

P229-B01
DESIGN

PAGE
SUMMARY:_____

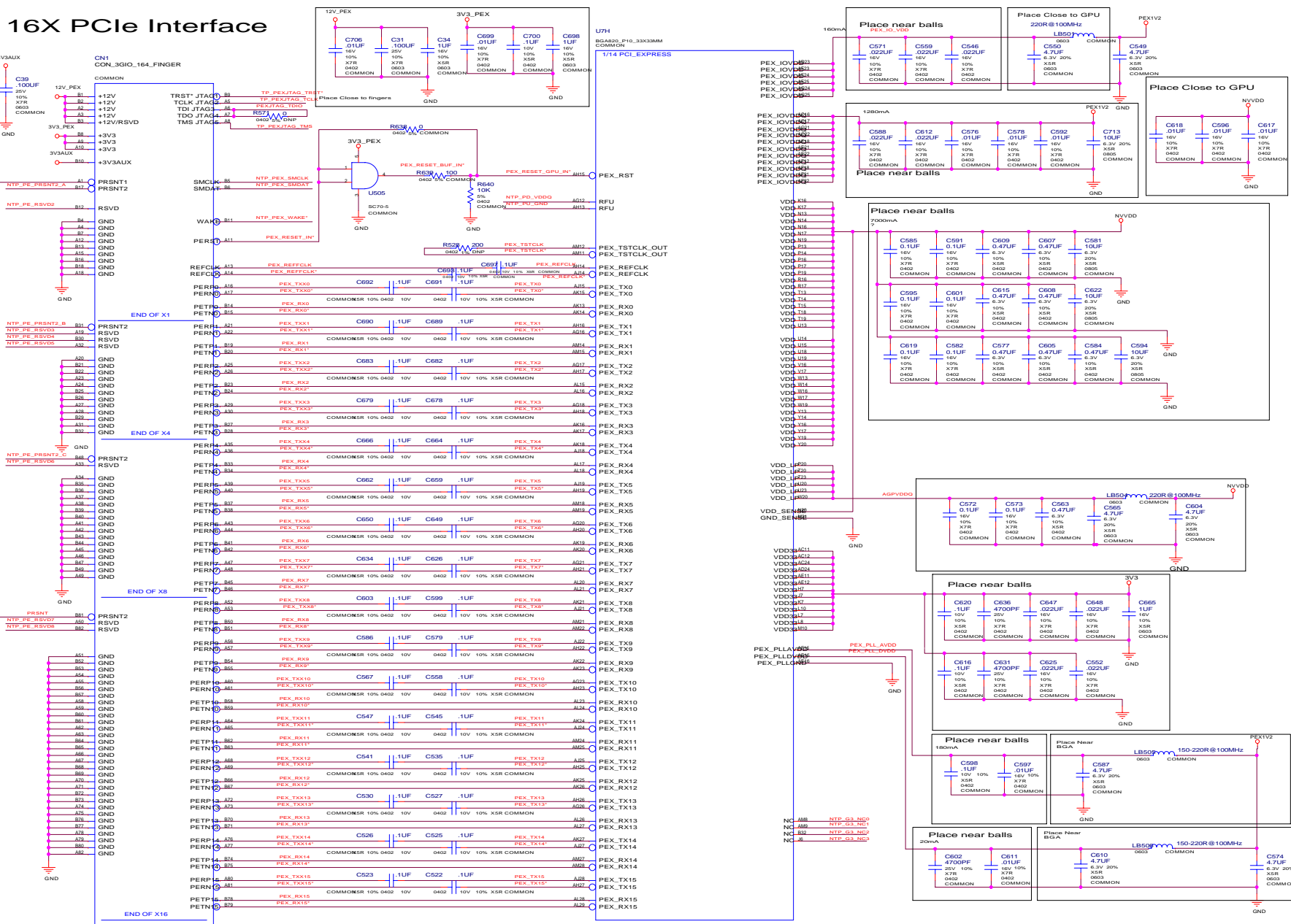
8981 Ver : 00A modify P229-B01 Summary

- Page 11. Add Video in connect to mini-din 10 pin & remove J5.
- Page 12. Add DVI-I common choke.
- Page 13. Connect net MIOBD 2 , MIOBD 6 & MIOBD 7 to BUS.
- Page 15. Modify Power ,PWM change to ISL6549.
- Page 16. Add Video function.

REVISION HISTORY:
Initial Release

REV	VARIANT	NVPN	ASSEMBLY
0	BASE	600-10229-BASE-SCH	BASE LEVEL GENERIC SCHEMATIC ONLY, COMMON & NO_STUFF ASSEMBLY NOTES
1	nv43dvvgatv128m16x	600-10229-0002-101	MS-8981 GEN DVI-I/VGA/S-VIDEO 128MB
2	nv43dvvgatv128m8x	600-10229-0003-101	MS-8981 GEN DVI-I/VGA/HDTV 128MB 8Mx16
3	43gdvvgatv128m8x	600-10229-0001-101	MS-8981 NV43-GL GEN DVI-I/VGA/HDTV 128MB
4	nv43dvvgatv256m16x	600-10229-0004-101	MS-8981 NV43 GEN DVI-I/VGA/HDTV 256MB 16Mx16
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16X PCIe Interface



NET RULES

[illegible]

Net Name	MIN_LINE_WIDTH	NET_SPACING_TYPE
AGPVDDQ	16	10MIL
PEX_IO_VDD	16	10MIL
PEX_PLL_AVDD	12	10MIL
PEX_PLL_DVDD	12	10MIL

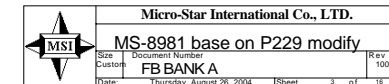


Micro-Star International Co., LTD.

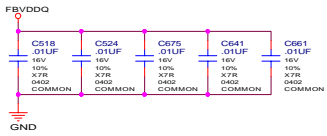
MS-8981 base on P229 modify

Size	Document Number
Custom	PCI Express Interface

A

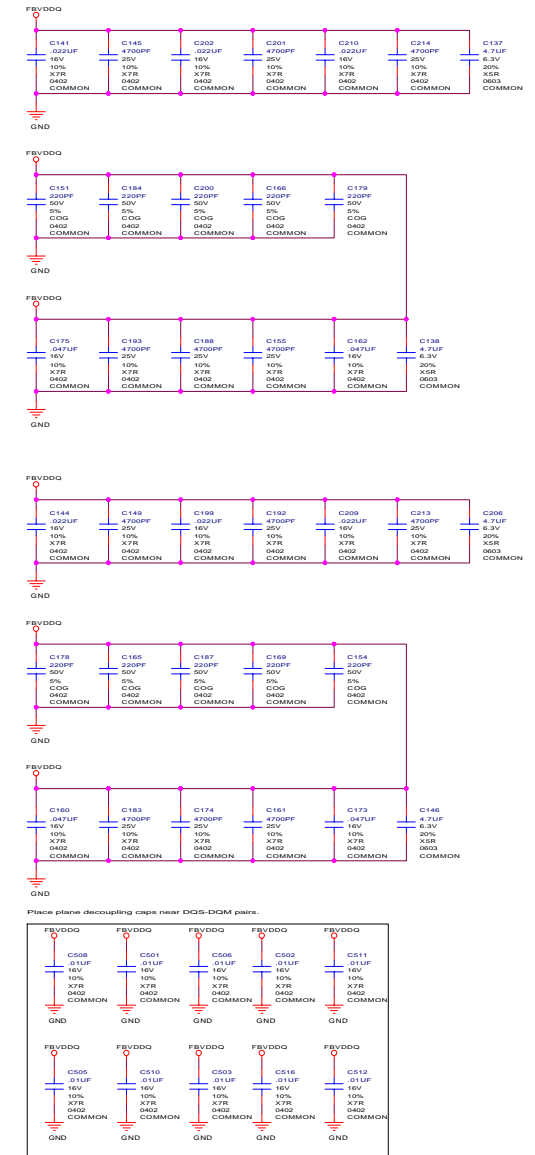
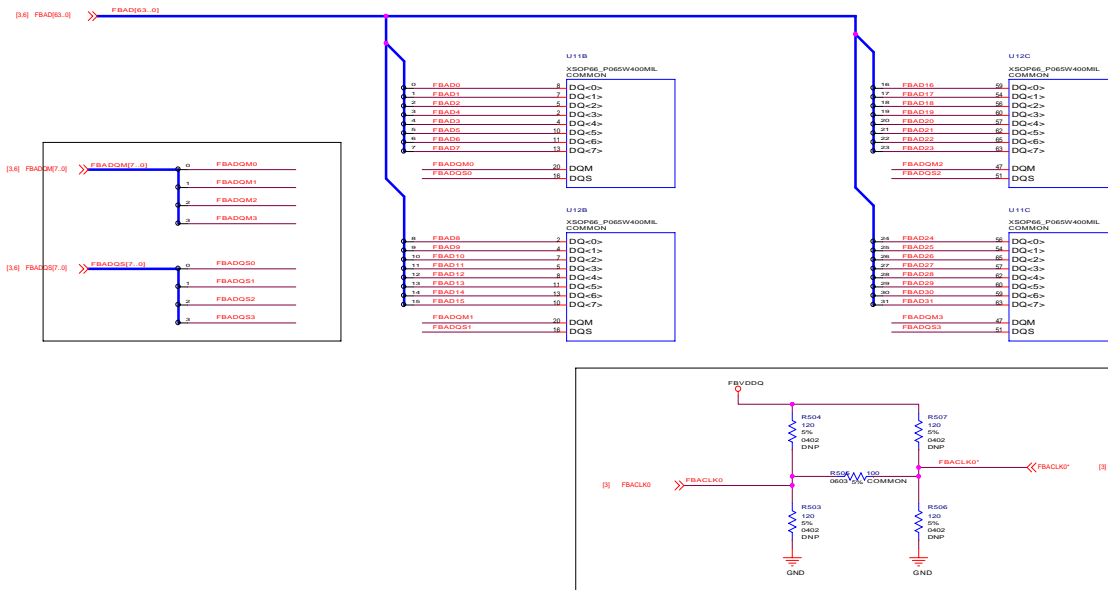
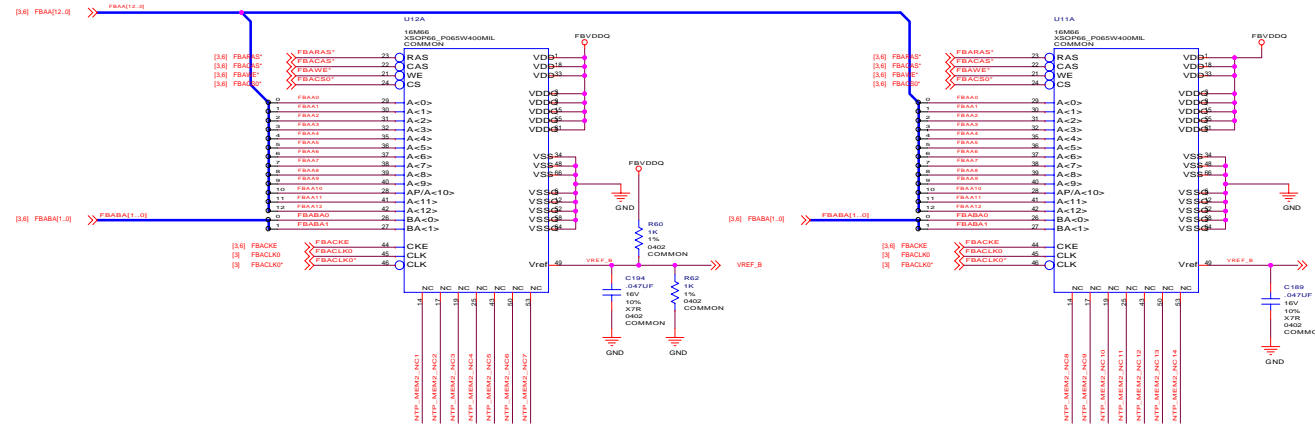


FC



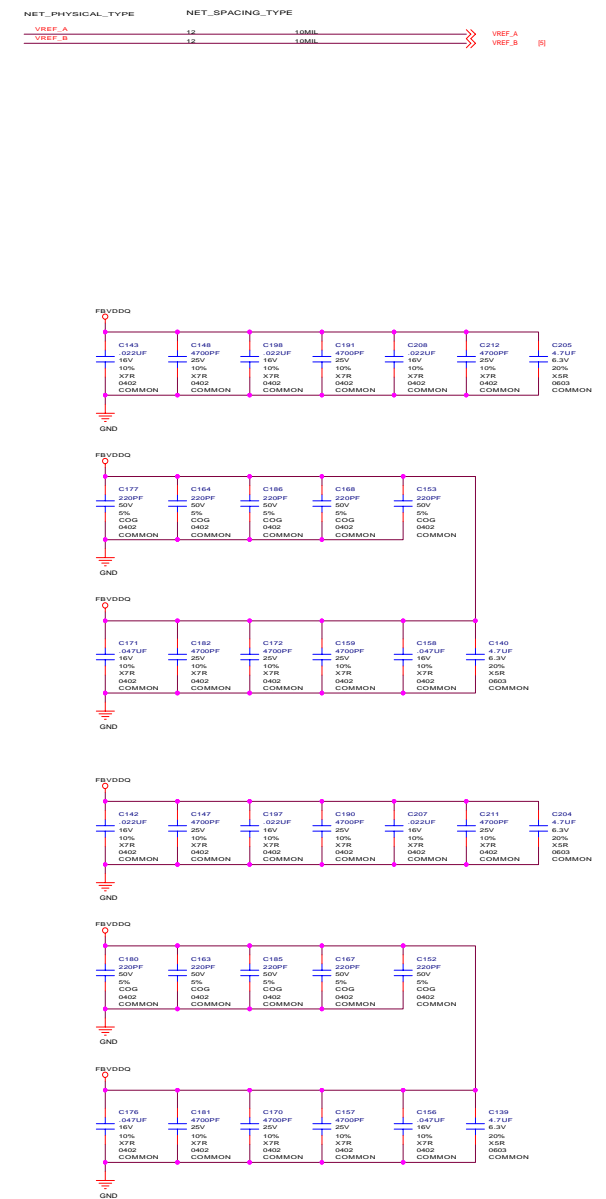
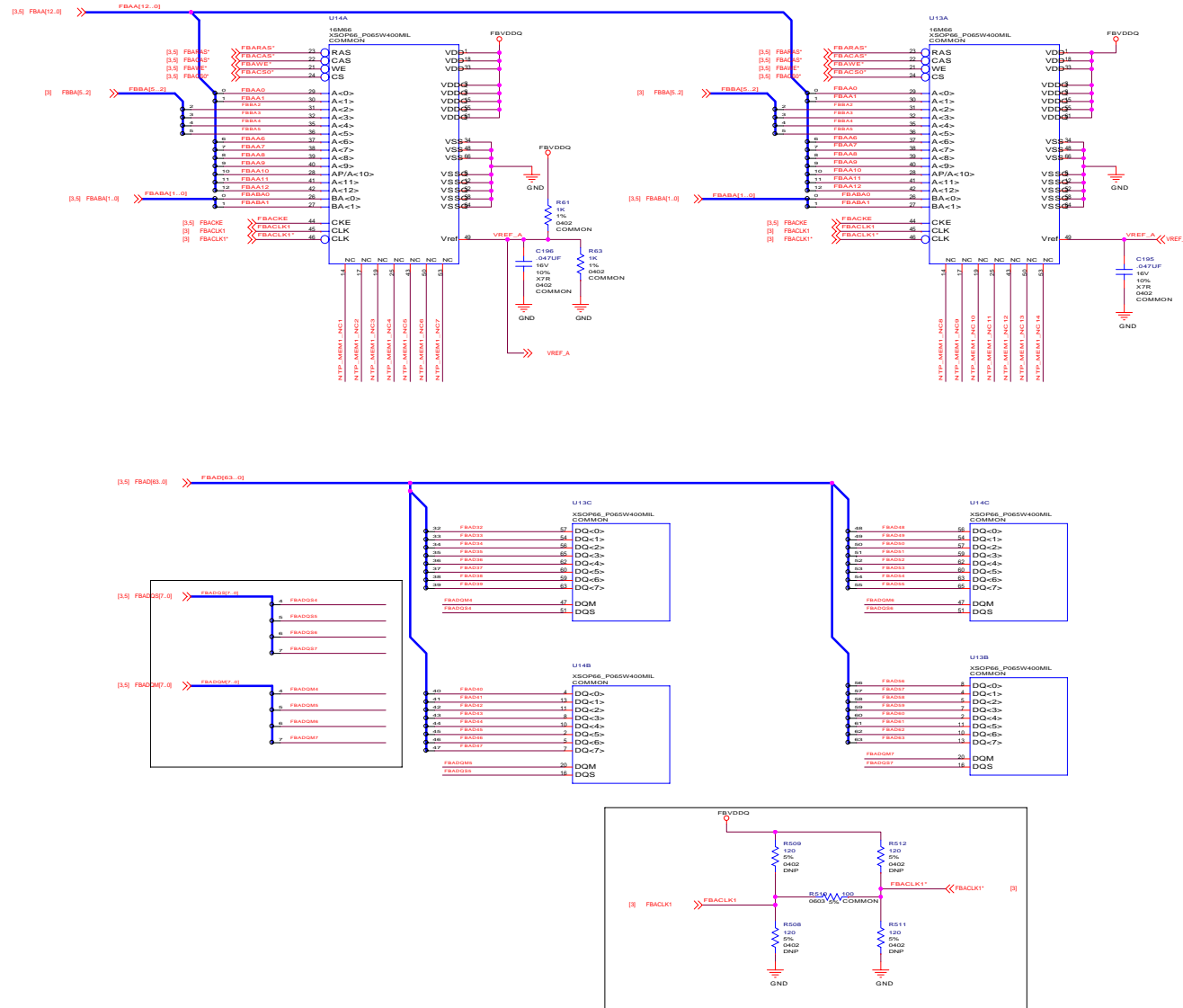
0..31

PLACE ALL DISCRETE COMPONENTS AS NEAR AS POSSIBLE
TO MEMORY



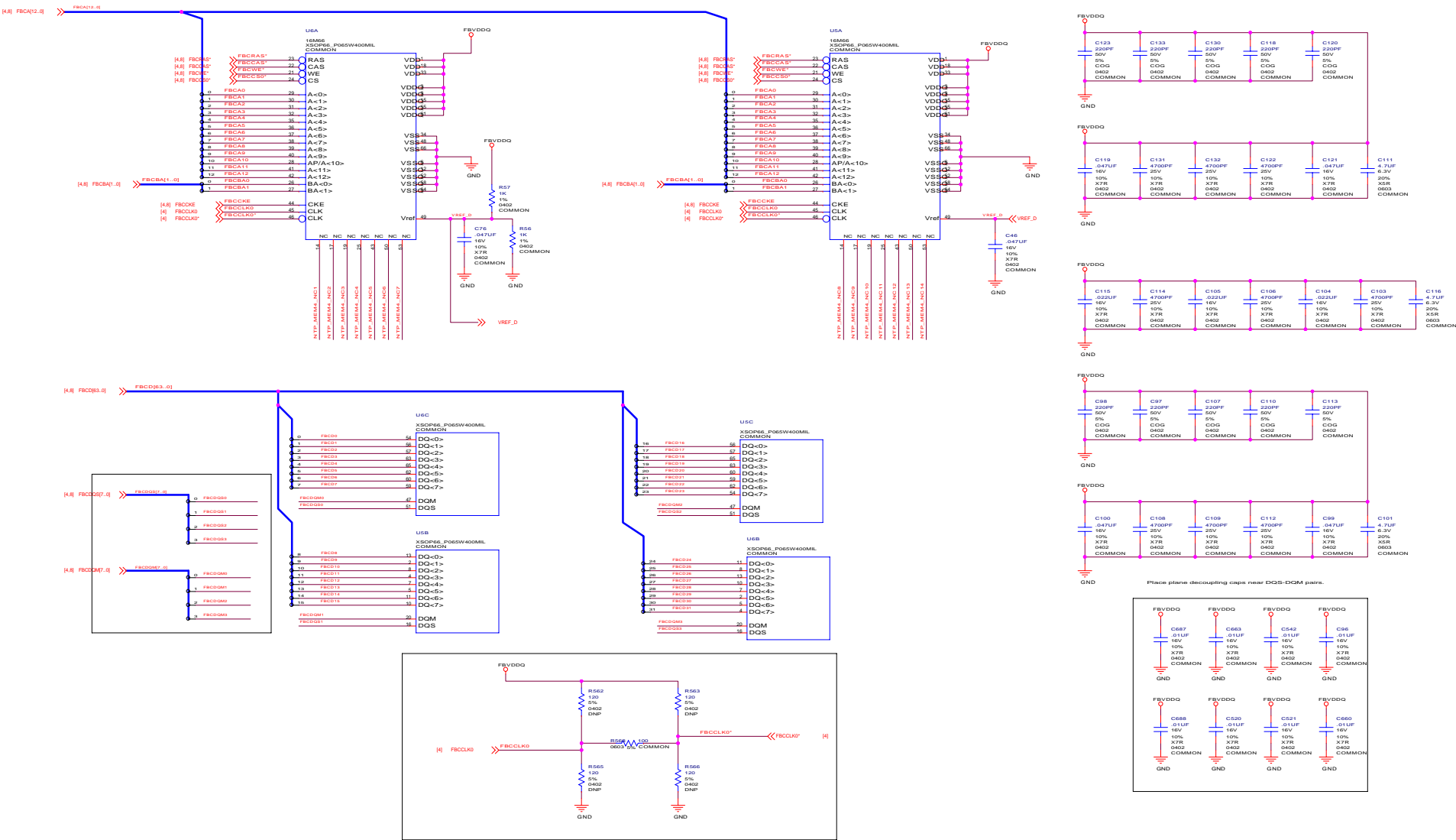
32..63

PLACE ALL DISCRETE COMPONENTS AS NEAR AS POSSIBLE
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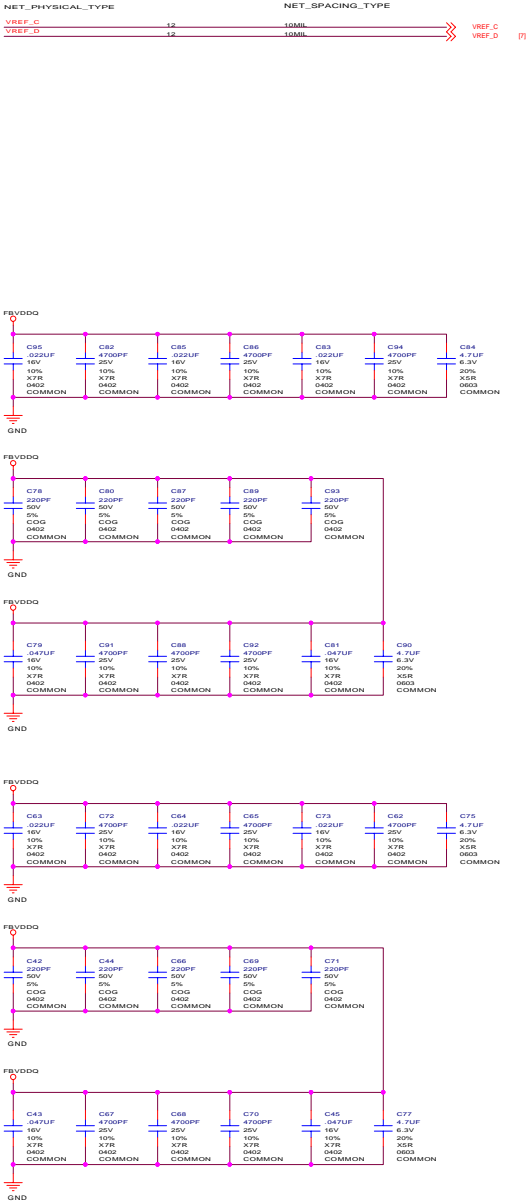
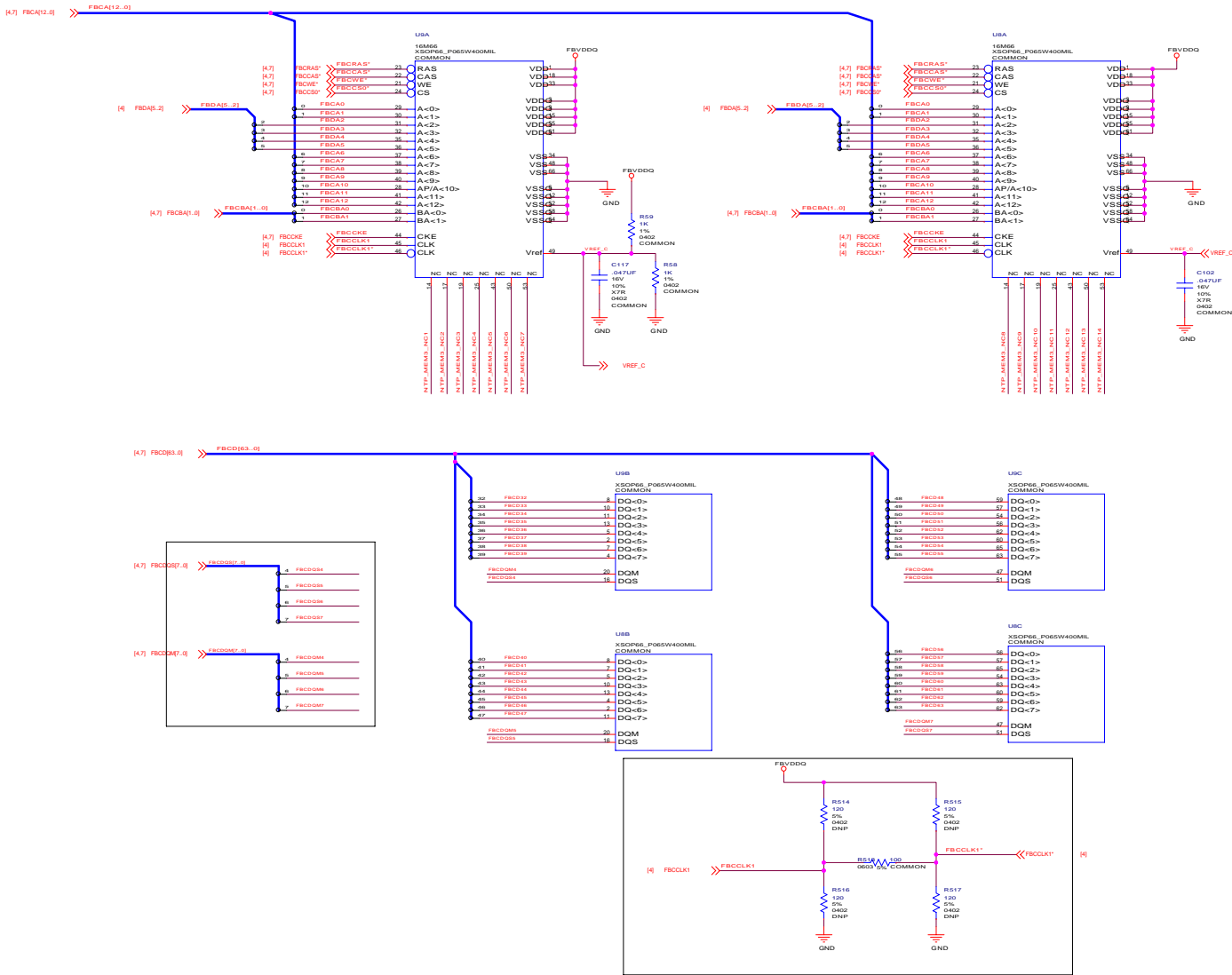
MEMORY 2nd bank
0..31

PLACE ALL DISCRETE COMPONENTS AS NEAR AS POSSIBLE
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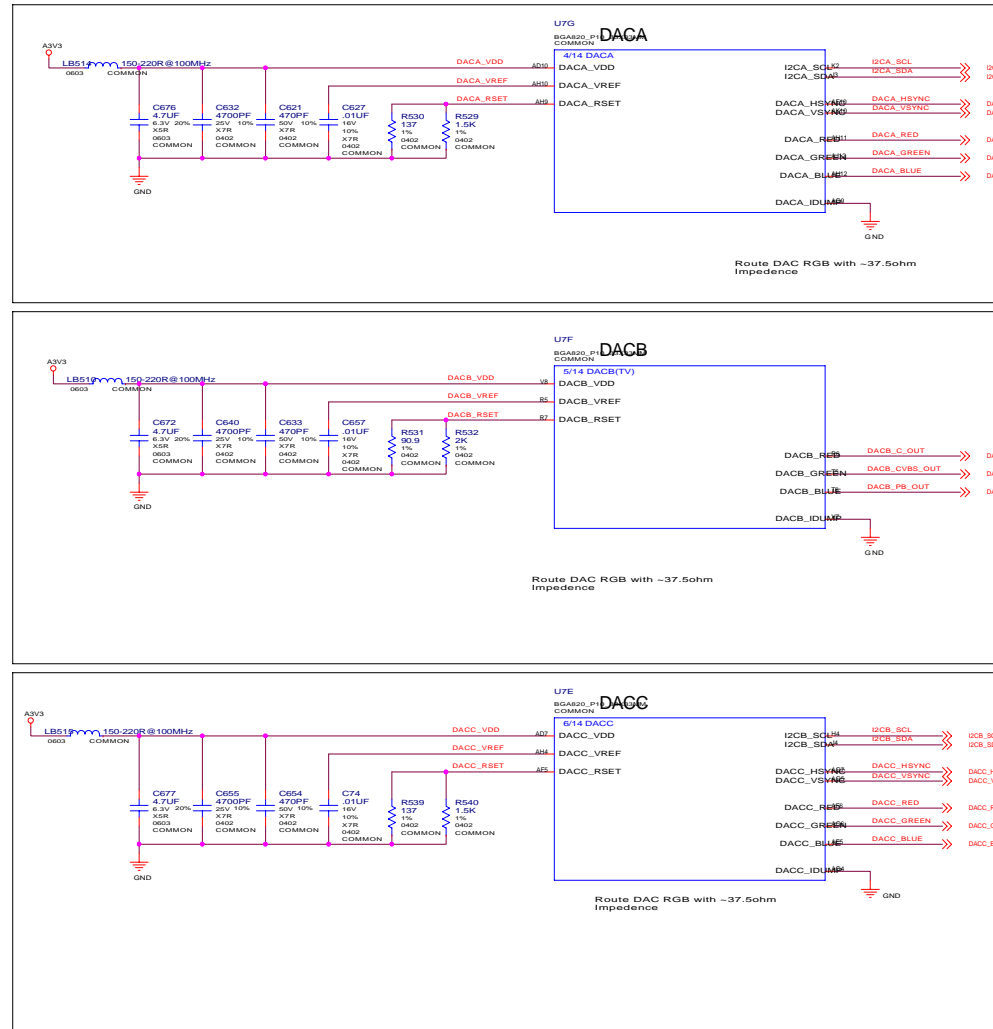


MEMORY 2nd bank
32..63

PLACE ALL DISCRETE COMPONENTS AS NEAR AS POSSIBLE
TO MEMORY

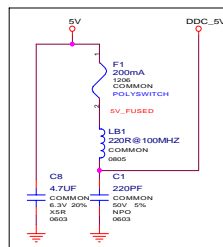


14/14 GND.		
A001	GND	GND#101.
A002	GND	GND#102.
A003	GND	GND#103.
A004	GND	GND#104.
A005	GND	GND#105.
A006	GND	GND#106.
A007	GND	GND#107.
A008	GND	GND#108.
A009	GND	GND#109.
A010	GND	GND#110.
A011	GND	GND#111.
A012	GND	GND#112.
A013	GND	GND#113.
A014	GND	GND#114.
A015	GND	GND#115.
A016	GND	GND#116.
A017	GND	GND#117.
A018	GND	GND#118.
A019	GND	GND#119.
A020	GND	GND#120.
A021	GND	GND#121.
A022	GND	GND#122.
A023	GND	GND#123.
A024	GND	GND#124.
A025	GND	GND#125.
A026	GND	GND#126.
A027	GND	GND#127.
A028	GND	GND#128.
A029	GND	GND#129.
A030	GND	GND#130.
A031	GND	GND#131.
A032	GND	GND#132.
A033	GND	GND#133.
A034	GND	GND#134.
A035	GND	GND#135.
A036	GND	GND#136.
A037	GND	GND#137.
A038	GND	GND#138.
A039	GND	GND#139.
A040	GND	GND#140.
A041	GND	GND#141.
A042	GND	GND#142.
A043	GND	GND#143.
A044	GND	GND#144.
A045	GND	GND#145.
A046	GND	GND#146.
A047	GND	GND#147.
A048	GND	GND#148.
A049	GND	GND#149.
A050	GND	GND#150.
A051	GND	GND#151.
A052	GND	GND#152.
A053	GND	GND#153.
A054	GND	GND#154.
A055	GND	GND#155.
A056	GND	GND#156.
A057	GND	GND#157.
A058	GND	GND#158.
A059	GND	GND#159.
A060	GND	GND#160.
A061	GND	GND#161.
A062	GND	GND#162.
A063	GND	GND#163.
A064	GND	GND#164.
A065	GND	GND#165.
A066	GND	GND#166.
A067	GND	GND#167.
A068	GND	GND#168.
A069	GND	GND#169.
A070	GND	GND#170.
A071	GND	GND#171.
A072	GND	GND#172.
A073	GND	GND#173.
A074	GND	GND#174.
A075	GND	GND#175.
A076	GND	GND#176.
A077	GND	GND#177.
A078	GND	GND#178.
A079	GND	GND#179.
A080	GND	GND#180.
A081	GND	GND#181.
A082	GND	GND#182.
A083	GND	GND#183.
A084	GND	GND#184.
A085	GND	GND#185.
A086	GND	GND#186.
A087	GND	GND#187.
A088	GND	GND#188.
A089	GND	GND#189.
A090	GND	GND#190.
A091	GND	GND#191.
A092	GND	GND#192.
A093	GND	GND#193.
A094	GND	GND#194.
A095	GND	GND#195.
A096	GND	GND#196.
A097	GND	GND#197.
A098	GND	GND#198.
A099	GND	GND#199.
A100	GND	GND#200.
A101	GND	GND#201.
A102	GND	GND#202.
A103	GND	GND#203.
A104	GND	GND#204.
A105	GND	GND#205.
A106	GND	GND#206.
A107	GND	GND#207.
A108	GND	GND#208.
A109	GND	GND#209.
A110	GND	GND#210.
A111	GND	GND#211.
A112	GND	GND#212.
A113	GND	GND#213.
A114	GND	GND#214.
A115	GND	GND#215.
A116	GND	GND#216.
A117	GND	GND#217.
A118	GND	GND#218.
A119	GND	GND#219.
A120	GND	GND#220.
A121	GND	GND#221.
A122	GND	GND#222.
A123	GND	GND#223.
A124	GND	GND#224.
A125	GND	GND#225.
A126	GND	GND#226.
A127	GND	GND#227.
A128	GND	GND#228.
A129	GND	GND#229.
A130	GND	GND#230.
A131	GND	GND#231.
A132	GND	GND#232.
A133	GND	GND#233.
A134	GND	GND#234.
A135	GND	GND#235.
A136	GND	GND#236.
A137	GND	GND#237.
A138	GND	GND#238.
A139	GND	GND#239.
A140	GND	GND#2

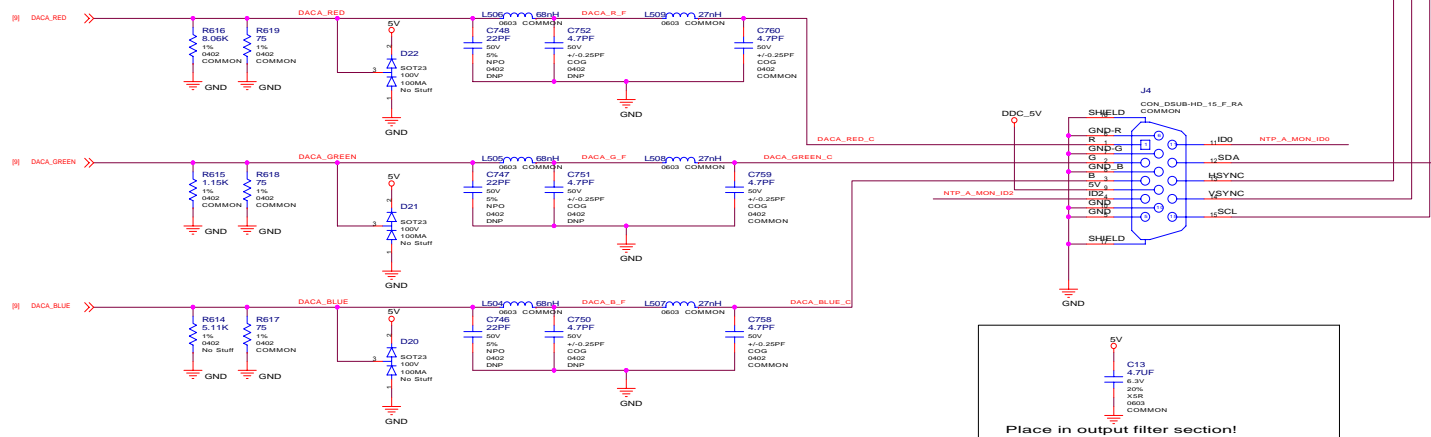
[illegible]

The schematic diagram illustrates the internal circuitry of four DAC channels (A, B, C, and D). Each channel is built around an AND gate (U504C, U504D, U504B, and U504A) and a resistor network. The AND gates are configured to output the DAC signals. The resistor network includes a 25V supply, a 100kF capacitor, and a 10M resistor. The DAC signals are labeled DAC_A_HSYNC_BUF, DAC_B_VSYNC_BUF, DAC_C_HSYNC_BUF, and DAC_D_VSYNC_BUF. The DAC signals are also labeled DAC_A_HSYNC, DAC_B_VSYNC, DAC_C_HSYNC, and DAC_D_VSYNC.

VGA
DACA



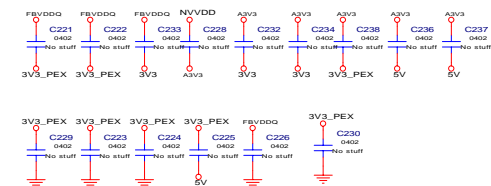
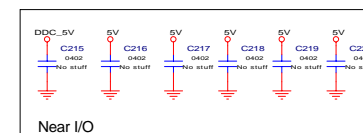
Changed the FUSE to 200mA



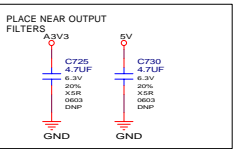
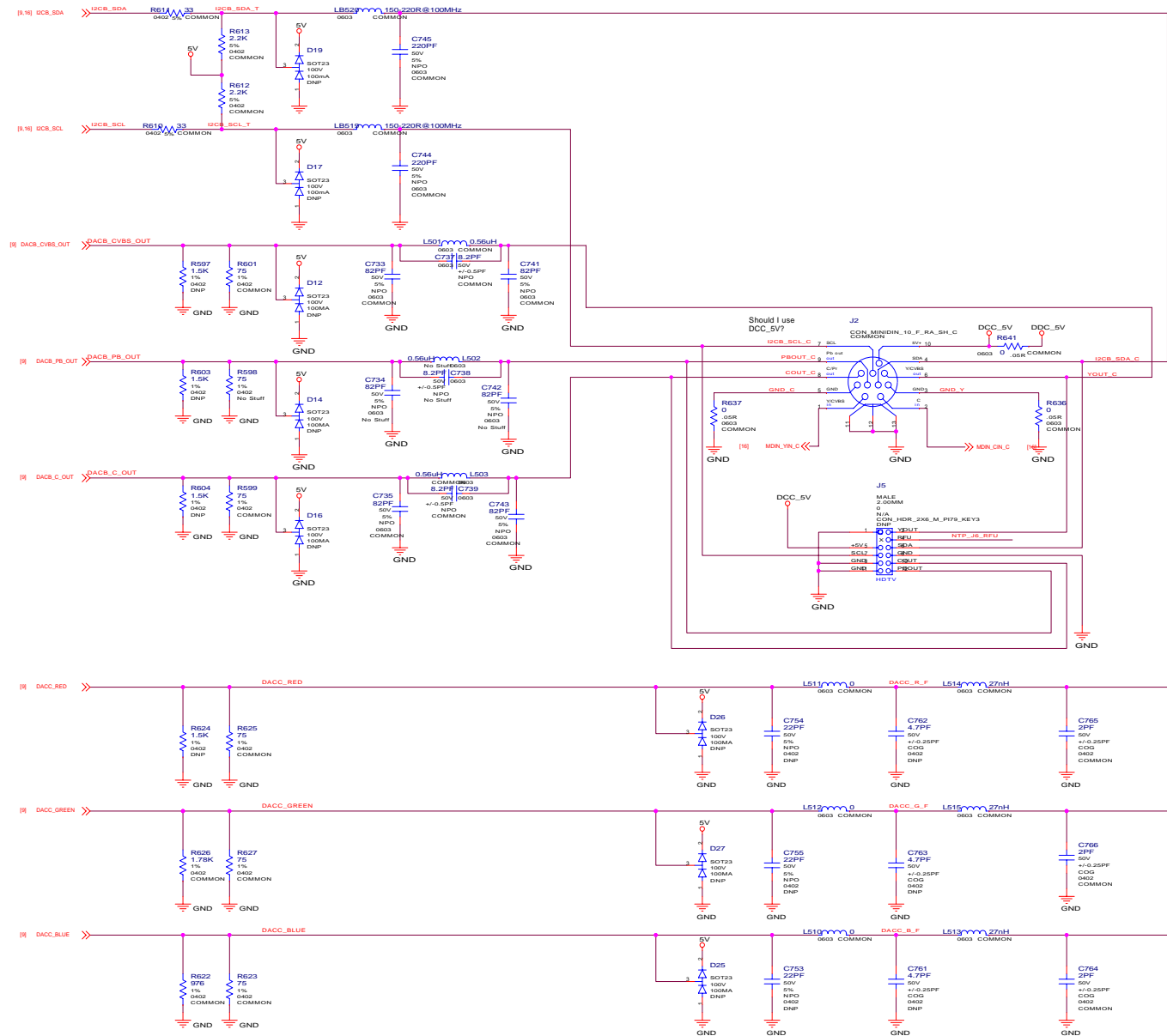
NET_NAME	NET_SPACING_RULE
DACA_R_F	20MIL
DACA_G_F	20MIL
DACA_B_F	20MIL
DACA_RED_C	20MIL
DACA_GREEN_C	20MIL
DACA_BLUE_C	20MIL
DACA_VSYNC_C	10MIL
DACA_HSYNC_C	10MIL

	MIN_LINE_WIDTH	VOLTAGE
5V_FUSED	16	5V
5V	16	5V
DDC_5V	16	5V
A3V3	16	3.3V
GND	16	0V

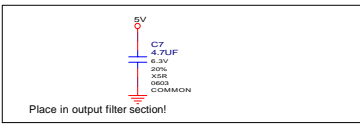
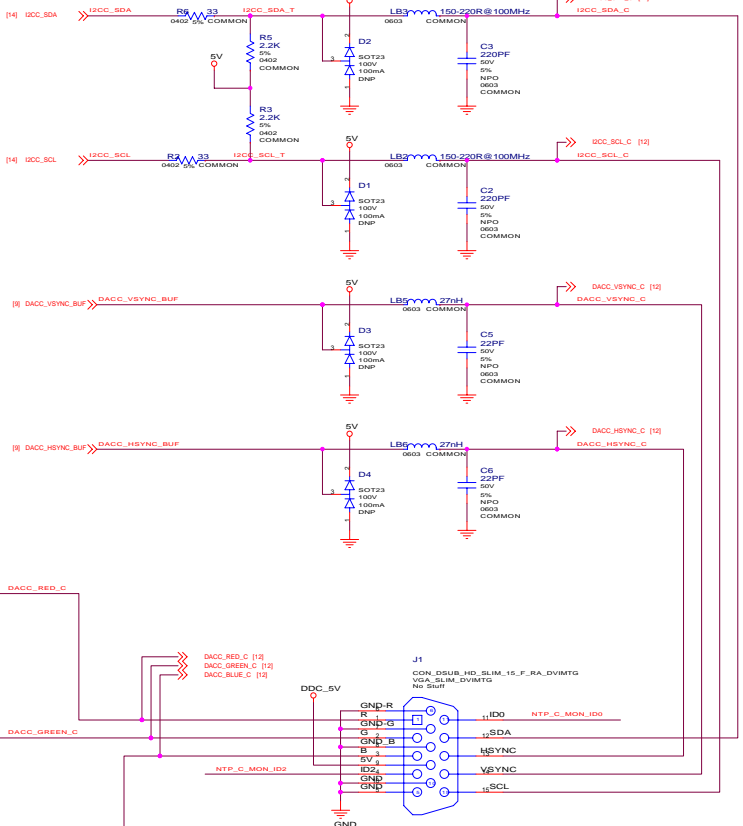
EMI Reserve Cap.



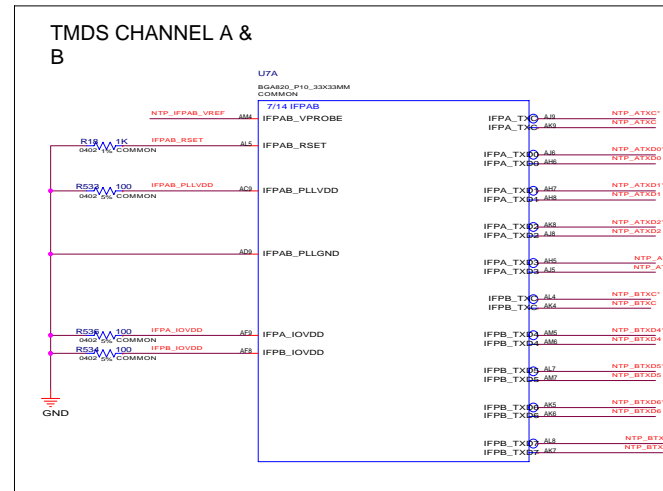
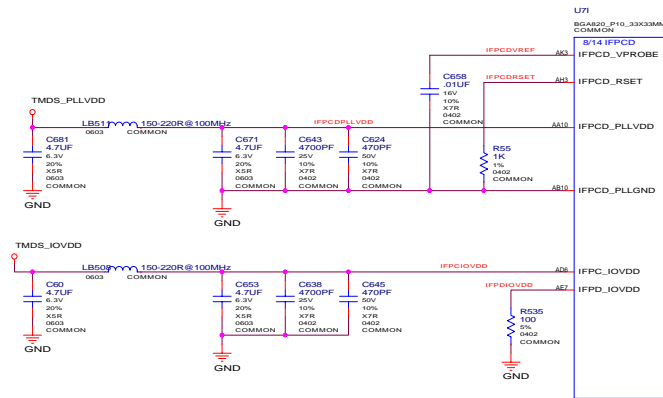
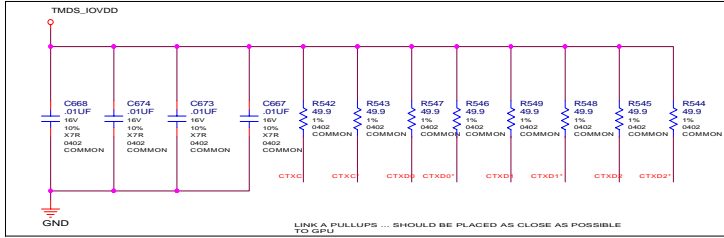
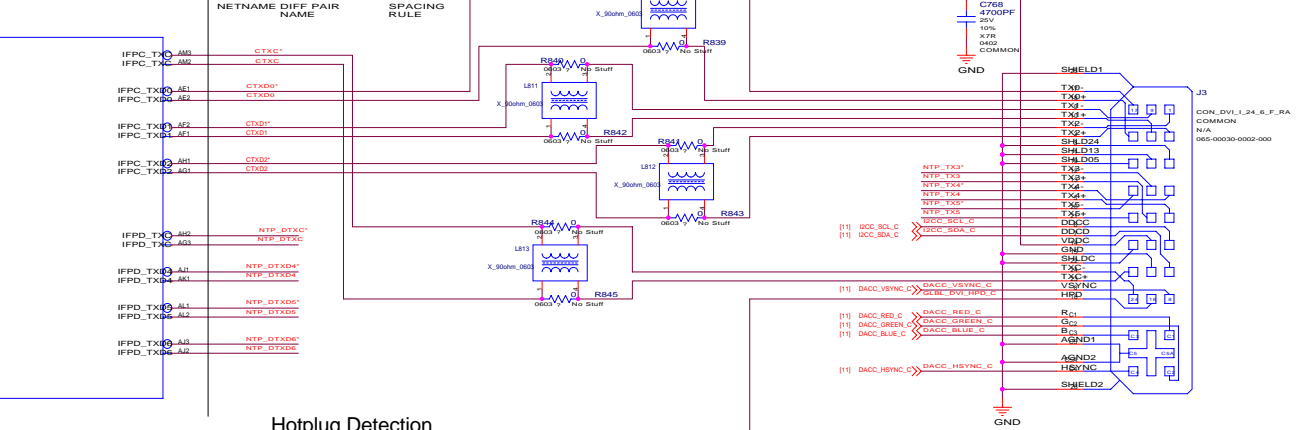
VGA/TV Out/HDTV
DACB/C



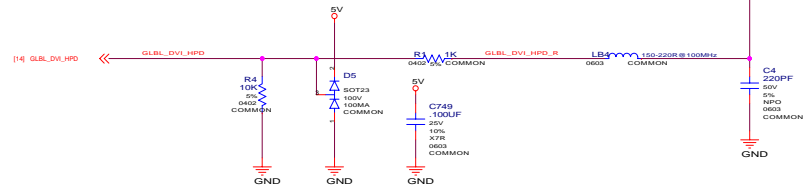
NET_NAME	NET_SPACING_TYPE
DACC_R_F	20MIL
DACC_G_F	20MIL
DACC_B_F	20MIL
DACC_RED_C	20MIL
DACC_GREEN_C	20MIL
DACC_BLUE_C	20MIL
DACC_RED_SW	20MIL
DACC_GREEN_SW	20MIL
DACC_BLUE_SW	20MIL
YOUT	20MIL
YOUT_C	20MIL
DACC_VSYNC_C	20MIL
DACC_VSYNC_C	20MIL
YOUT_C	20MIL
YOUT_C	20MIL
YOUT_C	20MIL



INTERNAL
TMDS

INTERNAL TMDS ..LINK
C/D

Hotplug Detection

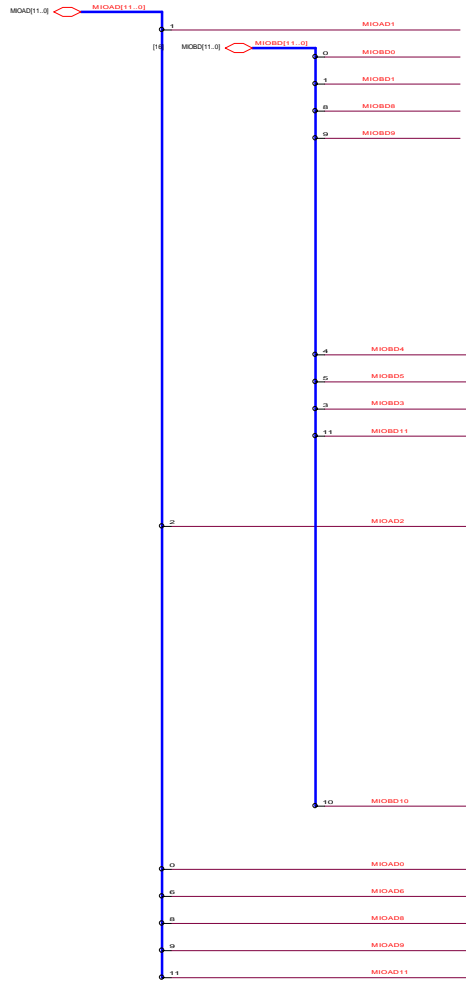


If no diodes stuffed should I stuff this?

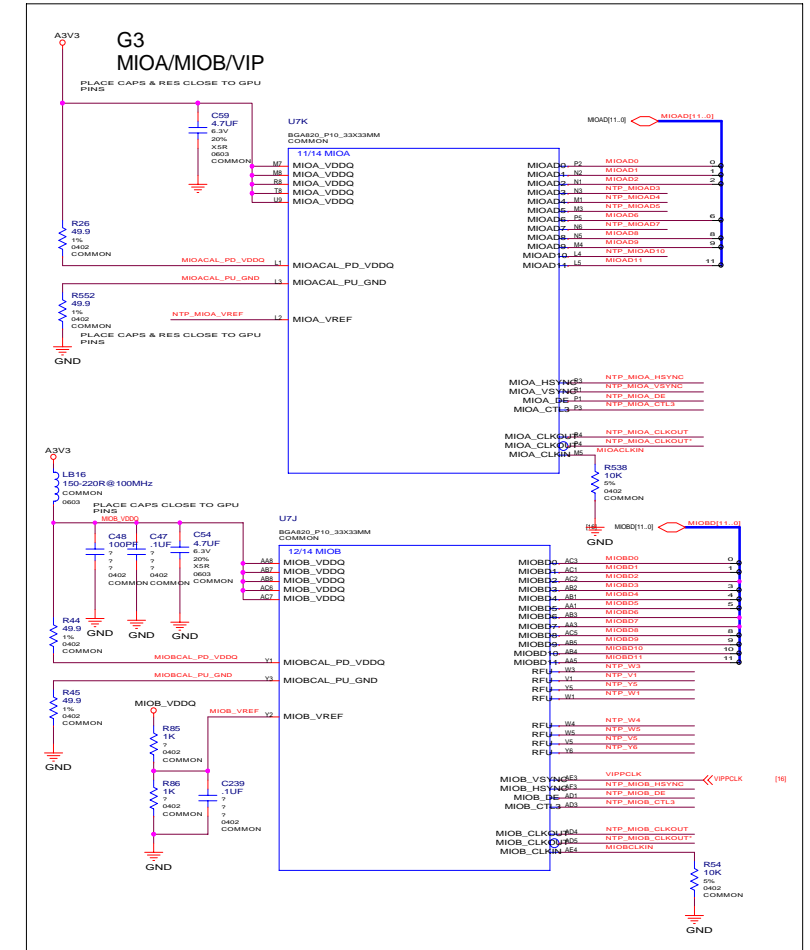
NET	MIN_LINE_WIDTH	VOLTAGE
IFPCDVREF	12	3.3V
IFPCDPLVDD	12	3.3V
IFPCIOVDD	12	3.3V

NETNAME	DIFF PAIR NAME	SPACING RULE
CTXC*	CTXC	20MIL G2G 30MIL
CTXC	CTXC	20MIL G2G 30MIL
CTXD0*	CTXD0	20MIL G2G 30MIL
CTXD0	CTXD0	20MIL G2G 30MIL
CTXD1*	CTXD1	20MIL G2G 30MIL
CTXD1	CTXD1	20MIL G2G 30MIL
CTXD2*	CTXD2	20MIL G2G 30MIL
CTXD2	CTXD2	20MIL G2G 30MIL

STRAPS

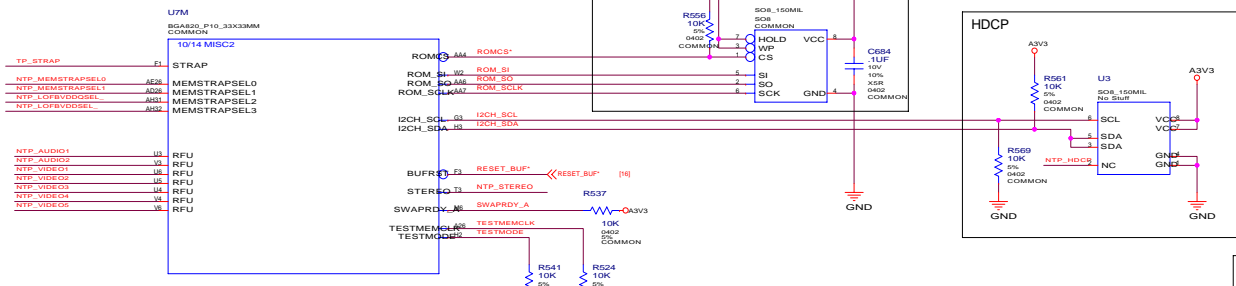
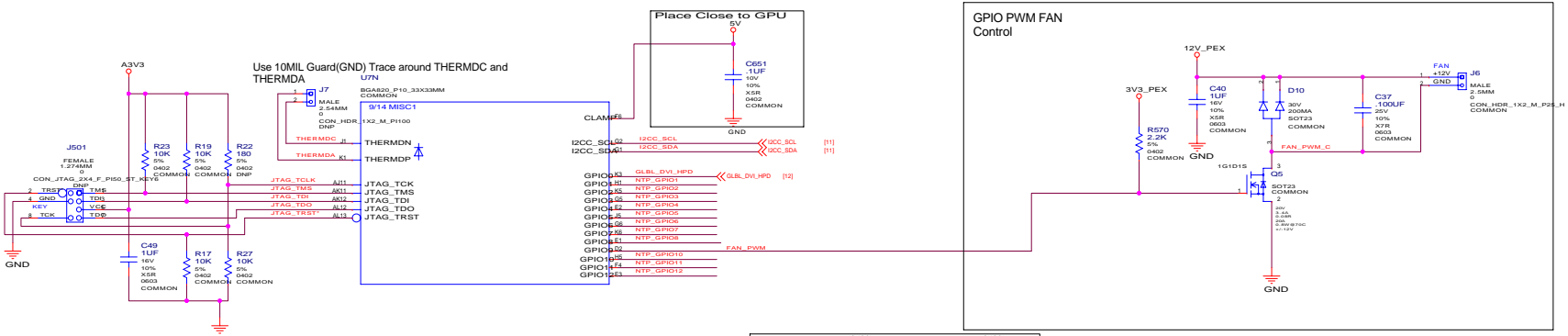


STRAPS	Bit Signal	Values
	00 PCI_AD_SWAP	0 REVERSED NORMAL
R31 1.8K 0402 5% DNP	MIOAD1	R31 1.8K 0402 5% COMMON
R54 1.8K 0402 5% COMMON	MIOBD0	R54 1.8K 0402 5% No Stuf
R33 1.8K 0402 5% No Stuf	MIOBD1	R33 1.8K 0402 5% COMMON
R28 1.8K 0402 5% No Stuf	MIOBD8	R28 1.8K 0402 5% COMMON
R52 1.8K 0402 5% COMMON	MIOBD9	R52 1.8K 0402 5% No Stuf
	01: SUB_VENDOR	0000 9404ADPROM JUGS (DEFAULT)
	02: RAM_CFG_0	0000 0000 16Mx16DDR 050P
	03: RAM_CFG_1	0000 0000 16Mx16DDR 050P
	04: RAM_CFG_2	0000 0000 16Mx16DDR 050P
	05: RAM_CFG_3	0000 0000 16Mx16DDR 050P
	06: CRYSTAL_0	00 13.500 Mhz 01 14.31818
	22: CRYSTAL_1	00 13.500 Mhz 01 14.31818 UNKNOWN
	07: TV_MODE_0	00 2P CAM 01 5C 02 CBT
	08: TV_MODE_1	00 2P CAM 01 5C 02 CBT
	09: AGP_3D_8x	0 AGP8x 1 DISABLED 2 DISABLED
	10: AGP_SBA	0 SBA 1 DISABLED 2 DISABLED
	11: AGP_FASTWRITE	0 FW 1 ENABLED 2 DISABLED
R51 1.8K 0402 5% No Stuf	MIOBD4	R51 1.8K 0402 5% COMMON
R47 1.8K 0402 5% COMMON	MIOBD5	R47 1.8K 0402 5% No Stuf
R49 1.8K 0402 5% COMMON	MIOBD3	R49 1.8K 0402 5% No Stuf
R55 1.8K 0402 5% COMMON	MIOBD11	R55 1.8K 0402 5% No Stuf
	12: PCI_DEVID_0	0001 NV43 0002 NV44 NVAGX
	13: PCI_DEVID_1	0001 NV43 0002 NV44 NVAGX
	20: PCI_DEVID_2	0001 NV43 0002 NV44 NVAGX
	21: PCI_DEVID_3	0001 NV43 0002 NV44 NVAGX
	14: BUS_TYPE	0 PCI 1 AGP
	15: FP_IFACE	0 24BR 1 12BR (DEFAULT)
R34 1.8K 0402 5% COMMON	MIOAD2	R34 1.8K 0402 5% DNP
	16: USER_0	0000 (DEFAULT)
	17: USER_1	0000 (DEFAULT)
	18: USER_2	0000 (DEFAULT)
	19: USER_3	0000 (DEFAULT)
	23: FB_0	00 8M 01 16M 02 32M (DEFAULT)
	24: FB_1	00 8M 01 16M 02 32M (DEFAULT)
	25: BR	0 BRIDGE 1 BRIDGE 2 BRIDGE 3 BRIDGE 4 BRIDGE 5 BRIDGE 6 BRIDGE 7 BRIDGE 8 BRIDGE 9 BRIDGE A BRIDGE B BRIDGE C BRIDGE D BRIDGE E BRIDGE F BRIDGE G BRIDGE H BRIDGE I BRIDGE J BRIDGE K BRIDGE L BRIDGE M BRIDGE N BRIDGE O BRIDGE P BRIDGE Q BRIDGE R BRIDGE S BRIDGE T BRIDGE U BRIDGE V BRIDGE W BRIDGE X BRIDGE Y BRIDGE Z BRIDGE [BRIDGE] BRIDGE ^ BRIDGE _ BRIDGE ` BRIDGE a BRIDGE b BRIDGE c BRIDGE d BRIDGE e BRIDGE f BRIDGE g BRIDGE h BRIDGE i BRIDGE j BRIDGE k BRIDGE l BRIDGE m BRIDGE n BRIDGE o BRIDGE p BRIDGE q BRIDGE r BRIDGE s BRIDGE t BRIDGE u BRIDGE v BRIDGE w BRIDGE x BRIDGE y BRIDGE z BRIDGE [BRIDGE] BRIDGE ^ BRIDGE _ BRIDGE ` BRIDGE a BRIDGE b BRIDGE c BRIDGE d BRIDGE e BRIDGE f BRIDGE g BRIDGE h BRIDGE i BRIDGE j BRIDGE k BRIDGE l BRIDGE m BRIDGE n BRIDGE o BRIDGE p BRIDGE q BRIDGE r BRIDGE s BRIDGE t BRIDGE u BRIDGE v BRIDGE w BRIDGE x BRIDGE y BRIDGE z BRIDGE [BRIDGE] BRIDGE ^ BRIDGE _ BRIDGE ` BRIDGE a BRIDGE b BRIDGE c BRIDGE d BRIDGE e BRIDGE f BRIDGE g BRIDGE h BRIDGE i BRIDGE j BRIDGE k BRIDGE l BRIDGE m BRIDGE n BRIDGE o BRIDGE p BRIDGE q BRIDGE r BRIDGE s BRIDGE t BRIDGE u BRIDGE v BRIDGE w BRIDGE x BRIDGE y BRIDGE z BRIDGE [BRIDGE] BRIDGE ^ BRIDGE _ BRIDGE ` BRIDGE a BRIDGE b BRIDGE c BRIDGE d BRIDGE e BRIDGE f BRIDGE g BRIDGE h BRIDGE i BRIDGE j BRIDGE k BRIDGE l BRIDGE m BRIDGE n BRIDGE o BRIDGE p BRIDGE q BRIDGE r BRIDGE s BRIDGE t BRIDGE u BRIDGE v BRIDGE w BRIDGE x BRIDGE y BRIDGE z BRIDGE [BRIDGE] BRIDGE ^ BRIDGE _ BRIDGE ` BRIDGE a BRIDGE b BRIDGE c BRIDGE d BRIDGE e BRIDGE f BRIDGE g BRIDGE h BRIDGE i BRIDGE j BRIDGE k BRIDGE l BRIDGE m BRIDGE n BRIDGE o BRIDGE p BRIDGE q BRIDGE r BRIDGE s BRIDGE t BRIDGE u BRIDGE v BRIDGE w BRIDGE x BRIDGE y BRIDGE z BRIDGE [BRIDGE] BRIDGE ^ BRIDGE _ BRIDGE ` BRIDGE a BRIDGE b BRIDGE c BRIDGE d BRIDGE e BRIDGE f BRIDGE g BRIDGE h BRIDGE i BRIDGE j BRIDGE k BRIDGE l BRIDGE m BRIDGE n BRIDGE o BRIDGE p BRIDGE q BRIDGE r BRIDGE s BRIDGE t BRIDGE u BRIDGE v BRIDGE w BRIDGE x BRIDGE y BRIDGE z BRIDGE [BRIDGE] BRIDGE ^ BRIDGE _ BRIDGE ` BRIDGE a BRIDGE b BRIDGE c BRIDGE d BRIDGE e BRIDGE f BRIDGE g BRIDGE h BRIDGE i BRIDGE j BRIDGE k BRIDGE l BRIDGE m BRIDGE n BRIDGE o BRIDGE p BRIDGE q BRIDGE r BRIDGE s BRIDGE t BRIDGE u BRIDGE v BRIDGE w BRIDGE x BRIDGE y BRIDGE z BRIDGE [BRIDGE] BRIDGE ^ BRIDGE _ BRIDGE ` BRIDGE a BRIDGE b BRIDGE c BRIDGE d BRIDGE e BRIDGE f BRIDGE g BRIDGE h BRIDGE i BRIDGE j BRIDGE k BRIDGE l BRIDGE m BRIDGE n BRIDGE o BRIDGE p BRIDGE q BRIDGE r BRIDGE s BRIDGE t BRIDGE u BRIDGE v BRIDGE w BRIDGE x BRIDGE y BRIDGE z BRIDGE [BRIDGE] BRIDGE ^ BRIDGE _ BRIDGE ` BRIDGE a BRIDGE b BRIDGE c BRIDGE d BRIDGE e BRIDGE f BRIDGE g BRIDGE h BRIDGE i BRIDGE j BRIDGE k BRIDGE l BRIDGE m BRIDGE n BRIDGE o BRIDGE p BRIDGE q BRIDGE r BRIDGE s BRIDGE t BRIDGE u BRIDGE v BRIDGE w BRIDGE x BRIDGE y BRIDGE z BRIDGE [BRIDGE] BRIDGE ^ BRIDGE _ BRIDGE ` BRIDGE a BRIDGE b BRIDGE c BRIDGE d BRIDGE e BRIDGE f BRIDGE g BRIDGE h BRIDGE i BRIDGE j BRIDGE k BRIDGE l BRIDGE m BRIDGE n BRIDGE o BRIDGE p BRIDGE q BRIDGE r BRIDGE s BRIDGE t BRIDGE u BRIDGE v BRIDGE w BRIDGE x BRIDGE y BRIDGE z BRIDGE [BRIDGE] BRIDGE ^ BRIDGE _ BRIDGE ` BRIDGE a BRIDGE b BRIDGE c BRIDGE d BRIDGE e BRIDGE f BRIDGE g BRIDGE h BRIDGE i BRIDGE j BRIDGE k BRIDGE l BRIDGE m BRIDGE n BRIDGE o BRIDGE p BRIDGE q BRIDGE r BRIDGE s BRIDGE t BRIDGE u BRIDGE v BRIDGE w BRIDGE x BRIDGE y BRIDGE z BRIDGE [BRIDGE] BRIDGE ^ BRIDGE _ BRIDGE ` BRIDGE a BRIDGE b BRIDGE c BRIDGE d BRIDGE e BRIDGE f BRIDGE g BRIDGE h BRIDGE i BRIDGE j BRIDGE k BRIDGE l BRIDGE m BRIDGE n BRIDGE o BRIDGE p BRIDGE q BRIDGE r BRIDGE s BRIDGE t BRIDGE u BRIDGE v BRIDGE w BRIDGE x BRIDGE y BRIDGE z BRIDGE [BRIDGE] BRIDGE ^ BRIDGE _ BRIDGE ` BRIDGE a BRIDGE b BRIDGE c BRIDGE d BRIDGE e BRIDGE f BRIDGE g BRIDGE h BRIDGE i BRIDGE j BRIDGE k BRIDGE l BRIDGE m BRIDGE n BRIDGE o BRIDGE p BRIDGE q BRIDGE r BRIDGE s BRIDGE t BRIDGE u BRIDGE v BRIDGE w BRIDGE x BRIDGE y BRIDGE z BRIDGE [BRIDGE] BRIDGE ^ BRIDGE _ BRIDGE ` BRIDGE a BRIDGE b BRIDGE c BRIDGE d BRIDGE e BRIDGE f BRIDGE g BRIDGE h BRIDGE i BRIDGE j BRIDGE k BRIDGE l BRIDGE m BRIDGE n BRIDGE o BRIDGE p BRIDGE q BRIDGE r BRIDGE

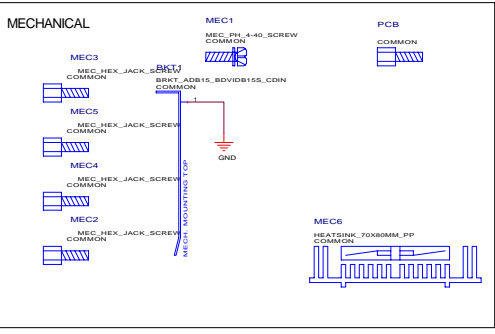
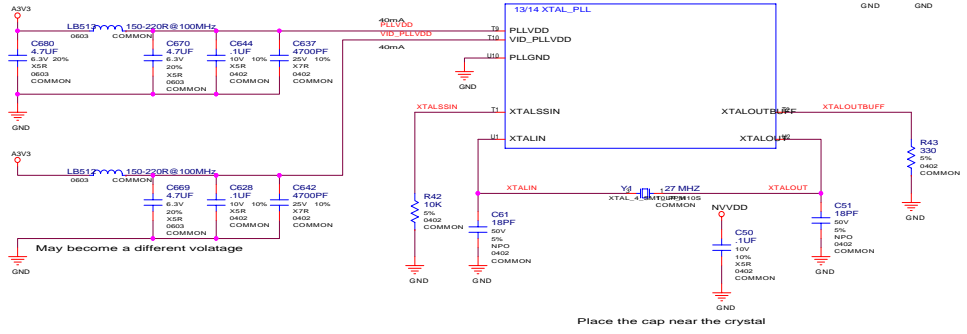


XTAL, GPIO,
ROM

NET	MIN_LIN_WIDTH	NET_SPACING_RULE
XTALIN		20MIL
XTALOUT		20MIL
PLLVD	12	10MIL
VID_PLLVD	12	10MIL
FAN_PWM		20MIL
FAN_PWM_B		20MIL
FAN_PWM_C		20MIL
THERMDC	10	20MIL
THERMDA	10	

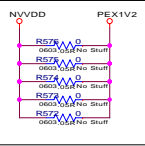


XTAL/PLLVD

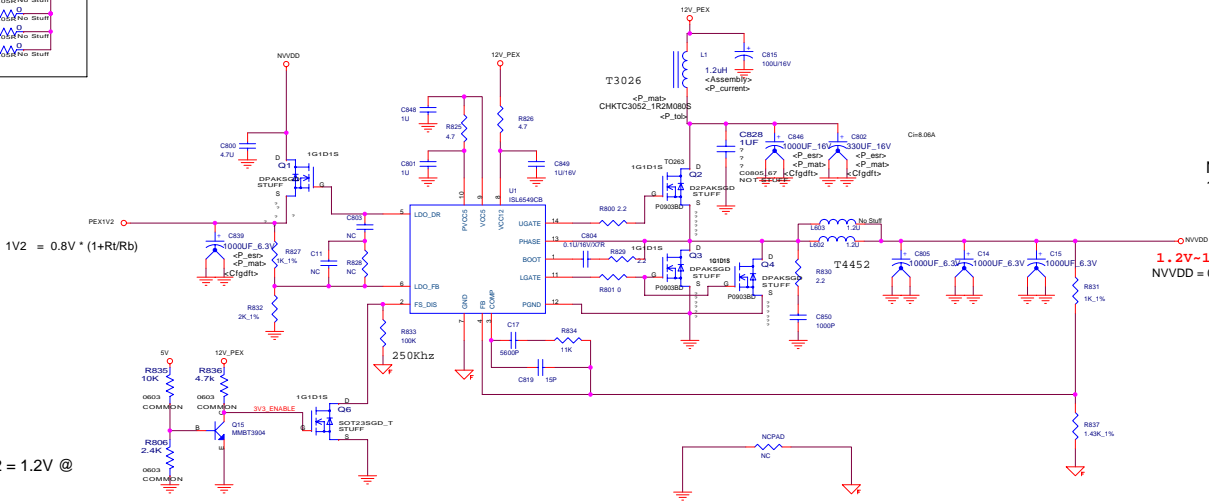


Power Supply II (ISL6549)

1V2 NVVDD
bypass



NVVDD & PEX1V2

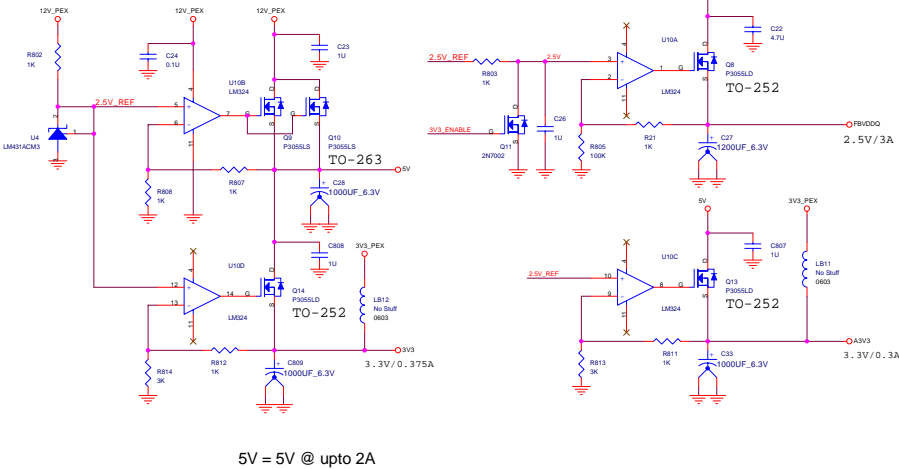


NVVDD = 1.35V @ upto
18A

1.2V-1.4V/24A(ambient)
NVVDD = 0.8V * (1+Rt/Rb)

PEX1V2 = 1.2V @
3A

5V & 3V3



5V = 5V @ upto 2A

Net	MIN_LINE_WIDTH	VOLTAGE
5V0	16	5.0V
NVVDD	16	1.35V
12V_PEX	20	12V
PEX1V2	20	1.2V
12V_PEX_FLYBD	20	12V
12V_PEX_FLYBD	20	12V
DRIVER_1V2	20	
UGATE_1	20	
UGATE_2	20	
UGATE_3	20	
UGATE_4	20	
UGATE_5	20	
UGATE_6	20	
UGATE_7	20	
UGATE_8	20	
UGATE_9	20	
UGATE_10	20	
UGATE_11	20	
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UGATE_100	20	

Video In

