

C116-B, NV18B/NV31/NV34, 8MX16DDR, 64MB, VIDEO OUT, VGA

Page Overview

- 1 C116B PAGE OVERVIEW
- 2 NV18B AGP Section and AGP connector
- 3 NV18B FRAME BUFFER Interface
- 4 MEMORY 64MB, 8Mx16DDR Bits 0..31
- 5 MEMORY 64MB, 8Mx16DDR Bits 32..63
- 6 NV18B STRAPPING, I/O Interface & BIOS, FAN CONNECTOR
- 7 NV18B DACA, DACB output, SYNC amplifier & PLL Section
- 8 PRIMARY DISPLAY Filter and Connector
- 9 NV18 TMDS Power, VIDEO OUT CONNECTOR
- 10 POWER SUPPLY & A3V3 & FBVDDQ & NVVDD & FBVDD
- 11 MECHANICS

HISTORY:

0B

- A. Change R534 from 2.43K_1% to 2.55K_1% (R11-2551T13-Y01), R533 change from 1.05K_1% to 1.18K_1% (R11-1181T13-Y01) to get FBVDDQ=2.528V.
- B. Add R591 (2.2 ohm_0603_5%) and C409 (2200p_0603) to reduce VRM noise on L1 pin1.
200. SHORT ALL MEMORY DAMPING RESISTOR AND CHANGE COLOR TO RED.
210. ADD FBAA12 TO SUPPORT 16M*16 MEMORY

- 1 change all 0402 footprint to 0603.
2. Page 2

a.removeC62,C590,C574,C566,C615,C628,C642,C631,C626,C648,C647,C645,C624,R609,R625

b.add 2 MOSFET for U200 daul-lay
3. Page 3

remove C603,C609,C618,C611,C612,C610,C604,C592,R768,R770,R772,R774
4. Page 4,5

a.removeC1112,C238,C241,C1115,C250,C1113,C1114,C228,C230,C1120,C1119,C247,C245,C244,C1121,C232,C1122

b.removeC1100,C247,C277,C1101,C1102,C286,C264,C1104,C1106,C280,C281,C299,C1107,C1108,C269,C270

c.remove memory data all damping(15ohm).

d.Move bypass capacitors(C1161,C1162,C1163,C1164)of memory clock to close GPU(PAGE3).
5. Page 6

remove U13(BIOS(ALTERNATIVE)),TEMP Sensor
6. Page 7

change Y3 package to DIP
7. Page 8

remove R695,R694,R693,R7,R1,C788,C797,C819,C806,C787,C796,C805,C818,C786,C795,C817,C804,L510,L509,L508
8. Page 10

a.remove S_OUT1,AV_OUT1,C789,C809,C790,C810,C791,C812,L519,L520,L521

b.add 9pin-mini-din
9. Page 11

a.remove ISL6529

b.add mosfet and OP(LM358) for NVVDD,FBVDD,FBVDDQ

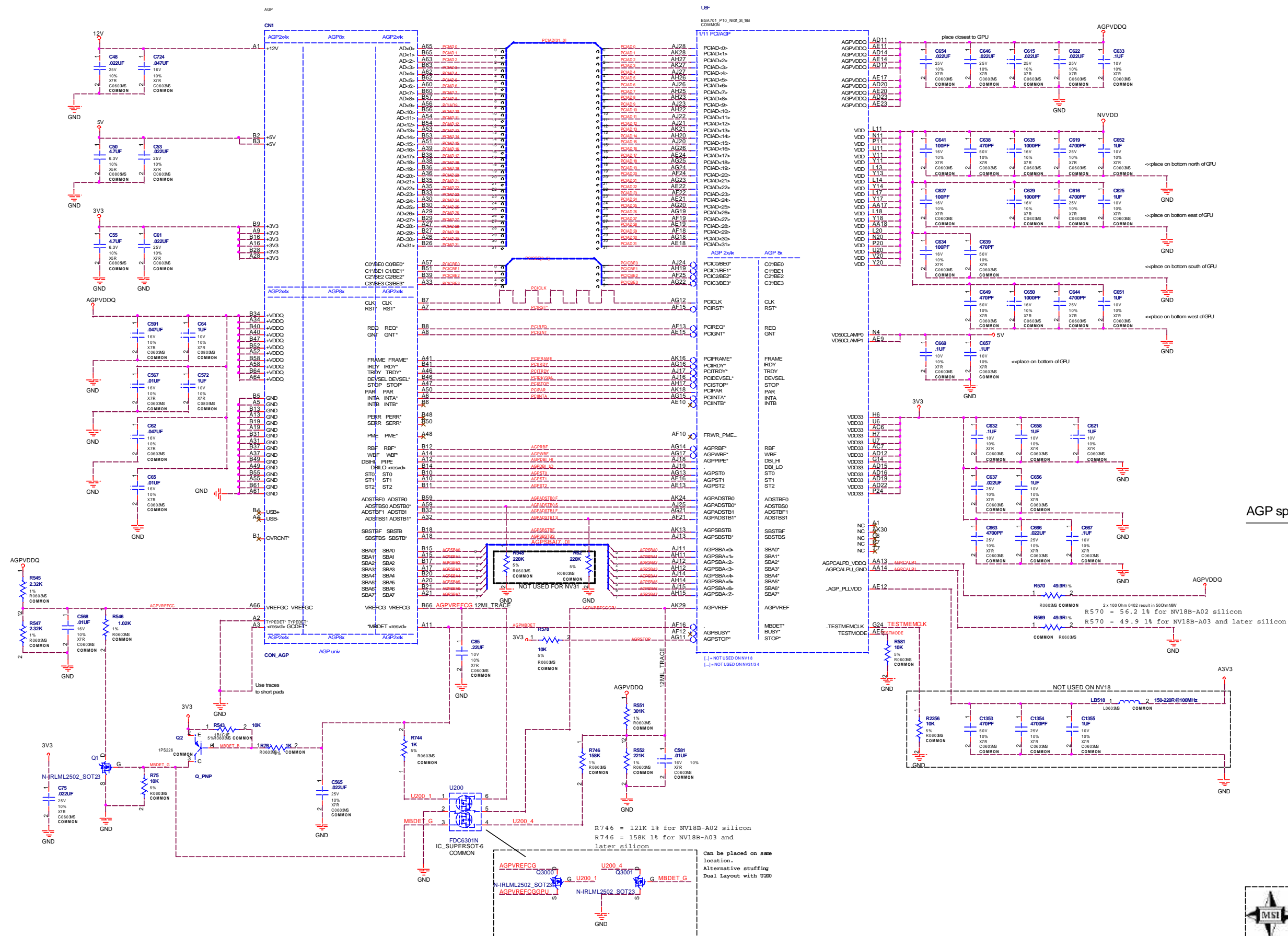
c.change C41,C39 to DIP package
- 0728

change data[48:63) sequence

ddr suport 16*16M
- 0728

SUPORT NV18B

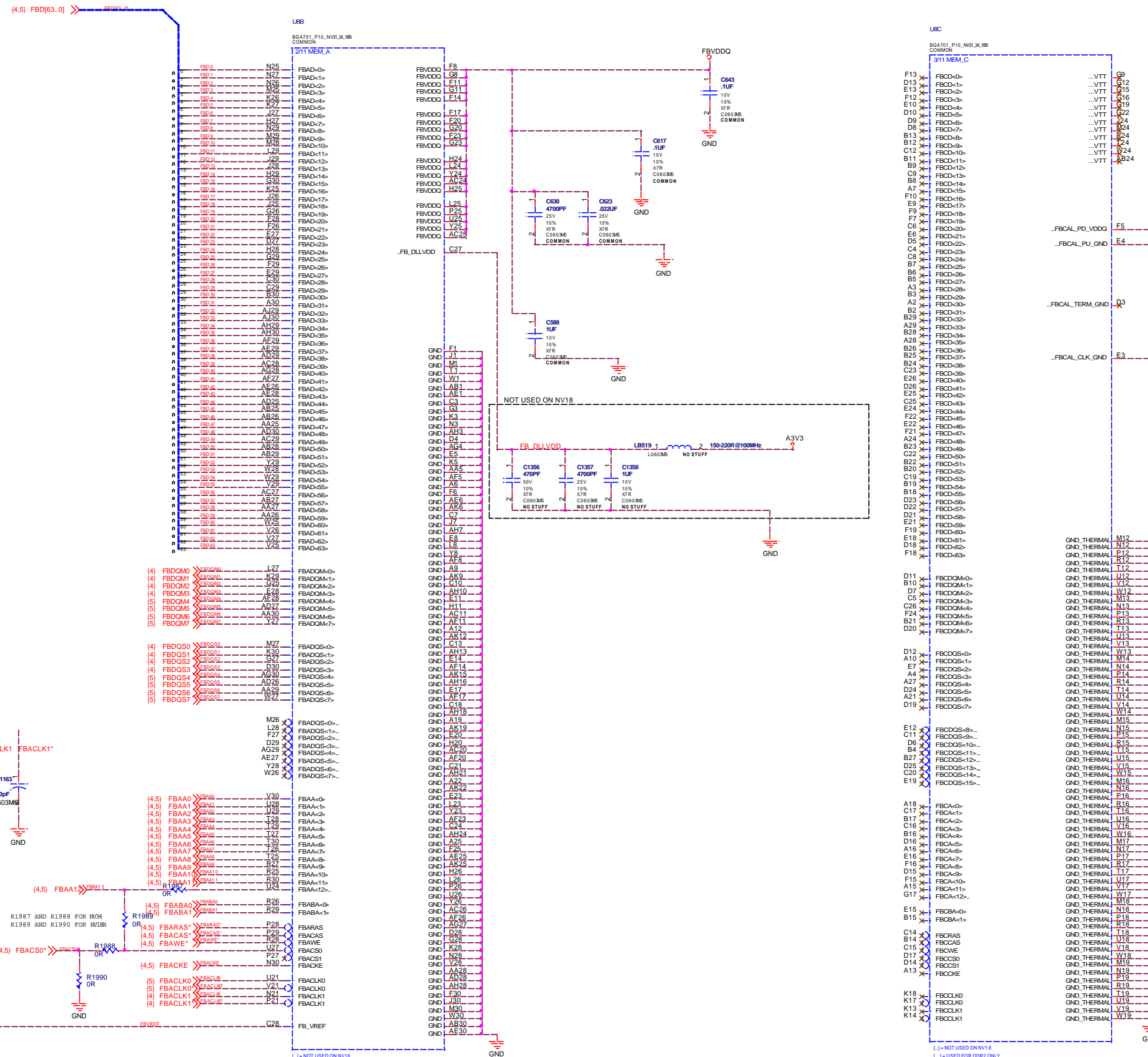
NV18 AGP SECTION AND AGP CONNECTOR



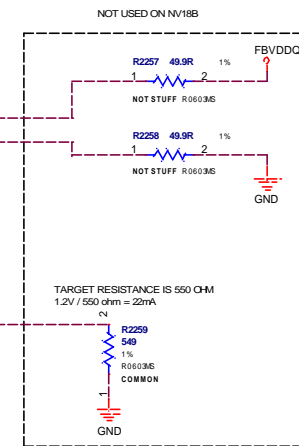
AGP spacing rules

PCWDEN01	10MM
PCWDEN02	10MM
PCWDEN03	10MM
PCWDEN04	10MM
PCWDEN05	10MM
PCWDEN06	10MM
PCWDEN07	10MM
PCWDEN08	10MM
PCWDEN09	10MM
PCWDEN10	10MM
PCWDEN11	10MM
PCWDEN12	10MM
PCWDEN13	10MM
PCWDEN14	10MM
PCWDEN15	10MM
PCWDEN16	10MM
PCWDEN17	10MM
PCWDEN18	10MM
PCWDEN19	10MM
PCWDEN20	10MM
PCWDEN21	10MM
PCWDEN22	10MM
PCWDEN23	10MM
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PCWDEN29	10MM
PCWDEN30	10MM
PCWDEN31	10MM
PCWDEN32	10MM
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PCWDEN35	10MM
PCWDEN36	10MM
PCWDEN37	10MM
PCWDEN38	10MM
PCWDEN39	10MM
PCWDEN40	10MM
PCWDEN41	10MM
PCWDEN42	10MM
PCWDEN43	10MM
PCWDEN44	10MM
PCWDEN45	10MM
PCWDEN46	10MM
PCWDEN47	10MM
PCWDEN48	10MM
PCWDEN49	10MM
PCWDEN50	10MM
PCWDEN51	10MM
PCWDEN52	10MM
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PCWDEN93	10MM
PCWDEN94	10MM
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PCWDEN97	10MM
PCWDEN98	10MM
PCWDEN99	10MM
PCWDEN00	10MM

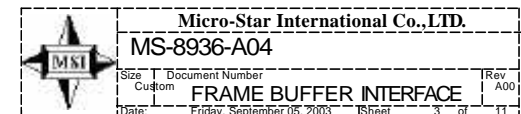
NV18 FRAMEBUFFER INTERFACE AND DECOUPLING




PIN DESCRIPTION	NV18B	NV31	NV34
FBICAL_TER_M_GND	NOT USED	TIE TO GND	NOT USED
FBICAL_CLK_GND	NOT USED	50 OHM 1% TO GND	NOT USED
FBICAL_PLI_GND	NOT USED	50 OHM 1% TO GND	50 OHM 1% TO GND
FBICAL_PD_VDDQ	NOT USED	50 OHM 1% TO FBIVDDQ	50 OHM 1% TO FBIVDDQ

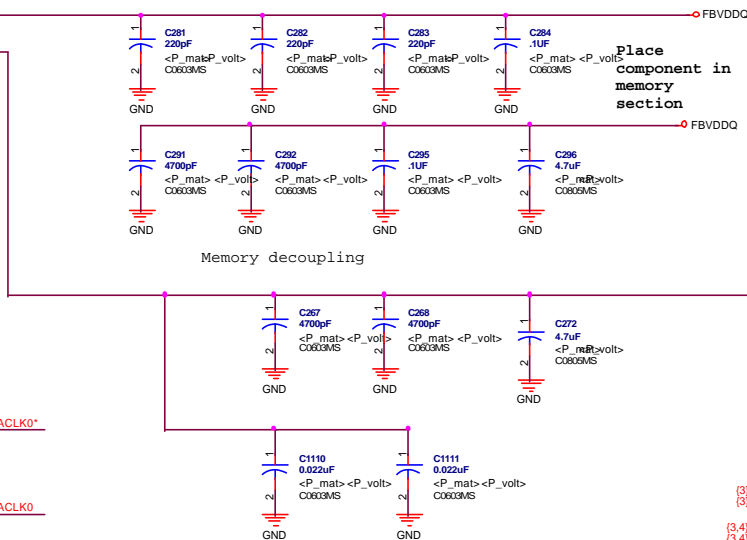
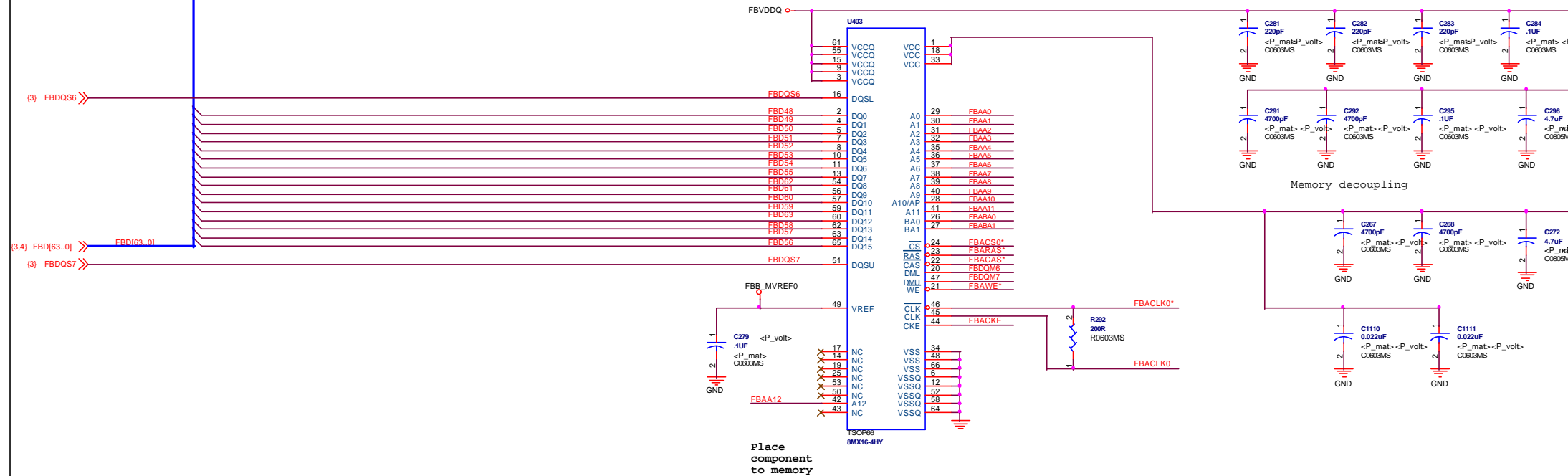


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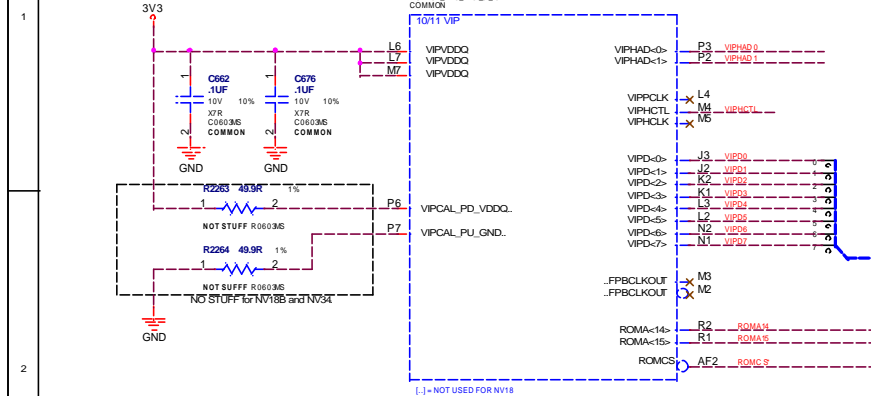


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	MS-8936-A04		
	Size Custom	Document Number 8x16 DDR 0.31 128 bit	Rev A00
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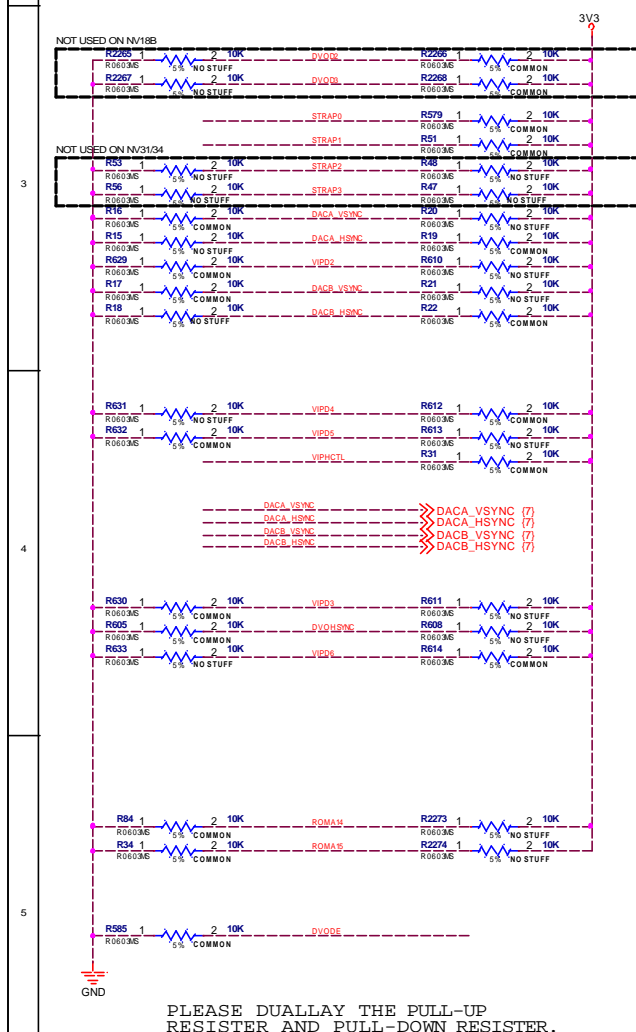
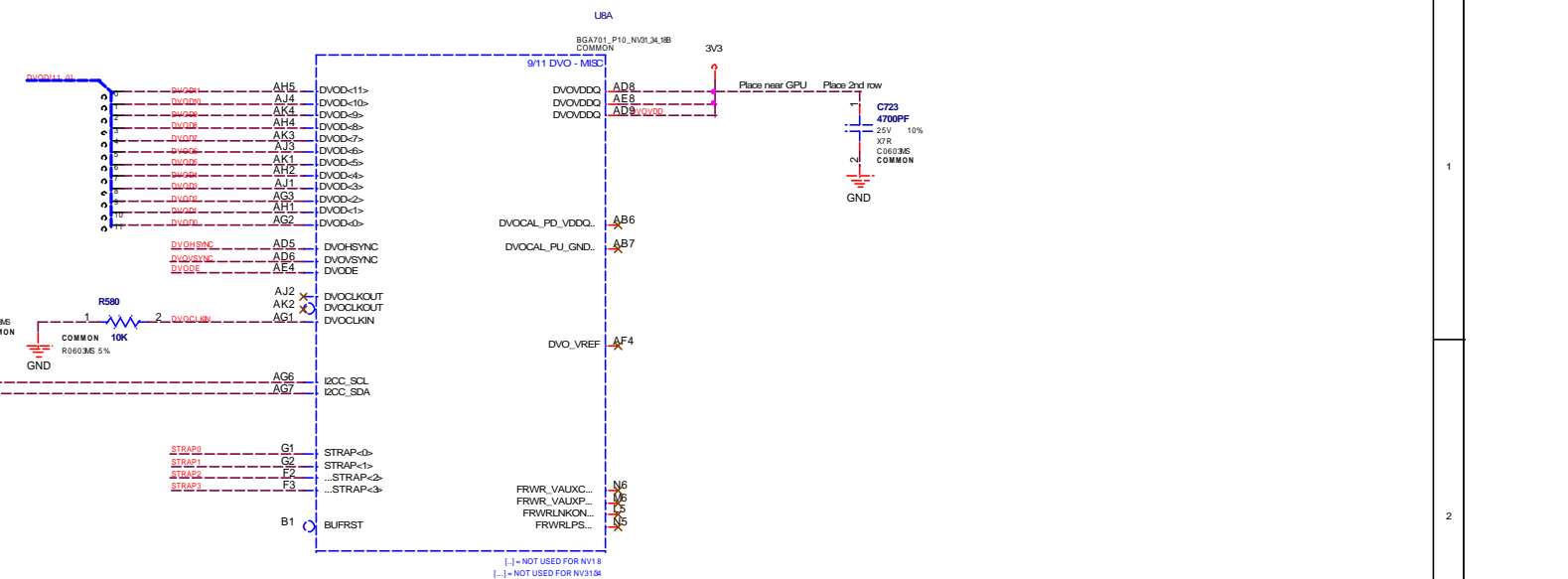


NET		Diffpair	NET_SPACING_RULE
(3)	FBACKL*	FBACKL*	18MIL G2G 25MIL
(3)	FBACKL*	FBACKL*	18MIL G2G 25MIL
(3,4)	FBACKL*	FBACKL*	18MIL G2G 25MIL
(3,4)	FBACKL*	FBACKL*	18MIL G2G 25MIL
(3,4)	FBD[63..0]	FBD[63..0]	10MIL
(3,4)	FBD[67..0]	FBD[67..0]	10MIL
(3,4)	FBDOS[7..0]	FBDOS[7..0]	20MIL
(3,4)	FBA[12..0]	FBA[12..0]	10MIL
(3,4)	FBARAS*	FBARAS*	10MIL
(3,4)	FBCAS*	FBCAS*	10MIL
(3,4)	FBAWE*	FBAWE*	10MIL
(3,4)	FBCAS0*	FBCAS0*	10MIL
(3,4)	FBA[11..0]	FBA[11..0]	10MIL
(3,4)	FBACKE	FBACKE	10MIL

NV18 STRAPPING, BIOS, FAN CONNECTOR



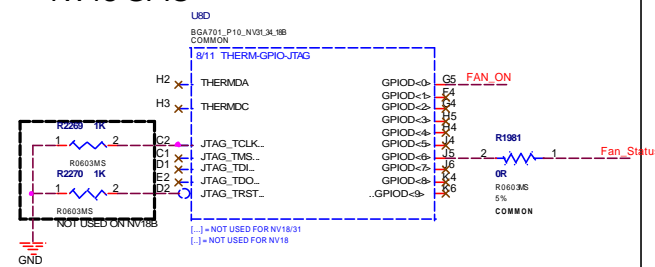
PIN DESCRIPTION	NV18B	NV31	NV34
DVOCAL_PD_VDDQ	NOT USED	50 OHM 1% TO GND	NOT USED
DVOCAL_PU_GND	NOT USED	55 OHM 1% TO DVOCDDQ	NOT USED
VIPCAL_PD_VDDQ	NOT USED	50 OHM 1% TO GND	NOT USED
VIPCAL_PU_GND	NOT USED	50 OHM 1% TO VIPVDDQ	NOT USED



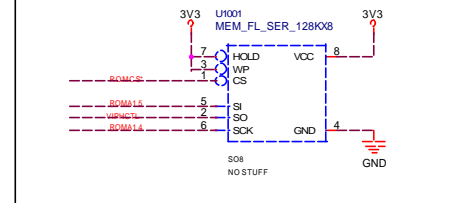
STRAPPING OPTIONS

Bit	Signal	VALUE_ID	VALUES
00:	PCI_AD_SWP	PCI_ID	0 REVERSED 1 NO SWAP
01:	SUB_VENDOR	SUB_VENDOR	0 NO BIOS 1 NO SWAP
02:	RAM_CRG0	RAMCFG[3:0]	1 read from BIOS 0000 2Mx32DDR 0001 4Mx 16DDR 0010 8Mx 16DDR 0011 16Mx 16DDR 0100 32Mx 16DDR 0101 4Mx 32DDR 0110 8Mx 32DDR 0111 2Mx32DDR 11 unknown
03:	RAM_CRG1		
04:	RAM_CRG2		
05:	RAM_CRG3		
06:	CRYSTAL0	CRYSTAL[1:0]	00 13.500 Mhz 01 14.31818Mhz 10 27.000 Mhz 11 unknown
07:	TV_MODE0	TVMODE[1:0]	00 SECAM 01 NTSC 10 PAL 11 GBT
08:	TV_MODE1		
09:	AGP4x8b		
10:	AGP_SBA	AGP_SBA	0 SBA enabled 1 SBA disabled
11:	AGP_FASTWR		
12:	PCI_DEVID0	PCI_DEVID[3]	0000 0x0180 ... 1111 0x0F
13:	PCI_DEVID1		
14:	BUS_TYPE	BUS_TYPE[1]	0 PCI 1 AGP
15:	FP_IFACE		
16:	USER_0		
17:	USER_1		
18:	USER_2		
19:	USER_3		
20:	PCI_DEVID2		
21:	PCI_DEVID3		
22:	CRYSTAL1		
23:	FB_0		
24:	FB_1		
25:	BR		
26:	BR_SBM		
27:	BR_AGP		
28:	BR_ID		
29:	ROM_TYPE0	ROM_TYPE[1:0]	00 Parallel 01 Serial_AGP 10 Serial_ST76F 11 8 RJ
30:	ROM_TYPE1		
31:	1394_EN0	1394[E]	0 disabled 1 enabled

NV18 GPIO

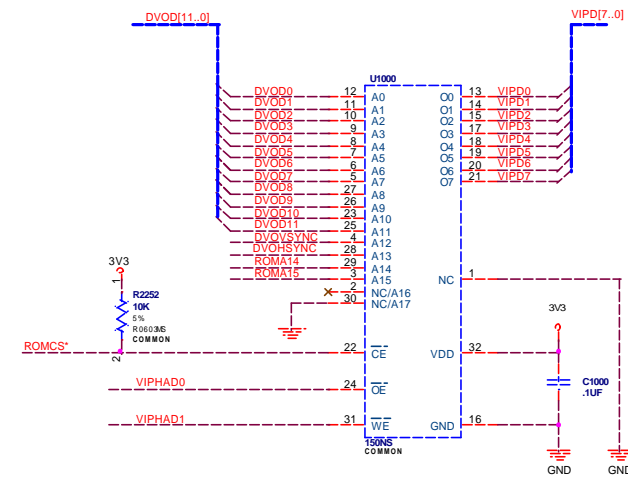
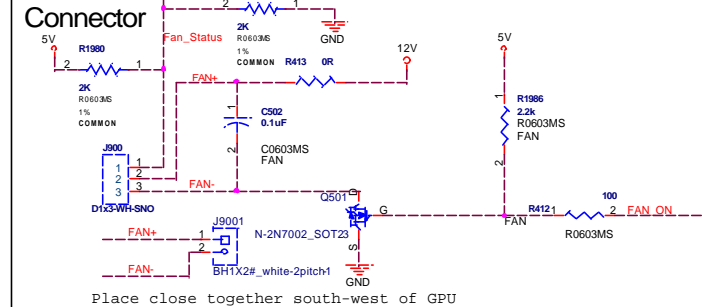


EEPROM

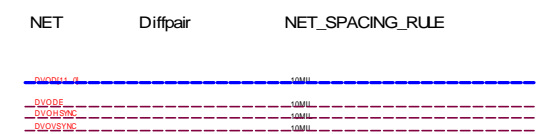


U1000 AND U1001 IS DUALAY.

FAN



VOLTAGE



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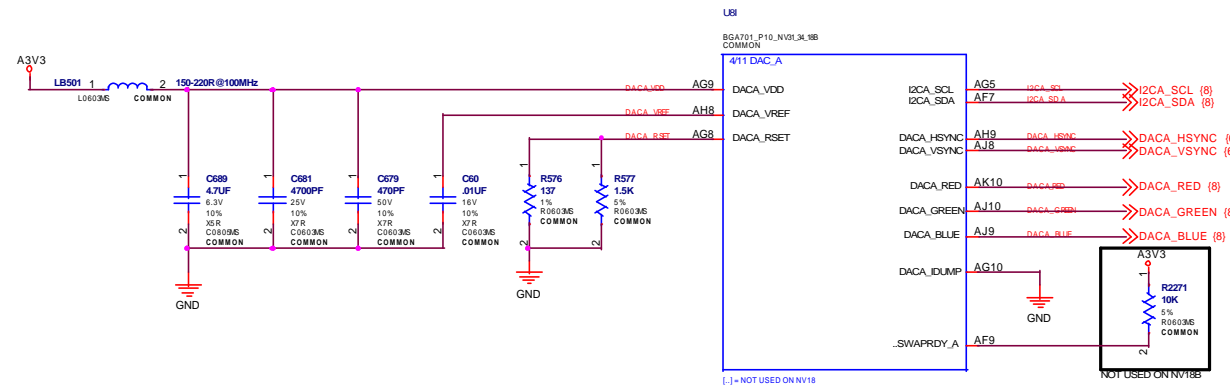
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NV18B STRAPPING BIOS

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NV18 DAC_A, DAC_B, PLL, SYNC AMPL

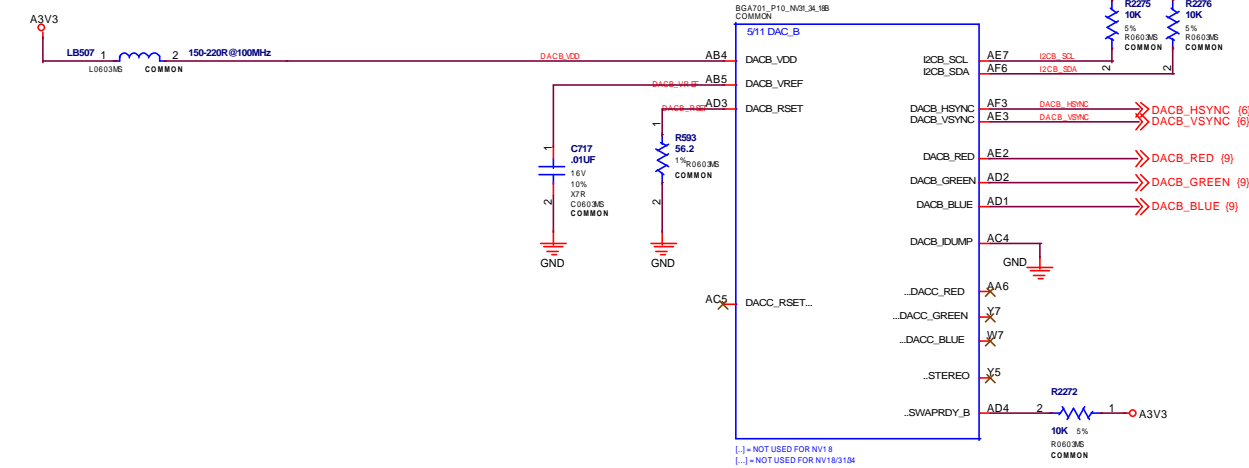
NV18 DAC_A



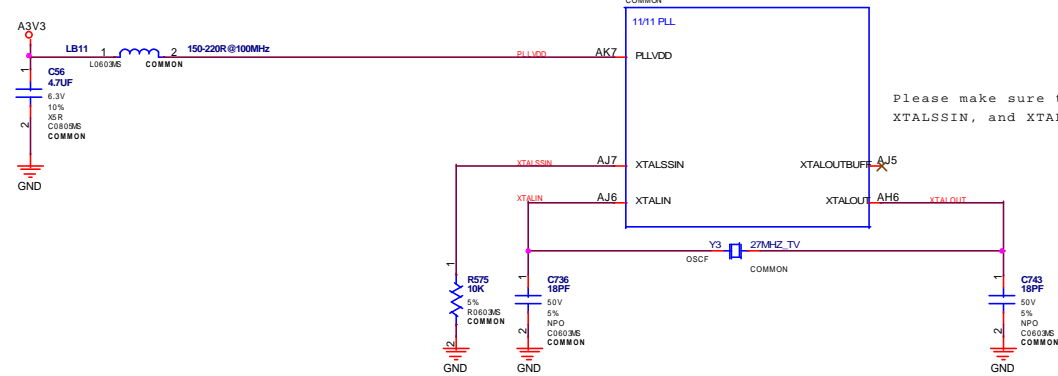
NET		NET_PHYSICAL_TYPE		VOLTAGE	
	DACA_VDD	12MIL_TRACE		3.3V	
	DACA_VREF	5MIL_TRACE			
	DACA_RST	5MIL_TRACE			
	DACB_VDD	12MIL_TRACE		3.3V	
	DACB_VREF	5MIL_TRACE			
	DACB_RST	5MIL_TRACE			
	PLUVDD	12MIL_TRACE		3.3V	

NET		IMPEDANCE		NET_SPACING_RULE	
(8) DACA_RED	DACA_RED	37.5 OHM		20MIL_G2G_30H	
(8) DACA_GREEN	DACA_GREEN	37.5 OHM		20MIL_G2G_30H	
(8) DACA_BLUE	DACA_BLUE	37.5 OHM		20MIL_G2G_30H	
(9) DACB_RED	DACB_RED	37.5 OHM		20MIL_G2G_30H	
(9) DACB_GREEN	DACB_GREEN	37.5 OHM		20MIL_G2G_30H	
(9) DACB_BLUE	DACB_BLUE	37.5 OHM		20MIL_G2G_30H	

NV18 DAC_B with RSet select

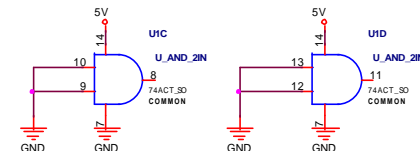
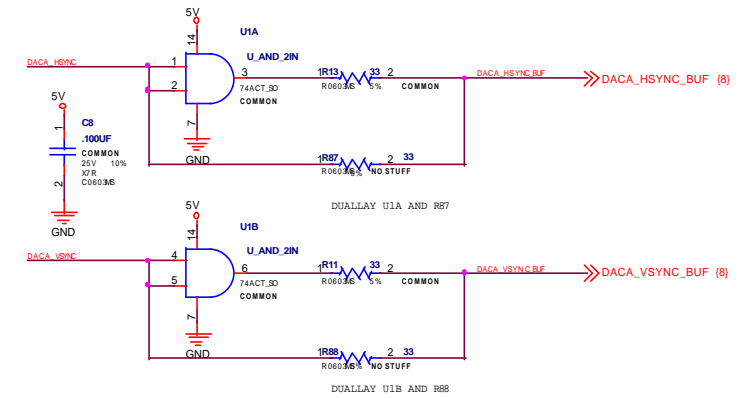


NV18 PLL



Please make sure to keep all components and nets related to pins XTALIN, XTALOUT, XTALSSIN, and XTALOUTBUFF away from everything else (place all on TOP).

SYNC Amplifier



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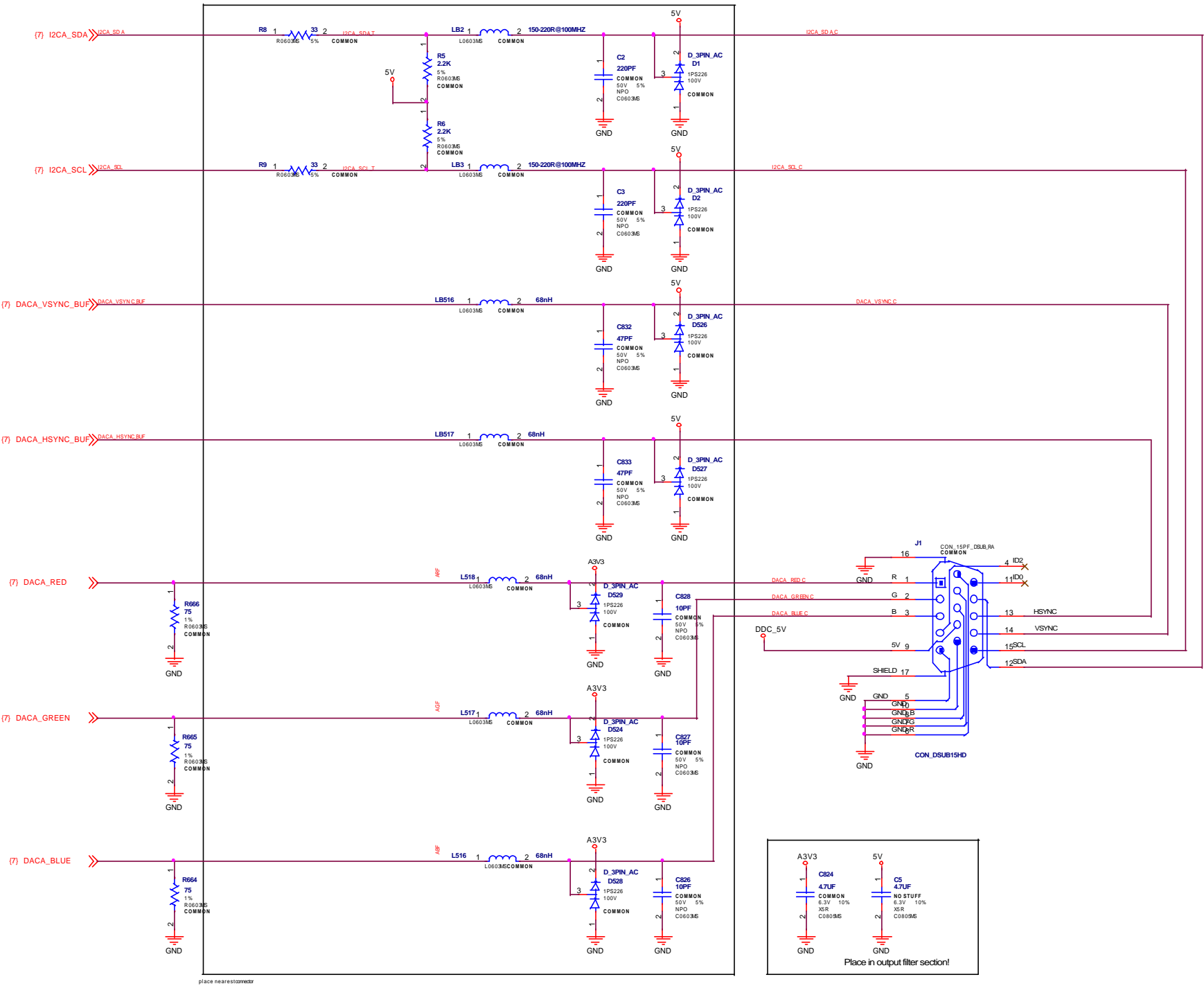
Size	Document Number	Rev
Custom	DAC A.DAC B.PUL SYNC AMPL	A

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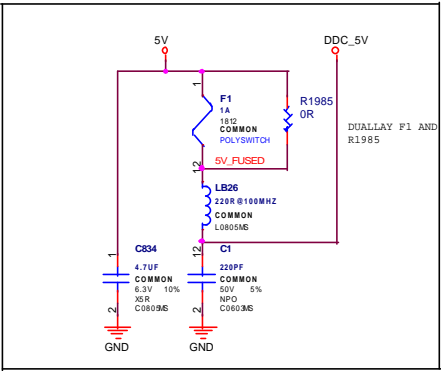
DACB output

NET	IMPEDANCE	NET_SPACING_RULE
ABF	37.5 OHM	20MIL_G30_30M
AGE	37.5 OHM	20MIL_G30_30M
ABF	37.5 OHM	20MIL_G30_30M
DACA_RED_C	10MIL_TRACE	20MIL_G30_30M
DACA_GREEN_C	10MIL_TRACE	20MIL_G30_30M
DACA_BLUE_C	10MIL_TRACE	20MIL_G30_30M

EMI-FILTER



DDC 5V



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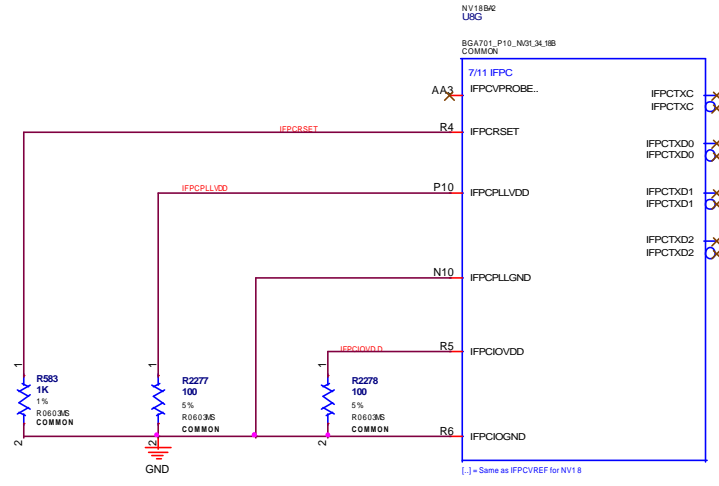
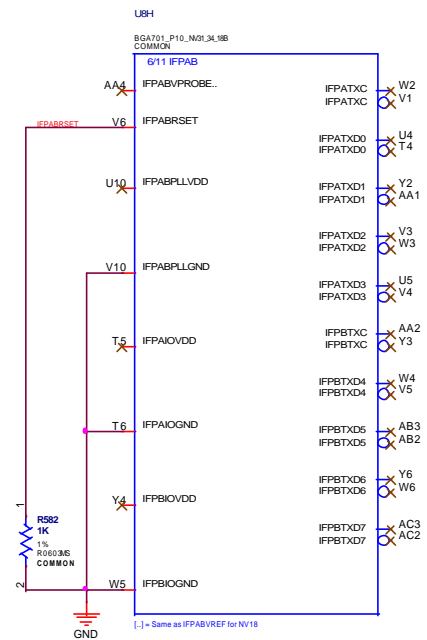
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DAC A CONNECT

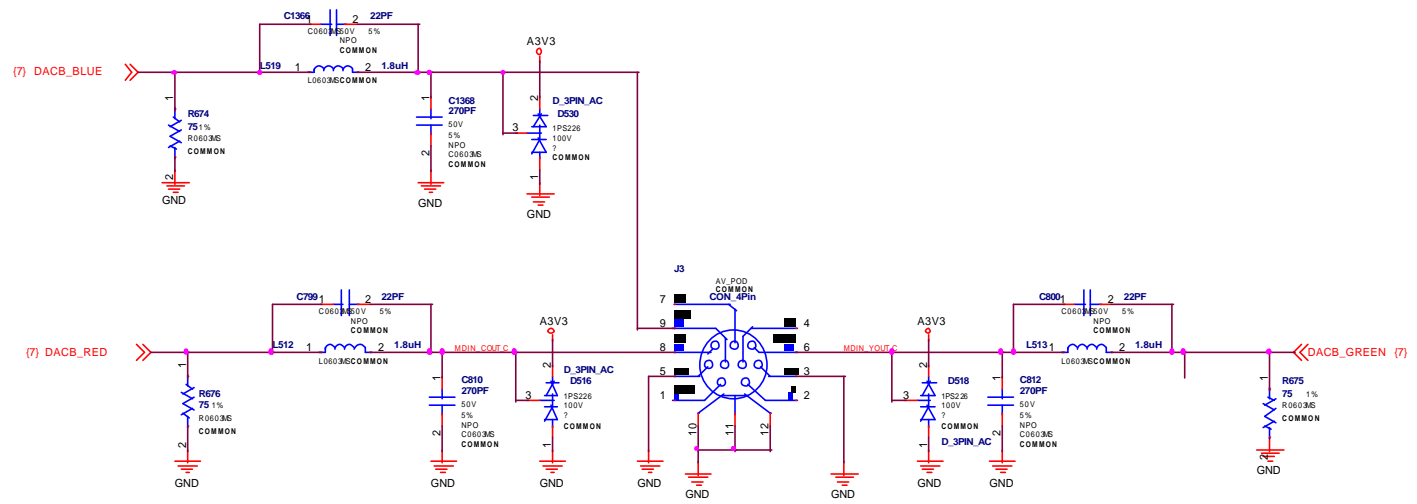
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Rev A00

INTERNAL TMDS POWER AND DECOUPLING



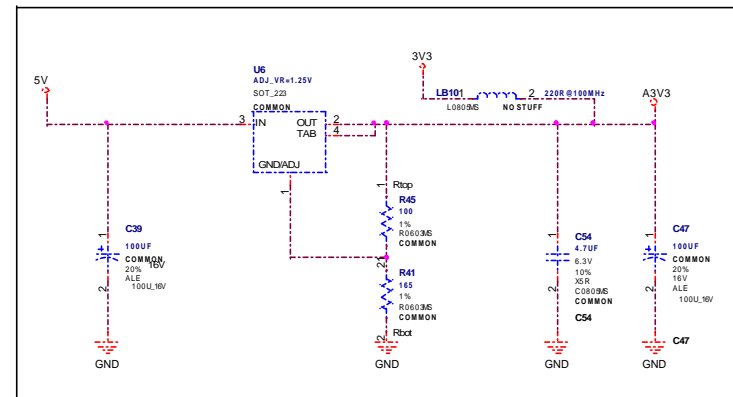
VIDEO OUT CONNECTOR



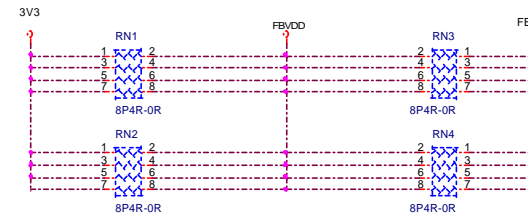
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POWER SUPPLY

ANALOG 3V3

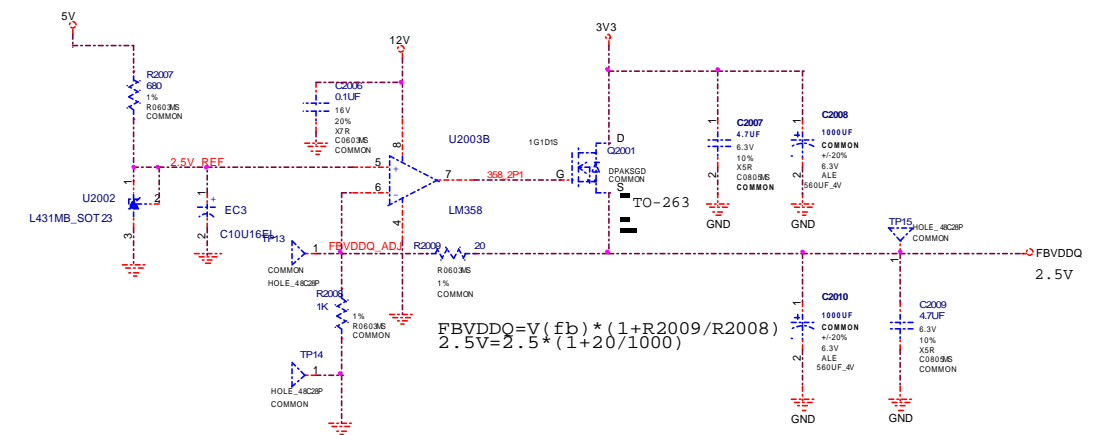
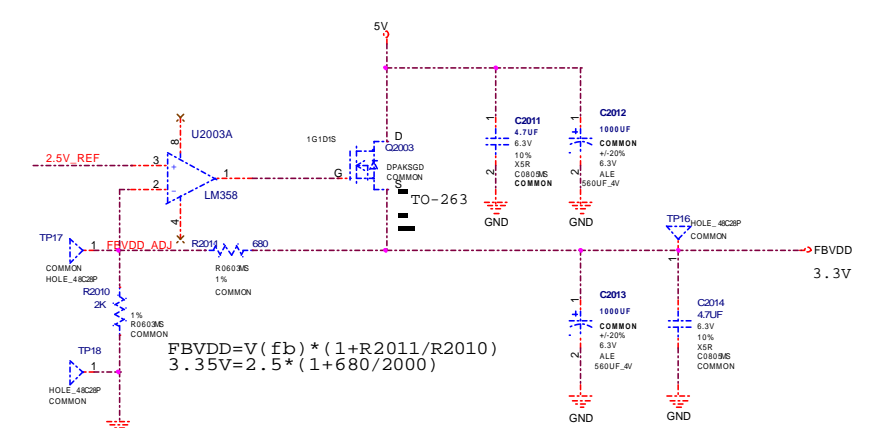


FBVDD 3.3V



For SAMSUNG DDR FBVDD=FBVDDQ=2.6
HYNIX DDR FBVDD=3V3=3.3V

FBVDDQ

**FBVDD**

NO STUFF

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

$$1.4 = 1.24 * (1 + 261/2000)$$

