

P684-A01 GT216/GT215 DESKTOP Low Profile

PCI -EXPRESSx16 DVI -I HDMI VGA DDR3

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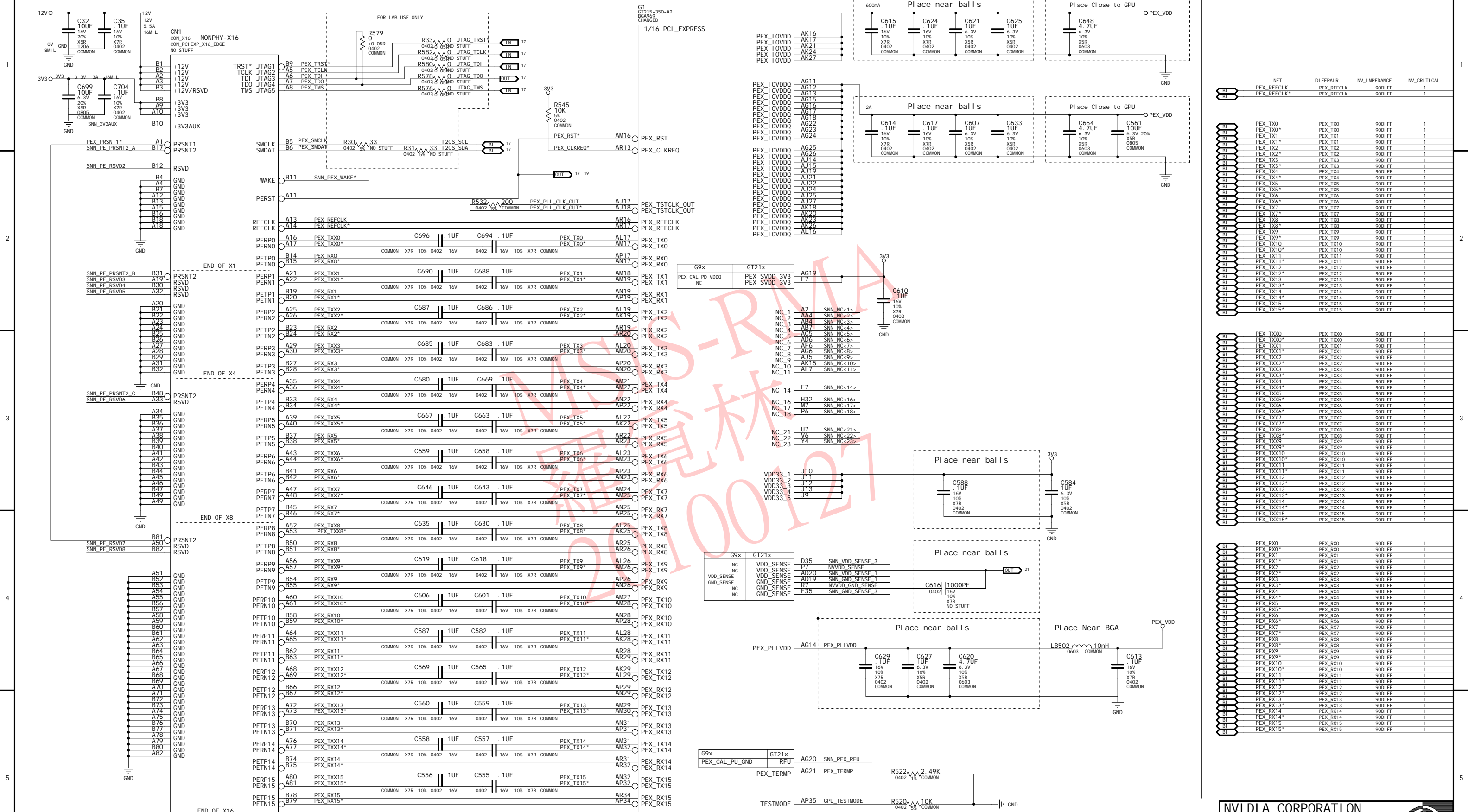
Page 20: FBVDDQ/PEXVDD POWER SUPPLY

Page 21: NVVDD POWER SUPPLY

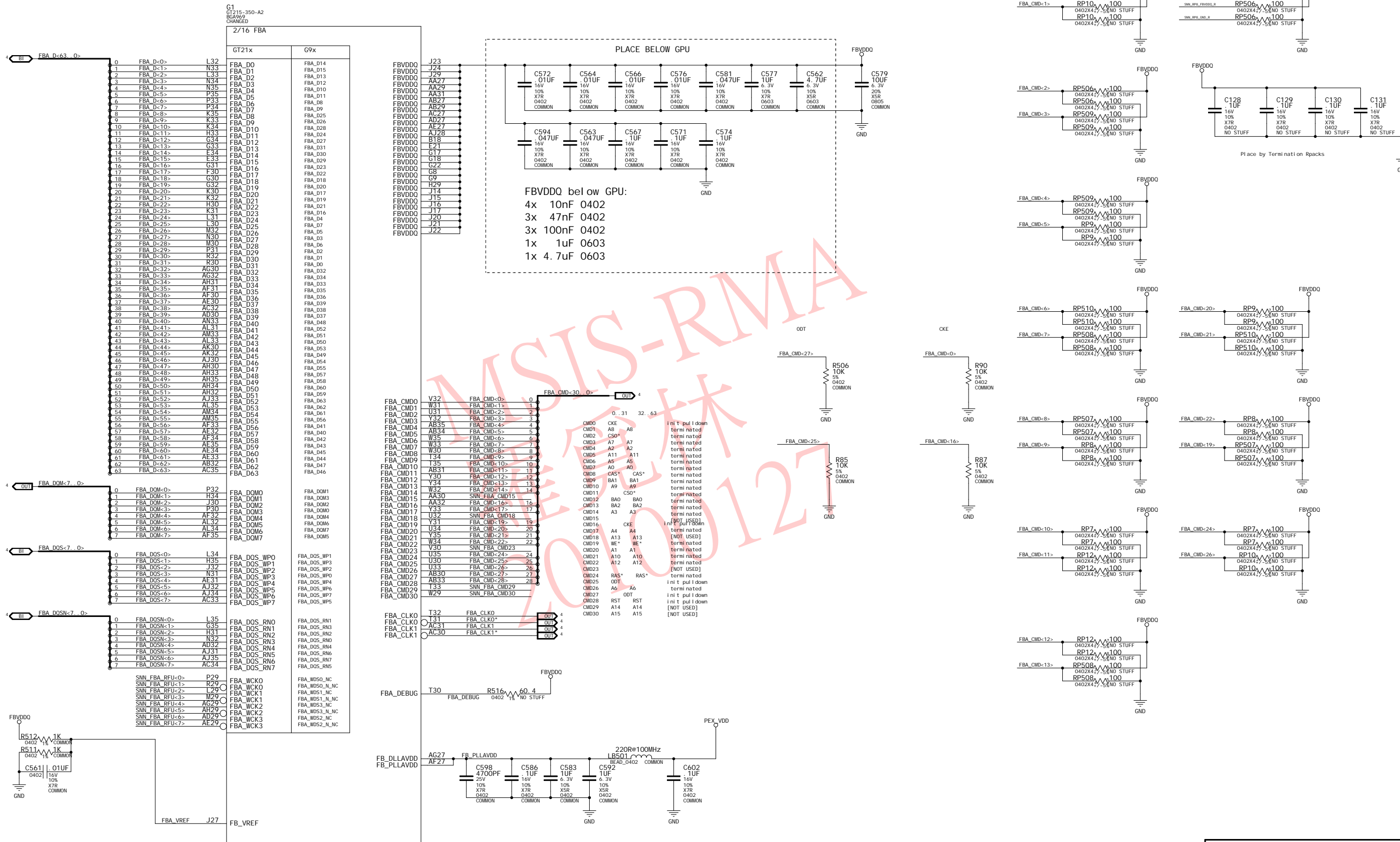
MSIS-RMA
羅覓林
20100127

SKU	VARIANT	NVPN	ASSEMBLY
B	BASE	600-10684-base-100	BASE LEVEL GENERIC SCHEMATIC ONLY, COMMON & NO STUFF ASSEMBLY NOTES AND BOM NOT FINAL
1	SKU0000	600-10684-0000-100	GT216-350 615/1335MHz 1024MB 64Mx16 BGA100 790MHz DDR3 DVI -I /HDMI /VGA
2	SKU0011	600-10684-0011-100	GT215-350 540/1302MHz 1024MB 64Mx16 BGA100 790MHz DDR3 DVI -I /HDMI /VGA
3	SKU0012	600-10684-0012-100	GT215-250 540/1302MHz 1024MB 64Mx16 BGA100 790MHz DDR3 DVI -I /HDMI /VGA
4	SKU0013	600-10684-0013-100	GT215-250 NVS 540/1302MHz 1024MB 64Mx16 BGA100 790MHz DDR3 DVI -I /HDMI /VGA
5	SKU0014	600-10684-0014-100	GT215-350 NVS 540/1302MHz 1024MB 64Mx16 BGA100 790MHz DDR3 DVI -I /HDMI /VGA
6	SKU0005	600-10684-0005-100	GT216-205 475/1100MHz 1024MB 64Mx16 BGA100 790MHz DDR3 DVI -I /HDMI /VGA
7	SKU0015	600-10684-0015-100	GT215-255 540/1302MHz 1024MB 64Mx16 BGA100 790MHz DDR3 DVI -I /HDMI /VGA
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14	<UNDEFINED>	<UNDEFINED>	<UNDEFINED>
15	<UNDEFINED>	<UNDEFINED>	<UNDEFINED>

PCI -EXPRESS I NTERFACE



PARTITION A FRAME BUFFER INTERFACE



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NV_PN	600-10684-0015-100 A
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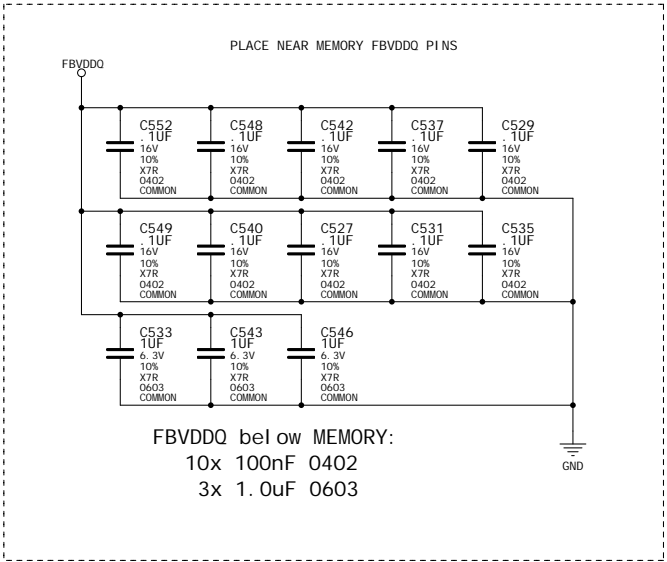
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PARTITION A MEMORY

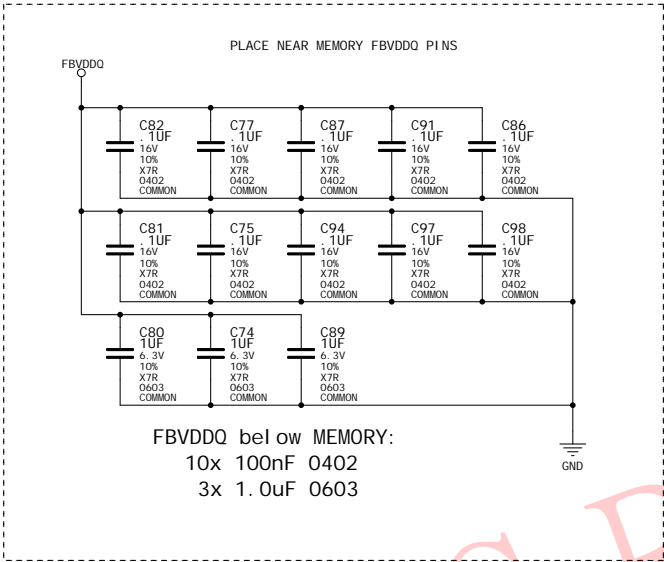


FBA DECOUPLING CAPS & NVVDD DECOUPLING CAPS

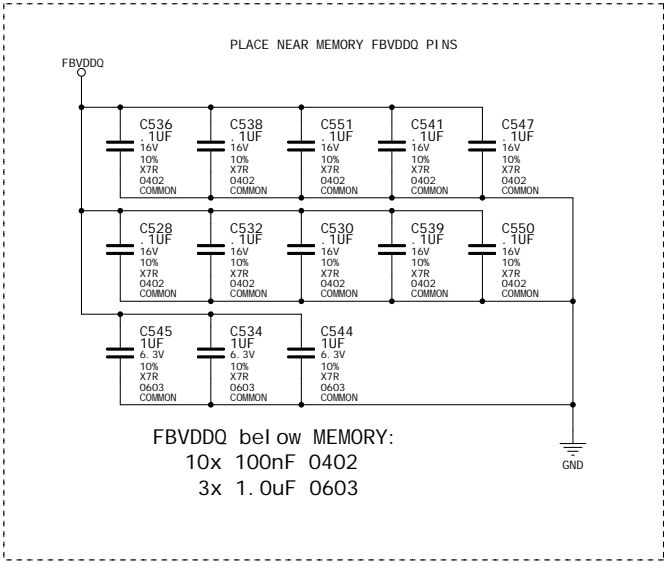
Decoupling for FBA 0..15



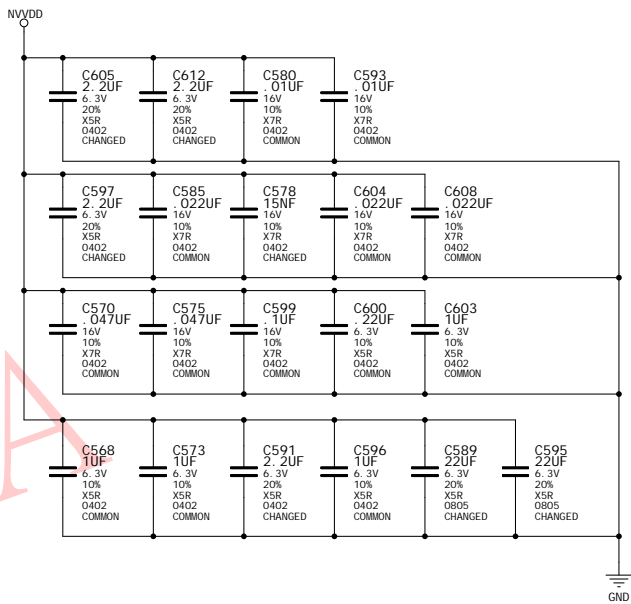
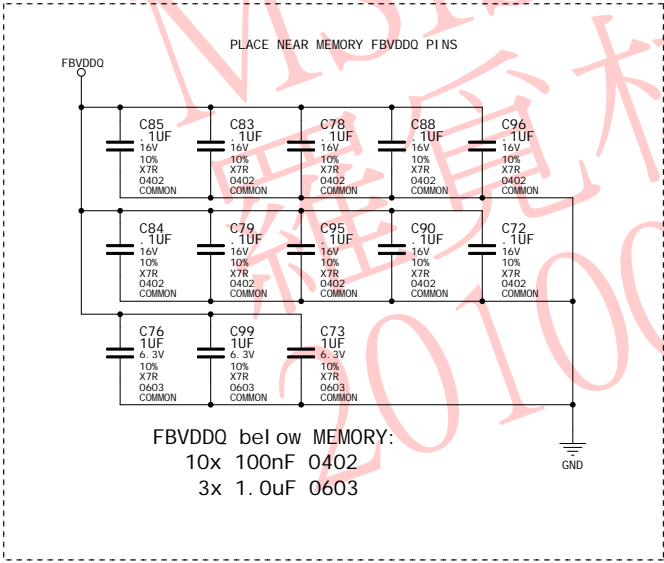
Decoupling for FBA 16..31



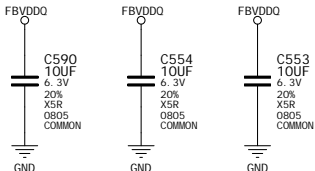
Decoupling for FBA 32..47



Decoupling for FBA 48..63



G1 GT215-250-A2 BGA969 CHANGED		16/16 NVVDD	
AB11	VDD	P21	VDD
AB13	VDD	P23	VDD
AB15	VDD	P25	VDD
AB17	VDD	R11	VDD
AB19	VDD	R12	VDD
AB21	VDD	R13	VDD
AB23	VDD	R14	VDD
AB25	VDD	R15	VDD
AC11	VDD	R16	VDD
AC12	VDD	R17	VDD
AC13	VDD	R18	VDD
AC14	VDD	R19	VDD
AC15	VDD	R20	VDD
AC16	VDD	R21	VDD
AC17	VDD	R22	VDD
AC18	VDD	R23	VDD
AC19	VDD	R24	VDD
AC20	VDD	R25	VDD
AC21	VDD	T12	VDD
AC22	VDD	T14	VDD
AC23	VDD	T16	VDD
AC24	VDD	T18	VDD
AC25	VDD	T20	VDD
AD12	VDD	T22	VDD
AD14	VDD	T24	VDD
AD16	VDD	V11	VDD
AD18	VDD	V13	VDD
AD22	VDD	V15	VDD
AD24	VDD	V17	VDD
L11	VDD	V21	VDD
L12	VDD	V23	VDD
L13	VDD	V25	VDD
L14	VDD	W11	VDD
L15	VDD	W12	VDD
L16	VDD	W13	VDD
L17	VDD	W14	VDD
L18	VDD	W15	VDD
L19	VDD	W16	VDD
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L22	VDD	W19	VDD
L23	VDD	W20	VDD
L24	VDD	W21	VDD
L25	VDD	W22	VDD
M12	VDD	W23	VDD
M14	VDD	W24	VDD
M16	VDD	Y11	VDD
M18	VDD	Y12	VDD
M20	VDD	Y14	VDD
M22	VDD	Y16	VDD
M24	VDD	Y18	VDD
P11	VDD	Y20	VDD
P13	VDD	Y22	VDD
P15	VDD	Y24	VDD
P17	VDD		
P19	VDD		



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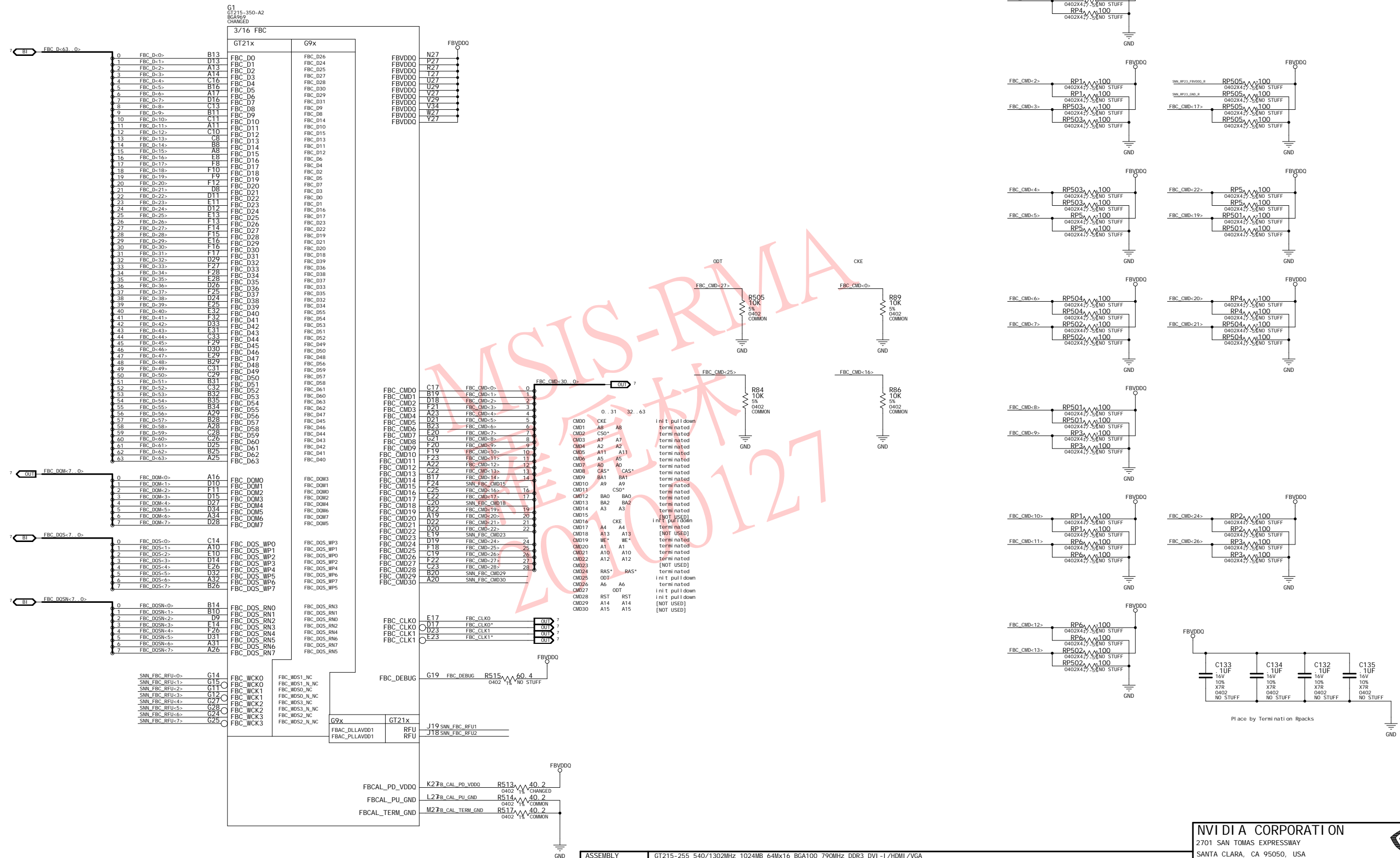


ASSEMBLY	GT215-255 540/1302MHz 1024MB 64Mx16 BGA100 790MHz DDR3 DVI-I/HDMI/VGA
PAGE DETAIL	FBA DECOUPLING CAPS & NVVDD DECOUPLING CAPS

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PARTITION C FRAME BUFFER INTERFACE



NV PN	600-10684-0015-100 A
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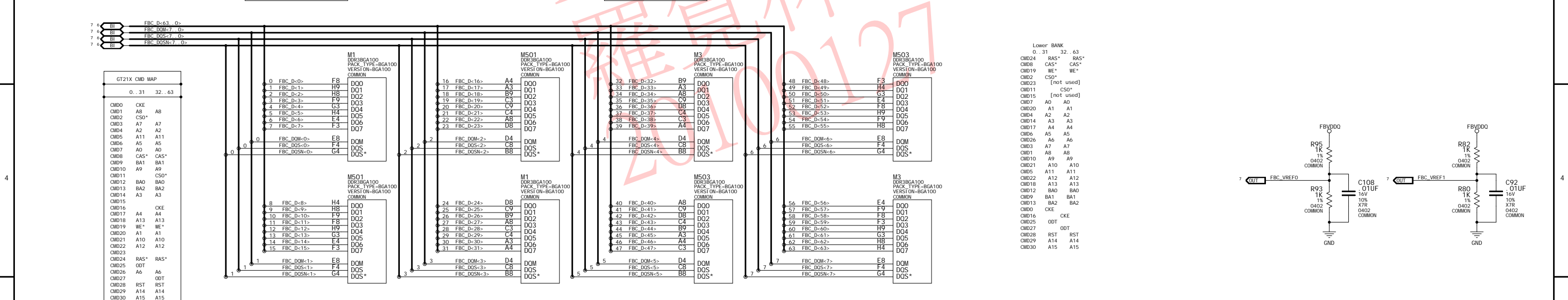
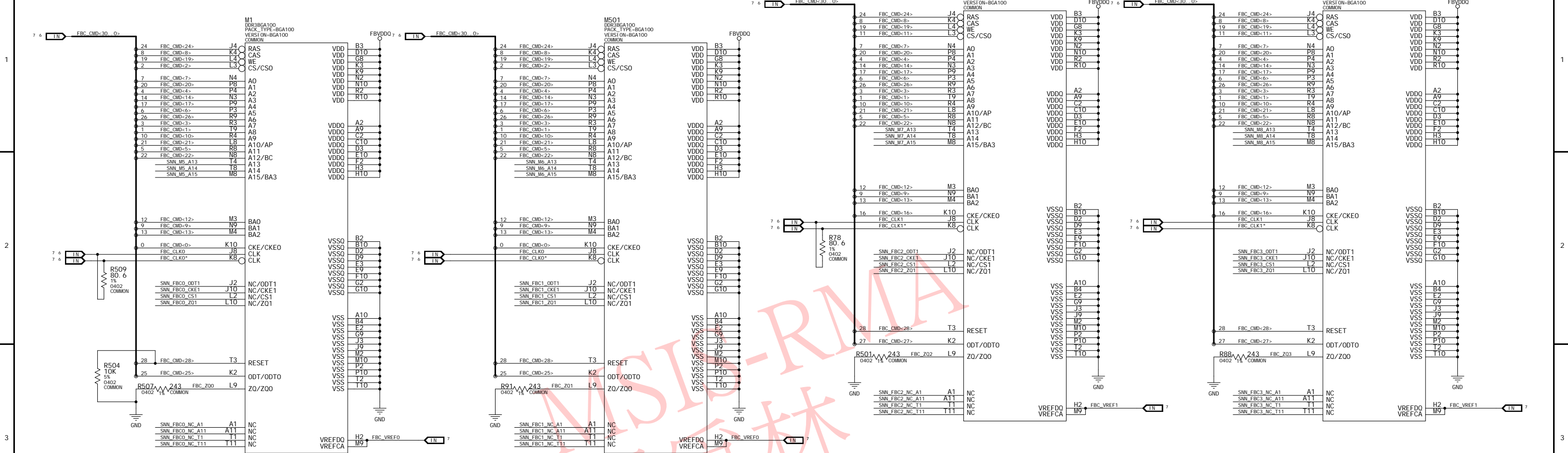
NV PN	600-10684-0015-100 A
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PARTITION C MEMORY

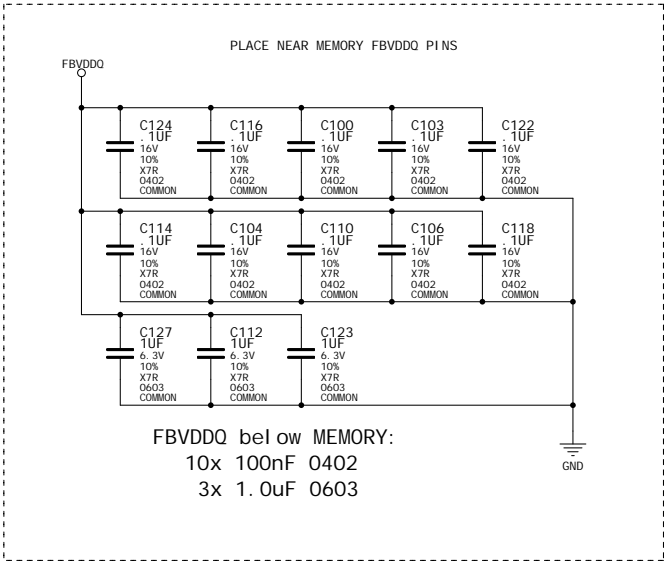


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1 FBC_D0S<1>	FBC_D0S<1>	800LFF	1
2 FBC_D0S<2>	FBC_D0S<2>	800LFF	1
3 FBC_D0S<3>	FBC_D0S<3>	800LFF	1
4 FBC_D0S<4>	FBC_D0S<4>	800LFF	1
5 FBC_D0S<5>	FBC_D0S<5>	800LFF	1
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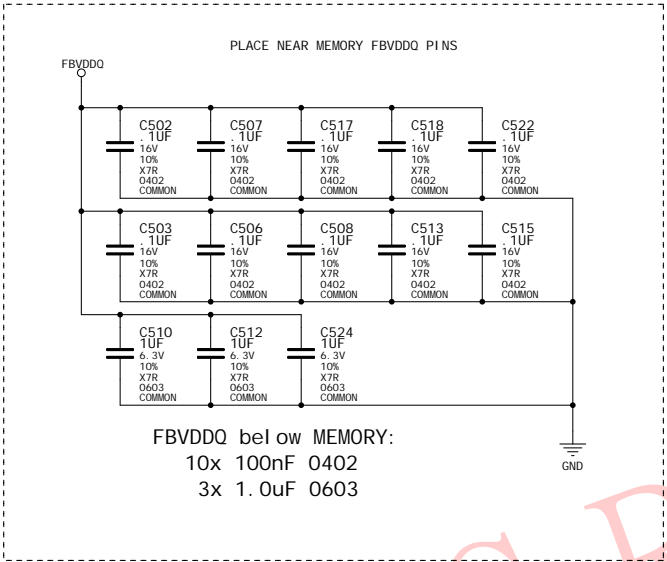
NET	DI FFPAIR	NV_I MPEDANCE	NV_CRI TI CAL_NET
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2 FBC_D0S<2>	FBC_D0S<2>	800LFF	1
3 FBC_D0S<3>	FBC_D0S<3>	800LFF	1
4 FBC_D0S<4>	FBC_D0S<4>	800LFF	1
5 FBC_D0S<5>	FBC_D0S<5>	800LFF	1
6 FBC_D0S<6>	FBC_D0S<6>	800LFF	1
7 FBC_D0S<7>	FBC_D0S<7>	800LFF	1

FBC DECOUPLING CAPS & NVVDD DECOUPLING CAPS

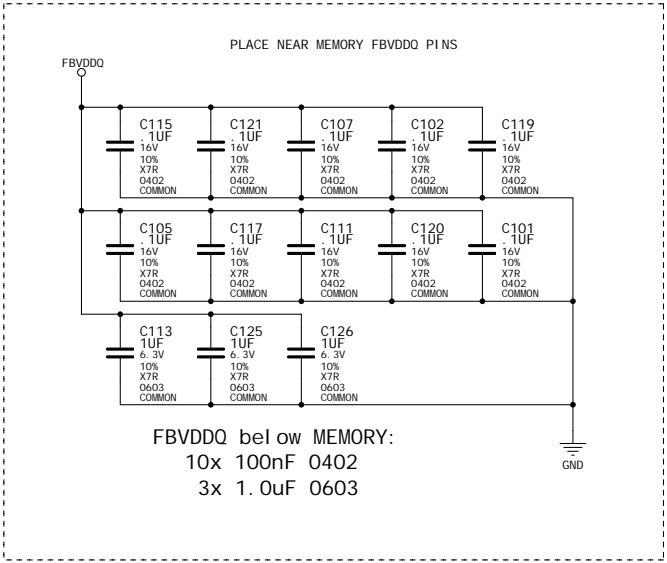
Decoupling for FBC 0..15



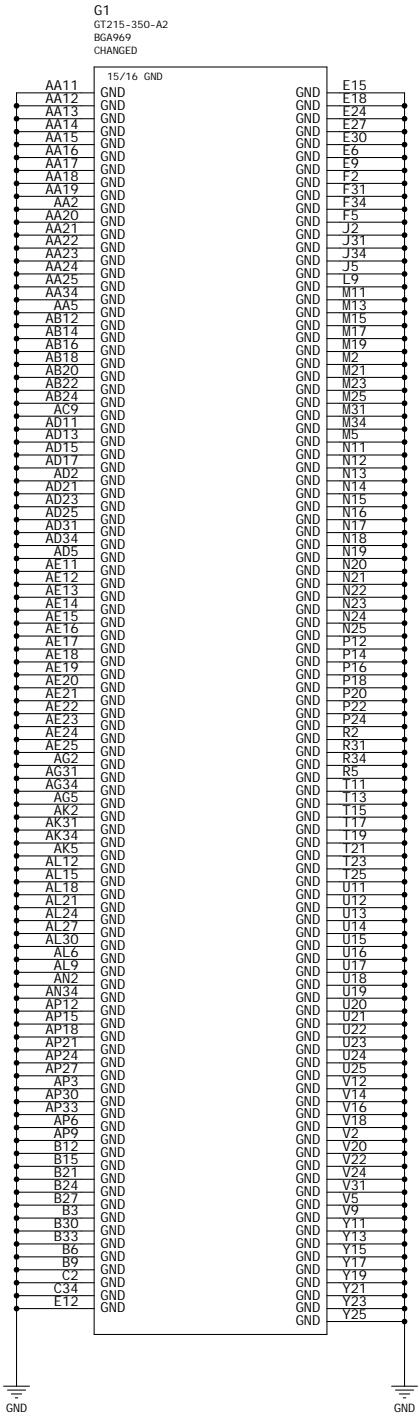
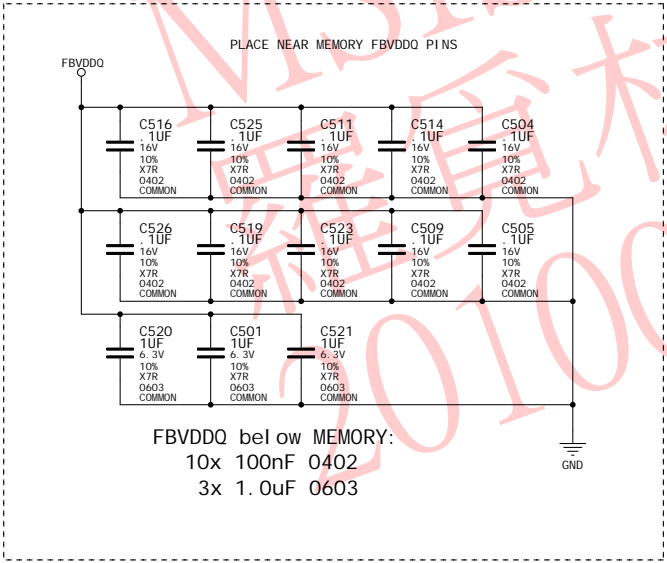
Decoupling for FBC 16..31



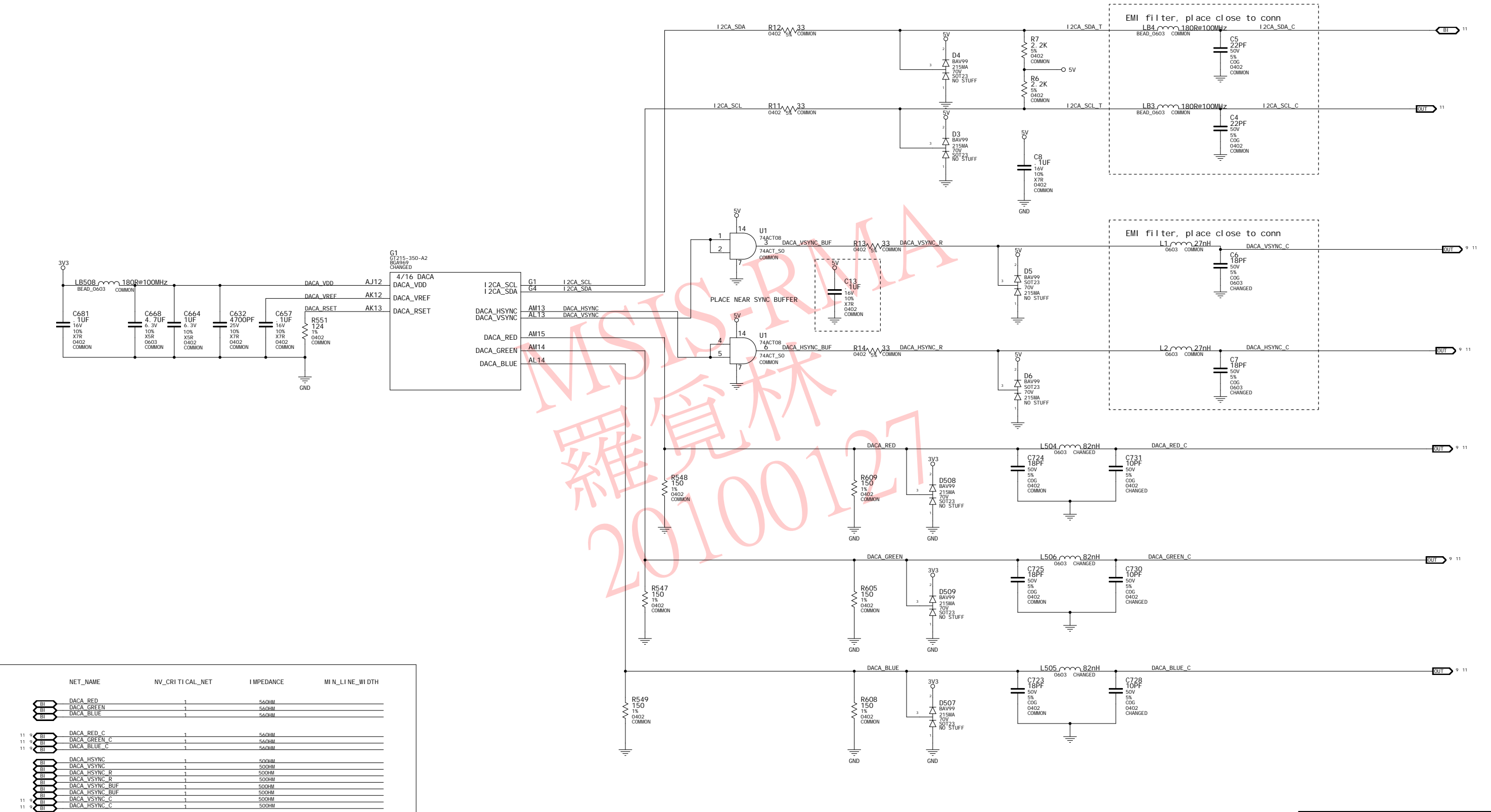
Decoupling for FBC 32..47



Decoupling for FBC 48..63




DACA (SOUTH DVI -I)

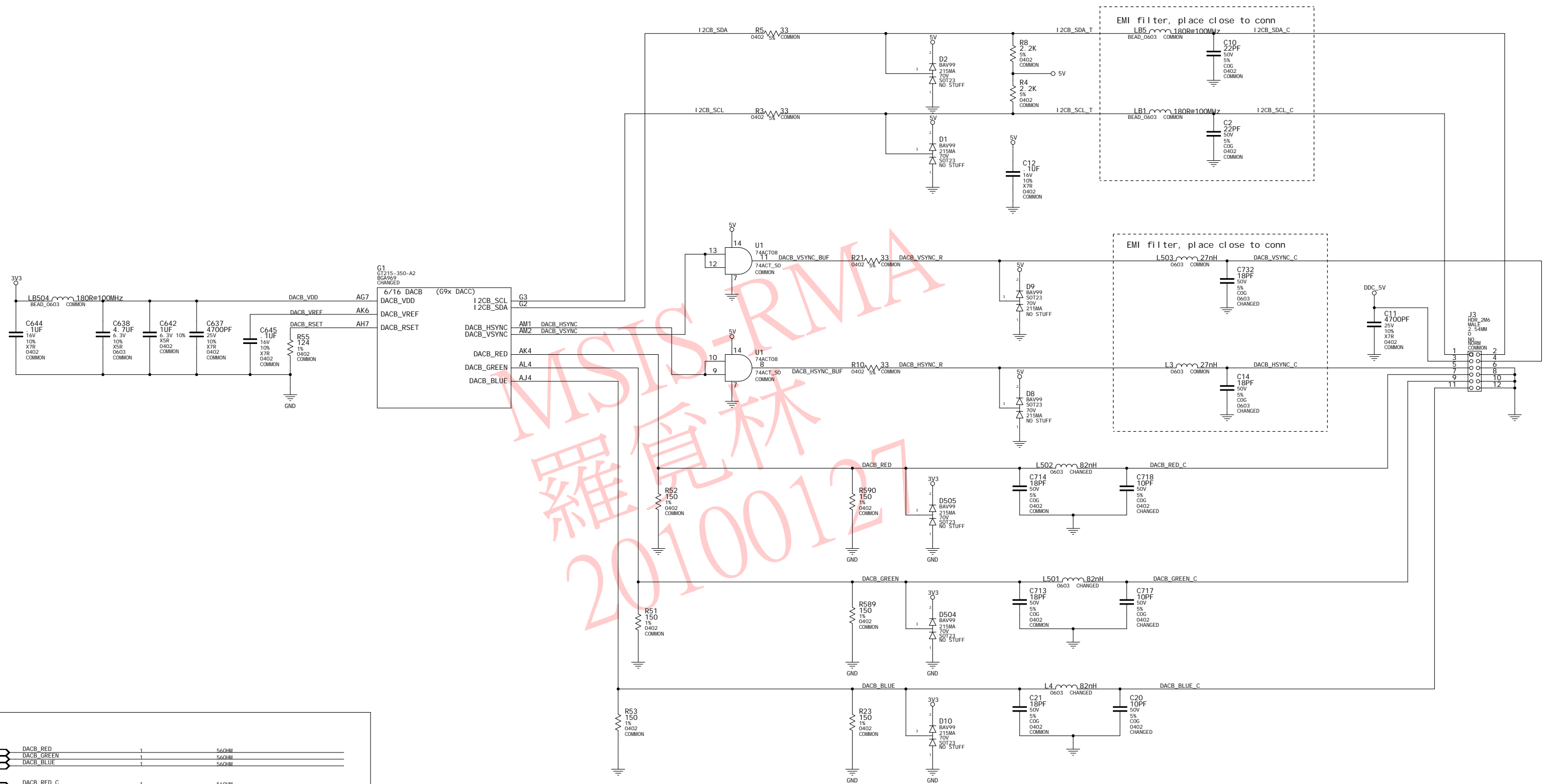


ASSEMBLY	GT215-255 540/1302MHz 1024MB 64Mx16 BGA100 790MHz DDR3 DVI -I /HDMI /VGA
PAGE DETAIL	DACA (SOUTH DVI -I)

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DACB (cable-up VGA)



B1	DACB_RED	1	560HM
B1	DACB_GREEN	1	560HM
B1	DACB_BLUE	1	560HM
B1	DACB_RED_C	1	560HM
B1	DACB_GREEN_C	1	560HM
B1	DACB_BLUE_C	1	560HM
B1	DACB_HSYNC	1	500HM
B1	DACB_VSYNC	1	500HM
B1	DACB_HSYNC_R	1	500HM
B1	DACB_VSYNC_R	1	500HM
B1	DACB_VSYNC_BUF	1	500HM
B1	DACB_HSYNC_BUF	1	500HM
B1	DACB_VSYNC_C	1	500HM
B1	DACB_HSYNC_C	1	500HM

ASSEMBLY	GT215-255 540/1302MHz 1024MB 64Mx16 BGA100 790MHz DDR3 DVI -I /HDMI /VGA
PAGE DETAIL	DACB (cable up VGA)

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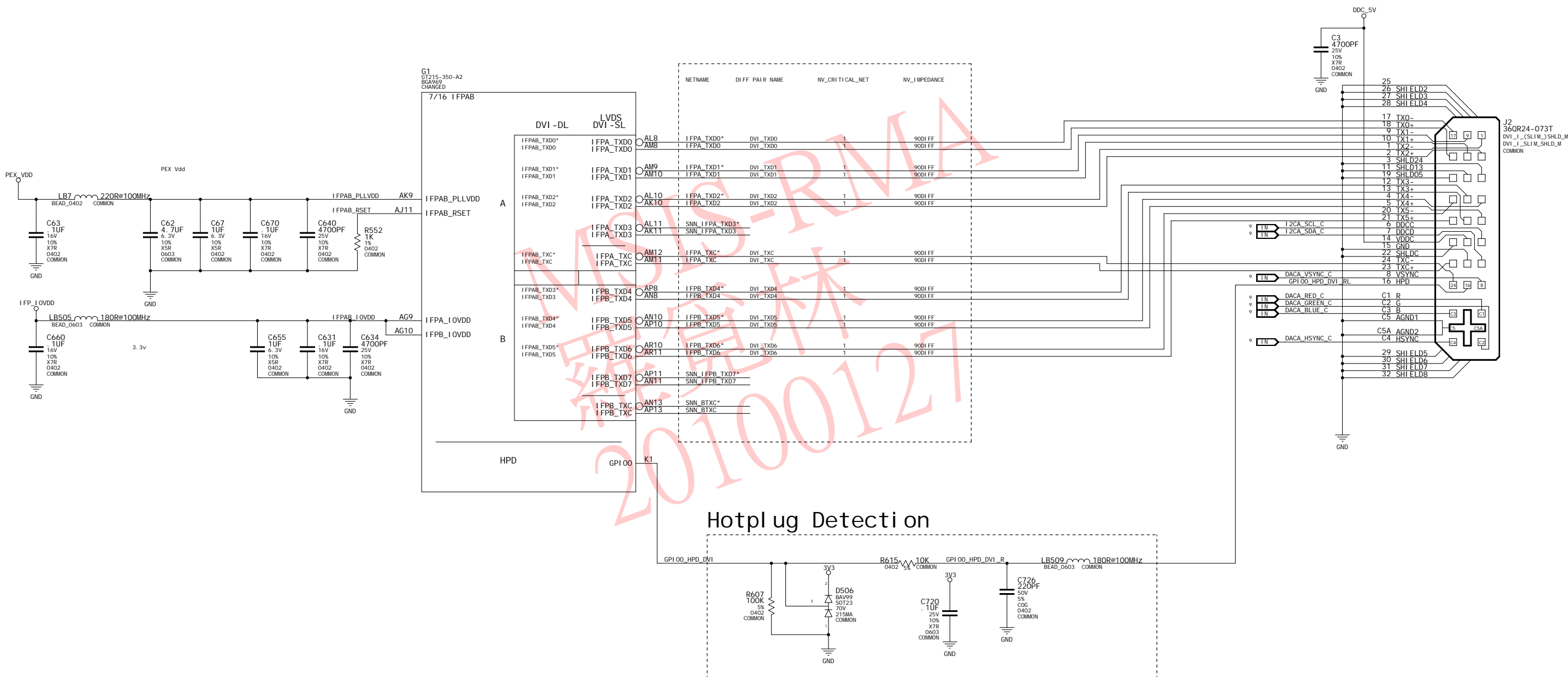
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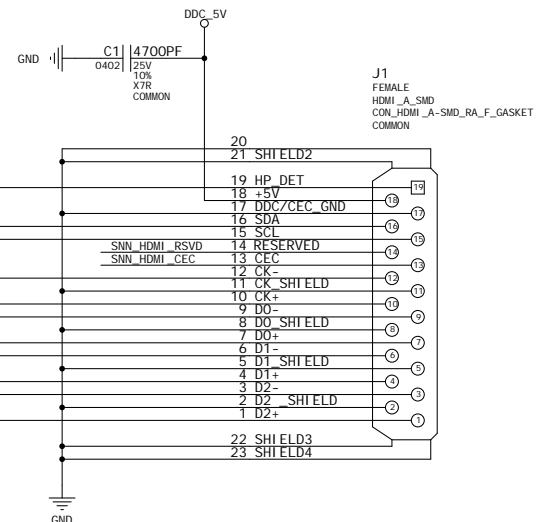
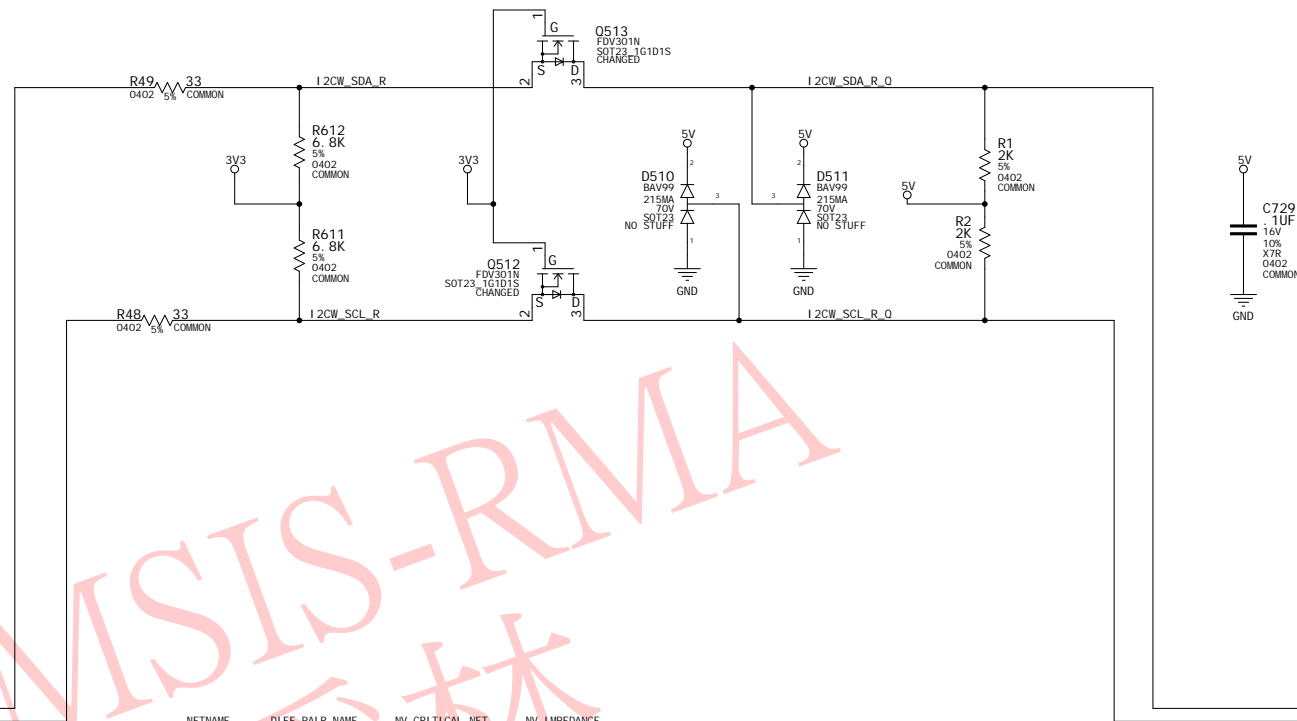
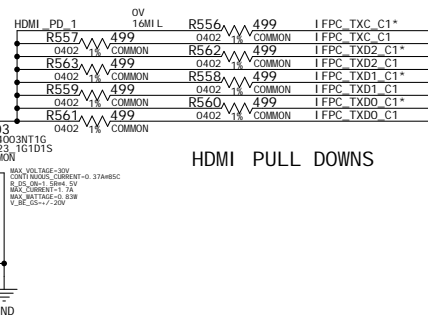
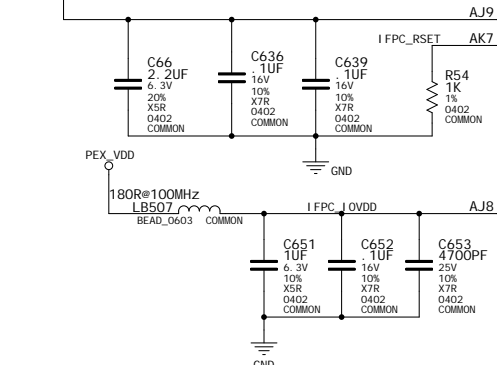
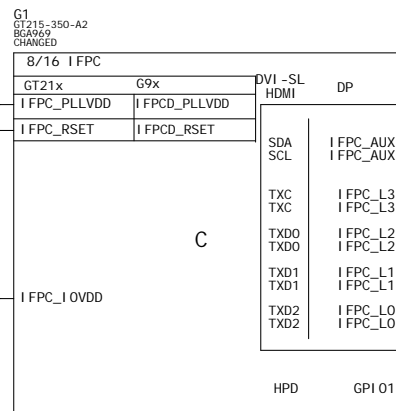
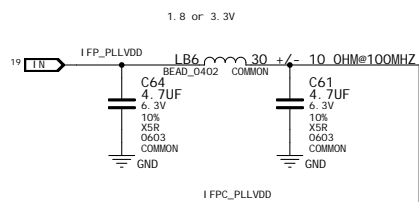
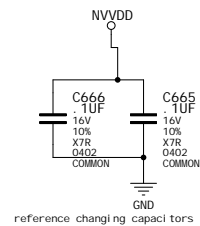
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NAME	Garrett Hall	DATE	30-OCT-2009

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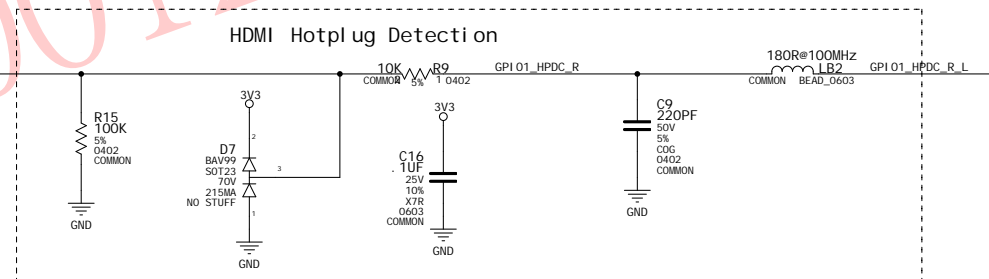


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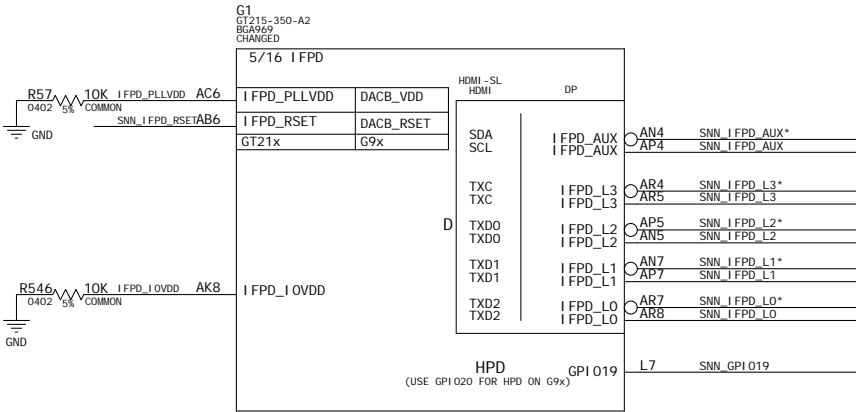
IFP C (NORTH HDMI)



NETNAME	DIFF PAIR NAME	NV_CRITICAL_NET	NV_IMPEDANCE
I FPC_TXC*	I FPC_TXC	1	90DI FF
I FPC_TXC	I FPC_TXC	1	90DI FF
I FPC_TXD0*	I FPC_TXD0	1	90DI FF
I FPC_TXD0	I FPC_TXD0	1	90DI FF
I FPC_TXD1*	I FPC_TXD1	1	90DI FF
I FPC_TXD1	I FPC_TXD1	1	90DI FF
I FPC_TXD2*	I FPC_TXD2	1	90DI FF
I FPC_TXD2	I FPC_TXD2	1	90DI FF



I F P D (UNUSED)



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羅覓林
20100127

NET	PAIR	NV_CRITICAL	IMPEDANCE
I F P E _ A U X _ B Y P	I F P E _ A U X _ B Y P	1	90DI FF
I F P E _ A U X _ B Y P *	I F P E _ A U X _ B Y P	1	90DI FF

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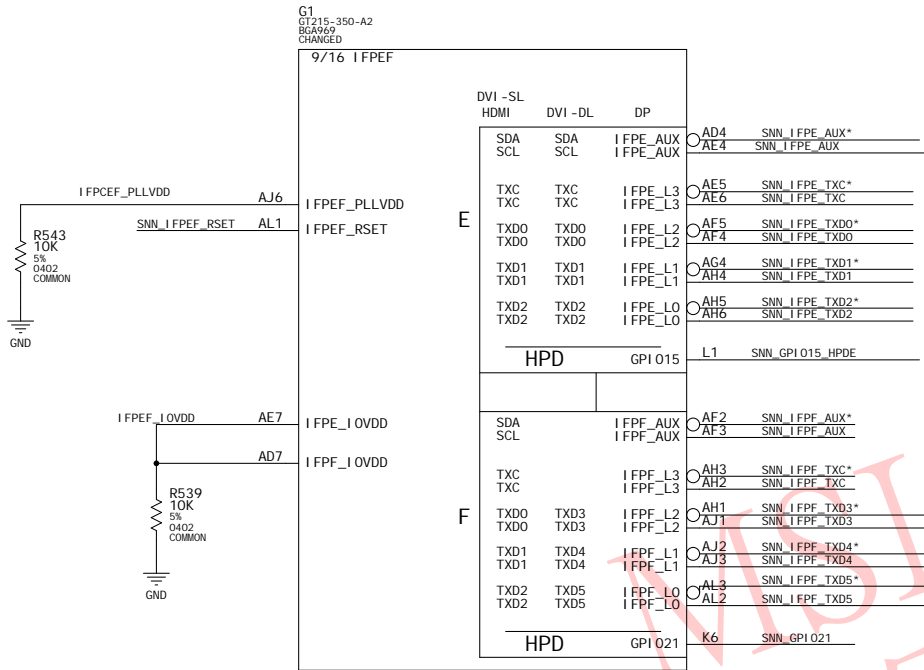
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I FP EF (unused)



NET	PAIR	NV_CRIT I CAL	IMPEDANCE
I FPEF_TXC*	I FPEF_TXC	1	90DFF
I FPEF_TXC	I FPEF_TXC	1	90DFF
I FPE_TXC*	I FPE_TXC	1	90DFF
I FPE_TXC	I FPE_TXC	1	90DFF
I FPE_TXD0*	I FPE_TXD0	1	90DFF
I FPE_TXD0	I FPE_TXD0	1	90DFF
I FPE_TXD1*	I FPE_TXD1	1	90DFF
I FPE_TXD1	I FPE_TXD1	1	90DFF
I FPE_TXD2*	I FPE_TXD2	1	90DFF
I FPE_TXD2	I FPE_TXD2	1	90DFF
I FPF_TXD3*	I FPF_TXD3	1	90DFF
I FPF_TXD3	I FPF_TXD3	1	90DFF
I FPF_TXD4*	I FPF_TXD4	1	90DFF
I FPF_TXD4	I FPF_TXD4	1	90DFF
I FPF_TXD5*	I FPF_TXD5	1	90DFF
I FPF_TXD5	I FPF_TXD5	1	90DFF
I FPEF_TXD3*	I FPEF_TXD3	1	90DFF
I FPEF_TXD3	I FPEF_TXD3	1	90DFF
I FPEF_TXD4*	I FPEF_TXD4	1	90DFF
I FPEF_TXD4	I FPEF_TXD4	1	90DFF
I FPEF_TXD5*	I FPEF_TXD5	1	90DFF
I FPEF_TXD5	I FPEF_TXD5	1	90DFF
I FPEF_TXD0*	I FPEF_TXD0	1	90DFF
I FPEF_TXD0	I FPEF_TXD0	1	90DFF
I FPEF_TXD1*	I FPEF_TXD1	1	90DFF
I FPEF_TXD1	I FPEF_TXD1	1	90DFF
I FPEF_TXD2*	I FPEF_TXD2	1	90DFF
I FPEF_TXD2	I FPEF_TXD2	1	90DFF
I FPE_AUX*	I FPE_AUX	1	90DFF
I FPE_AUX	I FPE_AUX	1	90DFF

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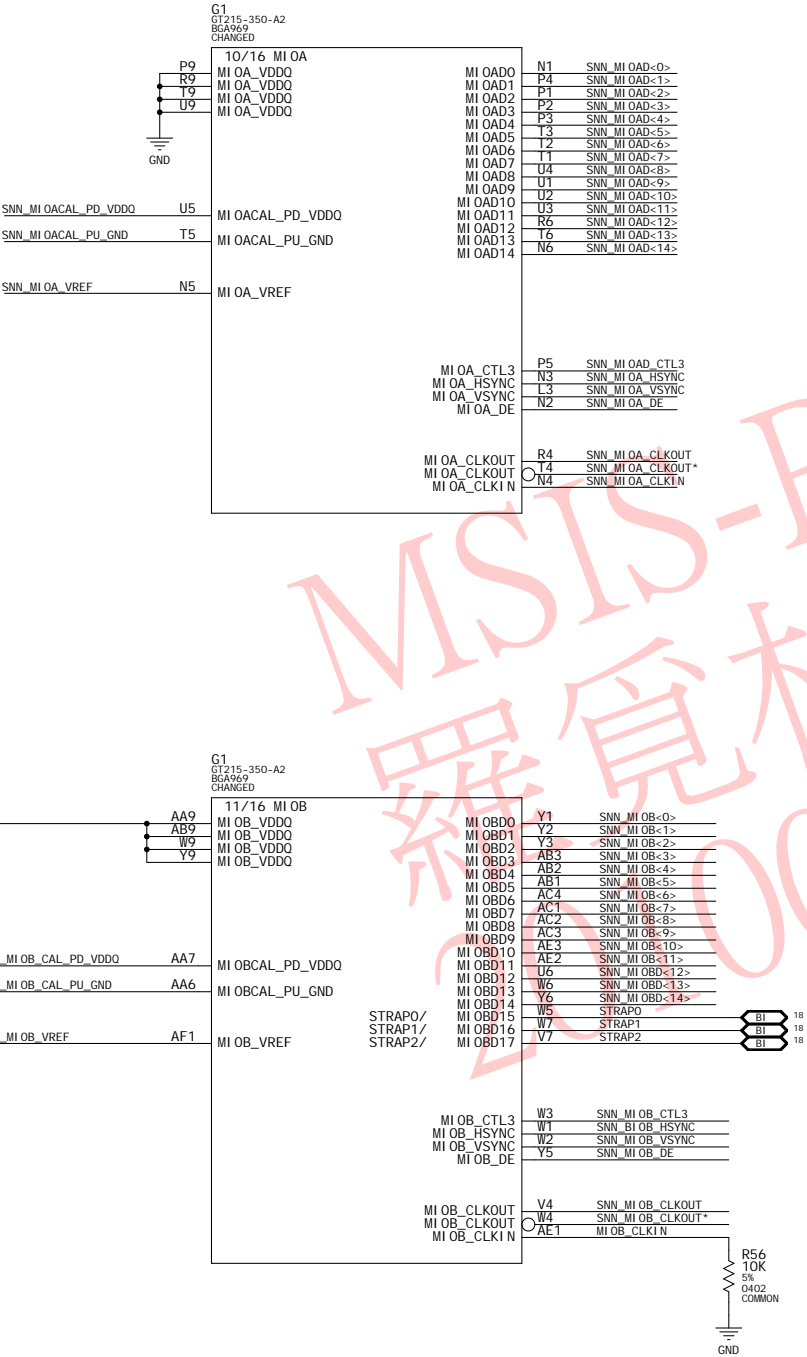


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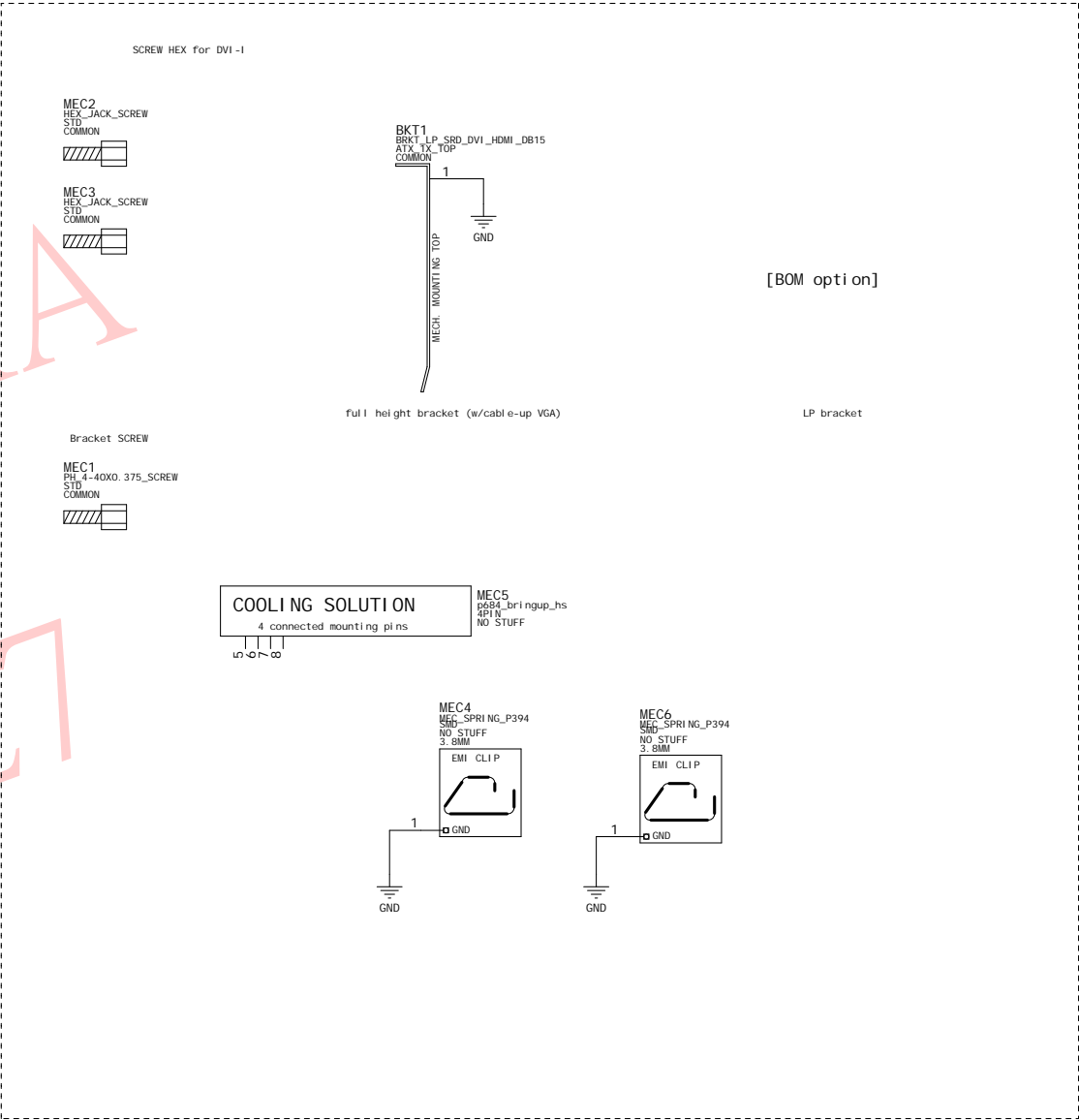
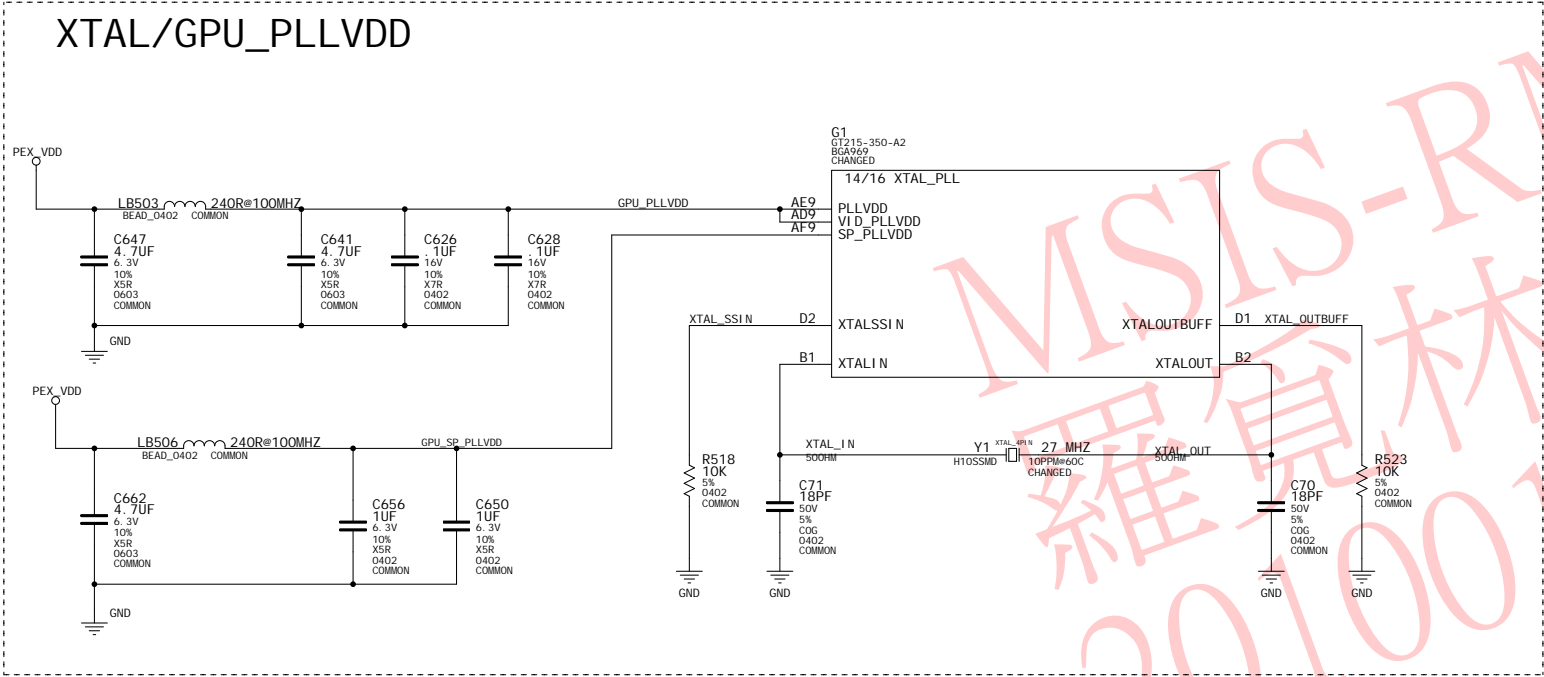
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NAME Garrett Hall DATE 30-OCT-2009

MI OA & MI OB



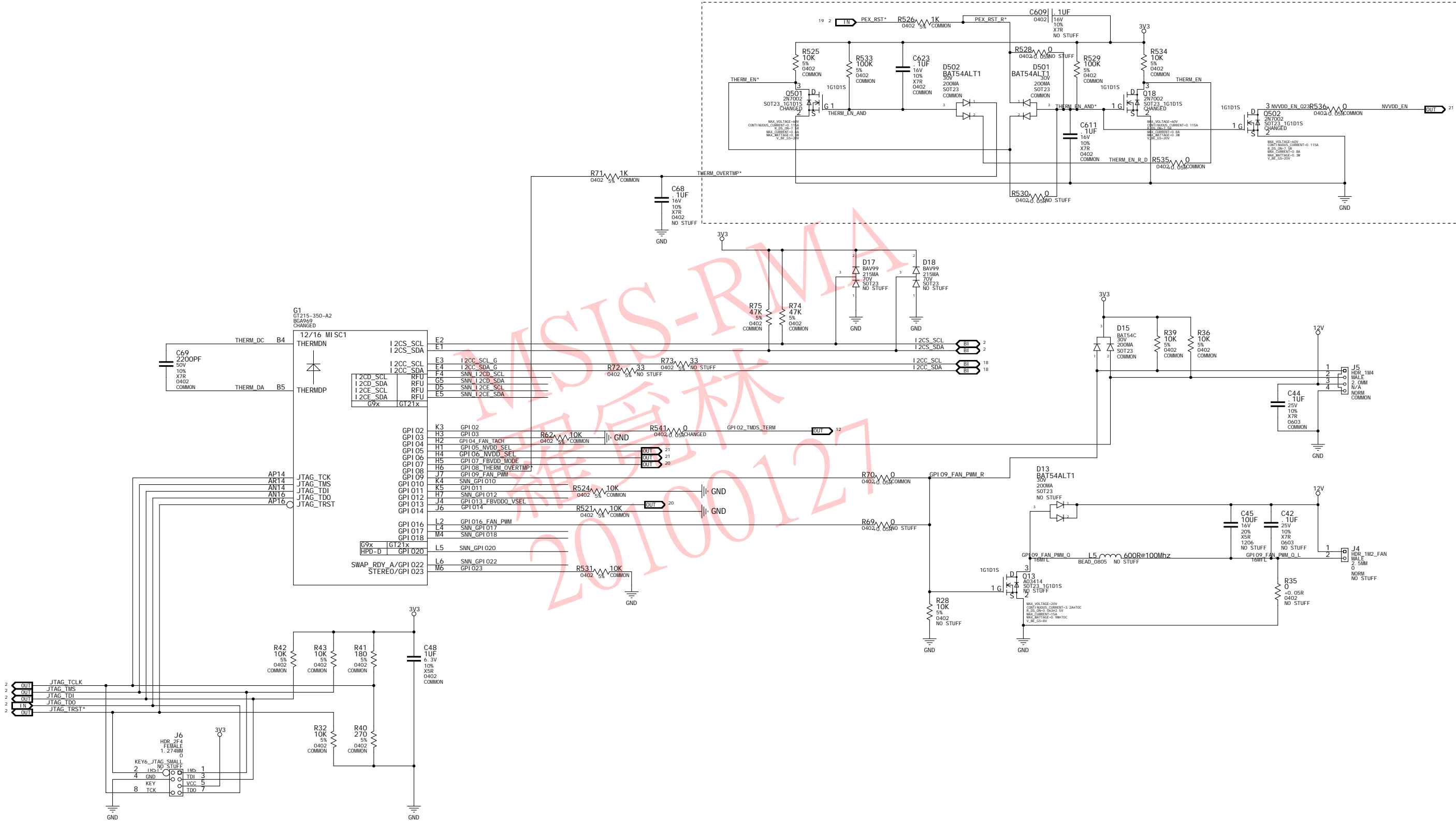
XTAL, MECHANICALS, THERMALS



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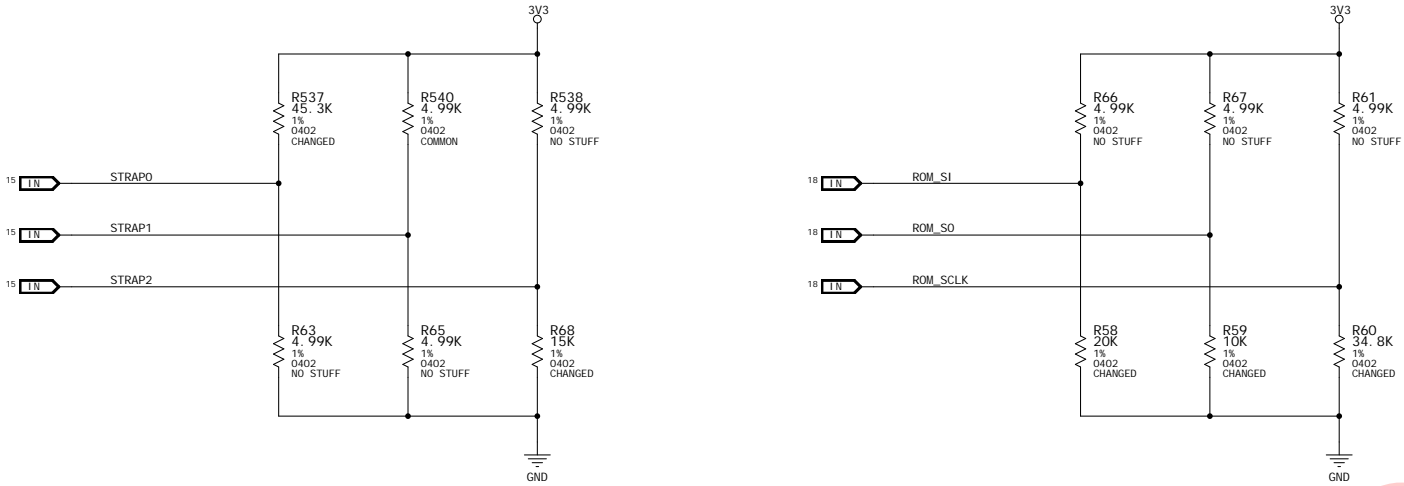
FAN CONTROL, GPIO, JTAG

OVERTEMP LATCH



BIOS ROM, HDCP ROM, STRAPPING OPTIONS

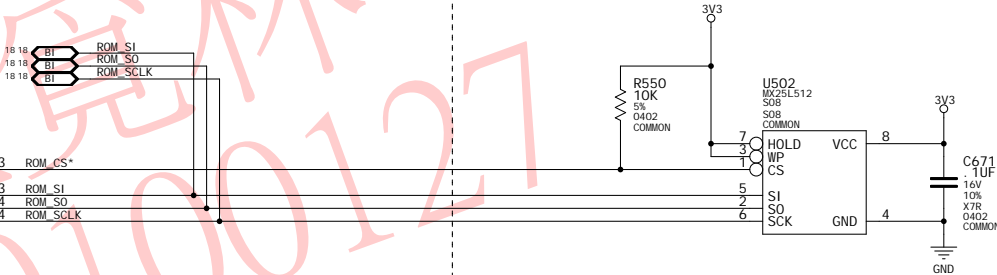
STRAPPING OPTIONS



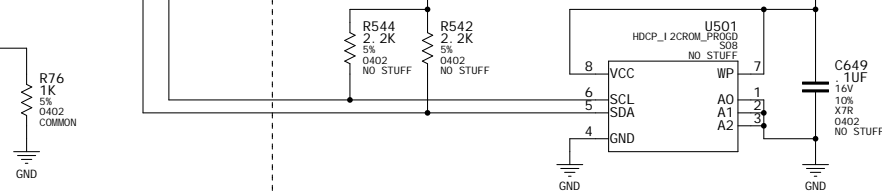
Strap0	USER[3:0]	EDID: 1111	45k pull up		
Strap1	3G10PADCFG[3:0]	sku0: 0000	5k pull down	0 5k PD	8 5k PU
		sku11, 12, 13, 14: 1000	5k pull up	1 10k PD	9 10k PU
				2 15k PD	10 15k PU
Strap2	PCI_DEV1D[3:0]	GT216-350: 0A20	5k pull down	3 20k PD	11 20k PU
		GT215-350: 0CA3	20k pull down	4 25k PD	12 25k PU
		GT215-250: 0CA2	15k pull down	5 30k PD	13 30k PU
		GT215-250 NVS: 0CA6	35k pull down	6 35k PD	14 35k PU
		GT215-350 NVS: 0CA7	45k pull down	7 45k PD	15 45k PU
		GT216-205: 0A22	15k pull down		
		GT215-255: 0CA2	15k pull down		

ROM_SI	RAMCFG[3:0]	64Mx16 DDR3 Hynix: 0010	15k pull down
		64Mx16 DDR3 Samsung: 0011	20k pull down
ROM_SO	3: XCLK_417		
	2: FB[0]		
	1: SMB_ALT_ADDR	0001	10k PD
	0: VGA_DEVICE		
ROM_SCLK	3: PCI_DEV_EXT		
	2: SUB_VENDOR	0110	35k PD
	1: SLOT_CLK_CFG		
	0: PEX_PLL_EN_TERM100		

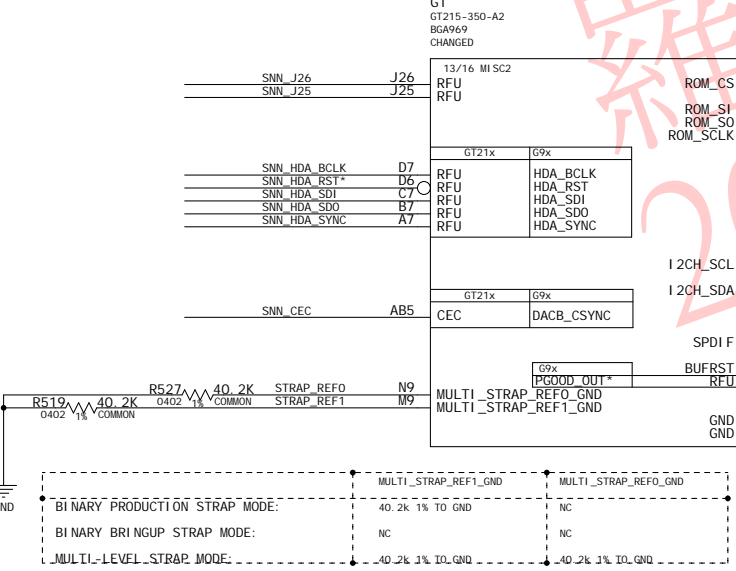
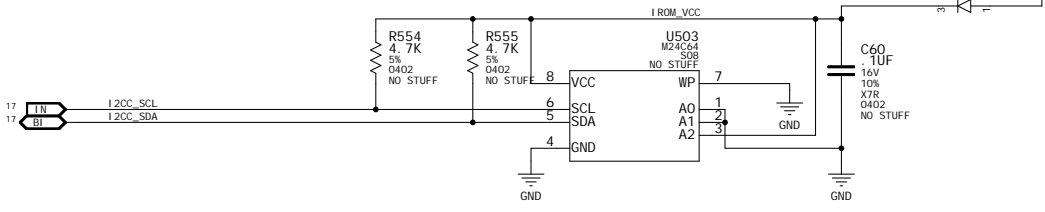
BIOS ROM(serial)



HDCP I2C EEROM



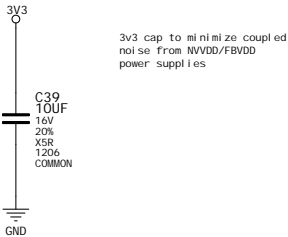
INFOROM



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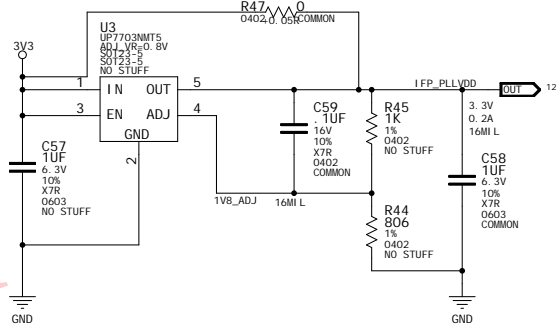
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LINEAR POWER SUPPLIES



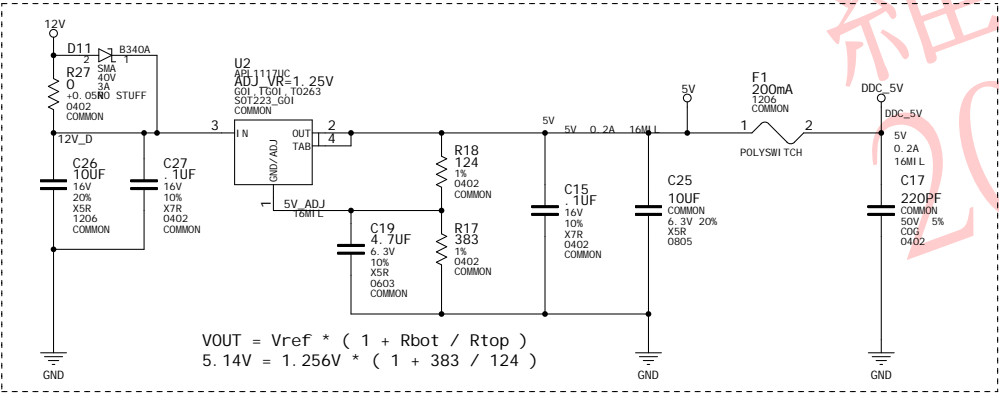
3v3 cap to minimize coupled noise from NVDD/FBVD power supplies

IFP_PLLVDD SUPPLY



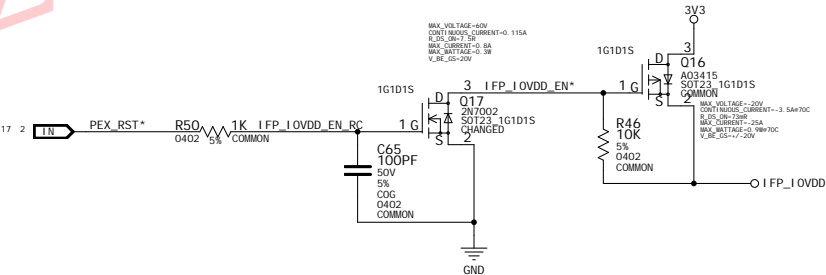
$$V_{OUT} = V_{ref} * (1 + R_{bot} / R_{top})$$
$$1.793V = 0.8V * (1 + 1k / 0.806k)$$

5V & DDC_5V REGULATOR

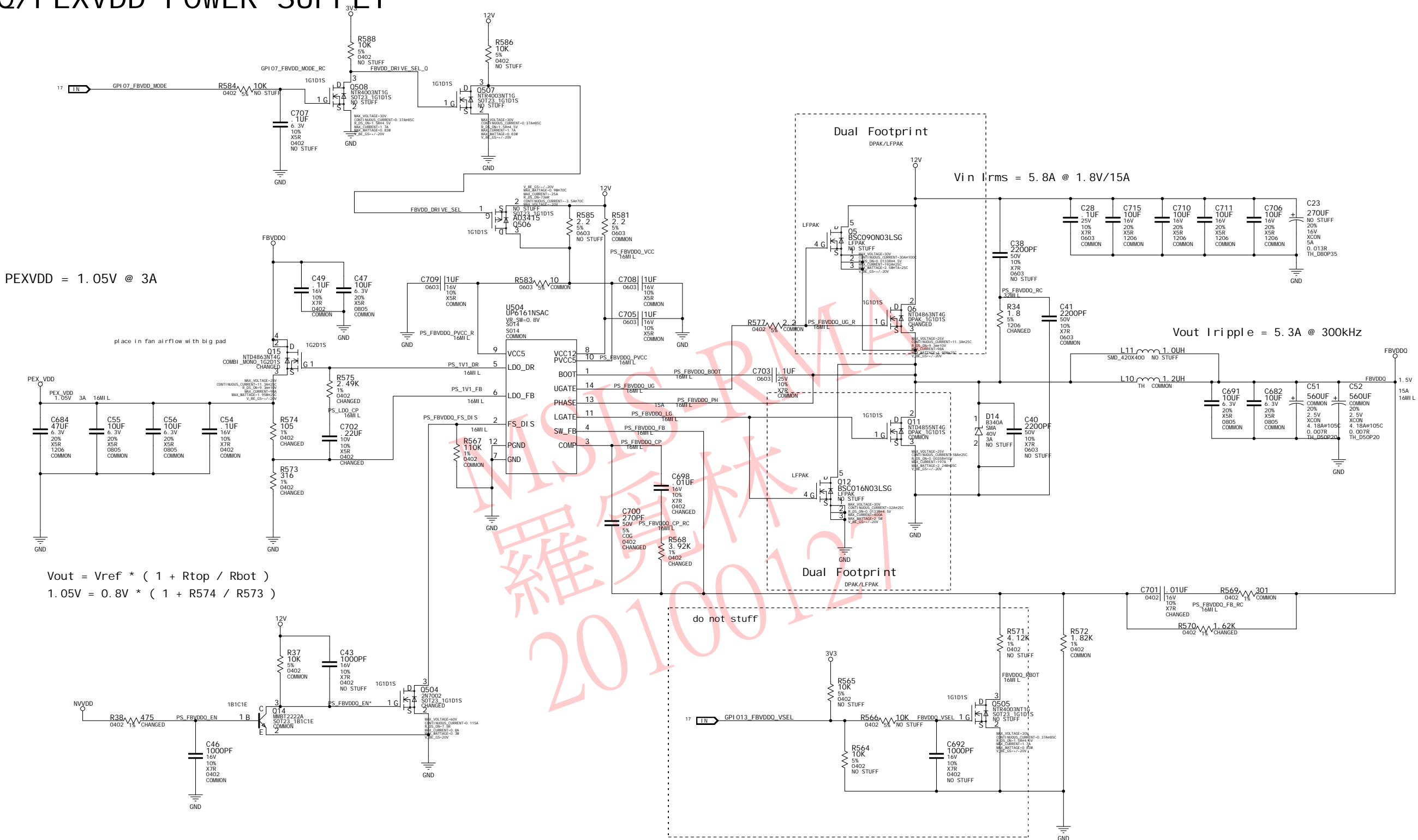


$$V_{OUT} = V_{ref} * (1 + R_{bot} / R_{top})$$
$$5.14V = 1.256V * (1 + 383 / 124)$$

IFP_IOVDD BACKDRIVE PREVENTION

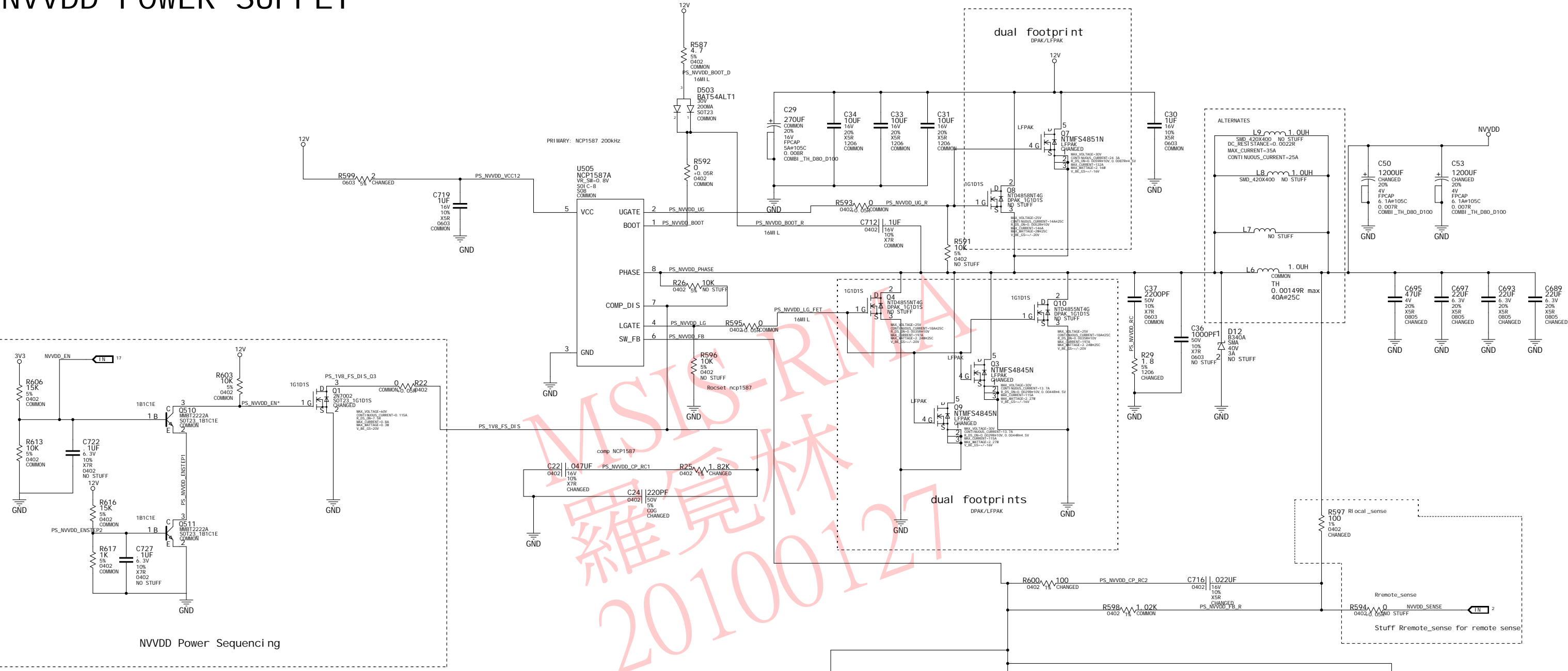


FBVDDQ/PEXVDD POWER SUPPLY



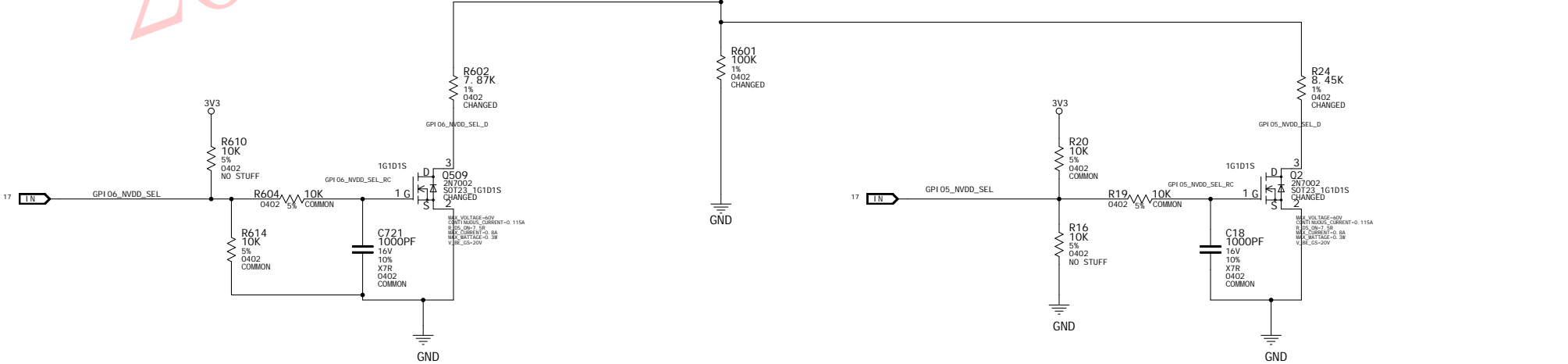
$$FBVDDQ = V_{ref} * (1 + R_{top} / R_{bot})$$
$$1.50V = 0.8V * (1 + R570 / R572) @ GPI013 = 0 \text{ [DEFAULT]}$$

NVVDD POWER SUPPLY



NVVDD Power Sequenci ng

Net Name	MI N_LINE_WIDTH	VOLTAGE	NV_NET_MAX_CURRENT
NVVDD	NVVDD	1.6MI L	1V 20A
PS_NVVDD_VCC5	1.6MI L		
PS_NVVDD_VCC12	1.6MI L		
PS_NVVDD_VCC5	1.6MI L		
PS_NVVDD_BOOT	1.6MI L		
PS_NVVDD_UG	1.6MI L		
PS_NVVDD_PHASE	1.6MI L		
PS_NVVDD_LG	1.6MI L		
PS_NVVDD_FB	1.2MI L		
PS_NVVDD_CP	1.2MI L		
PS_NVVDD_UG_R	1.6MI L		
PS_NVVDD_CP_RC1	1.2MI L		
PS_NVVDD_CP_RC2	1.2MI L		
PS_NVVDD_FB_R	1.2MI L		
PS_NVVDD_RC	1.2MI L		



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