

P681-A01 GT215/216 DESKTOP GB1-128 DDR3
PCI-EXPRESSx16 DL-DVI VGA HDMI

Ver. 0A

Ver. 10

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Page 21: NVVDD POWER SUPPLY

05/07

Page 01 1.Remove C690,C70 47uF

Page 10 1.Remove J1 D-Sub

Page 11 1.Remove R16,Q2

Page 12 1.Remove R1,Q1

Page 16 1.Change Crystal Footprint to 2-PIN SMD

2.Remove C71 47uF

05/08

Page 17 1.Remove Thermal Sensor Circuit

Page 18 1.Remove U2,C54,R31,R30,D16 INFOROM circuit

Page 19 1.Remove 3V3 to 1.8V circuit

2.Change 5V REGULATOR Circuit

Page 20 1.Change L8 Footprint to 1.6uH

2.Change Footprint to multi cap for EL 1500uF

Page 21 1.Change NVVDD to UP6161

2.Change L12 footprint to 1.2uH

05/10

Page 05 1. Remove Decoupling for EMI cap

Page 20 1. C84 change Footprint to multi cap

05/11

Page 21 1.Add C39 270uF

2.Add R922,R924 for APW7068 OCSET

Page 16 1.Add XTALIN R566 Resister

Add XTALOUT R573 Resister

Page 02 1.Change C51 to 0805 1UF and ADD C54 0805 1UF

Page 03 1.C642,C666,C633 change to .01UF

Page 05 1.Remove C516,C525,C549,C556,C541,C512

Remove C513,C546,C540,C528,C547,C507

Remove C544,C545,C520,C523,C532,C508

Remove C535,C526,C543,C553,C537,C88

Page 08 1.Remove C566,C567,C576,C578,C82,C564

Remove C619,C592,C586,C585,C622,C574

Remove C705,C706,C680,C729,C691,C683

Remove C742,C738,C731,C725,C743,C728

Page 20 1.Remove C86,C562,C563,C87

05/12

Page 17 1.Remove 4-PIN FAN Circuit

Page 12 1.Change Q509 to Q513,Q514 SOT23 footprint

Page 16 1.Change FAN Screw hole

Page 20 1.Add C102 820uF

05/14

Page 21 1.Remove D94 scottky diode

05/19

Page 11 1.Add EMI bridge

Page 12 2.Add EMI bridge

05/21

Page 03 1.Add RP24 termination risister

Page 06 2.Add RP23 termination risister

05/26

SWAP CMD

Page 03/06 RP5.1 · RP5.2 FBC_CMD10 · RP5.3 · RP5.4 FBC_CMD22

RP4.1 · RP4.2 FBC_CMD18 · RP4.3 · RP4.4 FBC_CMD7

RP24.1, RP24.2 FBA_CMD30, RP24.3, RP24.4 FBA_CMD7

RP20.1, RP20.2 FBA_CMD14, RP20.3, RP20.4 FBA_CMD18

RP14.1, RP14.2 FBA_CMD1, RP14.3, RP14.4 FBA_CMD20

RP12.3, RP12.4 FBA_CMD29

05/27

Page 05 1. Add Decoupling for EMI cap C80,C524,C517,C102

07/31

Page 02 1.Remove JTAG Circuit

Page 09 1.Remove EMI filter,protection diode,C780,C775,C779

Page 10 1.Remove EMI filter,protection diode,C771,C772,C773

Page 12 1.IFP_PLLVDD change netname to 3V3

Page 15 1.Remove R545,C664,R554 of MIOA

Page 17 1.Remove JTAG Circuit

2.Remove FAN PWM Circuit

Page 18 1.Remove HDCP EEROM

Page 19 1.Remove U4 UP7703 Circuit

2.Change 5V Circuit SOT223-->SOT252

Page 20 1.Remove C86,C105,C90

2.Add R917 LMOS Gate risister

3.Add L10

4.Add L9,LB23,LB24

5.Add EL 680UF FootPrint

Page 21 1.Add L13

2.Remove APW7068 OCSET

3.Add GPIO 5.6 Circuit

4.Remove C927,C931

08/04

Page 21 1.Remove C933,C30,C31,C38

2.Change C39 FootPrint for 470uF

3.NVVDD Power Sequencing and PWM power change to 12V from 12V_F

Page 20 1.Add C86,C87,R26

2.Remove C557

3.Power Sequencing and PWM power change to 12V from 12V_F

REV	VARIANT	NVPN	ASSEMBLY
0	BASE	600-10681-base-100	BASE LEVEL GENERIC SCHEMATIC ONLY, COMMON & NO. STUFF ASSEMBLY NOTES AND BOM NOT FINAL
1	SKU001	600-10681-0001-100	GT216-300 600/1500MHz 1024MB 64Mx16 BGAT100 900MHz DDR3 DVI+VGA+HDMI
2	SKU002	600-10681-0002-100	GT216-300 600/1500MHz 1024MB 64Mx16 BGAT100 1000MHz DDR3 DVI+VGA+HDMI
3	SKU011	600-10681-0011-100	GT216-300 600/1500MHz 1024MB 64Mx16 BGAT100 900MHz DDR3 DVI+VGA+HDMI
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ASSEMBLY	BASE LEVEL GENERIC SCHEMATIC ONLY, COMMON & NO. STUFF ASSEMBLY NOTES AND BOM NOT FINAL
PAGE DETAIL	P681-AST OVERVIEW

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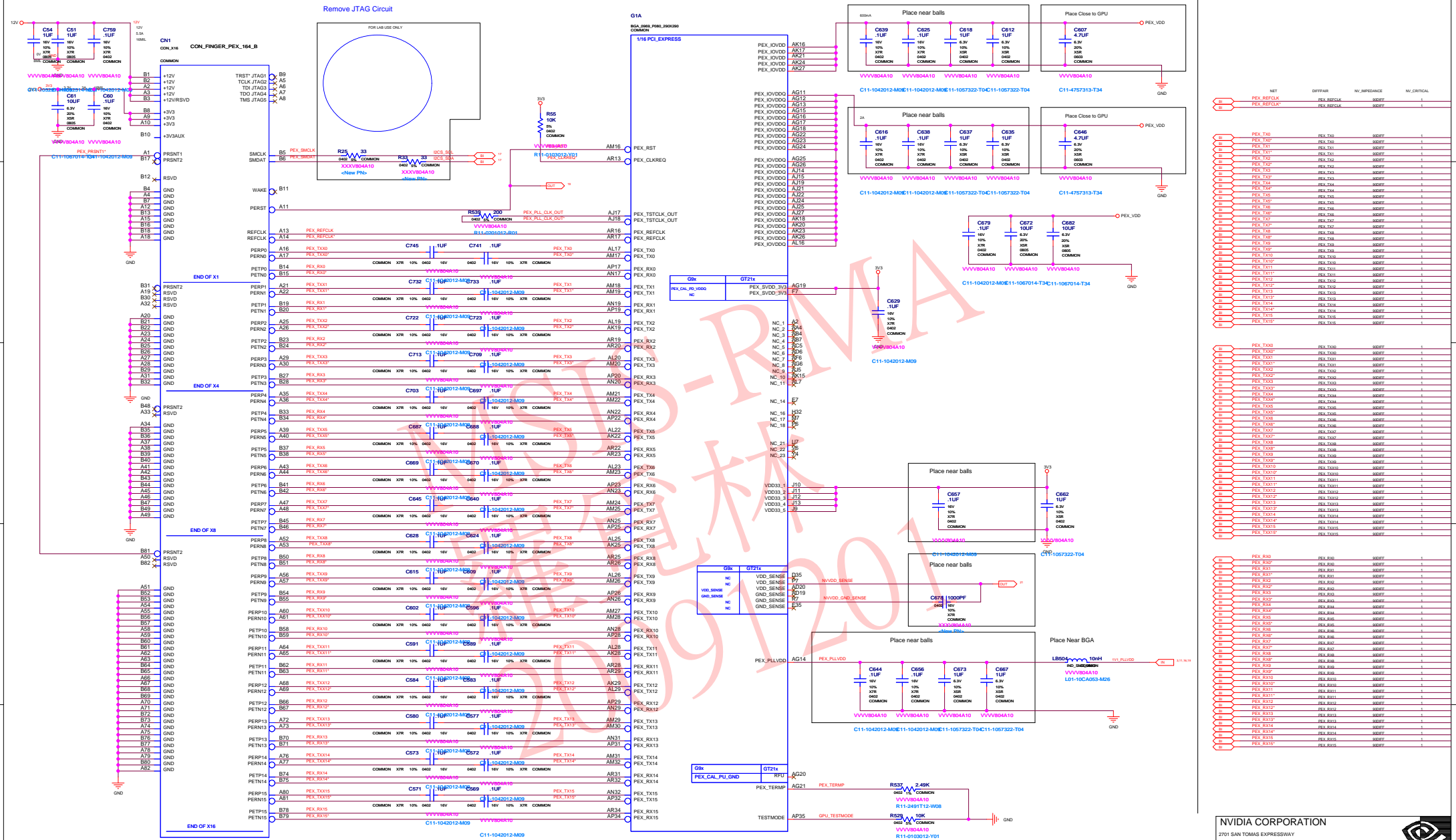
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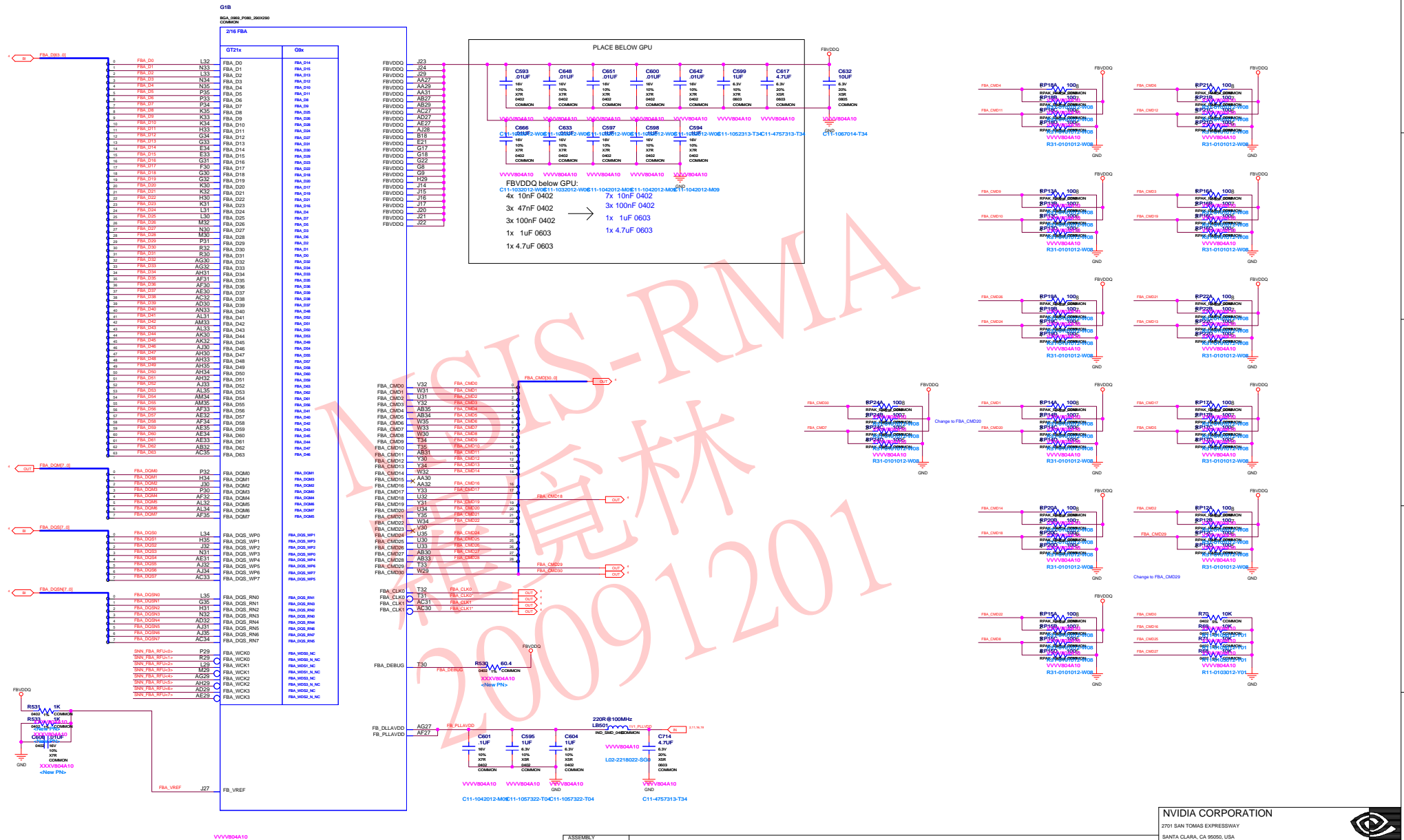
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PCI-EXPRESS INTERFACE



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PARTITION A FRAME BUFFER INTERFACE



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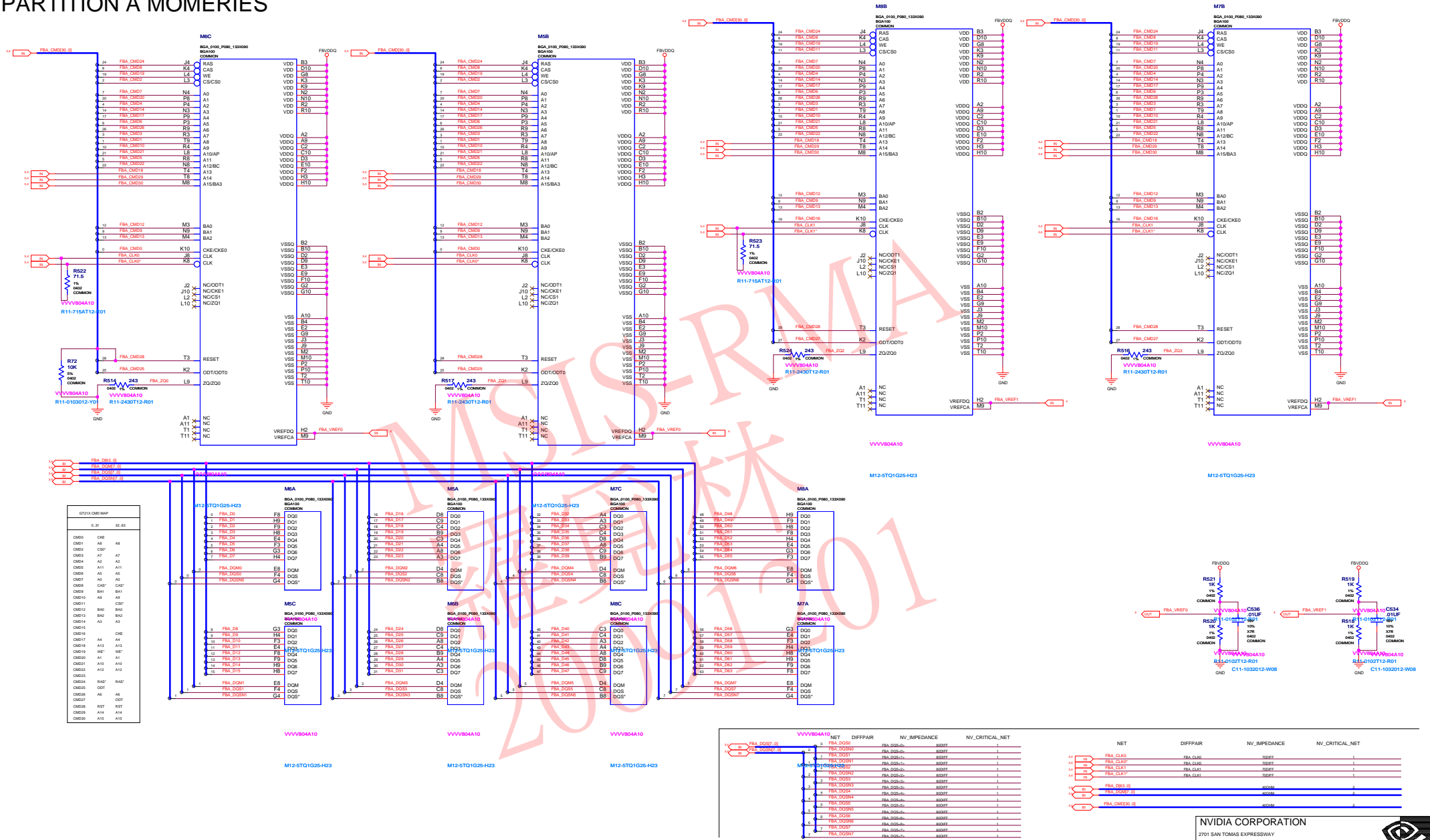
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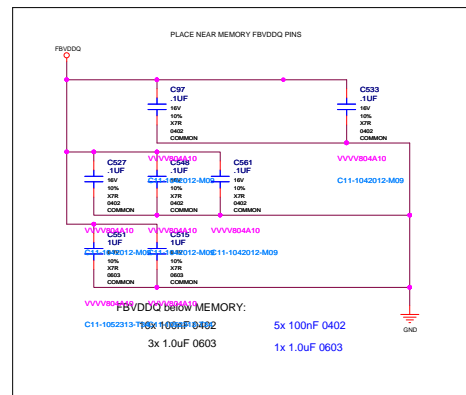
PAGE RETAIL PARTITION A MEMORIES

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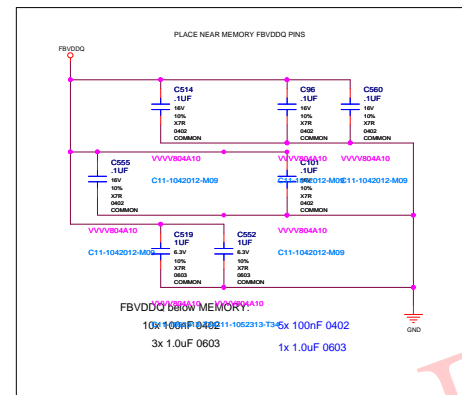
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FBA DECOUPLING CAPS & NVVDD DECOUPLING CAPS

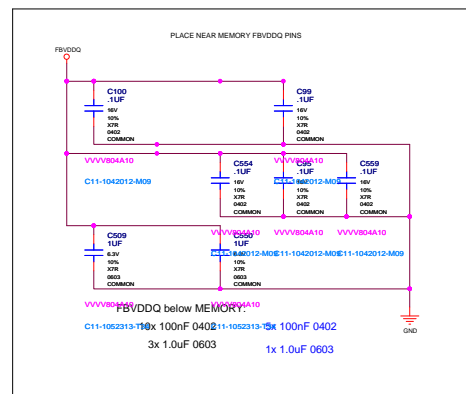
Decoupling for FBA 0..15



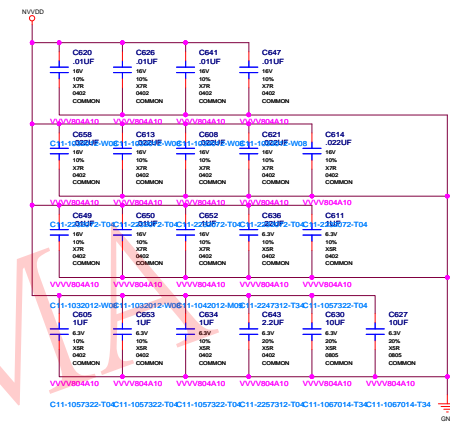
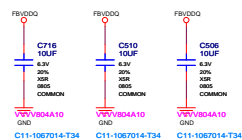
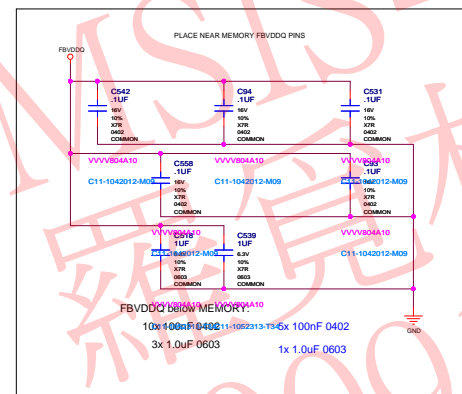
Decoupling for FBA 16..31



Decoupling for FBA 32..47



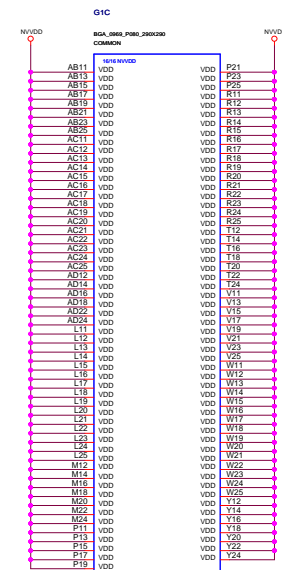
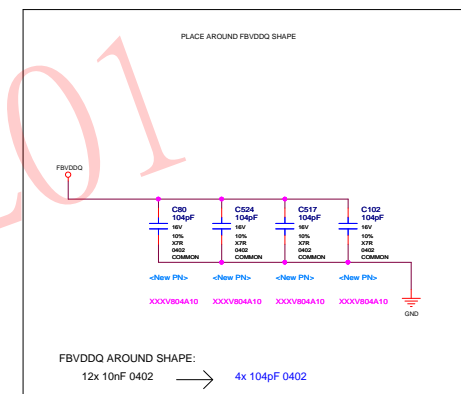
Decoupling for FBA 48..63



NVVDD under GPU:

4x 0.01uF 0402 X7R → 6x 0.01uF 0402 X7R
5x 0.022uF 0402 X7R → 0x 0.047uF 0402 X7R
2x 0.047uF 0402 X7R
1x 0.1uF 0402 X7R
1x 0.22uF 0402 X7R
4x 1.0uF 0402 X5R
1x 2.2uF 0402 X5R
2x 10uF 0805 X5R

Decoupling for EMI



VVVV80-4A10

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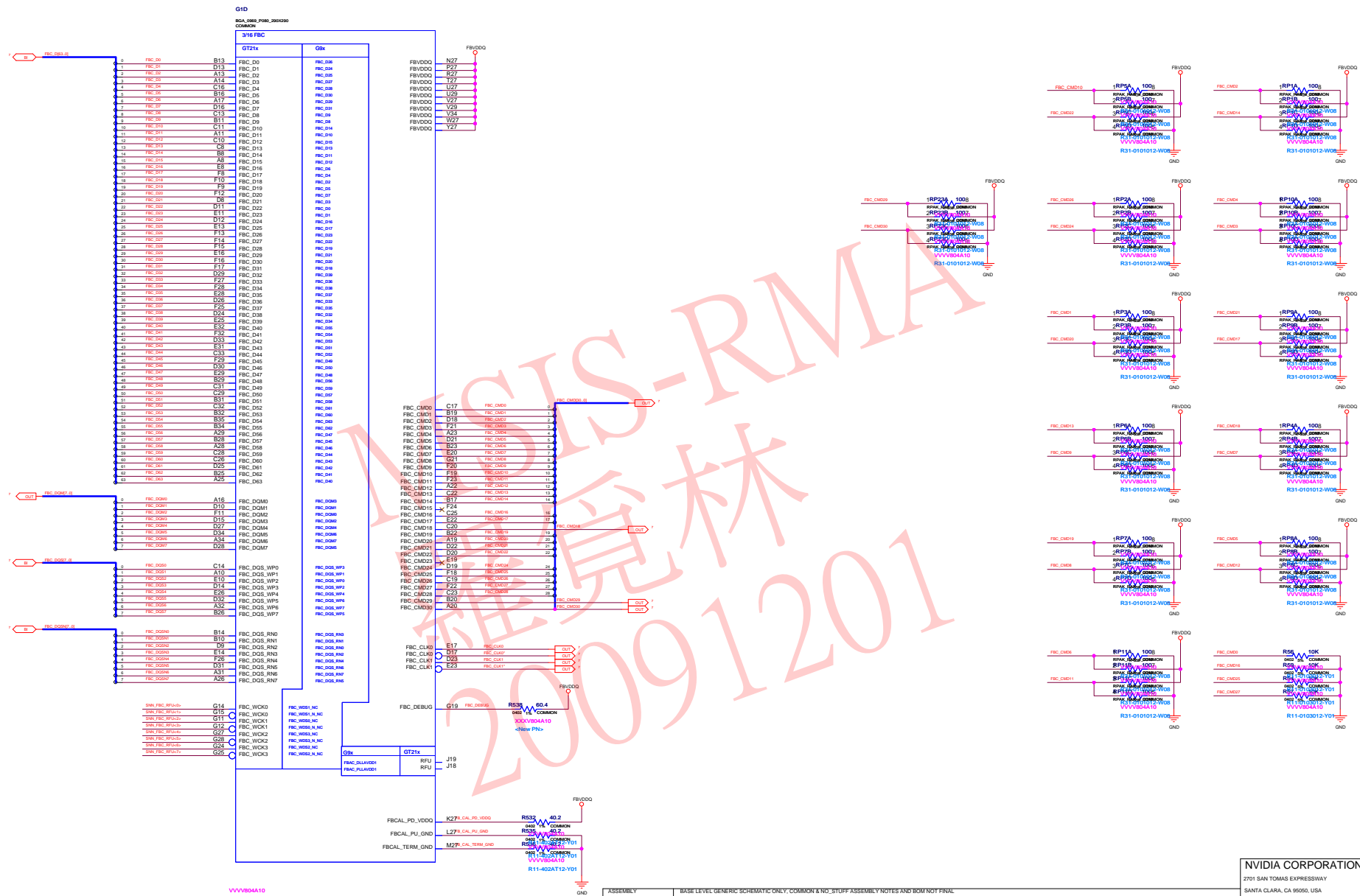
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PAGE DETAIL	FBA DECOUPLING CAPS & NVDD DECOUPLING CAPS

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PARTITION C FRAME BUFFER INTERFACE



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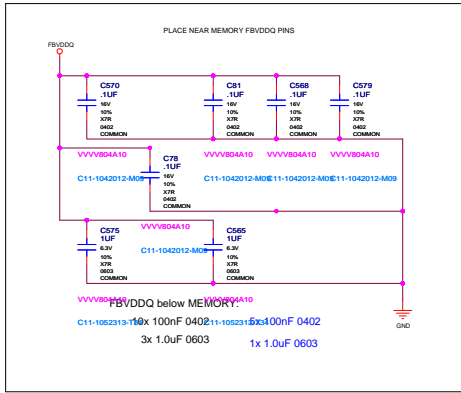
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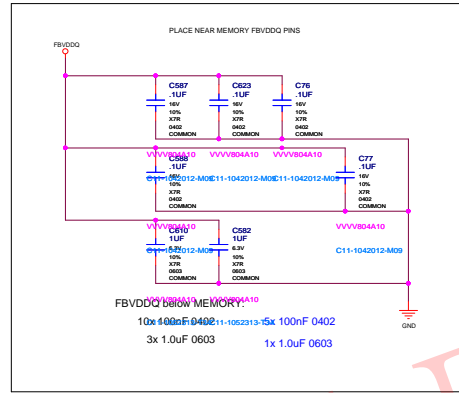
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PAGE DETAIL	PARTITION C FRAME BUFFER INTERFACE

FBC DECOUPLING CAPS & NVVDD DECOUPLING CAPS

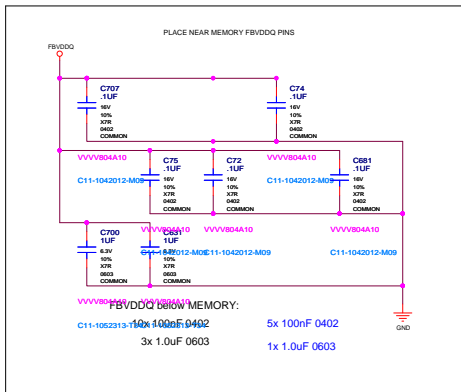
Decoupling for FBC 0..15



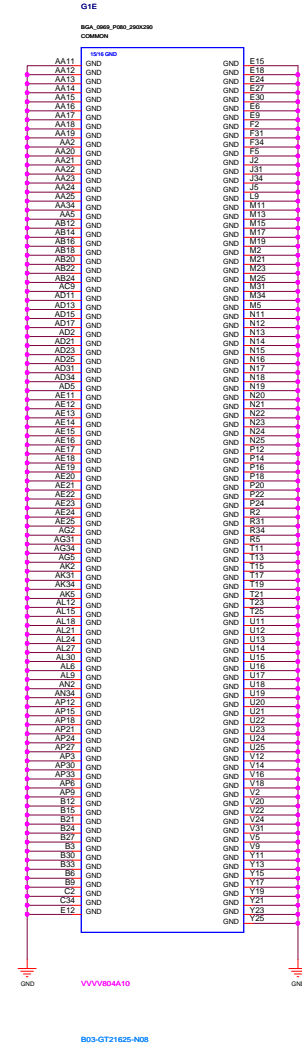
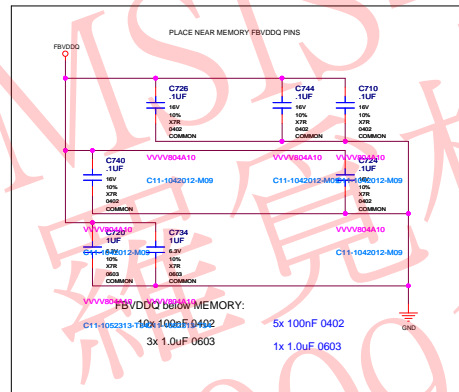
Decoupling for FBC 16..31



Decoupling for FBC 32..47



Decoupling for FBC 48..63



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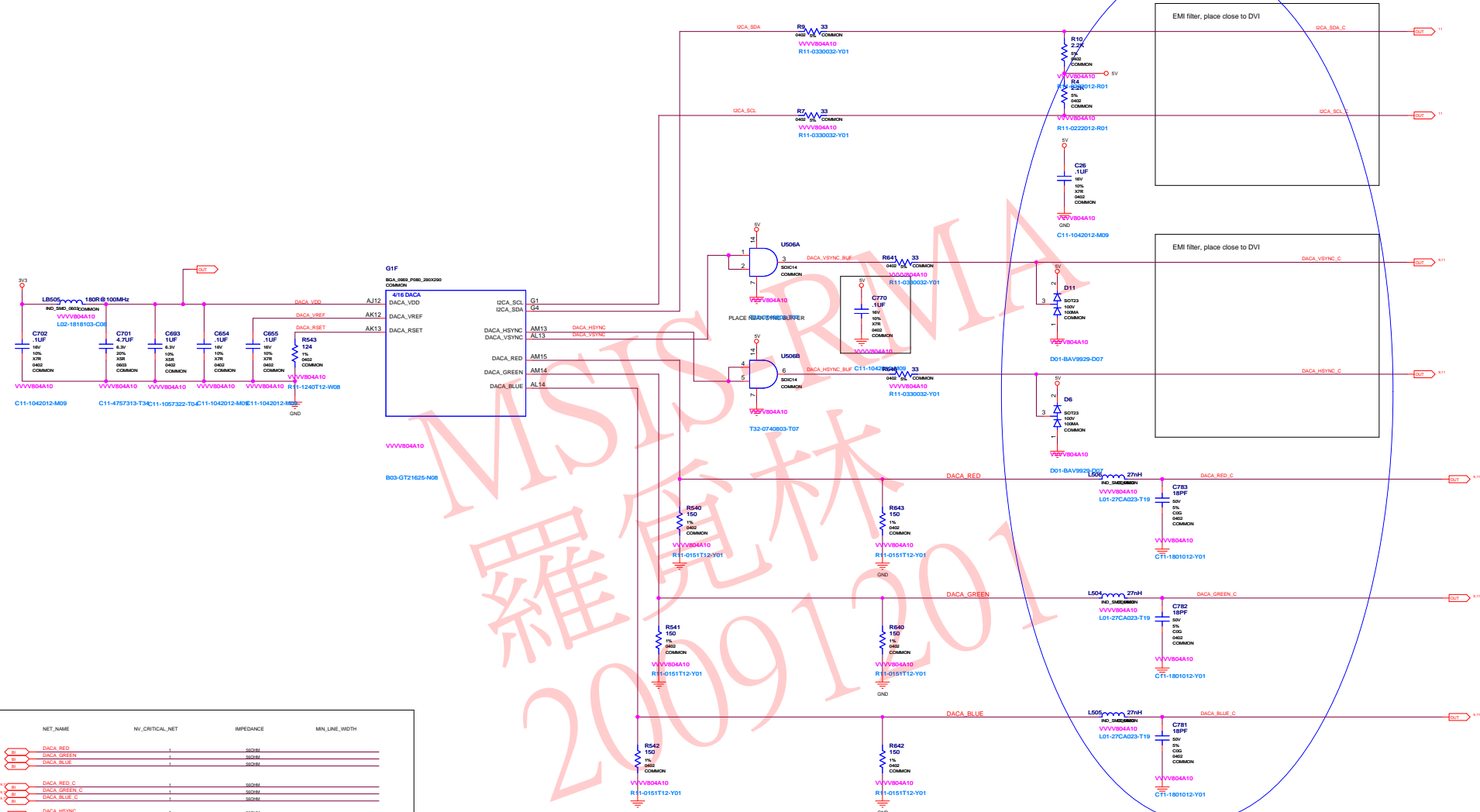
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DACA (SOUTH DVI-I)

Remove EMI filter, protection diode, C780, C775, C779



NET_NAME	NV_CRITICAL_NET	IMPEDANCE	MIN_LINE_WIDTH
DACA_RED	1	500m	
DACA_GREEN	1	500m	
DACA_BLUE	1	500m	
DACA_RED_C	1	500m	
DACA_GREEN_C	1	500m	
DACA_BLUE_C	1	500m	
DACA_HSYNC	2	500m	
DACA_VSYNC	2	500m	
DACA_VSYNC_B	2	500m	
DACA_VSYNC_R	2	500m	
DACA_VSYNC_BUF	2	500m	
DACA_VSYNC_BUF_B	2	500m	
DACA_VSYNC_BUF_R	2	500m	
DACA_VSYNC_C	2	500m	
DACA_VSYNC_C_B	2	500m	
DACA_VSYNC_C_R	2	500m	

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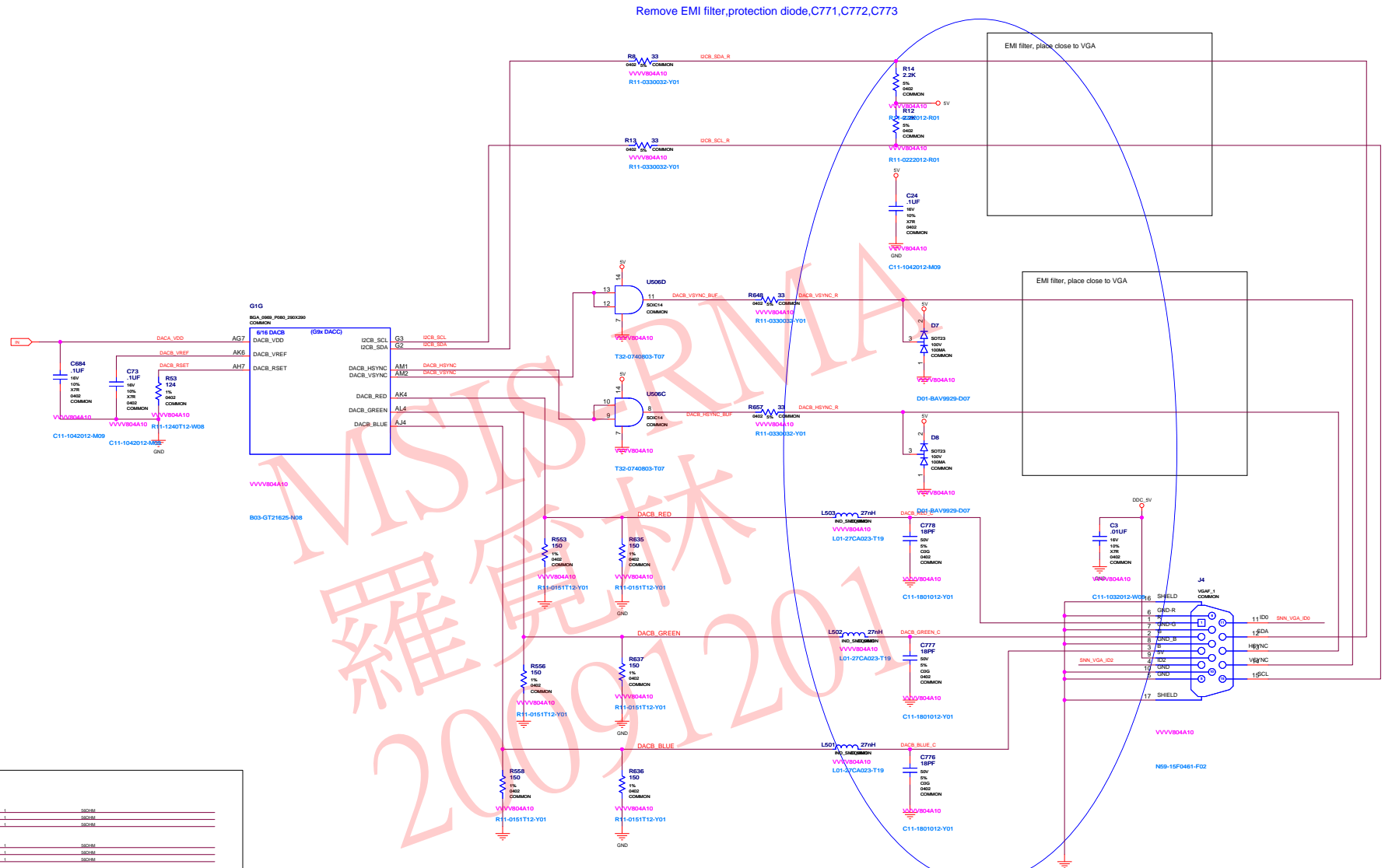
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PAGE DETAIL	DACA (SOUTH DVI-I)

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DACB (MID VGA)



B	DACB_RED	1	5020H
B	DACB_GREEN	1	5020H
B	DACB_BLUE	1	5020H
B	DACB_RED_C	1	5020H
B	DACB_GREEN_C	1	5020H
B	DACB_BLUE_C	1	5020H
B	DACB_VESTING	2	5020H
B	DACB_VESTING_A	2	5020H
B	DACB_VESTING_B	2	5020H
B	DACB_VESTING_BUF	2	5020H
B	DACB_VESTING_BUF	2	5020H
B	DACB_VESTING_C	2	5020H
B	DACB_VESTING_D	2	5020H

ASSEMBLY	BASE LEVEL GENERIC SCHEMATIC ONLY, COMMON & NO_STUFF ASSEMBLY NOTES AND BOM NOT FINAL
PAGE DETAIL	DACB (Mid VGA)

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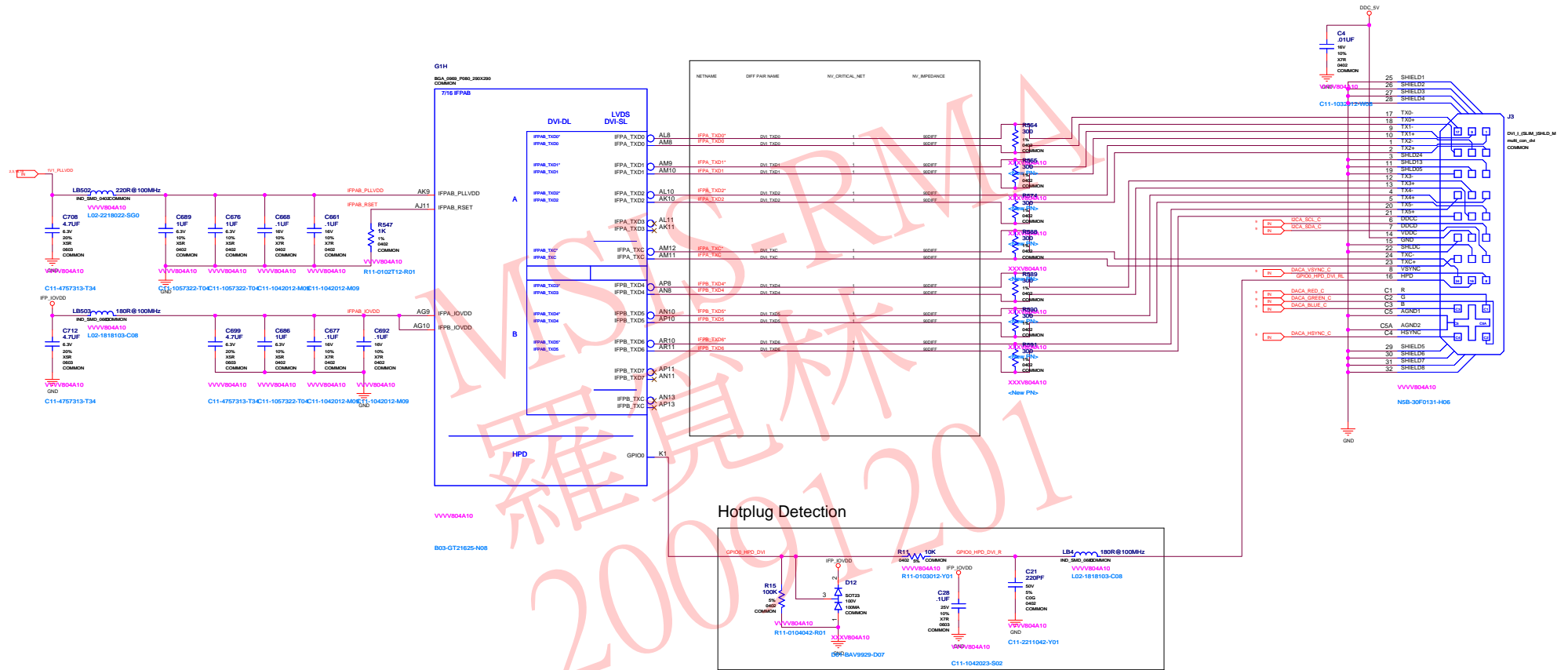


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IFP AB (SOUTH DVI-I)



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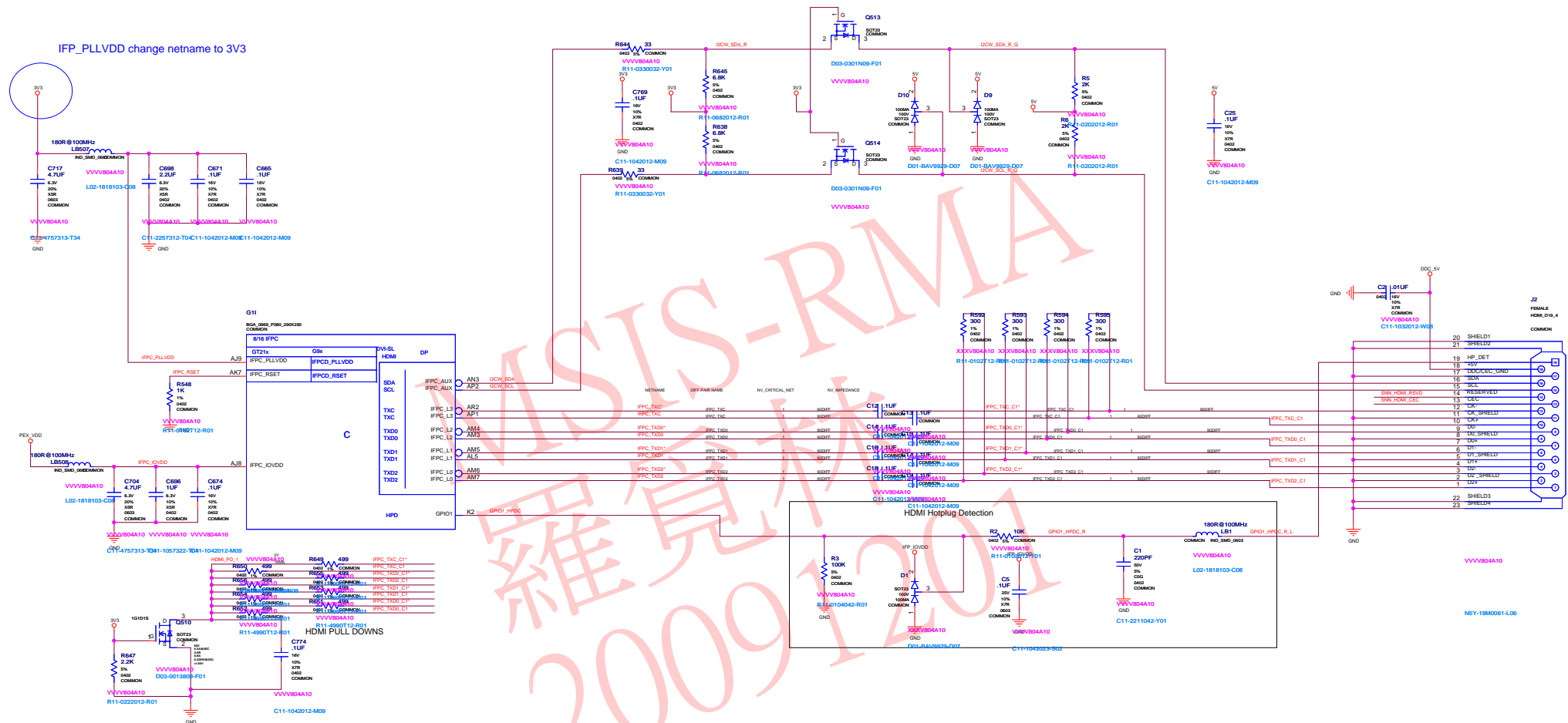


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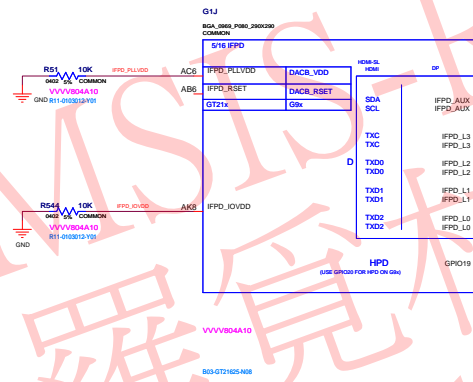
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IFP C (NORTH HDMI)



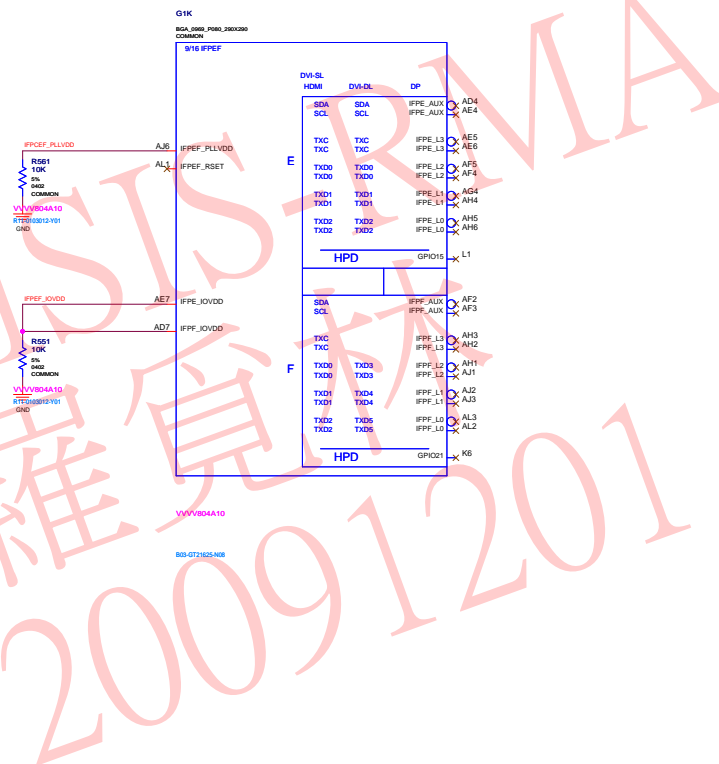
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IFP D (UNUSED)



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IFP EF (UNUSED)



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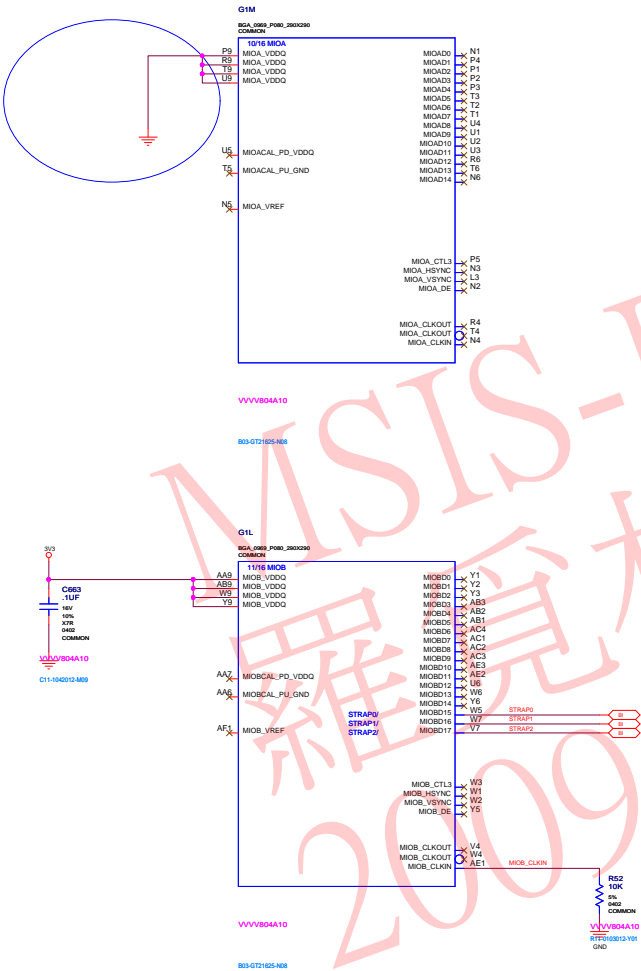
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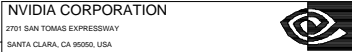
NV_PN	600-10681-base-100 A		
ID		PAGE	
NAME		DATE	05/FEB/2009

MIOA & MIOB

Remove R545,C664,R554 of MIOA



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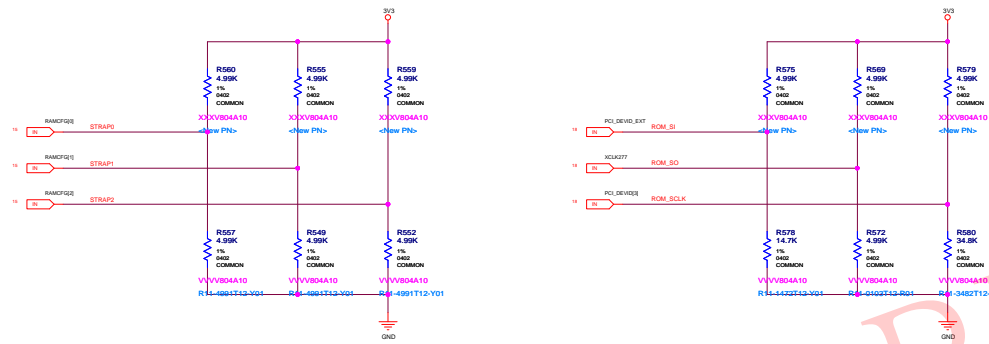


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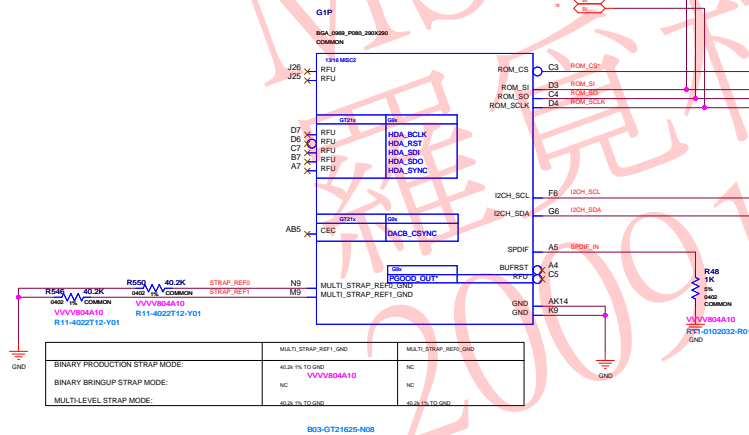
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PAGE DETAIL	MIOA & MIOB

BIOS ROM, HDCP ROM, STRAPPING OPTIONS

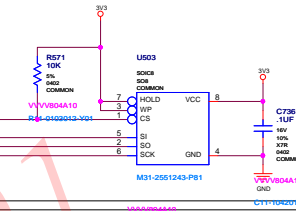
STRAPPING OPTIONS



Signal	USERREG	END: 1111	49: PD
Snarf	3640_FAC0F2QD[0]	DESKTOP: 0000	5x PD
Snaf2	PD_DEVQD[0]	GT216-300 (SMT) 0001	13x PD
ROM_SI	RMSCFQD[0]	0001 13864 6484V16 DOR3 Omrona 0003 13864 6484V16 DOR3 Inova 0011 13864 6484V16 DOR3 Samsung	1001 6484 6484V16 DOR3 Omrona 1003 6484 6484V16 DOR3 Inova 1011 6484 6484V16 DOR3 Samsung
ROM_SCLK	3: PD_DEVQD_EXT 2: SUB_VINDOR (+ BDCS with present) 1: SUBT_CLK_CPD (+ controller de MCH/MPU) 0: PEK_RLL_CLK_TERM (p+ should get term)	0110 0111 13864 13864V16 DOR3 Omrona 0112 13864 13864V16 DOR3 Inova 0113 13864 13864V16 DOR3 Samsung	1100 6484 13864V16 DOR3 Omrona 1101 6484 13864V16 DOR3 Inova 1111 6484 13864V16 DOR3 Samsung
ROM_SO	3: KUK_477 (p+ POR 277MHz) 2: PE_BAS_SDC (p+ POR 200MHz) 1: DMS_AL7_ADRS (p+POR) 0: VISA_DEVICE (SIO device, L+POR VISA device)	0001	5x PD
		0 PD 5x 1 PD 13x 2 PD 15x 3 PD 23x 4 PD 25x 5 PD 33x 6 PD 35x 7 PD 45x	8 PD 5x 9 PD 15x 10 PD 15x 11 PD 23x 12 PD 25x 13 PD 33x 14 PD 35x 15 PD 45x

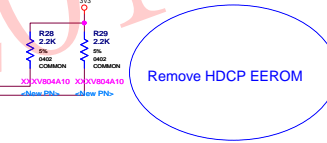


BIOS ROM(serial)



For Lab Use Only

HDCP I2C EEROM



INFORM

For Lab Use Only
I2C ADDRESS: 0XA8

ASSEMBLY	BASE LEVEL GENERIC SCHEMATIC ONLY, COMMON & NO_STUFF ASSEMBLY NOTES AND BOM NOT FINAL
PAGE DETAIL	BIOS ROM, HDCP ROM, STRAPPING OPTIONS

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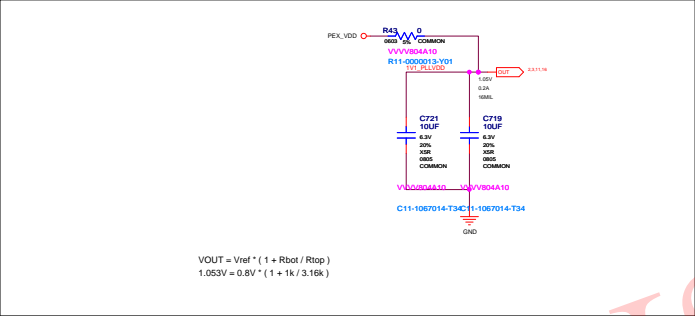


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ID		PAGE	
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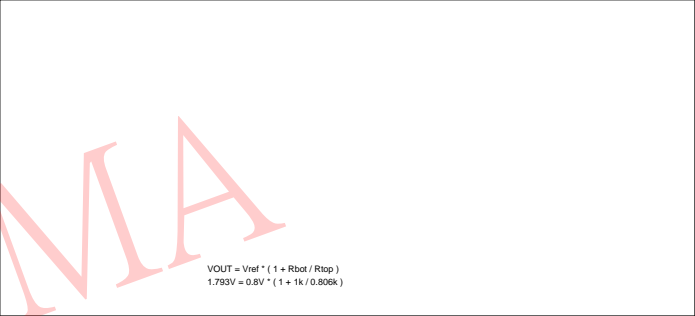
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LINEAR POWER SUPPLIES

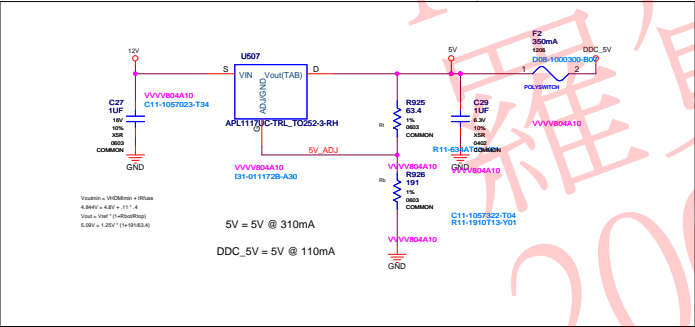
PEX_PLLVDD SUPPLY (OPTIAN)



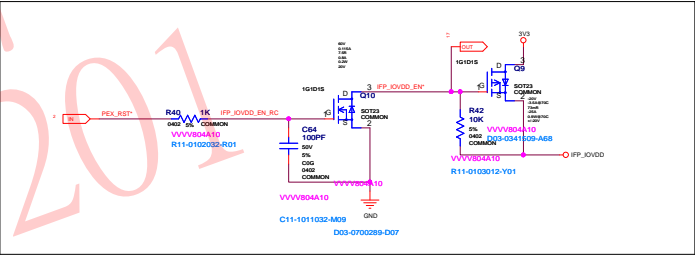
IFP_PLLVDD SUPPLY



5V & DDC_5V REGULATOR



IFP_IOVDD BACKDRIVE PREVENTION



FBVDDQ/PEXVDD POWER SUPPLY

PEXVDD = 1.05V @ 3A

$$V_{out} = V_{ref} * (1 + R_{top} / R_{bot})$$

$$1.05V = 0.8V * (1 + 1.00k / 3.16k)$$

$$FBVDDQ = V_{ref} * (1 + R_{top} / R_{bot})$$

$$1.50V = 0.8V * (1 + 1.58k / 1.82k) @ GPIO13 = 0$$

$$1.80V = 0.8V * (1 + 1.58k / 1.26k) @ GPIO13 = 1 (DEFAULT)$$

- 1.Remove C86,C105,C90
- 2.Add R917 LMOS Gate resister
- 3.Add L10
- 4.Add L9,R23,R24,R26,C86,C87,R26
- 5.Add EL 680UF FootPrint

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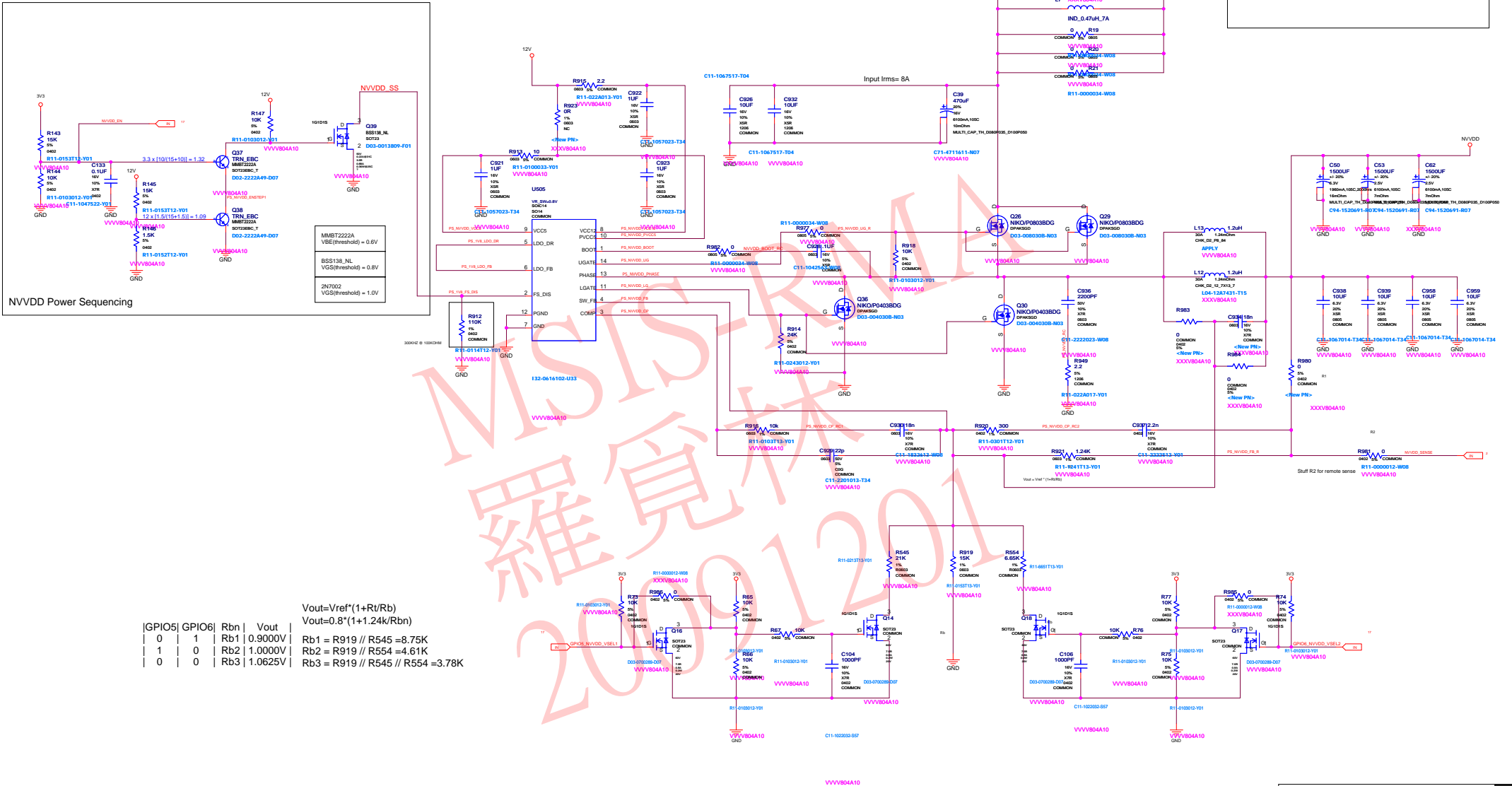
ID	PAGE
NAME	DATE 05/FEB/2009

ASSEMBLY	BASE LEVEL GENERIC SCHEMATIC ONLY; COMMON & NO_STUFF ASSEMBLY NOTES AND BOM NOT FINAL
PAGE DETAIL	FBVDDQ/PEXVDD POWER SUPPLY

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Power Supply III: NVVDD

- 1.Add L13
- 2.Remove APW7068 OCSET
- 3.Add GPIO 5,6 Circuit
- 4.Remove C927,C931,C933,C30,C38,C31
- 5.change C39 Footprint for 470uf and 270uf



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[illegible]

A		B		C		D		E		F		G		H	
Title: Cref Part		C89 [20.2F]		C962 [11.3H]		C963 [11.3H]		C963 [11.3H]		R528 [8.5G]		R529 [8.5G]		R530 [8.5G]	
Report		C90 [20.2F]		C963 [11.3H]		C963 [11.3H]		C963 [11.3H]		R531 [13.3C]		R532 [13.3C]		R533 [13.3C]	
Design: jph1		C91 [20.2H]		C964 [16.1H]		C964 [16.1H]		C964 [16.1H]		R534 [16.1H]		R535 [16.1H]		R536 [16.1H]	
Date: Jan 22		C92 [21.4G]		C965 [16.1H]		C965 [16.1H]		C965 [16.1H]		R537 [16.1H]		R538 [16.1H]		R539 [16.1H]	
13.36102 2009		C93 [20.3G]		C966 [16.1H]		C966 [16.1H]		C966 [16.1H]		R540 [16.1H]		R541 [16.1H]		R542 [16.1H]	
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		C102 [5.2G]		C975 [12.2H]		C975 [12.2H]		C975 [12.2H]		R567 [16.1H]		R568 [16.1H]		R569 [16.1H]	
		C103 [20.4F]		C976 [12.2H]		C976 [12.2H]		C976 [12.2H]		R570 [16.1H]		R571 [16.1H]		R572 [16.1H]	
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		C106 [5.5G]		C979 [12.2H]		C979 [12.2H]		C979 [12.2H]		R579 [16.1H]		R580 [16.1H]		R581 [16.1H]	
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		C124 [10.1G]		C997 [12.2H]		C997 [12.2H]		C997 [12.2H]		R634 [16.1H]		R635 [16.1H]		R636 [16.1H]	
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		C134 [20.2H]		C1007 [12.2H]		C1007 [12.2H]		C1007 [12.2H]		R664 [16.1H]		R665 [16.1H]		R666 [16.1H]	
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		C138 [20.2H]		C1011 [12.2H]		C1011 [12.2H]		C1011 [12.2H]		R676 [16.1H]		R677 [16.1H]		R678 [16.1H]	
		C139 [20.2H]		C1012 [12.2H]		C1012 [12.2H]		C1012 [12.2H]		R679 [16.1H]		R680 [16.1H]		R681 [16.1H]	
		C140 [20.2H]		C1013 [12.2H]		C1013 [12.2H]		C1013 [12.2H]		R682 [16.1H]		R683 [16.1H]		R684 [16.1H]	
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		C144 [20.2H]		C1017 [20.2G]		C1017 [20.2G]		C1017 [20.2G]		R694 [16.1H]		R695 [16.1H]		R696 [16.1H]	
		C145 [20.2G]		C1018 [20.2G]		C1018 [20.2G]		C1018 [20.2G]		R697 [16.1H]		R698 [16.1H]		R699 [16.1H]	
		C146 [17.4G]		C1019 [20.2G]		C1019 [20.2G]		C1019 [20.2G]		R700 [16.1H]		R701 [16.1H]		R702 [16.1H]	
		C147 [21.3G]		C1020 [20.2G]		C1020 [20.2G]		C1020 [20.2G]		R703 [16.1H]		R704 [16.1H]		R705 [16.1H]	
		C148 [17.4G]		C1021 [20.2G]		C1021 [20.2G]		C1021 [20.2G]		R706 [16.1H]		R707 [16.1H]		R708 [16.1H]	
		C149 [21.3G]		C1022 [20.2G]		C1022 [20.2G]		C1022 [20.2G]		R709 [16.1H]		R710 [16.1H]		R711 [16.1H]	
		C150 [21.3G]		C1023 [20.2G]		C1023 [20.2G]		C1023 [20.2G]		R712 [16.1H]		R713 [16.1H]		R714 [16.1H]	
		C151 [21.3G]		C1024 [20.2G]		C1024 [20.2G]		C1024 [20.2G]		R715 [16.1H]		R716 [16.1H]		R717 [16.1H]	
		C152 [21.3G]		C1025 [20.2G]		C1025 [20.2G]		C1025 [20.2G]		R718 [16.1H]		R719 [16.1H]		R720 [16.1H]	
		C153 [21.3G]		C1026 [20.2G]		C1026 [20.2G]		C1026 [20.2G]		R721 [16.1H]		R722 [16.1H]		R723 [16.1H]	
		C154 [21.3G]		C1027 [20.2G]		C1027 [20.2G]		C1027 [20.2G]		R724 [16.1H]		R725 [16.1H]		R726 [16.1H]	
		C155 [21.3G]		C1028 [20.2G]		C1028 [20.2G]		C1028 [20.2G]		R727 [16.1H]		R728 [16.1H]		R729 [16.1H]	
		C156 [21.3G]		C1029 [20.2G]		C1029 [20.2G]		C1029 [20.2G]		R730 [16.1H]		R731 [16.1H]		R732 [16.1H]	
		C157 [21.3G]		C1030 [20.2G]		C1030 [20.2G]		C1030 [20.2G]		R733 [16.1H]		R734 [16.1H]		R735 [16.1H]	
		C158 [21.3G]		C1031 [20.2G]		C1031 [20.2G]		C1031 [20.2G]		R736 [16.1H]		R737 [16.1H]		R738 [16.1H]	
		C159 [21.3G]		C1032 [20.2G]		C1032 [20.2G]		C1032 [20.2G]		R739 [16.1H]		R740 [16.1H]		R741 [16.1H]	
		C160 [21.3G]		C1033 [20.2G]		C1033 [20.2G]		C1033 [20.2G]		R742 [16.1H]		R743 [16.1H]		R744 [16.1H]	
		C161 [21.3G]		C1034 [20.2G]		C1034 [20.2G]		C1034 [20.2G]		R745 [16.1H]		R746 [16.1H]		R747 [16.1H]	
		C162 [21.3G]		C1035 [20.2G]		C1035 [20.2G]		C1035 [20.2G]		R748 [16.1H]		R749 [16.1H]		R750 [16.1H]	
		C163 [21.3G]		C1036 [20.2G]		C1036 [20.2G]		C1036 [20.2G]		R751 [16.1H]		R752 [16.1H]		R753 [16.1H]	
		C164 [21.3G]		C1037 [20.2G]		C1037 [20.2G]		C1037 [20.2G]		R754 [16.1H]		R755 [16.1H]		R756 [16.1H]	
		C165 [21.3G]		C1038 [20.2G]		C1038 [20.2G]		C1038 [20.2G]		R757 [16.1H]		R758 [16.1H]		R759 [16.1H]	
		C166 [21.3G]		C1039 [20.2G]		C1039 [20.2G]		C1039 [20.2G]		R760 [16.1H]		R761 [16.1H]		R762 [16.1H]	
		C167 [21.3G]		C1040 [20.2G]		C1040 [20.2G]		C1040 [20.2G]		R763 [16.1H]		R764 [16.1H]		R765 [16.1H]	
		C168 [21.3G]		C1041 [20.2G]		C1041 [20.2G]		C1041 [20.2G]		R766 [16.1H]		R767 [16.1H]		R768 [16.1H]	
		C169 [21.3G]		C1042 [20.2G]		C1042 [20.2G]		C1042 [20.2G]		R769 [16.1H]		R770 [16.1H]		R771 [16.1H]	
		C170 [21.3G]		C1043 [20.2G]		C1043 [20.2G]		C1043 [20.2G]		R772 [16.1H]		R773 [16.1H]		R774 [16.1H]	
		C171 [16.3A]		C1044 [20.2G]		C1044 [20.2G]		C1044 [20.2G]		R775 [16.1H]		R776 [16.1H]		R777 [16.1H]	
		C172 [8.3H]		C1045 [16.1H]		C1045 [16.1H]		C1045 [16.1H]		R778 [16.1H]		R779 [16.1H]		R780 [16.1H]	
		C173 [10.3H]		C1046 [16.1H]		C1046 [16.1H]		C1046 [16.1H]		R781 [16.1H]		R782 [16.1H]		R783 [16.1H]	
		C174 [10.3H]		C1047 [16.1H]		C1047 [16.1H]		C1047 [16.1H]		R784 [16.1H]		R785 [16.1H]		R786 [16.1H]	
		C175 [8.3A]		C1048 [16.1H]		C1048 [16.1H]		C1048 [16.1H]		R787 [16.1H]		R788 [16.1H]		R789 [16.1H]	
		C176 [8.3A]		C1049 [16.1H]		C1049 [16.1H]		C1049 [16.1H]		R790 [16.1H]		R791 [16.1H]		R792 [16.1H]	
		C177 [8.3A]		C1050 [16.1H]		C1050 [16.1H]		C1050 [16.1H]		R793 [1					

XTAL, MECHANICALS, THERMALS

