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

```
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
```


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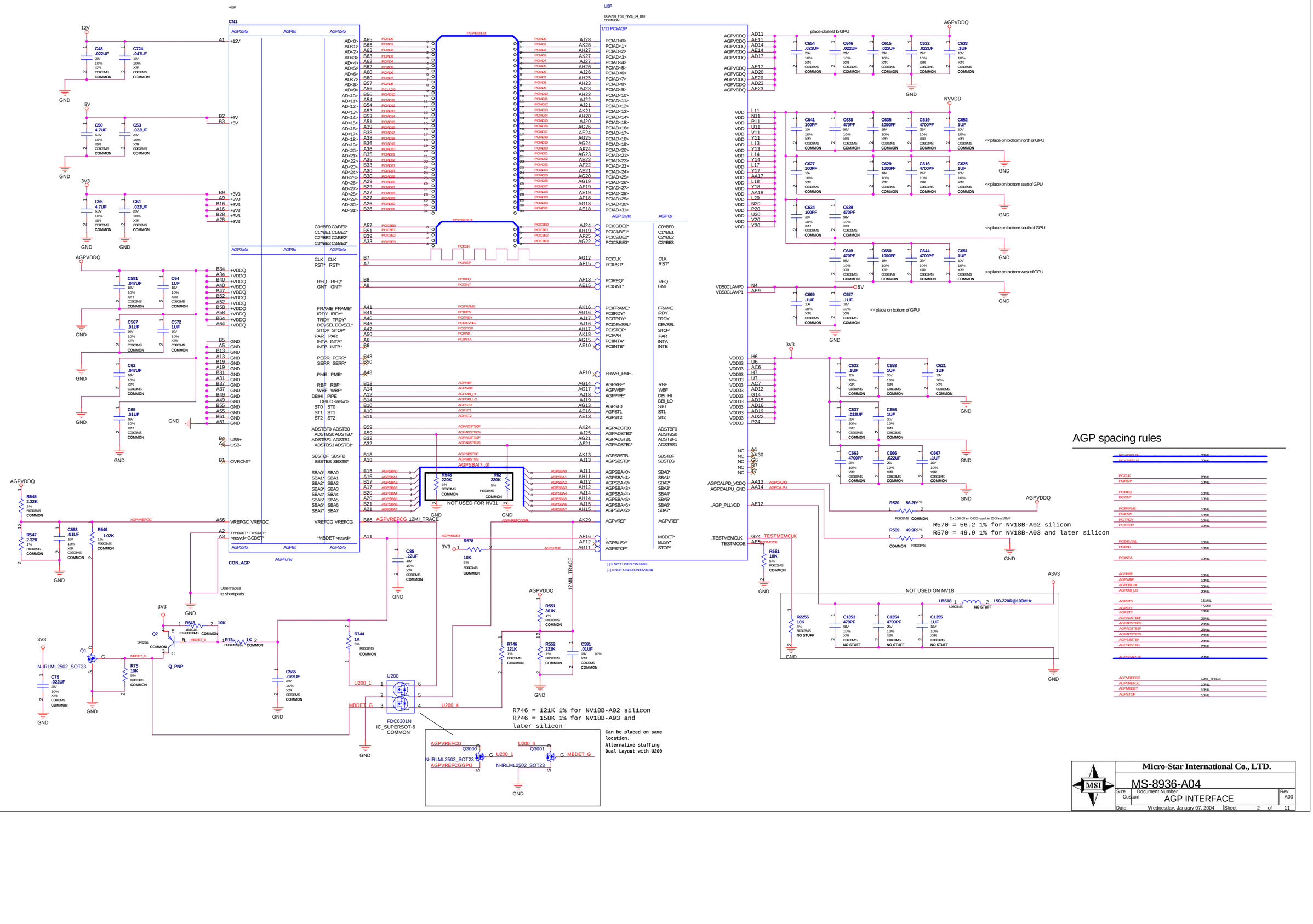
Size: Custom | Document Number: TOP PAGE | Rev: A00
Date: Wednesday, January 07, 2004 | Sheet 1 of 11

NV18 AGP SECTION AND AGP CONNECTOR



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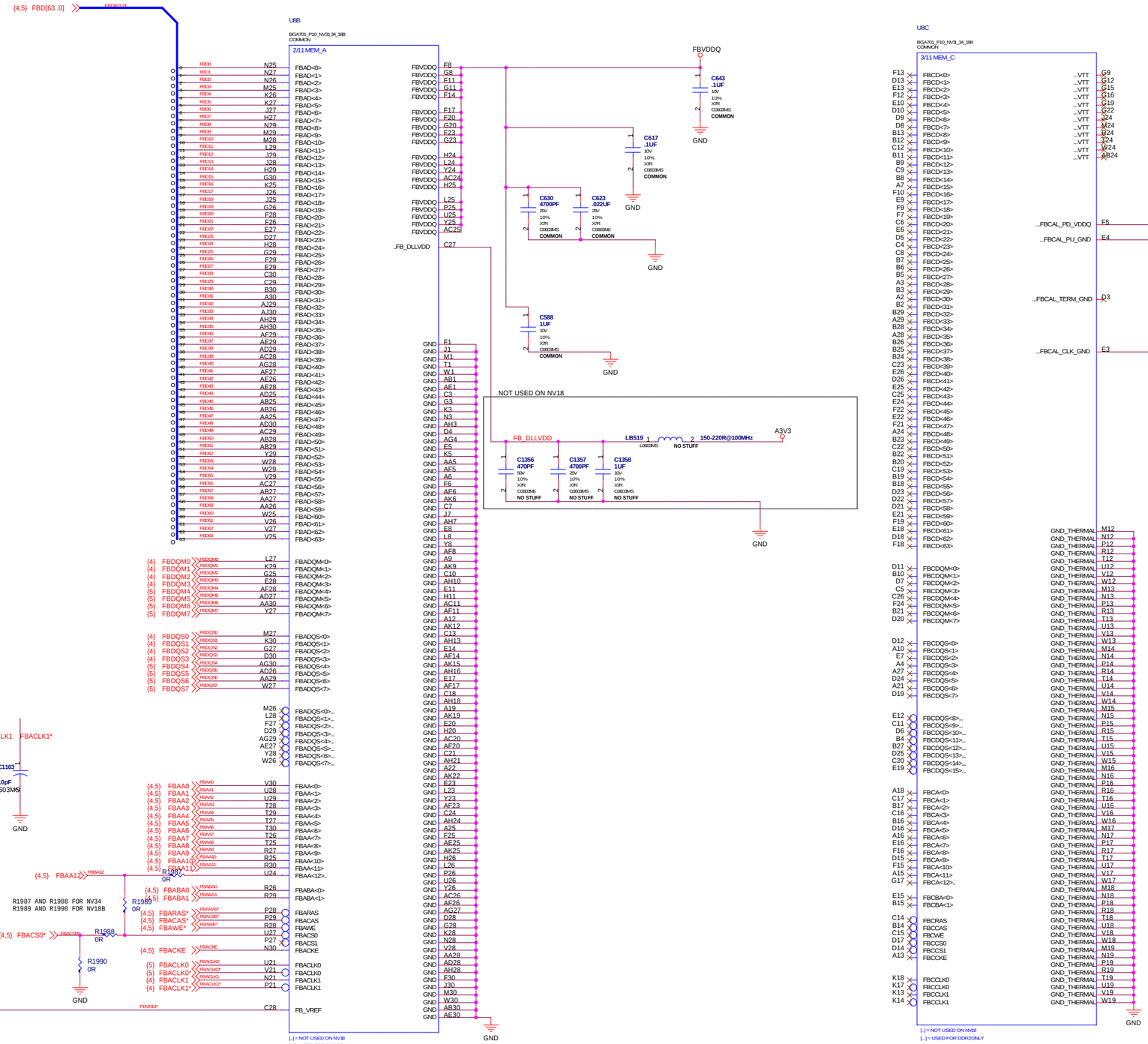
MS-8936-A04	
Size: Custom	Document Number: AGP INTERFACE
Rev: A00	
Date: Wednesday, January 07, 2004	Sheet 2 of 11

NV18 FRAMEBUFFER INTERFACE AND DECOUPLING



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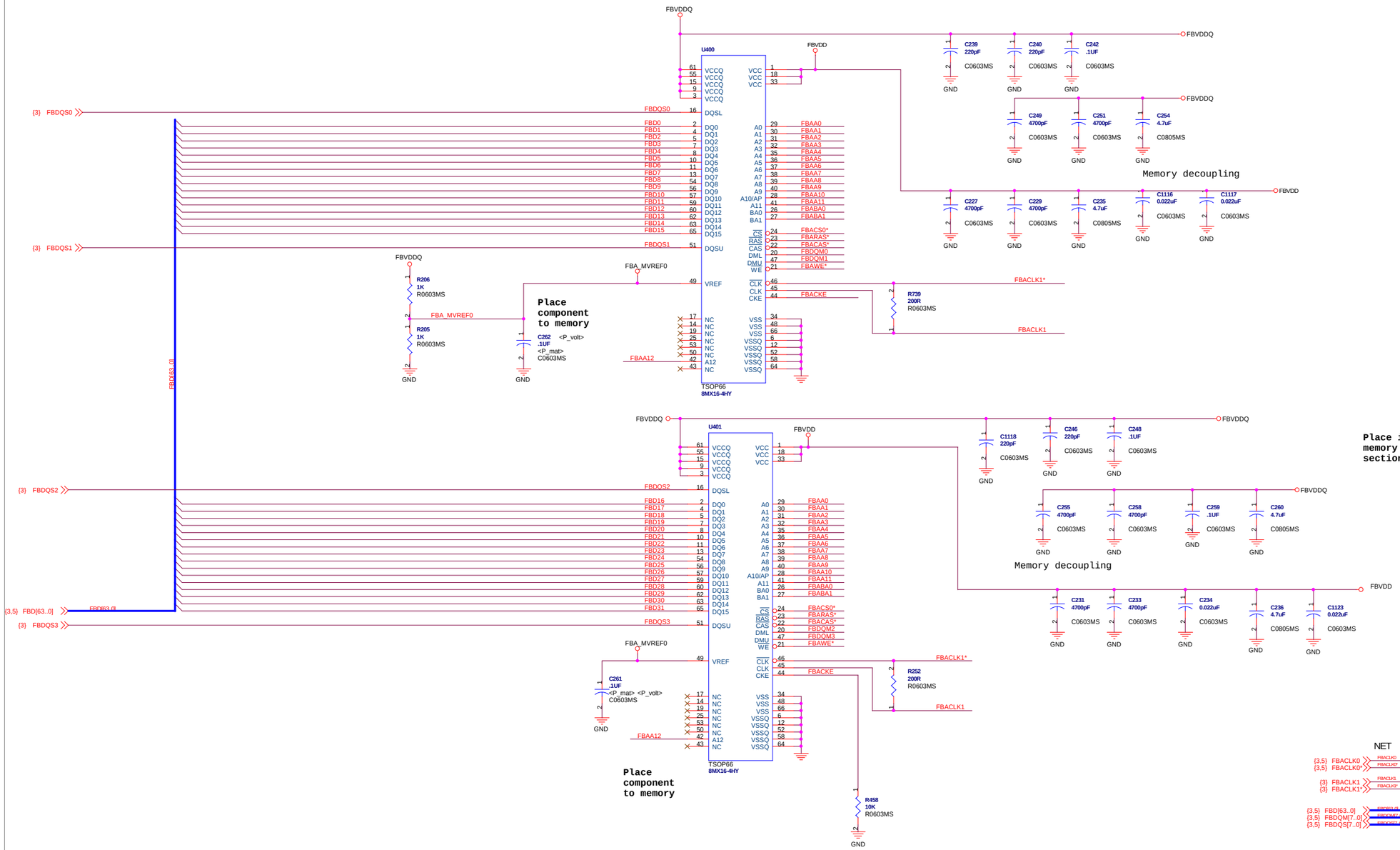
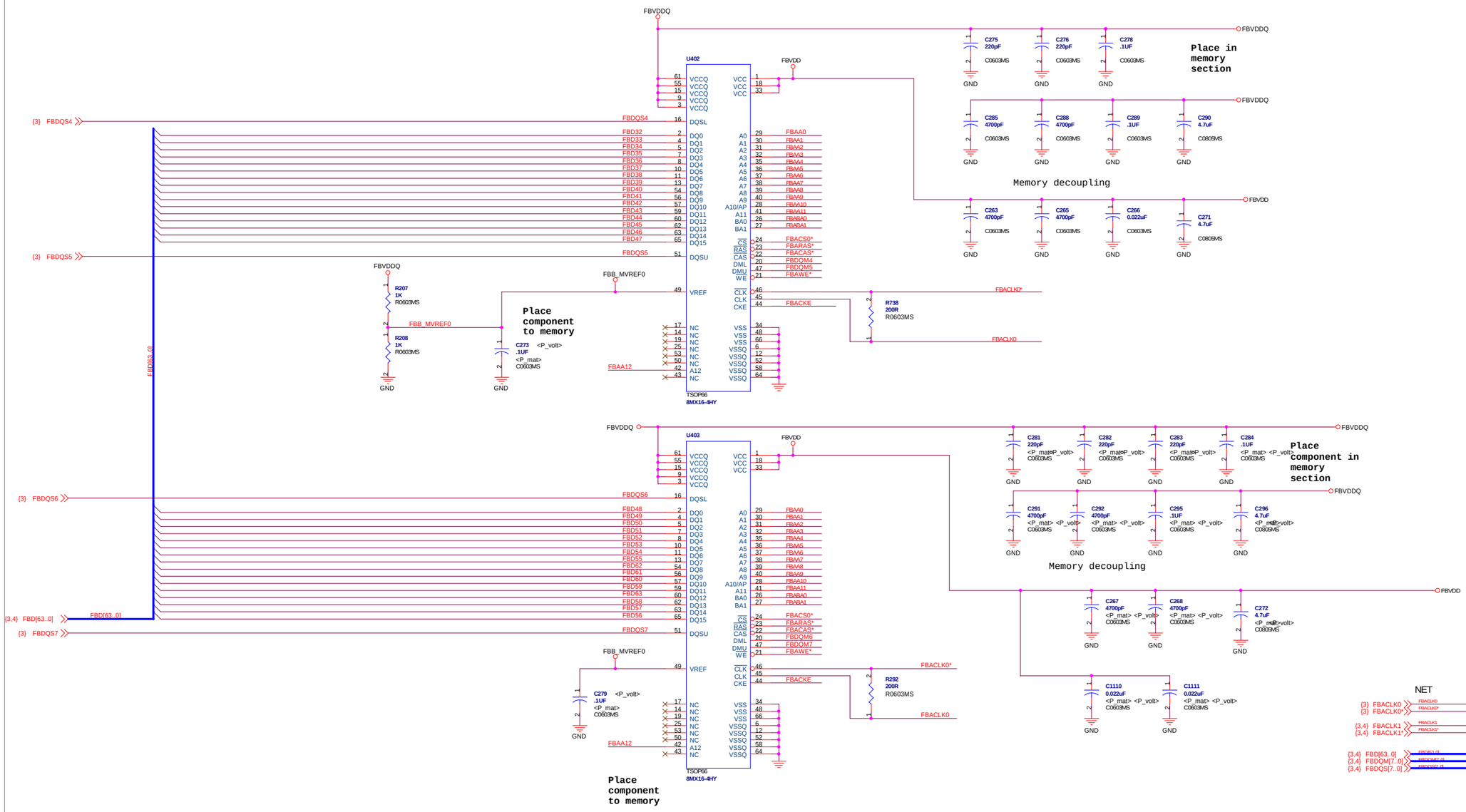
Size: Custom	Document Number: FRAME BUFFER INTERFACE	Rev: A00
Date: Wednesday, January 07, 2004	Sheet 3 of 11	



NET	Diffpair	NET_SPACING_RULE
{3,5} FBACLK0	FBACLK0	18MIL_G2G_25MIL
{3,5} FBACLK0*	FBACLK0*	18MIL_G2G_25MIL
{3} FBACLK1	FBACLK1	18MIL_G2G_25MIL
{3} FBACLK1*	FBACLK1*	18MIL_G2G_25MIL
{3,5} FBD[63..0]		10MIL
{3,5} FBDQM[7..0]		10MIL
{3,5} FBDQS[7..0]		10MIL
{3,5} FBAA[12..0]		10MIL
{3,5} FBARAS*		10MIL
{3,5} FBACAS*		10MIL
{3,5} FBAWE*		10MIL
{3,5} FBACS0*		10MIL
{3,5} FBABA[1..0]		10MIL
{3,5} FBACKE		10MIL

MSI	Micro-Star International Co., LTD.	
	MS-8936-A04	
Size: Custom	Document Number: 8x16 DDR 0..31 128 bit	Rev: A00
Date: Wednesday, January 07, 2004	Sheet 4 of 11	


FBVDDQ
U402
FBVDD
{3} FBDQS4
FBDQS4
FBD32
FBD33
FBD34
FBD35
FBD36
FBD37
FBD38
FBD39
FBD40
FBD41
FBD42
FBD43
FBD44
FBD45
FBD46
FBD47
{3} FBDQS5
FBDQS5
FBB_MVREF0
FBVDDQ
R207
1K
R0603MS
FBB_MVREF0
R208
1K
R0603MS
C273
.1UF
<P_mat>
C0603MS
<P_volt>
Place component to memory
FBAA12
TSOP66
8MX16-4HY
FBACLK0*
FBACKE
R738
200R
R0603MS
FBACLK0
C275
220pF
C0603MS
C276
220pF
C278
.1UF
Place in memory section
C285
4700pF
C288
4700pF
C289
.1UF
C290
4.7uF
C0805MS
Memory decoupling
C263
4700pF
C265
4700pF
C266
0.022uF
C271
4.7uF
{3,4} FBD[63..0]
FBD[63..0]
{3} FBDQS7
FBDQS7
U403
{3} FBDQS6
FBDQS6
FBD48
FBD49
FBD50
FBD51
FBD52
FBD53
FBD54
FBD55
FBD62
FBD61
FBD60
FBD59
FBD63
FBD58
FBD57
FBD56
C279
.1UF
<P_mat>
C0603MS
<P_volt>
Place component to memory
C281
220pF
C282
220pF
C283
220pF
C284
.1UF
Place component in memory section
C291
4700pF
C292
4700pF
C295
.1UF
C296
4.7uF
C0805MS
Memory decoupling
C267
4700pF
C268
4700pF
C272
4.7uF
C1110
0.022uF
C1111
0.022uF
R292
200R
R0603MS
NET
Diffpair
NET_SPACING_RULE
{3} FBACLK0
{3} FBACLK0*
{3,4} FBACLK1
{3,4} FBACLK1*
18MIL_G2G_25MIL
{3,4} FBD[63..0]
{3,4} FBDQM[7..0]
{3,4} FBDQS[7..0]
{3,4} FBAA[12..0]
{3,4} FBARAS*
{3,4} FBACAS*
{3,4} FBAWE*
{3,4} FBACS0*
{3,4} FBABA[1..0]
{3,4} FBACKE
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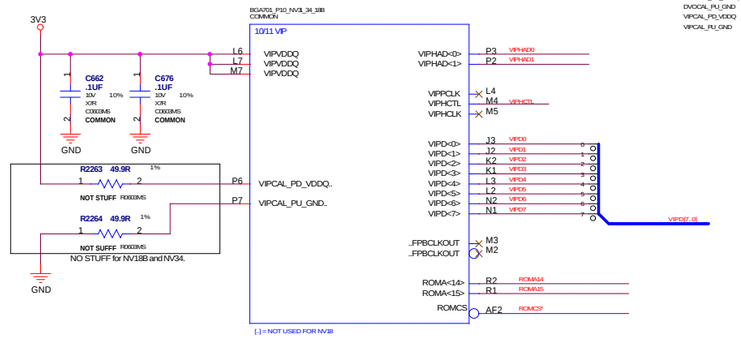
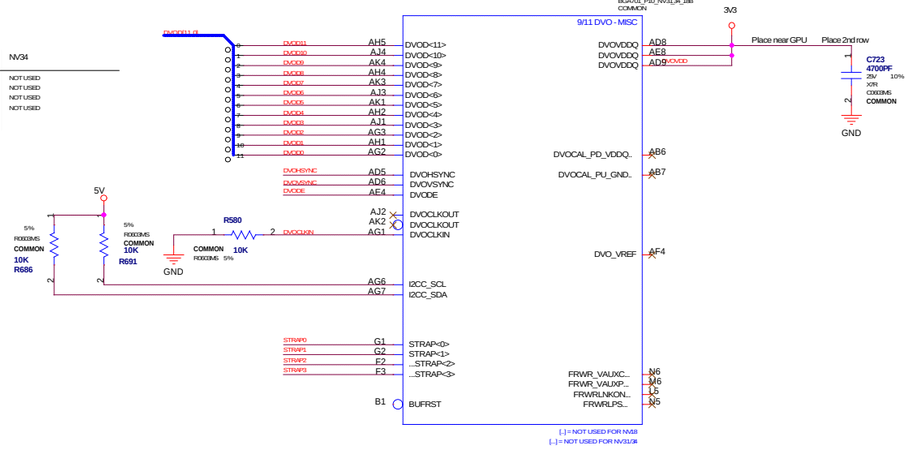
Size
Custom
Document Number
8x16 DDR 32..63 128 bit
Rev
A00
Date:
Wednesday, January 07, 2004
Sheet
5
of
11

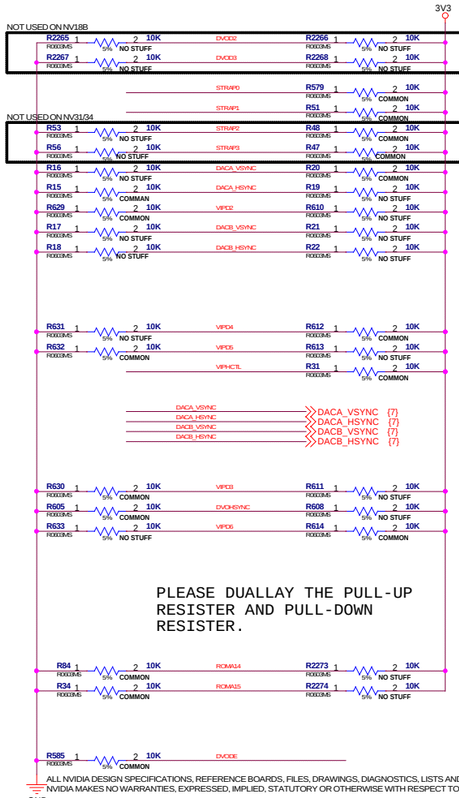
NV18 STRAPPING, BIOS, FAN CONNECTOR



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 DVOVDDQ	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

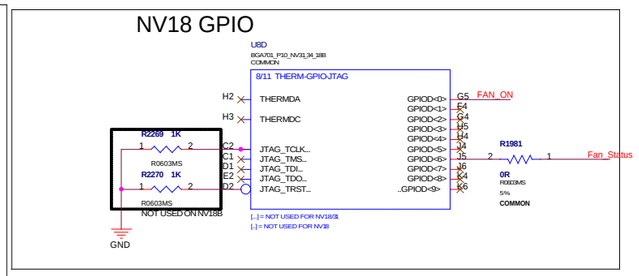


STRAPPING OPTIONS

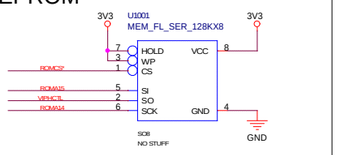


Bit	Signal	VALUE_ID	VALUEs	
00: PCI_AD_SWAP	PCI_AD	0 REVERSED 1 NORMAL		
01: SUB_VENDOR	SUB_VENDOR	0 NO_BIOS 1 read from BIOS		
02: RAM_CFG_0	RAMCFG[3:0]	0000 2Mx32SDR	1000 2Mx8DDR	
03: RAM_CFG_1		0001 4Mx16SDR 0002 RFU	1001 2Mx16DDR 1002 4Mx8DDR	
04: RAM_CFG_2		0011 RFU 0100 RFU	1011 8Mx8DDR 1100 1Mx8DDR	
05: RAM_CFG_3		0101 4Mx32SDR 0110 8Mx16SDR	1101 4Mx8DDR 1110 RFU	
		0111 2Mx2DDR	1111 4Mx4DDR	
06: CRYSTAL_0	CRYSTAL[1:0]	00 13.500 MHz 01 14.318181Mhz	10 27.000 Mhz 11 unknown	
07: TV_MODE_0	TVMODE[1:0]	00 SECAM 01 NTSC		
08: TV_MODE_1		10 PAL 11 CRT		
09: AGPx4xBx				
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: FB_0				
24: FB_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		

NV18 GPIO

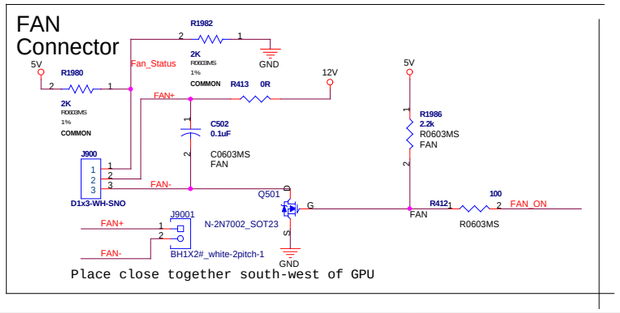


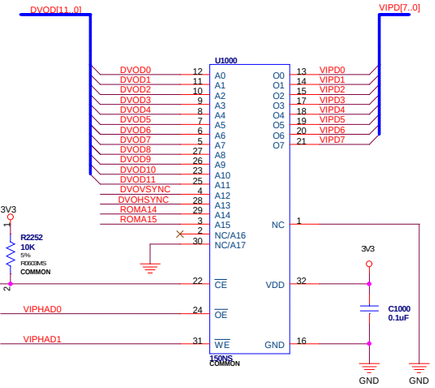
EEPROM



U1000 AND U1001 IS DUALAY.

FAN Connector





VOLTAGE

NET	Diffpair	NET_SPACING_RULE
DVODE		10MIL
DVOHSYNC		10MIL
DVOVSYNC		10MIL

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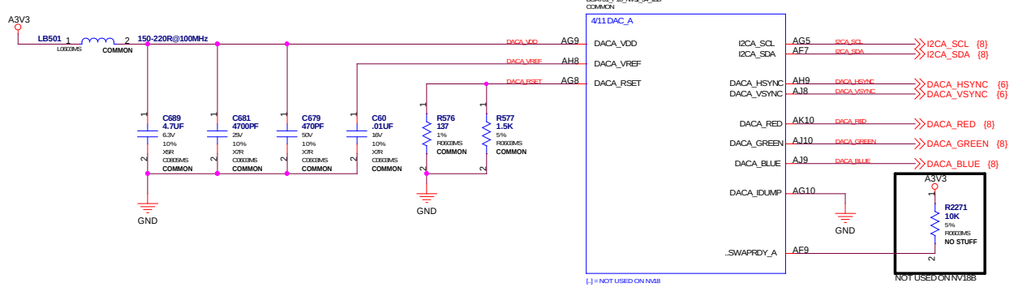
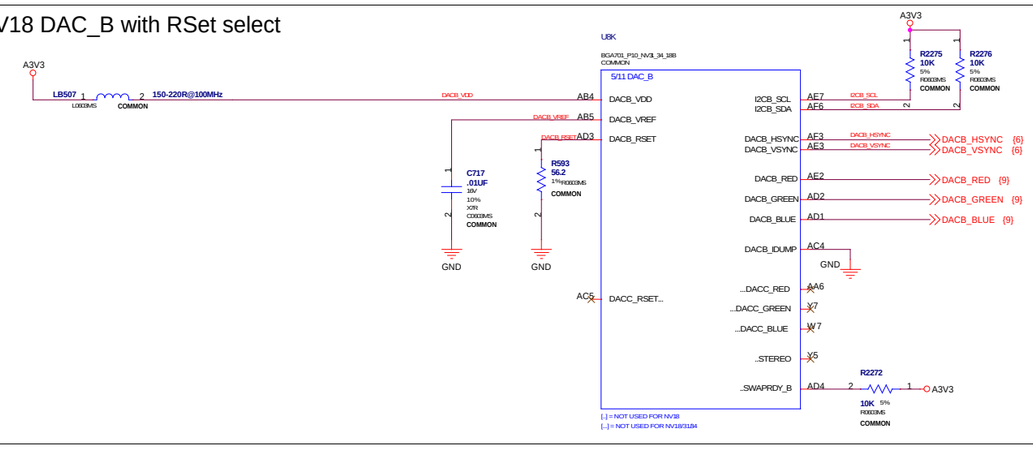
MS-8917-A00		
Size: Custom	Document Number: NV18B STRAPPING, BIOS	Rev: A00
Date: Wednesday, January 07, 2004	Sheet 6 of 11	

NV18 DAC_A, DAC_B, PLL, SYNC AMPL

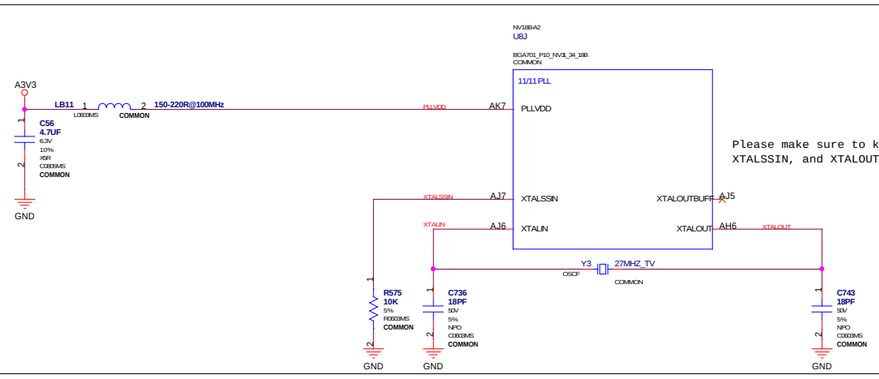
NV18 DAC_A



NV18 DAC_B with RSet select

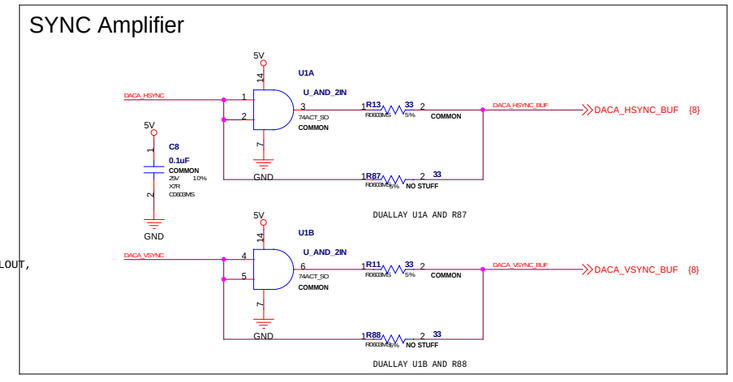


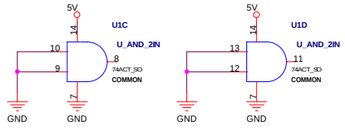
NV18 PLL



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





NET	NET_PHYSICAL_TYPE	VOLTAGE
DACA_VDD	12MIL_TRACE	3.3V
DACA_VREF	5MIL_TRACE	
DACA_RSET	5MIL_TRACE	
DACB_VDD	12MIL_TRACE	3.3V
DACB_VREF	5MIL_TRACE	
DACB_RSET	5MIL_TRACE	
PLLVDD	12MIL_TRACE	3.3V

NET	IMPEDANCE	NET_SPACING_RULE
{8} DACA_RED	37.5 OHM	20MIL_G2G_3OMIL
{8} DACA_GREEN	37.5 OHM	20MIL_G2G_3OMIL
{8} DACA_BLUE	37.5 OHM	20MIL_G2G_3OMIL
{9} DACB_RED	37.5 OHM	20MIL_G2G_3OMIL
{9} DACB_GREEN	37.5 OHM	20MIL_G2G_3OMIL
{9} DACB_BLUE	37.5 OHM	20MIL_G2G_3OMIL

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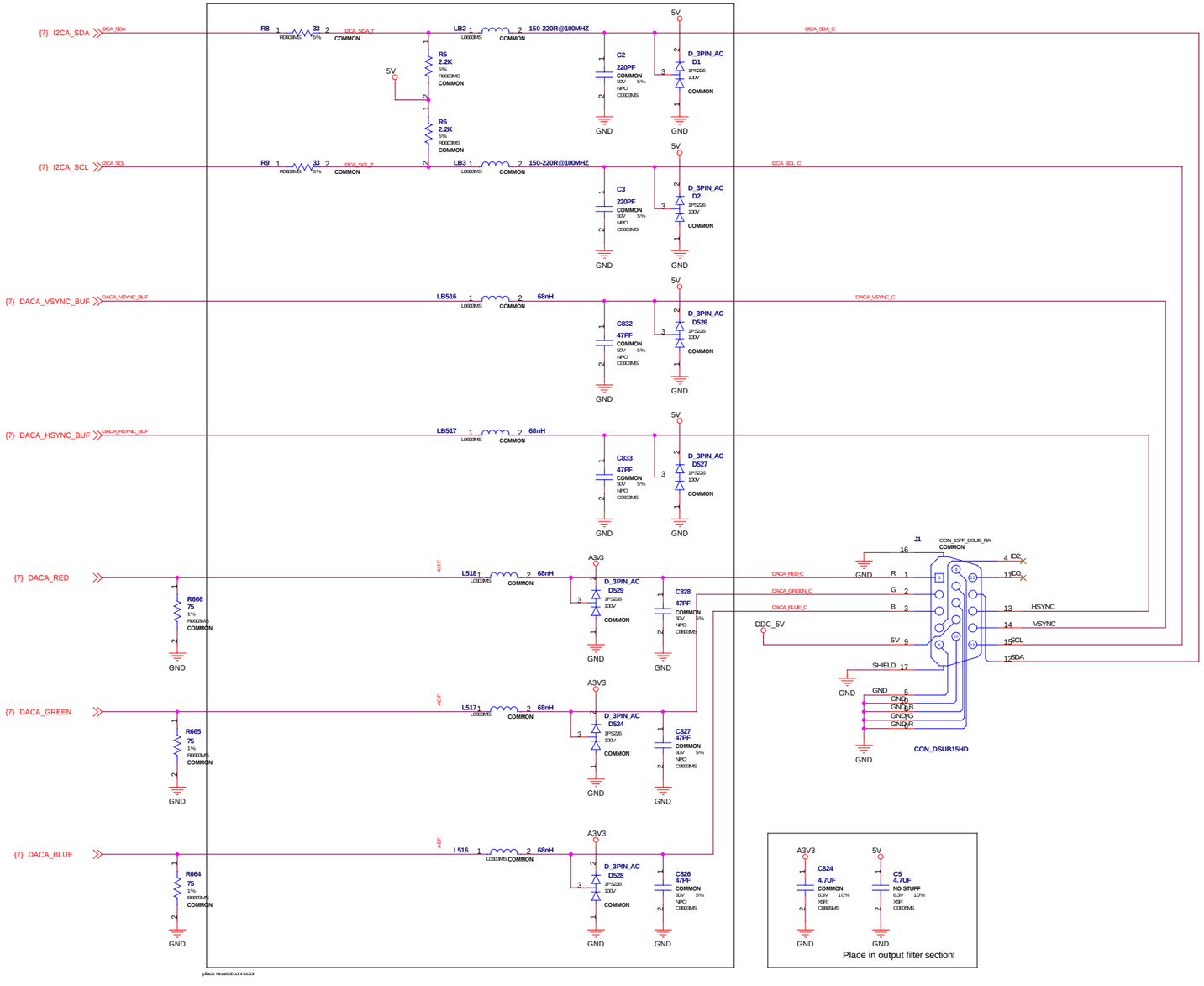
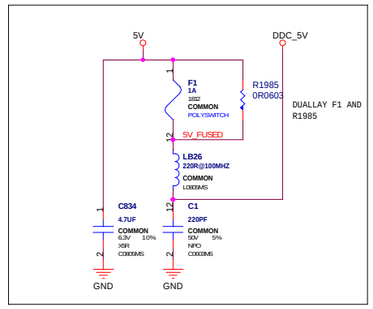
MS-8936-A04		
Size: Custom	Document Number: DAC_A,DAC_B,PLL,SYNC AMPL	Rev: A00
Date: Wednesday, January 07, 2004	Sheet 7 of 11	

DACB output

EMI-FILTER



DDC 5V



NET	IMPEDANCE	NET_SPACING_RULE
ARF	37.5 OHM	20MIL_G2G_30MIL
AGF	37.5 OHM	20MIL_G2G_30MIL
ABF	37.5 OHM	20MIL_G2G_30MIL
DACA_RED_C	10MIL_TRACE	20MIL_G2G_30MIL
DACA_GREEN_C	10MIL_TRACE	20MIL_G2G_30MIL
DACA_BLUE_C	10MIL_TRACE	20MIL_G2G_30MIL

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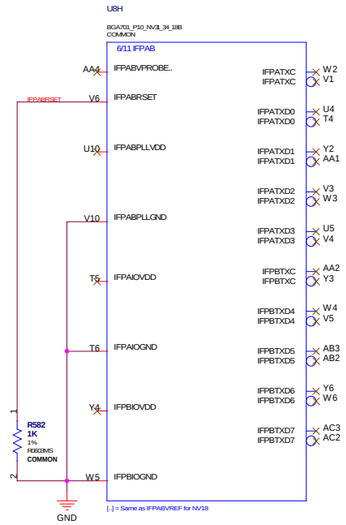
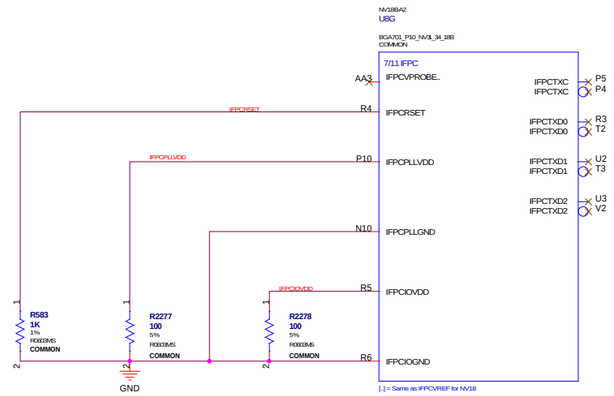
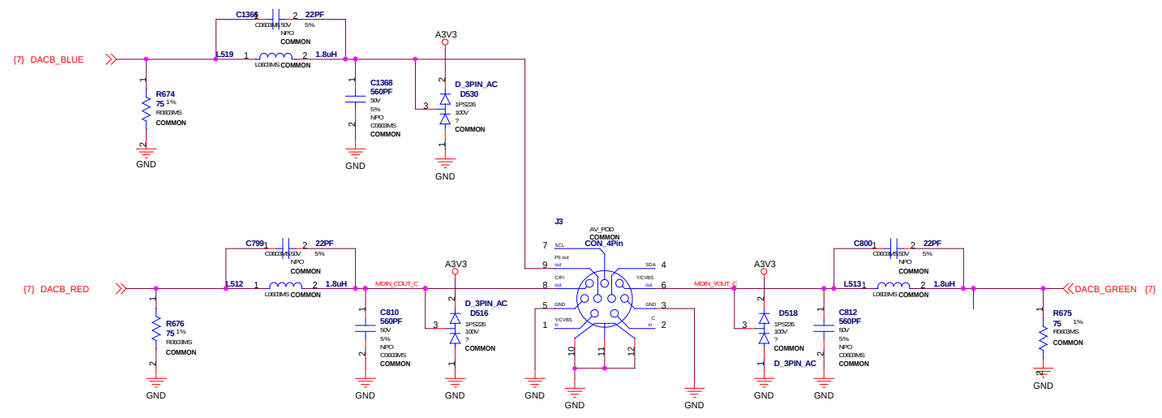
MS-8936-A04
Size: Custom | Document Number: DAC A CONNECT | Rev: A00
Date: Wednesday, January 07, 2004 | Sheet 8 of 11

INTERNAL TMDS POWER AND DECOUPLING





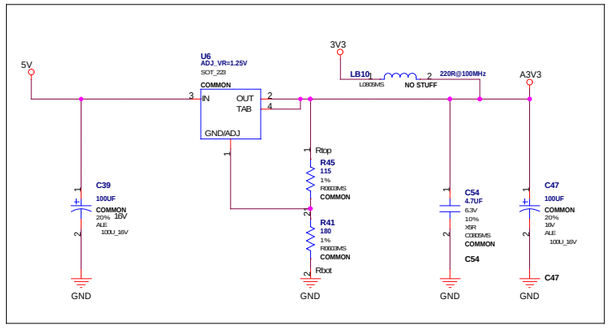
VIDEO OUT CONNECTOR



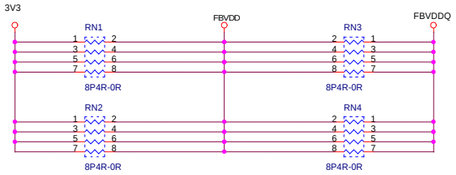
Micro-Star International Co., LTD.	
MS-8936-A04	
Size: Custom	Document Number: VIDEO IN/OUT CONNECT
Rev: A00	
Date: Wednesday, January 07, 2004	Sheet 9 of 11

POWER SUPPLY

ANALOG 3V3



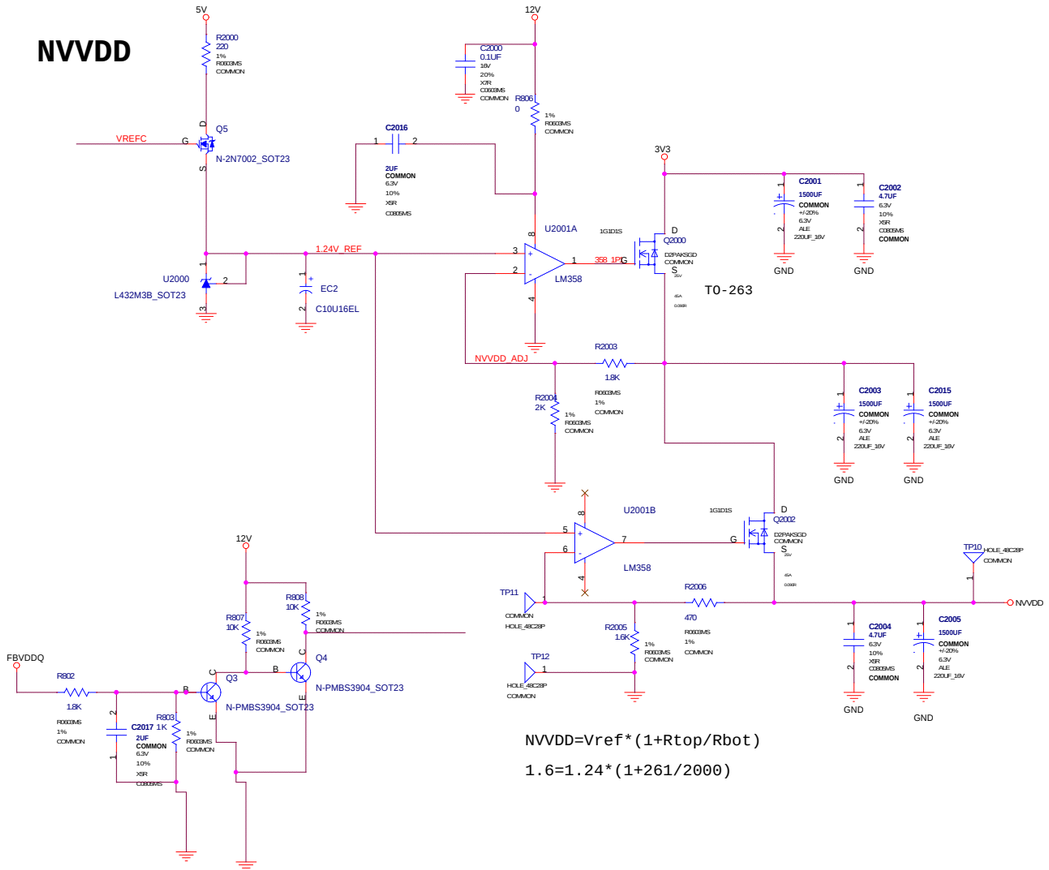
FBVDD 3.3V



NET	NET_PHYSICAL_TYPE	VOLTAGE
3V3	12MIL TRACE	3.3V
A3V3	12MIL TRACE	3.3V
NVVDD	12MIL TRACE	1.65V
5V	12MIL TRACE	5V
12V	12MIL TRACE	12V
A3V3_ADJ	10MIL TRACE	
FBVDDQ	12MIL TRACE	2.6V
FBVDD	12MIL TRACE	3.3V

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

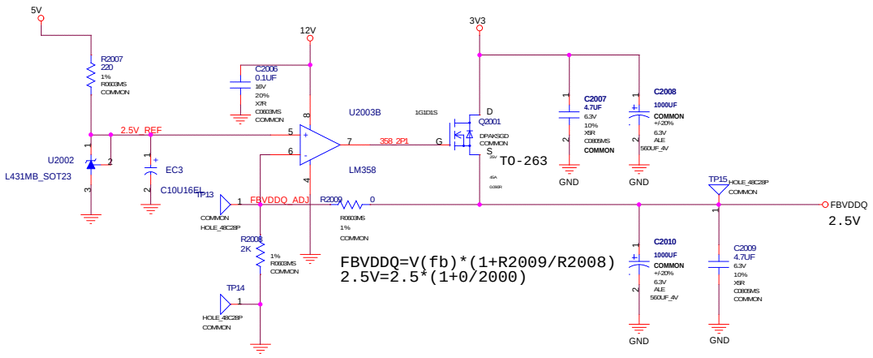
NVVDD



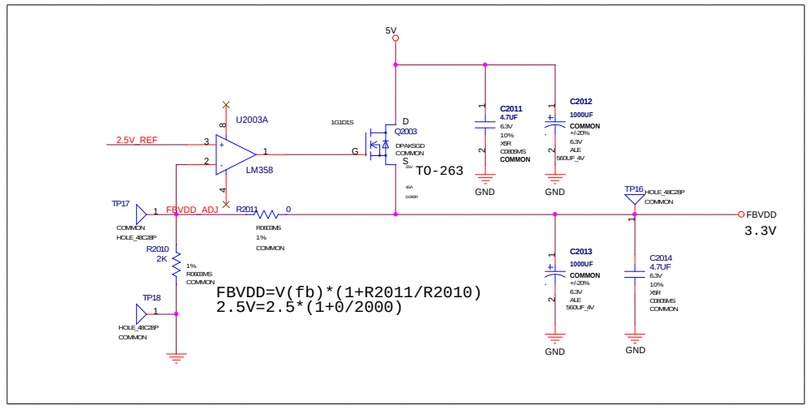
NVVDD=Vref*(1+Rtop/Rbot)

1.6=1.24*(1+261/2000)

FBVDDQ



FBVDD



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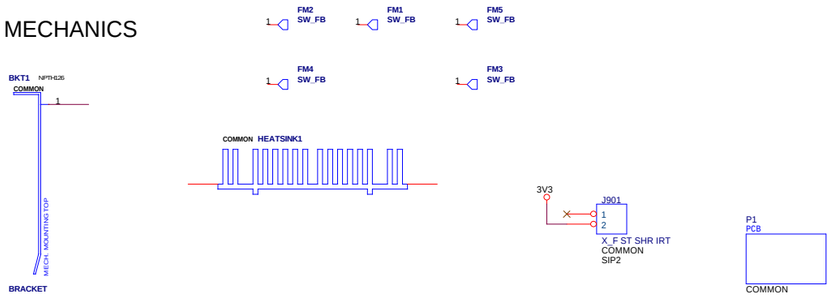
MS-8936-A04	
Size: Custom	Document Number: POWER SUPPLY
Rev: A00	
Date: Wednesday, January 07, 2004	Sheet 10 of 11

MECHANICS



E22-8935010-C22

Mech, VGA Card, Bracket, SPCC/2,V,D-S,V122, FOR MS-8935/8936

Bracket Same as MS-8847

NET	NET_PHYSICAL_TYPE	VOLTAGE
3V3	12MIL_TRACE	3.3V
5V	12MIL_TRACE	5V

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MS-8936-A04

Size	Document Number	Rev
Custom	MECHANICS	A00
Date:	Wednesday, January 07, 2004	Sheet 11 of 11