

V133-31

P729: G96, DDR2 MEMORY 32MX16/16MX16

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REV HISTORY

- 06/10
1. Remove SLI circuit P13
2. Remove 2V5 U6,R148,R149
3. Modify PEXVDD circuit
- Remove U7,R703,R704,R705,R706,R707,R708
- Remove C201,C202,C203,C204,C205,C206,C207,C208

REV	VARIANT	WFPN	ASSEMBLY
0	BASE	600-10729-xxxx-000	BASE LEVEL GENERIC SCHEMATIC ONLY, COMMON & NO_STUFF ASSEMBLY NOTES AND BOM NOT FINAL
1	SKU0000	600-10729-0000-000	G96-300-A1, 550/500MHz, 512MB 32mx16 DDR2 BGAB4 DVI-DL+VGA+HDTV
2	<UNDEFINED>	<UNDEFINED>	<UNDEFINED>
3	<UNDEFINED>	<UNDEFINED>	<UNDEFINED>
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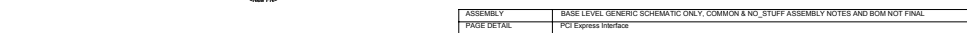
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PAGE DETAIL	P729 Overview

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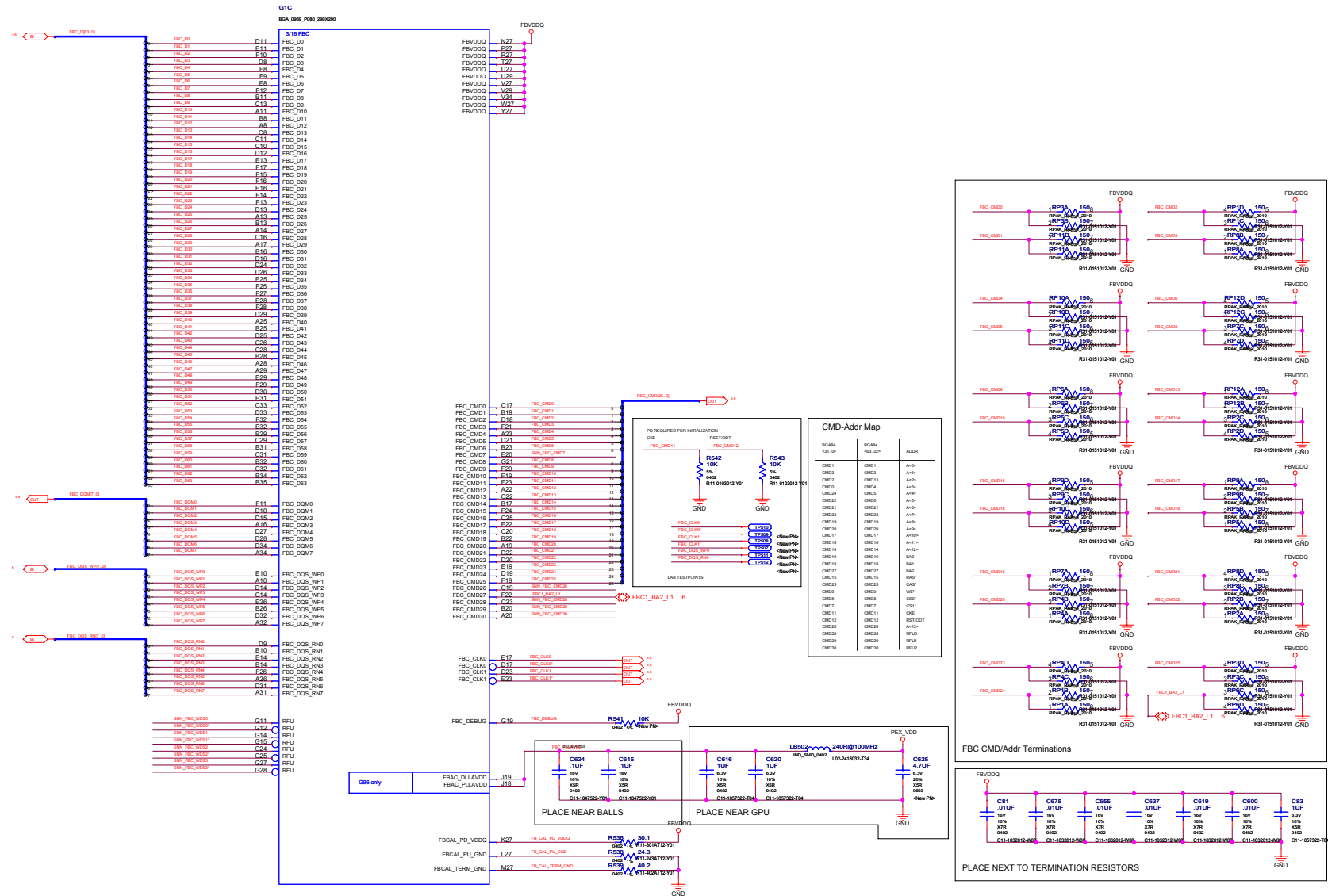
change to 3V3_AUX



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Partition C Frame Buffer Interface



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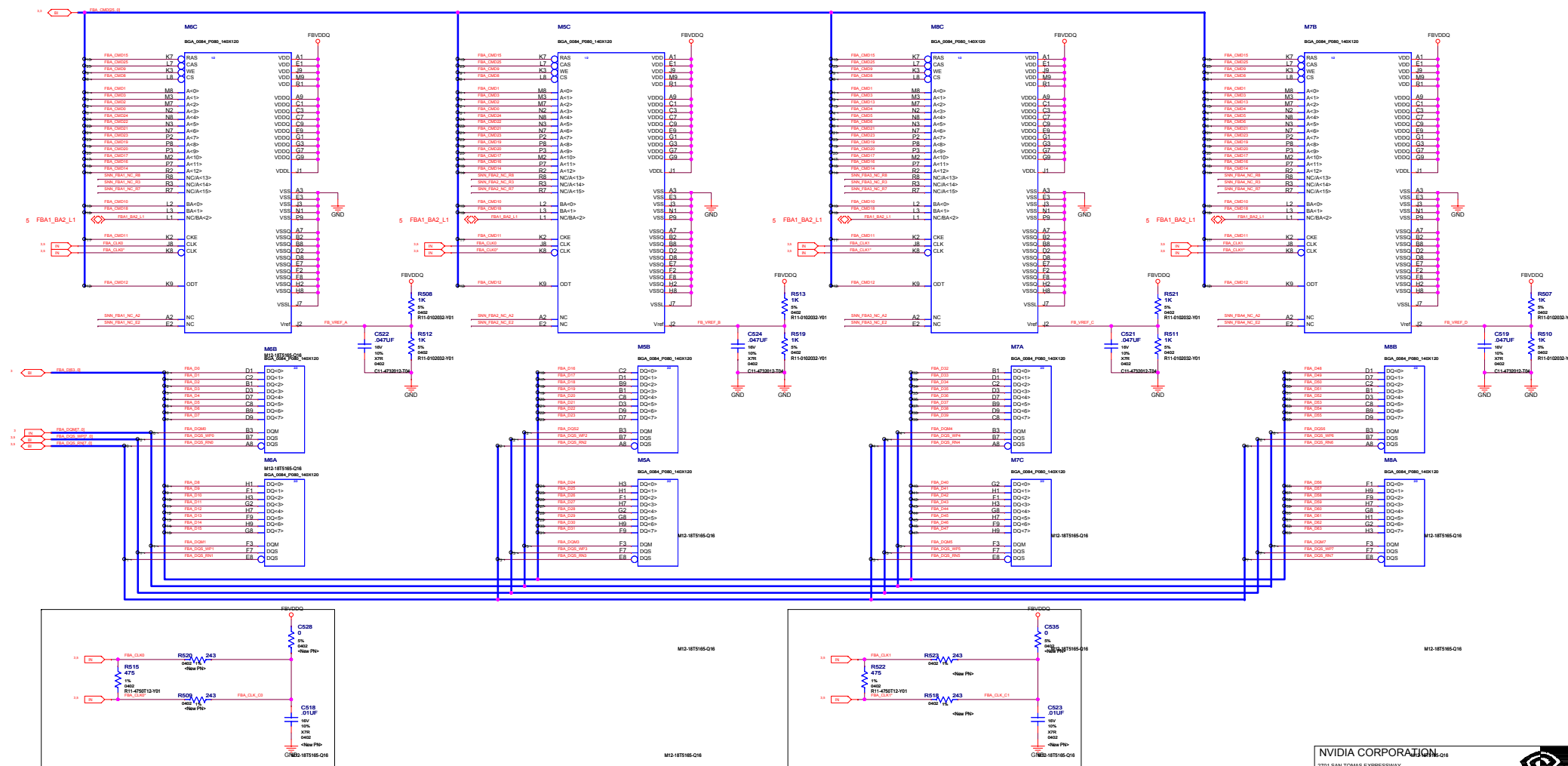
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NAME DATE 25 OCT 2007

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PAGE DETAIL Partition C Frame Buffer Interface

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Partition A Memories



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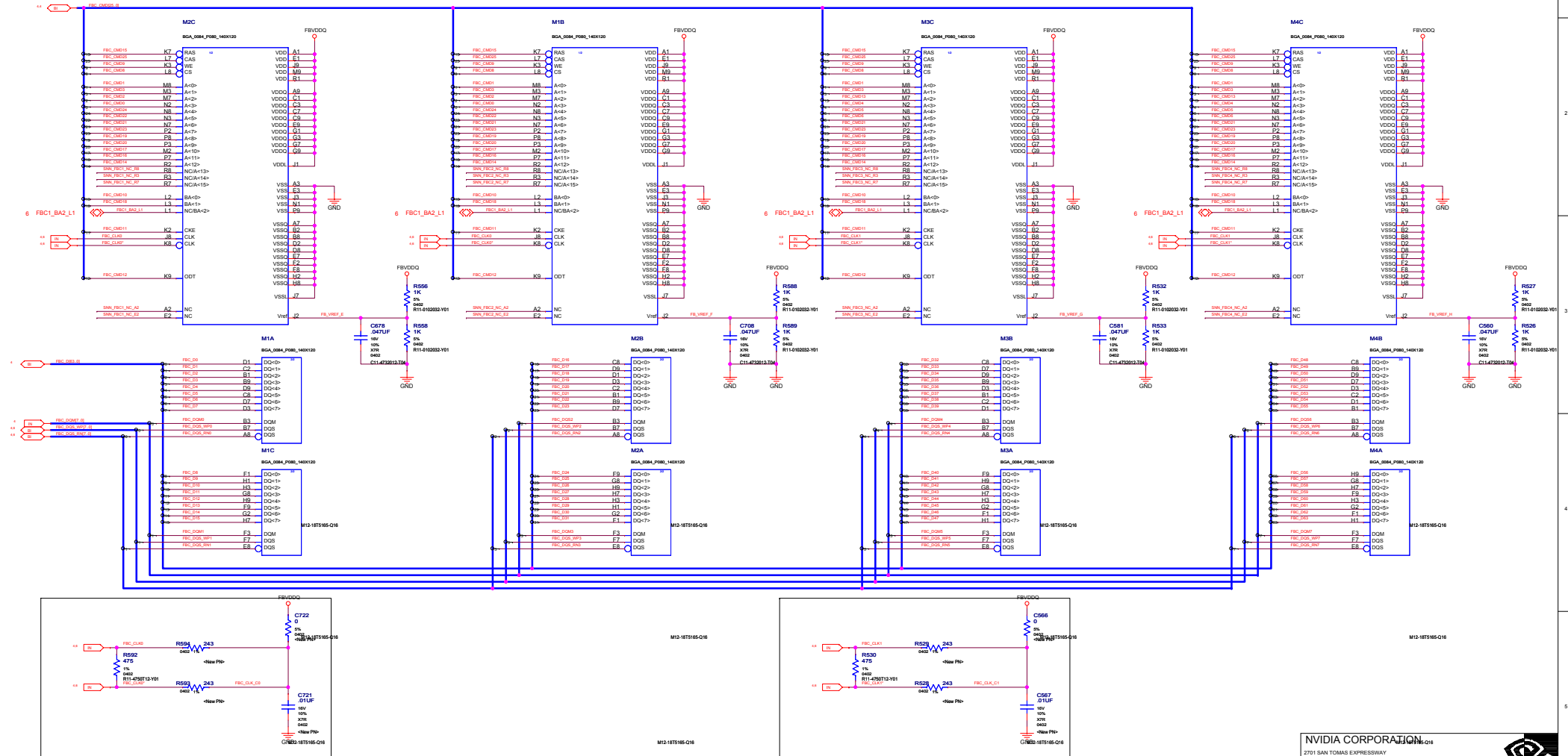
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PAGE DETAIL	Partition & Memories

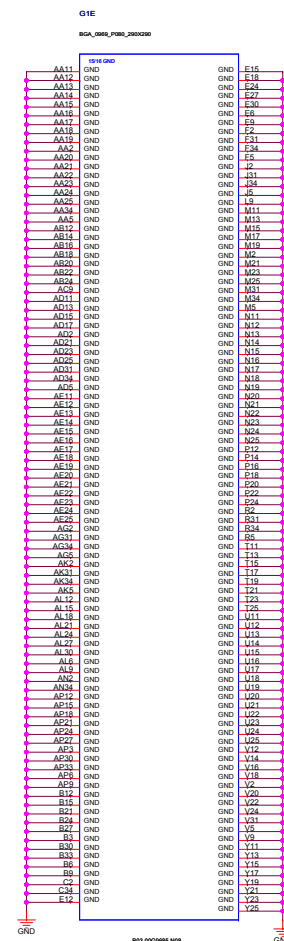
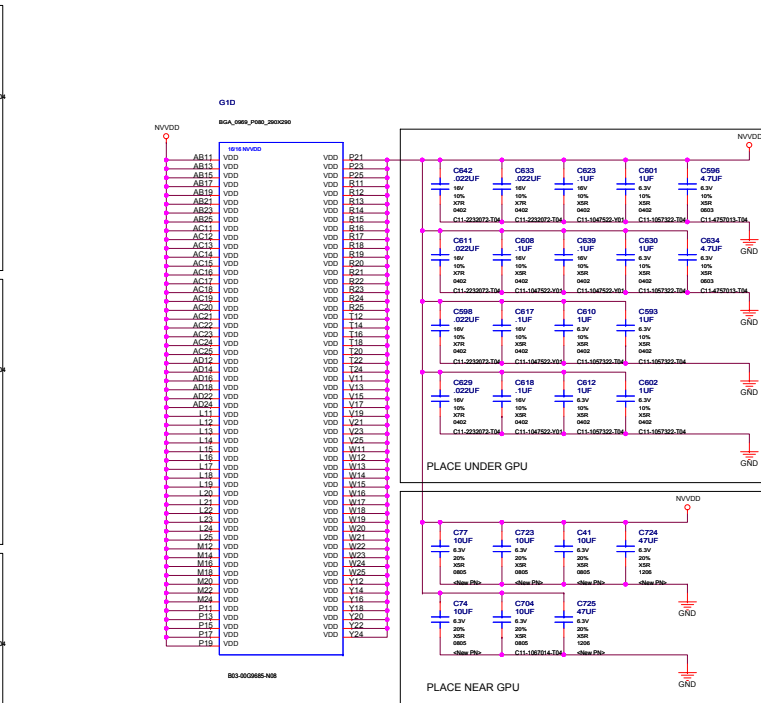
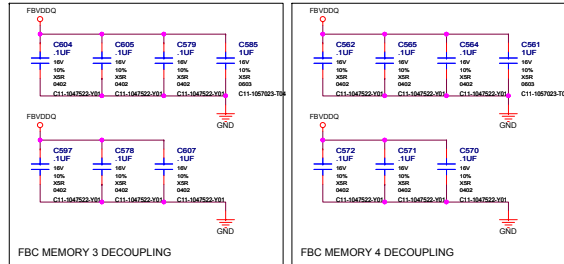
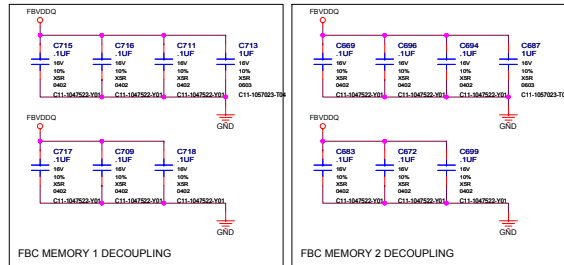
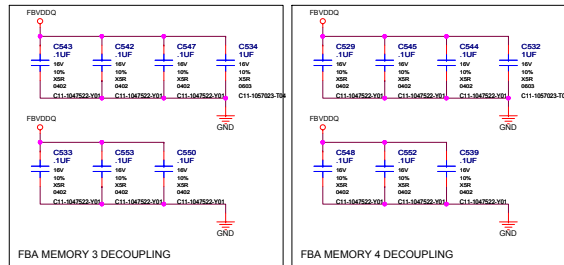
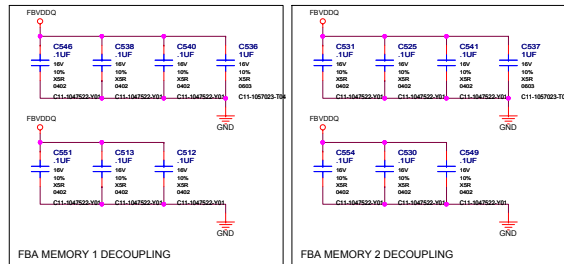
Partition C Memories



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 Partition C Memories

Decoupling Caps



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PAGE DETAIL	Decoupling Caps

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ID	NAME	AGE	SEX	RELIGION	EDUCATION	PROFESSION	INCOME	RESIDENCE	VEHICLE	PROPERTY	LIABILITY	INSURANCE	STATUS
1	John Doe	35	Male	Catholic	High School	Teacher	\$45,000	Single	None	None	None	None	Single
2	Jane Smith	28	Female	Protestant	College	Nurse	\$55,000	Married	Car	House	Life	Health	Married
3	Robert Johnson	42	Male	Jewish	University	Engineer	\$75,000	Married	Car	House	Life	Health	Married
4	Emily White	31	Female	Muslim	College	Software Engineer	\$85,000	Single	Car	None	None	Health	Single
5	Michael Brown	25	Male	Buddhist	High School	Student	\$20,000	Single	None	None	None	None	Single
6	Sarah Davis	38	Female	Hindu	College	Marketing	\$60,000	Married	Car	House	Life	Health	Married
7	David Wilson	45	Male	Sikh	University	Lawyer	\$95,000	Married	Car	House	Life	Health	Married
8	Olivia Taylor	22	Female	Christian	College	Researcher	\$40,000	Single	None	None	None	Health	Single
9	James Anderson	50	Male	Orthodox	High School	Retired	\$30,000	Married	None	House	Life	None	Married
10	Ava Martinez	33	Female	Wiccan	College	Designer	\$65,000	Single	Car	None	None	Health	Single
11	Ethan Garcia	27	Male	Unitarian	University	Developer	\$70,000	Married	Car	House	Life	Health	Married
12	Sophia Lee	36	Female	Bahai	College	Manager	\$50,000	Single	None	None	None	Health	Single
13	Benjamin Clark	41	Male	Quaker	High School	Construction	\$40,000	Married	Car	House	Life	Health	Married
14	Mia Hall	29	Female	Secular	College	Analyst	\$55,000	Single	Car	None	None	Health	Single
15	Lucas King	34	Male	Anglican	University	Writer	\$60,000	Married	Car	House	Life	Health	Married
16	Isabella Scott	26	Female	Presbyterian	College	Teacher	\$45,000	Single	None	None	None	Health	Single
17	William Adams	48	Male	Methodist	High School	Farmer	\$35,000	Married	None	House	Life	None	Married
18	Charlotte Baker	32	Female	Evangelical	College	Accountant	\$50,000	Single	Car	None	None	Health	Single
19	Henry Miller	55	Male	Reform	University	Retired	\$30,000	Married	None	House	Life	None	Married
20	Aria Nelson	24	Female	Deist	College	Student	\$25,000	Single	None	None	None	None	Single
21	Leo Parker	37	Male	Unitarian	High School	Worker	\$30,000	Married	Car	House	Life	Health	Married
22	Grace Young	30	Female	Secular	College	Designer	\$55,000	Single	Car	None	None	Health	Single
23	Samuel King	43	Male	Anglican	University	Lawyer	\$80,000	Married	Car	House	Life	Health	Married
24	Liam Wright	28	Male	Presbyterian	College	Developer	\$65,000	Single	Car	None	None	Health	Single
25	Olivia Lopez	35	Female	Methodist	High School	Teacher	\$45,000	Married	None	House	Life	None	Married
26	Benjamin Hill	40	Male	Evangelical	College	Manager	\$50,000	Single	Car	None	None	Health	Single
27	Mia Green	25	Female	Reform	University	Student	\$20,000	Single	None	None	None	None	Single
28	Lucas Adams	38	Male	Deist	High School	Worker	\$30,000	Married	Car	House	Life	Health	Married
29	Isabella Baker	31	Female	Unitarian	College	Analyst	\$55,000	Single	Car	None	None	Health	Single
30	William Miller	46	Male	Anglican	University	Lawyer	\$85,000	Married	Car	House	Life	Health	Married
31	Aria Nelson	23	Female	Presbyterian	College	Teacher	\$40,000	Single	None	None	None	Health	Single
32	Leo Parker	36	Male	Methodist	High School	Farmer	\$35,000	Married	None	House	Life	None	Married
33	Grace Young	29	Female	Evangelical	College	Accountant	\$50,000	Single	Car	None	None	Health	Single
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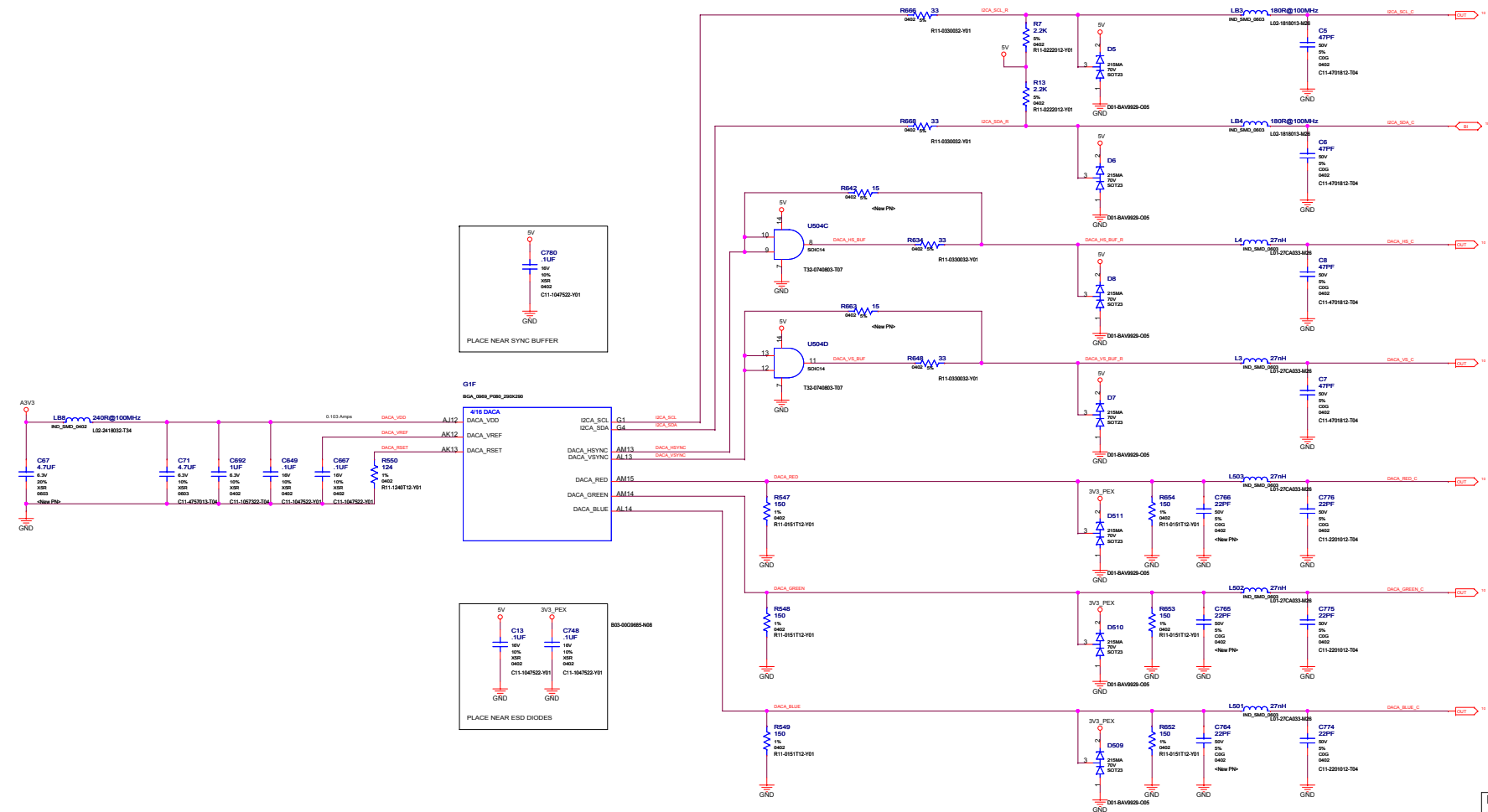
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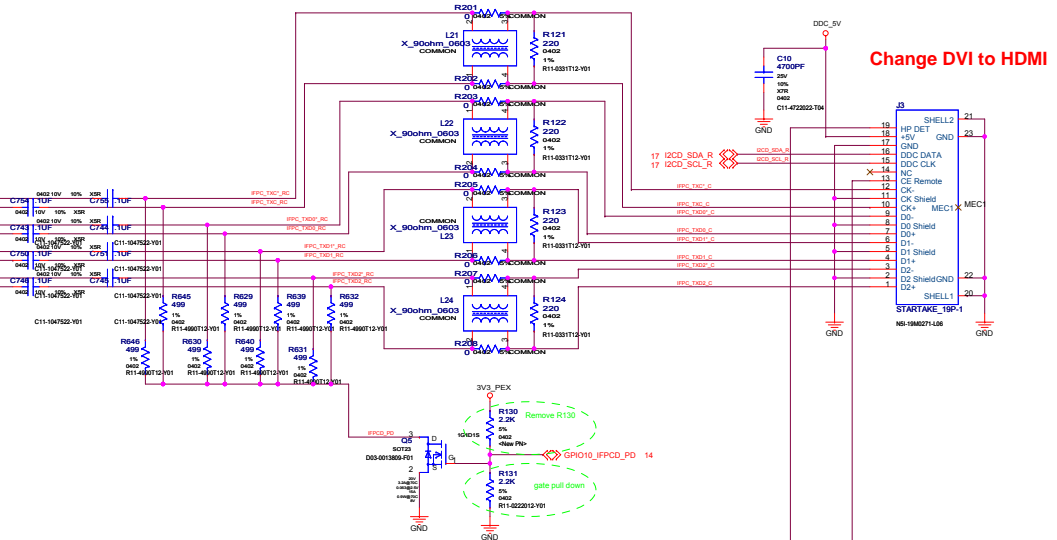
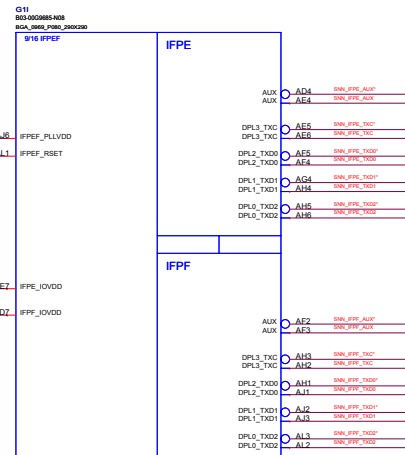
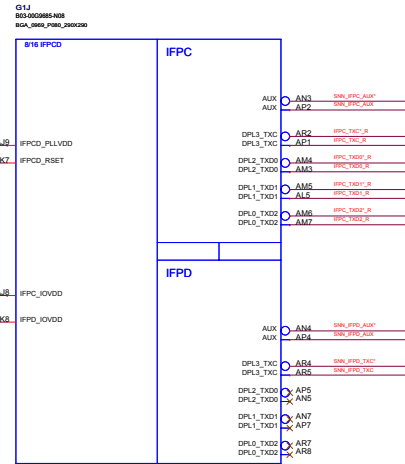


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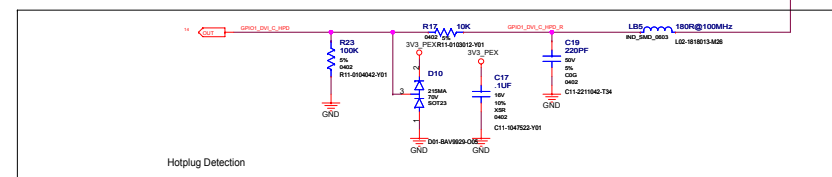
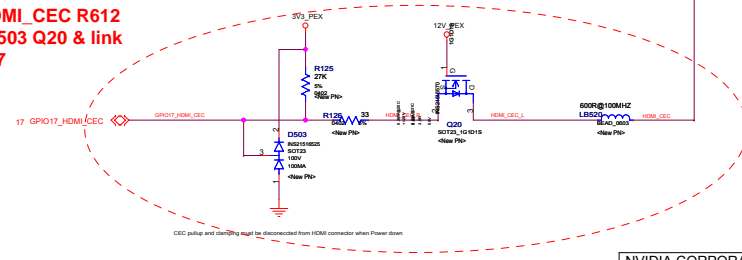
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Internal TMDS .. Link C & D



Change DVI to HDMI

MI_CEC R612
503 Q20 & link
7

CEC pullup and clamping must be disconnected from HDMI connector when Power down

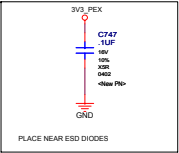
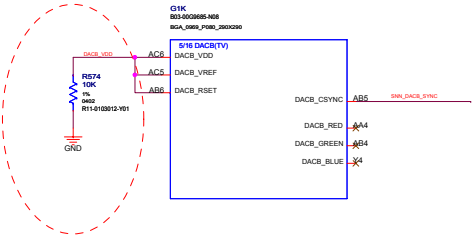
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DACB, MINIDIN Connector

Change R574 to 10K

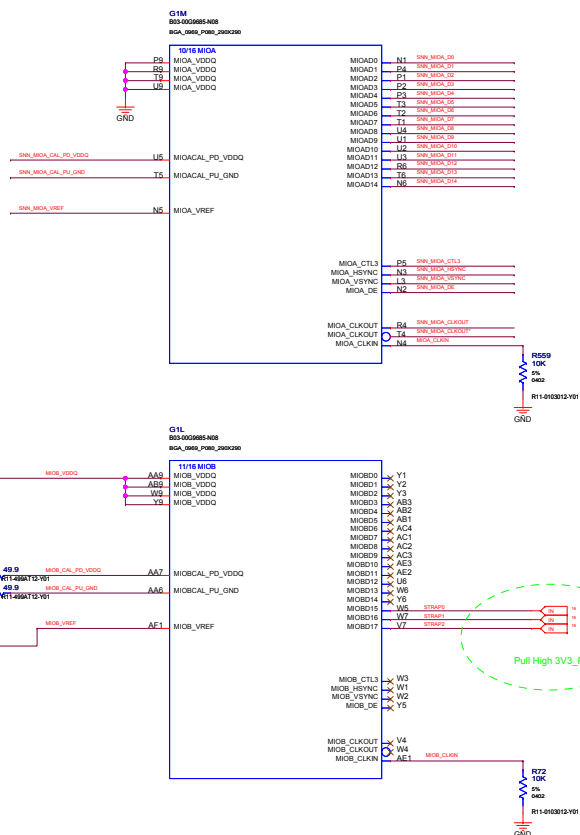


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PAGE DETAIL	DACB, MINIDIN Connector

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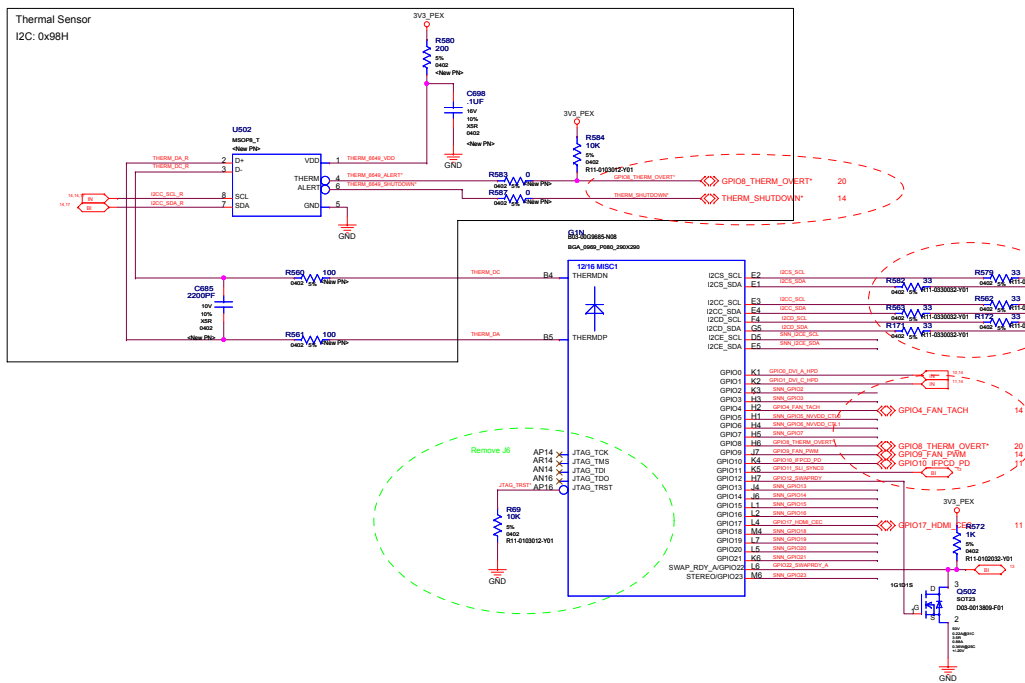
MIOA, MIOB Interface



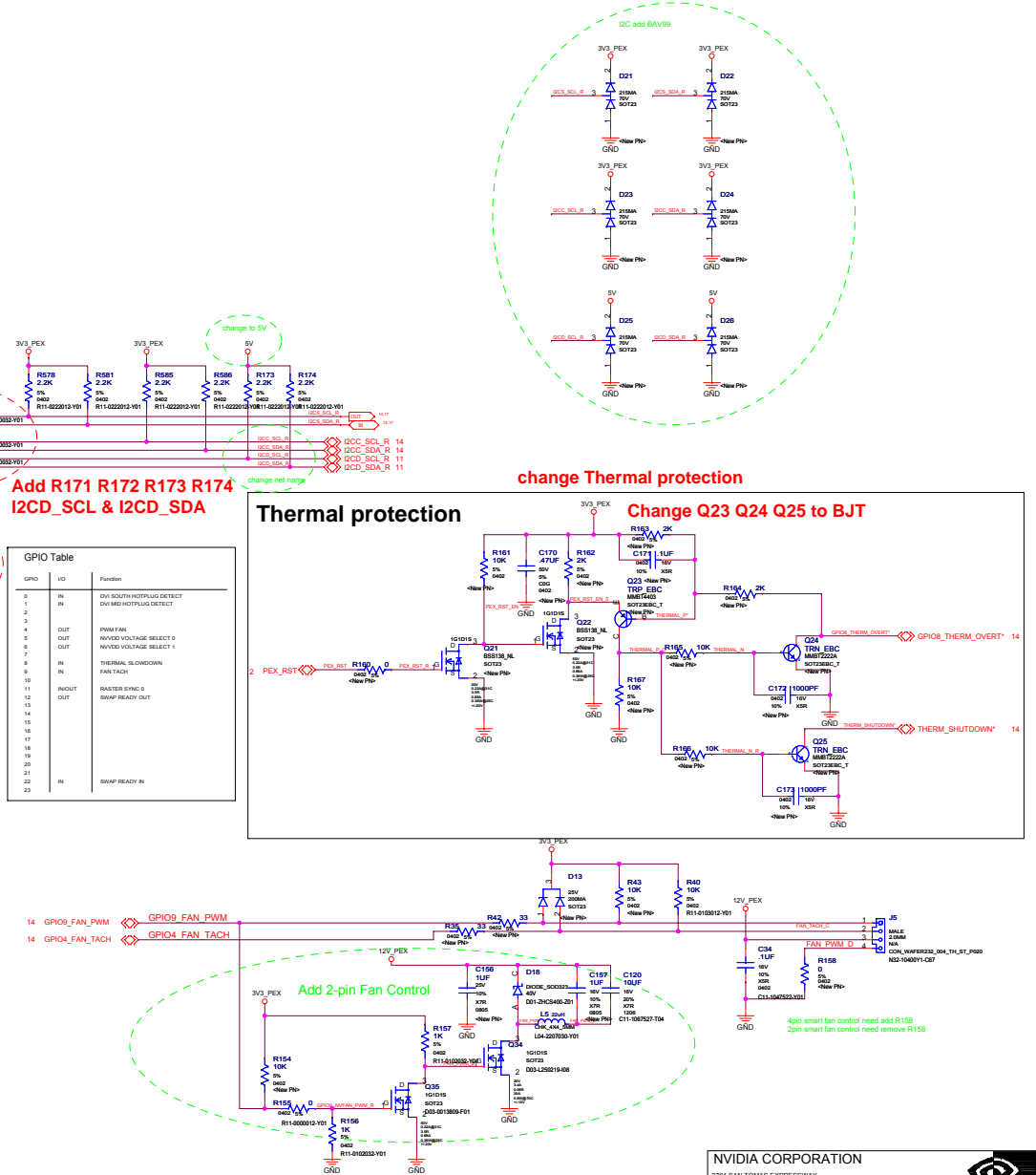
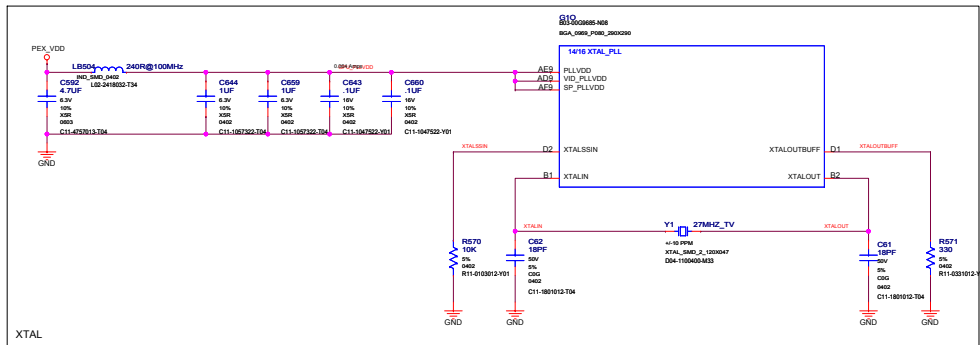
Change to 3V3

Pull High 3V3_F

Thermal Sensors, GPIOs, XTAL, JTAG, Fan



GPIO	IO	Function
0	IN	DVI SOUTH HOTPLUG DETECT
1	IN	DVI MDI HOTPLUG DETECT
2		
3		
4	OUT	PRM FAN
5	OUT	NVMD VOLTAGE SELECT 0
6	OUT	NVMD VOLTAGE SELECT 1
7		
8	IN	THERMAL SLOWDOWN
9	IN	FAN TACH
10		
11	INDOUT	RASTER SYNC 0
12	OUT	SWAP READY OUT
13		
14		
15		
16		
17		
18		
19		
20		
21		
22	IN	SWAP READY IN
23		



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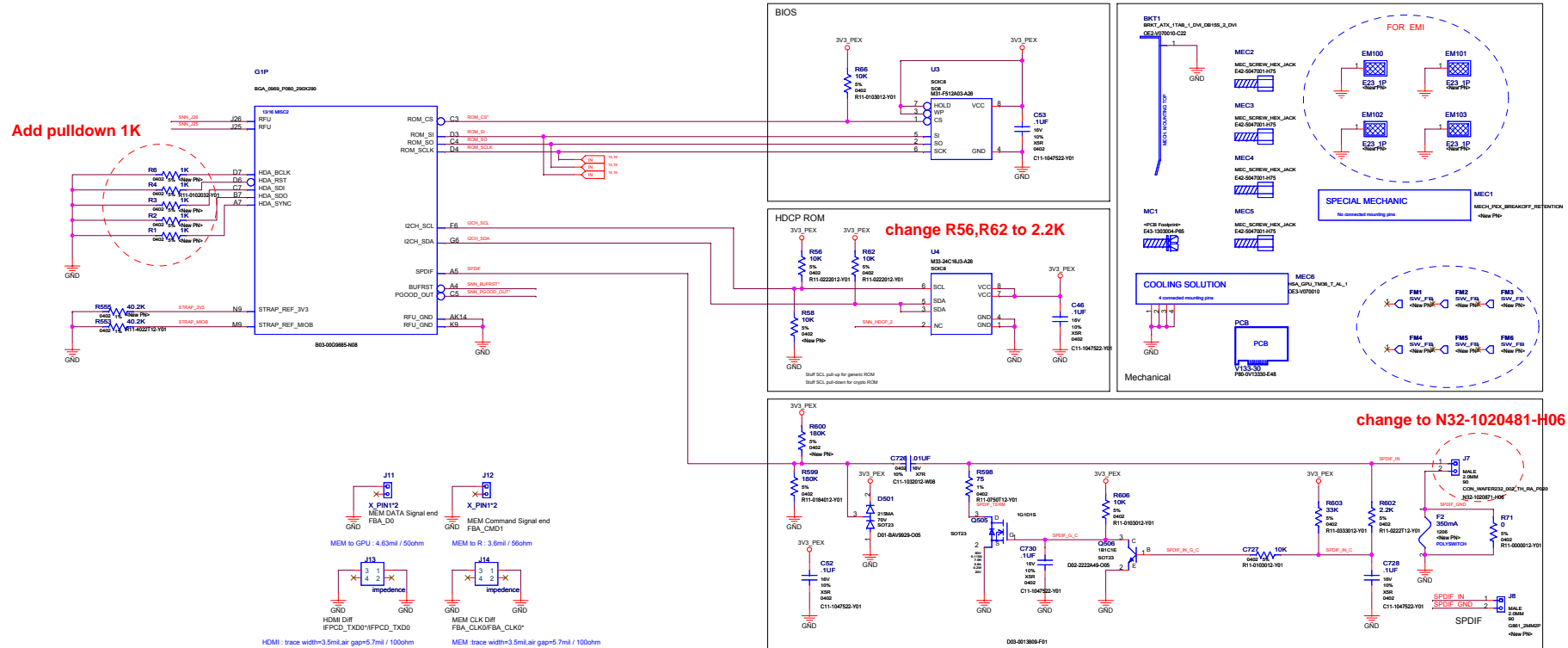
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PAGE DETAIL	Thermal Sensors, GPIOs, XTAL, JTAG, Fan

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BIOS, HDCP, SPDIF, HDA, Mechanical



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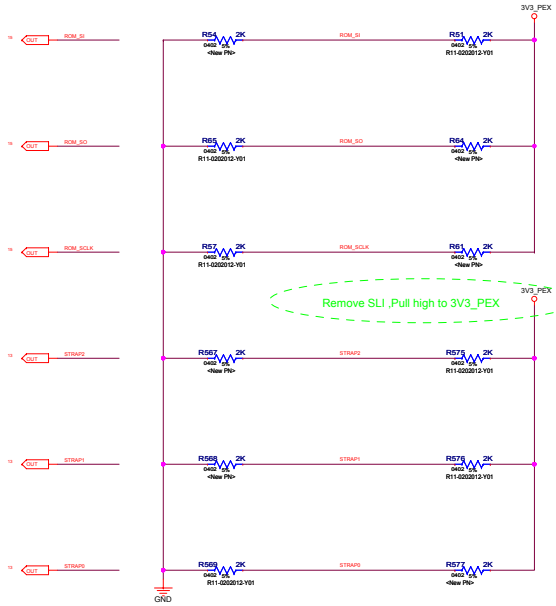
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PAGE DETAIL	BIOS, HXCP, SPDIF, HDA, Mechanical

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A	B	C	D	E	F	G	H
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Straps



G94 Straps Multilevel Mode

Bit Signal

Values

03	ACLK_277	0 DISABLED 1 ENABLED
02	TWADD2	000 NTSC_A 001 NTSC_V
01	TWADD1	010 PAL_A 011 PAL_V
00	TWADD0	100 PAL_CLK 101 PAL_BSDI 110 BBSERIALIZED 111 BBSERIALIZED
03	PCL_DEV0_EXT	1 G96-300-A1
02	SUB_VENDOR	0 NO BIOS 1 BIOS
01	SLOT_CLK_CFG	0 DISABLE 1 ENABLE
00	PEX_PULL_CLK_TERM100	0 DIS 1 EN
03	RAMCFG2	0000 32Mx16/16Mx16 DDR2 128-bit Elpida 0001 16Mx16 DDR2 128-bit Samsung, Micron 0010 16Mx16 DDR2 128-bit Corsair 0011 16Mx16 DDR2 128-bit Hynix 0100 32Mx16/16Mx16 DDR2 128-bit Hynix
02	RAMCFG1	0001 32Mx16/16Mx16 DDR2 64-bit Elpida 0010 16Mx16 DDR2 64-bit Samsung, Micron 0100 16Mx16 DDR2 64-bit Corsair 0101 16Mx16 DDR2 64-bit Hynix 1000 32Mx16/16Mx16 DDR2 64-bit Hynix
01	RAMCFG0	0001 32Mx16/16Mx16 DDR2 64-bit Elpida 0010 16Mx16 DDR2 64-bit Samsung, Micron 0100 16Mx16 DDR2 64-bit Corsair 0101 16Mx16 DDR2 64-bit Hynix 1000 32Mx16/16Mx16 DDR2 64-bit Hynix
03	PCL_DEV03	0001 G96-300-A1
02	PCL_DEV02	
01	PCL_DEV01	
00	PCL_DEV00	
03	SGIO_PANDCFG_LUT_ADR0	0000 GSKTOP_DEFAULT 0001 MOBILE_JTTRES 0010 MOBILE_JTTRES_L1AMP 0011 MOBILE_JTTRES_L1AMP 0100 MOBILE_JTTRES_HAMP 0101 MOBILE_JTTRES_HAMP 0110 MOBILE_JTTRES_HAMP 0111 MOBILE_JTTRES_HAMP
02	SGIO_PANDCFG_LUT_ADR1	0000 GSKTOP_DEFAULT 0001 MOBILE_JTTRES 0010 MOBILE_JTTRES_L1AMP 0011 MOBILE_JTTRES_L1AMP 0100 MOBILE_JTTRES_HAMP 0101 MOBILE_JTTRES_HAMP 0110 MOBILE_JTTRES_HAMP 0111 MOBILE_JTTRES_HAMP
01	SGIO_PANDCFG_LUT_ADR2	0000 GSKTOP_DEFAULT 0001 MOBILE_JTTRES 0010 MOBILE_JTTRES_L1AMP 0011 MOBILE_JTTRES_L1AMP 0100 MOBILE_JTTRES_HAMP 0101 MOBILE_JTTRES_HAMP 0110 MOBILE_JTTRES_HAMP 0111 MOBILE_JTTRES_HAMP
00	SGIO_PANDCFG_LUT_ADR3	0000 GSKTOP_DEFAULT 0001 MOBILE_JTTRES 0010 MOBILE_JTTRES_L1AMP 0011 MOBILE_JTTRES_L1AMP 0100 MOBILE_JTTRES_HAMP 0101 MOBILE_JTTRES_HAMP 0110 MOBILE_JTTRES_HAMP 0111 MOBILE_JTTRES_HAMP
03	USER0	0000 DEFAULT
02	USER1	
01	USER2	
00	USER3	

Multilevel Straps

5K to GND	0000
10K to GND	0001
15K to GND	0010
20K to GND	0011
25K to GND	0100
30K to GND	0101
35K to GND	0110
40K to GND	0111
5K to VCC	1000
10K to VCC	1001
15K to VCC	1010
20K to VCC	1011
25K to VCC	1100
30K to VCC	1101
35K to VCC	1110
40K to VCC	1111

G94 Straps Binary-Bringup Mode

Bit Signal

Values

SUB_VENDOR	0 NO BIOS 1 BIOS
SLOT_CLK_CFG	0 DISABLE 1 ENABLE
SGIO_PANDCFG_LUT_ADR0	0000 GSKTOP_DEFAULT 0001 MOBILE_JTTRES 0010 MOBILE_JTTRES_L1AMP 0011 MOBILE_JTTRES_L1AMP 0100 MOBILE_JTTRES_HAMP 0101 MOBILE_JTTRES_HAMP 0110 MOBILE_JTTRES_HAMP 0111 MOBILE_JTTRES_HAMP
SGIO_PANDCFG_LUT_ADR1	0000 GSKTOP_DEFAULT 0001 MOBILE_JTTRES 0010 MOBILE_JTTRES_L1AMP 0011 MOBILE_JTTRES_L1AMP 0100 MOBILE_JTTRES_HAMP 0101 MOBILE_JTTRES_HAMP 0110 MOBILE_JTTRES_HAMP 0111 MOBILE_JTTRES_HAMP
SGIO_PANDCFG_LUT_ADR2	0000 GSKTOP_DEFAULT 0001 MOBILE_JTTRES 0010 MOBILE_JTTRES_L1AMP 0011 MOBILE_JTTRES_L1AMP 0100 MOBILE_JTTRES_HAMP 0101 MOBILE_JTTRES_HAMP 0110 MOBILE_JTTRES_HAMP 0111 MOBILE_JTTRES_HAMP
SGIO_PANDCFG_LUT_ADR3	0000 GSKTOP_DEFAULT 0001 MOBILE_JTTRES 0010 MOBILE_JTTRES_L1AMP 0011 MOBILE_JTTRES_L1AMP 0100 MOBILE_JTTRES_HAMP 0101 MOBILE_JTTRES_HAMP 0110 MOBILE_JTTRES_HAMP 0111 MOBILE_JTTRES_HAMP

G94 Straps Binary-Production Mode

Bit Signal

Values

SLOT_CLK_CFG	0 DISABLE 1 ENABLE
PCL_DEV0_EXT	10 G96-300-A1
PCL_DEV03	
PCL_DEV02	
PCL_DEV01	
PCL_DEV00	
RAMCFG2	000 32Mx16/16Mx16 DDR2 Elpida 001 16Mx16 DDR2 Samsung, Micron 010 16Mx16 DDR2 Corsair 011 16Mx16 DDR2 Hynix 100 32Mx16/16Mx16 DDR2 Hynix 101 32Mx16/16Mx16 DDR2 Hynix 110 32Mx16/16Mx16 DDR2 Hynix 111 32Mx16/16Mx16 DDR2 Hynix
RAMCFG1	000 32Mx16/16Mx16 DDR2 Elpida 001 16Mx16 DDR2 Samsung, Micron 010 16Mx16 DDR2 Corsair 011 16Mx16 DDR2 Hynix 100 32Mx16/16Mx16 DDR2 Hynix 101 32Mx16/16Mx16 DDR2 Hynix 110 32Mx16/16Mx16 DDR2 Hynix 111 32Mx16/16Mx16 DDR2 Hynix
RAMCFG0	000 32Mx16/16Mx16 DDR2 Elpida 001 16Mx16 DDR2 Samsung, Micron 010 16Mx16 DDR2 Corsair 011 16Mx16 DDR2 Hynix 100 32Mx16/16Mx16 DDR2 Hynix 101 32Mx16/16Mx16 DDR2 Hynix 110 32Mx16/16Mx16 DDR2 Hynix 111 32Mx16/16Mx16 DDR2 Hynix
RAMCFG3	000 32Mx16/16Mx16 DDR2 Elpida 001 16Mx16 DDR2 Samsung, Micron 010 16Mx16 DDR2 Corsair 011 16Mx16 DDR2 Hynix 100 32Mx16/16Mx16 DDR2 Hynix 101 32Mx16/16Mx16 DDR2 Hynix 110 32Mx16/16Mx16 DDR2 Hynix 111 32Mx16/16Mx16 DDR2 Hynix

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ASSEMBLY
PAGE DETAIL

BASE LEVEL GENERIC SCHEMATIC ONLY, COMMON & NO_STUFF ASSEMBLY NOTES AND BOM NOT FINAL
Straps

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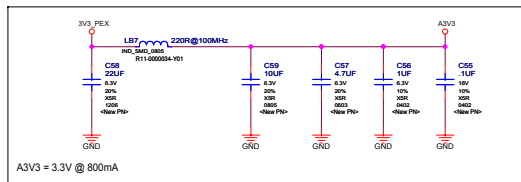
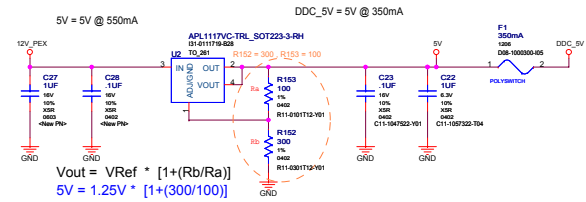
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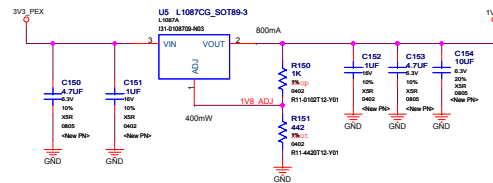
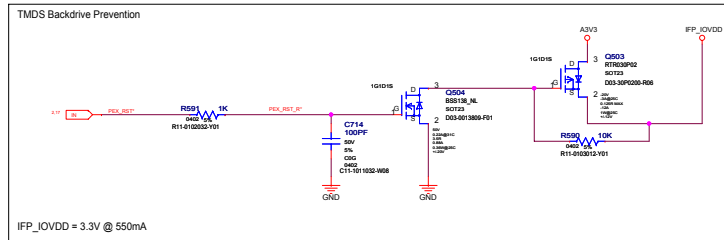
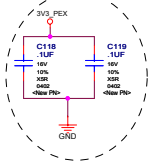
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Power Supply I: 2V5, 3V3, 5V, IFP_IOVDD



Add EMI CAP x 2pcs
3V3_PEX to GND



$$V_{out} = V_{Ref} * [1 + (R_{bot}/R_{top})]$$
$$1.8V = 1.25V * [1 + (442/1000)]$$

ASSEMBLY	BASE LEVEL GENERIC SCHEMATIC ONLY, COMMON & NO_STUFF ASSEMBLY NOTES AND BOM NOT FINAL
PAGE DETAIL	Power Supply I: 2V5, 3V3, 5V, IFF_JOVDD

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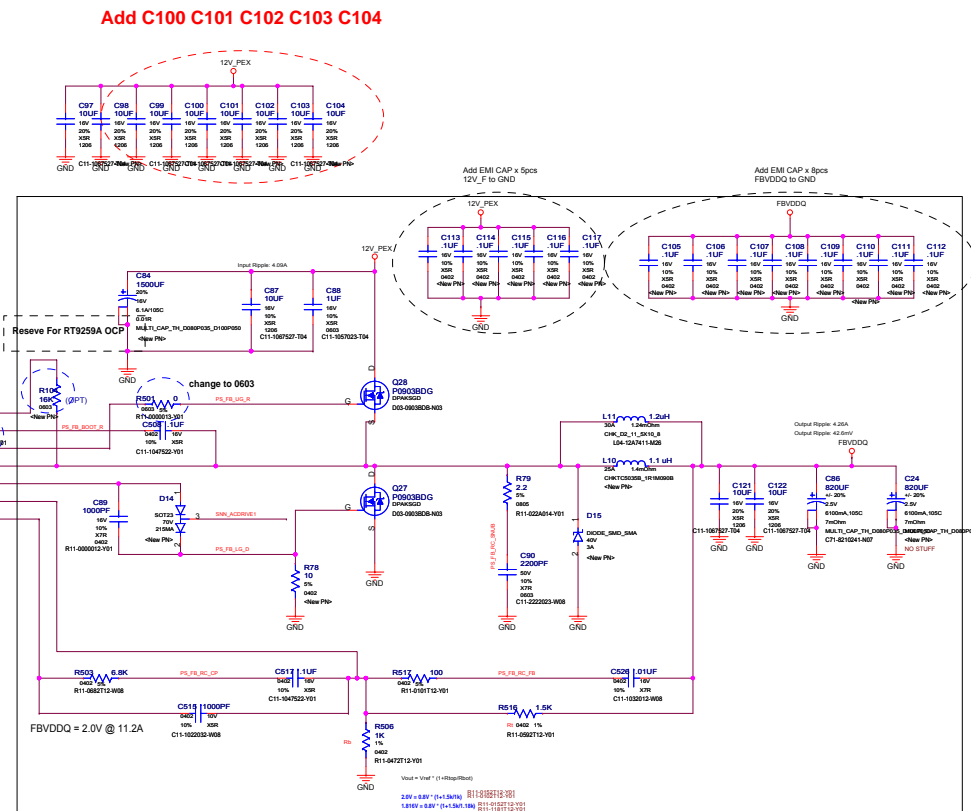
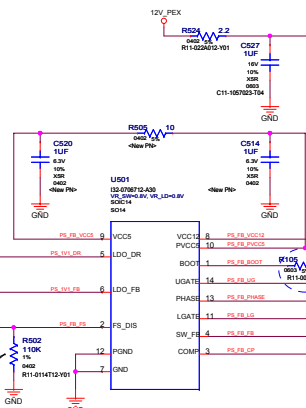
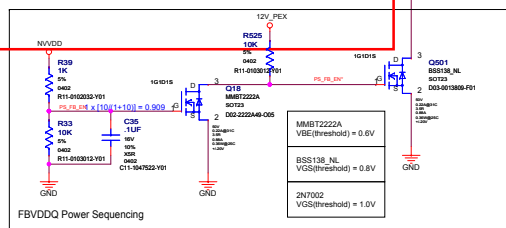
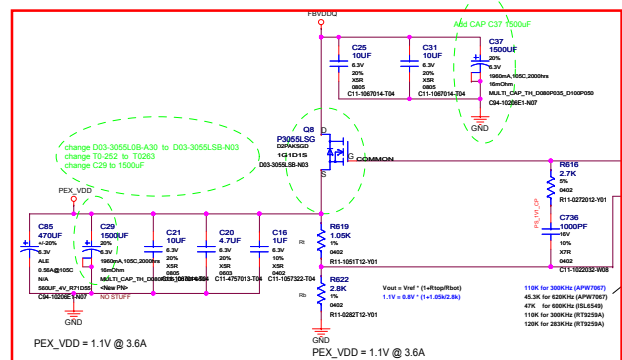


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Power Supply II: FBVDDQ



APW7067N			
R503 = 6.8K	C517 = 0.1uF	R517 = 100	C526 = 0.01uF
C515 = 1000pF		R516 = 1.5K	
OS-CON 820uF "1 + 1000uF" 1 + 1uH >> C515 = 1000pF 1500uF "2 + 1000uF" 1 + 1uH >> C515 = 2200pF			
RT9259A			
R503 = 15K	C517 = 0.1uF	R517 = 100	C526 = 0.01uF
C515 = 3300pF		R516 = 1.5K	
OCP : R104=10k ohm for 25A OCP CS14 CS20,R505 >> NG			

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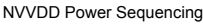
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ASSEMBLY	BASE LEVEL GENERIC SCHEMATIC ONLY, COMMON & NO _STUFF ASSEMBLY NOTES AND BOM NOT FINAL
PAGE DETAIL	Power Supply II: FBVDDQ

Power Supply III: NVVDD, PEX_VDD



Change Q31 Q32 to BJT