P673: GT215 128-bit, 32Mx32/64Mx16 GDDR5
DL-DVI, VGA, HDMI

SKU	VARIANT	NVPN	ASSEMBLY
B	BASE	600-10673-base-100	BASE LEVEL GENERIC SCHEMATIC ONLY, COMMON & NO_STUFF ASSEMBLY NOTES AND BOM NOT FINAL
1	SKU0001	600-10673-0001-100	GT215-450, 575/1443MHz 1024MB 64Mx16 BGA170 1800MHz GDDR5 DVI-I/VGA/HDMI
2	<UNDEFINED>	<UNDEFINED>	<UNDEFINED>
3	<UNDEFINED>	<UNDEFINED>	<UNDEFINED>
4	<UNDEFINED>	<UNDEFINED>	<UNDEFINED>
5	SKU0005	600-10673-0005-100	GT215-450, 575/1443MHz 512MB 32Mx32 BGA170 1800MHz GDDR5 DVI-I/VGA/HDMI
6	<UNDEFINED>	<UNDEFINED>	<UNDEFINED>
7	<UNDEFINED>	<UNDEFINED>	<UNDEFINED>
8	<UNDEFINED>	<UNDEFINED>	<UNDEFINED>
9	<UNDEFINED>	<UNDEFINED>	<UNDEFINED>
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11	<UNDEFINED>	<UNDEFINED>	<UNDEFINED>
12	<UNDEFINED>	<UNDEFINED>	<UNDEFINED>
13	<UNDEFINED>	<UNDEFINED>	<UNDEFINED>
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15	<UNDEFINED>	<UNDEFINED>	<UNDEFINED>

ASSEMBLY	GT215-450, 575/1443MHz 1024MB 64Mx16 BGA170 1800MHz GDDR5 DVI-I/VGA/HDMI
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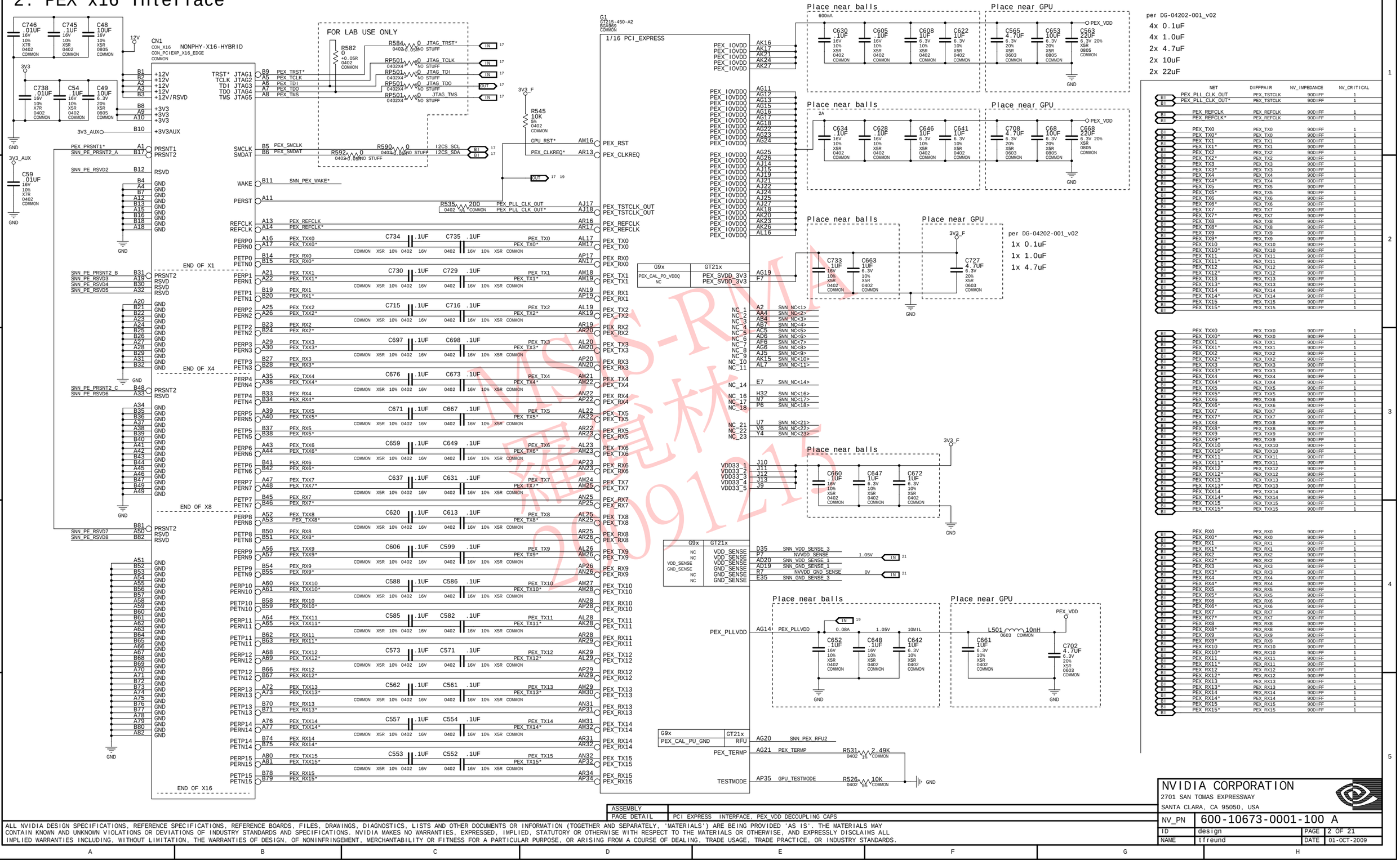
2. PEX x16 Interface



NET	DIFFPAIR	NV_IMPEDANCE	NV_CRITICAL
PEX_PLL_CLK_OUT	PEX_TSTCLK	90DIFF	1
PEX_PLL_CLK_OUT*	PEX_TSTCLK	90DIFF	1
PEX_REFCLK	PEX_REFCLK	90DIFF	1
PEX_REFCLK*	PEX_REFCLK	90DIFF	1
PEX_TX0	PEX_TX0	90DIFF	1
PEX_TX0*	PEX_TX0	90DIFF	1
PEX_TX1	PEX_TX1	90DIFF	1
PEX_TX1*	PEX_TX1	90DIFF	1
PEX_TX2	PEX_TX2	90DIFF	1
PEX_TX2*	PEX_TX2	90DIFF	1
PEX_TX3	PEX_TX3	90DIFF	1
PEX_TX3*	PEX_TX3	90DIFF	1
PEX_TX4	PEX_TX4	90DIFF	1
PEX_TX4*	PEX_TX4	90DIFF	1
PEX_TX5	PEX_TX5	90DIFF	1
PEX_TX5*	PEX_TX5	90DIFF	1
PEX_TX6	PEX_TX6	90DIFF	1
PEX_TX6*	PEX_TX6	90DIFF	1
PEX_TX7	PEX_TX7	90DIFF	1
PEX_TX7*	PEX_TX7	90DIFF	1
PEX_TX8	PEX_TX8	90DIFF	1
PEX_TX8*	PEX_TX8	90DIFF	1
PEX_TX9	PEX_TX9	90DIFF	1
PEX_TX9*	PEX_TX9	90DIFF	1
PEX_TX10	PEX_TX10	90DIFF	1
PEX_TX10*	PEX_TX10	90DIFF	1
PEX_TX11	PEX_TX11	90DIFF	1
PEX_TX11*	PEX_TX11	90DIFF	1
PEX_TX12	PEX_TX12	90DIFF	1
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PEX_TX14	PEX_TX14	90DIFF	1
PEX_TX14*	PEX_TX14	90DIFF	1
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PEX_TX15*	PEX_TX15	90DIFF	1
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PEX_RX13*	PEX_RX13	90DIFF	1
PEX_RX14	PEX_RX14	90DIFF	1
PEX_RX14*	PEX_RX14	90DIFF	1
PEX_RX15	PEX_RX15	90DIFF	1
PEX_RX15*	PEX_RX15	90DIFF	1

ASSEMBLY	
PAGE DETAIL	PCI EXPRESS INTERFACE, PEX_VDD DECOUPLING CAPS

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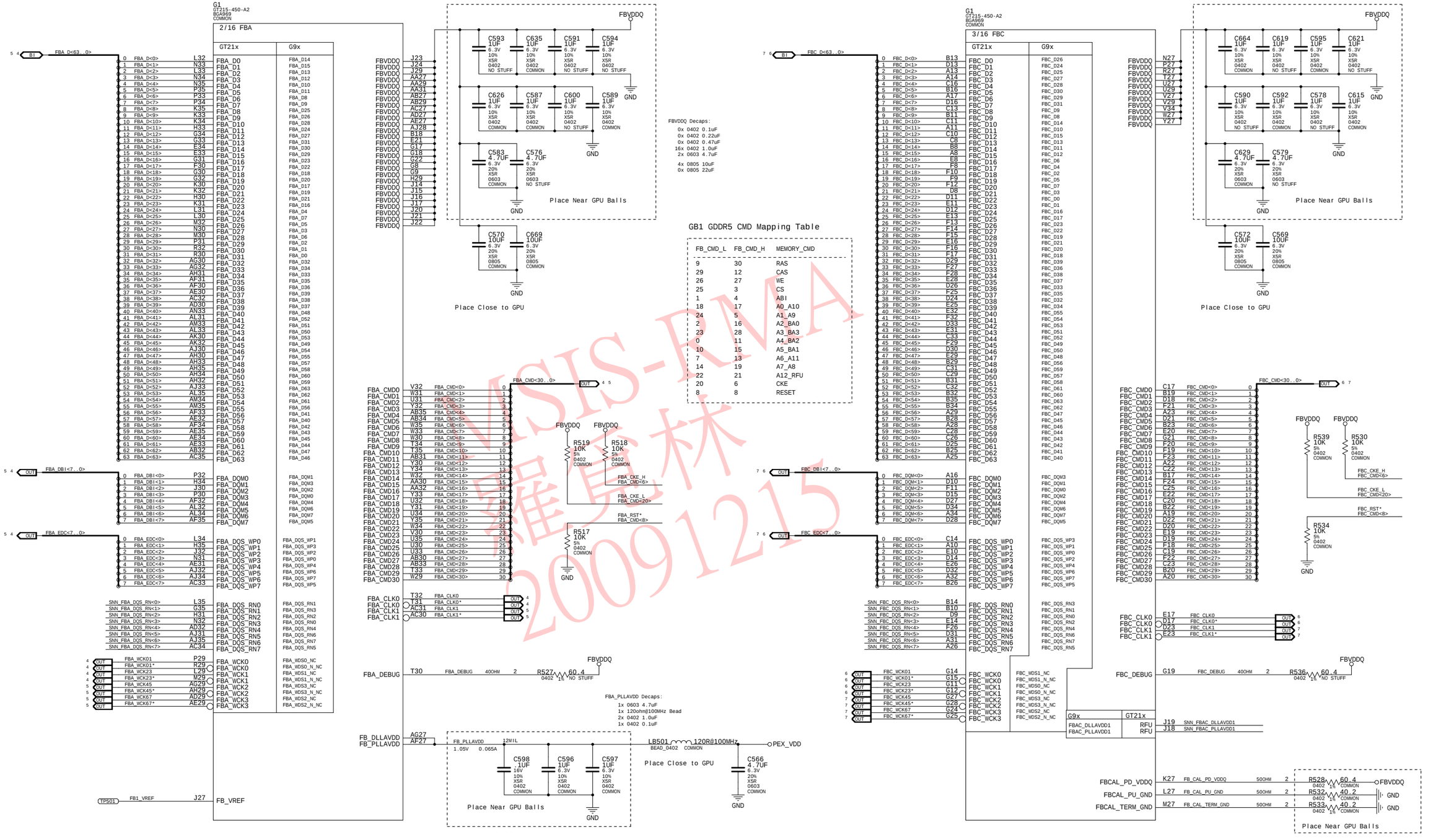
3. Frame Buffer Interface



ASSEMBLY	GT215-450, 575/1443MHz 1024MB 64Mx16 BGA170 1800MHz GDDR5 DVI-I/VGA/HDMI
PAGE DETAIL	Frame Buffer Interface

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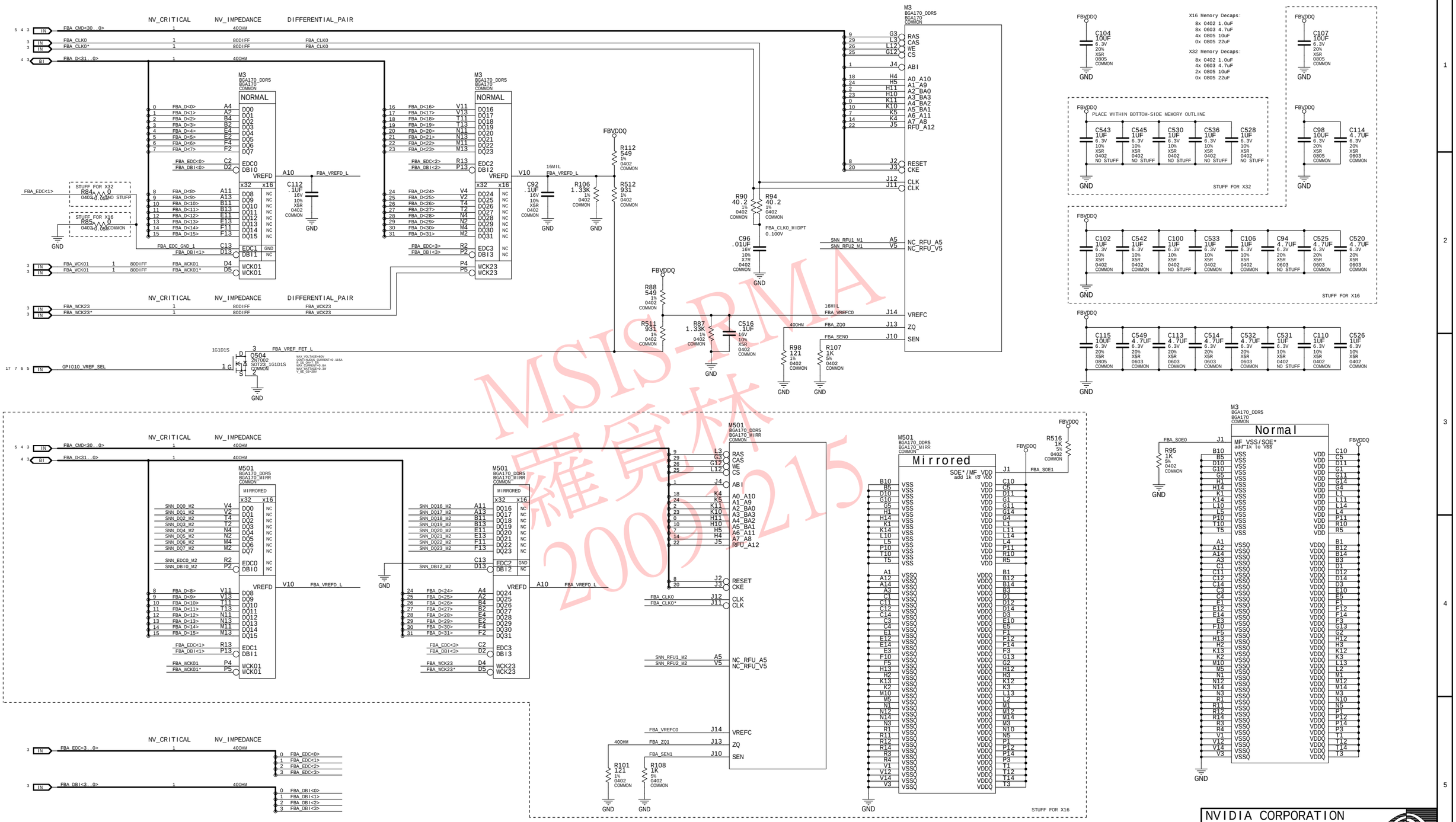
4. Frame Buffer Partition A - Lower Half



ASSEMBLY	GT215-450, 575/1443MHz 1024MB 64Mx16 BGA170 1800MHz GDDR5 DVI-I/VGA/HDMI
PAGE DETAIL	Frame Buffer Partition A - Lower Half

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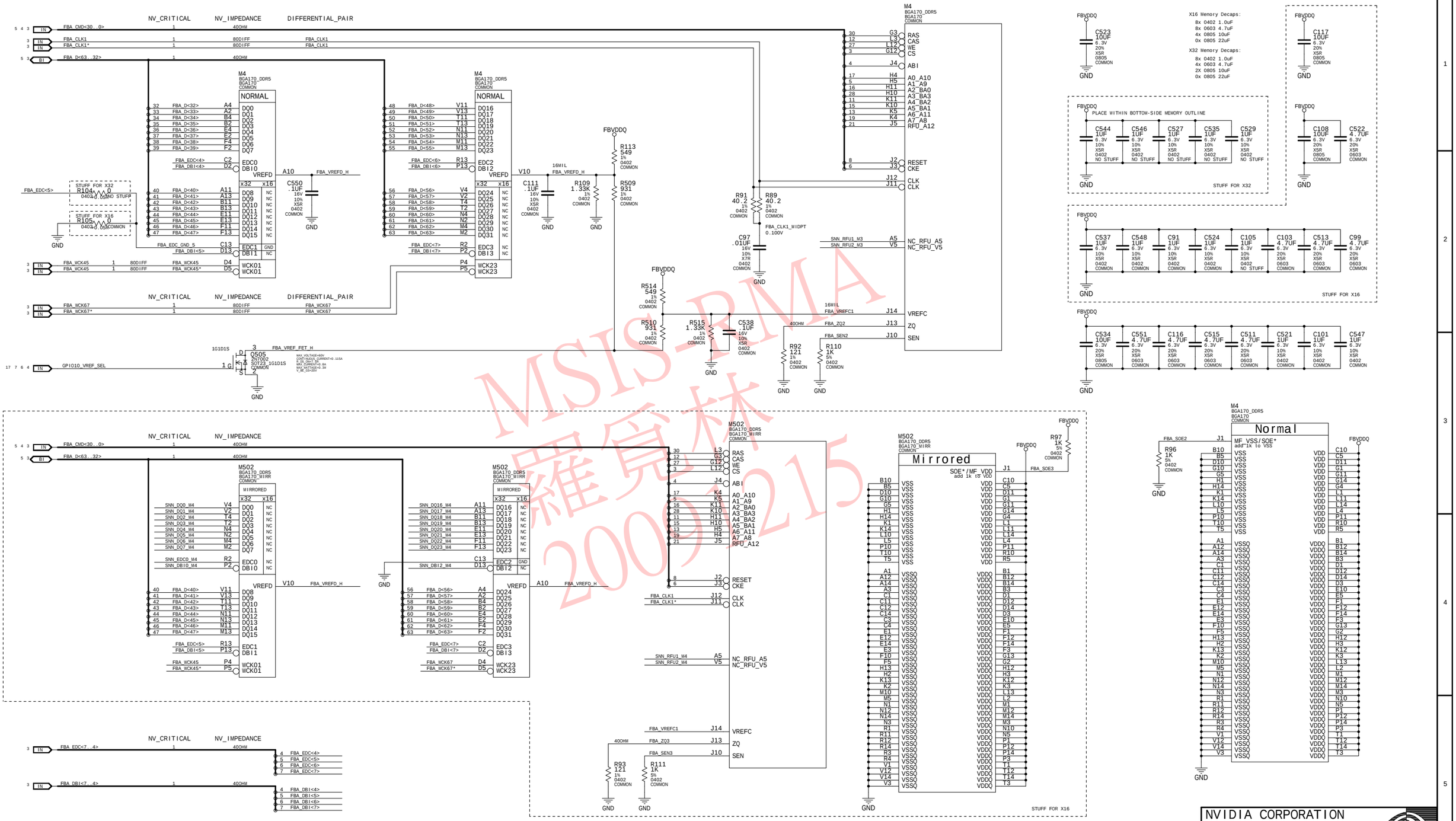
5. Frame Buffer Partition A - Upper Half



ASSEMBLY	GT215-450, 575/1443MHz 1024MB 64Mx16 BGA170 1800MHz GDDR5 DVI-I/VGA/HDMI
PAGE DETAIL	Frame Buffer Partition A - Upper Half

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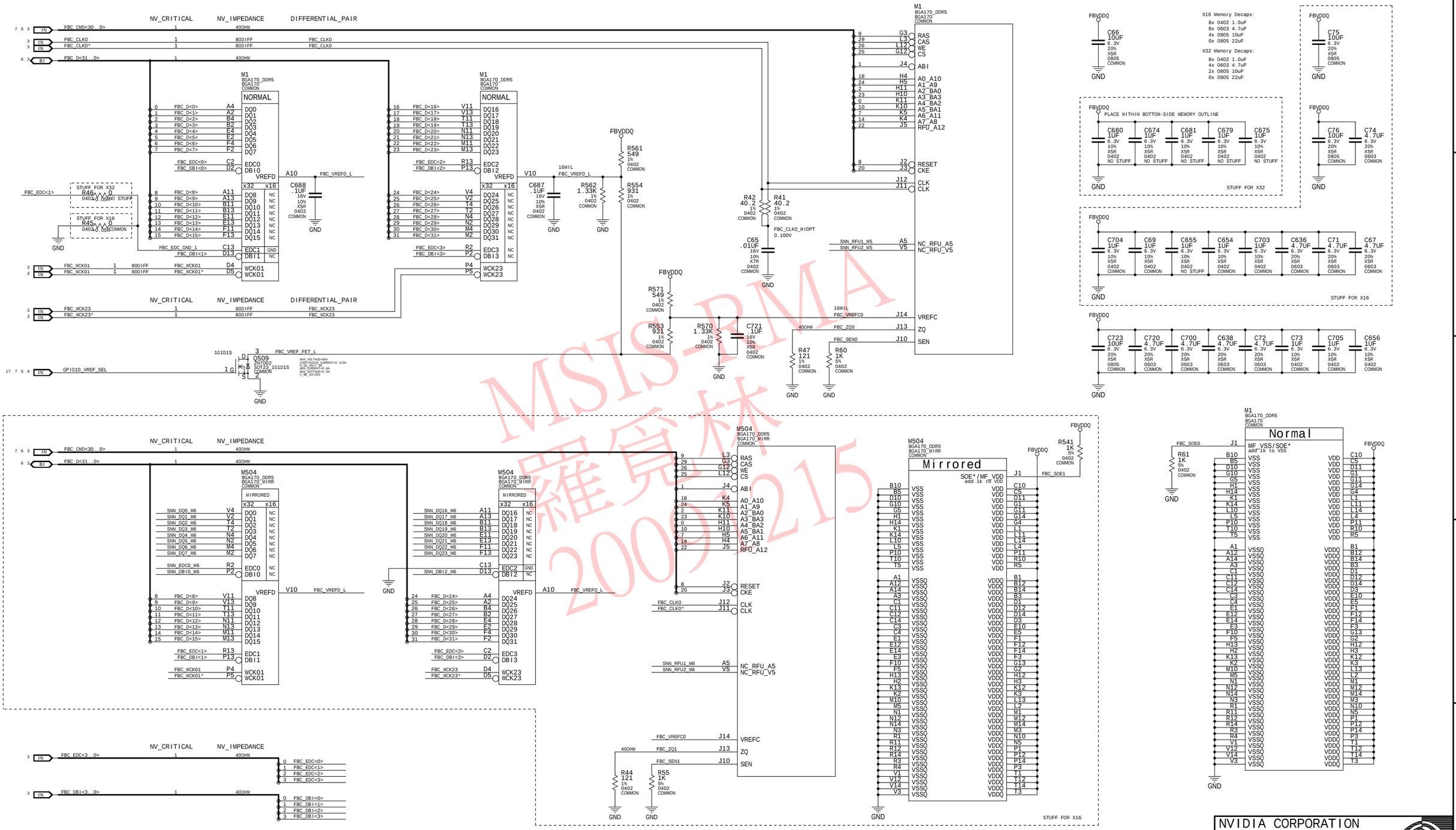
6. Frame Buffer Partition C - Lower Half



ASSEMBLY	GT215-450, 575/1443MHz 1024MB 64Mx16 BGA170 1800MHz GDDR5 DVI-I/VGA/HDMI
PAGE DETAIL	Frame Buffer Partition C - Lower Half

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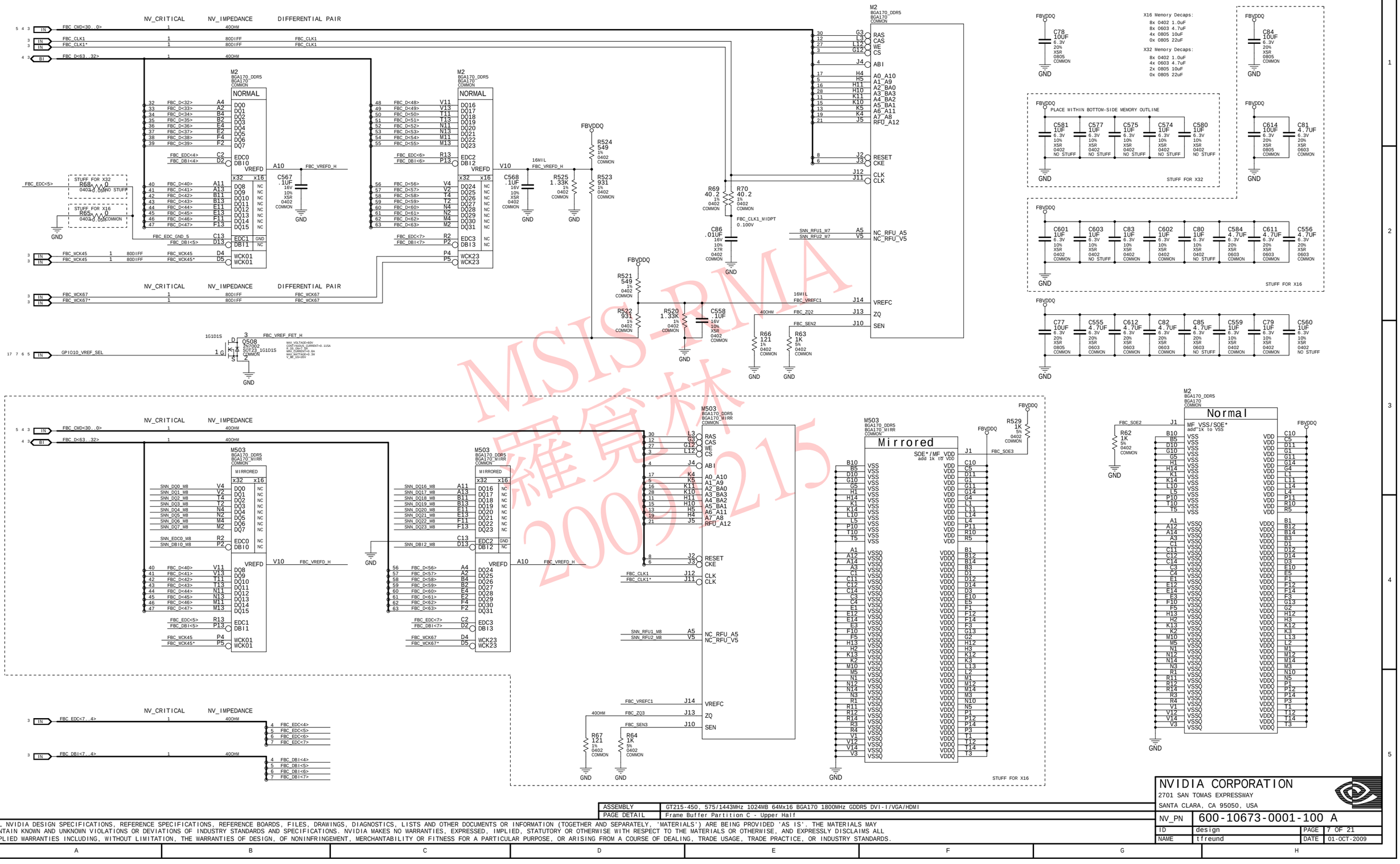
7. Frame Buffer Partition C - Upper Half



ASSEMBLY	GT215-450, 575/1443MHz 1024MB 64Mx16 BGA170 1800MHz GDDR5 DVI-I/VGA/HDMI
PAGE DETAIL	Frame Buffer Partition C - Upper Half

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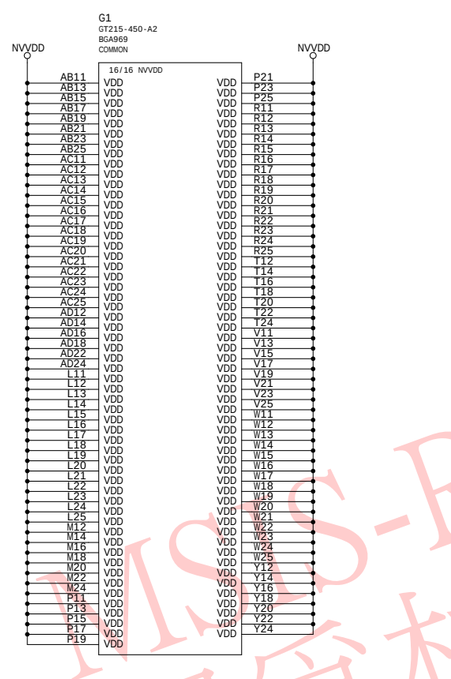
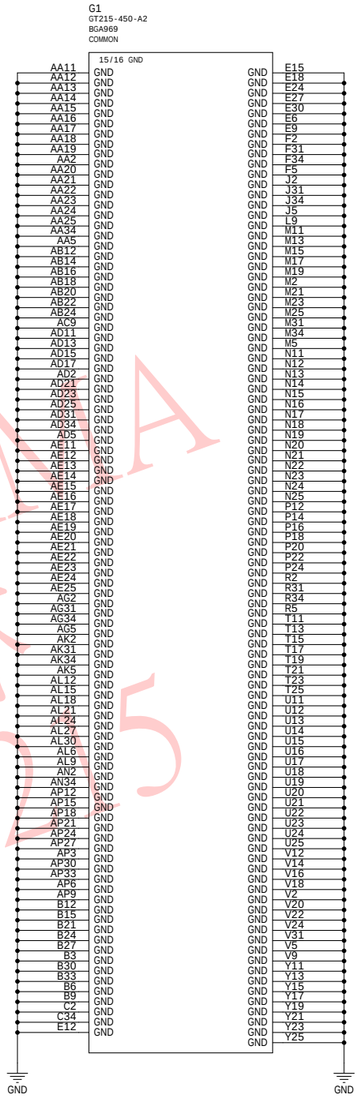
8. NVVDD Decoupling





ASSEMBLY	GT215-450, 575/1443MHz 1024MB 64Mx16 BGA170 1800MHz GDDR5 DVI-I/VGA/HDMI
PAGE DETAIL	NVVDD Decoupling

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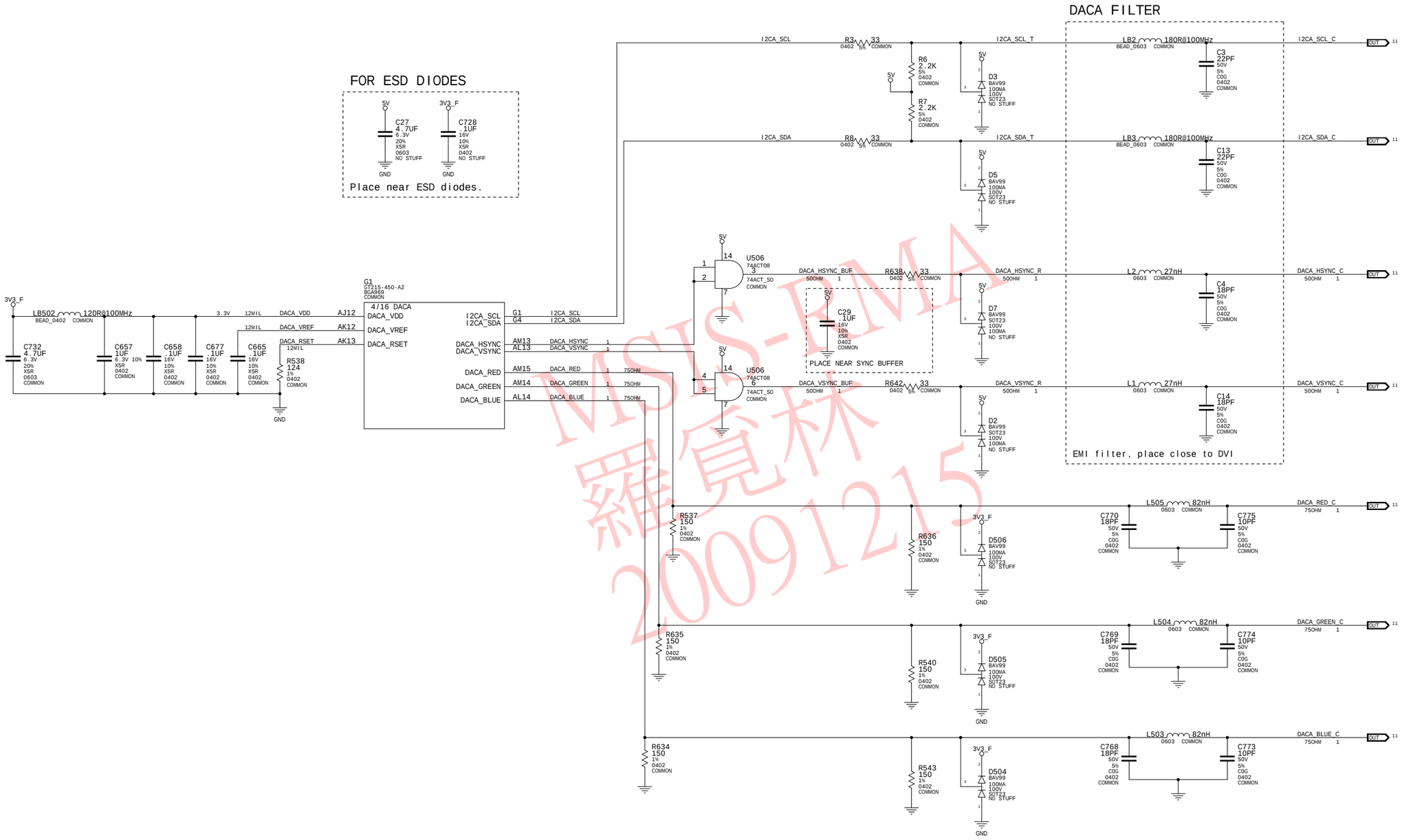
9. DACA for South DVI-I



ASSEMBLY	GT215-450, 575/1443MHz 1024MB 64Mx16 BGA170 1800MHz GDDR5 DVI-I/VGA/HDMI
PAGE DETAIL	DACA FOR SOUTH DVI-I

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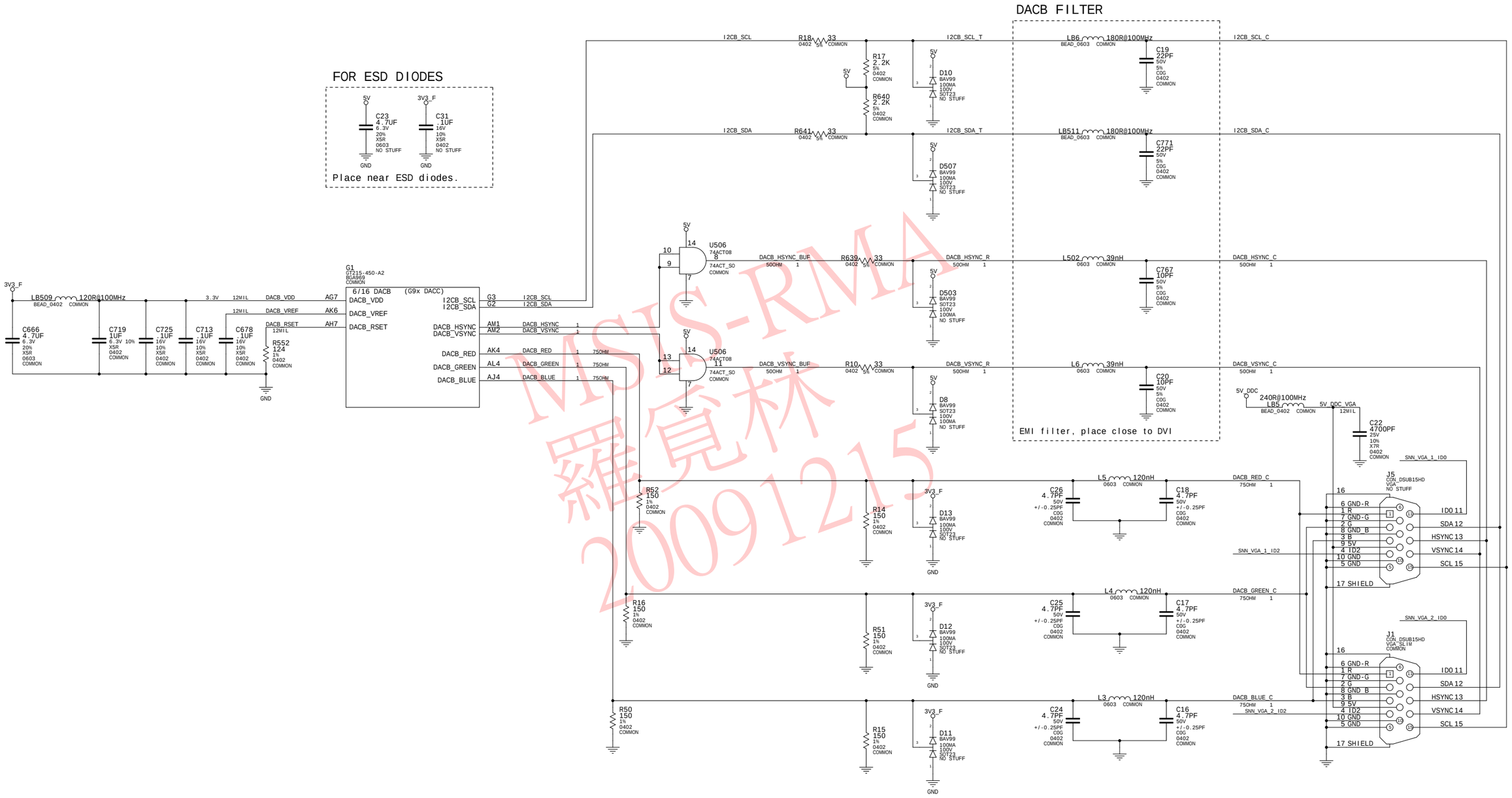
10. DACB for Mid VGA



ASSEMBLY	GT215-450, 575/1443MHz 1024MB 64Mx16 BGA170 1800MHz GDDR5 DVI-I/VGA/HDMI
PAGE DETAIL	DACB FOR MID VGA

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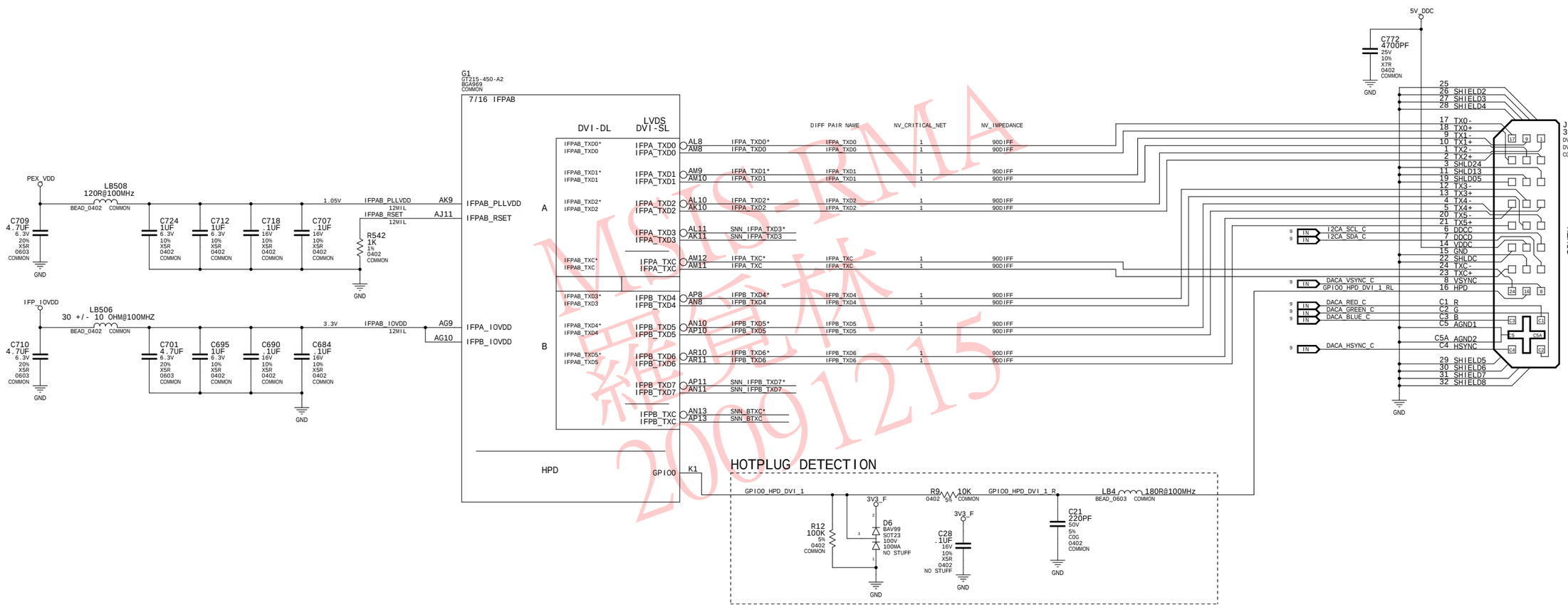
11. Link A/B for South Dual-Link DVI-I



ASSEMBLY	GT215-450, 575/1443MHz 1024MB 64Mx16 BGA170 1800MHz GDDR5 DVI-I/VGA/HDMI
PAGE DETAIL	LINK A/B FOR SOUTH DUAL-LINK DVI-I

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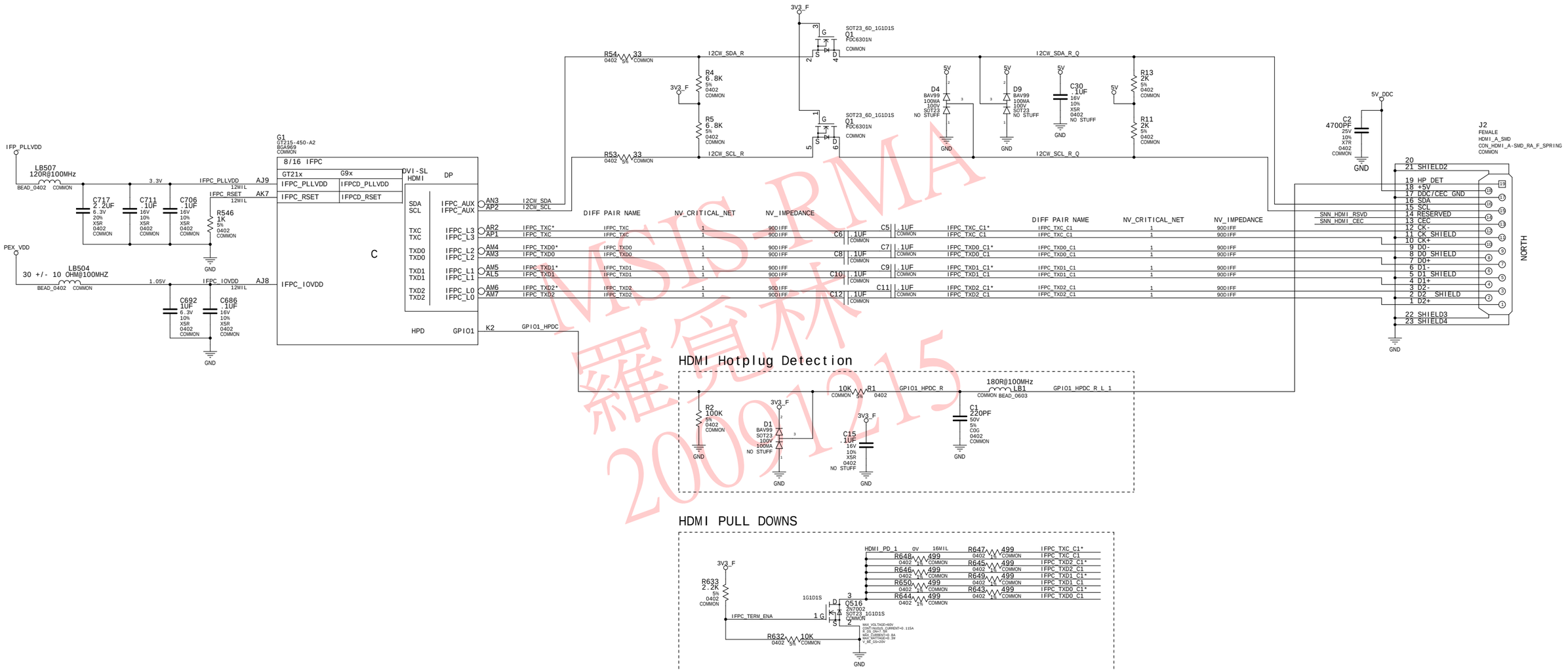
12. Link C for North HDMI



HDMI Hotplug Detection

HDMI PULL DOWNS

ASSEMBLY	GT215-450, 575/1443MHz 1024MB 64Mx16 BGA170 1800MHz GDDR5 DVI-I/VGA/HDMI
PAGE DETAIL	LINK C FOR NORTH HDMI

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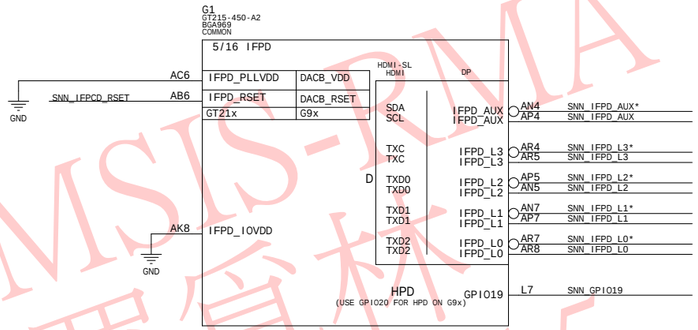
13. Link D Unused



ASSEMBLY	GT215-450, 575/1443MHz 1024MB 64Mx16 BGA170 1800MHz GDDR5 DVI-I/VGA/HDMI
PAGE DETAIL	LINK D UNUSED

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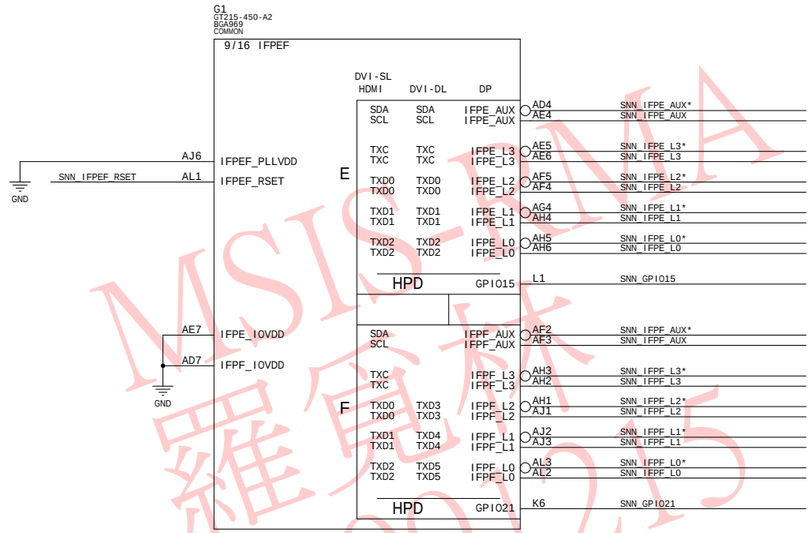
14. Link E/F Unused



ASSEMBLY	GT215-450, 575/1443MHz 1024MB 64Mx16 BGA170 1800MHz GDDR5 DVI-I/VGA/HDMI
PAGE DETAIL	LINK E/F UNUSED

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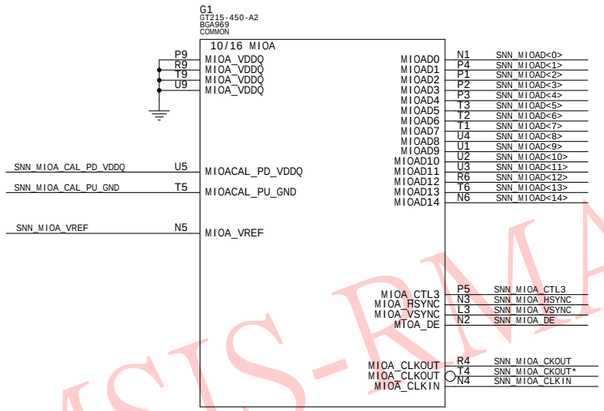
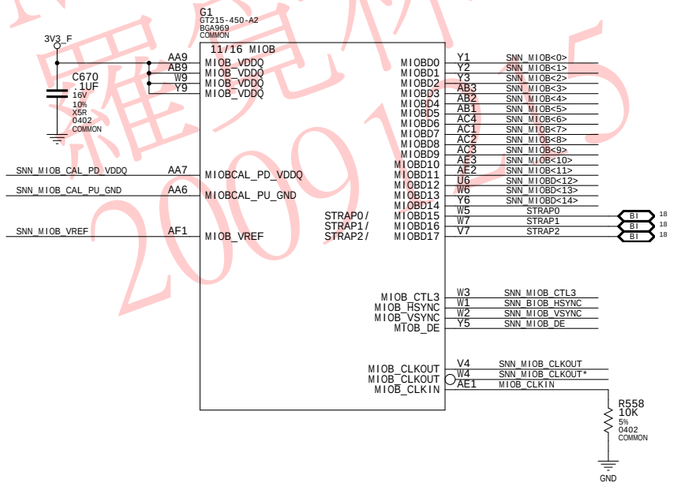
15. MIOA and MIOB Unused





ASSEMBLY	GT215-450, 575/1443MHz 1024MB 64Mx16 BGA170 1800MHz GDDR5 DVI-I/VGA/HDMI
PAGE DETAIL	MIOA AND MIOB UNUSED

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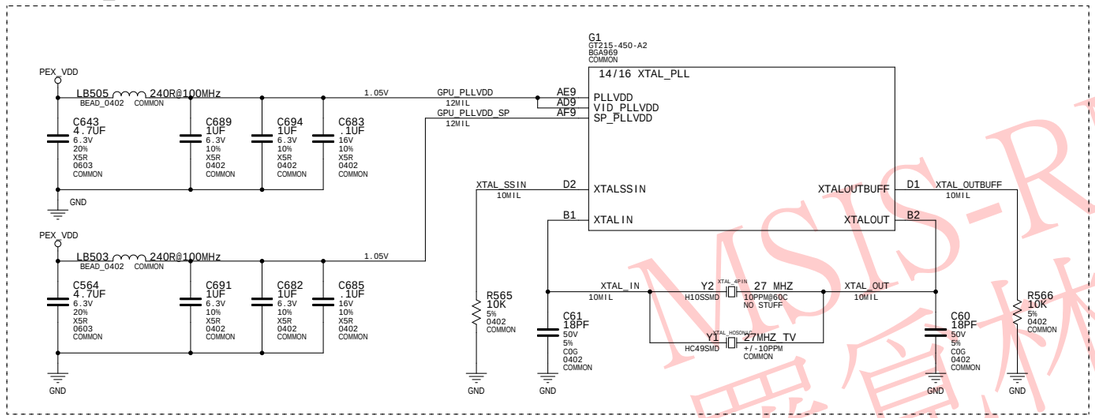
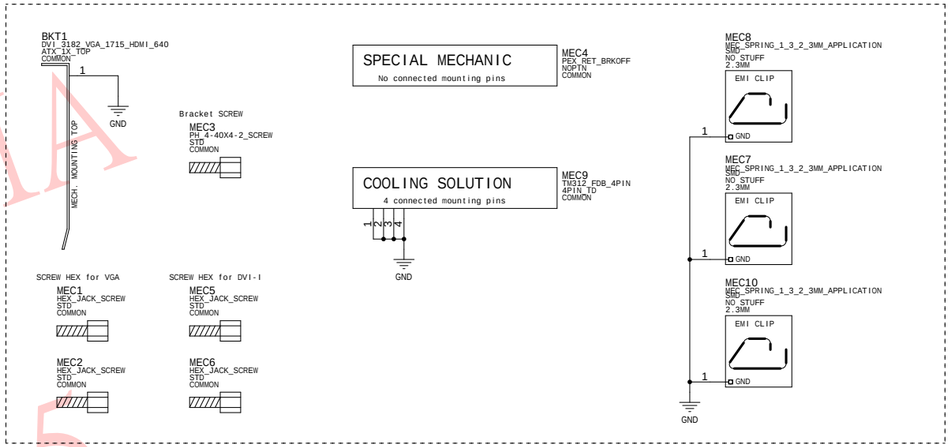
16. XTAL and Mechanical and Thermal Parts

XTAL/GPU_PLLVDD



MECHANICAL AND THERMAL PARTS



ASSEMBLY	GT215-450, 575/1443MHz 1024MB 64Mx16 BGA170 1800MHz GDDR5 DVI-I/VGA/HDMI
PAGE DETAIL	XTAL AND MECHANICAL AND THERMAL PARTS

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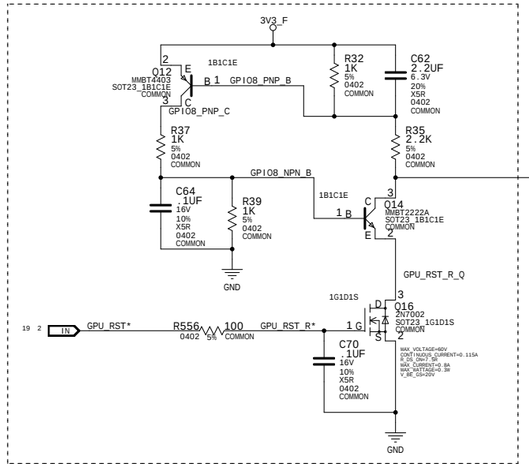
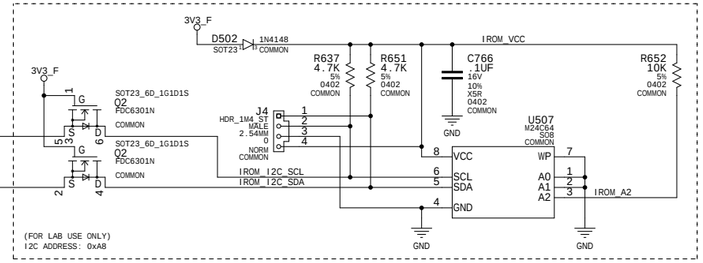
17. Thermal Alert, Fan Control, GPIO, InfoROM, and JTAG

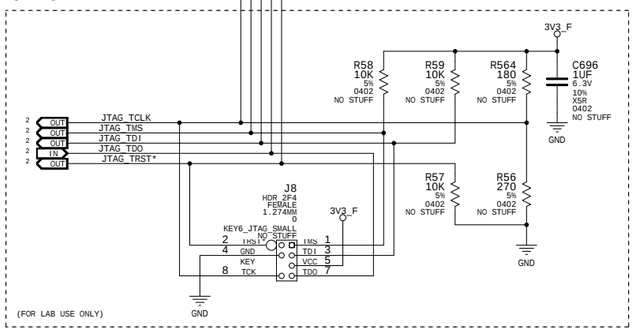
THERM ALERT LATCH

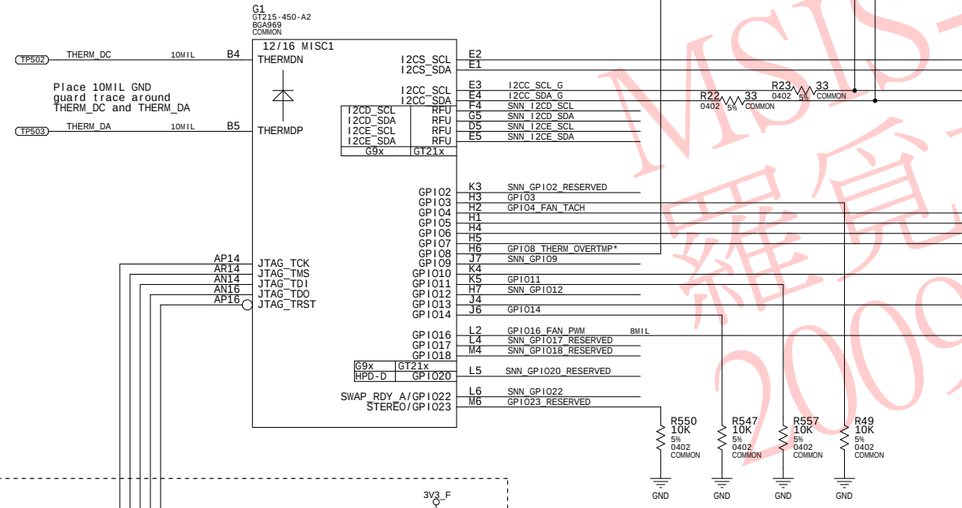


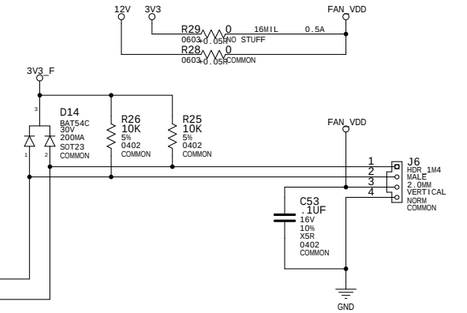
INFOROM

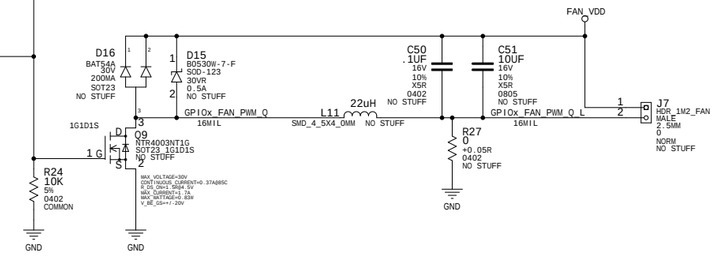


JTAG









ASSEMBLY	GT215-450, 575/1443MHz 1024MB 64Mx16 BGA170 1800MHz GDDR5 DVI-I/VGA/HDMI
PAGE DETAIL	THERMAL ALERT, FAN CONTROL, GPIO, INFOROM, AND JTAG

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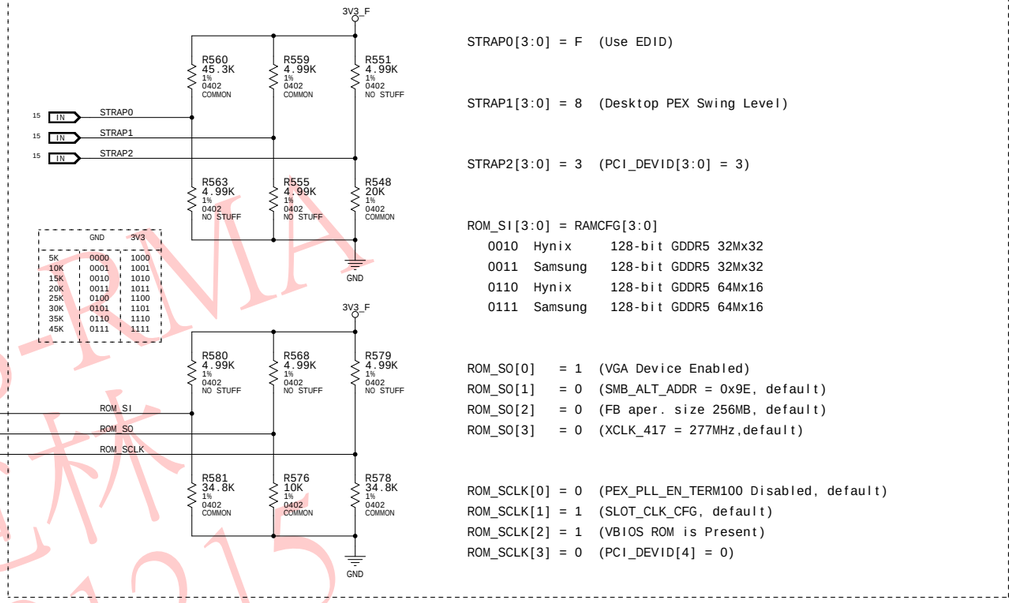
18. Strapping and VBIOS ROM

GPU STRAPPING



STRAP0[3:0] = F (Use EDID)

STRAP1[3:0] = 8 (Desktop PEX Swing Level)

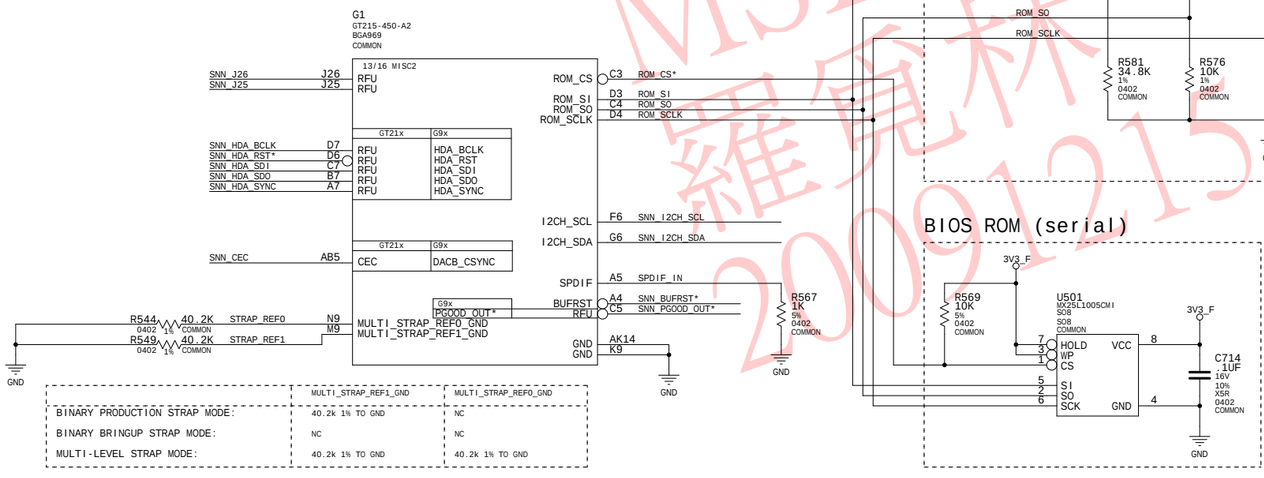
STRAP2[3:0] = 3 (PCI_DEVID[3:0] = 3)

ROM_SI[3:0] = RAMCFG[3:0]

0010	Hynix	128-bit GDDR5	32Mx32
0011	Samsung	128-bit GDDR5	32Mx32
0110	Hynix	128-bit GDDR5	64Mx16
0111	Samsung	128-bit GDDR5	64Mx16

ROM_SO[0] = 1 (VGA Device Enabled)
ROM_SO[1] = 0 (SMB_ALT_ADDR = 0x9E, default)
ROM_SO[2] = 0 (FB aper. size 256MB, default)
ROM_SO[3] = 0 (XCLK_417 = 277MHz,default)

ROM_SCLK[0] = 0 (PEX_PLL_EN_TERM100 Disabled, default)
ROM_SCLK[1] = 1 (SLOT_CLK_CFG, default)
ROM_SCLK[2] = 1 (VBIOS ROM is Present)
ROM_SCLK[3] = 0 (PCI_DEVID[4] = 0)



	MULTI_STRAP_REF1_GND	MULTI_STRAP_REF0_GND
BINARY PRODUCTION STRAP MODE:	40.2k 1% TO GND	NC
BINARY BRINGUP STRAP MODE:	NC	NC
MULTI-LEVEL STRAP MODE:	40.2k 1% TO GND	40.2k 1% TO GND

BIOS ROM (serial)

ASSEMBLY	GT215-450, 575/1443MHz 1024MB 64Mx16 BGA170 1800MHz GDDR5 DVI-I/VGA/HDMI
PAGE DETAIL	STRAPPING AND VBIOS ROM

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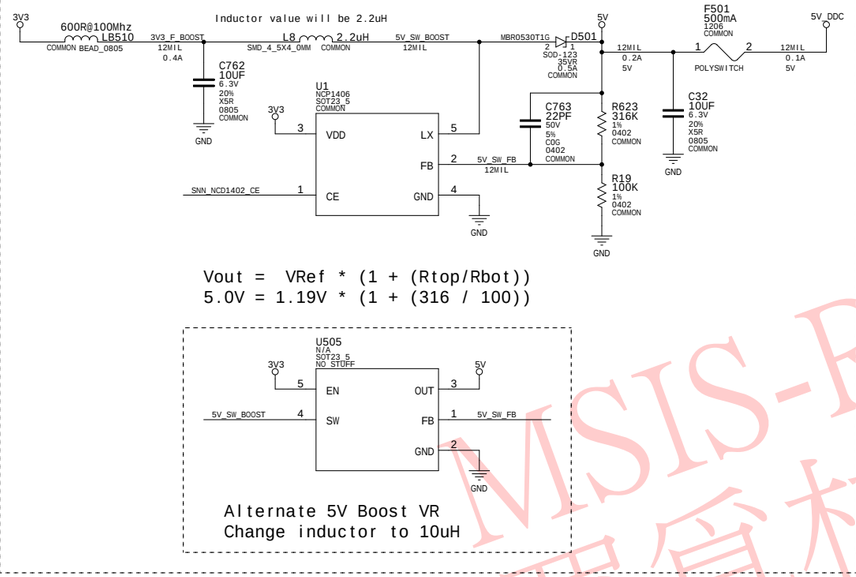
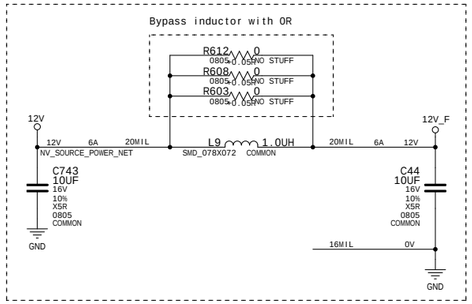
19. 5V, 5VDDC, IFP_PLLVDD, IFP_IOVDD, 3.3V Filter, and 12V Filter

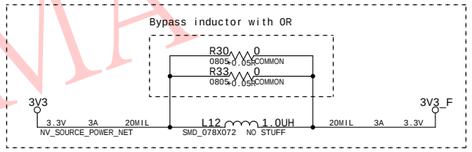
5V BOOST REGULATOR



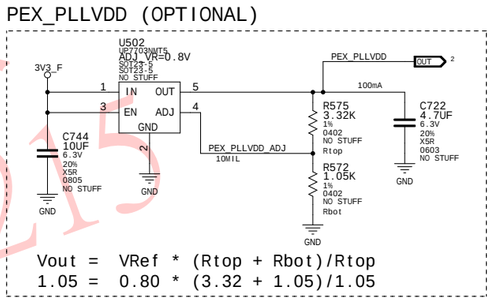
12V FILTER



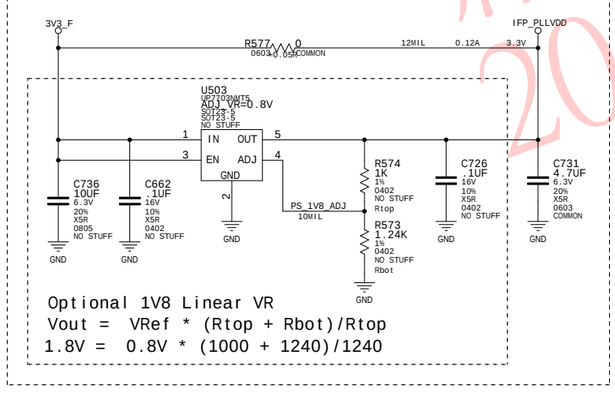
3.3V FILTER



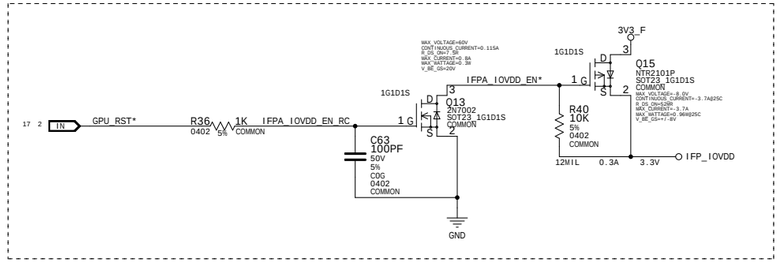
PEX_PLLVDD (OPTIONAL)



IFP_PLLVDD SUPPLY FOR IFPC



IFP_IOVDD BACKDRIVE PREVENTION FOR IFPA/B



ASSEMBLY	GT215-450, 575/1443MHz 1024MB 64Mx16 BGA170 1800MHz GDDR5 DVI-I/VGA/HDMI
PAGE DETAIL	5V, 5VDDC, IFP_PLLVDD, IFP_IOVDD, 3V3 FILTER, AND 12V FILTER

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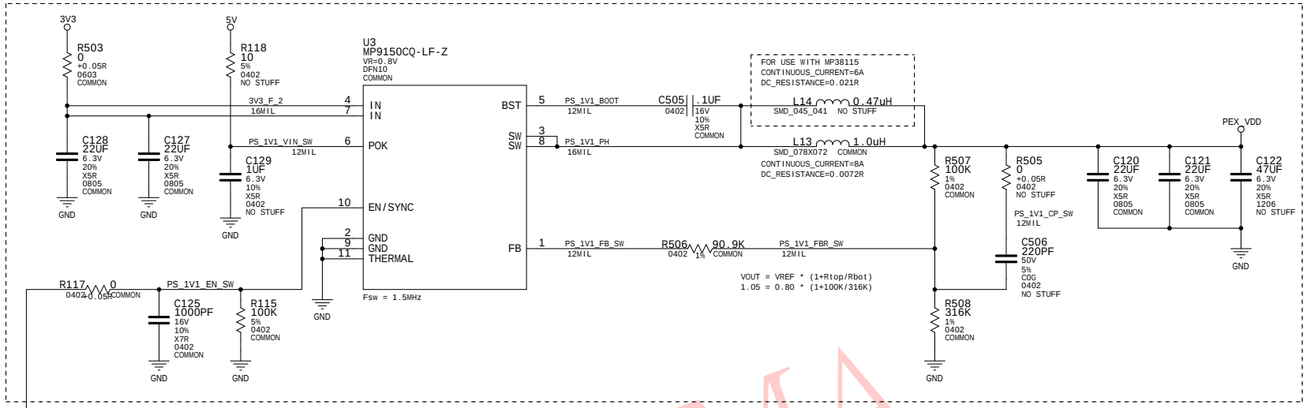
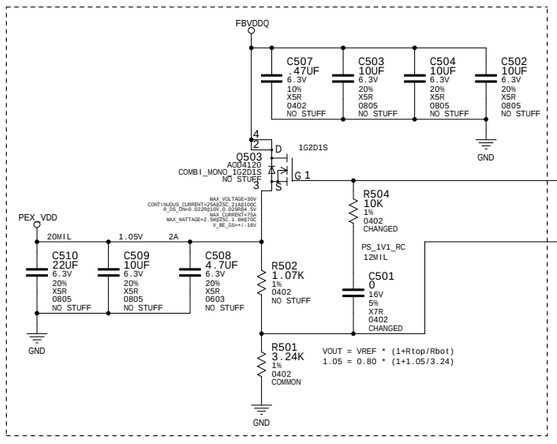
20. FBVDDQ and PEX_VDD Power Supplies

FBVDDQ Power Supply 1.35-1.50V@14A

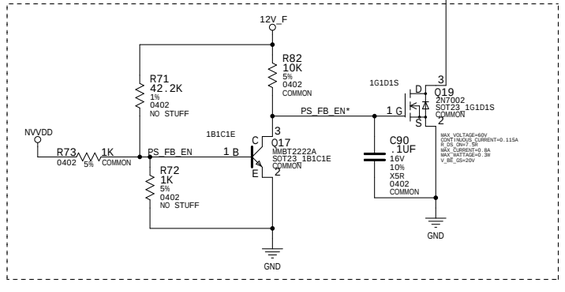
PEXVDD SWITCHING VR



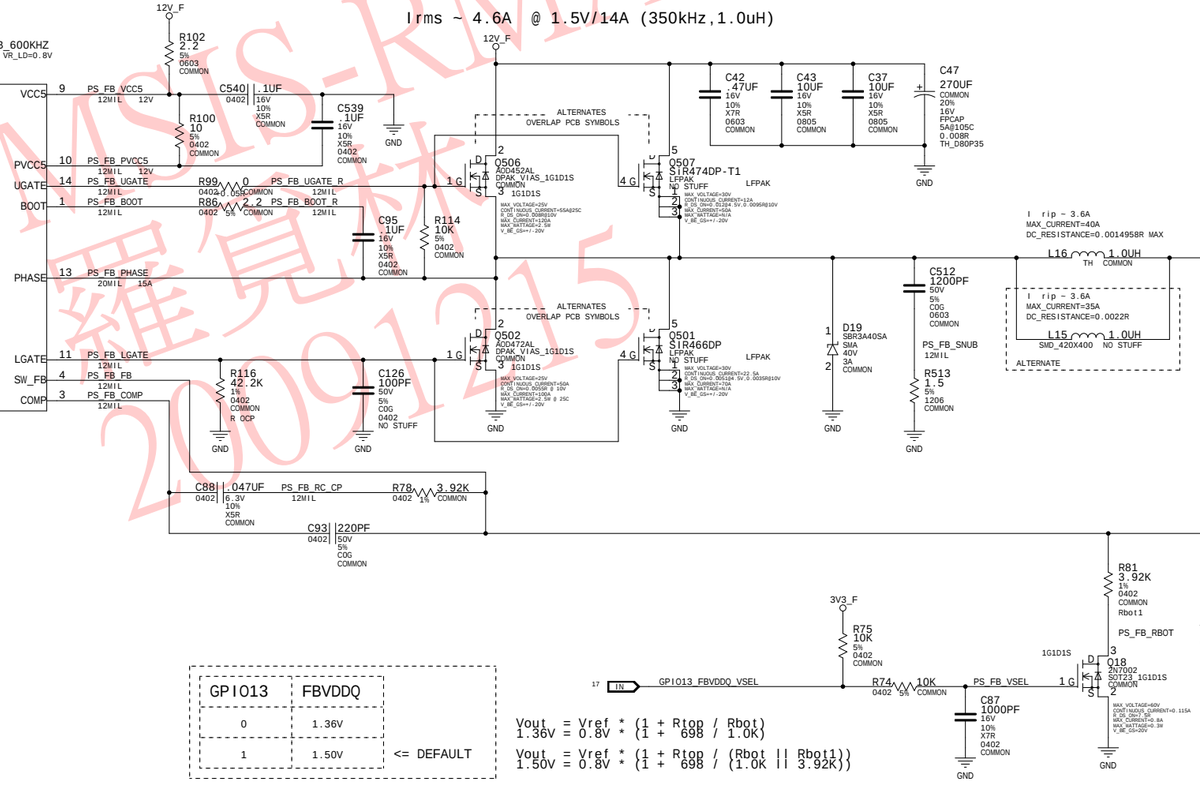
ALTERNATE PEXVDD LINEAR VR



PEXVDD GATING



Irms ~ 4.6A @ 1.5V/14A (350kHz,1.0uH)



GPIO13	FBVDDQ	
0	1.36V	
1	1.50V	<= DEFAULT

ASSEMBLY	GT215-450, 575/1443MHz 1024MB 64Mx16 BGA170 1800MHz GDDR5 DVI-I/VGA/HDMI
PAGE DETAIL	FBVDDQ SINGLE PHASE SWITCHER, PEX_VDD LINEAR

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21. NVVDD Dual-Phase Switching Power Supply

NVVDD Power Supply 35A@1.0V

PSTATE	GPIO 7 6 5	Vout@0-load	Phases	
0	0 0 0	1.00	2	
-	0 1 0	0.94	2	
8/12	1 0 0	0.90	2	<= DEFAULT
-	1 1 0	0.85	2	

Irms ~ 6.5A @ 1.02V/35A (265kHz,0.6uH)

Irip ~ 5.7A

Route Kelvin traces

ASSEMBLY	
PAGE DETAIL	NVVDD DUAL-PHASE SWITCHER

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