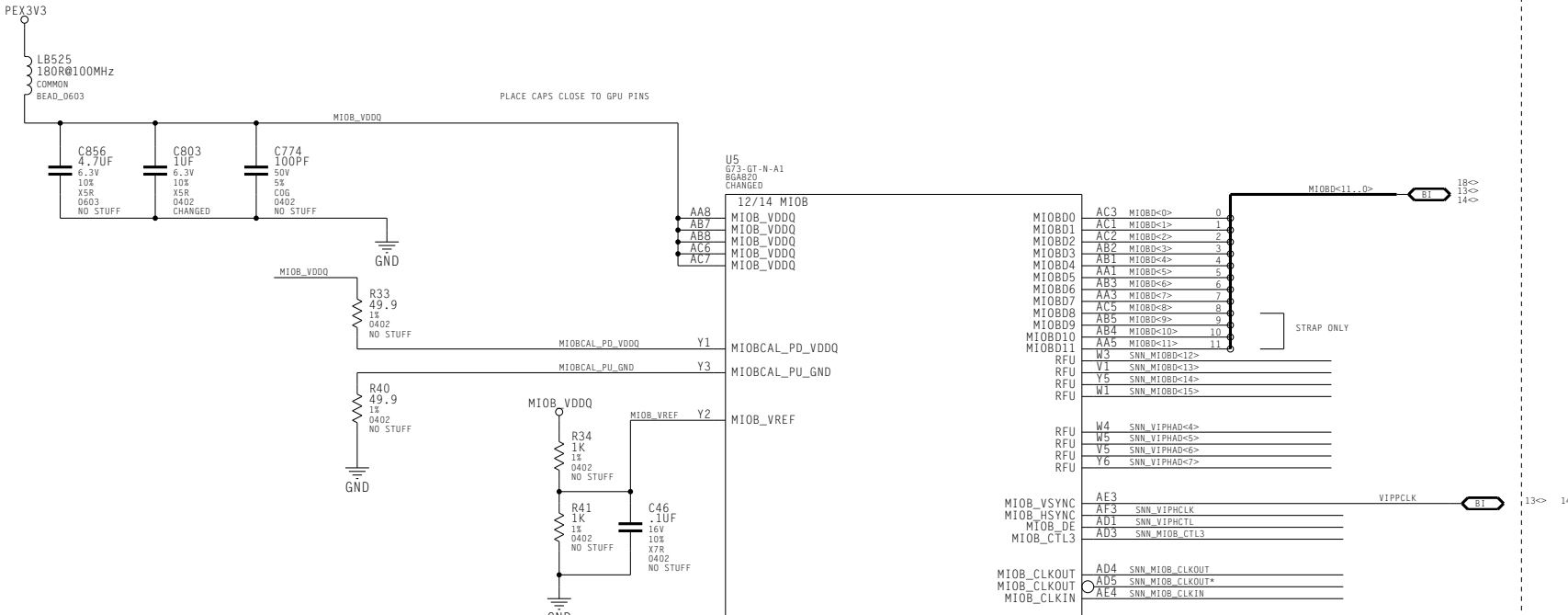
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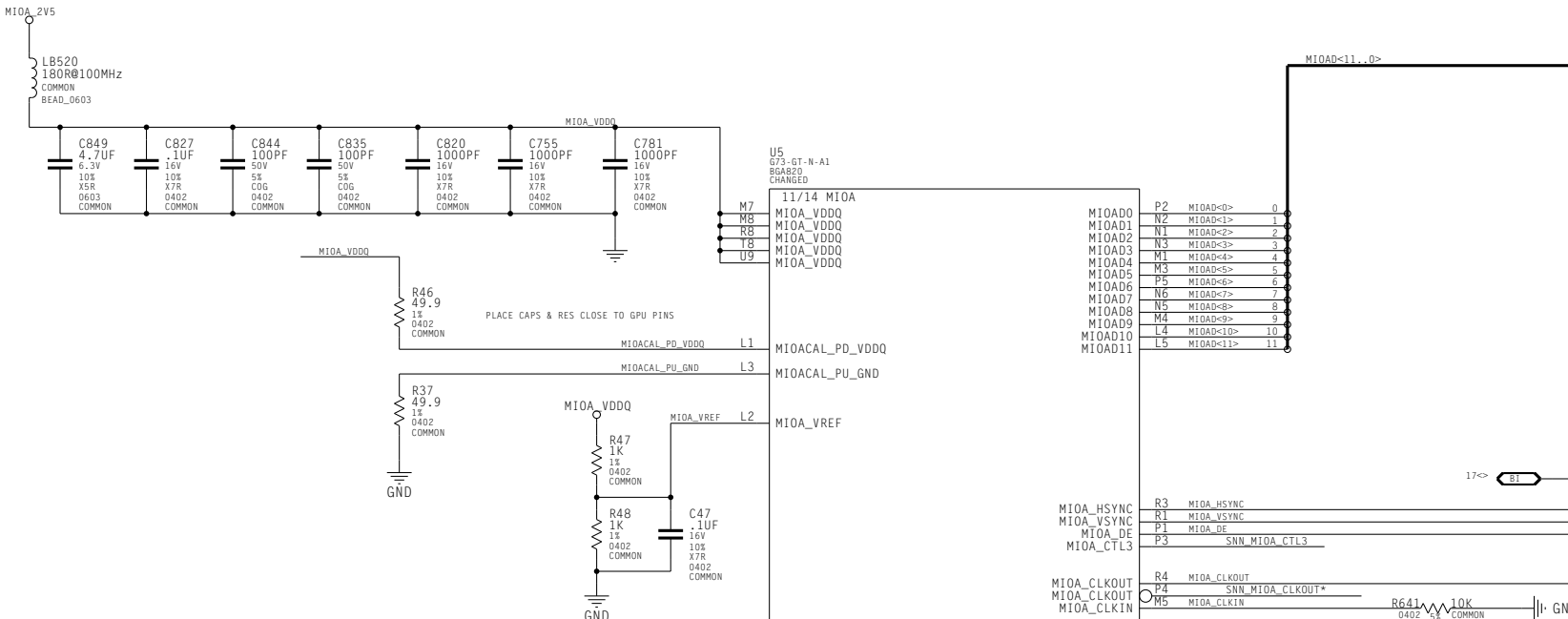
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G3 VIP/MIOB

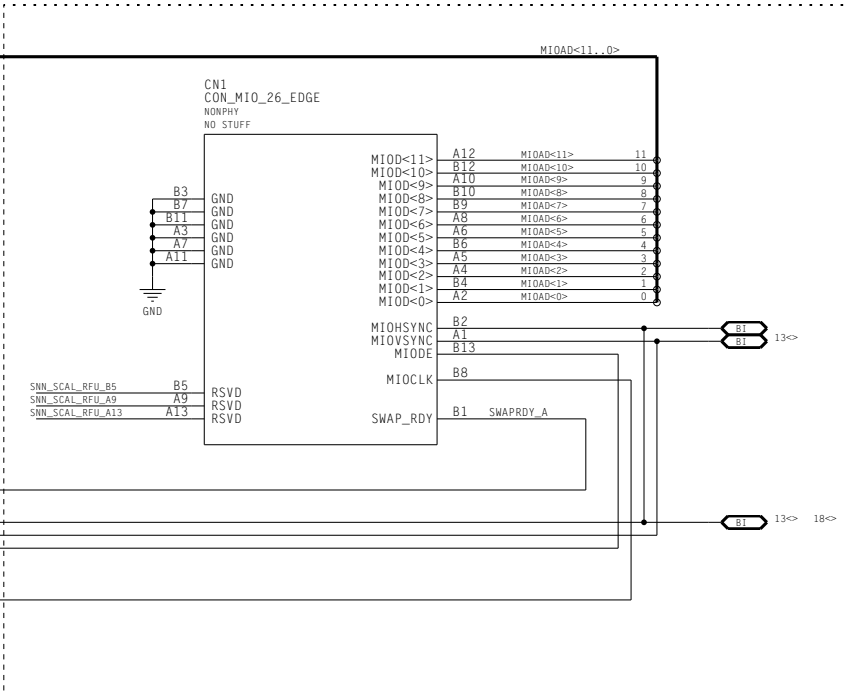


	NETNAME	NV_CRITICAL_NET	NV_IMPEDANCE
18<> 14<>	B1 MI0B<7..0>	2	500HM
14<> 13<>	B1 VIPPCLK	2	500HM
18<> 13<>	B1 MIDAD<11..0>	2	500HM
	B1 M10A_CLKOUT	2	500HM
13<> 13<>	B1 M10A_HSYNC	2	500HM
	B1 M10A_VSYNC	2	500HM
	B1 M10A_DE	2	500HM
	NETNAME	MIN_LINE_WIDTH	
MI0B_VDDQ	MI0B_VDDQ	12MIL	
B1	MI0B_VREF	12MIL	
MI0A_VDDQ	MI0A_VDDQ	12MIL	
	MI0A_VREF	12MIL	

## G3 MIOA



## SLI Connector



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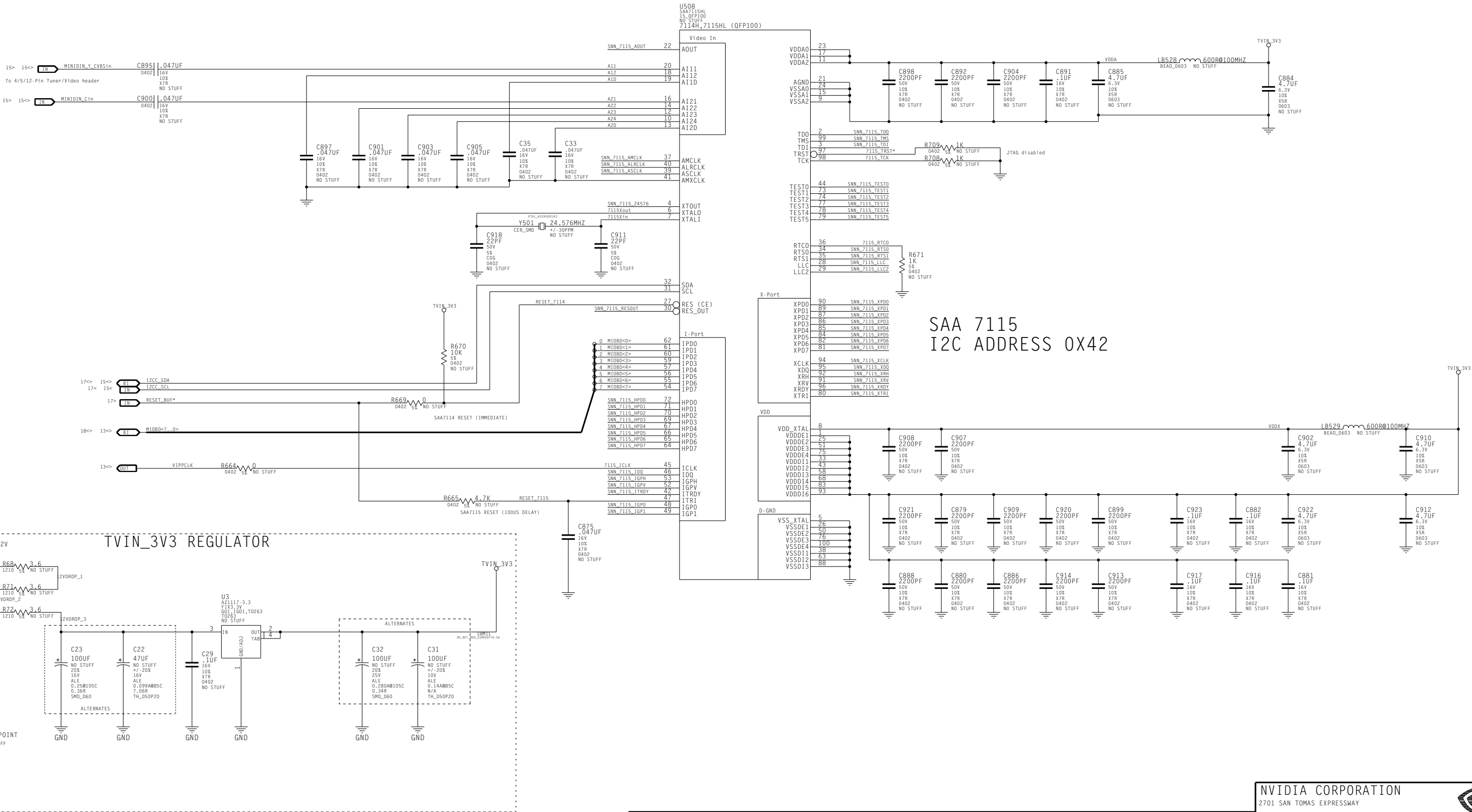
ID	p456	PAGE	13 OF 21
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NAME	r.jacoby	DATE	13-JAN-2006
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PHILIPS VIDEO CAPTURE

NETNAME	MIN_LINE_WIDTH
VDDA	12MIL
VDDX	12MIL
VDDI	12MIL



SAA 7115  
I2C ADDRESS 0X42

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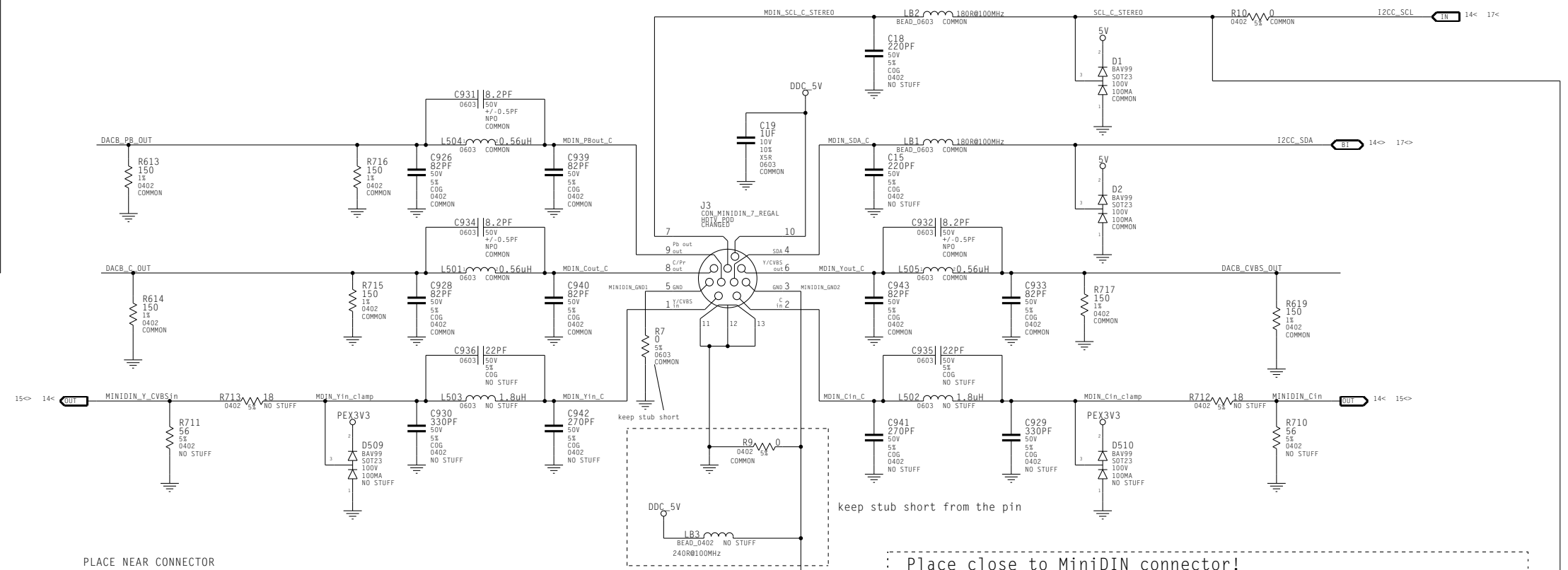
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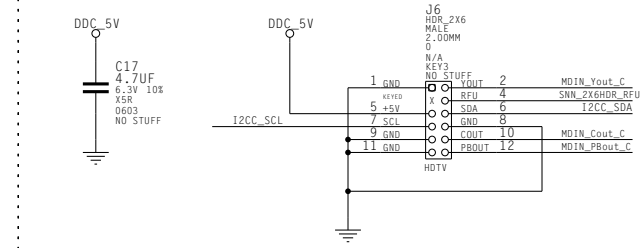
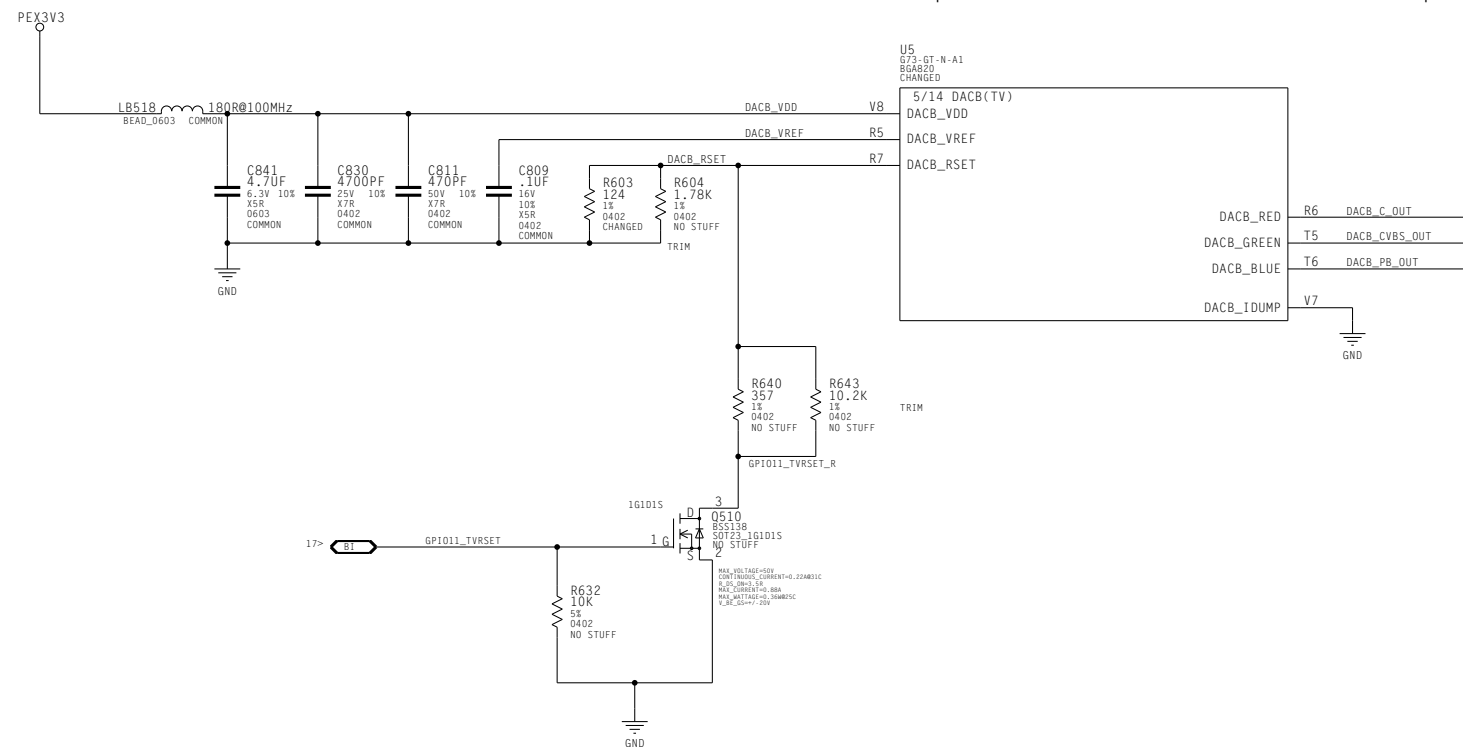
## DACB .. MiniDIN VIDEO IN/OUT CONNECTOR /STEREO GLASSES

		NET_NAME	MIN_LINE_WIDTH	NV_IMPEDANCE	NV_CRITICAL_NET
		OUT1 DACB_C_OUT		75OHM	1
		OUT2 DACB_CVBS_OUT		75OHM	1
		OUT3 DACB_PS_OUT		75OHM	1
		MDIN_P8out_C		75OHM	1
		MDIN_Cout_C		75OHM	1
		MDIN_Yout_C		75OHM	1
15>	14<	BT1 MINIDIN_Y_CVBSin		75OHM	1
		BT2 MDIN_Yin_C		75OHM	1
		BT3 MDIN_Yin_clamp		75OHM	1
		MDIN_Cin_C		75OHM	1
15>	14<	BT1 MINIDIN_Cin		75OHM	1
		BT2 MDIN_Cin_C		75OHM	1
		BT3 MDIN_Cin_clamp		75OHM	1
		IN1 DACB_VDD	12MIL		
		IN2 DACB_VREF	12MIL		
		IN3 DACB_RSET	12MIL		

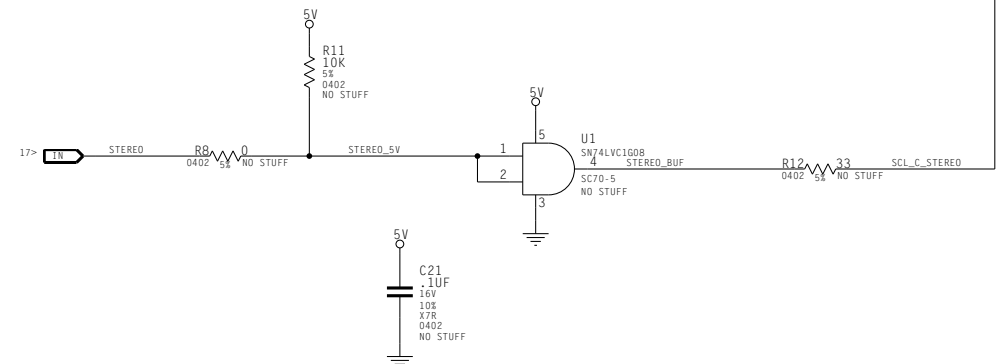


PLACE NEAR CONNECTOR

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



STEREO GLASSES BUFFER  
Place close to MiniDIN connector!



FOR DEBUG PURPOSES ONLY .. DEFAULT IS NO STUFF

ASSEMBLY	G73 550/600MHZ 256MB DDR3 16MX32 VGA+DVI-I+HDTVOUT
PAGE DETAIL	DACB FILTERS, MINIDIN CONNECTOR NORTH, COMPONENT VIDEO OUTPUT CONNECTOR

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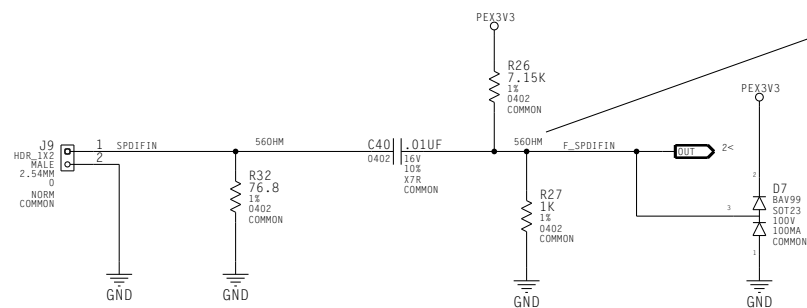


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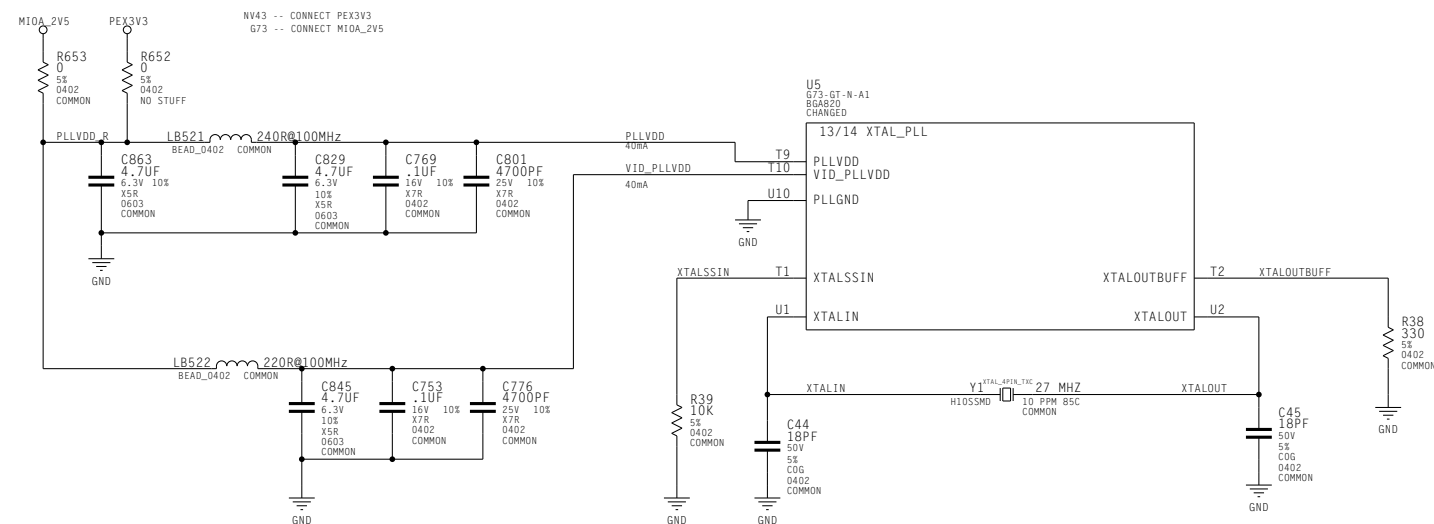
## XTAL/PLLVDD/SPDIF IN

## SPDIF IN



REQUIRES 0.4V HERE .. MAKE SURE TO ADJUST THESE

## XTAL/PLLVD



NETNAME		MIN_LINE_WIDTH
IN	XTALIN	10MIL
IN	XTALOUT	10MIL
IN	PLLVD0_R	12MIL
IN	PLLVD0	12MIL
IN	VID_PLLVD0	12MIL
IN	XTALSSIN	10MIL
IN	XTALOUTBUFF	10MIL

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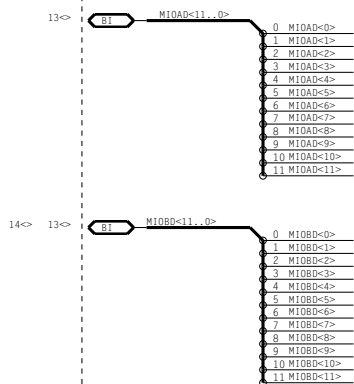


# BIOS, Straps, Misc

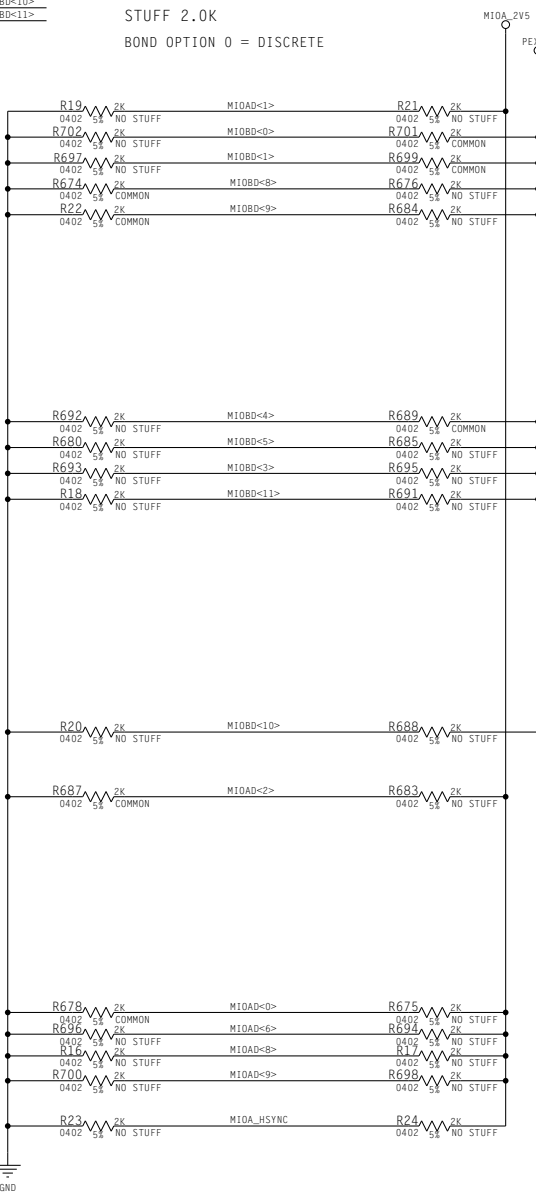
## STRAPS

Assembly: BIOS

## MECHANICALS & THERMALS



STUFF 2.0K  
BOND OPTION 0 = DISCRETE



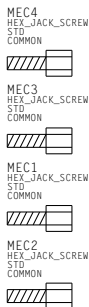
REG: NV\_PEXTDEV\_BOOT\_0

Bit	Signal	VALUE_ID	VALUES
00:	PCI_AD_SWAP	PCI_AD_SWAP	0 REVERSED
01:	SUB_VENDOR	SUB_VENDOR	1 NORMAL
02:	RAM_CFG_0	RAM_CFG[3:0]	1 256K (from BIOS)
03:	RAM_CFG_1		0000 RFU
04:	RAM_CFG_2		0001 RFU
05:	RAM_CFG_3		0010 128BIT - HYNIX 16MX32
06:	CRYSTAL_0	CRYSTAL[1:0]	0011 128BIT - SAMSUNG 16MX32
22:	CRYSTAL_1		00 13.500 Mhz
23:	CRYSTAL_1		01 14.31818 Mhz
24:	CRYSTAL_1		10 27.000 Mhz
07:	TV_MODE_0	TV_MODE[1:0]	11 UNKNOWN
08:	TV_MODE_1		00 SECAM
09:	AGP_ENABLE	AGP_EN[0]	01 NTSC
10:	AGP_SBA	AGP_SBA[0]	10 PAL
11:	AGP_FASTWR	AGP_FASTWR[0]	11 CRT
12:	PCI_DEVID_0	PCI_DEVID[3:0]	0 AGPBx enabled
13:	PCI_DEVID_1		1 AGPBx disabled
20:	PCI_DEVID_2		0 SBA enabled
21:	PCI_DEVID_3		1 SBA disabled
14:	BUS_TYPE	BUS_TYPE[0]	0 enabled
15:	FP_1FACE	FP_1FACE[0]	1 disabled
23:	FB_0	FB[1:0]	0000 0x140 ... 1111 0x014F
24:	FB_1		0000 (default 0x140)
25:	BR	BR[0]	0101 (0x145)
26:	BR_128M	BR bits are ignored if BRIDGEn is disabled	1101 (0x140)
27:	BR_AGP		
28:	BR_10		
29:	ROM_TYPE_0	ROM_TYPE[1:0]	00 Parallel
30:	ROM_TYPE_1		01 Serial_AT25F
16:	USER_0	STRAP_USER[3:0]	10 Serial_SST45VF
17:	USER_1		11 RFU
18:	USER_2		
19:	USER_3		

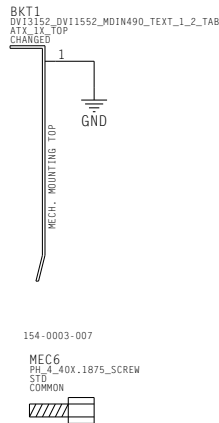
REG: NV\_STRAP\_1

Bit	Signal	VALUE_ID	VALUES
11:	PEX_PL_LIN_TERM100		0 (default -- internal term on)
12:	3GIO_PADCfg_LUT_ADR[0]		
13:	3GIO_PADCfg_LUT_ADR[1]		
14:	3GIO_PADCfg_LUT_ADR[2]		
16:	SLOT_CLK_CONFIG		

SCREW HEX JACK 4-40 x 12.1MM STANDARD



NVPN ? -- > DB15-DVI-MDIN



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## 1

1

## 2



## 4

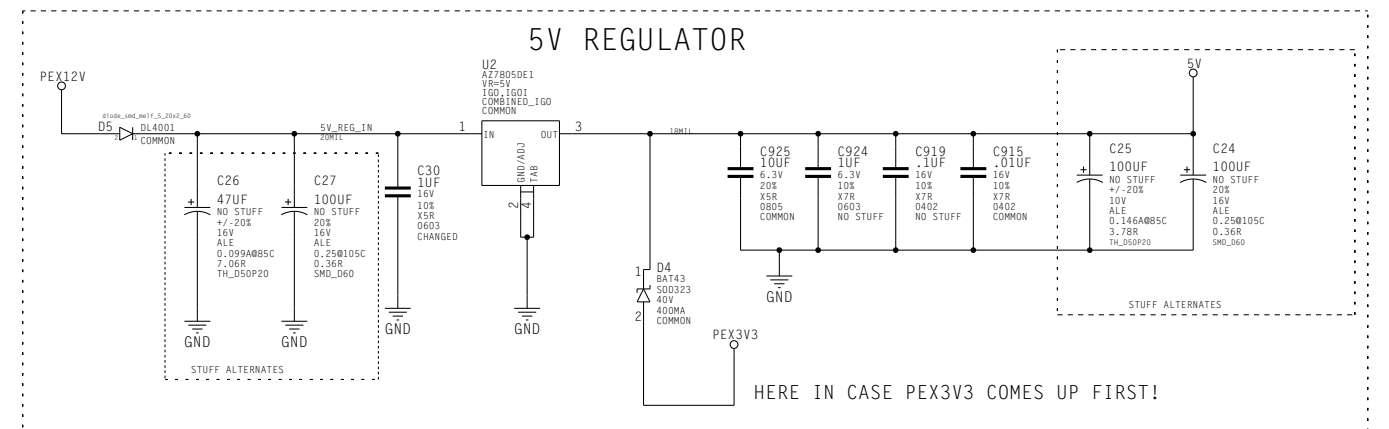
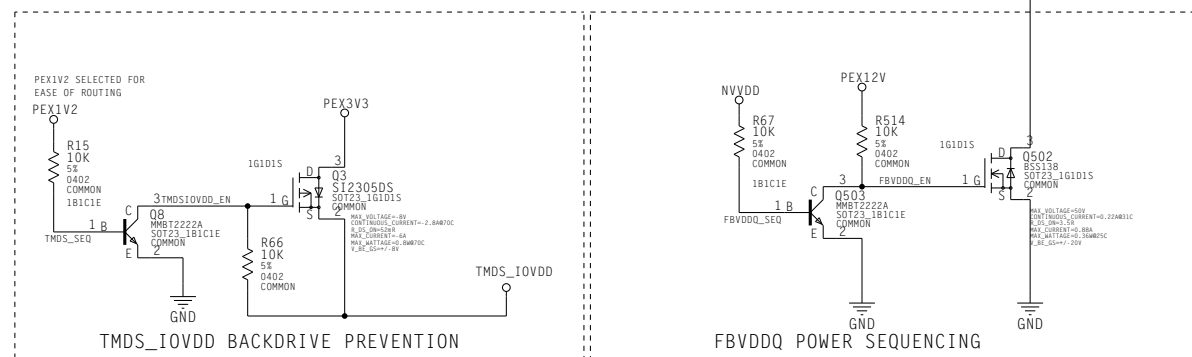
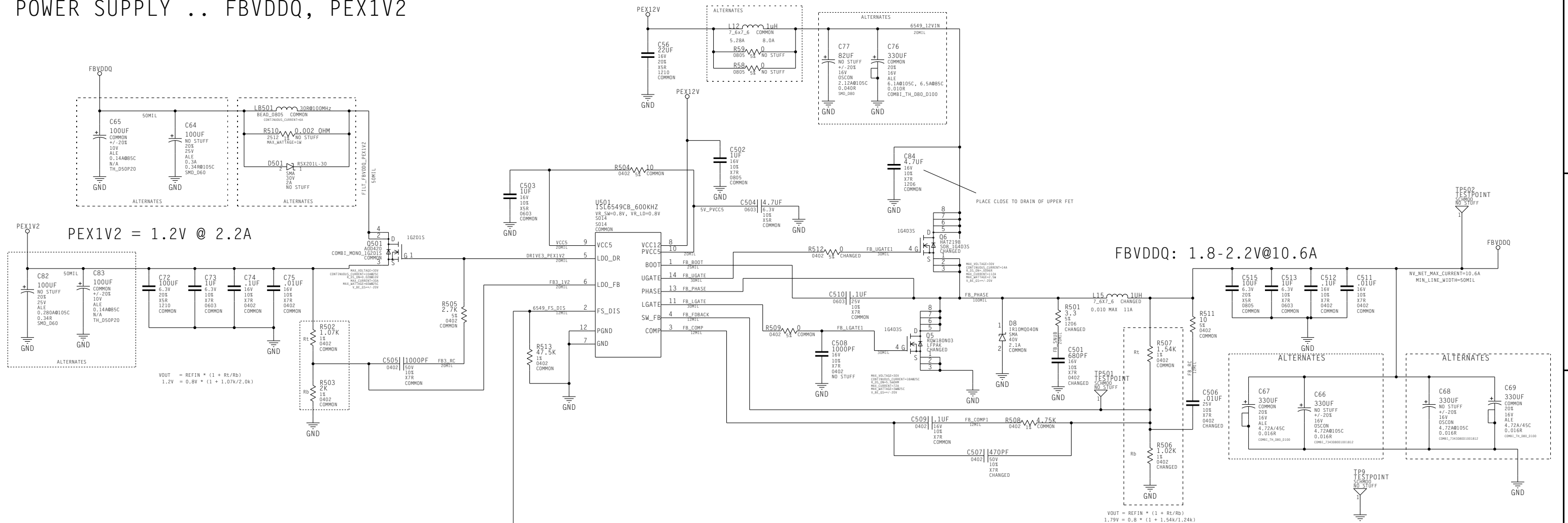


4

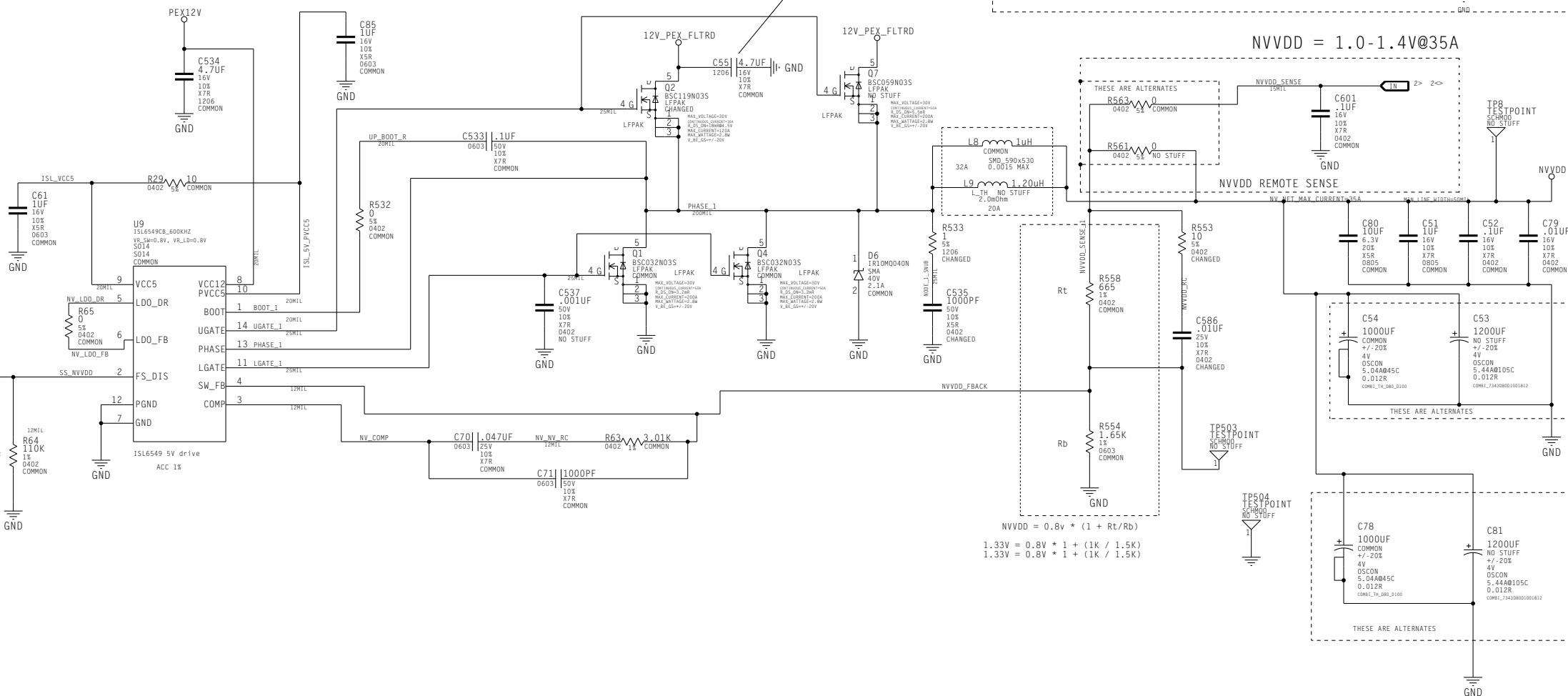
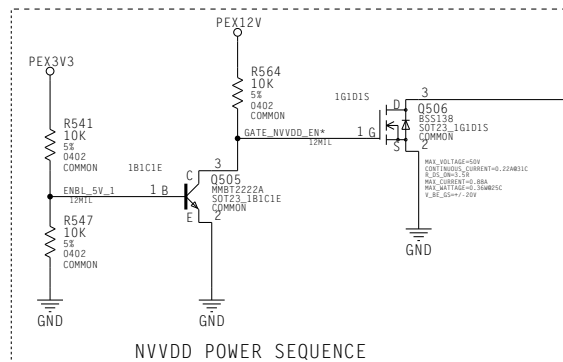
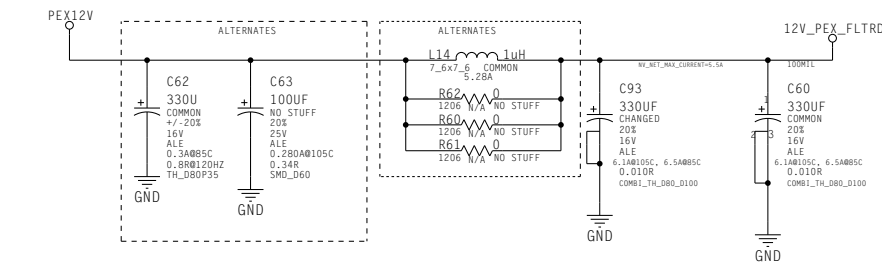
## 5



## POWER SUPPLY .. FBVDDQ, PEX1V2



## NVVDD POWER SUPPLY



## NVVDD Voltage Selection

Place close to NVVDD feedback loop!

NV_VSEL1	NV_VSEL0	NV_VDD
0	0	1.1V
0	1	1.2V (DT default)
1	0	1.3V
1	1	1.4V

PLACE CLOSE TO DRAIN OF UPPER FETS

NVVDD = 1.0-1.4V@35A

NVVDD REMOTE SENSE

$$NVVDD = 0.8V * (1 + R_t/R_b)$$
$$1.33V = 0.8V * 1 + (1K / 1.5K)$$
$$1.33V = 0.8V * 1 + (1K / 1.5K)$$

