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

Page Overview

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

8998-0A base on 8936 modify description.

1. Add page 9, Switch DACB and TV-out connector function.
2. Add page 10, DACB interface.
3. Add page 11, DVI interface.
4. Add TMDS power in page 12.
5. Page 8, D-Sub change to 2x7 pin hander.

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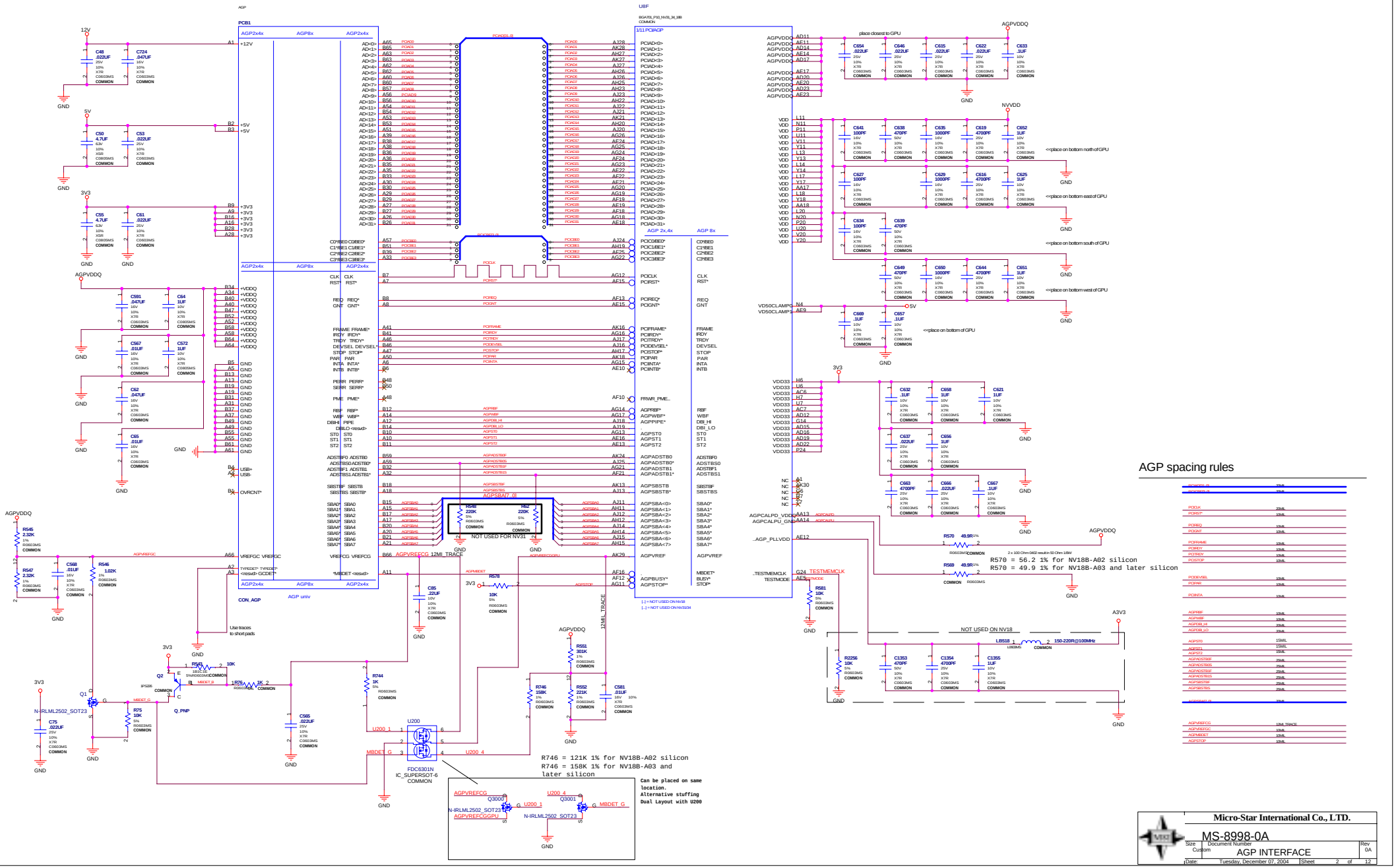
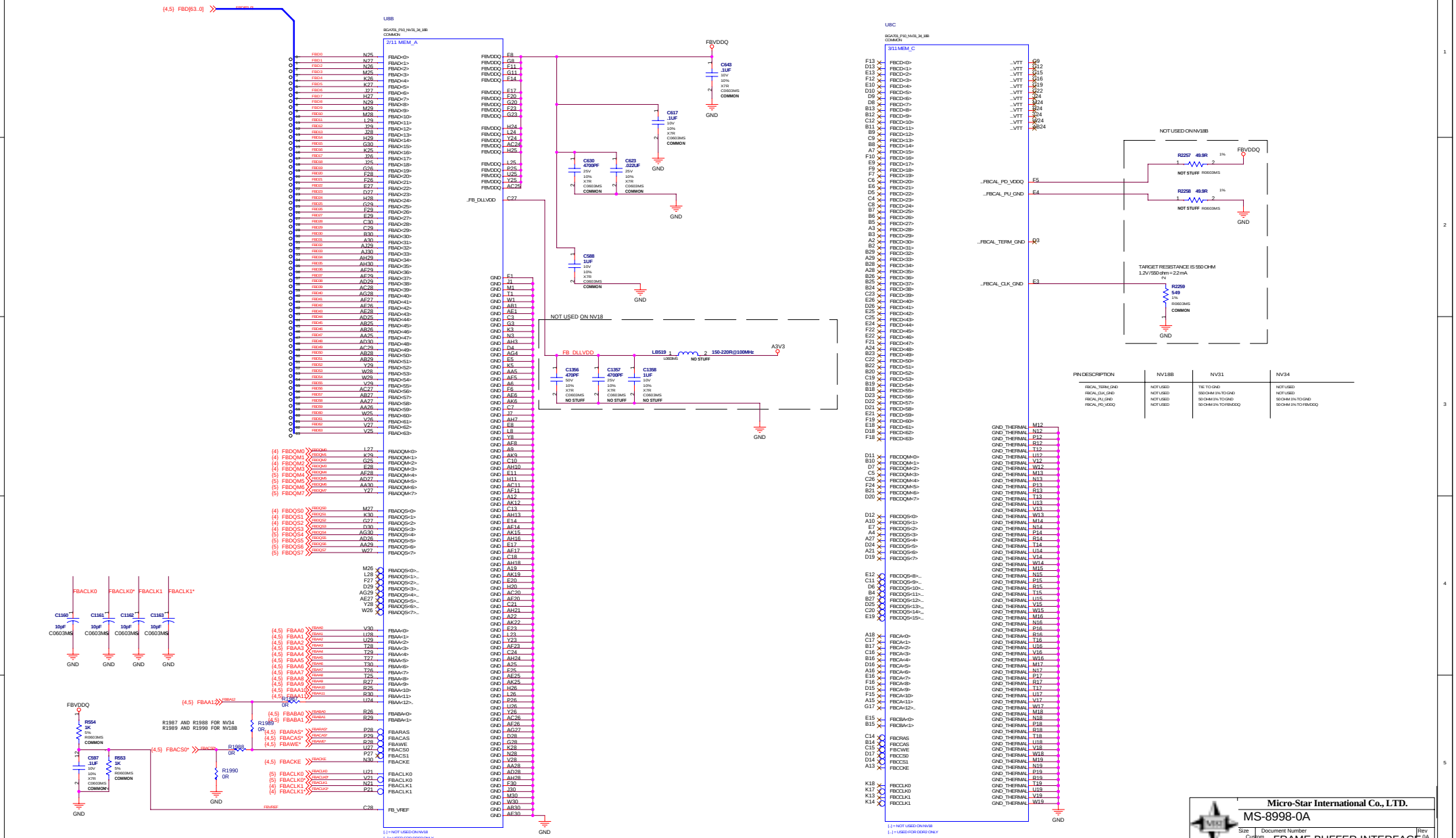
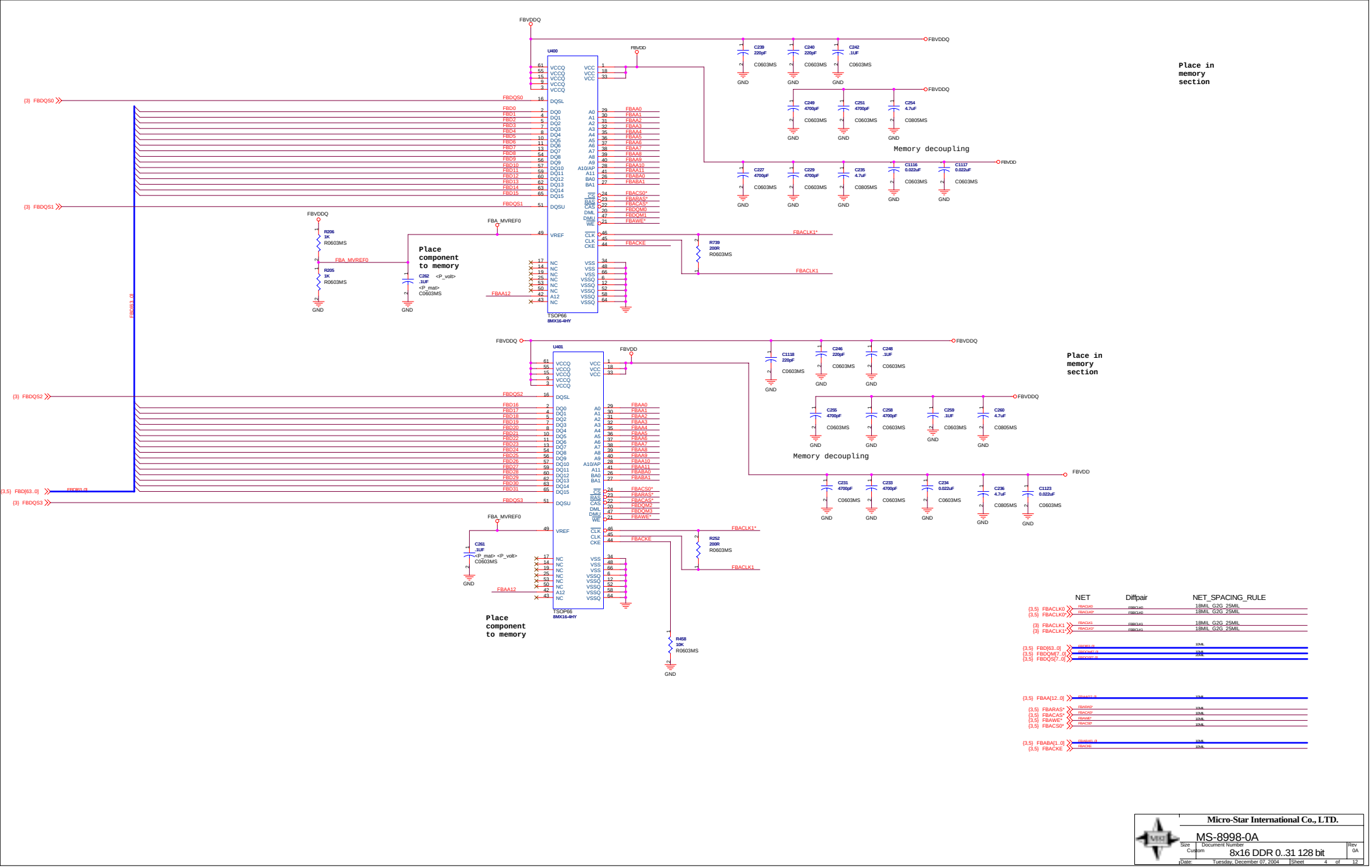
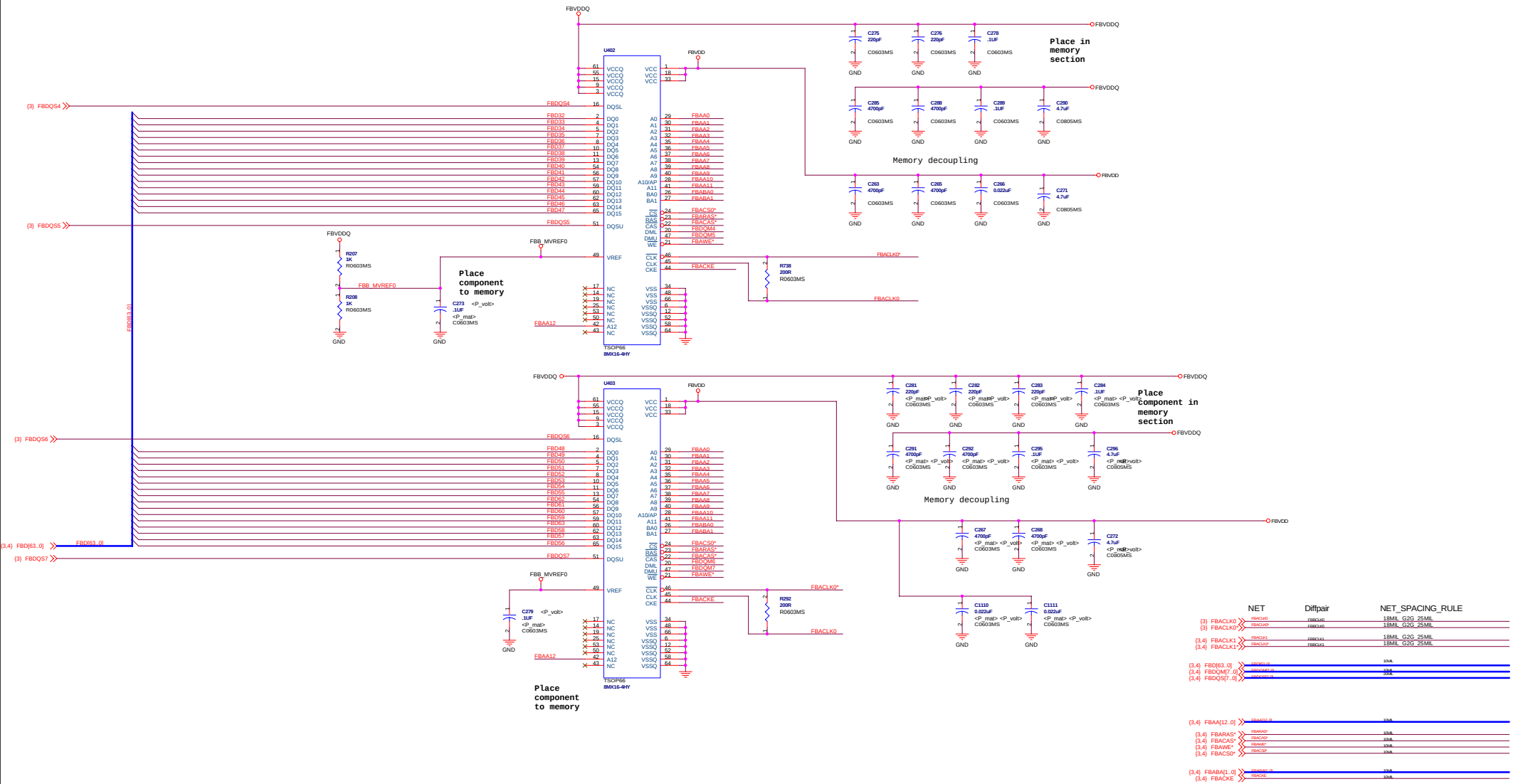
NV18 AGP SECTION AND AGP CONNECTOR



NV18 FRAMEBUFFER INTERFACE AND DECOUPLING




U400
U401
TSOP66
8MX16-4HY
Place component to memory
Memory decoupling
Place in memory section
NET
Diffpair
NET_SPACING_RULE
18MIL G2G 25MIL
Micro-Star International Co., LTD.
MS-8998-0A
8x16 DDR 0..31 128 bit
Tuesday, December 07, 2004



NET	Diffpair	NET_SPACING_RULE
{3} FBACLK0	FBACLK0	18MIL_G2G_25MIL
{3} FBACLK0*	FBACLK0*	18MIL_G2G_25MIL
{3,4} FBACLK1	FBACLK1	18MIL_G2G_25MIL
{3,4} FBACLK1*	FBACLK1*	18MIL_G2G_25MIL
{3,4} FBD[63..0]		10MIL
{3,4} FBDQM[7..0]		10MIL
{3,4} FBDQS[7..0]		10MIL
{3,4} FBAA[12..0]		10MIL
{3,4} FBARAS*		10MIL
{3,4} FBACAS*		10MIL
{3,4} FBAWE*		10MIL
{3,4} FBACS0*		10MIL
{3,4} FBABA[1..0]		10MIL
{3,4} FBACKE		10MIL

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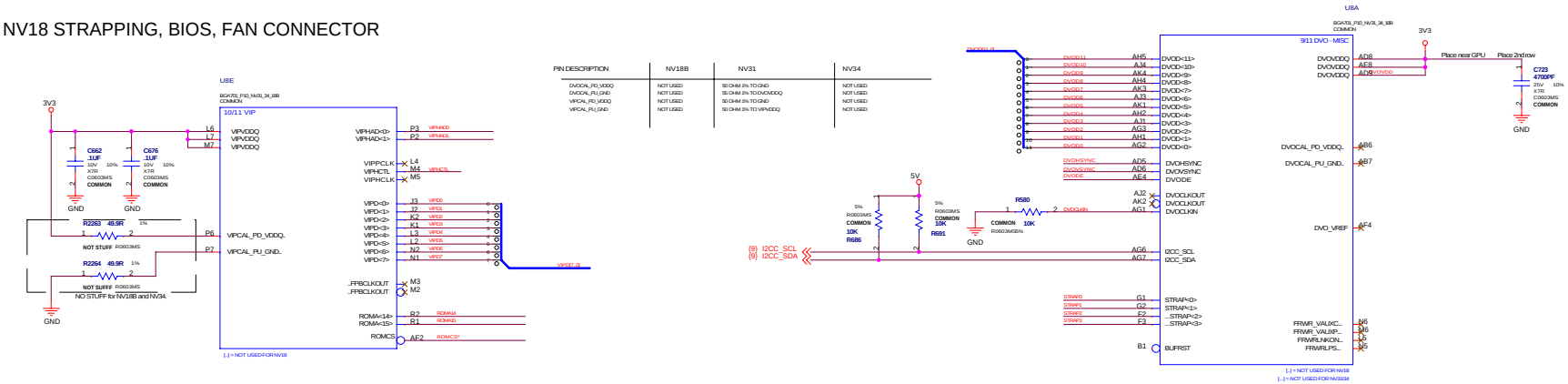
NV18 STRAPPING, BIOS, FAN CONNECTOR

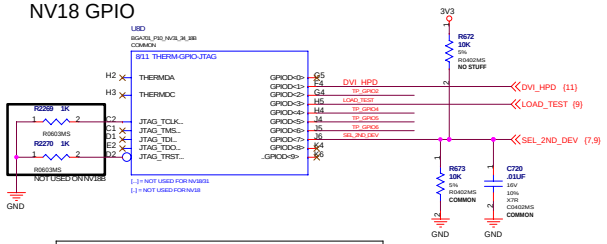


STRAPPING OPTIONS

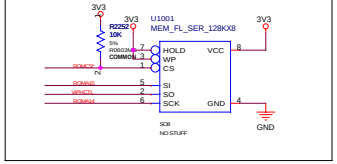
Bit	Signal	VALUE_ID	VALUEs	
00	PCI_AD_SWAP	PCI_AD	0:REVERSED 1:NORMAL	
01	SUB_VENDOR	SUB_VENDOR	0:NO_BIOS 1:read from BIOS	
02	RAM_CFG_0	RAMCFG[3:0]	0000:2Mx32 SDR 0001:4Mx16 SDR 0010:RFU 0011:RFU 0100:RFU 0101:4Mx32 SDR 0110:8Mx16 SDR 0111:2Mx32 SDR	1000:2Mx32 DDR 1001:2Mx32 DDR 1010:4Mx16 DDR 1011:8Mx16 DDR 1100:1Mx32 DDR 1101:4Mx32 DDR 1110:RFU 1111:4Mx32 DDR
03	RAM_CFG_1			
04	RAM_CFG_2			
05	RAM_CFG_3			
06	CRYSTAL_0	CRYSTAL[3:0]	00:13.500Mhz 01:14.318181Mhz	10:27.000Mhz 11:unknown
07	TV_MODE_0	TVMODE[1:0]	00:SECAM 01:NTSC	
08	TV_MODE_1		10:PAL 11:CRT	
09	AGP4x8x			
10	AGP_SBA	AGP_SBA	0:SBA enabled 1:SBA disabled	
11	AGP_FASTWR			
12	PCI_DEVID_0	PCI_DEVID[3:0]	0000:0x0180 ... 1111:0x018F	
13	PCI_DEVID_1			
14	BUS_TYPE	BUS_TYPE[0]	0:PCI 1:AGP	
15	FP_IFACE			
16	USER_0			
17	USER_1			
18	USER_2			
19	USER_3			
20	PCI_DEVID_2			
21	PCI_DEVID_3			
22	CRYSTAL_1			
23	FBI_0			
24	FBI_1			
25	BR			
26	BR_128M			
27	BR_AGP			
28	BR_IO			
29	ROM_TYPE_0	ROM_TYPE[1:0]	00:Parallel 01:Serial_AT25F	
30	ROM_TYPE_1		10:Serial_SST45VF 11:RFU	
01	1394_EN_0	1394[0]	0:disabled 1:enabled	

PLEASE DUALLAY THE PULL-UP
RESISTER AND PULL-DOWN RESISTER.

NV18 GPIO



EEPROM



U1000 AND U1001 IS DUALAY.

VOLTAGE

NET Diffpair NET_SPACING_RULE

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NV18B STRAPPING, BIOS

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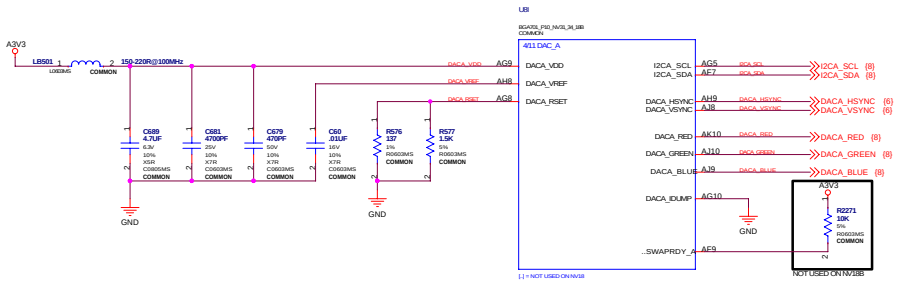
NV18 DAC_A, DAC_B, PLL, SYNC AMPL

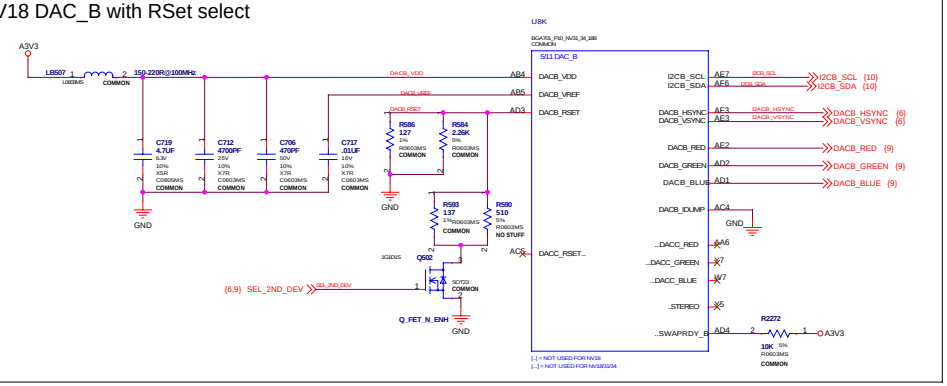
NET	NET_PHYSICAL_TYPE	VOLTAGE
DACA_VDD	10MIL TRACE	3.3V
DACA_VREF	5MIL TRACE	
DACA_RSET	5MIL TRACE	
DACB_VDD	10MIL TRACE	3.3V
DACB_VREF	5MIL TRACE	
DACB_RSET	5MIL TRACE	
PLLVDD	10MIL TRACE	3.3V

NET	IMPEDANCE	NET_SPACING_RULE
(8) DACA_RED	DACA_RED 37.5 OHM	20MIL GSG 30MIL
(8) DACA_GREEN	DACA_GREEN 37.5 OHM	20MIL GSG 30MIL
(8) DACA_BLUE	DACA_BLUE 37.5 OHM	20MIL GSG 30MIL
(9) DACB_RED	DACB_RED 37.5 OHM	20MIL GSG 30MIL
(9) DACB_GREEN	DACB_GREEN 37.5 OHM	20MIL GSG 30MIL
(9) DACB_BLUE	DACB_BLUE 37.5 OHM	20MIL GSG 30MIL

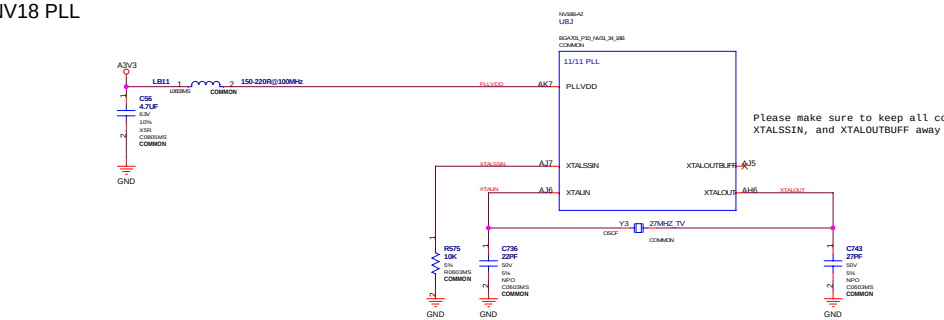
NV18 DAC_A



NV18 DAC_B with RSet select

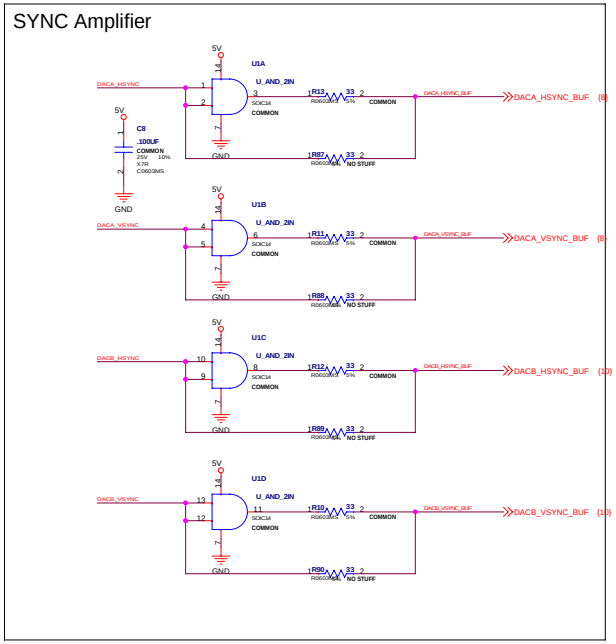


NV18 PLL



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: Custom | Document Number: DAC_A,DAC_B,PLL,SYNC AMPL | Rev: 1A
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DACA output

NET	IMPEDANCE	NET_SPACING_RULE
ABF	37.5 OHM	20MIL_G3G_3MIL
AGF	37.5 OHM	20MIL_G3G_3MIL
ABF	37.5 OHM	20MIL_G3G_3MIL
DACA_RED_C	10MIL_TRACE	20MIL_G3G_3MIL
DACA_GREEN_C	10MIL_TRACE	20MIL_G3G_3MIL
DACA_BLUE_C	10MIL_TRACE	20MIL_G3G_3MIL

EMI-FILTER

{7} I2CA_SDA — DCA_SDA — R8 33 COMMON — DCA_SDA_T — LB2 150-220R@100MHZ COMMON — DCA_SDA_C
R5 2.2K COMMON; R6 2.2K COMMON; 5V
C2 220PF COMMON 50V 5% NPO C0603MS
D_3PIN_AC D1 SPS226 100V COMMON
GND

{7} I2CA_SCL — DCA_SCL — R9 33 COMMON — DCA_SCL_T — LB3 150-220R@100MHZ COMMON
C3 220PF COMMON 50V 5% NPO C0603MS
D_3PIN_AC D2 SPS226 100V COMMON
GND

{7} DACA_VSYNC_BUF — DACA_VSYNC_BUF — LBS16 68nH COMMON — DACA_VSYNC_C
C832 47PF COMMON 50V 5% NPO C0603MS
D_3PIN_AC DS26 SPS226 100V COMMON
GND

{7} DACA_HSYNC_BUF — DACA_HSYNC_BUF — LBS17 68nH COMMON
C833 47PF COMMON 50V 5% NPO C0603MS
D_3PIN_AC DS27 SPS226 100V COMMON
GND

{7} DACA_RED — ABF — LS18 82nH COMMON — DACA_RED_C
R666 75 1% R0603MS COMMON
D_3PIN_AC DS29 SPS226 100V COMMON
C828 47PF COMMON 50V 5% NPO C0603MS
A3V3
GND

{7} DACA_GREEN — AGF — LS17 82nH COMMON — DACA_GREEN_C
R665 75 1% R0603MS COMMON
D_3PIN_AC DS24 SPS226 100V COMMON
C827 47PF COMMON 50V 5% NPO C0603MS
A3V3
GND

{7} DACA_BLUE — ABF — LS16 82nH COMMON — DACA_BLUE_C
R664 75 1% R0603MS COMMON
D_3PIN_AC DS28 SPS226 100V COMMON
C826 47PF COMMON 50V 5% NPO C0603MS
A3V3
GND

place nearest connector

DDC 5V

5V — F1 1A 1812 COMMON POLYSWITCH — DDC_5V
DUALLAY F1 AND R1985
LB26 220R@100MHZ COMMON
C834 4.7UF COMMON 6.3V 10% X5R C0805MS
C1 220PF COMMON 50V 5% NPO C0603MS
GND

J1 — Cable

C824 4.7UF COMMON 6.3V 10% X5R C0805MS (A3V3)
C5 4.7UF NO STUFF 6.3V 10% X5R C0805MS (5V)
GND
Place in output filter section!

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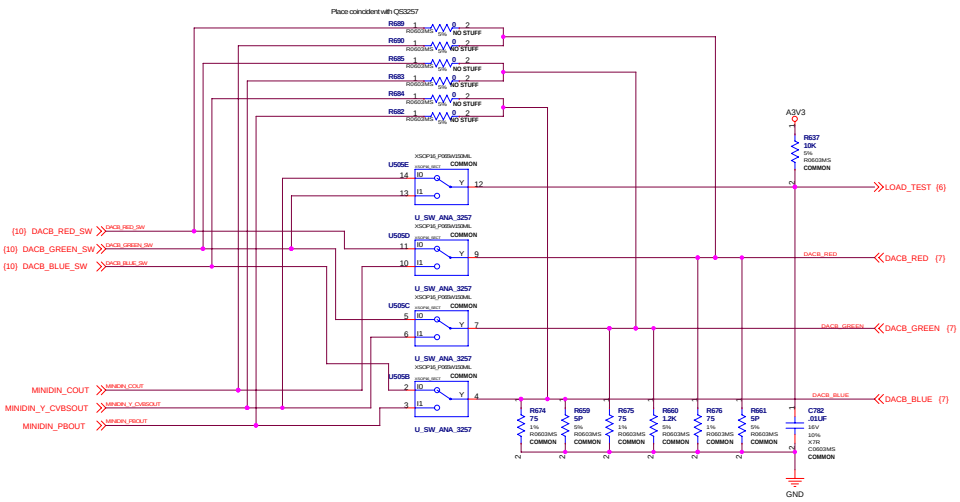
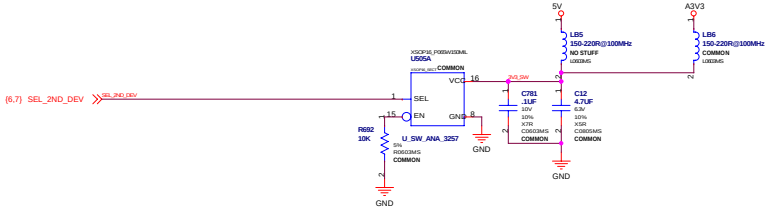
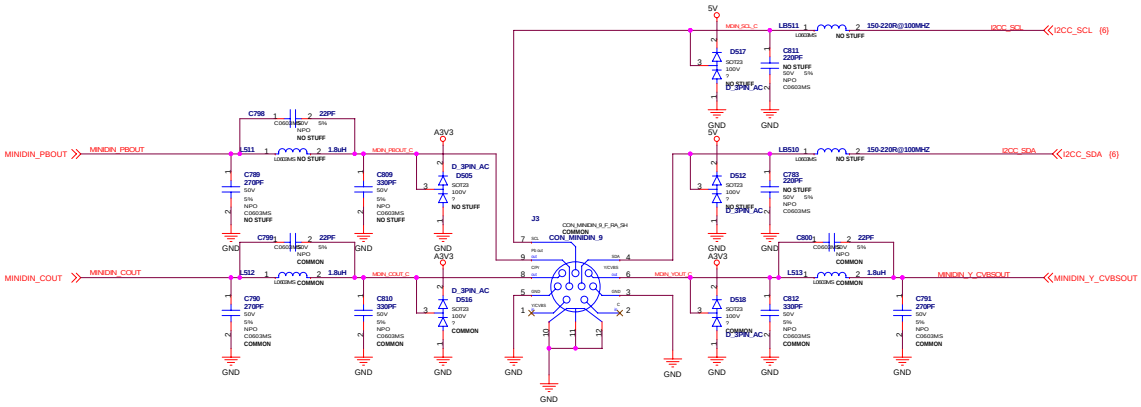
DACB SWITCH BETWEEN VGA OUT AND TV OUT

NET	IMPEDANCE	NET_SPACING_RULE
{10} DACB_RED_SW	37.5 OHM	20MIL_G2G_20MIL
{10} DACB_GREEN_SW	37.5 OHM	20MIL_G2G_20MIL
{10} DACB_BLUE_SW	37.5 OHM	20MIL_G2G_20MIL
MINIDIN_COUT	37.5 OHM	20MIL_G2G_20MIL
MINIDIN_Y_CVBSOUT	37.5 OHM	20MIL_G2G_20MIL
MINIDIN_PBOUT	37.5 OHM	20MIL_G2G_20MIL







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MS-8998-0A	
Size: Custom	Document Number: SWITCH BETWEEN VGA AND TV-OUT
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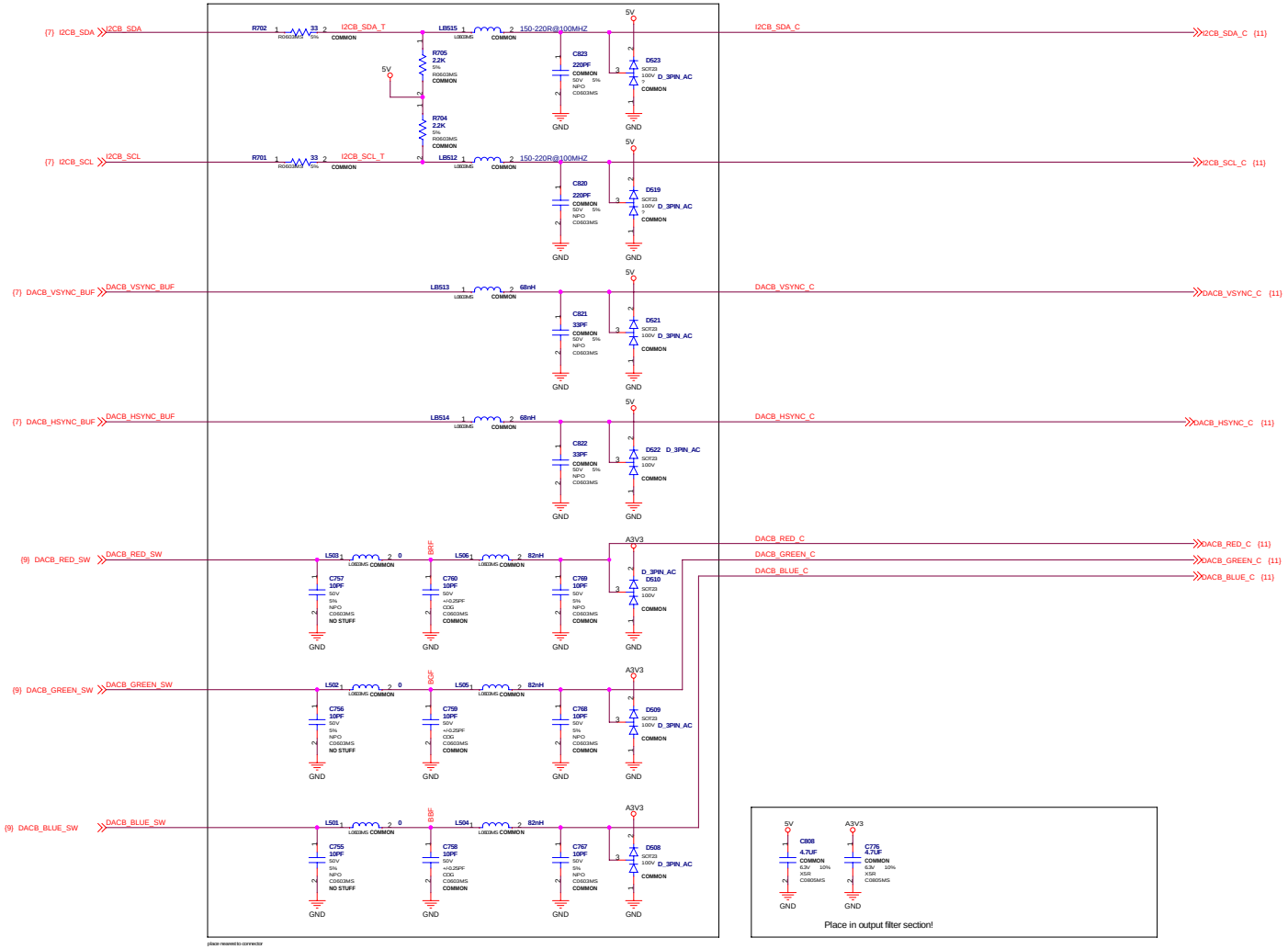
DACB output

EMI-FILTER



NET	IMPEDANCE	NET_SPACING_RULE
BRF	37.5 OHM	20MIL G2G 30MIL
BGF	37.5 OHM	20MIL G2G 30MIL
BBF	37.5 OHM	20MIL G2G 30MIL
DACB_RED_C	10MIL TRACE	20MIL G2G 30MIL
DACB_GREEN_C	10MIL TRACE	20MIL G2G 30MIL
DACB_BLUE_C	10MIL TRACE	20MIL G2G 30MIL

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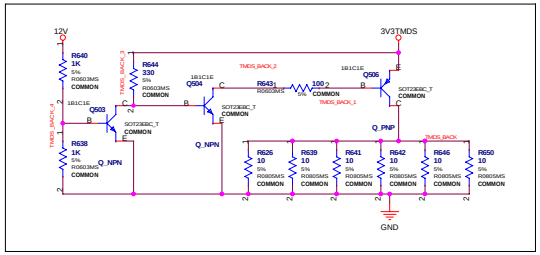
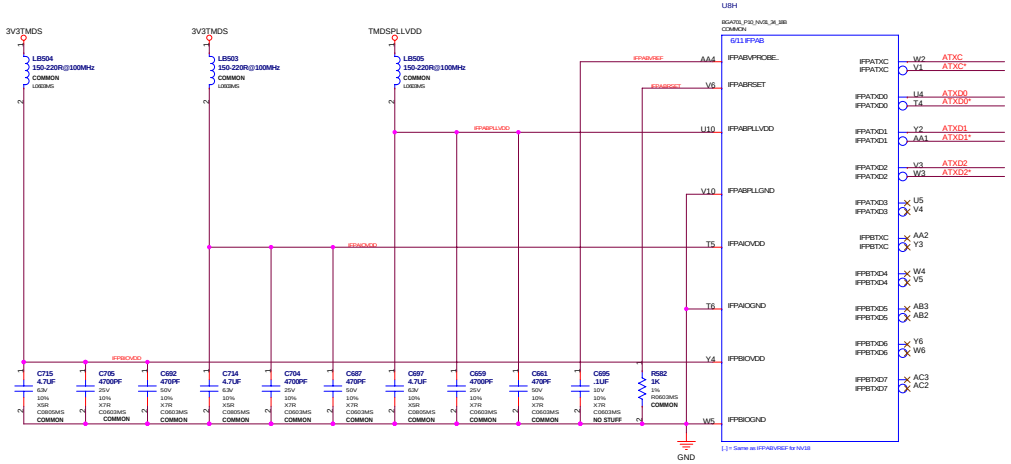
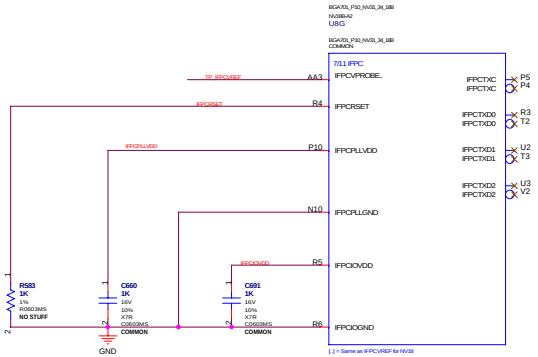
INTERNAL TMDS POWER AND DECOUPLING

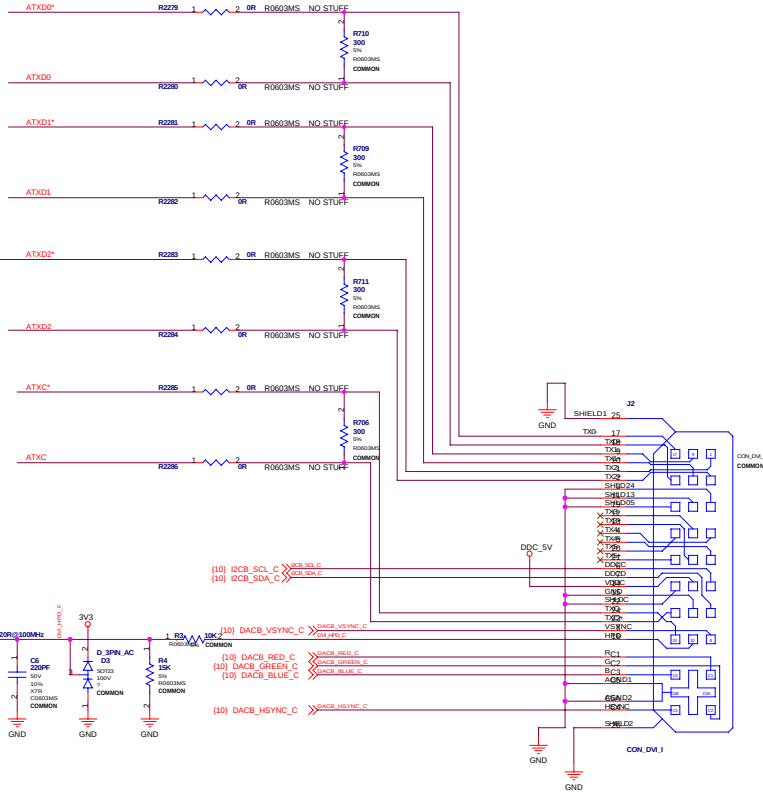
TMDS backdrive prevention

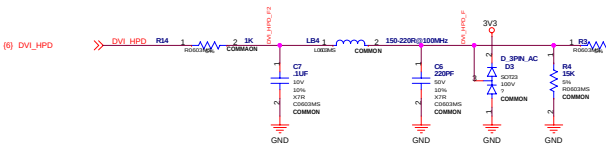


NET	NET_PHYSICAL_TYPE	VOLTAGE
IFPABVREF	12MIL_TRACE	3.3V
IFPABPLLVDD	12MIL_TRACE	3.3V
IFPAIOVDD	12MIL_TRACE	3.3V
IFPBIOVDD	12MIL_TRACE	3.3V
IFPCPLLVDD	12MIL_TRACE	3.3V
IFPCIOVDD	12MIL_TRACE	3.3V
TMDS_BACK	12MIL_TRACE	3.3V
ATXD0	ATXD0	18MIL_G20_25MIL
ATXD0*	ATXD0*	18MIL_G20_25MIL
ATXD1	ATXD1	18MIL_G20_25MIL
ATXD1*	ATXD1*	18MIL_G20_25MIL
ATXD2	ATXD2*	18MIL_G20_25MIL
ATXD2*	ATXD2*	18MIL_G20_25MIL
ATXC	ATXC	18MIL_G20_25MIL
ATXC*	ATXC*	18MIL_G20_25MIL









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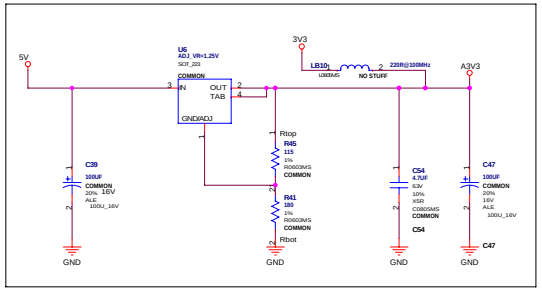
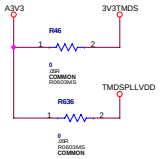
POWER SUPPLY

ANALOG 3V3

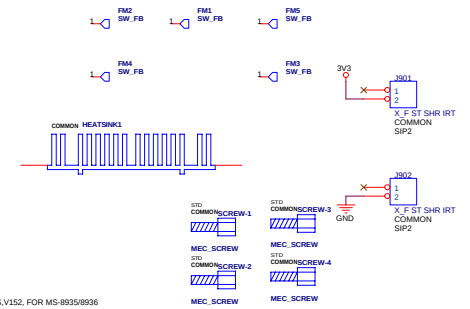


FBVDD 3.3V

TMDS 3V3 Supply
TMDS PLL Supply

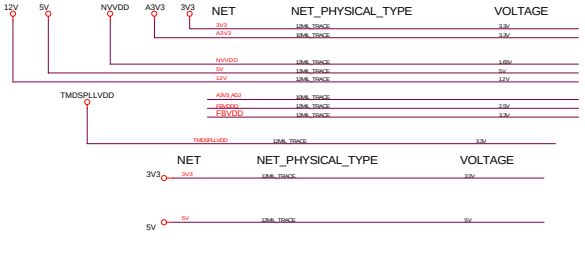


MECHANICS



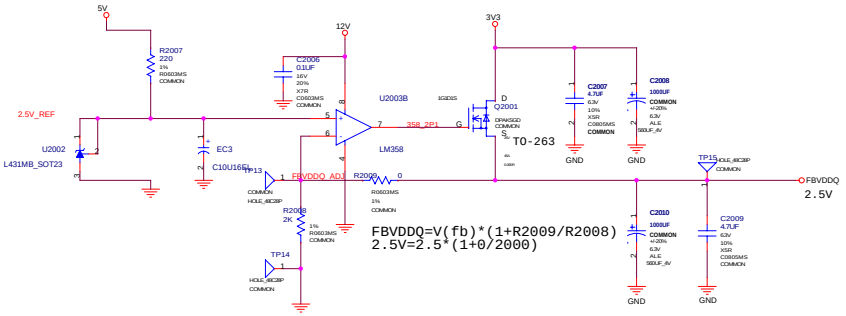
Mech, VGA Card, Bracket, SPCC/2.V,D-S,V152, FOR MS-8935/8936

Bracket Same as MS-8847



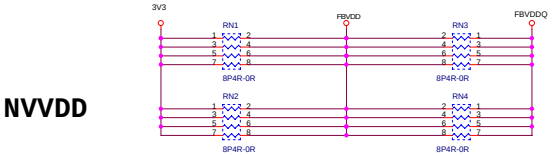
For SAMSUNG DDR FBVDD=FBVDDQ=2.6
HYNIX DDR FBVDD=3V3=3.3V

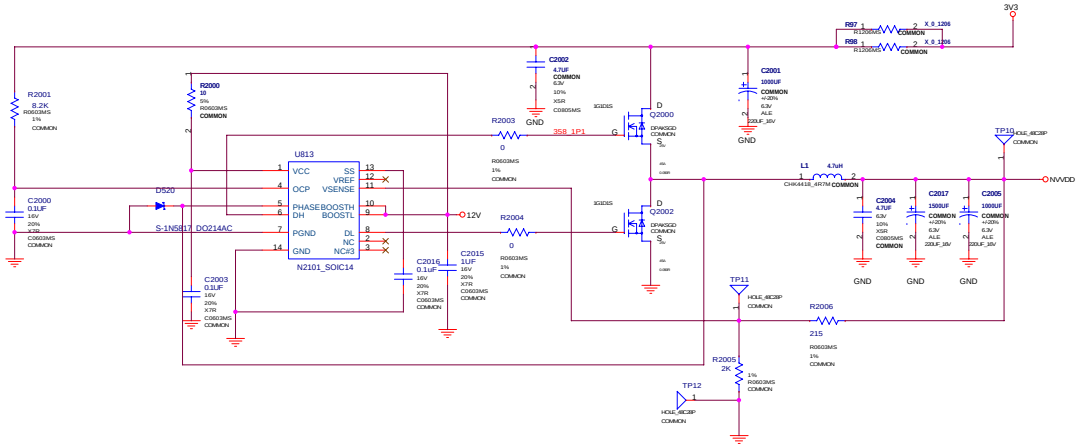
FBVDDQ



FBVDDQ=V(fb)*(1+R2009/R2008)
2.5V=2.5*(1+0/2000)

NVVDD

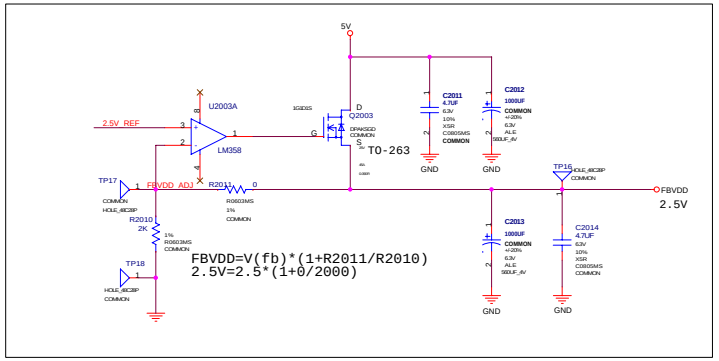




NVVDD=Vref*(1+Rtop/Rbot)

1.4=1.265*(1+215/2000)

FBVDD



FBVDD=V(fb)*(1+R2011/R2010)
2.5V=2.5*(1+0/2000)

NO STUFF

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