

PG210 B00

GP107 128b GDDR5, 75W , PCB 5.7"  
DVI-D\_DL (DP + DP) + HDMI (DP) + DP

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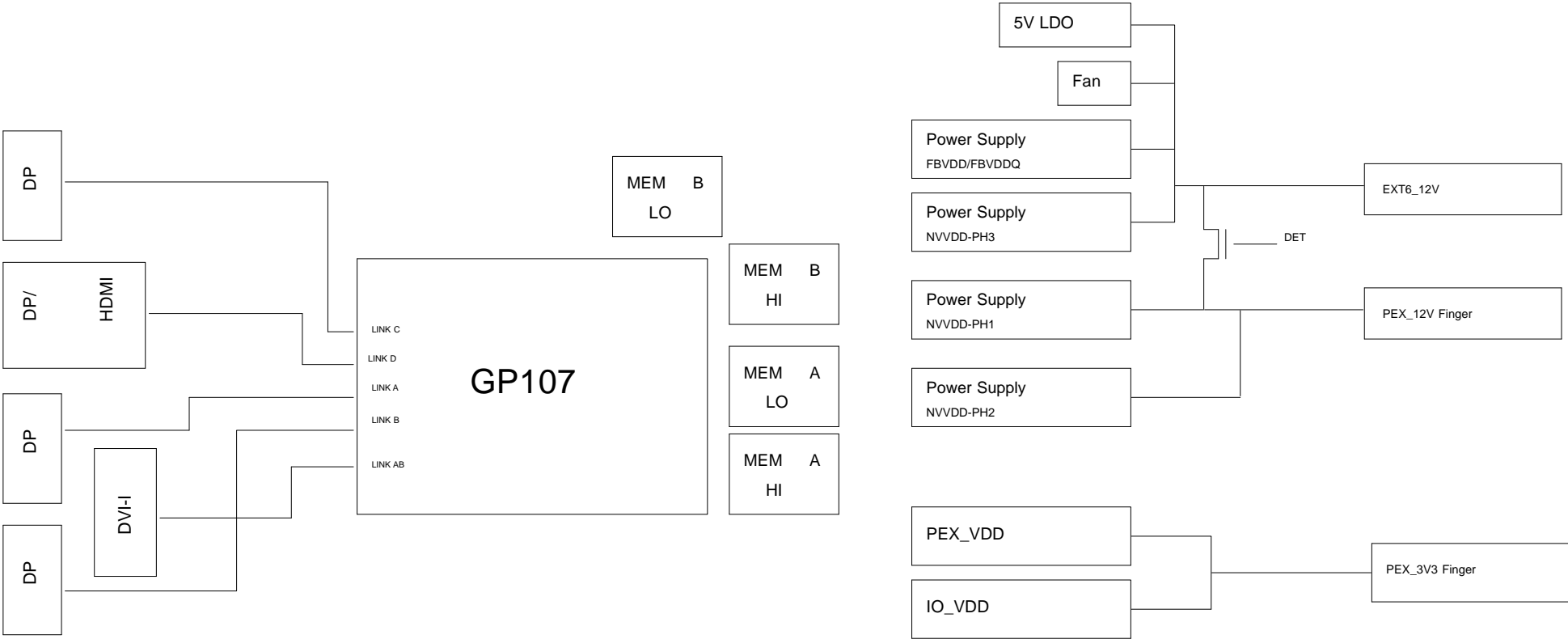
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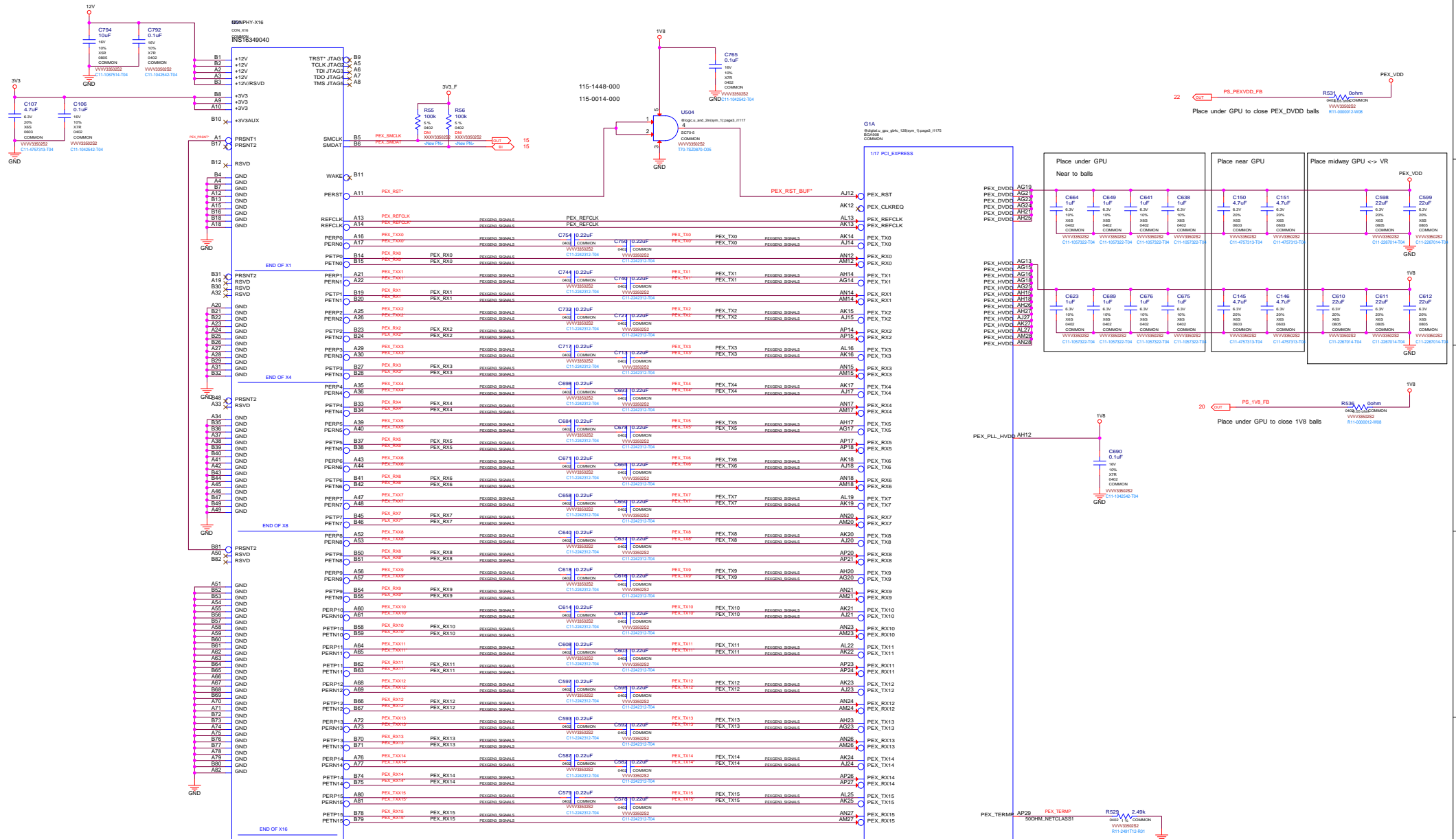
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Page	Description
1	Change PCIE footprint for full pin

Block Diagram



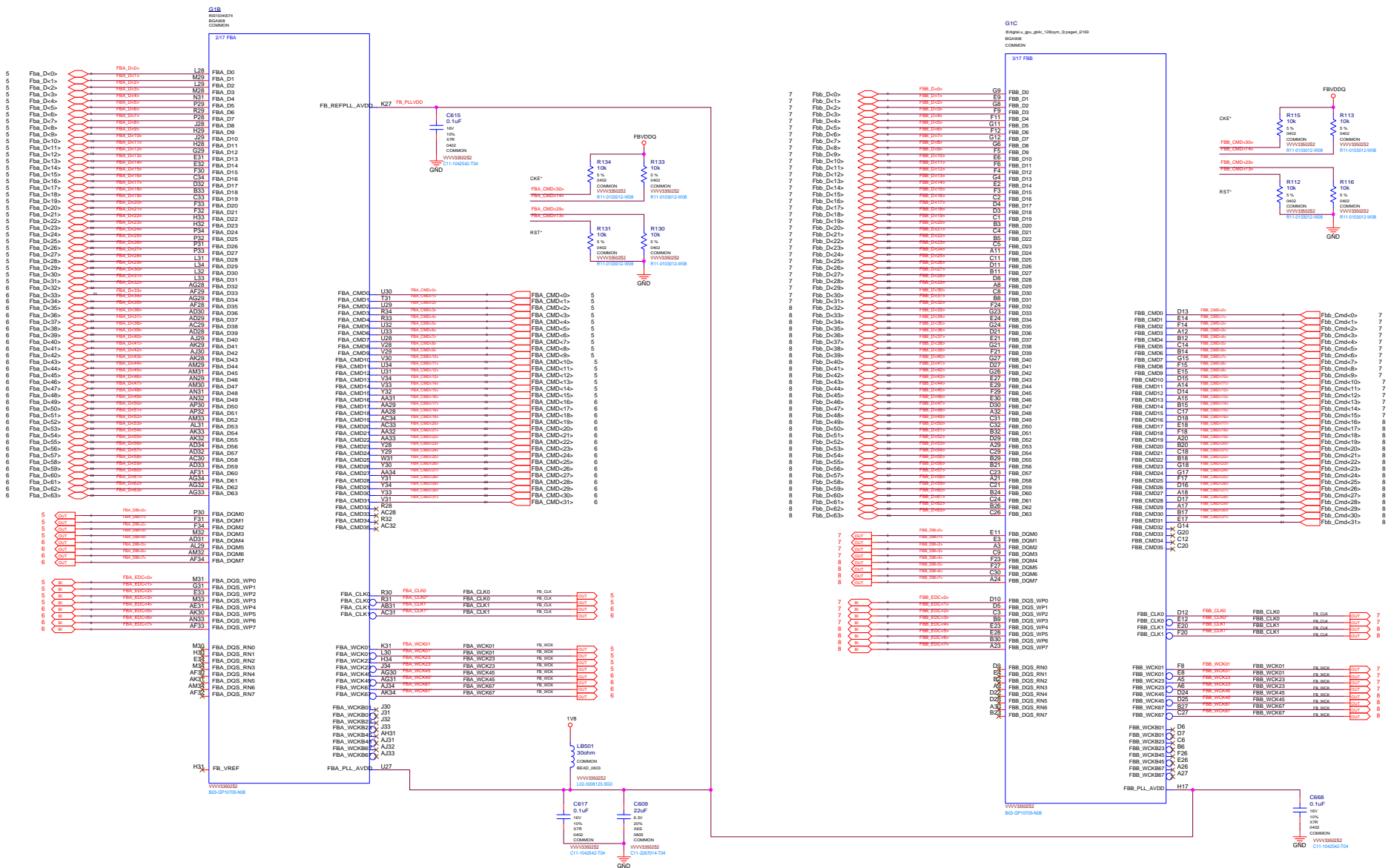
PCI Express



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Size Custom	Document Description <b>03_PCI Express</b>	Rev 1.2
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MEMORY: GPU Partition A/B



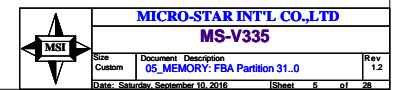
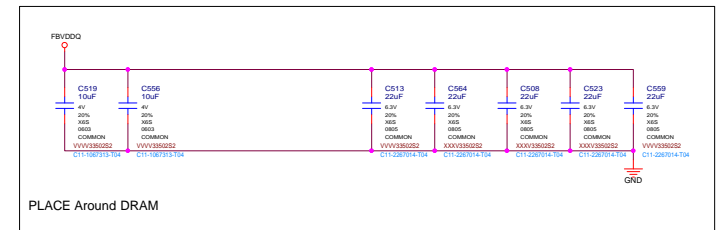
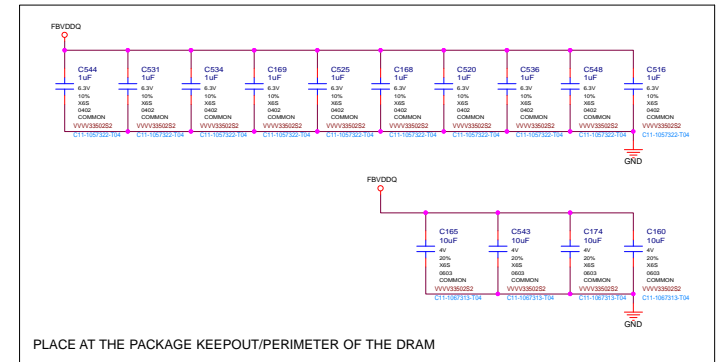
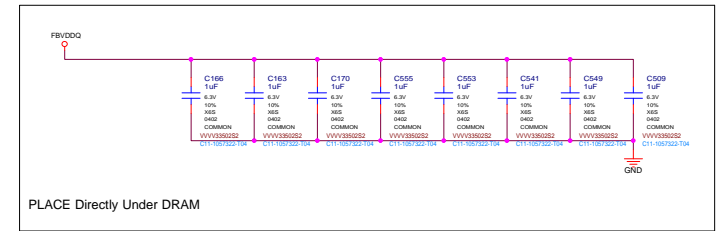
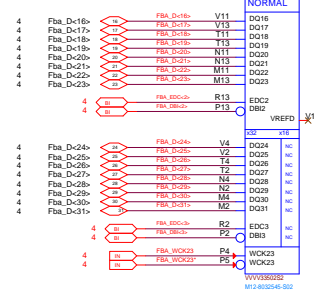
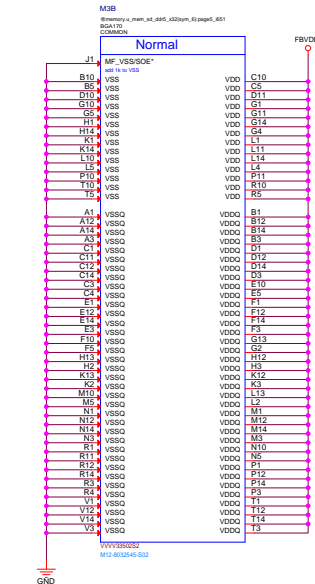
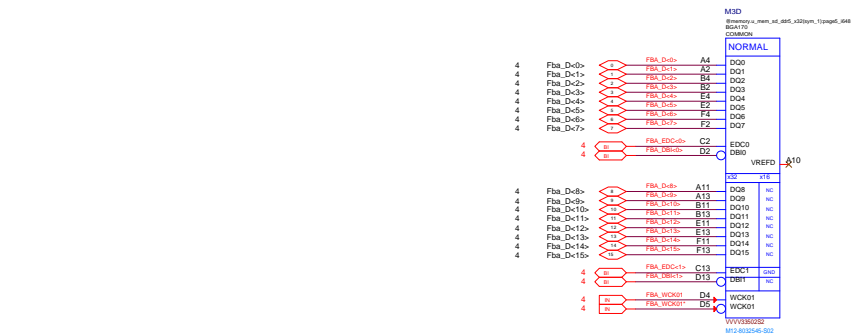
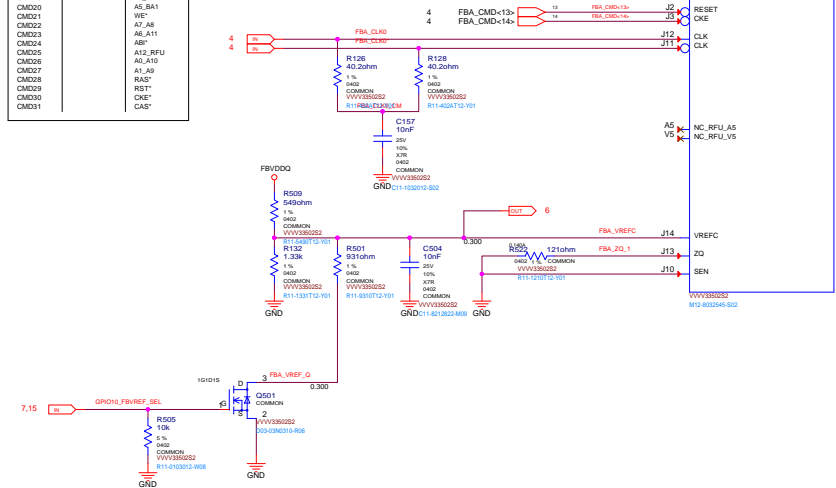
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Size Custom	Document Description <b>04_MEMORY: GPU Partition A/B</b>	Rev 1.2
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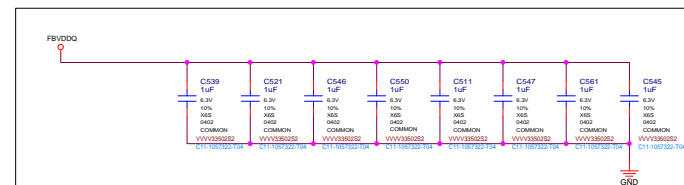
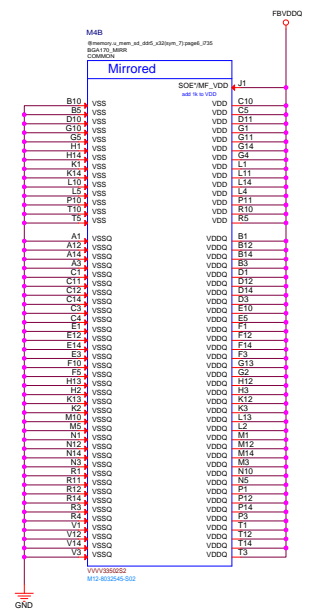
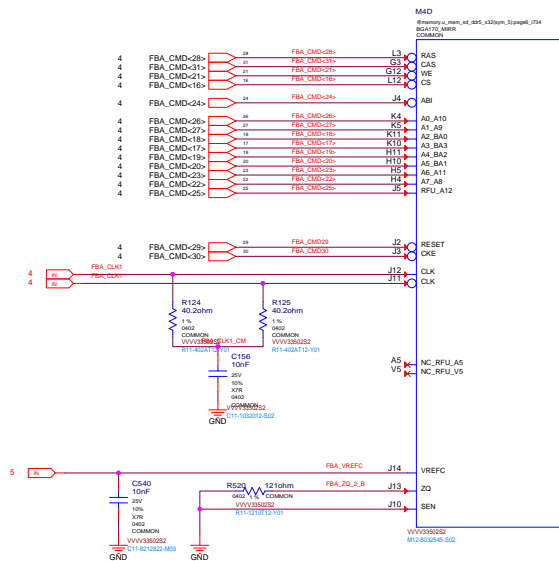
MEMORY: FBA Partition 31..0

CMD	0..31	32..63
CMD0	CS*	
CMD1	A3..BA3	
CMD2	A2..BA2	
CMD3	A4..BA4	
CMD4	AS..BA1	
CMD5	WE*	
CMD6	A7..A8	
CMD7	AG..A11	
CMD8	AB*	
CMD9	A12..RFU	
CMD10	AG..A10	
CMD11	A1..A9	
CMD12	RA*	
CMD13	RB*	
CMD14	CR*	
CMD15	CAS*	
CMD16		CS*
CMD17	A3..BA3	
CMD18	A2..BA2	
CMD19	A4..BA4	
CMD20	AS..BA1	
CMD21	WE*	
CMD22	A7..A8	
CMD23	AG..A11	
CMD24	AB*	
CMD25	A12..RFU	
CMD26	AG..A10	
CMD27	A1..A9	
CMD28	RA*	
CMD29	RB*	
CMD30	CR*	
CMD31	CAS*	

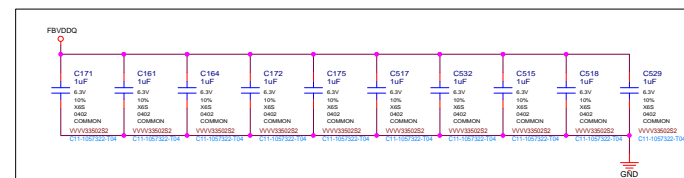


MEMORY: FBA Partition 63..32

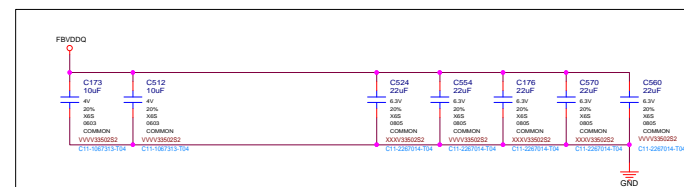
CMD	0..31	32..63
CMD0	CS*	
CMD1	A3..BA3	
CMD2	A2..BA2	
CMD3	A4..BA2	
CMD4	A5..BA1	
CMD5	WE*	
CMD6		
CMD7	AE..A11	
CMD8	AB*	
CMD9	A12..RFU	
CMD10	A0..A10	
CMD11	A1..A0	
CMD12	RA*	
CMD13	RS*	
CMD14	CK*	
CMD15	CA*	
CMD16		
CMD17		CS*
CMD18		A3..BA3
CMD19		A2..BA2
CMD20		A5..BA1
CMD21		WE*
CMD22		A7..AB
CMD23		AE..A11
CMD24		AB*
CMD25		A12..RFU
CMD26		A0..A10
CMD27		A1..A0
CMD28		RA*
CMD29		RS*
CMD30		CK*
CMD31		CA*



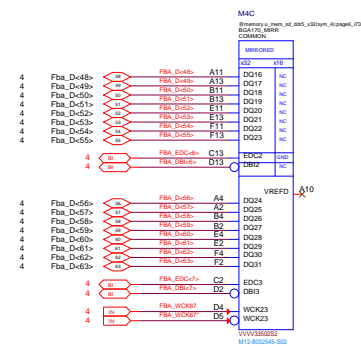
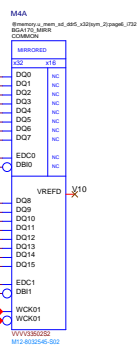
PLACE Directly Under DRAM



PLACE AT THE PACKAGE KEEPOUT/PERIMETER OF THE DRAM



PLACE Around DRAM

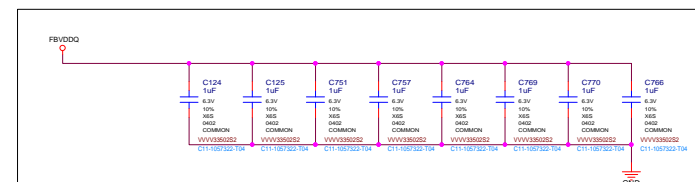
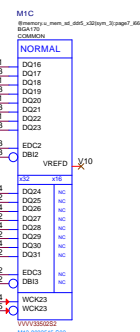
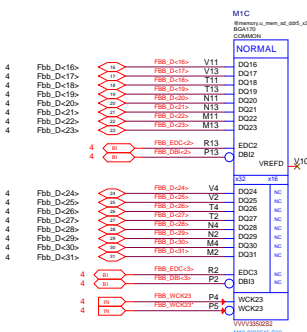
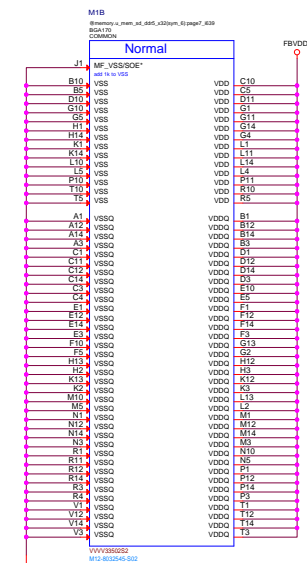
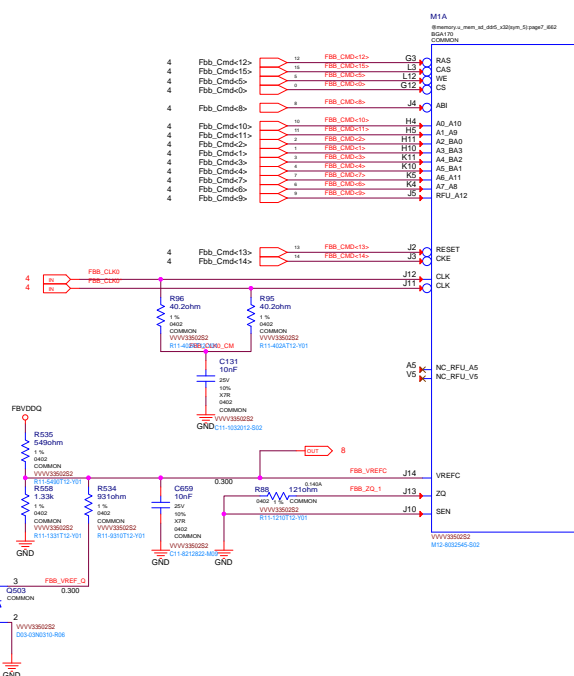


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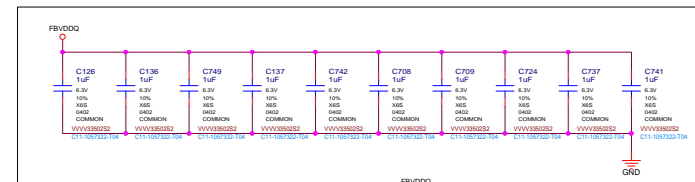
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MEMORY: FBB Partition 31..0

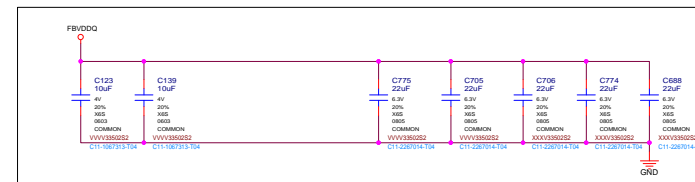
CMD	0..31	32..63
CMD0	CS*	
CMD1	A3..BA3	
CMD2	A2..BA0	
CMD3	A4..BA2	
CMD4	A5..BA1	
CMD5	WE*	
CMD6	AF..A8	
CMD7	AB..A11	
CMD8	AB*	
CMD9	A12..RFU	
CMD10	A0..A10	
CMD11	A1..A9	
CMD12	RA*	
CMD13	RS1*	
CMD14	CK*	
CMD15	CAS*	
CMD16		
CMD17		CS*
CMD18		A3..BA3
CMD19		A2..BA0
CMD20		A4..BA2
CMD21		A5..BA1
CMD22		WE*
CMD23		AF..A8
CMD24		AB..A11
CMD25		AB*
CMD26		A12..RFU
CMD27		A0..A10
CMD28		A1..A9
CMD29		RA*
CMD30		RS1*
CMD31		CK*
		CAS*



PLACE Directly Under DRAM



PLACE AT THE PACKAGE KEEPOUT/PERIMETER OF THE DRAM



PLACE Around DRAM

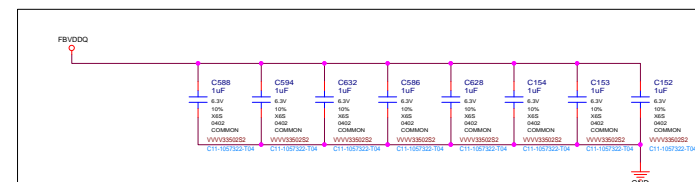
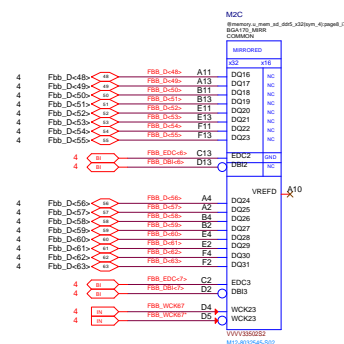
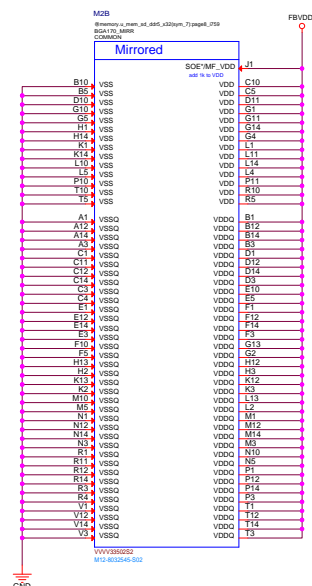
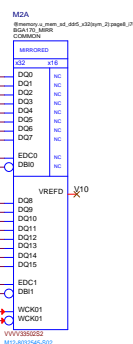
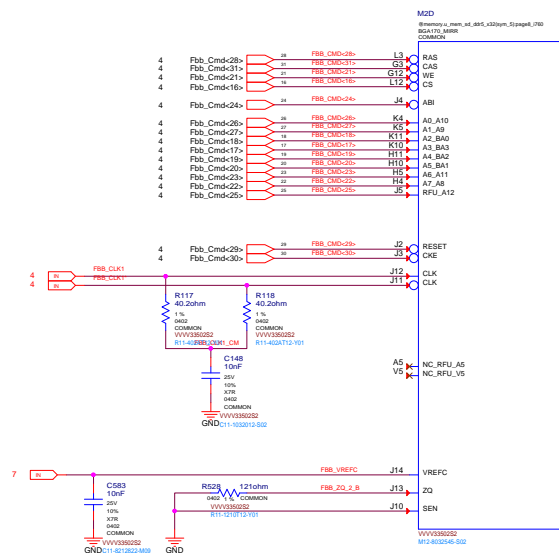


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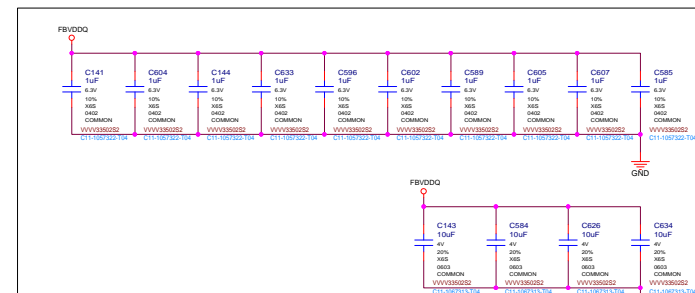
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MEMORY: FBB Partition 63..32

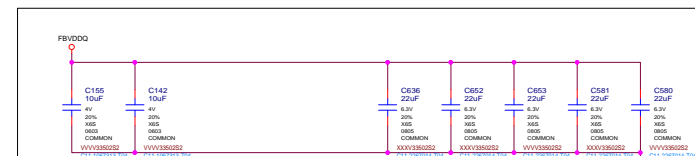
CMD	0..31	32..63
CMD0	CS*	
CMD1	A3..BA3	
CMD2	A2..BA2	
CMD3	A1..BA2	
CMD4	A5..BA1	
CMD5	WE*	
CMD6	A7..A8	
CMD7	AB, A11	
CMD8	AB*	
CMD9	A12..RFU	
CMD10	A2..A10	
CMD11	A1..A9	
CMD12	RA5*	
CMD13	RTT*	
CMD14	CKE*	
CMD15	CAS*	
CMD16		CS*
CMD17		A3..BA3
CMD18		A2..BA2
CMD19		A4..BA2
CMD20		A5..BA1
CMD21		WE*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



PLACE Directly Under DRAM



PLACE AT THE PACKAGE KEEPOUT/PERIMETER OF THE DRAM



PLACE Around DRAM

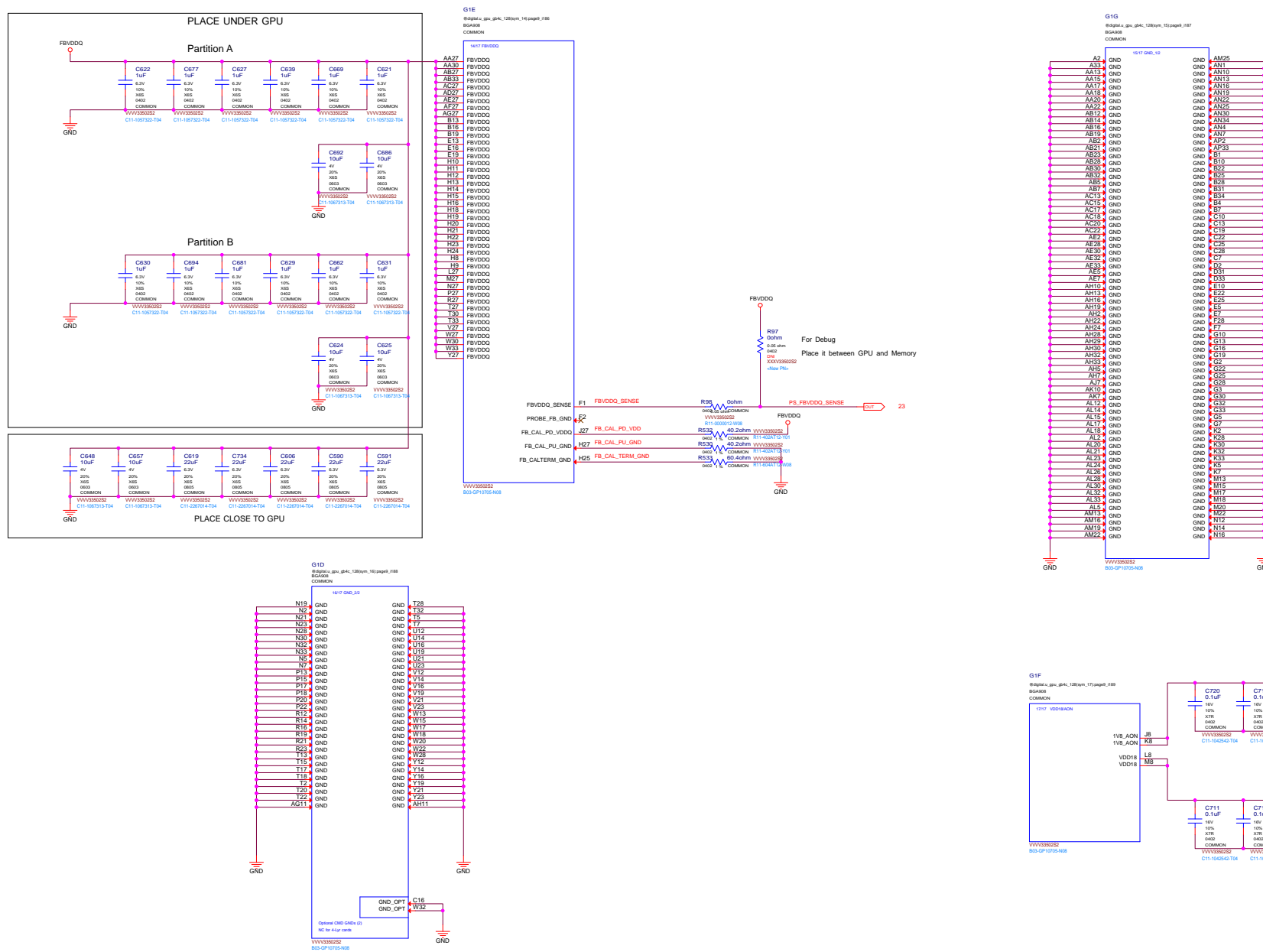


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**MS-V335**

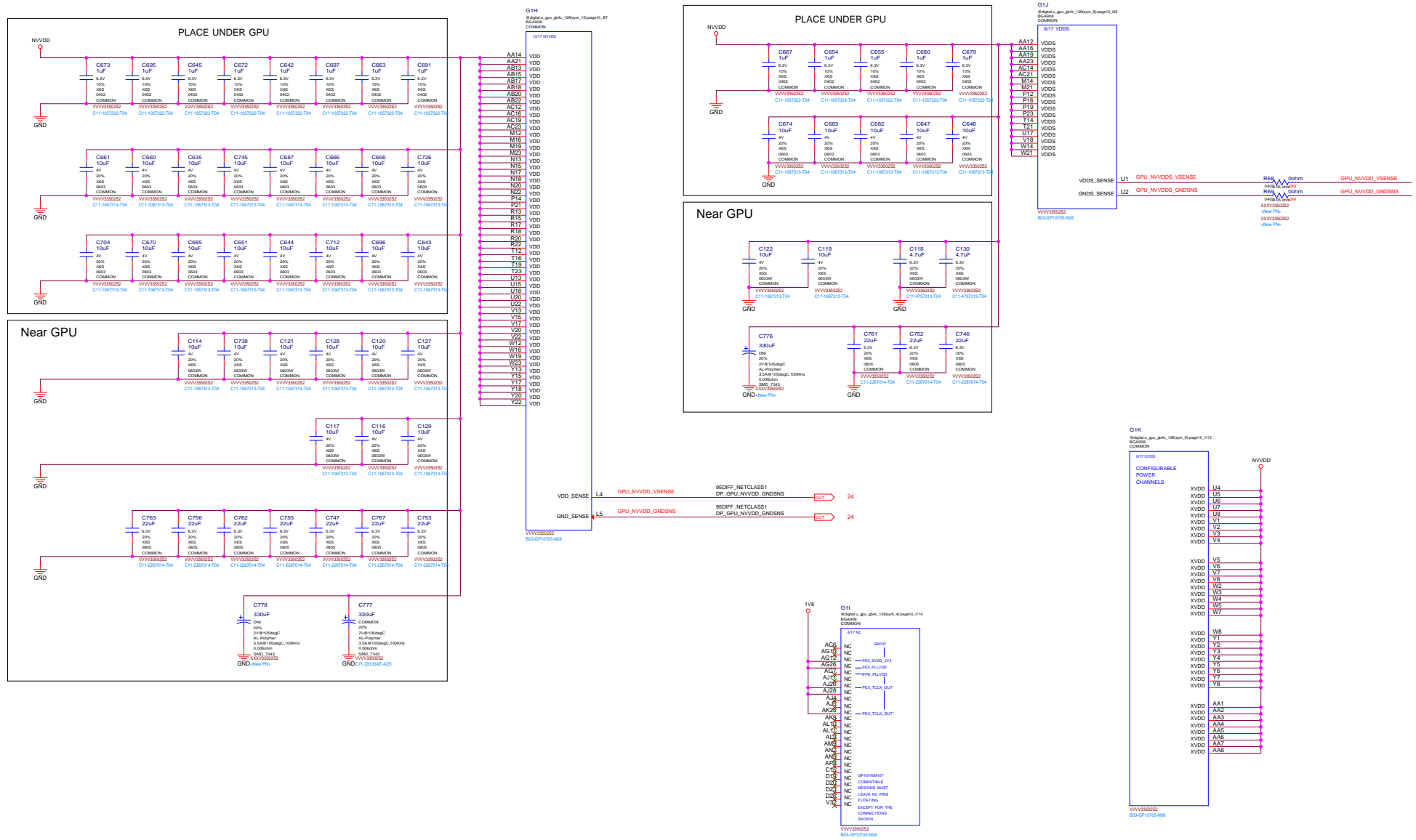
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## GPU FBVDDQ & 1V8 Decoupling



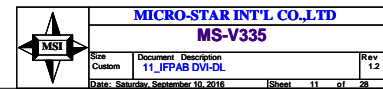
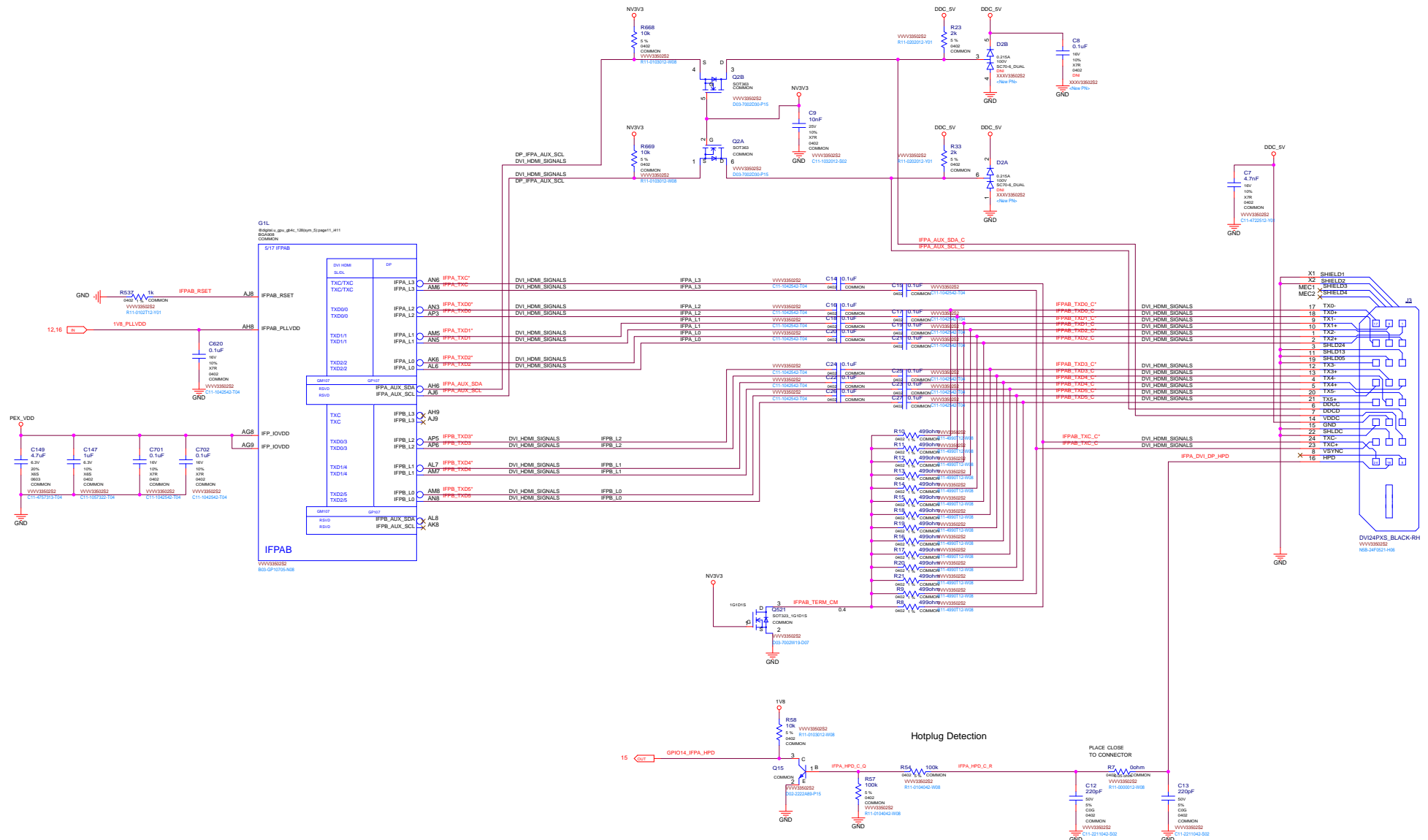
## GPU NVVDD & NVVDDS Decoupling



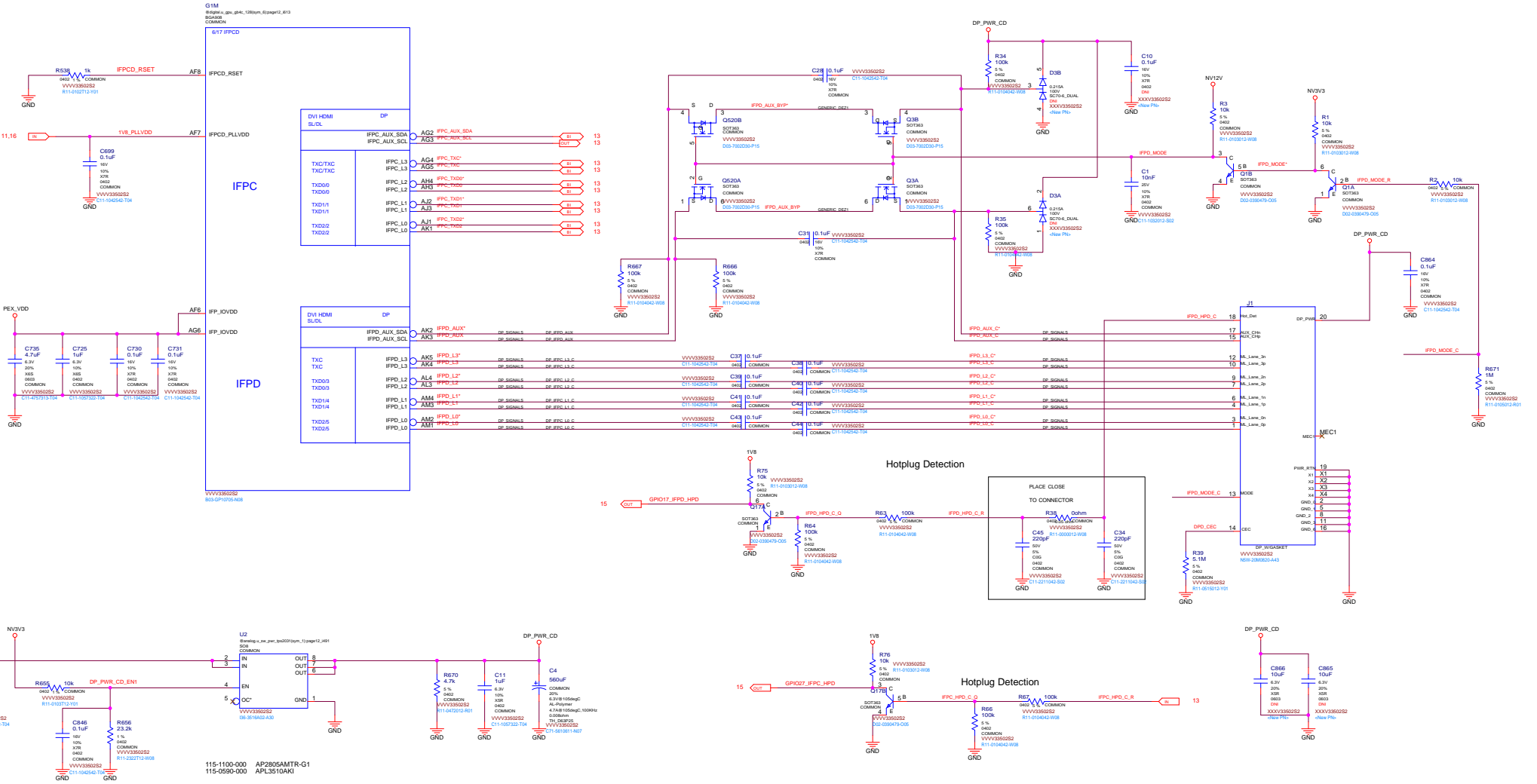
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**MS-V335**

Size Custom	Document Description <b>10_GPU NVDD &amp; NVDDS Decoupling</b>	Rev 1.2
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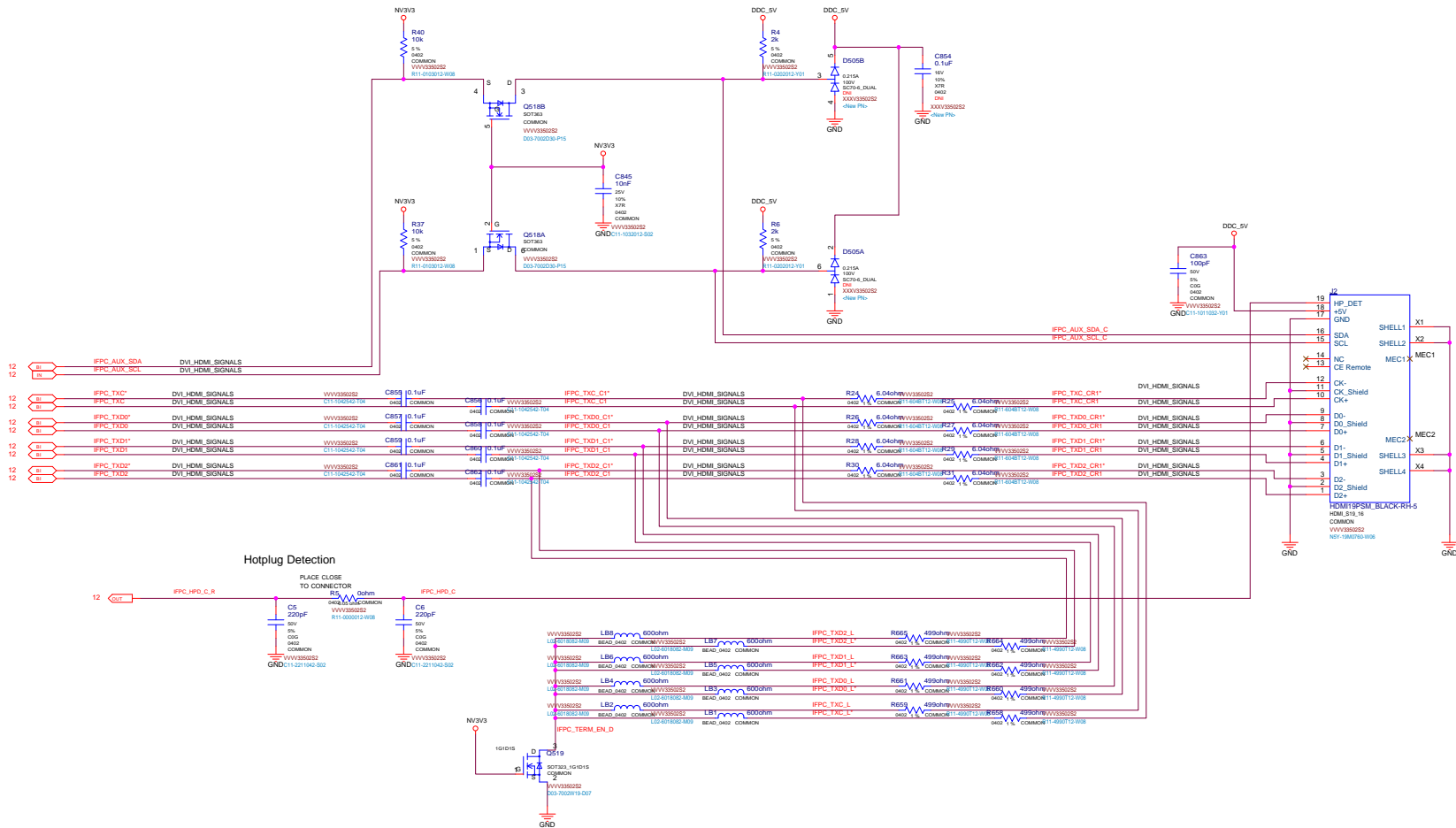
## IFPAB DVI-DL



IFPD DP



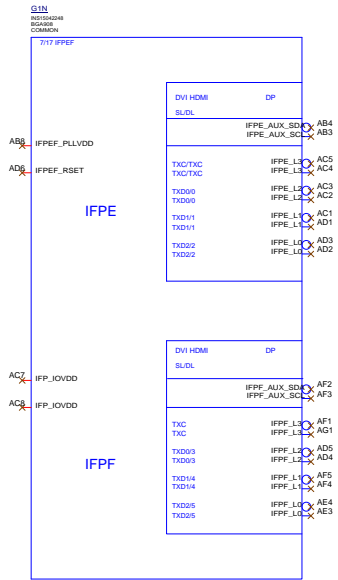
## IFPC HDMI



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**MS-V335**

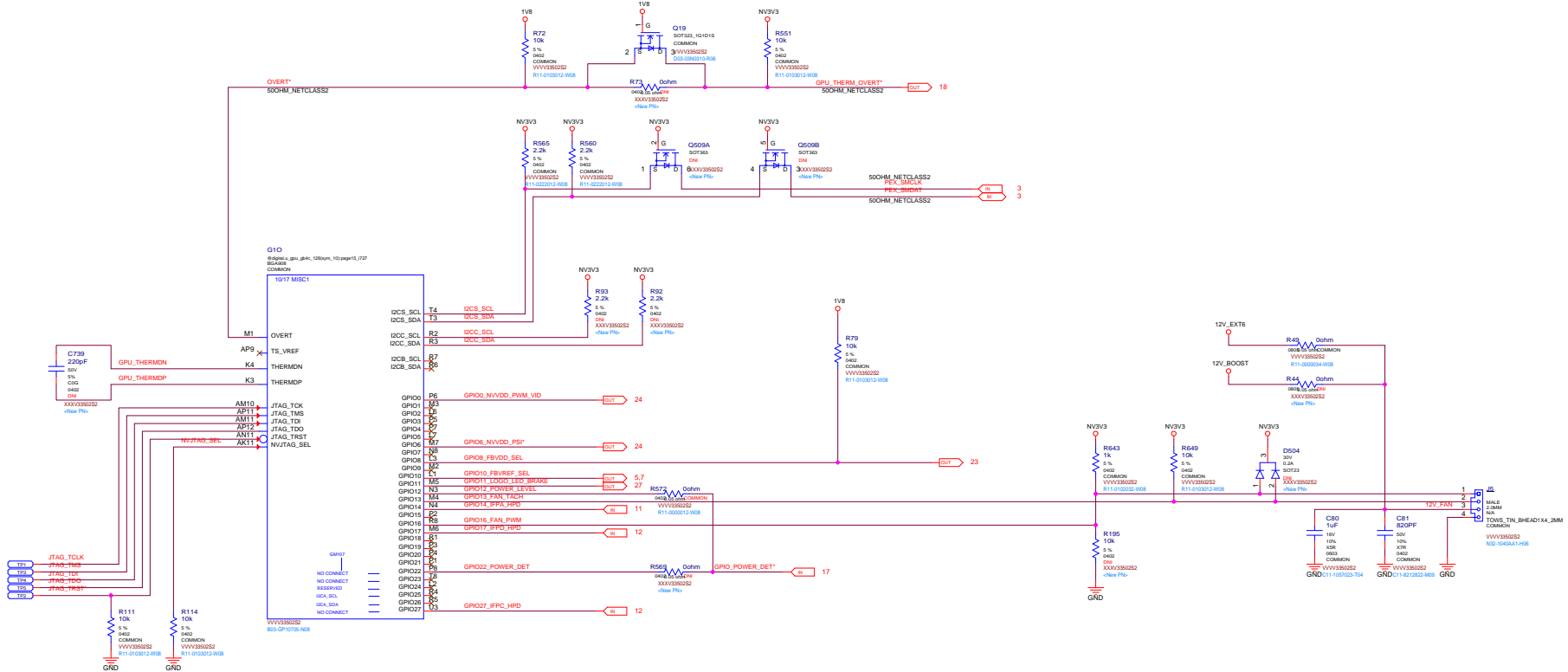
Size Custom	Document Description <b>13_IFPC HDMI</b>	Rev 1.2
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IFPEF UNUSED



# MISC1: GPIO, Fan, Thermal, JTAG

PADS FOR DEBUGGING

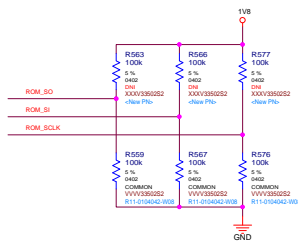


## MISC2: ROM, XTAL, Straps

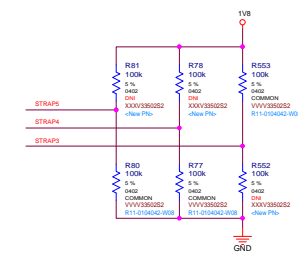
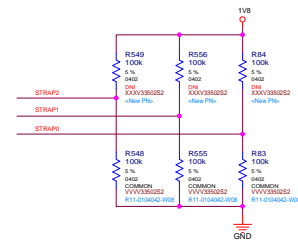
ROM_SO	ROM_SI	ROM_SCLK	SOR_EXPOSED[3:0]	1:ENABLE 0:DISABLE
L	L	L	1111	Default
L	L	H	1110	
L	H	L	1101	
L	H	H	1100	
H	L	L	1011	
H	L	H	1010	
H	H	L	1001	
H	H	H	1000	
L	L	M	0111	
L	M	L	0110	
L	M	H	0101	
L	H	M	0100	
H	L	M	0011	
H	M	L	0010	
H	M	H	0001	
H	H	M	0000	

STRAP2	STRAP1	STRAP0	RAMCFG[4:0]	
L	L	L	0000	Samsung B-Die 8Gb 256Mx32
L	L	H	0001	Micron F-Die 8Gb 256Mx32
L	H	L	0010	Hynix M-Die 8Gb 256Mx32
L	H	H	0011	
H	H	L	0110	Hynix A-Die 4Gb 128Mx32
H	H	H	0111	Samsung E-Die 4Gb 128Mx32
L	L	M	1000	Micron B-Die 4Gb 128Mx32
L	M	L	1001	

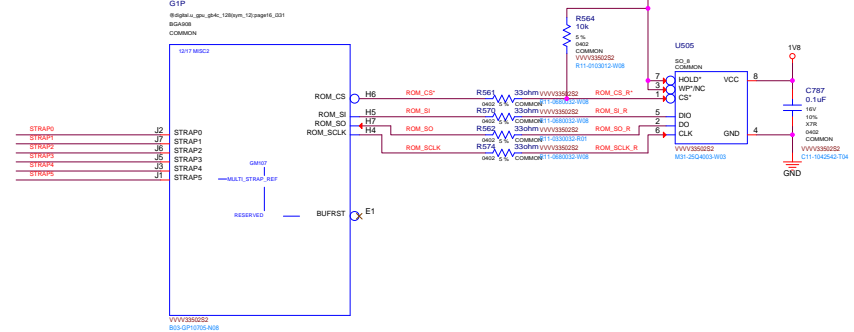
STRAP5	STRAP4	STRAP3	SMB_ALT_ADDR	DEVID_SEL	PCIE_CFG	VGA_DEVICE
M	H	H	1	1	1	1
M	H	L	1	1	1	0
M	L	H	1	1	0	1
M	L	L	1	1	0	0
L	H	M	1	0	1	1
L	M	H	1	0	1	0
L	M	L	1	0	0	1
L	L	M	1	0	0	0
H	H	H	0	1	1	1
H	H	L	0	1	1	0
H	L	H	0	1	0	1
H	L	L	0	1	0	0
L	H	H	0	0	1	1
L	H	L	0	0	1	0
L	L	H	0	0	0	1 DEFAULT
L	L	L	0	0	0	0



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

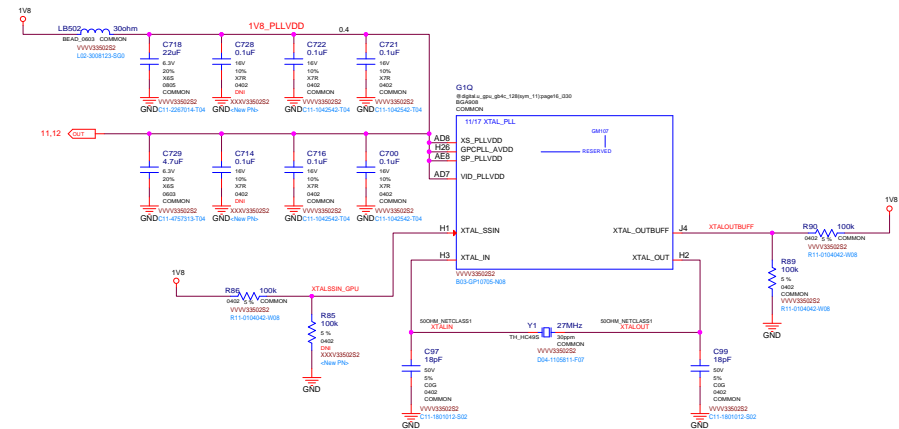


1:SMB\_ALT\_ADDR ENABLE  
0:SMB\_ALT\_ADDR DISABLE  
1:DEVID\_SEL REBRAND  
0:DEVID\_SEL SIGNAL  
1:PCIE\_CFG LOW POWER  
0:PCIE\_CFG HIGH POWER  
1:VGA\_DEVICE ENABLE  
0:VGA\_DEVICE DISABLE



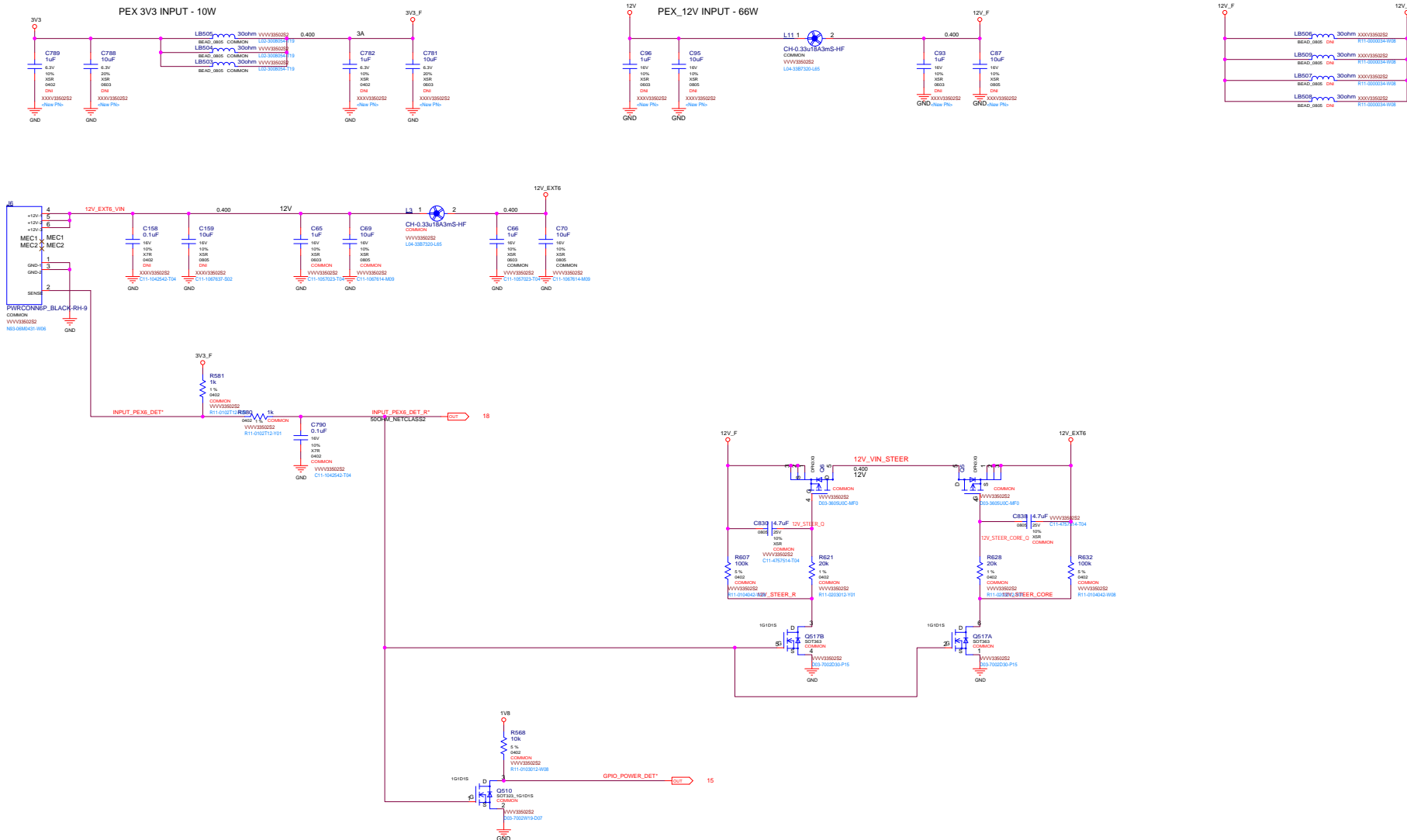
## Smart Fan

XTALOUTBUFF	Volatge	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

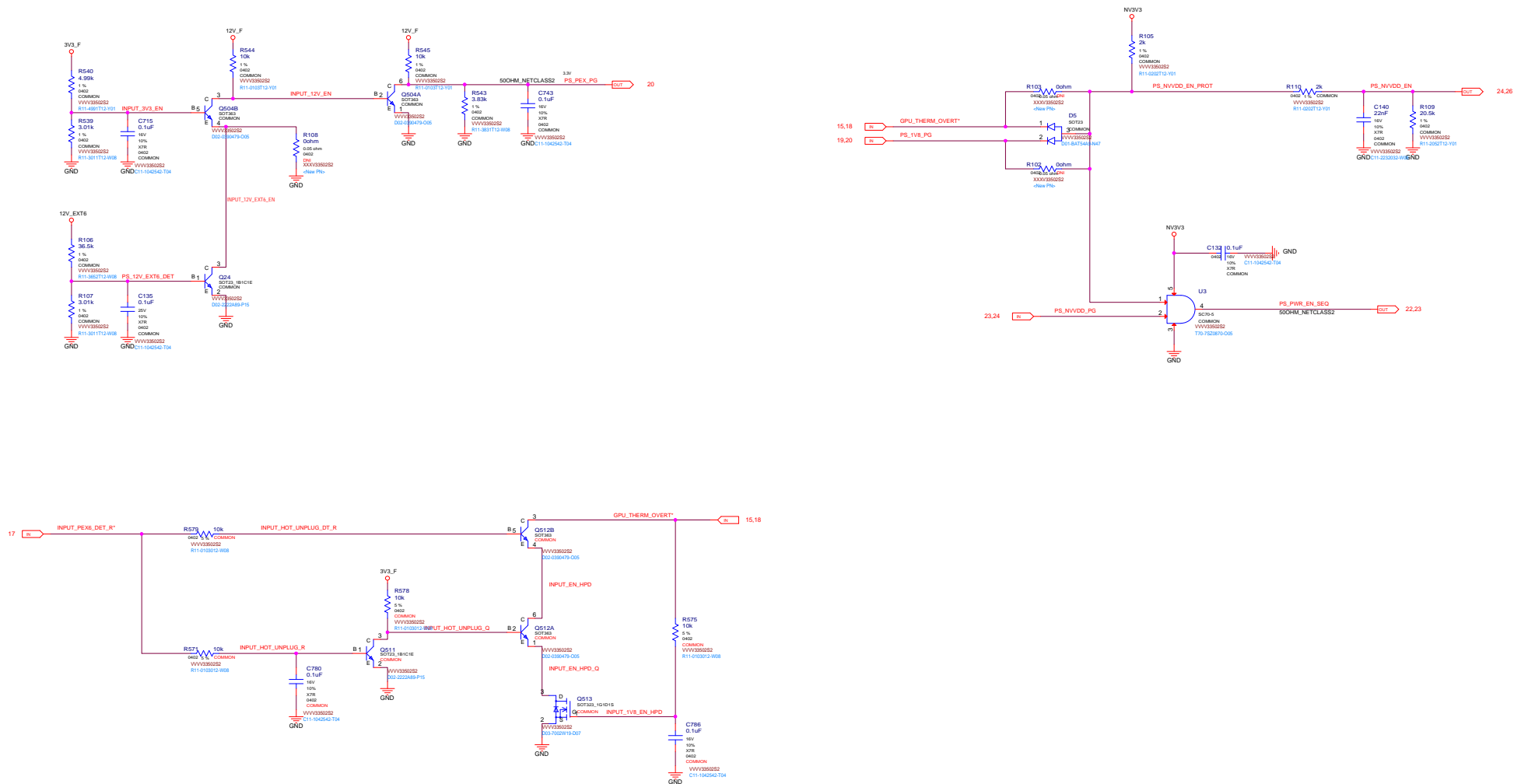




# Power Inputs and Filtering



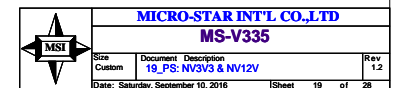
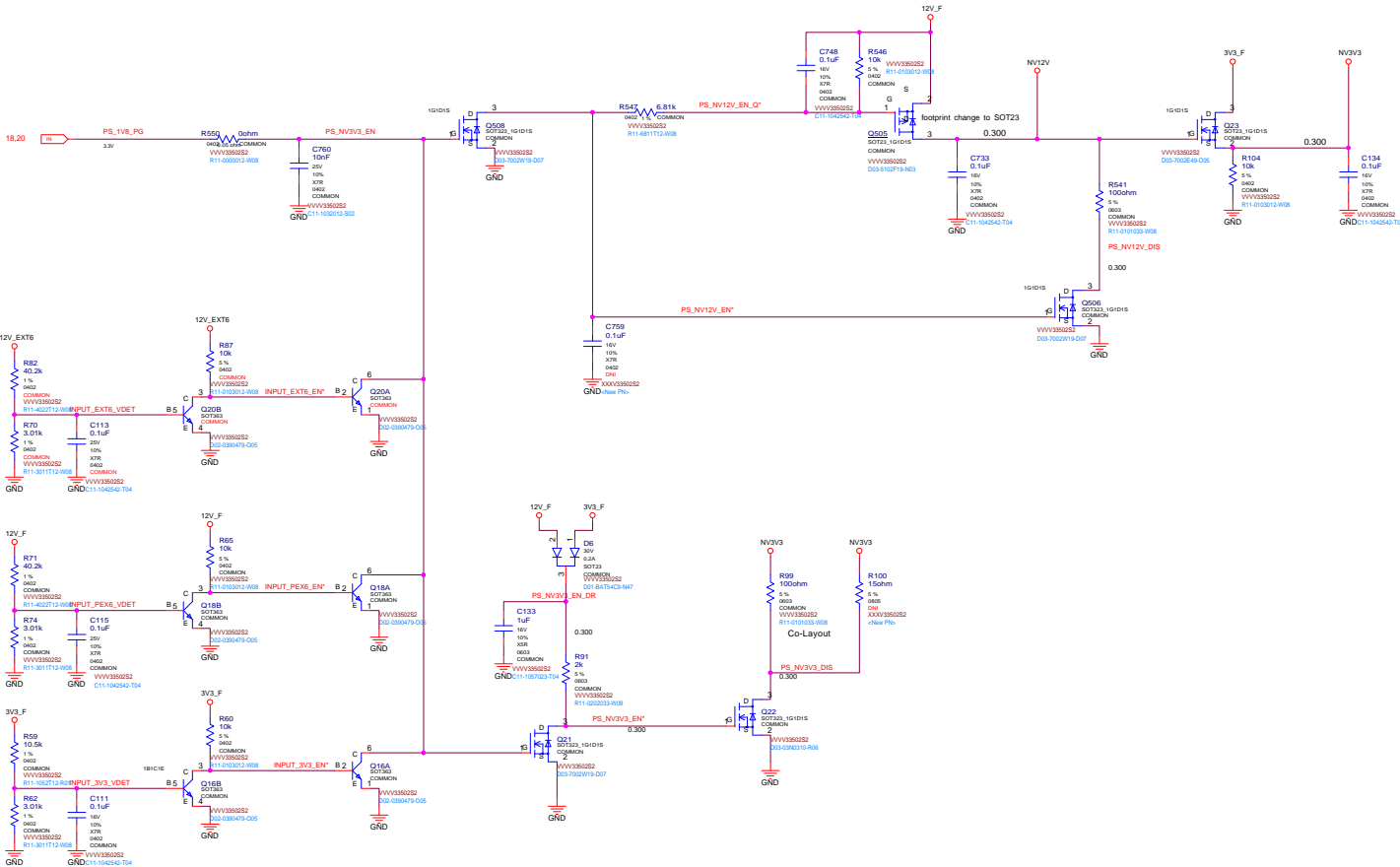
## Power sequence



**MICRO-STAR INT'L CO.,LTD**  
**MS-V335**

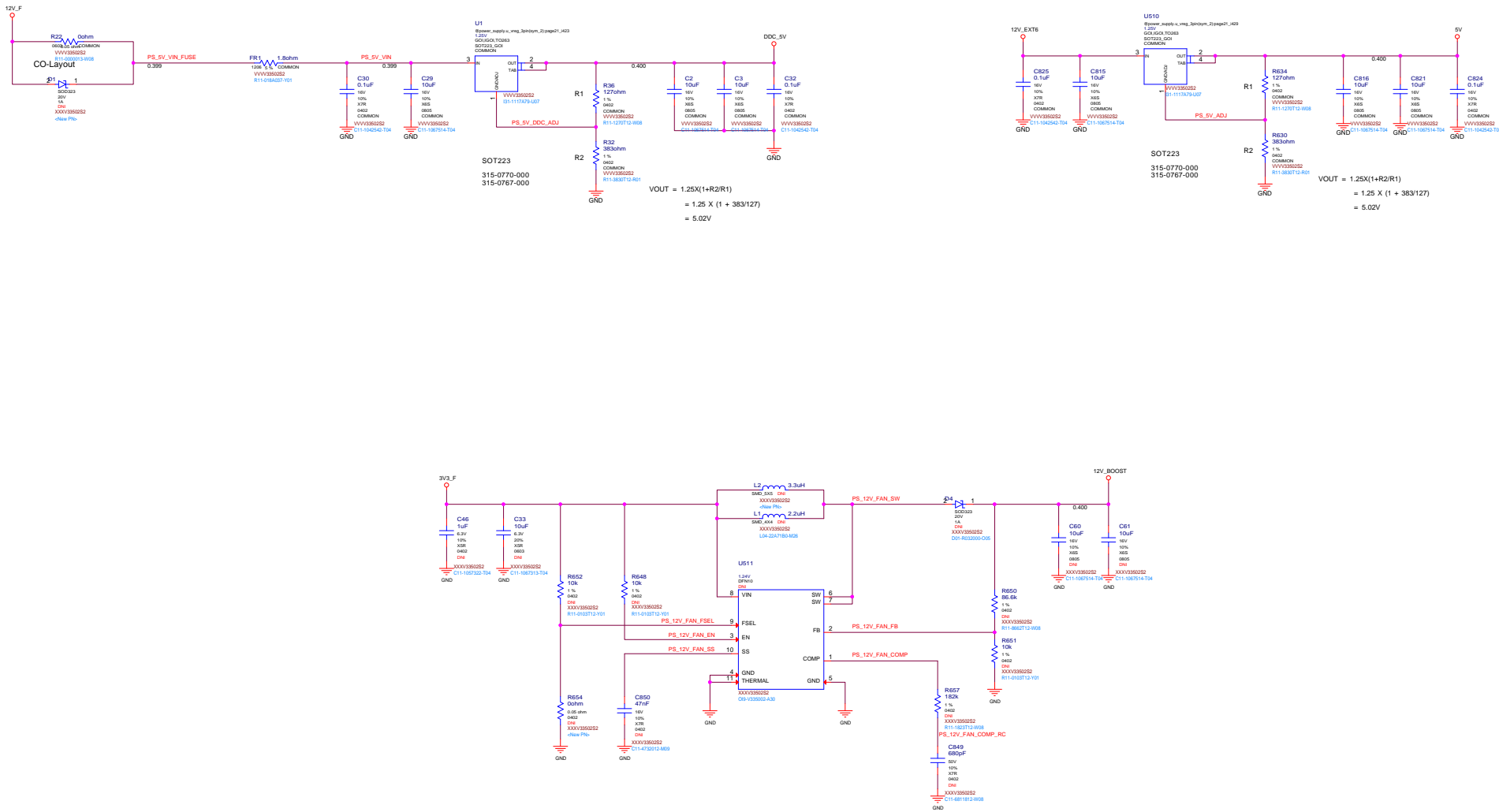
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PS: NV3V3 & NV12V

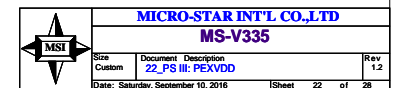
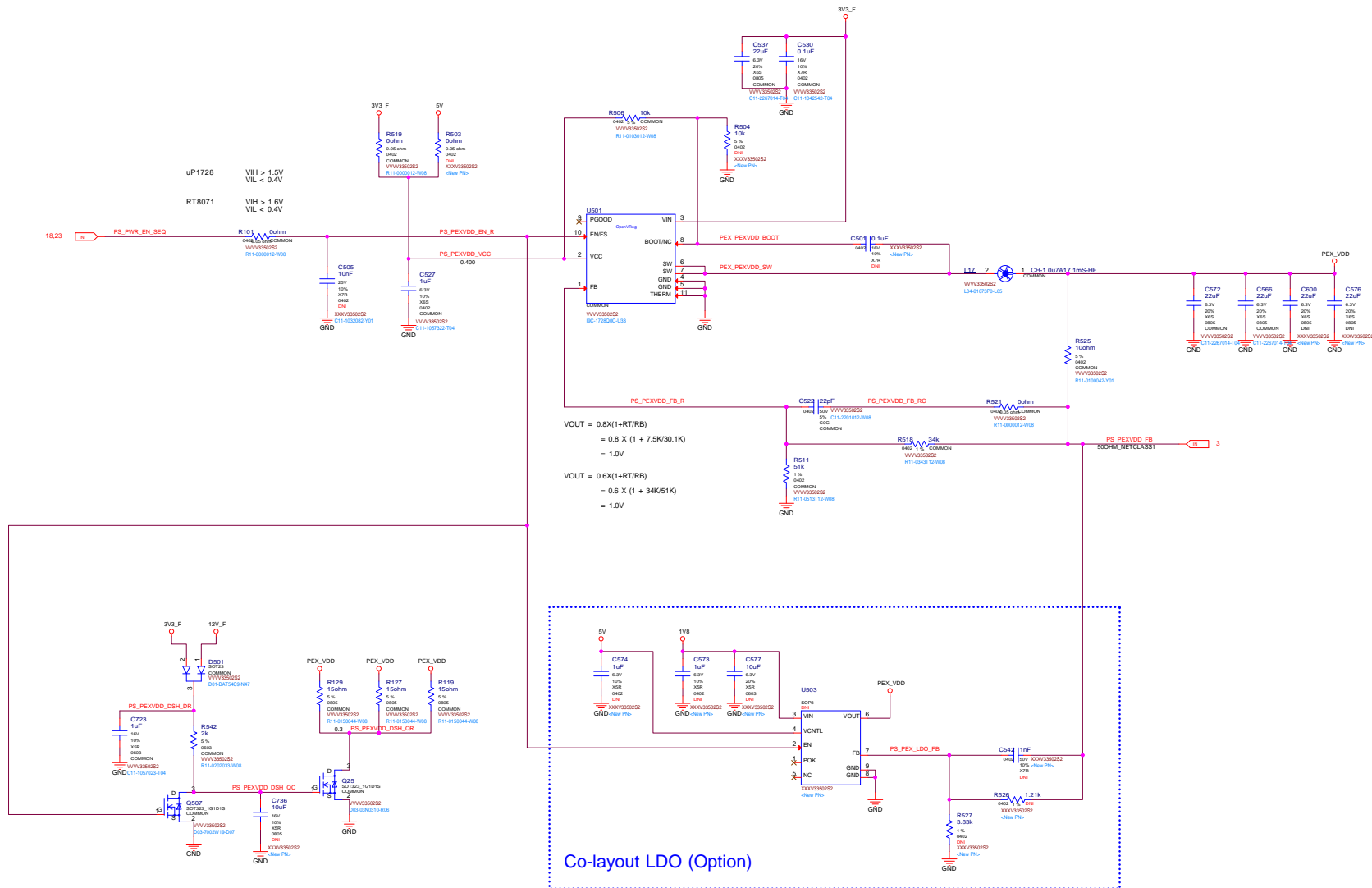




PSII:5V & 12V\_FAN



## PS III: PEXVDD



## PS IV: FBVDDQ

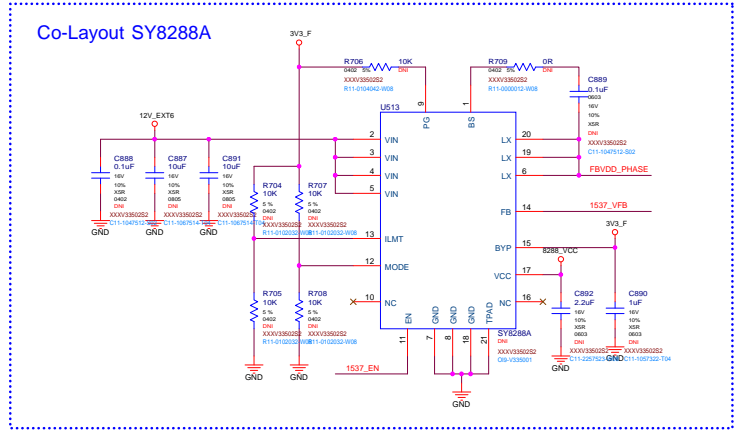
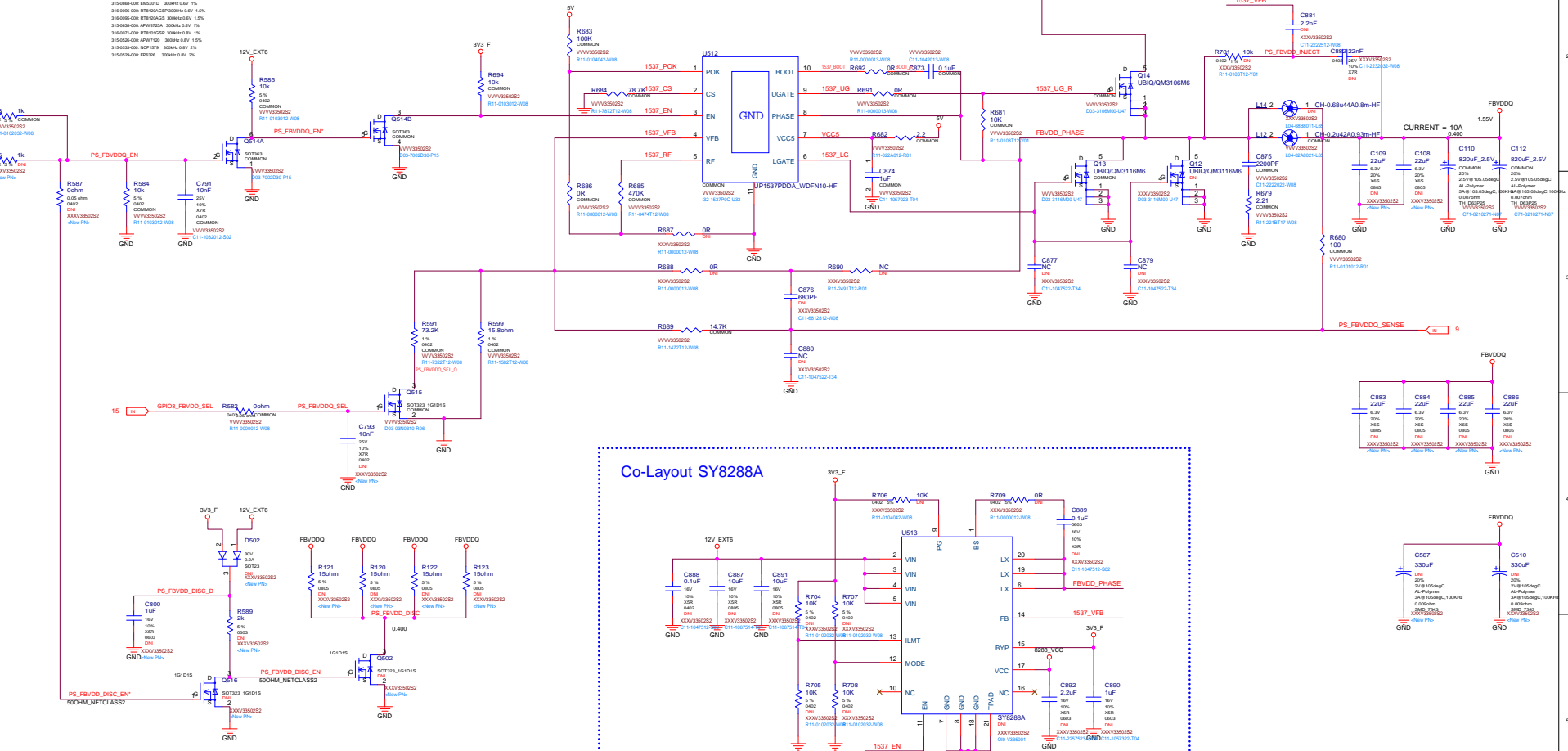
FBVDDQ_CTL	FBVDDQ	Non-DVS
X	1.5V	<= DEFAULT

FBVDDQ_CTL	FBVDDQ	For DVS
0	1.35V	
1	1.5V/1.55V	<= DEFAULT

	Unit = Vol% (140000)
Vol% dEV	$1.050 \times 10^{-07} \times (x+10000)$ $1.050 \times 10^{-07} \times (x+10000)$
Vol% dEV	$1.050 \times 10^{-07} \times (x+1001.139)$ $1.050 \times 10^{-07} \times (x+1001.070)$
	Unit = Vol% (140000)
Vol% dEV	$1.050 \times 10^{-07} \times (x+10703.422)$ $1.050 \times 10^{-07} \times (x+10703.339)$
Vol% dEV	$1.050 \times 10^{-07} \times (x+10703)$ $1.050 \times 10^{-07} \times (x+10703)$
Vol% dEV	$1.050 \times 10^{-07} \times (x+1015.420+5.498)$ $1.050 \times 10^{-07} \times (x+1015.420+5.398)$ $1.050 \times 10^{-07} \times (x+1015.430)$
Vol% dEV	$1.050 \times 10^{-07} \times (x+14.7603130+15.88)$ $1.050 \times 10^{-07} \times (x+14.7603130+15.88)$ $1.050 \times 10^{-07} \times (x+14.7615.88)$

PS	Freq	Vref	Tot
315-0025-000 APW8722	3000Hz 0.0V	1%	
315-0088-000 EM3301D	3000Hz 0.0V	1%	
316-0096-000 RTE120AGSP	3000Hz 0.0V	1.5%	
316-0095-000 RTE120AGS	3000Hz 0.0V	1.5%	
315-0038-000 APW8725A	3000Hz 0.0V	1%	
316-0071-000 RTE101GSP	3000Hz 0.0V	1%	
315-0028-000 APW87130	3000Hz 0.0V	1.5%	
315-0033-000 NCP1279	3000Hz 0.0V	2%	
315-0029-000 FPG326	3000Hz 0.0V	2%	

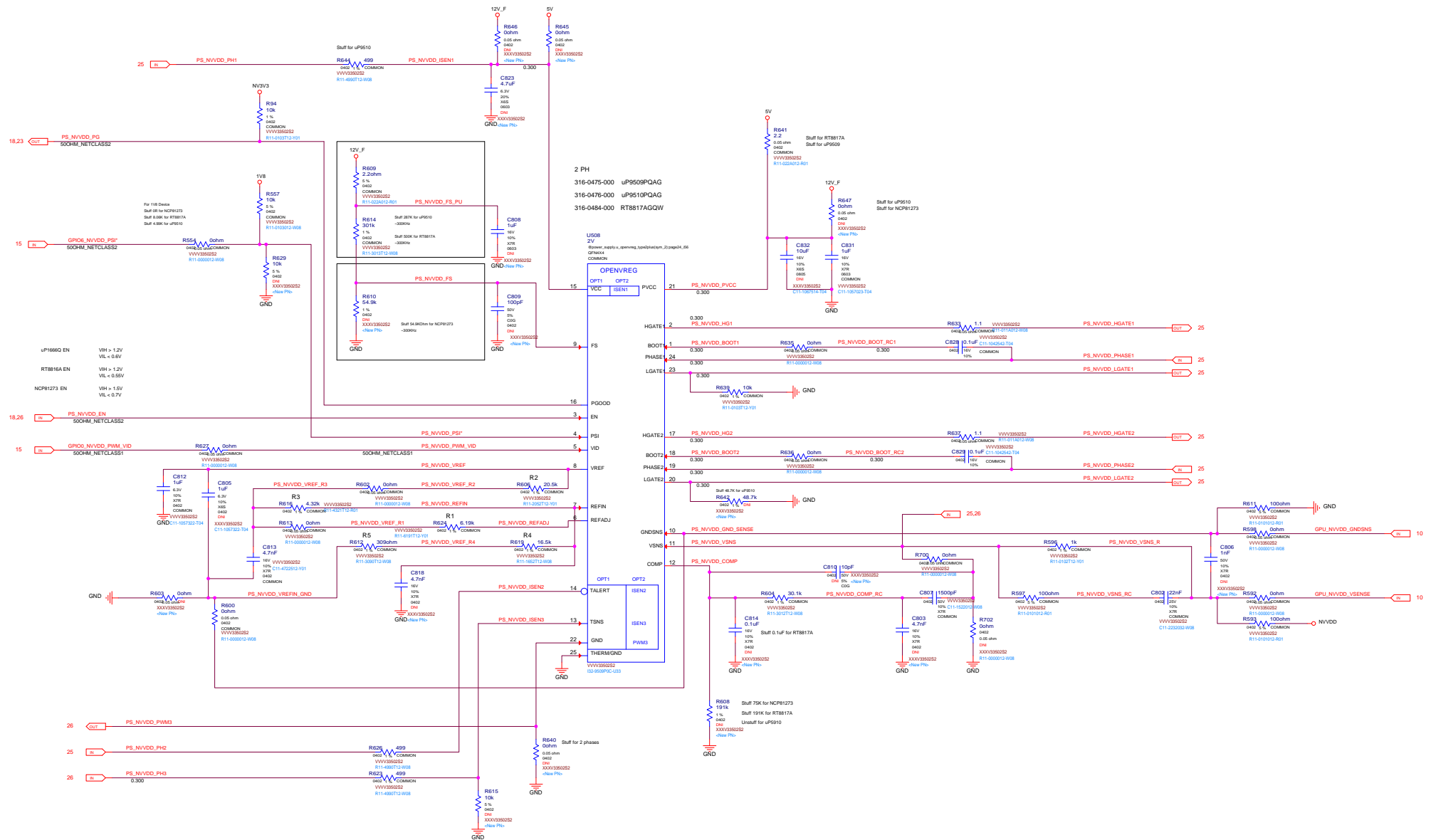
12V\_EXT6



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**MS-V335**

Size Custom	Document Description <b>23_PS IV: FBVDDQ</b>	Rev 1.2
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## PS V: NVVDD OVR2+1

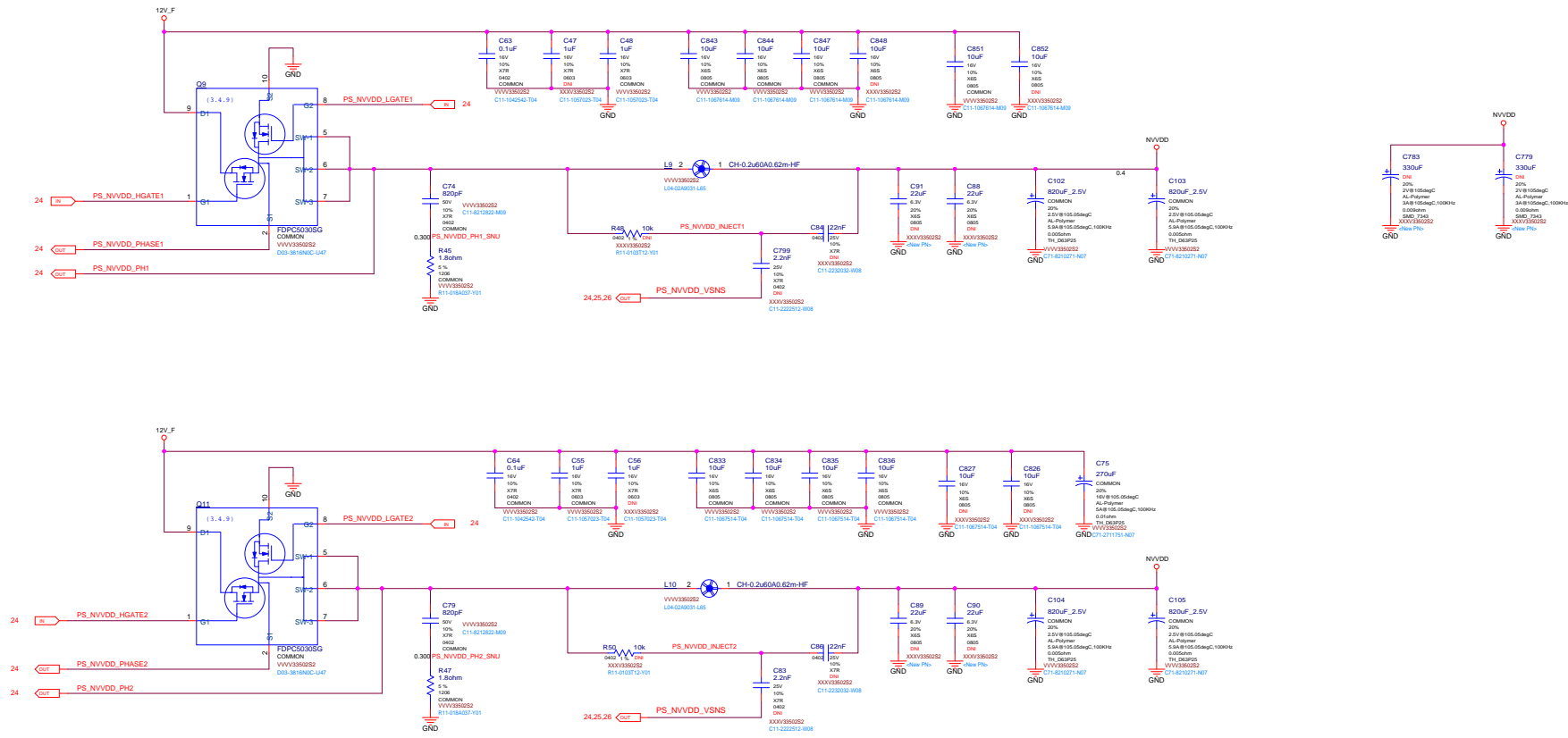


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**MS-V335**

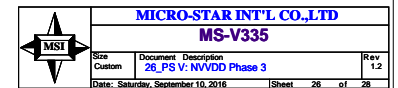
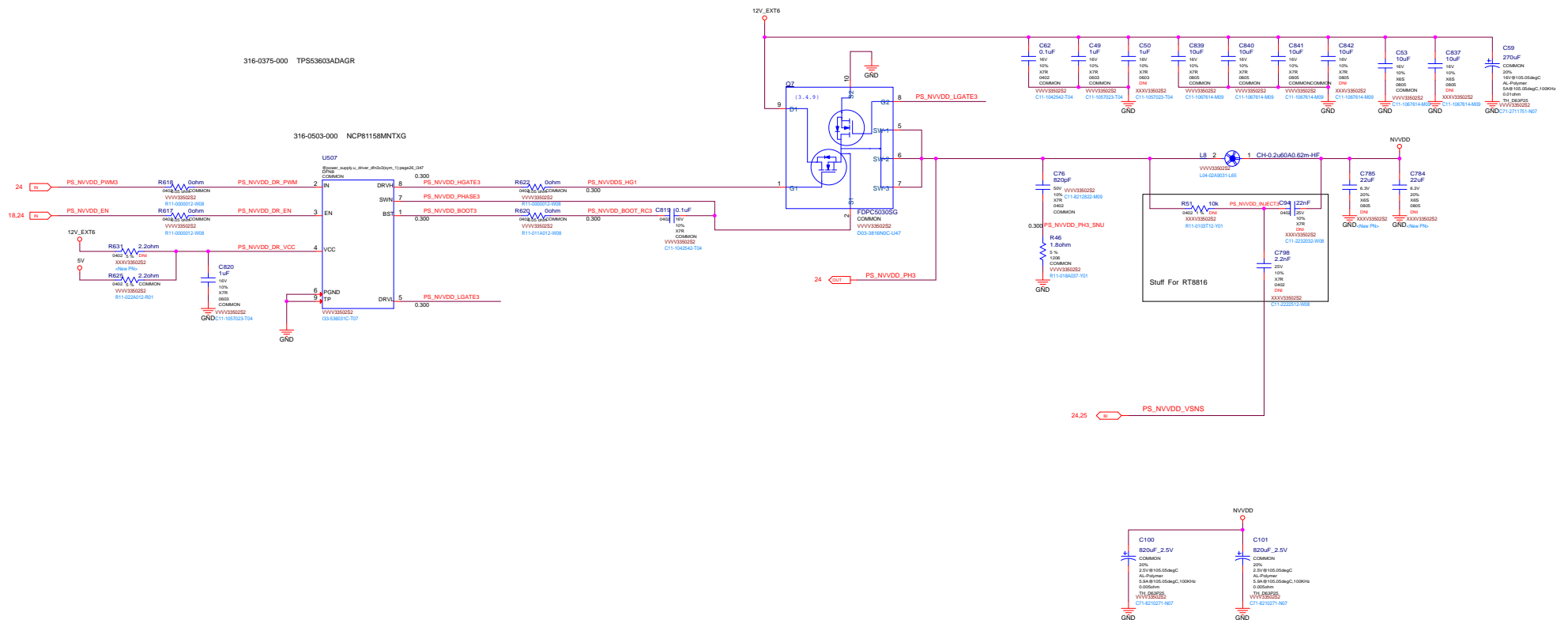
Size Custom	Document Description <b>24_PS V: NVDD OVR2+1</b>	Rev 1.2
Date: Saturday, September 10, 2016		Sheet 24 of 28



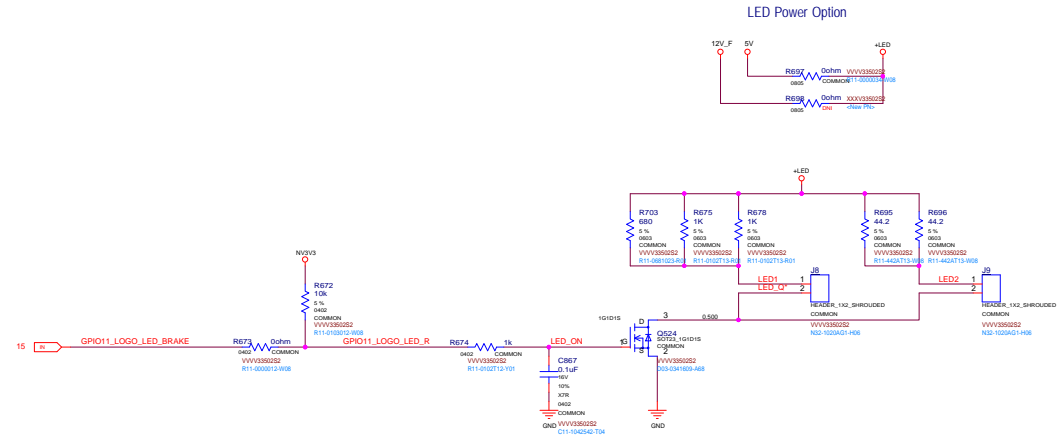
PS V: NVVDD Phase 1,2



## PS V: NVVDD Phase 3



# Logo LED



Mechanical: Bracket/Thermal Solution

Brackets:

