PG210 B00

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

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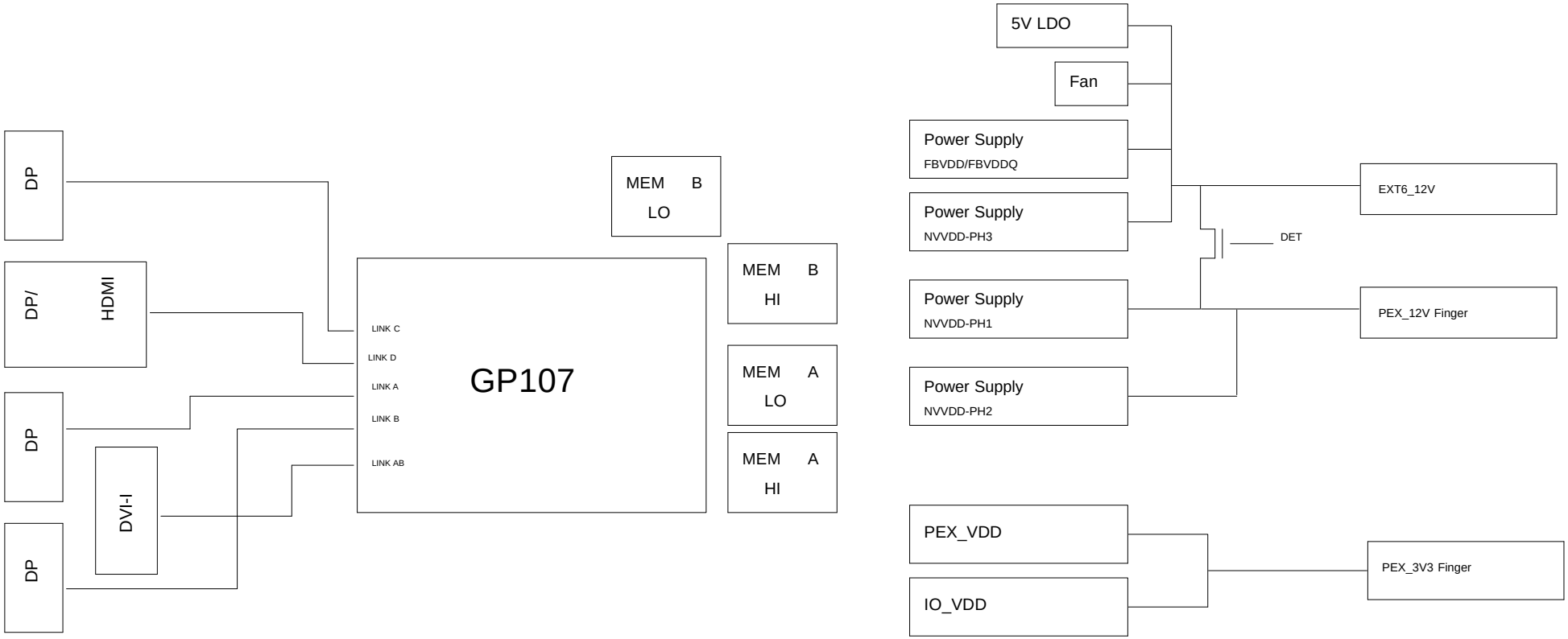
Block Diagram



MSI	MICRO-STAR INT'L CO.,LTD	
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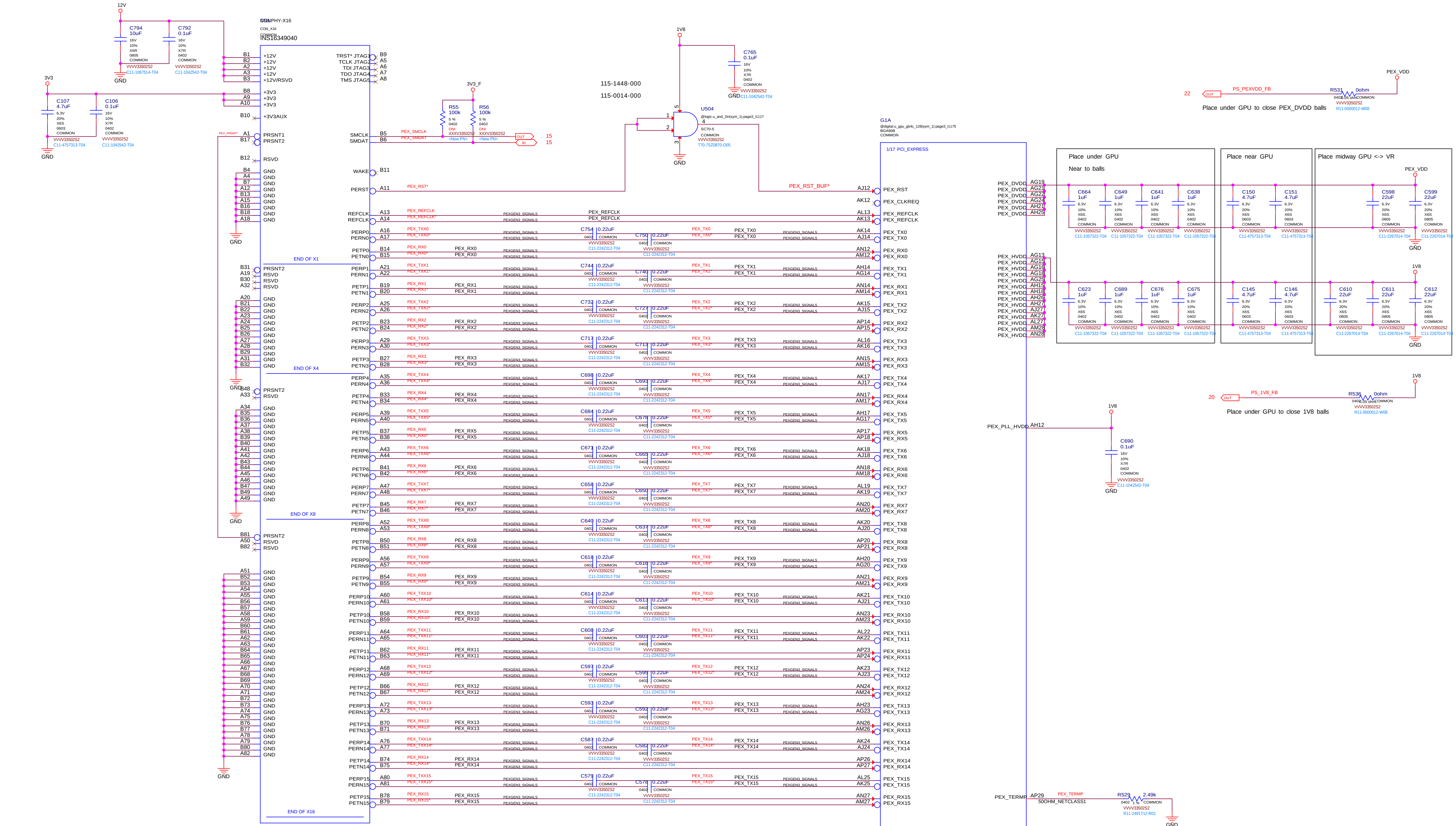
PCI Express



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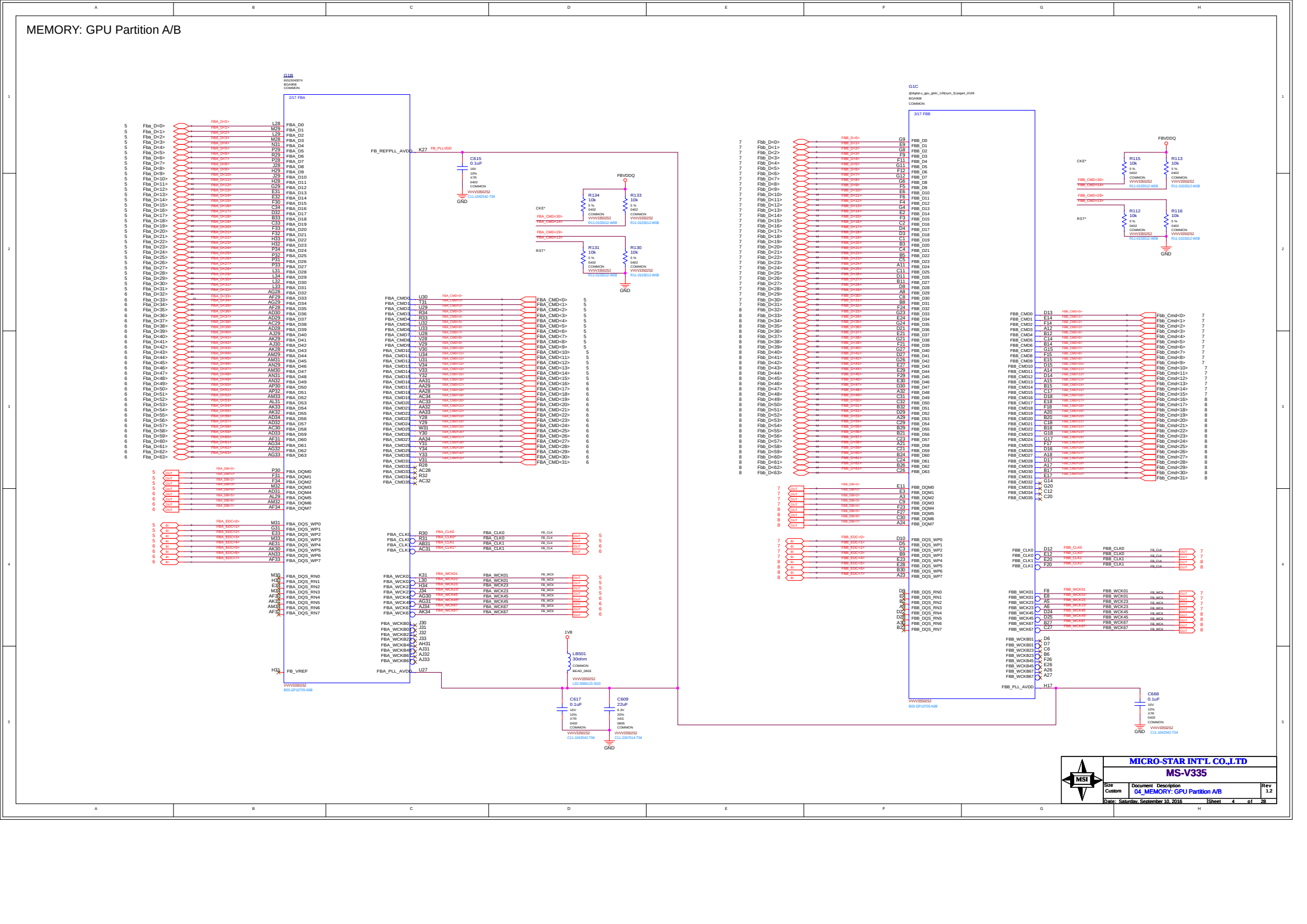
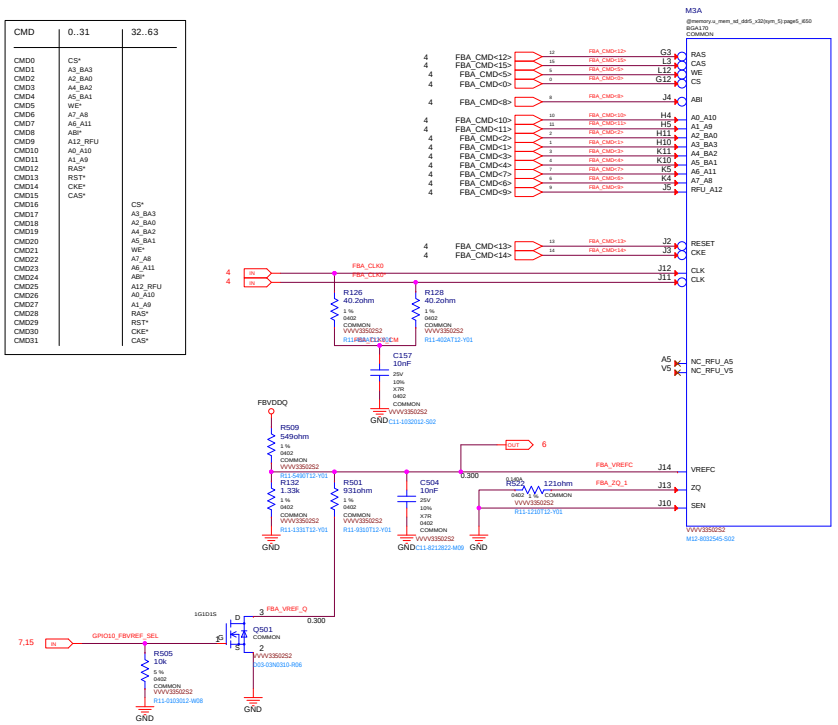
MEMORY: GPU Partition A/B

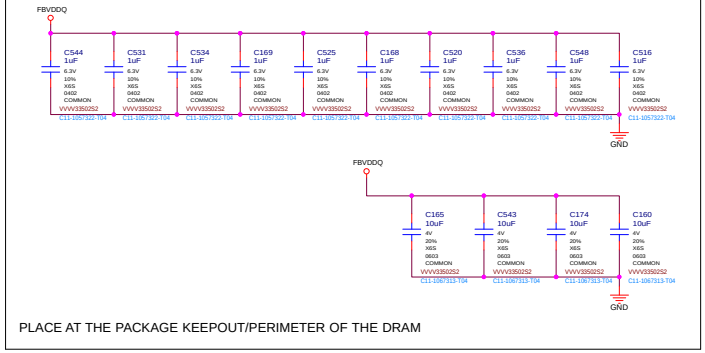


MEMORY: FBA Partition 31..0

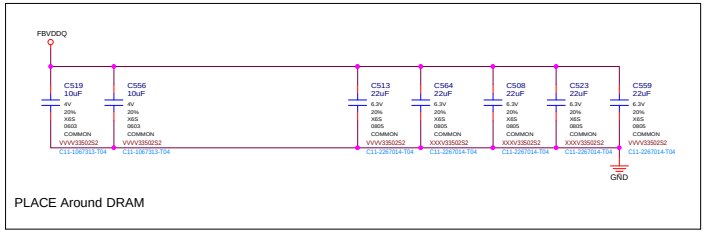
CMD	0..31	32..63
CMD0	CS*	
CMD1	A3_BA3	
CMD2	A2_BA0	
CMD3	A4_BA2	
CMD4	A5_BA1	
CMD5	WE*	
CMD6	A7_A8	
CMD7	A6_A11	
CMD8	AB*	
CMD9	A12_RFU	
CMD10	A0_A10	
CMD11	A1_A9	
CMD12	RAS*	
CMD13	RST*	
CMD14	CKE*	
CMD15	CAS*	
CMD16		CS*
CMD17		A3_BA3
CMD18		A2_BA0
CMD19		A4_BA2
CMD20		A5_BA1
CMD21		WE*
CMD22		A7_A8
CMD23		A6_A11
CMD24		AB*
CMD25		A12_RFU
CMD26		A0_A10
CMD27		A1_A9
CMD28		RAS*
CMD29		RST*
CMD30		CKE*
CMD31		CAS*



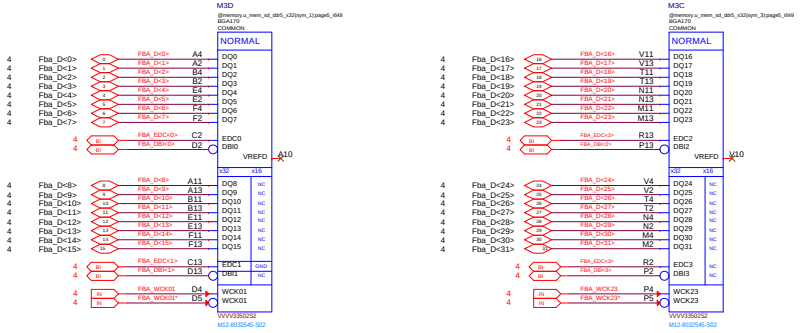
PLACE Directly Under DRAM



PLACE AT THE PACKAGE KEEPOUT/PERIMETER OF THE DRAM



PLACE Around DRAM



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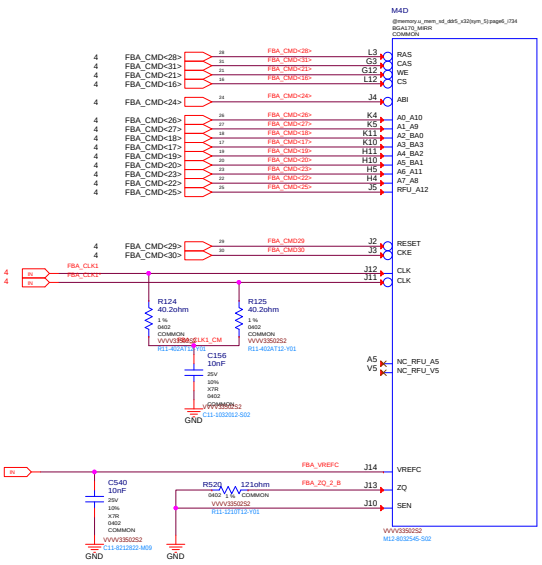
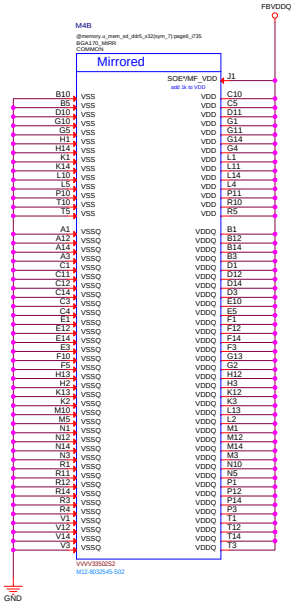
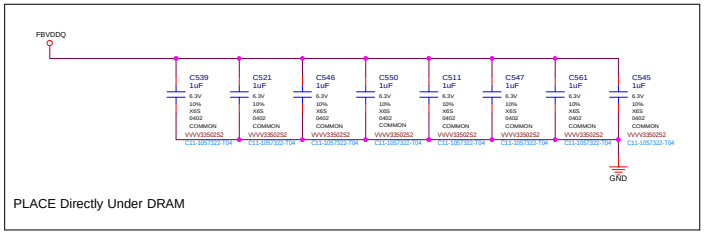
MEMORY: FBA Partition 63..32

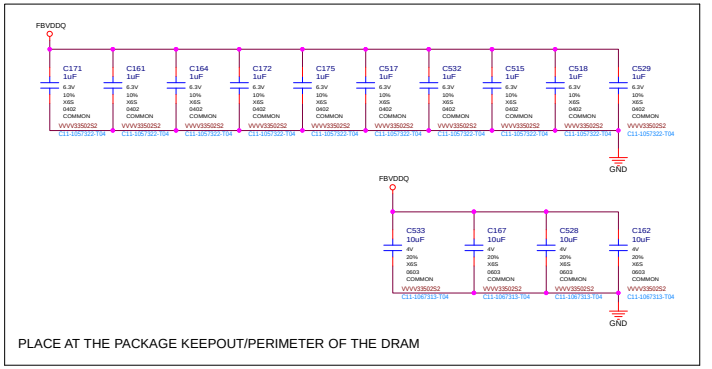
CMD	0..31	32..63
CMD0	CS*	
CMD1	A3_BA3	
CMD2	A2_BA0	
CMD3	A4_BA2	
CMD4	A5_BA1	
CMD5	WE*	
CMD6	A7_A8	
CMD7	A6_A11	
CMD8	ABI*	
CMD9	A12_RFU	
CMD10	A0_A10	
CMD11	A1_A9	
CMD12	RAS*	
CMD13	RST*	
CMD14	CKE*	
CMD15	CAS*	
CMD16		CS*
CMD17		A3_BA3
CMD18		A2_BA0
CMD19		A4_BA2
CMD20		A5_BA1
CMD21		WE*
CMD22		A7_A8
CMD23		A6_A11
CMD24		ABI*
CMD25		A12_RFU
CMD26		A0_A10
CMD27		A1_A9
CMD28		RAS*
CMD29		RST*
CMD30		CKE*
CMD31		CAS*



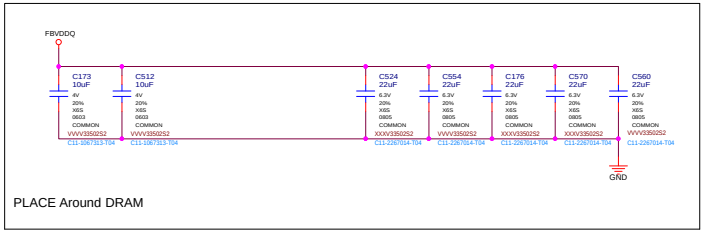




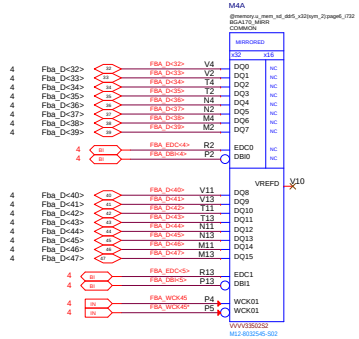
PLACE Directly Under DRAM

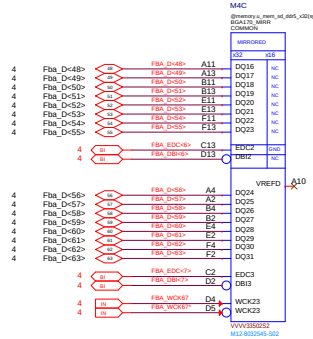


PLACE AT THE PACKAGE KEEPOUT/PERIMETER OF THE DRAM



PLACE Around DRAM





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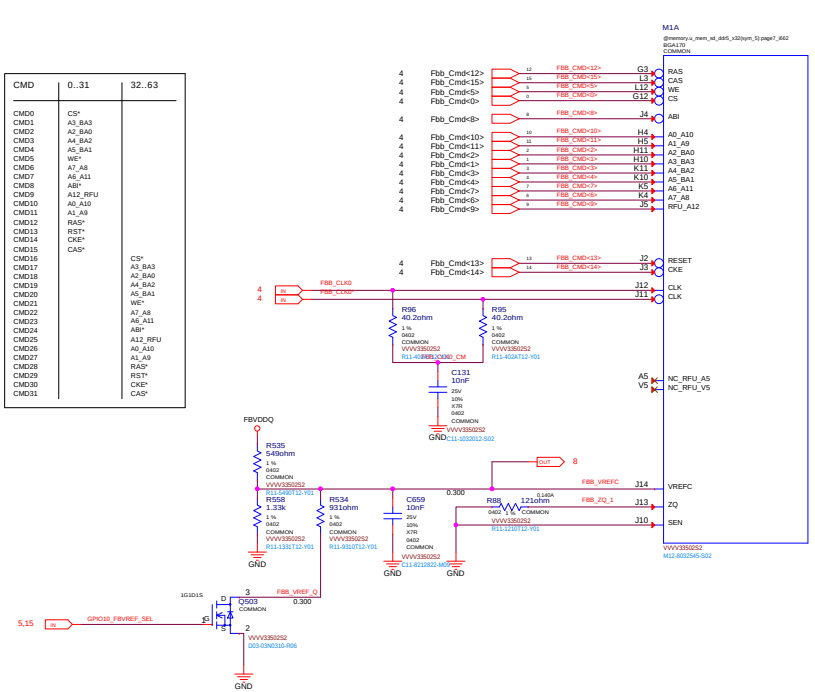
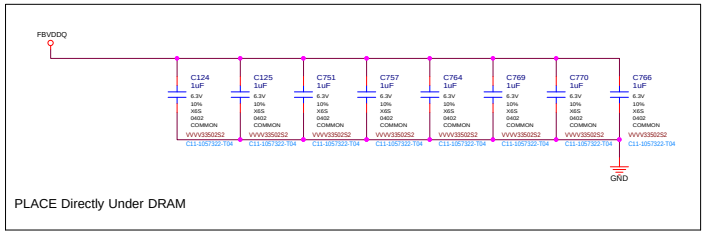
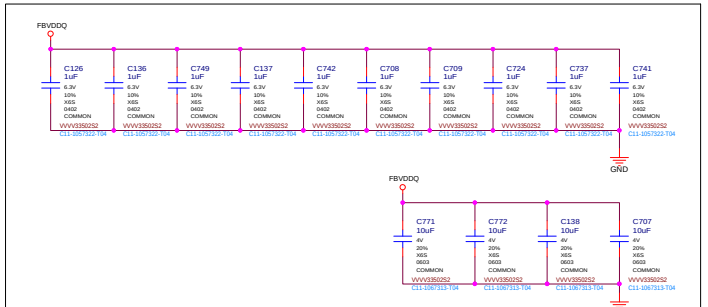
MEMORY: FBB Partition 31..0

CMD	0..31	32..63
CMD0	CS*	
CMD1	A3_BA3	
CMD2	A2_BA2	
CMD3	A4_BA2	
CMD4	A5_BA1	
CMD5	WE*	
CMD6	A7_A8	
CMD7	A6_A11	
CMD8	AB*	
CMD9	A12_RFU	
CMD10	A0_A10	
CMD11	A1_A9	
CMD12	RAS*	
CMD13	RST*	
CMD14	CKE*	
CMD15	CAS*	
CMD16		CS*
CMD17		A3_BA3
CMD18		A2_BA0
CMD19		A4_BA2
CMD20		A5_BA1
CMD21		WE*
CMD22		A7_A8
CMD23		A6_A11
CMD24		AB*
CMD25		A12_RFU
CMD26		A0_A10
CMD27		A1_A9
CMD28		RAS*
CMD29		RST*
CMD30		CKE*
CMD31		CAS*

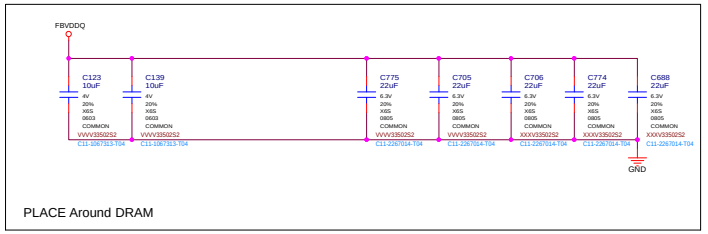




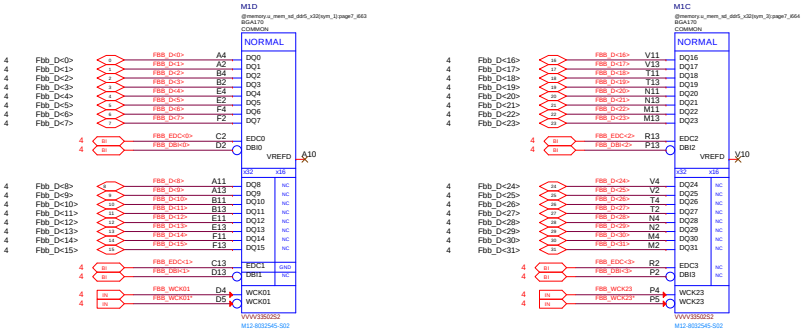
PLACE Directly Under DRAM



PLACE AT THE PACKAGE KEEPOUT/PERIMETER OF THE DRAM



PLACE Around DRAM



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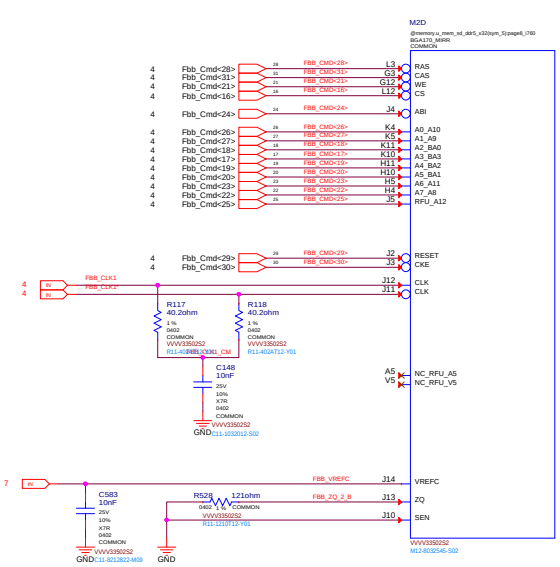
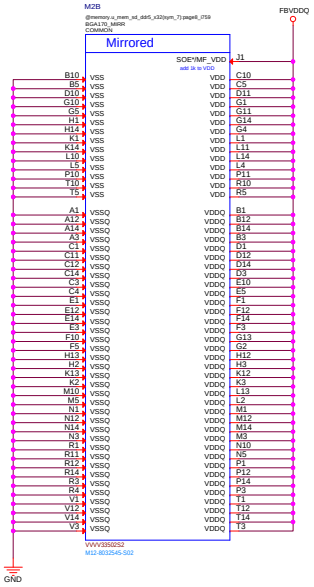
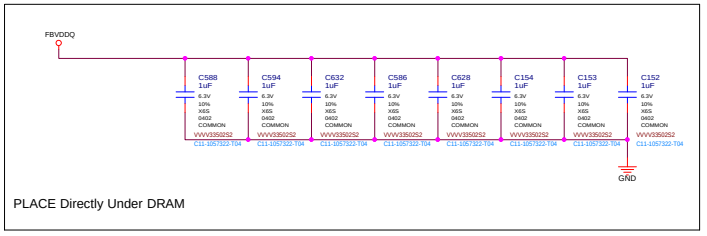
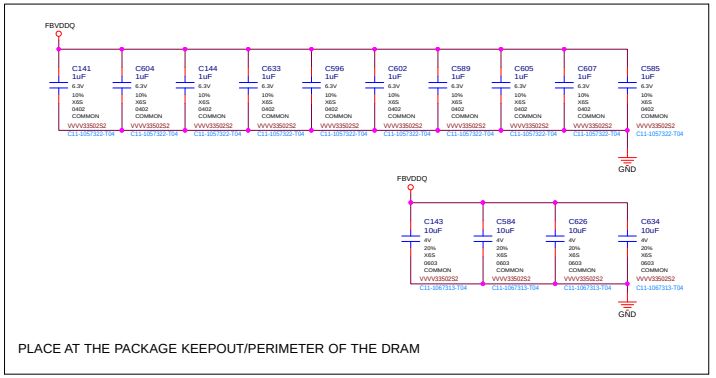
MEMORY: FBB Partition 63..32

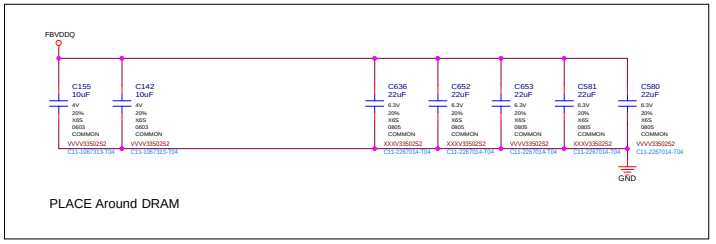
CMD	0..31	32..63
CMD0	CS*	
CMD1	A3_BA3	
CMD2	A2_BA0	
CMD3	A4_BA2	
CMD4	A5_BA1	
CMD5	WE*	
CMD6	A7_A8	
CMD7	A6_A11	
CMD8	AB*	
CMD9	A12_RFU	
CMD10	A0_A10	
CMD11	A1_A9	
CMD12	RAS*	
CMD13	RST*	
CMD14	CKE*	
CMD15	CAS*	
CMD16		CS*
CMD17		A3_BA3
CMD18		A2_BA0
CMD19		A4_BA2
CMD20		A5_BA1
CMD21		WE*
CMD22		A7_A8
CMD23		A6_A11
CMD24		AB*
CMD25		A12_RFU
CMD26		A0_A10
CMD27		A1_A9
CMD28		RAS*
CMD29		RST*
CMD30		CKE*
CMD31		CAS*

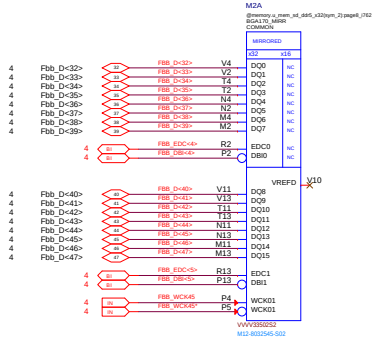


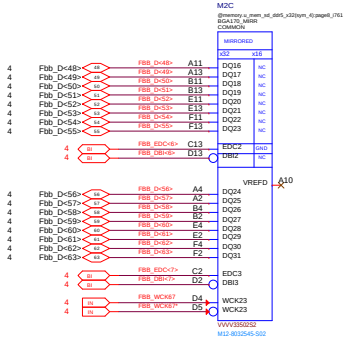












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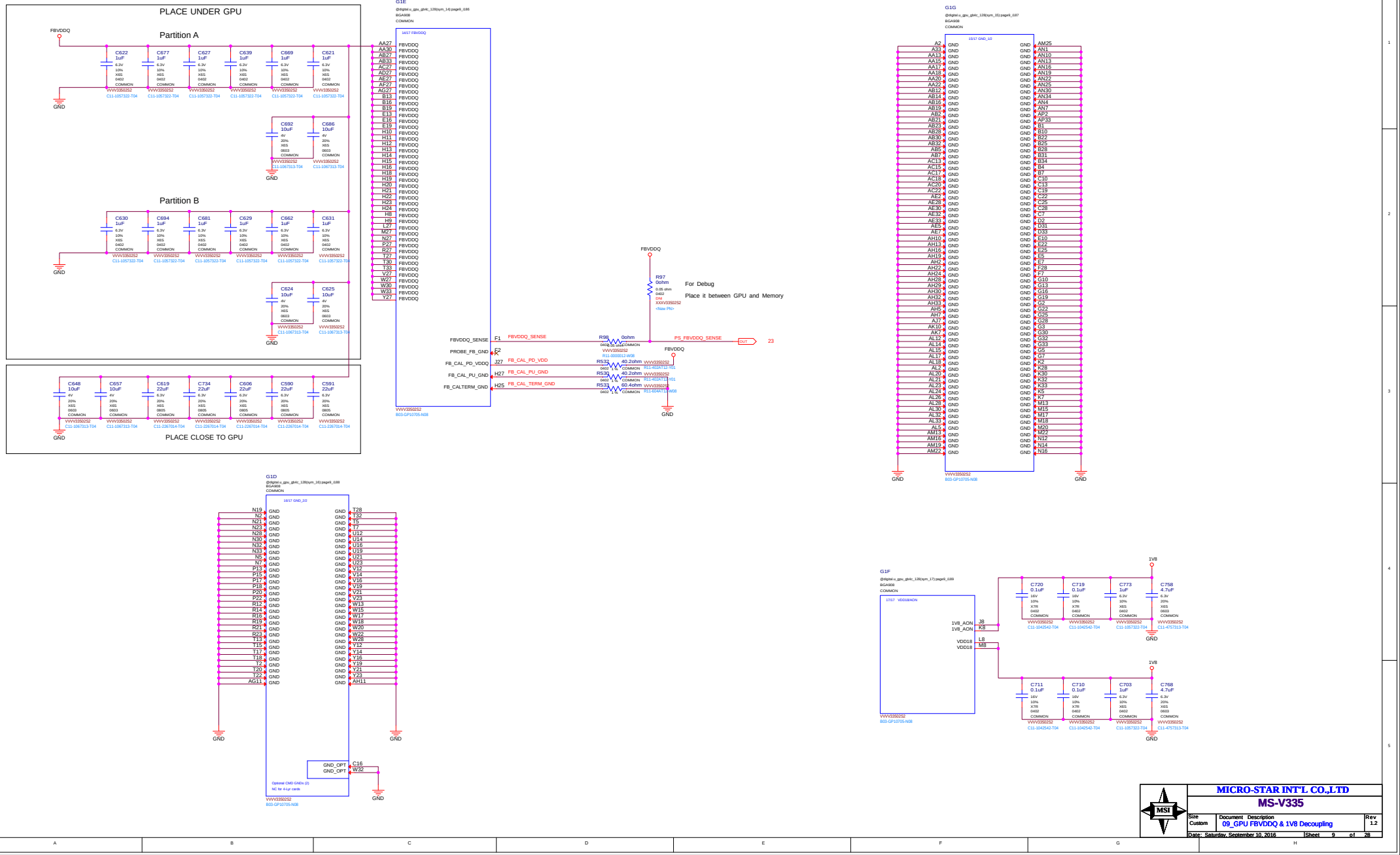
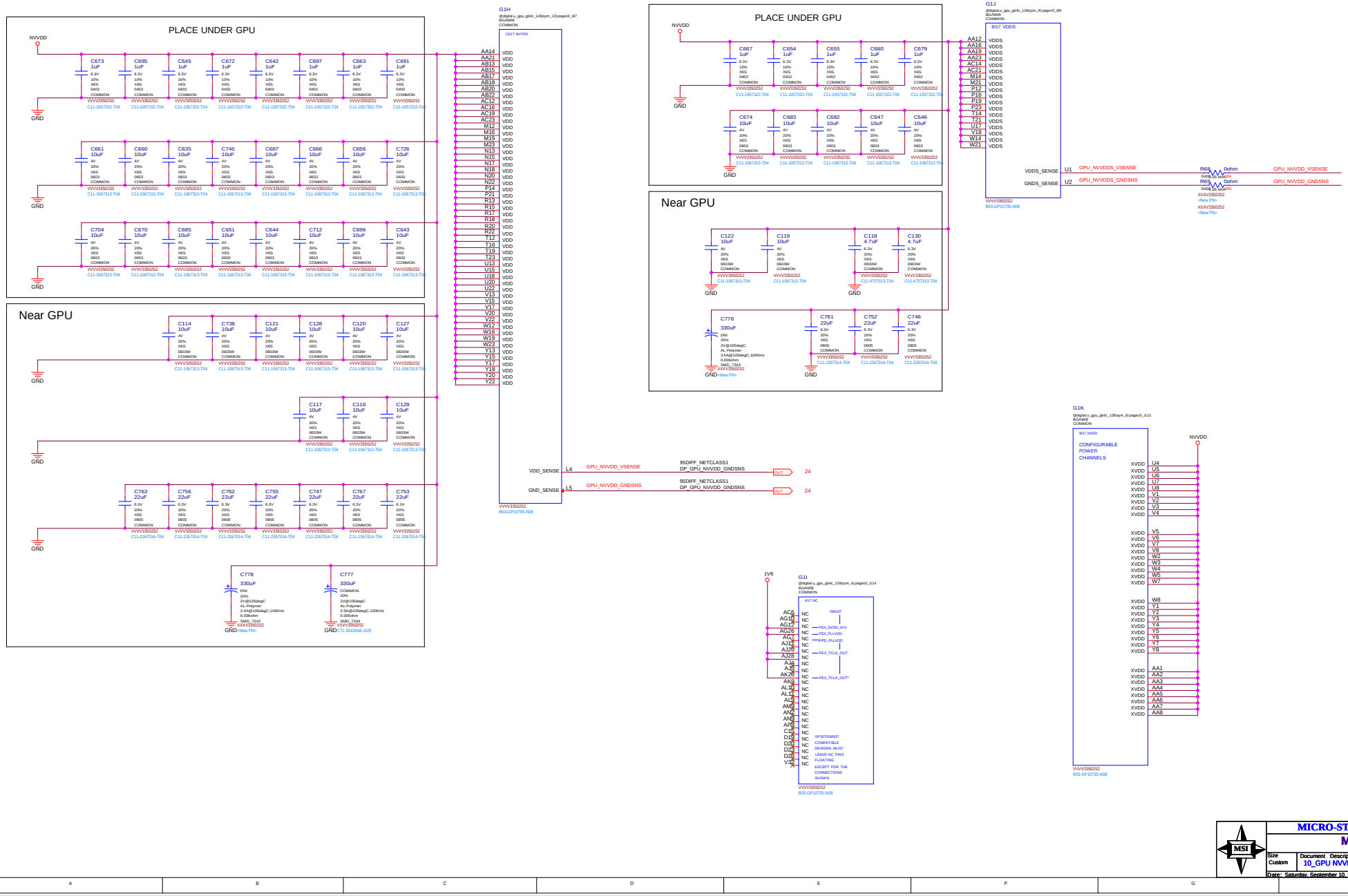
GPU FBVDDQ & 1V8 Decoupling



GPU NVVDD & NVVDDS Decoupling



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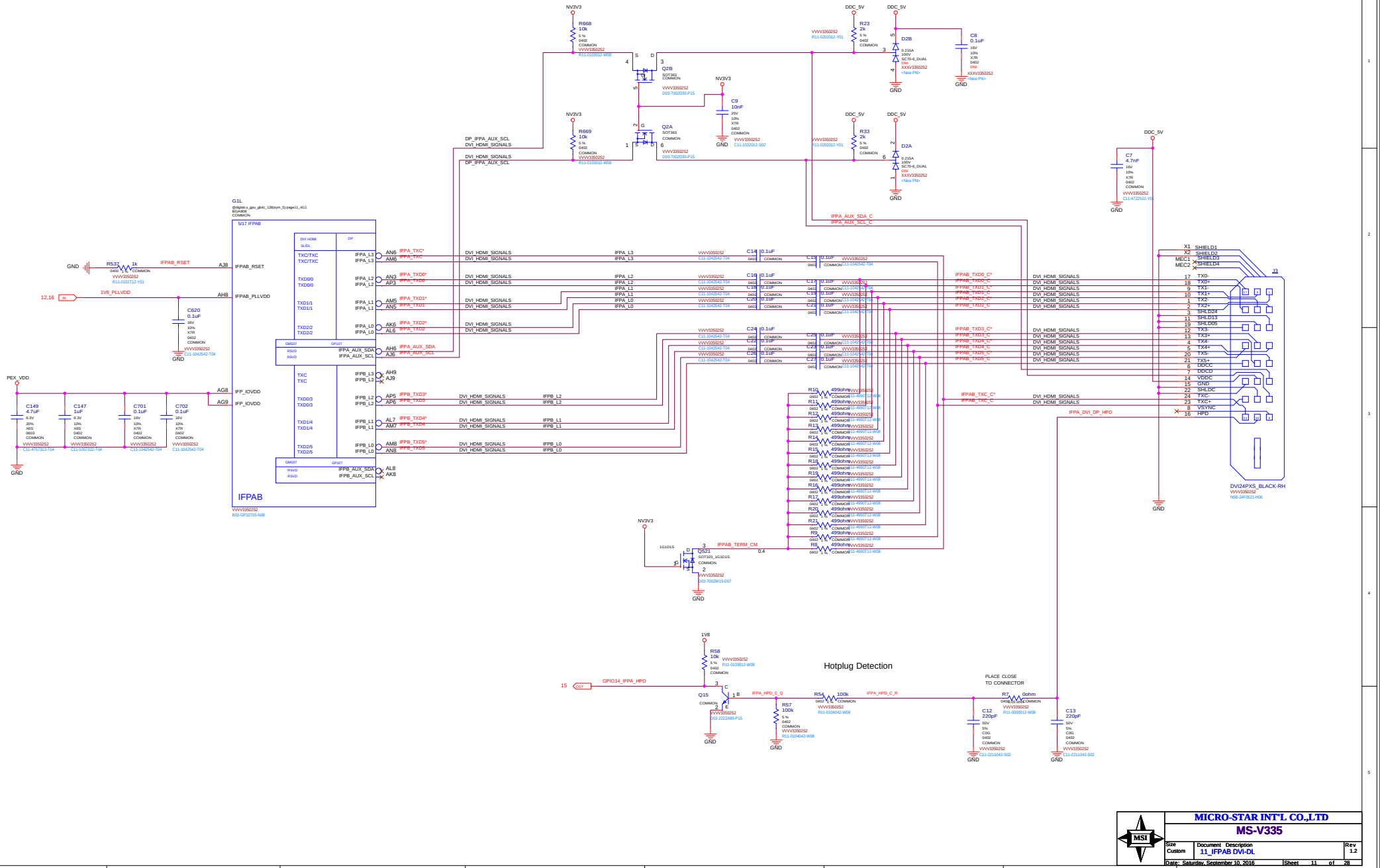
IFPAB DVI-DL



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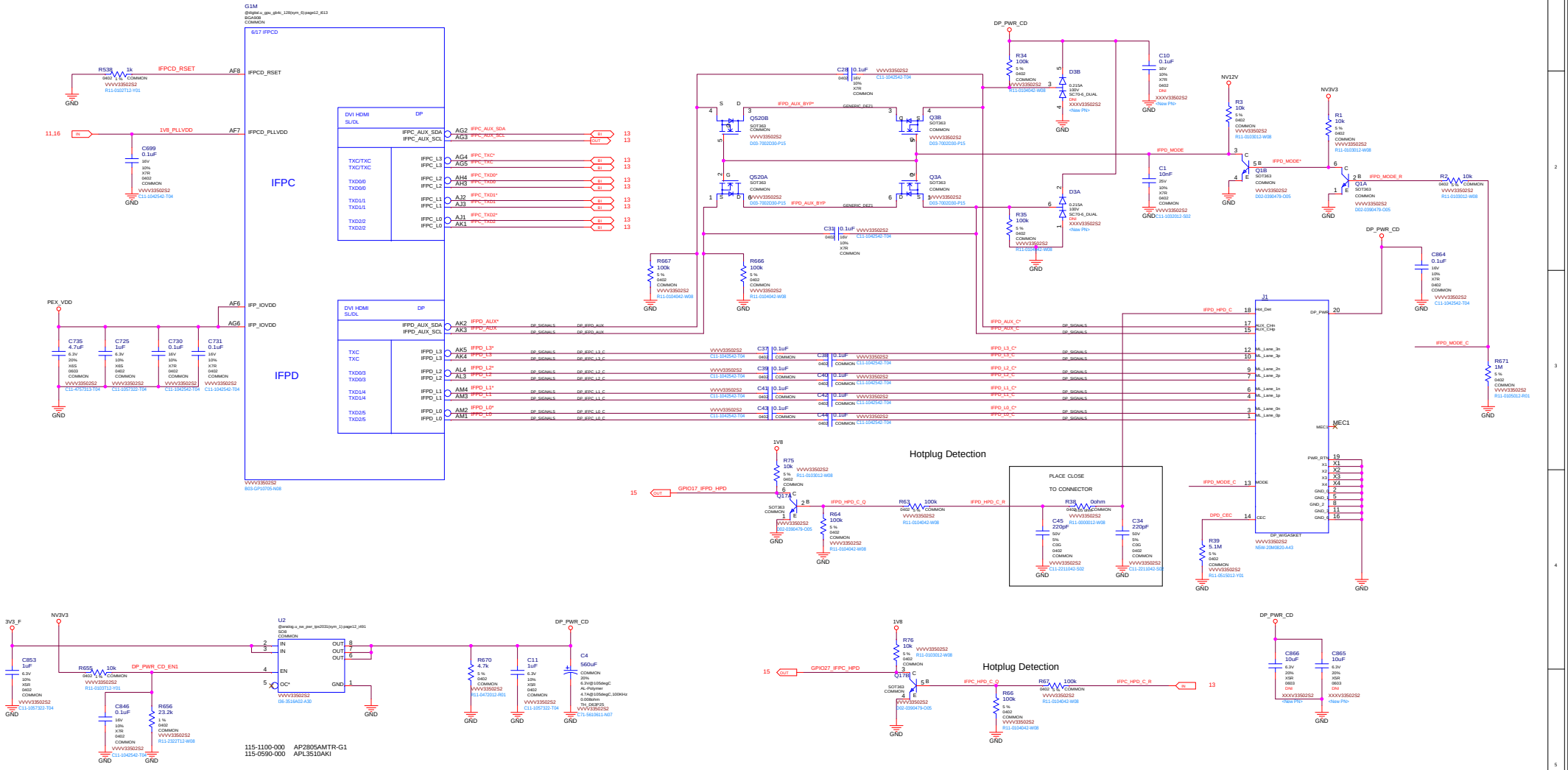
IFPD DP


IFPC
IFPD
Hotplug Detection
Hotplug Detection
PLACE CLOSE
TO CONNECTOR
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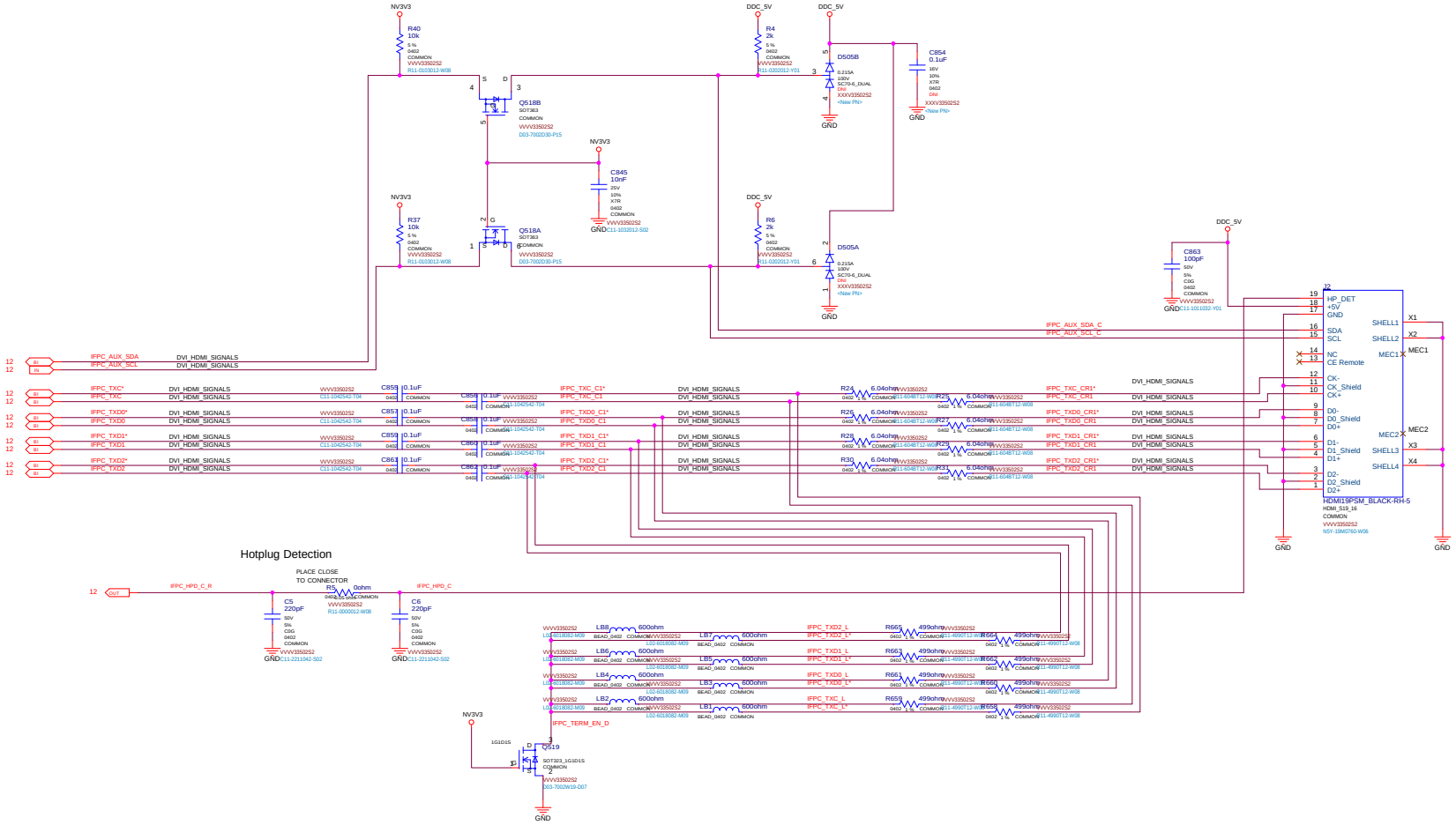
IFPC HDMI



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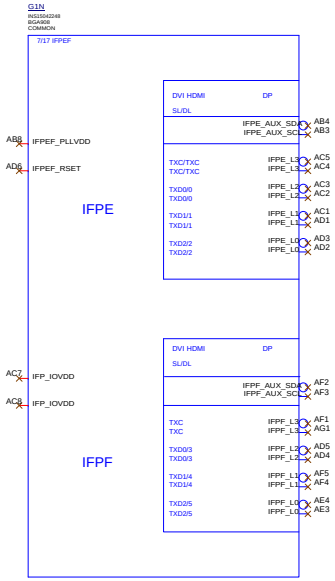
IFPEF UNUSED



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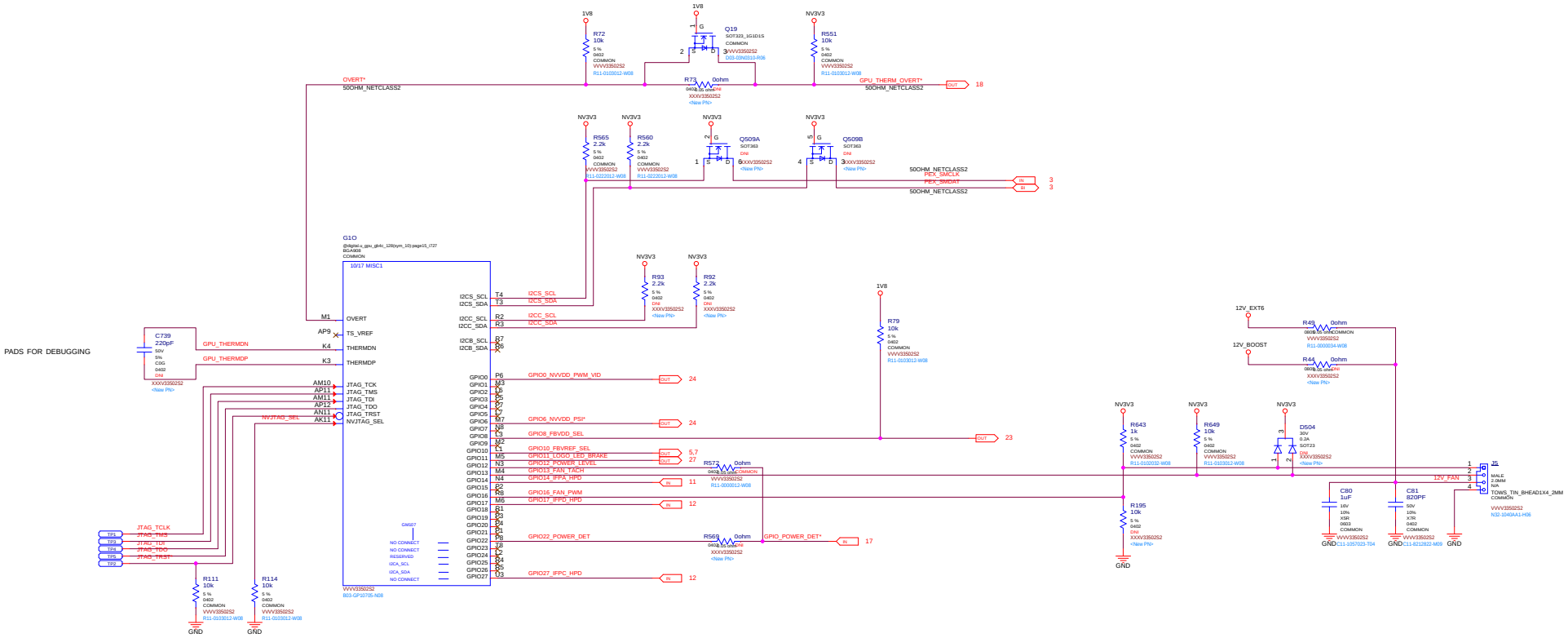
MISC1: GPIO, Fan, Thermal, JTAG



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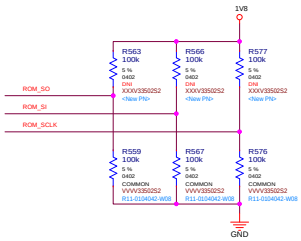
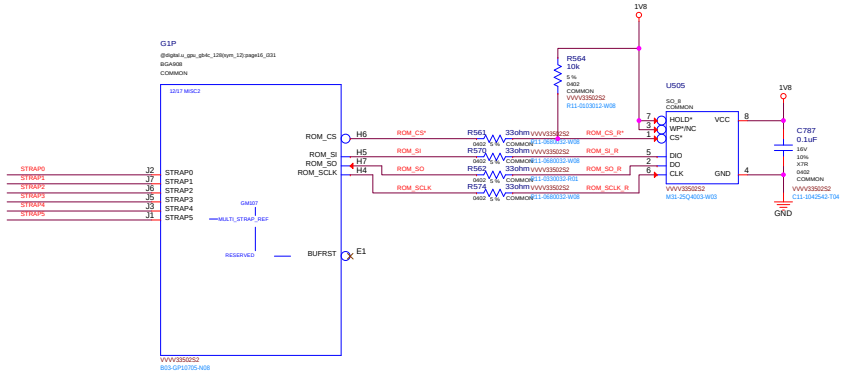
MISC2: ROM, XTAL, Straps

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	



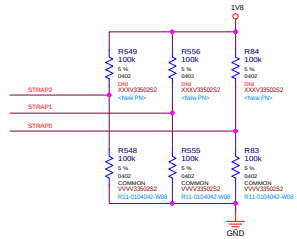


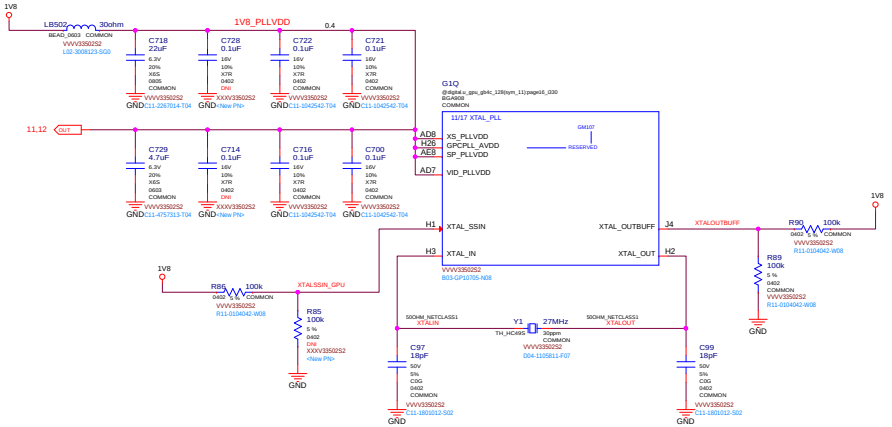
H=High :Tied to 1.8V
M=Middle:Tied to 0.9V
L=Low :Tied to 0V

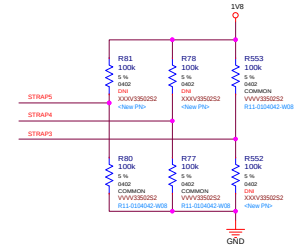
Smart Fan

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

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

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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Size: Custom	Document Description: 16_MISC2: ROM, XTAL, Straps		Rev: 1.2
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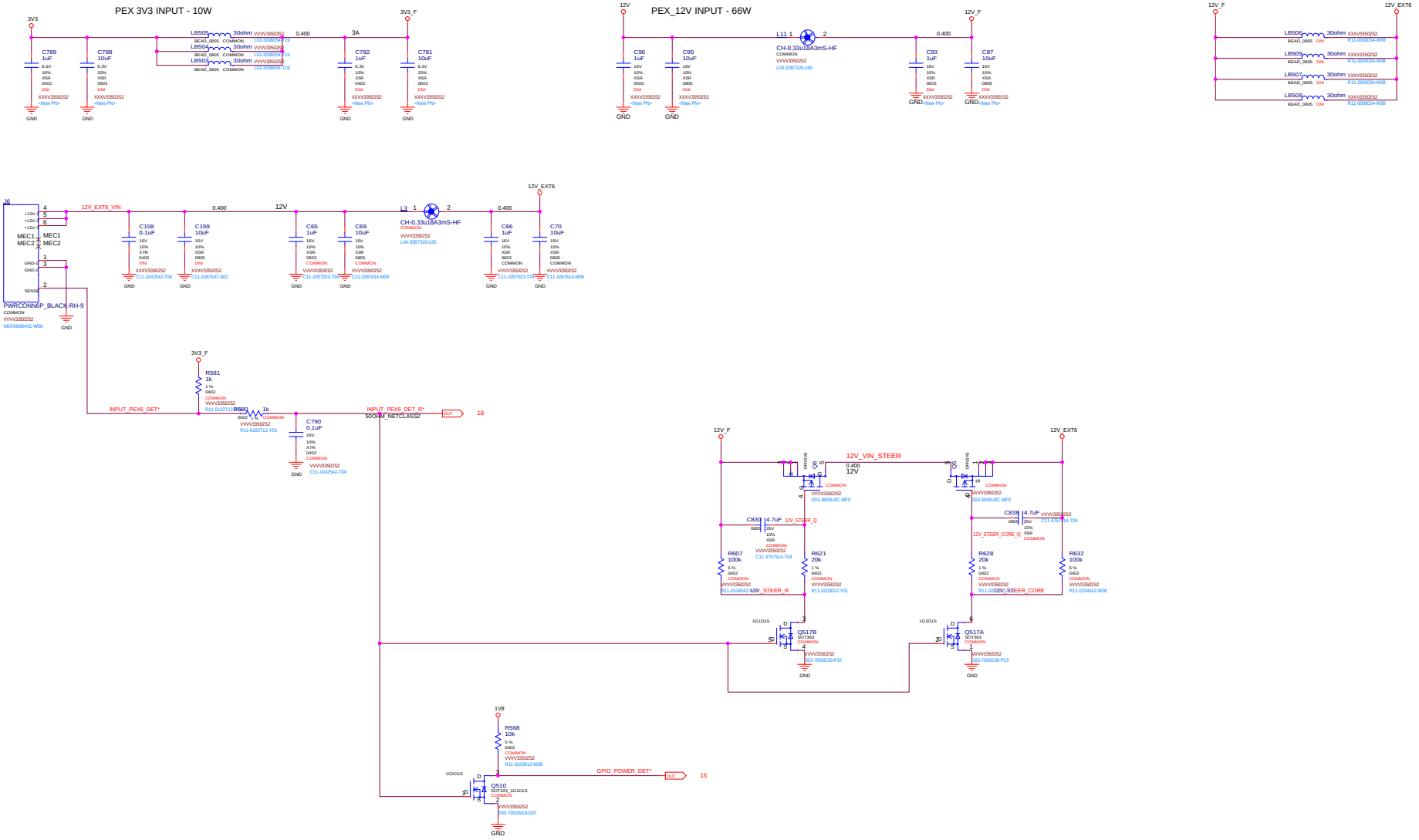
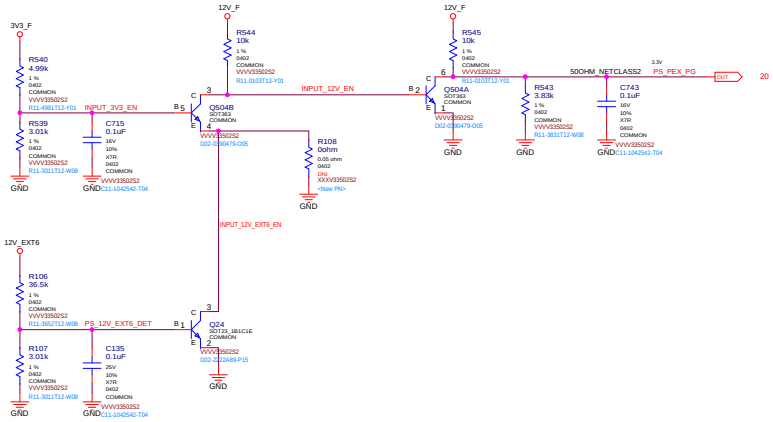
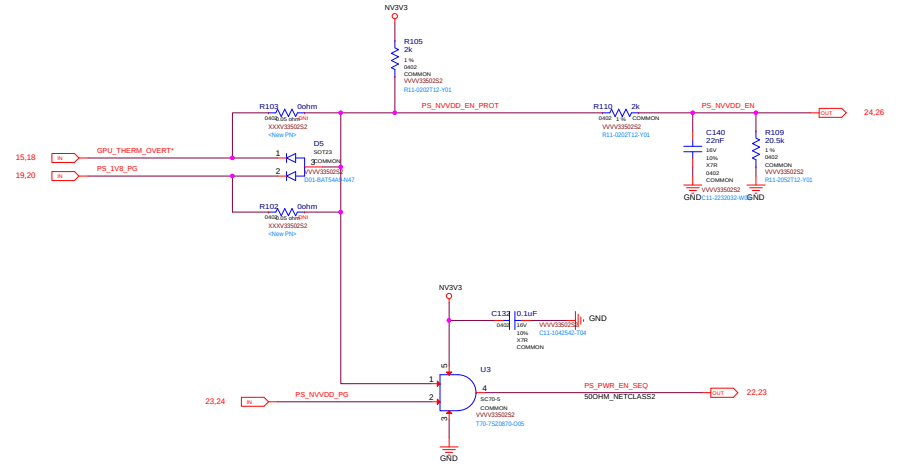
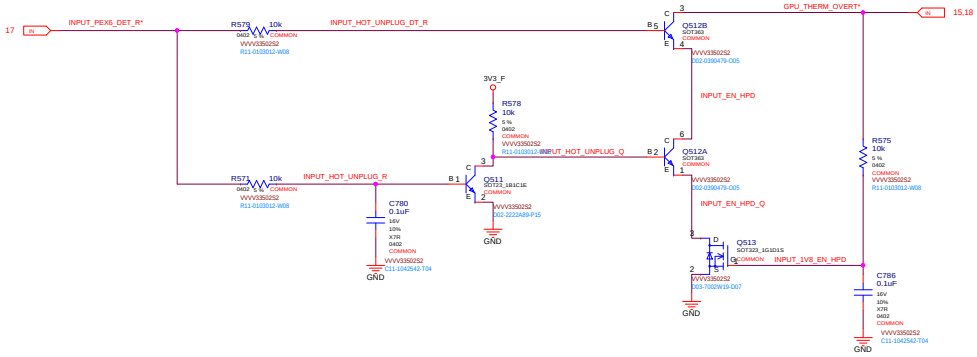
Power Inputs and Filtering



Power sequence







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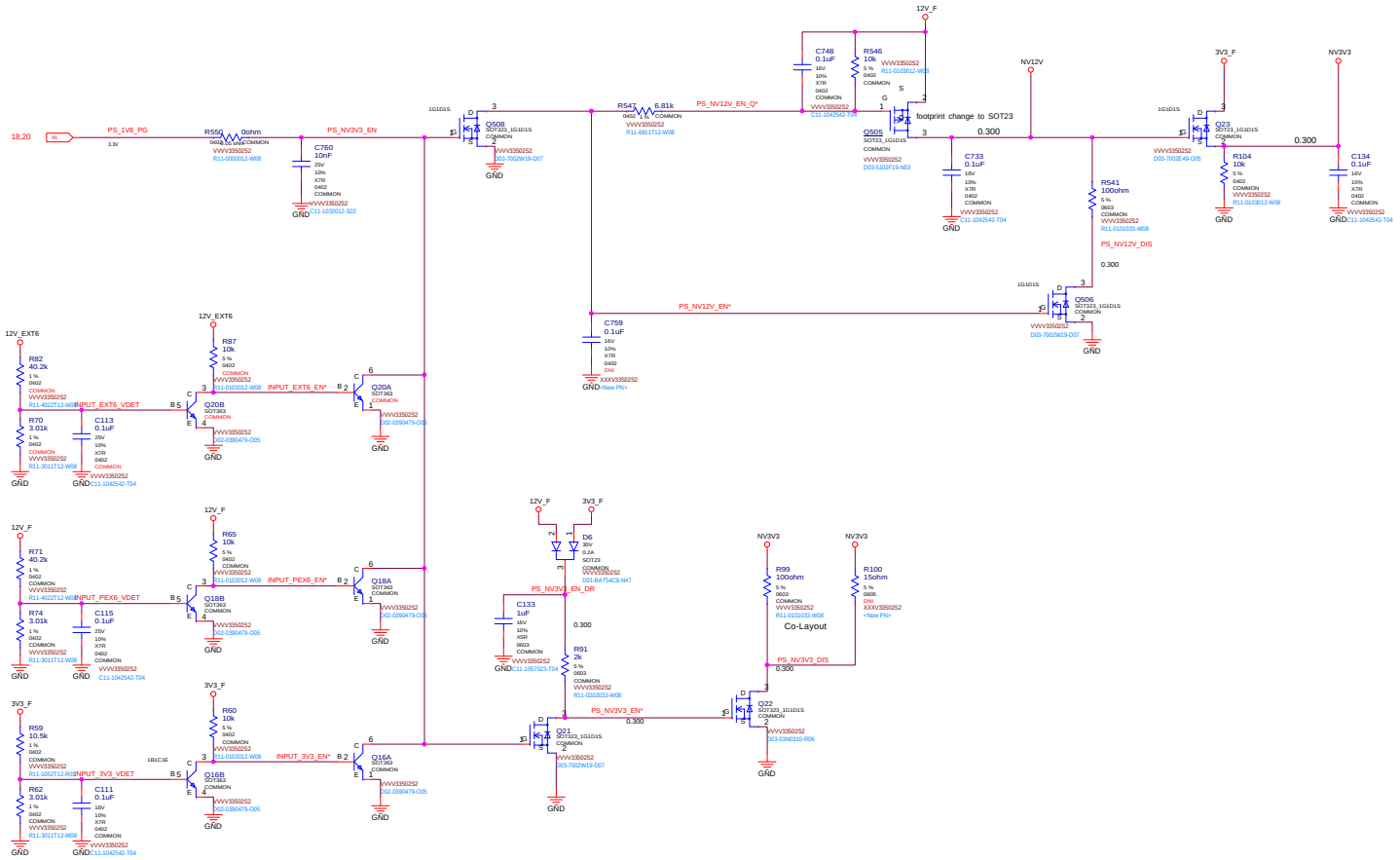
PS: NV3V3 & NV12V



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Size: Custom	Document Description: 19_PS: NV3V3 & NV12V		Rev: 1.2
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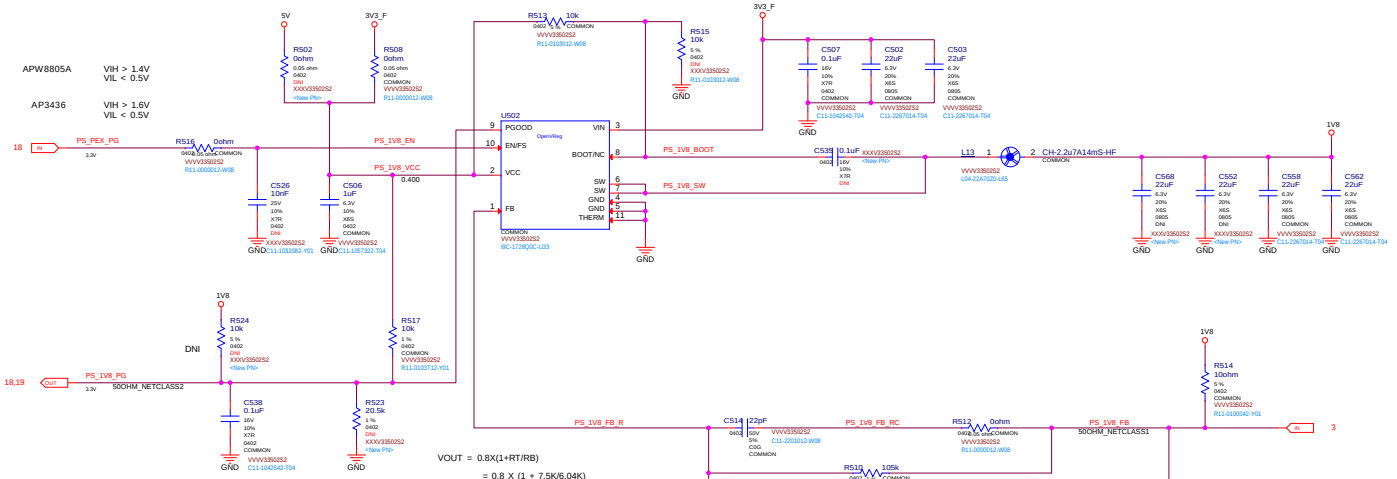
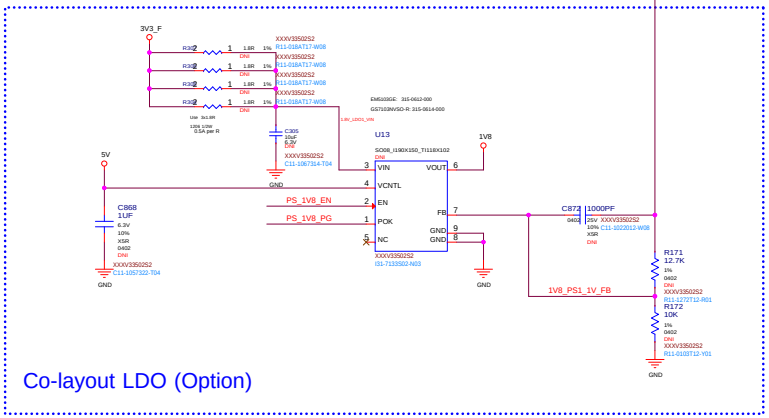
PS I: 1V8





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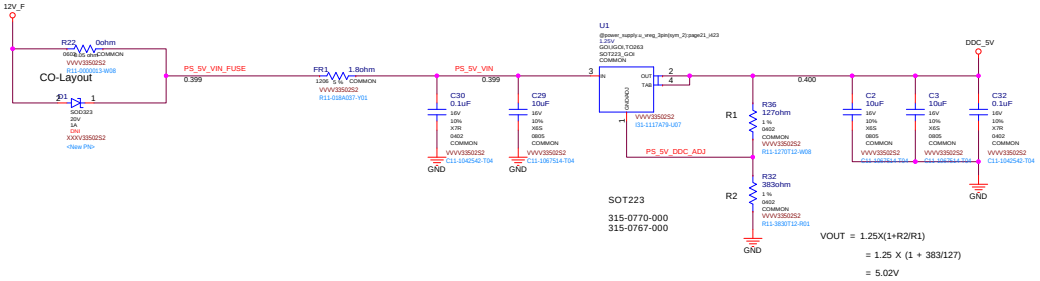
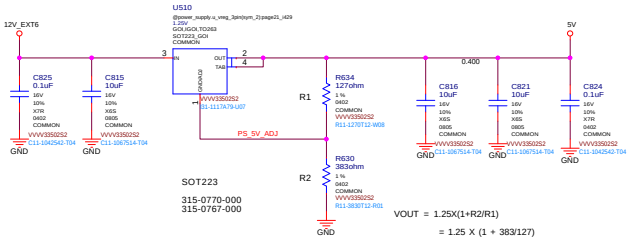
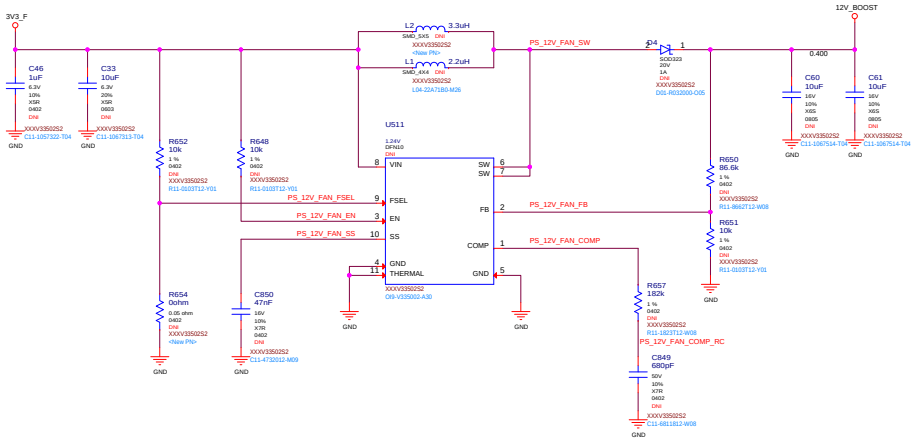
PSII:5V & 12V_FAN







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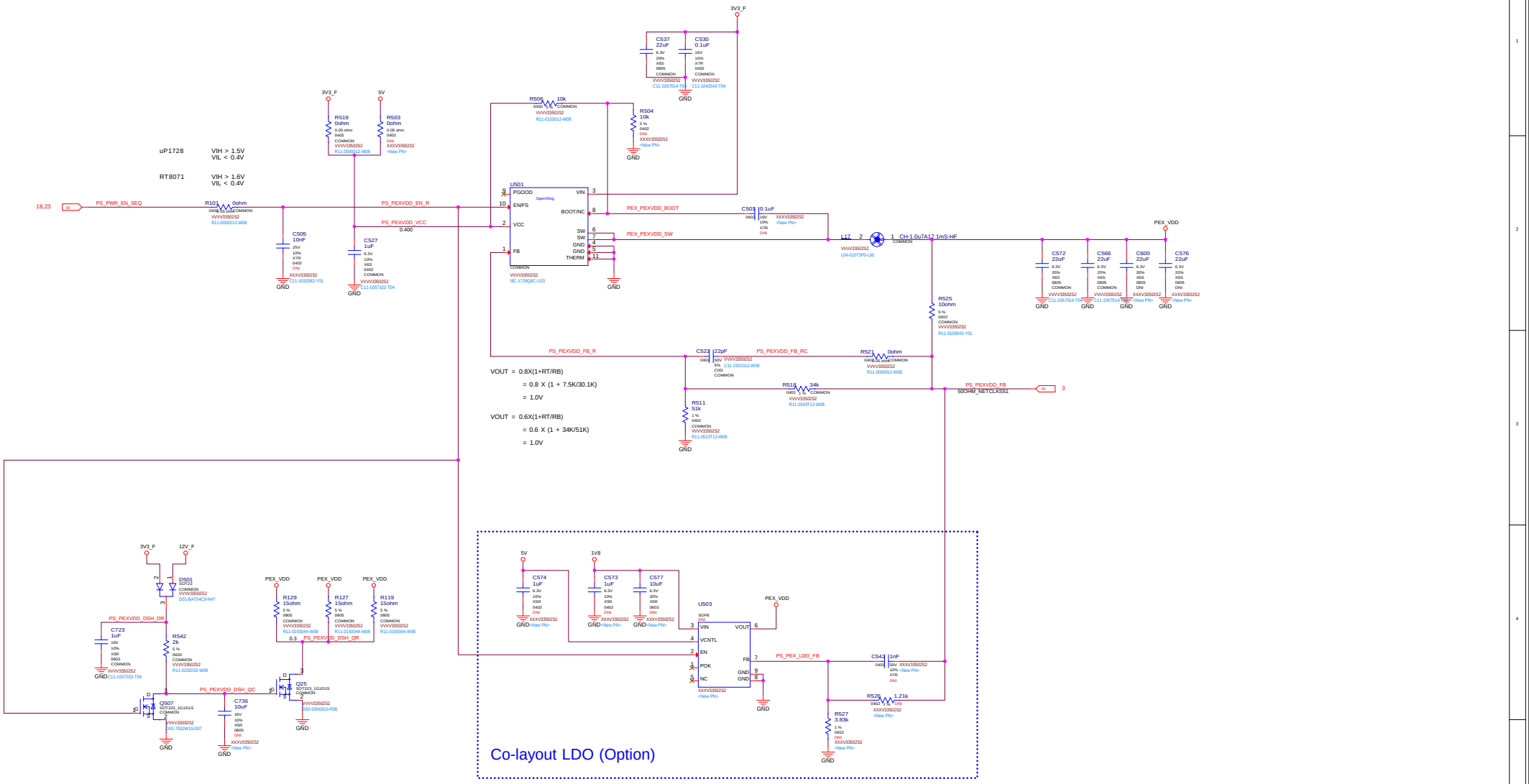
PS III: PEXVDD



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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

Vout = Vref * (1+Rt/Rb)

Vref=0.6V: 1.50V = 0.6V * (1+3k/6S) / 1.05V = 0.6V * (1+3k/53.6)

Vref=0.8V: 1.50V = 0.8V * (1+1K/1.13K) / 1.35V = 0.8V * (1+1K/3.07K)

Vout = Vref * (1+Rt/Rb)

Vref=0.6V: 1.50V = 0.6V * (1+3k7/7/4.22k) / 1.55V = 0.6V * (1+3k7/87/3.09k) / 1.30V = 0.6V * (1+3k7/87)

Vref=0.8V: 1.50V = 0.8V * (1+1K/1.43k/5.49K) / 1.55V = 0.8V * (1+1K/1.43k/4.12K) / 1.35V = 0.8V * (1+1K/1.43K)

Vref=0.704V: 1.50V = 0.704V * (1+14.7K/73.2k/51.8K) / 1.55V = 0.704V * (1+14.7K/53.6k/51.8K) / 1.35V = 0.704V * (1+14.7K/51.8K)

PS	Fosc	Vref	Tol
315-0625-000: APW8722	300kHz	0.6V	1%
315-0868-000: ISM3301D	300kHz	0.6V	1%
316-0096-000: RT8120AGSP	300kHz	0.6V	1.5%
316-0096-000: RT8120AGS	300kHz	0.6V	1.5%
315-0638-000: APW8725A	300kHz	0.8V	1%
316-0071-000: RT8203GSP	300kHz	0.8V	1%
315-0638-000: APW7120	300kHz	0.8V	1.5%
315-0533-000: NCP1579	300kHz	0.8V	2%
315-0529-000: FP9326	300kHz	0.8V	2%

Co-Layout SY8288A

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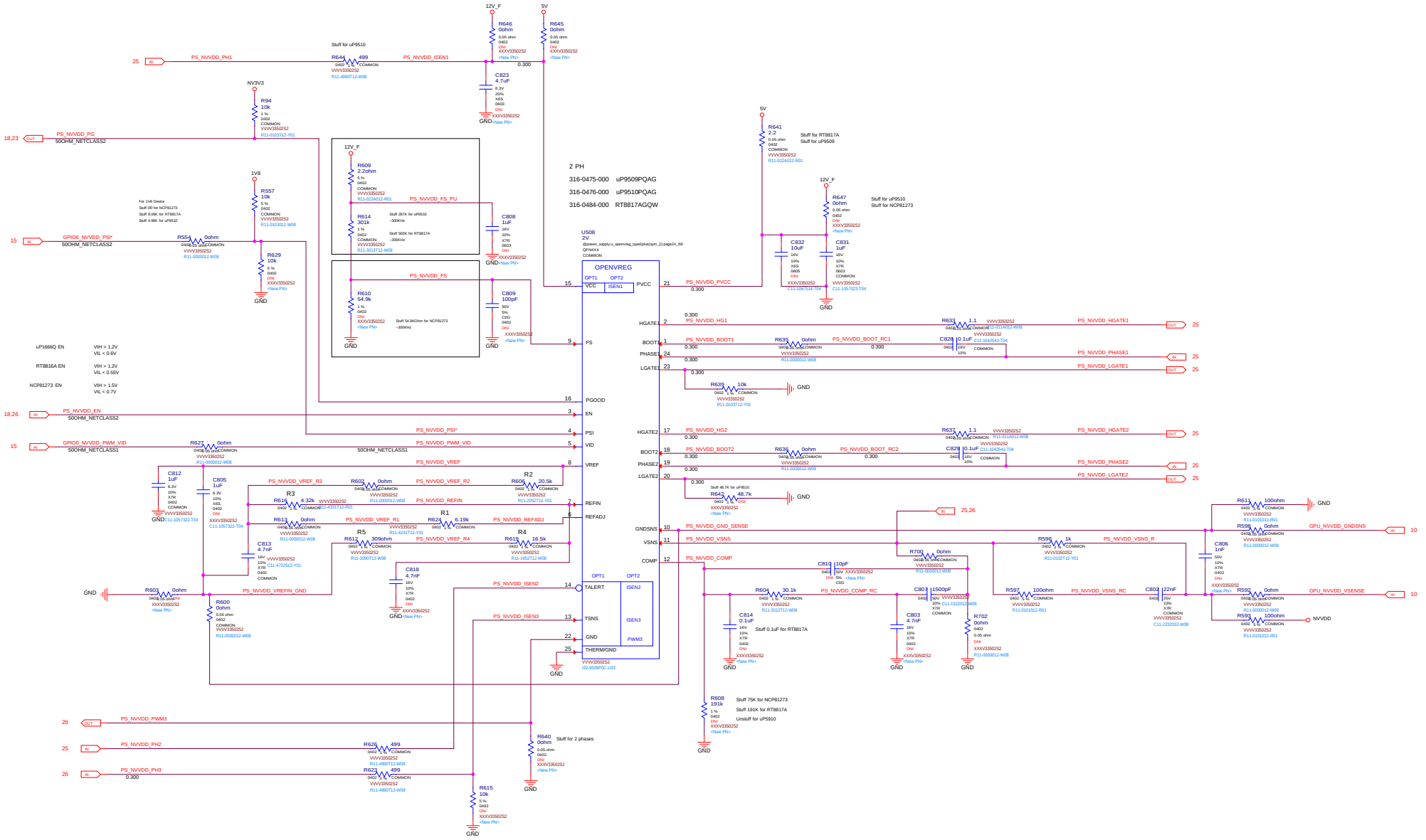
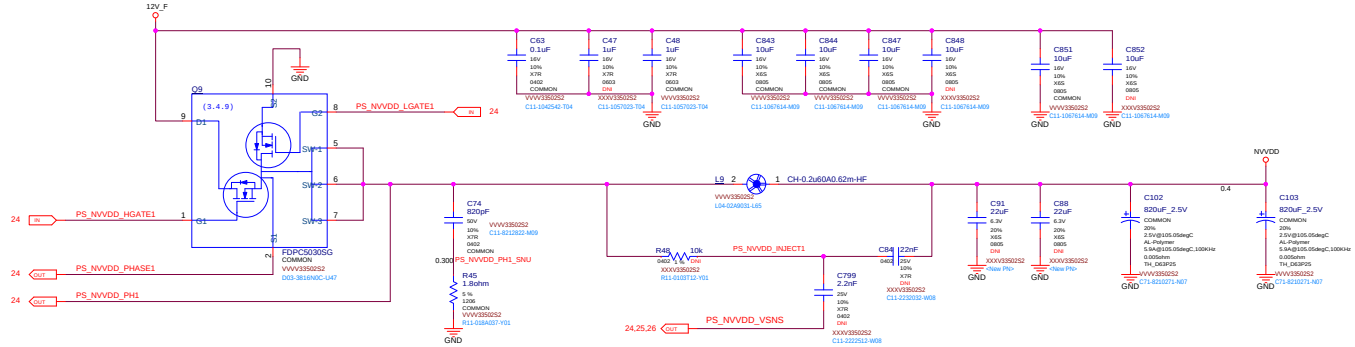
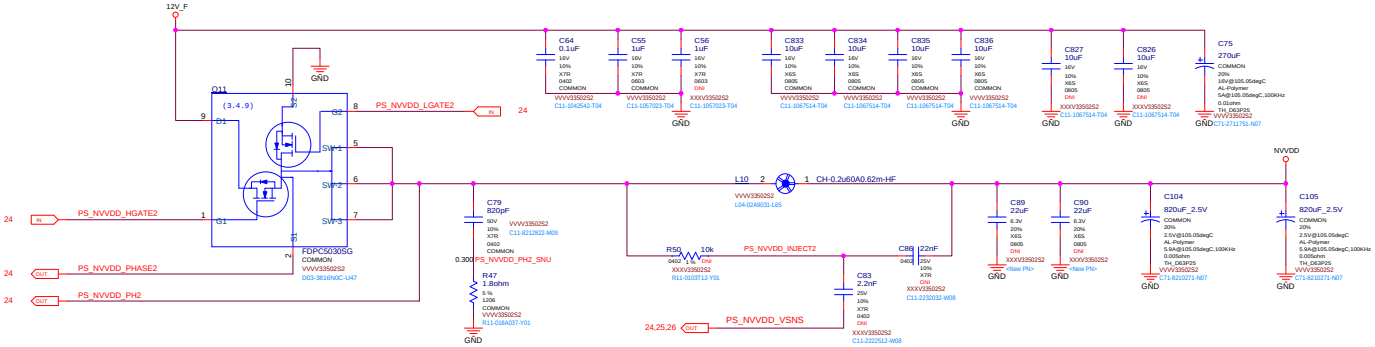
PS V: NVVDD OVR2+1



PS V: NVVDD Phase 1,2





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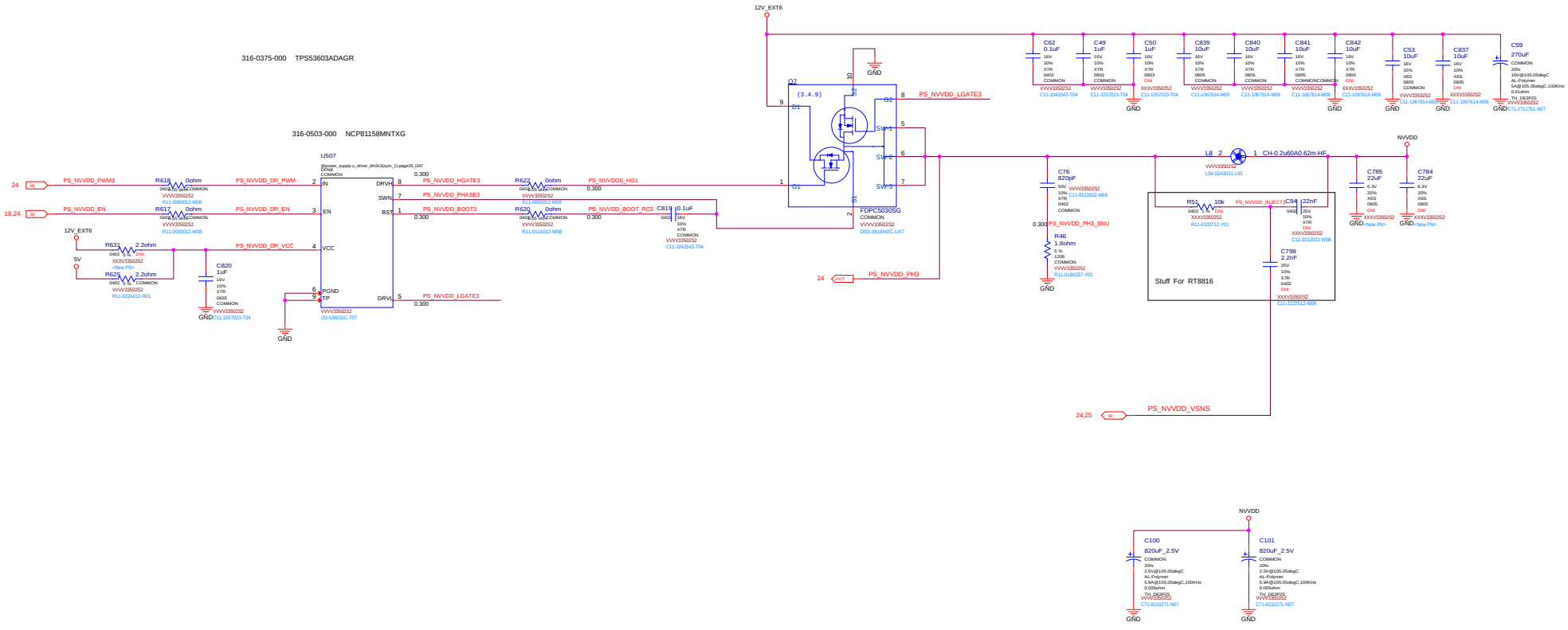
PS V: NVVDD Phase 3



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Size: Custom	Document Description: 26_PS V: NVVDD Phase 3
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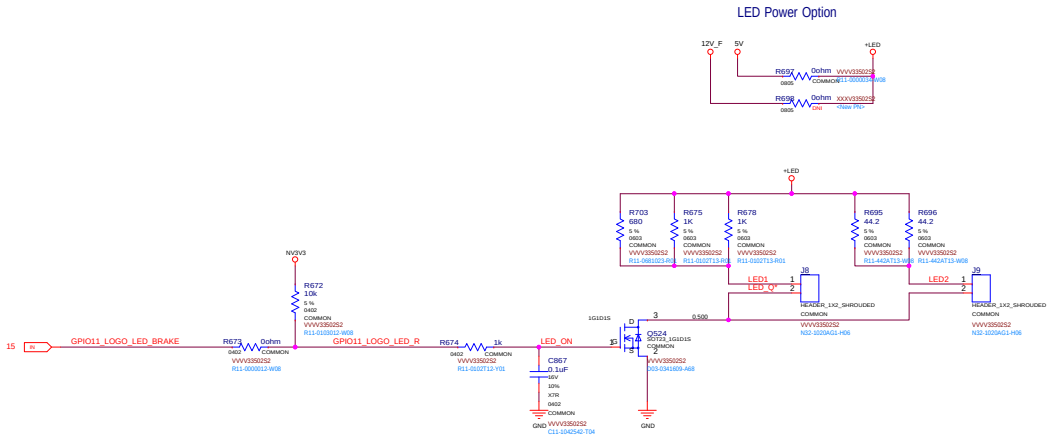
Logo LED



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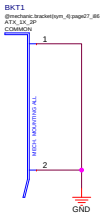
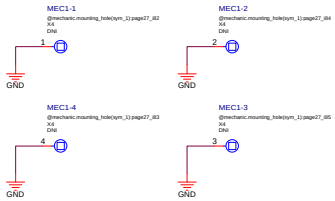
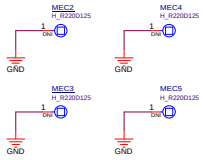
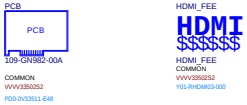
Mechanical: Bracket/Thermal Solution

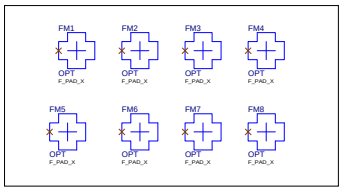
Brackets:











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