C116-B, NV18B/NV31/NV34, 8MX16DDR, 128MB, Video IN/OUT, DVI-I, VGA

Page Overview

HISTORY:

00A
00B

00A: INITIAL VERSION
ADD A.T.E. TEST POINTS
ADD CIRCUIT TO SUPPORT NV34
CONNECT W83785(U900) TO VGA THERMDA/C

00B: ADD FOUR COMMON CHOKES FOR EMI SOLUTION. PAGE 14.
ADD FBVDD SOURCE OPTION FROM FBVDDQ. PAGE 18
CHANGED FBVDDQ FROM 2.6V TO 2.52V FOR NV34/P162. PAGE 17.

200: ADD SMART FAN CONTROL AND H/W MONITOR OPTION. PAGE 18.
ADD IR CONTROLLER AND MODIFIED MINIDIN_9 CIRCUIT TO SUPPORT IR/TWIN BIOS SELECTION. PAGE 16
CHANGED FBVDDQ FROM 2.6V TO 2.52V. PAGE 17.

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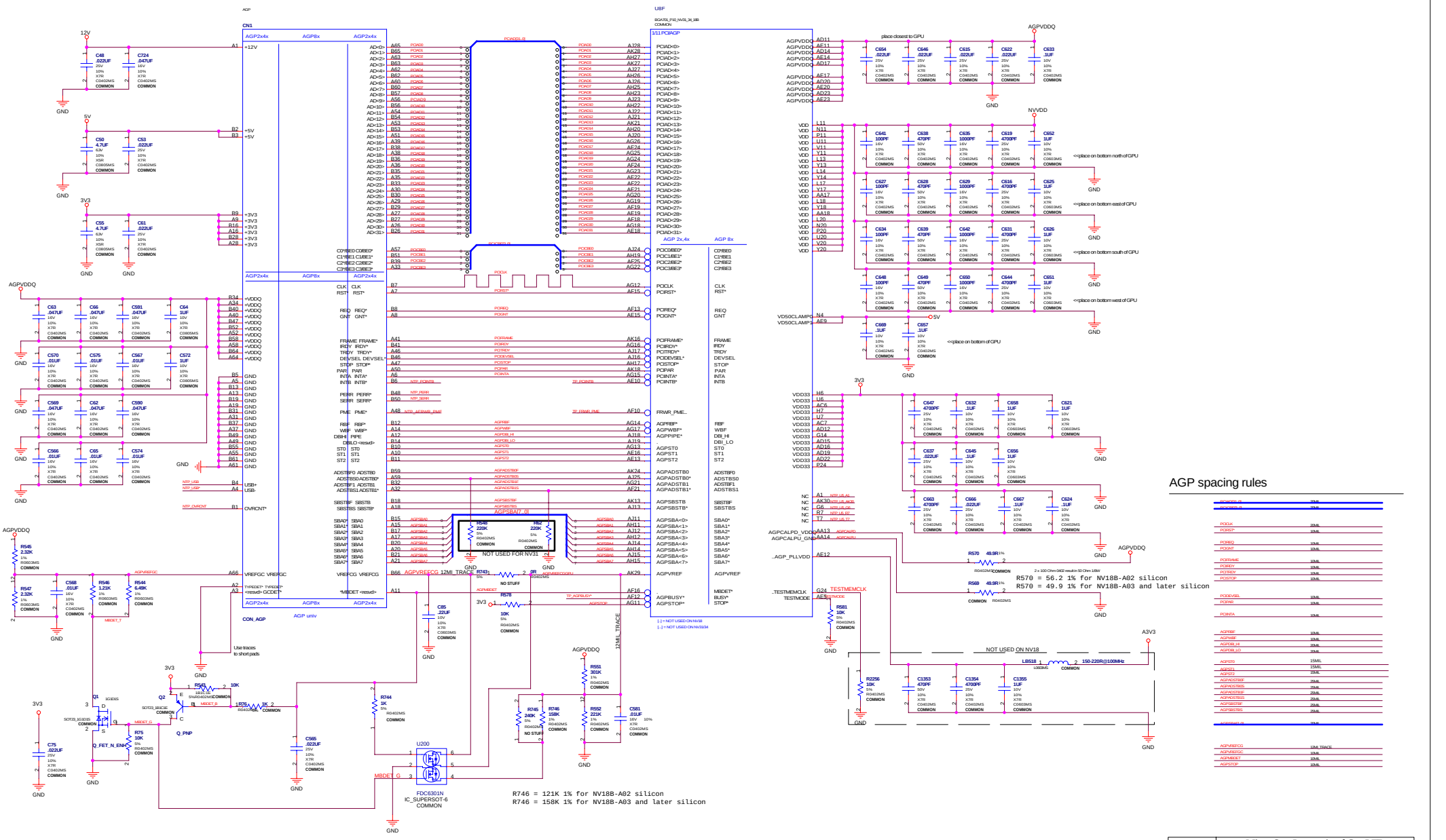
NV18 AGP SECTION AND AGP CONNECTOR



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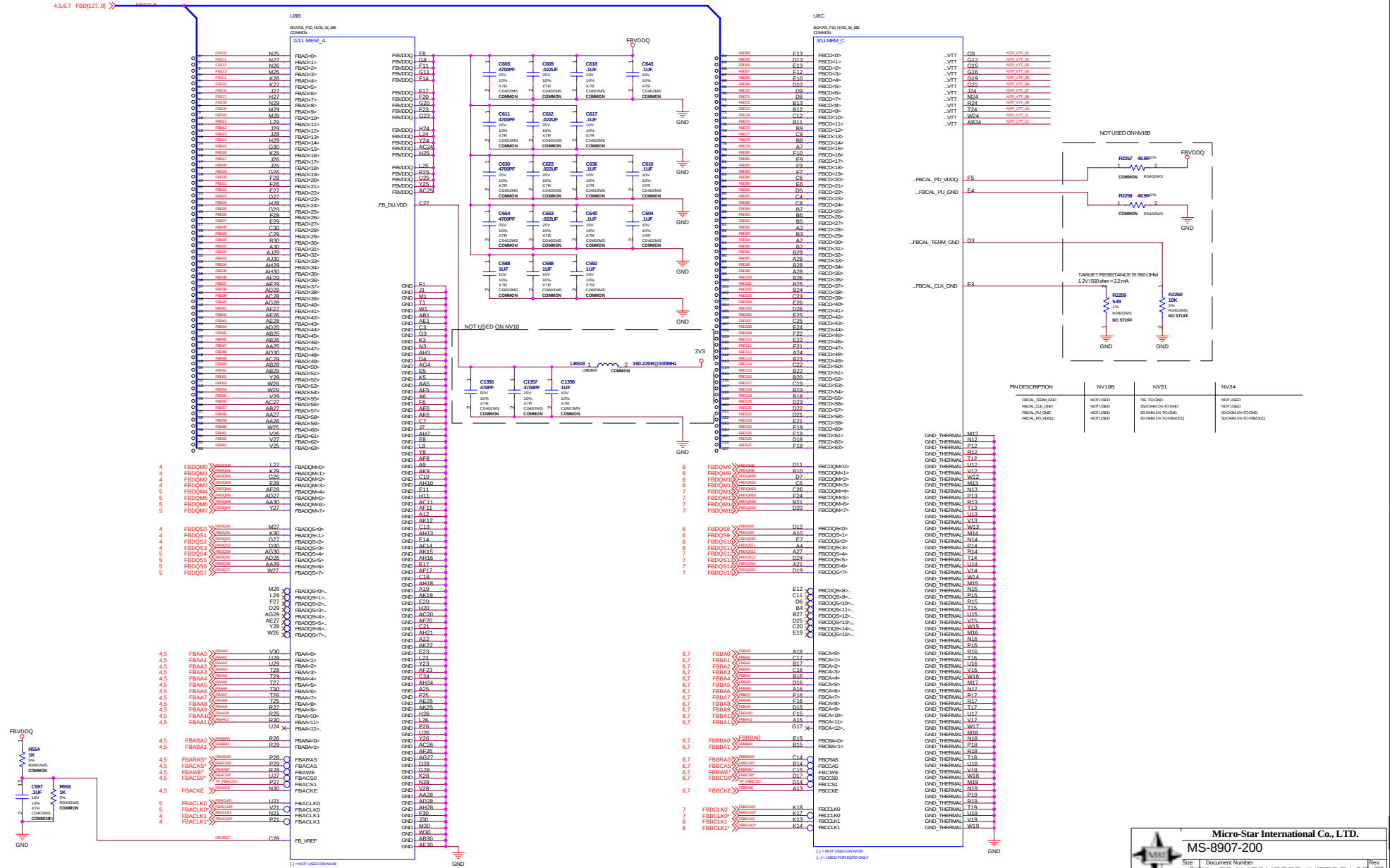
NV18 FRAMEBUFFER INTERFACE AND DECOUPLING



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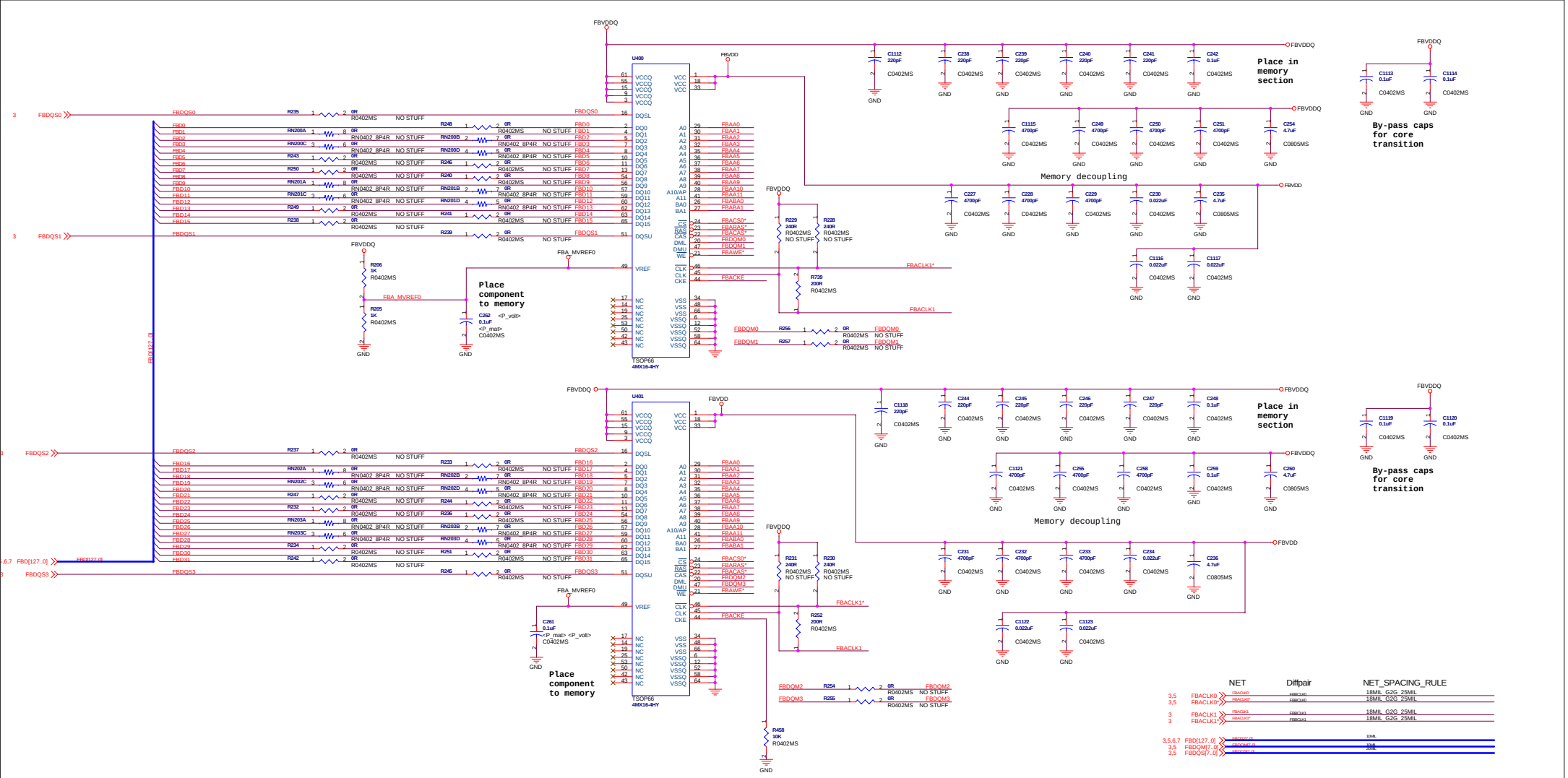

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Size: Custom	Document Number: 8x16 DDR 0..31 128 bit
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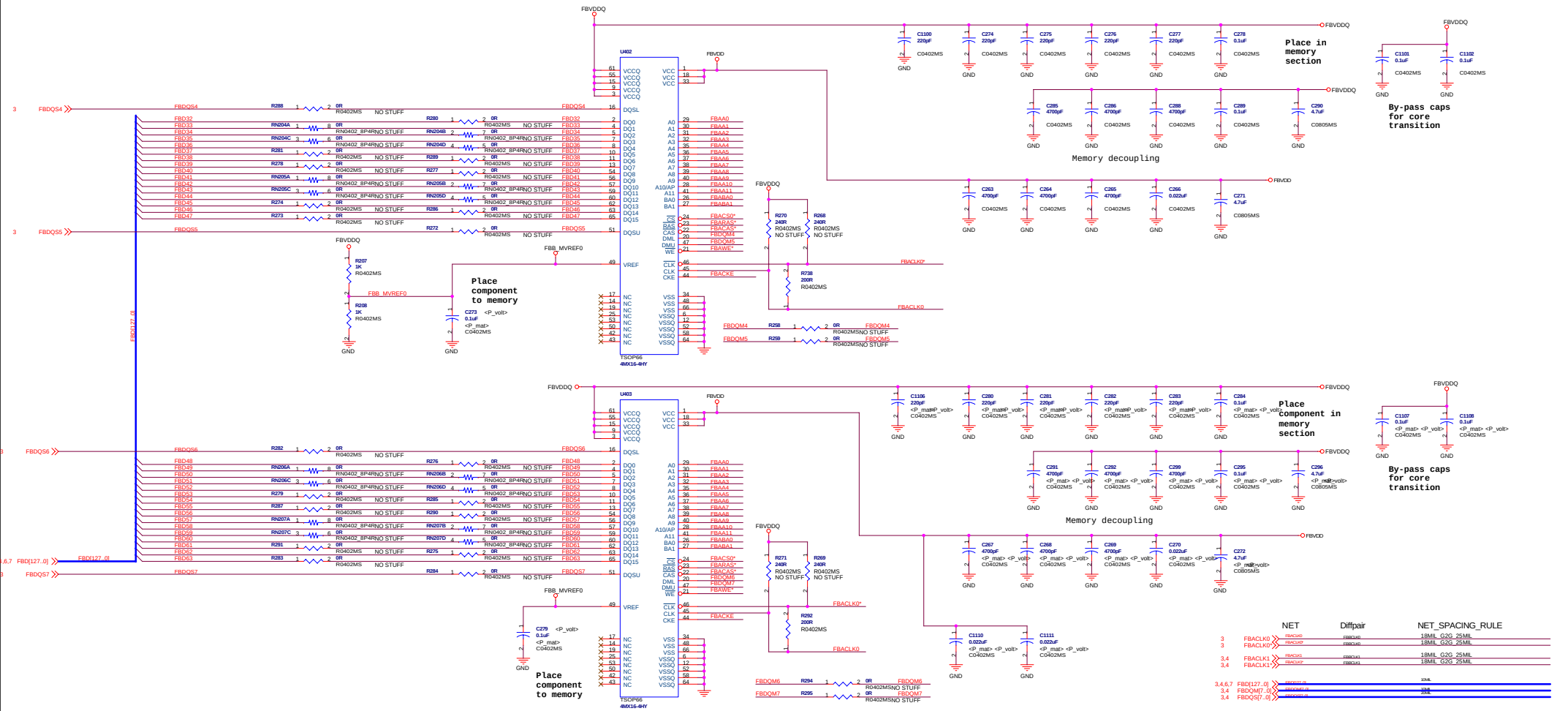

NET	Diffpair	NET_SPACING_RULE
FBACLK0	FBACLK0*	18MIL_G2G_25MIL
FBACLK1	FBACLK1*	18MIL_G2G_25MIL
FBD[127..0]		10MIL
FBDQM[7..0]		10MIL
FBDQS[7..0]		10MIL
FBAA[11..0]		10MIL
FBARAS*		10MIL
FBACAS*		10MIL
FBAWE*		10MIL
FBACS0*		10MIL
FBABA[1..0]		10MIL
FBACKE		10MIL
FBBA[11..0]		10MIL
FBBRAS*		10MIL
FBBCAS*		10MIL
FBBWE*		10MIL
FBBCS0*		10MIL
FBBBA[1..0]		10MIL
FBBCKE		10MIL

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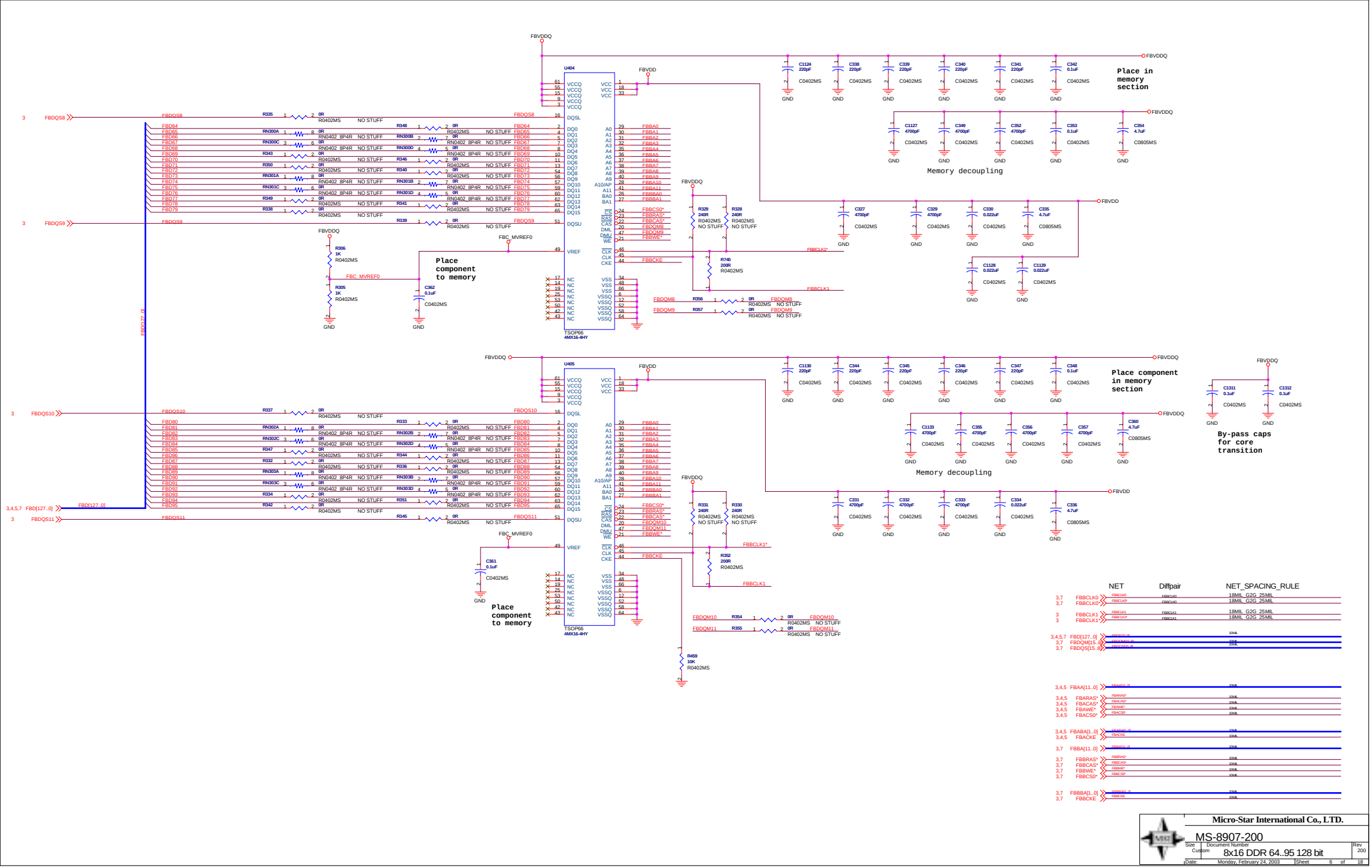
FBVDDQ
FBVDD
U404
TSOP66
4MX16-4HY
Place component to memory
Place in memory section
Memory decoupling
FBC_MVREF0
FBC_MVREF1
FBDQ[127..0]
FBDQS8
FBDQS9
FBDQS10
FBDQS11
FBBCLK0*
FBBCLK1*
FBBCKE
FBBCS0*
FBBRAS*
FBBCAS*
FBBWE*
FBDQM8
FBDQM9
FBDQM10
FBDQM11
U405
Place component in memory section
By-pass caps for core transition
NET
Diffpair
NET_SPACING_RULE
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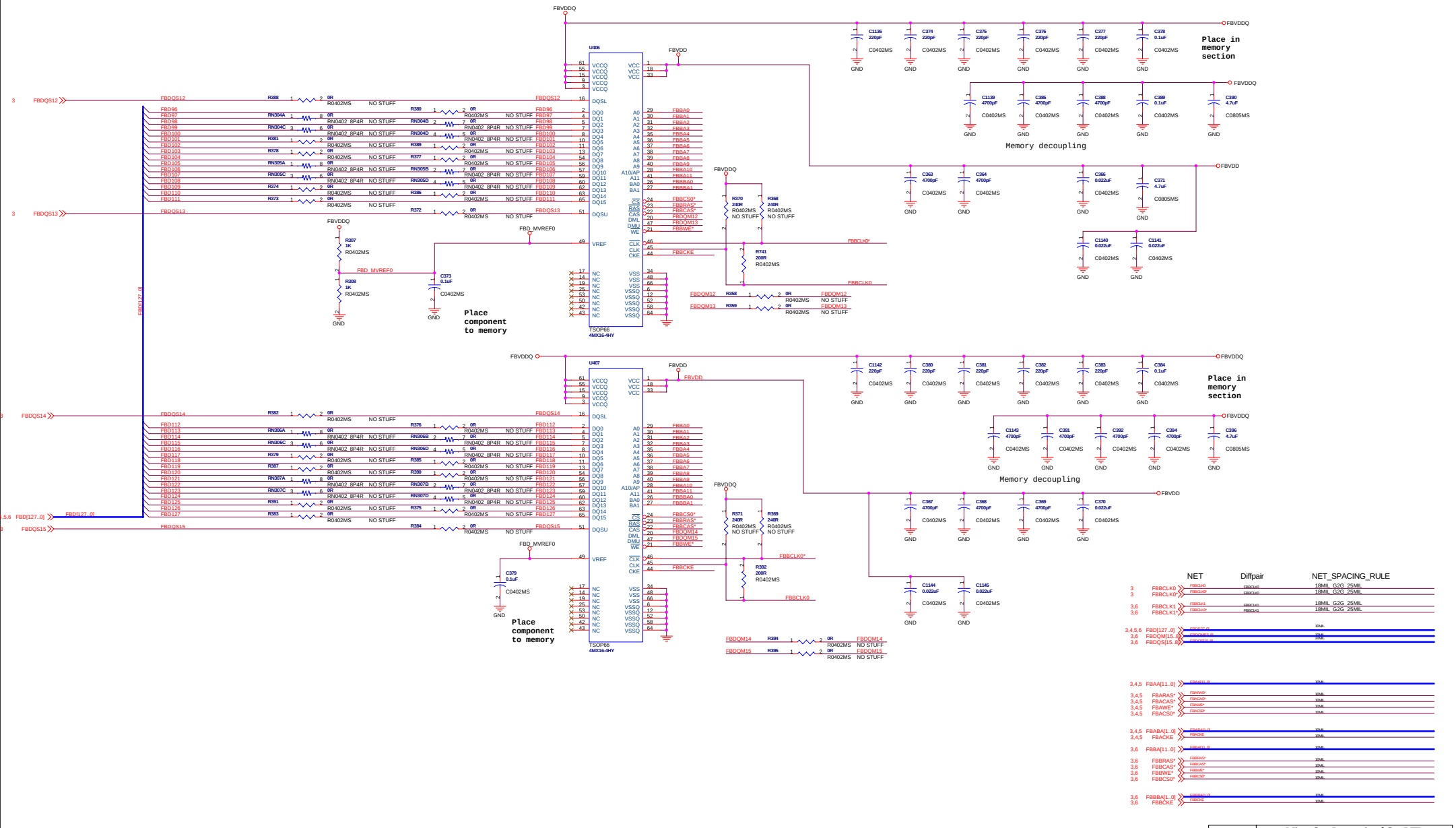
8x16 DDR 64..95 128 bit
Monday, February 24, 2003



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Size: Custom	Document Number: 8x16 DDR 96..127 128 bit		Rev: 200
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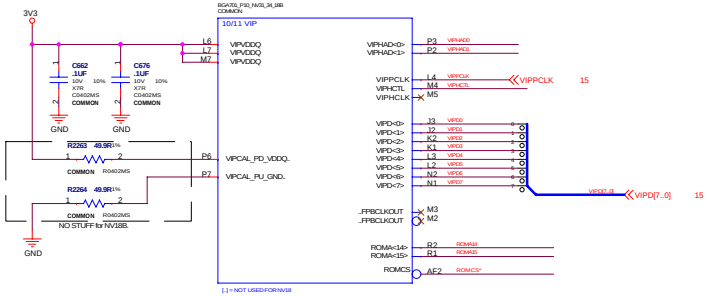
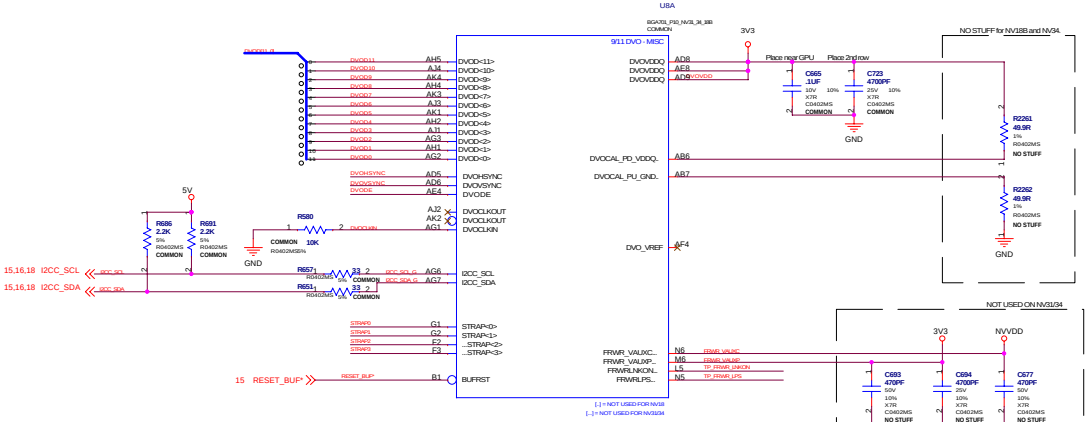
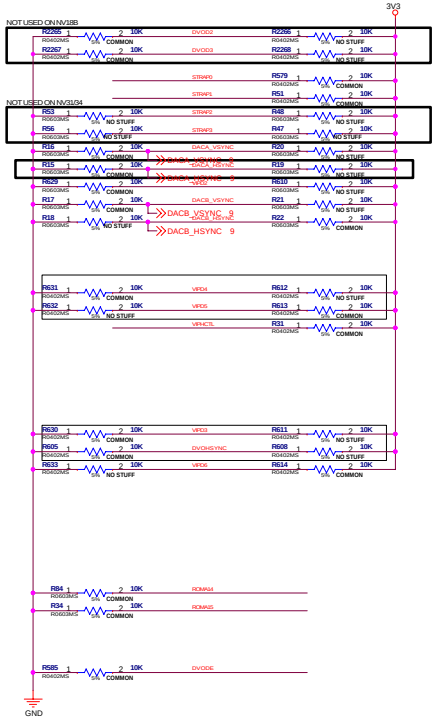
NV18 STRAPPING, I/O INTERFACE, BIOS, FAN CONTROL AND TEMP SENSOR

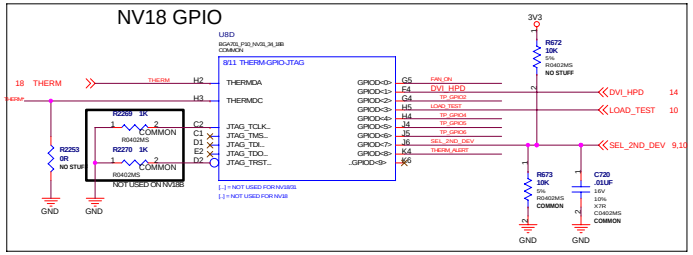


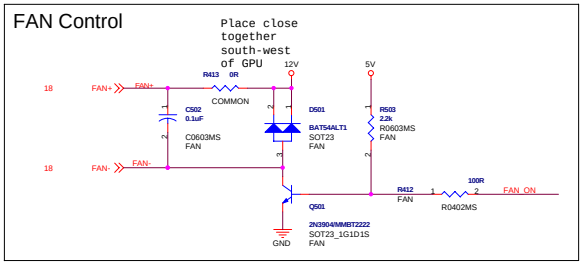


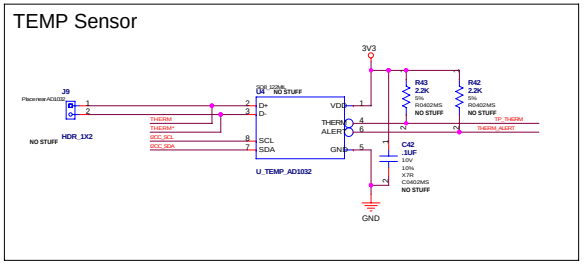


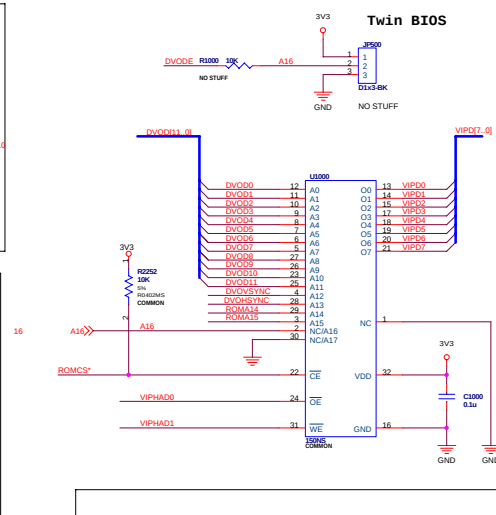
STRAPPING OPTIONS

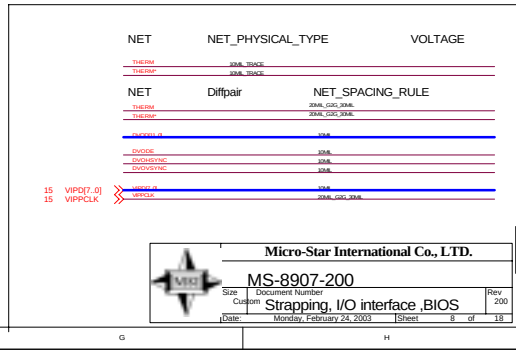
Bit	Signal	VALUE_ID	VALUEs
00: PCI_AD_SWAP	PCI_AD	0:REVERSED 1:NORMAL	
01: SUB_VENDOR	SUB_VENDOR	0:NO_BIOS 1:read from BIOS	
02: RAM_CFG_0	RAMCFG[3:0]	0000:2Mx32 SDR 0001:4Mx16 SDR 0010:RFU 0011:RFU 0100:RFU 0101:4Mx32 SDR 0110:8Mx16 SDR 0111:8Mx32 SDR	1000:2Mx32 DDR 1001:2Mx16 DDR 1010:4Mx16 DDR 1011:8Mx16 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	
08: TV_MODE_1		10:PAL 11:CRT	
09: AGPRefix			
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	











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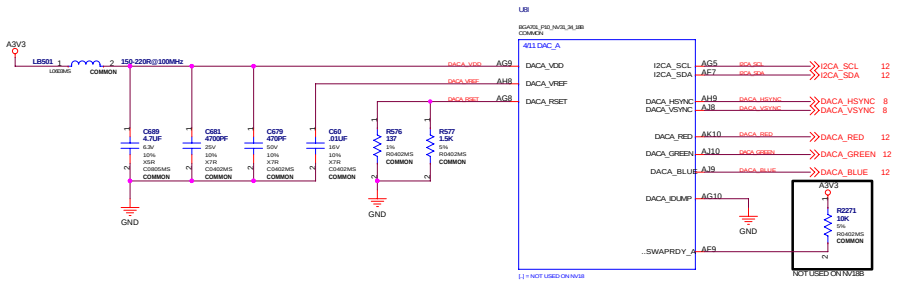
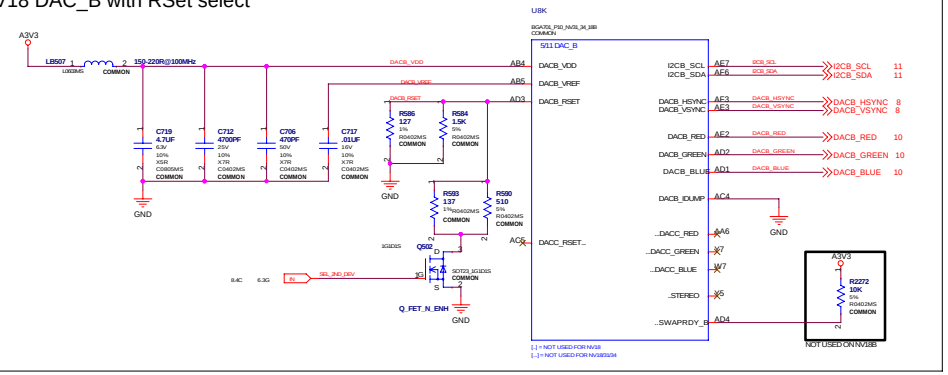
NV18 DAC_A, DAC_B, PLL, SYNC AMPL

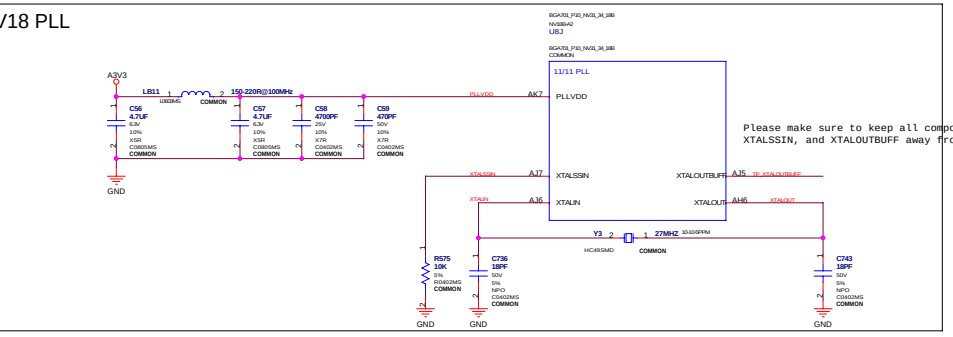
NV18 DAC_A



NV18 DAC_B with RSet select

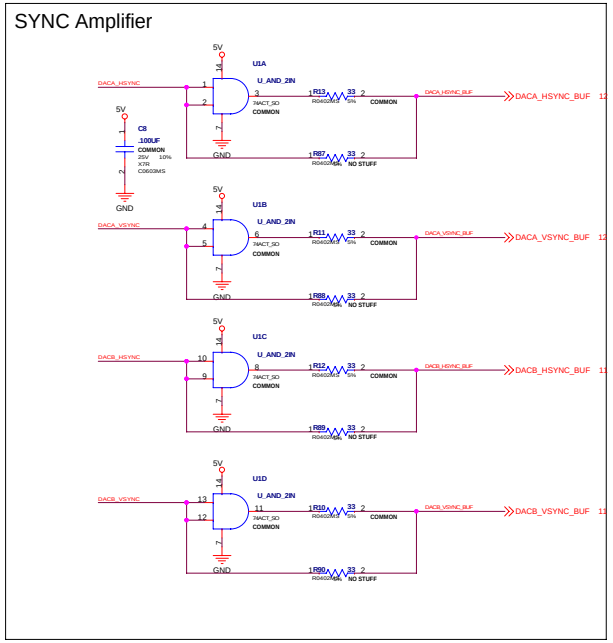


NV18 PLL



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	10MIL TRACE	3.3V
DACA_VREF	5MIL TRACE	
DACA_RSET	5MIL TRACE	
DACB_VDD	10MIL TRACE	3.3V
DACB_VREF	5MIL TRACE	
DACB_RSET	5MIL TRACE	
PLLVDD	10MIL TRACE	3.3V

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

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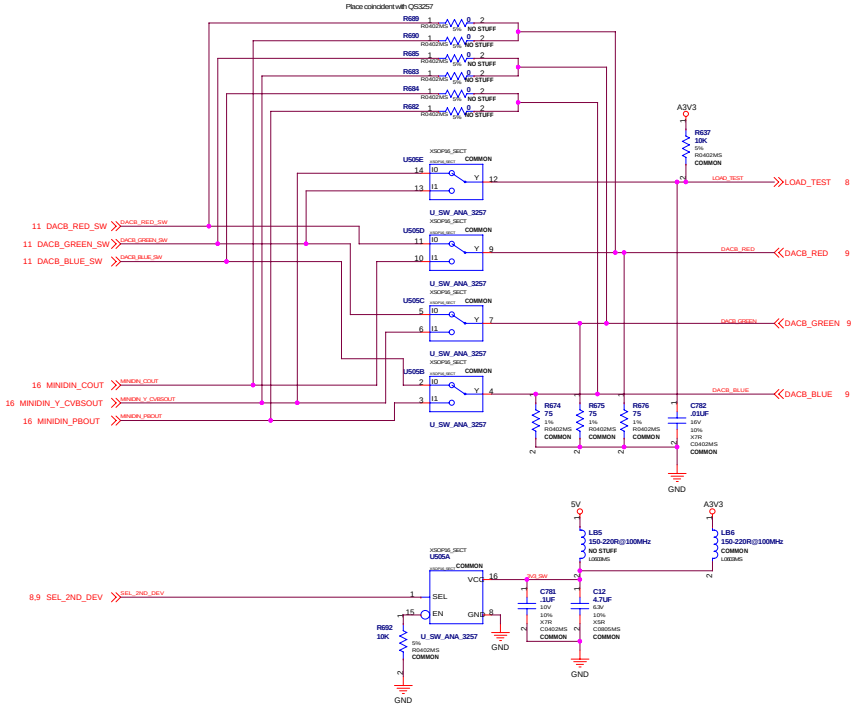
DACB SWITCH BETWEEN VGA OUT AND TV OUT

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



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MS-8907-200

Size	Document Number	Rev
Custom	SWITCH BETWEEN VGA AND TV-OUT	200
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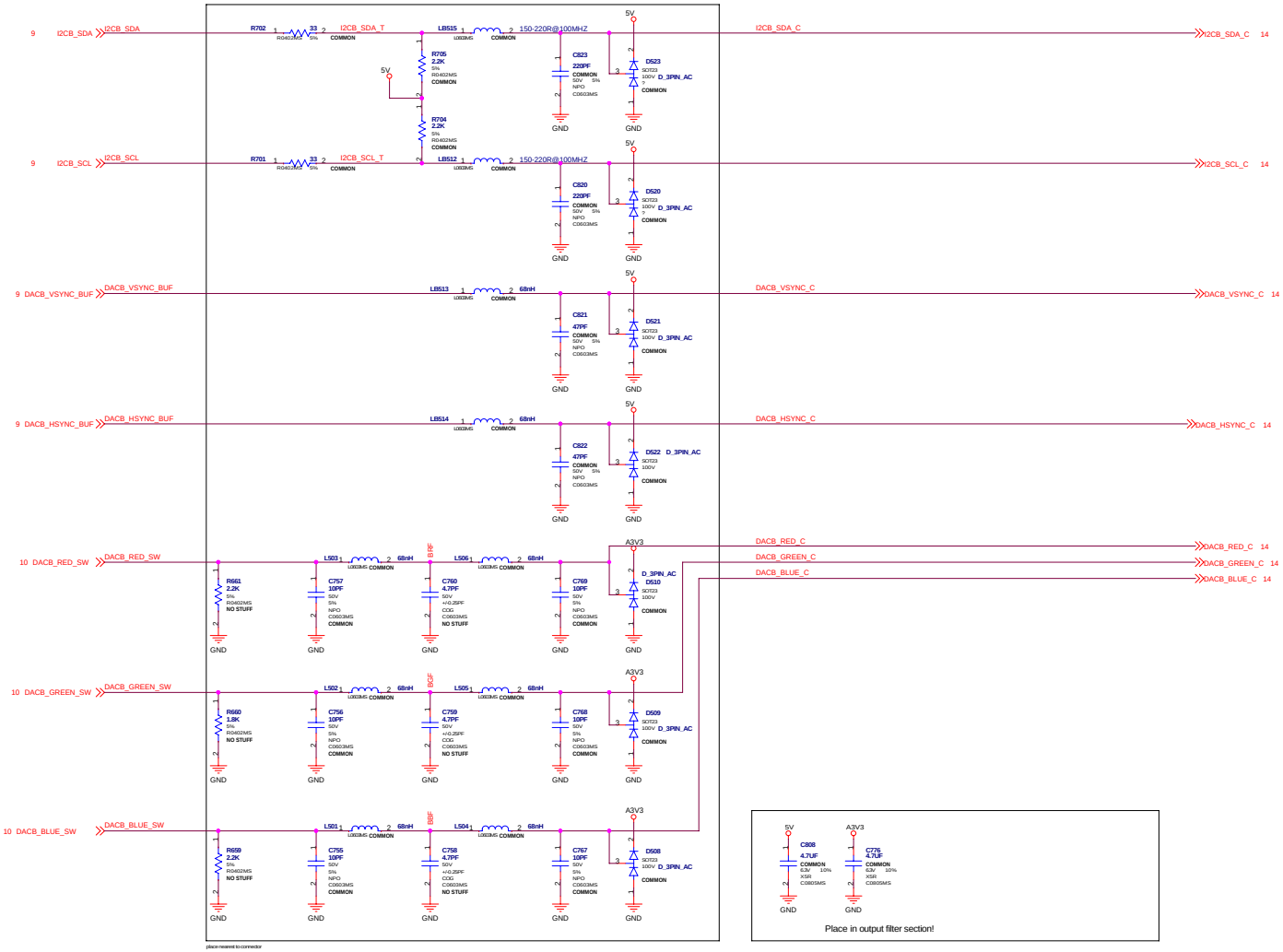
DACB output

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



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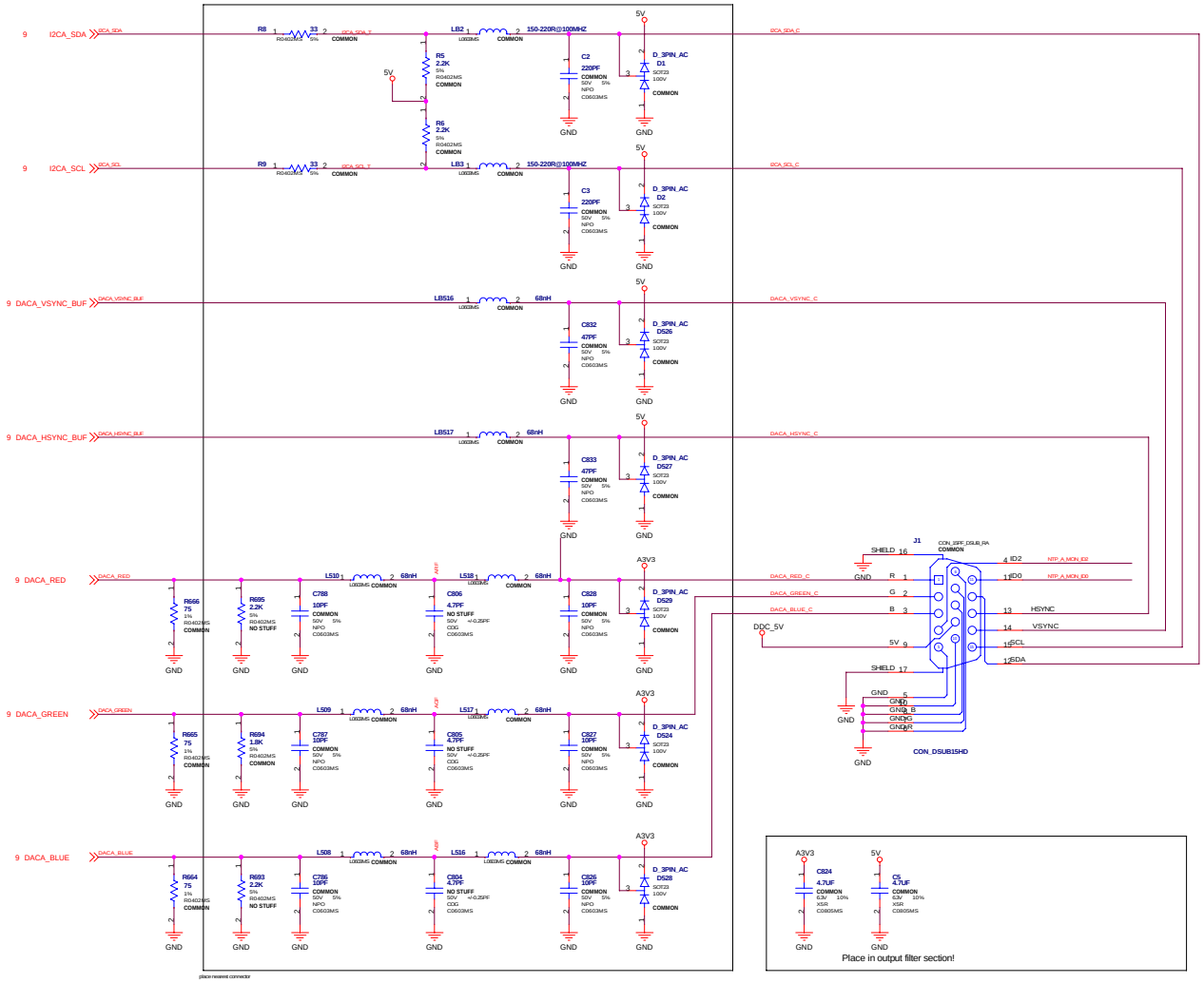
DACB output

EMI-FILTER



NET	IMPEDANCE	NET_SPACING_RULE
ABF	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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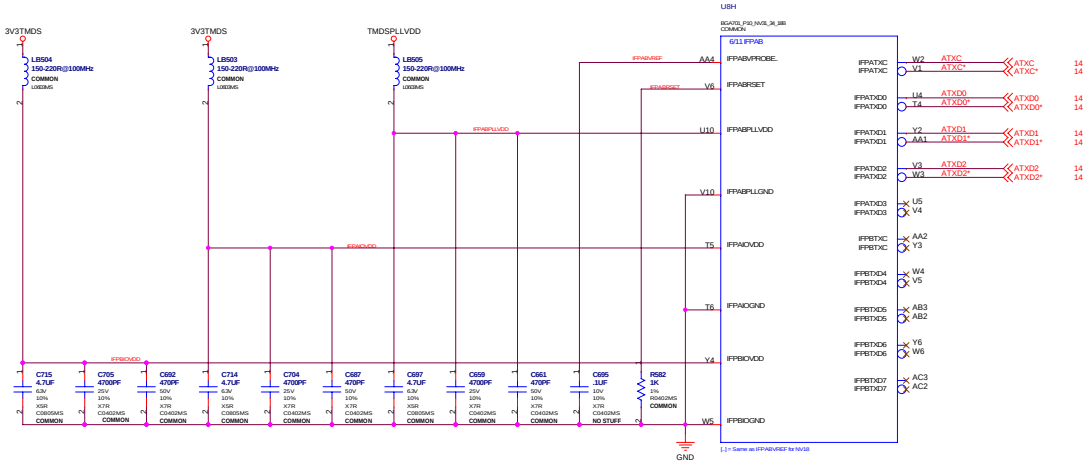
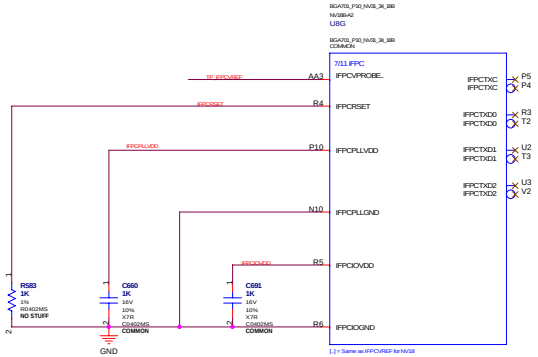
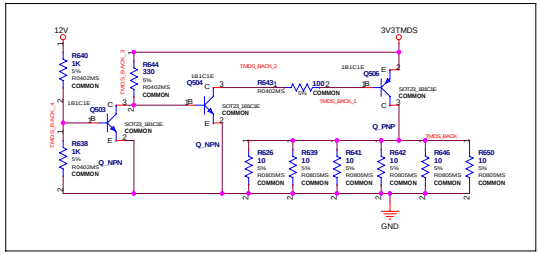
INTERNAL TMDS POWER AND DECOUPLING

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





TMDS backdrive prevention



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Size: Custom | Document Number: TMDS POWER AND DECOUPING | Rev: 200

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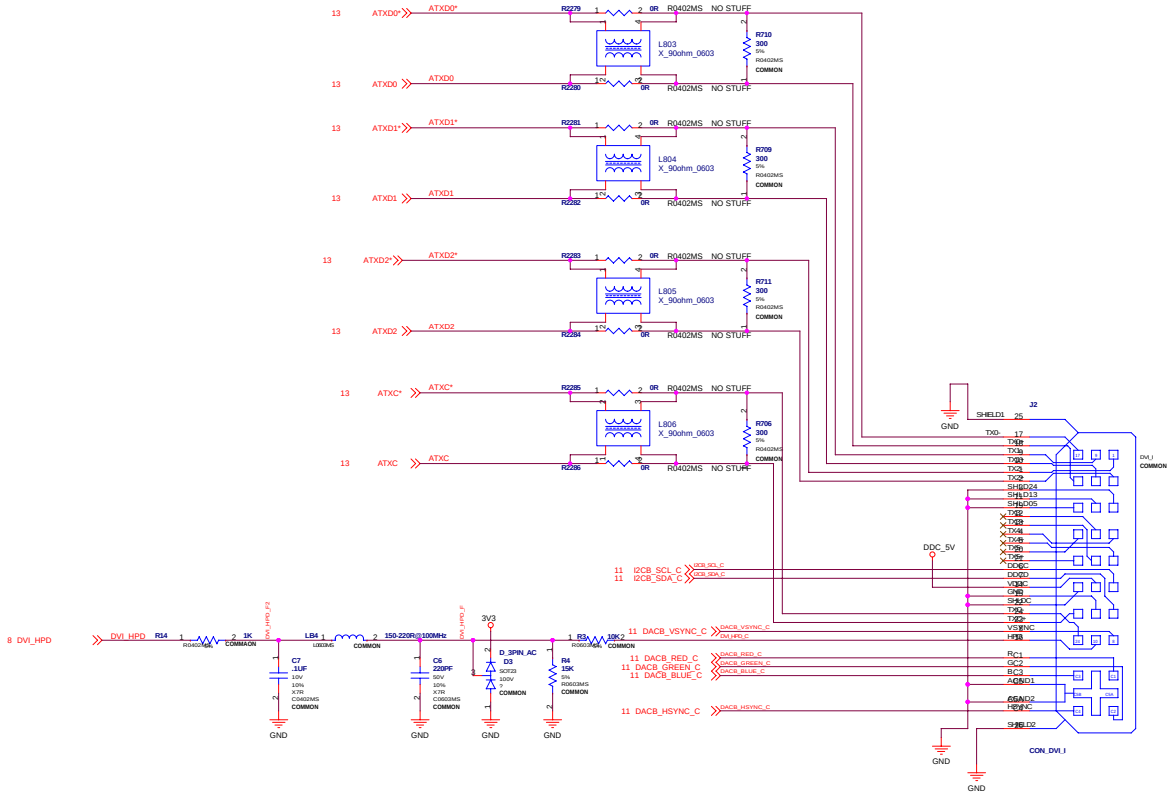
DVI_I OUTPUT



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

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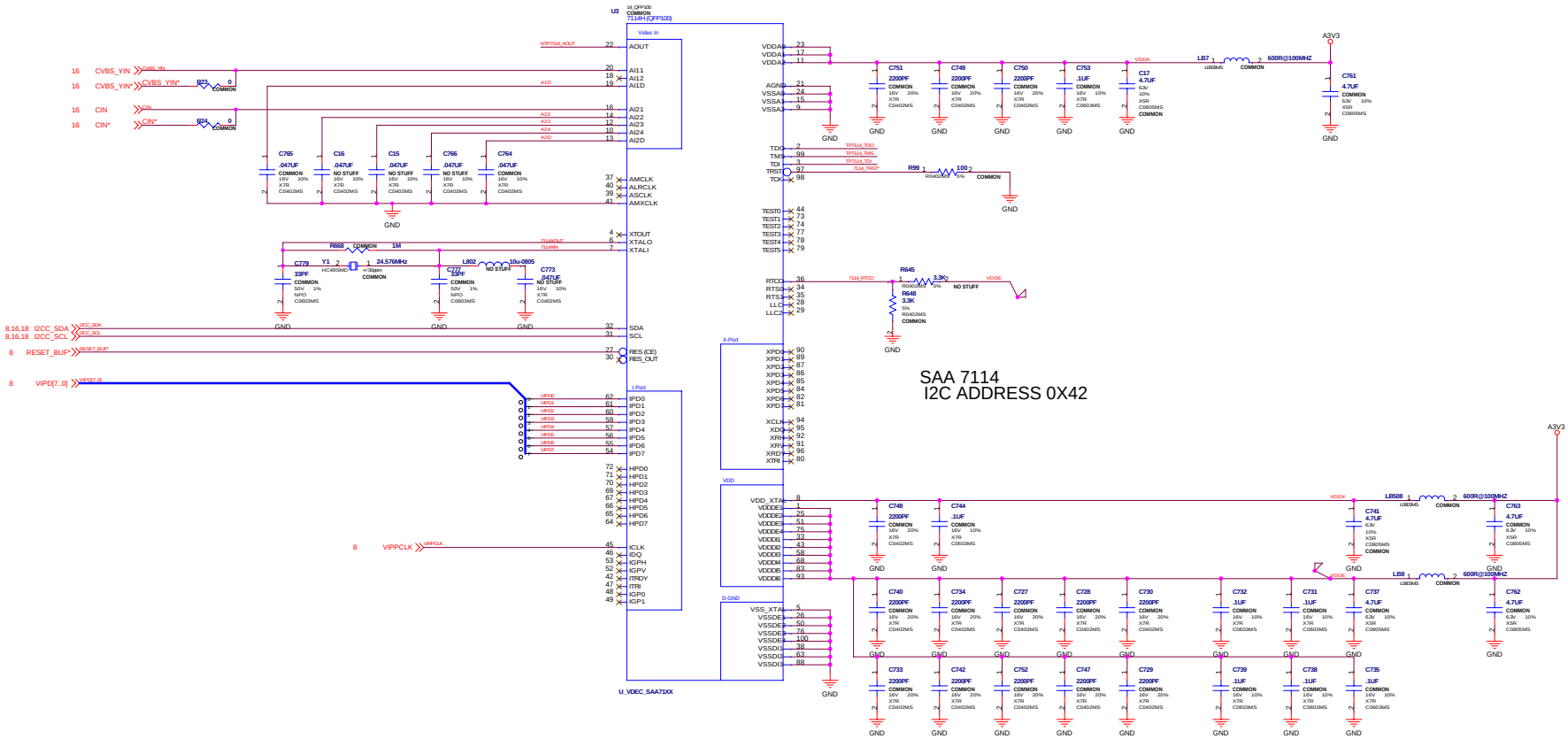
VIDEO CAPTURE



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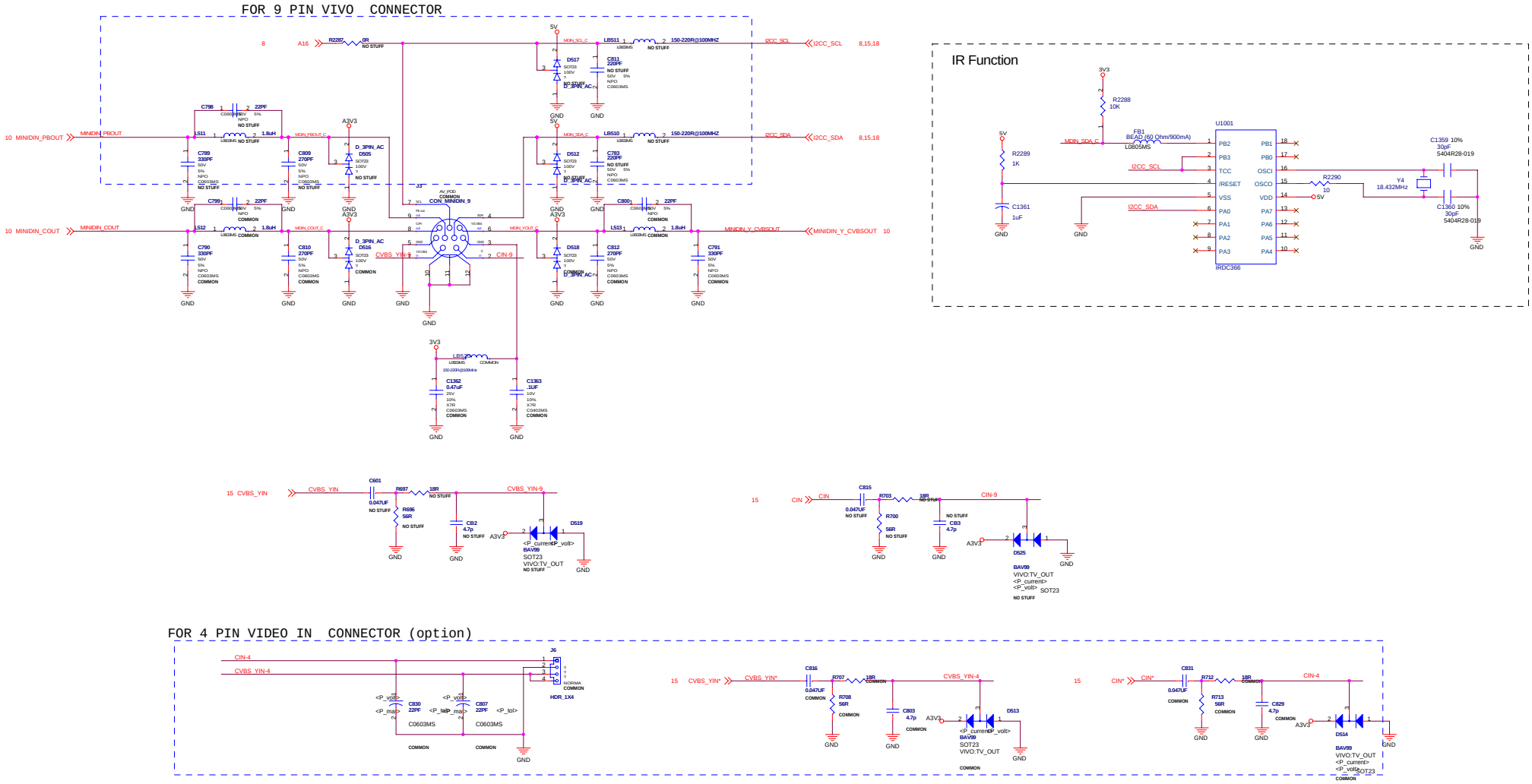
VIDEO IN/OUT CONNECTOR



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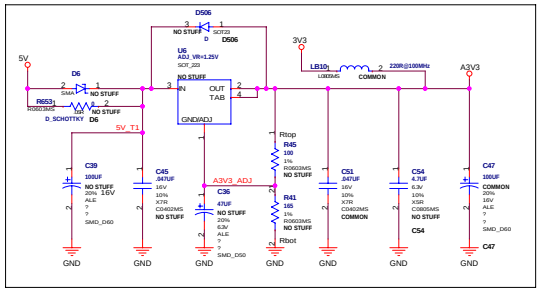
POWER SUPPLY

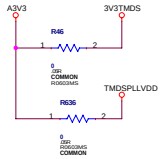
ANALOG 3V3

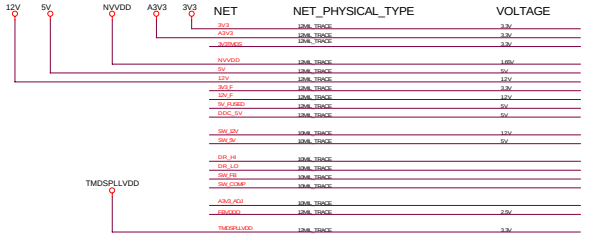


Vout = VRef * (1+Rbot/Rtop)

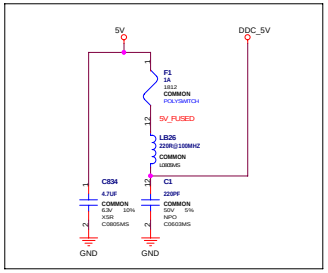
3.31V = 1.25V * (1+(165/100))

TMDS 3V3 Supply
TMDS PLL Supply

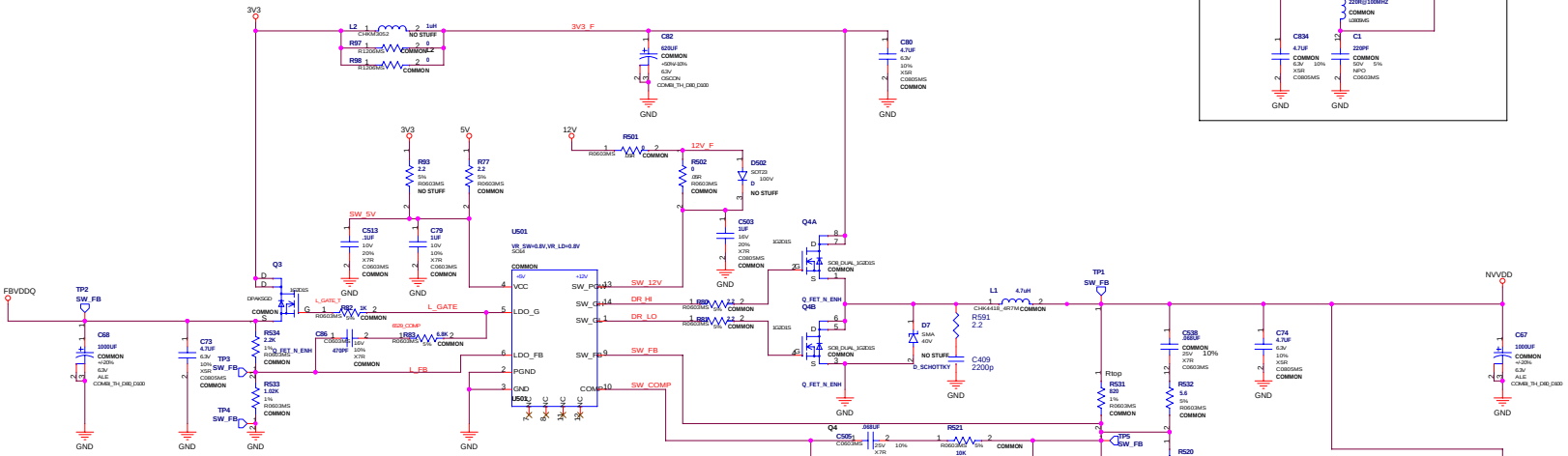




DDC 5V



NVDD-SWITCHER / FBVDD-LDO CONTROLER ISL6529



FBVDDQ = VRef * (1+Rtop/ Rbot)

ISL6529 2.52V = 0.800V * (1+2.2k/1.02k)

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

NVVDD = VRef * (1+Rtop/ Rbot)

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

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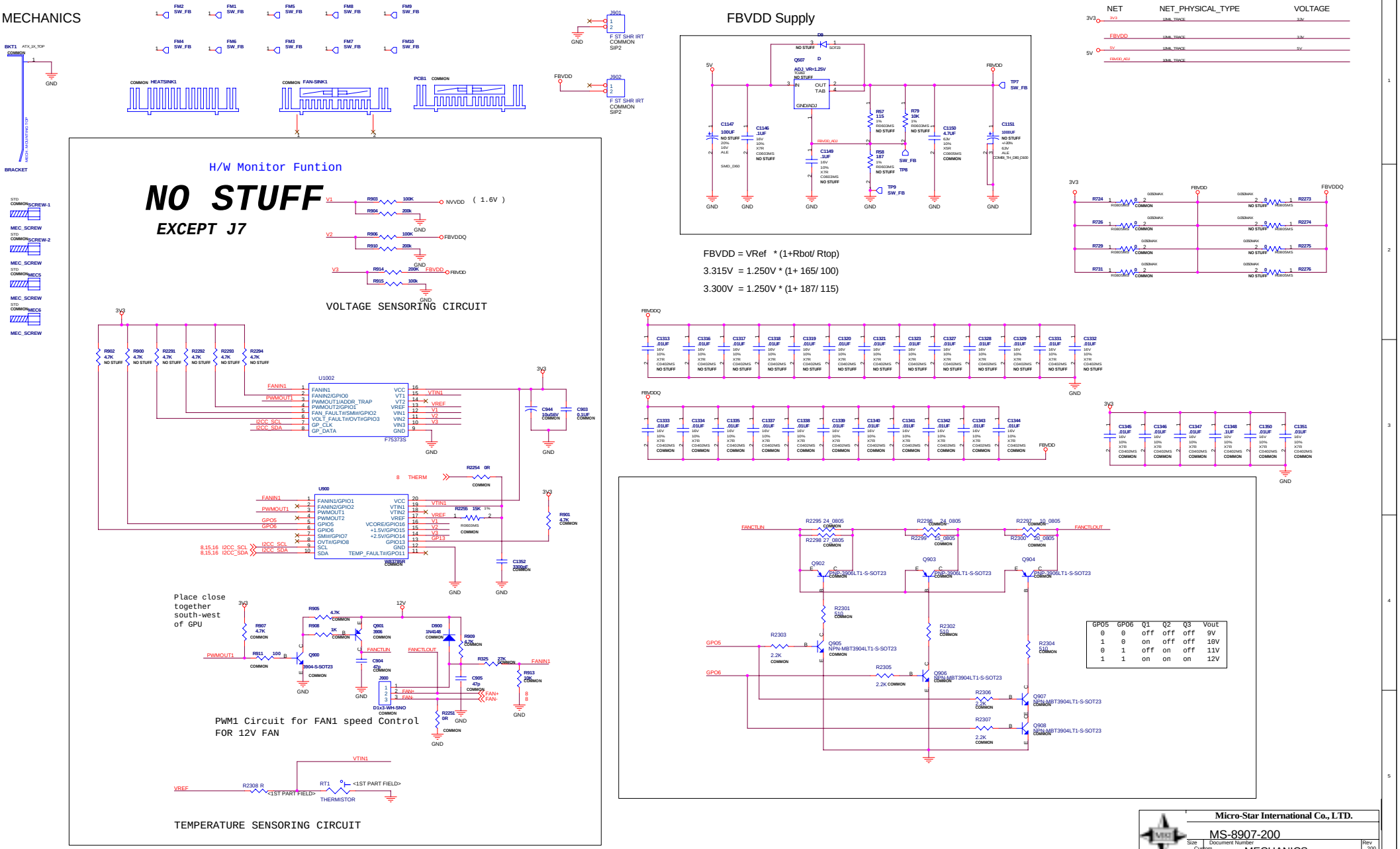

FBVDD Supply

FBVDD = VRef * (1+Rbot/ Rtop)

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

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

NET	NET_PHYSICAL_TYPE	VOLTAGE
3V3	12MIL_TRACE	3.3V
FBVDD	12MIL_TRACE	3.3V
5V	12MIL_TRACE	5V
FBVDD_ADJ	10MIL_TRACE	

GPO5	GPO6	Q1	Q2	Q3	Vout
0	0	off	off	off	9V
1	0	on	off	off	10V
0	1	off	on	off	11V
1	1	on	on	on	12V

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