

PG180-A02

256b GDDR6 x16

TALL DP + DP + DP + HDMI/DP + USB

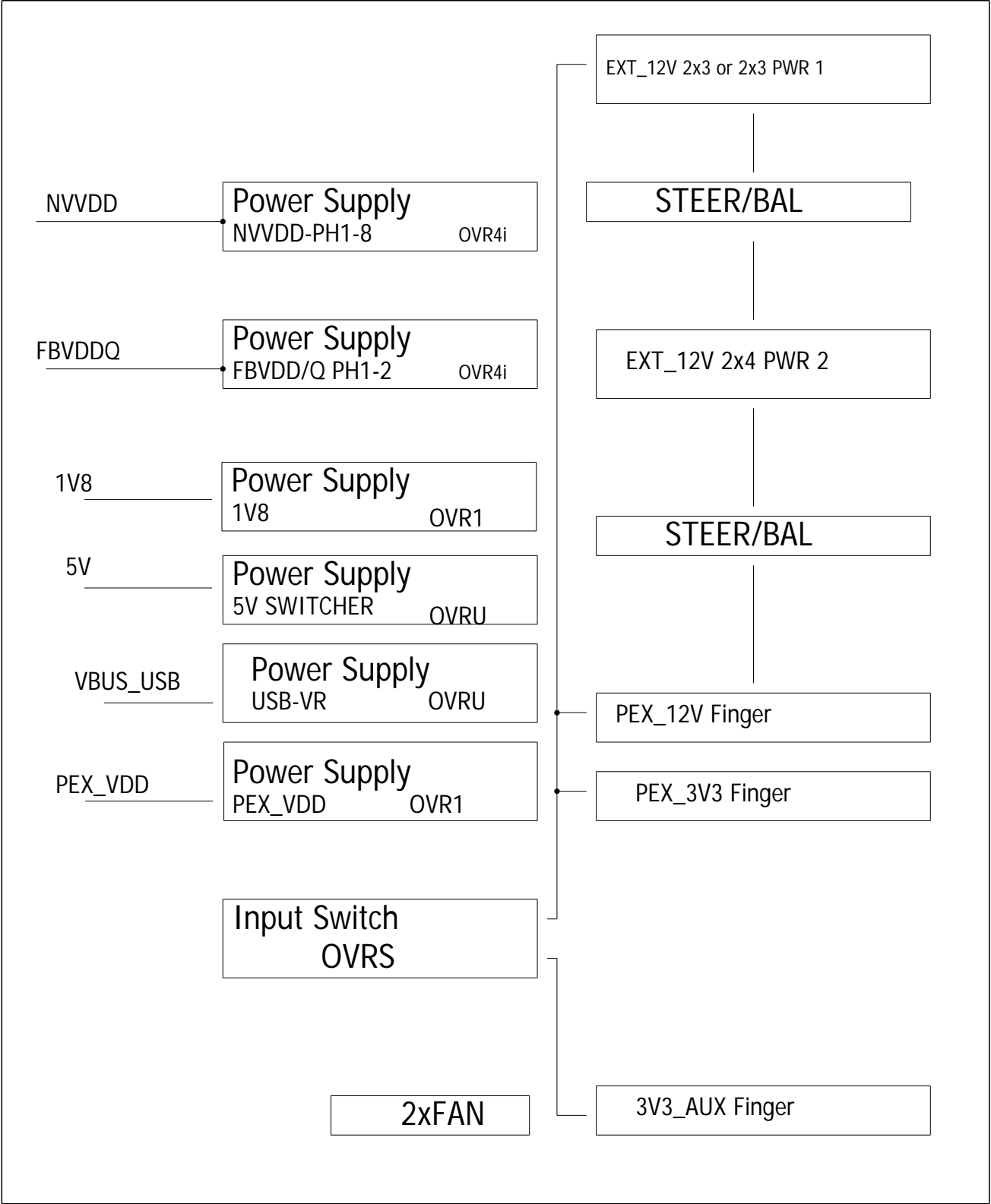
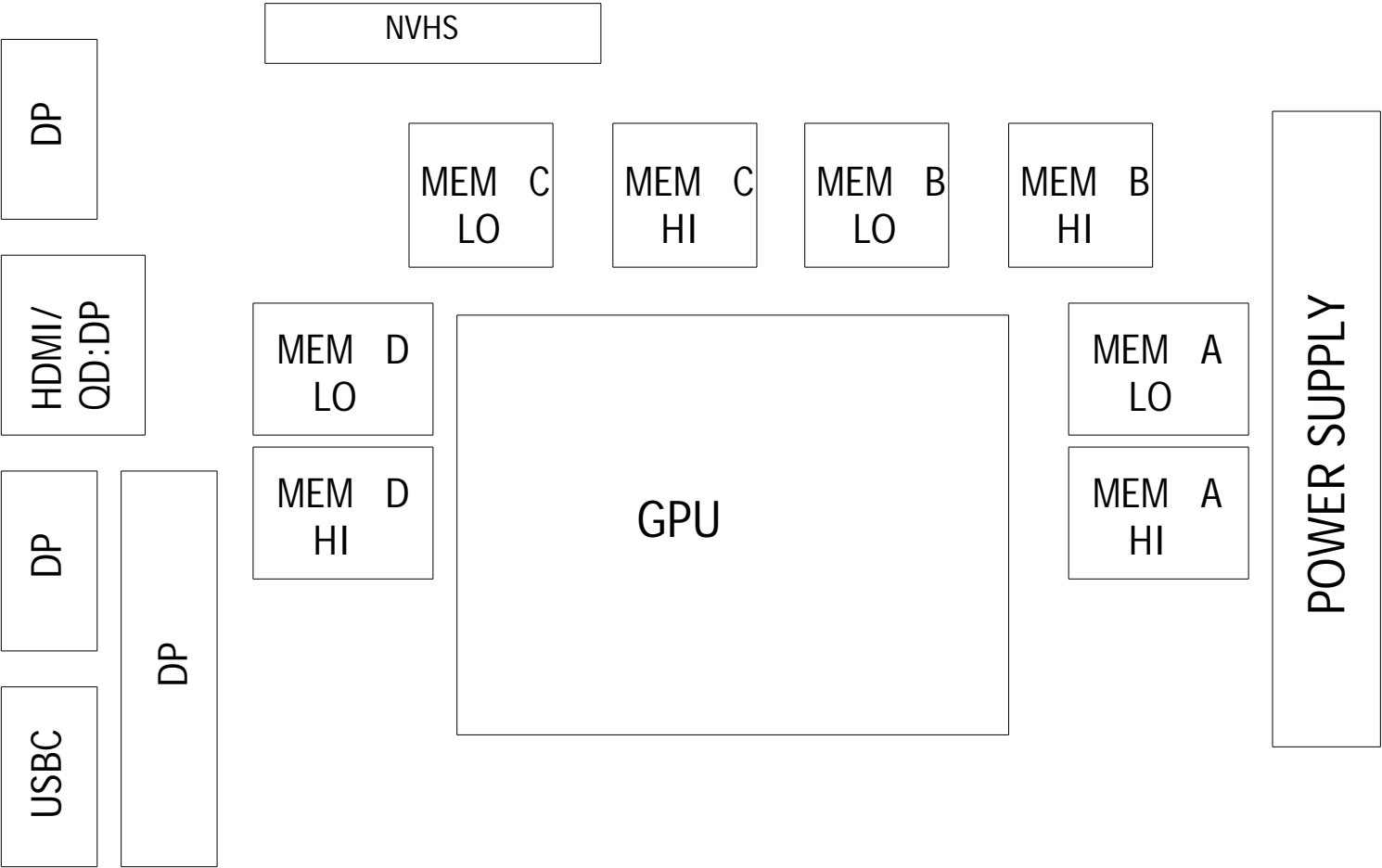
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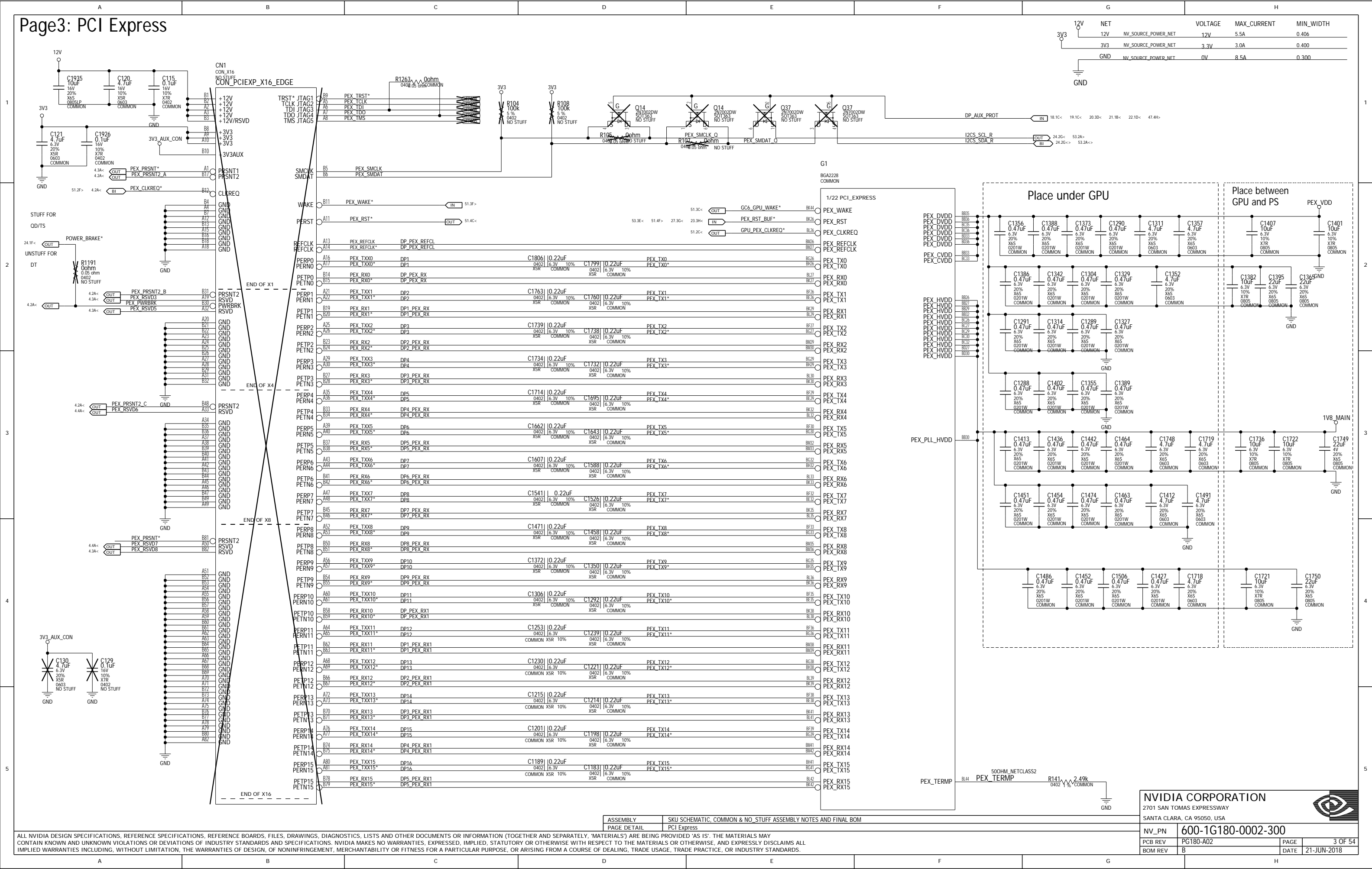
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NV_PN

600-1G180-0002-300

PCB REV

PG180-A02

BOM REV

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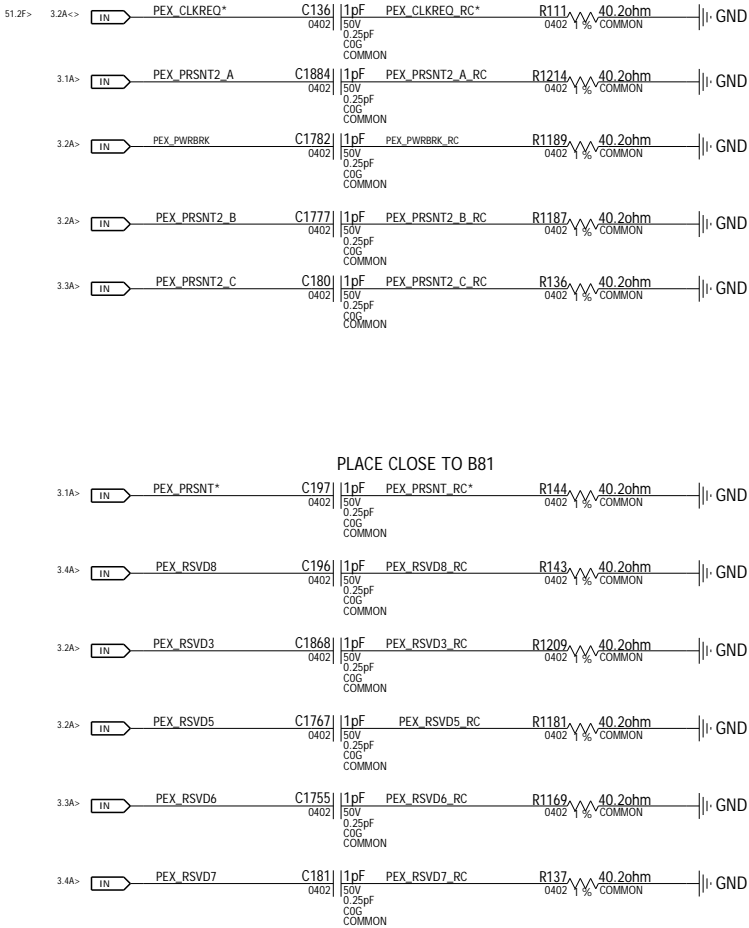
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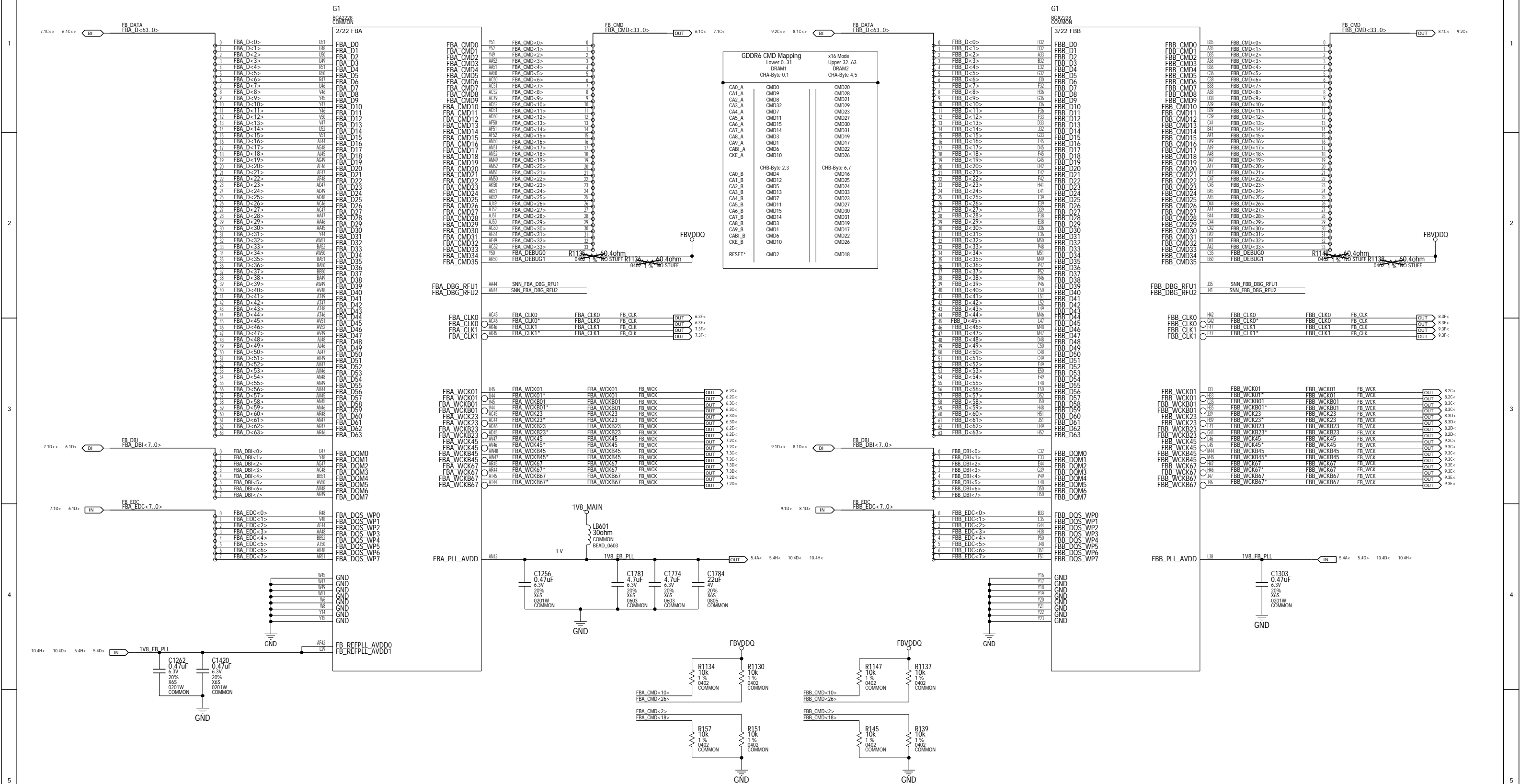
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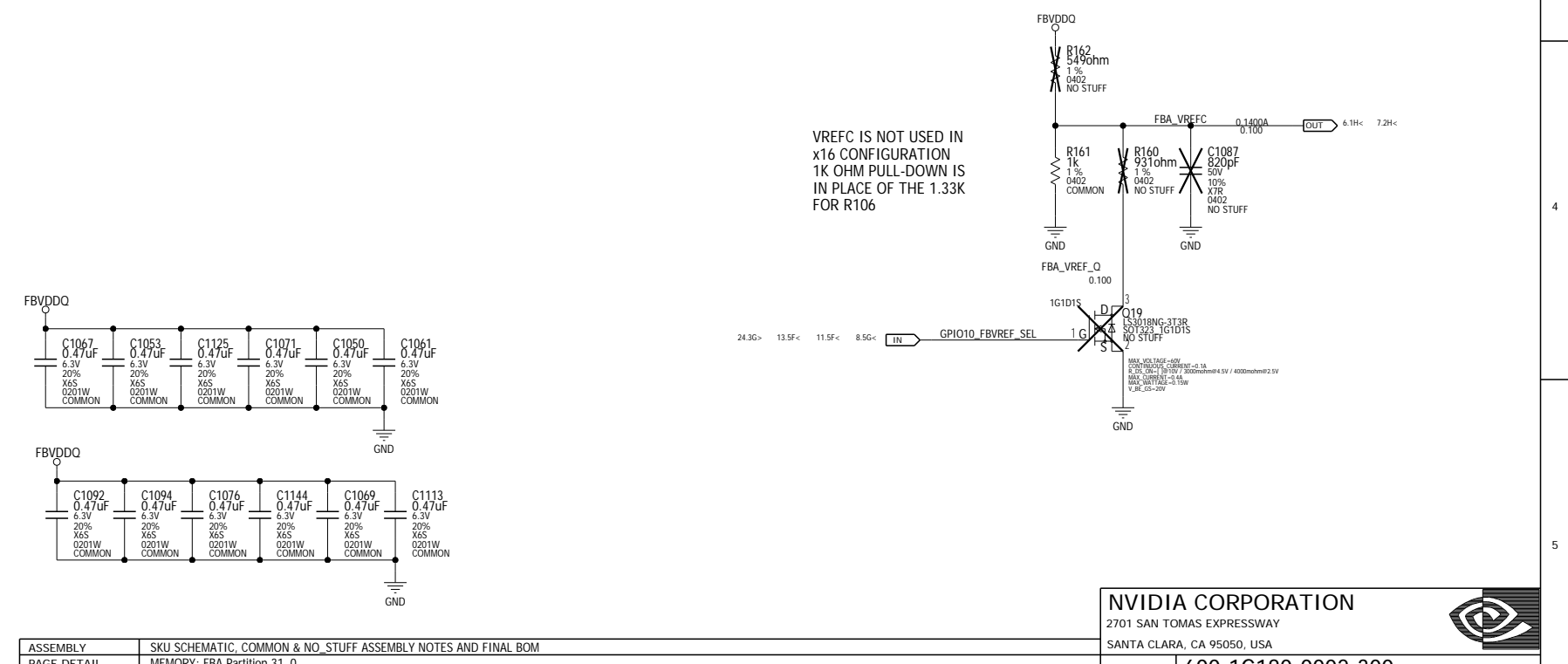
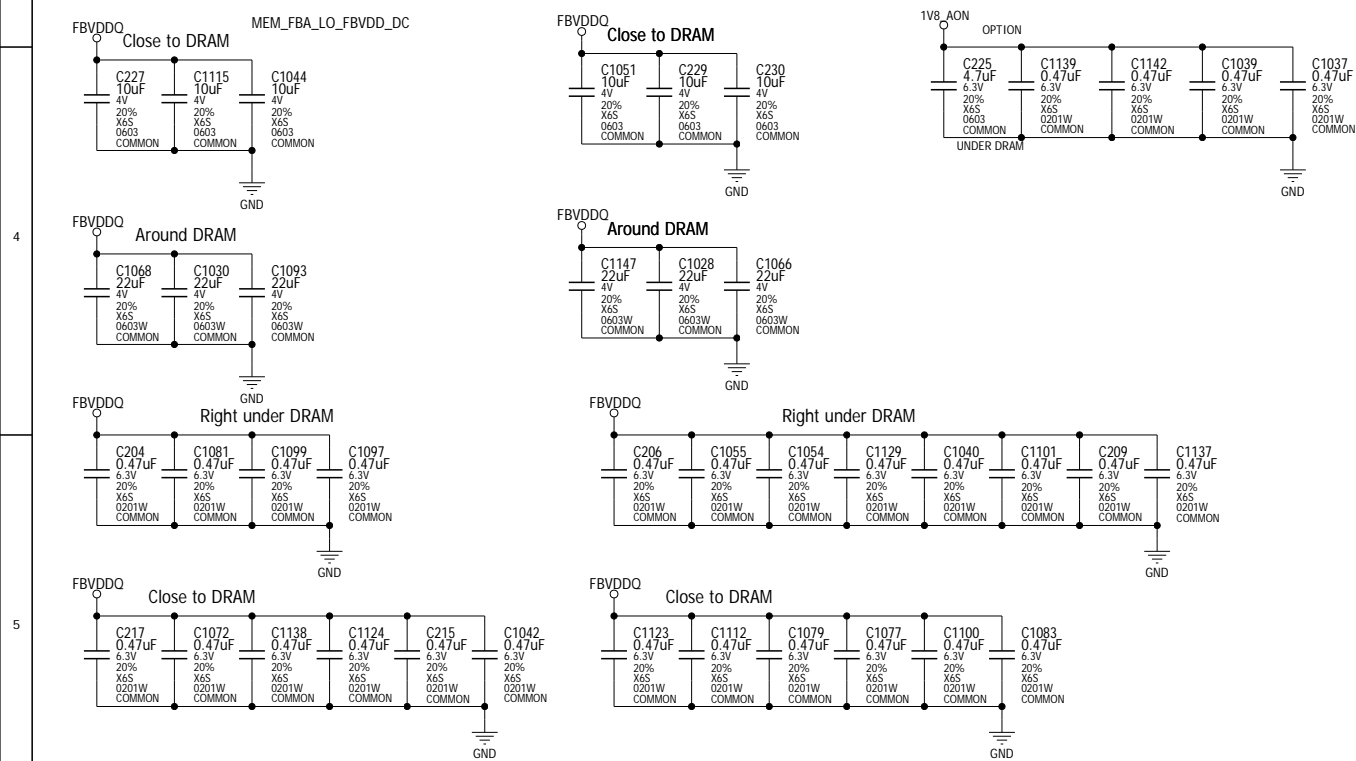
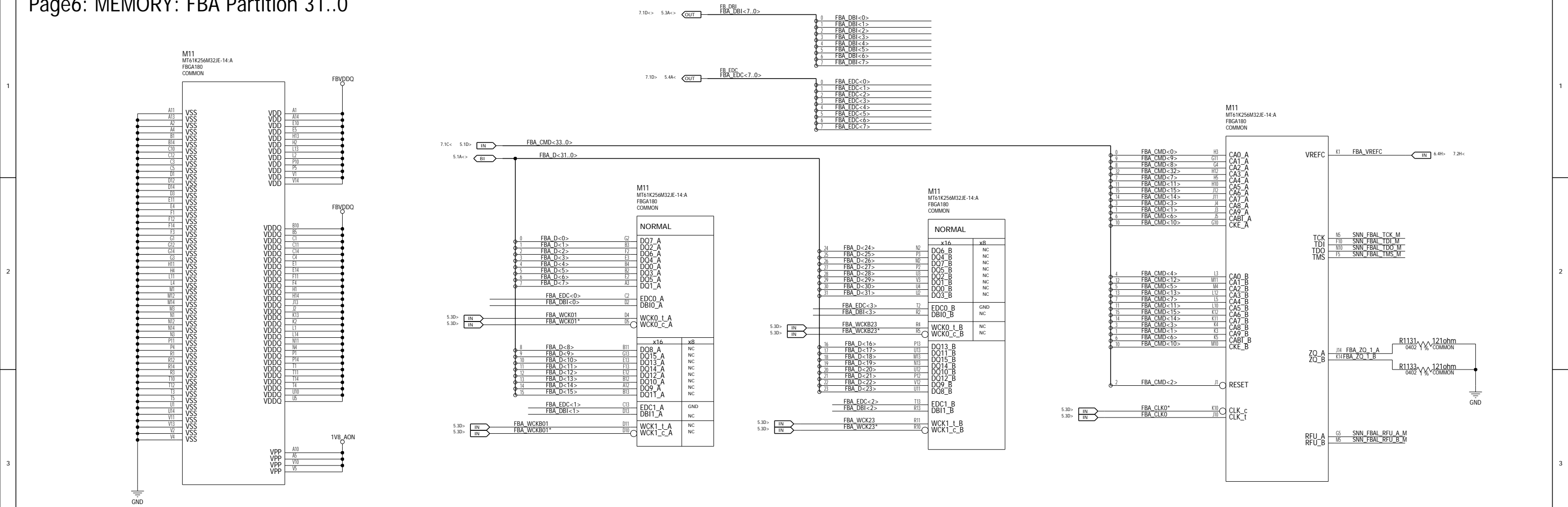
Page4: PCI Termination



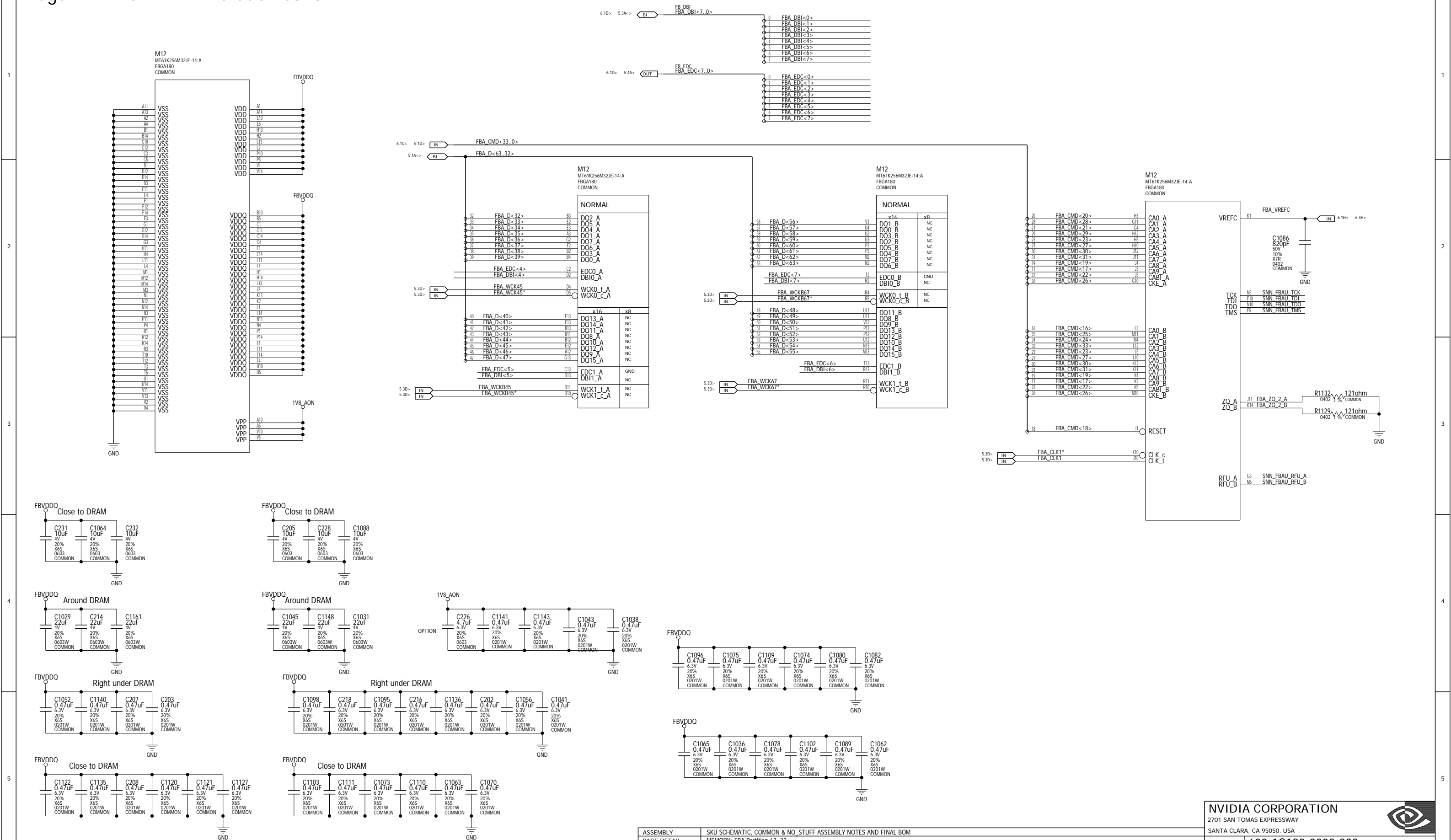
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Page6: MEMORY: FBA Partition 31..0




Page7: MEMORY: FBA Partition 63..32

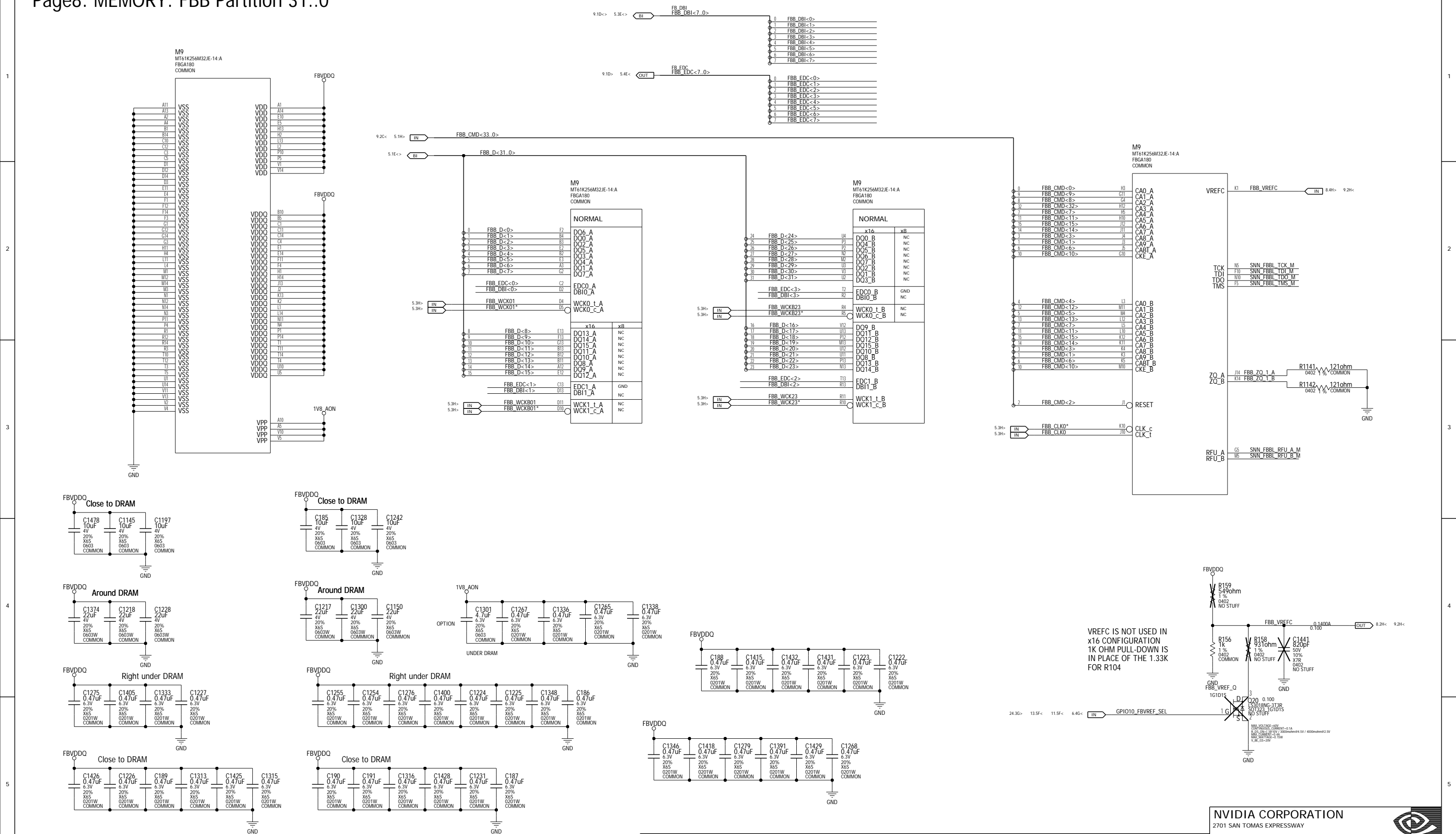


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ASSEMBLY	SKU SCHEMATIC, COMMON & NO_STUFF ASSEMBLY NOTES AND FINAL BOM
PAGE DETAIL	MEMORY: FBA Partition 63..32

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Nv_PN PCB REV BOM REV	600-1G180-0002-300 PG180-A02 B		PAGE DATE
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Page8: MEMORY: FBB Partition 31..0

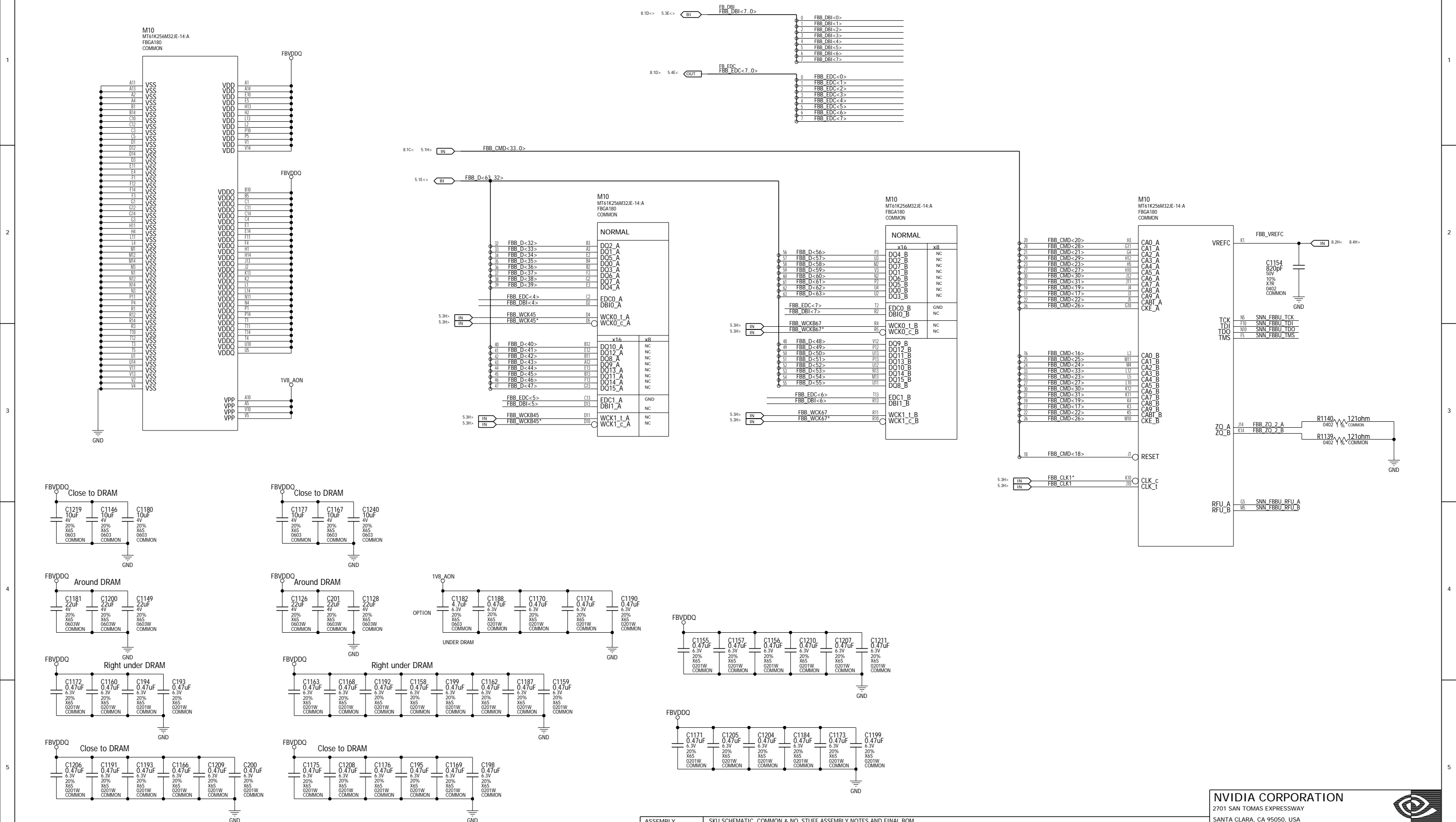


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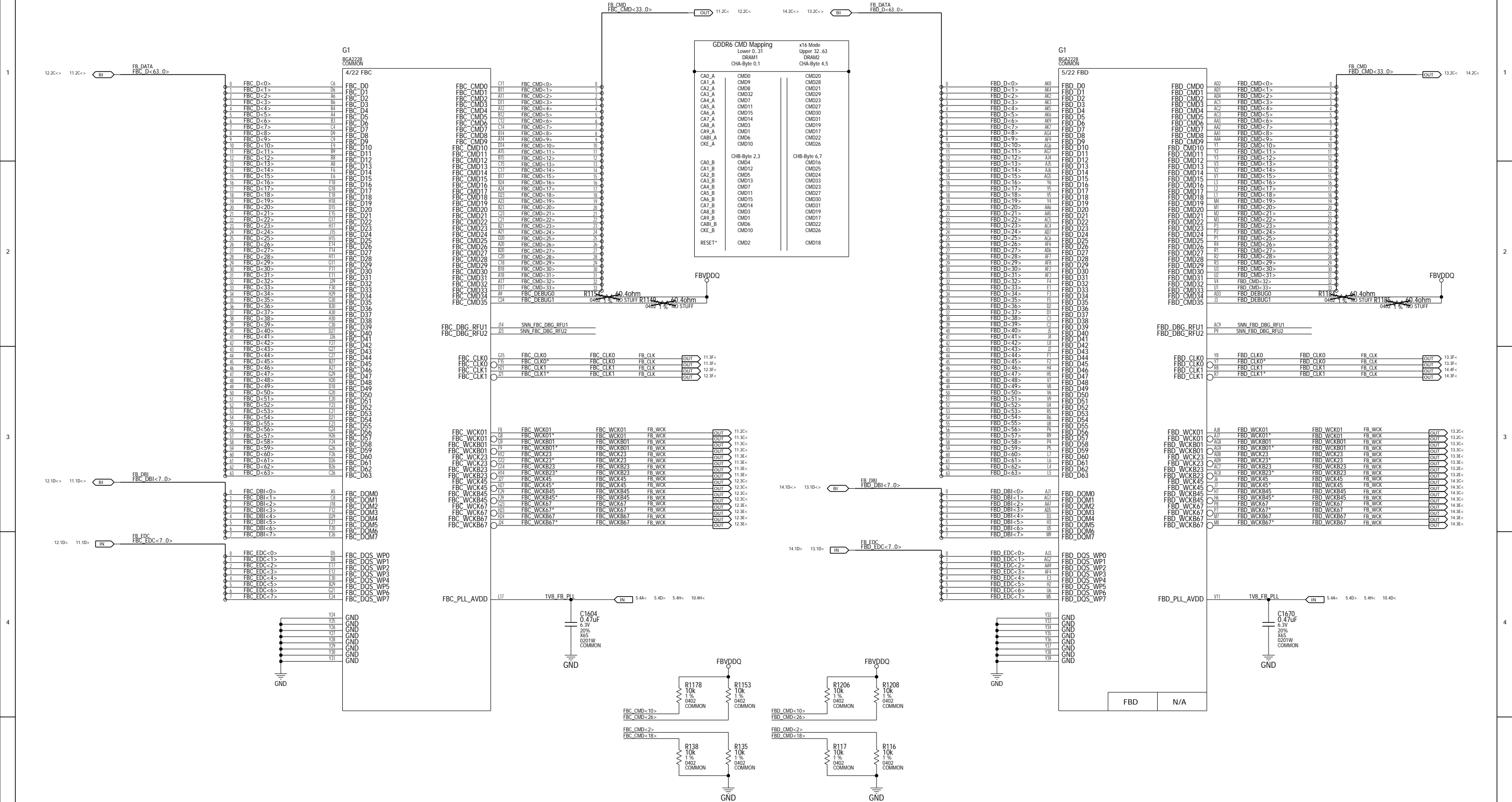
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PAGE DETAIL	MEMORY: FBB Partition 31..0

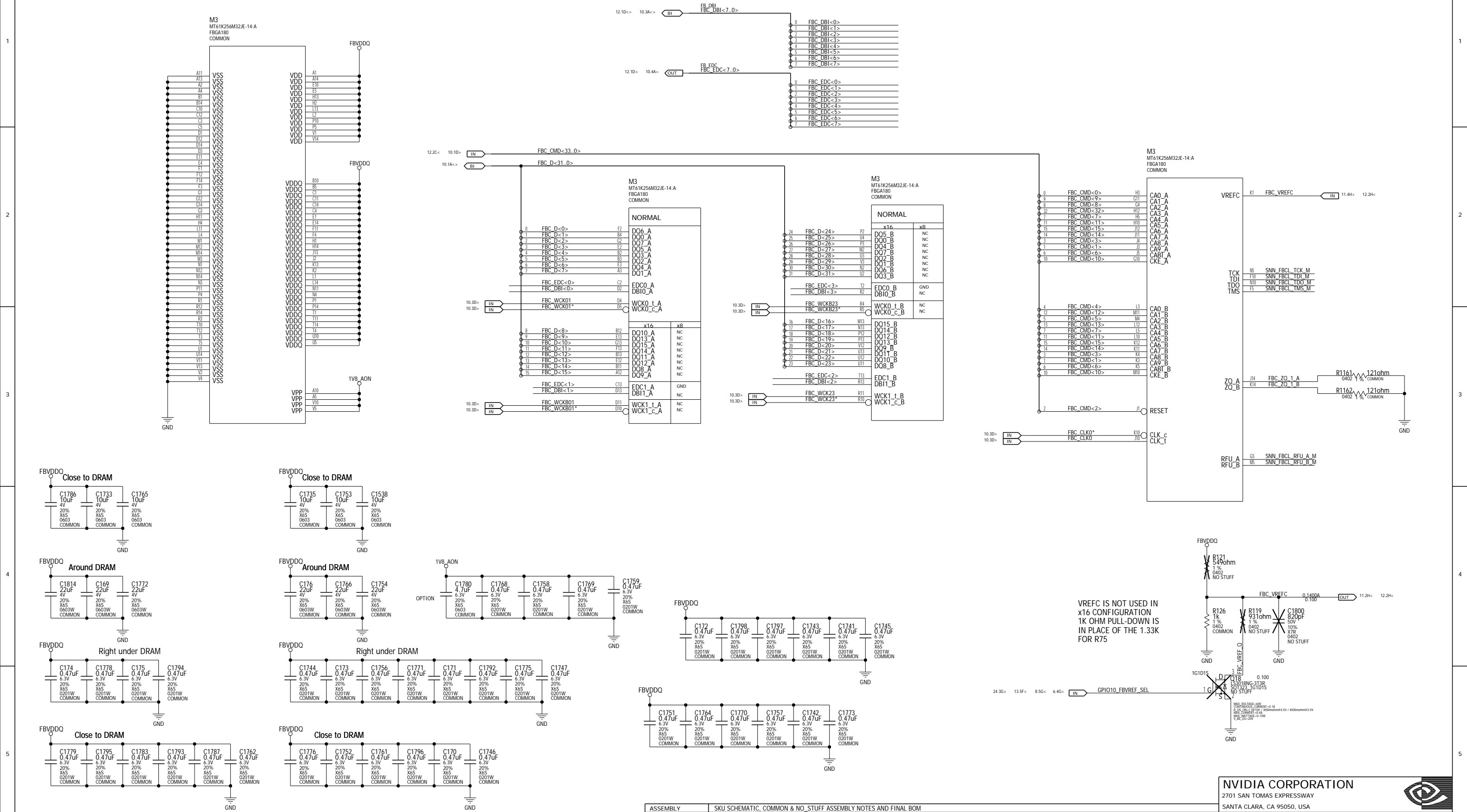
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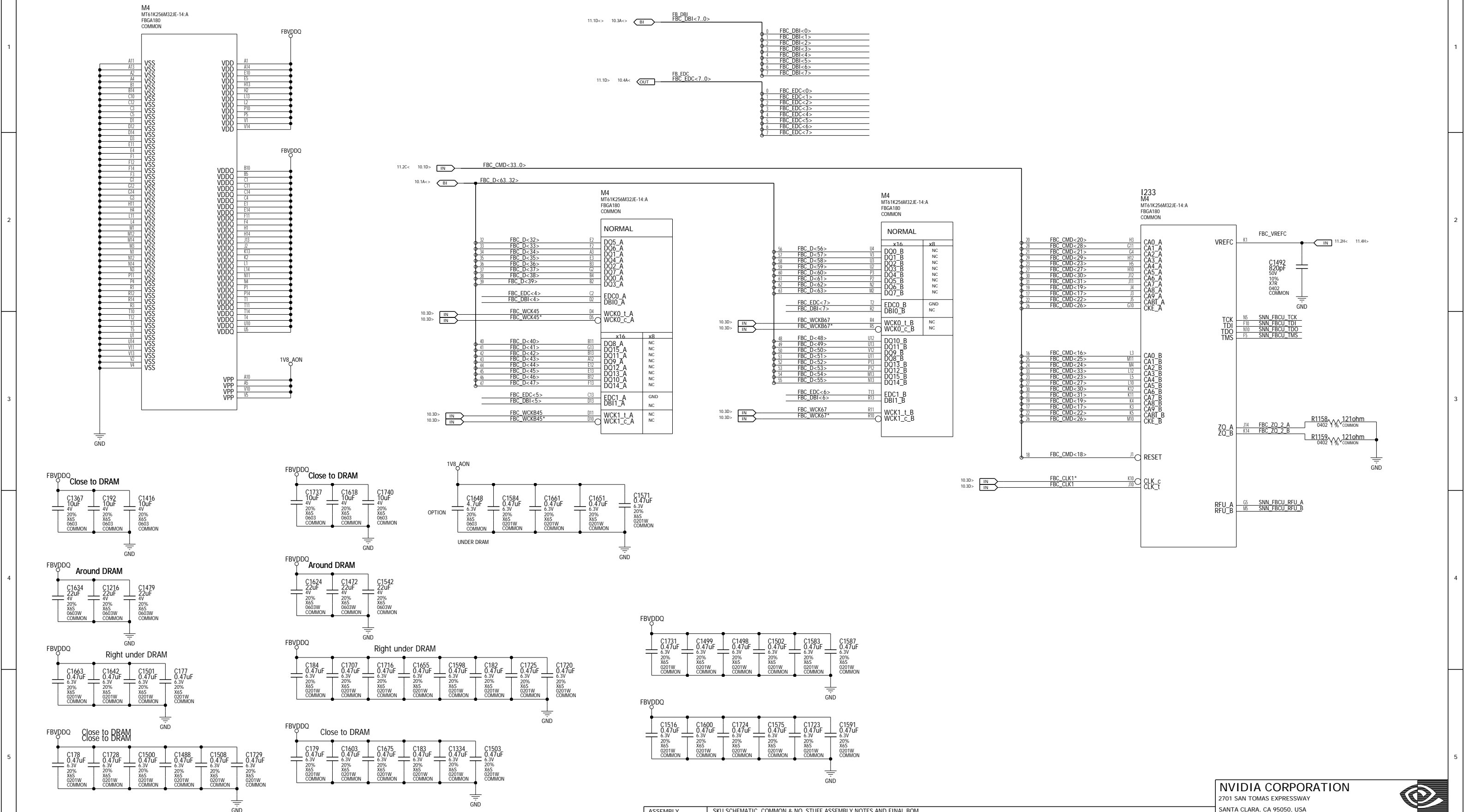
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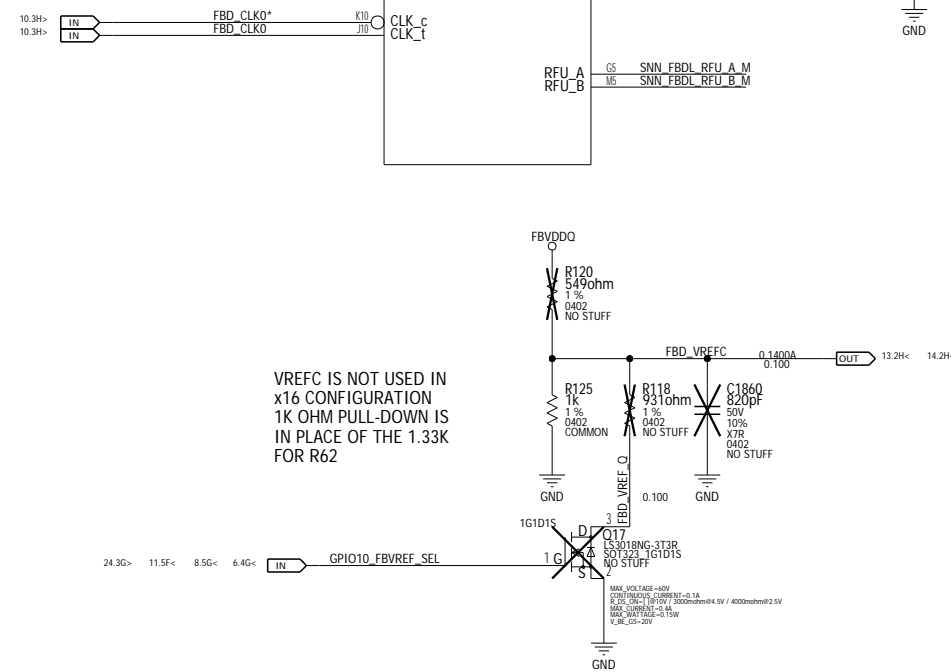
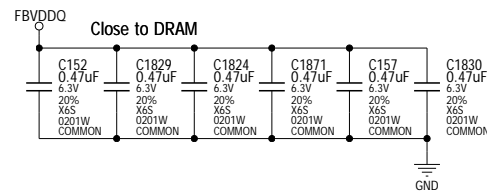
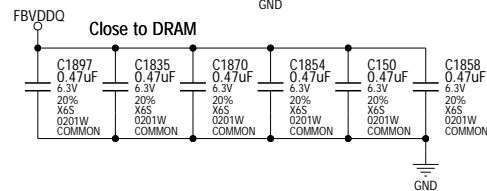
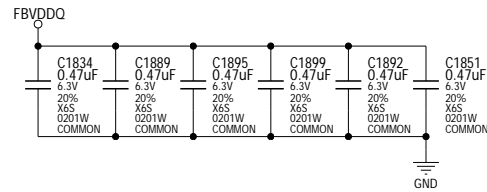
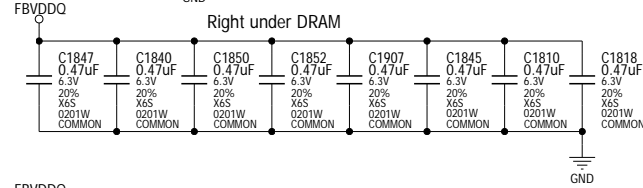
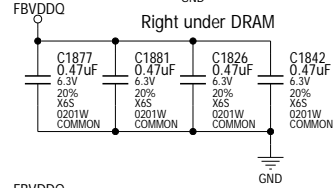
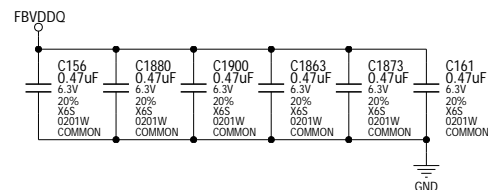
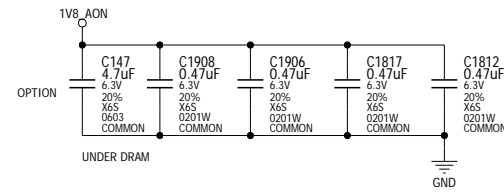
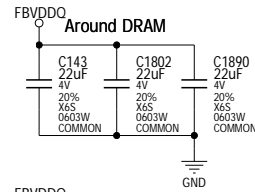
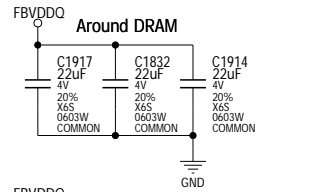
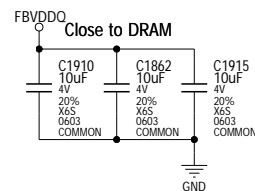
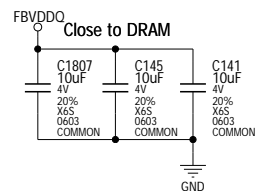
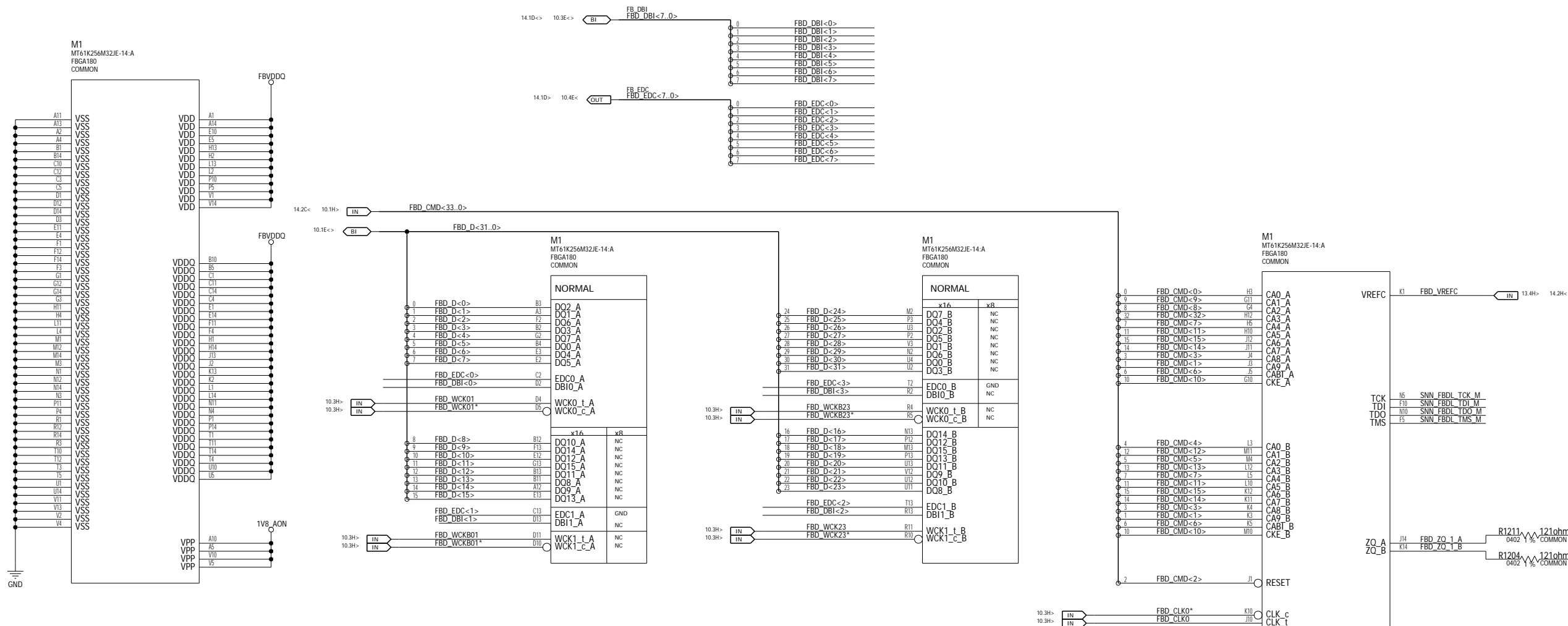
Page12: MEMORY: FBC Partition 63..32



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PAGE DETAIL	MEMORY: FBC Partition 63..32

NVIDIA CORPORATION 2701 SAN TOMAS EXPRESSWAY SANTA CLARA, CA 95050, USA			
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VREFC IS NOT USED IN
x16 CONFIGURATION
1K OHM PULL-DOWN IS
IN PLACE OF THE 1.33K
FOR R62

ASSEMBLY	SKU SCHEMATIC, COMMON & NO_STUFF ASSEMBLY NOTES AND FINAL BOM
PAGE DETAIL	MEMORY: FBD Partition 31.0

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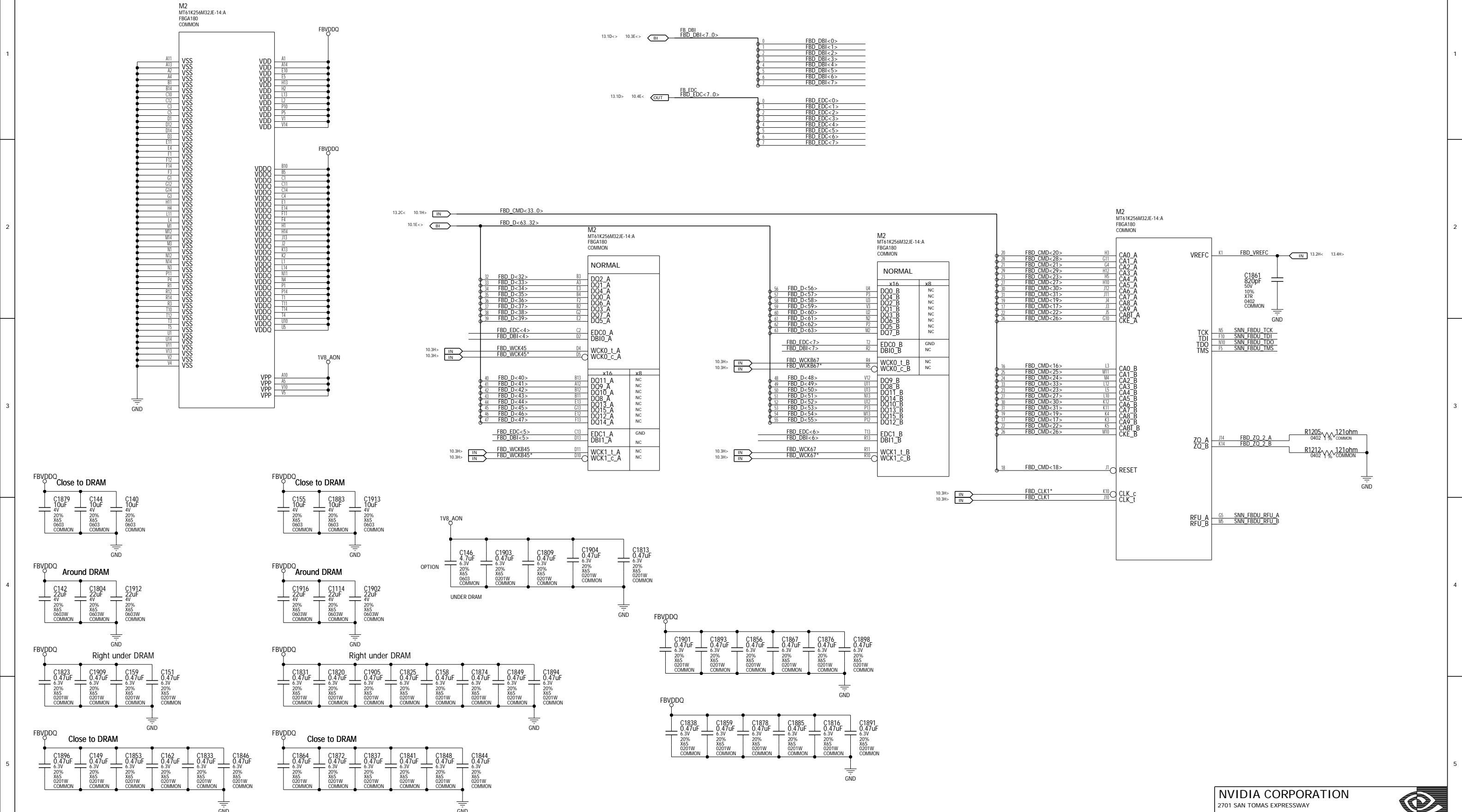
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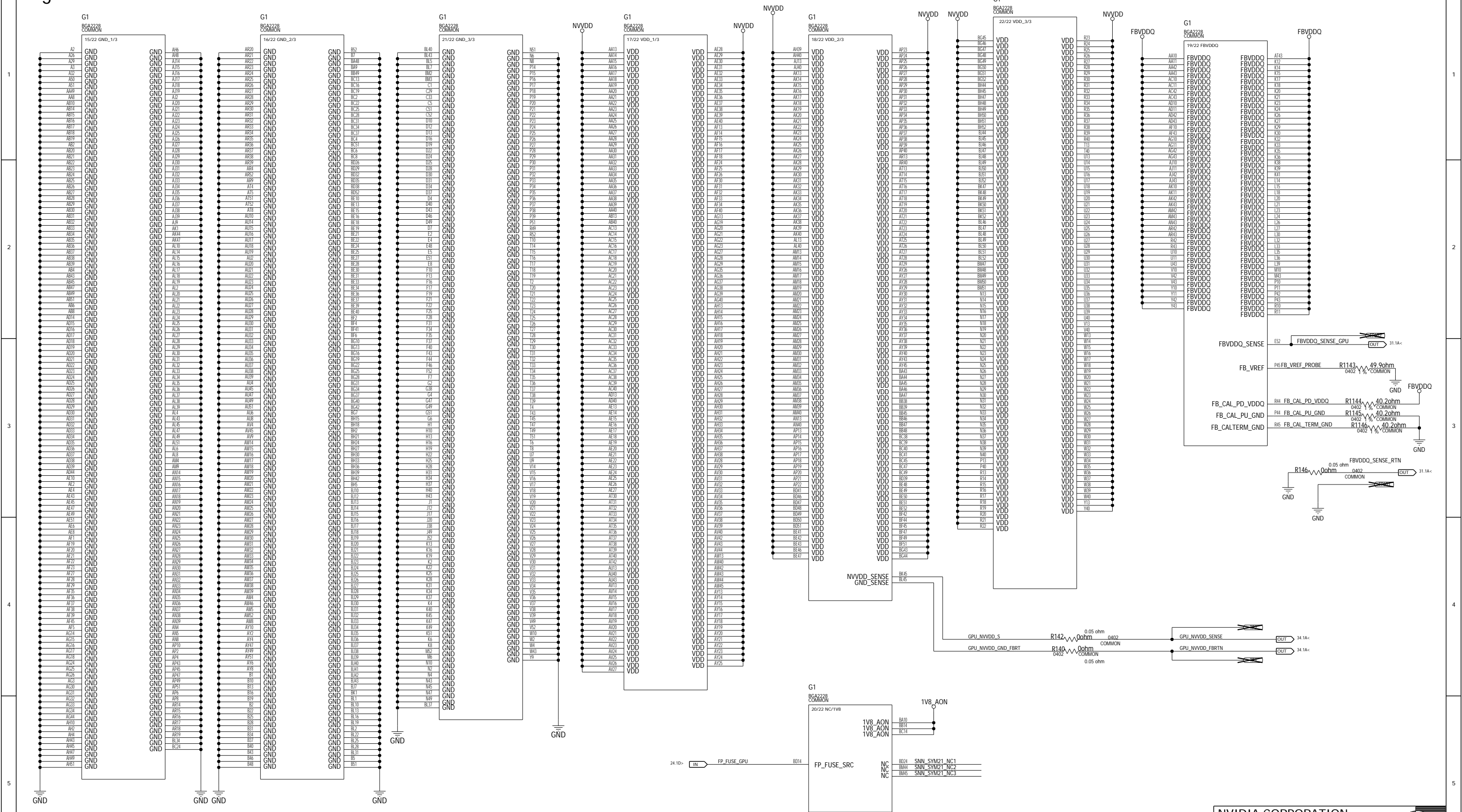
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NV_PN	600-1G180-0002-300
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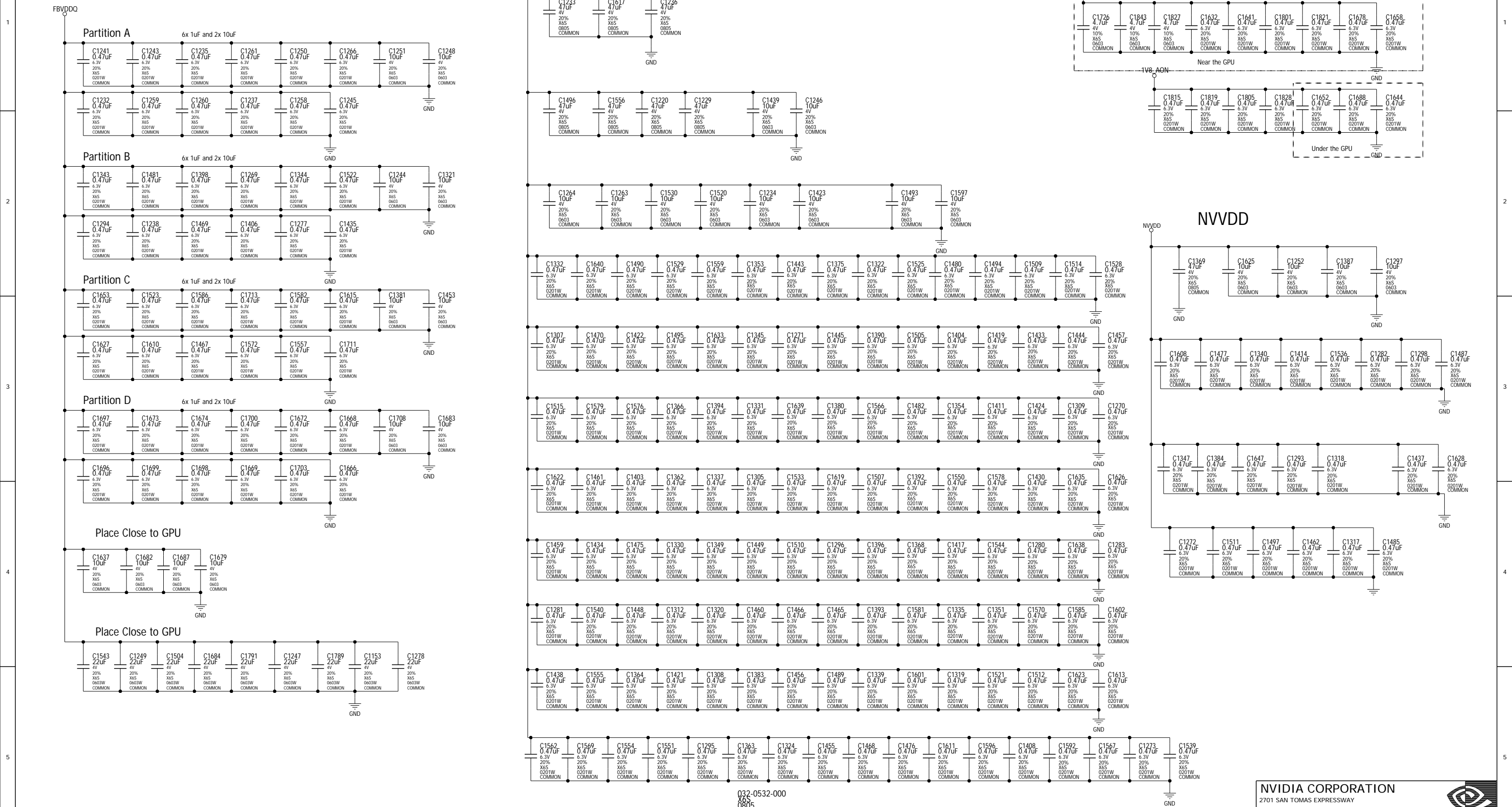
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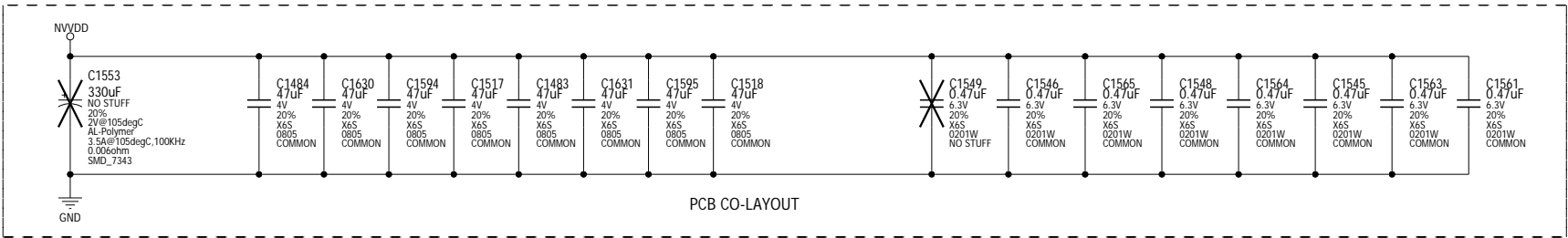
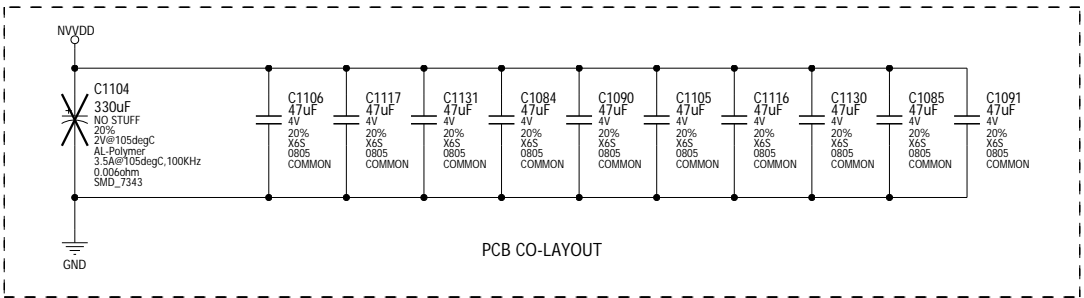
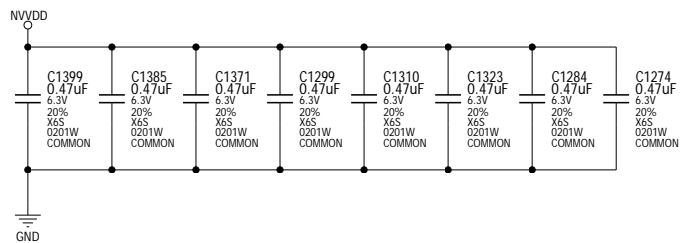
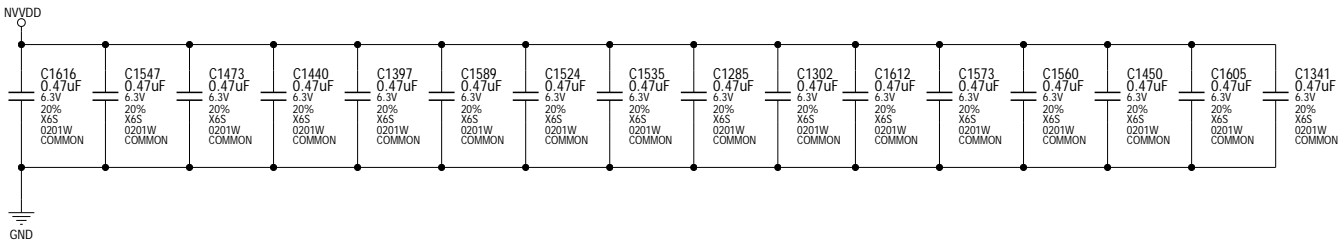
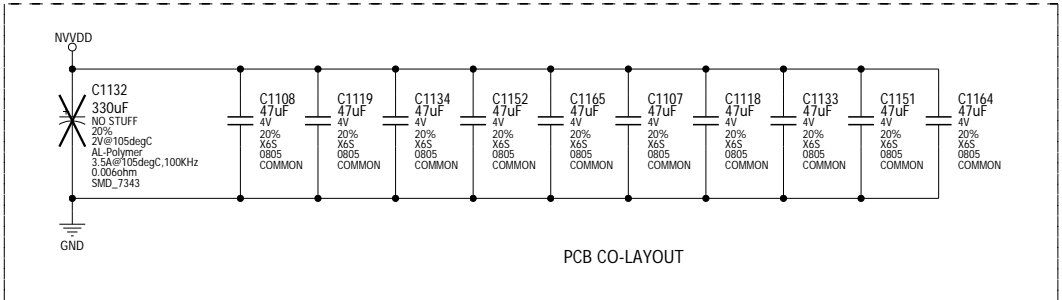
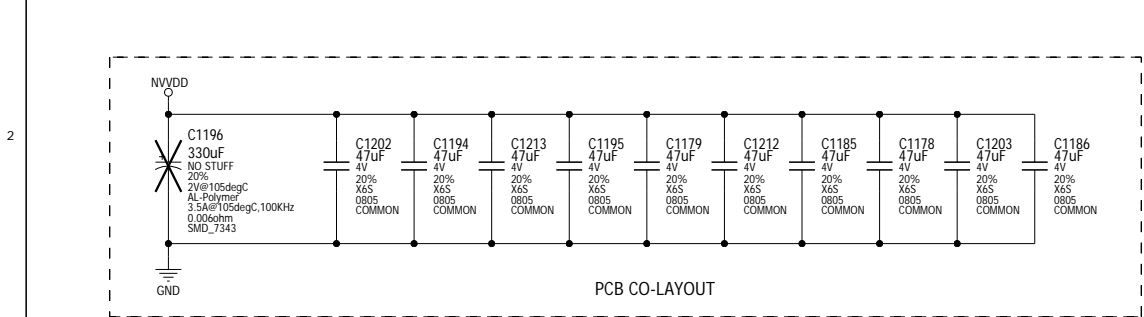
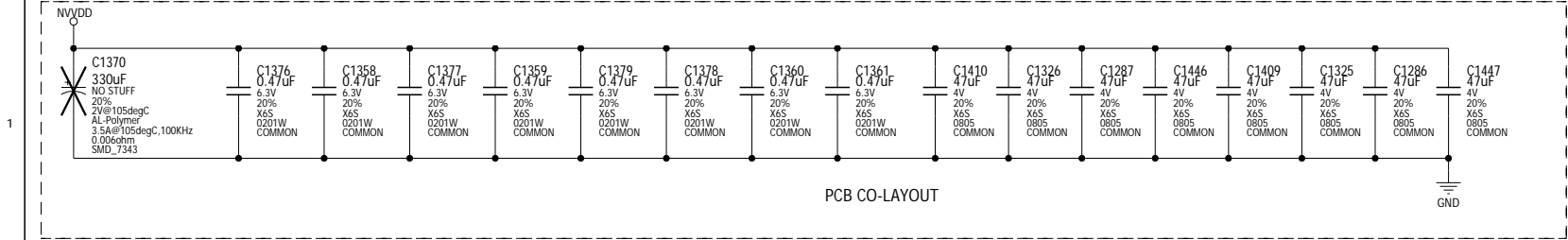


1V8 AON



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Page17: GPU Decoupling



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PAGE 18: IFPAB Tail-DP

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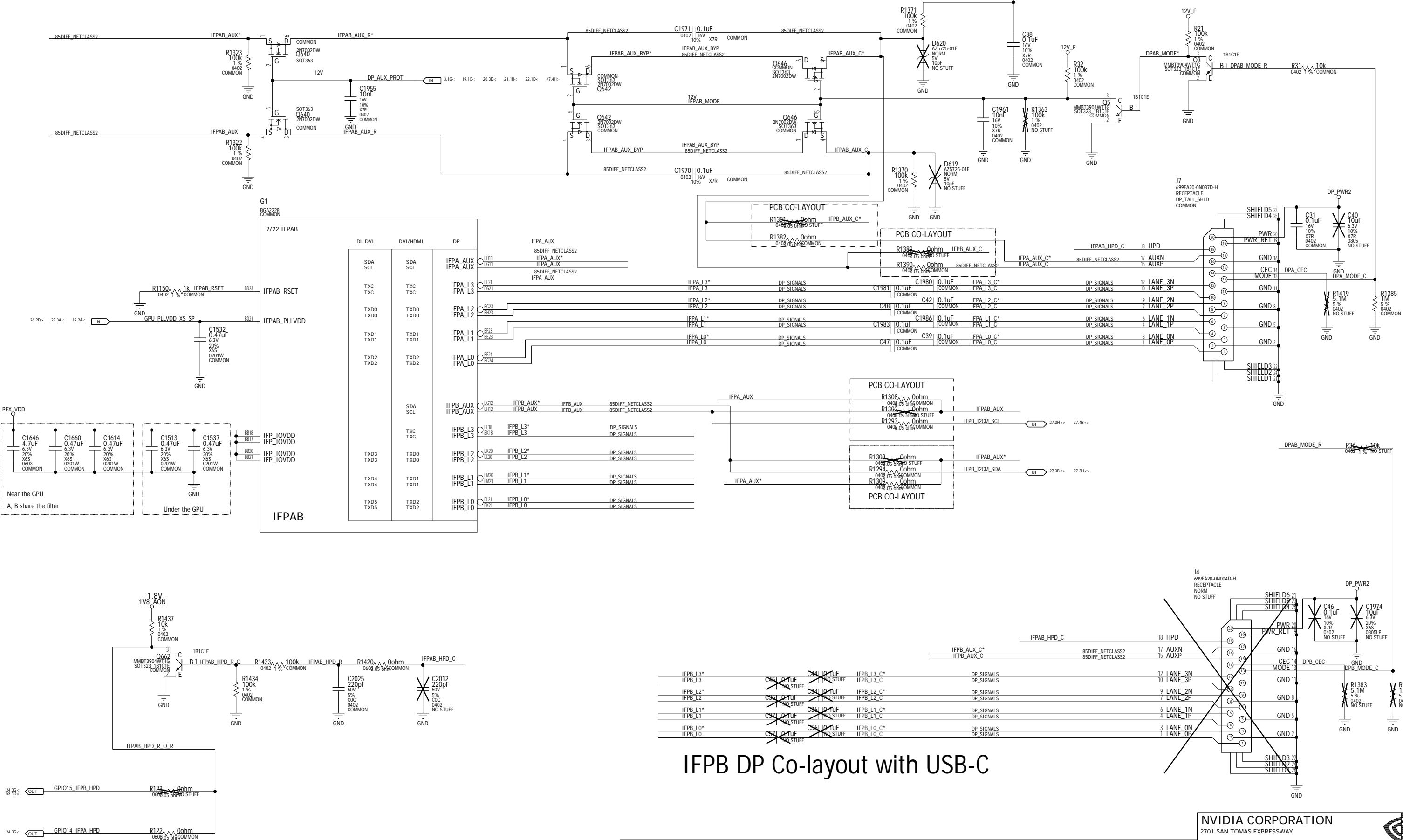
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IFPB DP Co-layout with USB-C

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PAGE DETAIL	IFPAB TAIL-DP

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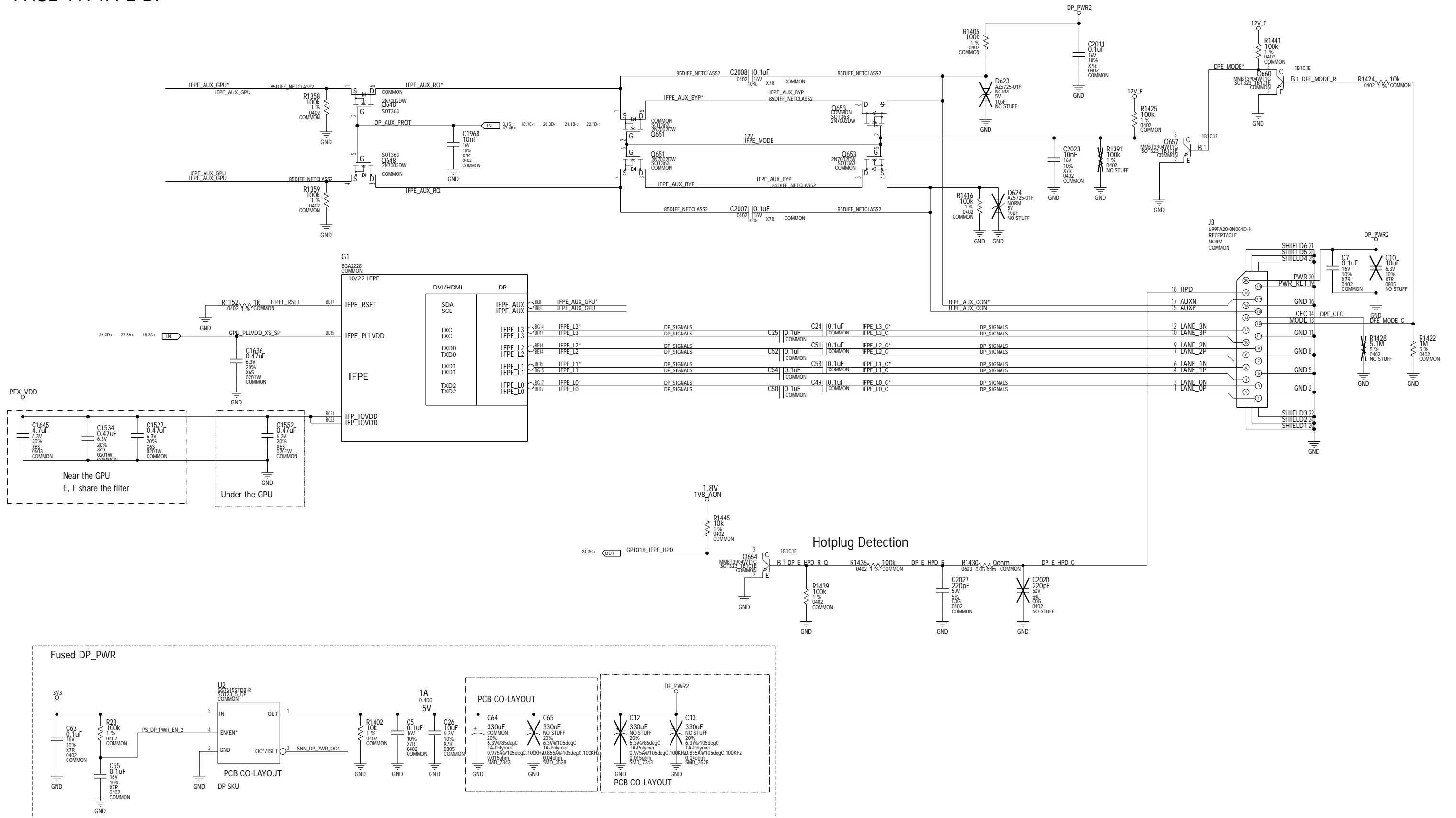
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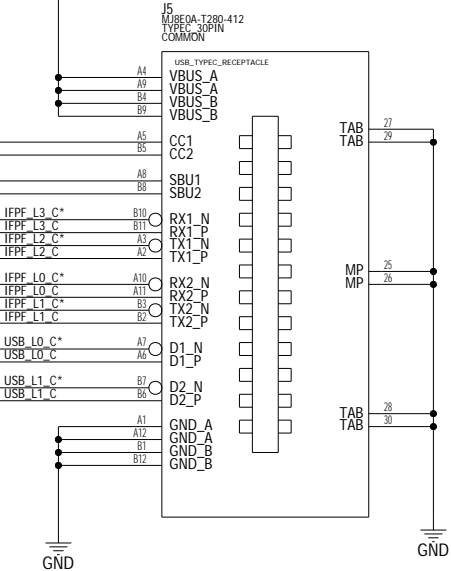
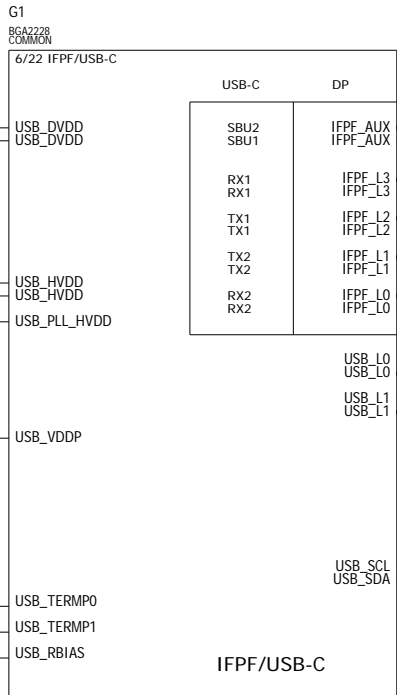
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PAGE 19: IFPE DP

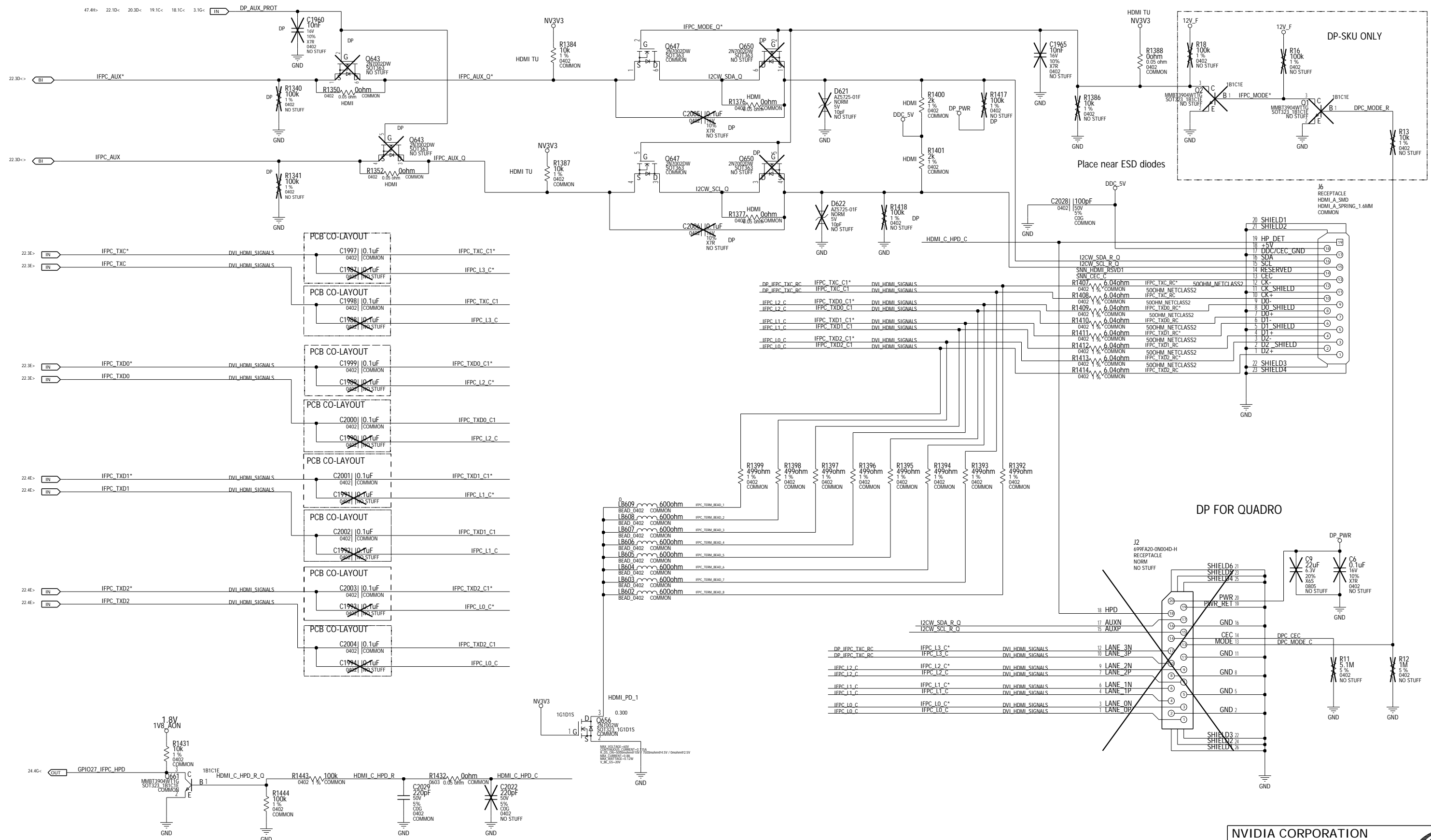





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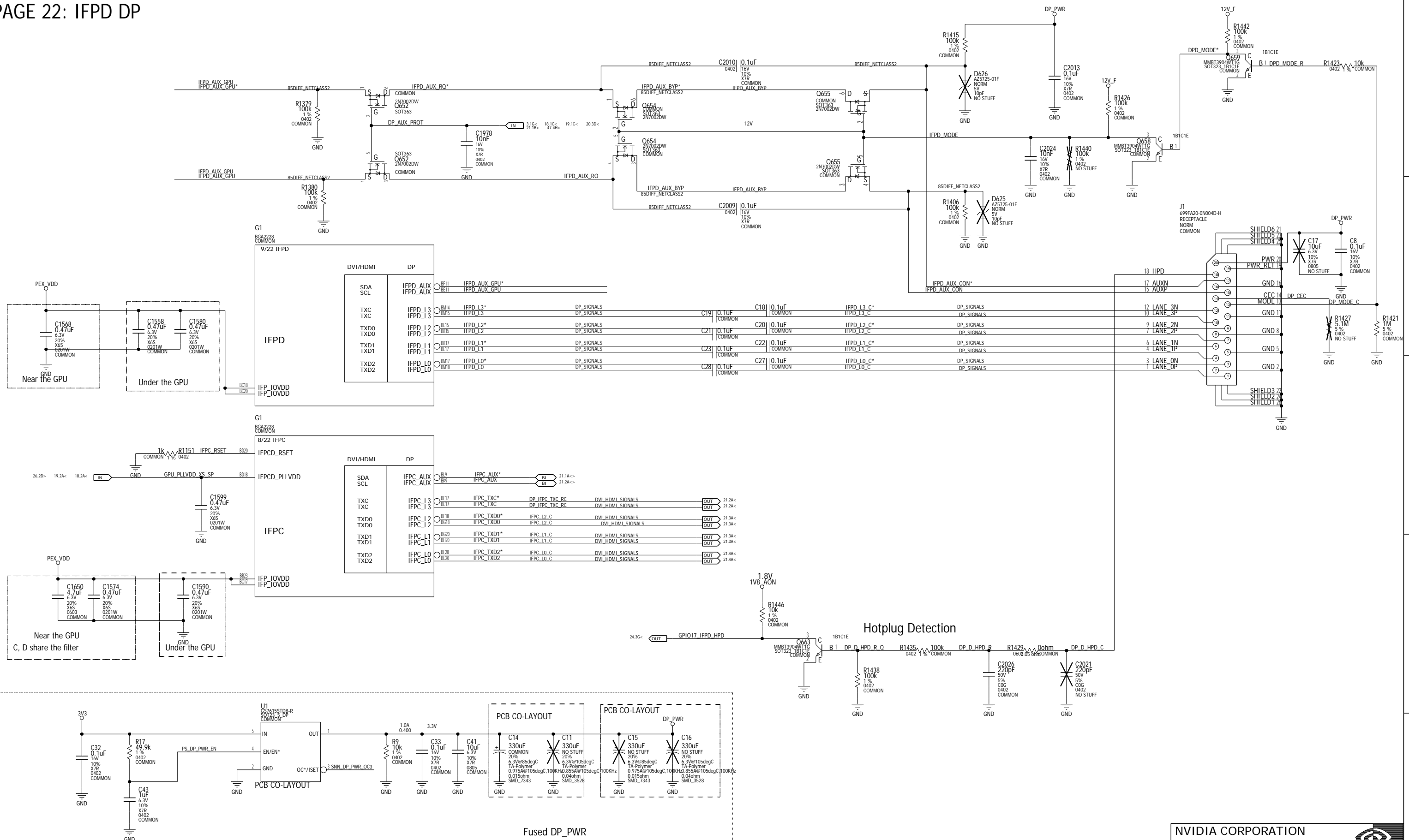
PAGE 21:IFPC HDMI 2.0/DP



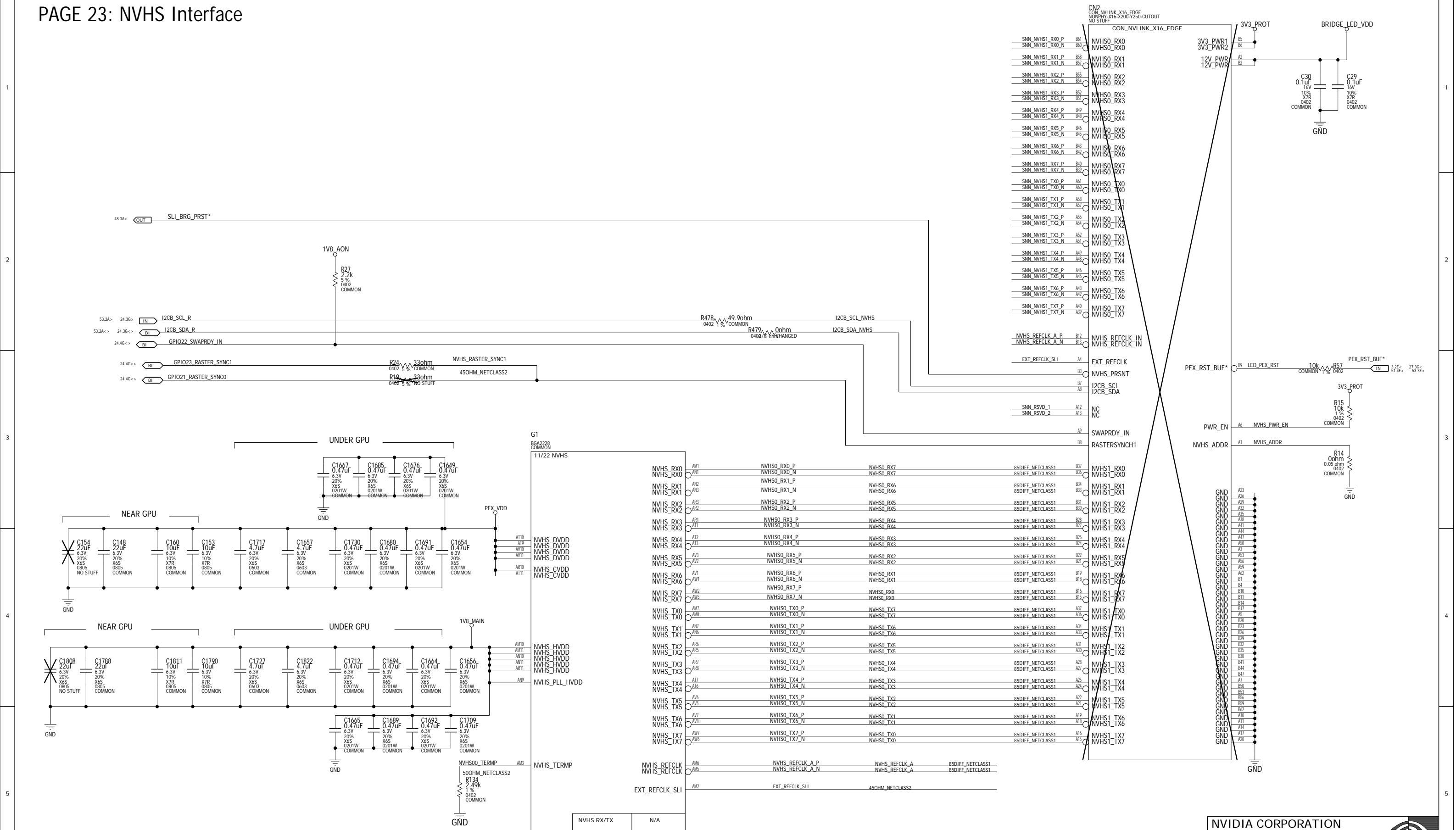
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PAGE 22: IFPD DP




PAGE 23: NVHS Interface



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ASSEMBLY	SKU SCHEMATIC, COMMON & NO_STUFF ASSEMBLY NOTES AND FINAL BOM
PAGE DETAIL	NVHS INTERFACE

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PAGE 24: MISC: Fan, Thermal, JTAG, GPIO, STEREO

1

2

3

4

5

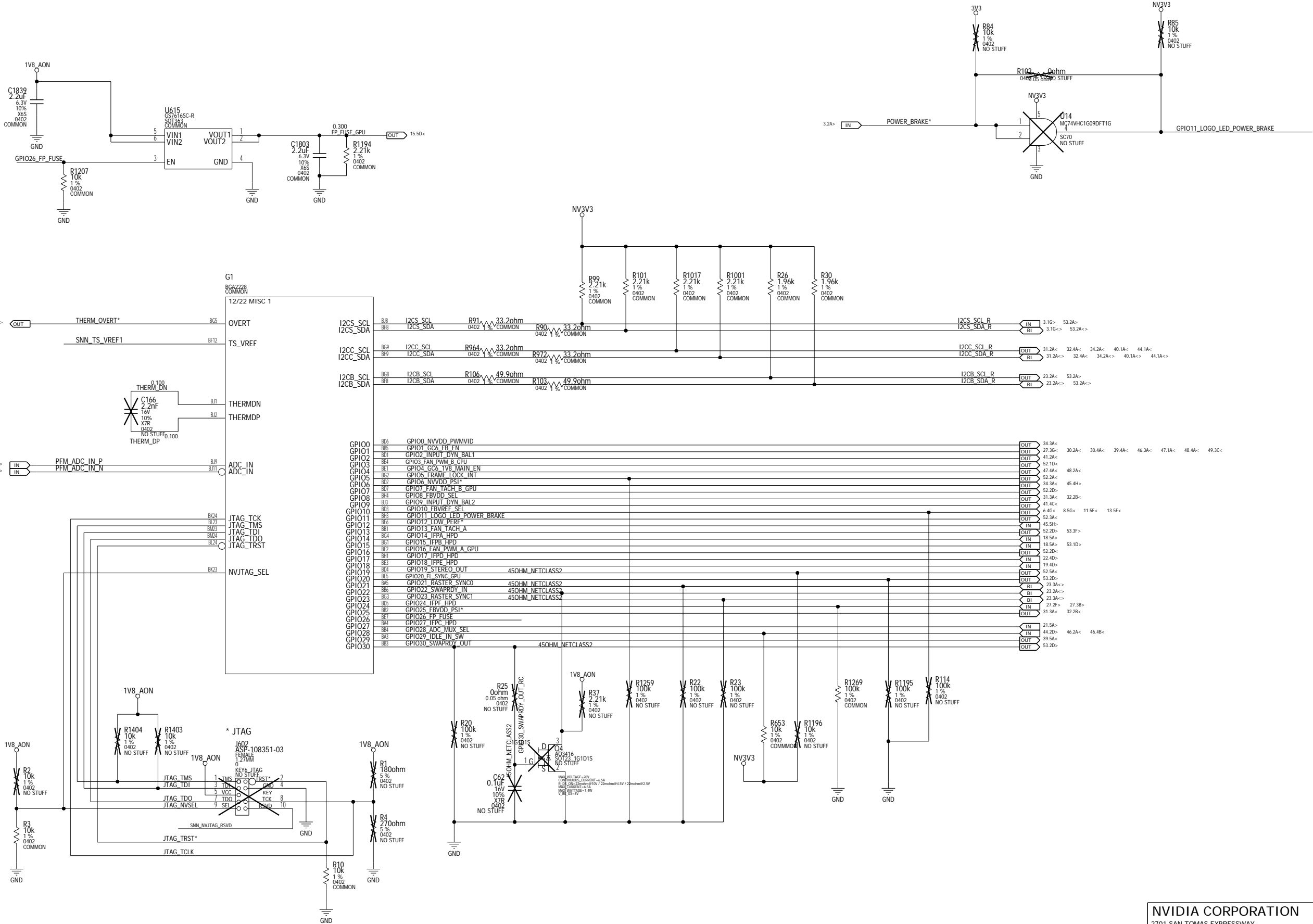
1

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PAGE 25: MISC: ROM, Straps

H=High :Tied to 1.8V
M=Middle:Tied to 0.9V
L=Low :Tied to 0V

STRAP2	STRAP1	STRAP0	RAMCFG[4:0]	
L	L	L	00000	RAMCFG TBD
L	L	H	00001	RAMCFG TBD
L	H	L	00010	RAMCFG TBD
L	H	H	00011	RAMCFG TBD
H	H	L	00110	RAMCFG TBD
H	H	H	00111	RAMCFG TBD

DEFAULT

ROM_SO	ROM_SI	ROM_SCLK	DUMMY[2:0],FS_OVERT	
L	L	L	XXX1	FS_OVERT ENABLE
L	L	M	XXX0	FS_OVERT DISABLE

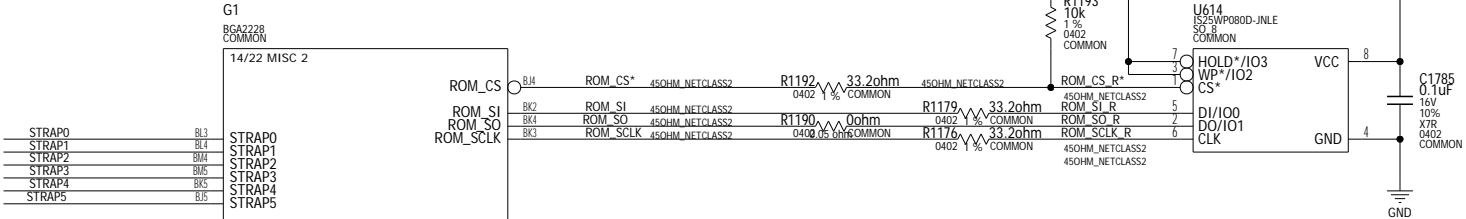
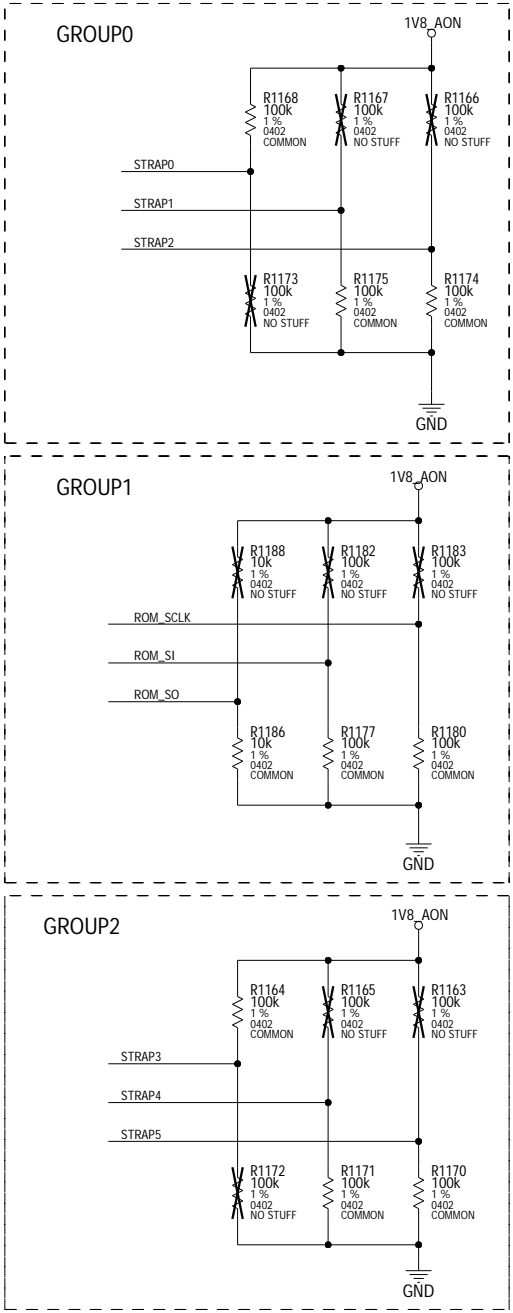
DEFAULT

STRAP5	STRAP4	STRAP3	SMB_ALT_ADDR	DEVID_SEL	PCIE_CFG	VGA_DEVICE
M	H	H	1	1	1	1
M	H	L	1	1	1	0
M	L	H	1	1	0	1
M	L	L	1	1	0	0
L	H	M	1	0	1	1
L	M	H	1	0	1	0
L	M	L	1	0	0	1
L	L	M	1	0	0	0
H	H	H	0	1	1	1
H	H	L	0	1	1	0
H	L	H	0	1	0	1
H	L	L	0	1	0	0
L	H	H	0	0	1	1
L	H	L	0	0	1	0
L	L	H	0	0	0	1
L	L	L	0	0	0	0

Default

RAMCFG[4:0]	DENSITY	WIDTH	VENDOR
00000	8Gb	256-bit	Samsung
00001	8Gb	256-bit	Micron
00010	8Gb	256-bit	Hynix
00110	16Gb	256-bit	Hynix
00111	16Gb	256-bit	Samsung
01000	16Gb	256-bit	Micron

- 1:SMB_ALT_ADDR ENABLE
0:SMB_ALT_ADDR DISABLE
- 1:DEVID_SEL REBRAND
0:DEVID_SEL ORIGNAL
- 1:PCIE_CFG LOW POWER
0:PCIE_CFG HIGH POWER
- 1:VGA_DEVICE ENABLE
0:VGA_DEVICE DISABLE

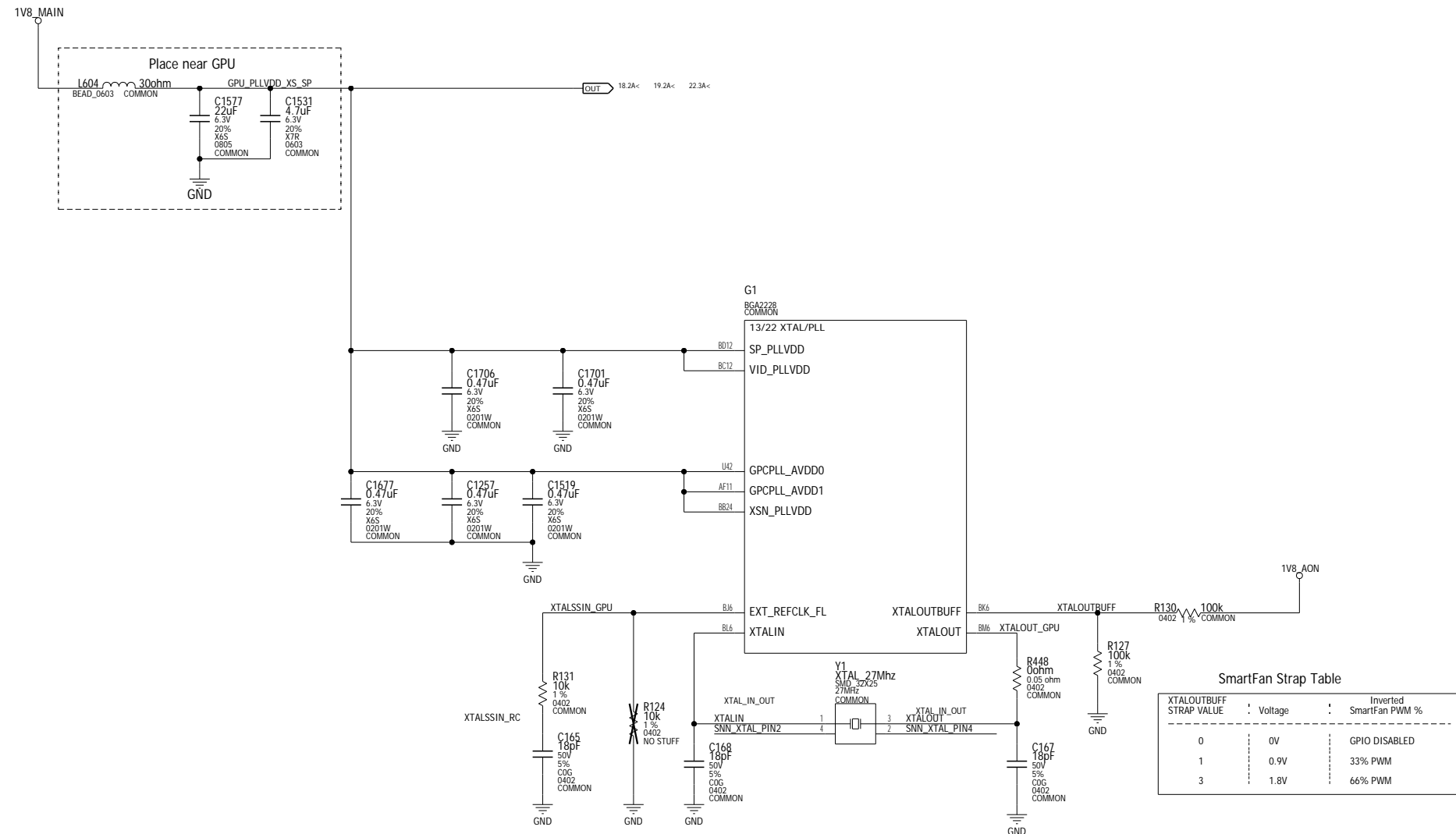


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ASSEMBLY	SKU SCHEMATIC, COMMON & NO_STUFF ASSEMBLY NOTES AND FINAL BOM
PAGE DETAIL	MISC3: ROM, STRAPS

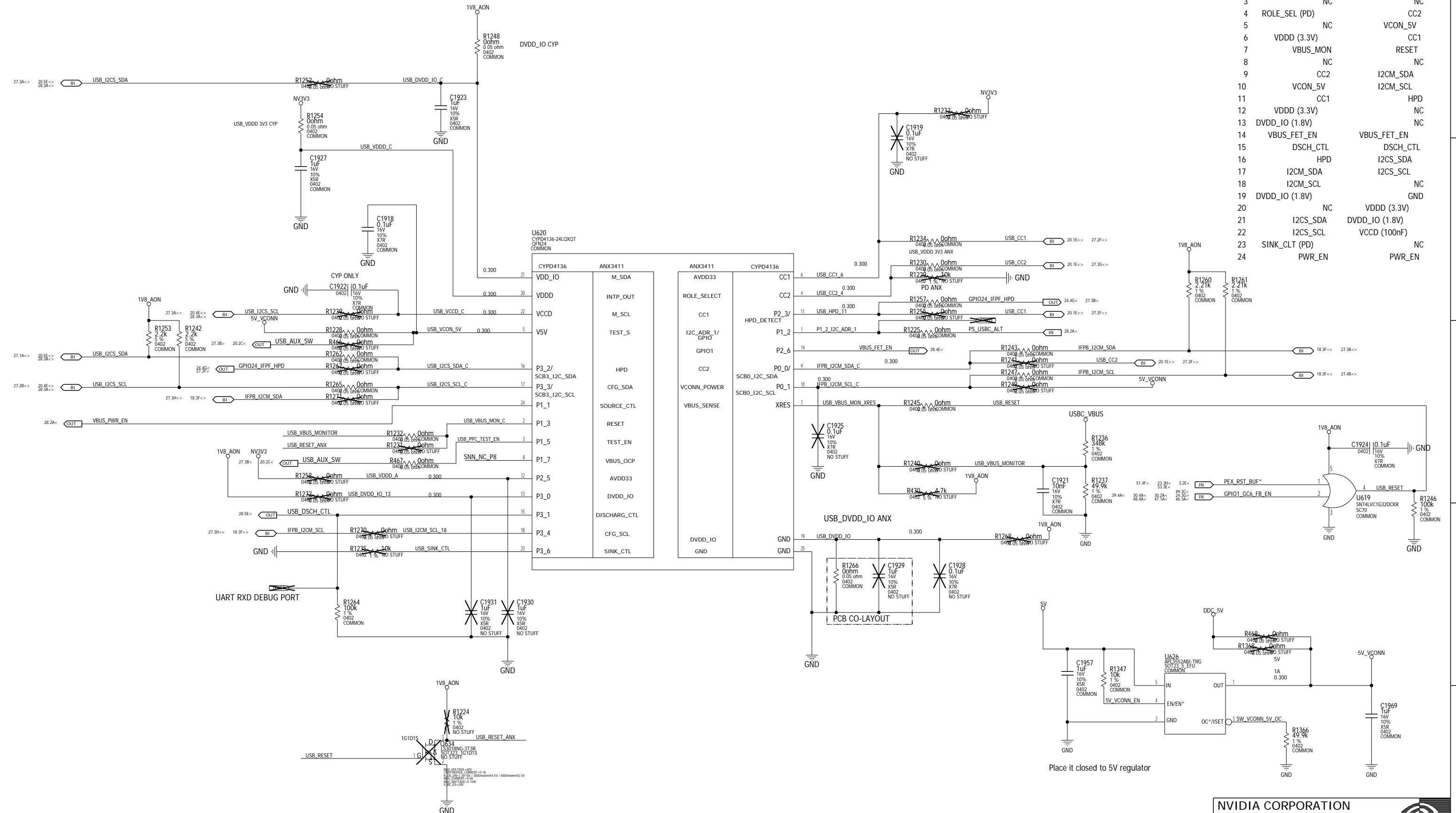
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PAGE 26: MISC: XTAL. PLL



XTALOUTBUFF STRAP VALUE	Voltage	Inverted SmartFan PWM %
0	0V	GPIO DISABLED
1	0.9V	33% PWM
3	1.8V	66% PWM


PAGE 27: MISC: USB PPC



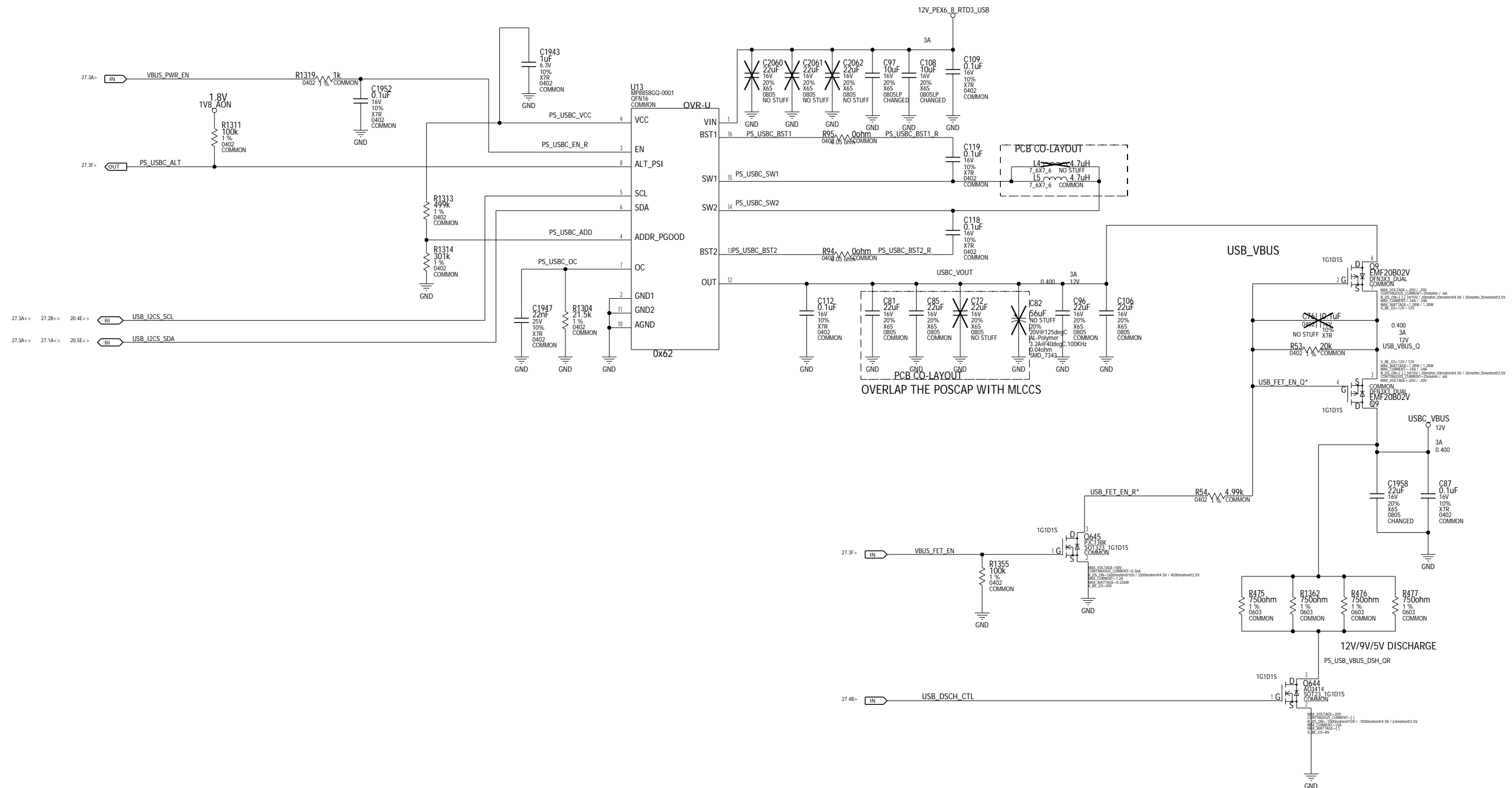
PIN	ANX	CYP
1	TP	TP
2	RESET	VBUS_MON
3	NC	NC
4	ROLE_SEL (PD)	CC2
5	NC	VCON_5V
6	VDDD (3.3V)	CC1
7	VBUS_MON	RESET
8	NC	NC
9	CC2	I2CM_SDA
10	VCON_5V	I2CM_SCL
11	CC1	HPD
12	VDDD (3.3V)	NC
13	DVDD_IO (1.8V)	NC
14	VBUS_FET_EN	VBUS_FET_EN
15	DSCH_CTL	DSCH_CTL
16	HPD	I2CS_SDA
17	I2CM_SDA	I2CS_SCL
18	I2CM_SCL	NC
19	DVDD_IO (1.8V)	GND
20	NC	VDDD (3.3V)
21	I2CS_SDA	DVDD_IO (1.8V)
22	I2CS_SCL	VCCD (100nF)
23	SINK_CLT (PD)	NC
24	PWR_EN	PWR_EN

ASSEMBLY	SKU SCHEMATIC, COMMON & NO_STUFF ASSEMBLY NOTES AND FINAL BOM
PAGE DETAIL	MISC: USB PPC

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PAGE 28: PS: USB VR



ASSEMBLY	SKU SCHEMATIC, COMMON & NO_STUFF ASSEMBLY NOTES AND FINAL BOM
PAGE DETAIL	PS: USB VR

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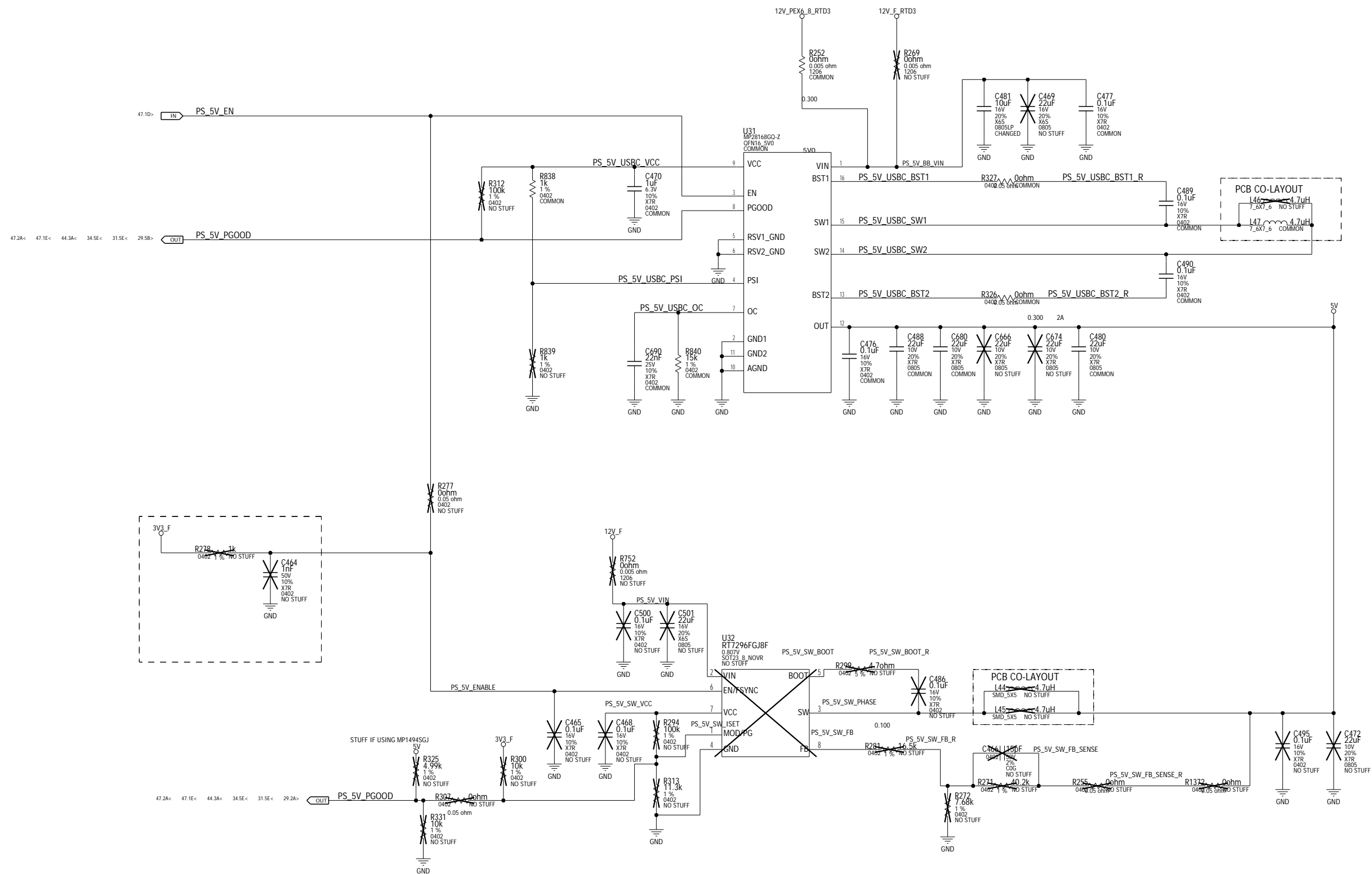
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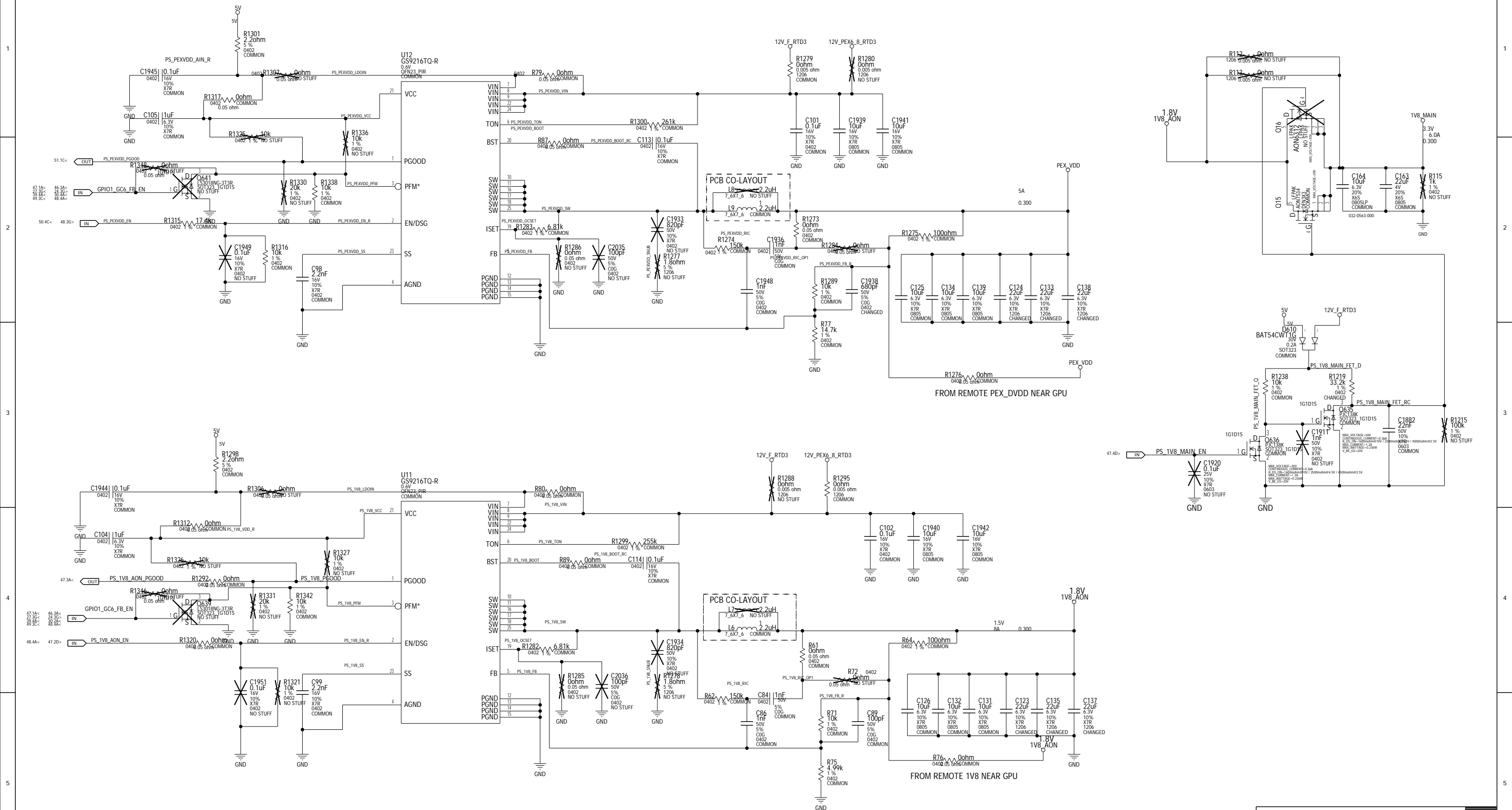



ASSEMBLY	SKU SCHEMATIC, COMMON & NO_STUFF ASSEMBLY NOTES AND FINAL BOM
PAGE DETAIL	PS: 5V, 5V BACKUP

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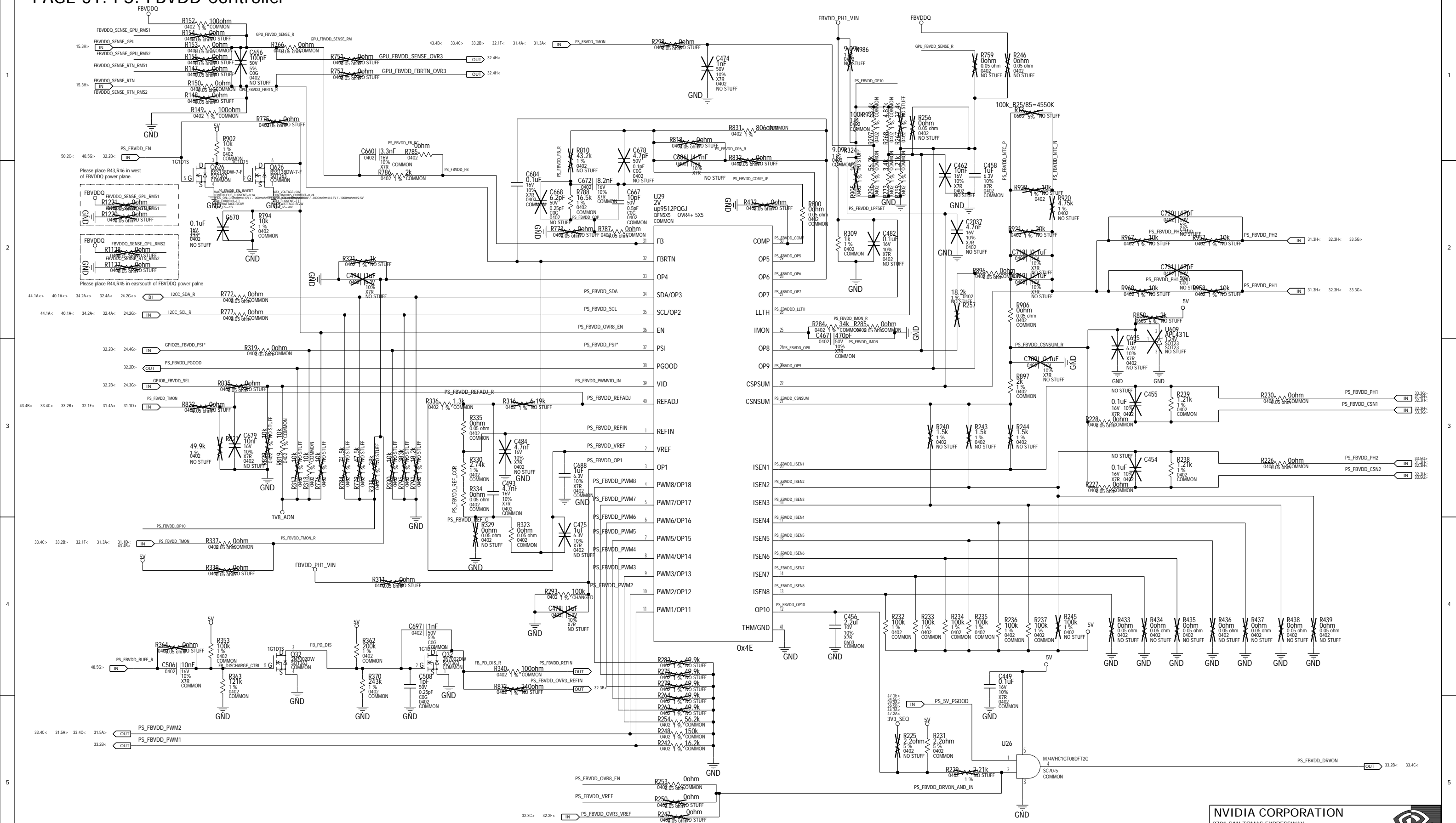
PAGE 30: PS: PEXVDD, 1V8



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PAGE 31: PS: FBVDD Controller

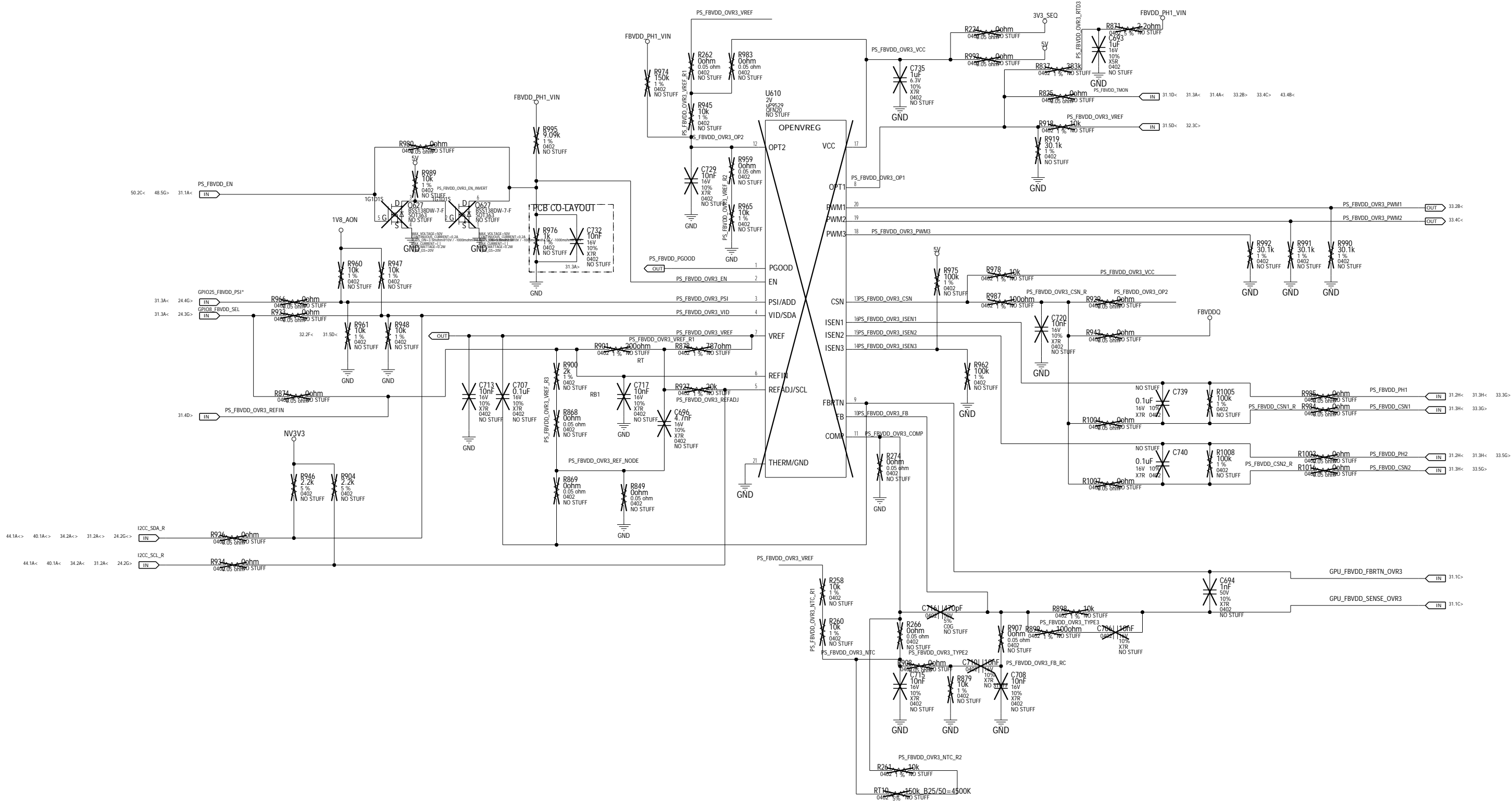


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ASSEMBLY	SKU SCHEMATIC, COMMON & NO_STUFF ASSEMBLY NOTES AND FINAL BOM
PAGE DETAIL	PS: FBVDD CONTROLLER

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PAGE 32: PS: FBVDD Controller OVR3



ASSEMBLY	SKU SCHEMATIC, COMMON & NO_STUFF ASSEMBLY NOTES AND FINAL BOM
PAGE DETAIL	PS: FBVDD CONTROLLER OVR3

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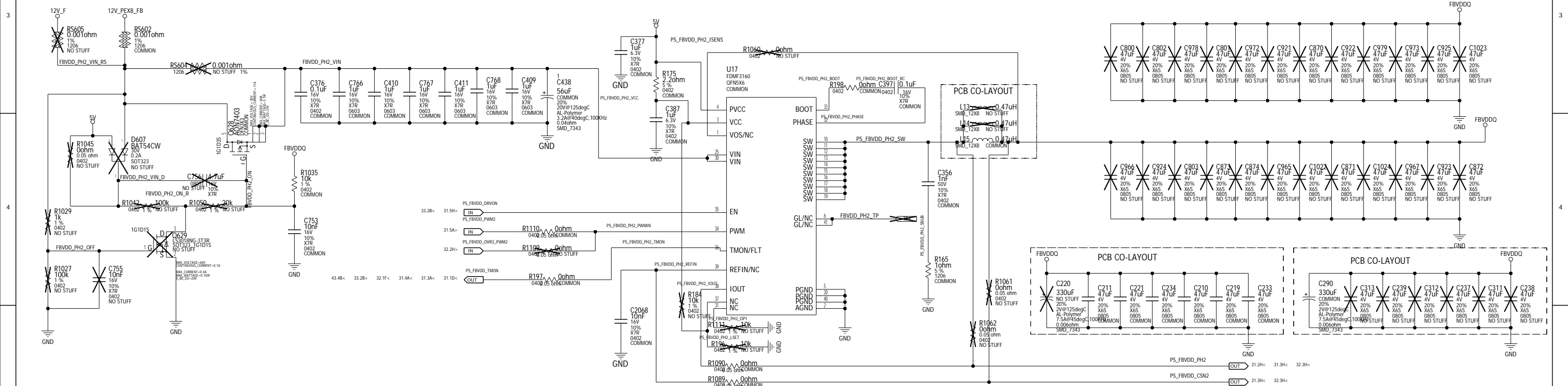
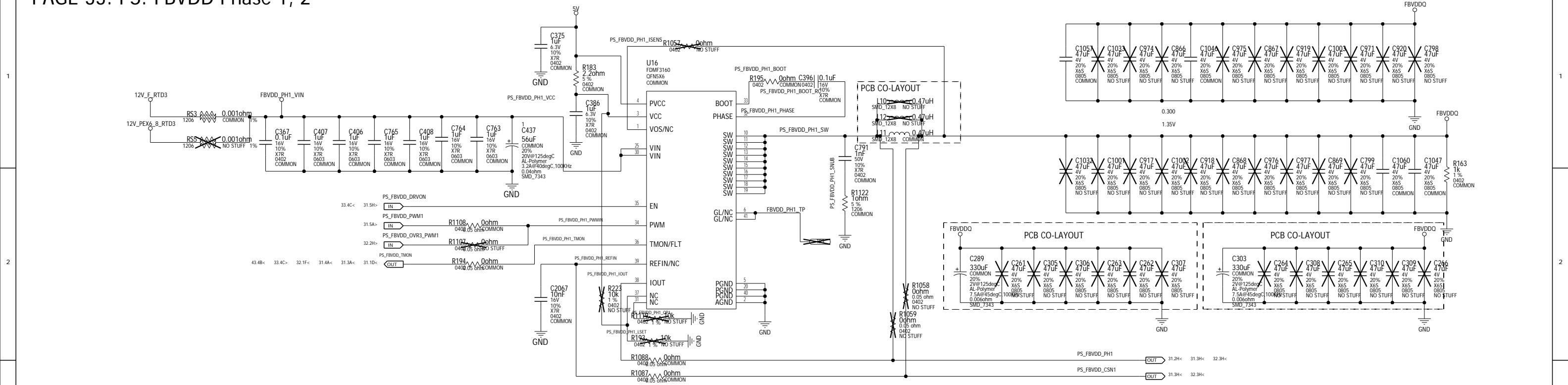
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PAGE 33: PS: FBVDD Phase 1, 2



ASSEMBLY	SKU SCHEMATIC, COMMON & NO_STUFF ASSEMBLY NOTES AND FINAL BOM
PAGE DETAIL	PS: FBVDD PHASE 1, 2

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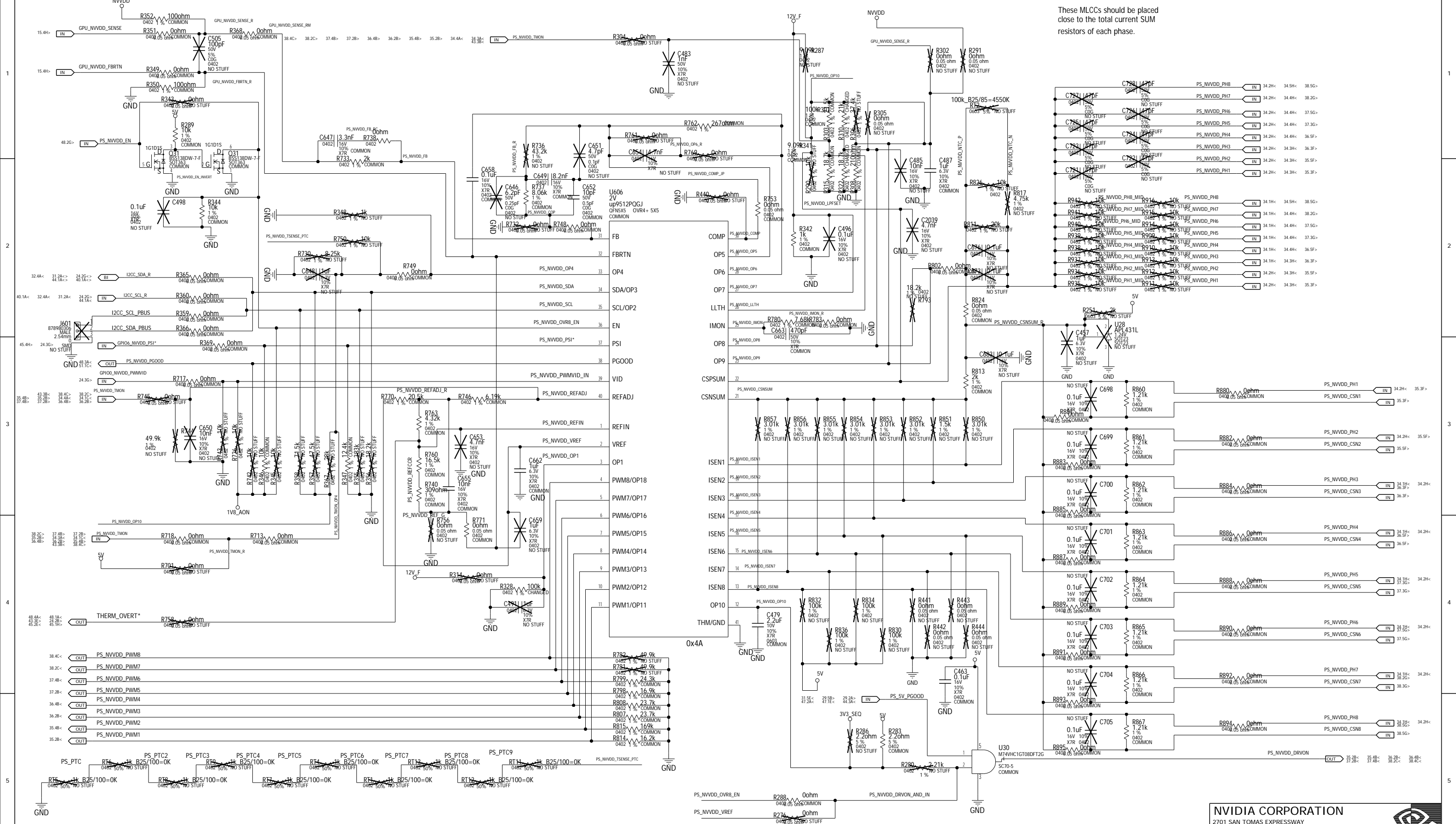
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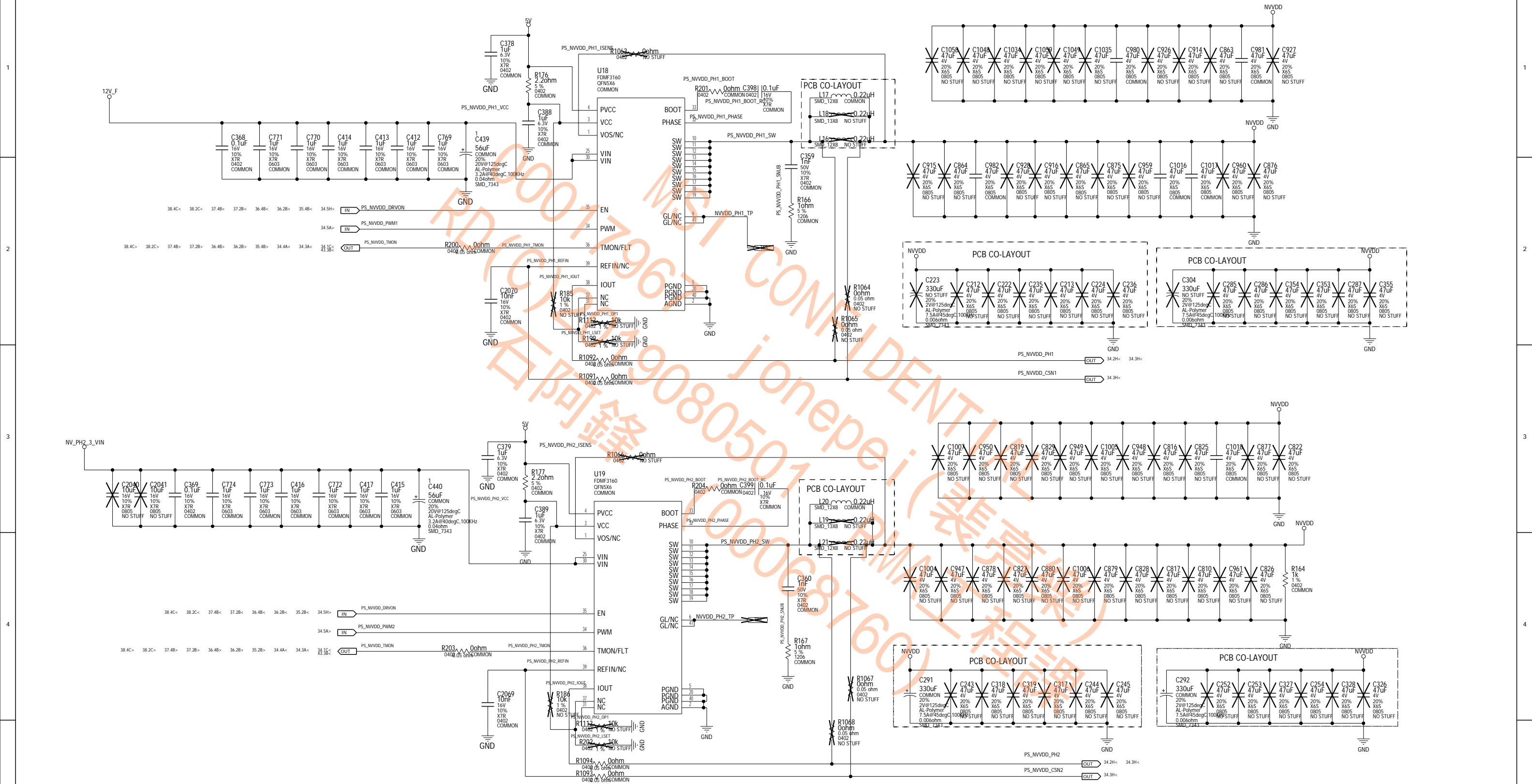
PAGE 34: PS: NVVDD Controller OVR8



These MLCCs should be placed close to the total current SUM resistors of each phase.

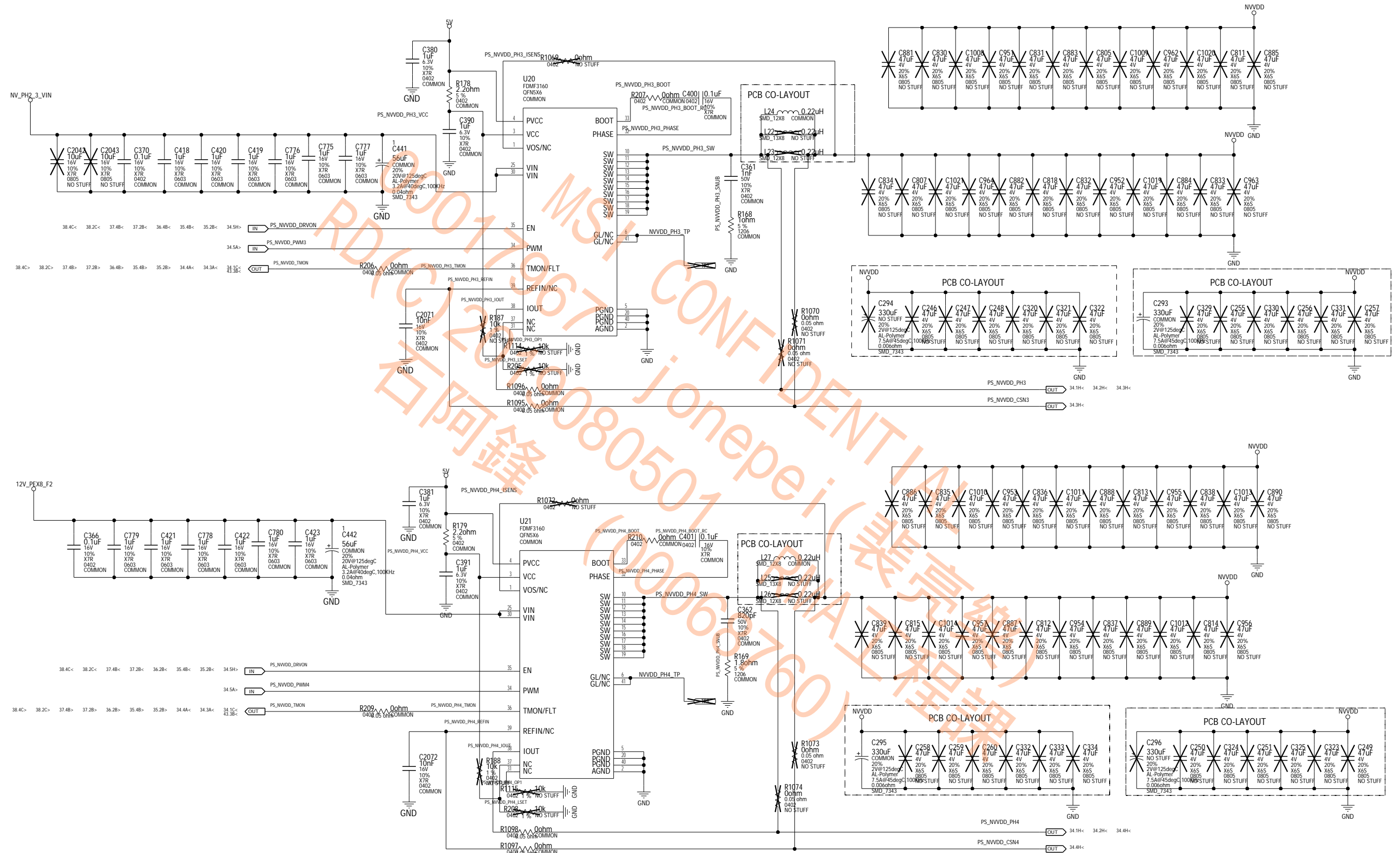
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PAGE 36: PS: NVVDD Phase 3, 4



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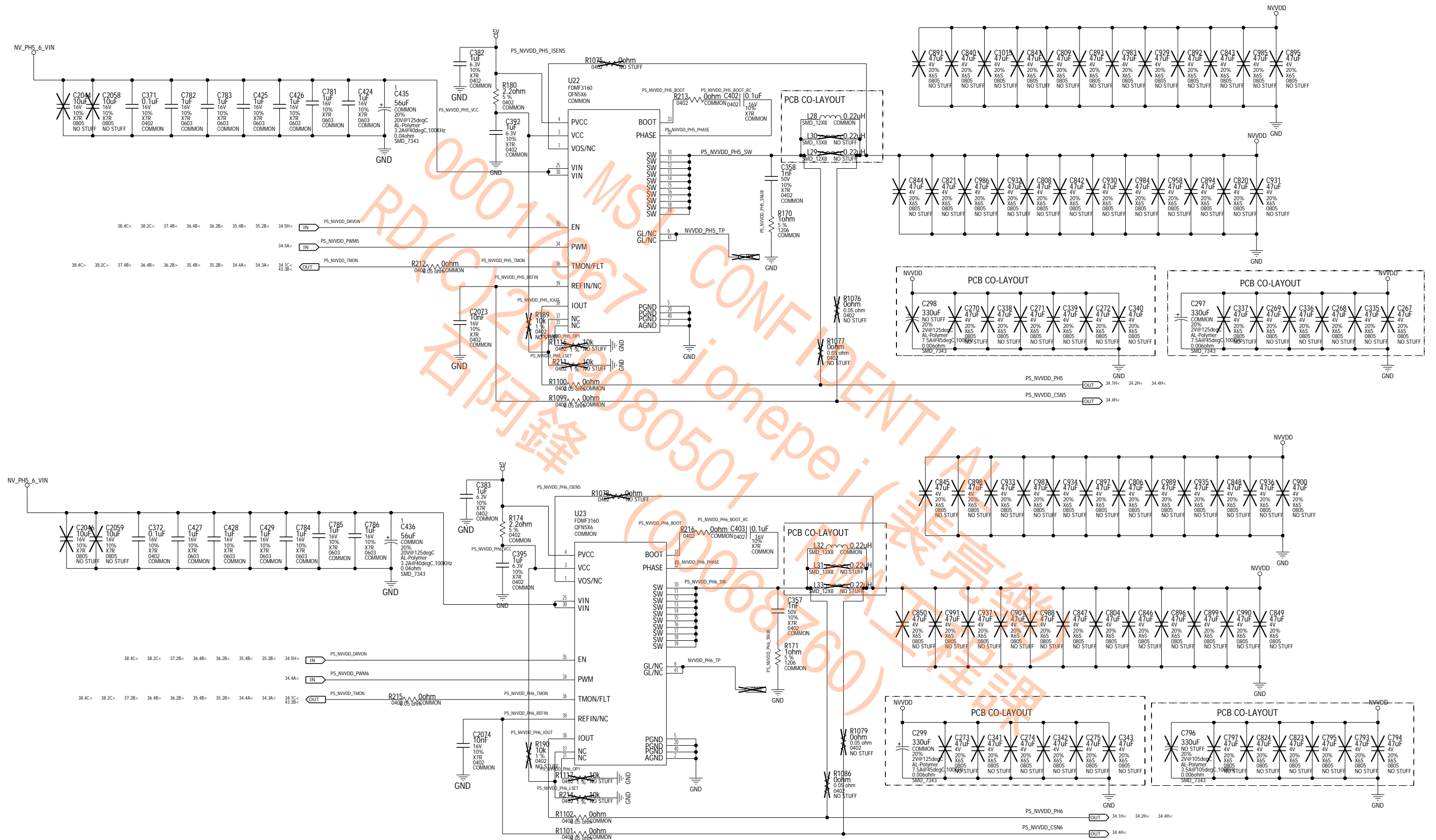
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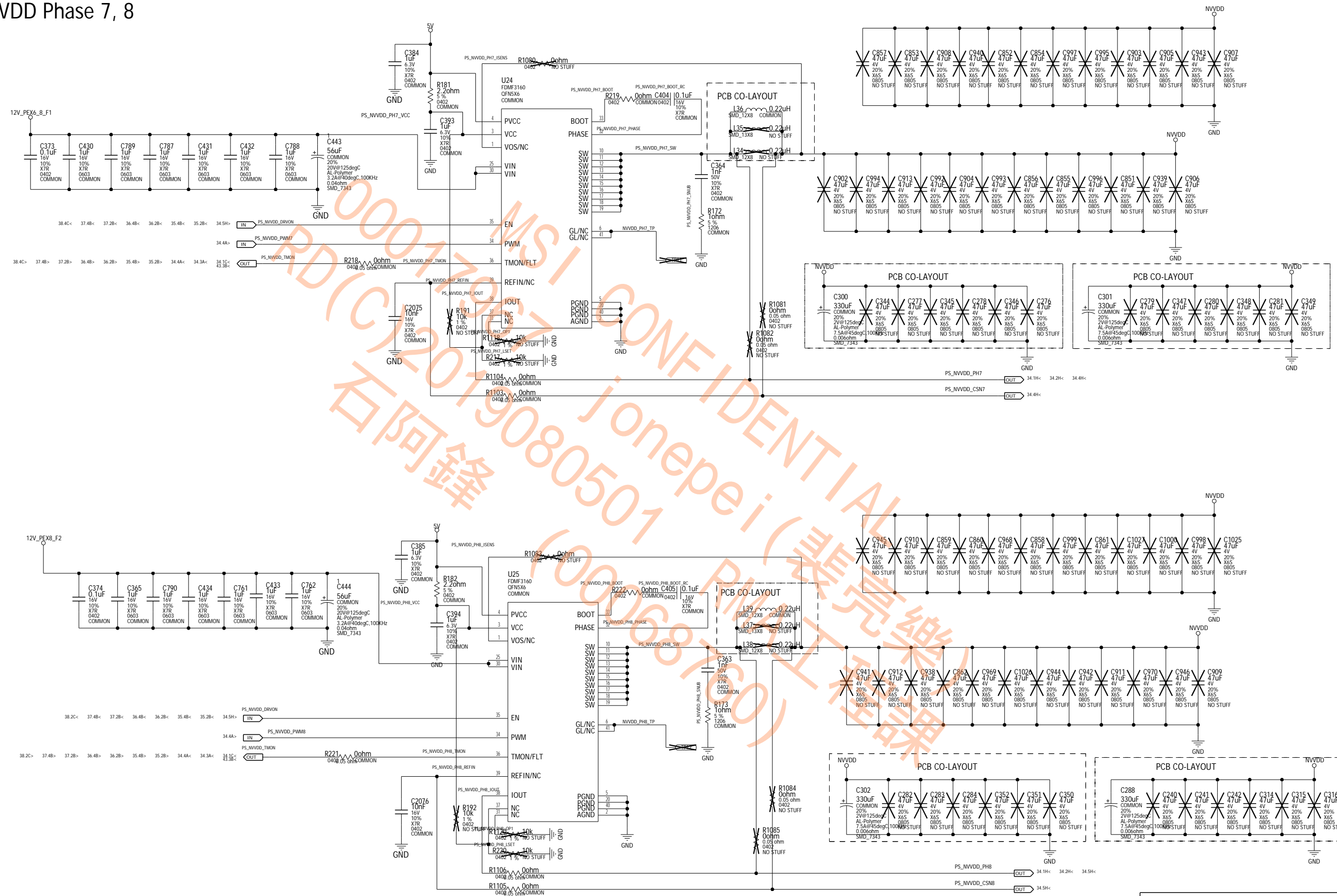
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PAGE 38: PS:NVVDD Phase 7, 8



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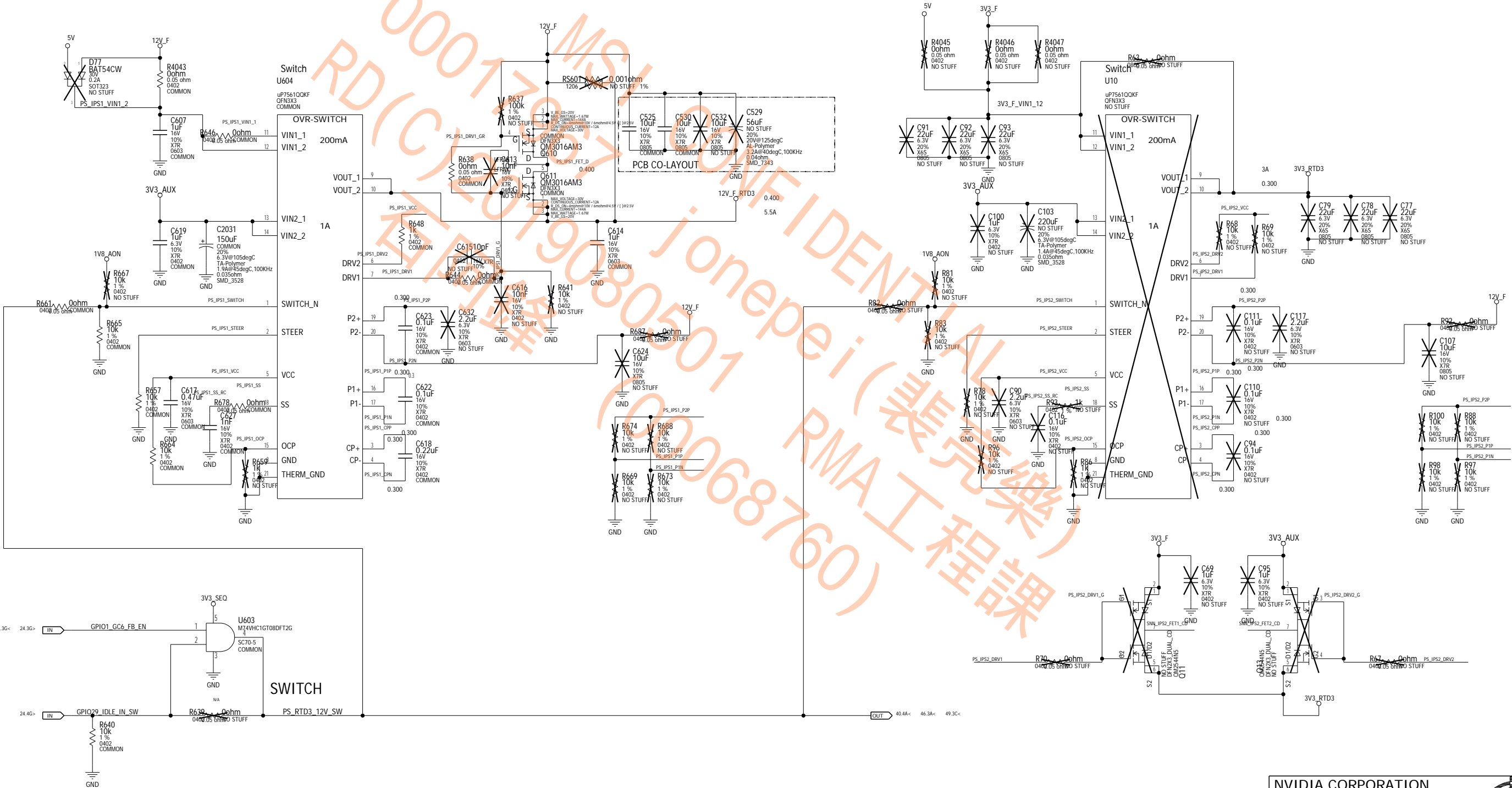
ASSEMBLY	SKU SCHEMATIC, COMMON & NO_STUFF ASSEMBLY NOTES AND FINAL BOM
PAGE DETAIL	PS: NVVDD Phase 7, 8

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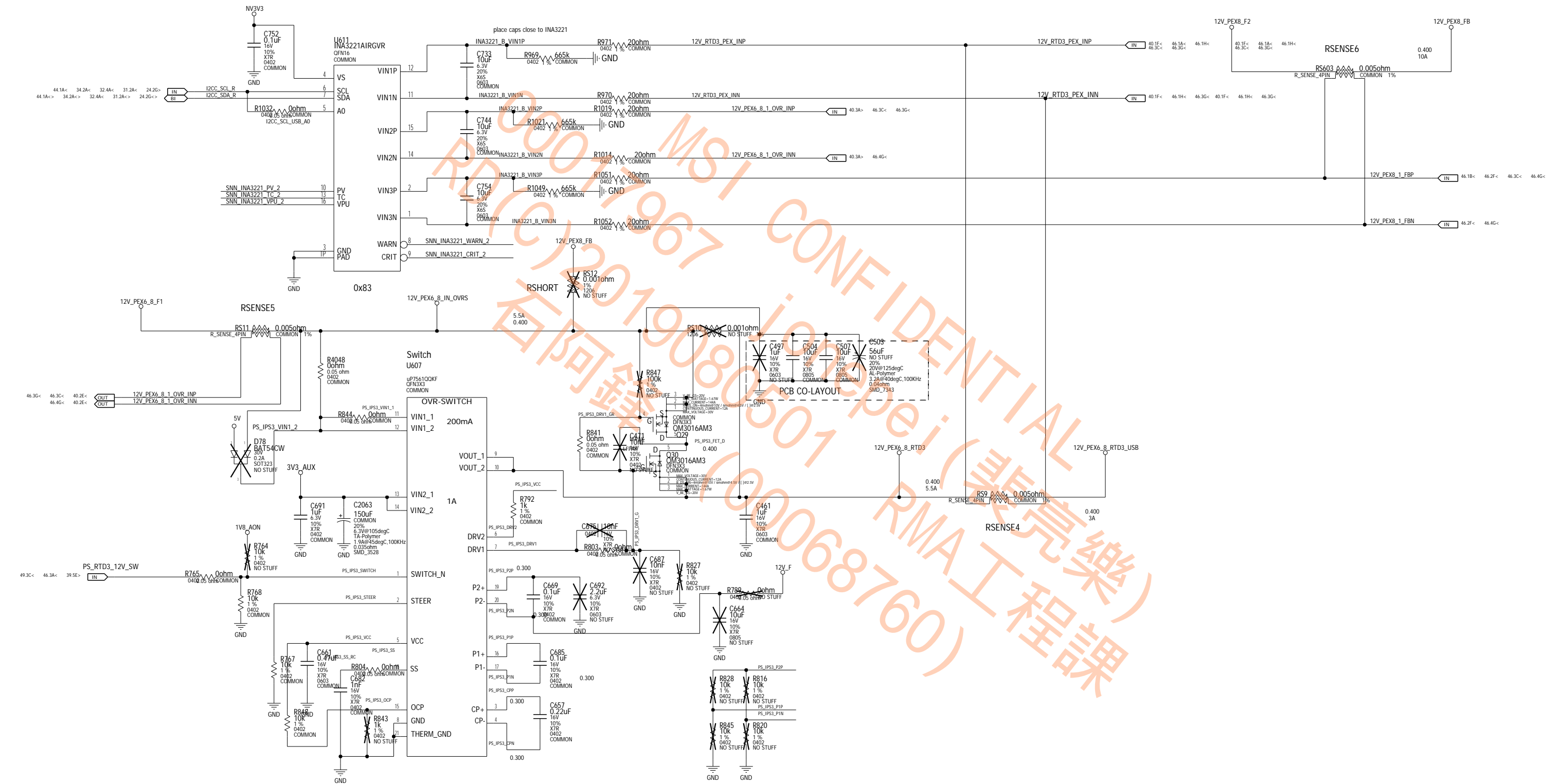
AND GATE LOGIC FOR P-BOARD			
GPIO1	GPIO29	SWITCH	VOUT
0	0	0	12V_F
0	1	0	12V_F
1	0	0	12V_F
1	1	1	3V3A

AND GATE LOGIC FOR P-BOARD			
GPIO1	GPIO29	SWITCH	VOUT
0	0	0	3V3
0	1	0	3V3
1	0	0	3V3
1	1	1	3V3A




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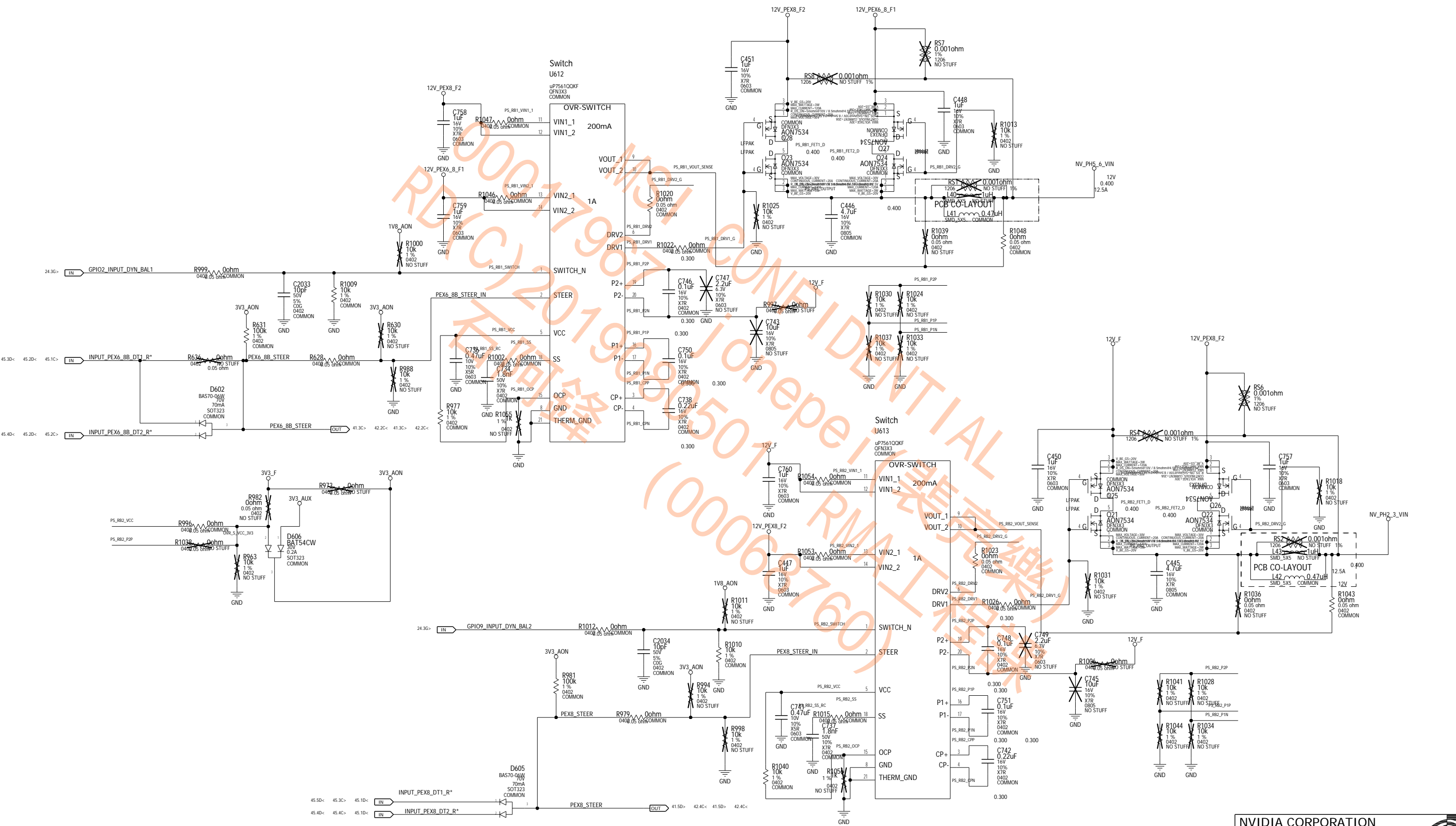
PAGE 40: PS: INPUT SWITCH RTD3 USB



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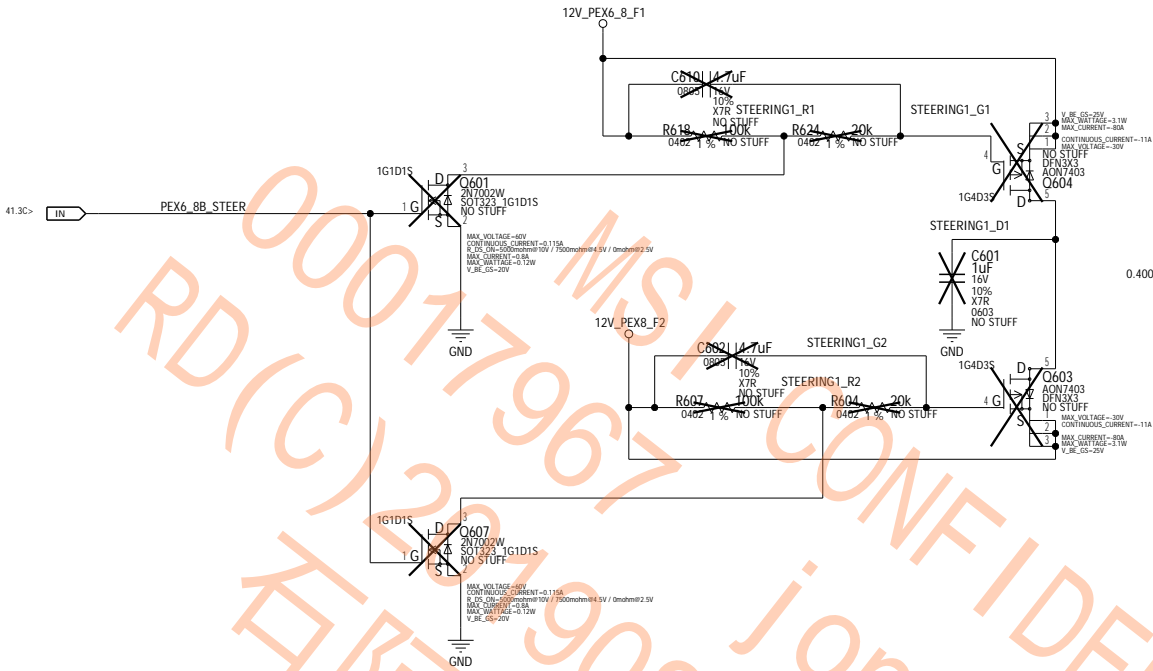
ASSEMBLY	SKU SCHEMATIC, COMMON & NO_STUFF ASSEMBLY NOTES AND FINAL BOM
PAGE DETAIL	PS: INPUT SWITCH RTD3 USB

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NV_PN		600-1G180-0002-300	
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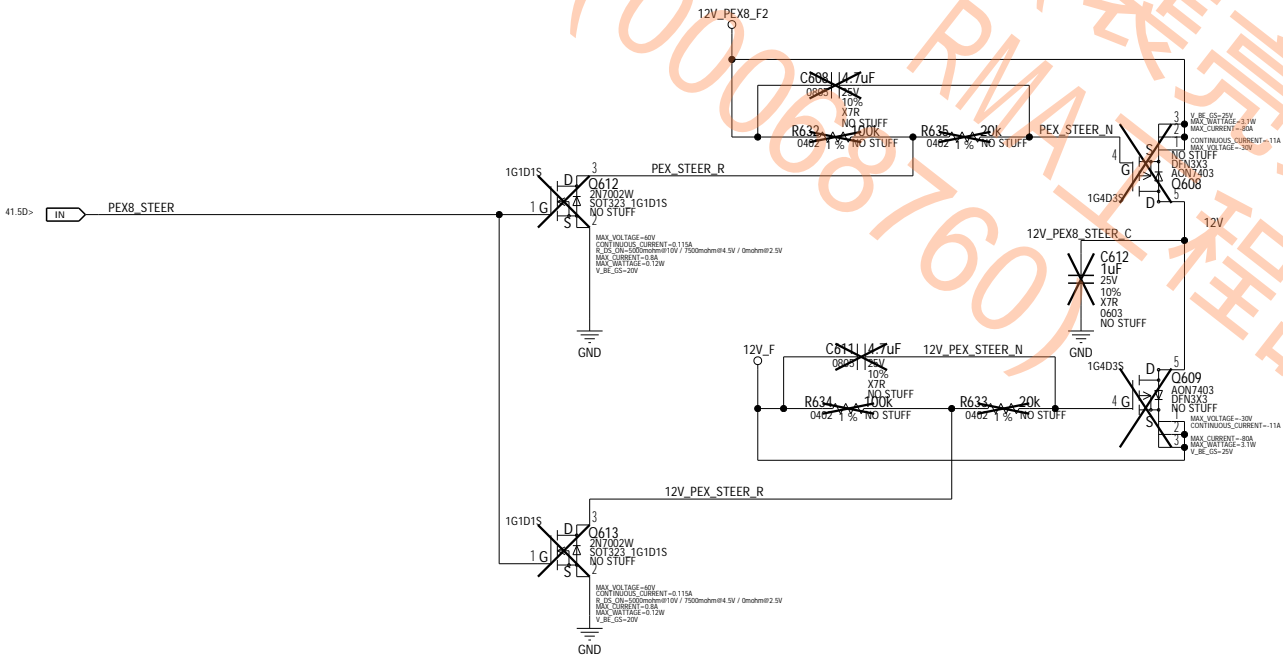


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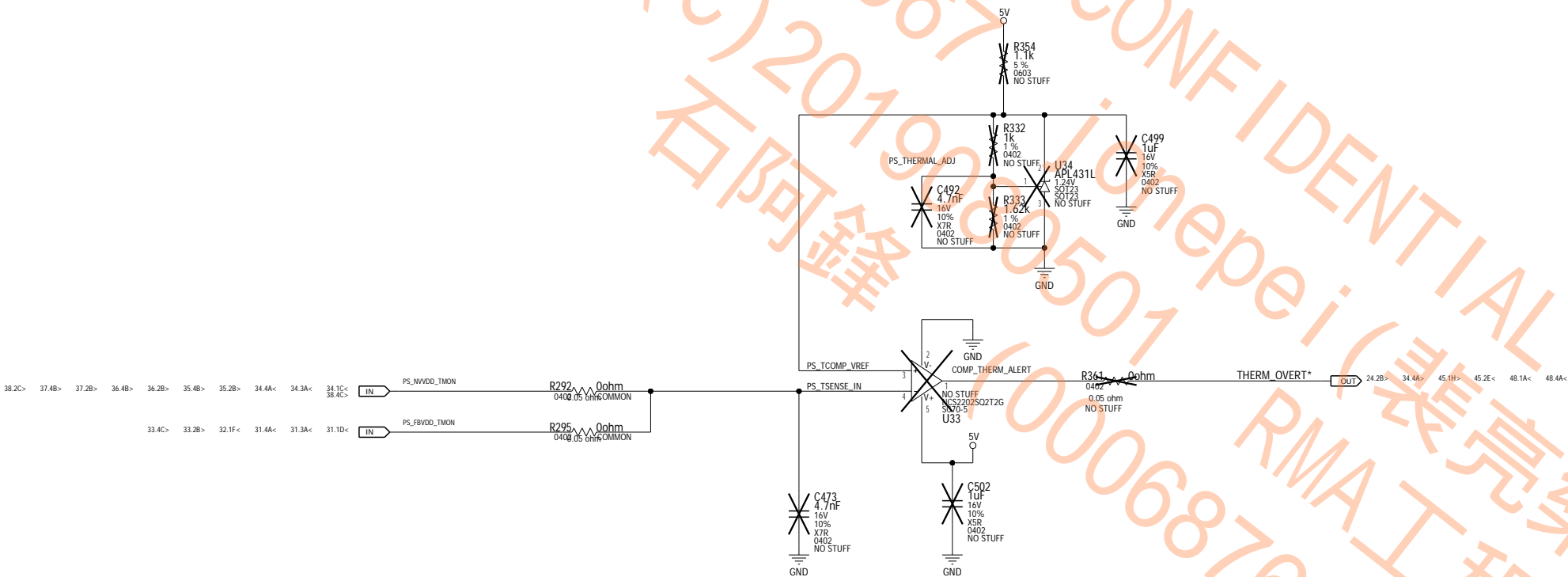
12V CURRENT STEERING (UNDER POWER BOOT):
GUIDES CURRENT FROM PEX EDGE TO PEX 6/8 PIN INPUT AREA



12V CURRENT STEERING (UNDER POWER BOOT):
GUIDES CURRENT FROM PEX EDGE TO PEX 8 PIN INPUT AREA

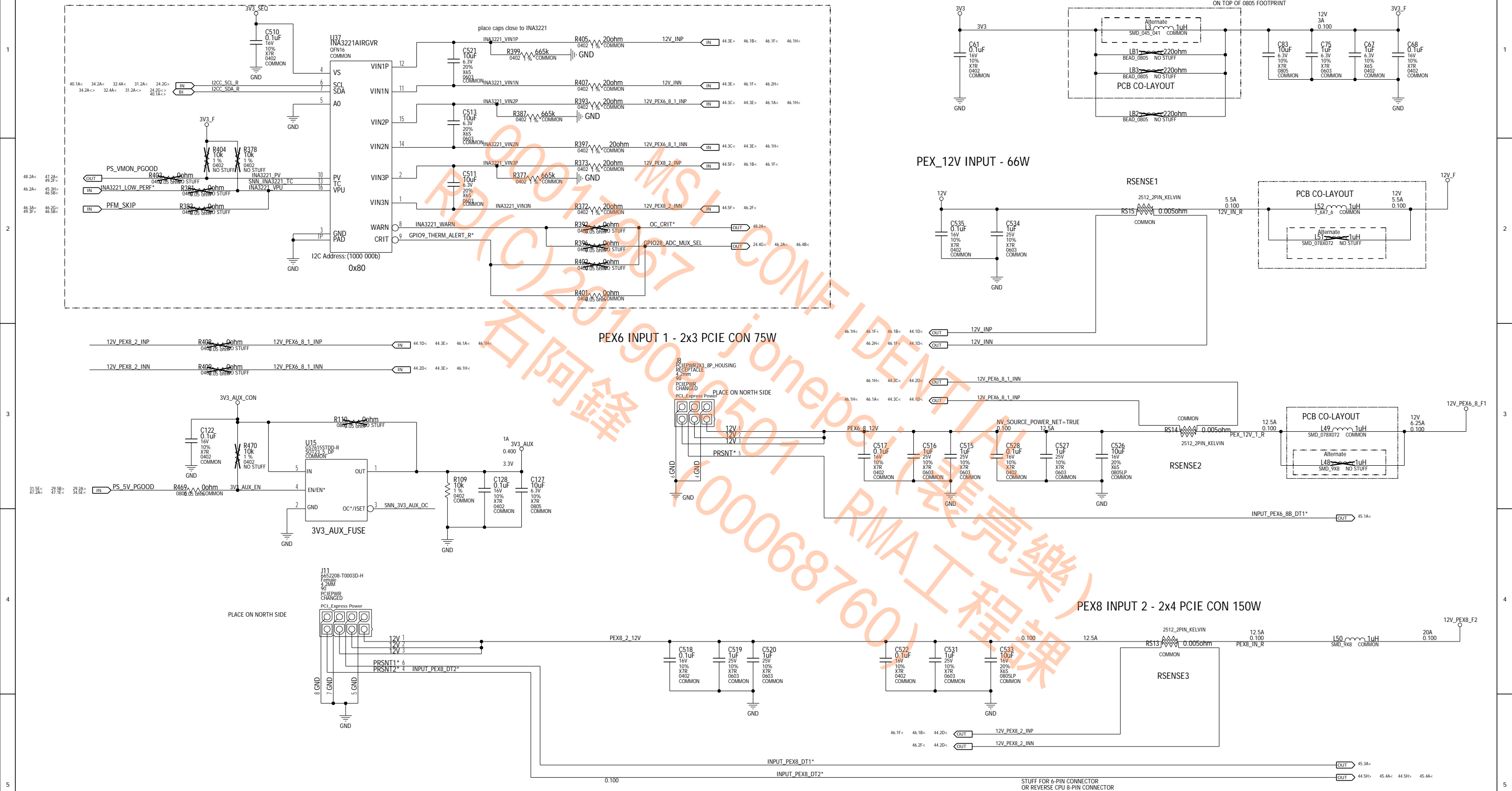


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PAGE 44: PS: Inputs, Filtering, and Monitoring

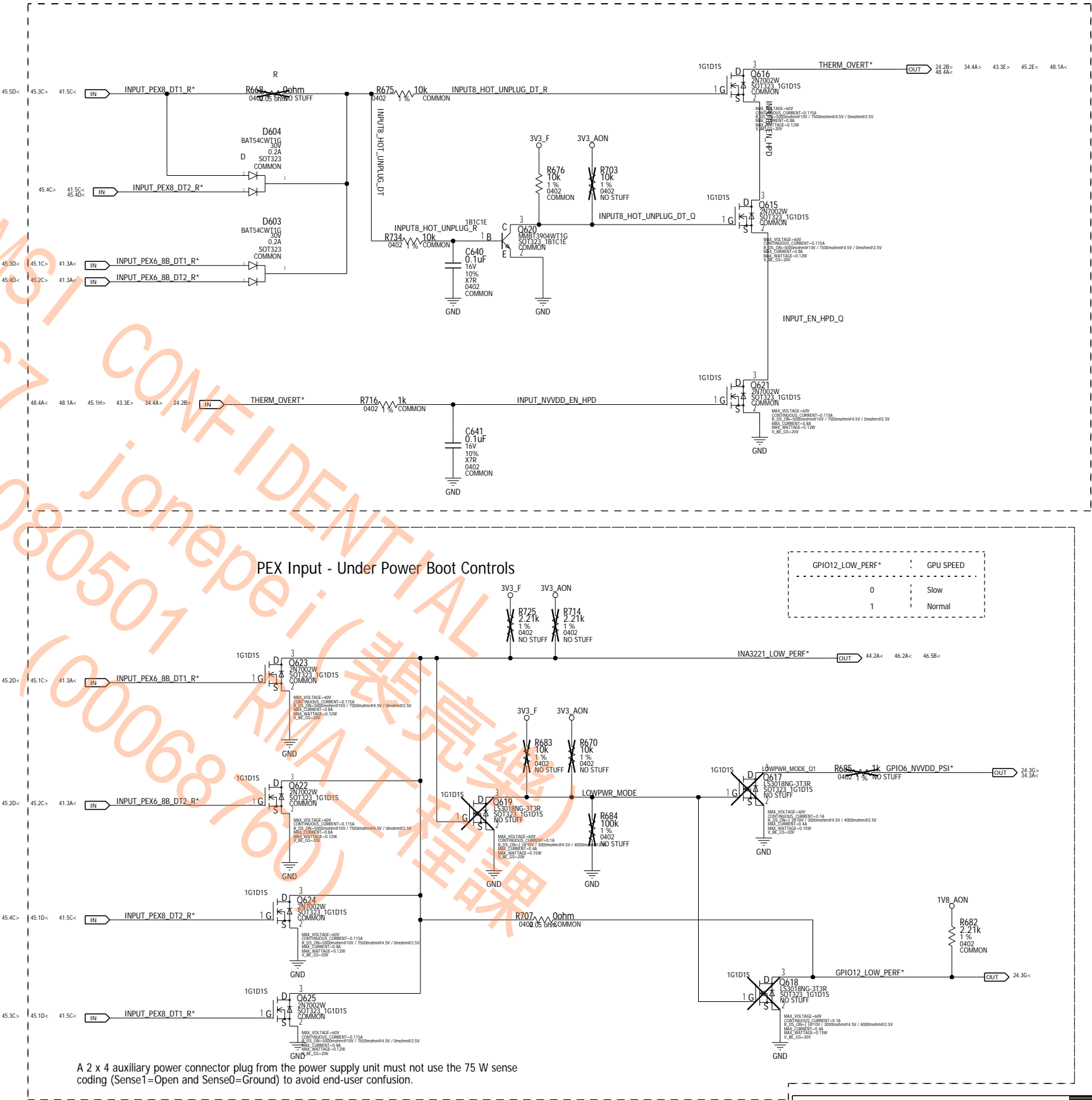
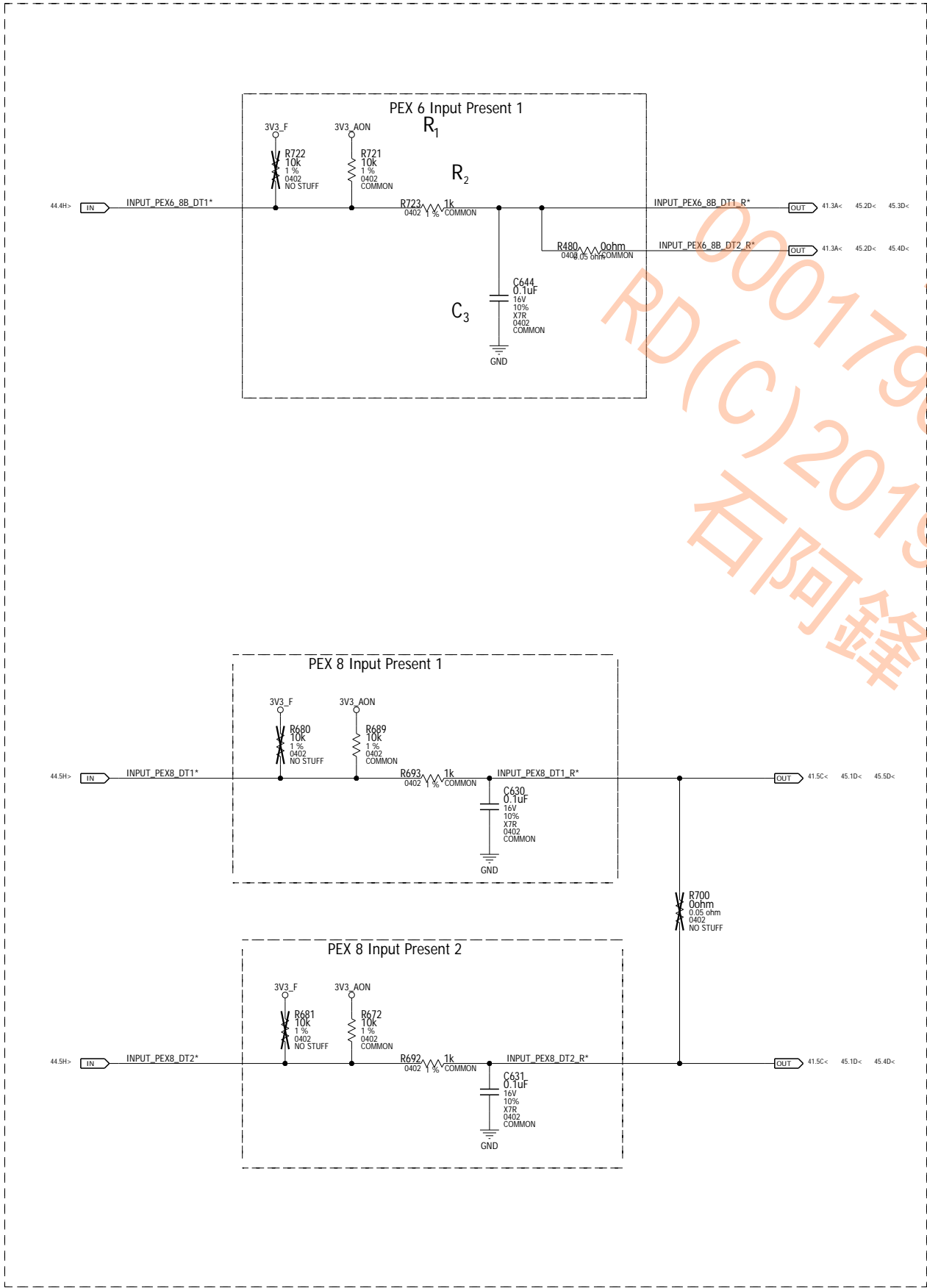


ASSEMBLY	SKU SCHEMATIC, COMMON & NO_STUFF ASSEMBLY NOTES AND FINAL BOM
PAGE DETAIL	PS: INPUTS, FILTERING AND MONITORING

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PAGE 45: PS: Current Steering, Hot Unplug Detect



A 2 x 4 auxiliary power connector plug from the power supply unit must not use the 75 W sense coding (Sense1=Open and Sense0=Ground) to avoid end-user confusion.

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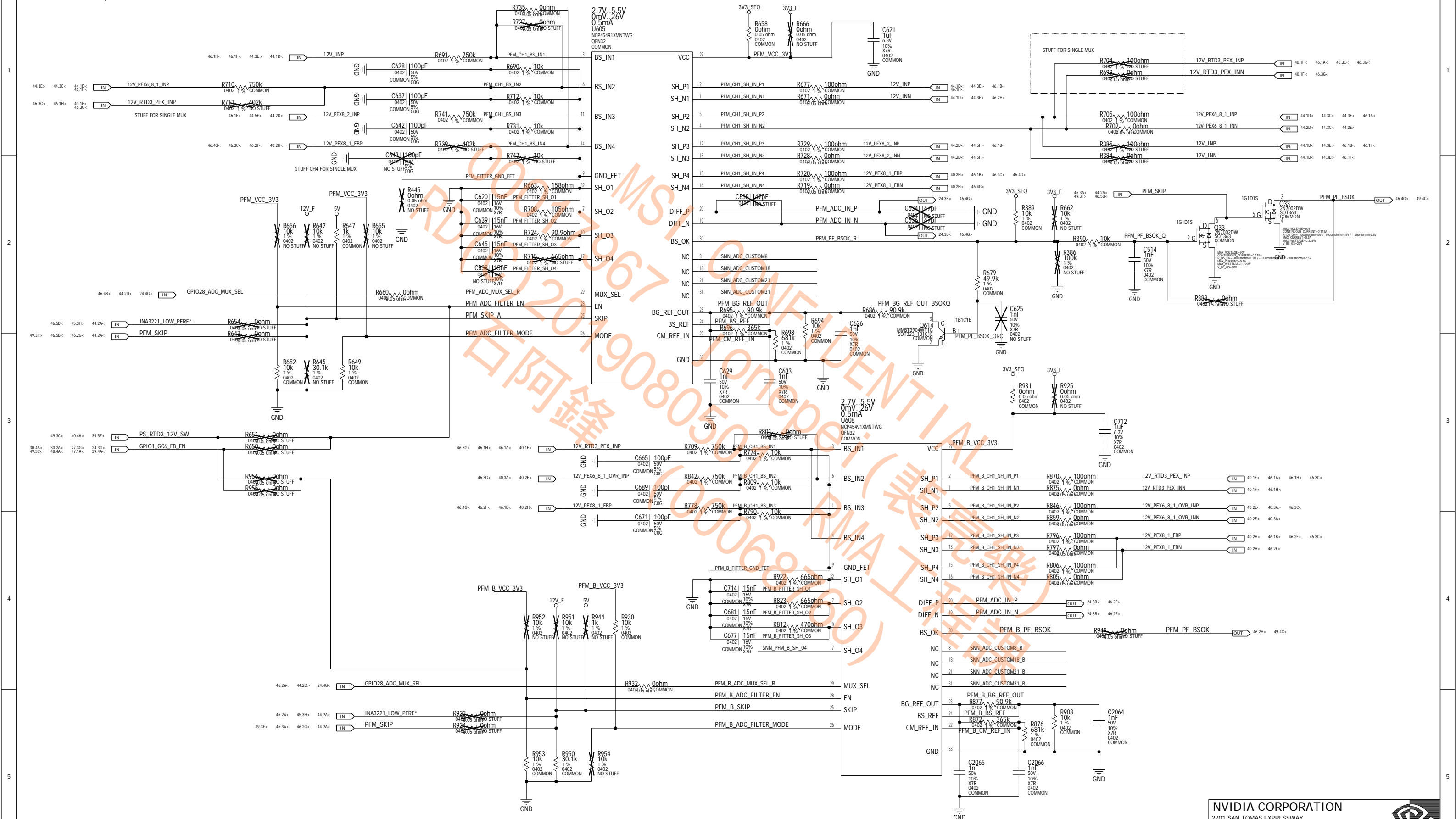
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BOM REV B DATE 21-JUN-2018

PAGE46; PS: Pre-Filter



ASSEMBLY	SKU SCHEMATIC, COMMON & NO_STUFF ASSEMBLY NOTES AND FINAL BOM
PAGE DETAIL	PS: PRE-FILTER

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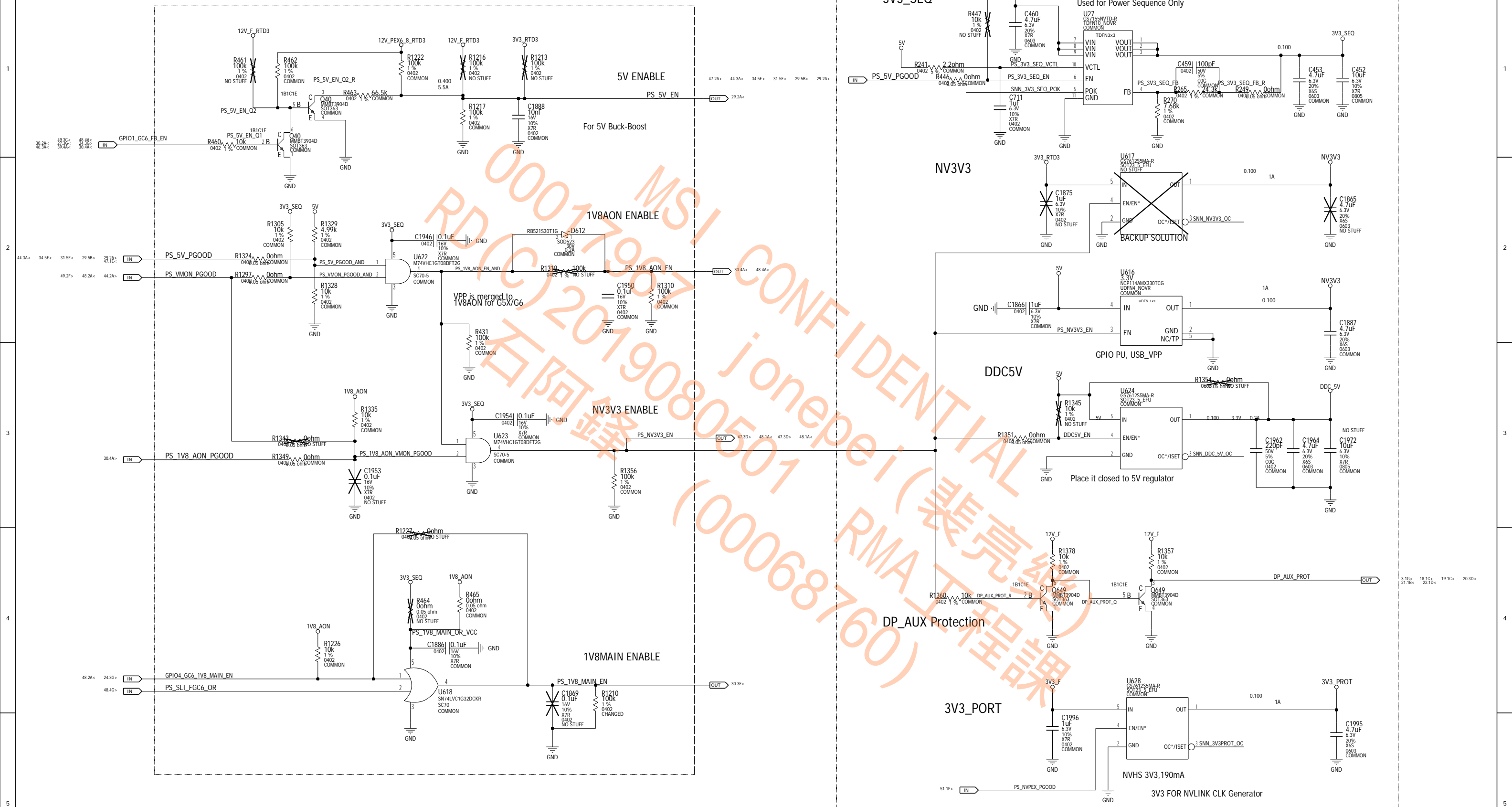
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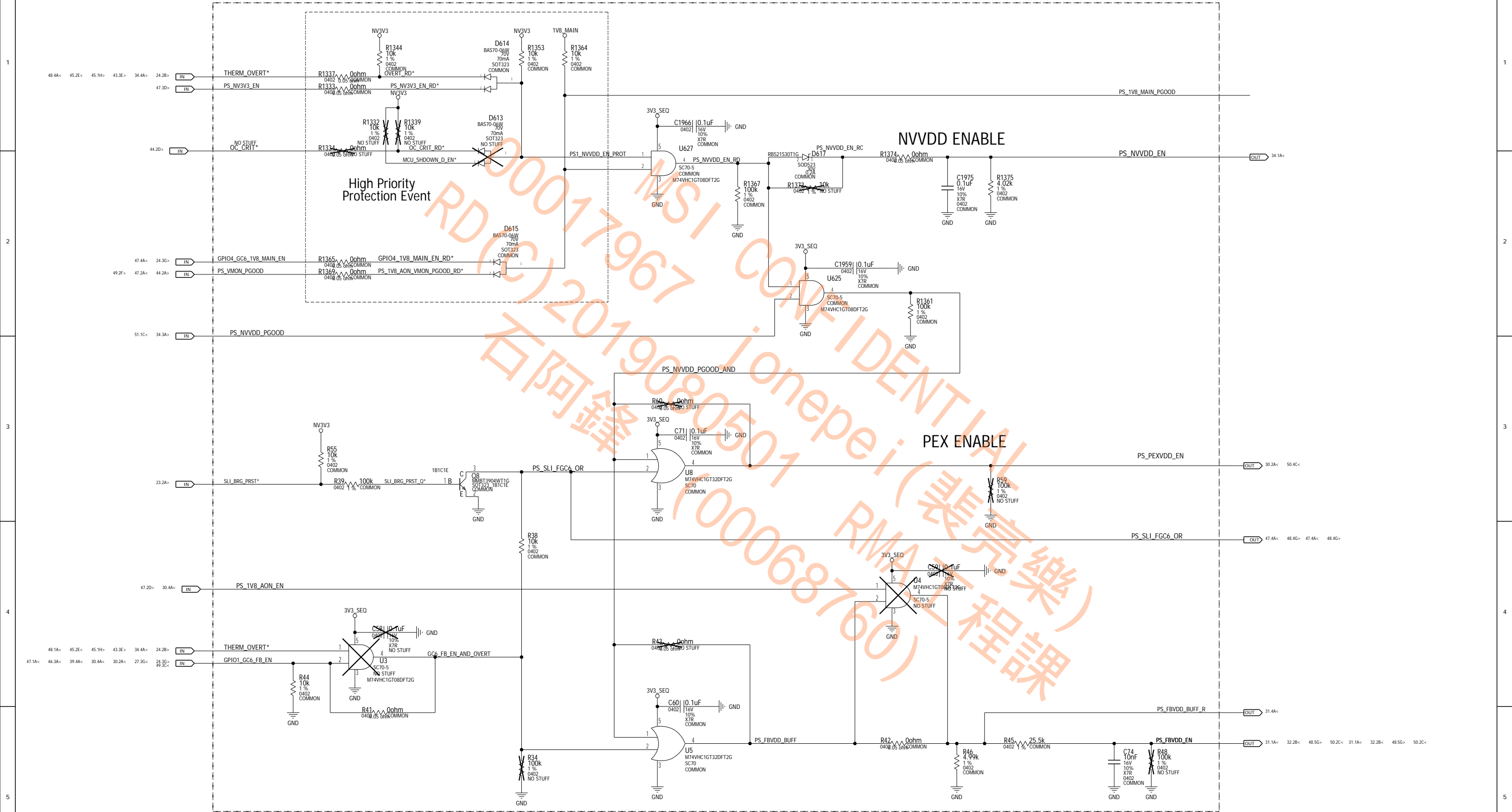


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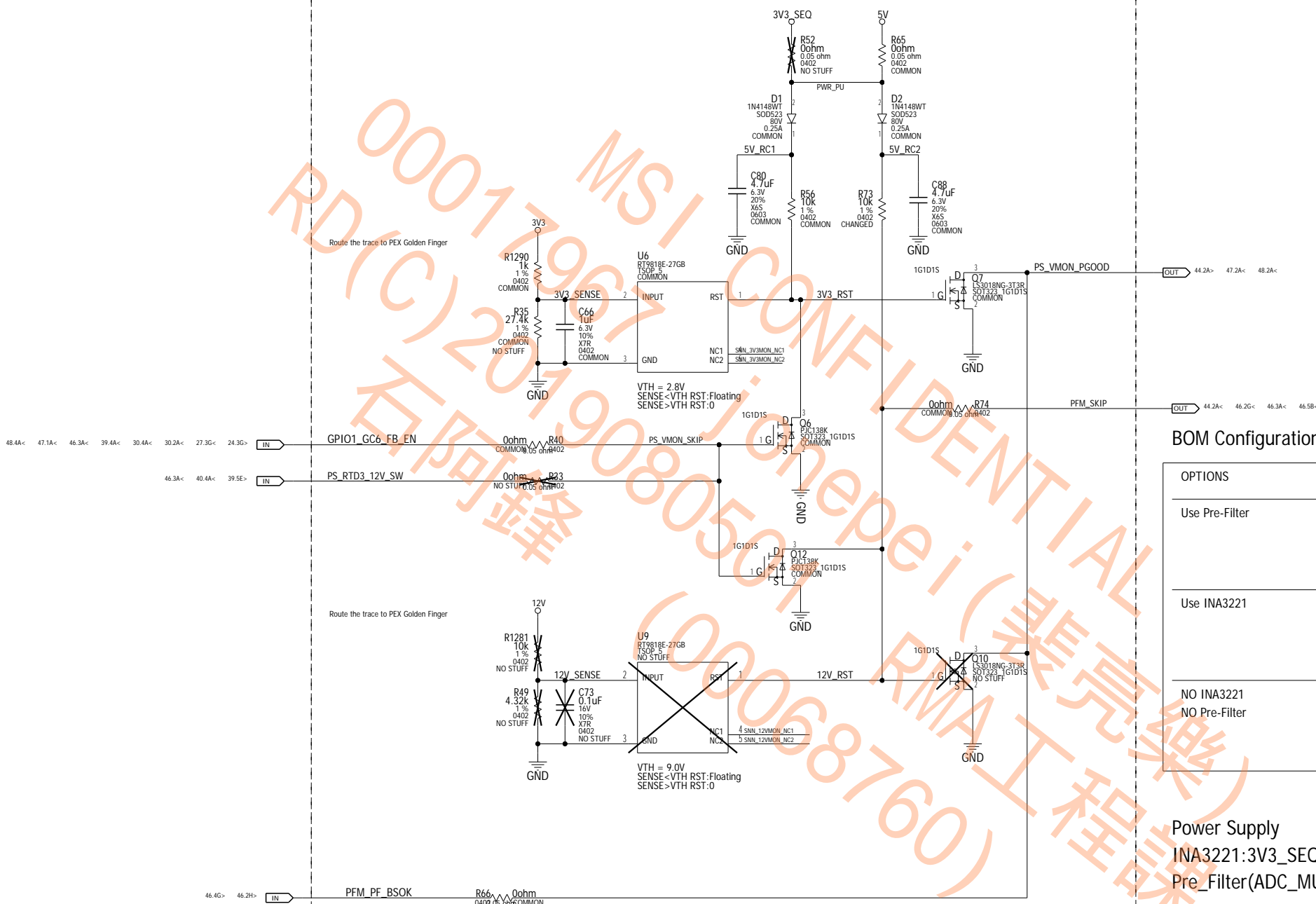


PAGE 48: SEQUENCE:NV,PEX,FB ENABLE



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PCIE Voltage Monitor



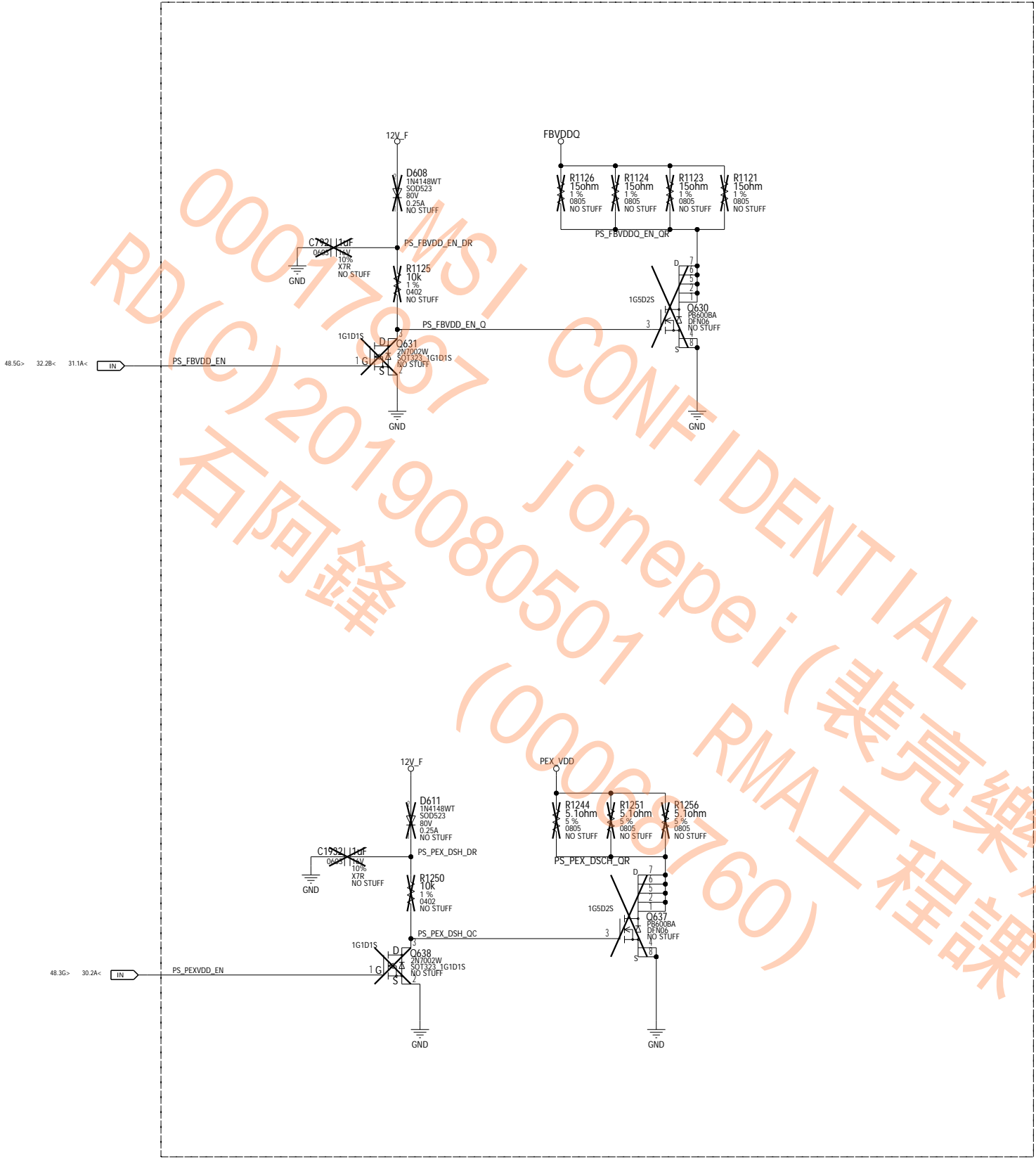
BOM Configuration

OPTIONS	PEX3V3_SENSE	PEX12V_SENSE	OTHER_12V_SENSE
Use Pre-Filter	Pre-Filter NO STUFF U12 NO STUFF Q3,Q5 NO STUFF D15	Pre-Filter NO STUFF U13 NO STUFF Q4	Pre-Filter
Use INA3221	Voltage_Monitor	INA3221 NO STUFF U12 NO STUFF Q4	INA3221
NO INA3221 NO Pre-Filter	Voltage_Monitor	Voltage_Monitor	N/A

Power Supply
INA3221:3V3_SEQ
Pre_Filter(ADC_MUX):3V3(PEX)

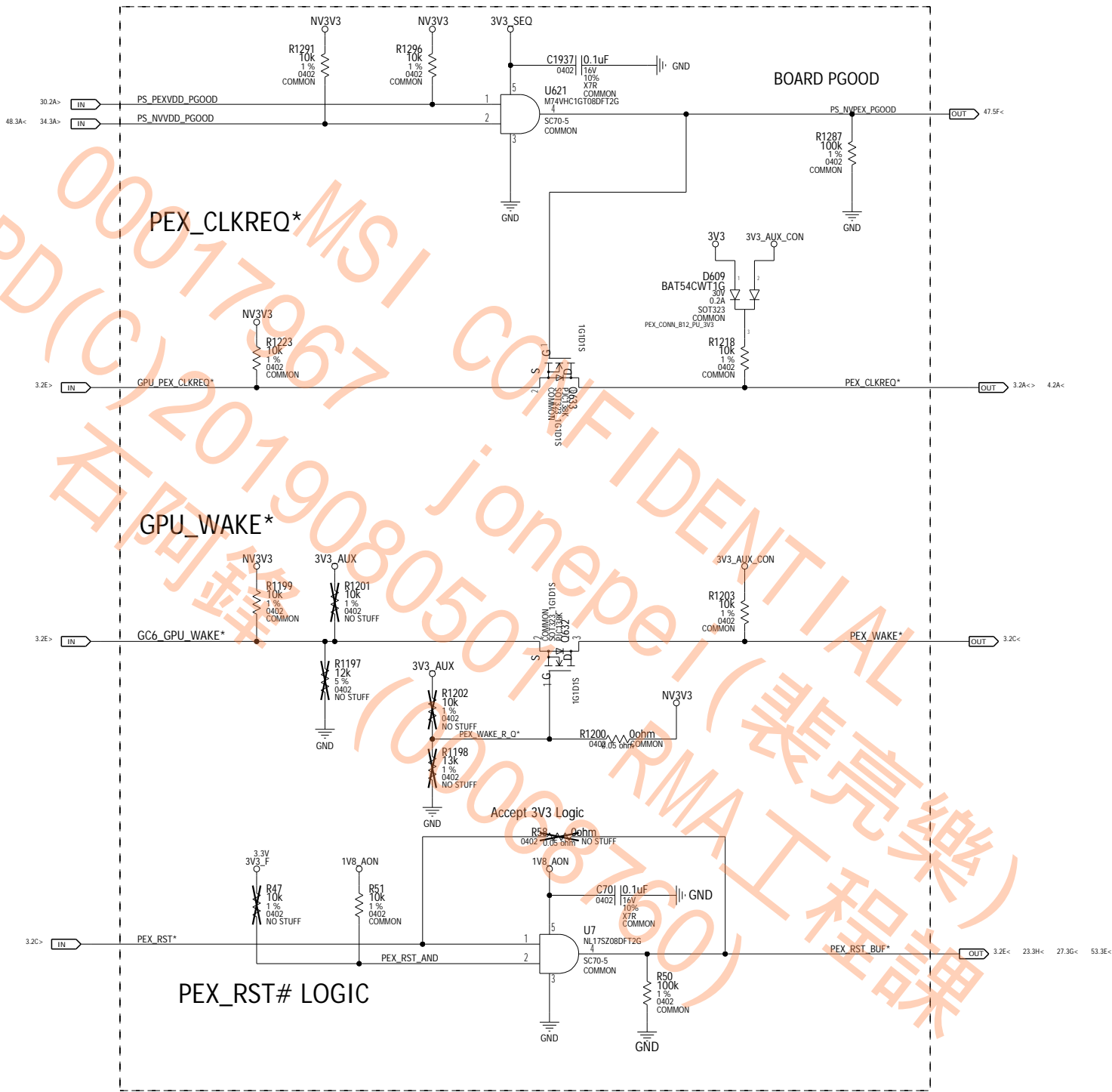
Dual Pre-Filter case:
Only use the Primary Pre-Filter to sense 3V3PEX
and All Input 12Vs

Signal	Direction	Function
3V3	INPUT	Sense the 3V3 Voltage from PCIE golden finger
12V	INPUT	Sense the 12V Voltage from PCIE golden finger
PS_VMON_PGOOD	OPEN-DRAIN	Floating(H) once both 3V3 and 12V reach Vth
GC6_FB_EN	INPUT	Indicator for RTD3/GC6 residence,Use to Mask the VMON_PGOOD
PS_PF_SKIP	INPUT	From INA3221(VPU) or Pre-filter(SKIP)
PS_PF_BSOK	INPUT	From INA3221(PV) or Pre-filter(BS_OK)
PS_RTD3_12V_SW	INPUT	GC6_FB_EN && IDLE_IN_SW



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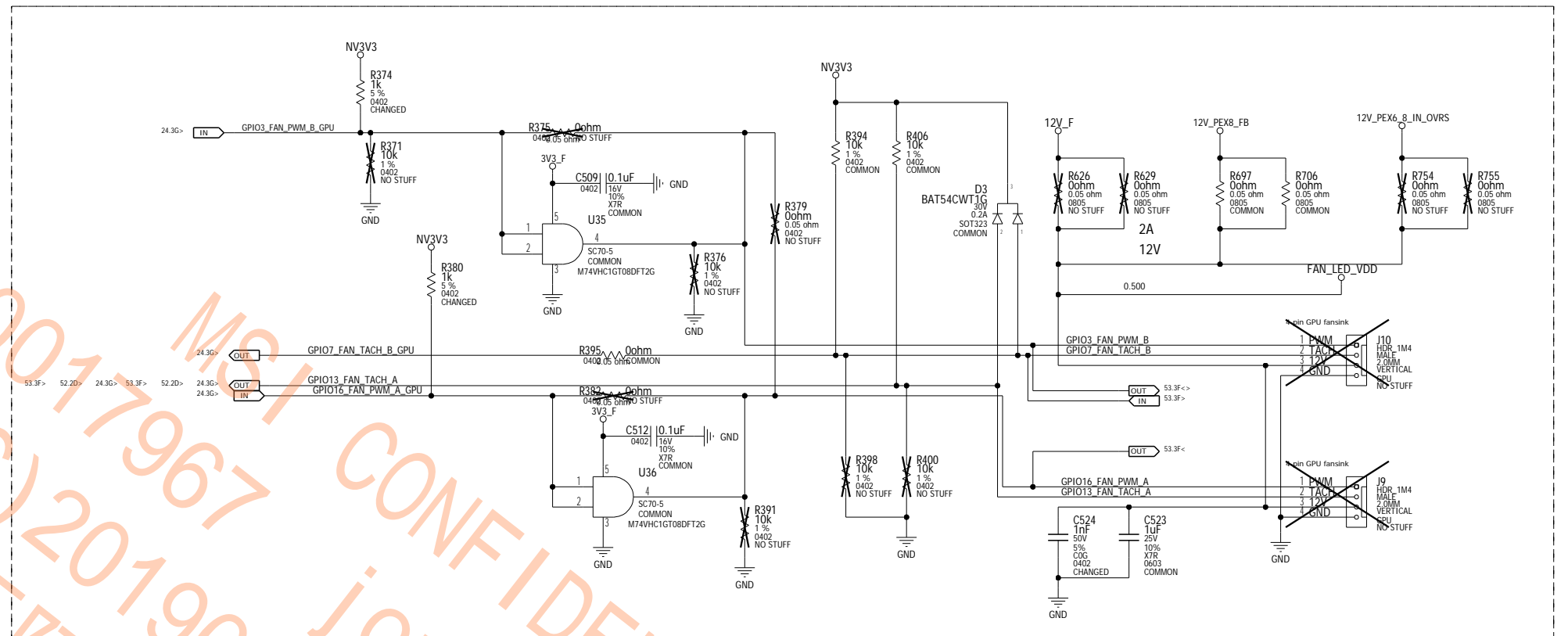
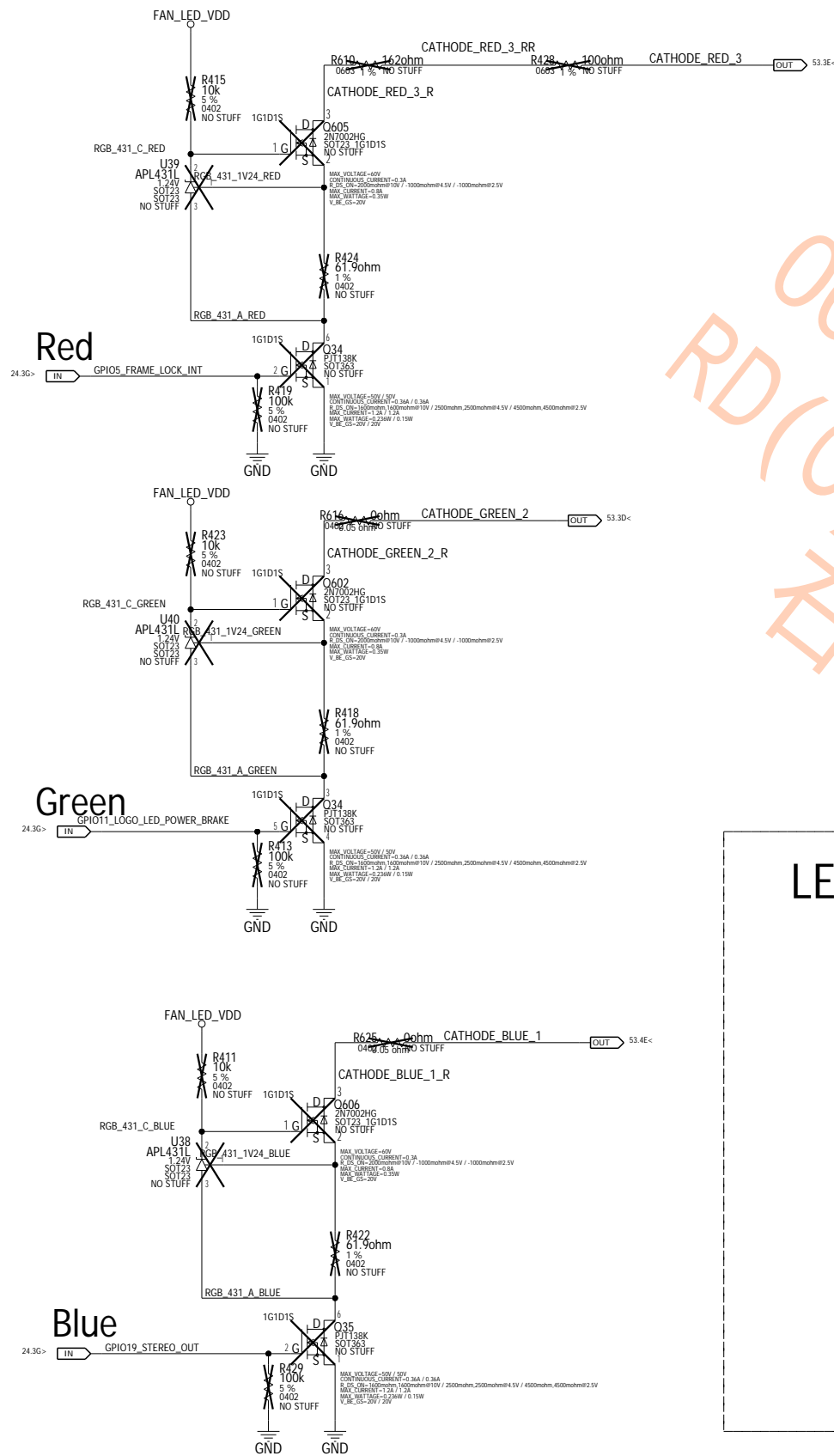
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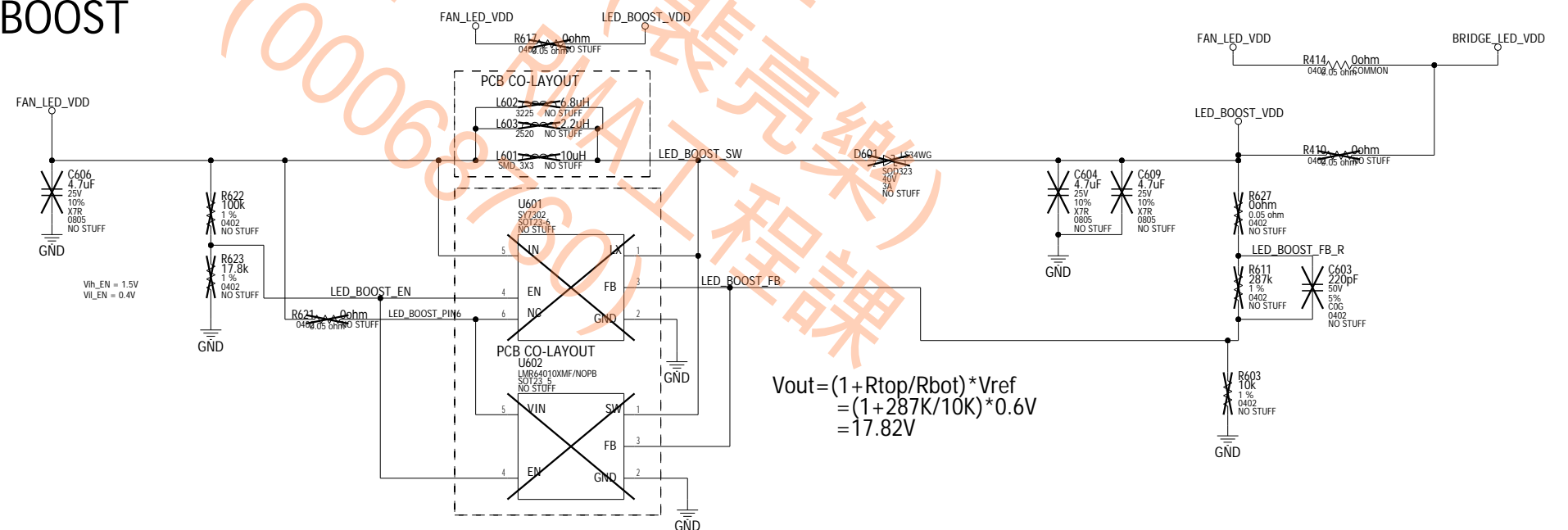
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PAGE 52: LED & FAN HEADERS



LED BOOST


$$V_{out} = (1 + R_{top}/R_{bot}) * V_{ref}$$
$$= (1 + 287K/10K) * 0.6V$$

ASSEMBLY	SKU SCHEMATIC, COMMON & NO_STUFF ASSEMBLY NOTES AND FINAL BOM
PAGE DETAIL	LED & FAN HEADERS

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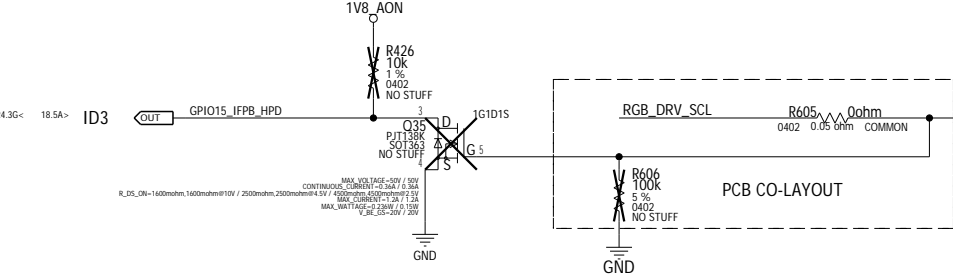
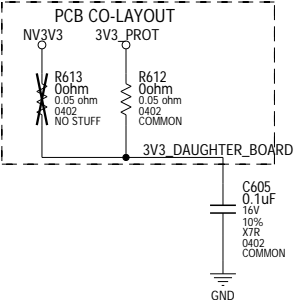
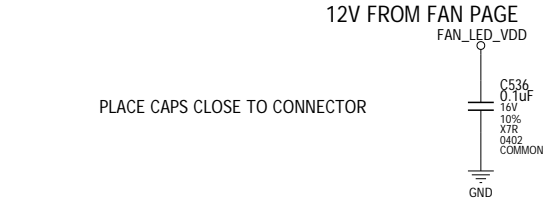
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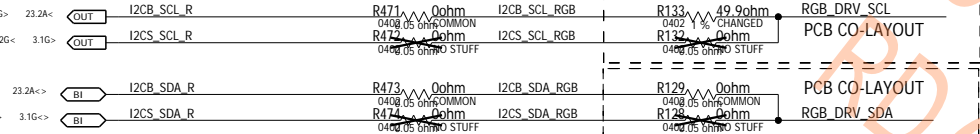
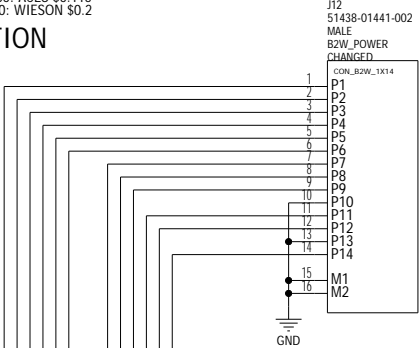
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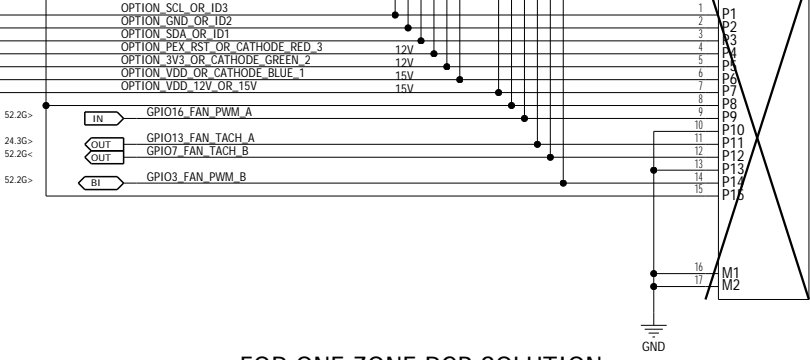
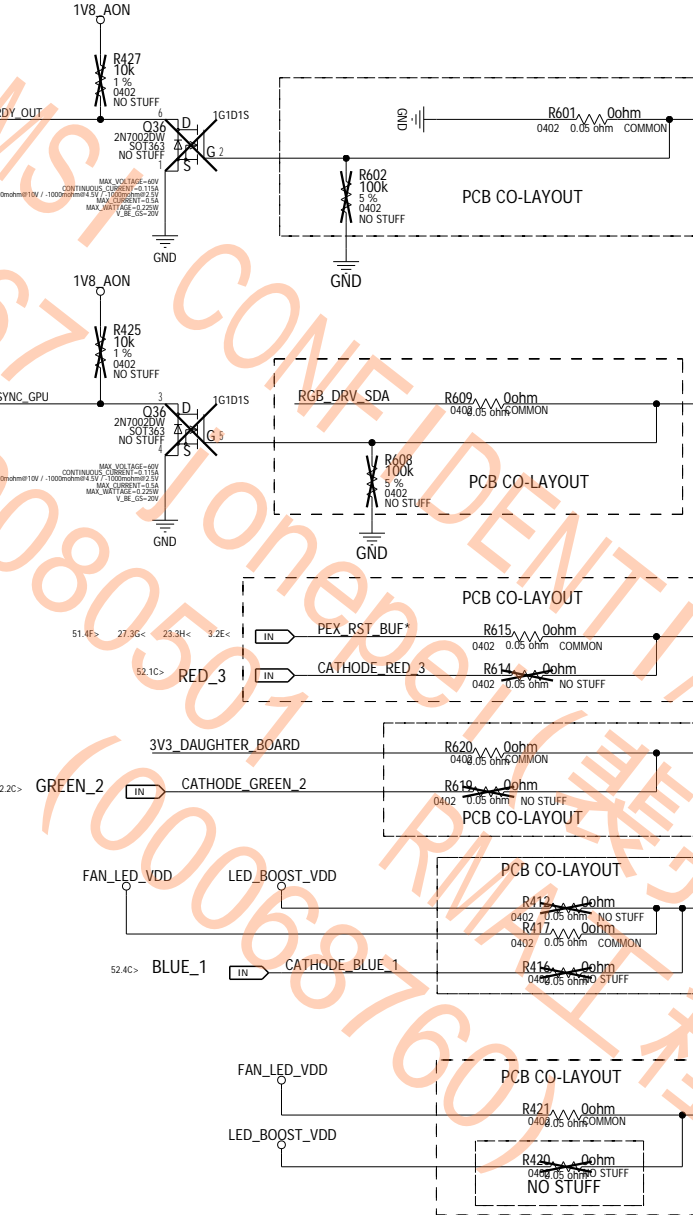
14-PIN STRAIGHT PRIMARY SOURCE -> 080-1586-000: ACES \$0.115
14-PIN STRAIGHT SECOND SOURCE -> 080-1600-000: WIESON \$0.2

FOR MCU SOLUTION



8-bit I2C Address of MCU on Daughter Board: TBD

MCU Solution		For ONE ZONE RGB/cable	
PIN SEQ	Pin Name	PIN SEQ	Pin Name
1	I2C_SCL	1	ID3
2	GND	2	ID2
3	I2C_SDA	3	ID1
4	PEX_RST_BUF*	4	DRIVE3/R
5	NV3V3	5	DRIVE2/G
6	12V/BOOST	6	DRIVE1/B
7	12V	7	12V/BOOST
8	12V	8	12V
9	FAN_PWM1	9	FAN_PWM1
10	GND	10	GND
11	FAN_TACH1	11	FAN_TACH1
12	FAN_TACH2	12	FAN_TACH2
13	GND	13	GND
14	FAN_PWM2	14	FAN_PWM2
		15	12V

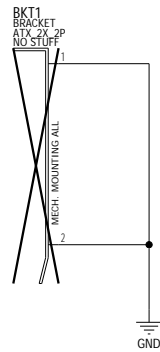


FOR ONE ZONE RGB SOLUTION

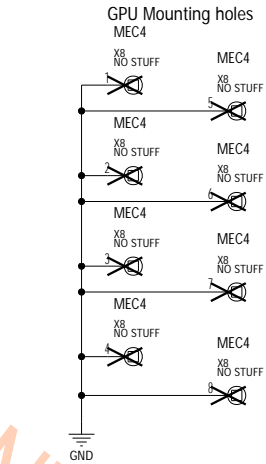
15-PIN STRAIGHT PRIMARY SOURCE -> 080-1617-000: ACES \$0.1165
15-PIN STRAIGHT SECOND SOURCE -> 080-1628-000: WIESON \$0.23

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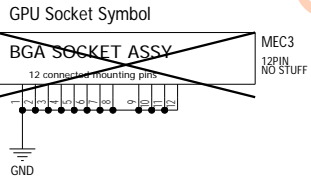
Brackets:



Bracket Screw



STIFFENER



Mechanical Holes Symbol

