

P682: GT216, GB1-128, DDR2 1024MB 64Mx16, DL-DVI,VGA, HDMI

Page 1: TABLE OF CONTENTS

Page 2: PCI EXPRESS INTERFACE, PEX_VDD DECOUPLING CAPS

Page 3: FBA MEMORY INTERFACE, GPU NVVDD & FBVDDQ DECOUPLING CAPS

Page 4: FBA 16/32Mx32 DDR2 MEMORIES, FBA COMMAND BUS PU'S, FBA CLK TERMS

Page 5: FBA MEMORY FBVDDQ DECOUPLING CAPS

Page 6: FBC MEMORY INTERFACE

Page 7: FBC 16/32MX32 DDR2 MEMORIES, FBC CMD BUS PU'S, FBC CLK TERMS

Page 8: FBC MEMORY FBVDDQ DECOUPLING CAPS, GPU GND CONNECTIONS

Page 9: DACA (PRIMARY DVI-I)

Page 10: DACB, SECONDARY DVI-I

Page 11: TMDS LINK A/B: DVI-I (SOUTH)

Page 12: LINK C: HDMI (NORTH AND MID)

Page 13: LINK D: DISPLAYPORT (NORTH)

Page 14: LINK E/F: DVI-I (MID)

Page 15: MIOA & MIOB, SLI CONNECTOR

Page 16: XTAL, MECHANICALS, THERMALS

Page 17: EXTERNAL THERMAL SENSOR, 4PIN FAN CONTROL, GPIO, JTAG

Page 18: BIOS ROM, HDCP ROM, STRAPPING OPTIONS

Page 19: POWER SUPPLY LINEARS: 5V, DDC5V, IFP PLLVDD, IFP IOVDD, 3V3 FILTER, 12V FILTER, 12V EXT

Page 20: POWER SUPPLY: FBVDDQ SINGLE PHASE SWITCHER, PEX_VDD LINEAR

Page 21: POWER SUPPLY: NVVDD DUAL PHASE SWITCHER

REV	VARIANT	NPVN	ASSEMBLY
B	BASE	600-10682-base-100	BASE LEVEL GENERIC SCHEMATIC ONLY, COMMON & NO_STUFF ASSEMBLY NOTES AND BOM NOT FINAL
1	SKU000	600-10682-0000-100	GT216-200, 600MHz SKU
2	SKU001	600-10682-0001-100	GT216-200, 600/1500MHz 512MB 32Mx16 BGA84 500MHz DDR2 DVI+DPM+HDMI
3	SKU002	600-10682-0002-100	GT216-300, 600/1500MHz 512MB 32Mx16 BGA84 500MHz DDR2 DVI+DPM+HDMI
4	SKU003	600-10682-0003-100	GT216-100, 600/1500MHz 256MB 32Mx16 BGA84 500MHz DDR2 DVI+DPM+HDMI
5	SKU011	600-10682-0011-100	GT216-300, 600/1500MHz 512MB 32Mx16 BGA84 500MHz DDR2 DVI+DVI+HDMI
6	SKU012	600-10682-0012-100	GT216-200, 600/1500MHz 512MB 32Mx16 BGA84 500MHz DDR2 DVI+DVI+HDMI
7	SKU013	600-10682-0013-100	GT216-100, 600/1500MHz 512MB 32Mx16 BGA84 500MHz DDR2 DVI+DVI+HDMI
8	SKU004	600-10682-0004-100	GT216-200, 600/1500MHz 1024MB 64Mx16 BGA84 500MHz DDR2 DVI+DPM+HDMI
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PAGE DETAIL	TABLE OF CONTENTS

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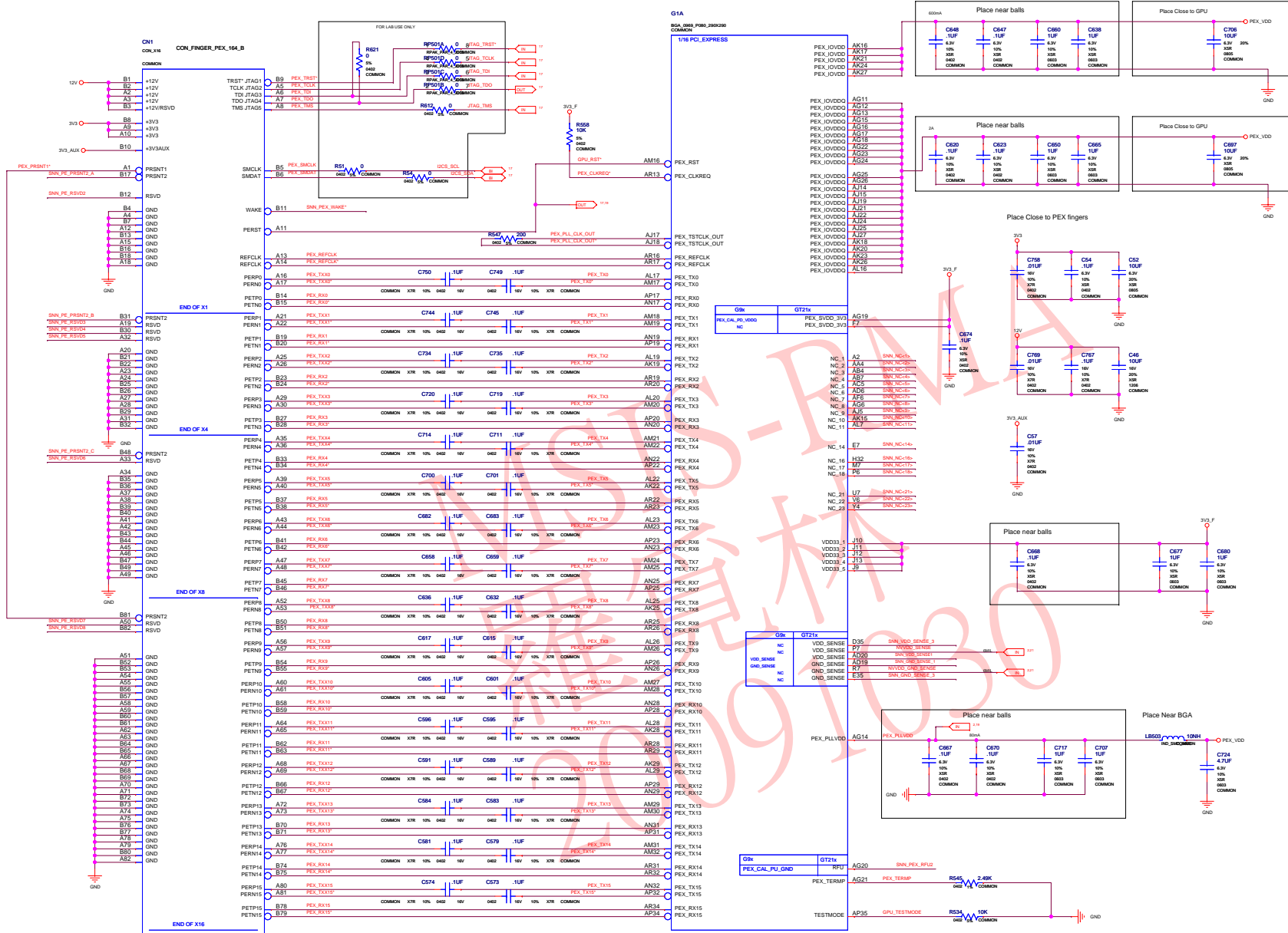
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NPVN	600-10682-base-100 A		
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NAME		DATE	15 MAY 2009

16X PEX INTERFACE



	PEX REFLEX	OFFPLAN	MC APPEAL	MC CRITICAL
1	PEX REFLEX	PEX REFLEX	SCOFF	1
2	PEX REFLEX	PEX REFLEX	SCOFF	1
3				
4	PEX T00	PEX T00	SCOFF	1
5	PEX T01	PEX T01	SCOFF	1
6	PEX T02	PEX T02	SCOFF	1
7	PEX T03	PEX T03	SCOFF	1
8	PEX T04	PEX T04	SCOFF	1
9	PEX T05	PEX T05	SCOFF	1
10	PEX T06	PEX T06	SCOFF	1
11	PEX T07	PEX T07	SCOFF	1
12	PEX T08	PEX T08	SCOFF	1
13	PEX T09	PEX T09	SCOFF	1
14	PEX T10	PEX T10	SCOFF	1
15	PEX T11	PEX T11	SCOFF	1
16	PEX T12	PEX T12	SCOFF	1
17	PEX T13	PEX T13	SCOFF	1
18	PEX T14	PEX T14	SCOFF	1
19	PEX T15	PEX T15	SCOFF	1
20	PEX T16	PEX T16	SCOFF	1
21				
22	PEX T000	PEX T000	SCOFF	1
23	PEX T001	PEX T001	SCOFF	1
24	PEX T002	PEX T002	SCOFF	1
25	PEX T003	PEX T003	SCOFF	1
26	PEX T004	PEX T004	SCOFF	1
27	PEX T005	PEX T005	SCOFF	1
28	PEX T006	PEX T006	SCOFF	1
29	PEX T007	PEX T007	SCOFF	1
30	PEX T008	PEX T008	SCOFF	1
31	PEX T009	PEX T009	SCOFF	1
32	PEX T010	PEX T010	SCOFF	1
33	PEX T011	PEX T011	SCOFF	1
34	PEX T012	PEX T012	SCOFF	1
35	PEX T013	PEX T013	SCOFF	1
36	PEX T014	PEX T014	SCOFF	1
37	PEX T015	PEX T015	SCOFF	1
38				
39	PEX R00	PEX R00	SCOFF	1
40	PEX R01	PEX R01	SCOFF	1
41	PEX R02	PEX R02	SCOFF	1
42	PEX R03	PEX R03	SCOFF	1
43	PEX R04	PEX R04	SCOFF	1
44	PEX R05	PEX R05	SCOFF	1
45	PEX R06	PEX R06	SCOFF	1
46	PEX R07	PEX R07	SCOFF	1
47	PEX R08	PEX R08	SCOFF	1
48	PEX R09	PEX R09	SCOFF	1
49	PEX R10	PEX R10	SCOFF	1
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51	PEX R12	PEX R12	SCOFF	1
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53	PEX R14	PEX R14	SCOFF	1
54	PEX R15	PEX R15	SCOFF	1
55	PEX R16	PEX R16	SCOFF	1
56				
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58	PEX R01	PEX R01	SCOFF	1
59	PEX R02	PEX R02	SCOFF	1
60	PEX R03	PEX R03	SCOFF	1
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67	PEX R10	PEX R10	SCOFF	1
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77	PEX R02	PEX R02	SCOFF	1
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85	PEX R10	PEX R10	SCOFF	1
86	PEX R11	PEX R11	SCOFF	1
87	PEX R12	PEX R12	SCOFF	1
88	PEX R13	PEX R13	SCOFF	1
89	PEX R14	PEX R14	SCOFF	1
90				

Signal	Value	Unit
NVDD_SENSE	1.2V	V
NVDD_GND_SENSE	0V	V
PEX_PL1VDD	1.2V	V
SV3	3.3V	V
12V	12V	V
SV3_PEX_SVDD	3.3V	V

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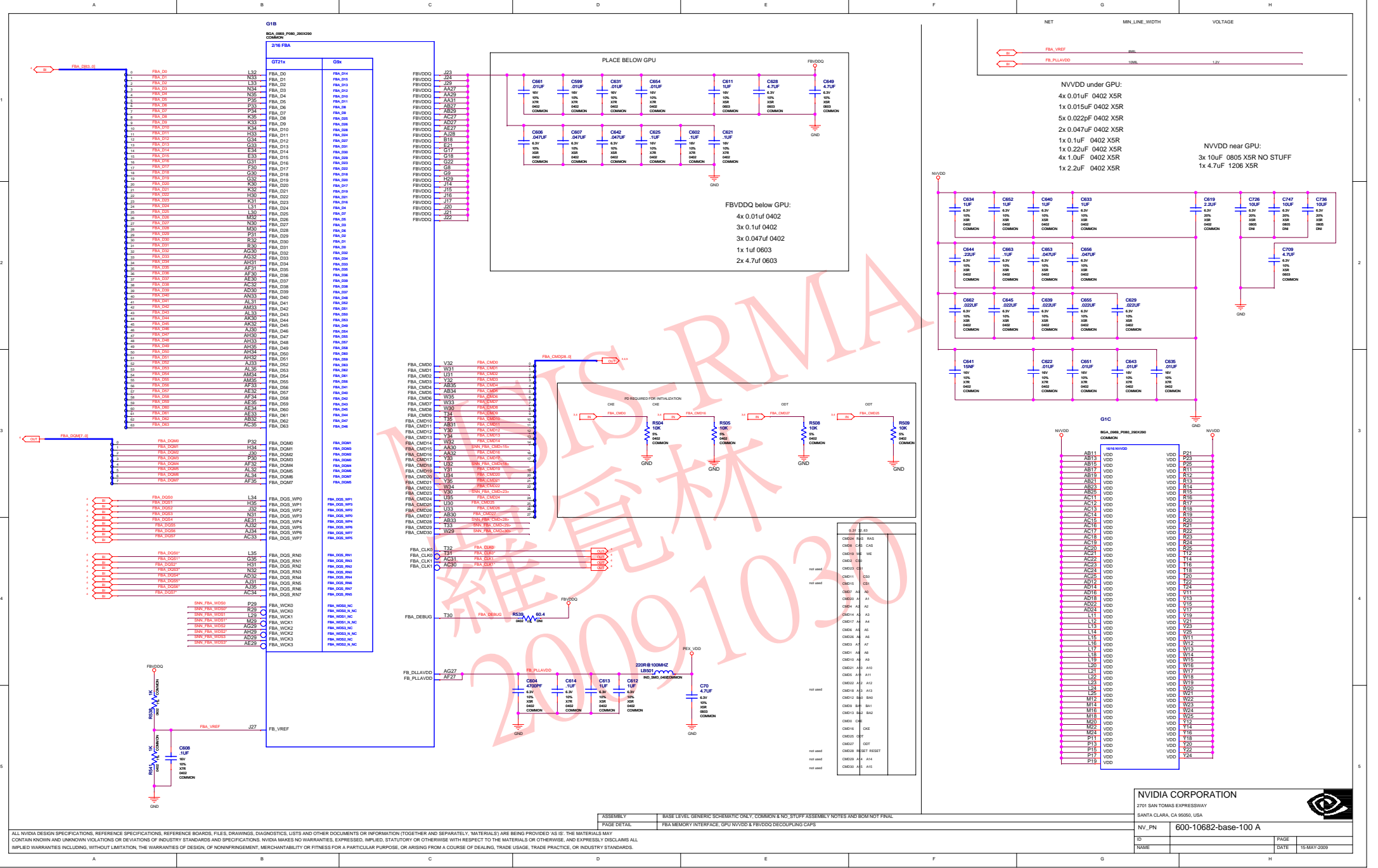
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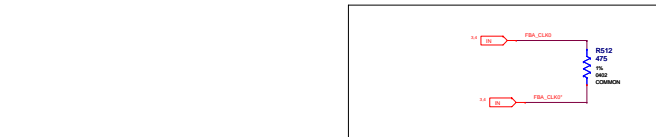
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PAGE DETAIL	PCI EXPRESS INTERFACE, PEX_VDD DECOUPLING CAPS

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GT21x CMD MAP



	Net Name	MIL_LINE_WIDTH	OFF_PAIR	NV_CRITICAL_NET	NV_IMPEDANCE
A	FEA_D001	FEA_D001	1	1	1000000
B	FEA_D001	FEA_D001	1	1	1000000
C	FEA_D001	FEA_D001	1	1	1000000
D	FEA_D001	FEA_D001	1	1	1000000
E	FEA_D001	FEA_D001	1	1	1000000
F	FEA_D001	FEA_D001	1	1	1000000
G	FEA_D001	FEA_D001	1	1	1000000
H	FEA_D001	FEA_D001	1	1	1000000
I	FEA_D001	FEA_D001	1	1	1000000
J	FEA_D001	FEA_D001	1	1	1000000
K	FEA_D001	FEA_D001	1	1	1000000
L	FEA_D001	FEA_D001	1	1	1000000
M	FEA_D001	FEA_D001	1	1	1000000
N	FEA_D001	FEA_D001	1	1	1000000
O	FEA_D001	FEA_D001	1	1	1000000
P	FEA_D001	FEA_D001	1	1	1000000
Q	FEA_D001	FEA_D001	1	1	1000000
R	FEA_D001	FEA_D001	1	1	1000000
S	FEA_D001	FEA_D001	1	1	1000000
T	FEA_D001	FEA_D001	1	1	1000000
U	FEA_D001	FEA_D001	1	1	1000000
V	FEA_D001	FEA_D001	1	1	1000000
W	FEA_D001	FEA_D001	1	1	1000000
X	FEA_D001	FEA_D001	1	1	1000000
Y	FEA_D001	FEA_D001	1	1	1000000
Z	FEA_D001	FEA_D001	1	1	1000000
AA	FEA_D001	FEA_D001	1	1	1000000
AB	FEA_D001	FEA_D001	1	1	1000000
AC	FEA_D001	FEA_D001	1	1	1000000
AD	FEA_D001	FEA_D001	1	1	1000000
AE	FEA_D001	FEA_D001	1	1	1000000
AF	FEA_D001	FEA_D001	1	1	1000000
AG	FEA_D001	FEA_D001	1	1	1000000
AH	FEA_D001	FEA_D001	1	1	1000000
AI	FEA_D001	FEA_D001	1	1	1000000
AJ	FEA_D001	FEA_D001	1	1	1000000
AK	FEA_D001	FEA_D001	1	1	1000000
AL	FEA_D001	FEA_D001	1	1	1000000
AM	FEA_D001	FEA_D001	1	1	1000000
AN	FEA_D001	FEA_D001	1	1	1000000
AO	FEA_D001	FEA_D001	1	1	1000000
AP	FEA_D001	FEA_D001	1	1	1000000
AQ	FEA_D001	FEA_D001	1	1	1000000
AR	FEA_D001	FEA_D001	1	1	1000000
AS	FEA_D001	FEA_D001	1	1	1000000
AT	FEA_D001	FEA_D001	1	1	1000000
AU	FEA_D001	FEA_D001	1	1	1000000
AV	FEA_D001	FEA_D001	1	1	1000000
AW	FEA_D001	FEA_D001	1	1	1000000
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BC	FEA_D001	FEA_D001	1	1	1000000
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BE	FEA_D001	FEA_D001	1	1	1000000
BF	FEA_D001	FEA_D001	1	1	1000000
BG	FEA_D001	FEA_D001	1	1	1000000
BH	FEA_D001	FEA_D001	1	1	1000000
BI	FEA_D001	FEA_D001	1	1	1000000
BJ	FEA_D001	FEA_D001	1	1	1000000
BK	FEA_D001	FEA_D001	1	1	1000000
BL	FEA_D001	FEA_D001	1	1	1000000
BM	FEA_D001	FEA_D001	1	1	1000000
BN	FEA_D001	FEA_D001	1	1	1000000
BO	FEA_D001	FEA_D001	1	1	1000000
BP	FEA_D001	FEA_D001	1	1	1000000
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BR	FEA_D001	FEA_D001	1	1	10000

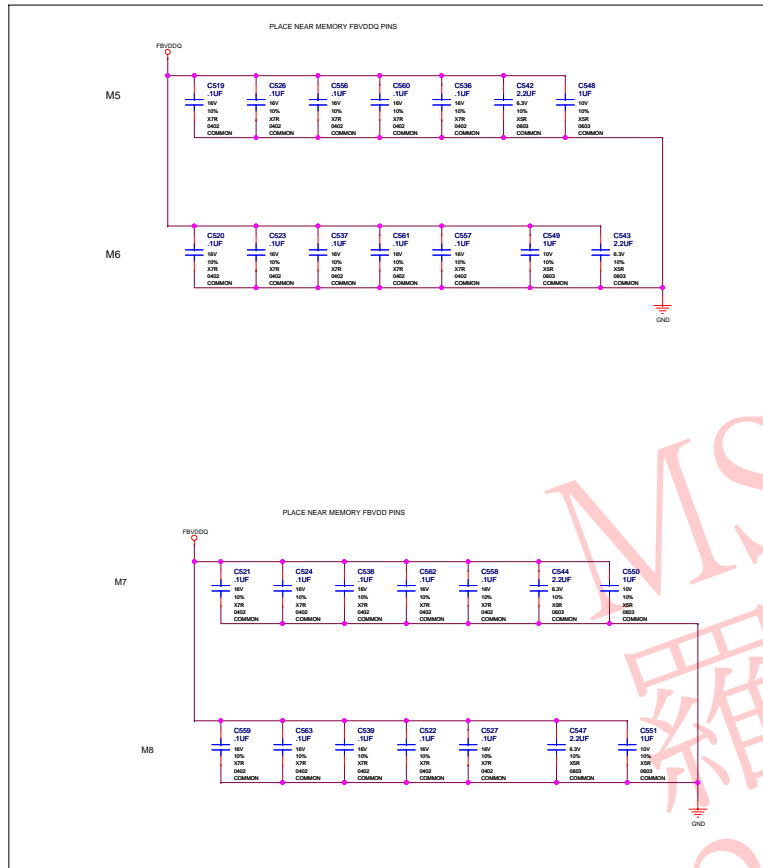


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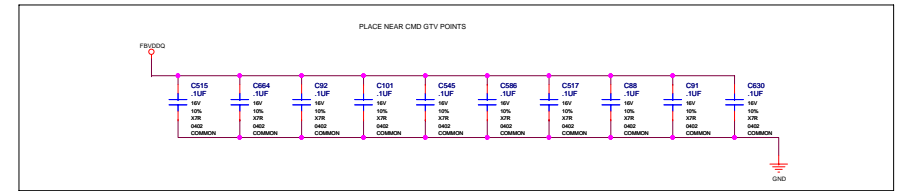
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FRAME BUFFER: PARTITION A DECOUPLING

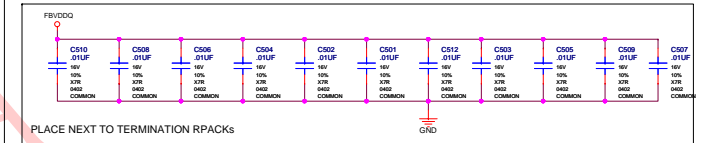
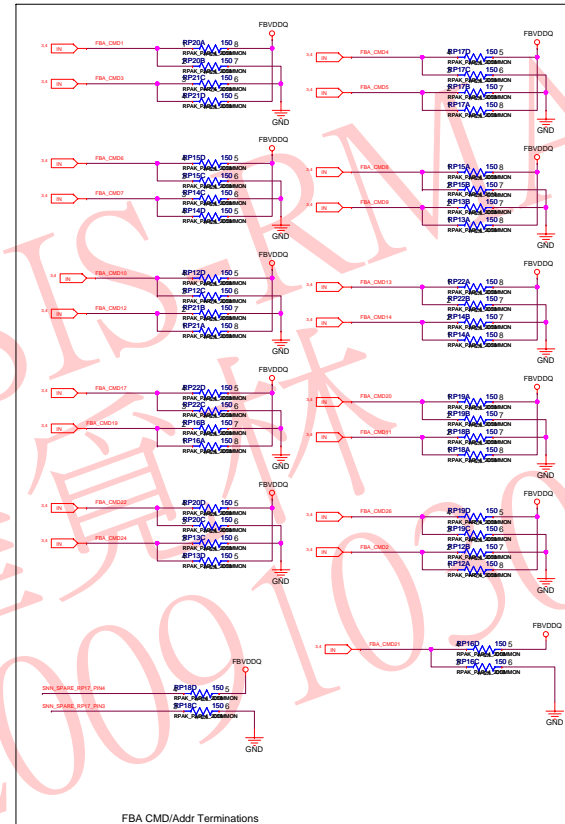
Decoupling for FBA



Return path coupling GND/FBVDDQ



FB A Addr/CMD termination



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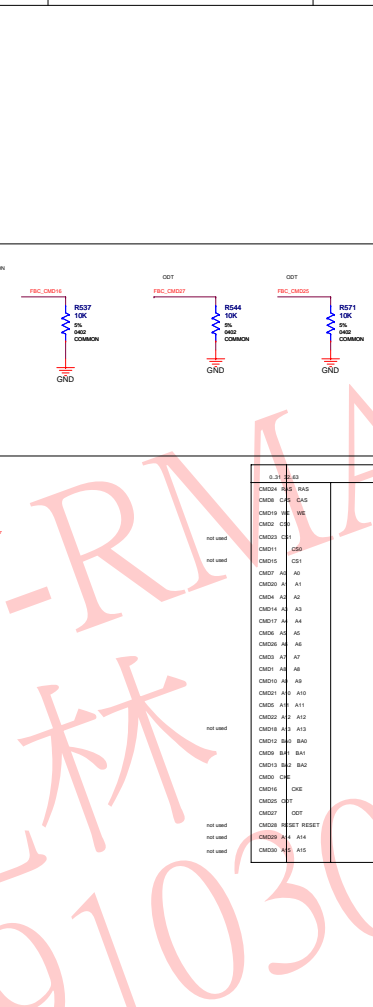


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NAME	DATE 15-MAY-2009

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PAGE DETAIL	FBA MEMORY FBVDDQ DECOUPLING CAPS

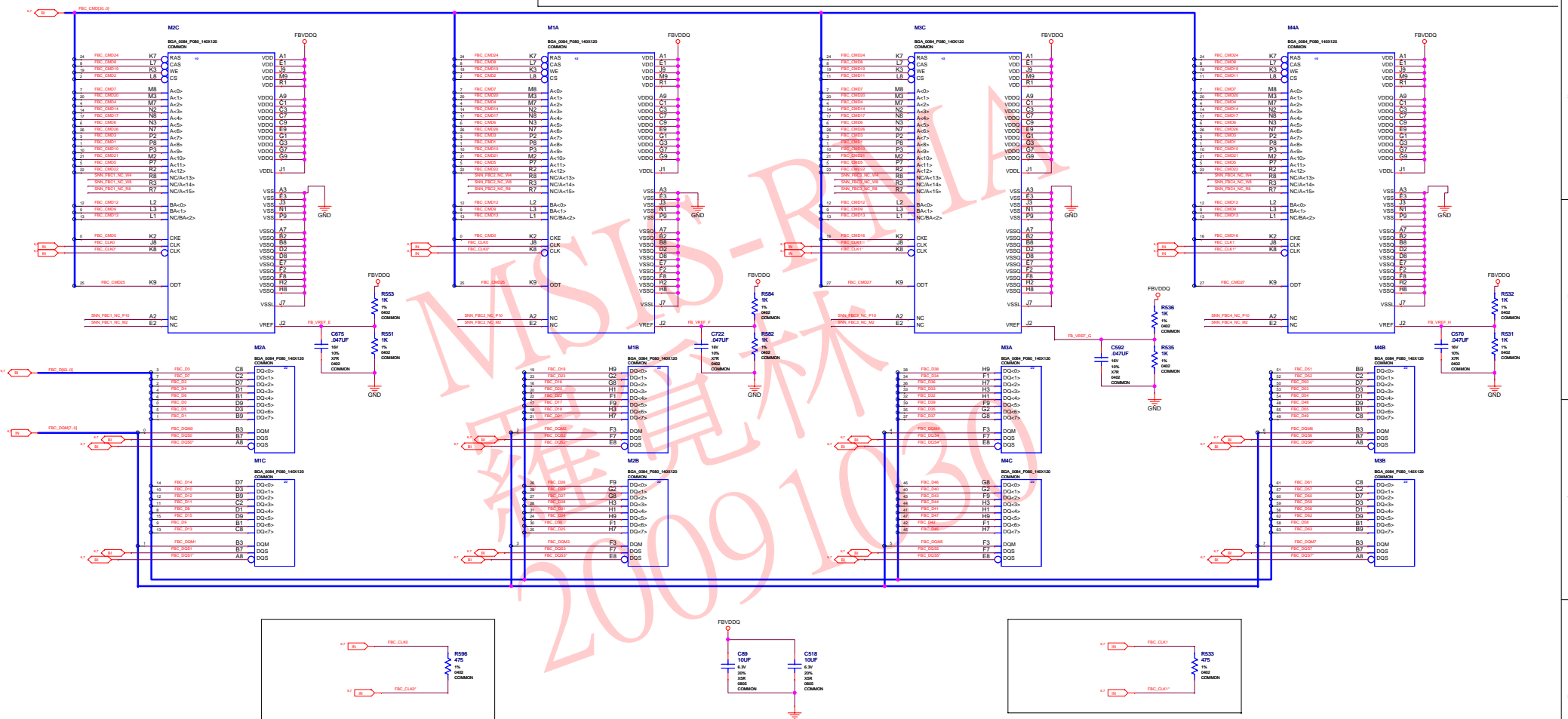


FBC CMD/Addr Terminations

[illegible]

Partition C Memories

GT21x CMD MAP



ASSEMBLY: BASE LEVEL GENERIC SCHEMATIC ONLY; COMMON & NO. 10000 ASSEMBLY NOTES AND BOM NOT FINAL
PAGE DETAIL: FMC 1635X32 GBK03 MEMORIES; FMC CMD BUS PULS; FMC CLK TERMS

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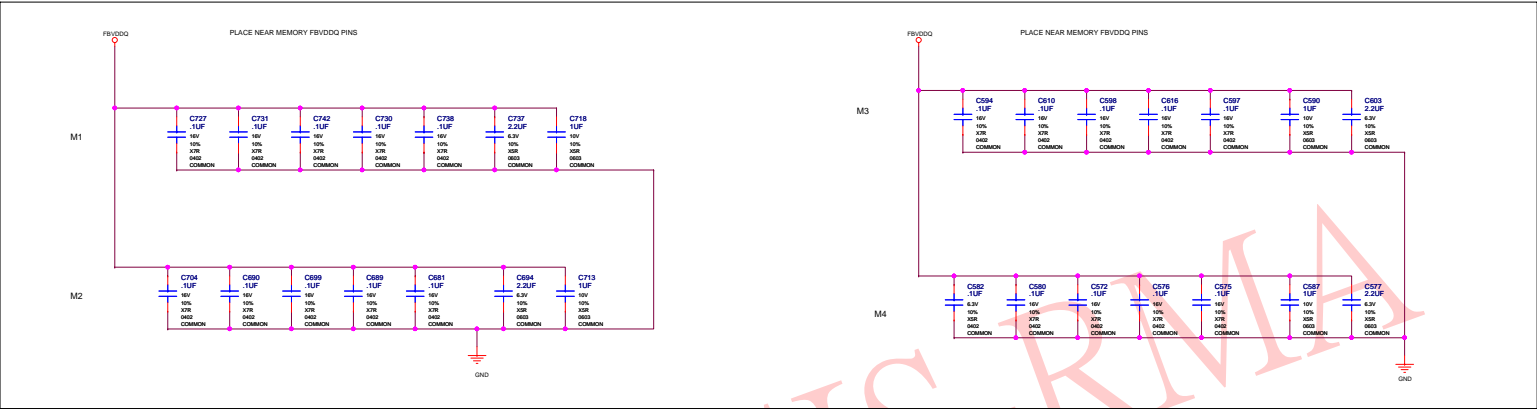
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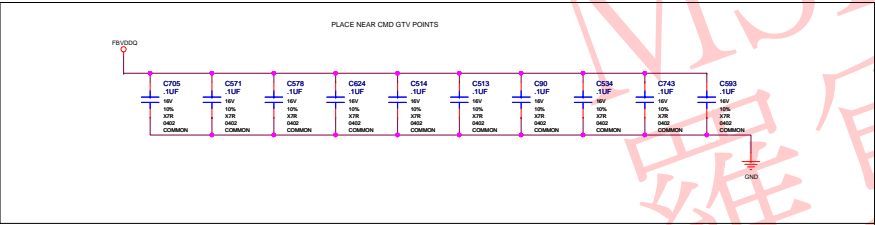
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FRAMEBUFFER: PARTITION C DECOUPLING

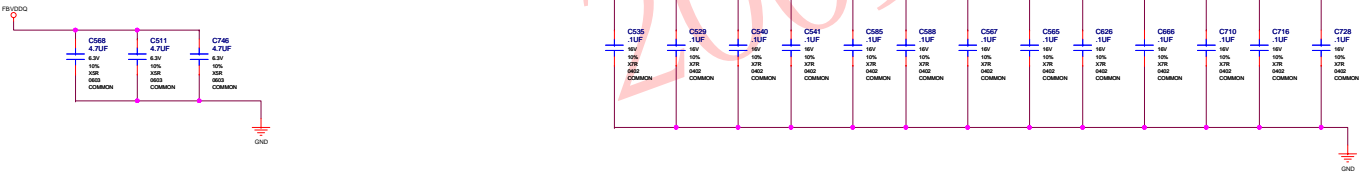
Decoupling for FBC



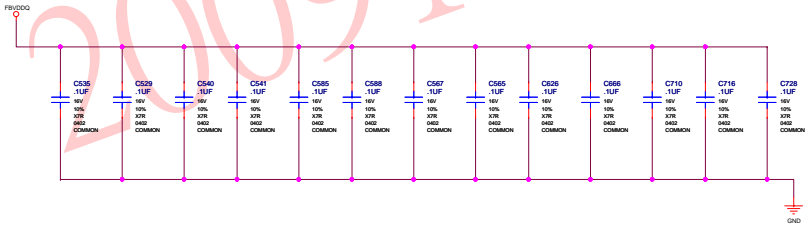
Return path coupling GND/FBVDDQ



Capacitors bounding the FB area
on each side and in middle



Return path coupling GND/FBVDDQ for FBA/FBC

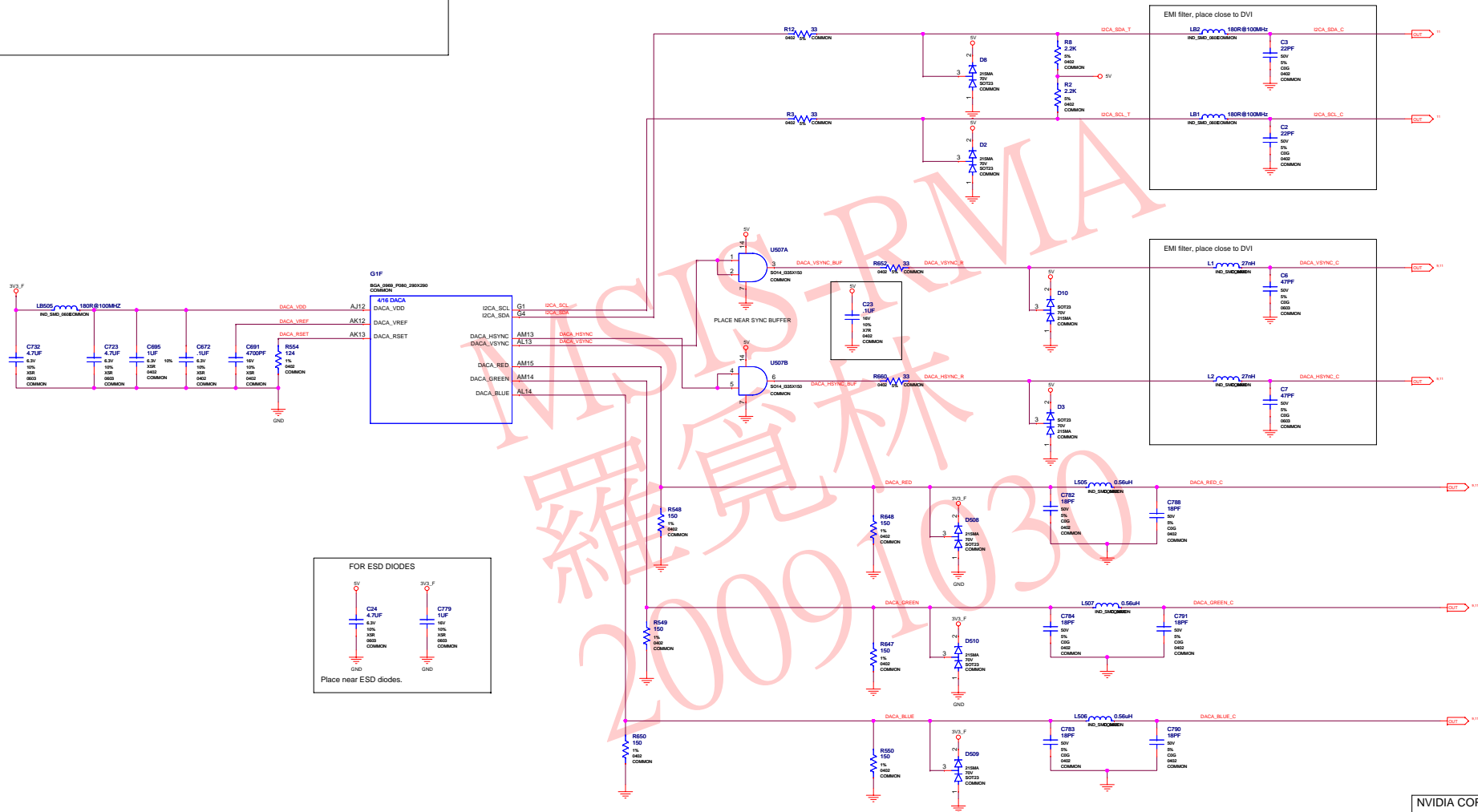


G1E		
BGA_0068_P000_200200		
COMMON		
	pin	pin
AA11	GND	E15
AA12	GND	E16
AA13	GND	E17
AA14	GND	E18
AA15	GND	E19
AA16	GND	E20
AA17	GND	E21
AA18	GND	E22
AA19	GND	E23
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AA28	GND	E32
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AA470	GND	E474
AA471	GND	E475
AA472	GND	E476

	NET_NAME	NV_CRITICAL_NET	IMPEDANCE	MIN_LINE_WIDTH
1	DACA_VDD			3.2V
2	DACA_VREF			120M
3	DACA_RSET			120M
4	DACA_RED	1	50OHM	
5	DACA_GREEN	1	50OHM	
6	DACA_BLUE	1	50OHM	
7	DACA_RED_C	1	50OHM	
8	DACA_GREEN_C	1	50OHM	
9	DACA_BLUE_C	1	50OHM	
10	DACA_HYSTC	2	50OHM	
11	DACA_HYSTC	2	50OHM	
12	DACA_HYSTC	2	50OHM	
13	DACA_HYSTC_BUF	2	50OHM	
14	DACA_HYSTC_BUF	2	50OHM	
15	DACA_HYSTC_BUF	2	50OHM	
16	DACA_HYSTC_C	2	50OHM	
17	DACA_HYSTC_C	2	50OHM	

Primary Display (DACA), DVI-I

DACA RGB-FILTER



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PAGE DETAIL	DACA (PRIMARY DVI-I)

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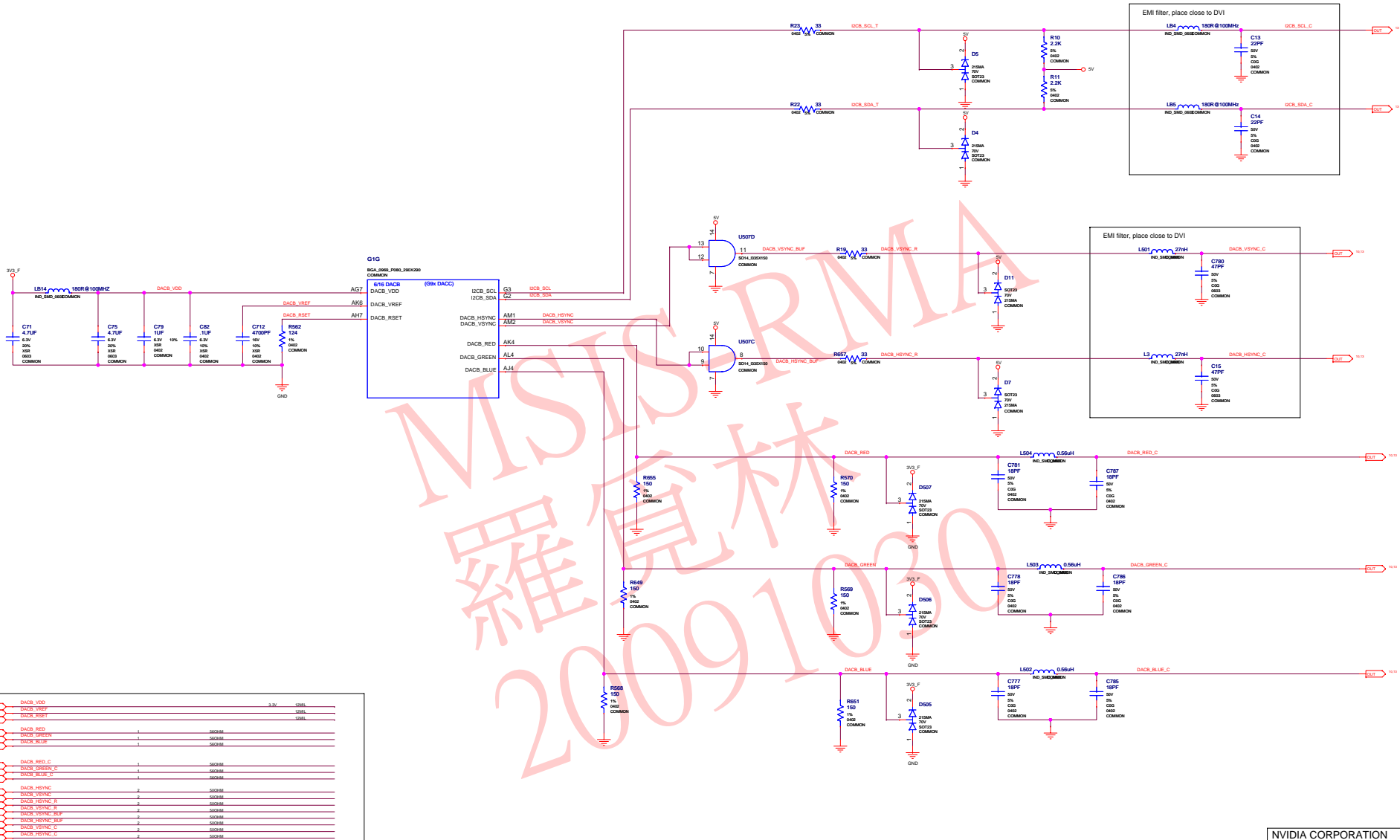
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DACB, SECONDARY VGA

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PAGE DETAIL	DACB, SECONDARY DVI-I

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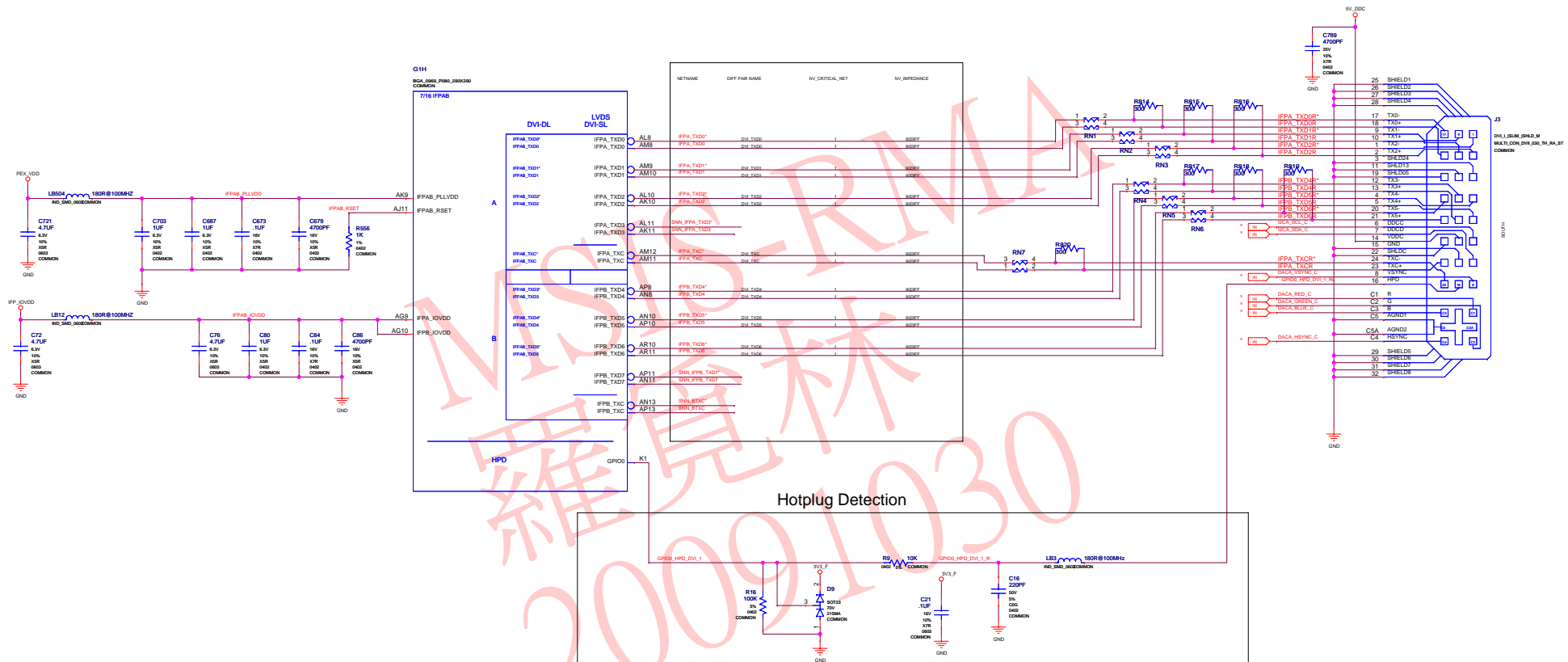
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TMDS LINK A/B: DVI-I DUALLINK, SOUTH



	NETNAME	MIN_LINE_WIDTH	VOLTAGE
52	FPAS_PLLVDD	120MIL	1.00V
53	FPAS_IOVDD	120MIL	3.3V
54	FPAS_RSET	120MIL	

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ASSEMBLY	BASE LEVEL GENERIC SCHEMATIC ONLY, COMMON & NO_STUFF ASSEMBLY NOTES AND BOM NOT FINAL
PAGE DETAIL	TMDS LINK A/B: DVI-I (SOUTH)

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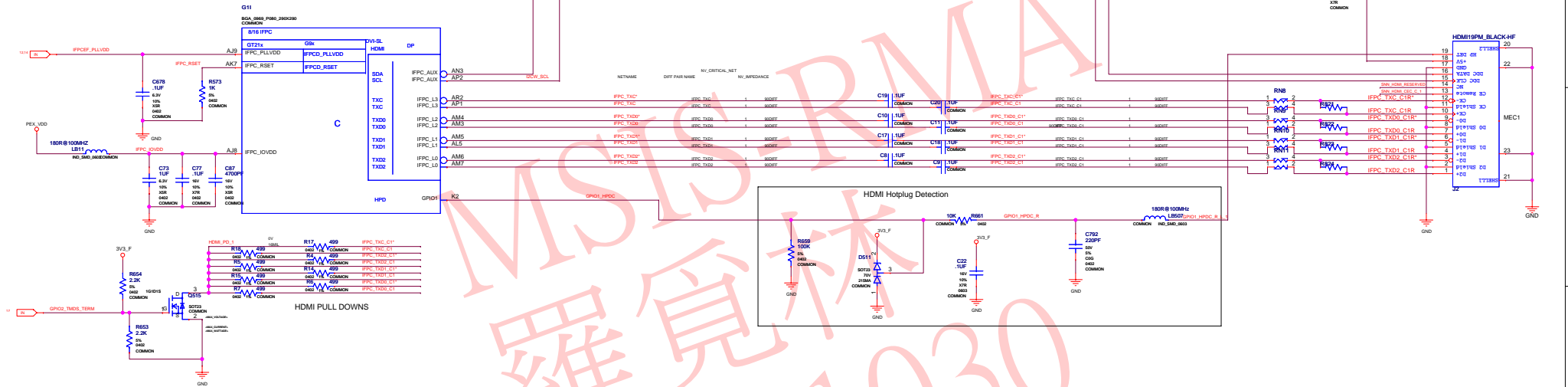
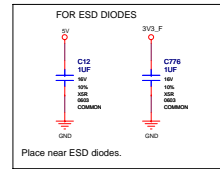
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ID		PAGE	
NAME		DATE	15-MAY-2009

LINK C: HDMI
HDMI (NORTH)



NET	MIN_LINE_WIDTH	VOLTAGE	NV_NET_MAX_CURRENT
121) IPFCF_PLLVDD	53MIL	1.8V	0.5A
IPFCF_I0VDD	53MIL	1.1V	0.5A
IPFCF_RSET	53MIL		

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PAGE DETAIL	LINK C: HDMI (NORTH)

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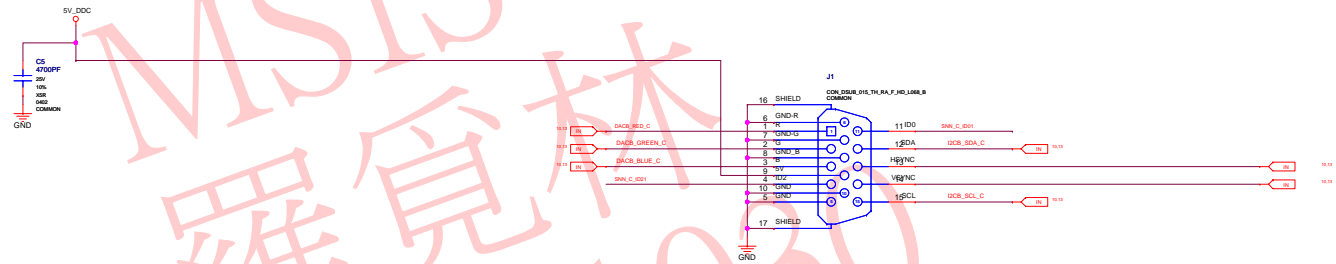
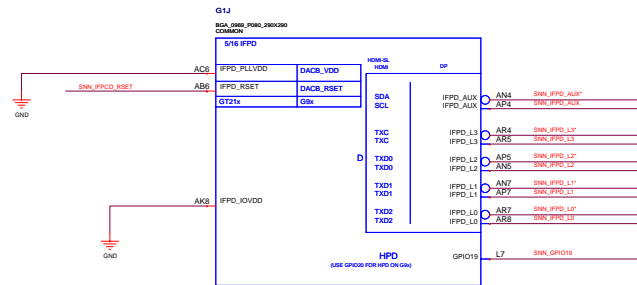


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DATE	15-MAY-2009
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LINK D (UNUSED) DISPLAYPORT, MID



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PAGE DETAIL	LINK D: DISPLAYPORT (MID)

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PAGE DETAIL	LINK E/F: DVI-1 (MID)

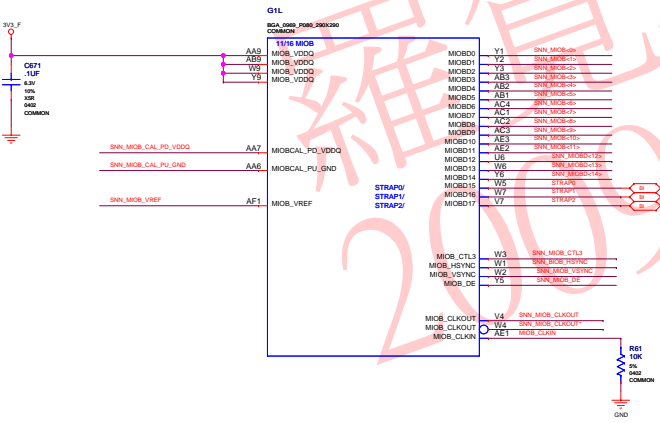
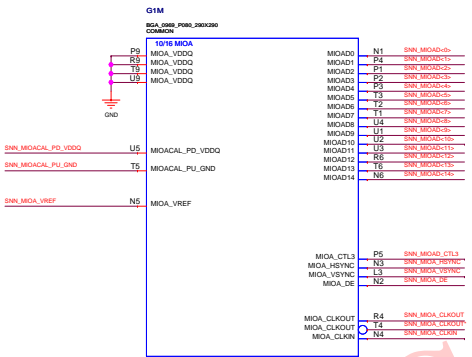
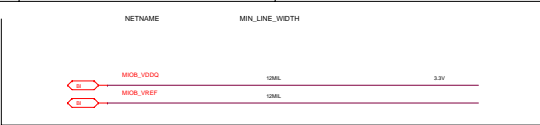
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ID	PAGE
NAME	DATE 15-MAY-2009

MIOA/B SLI

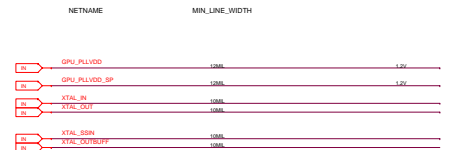
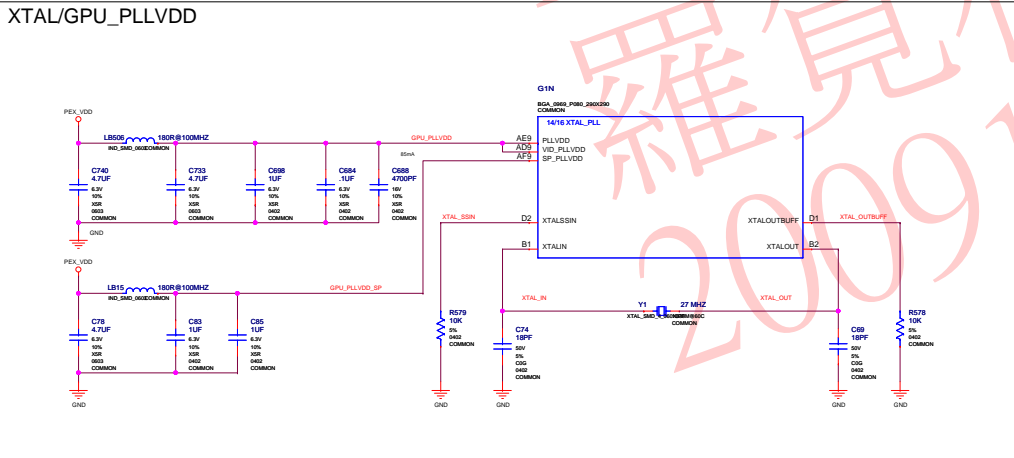


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MECHANICALS & THERMALS



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GPIO & JTAG

THERMAL SENSOR

I2C: 0x98H

OVERTEMP LATCH

NETNAME	MIN_LINE_WIDTH	VOLTAGE
THERM_DC	10MIL	
THERM_DC_B	10MIL	
THERM_DC_R	10MIL	
GPIO_FAN_PWM_ALERT	8MIL	
GPIO_FAN_PWM_B	8MIL	
GPIO_FAN_PWM_Q.L	8MIL	
GPIO_FAN_PWM_Q.R	8MIL	
GPIO_FAN_PWM_ALERT_B	8MIL	
GPIO_FAN_PWM_B	8MIL	

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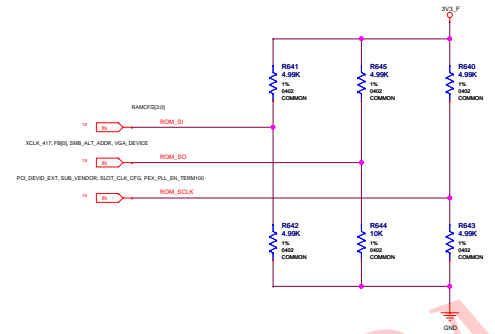
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NAME	DATE 15-MAY-2009

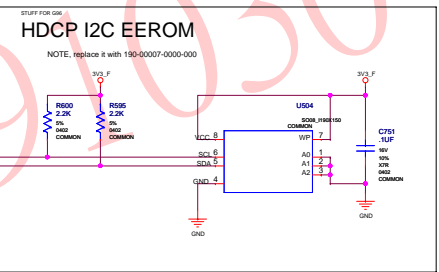
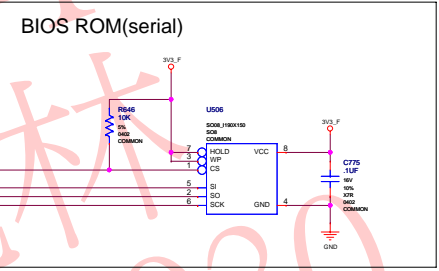
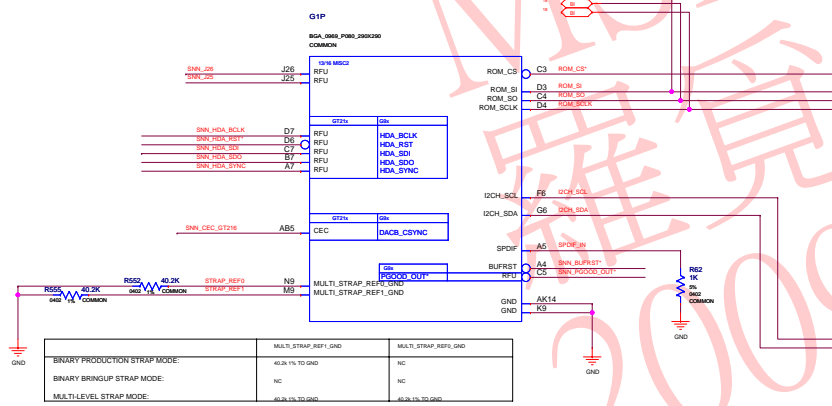
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PAGE DETAIL	EXTERNAL THERMAL SENSOR, FAN CONTROL, GPIO, JTAG



Strap0	USER3[3:0]	END0_1111	45x PU
Strap1	32G0_PASCTQ2[3:0]	DESKTOP_0000	5x PD
Strap2	PCI_DEVSEL[0]	0210-200-0A37-0001	10x PD
ROM_S1	RAMFQID[0]	0001 128M 64Mx16 DQSR2 Samsung 0010 128M 64Mx16 DQSR2 Gmenda 0011 128M 64Mx16 DQSR2 Hynix	1031 64M 64Mx16 DQSR2 Samsung 1010 64M 64Mx16 DQSR2 Gmenda 1011 64M 64Mx16 DQSR2 Hynix
ROM_S2LK	PCI_DEVSEL_EXT	0101 128M 32Mx16 DQSR2 Samsung 0110 128M 32Mx16 DQSR2 Gmenda 0111 128M 32Mx16 DQSR2 Hynix	1101 64M 32Mx16 DQSR2 Samsung 1110 64M 32Mx16 DQSR2 Gmenda 1111 64M 32Mx16 DQSR2 Hynix
ROM_S3LK	3. PCI_DEVSEL_EXT 2. SUB_VENDOR (1 = BIOS non present) 1. SLOT_CLK_STS (1 = controller on MCH/SGPU) 0. PEK_PUL_EN_TERM (1 = disable pull term)	0110	35x PD
ROM_S0	3. ALK_417 (1 = FOR 277Mx4) 2. FB_0, BAF_052 (1 = FOR 258Mx4) 1. DMR_A7, ADDR (A0A0, 1 = nVidiaG70) 0. VGA_DEVICE (1=3rd device, 1=FOR VGA device)	0001	5x PD

0 PD 5k	8 PU 5k
1 PD 10k	9 PU 10k
2 PD 15k	10 PU 15k
3 PD 20k	11 PU 20k
4 PD 25k	12 PU 25k
5 PD 30k	13 PU 30k
6 PD 35k	14 PU 35k
7 PD 45k	15 PU 45k

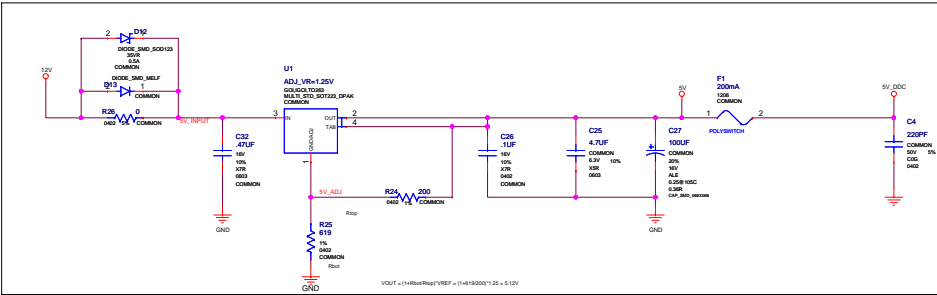


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NAME		DATE	15-MAY-2009

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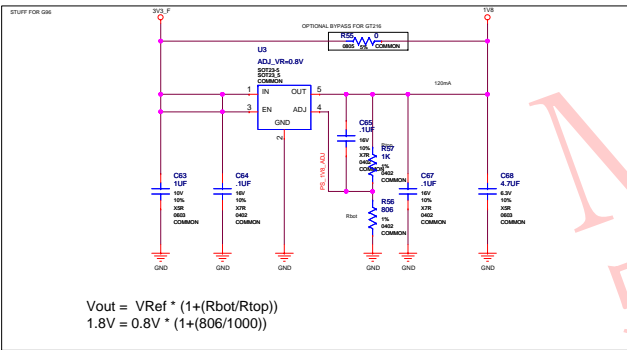
Power Supply: 5V, 5V_DDC, 1V8, EXT PWR

5V REGULATOR

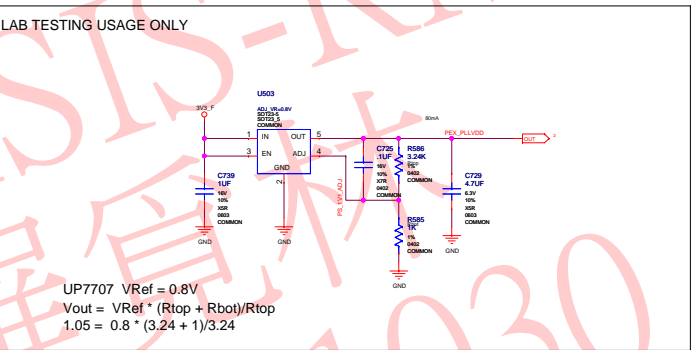


5V DDC

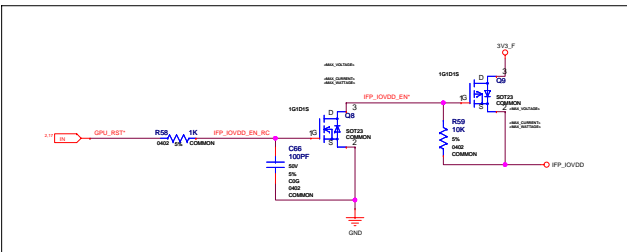
IFP PLL Supply 1.8V



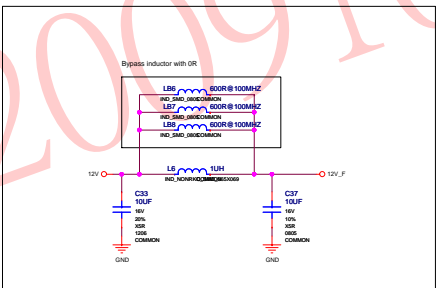
PEX PLLVDD optional Supply



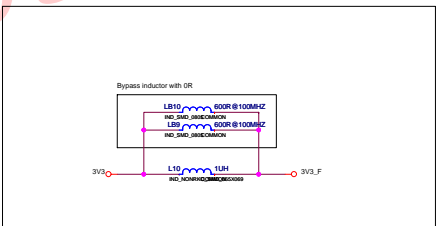
IFP_IOVDD BACKDRIVE PREVENTION



12V filter



3.3V filter

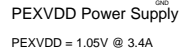


NETNAME	MAX_CURRENT	MIN_LINE_WIDTH	VOLTAGE
5V_FUSED	0.5A	120ML	5V
5V_DDC	0.5A	120ML	5V
5V_DDC	0.5A	120ML	5V
5V	0.5A	120ML	5V
PEX_1V8_ADJ	0.5A	120ML	1.8V
1V8	0.5A	120ML	1.8V
GND		120ML	5V
3V3_F	0.5A	120ML	3.3V
IFP_IOVDD	0.5A	120ML	3.3V
12V_F	0.5A	120ML	12V

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ID	PAGE
NAME	DATE
	15-MAY-2009

FBVDDQ: 1.8-2.0V @ 12.7A

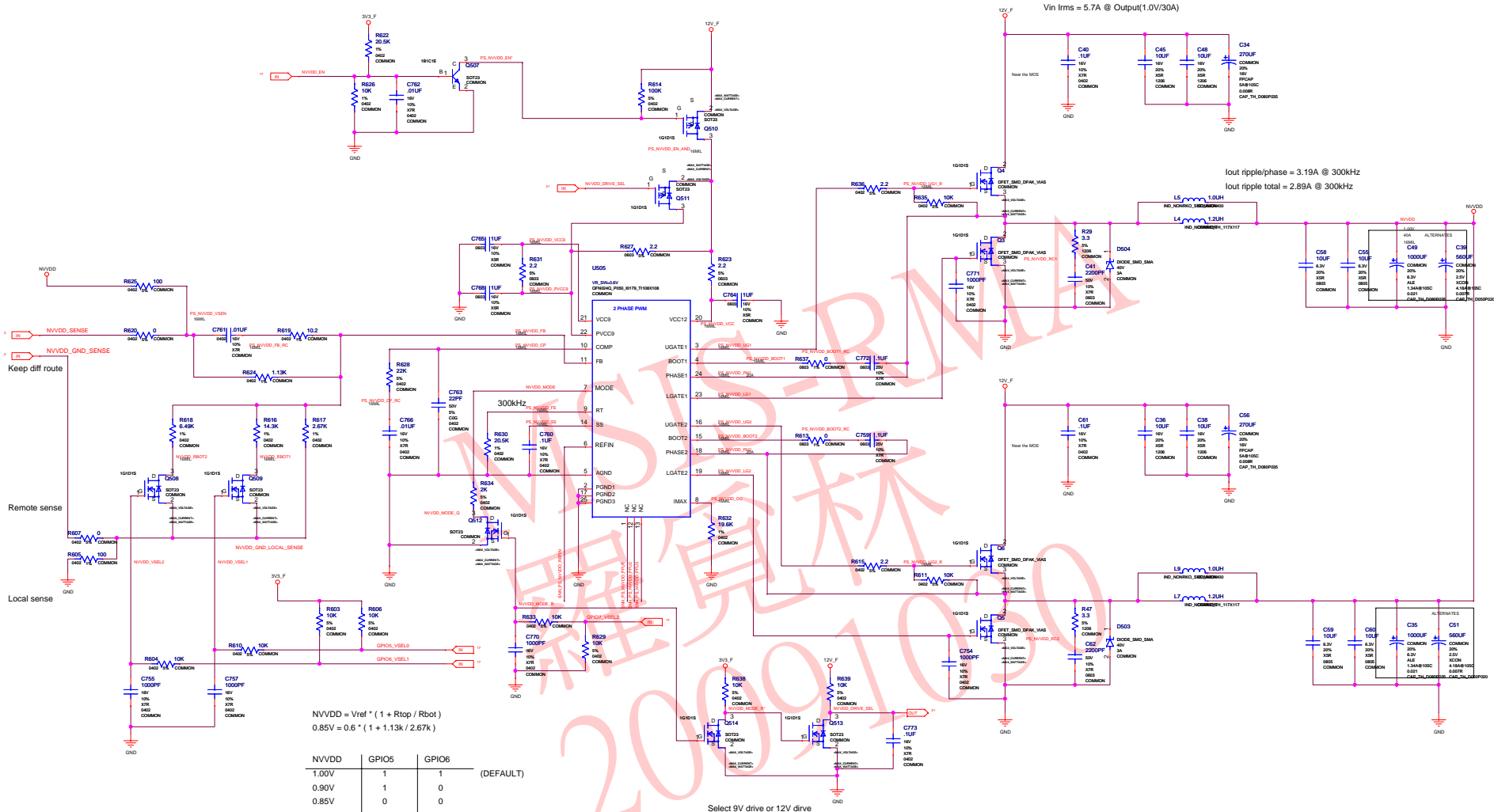
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ASSEMBLY	BASE LEVEL GENERIC SCHEMATIC ONLY, COMMON & NO_STUFF ASSEMBLY NOTES AND BOM NOT FINAL
PAGE DETAIL	POWER SUPPLY: FBVDDQ SINGLE PHASE SWITCHER, PEX_VDD LINEAR

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ID		PAGE	
NAME		DATE	15-MAY-2009

POWER SUPPLY: NVDD



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ASSEMBLY	BASE LEVEL GENERIC SCHEMATIC ONLY; COMMON & NO. 101/PC ASSEMBLY NOTES AND BOM NOT FINAL
PAGE DETAIL	POWER SUPPLY: NVDD DUAL PHASE SWITCHER

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