

C116, NV18, 8MX16DDR, 128MB, Video IN/OUT, DVI-I, VGA

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- NVVD, MEM_VDD, A3V3, TMDSV3, TMDSP
- 20 MECHANICS, and FBVDD

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 slim 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

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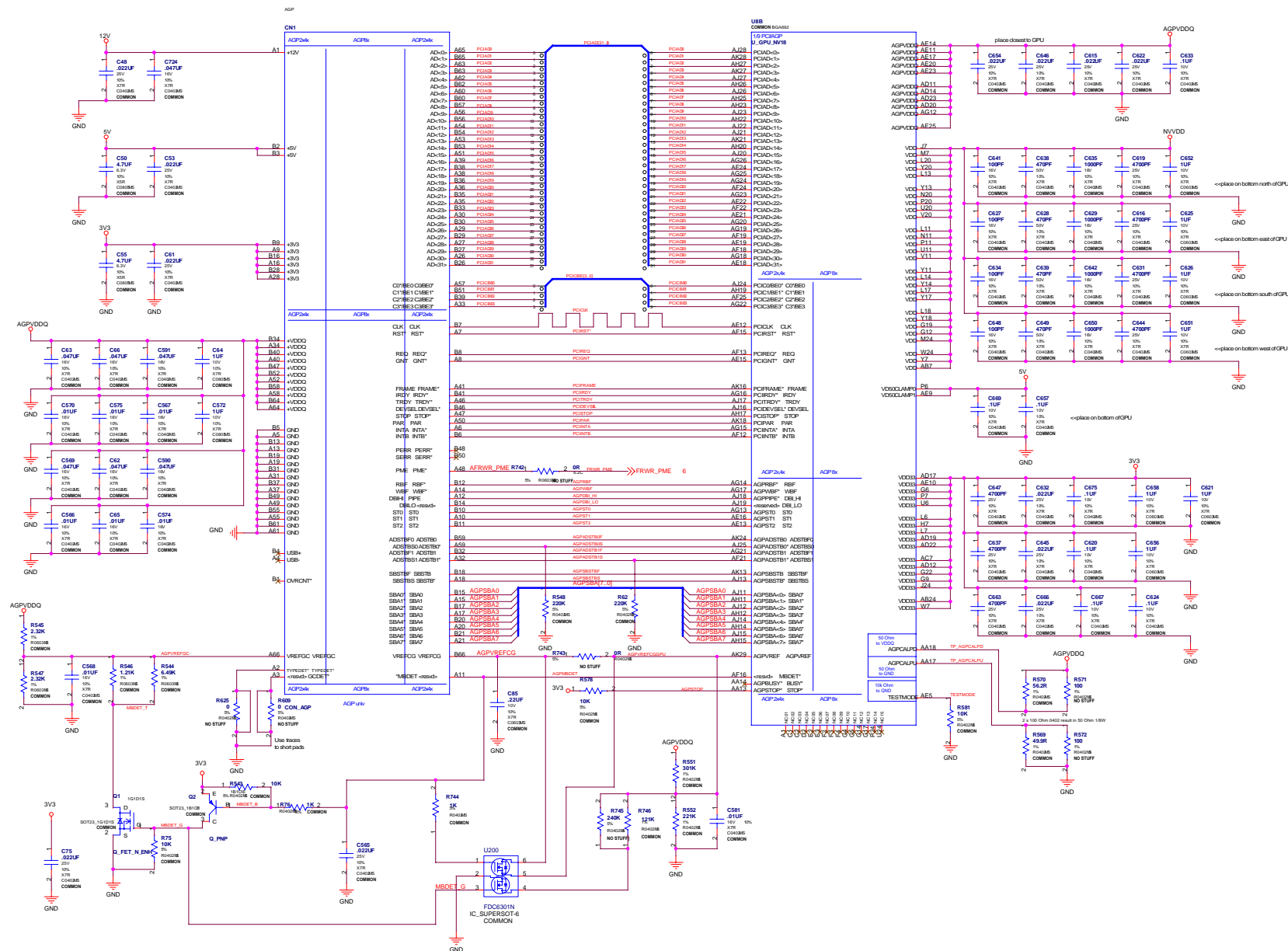
Micro-Star International Co., LTD.

MS-8895 base on C116 Modify

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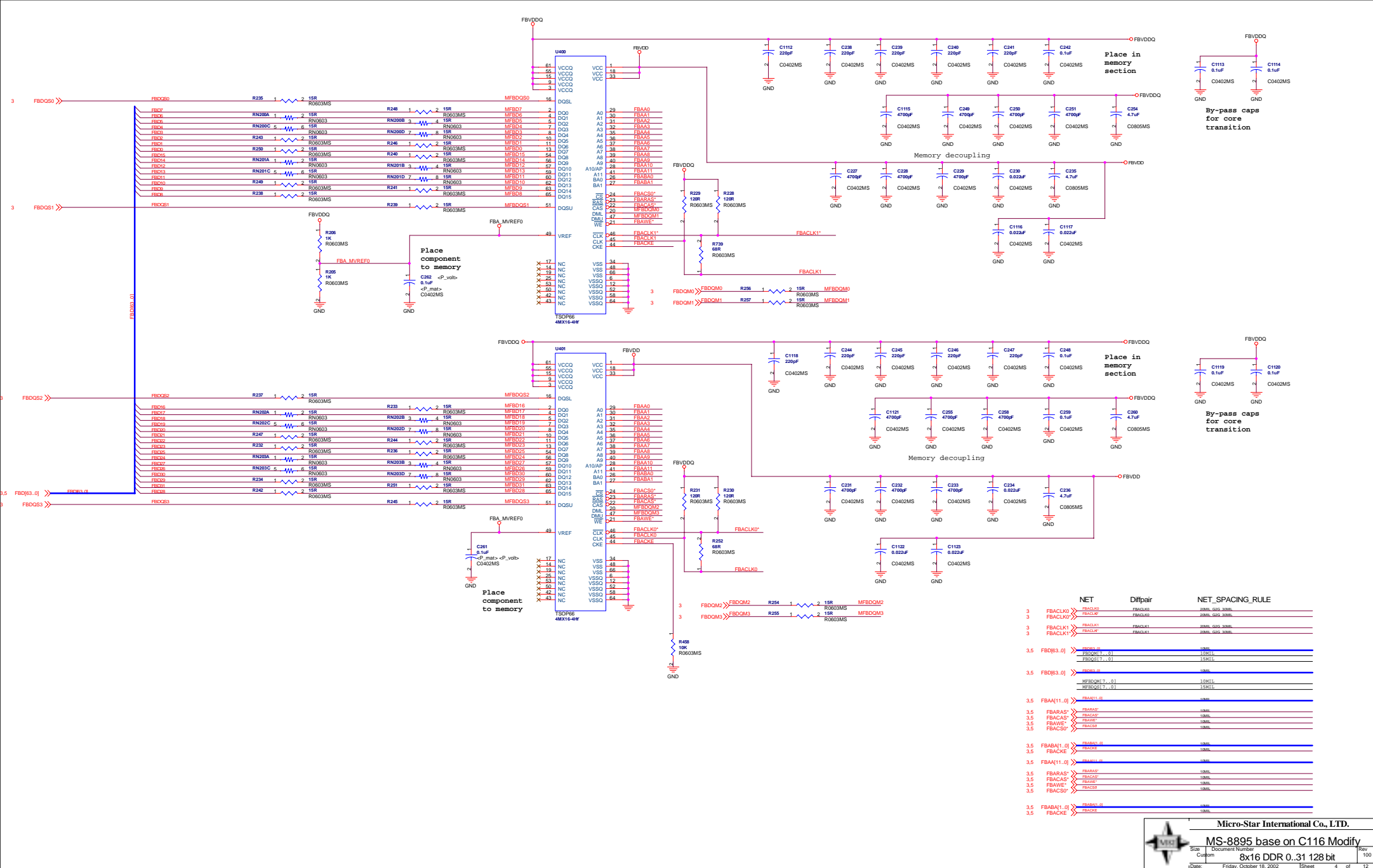
Date: Friday, October 18, 2002 Sheet: 1 of 12

NV18 AGP SECTION AND AGP CONNECTOR

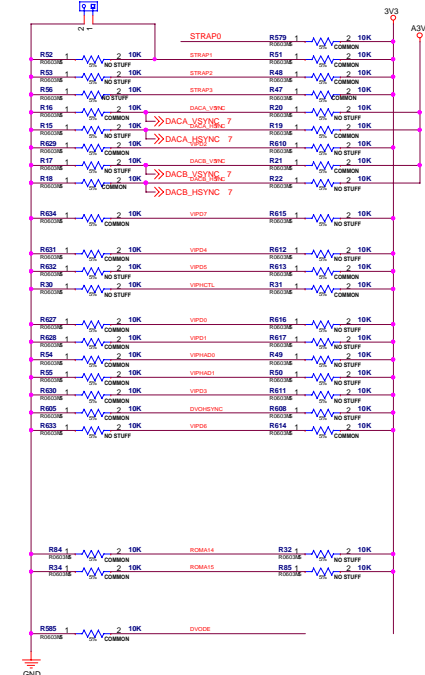
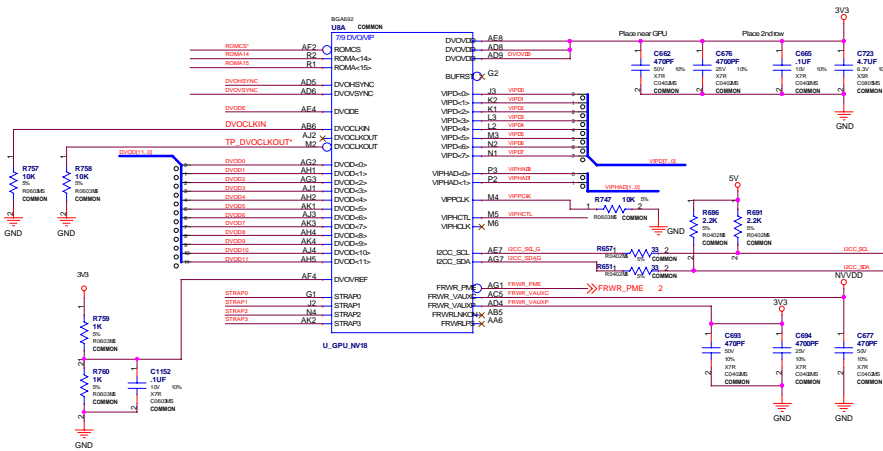


AGP spacing rules

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PCJROD	100%
PCJGNT	100%
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PCFRST	100%
PCFRD7D	100%
PCFSTP	100%
PCCEVEL	100%
PCFPR	100%
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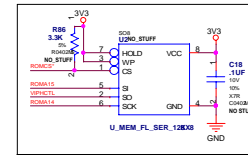
NV18 STRAPPING, I/O INTERFACE, BIOS, FAN CONTROL AND TEMP SENSOR



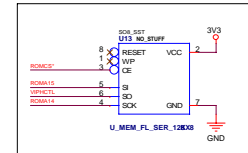
STRAPPING OPTIONS

BN	Signal	VALUE_ID	VALUES
00	PCI_AD_BWIP	PCI_AD	0 REVERSED 1 NORMAL
01	SUB_VENDOR	SUB_VENDOR	1 PCI_BIOS 1 read from BIOS
02	RAM_CFG_0	RAMCFG[34:0]	0000 20A2 0000 1000 20A20000 0001 40A0 0000 1000 20A20000
03	RAM_CFG_1		0010 40A0 0000 1000 40A00000 0011 0000 0000 1000 40A00000
04	RAM_CFG_2		0100 0000 0000 1000 00000000 0101 40A0 0000 1000 40A00000
05	RAM_CFG_3		0110 0000 0000 1000 00000000 0111 0000 0000 1000 00000000
06	CRYSTAL2	CRYSTAL[1:0]	00 1A 1000 0000 12 27 000 00 01 1A 1181 0000 12 27 000 00
07	TV_MODE0_0	TVMODE[1:0]	00 000000 01 NTSC 10 PAL 11 CRT
08	AGPFWEN		
10	AGP_SBA	AGP_SBA	0 SBA enabled 1 SBA disabled
11	AGP_FASTWR		
12	PCI_DEV0_0	PCI_DEV0[3:0]	0000 0000 00 - 1111 0000
13	PCI_DEV0_1		
14	BUS_TYPE	BUS_TYPE[0]	0 PCI 1 AGP
15	FP_FAC2		
16	USER0		
17	USER1		
18	USER2		
19	USER3		
20	PCI_DEV0_2		
21	PCI_DEV0_3		
22	CRYSTAL		
24	FB_1		
25	BR		
26	BR_1B4		
27	BR_AGP		
28	BR_IO		
30	ROM_TYPE_0	ROM_TYPE[0:0]	00 PCIROM 01 Serial_ABP 10 Serial_32MTIM 11 99T12
31	ROM_TYPE_1		
32	12A0[0:0]	12A0[0]	0 disabled 1 enabled

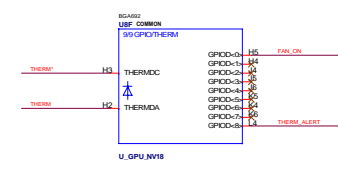
BIOS (serial)



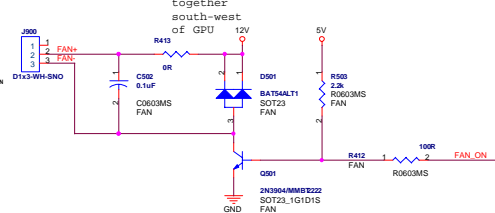
BIOS (alternative)



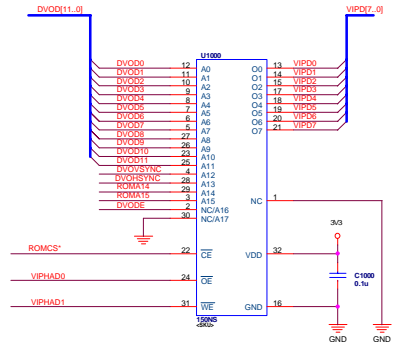
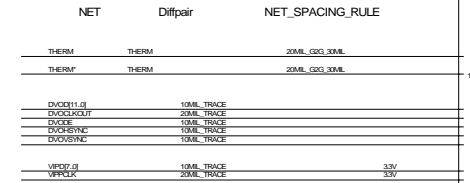
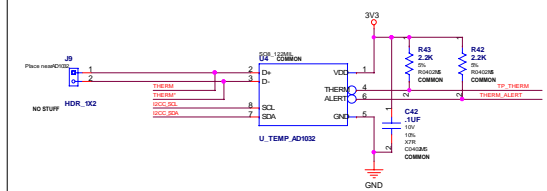
NV18 GPIO



FAN Control

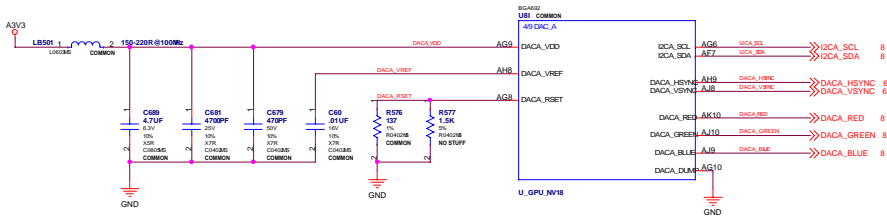


TEMP Sensor

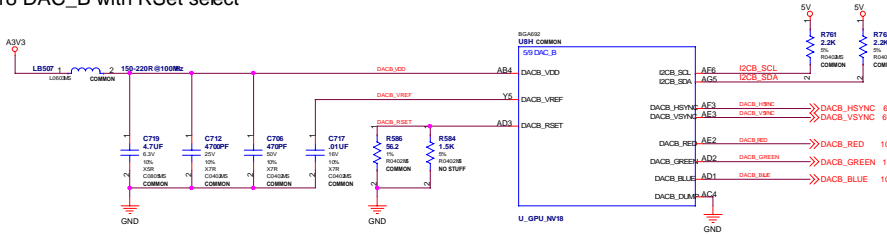


NV18 DAC_A, DAC_B, PLL, SYNC AMPL

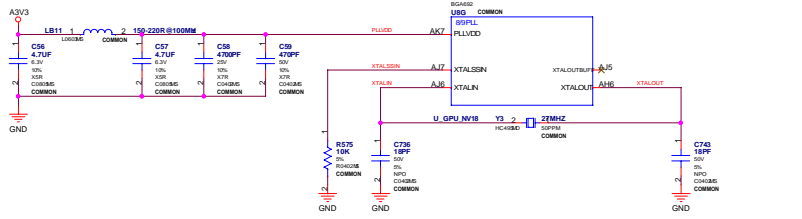
NV18 DAC_A



NV18 DAC_B with RSet select



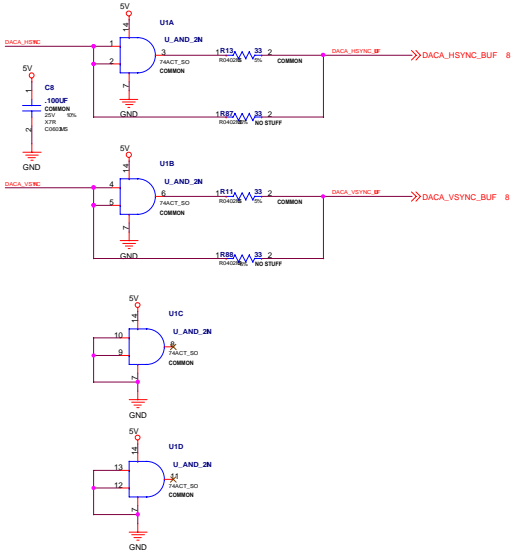
NV18 PLL



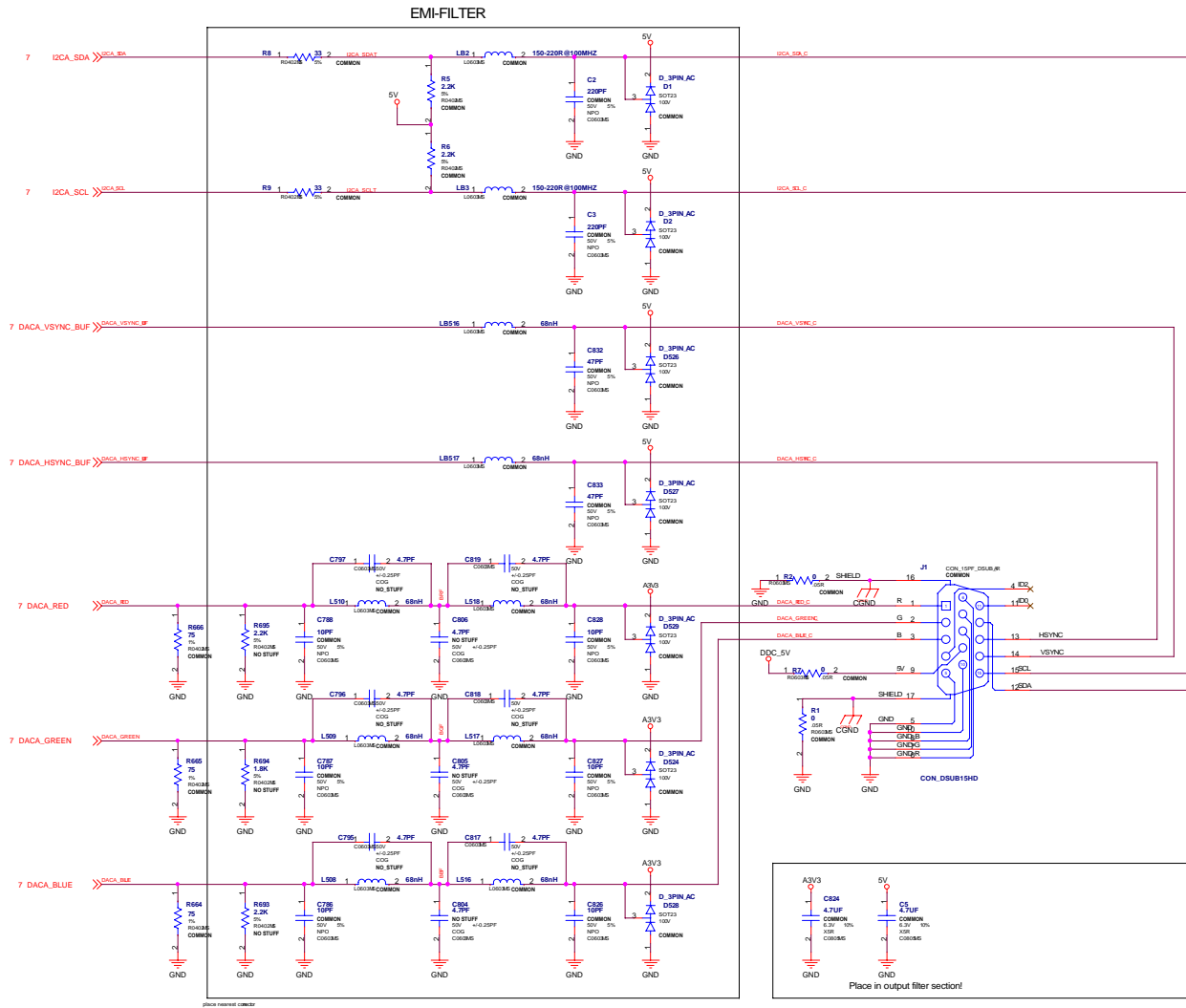
NET	NET_PHYSICAL_TYPE	VOLTAGE
DAC_A_VDD	1206_TRACE	3.3V
DAC_A_VREF	20M_TRACE	3.3V
DAC_A_RESET	20M_TRACE	3.3V
DAC_B_VDD	1206_TRACE	3.3V
DAC_B_VREF	20M_TRACE	3.3V
DAC_B_RESET	20M_TRACE	3.3V
PLL_VDD	1206_TRACE	3.3V

NET	Diffpair	NET_SPACING_RULE
8 DAC_A_RED	DAC_A_GREEN	20M_DWG_20M
8 DAC_A_GREEN	DAC_A_BLUE	20M_DWG_20M
8 DAC_A_BLUE	DAC_A_RED	20M_DWG_20M
10 DAC_B_RED	DAC_B_GREEN	20M_DWG_20M
10 DAC_B_GREEN	DAC_B_BLUE	20M_DWG_20M
10 DAC_B_BLUE	DAC_B_RED	20M_DWG_20M

SYNC Amplifier



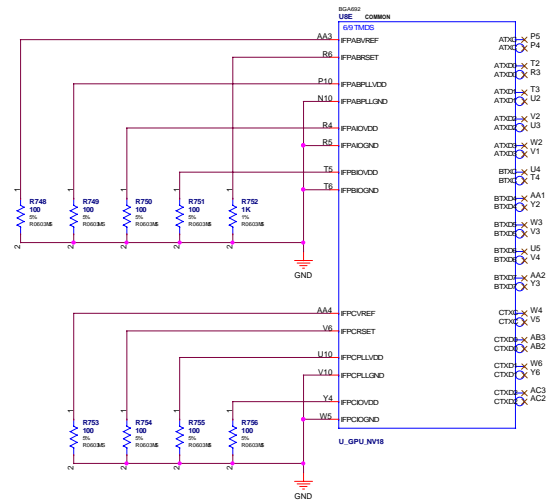
DACB output



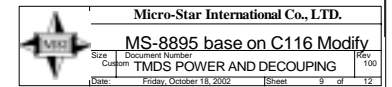
NET	NET_PHYSICAL_TYPE	IMPEDANCE_RULE	NET_SPACING_TYPE
DACA_RED_C	10MIL_TRACE		23MIL
DACA_GREEN_C	10MIL_TRACE		23MIL
DACA_BLUE_C	10MIL_TRACE		23MIL
ARF	10MIL_TRACE		23MIL
APF	10MIL_TRACE		23MIL
APF	10MIL_TRACE		23MIL

INTERNAL TMDS POWER AND DECOUPLING

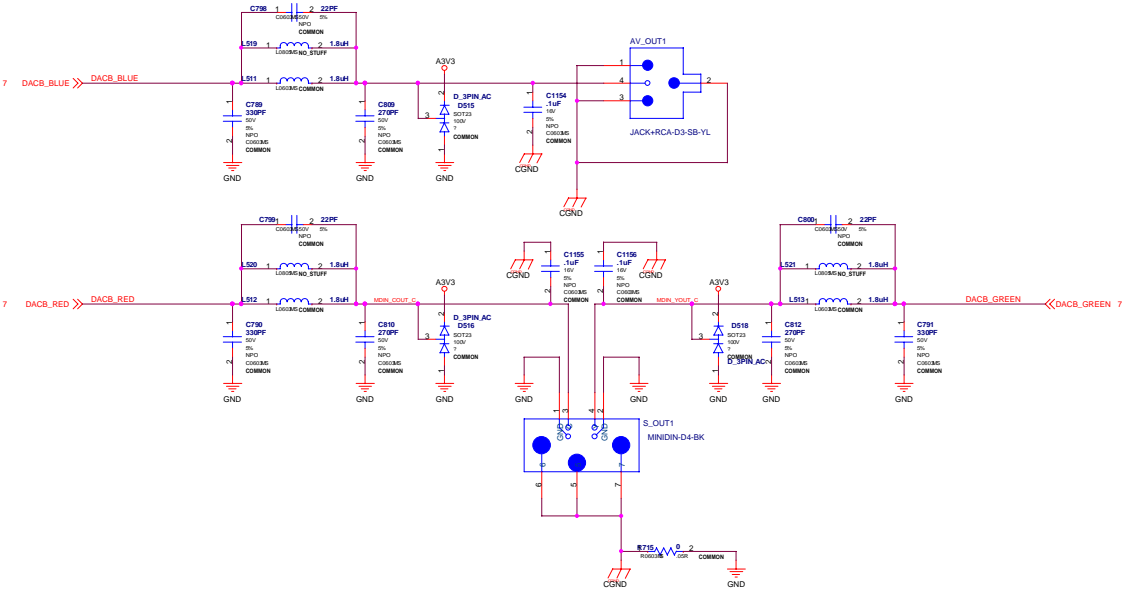
NET	NET_PHYSICAL_TYPE	VOLTAGE
FFPABREF	12ML TRACE	3.3V
FFPABLMOD	12ML TRACE	3.3V
FFPACMOD	12ML TRACE	3.3V
FFPACMOD	12ML TRACE	3.3V
FFPCREF	12ML TRACE	3.3V
FFPCVLMOD	12ML TRACE	3.3V
FFPCVLMOD	12ML TRACE	3.3V
FAN RETURN	12ML TRACE	3.3V
MODE BACK	12ML TRACE	3.3V




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VIDEO IN/OUT CONNECTOR



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Micro-Star International Co., LTD.

MS-8895 base on C116 Modify

VIDEO IN/OUT CONNECT

Friday, October 18, 2002

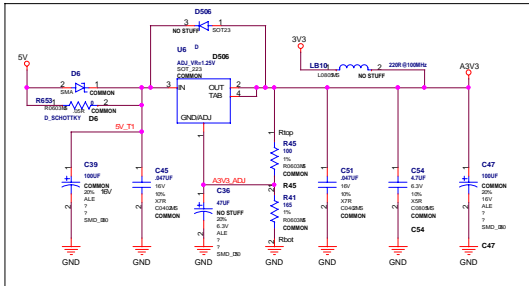
Size Custom

Document Number

Rev 100

Sheet 10 of 12

ANALOG 3V3

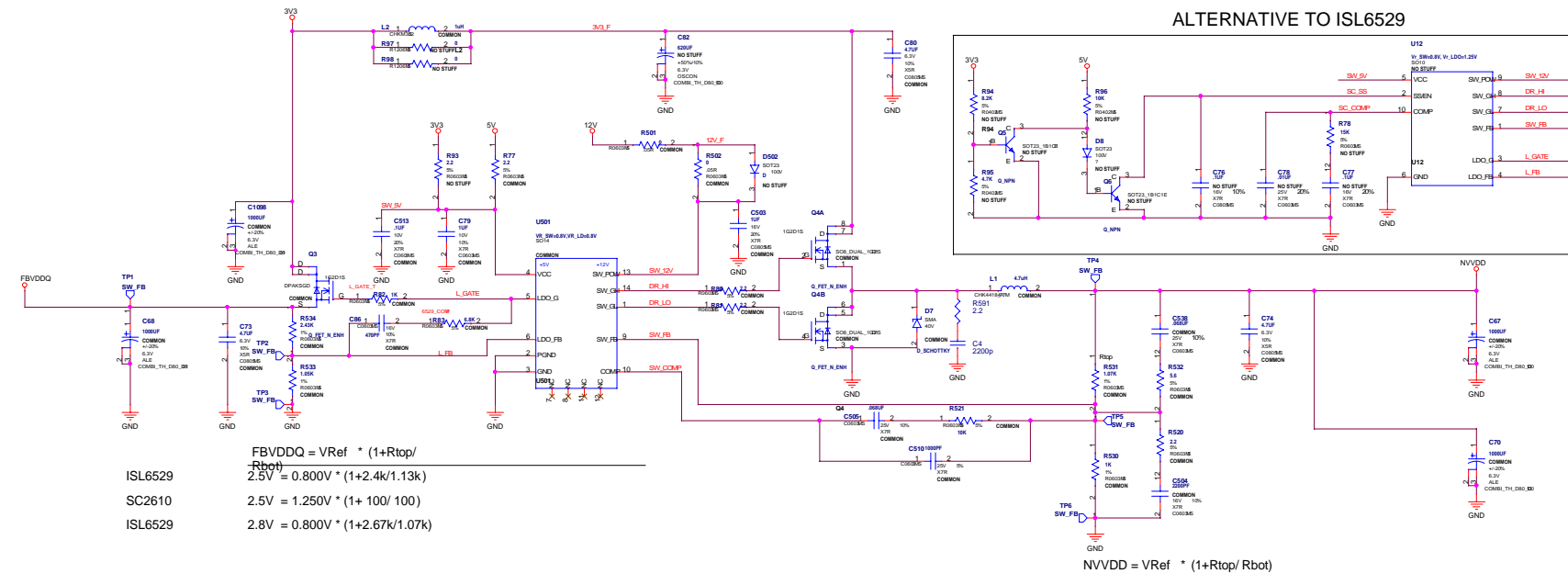


$$V_{out} = V_{Ref} * (1 + R_{bot}/R_{top})$$

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

NET	NET_PHYSICAL_TYPE	VOLTAGE
3V3	12ML_TRACE	3.3V
3V3	12ML_TRACE	3.3V
FBVDD	12ML_TRACE	2.5V
3V3PMOS	12ML_TRACE	2.5V
WVDD	12ML_TRACE	1.8V
5V	12ML_TRACE	5V
12V	12ML_TRACE	12V
3V3_F	12ML_TRACE	3.3V
12V_F	12ML_TRACE	12V
5V_FUSED	12ML_TRACE	5V
DDC_5V	12ML_TRACE	5V
5V_12V	10ML_TRACE	1.2V
5V_5V	10ML_TRACE	5V
DR_H4	10ML_TRACE	
DR_L1	10ML_TRACE	
5V_F0	10ML_TRACE	
5V_Comp	10ML_TRACE	
3V3V_3V3	10ML_TRACE	
3V3PMOS_A2D	10ML_TRACE	
WVDDPLLDD	10ML_TRACE	

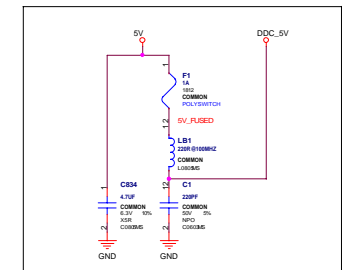
NVDD-SWITCHER / FBVDD-LDO CONTROLER ISL6529



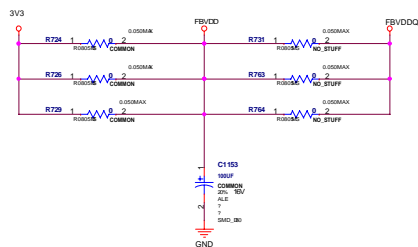
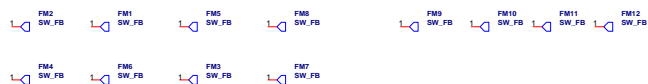
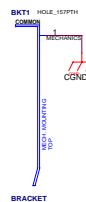
$$NVDD = V_{Ref} * (1 + R_{top} / R_{bot})$$

ISL6529	$1.656V = 0.800V * (1+1070/1000)$
SC2610	$1.656V = 0.800V * (1+1070/1000)$

DDC 5V



BKT1 HOLE 15757A



NET	NET_PHYSICAL_TYPE	VOLTAGE
3/3	12ML TRACE	
PBVD0	12ML TRACE	
5V	12ML TRACE	
PBVD0 ADJ	10ML TRACE	