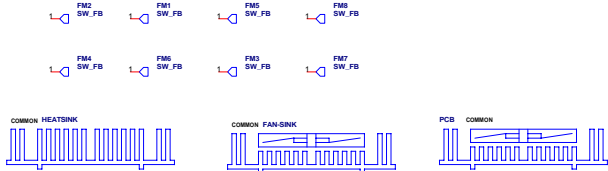
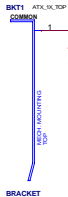
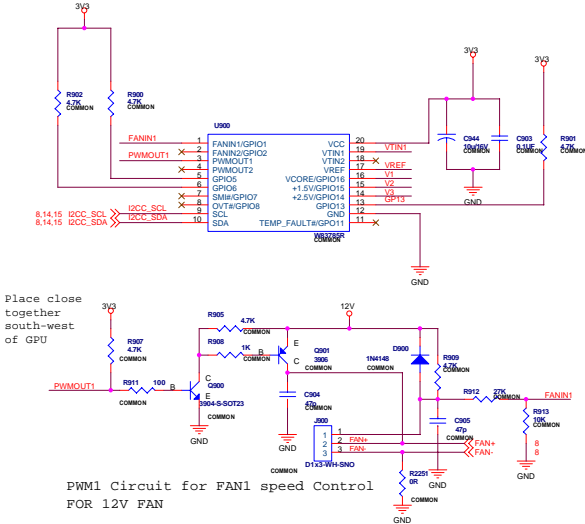
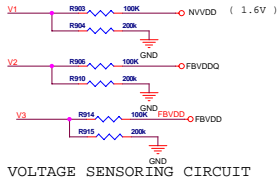


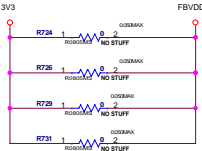
MECHANICS



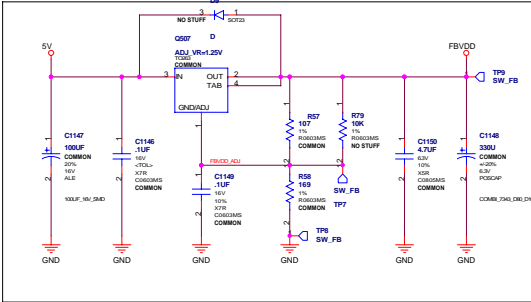
H/W Monitor Funtion



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



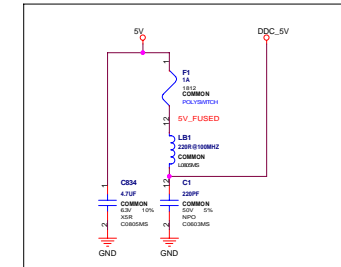
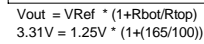
FBVDD Supply



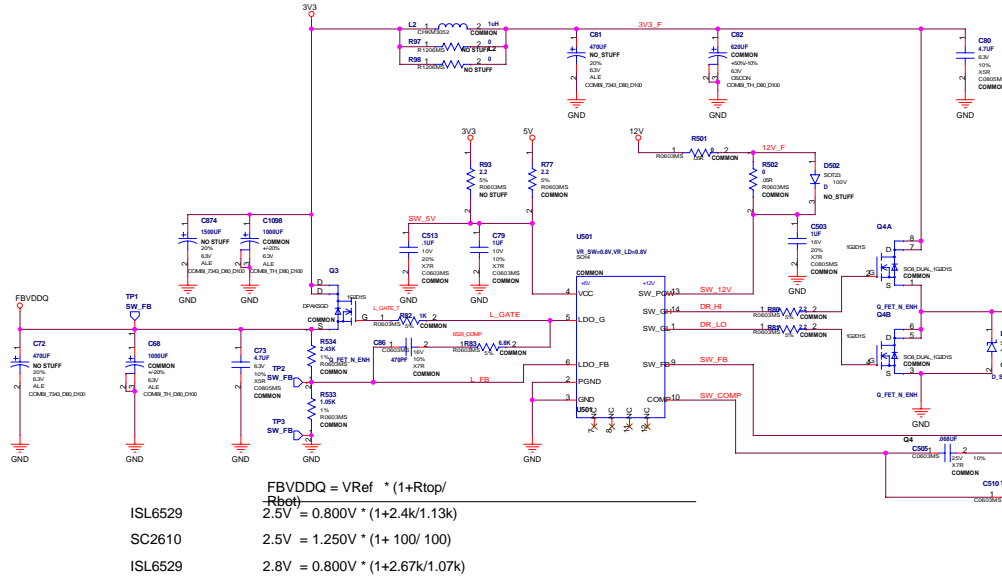
$$FBVDD = V_{Ref} * (1 + R_{bot} / R_{top})$$
$$3.315V = 1.250V * (1 + 165 / 100)$$
$$3.300V = 1.250V * (1 + 187 / 115)$$

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## ANALOG 3V3



## ALTERNATIVE TO ISL6529



$$\text{FBVDDQ} = \text{VRef} * (1 + \text{Rtop} / \text{Rbot})$$

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

SC2610       $2.5V = 1.250V * (1 + 100 / 100)$

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

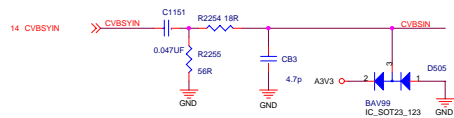
$$NVDD = V_{Ref} * (1 + R_{top} / R_{bot})$$

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

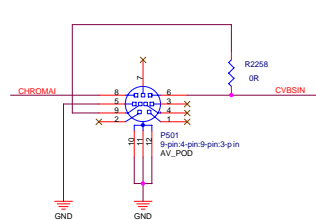
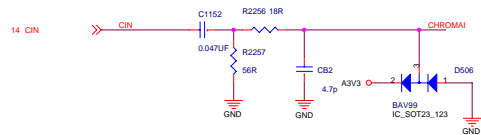
SC2610       $1.656V = 0.800V * (1+1070/1000)$

# VIDEO IN/OUT CONNECTOR

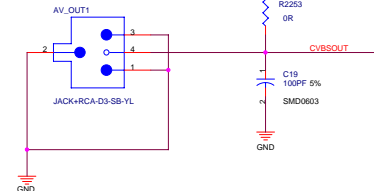
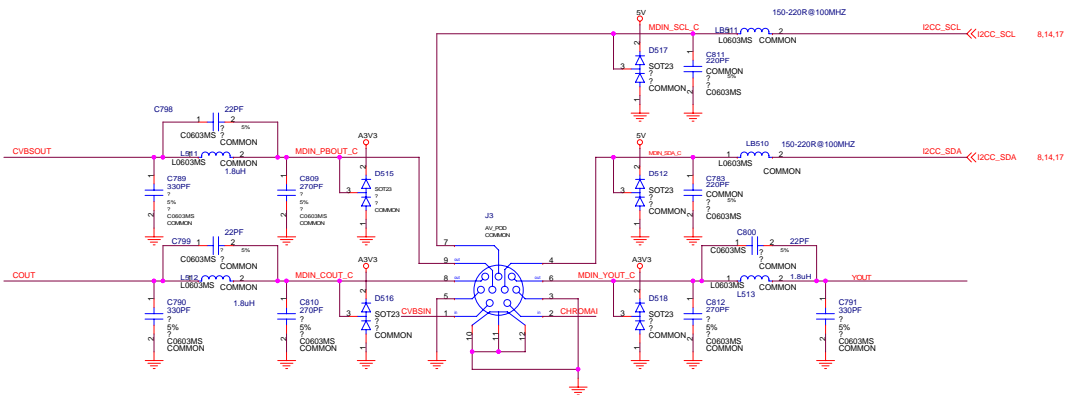
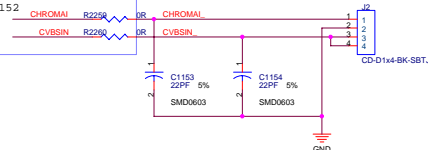
10 CVBSOUT >> CVBSOUT  
10 COUT >> COUT  
10 YOUT >> YOUT



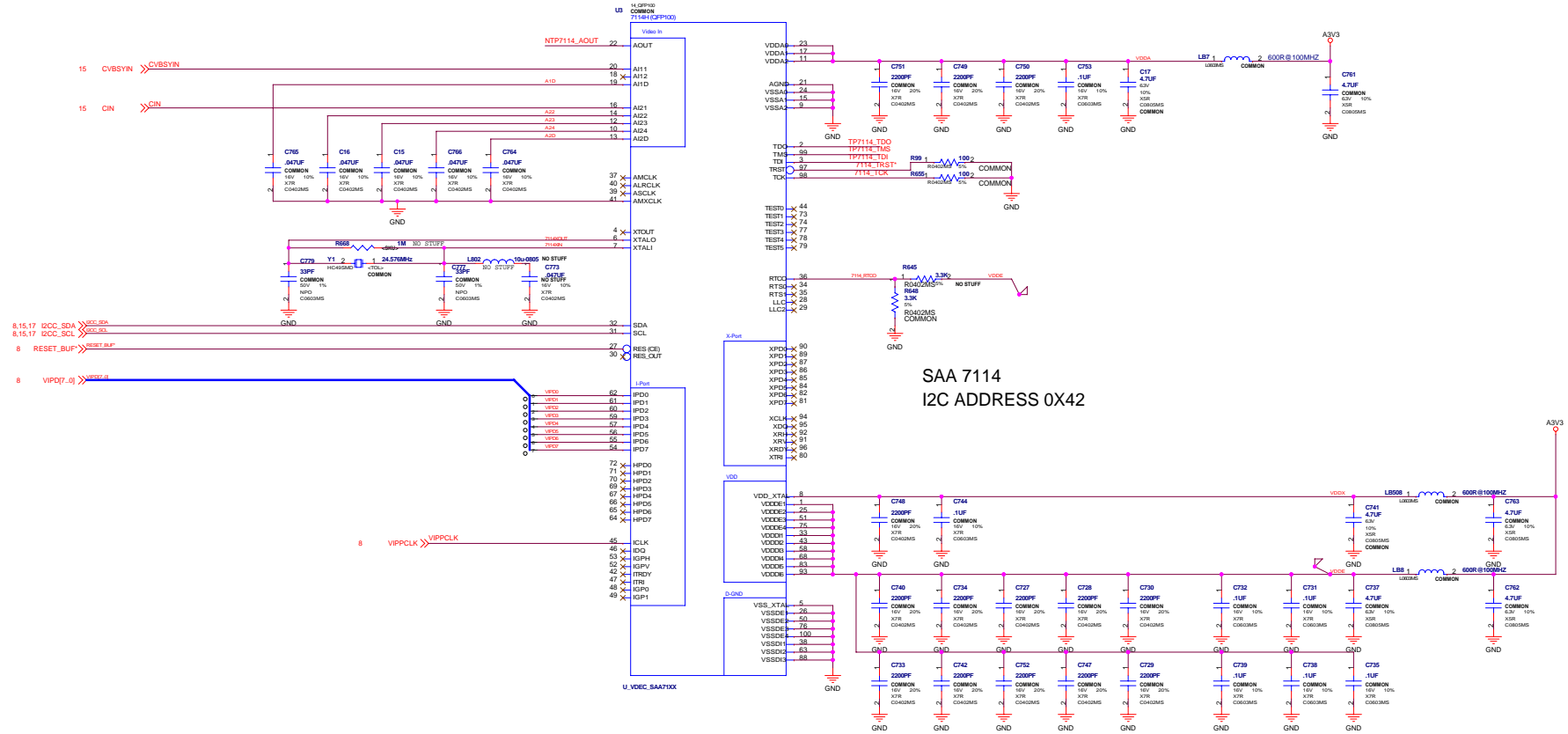
D505, D506 should be closest to the connector.



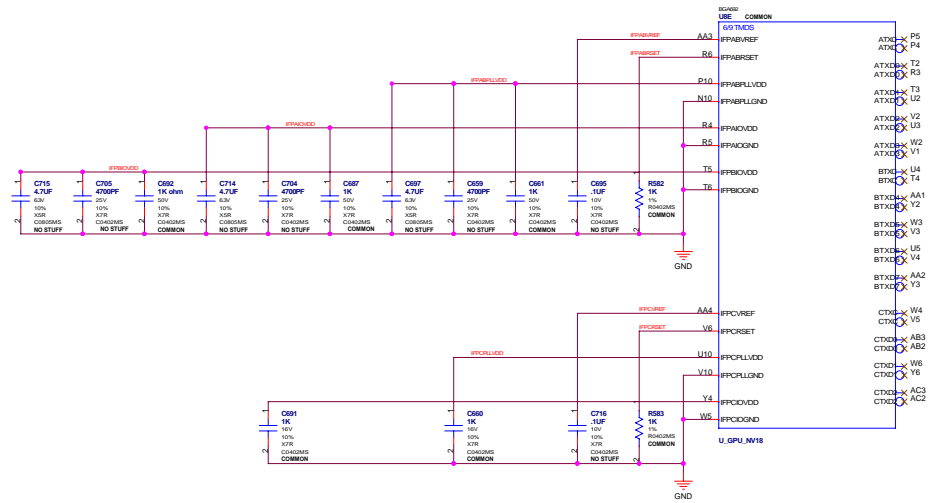
R2259 & R2260 closed between P501 & C1151, C1152



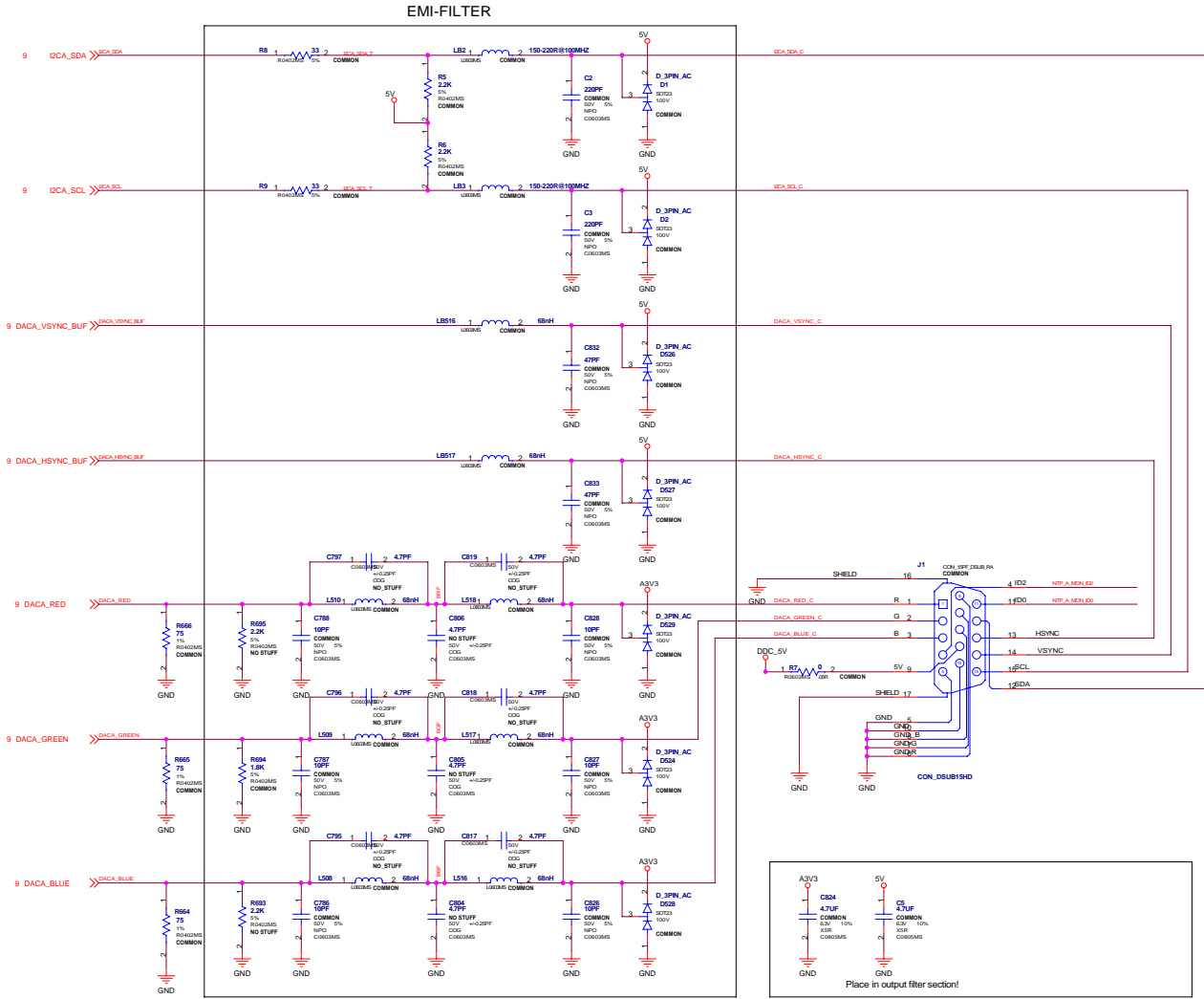
## VIDEO CAPTURE



## INTERNAL TMDS POWER AND DECOUPLING




DACB output



NET	Diffpair	NET_SPACING_RULE
ARF	ARF	ARF_C01_300R
AGF	AGF	AGF_C01_300R
ASF	ASF	ASF_C01_300R
DACA_RED_C	DACA_RED_C	DACA_RED_C01_300R
DACA_GREEN_C	DACA_GREEN_C	DACA_GREEN_C01_300R
DACA_BLUE_C	DACA_BLUE_C	DACA_BLUE_C01_300R

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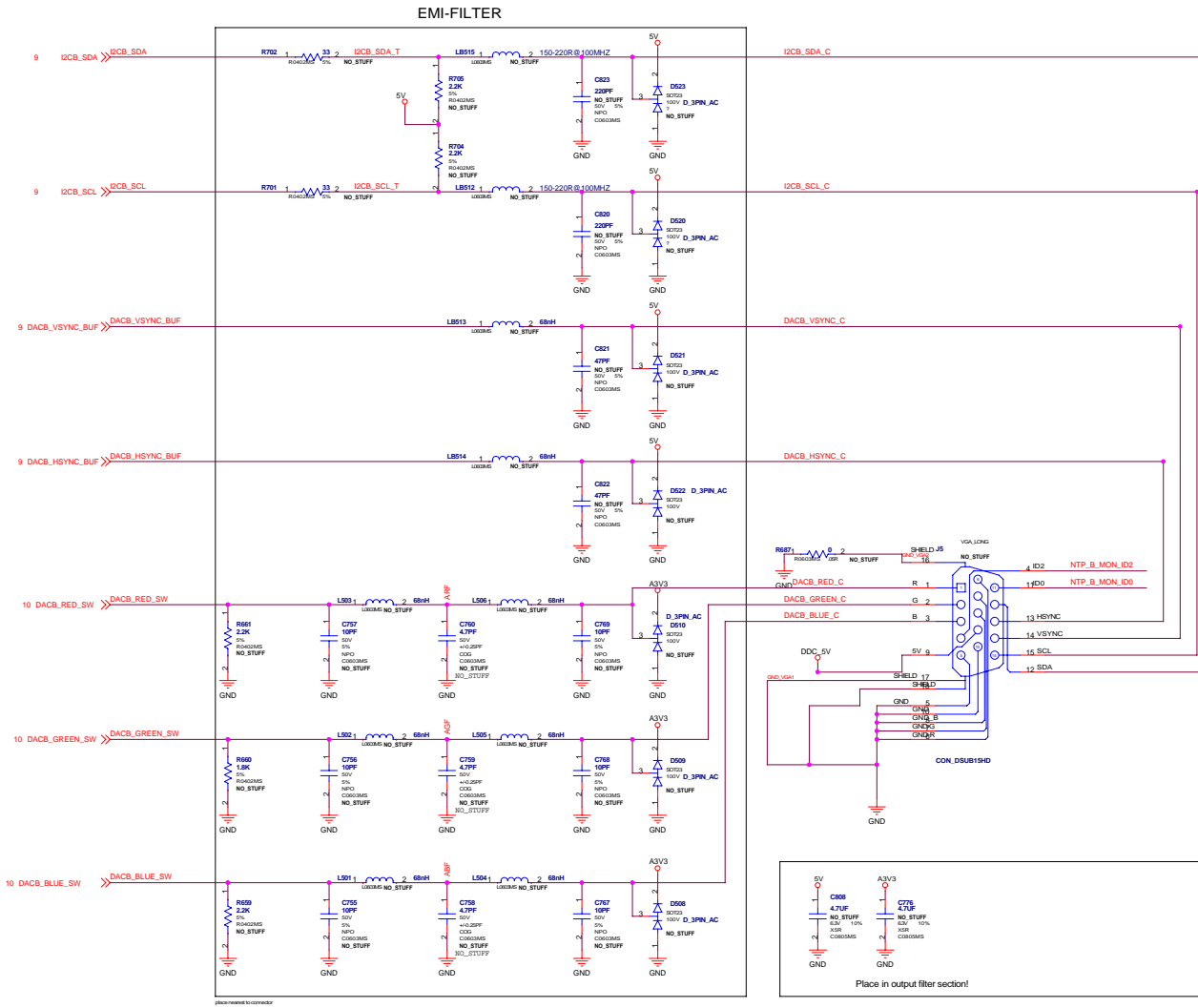


Micro-Star International Co., LTD.

MS-8893 base on C116 Modify

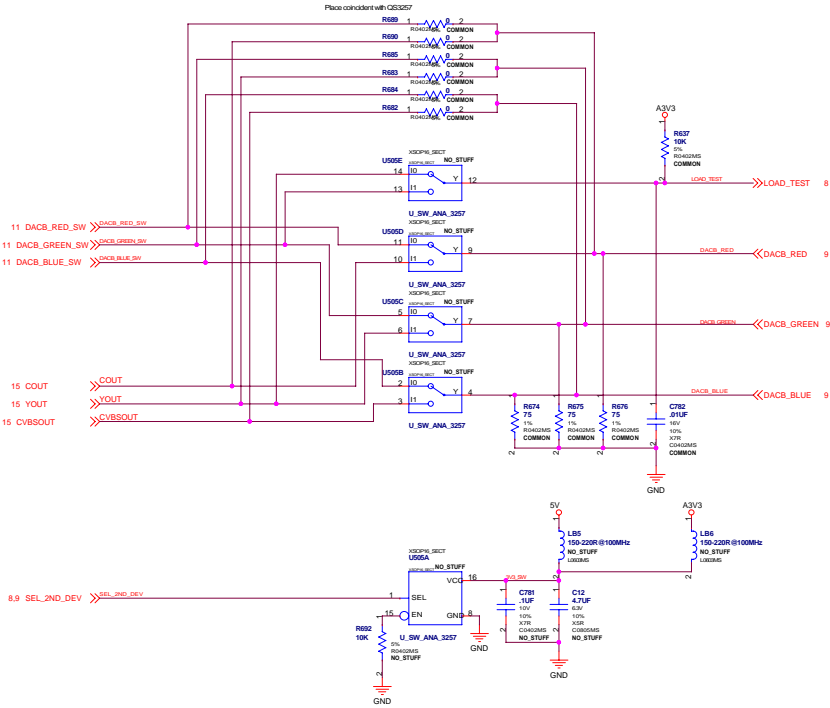
Size: Custom  
Document Number: DAC B CONNECT  
Date: Tuesday, October 01, 2002  
Sheet: 6 of 17

DACA output



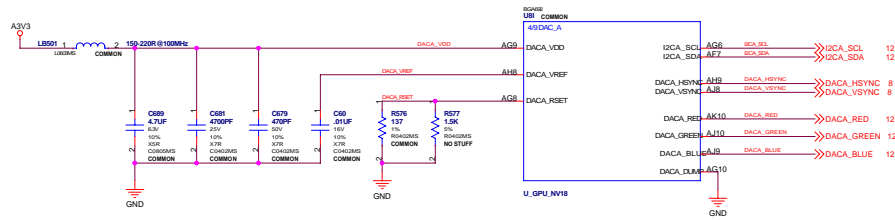
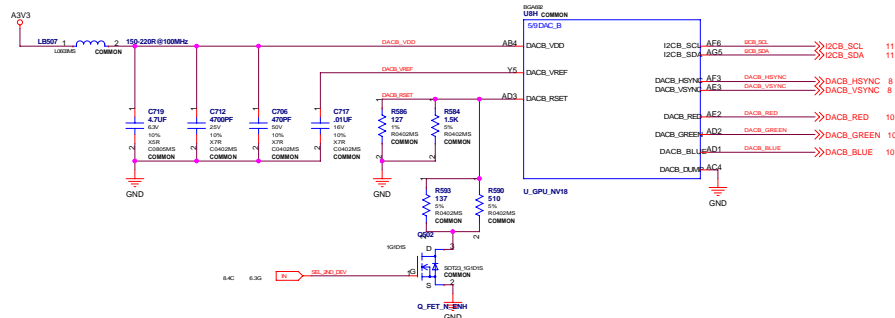
NET	Diffpair	NET_SPACING_RULE
BRF	BRF	20M, CPG 30M
BGF	BGF	20M, CPG 30M
BBF	BBF	20M, CPG 30M
DACB_RED_C	DACB_RED_C	20M, CPG 30M
DACB_GREEN_C	DACB_GREEN_C	20M, CPG 30M
DACB_BLUE_C	DACB_BLUE_C	20M, CPG 30M

DACB SWITCH BETWEEN VGA OUT AND TV OUT

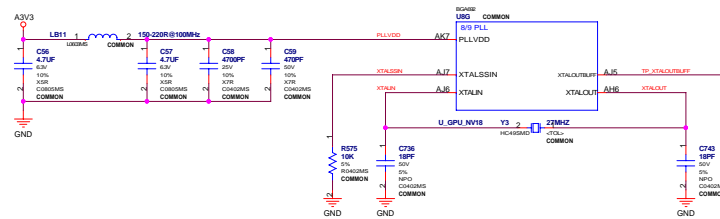


NET	Diffpair	NET_SPACING_RULE
11 DACB_RED_SW	DACB_RED_SV	20MIL_GST_20MIL
11 DACB_GREEN_SW	DACB_GREEN_SV	20MIL_GST_20MIL
11 DACB_BLUE_SW	DACB_BLUE_SV	20MIL_GST_20MIL
MINIDIN_COUT	MINIDIN_COUT	20MIL_GST_20MIL
MINIDIN_Y_CVBSOUT	MINIDIN_Y_CVBSOUT	20MIL_GST_20MIL
MINIDIN_PBOUT	MINIDIN_PBOUT	20MIL_GST_20MIL

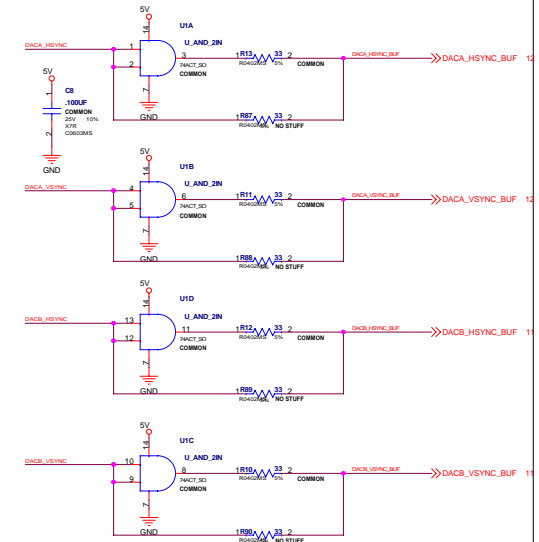


NV18 DAC\_B with RSet select

## NV18 PLL



## SYNC Amplifier

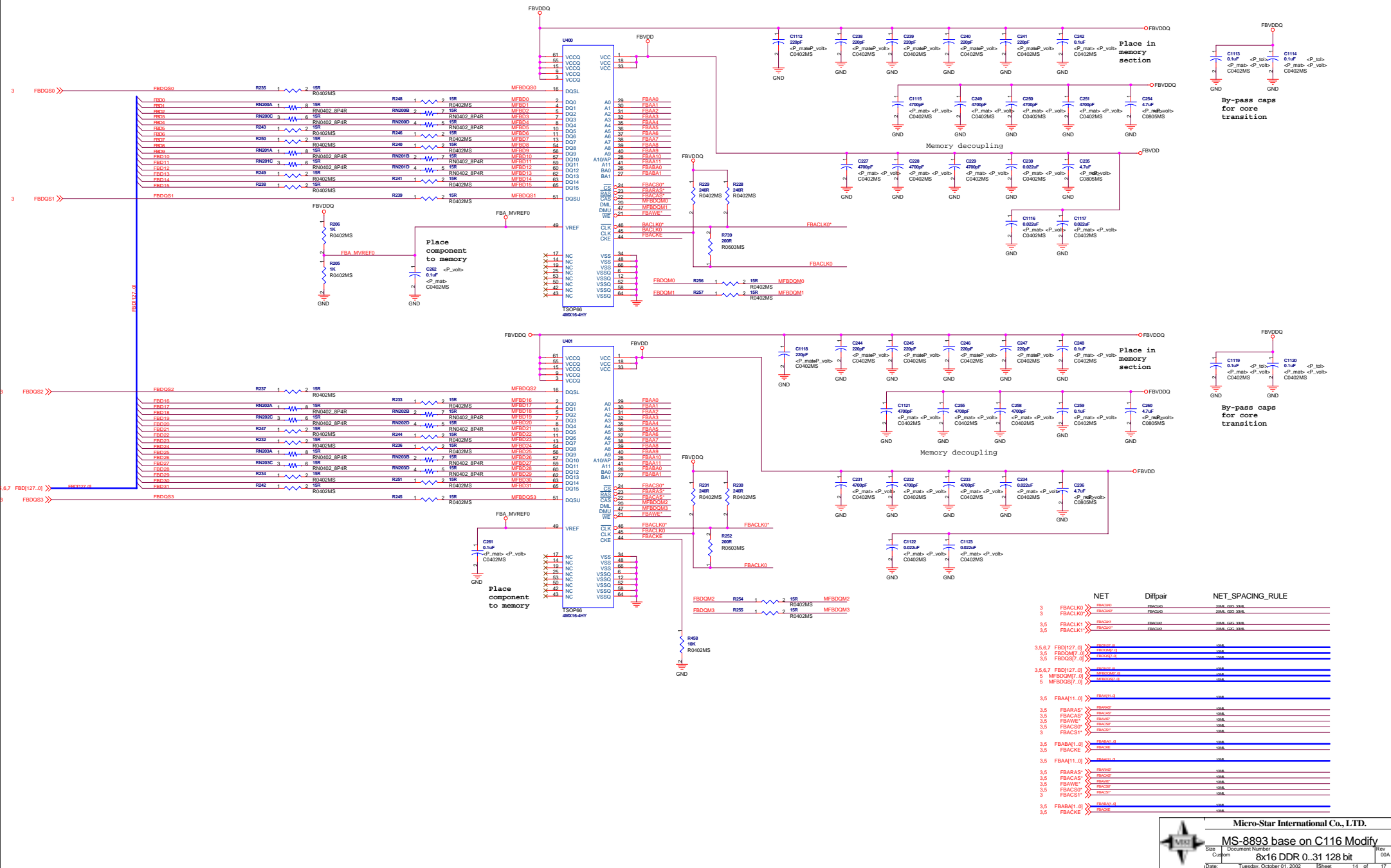












# NV18 FRAMEBUFFER INTERFACE AND DECOUPLING

4.5,6,7 FBQ[127:0]

FBQUP\_A

FBQUP\_B

FBQUP\_C

FBQUP\_D

FBQUP\_E

FBQUP\_F

FBQUP\_G

FBQUP\_H

FBQUP\_I

FBQUP\_J

FBQUP\_K

FBQUP\_L

FBQUP\_M

FBQUP\_N

FBQUP\_O

FBQUP\_P

FBQUP\_Q

FBQUP\_R

FBQUP\_S

FBQUP\_T

FBQUP\_U

FBQUP\_V

FBQUP\_W

FBQUP\_X

FBQUP\_Y

FBQUP\_Z

FBQUP\_0

FBQUP\_1

FBQUP\_2

FBQUP\_3

FBQUP\_4

FBQUP\_5

FBQUP\_6

FBQUP\_7

FBQUP\_8

FBQUP\_9

FBQUP\_10

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FBQUP\_240

FBQUP\_241

FBQUP\_242

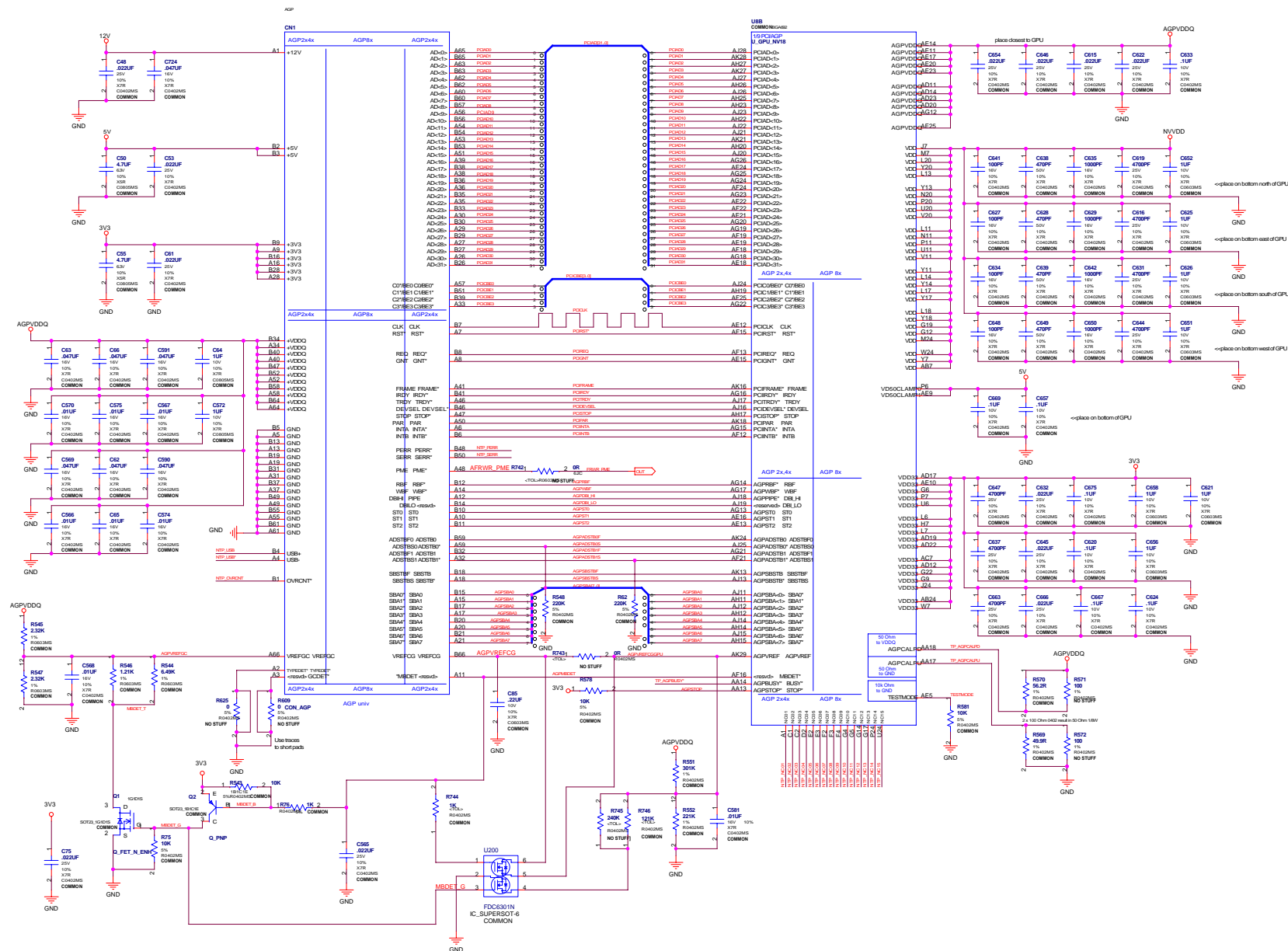
FBQUP\_243

FBQUP\_244

FBQUP\_245

FBQUP\_246

## NV18 AGP SECTION AND AGP CONNECTOR



## AGP spacing rules

PCAN121_0	PCAN201_0	137.0
PCAN121_1	PCAN201_1	137.0
PCICKL	PCICKL	138.0
PCIRKST	PCIRKST	138.0
PCOREC	PCOREC	139.0
PCRGNT	PCRGNT	139.0
PCIRFAME	PCIRFAME	139.0
PCIRDY	PCIRDY	139.0
PCITRDY	PCITRDY	139.0
PCITSTP	PCITSTP	139.0
PCDEVSEL	PCDEVSEL	139.0
PCIPAR	PCIPAR	139.0
PCINTA	PCINTA	139.0
PCINTB	PCINTB	139.0
AGPBRB	AGPBRB	139.0
AGPBRF	AGPBRF	139.0
AGPBDL_HI	AGPBDL_HI	139.0
AGPBDL_LO	AGPBDL_LO	139.0
AGPST0	AGPST0	139.0
AGPST1	AGPST1	139.0
AGPST2	AGPST2	139.0
AGPST3	AGPST3	139.0
AGPST4	AGPST4	139.0
AGPST5	AGPST5	139.0
AGPST6	AGPST6	139.0
AGPST7	AGPST7	139.0
AGPST8	AGPST8	139.0
AGPST9	AGPST9	139.0
AGPST10	AGPST10	139.0
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AGPST100	AGPST100	139.0
AGPST101	AGPST101	139.0
AGPST102	AGPST102	139.0
AGPST103	AGPST103	139.



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
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- 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 foundation for MSI .
9. Page 2 change Q508, Q509 footprint from SOT23 to SOT-6 U200 package.

600-10116-000X-A00

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MS-8893 base on C116 Modify

Size Custom Document Number TOP PAGE Rev 00A

Date Tuesday, October 01, 2002 Sheet 17 of 17