P872: GT218, DDR2 MEMORY 64MX16/128MX16

SKU	VARIANT	NVPN	ASSEMBLY
B	BASE	600-10872-BASE-100	BASE LEVEL GENERIC SCHEMATIC ONLY, COMMON & NO_STUFF ASSEMBLY NOTES AND BOM NOT FINAL
1	SKU0000	600-10872-0000-100	GT218-300-B, Dual-Rank, 589/1402/790, 1024MB/64bit, 64Mx16 DDR3, DVI-DL+HDMI, DT
2	SKU0001	600-10872-0001-100	GT218-300-B, 589/1042/790, 512MB/64bit, 64MBx16 DDR3, DVI-I+HDMI, DT
3	SKU0002	600-10872-0002-100	GT218-300-B, 589/1402/790, 1024MB/64bit, 128MBx16 DDR3, DVI-I+HDMI, DT
4	<UNDEFINED>	<UNDEFINED>	<UNDEFINED>
5	<UNDEFINED>	<UNDEFINED>	<UNDEFINED>
6	<UNDEFINED>	<UNDEFINED>	<UNDEFINED>
7	<UNDEFINED>	<UNDEFINED>	<UNDEFINED>
8	<UNDEFINED>	<UNDEFINED>	<UNDEFINED>
9	<UNDEFINED>	<UNDEFINED>	<UNDEFINED>
10	<UNDEFINED>	<UNDEFINED>	<UNDEFINED>
11	<UNDEFINED>	<UNDEFINED>	<UNDEFINED>
12	<UNDEFINED>	<UNDEFINED>	<UNDEFINED>
13	<UNDEFINED>	<UNDEFINED>	<UNDEFINED>
14	<UNDEFINED>	<UNDEFINED>	<UNDEFINED>
15	<UNDEFINED>	<UNDEFINED>	<UNDEFINED>

ASSEMBLY	BASE LEVEL GENERIC SCHEMATIC ONLY, COMMON & NO_STUFF ASSEMBLY NOTES AND BOM NOT FINAL
PAGE DETAIL	P872 Overview

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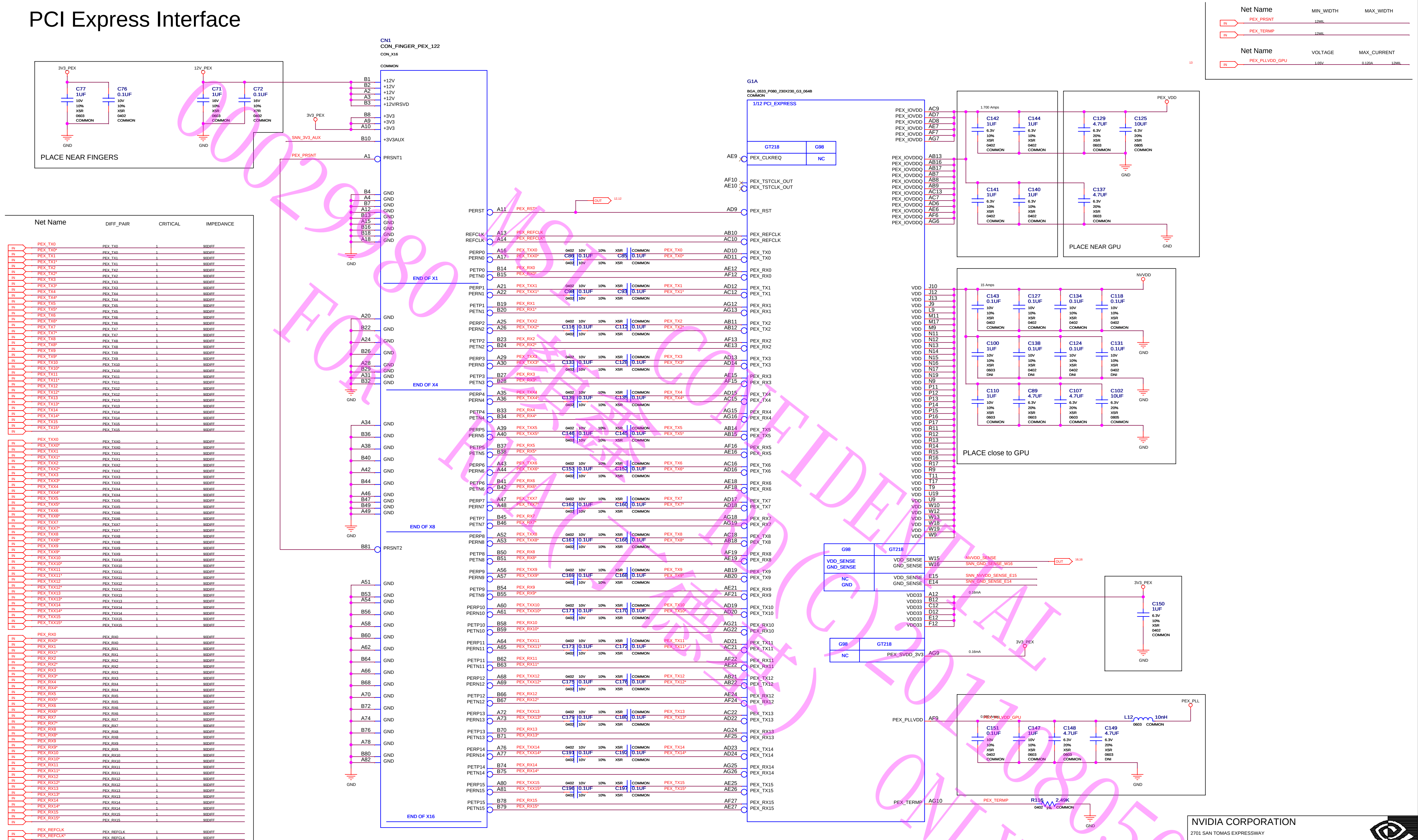
2701 SAN TOMAS EXPRESSWAY
SANTA CLARA, CA 95050, USA

NV_PN	600-10872-BASE-100		
PCB REV	P872-A01	PAGE	
BOM REV	A	DATE	22-DEC-2009

PCI Express Interface



ASSEMBLY	BASE LEVEL GENERIC SCHEMATIC ONLY, COMMON & NO_STUFF ASSEMBLY NOTES AND BOM NOT FINAL
PAGE DETAIL	PCI Express Interface

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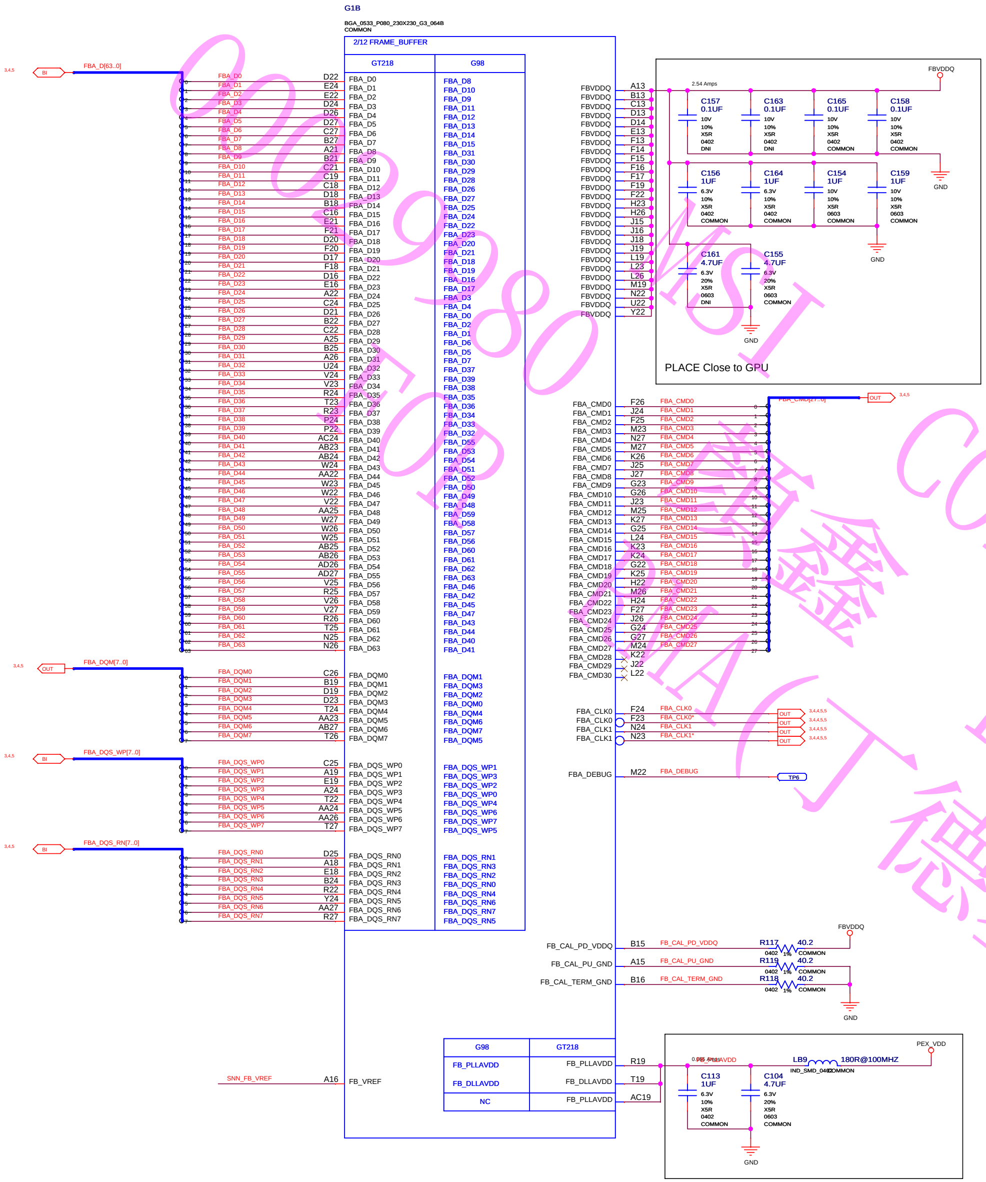
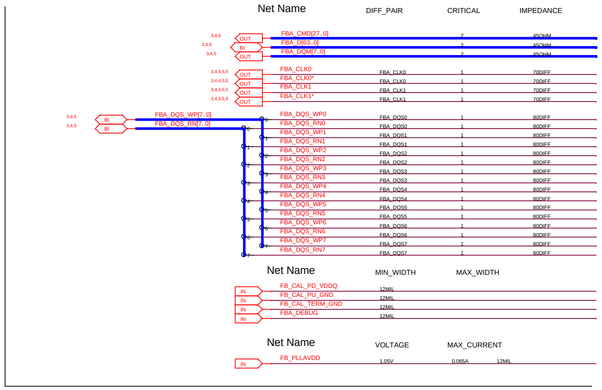
NV_PN	600-10872-BASE-100	PAGE	
PCB REV	P872-A01		
BOM REV	A	DATE	22-DEC-2009

Frame Buffer Interface

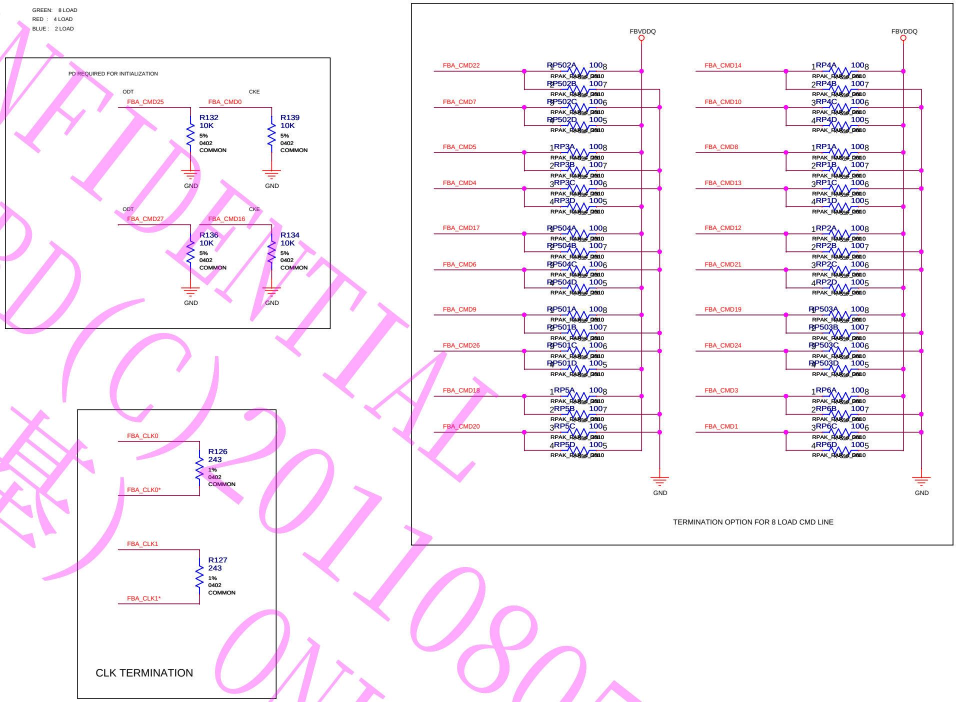




CMD-Addr Map

CMD	RANK 0 GT218 <31..0>	RANK 0 GT218 <63..32>	RANK 1 GT218 <31..0>	RANK 1 GT218 <31..0>
CMD0	CKE_L	NOT USED	CKE_L	NOT USED
CMD1	A<8>	A<8>	A<8>	A<8>
CMD2	CS0_L*	NOT USED	CS0_L*	NOT USED
CMD3	A<7>	A<7>	A<6>	A<6>
CMD4	A<2>	A<2>	A<1>	A<1>
CMD5	A<11>	A<11>	A<11>	A<11>
CMD6	A<5>	A<5>	A<4>	A<4>
CMD7	A<0>	A<0>	A<0>	A<0>
CMD8	CAS*	CAS*	CAS*	CAS*
CMD9	BA1	BA1	BA1	BA1
CMD10	A<9>	A<9>	A<9>	A<9>
CMD11	NOT USED	CS0_H*	NOT USED	CS0_H*
CMD12	BA0	BA0	BA0	BA0
CMD13	BA2	BA2	BA2	BA2
CMD14	A<3>	A<3>	A<3>	A<3>
CMD15	NOT USED	CS1_H*	NOT USED	CS1_H*
CMD16	NOT USED	CKE_H	NOT USED	CKE_H
CMD17	A<4>	A<4>	A<5>	A<5>
CMD18	A<13>	A<13>	A<13>	A<13>
CMD19	WE*	WE*	WE*	WE*
CMD20	A<1>	A<1>	A<2>	A<2>
CMD21	A<10>	A<10>	A<10>	A<10>
CMD22	A<12>	A<12>	A<12>	A<12>
CMD23	CS1_L*	NOT USED	CS1_L*	NOT USED
CMD24	RAS*	RAS*	RAS*	RAS*
CMD25	ODT_L	NOT USED	ODT_L	NOT USED
CMD26	A<6>	A<6>	A<7>	A<7>
CMD27	NOT USED	ODT_H	NOT USED	ODT_H
CMD28	RST	RST	RST	RST
CMD29				
CMD29				

GREEN: 8 LOAD
RED : 4 LOAD
BLUE : 2 LOAD



ASSEMBLY	BASE LEVEL GENERIC SCHEMATIC ONLY, COMMON & NO_STUFF ASSEMBLY NOTES AND BOM NOT FINAL
PAGE DETAIL	Frame Buffer Interface

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NV_PN	600-10872-BASE-100		
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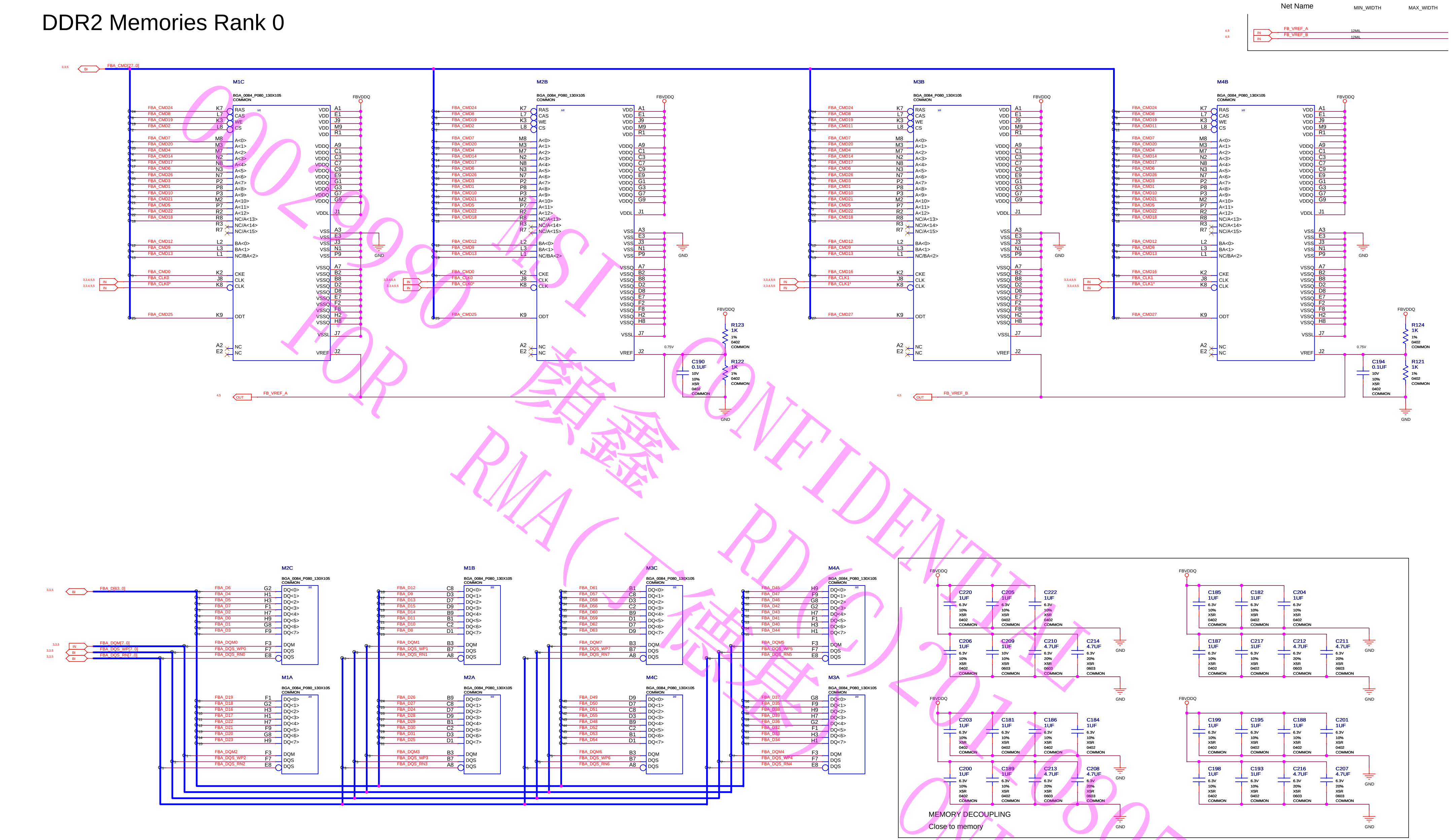
DDR2 Memories Rank 0



ASSEMBLY	BASE LEVEL GENERIC SCHEMATIC ONLY, COMMON & NO_STUFF ASSEMBLY NOTES AND BOM NOT FINAL
PAGE DETAIL	DDR3 Memories Rank 0

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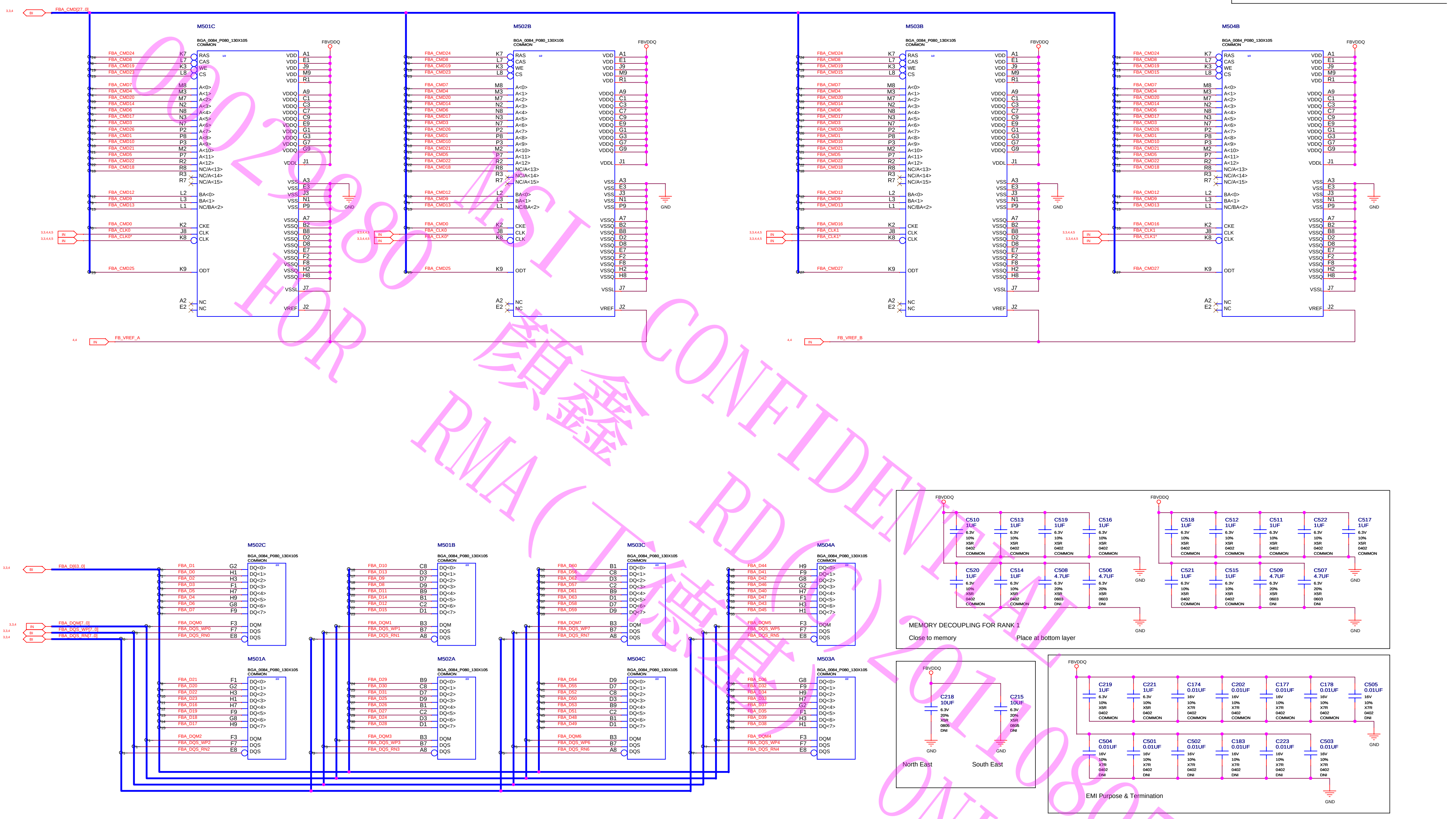
BOM REV	A	DATE	22-DEC-2009

DDR2 Memories Rank 1

Net Name	MIN_WIDTH	MAX_WIDTH
FB_VREF_A	12MIL	
FB_VREF_B	12MIL	



ASSEMBLY	BASE LEVEL GENERIC SCHEMATIC ONLY, COMMON & NO_STUFF ASSEMBLY NOTES AND BOM NOT FINAL
PAGE DETAIL	DDR3 Memories Rank 1

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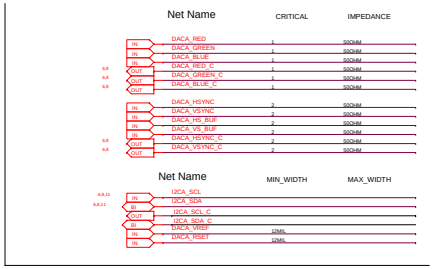
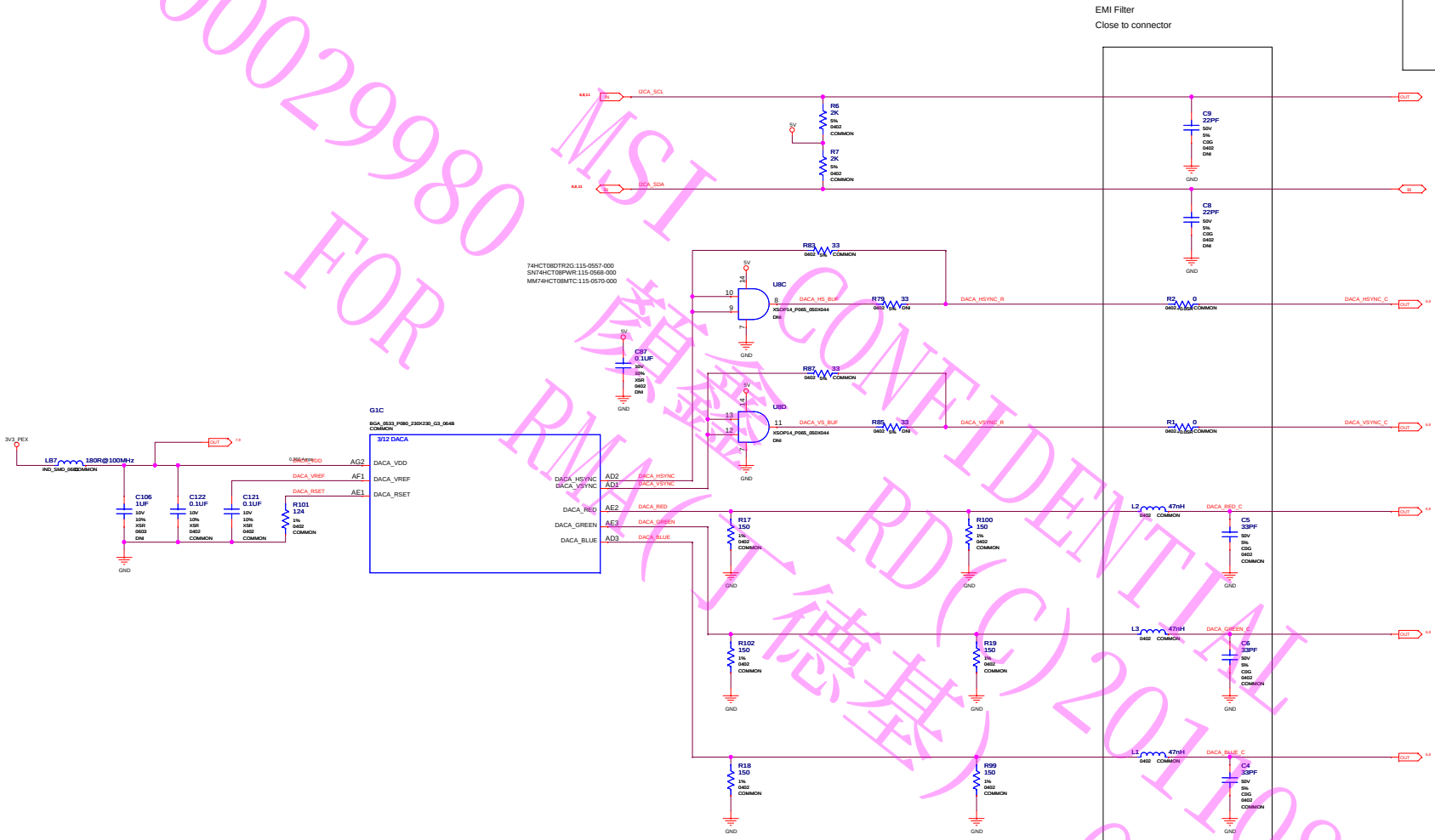
NV_PN	600-10872-BASE-100		
PCB REV	P872-A01	PAGE	
BOM REV	A	DATE	22-DEC-2009

DAC A VGA





ASSEMBLY	BASE LEVEL GENERIC SCHEMATIC ONLY, COMMON & NO_STUFF ASSEMBLY NOTES AND BOM NOT FINAL
PAGE DETAIL	DAC A VGA

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NV_PN	600-10872-BASE-100		
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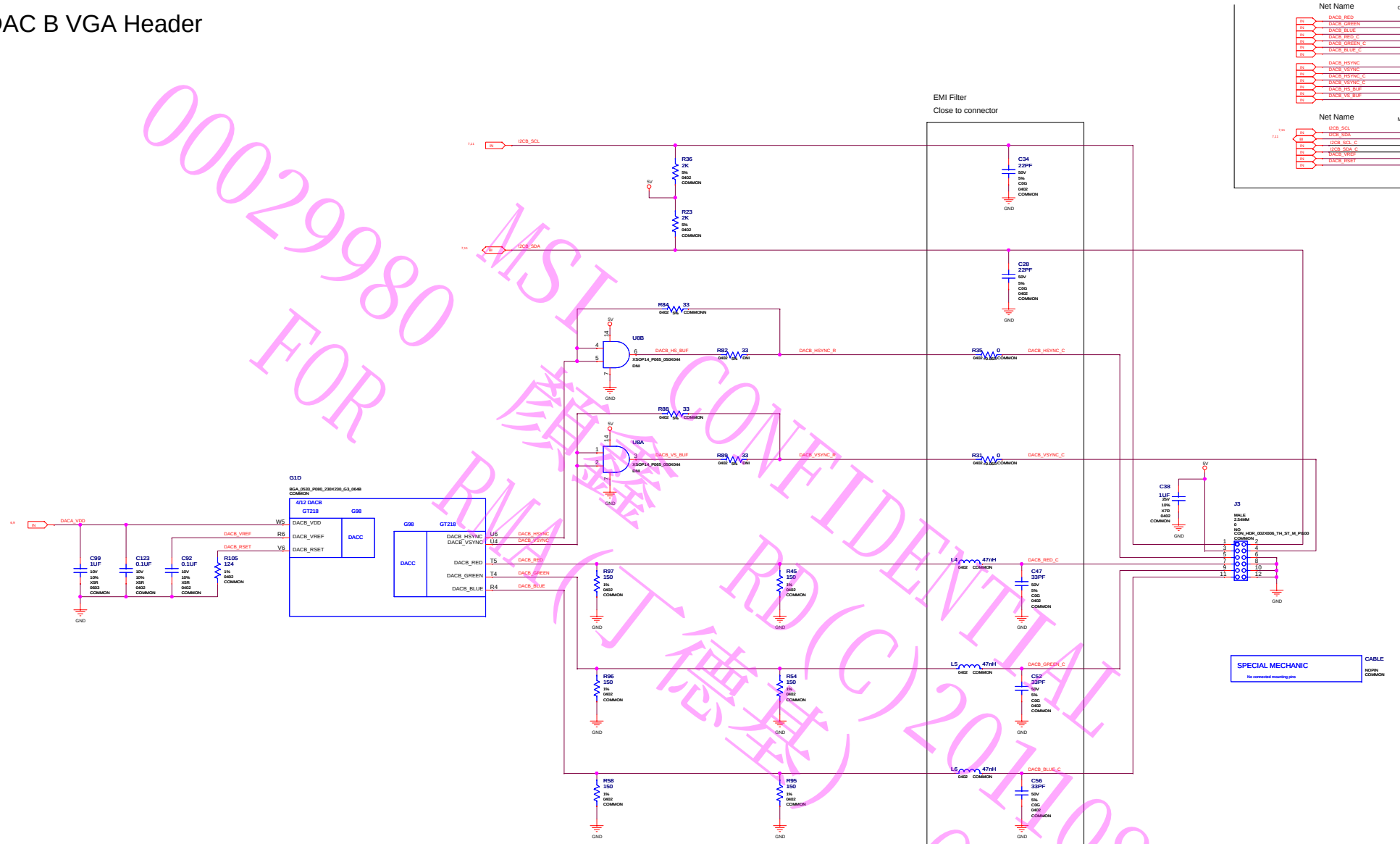
DAC B VGA Header



ASSEMBLY	BASE LEVEL GENERIC SCHEMATIC ONLY, COMMON & NO_STUFF ASSEMBLY NOTES AND BOM NOT FINAL
PAGE DETAIL	DAC B VGA Header

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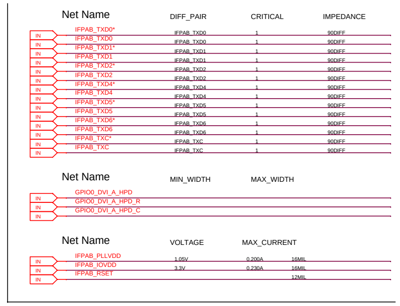
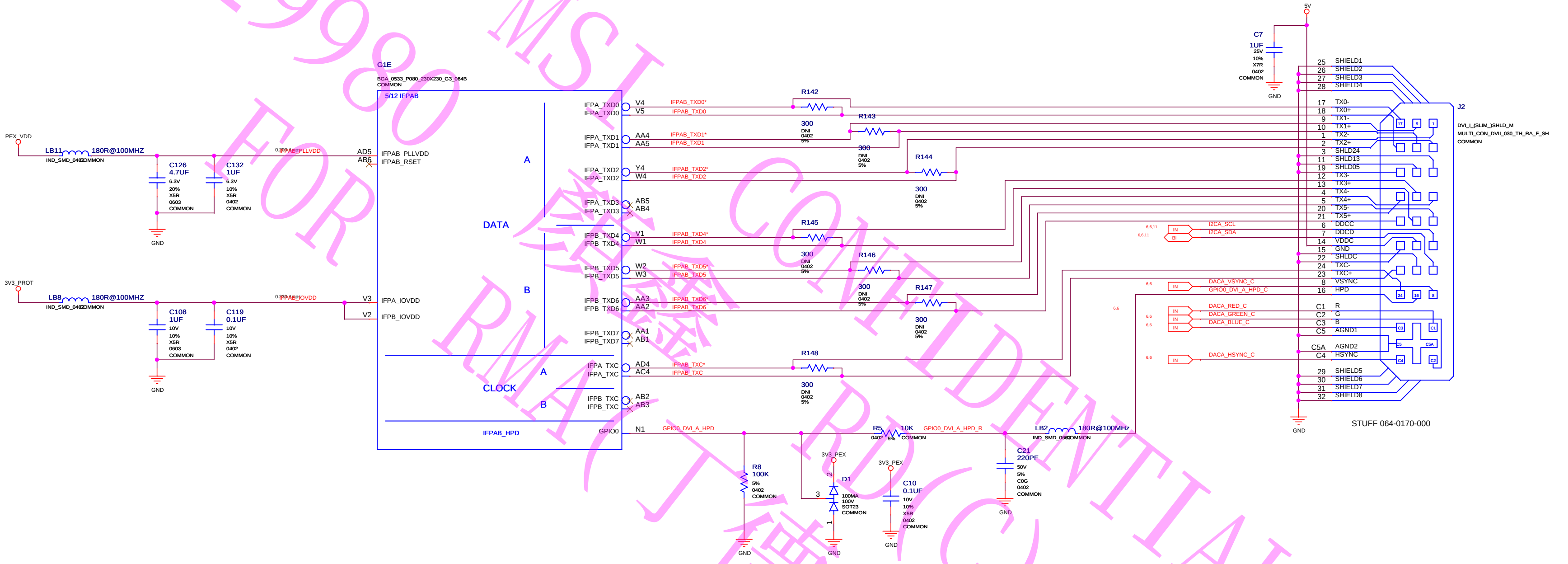
IFPAB TMDS Interface





ASSEMBLY	BASE LEVEL GENERIC SCHEMATIC ONLY, COMMON & NO_STUFF ASSEMBLY NOTES AND BOM NOT FINAL
PAGE DETAIL	IFPAB TMDS Interface

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NV_PN	600-10872-BASE-100		
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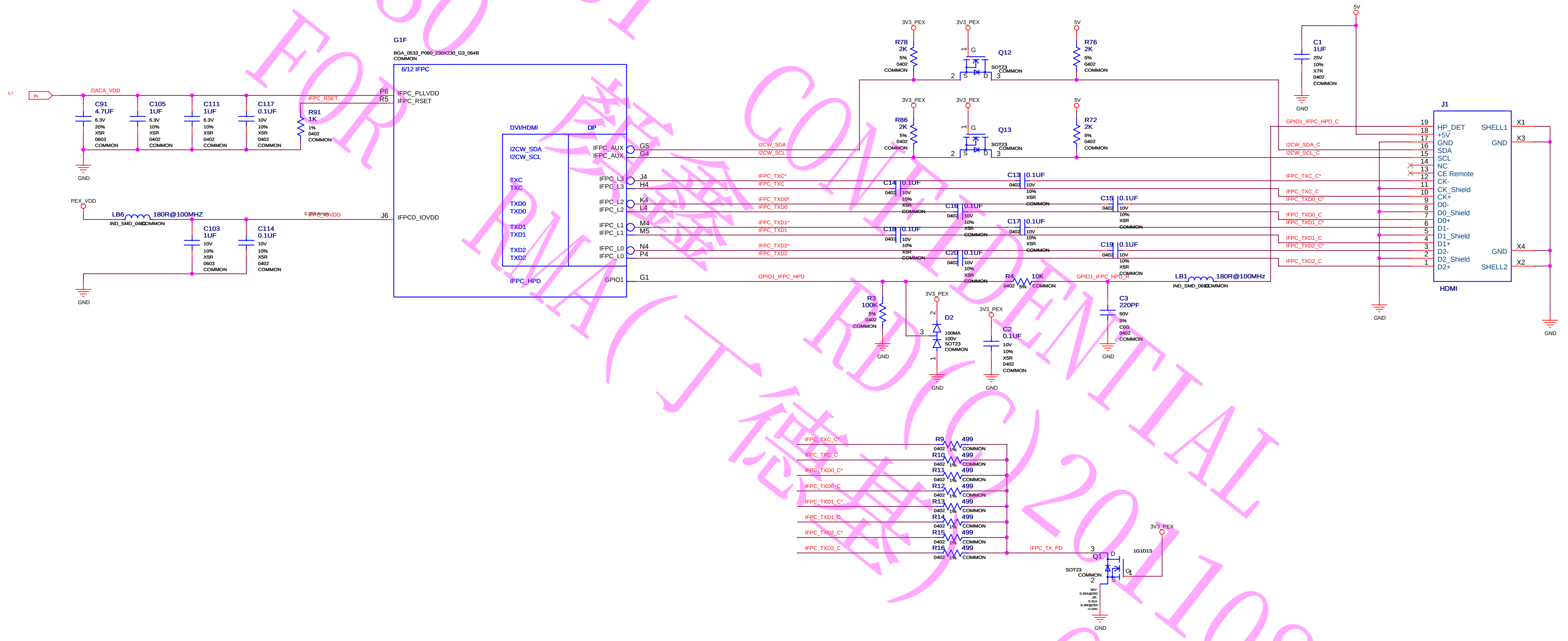
IFPC HDMI Connector

Net Name	DIFF_PAIR	CRITICAL	IMPEDANCE
IFPC_TXD0*	IFPC_TXD0	1	90DIFF
IFPC_TXD0	IFPC_TXD0	1	90DIFF
IFPC_TXD1*	IFPC_TXD1	1	90DIFF
IFPC_TXD1	IFPC_TXD1	1	90DIFF
IFPC_TXD2*	IFPC_TXD2	1	90DIFF
IFPC_TXD2	IFPC_TXD2	1	90DIFF
IFPC_TXD0_C*	IFPC_TXD0_C	1	90DIFF
IFPC_TXD0_C	IFPC_TXD0_C	1	90DIFF
IFPC_TXD1_C*	IFPC_TXD1_C	1	90DIFF
IFPC_TXD1_C	IFPC_TXD1_C	1	90DIFF
IFPC_TXD2_C*	IFPC_TXD2_C	1	90DIFF
IFPC_TXD2_C	IFPC_TXD2_C	1	90DIFF
IFPC_TXC*	IFPC_TXC	1	90DIFF
IFPC_TXC	IFPC_TXC	1	90DIFF
IFPC_TXC_C*	IFPC_TXC_C	1	90DIFF
IFPC_TXC_C	IFPC_TXC_C	1	90DIFF

Net Name	MIN_WIDTH	MAX_WIDTH
GPIO1_IFPC_HPD		
GPIO1_IFPC_HPD_R		
GPIO1_IFPC_HPD_C		
I2CW_SCL		
I2CW_SDA		
I2CW_SCL_C		
I2CW_SDA_C		
IFPC_TX_PD	12MIL	
IFPC_RSET	12MIL	

Net Name	VOLTAGE	MAX_CURRENT	
IFPC_IOVDD	1.05V	0.25A	16MIL



ASSEMBLY	BASE LEVEL GENERIC SCHEMATIC ONLY, COMMON & NO_STUFF ASSEMBLY NOTES AND BOM NOT FINAL
PAGE DETAIL	IFPC HDMI Connector

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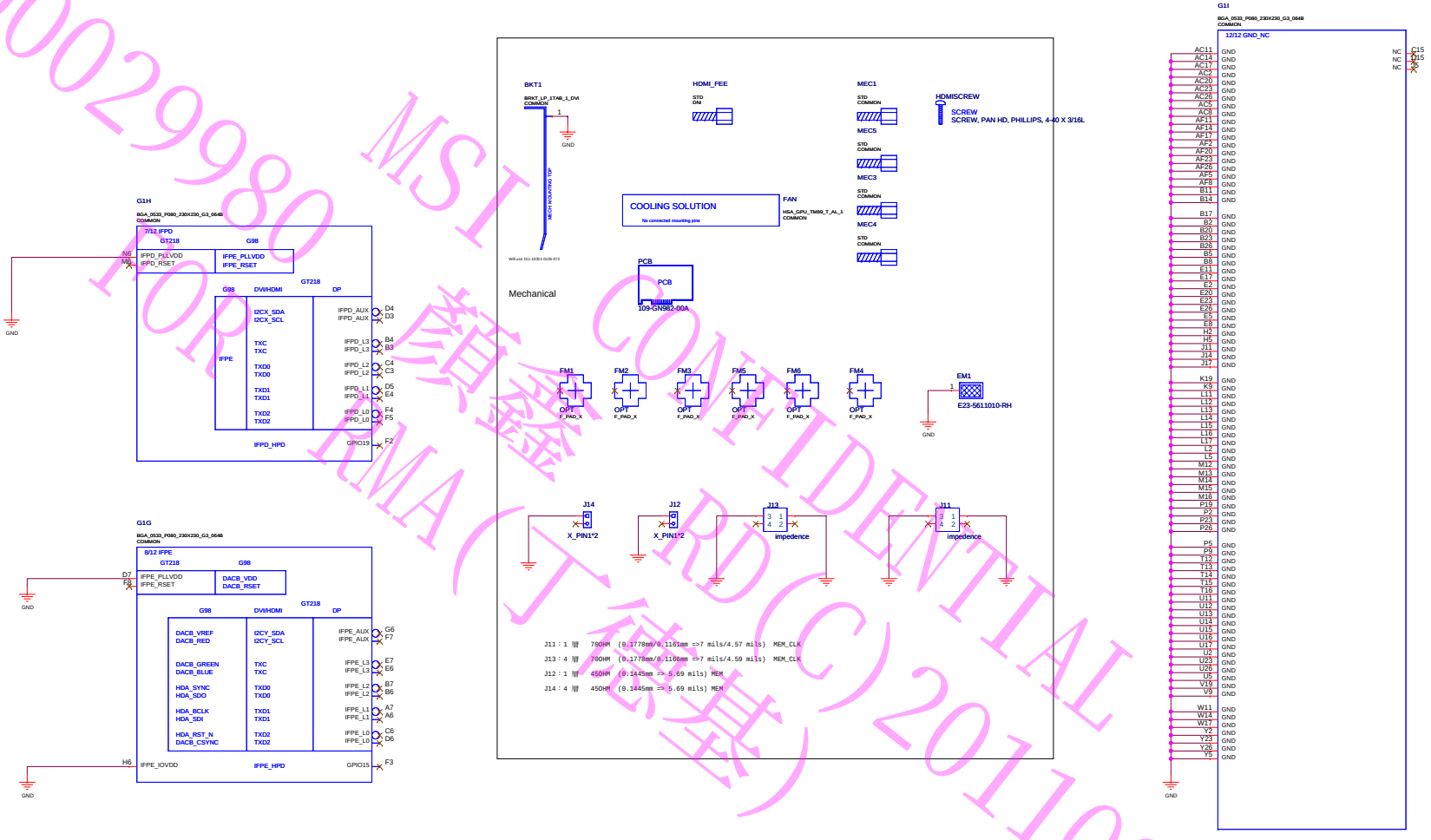
IFPD, IFPE Interface(Not used), Mechanical



ASSEMBLY	BASE LEVEL GENERIC SCHEMATIC ONLY, COMMON & NO_STUFF ASSEMBLY NOTES AND BOM NOT FINAL
PAGE DETAIL	IFPD, IFPE Interface(Not used), Mechanical

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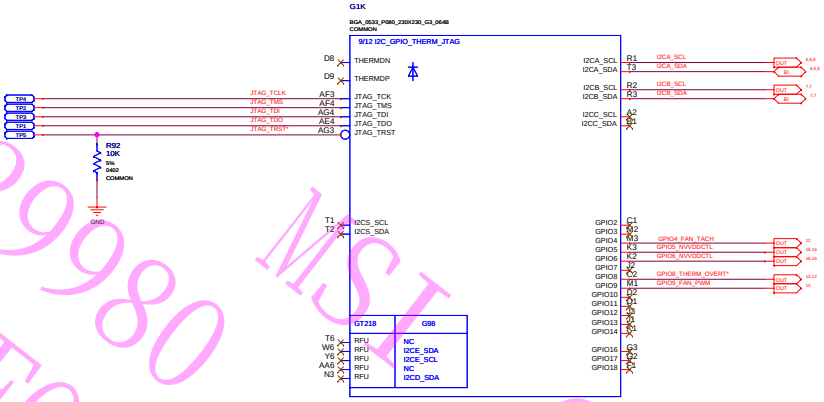
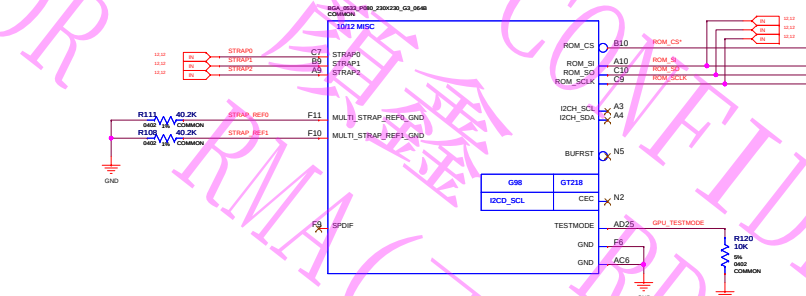
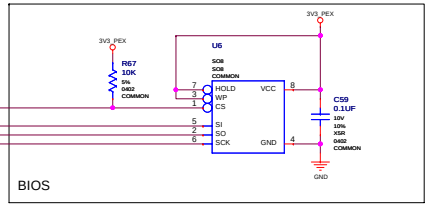
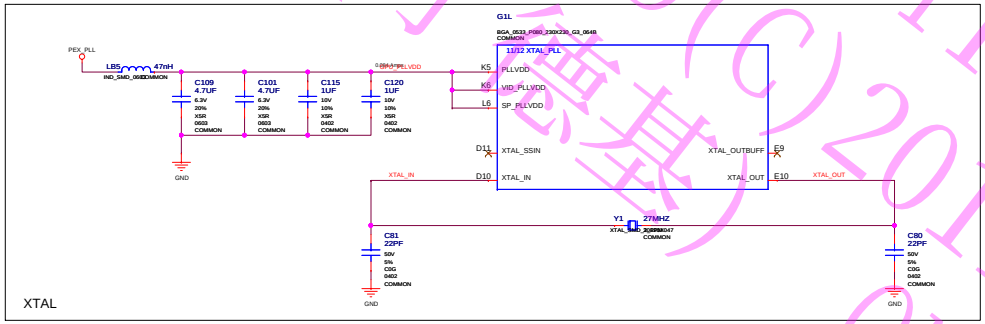
XTAL, ROM, JTAG









Net Name | CRITICAL | IMPEDANCE
XTAL_OUT | 1 |
XTAL_IN | 1 |

Net Name | VOLTAGE | MAX_CURRENT
GPU_PLLVDD | 1.05V | 0.083A | 88MIL

ASSEMBLY	BASE LEVEL GENERIC SCHEMATIC ONLY, COMMON & NO_STUFF ASSEMBLY NOTES AND BOM NOT FINAL
PAGE DETAIL	XTAL, ROM, JTAG

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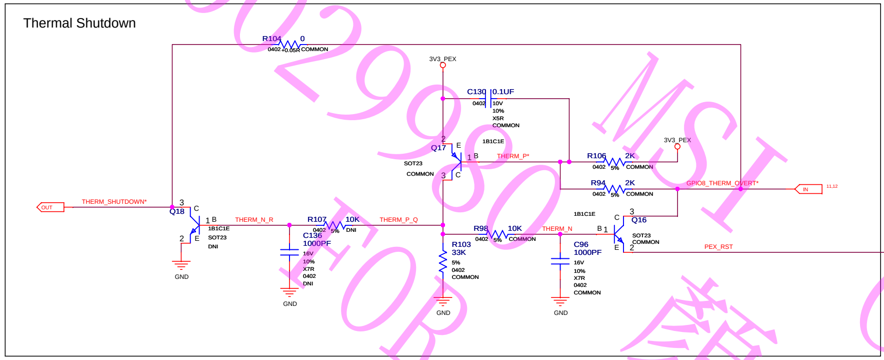
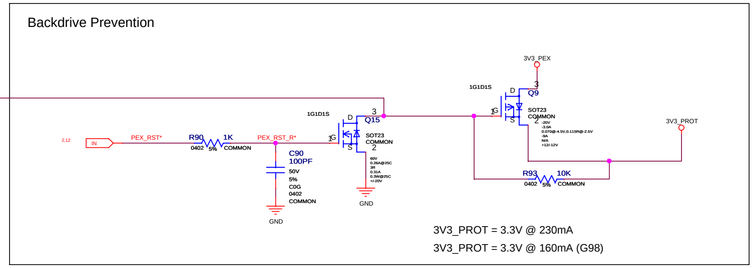
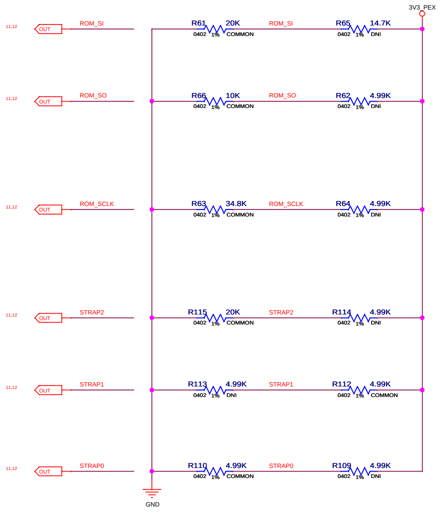
Thermal Protection, Protected 3V3, Straps

Net Name	MIN_WIDTH	MAX_WIDTH
PEX_RST*		
GPIO8_THERM_OVERT*		
THERM_SHUTDOWN*		
ROM_SI		
ROM_SO		
ROM_SCLK		
STRAP2		
STRAP1		
STRAP0		

Net Name	VOLTAGE	MAX_CURRENT
3V3_PROT	3.3V	0.23A







GT218 Straps

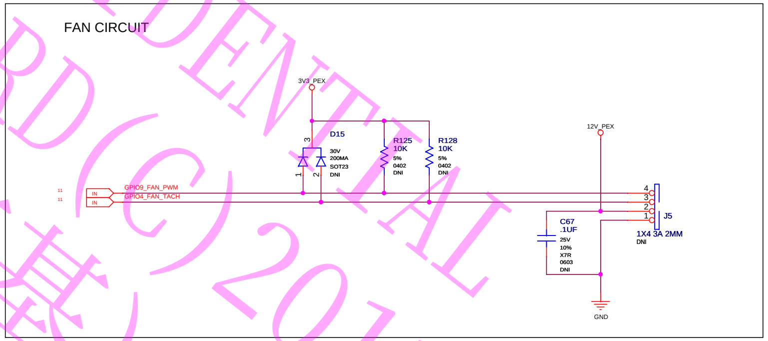
MLS Mode

Mode	REF0/REF1
MLS	Stuff

Bit	Signal	Values			
03:	RAMCFG[3]	0010	Hynix(64MBx16)		
		0011	Samsung(64MBx16)		
02:	RAMCFG[2]	1010	Hynix(64MBx16,DualRank)		
		1011	Samsung(64MBx16,DualRank)		
01:	RAMCFG[1]	0110	Hynix(128MBx16)		
		0111	Samsung(128MBx16)		
00:	RAMCFG[0]				
03:	XCLK_417	0	277 (Default)		
02:	FB[0]	0	256M (Default)		
01:	SMB_ALT_ADDR	0	0x9E		
		1	0x9C		
00:	VGA_DEVICE	0	Class code 302		
		1	Class code 300		
03:	PCI_DEVID_EXT	0	GT218-300-A1		
02:	SUB_VENDOR	0	No BIOS		
		1	BIOS		
01:	SLOT_CLK_CFG	0	Disable		
		1	Enable		
00:	PEX_PLL_EN_TERM100	0	Disable		
		1	Enable		
03:	PCI_DEVID[3]	0101	GT218-300-Bx		
02:	PCI_DEVID[2]				
01:	PCI_DEVID[1]				
00:	PCI_DEVID[0]				
03:	3GIO_PADCFG_LUT_ADR[3]	0000	DSKTOP_DEFAULT	1000	DSKTOP_HTHRS
		0001	MOBILE_DEFAULT	1001	MOBILE_HTHRS_NAMP
02:	3GIO_PADCFG_LUT_ADR[2]	0010	MOBILE_NTHRS_LLAMP	1010	MOBILE_HTHRS_LLAMP
		0011	MOBILE_NTHRS_LAMP	1011	MOBILE_HTHRS_LAMP
01:	3GIO_PADCFG_LUT_ADR[1]	0100	MOBILE_NTHRS_HAMP	1100	MOBILE_HTHRS_HAMP
		0101	MOBILE_NTHRS_HHAMP	1101	MOBILE_HTHRS_HHAMP
00:	3GIO_PADCFG_LUT_ADR[0]	0110	MOBILE_NTHRS_HHHAMP	1110	MOBILE_HTHRS_HHHAMP
		0111	MOBILE_NTHRS_HHHHAMP	1111	MOBILE_HTHRS_HHHHAMP
03:	USER[3]	0000	Default		
02:	USER[2]				
01:	USER[1]				
00:	USER[0]				

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
45K 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
45K to VCC	1111



ASSEMBLY	BASE LEVEL GENERIC SCHEMATIC ONLY, COMMON & NO_STUFF ASSEMBLY NOTES AND BOM NOT FINAL
PAGE DETAIL	Thermal Protection, Protected 3V3, Straps

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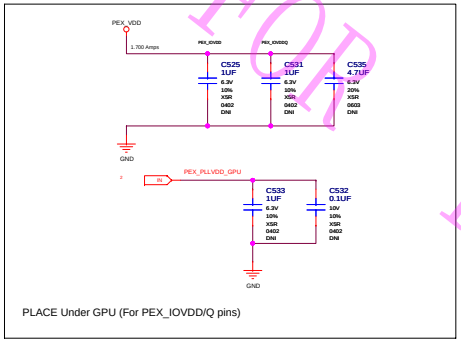
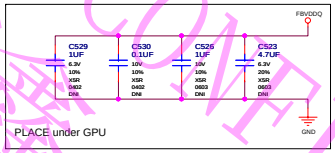
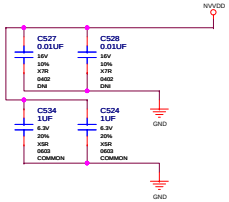
GPU/Memory decaps on Bottom (Test Option)



PLACE Under GPU (For PEX_IOVDD/Q pins)



PLACE under GPU



PLACE under to GPU (For core)

ASSEMBLY	BASE LEVEL GENERIC SCHEMATIC ONLY, COMMON & NO_STUFF ASSEMBLY NOTES AND BOM NOT FINAL
PAGE DETAIL	GPU/Memory decaps on bottom (Test option)

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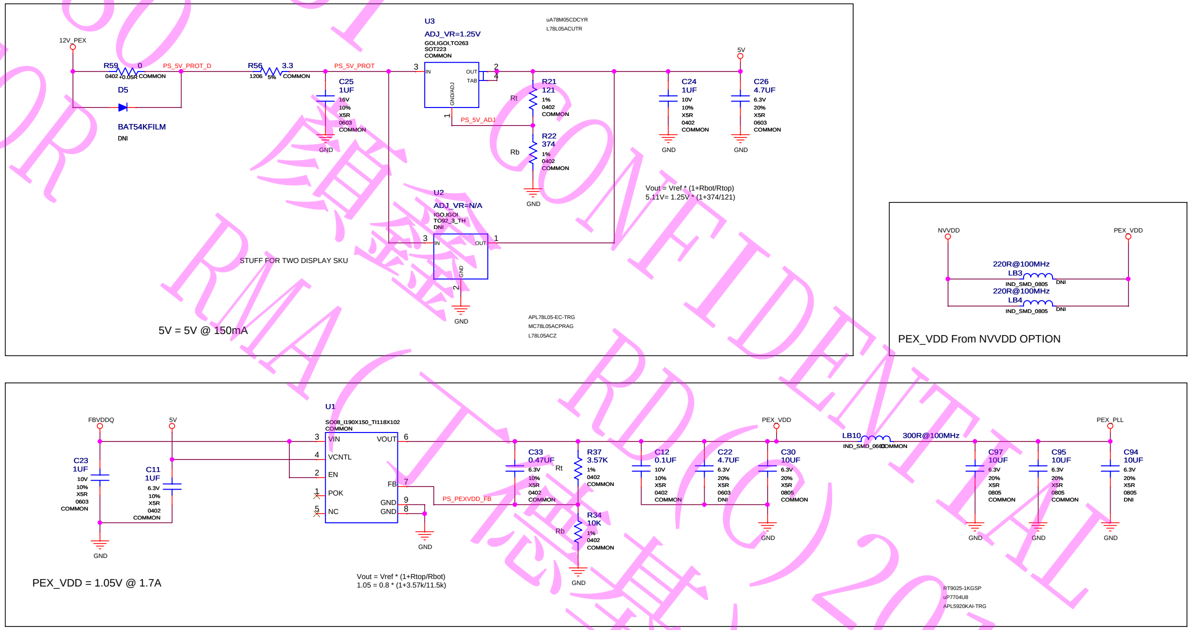
Power Supply I: 5V,PEXVDD

Net Name	MIN_WIDTH	MAX_WIDTH
IN PS_PEXPLL_ADJ	12MIL	
IN PS_5V_PROT	12MIL	
IN PS_PEXVDD_DR	12MIL	
IN PS_PEXVDD_FB	12MIL	

Net Name	VOLTAGE	MAX_CURRENT	
5V	5V	0.365A	16MIL
PEX_VDD	1.05V	1.7A	20MIL
3V3_PEX	3.3V	0.5A	16MIL



ASSEMBLY	BASE LEVEL GENERIC SCHEMATIC ONLY, COMMON & NO_STUFF ASSEMBLY NOTES AND BOM NOT FINAL
PAGE DETAIL	Power Supply I: 5V,PEXVDD

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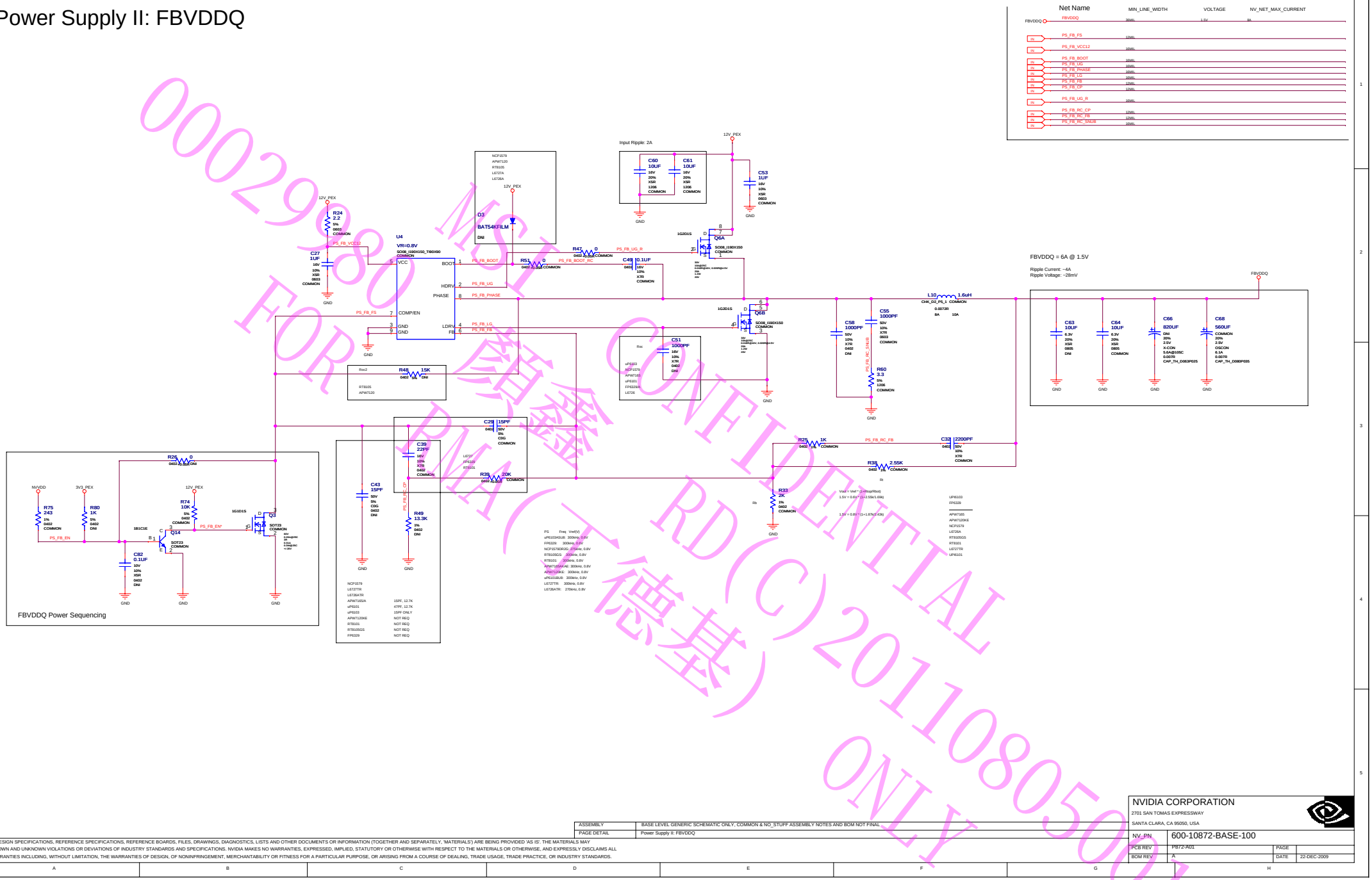
Power Supply II: FBVDDQ



ASSEMBLY	BASE LEVEL GENERIC SCHEMATIC ONLY, COMMON & NO_STUFF ASSEMBLY NOTES AND BOM NOT FINAL
PAGE DETAIL	Power Supply II: FBVDDQ

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PCB REV	P872-A01	PAGE	
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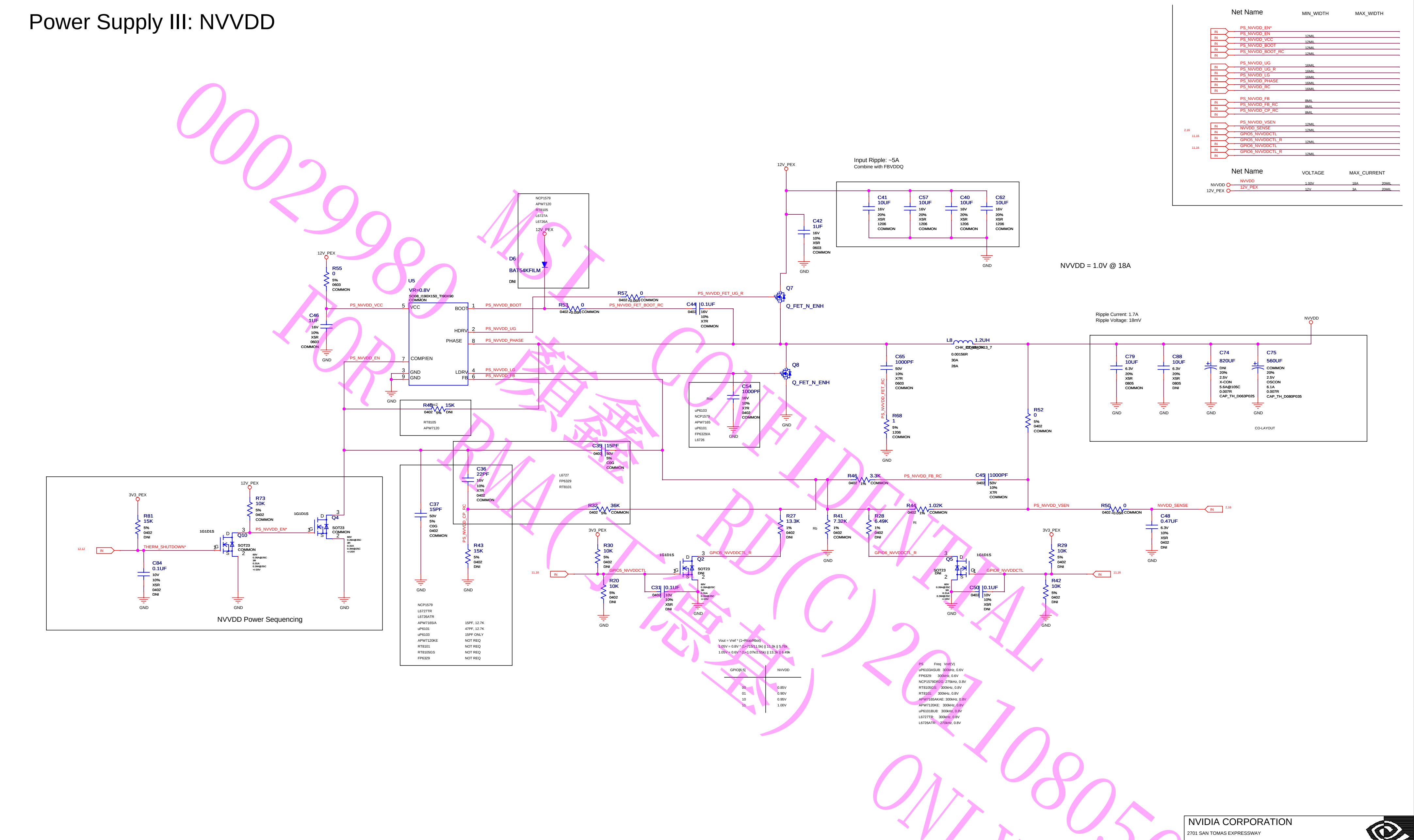
Power Supply III: NVVDD



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

PAGE DETAIL Power Supply II: NVVDD

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