C116-B, NV18B, 8MX16DDR, 128MB, Video IN/OUT, DVI-I, VGA

Page Overview

HISTORY:

A00

X00: INITIAL VERSION

X01 Remove R117, C87, C131, C143 for CKE

Change C736, C743 to 18pf capacitors.

Remove C1099 - additional Capacitor for AGPVREFcg

Changed AGPVREFcg circuit.

C116 Base on P112 to Modify.

1. Change page 4~7 & page 18 Reference.
2. Change J1 foot print from silm type to stand D-SUB.
3. Remove I1394 function.
4. ~~Page 2, change voltage C75.1 & Q2.E from 3V3 to A3V3.~~
5. Page 8, Add Twin Bios for MSI function.
6. Page 16 ,replace INTERNAL VIDEO CAPTURE CONNECTOR.
7. Page 17 ,ADD C874 & C1098 ALE CAP. (DUAL-LAY)
8. Page 18 , Add H/W Monitor founction for MSI .
9. Page 2 change Q508, Q509 footprint from SOT23 to SOT-6 U200 package.

00A change to version 100.

1. DACA and DACB signal swap.

600-10116-000X-A00

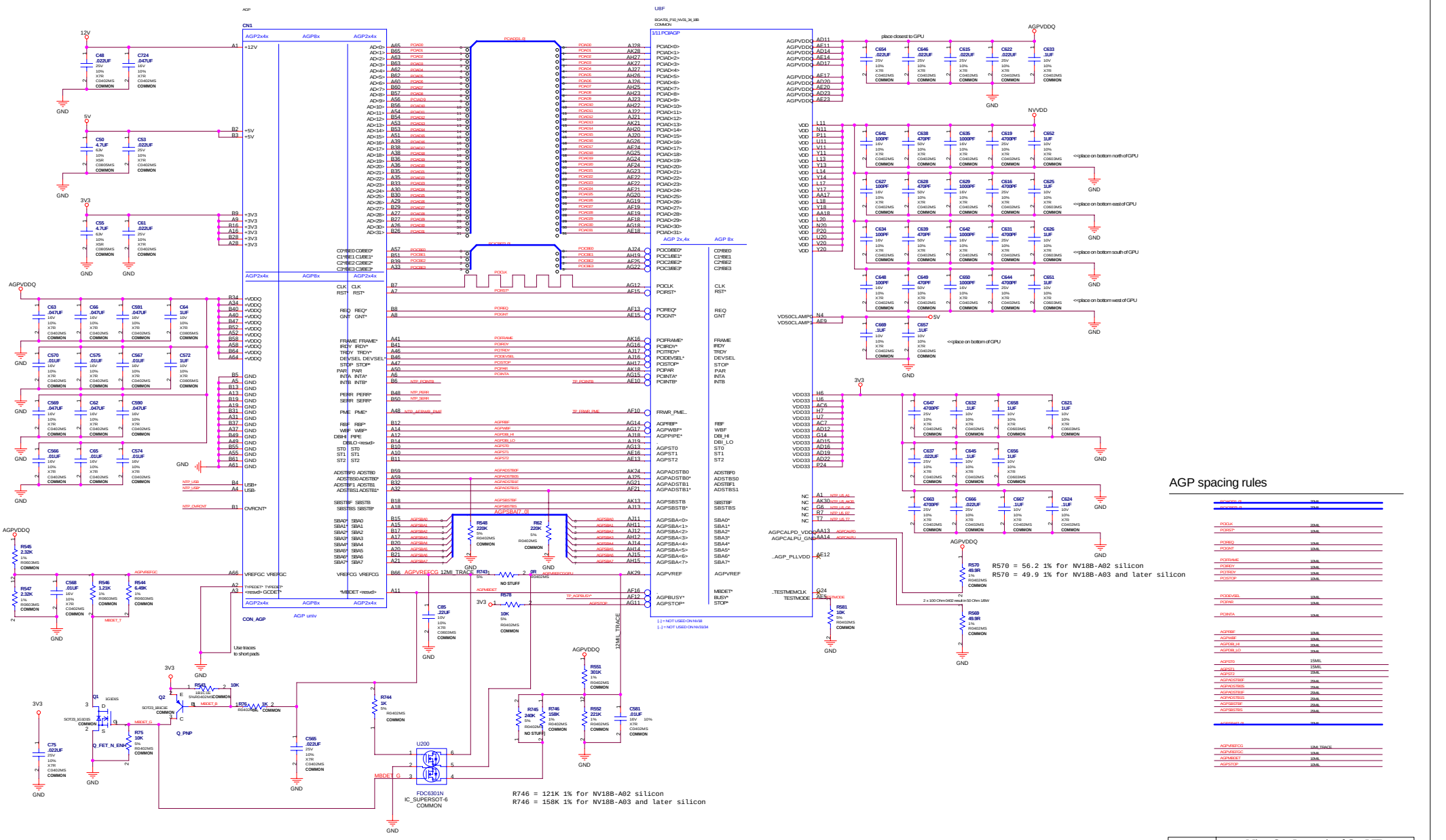
Micro-Star International Co., LTD.

MS-8907-A00

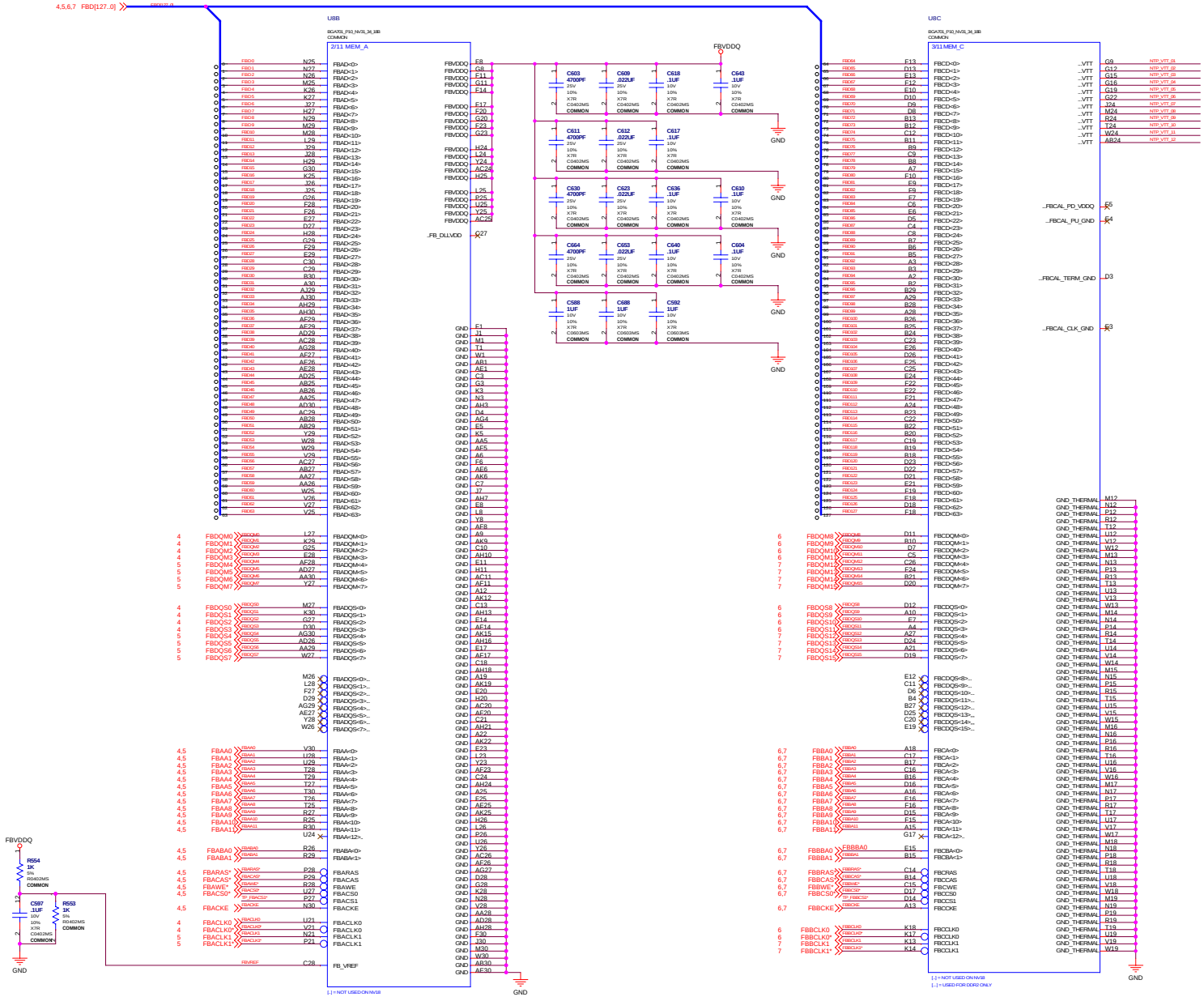
Size: Custom | Document Number: TOP PAGE | Rev: A00

Date: 星期二, 十二月 24, 2002 | Sheet 1 of 19

NV18 AGP SECTION AND AGP CONNECTOR

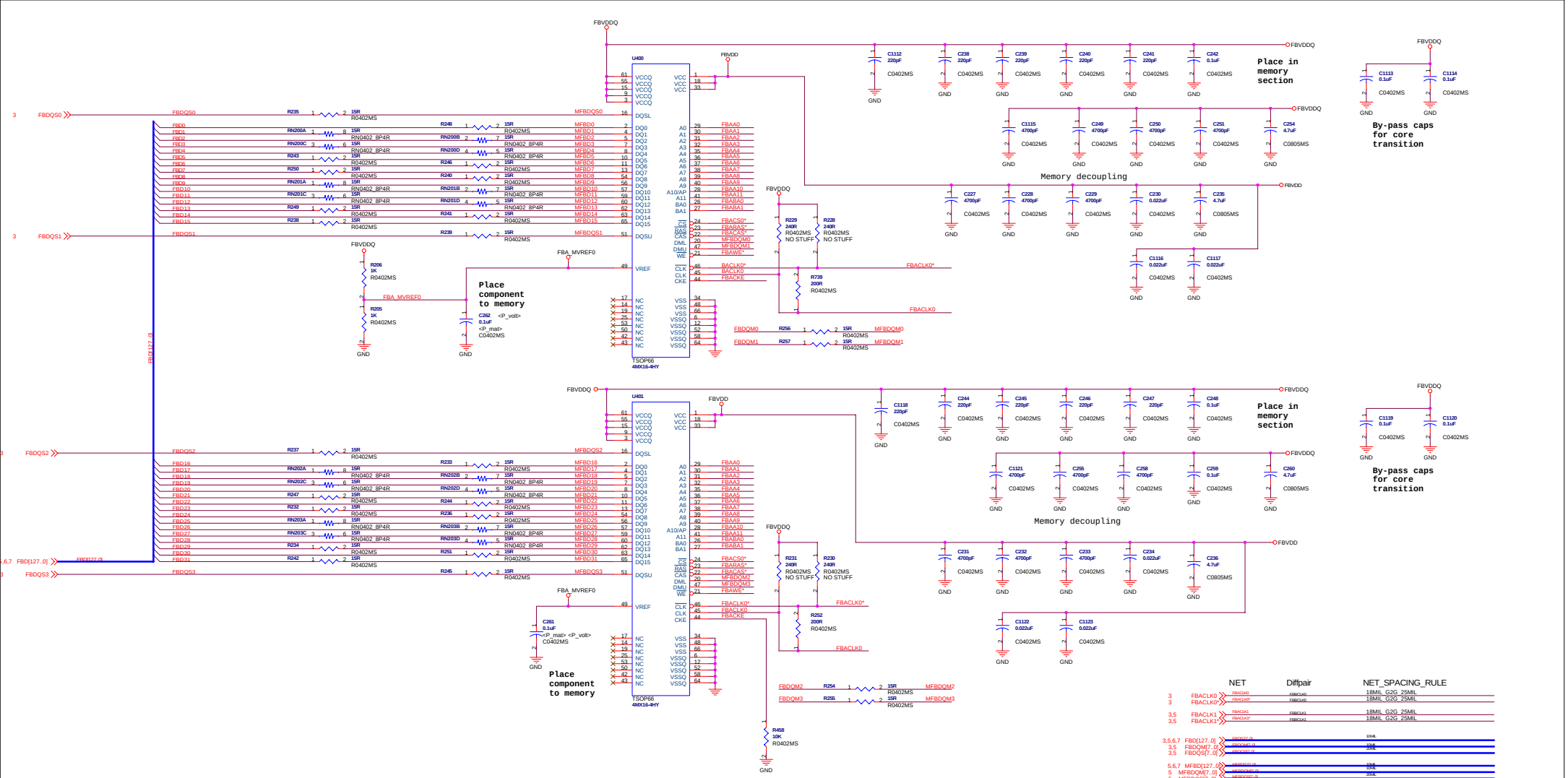


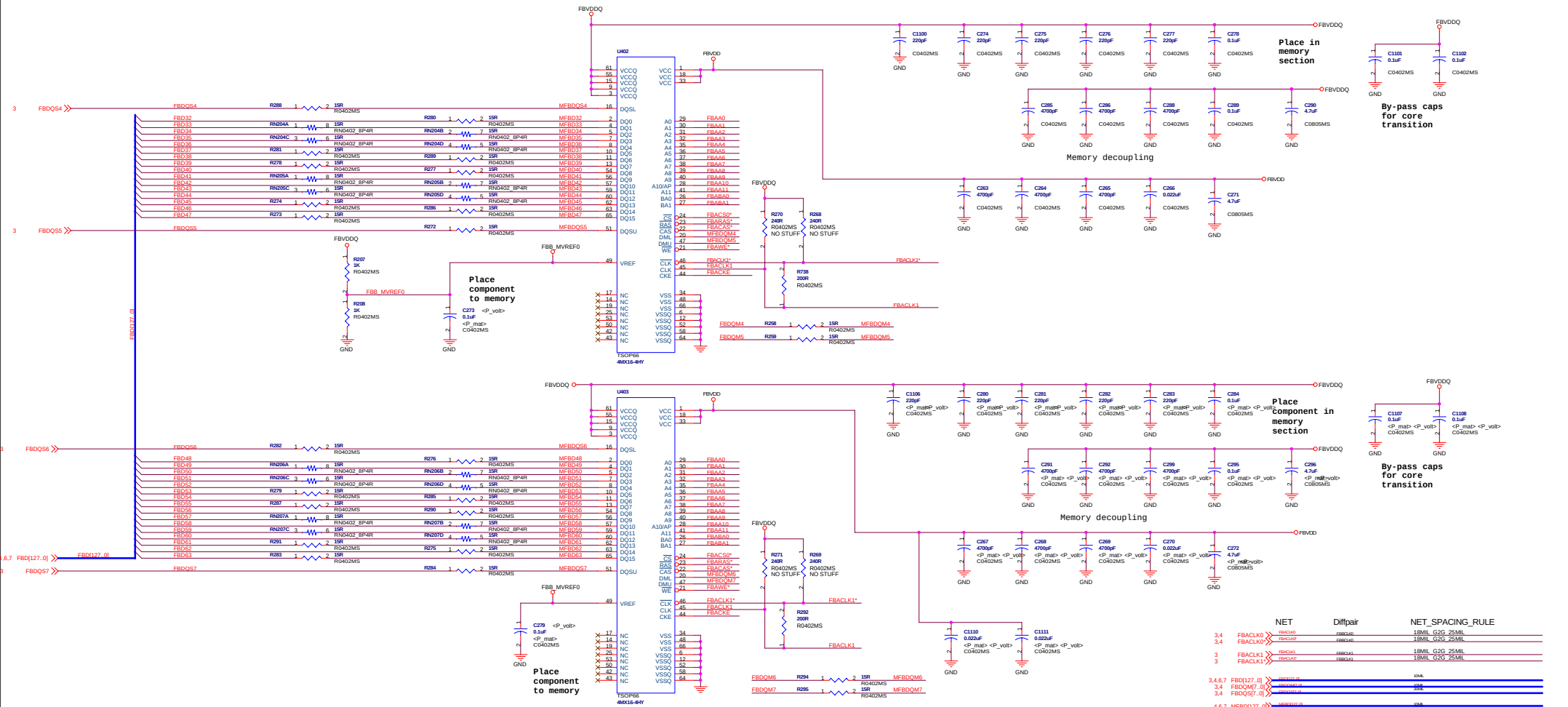
NV18 FRAMEBUFFER INTERFACE AND DECOUPLING

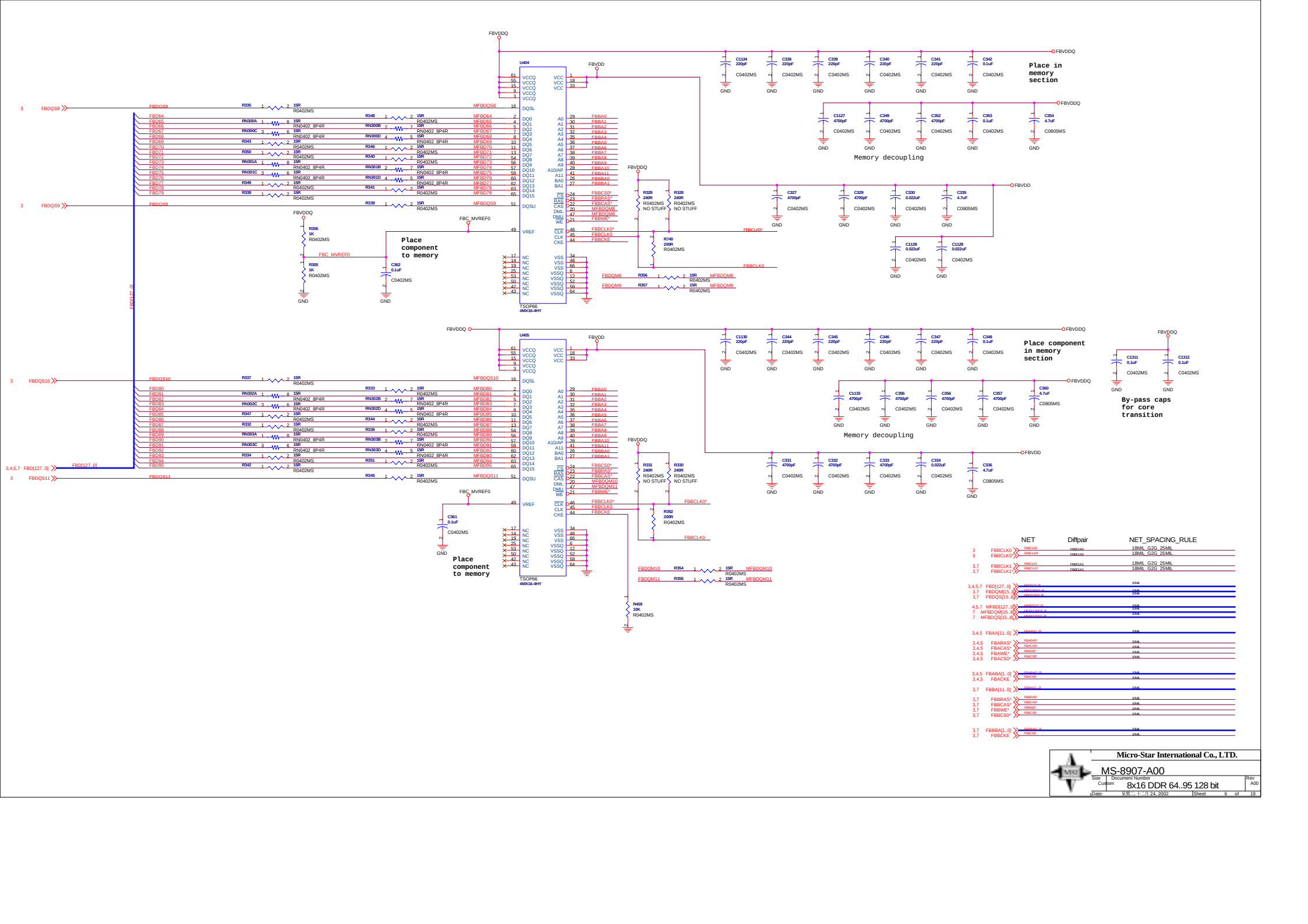


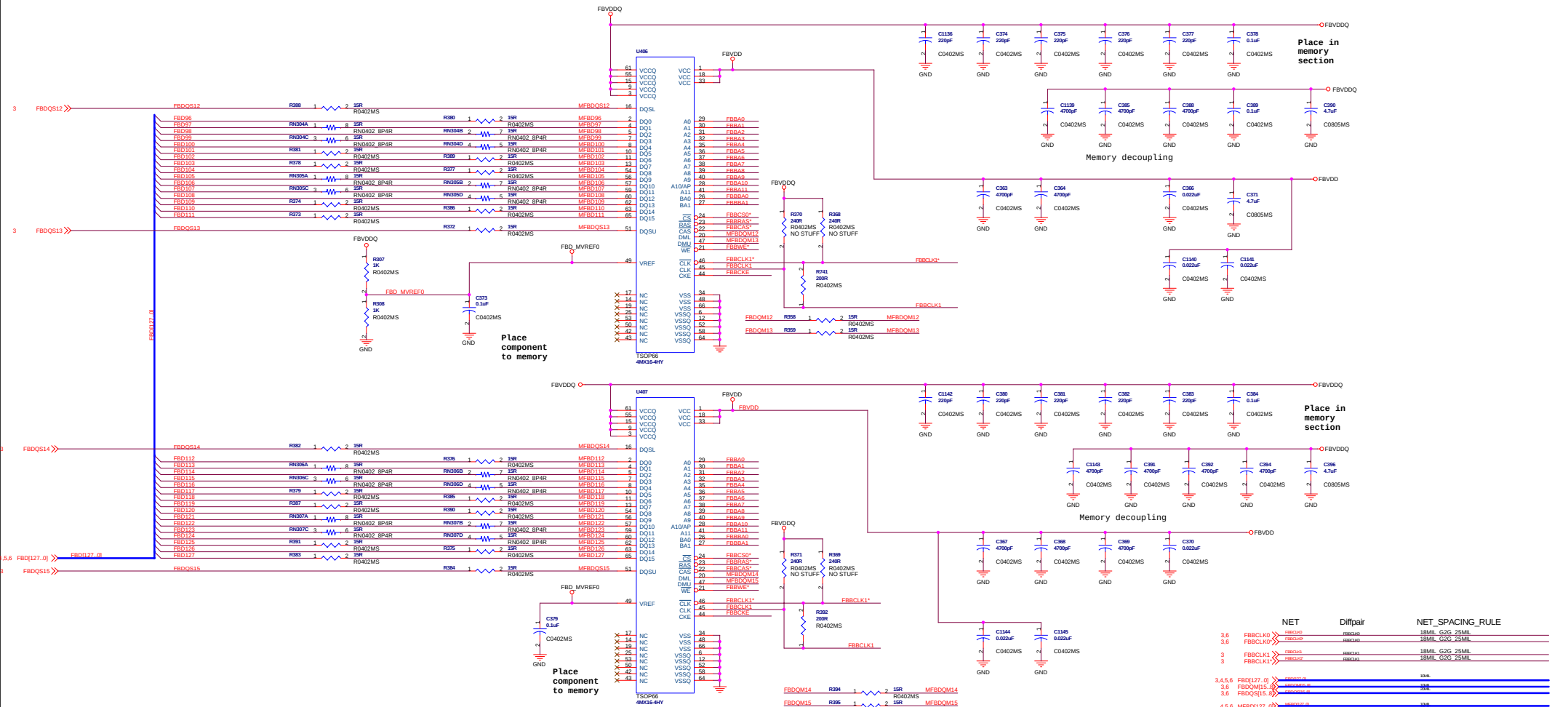
ALL NVIDIA DESIGN SPECIFICATIONS, REFERENCE BOARDS, FILES, DRAWINGS, DIAGNOSTICS, LISTS AND OTHER DOCUMENTS (TOGETHER AND SEPARATELY, MATERIALS) ARE BEING PROVIDED AS IS'.
NVIDIA MAKES NO WARRANTIES, EXPRESSED, IMPLIED, STATUTORY OR OTHERWISE WITH RESPECT TO THE MATERIALS, AND EXPRESSLY DISCLAIMS ALL IMPLIED WARRANTIES OF NONINFRINGEMENT, MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

Micro-Star International Co., LTD.			
MS-8907-A00			
Size: Custom	Document Number: FRAMEBUFFER INTERFACE		Rev: A00
Date: 星期二, 十二月 24, 2002	Sheet 3 of 19		


FBVDDQ
FBVDD
U400
TSOP66
4MX16-4HY
U401
Place in memory section
By-pass caps for core transition
Memory decoupling
Place component to memory
FBA_MVREF0
FBACLK0*
FBACLK0
FBDQM0
FBDQM1
FBDQM2
FBDQM3
FBD[127..0]
FBDQS0
FBDQS1
FBDQS2
FBDQS3
NET
Diffpair
NET_SPACING_RULE
Micro-Star International Co., LTD.
MS-8907-A00
8x16 DDR 0..31 128 bit
Size
Custom
Document Number
Rev
A00
Date:
星期二, 十二月 24, 2002
Sheet
4
of
19


FBVDDQ
FBVDD
U402
U403
TSOP66
4Mx16-4hY
Place in memory section
By-pass caps for core transition
Memory decoupling
Place component to memory
FBB_MVREF0
FBD[127..0]
FBDQS4
FBDQS5
FBDQS6
FBDQS7
FBACLK0
FBACLK1
FBACLK1*
FBACKE
FBACS0*
FBARAS*
FBACAS*
FBAWE*
FBABA0
FBABA1
FBAA[11..0]
FBDQM4
FBDQM5
FBDQM6
FBDQM7
NET
Diffpair
NET_SPACING_RULE
18MIL_G2G_25MIL
Micro-Star International Co., LTD.
MS-8907-A00
8x16 DDR 32..63 128 bit
Rev A00
Sheet 5 of 19

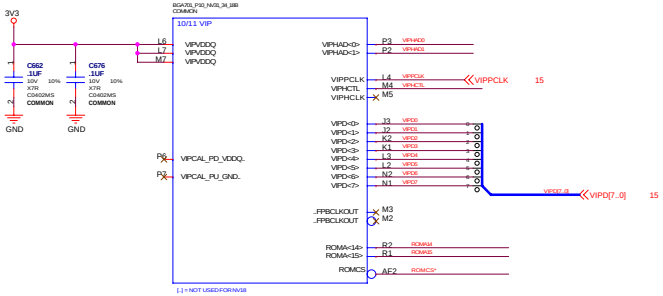

FBVDDQ
FBVDD
U404
U405
TSOP66
4MX16-4HY
Place component to memory
Place in memory section
Memory decoupling
Place component in memory section
By-pass caps for core transition
FBC_MVREF0
FBC_MVREF1
FBDQS8
FBDQS9
FBDQS10
FBDQS11
FBD[127..0]
FBBA0
FBBA1
FBBA2
FBBA3
FBBA4
FBBA5
FBBA6
FBBA7
FBBA8
FBBA9
FBBA10
FBBA11
FBBA0
FBBA1
FBBCS0*
FBBRAS*
FBBCAS*
MFBDQM8
MFBDQM9
MFBDQM10
MFBDQM11
FBBWE*
FBBCLK0*
FBBCLK0
FBBCKE
FBBCLK1*
FBBCLK1
NET
Diffpair
NET_SPACING_RULE
18MIL_G2G_25MIL
Micro-Star International Co., LTD.
MS-8907-A00
8x16 DDR 64..95 128 bit
Size
Custom
Document Number
Rev
A00
Date:
Sheet
6
of
19

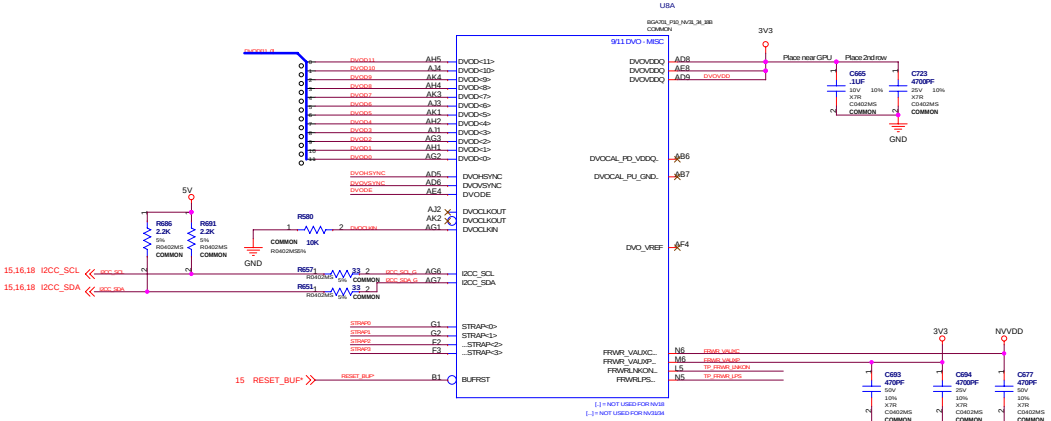


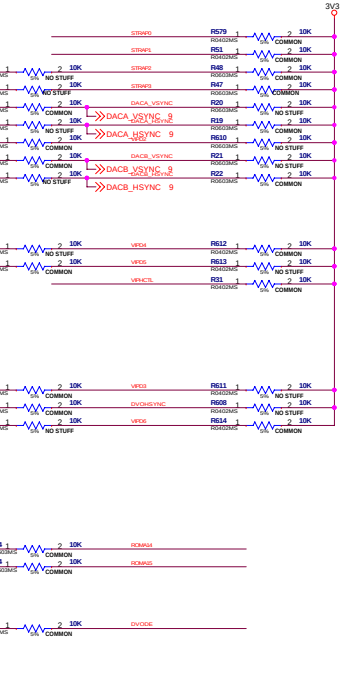
NET	Diffpair	NET_SPACING_RULE
3,6 FBBCLK0	FBBCLK0	18MIL_G2G_25MIL
3,6 FBBCLK0*	FBBCLK0*	18MIL_G2G_25MIL
3 FBBCLK1	FBBCLK1	18MIL_G2G_25MIL
3 FBBCLK1*	FBBCLK1*	18MIL_G2G_25MIL
3,4,5,6 FBD[127..0]		10MIL
3,6 FBDQM[15..8]		20MIL
3,6 FBDQS[15..8]		20MIL
4,5,6 MFBD[127..0]		10MIL
6 MFBDQM[15..8]		20MIL
6 MFBDQS[15..8]		20MIL
3,4,5 FBAA[11..0]		10MIL
3,4,5 FBARAS*	FBARAS*	10MIL
3,4,5 FBACAS*	FBACAS*	10MIL
3,4,5 FBAWE*	FBAWE*	10MIL
3,4,5 FBACS0*	FBACS0*	10MIL
3,4,5 FBABA[1..0]		10MIL
3,4,5 FBACKE	FBACKE	10MIL
3,6 FBBA[11..0]		10MIL
3,6 FBBRAS*	FBBRAS*	10MIL
3,6 FBBCAS*	FBBCAS*	10MIL
3,6 FBBWE*	FBBWE*	10MIL
3,6 FBBCS0*	FBBCS0*	10MIL
3,6 FBBBA[1..0]		10MIL
3,6 FBBCKE	FBBCKE	10MIL

Micro-Star International Co., LTD.		
MS-8907-A00		
Size: Custom	Document Number: 8x16 DDR 96..127 128 bit	Rev: A00
Date: 星期二, 十二月 24, 2002	Sheet 7 of 19	

NV18 STRAPPING, I/O INTERFACE, BIOS, FAN CONTROL AND TEMP SENSOR

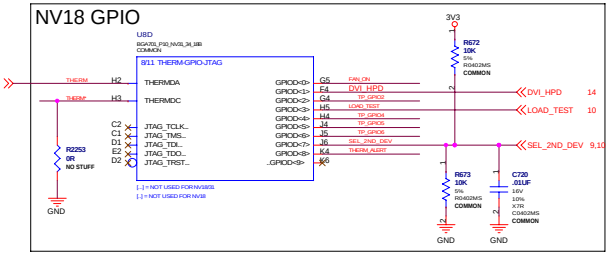


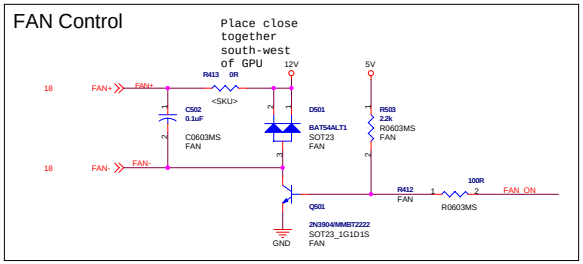


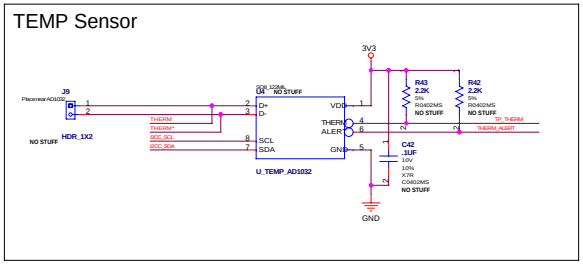


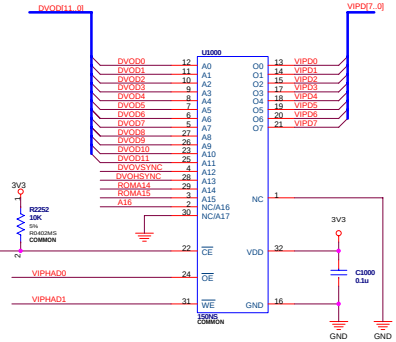
STRAPPING OPTIONS

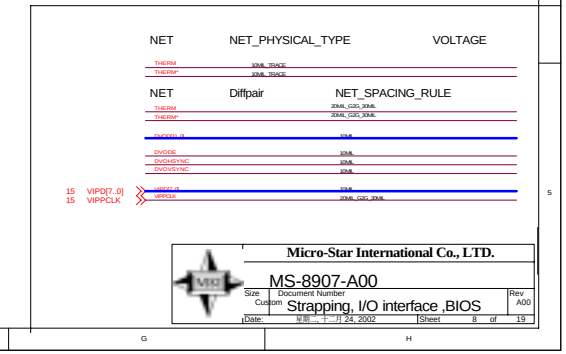
Bit	Signal	VALUE_ID	VALUEs
00: PCI_AD_SWAP	PCI_AD	0:REVERSED 1:NORMAL	
01: SUB_VENDOR	SUB_VENDOR	0:NO_BIOS 1:read from BIOS	
02: RAM_CFG_0	RAMCFG[3:0]	0000:2Mx32 SDR 0001:4Mx16 SDR 0010:RFU 0011:RFU 0100:RFU 0101:4Mx32 SDR 0110:8Mx16 SDR 0111:8Mx32 SDR	1000:2Mx32 DDR 1001:2Mx16 DDR 1010:4Mx16 DDR 1011:8Mx16 DDR 1100:RFU 1101:4Mx32 DDR 1110:RFU 1111:8Mx32 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 10:PAL 11:CRT	
08: TV_MODE_1			
09: AGPtestbx			
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 10:Serial_SST45VF 11:RFU	
30: ROM_TYPE_1			
01: 1394_EN_0	1394[0]	0:disabled 1:enabled	











Micro-Star International Co., LTD.

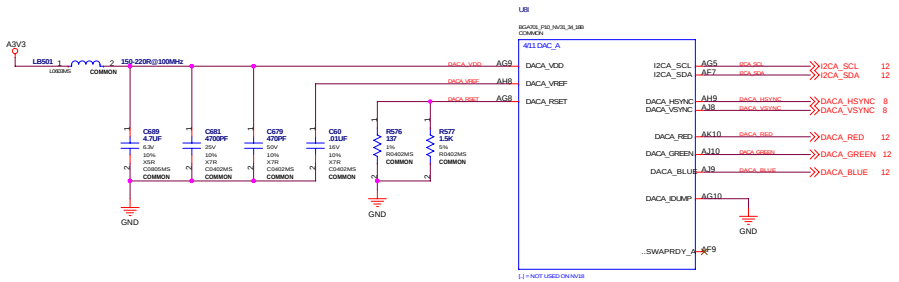
MS-8907-A00

Size: Custom | Document Number: Strapping, I/O interface ,BIOS | Rev: A00

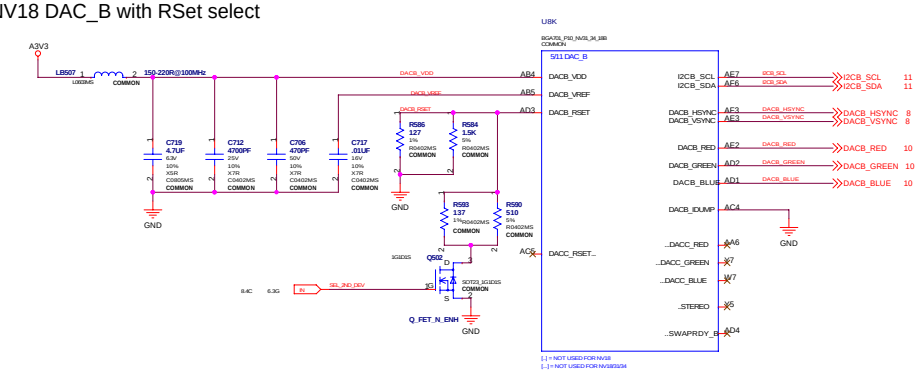
Date: 星期二, 十二月 24, 2002 | Sheet 8 of 19

NV18 DAC_A, DAC_B, PLL, SYNC AMPL

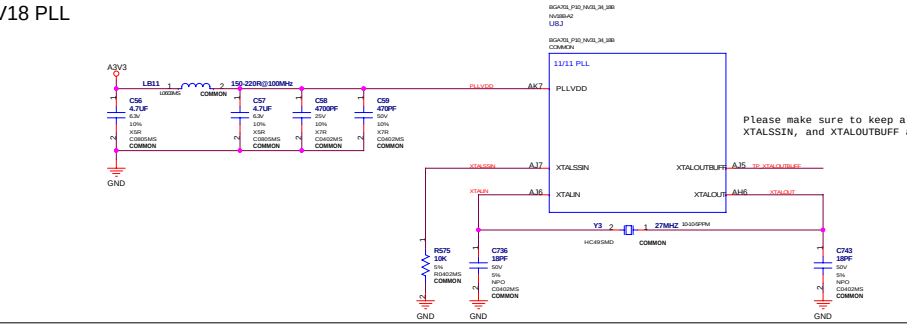
NV18 DAC_A



NV18 DAC_B with RSet select

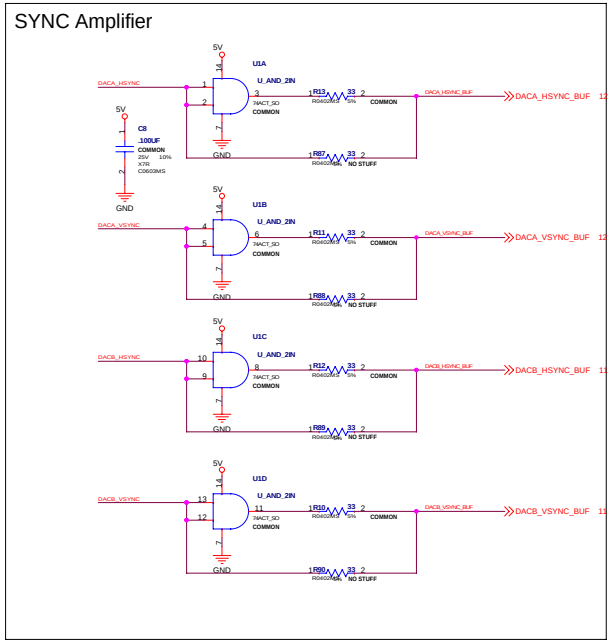


NV18 PLL



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	XML TRACE	3.3V
DACA_VREF	XML TRACE	
DACA_RSET	XML TRACE	
DACB_VDD	XML TRACE	3.3V
DACB_VREF	XML TRACE	
DACB_RSET	XML TRACE	
PLLVDD	XML TRACE	3.3V

NET	IMPEDANCE	NET_SPACING_RULE
12 DACA_RED	DACA_RED 37.5 OHM	20MIL GDG 30MIL
12 DACA_GREEN	DACA_GREEN 37.5 OHM	20MIL GDG 30MIL
12 DACA_BLUE	DACA_BLUE 37.5 OHM	20MIL GDG 30MIL
	DACB_RED 37.5 OHM	20MIL GDG 30MIL
10 DACB_RED	DACB_GREEN 37.5 OHM	20MIL GDG 30MIL
10 DACB_GREEN	DACB_BLUE 37.5 OHM	20MIL GDG 30MIL
10 DACB_BLUE		

Micro-Star International Co., LTD.

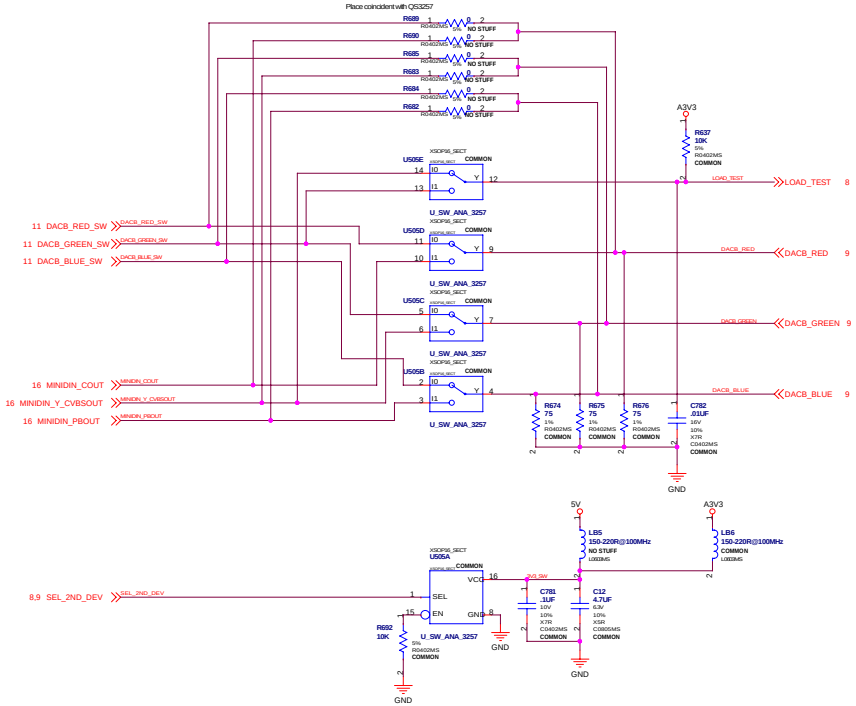
MS-8907-A00

Size: Custom | Document Number: DAC_A,DAC_B,PLL,SYNC AMPL | Rev: 1.00

Date: 星期二, 二月 24, 2002 | Sheet 9 of 19

DACB SWITCH BETWEEN VGA OUT AND TV OUT

NET	IMPEDANCE	NET_SPACING_RULE
11 DACB_RED_SW	37.5 OHM	20MIL GSG 30MIL
11 DACB_GREEN_SW	37.5 OHM	20MIL GSG 30MIL
11 DACB_BLUE_SW	37.5 OHM	20MIL GSG 30MIL
16 MINIDIN_COUT	37.5 OHM	20MIL GSG 30MIL
16 MINIDIN_Y_CVBSOUT	37.5 OHM	20MIL GSG 30MIL
16 MINIDIN_PBOUT	37.5 OHM	20MIL GSG 30MIL



ALL NVIDIA DESIGN SPECIFICATIONS, REFERENCE BOARDS, FILES, DRAWINGS, DIAGNOSTICS, LISTS AND OTHER DOCUMENTS (TOGETHER AND SEPARATELY, MATERIALS) ARE BEING PROVIDED 'AS IS'.
NVIDIA MAKES NO WARRANTIES, EXPRESSED, IMPLIED, STATUTORY OR OTHERWISE WITH RESPECT TO THE MATERIALS, AND EXPRESSLY DISCLAIMS ALL IMPLIED WARRANTIES OF NONINFRINGEMENT, MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

Micro-Star International Co., LTD.

MS-8907-A00

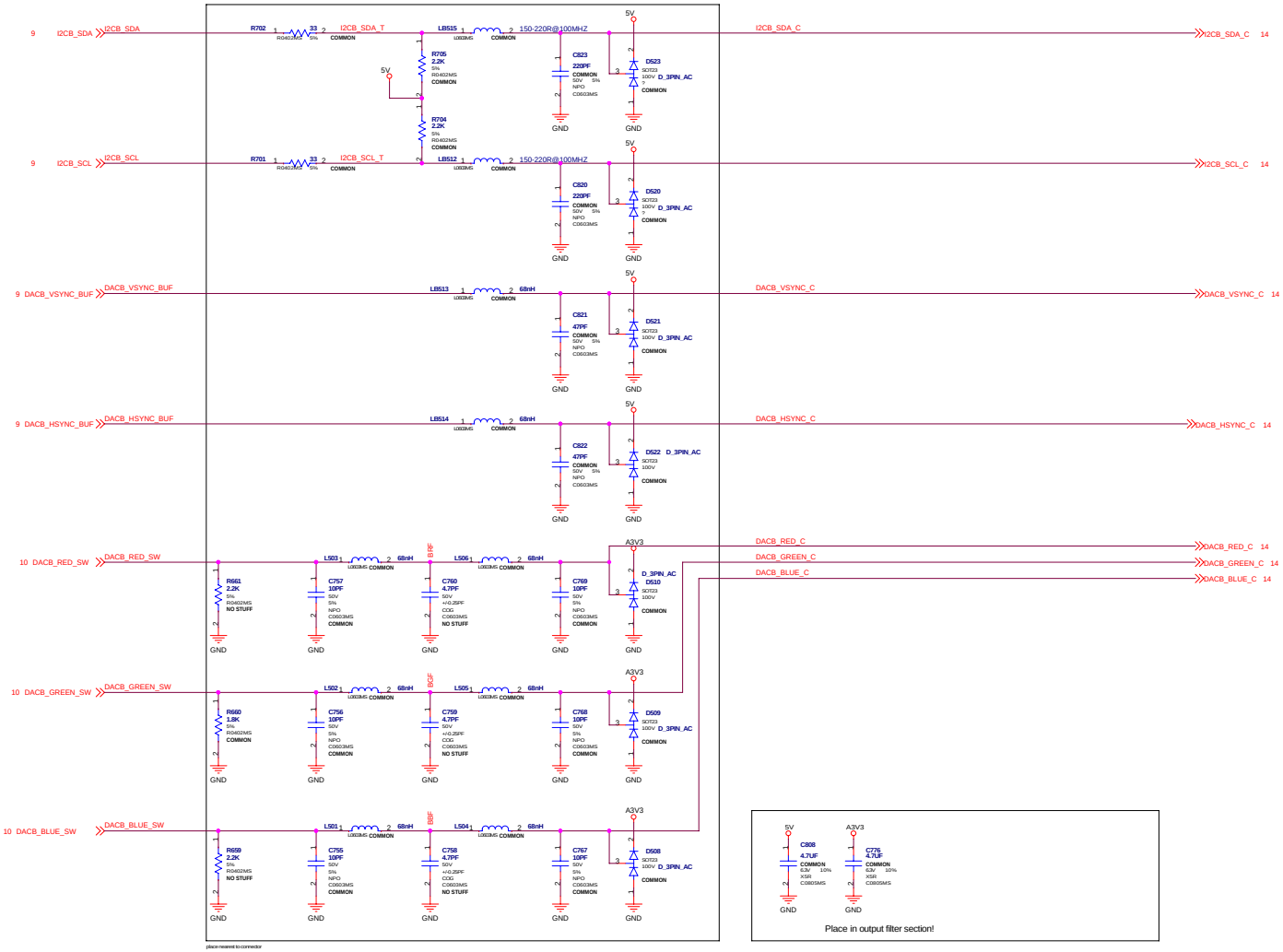
Size	Document Number	Rev
Custom	SWITCH BETWEEN VGA AND TV-OUT	A00

Date: 星期二, 十二月 24, 2002 Sheet 10 of 19

DACB output

NET	IMPEDANCE	NET_SPACING_RULE
BRF	37.5 OHM	20MIL_G2G_20MIL
BGF	37.5 OHM	20MIL_G2G_20MIL
BBF	37.5 OHM	20MIL_G2G_20MIL
DACB_RED_C	10MIL_TRACE	20MIL_G2G_20MIL
DACB_GREEN_C	10MIL_TRACE	20MIL_G2G_20MIL
DACB_BLUE_C	10MIL_TRACE	20MIL_G2G_20MIL

EMI-FILTER



Micro-Star International Co., LTD.

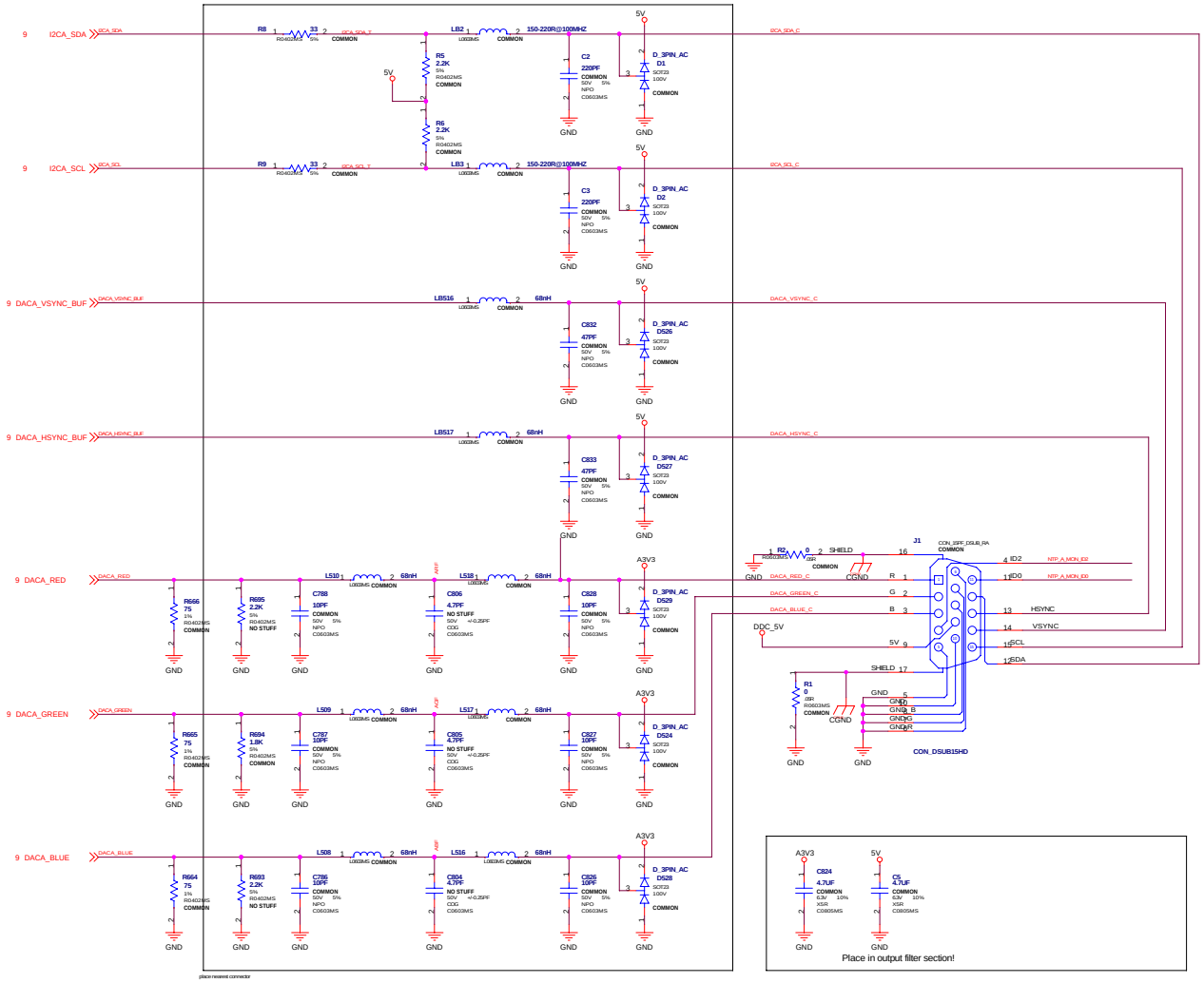
Size	Document Number	Rev
Custom	MS-8907-A00	A00
Date: 星期二, 十二月 24, 2002	Sheet 11 of 19	

DAC B CONNECT

DACB output

NET	IMPEDANCE	NET_SPACING_RULE
ADF	37.5 OHM	20MIL_CSC_20MIL
ACF	37.5 OHM	20MIL_CSC_20MIL
ABF	37.5 OHM	20MIL_CSC_20MIL
DACA_RED_C	10MIL_TRACE	20MIL_CSC_20MIL
DACA_GREEN_C	10MIL_TRACE	20MIL_CSC_20MIL
DACA_BLUE_C	10MIL_TRACE	20MIL_CSC_20MIL

EMI-FILTER



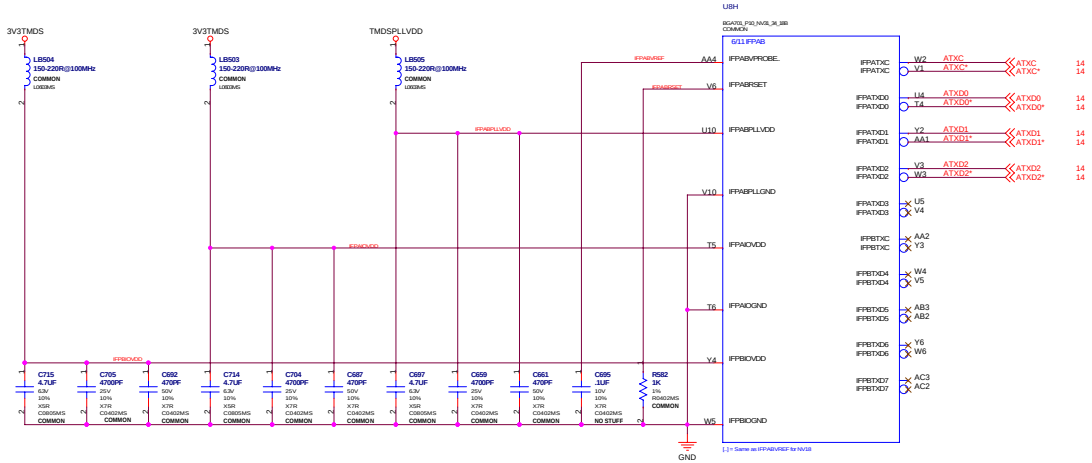
Micro-Star International Co., LTD.

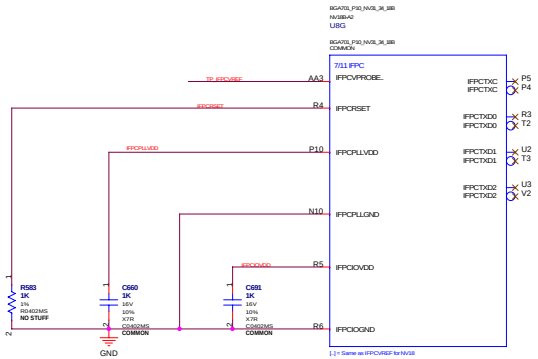
MS-8907-A00

Size	Document Number	Rev
Custom	DAC A CONNECT	A00
Date: 星期二, 十二月 24, 2002	Sheet 12 of 19	

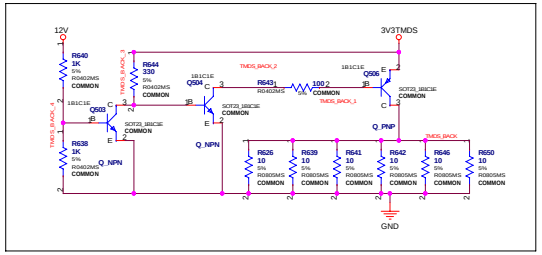
INTERNAL TMDS POWER AND DECOUPLING

NET	NET_PHYSICAL_TYPE	VOLTAGE
IFPABVREF	XML_TRACE	3.3V
IFPABPLLVDD	XML_TRACE	3.3V
IFPACVDD	XML_TRACE	3.3V
IFPBICVDD	XML_TRACE	3.3V
IFPCPLLVDD	XML_TRACE	3.3V
IFPCIOVDD	XML_TRACE	3.3V
TMDS_BACK	XML_TRACE	3.3V





TMDS backdrive prevention



Micro-Star International Co., LTD.

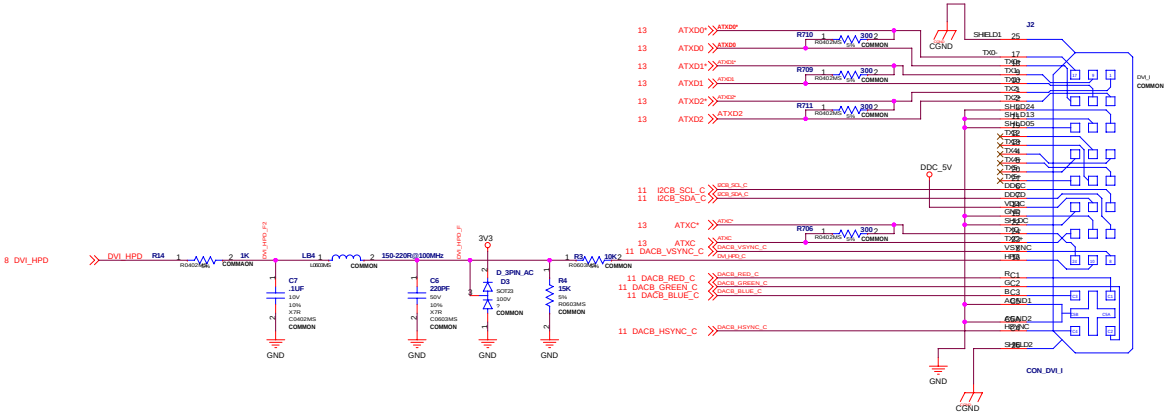
MS-8907-A00

Size: Custom | Document Number: TMDS POWER AND DECOUPING | Rev: A00

Date: 星期二, 十二月 24, 2002 | Sheet 13 of 19

DVI_I OUTPUT

NET	Diffpair	NET_SPACING_RULE
13 ATXD0	ATXD0	18MIL GSG 25MIL
13 ATXD0*	ATXD0*	18MIL GSG 25MIL
13 ATXD1	ATXD1	18MIL GSG 25MIL
13 ATXD1*	ATXD1*	18MIL GSG 25MIL
13 ATXD2	ATXD2	18MIL GSG 25MIL
13 ATXD2*	ATXD2*	18MIL GSG 25MIL
13 ATXC	ATXC	18MIL GSG 25MIL
13 ATXC*	ATXC*	18MIL GSG 25MIL



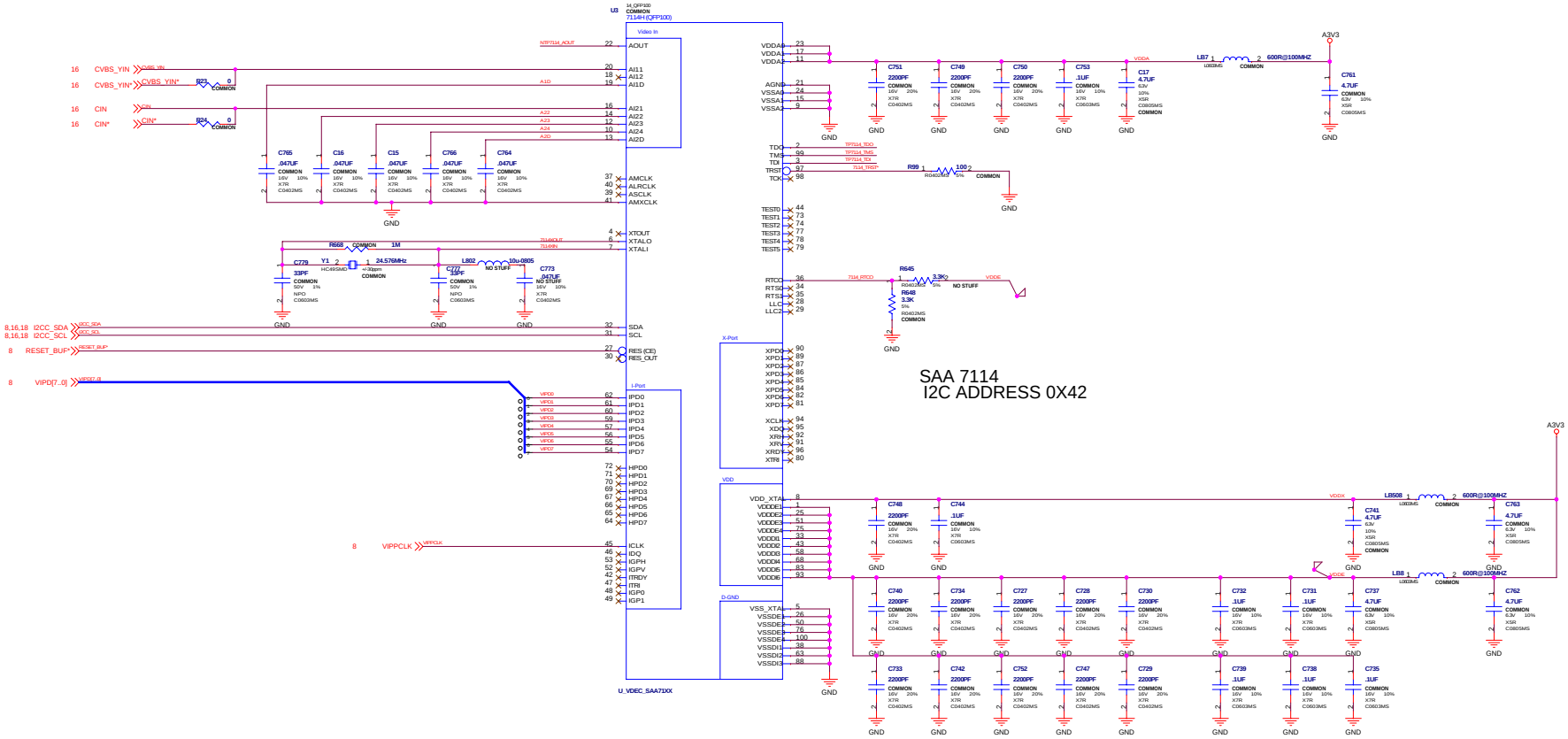
ALL NVIDIA DESIGN SPECIFICATIONS, REFERENCE BOARDS, FILES, DRAWINGS, DIAGNOSTICS, LISTS AND OTHER DOCUMENTS (TOGETHER AND SEPARATELY, MATERIALS) ARE BEING PROVIDED 'AS IS'.
NVIDIA MAKES NO WARRANTIES, EXPRESSED, IMPLIED, STATUTORY OR OTHERWISE WITH RESPECT TO THE MATERIALS, AND EXPRESSLY DISCLAIMS ALL IMPLIED WARRANTIES OF NONINFRINGEMENT, MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

Micro-Star International Co., LTD.

MS-8907-A00

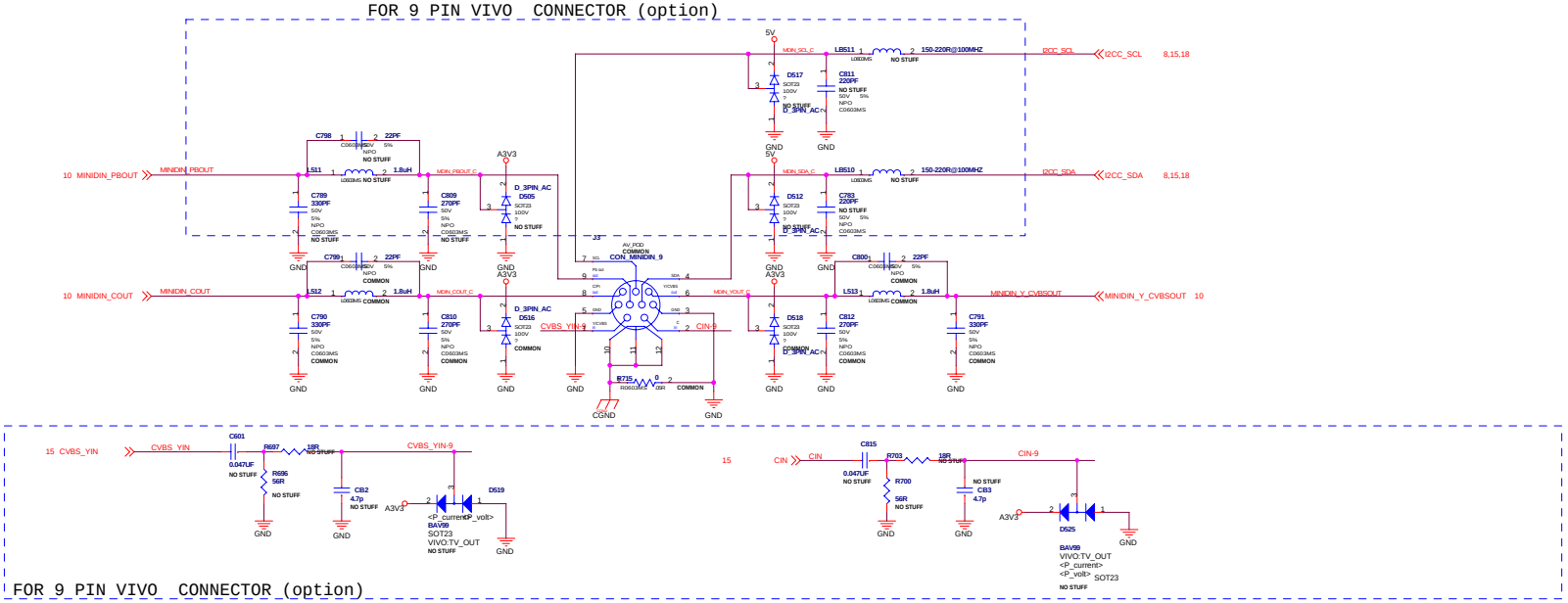
Size	Document Number	Rev
Custom	DVI CONNECT	A00
Date: 星期二, 十二月 24, 2002	Sheet 14 of 19	

VIDEO CAPTURE



Micro-Star International Co., LTD.		
MS-8907-A00		
Size: Custom	Document Number: VIDEO CAPTURE	Rev: A00
Date: 星期二, 十二月 24, 2002	Sheet 15 of 19	

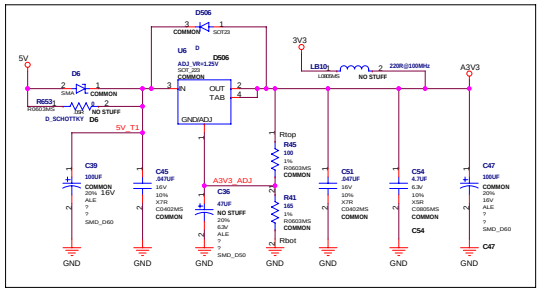
VIDEO IN/OUT
CONNECTOR



Micro-Star International Co., LTD.			
MS-8907-A00			
Size: Custom	Document Number: VIDEO IN/OUT CONNECT		Rev: A00
Date: 星期二, 十二月 24, 2002		Sheet 16 of 19	

POWER SUPPLY

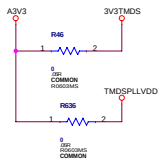
ANALOG 3V3

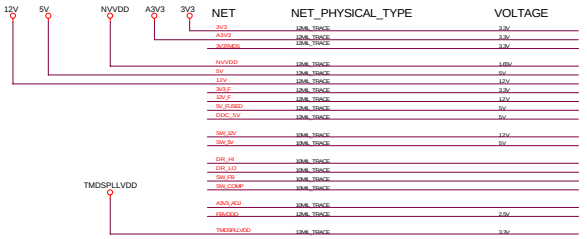


Vout = VRef * (1+Rbot/Rtop)

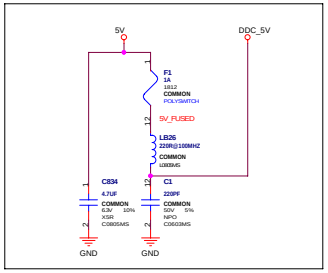
3.31V = 1.25V * (1+(165/100))

TMDS 3V3 Supply
TMDS PLL Supply

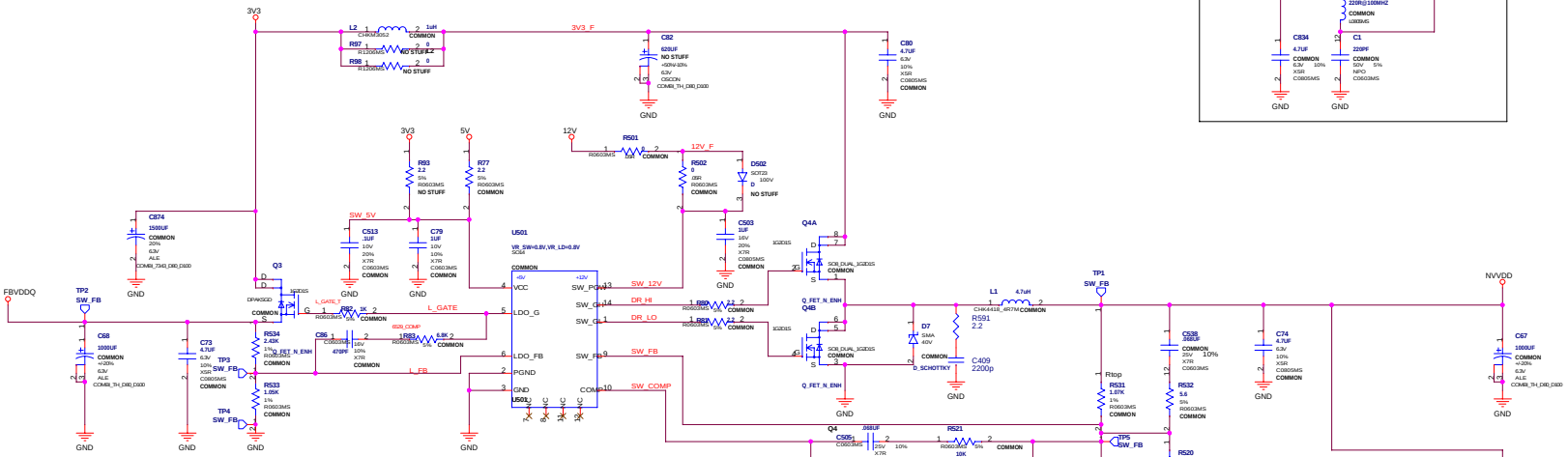




DDC 5V



NVDD-SWITCHER / FBVDD-LDO CONTROLER ISL6529



FBVDDQ = VRef * (1+Rtop/ Rbot)

ISL6529 2.5V = 0.800V * (1+2.4k/1.13k)

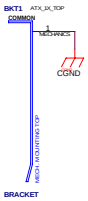
ISL6529 2.8V = 0.800V * (1+2.67k/1.07k)

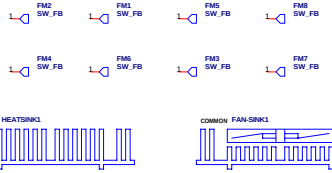
NVVDD = VRef * (1+Rtop/ Rbot)

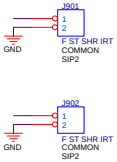
ISL6529 1.656V = 0.800V * (1+1070/1000)

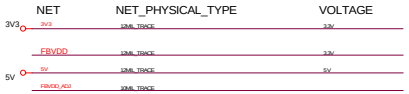
Micro-Star International Co., LTD.			
MS-8907-A00			
Size: Custom	Document Number: POWER SUPPLY		Rev: A00
Date: 星期二, 十二月 24, 2002		Sheet 17 of 19	

MECHANICS





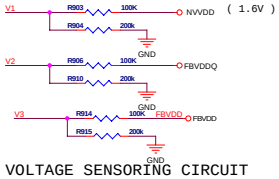




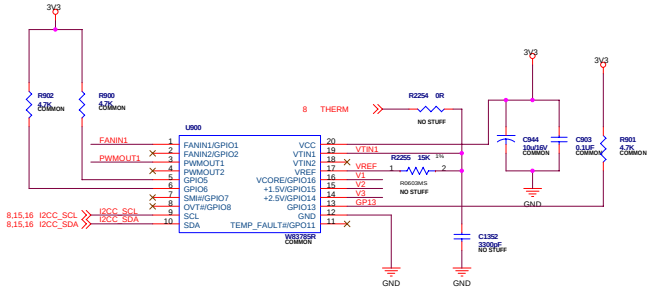
H/W Monitor Funtion

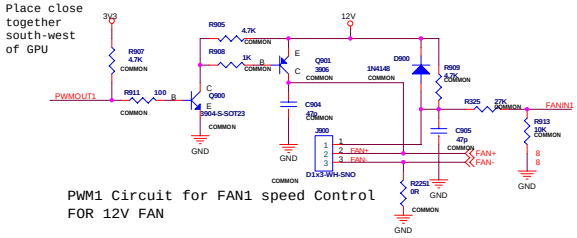
NO STUFF

EXCEPT J7



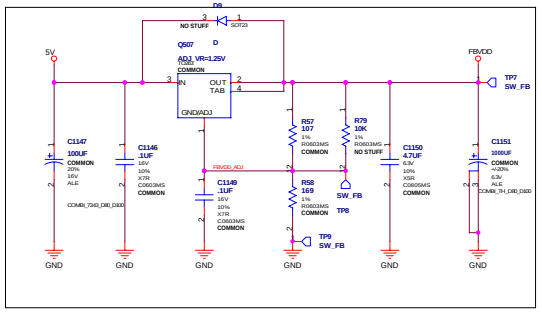
VOLTAGE SENSORING CIRCUIT

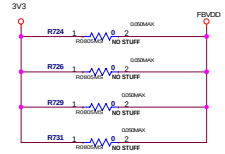




PWM1 Circuit for FAN1 speed Control
FOR 12V FAN

FBVDD Supply

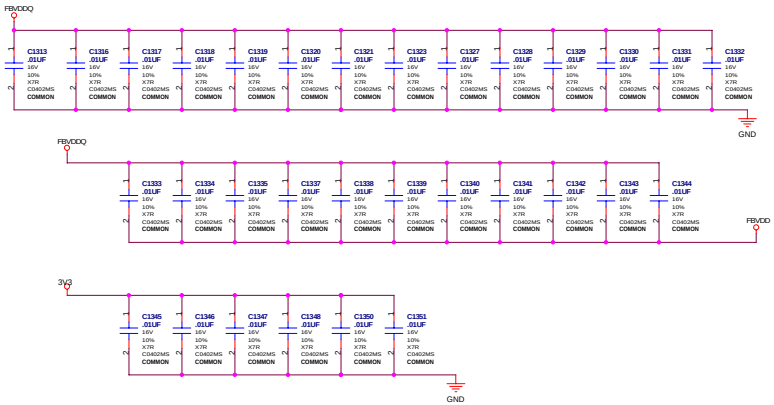




FBVDD = VRef * (1+Rbot/ Rtop)

3.315V = 1.250V * (1+ 165/ 100)

3.300V = 1.250V * (1+ 187/ 115)



Micro-Star International Co., LTD.
MS-8907-A00
Size: Custom | Document Number: MECHANICS | Rev: A00
Date: 星期二, 十二月 24, 2002 | Sheet 18 of 19