

CHANGE C1,C990 TO 0603 FOOTPRINT 3/8  
add C3744,C3755 3/7  
add U512 and related R/C 3/8

PG174-A01


TU117, 128b GDDR5 x32, 75W  
DVI-D DL/DUAL DP + HDMI

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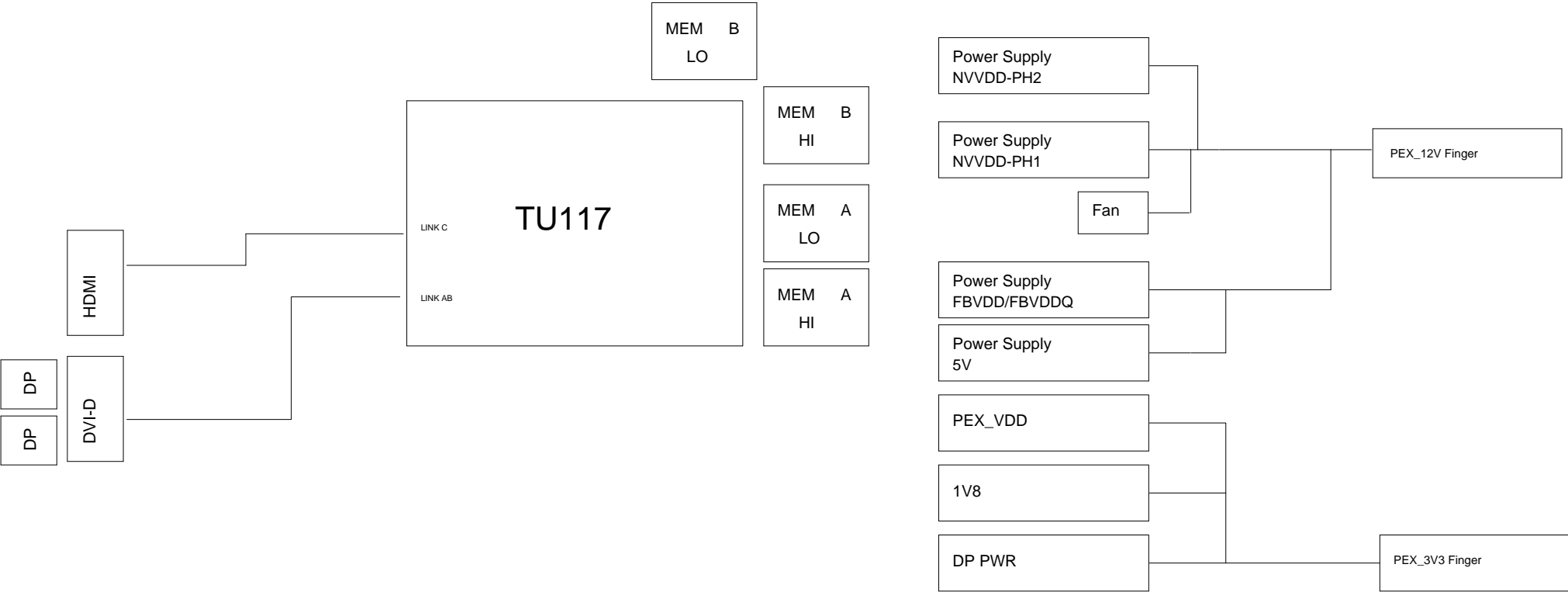
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Block Diagram



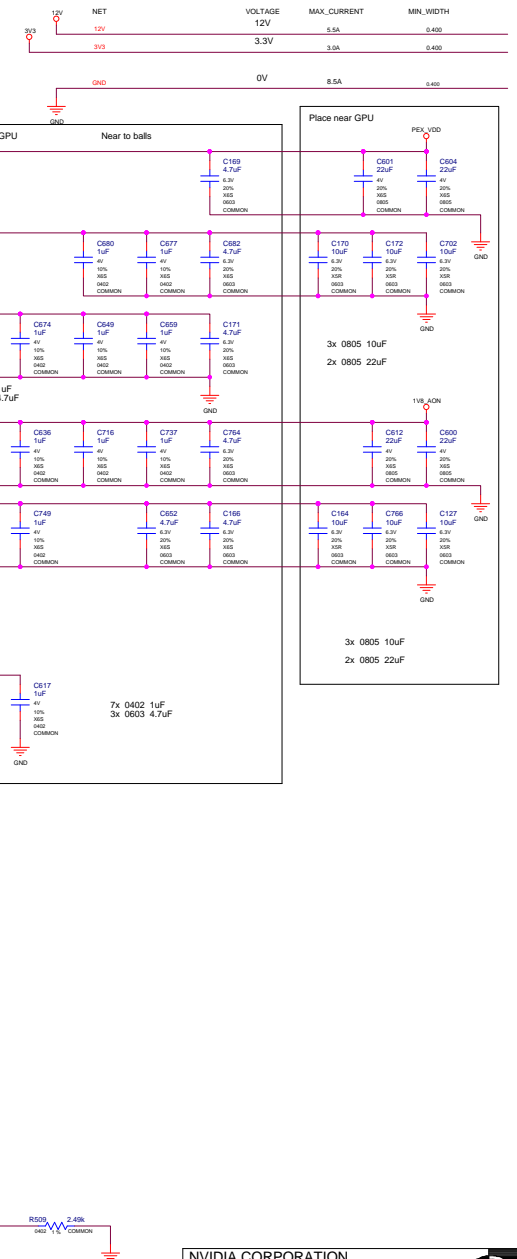
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PCI Express

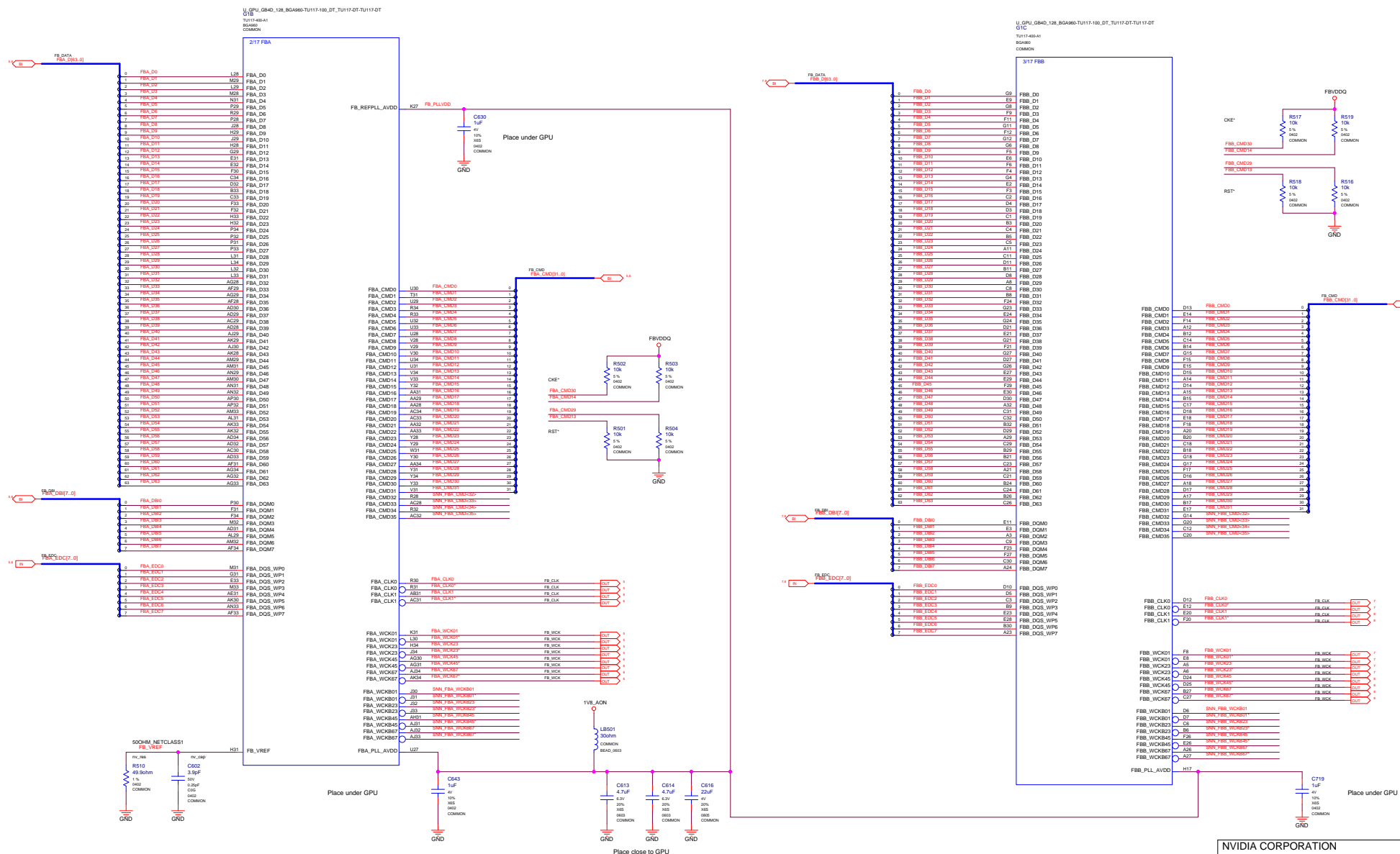


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PAGE DETAIL	PCI Express

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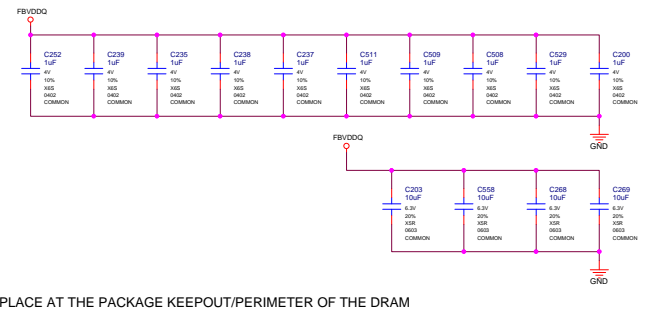
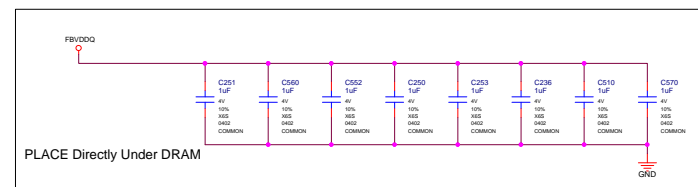
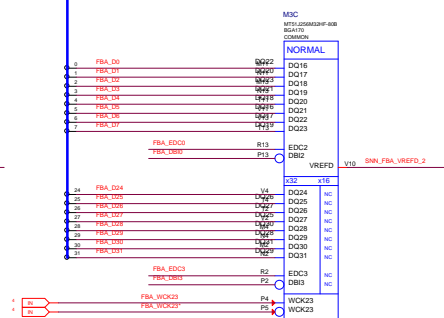
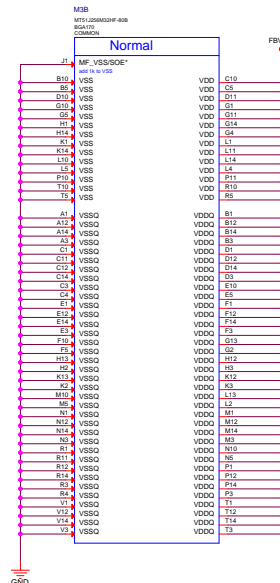
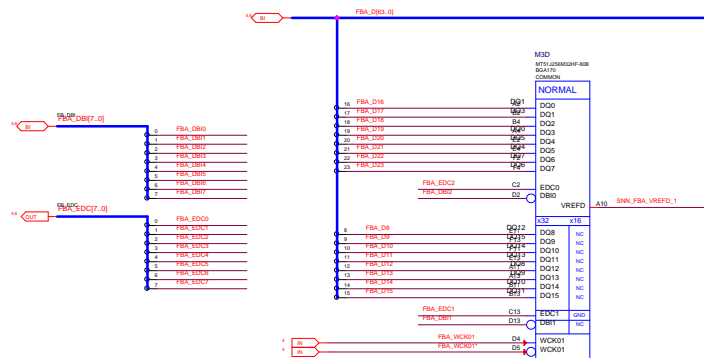
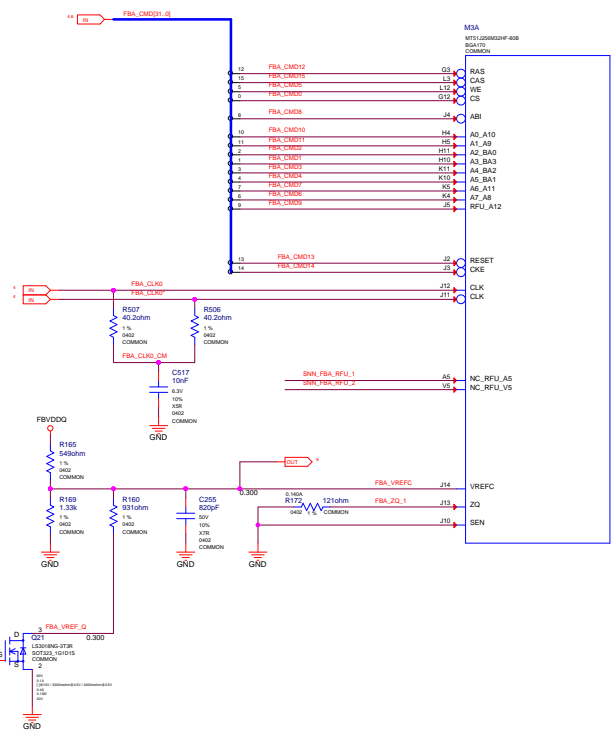
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# MEMORY: GPU Partition A/B



MEMORY: FBA Partition 31..0

CMD	0.31	32.63
CMD0	CS*	
CMD1	A3_BA3	
CMD2	A2_BA0	
CMD3	A4_BA2	
CMD4	AS_BA1	
CMD5	WE*	
CMD6	A7_AB	
CMD7	AB_A11	
CMD8	AB*	
CMD9	A12_RFU	
CMD10	A0_A10	
CMD11	A1_AB	
CMD12	RAS*	
CMD13	RS1*	
CMD14	CKE*	
CMD15	CAS*	
CMD16		CS*
CMD17		A3_BA3
CMD18		A2_BA0
CMD19		A4_BA2
CMD20		AS_BA1
CMD21		WE*
CMD22		AB*
CMD23		AB_A11
CMD24		A7_AB
CMD25		A12_RFU
CMD26		A0_A10
CMD27		A1_AB
CMD28		RAS*
CMD29		RS1*
CMD30		CKE*
CMD31		CAS*



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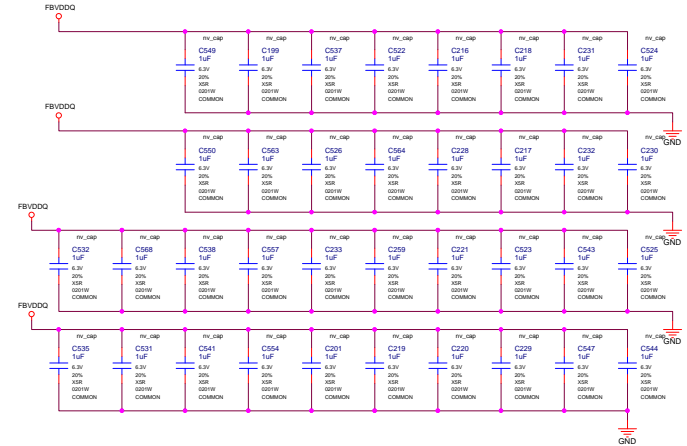
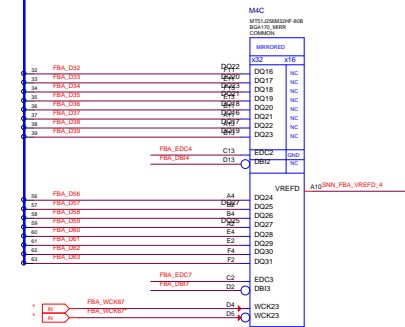
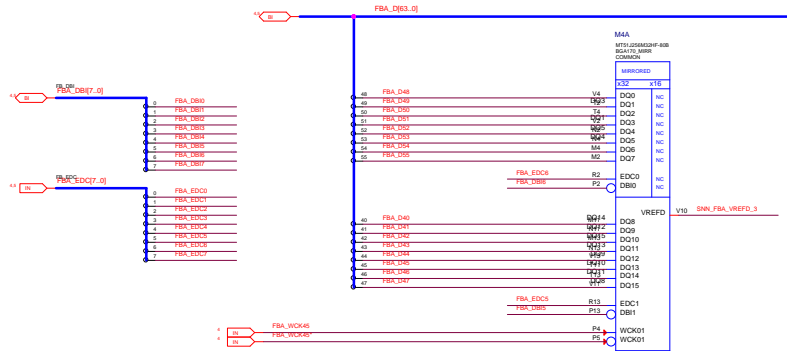
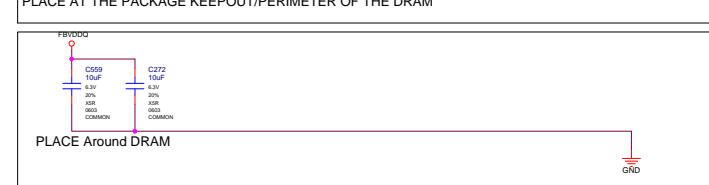
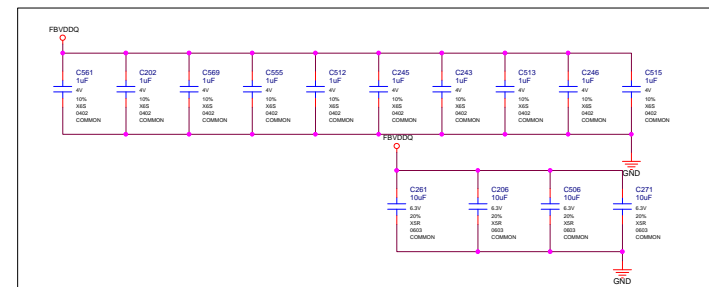
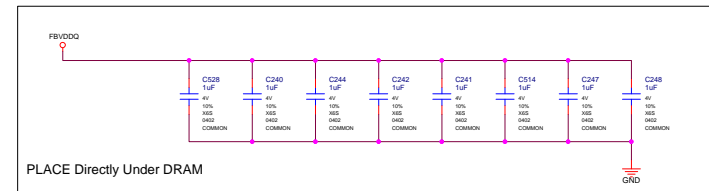
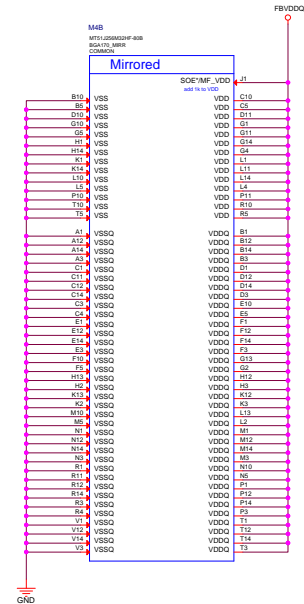
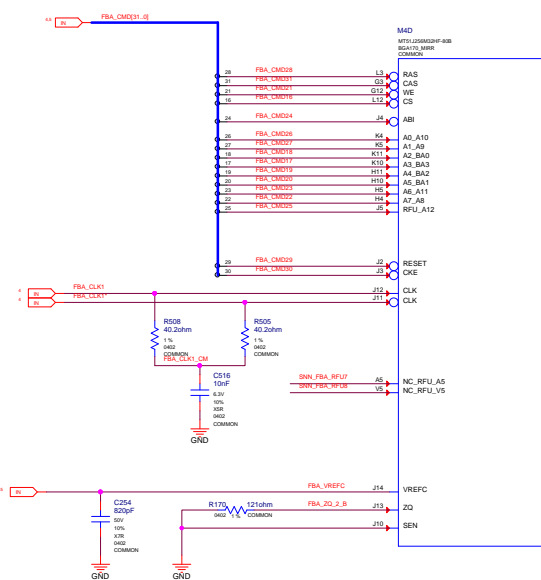
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MEMORY: FBA Partition 63..32

CMD	0.31	32.63
CMD0	CS*	
CMD1	A3, BA3	
CMD2	A2, BA0	
CMD3	A4, BA2	
CMD4	AB, BA1	
CMD5	WE*	
CMD6	AT, AB	
CMD7	AG, A11	
CMD8	AB†	
CMD9	A12, RFU	
CMD10	AG, A10	
CMD11	A1, AB	
CMD12	RAS*	
CMD13	RST*	
CMD14	CKE*	
CMD15	CAS*	
CMD16		CS*
CMD17		A3, BA3
CMD18		A2, BA0
CMD19		AB, BA2
CMD20		AB, BA1
CMD21		WE*
CMD22		AT, AB
CMD23		AB, A11
CMD24		AB†
CMD25		A12, RFU
CMD26		AG, A10
CMD27		A1, AB
CMD28		RAS*
CMD29		RST*
CMD30		CKE*
CMD31		CAS*



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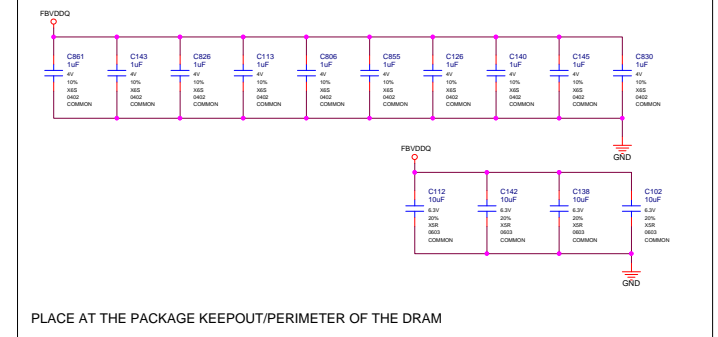
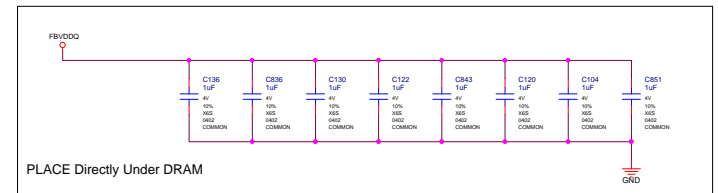
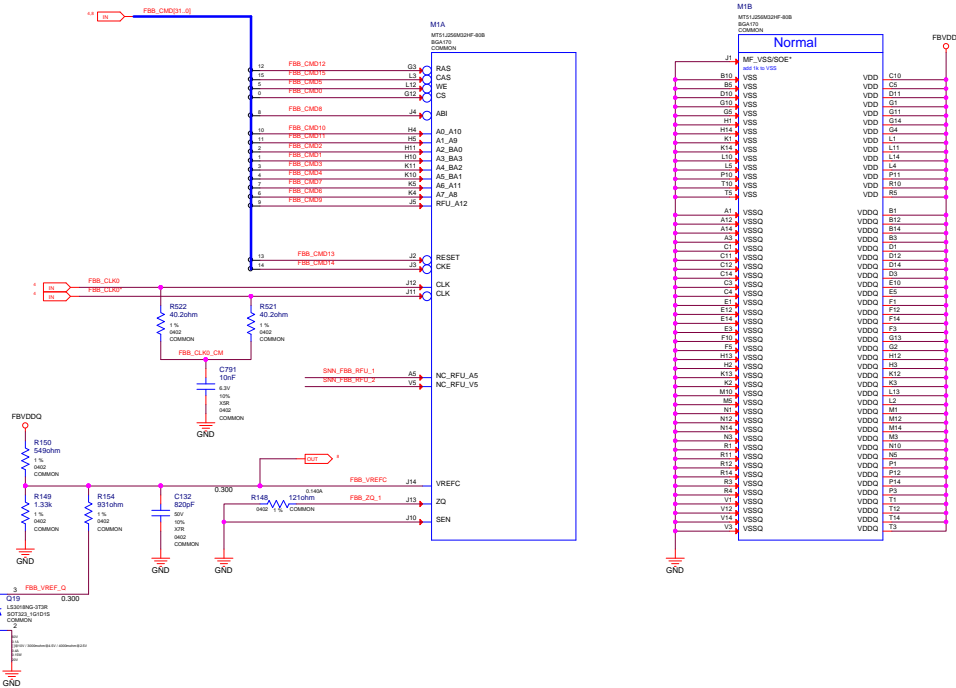
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ASSEMBLY	«ASSEMBLY_DESCRIPTION
PAGE DETAIL	MEMORY: FBA[63:32]

A	B	C	D	E	F	G	H
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MEMORY: FBB Partition 31..0

CMD	0.31	32.63
CMD0	CS*	
CMD01	A3, BA3	
CMD02	A2, BA0	
CMD3	A4, BA2	
CMD4	AB, BA1	
CMD5	WE*	
CMD6	AT, AB	
CMD7	AB, A11	
CMD8	AB*	
CMD9	A12, RFU	
CMD10	AG, A10	
CMD11	A1, A9	
CMD12	RAS*	
CMD13	RST*	
CMD14	CKE*	
CMD15	CAS*	
CMD16		CS*
CMD17		A3, BA3
CMD18		A2, BA0
CMD19		A4, BA2
CMD20		AB, BA1
CMD21		WE*
CMD22		AT, AB
CMD23		AB, A11
CMD24		AB*
CMD25		A12, RFU
CMD26		AG, A10
CMD27		A1, A9
CMD28		RAS*
CMD29		RST*
CMD30		CKE*
CMD31		CAS*



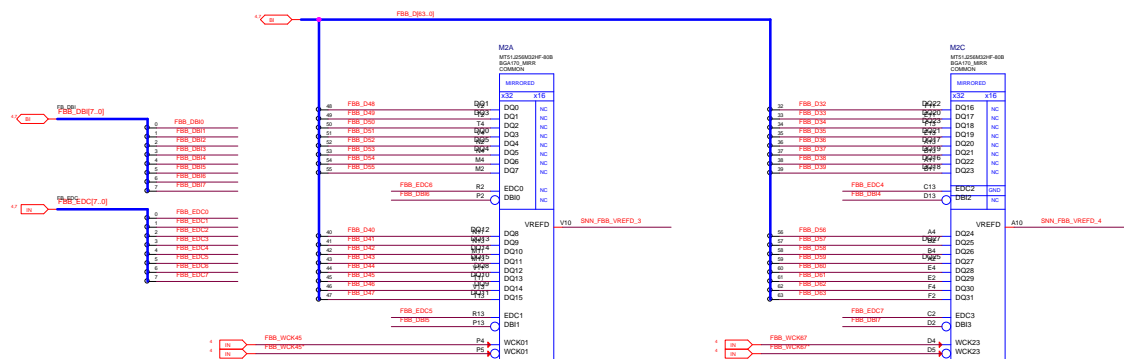
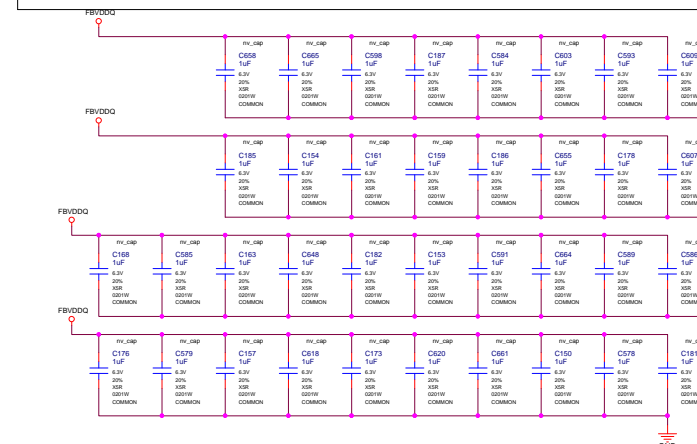
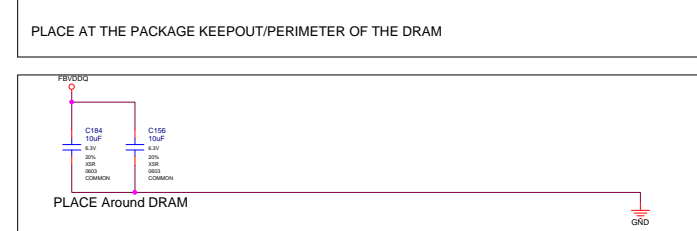
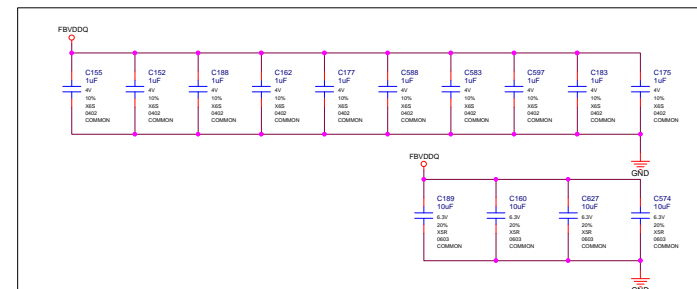
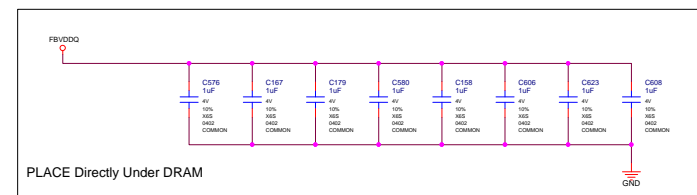
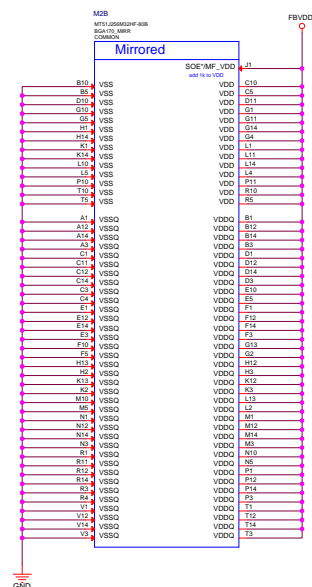
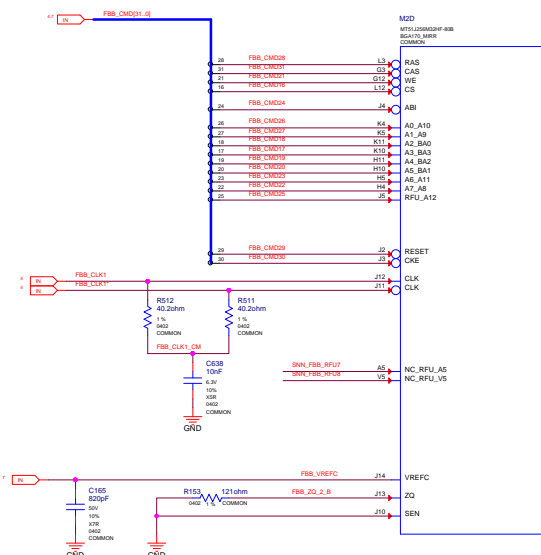
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PAGE DETAIL	MEMORY: FBB(31:0)

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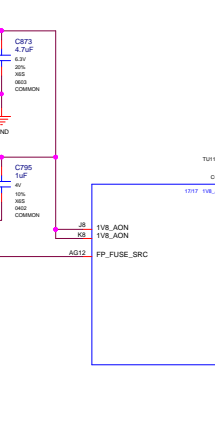
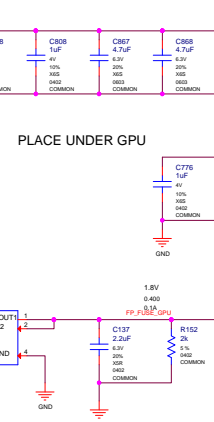
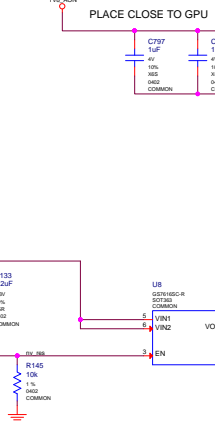
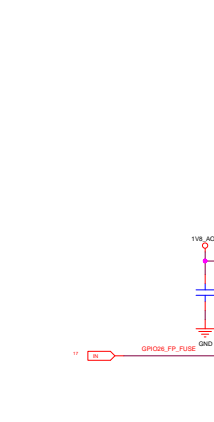
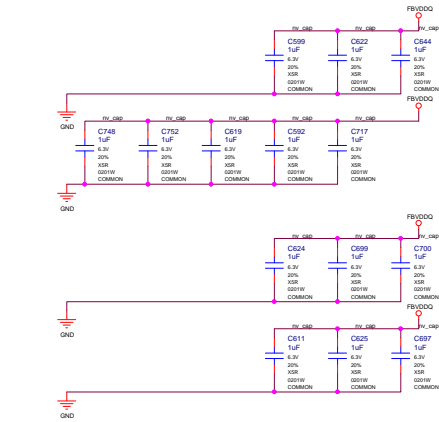
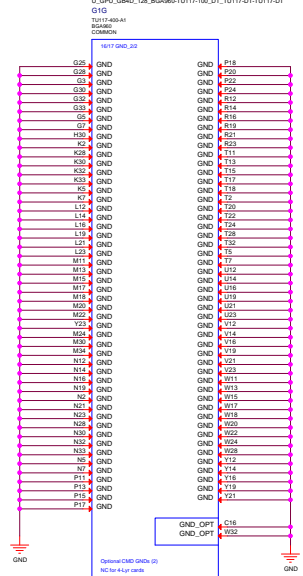
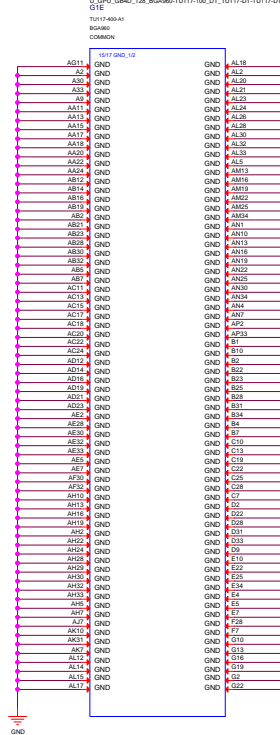
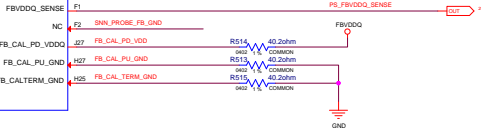
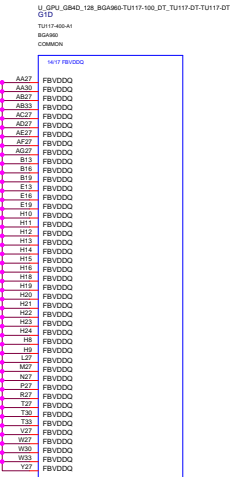
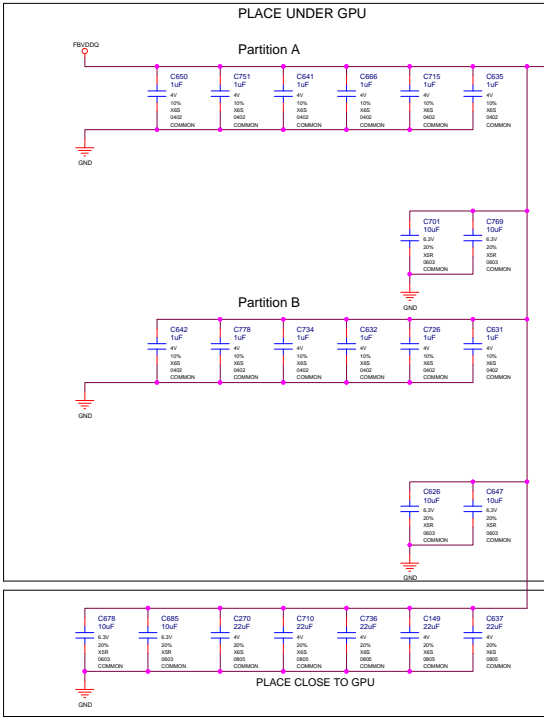
MEMORY: FBB Partition 63..32

CMD	0..31	32..63
CMD0	CS*	
CMD1	A3..BA3	
CMD2	A2..BA0	
CMD3	A2..BA2	
CMD4	A5..BA1	
CMD5	WE*	
CMD6	A7..A8	
CMD7	AB..A11	
CMD8	AB*	
CMD9	A12..RFU	
CMD10	A2..A10	
CMD11	A1..A9	
CMD12	RA5*	
CMD13	RS1*	
CMD14	CK*	
CMD15	CAS*	
CMD16		CS*
CMD17		A3..BA3
CMD18		A2..BA0
CMD19		A4..BA2
CMD20		AS..BA1
CMD21		WE*
CMD22		A7..A8
CMD23		AB..A11
CMD24		A6..A10
CMD25		A12..RFU
CMD26		A1..A9
CMD27		RA5*
CMD28		RS1*
CMD29		CK*
CMD30		CAS*
CMD31		






GPU FBVDDQ & 1V8 Decoupling



ASSEMBLY	ASSEMBLY DESCRIPTIONS
PAGE DETAIL	GPU FBVDDQ & 1V8 Decoupling

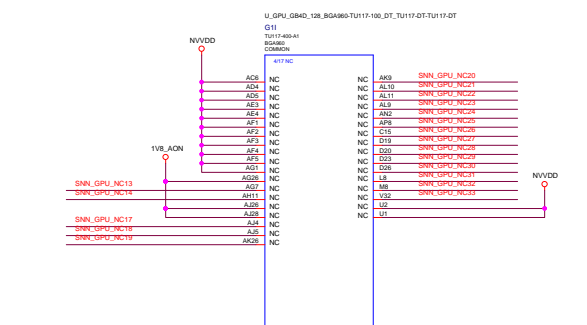
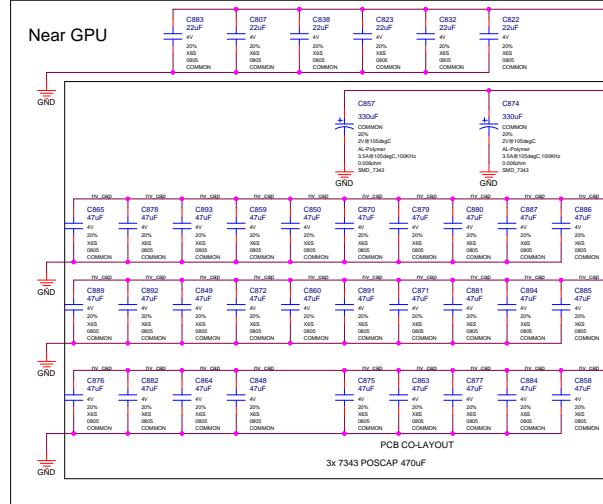
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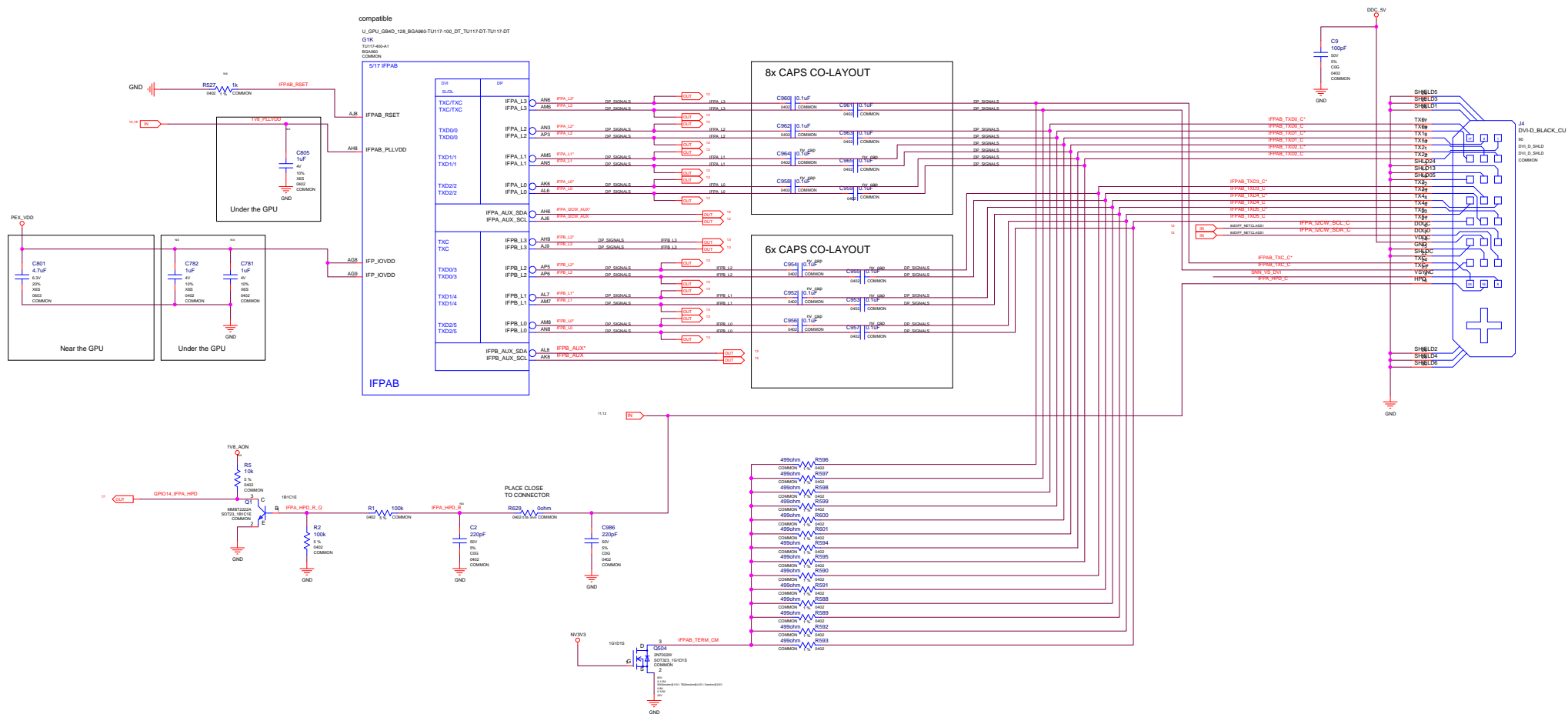
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## GPU NVVDD Decoupling



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## IFPAB DVI-D-DL CO-LAYOUT WITH 2x DP



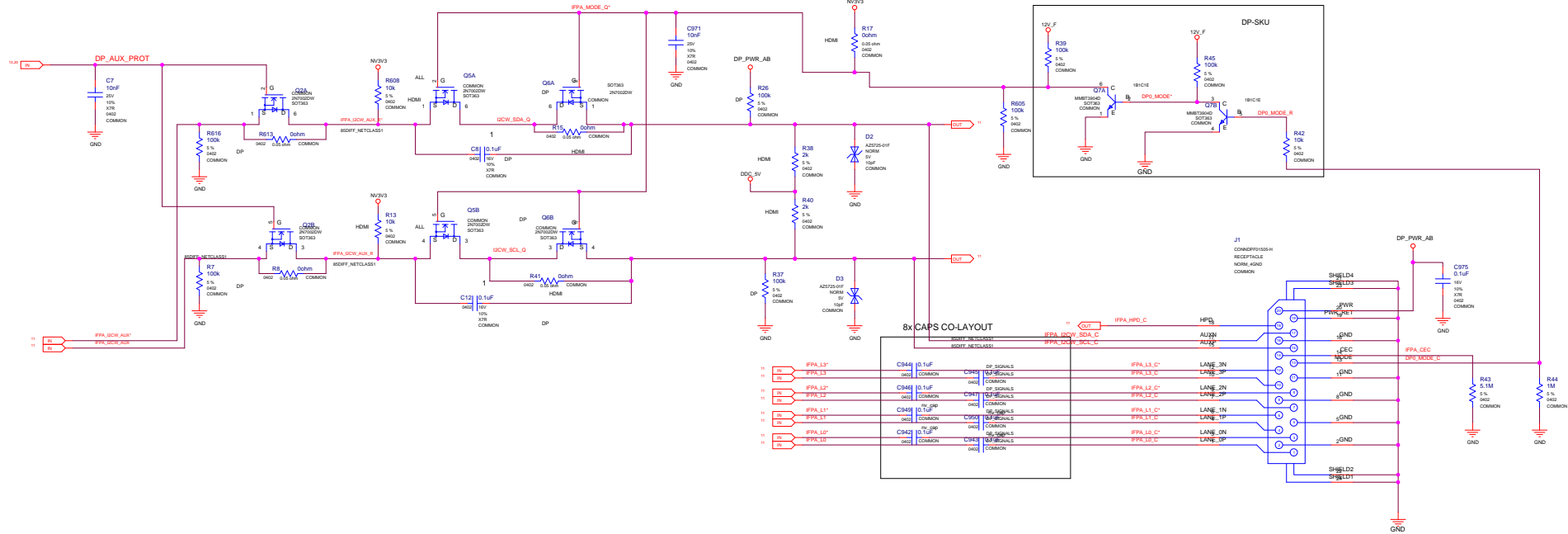
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# IFPA DP CO-LAYOUT WITH IFPAB DVI-D-DL

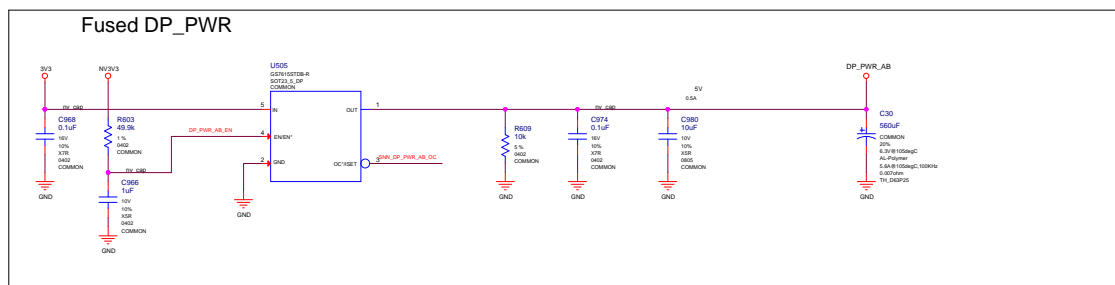
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ASSEMBLY	ASSEMBLY DESCRIPTION
PAGE DETAIL	IFPA DP

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NV_PN	600-1G174-BASE-A01		
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## IFPB DP CO-LAYOUT WITH IFPAB DVI-D-DL-del

Page13: IFPB DP



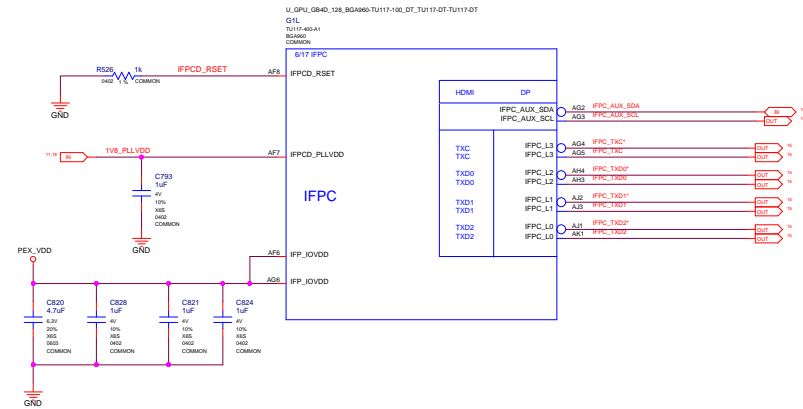
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PAGE DETAIL	IFPB DP

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NV_PN	600-1G174-BASE-A01		
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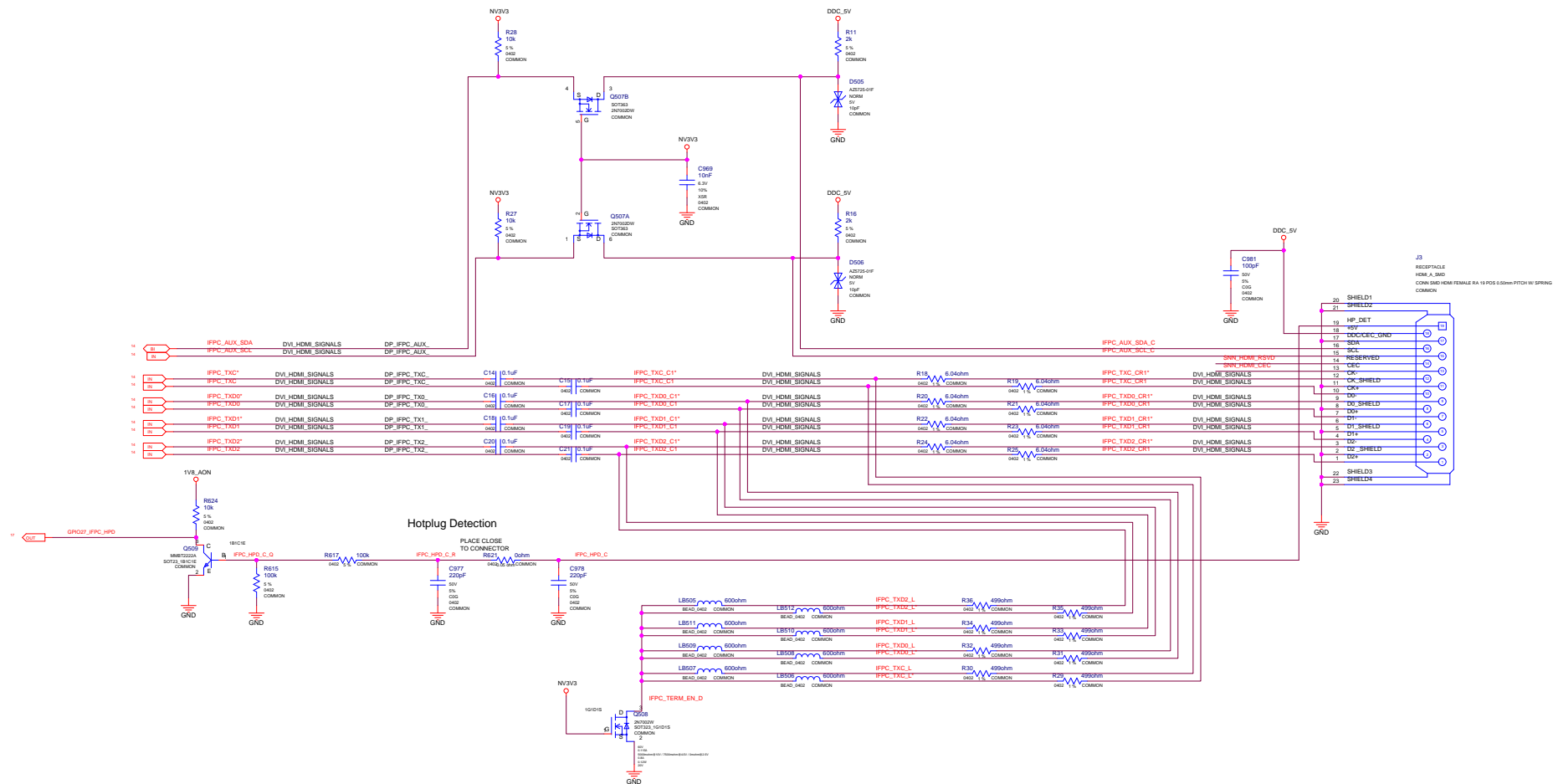
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ASSEMBLY	<ASSEMBLY_DESCRIPTION>
PAGE DETAIL	IFPC

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## IFPC HDMI



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ASSEMBLY	«ASSEMBLY_DESCRIPTION»
PAGE DETAIL	IFPC HDMI

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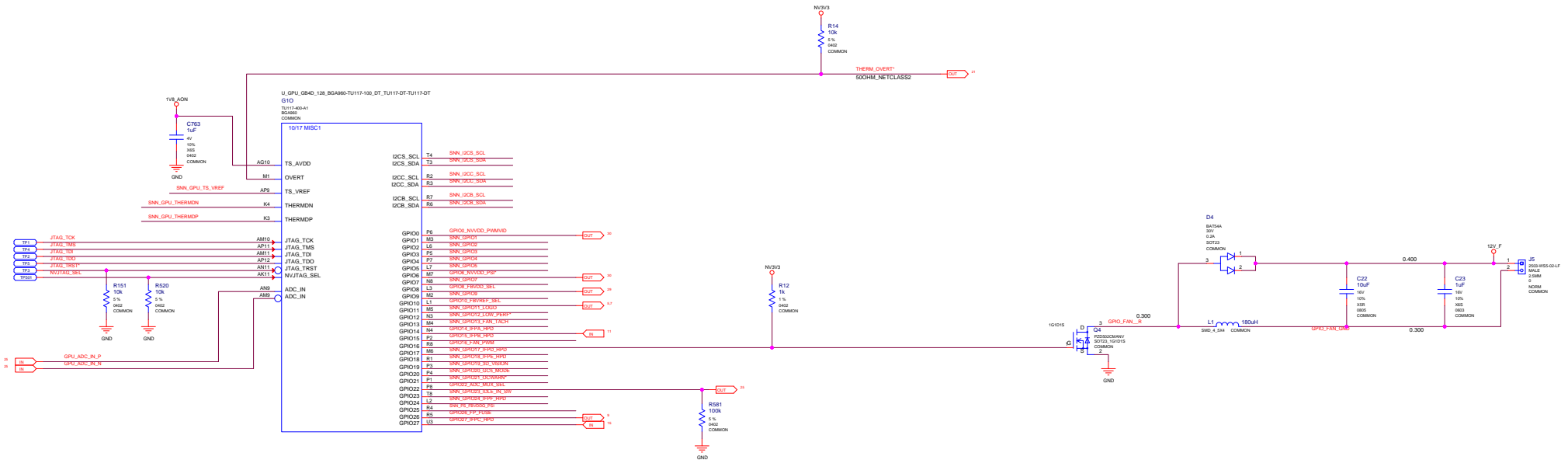
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MISC1: GPIO, Fan, Thermal, JTAG



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NV_PN	600-1G174-BASE-A01
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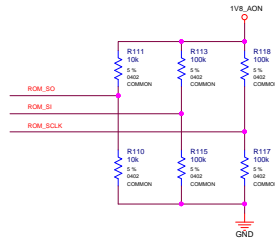
PCB REV	PG174-A01	PAGE	17 OF 32
BOM REV	A	DATE	10-DEC-2018

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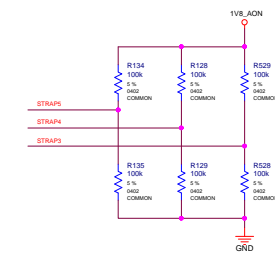
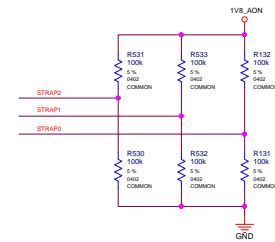
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### MISC2: ROM, XTAL, Straps

ROM_SO	ROM_SI	ROM_SCLK	DUMMY[2:0],FS_OVERT	1:ENABLE 0:DISABLE	
L	L	L	xxx1	FS_OVERT ENABLE	Default
L	L	M	xxx0	FS_OVERT DISABLE	



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

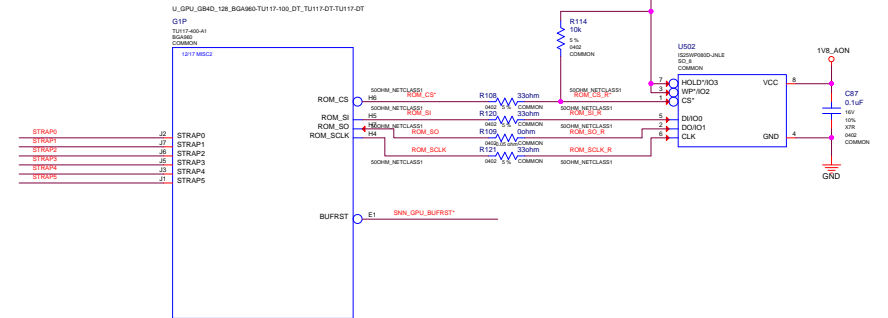


```
1:SMB_ALT_ADDR ENABLE
0:SMB_ALT_ADDR DISABLE

1:DEVID_SEL REBRAND
0:DEVID_SEL ORIGNAL

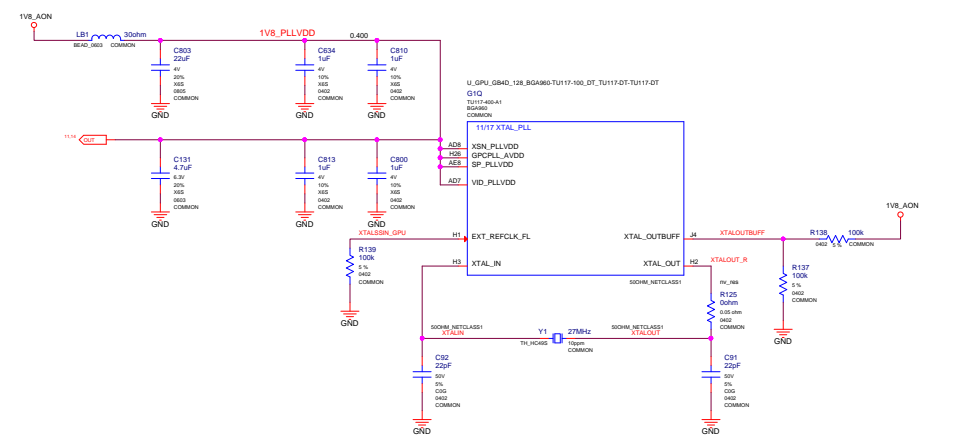
1:PCIE_CFG LOW POWER
0:PCIE_CFG HIGH POWER

1:VGA_DEVICE ENABLE
0:VGA_DEVICE DISABLE
```



## Smart Fan

XTALOUTBUFF	Voltage	SmartFan PWM	GPIO/PWM at the FAN
Low	0V	GPIO Disabled	100%
Middle	0.9V	66% PWM	33% PWM (Typical)
High	1.8V	33% PWM	66% PWM



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 DEFAULT
L	L	L	0	0	0	0

ASSEMBLY	«ASSEMBLY_DESCRIPTION»
PAGE DETAIL	MISC2: ROM, XTAL, Straps

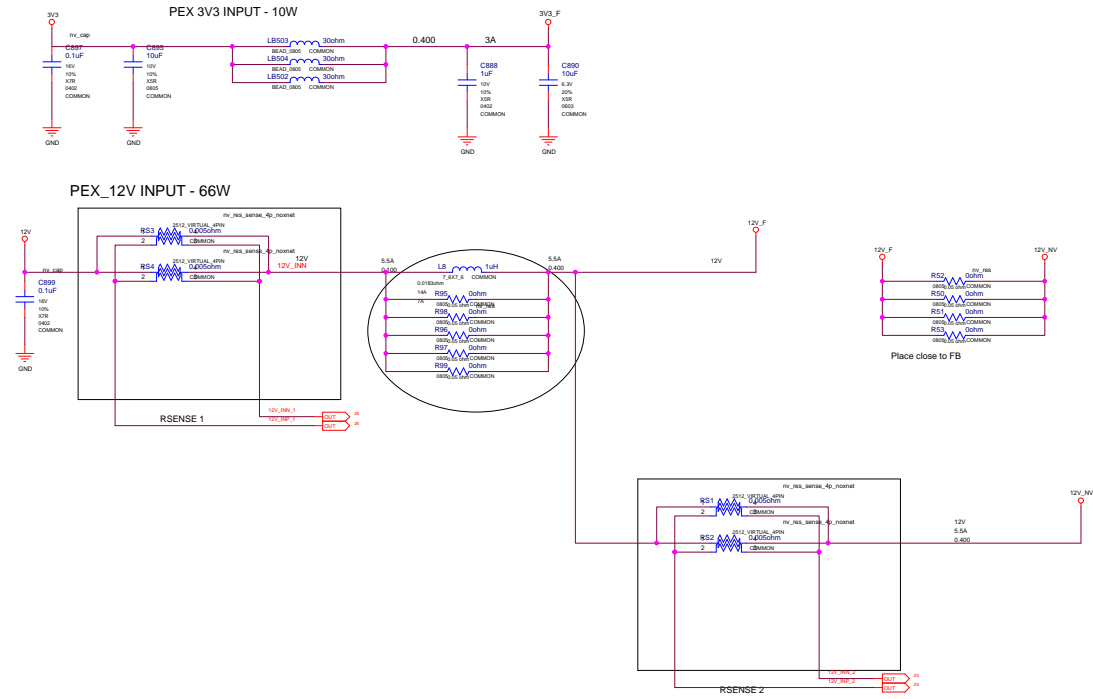
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## Power Inputs and Filtering



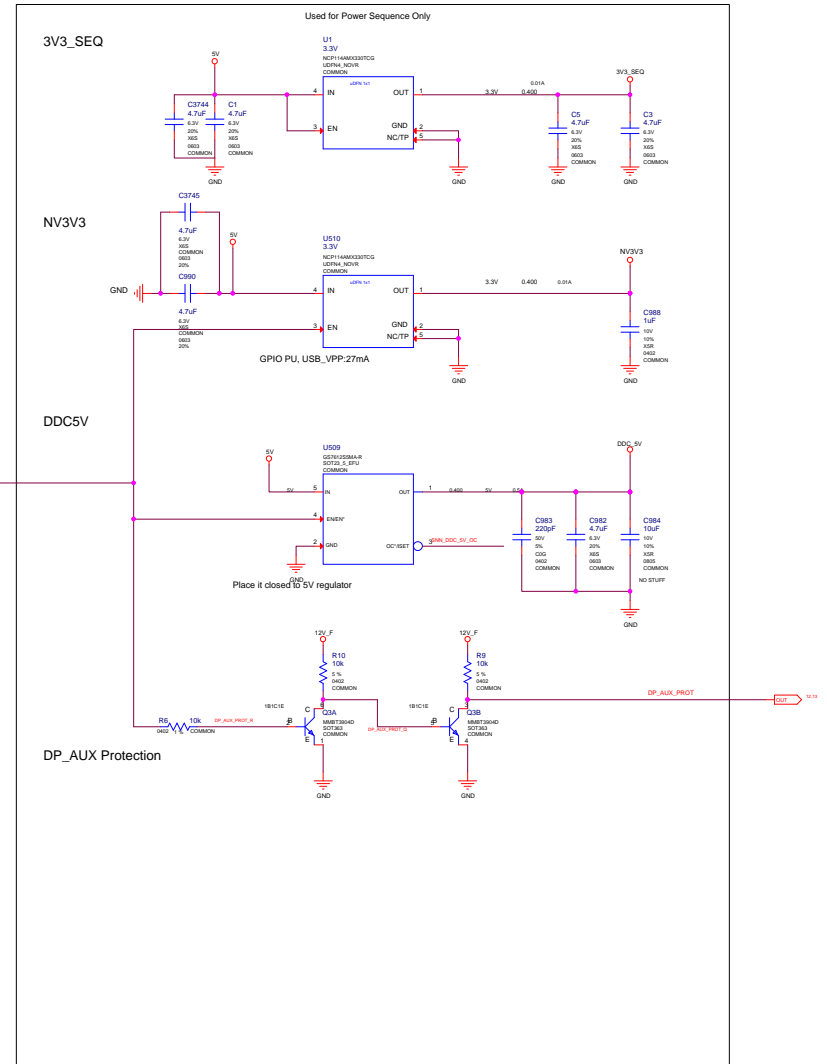
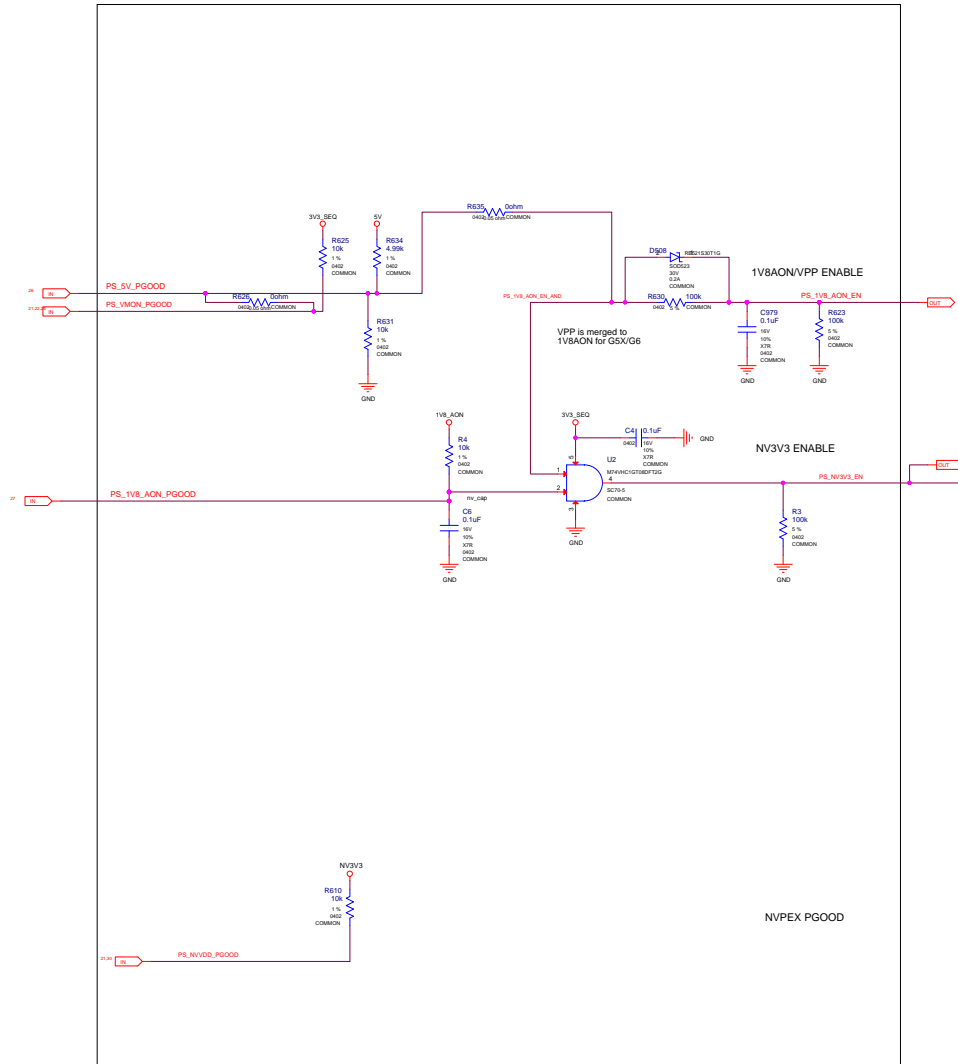
ASSEMBLY	<ASSEMBLY_DESCRIPTION>
PAGE DETAIL	Power Inputs and Filtering

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SEQ:5V,1V8,NV3V3 ENABLE



ASSEMBLY	<ASSEMBLY_DESCRIPTION>
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SEQUENCE:Voltage Monitor


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ASSEMBLY	<ASSEMBLY DESCRIPTION>
PAGE DETAIL	SEQ VOLTAGE MONITOR

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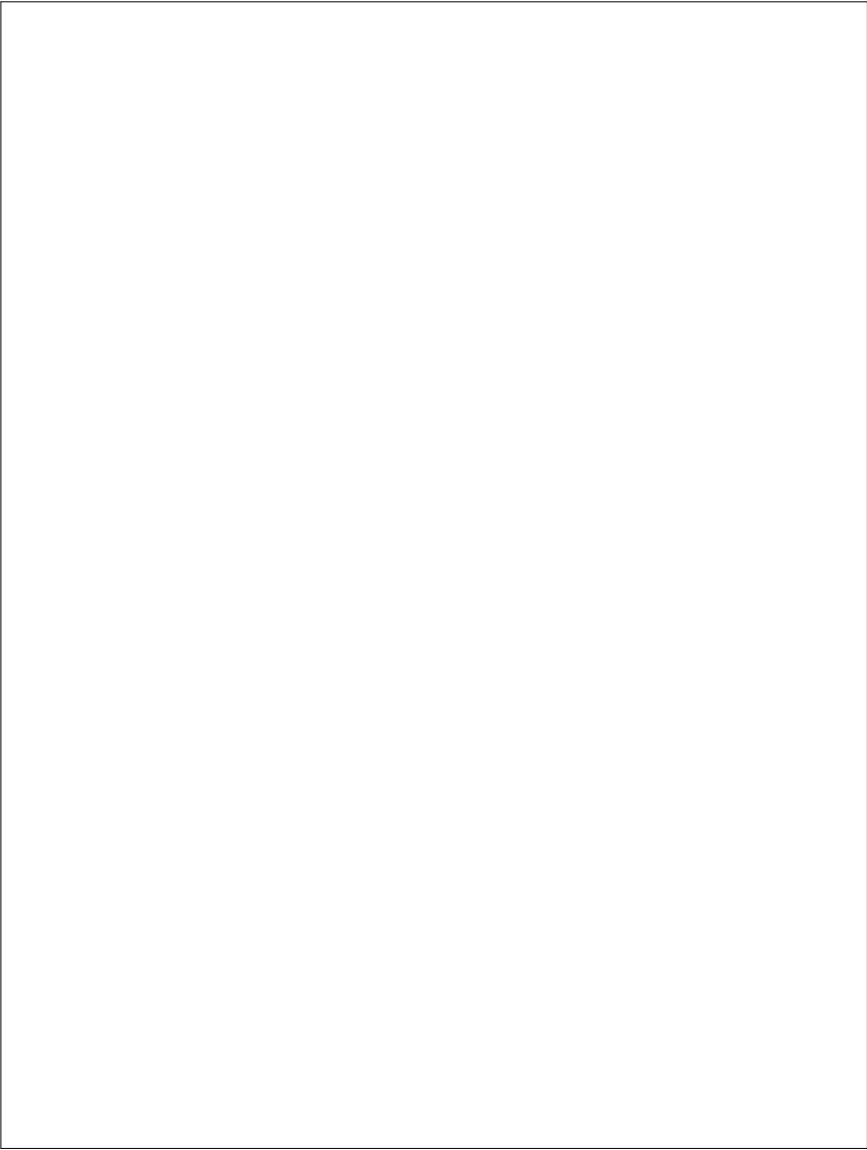
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SEQUENCE:Discharge



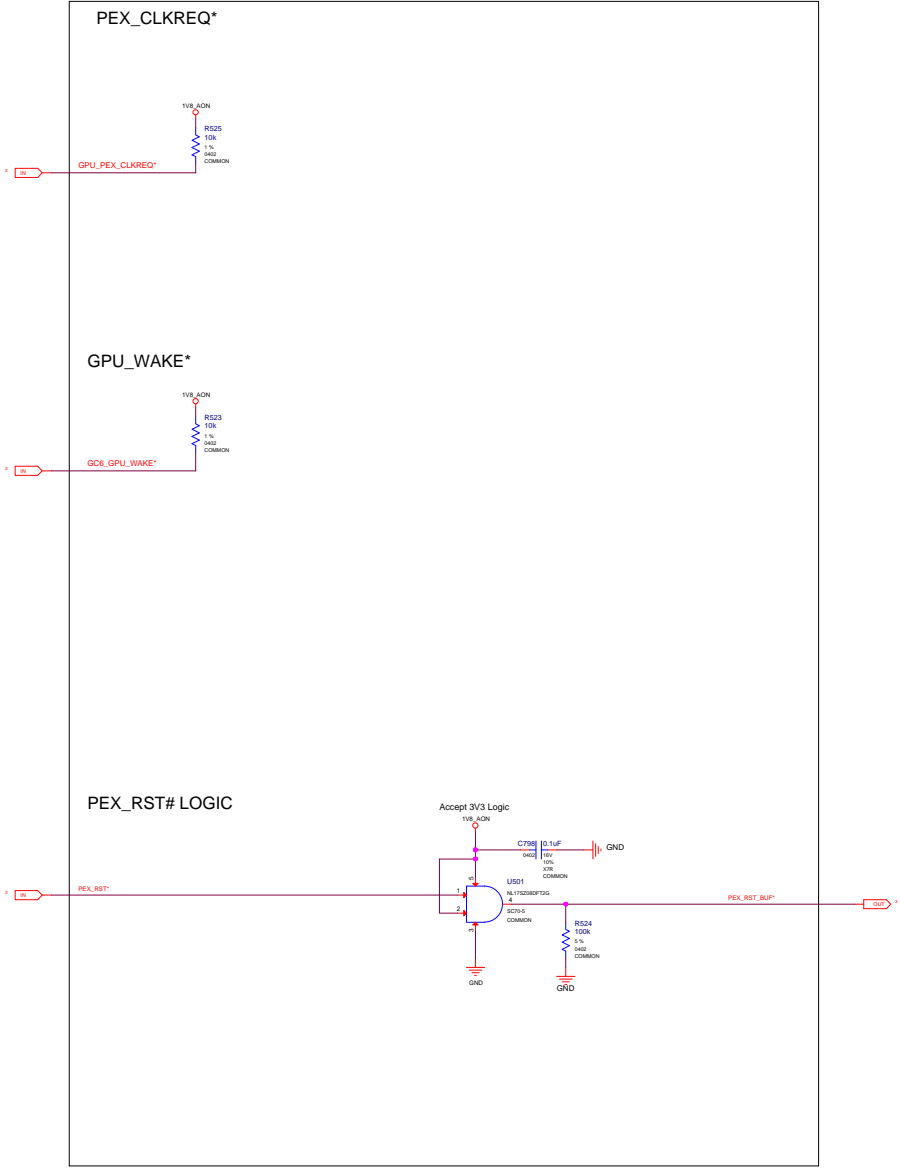
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ASSEMBLY	<ASSEMBLY DESCRIPTION>
PAGE DETAIL	SEQ: DISCHARGE

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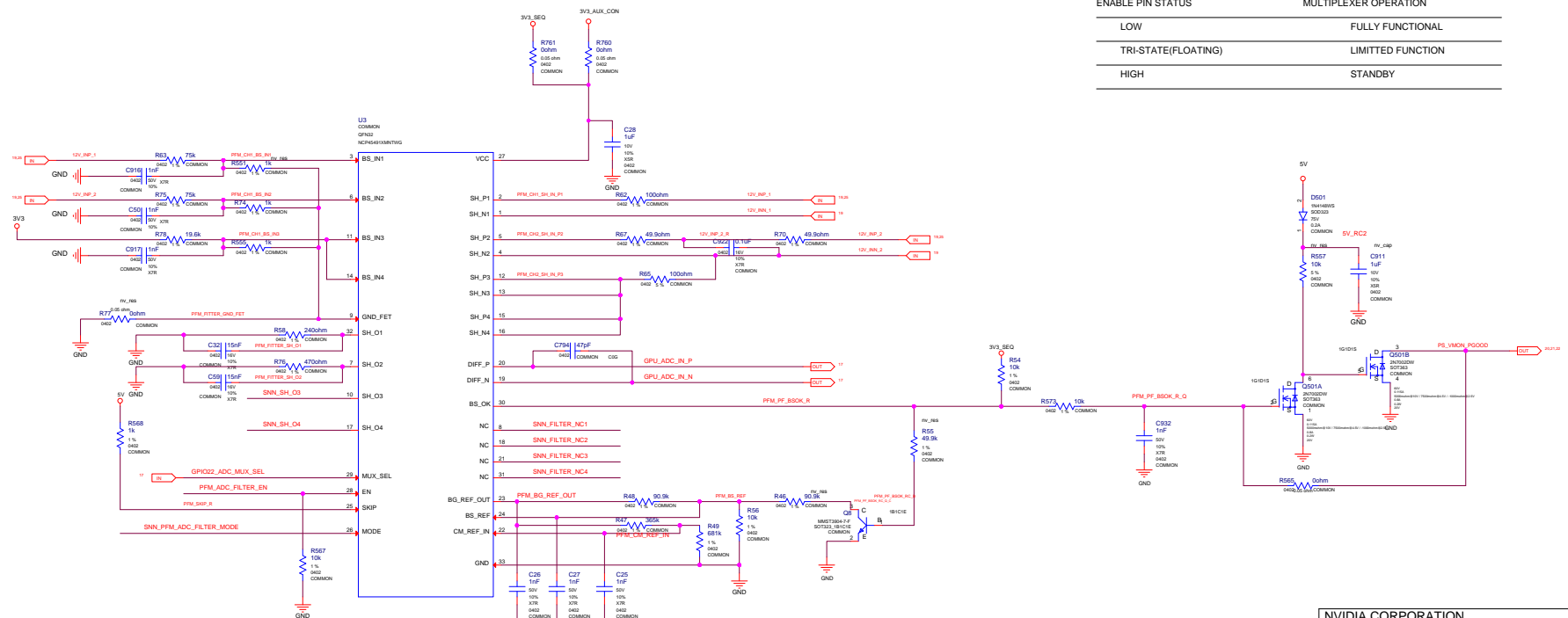
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## PWR SENSE



MODE PIN STATUS	MULTIPLEXER OPERATION
LOW	DEVICE A
TRI-STATE(FLOATING)	STAND-ALONE
HIGH	DEVICE B

ENABLE PIN STATUS	MULTIPLEXER OPERATION
LOW	FULLY FUNCTIONAL
TRI-STATE(FLOATING)	LIMITED FUNCTION
HIGH	STANDBY

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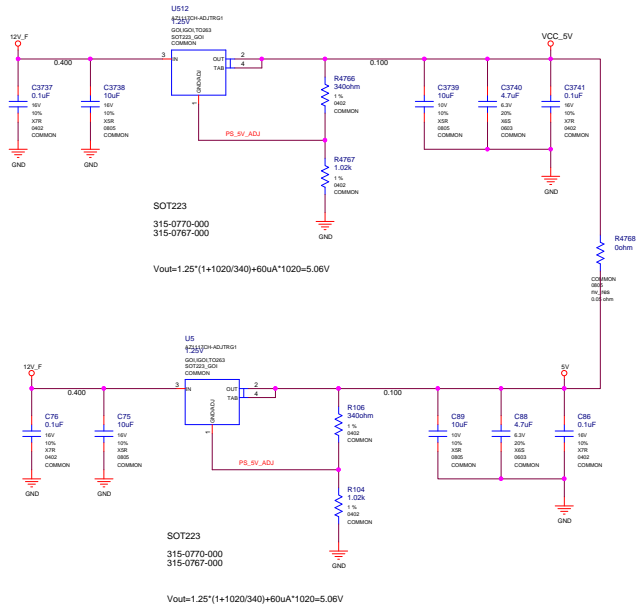


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PS: 5V



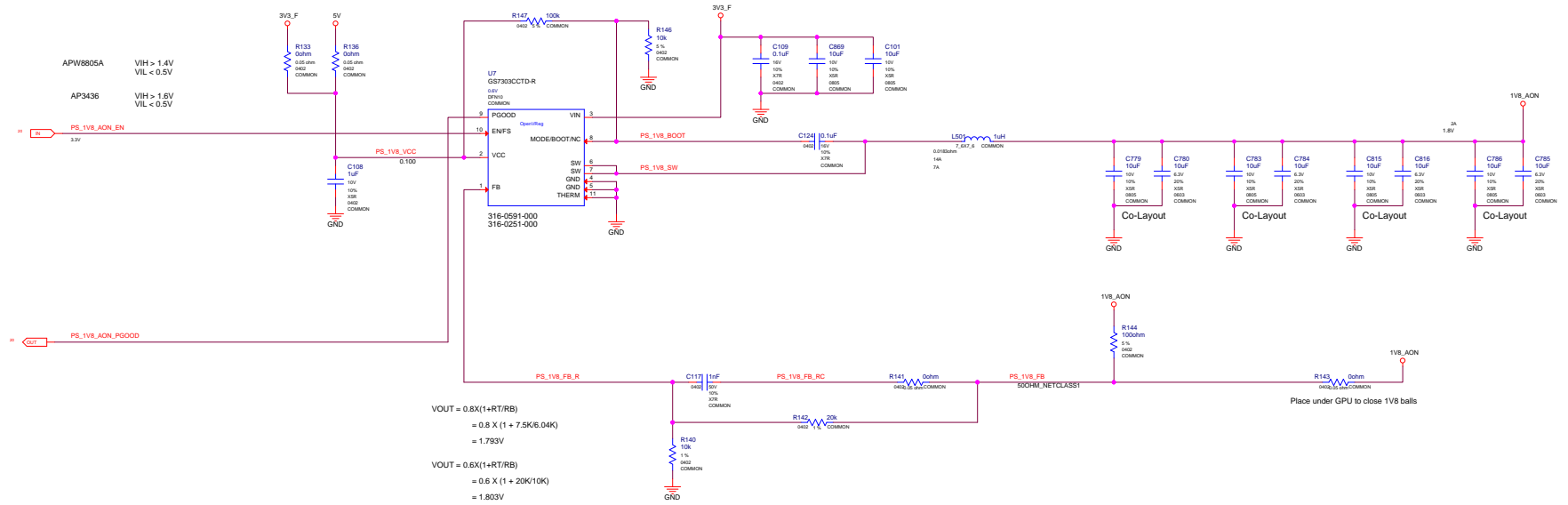
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PS: 1V8



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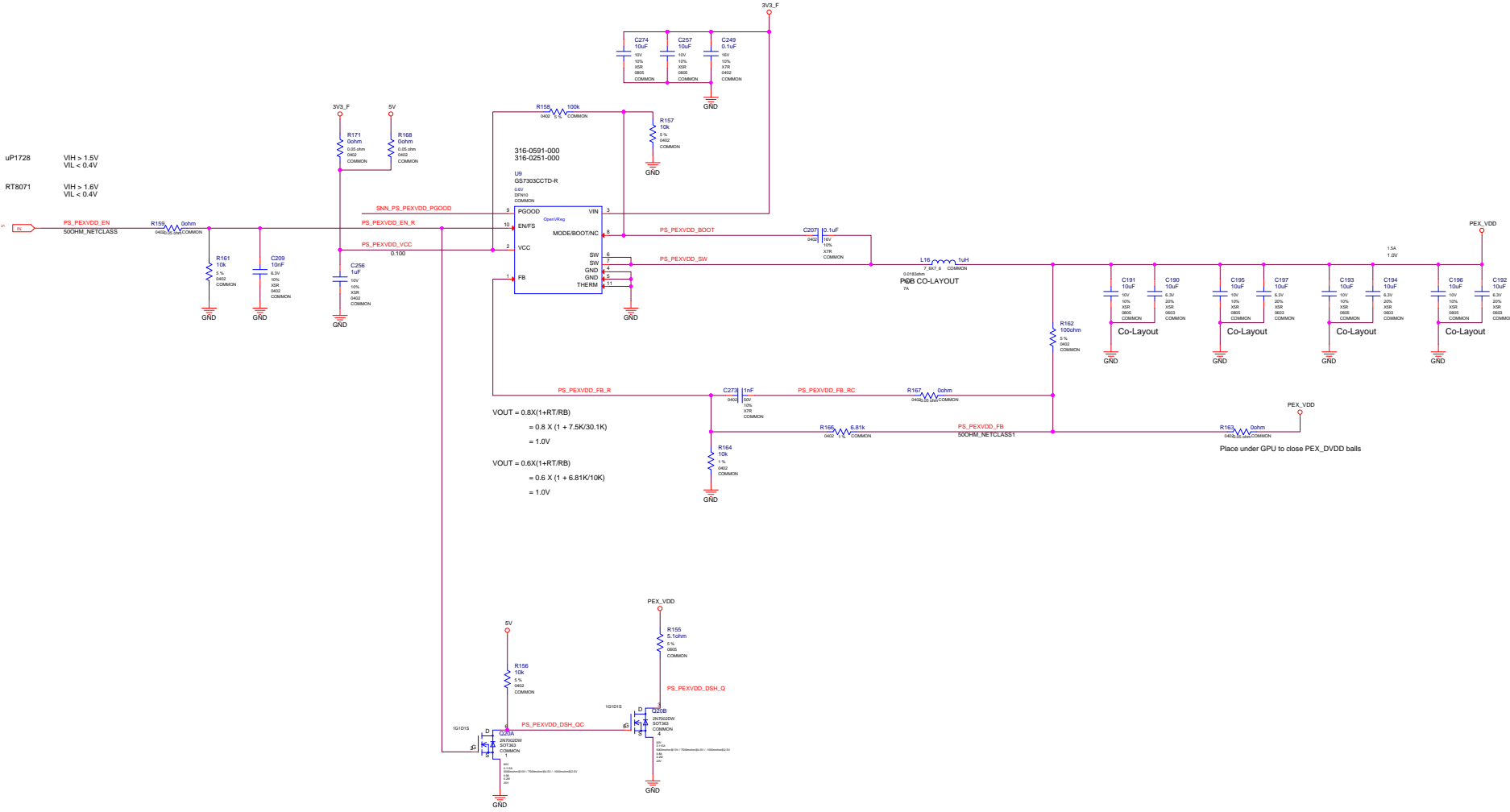
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PS: PEXVDD



$$V_{OUT} = 0.8X(1 + R_T/R_B)$$
$$= 0.8 \times (1 + 7.5K/30.1K)$$
$$= 1.0V$$

$$V_{OUT} = 0.6X(1 + R_T/R_B)$$
$$= 0.6 \times (1 + 6.81K/10K)$$
$$= 1.0V$$

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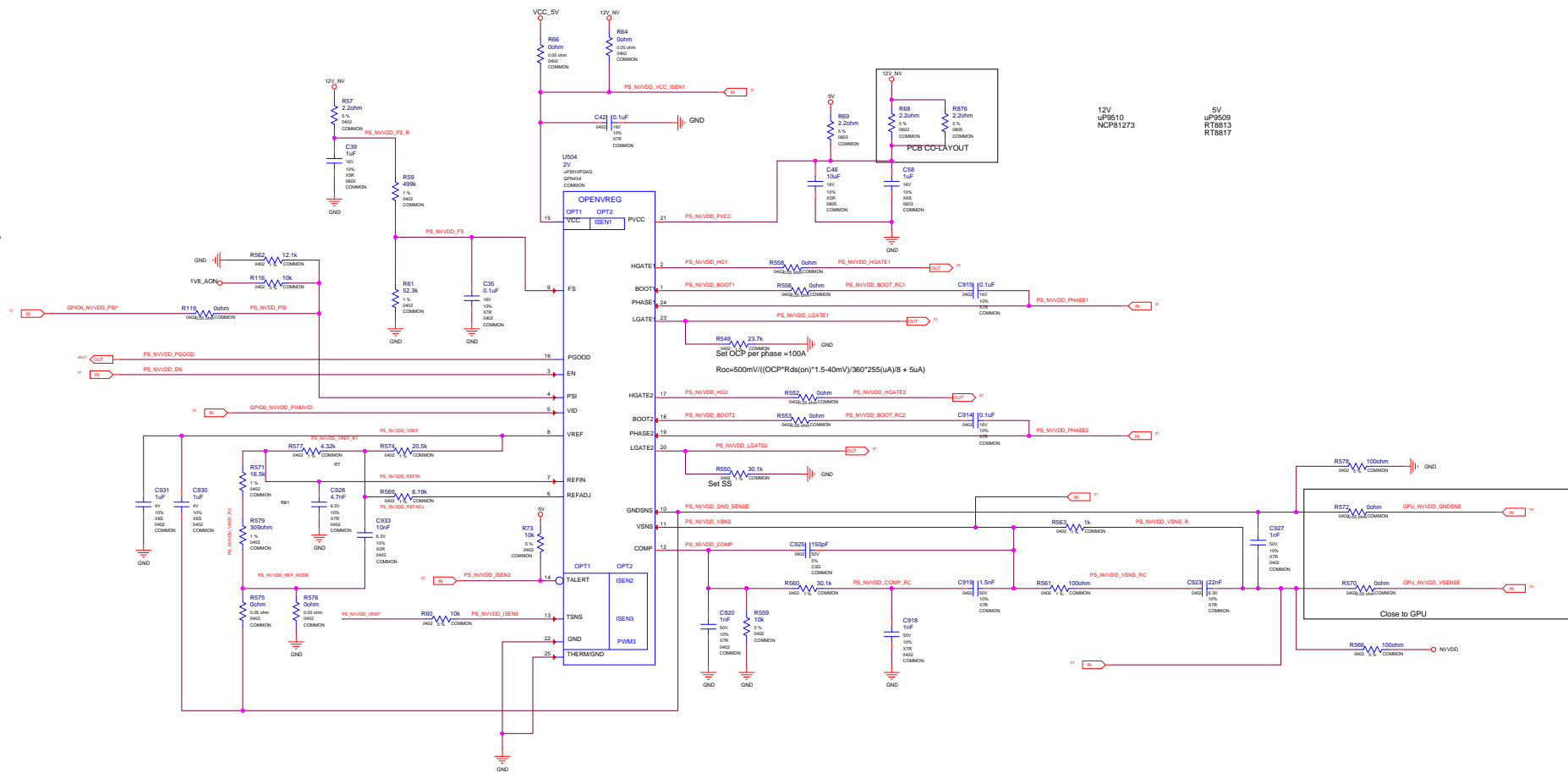
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	$\text{Vint} = \text{Vint} * (1 + \text{Rate})$
Vint=1.01:	$1.050 = 0.007 * (1 + 0.0050)$
	$1.050 = 0.007 * (1 + 0.0050)$
Vint=1.01:	
	$1.0500 = 0.007 * (1 + 0.0050)$
	$\text{Vint} = \text{Vint} * (1 + \text{Rate})$
Vint=1.01:	$1.050 = 0.007 * (1 + 0.0070704, 2.00)$
	$1.050 = 0.007 * (1 + 0.0070707, 0.00)$
	$1.060 = 0.007 * (1 + 0.00707)$
Vint=1.01:	
	$1.050 = 0.007 * (1 + 0.0143305, 4000)$
	$1.050 = 0.007 * (1 + 0.0143306, 120)$
	$1.060 = 0.007 * (1 + 0.0143307)$

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<b>NV_PN</b>		<b>600-1G174-BASE-A01</b>		
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<b>BOM REV</b>	<b>A</b>	<b>DATE</b>	<b>10-DEC-2018</b>	

## PS: NVVDD OVR2+1



NVPN	Name	PVCC(21)	VCC(15)
316-0478-000	NCP81273 12v	LDO_OUT	<-Default
316-0476-000	up9510 12v	ISENSE	<-2nd source
316-0484-000	RT8817A 5v	NC	

ASSEMBLY	<ASSEMBLY_DESCRIPTION>
PAGE DETAIL	PS: NVVDD_OVR2+1

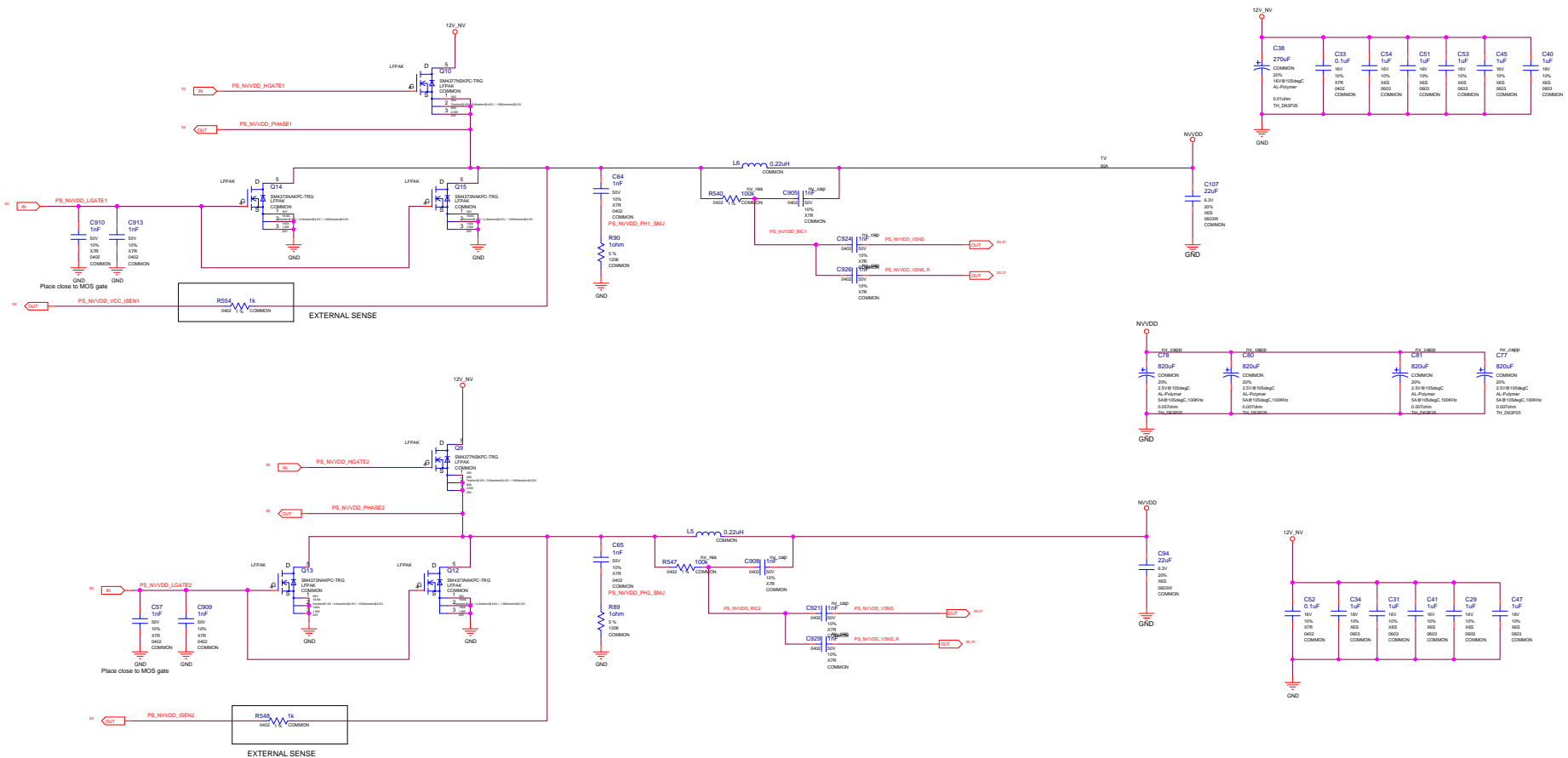
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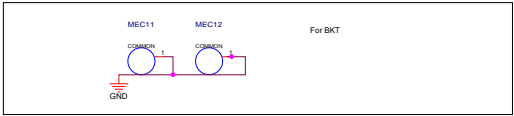
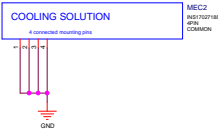
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Mechanical: Bracket/Thermal Solution



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ASSEMBLY	ASSEMBLY DESCRIPTION
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