

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

Page Overview

- 1 18P112 OVERVIEW
- 2 NV18 AGP Section and AGP connector
- 3 NV18 FRAMEBUFFER Interface
- 4 MEMORY 128MB, 8Mx16DDR Bits 0..31
- 5 MEMORY 128MB, 8Mx16DDR Bits 32..63
- 6 MEMORY 128MB, 8Mx16DDR Bits 64..95
- 7 MEMORY 128MB, 8Mx16DDR Bits 96..127
- 8 NV18 STRAPPING, I/O Interface
- BIOS, FAN CONTROL, THERMAL SENSOR
- 9 NV18 DACA, DACB output, SYNC amplifier
- PLL Section
- 10 DACB MULTIPLEXER
- 11 PRIMARY DISPLAY Filter and Connector
- 12 SECONDARY DISPLAY Filter and Connector
- 13 NV18 INTERNAL TMDS Power and Output
- 14 VIDEO CAPTURE Philips 7114 I/O
- 15 VIDEO IN/OUT, Filter and Connector
- 16 POWER SUPPLY
- NVVD, MEM_VDD, A3V3, TMDS3V3, TMDSPLL
- 17 MECHANICS, and FBVDD

HISTORY:


- 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.

600-10116-000X-A00

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.

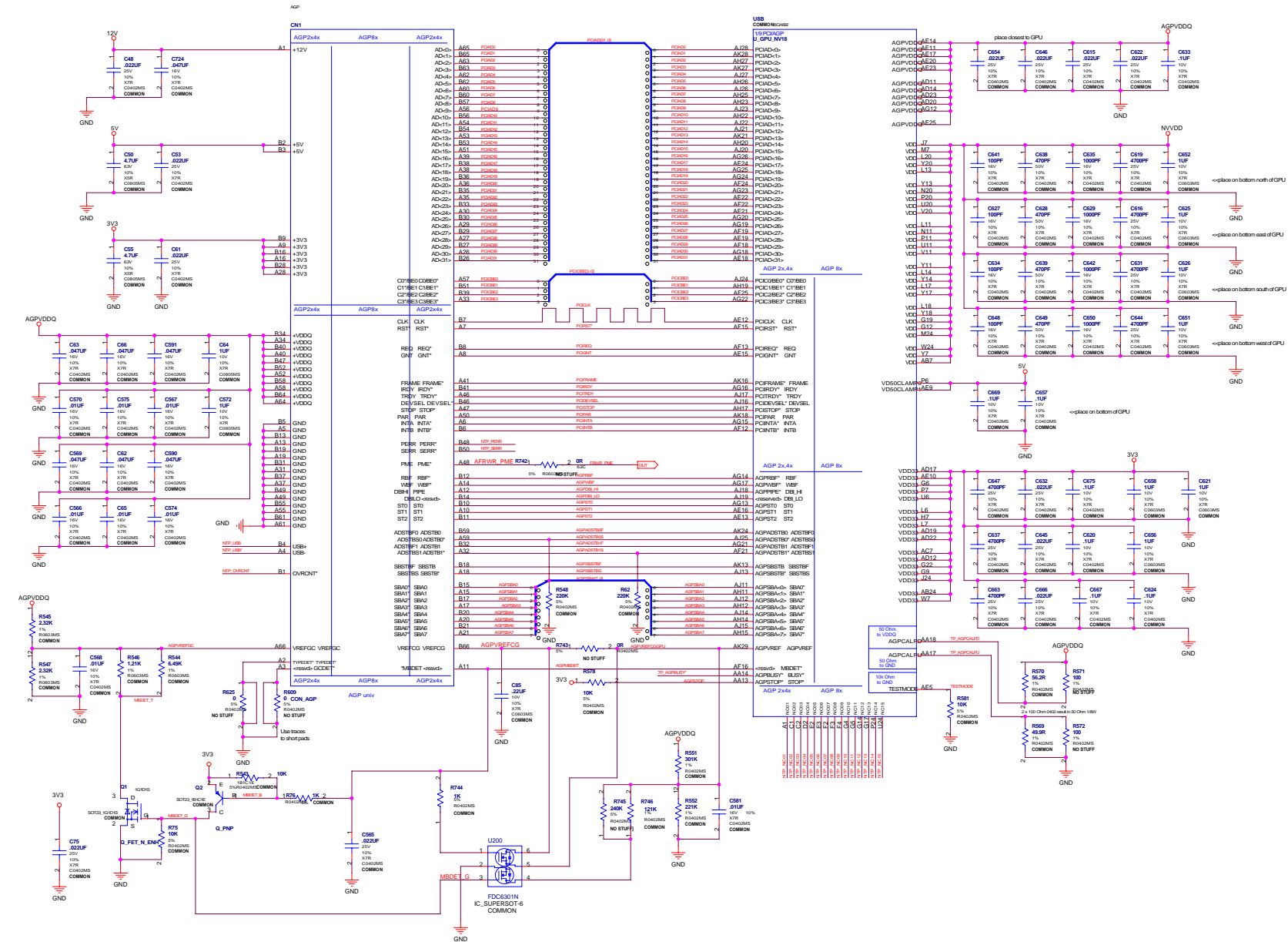
Micro-Star International Co., LTD.

MS-8893 base on C116 Modify

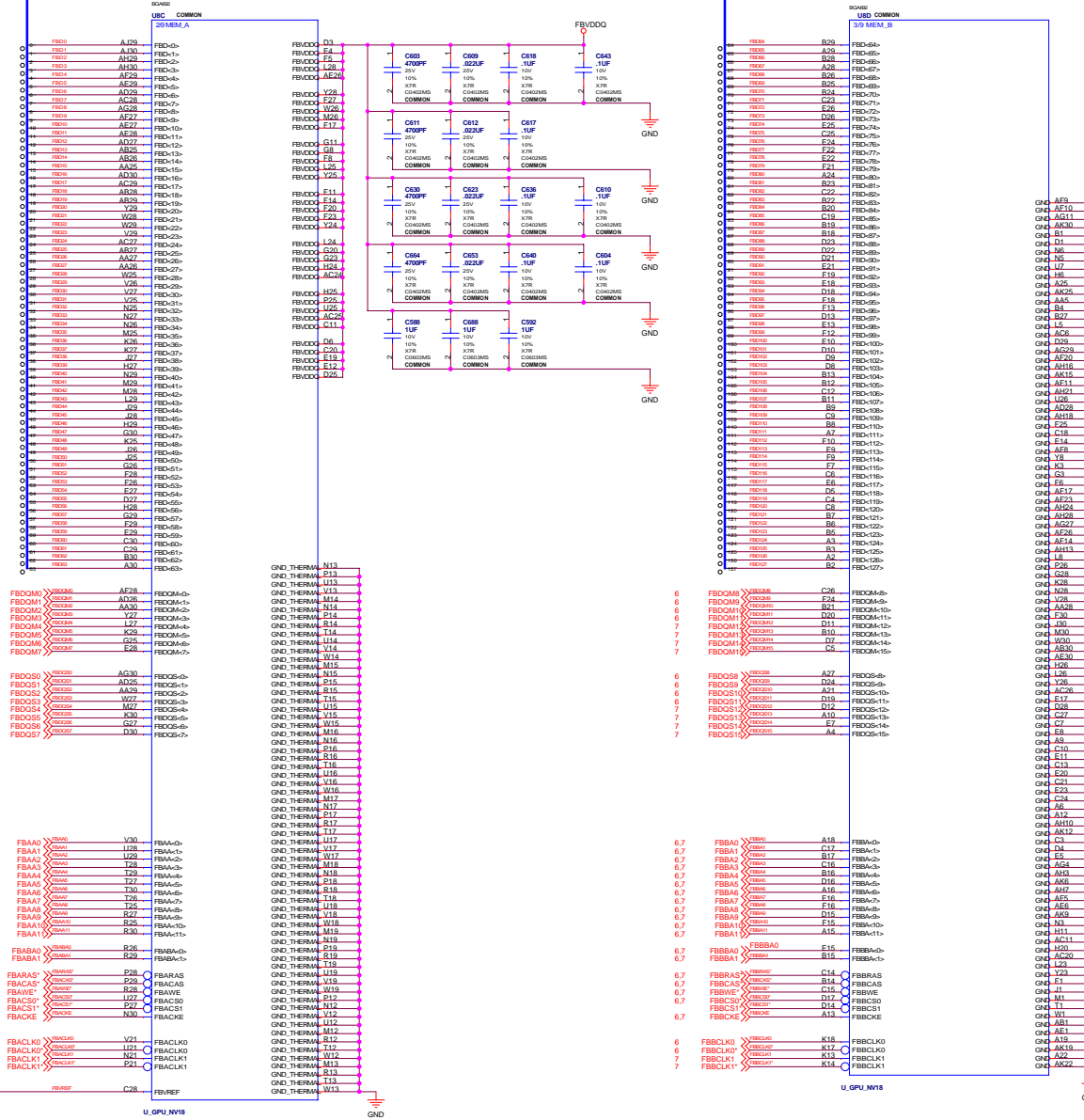
Size: Custom Document Number: TOP PAGE Rev: 00A

Date: Monday, August 26, 2002 Sheet: 1 of 17

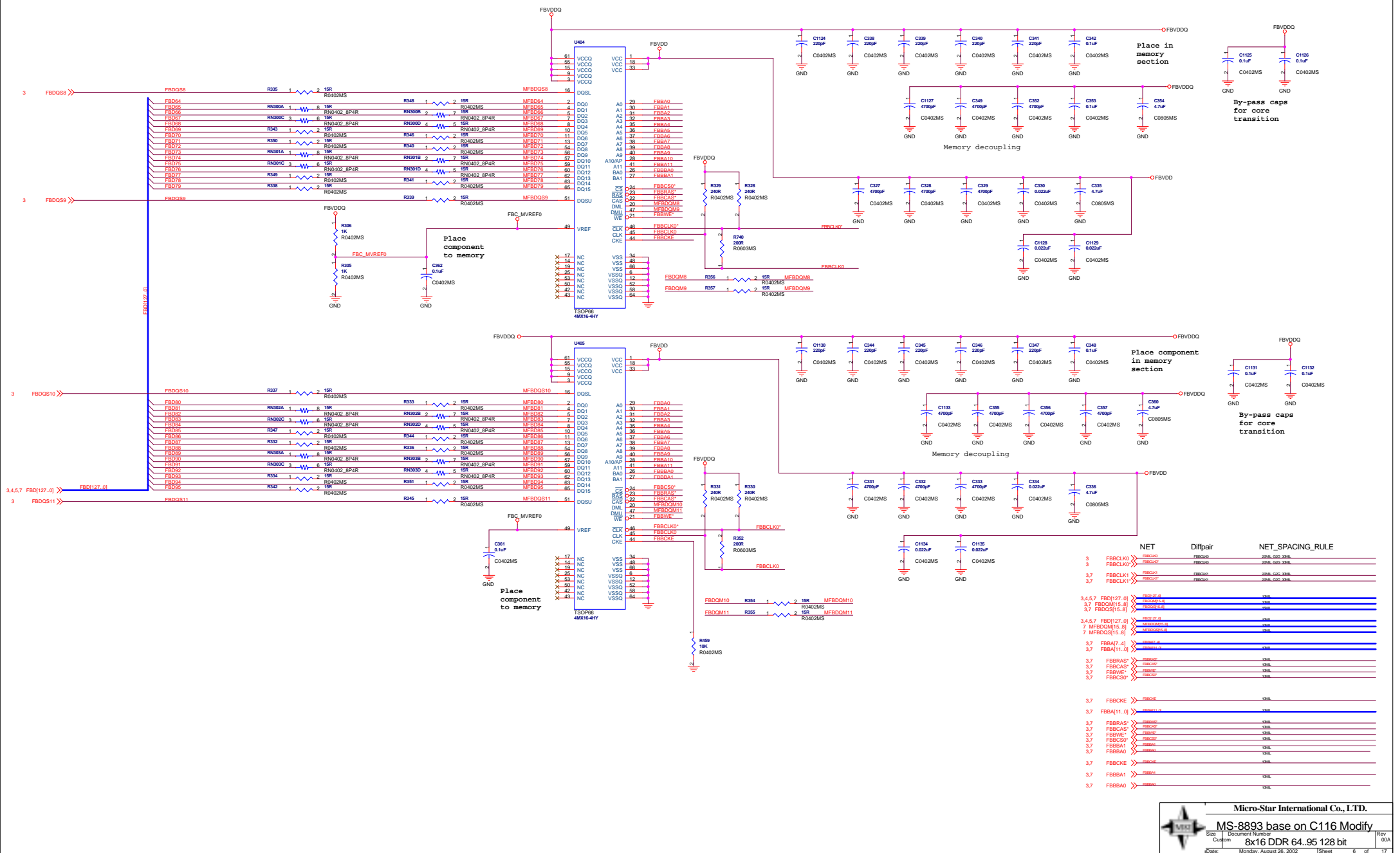
NV18 AGP SECTION AND AGP CONNECTOR

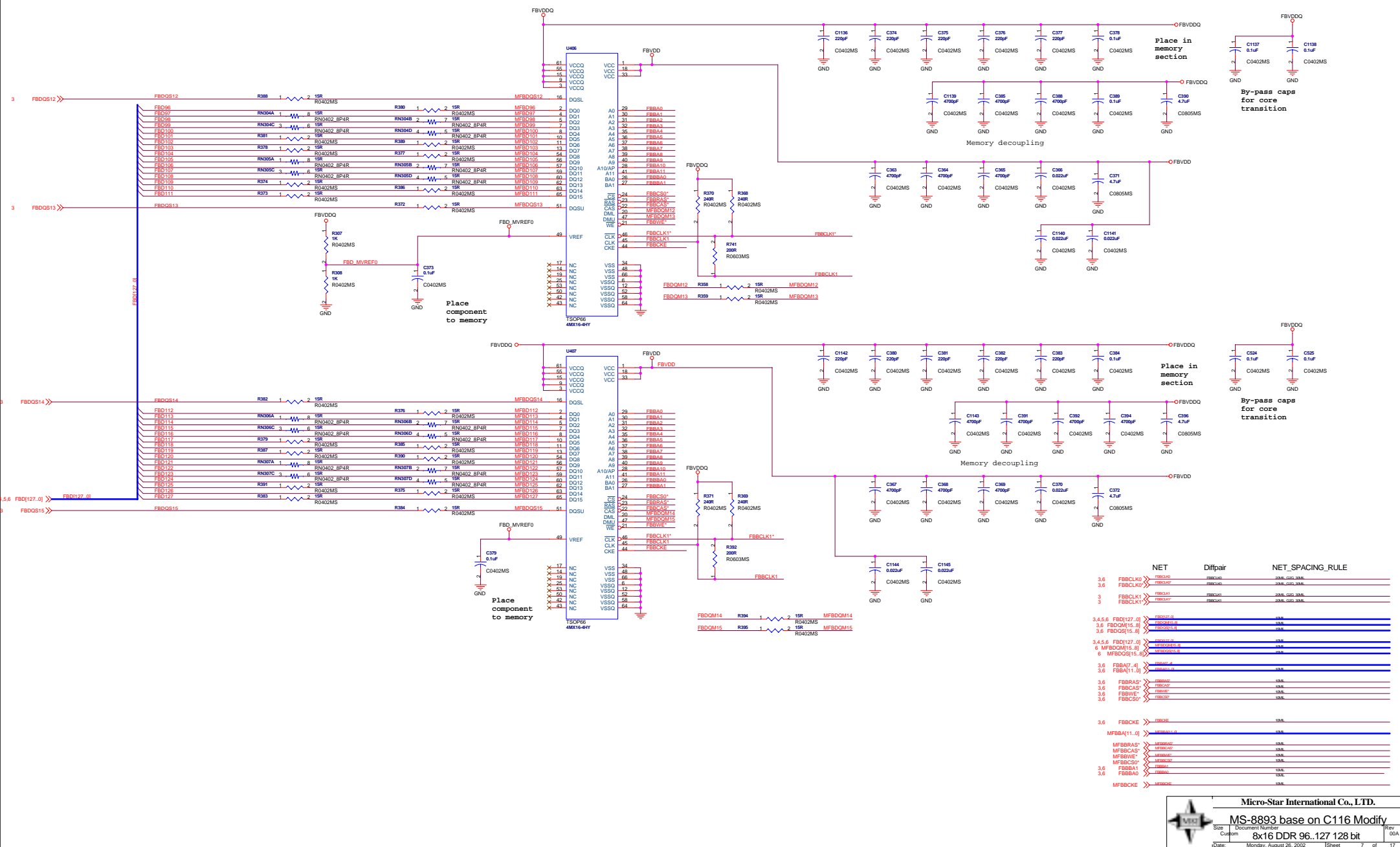


NV18 FRAMEBUFFER INTERFACE AND DECOUPLING



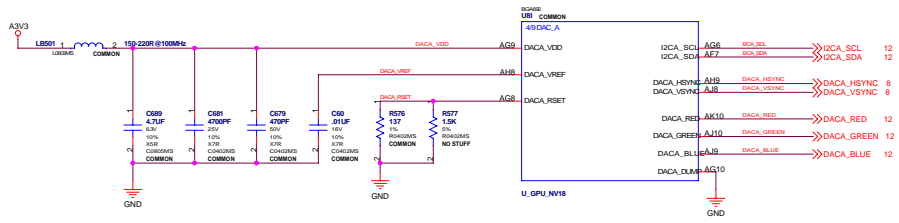
ALL NVIDIA DESIGN SPECIFICATIONS, REFERENCE BOARDS, FILES, DRAWINGS, DIAGNOSTICS, LISTS AND OTHER DOCUMENTS (TOGETHER AND SEPARATELY, "MATERIALS") ARE BEING PROVIDED "AS IS". NVIDIA MAKES NO WARRANTIES, EXPRESSED, IMPLIED, STATUTORY OR OTHERWISE WITH RESPECT TO THE MATERIALS, AND EXPRESSLY DISCLAIMS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



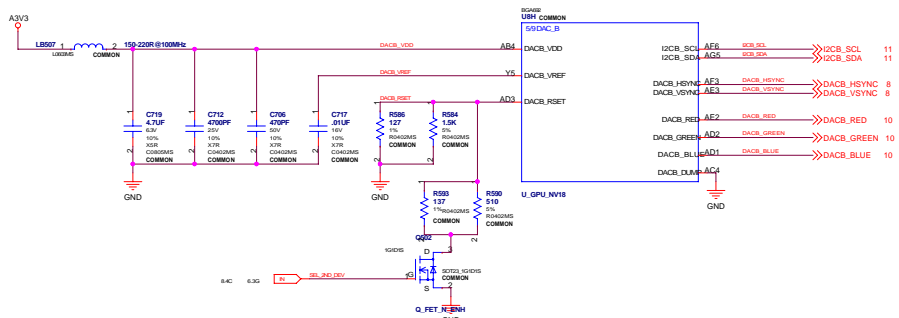


NV18 DAC_A, DAC_B, PLL, SYNC AMPL

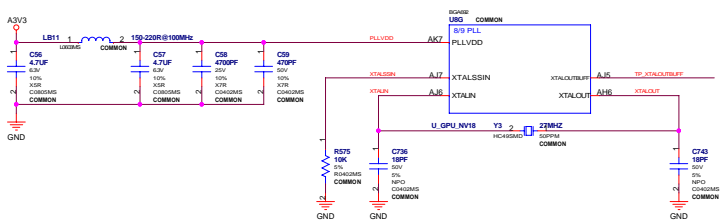
NV18 DAC_A



NV18 DAC_B with RSet select



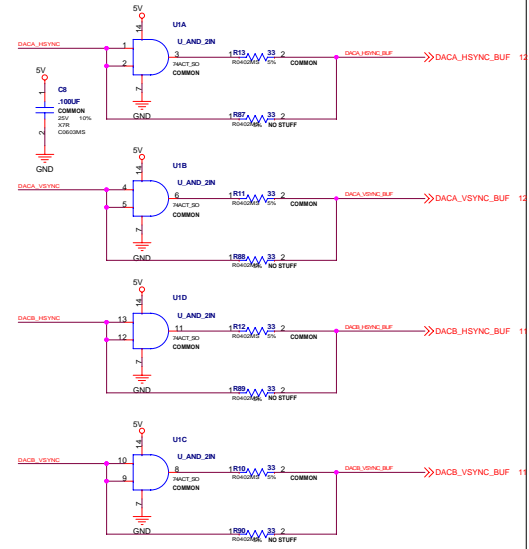
NV18 PLL



NET	NET_PHYSICAL_TYPE	VOLTAGE
DACA_VDD	DACA_VDD	3.3V
DACA_VREF	DACA_VREF	3.3V
DACA_RESET	DACA_RESET	3.3V
DACB_VDD	DACB_VDD	3.3V
DACB_VREF	DACB_VREF	3.3V
DACB_RESET	DACB_RESET	3.3V
PLL_VDD	PLL_VDD	3.3V

NET	Diffpair	NET_SPACING_RULE
12 DACA_RED	DACA_GREEN	20MIL_050_30MIL
12 DACA_GREEN	DACA_RED	20MIL_050_30MIL
12 DACA_BLUE	DACA_BLUE	20MIL_050_30MIL
10 DACB_RED	DACB_GREEN	20MIL_050_30MIL
10 DACB_GREEN	DACB_RED	20MIL_050_30MIL
10 DACB_BLUE	DACB_BLUE	20MIL_050_30MIL

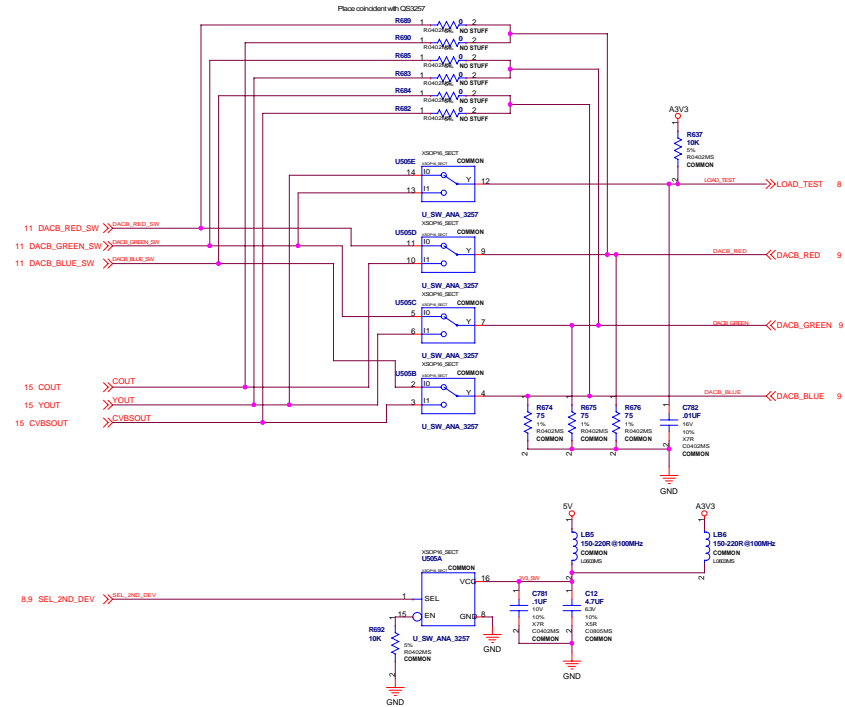
SYNC Amplifier



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.

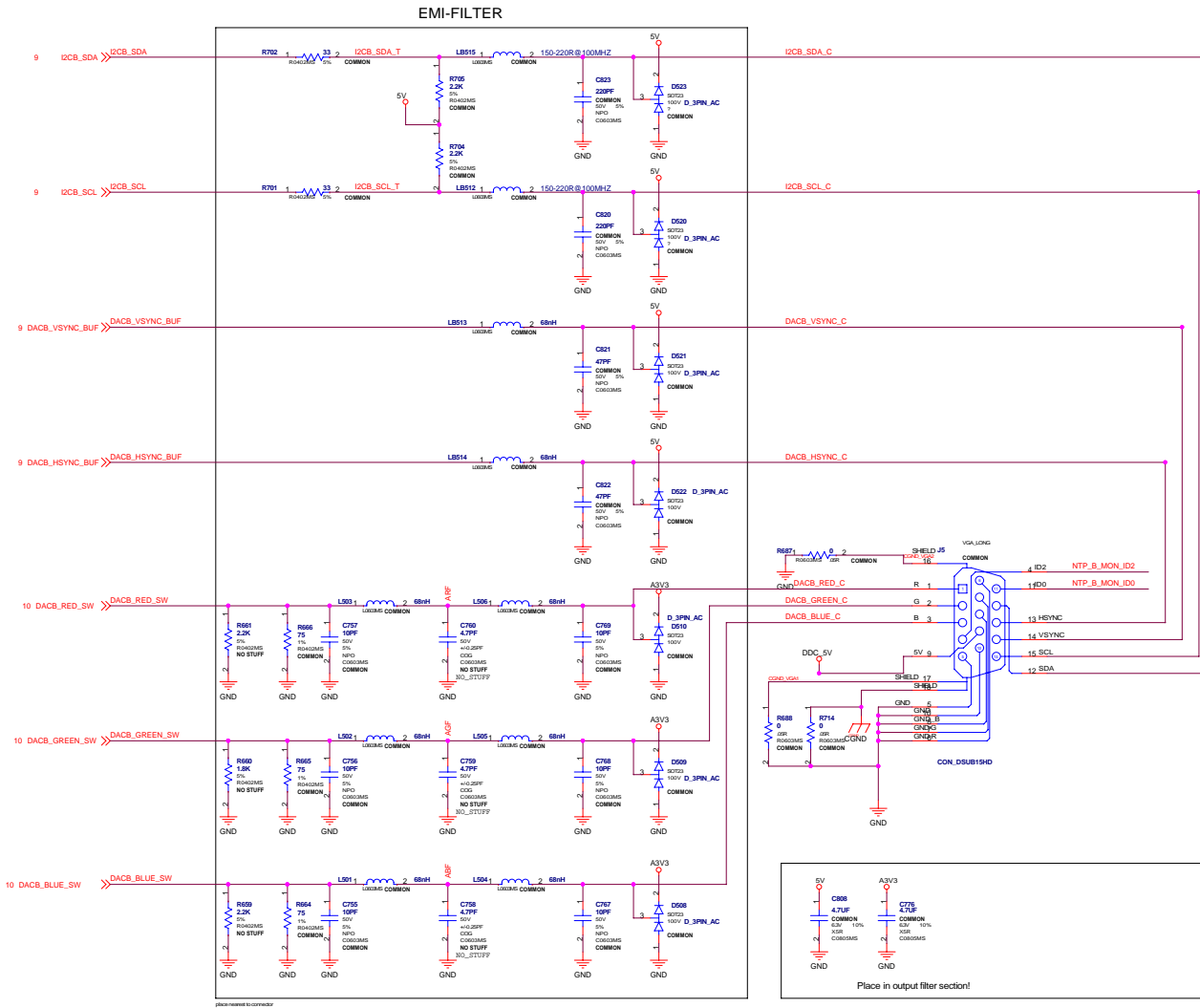
DACB SWITCH BETWEEN VGA OUT AND TV OUT

	NET	Diffpair	NET_SPACING_RULE
11 DACB_RED_SW	DACB_RED_SW		30MIL_GSD_30MIL
11 DACB_GREEN_SW	DACB_GREEN_SW		30MIL_GSD_30MIL
11 DACB_BLUE_SW	DACB_BLUE_SW		30MIL_GSD_30MIL
	MINDIN_COUT		30MIL_GSD_30MIL
MINDIN_Y_CVBOUT	MINDIN_Y_CVBOUT		30MIL_GSD_30MIL
MINDIN_PBOUT	MINDIN_PBOUT		30MIL_GSD_30MIL



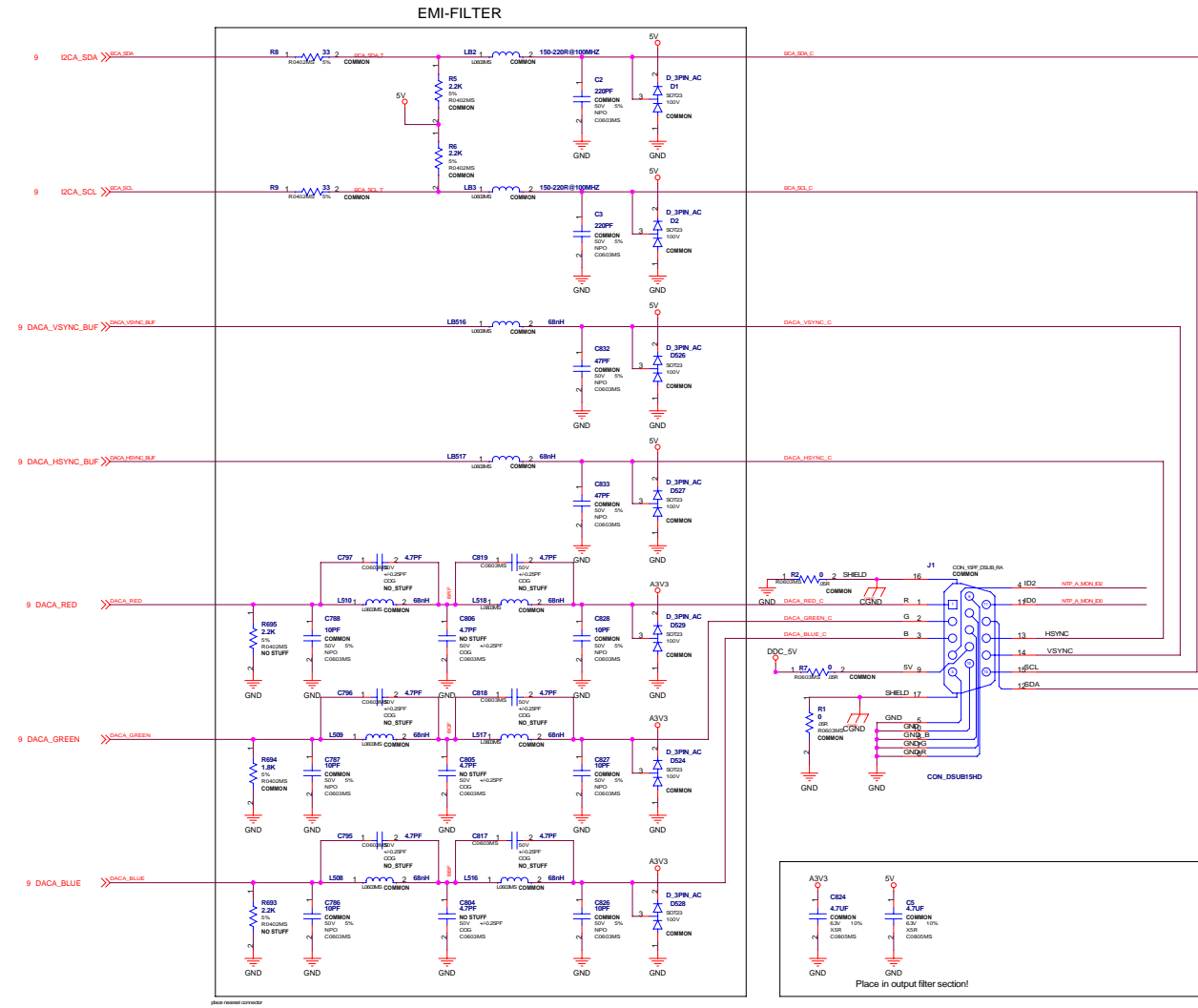
ALL NVIDIA DESIGN SPECIFICATIONS, REFERENCE BOARDS, FILES, DRAWINGS, DIAGNOSTICS, LISTS AND OTHER DOCUMENTS (TOGETHER AND SEPARATELY, "MATERIALS") ARE BEING PROVIDED "AS IS". NVIDIA MAKES NO WARRANTIES, EXPRESSED, IMPLIED, STATUTORY OR OTHERWISE WITH RESPECT TO THE MATERIALS, AND EXPRESSLY DISCLAIMS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

DACA output



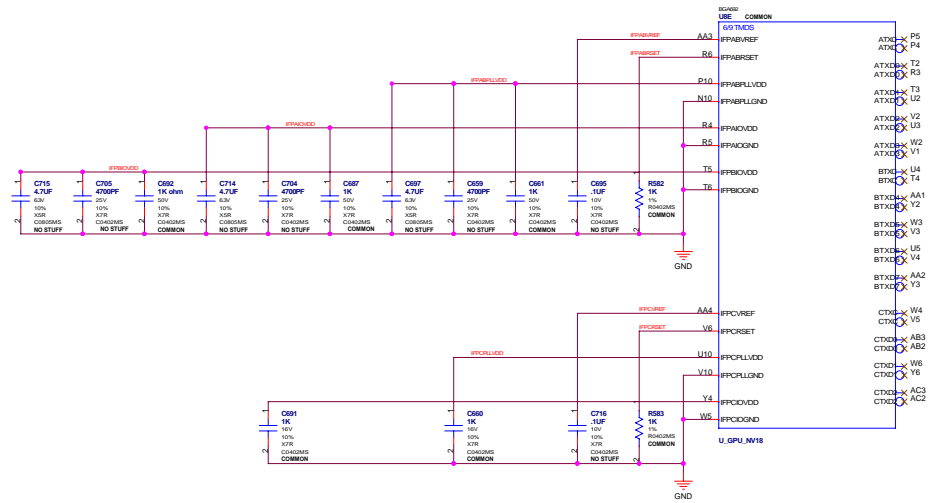
NET	Diffpair	NET_SPACING_RULE
BRF	BRF	2XLS, 2XG, 3XLS
BGF	BGF	2XLS, 2XG, 3XLS
BBF	BBF	2XLS, 2XG, 3XLS
DACB_RED_C	DACB_RED_C	2XLS, 2XG, 3XLS
DACB_GREEN_C	DACB_GREEN_C	2XLS, 2XG, 3XLS
DACB_BLUE_C	DACB_BLUE_C	2XLS, 2XG, 3XLS

DACB output

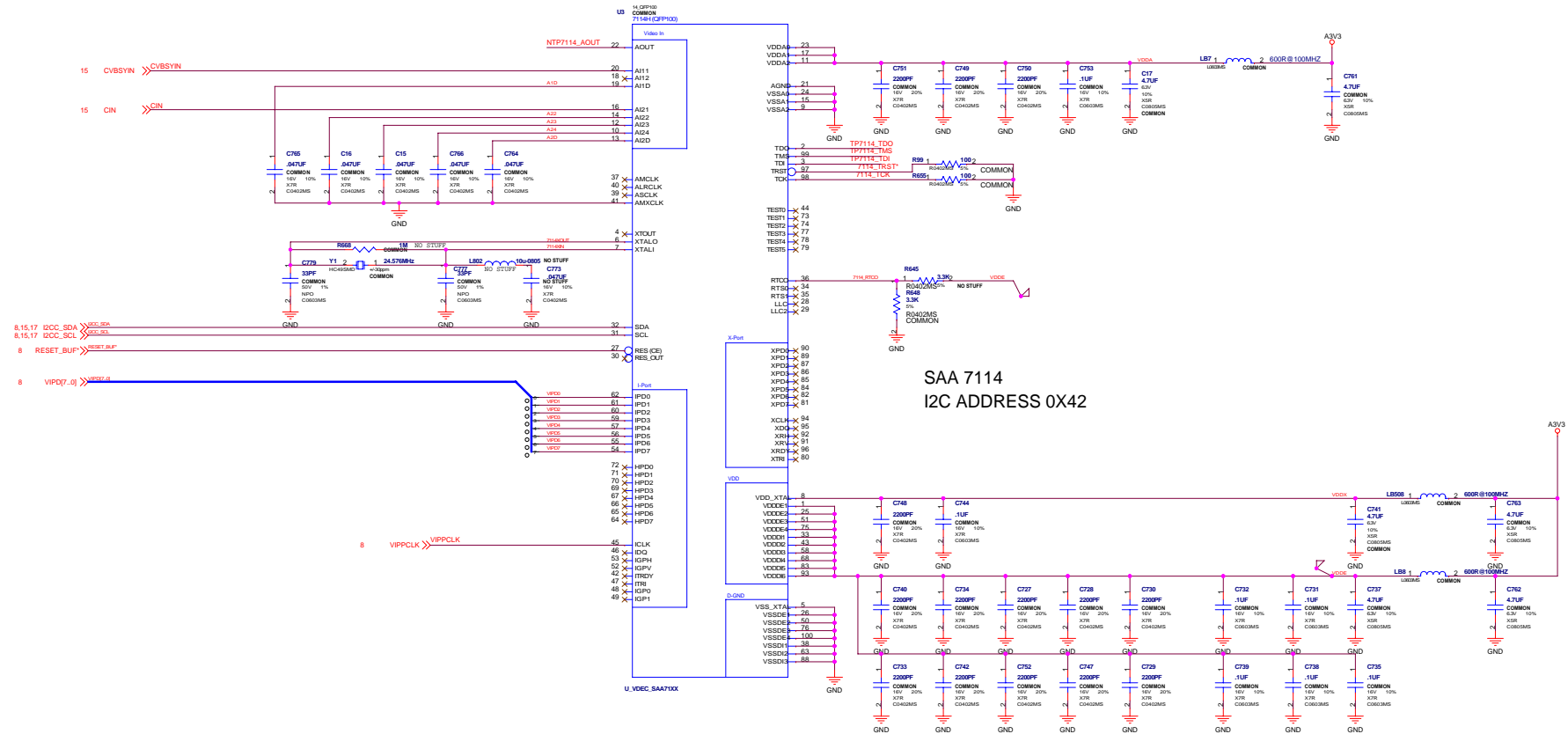


NET	Diffpair	NET_SPACING_RULE
ARF	ARF	2MM, CIG 2MM
AGF	AGF	2MM, CIG 2MM
ABF	ABF	2MM, CIG 2MM
DACA_RED_C	DACA_RED_C	2MM, CIG 2MM
DACA_GREEN_C	DACA_GREEN_C	2MM, CIG 2MM
DACA_BLUE_C	DACA_BLUE_C	2MM, CIG 2MM

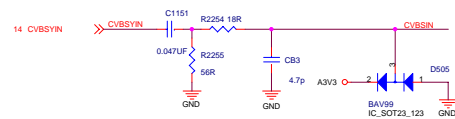
INTERNAL TMDS POWER AND DECOUPLING



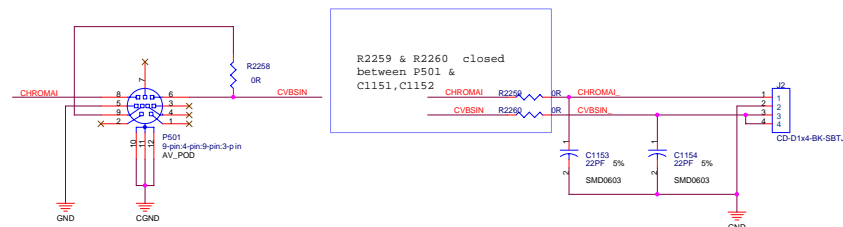
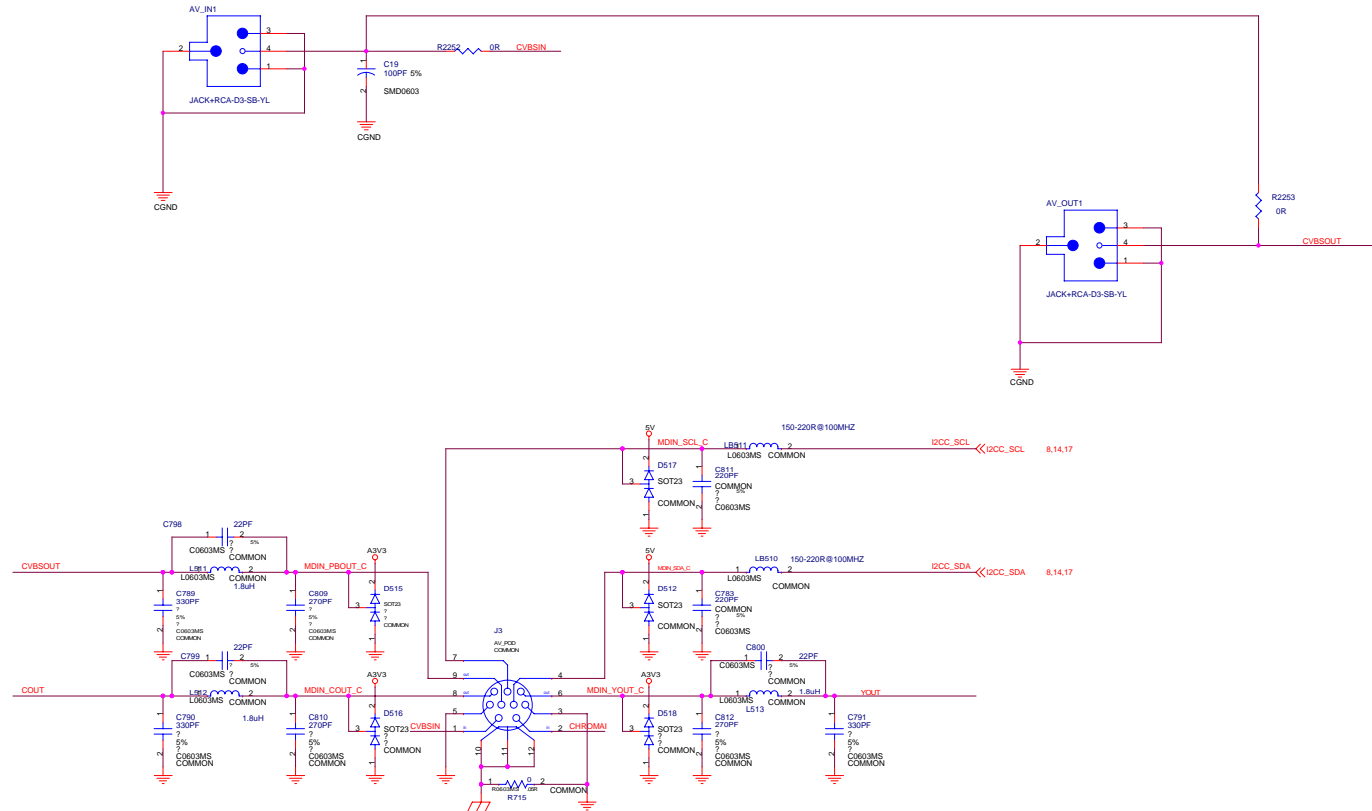
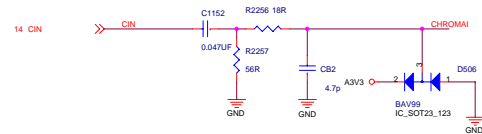
VIDEO CAPTURE



VIDEO IN/OUT CONNECTOR



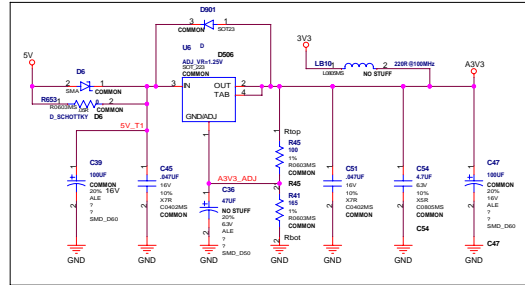
D505,D506 should be closet
to the connector.



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 NON-INFRINGEMENT, MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

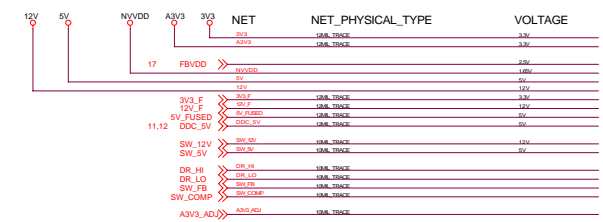
POWER SUPPLY

ANALOG 3V3

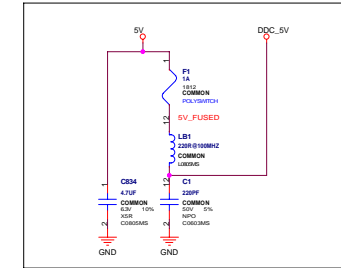


$$V_{out} = V_{Ref} * (1 + R_{bot}/R_{top})$$

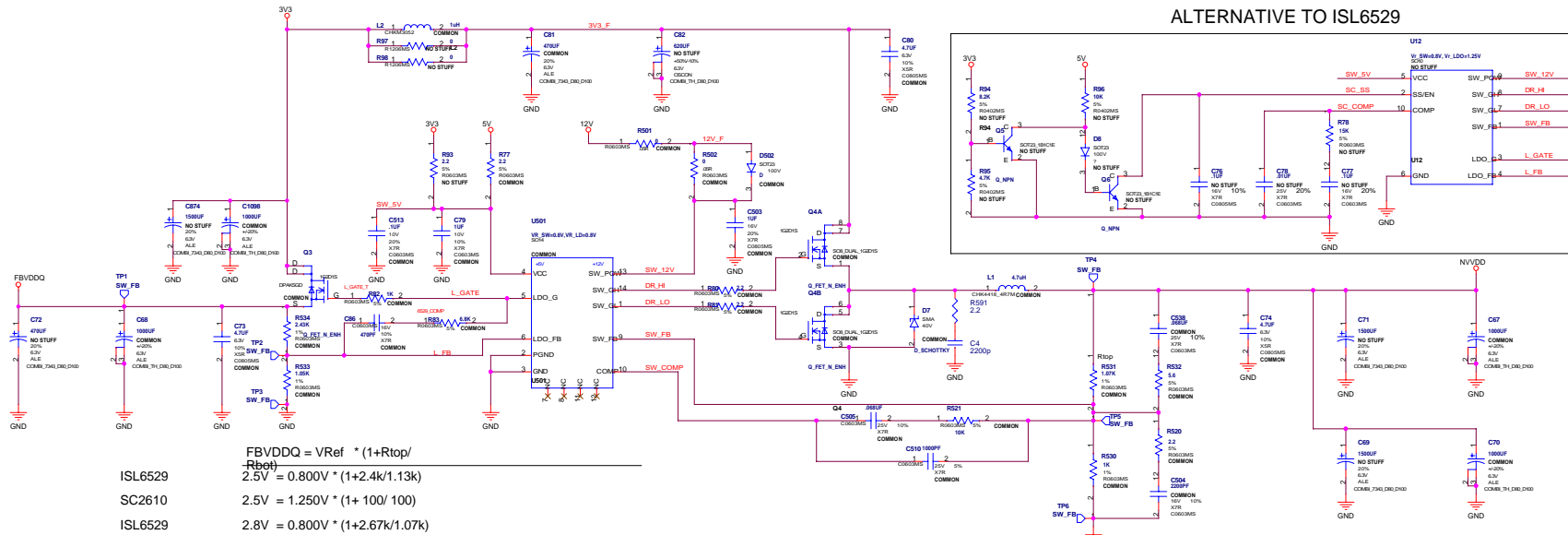
$$3.31V = 1.25V * (1 + (165/100))$$



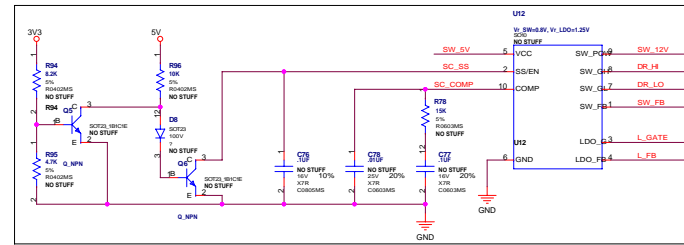
DDC 5V



NVDD-SWITCHER / FBVDD-LDO CONTROLLER ISL6529



ALTERNATIVE TO ISL6529



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

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

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

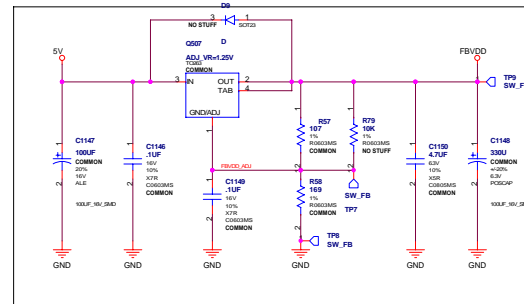
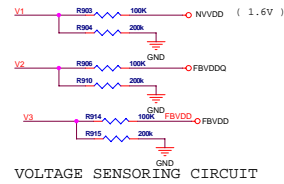
Micro-Star International Co., LTD.

MS-8893 base on C116 Modify

Size: Custom Document Number: 00A

POWER SUPPLY

Date: Monday, August 26, 2002 Sheet: 16 of 17



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

