PG180-A02

256b GDDR6 x16
TALL DP + DP + DP + HDMI/DP + USB

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base on V372-02S change for D18 Z
1. P.23 remove SLI & BRIDGE_LED_VDD & SLI_BRG_PRST*
2. P.52 remove LED change FAN connector
3. P.53 remove LED
4. P.38&44 add FUSE
5. P.5~14 mem add < >
6. P.53 LED use V336-0D
7. P.32 remove
8. P.35~38 dual MOS
9. P.33 change dual MOS
10. P.43 remove
11. P.31 change to UP1666
12. P.21 remove colay DP

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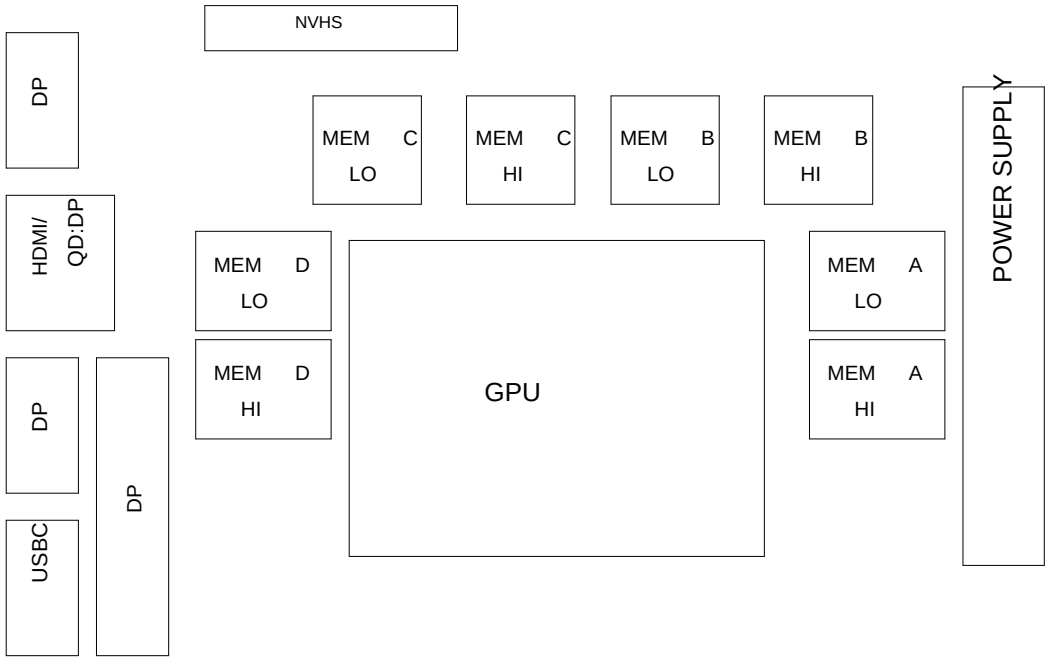
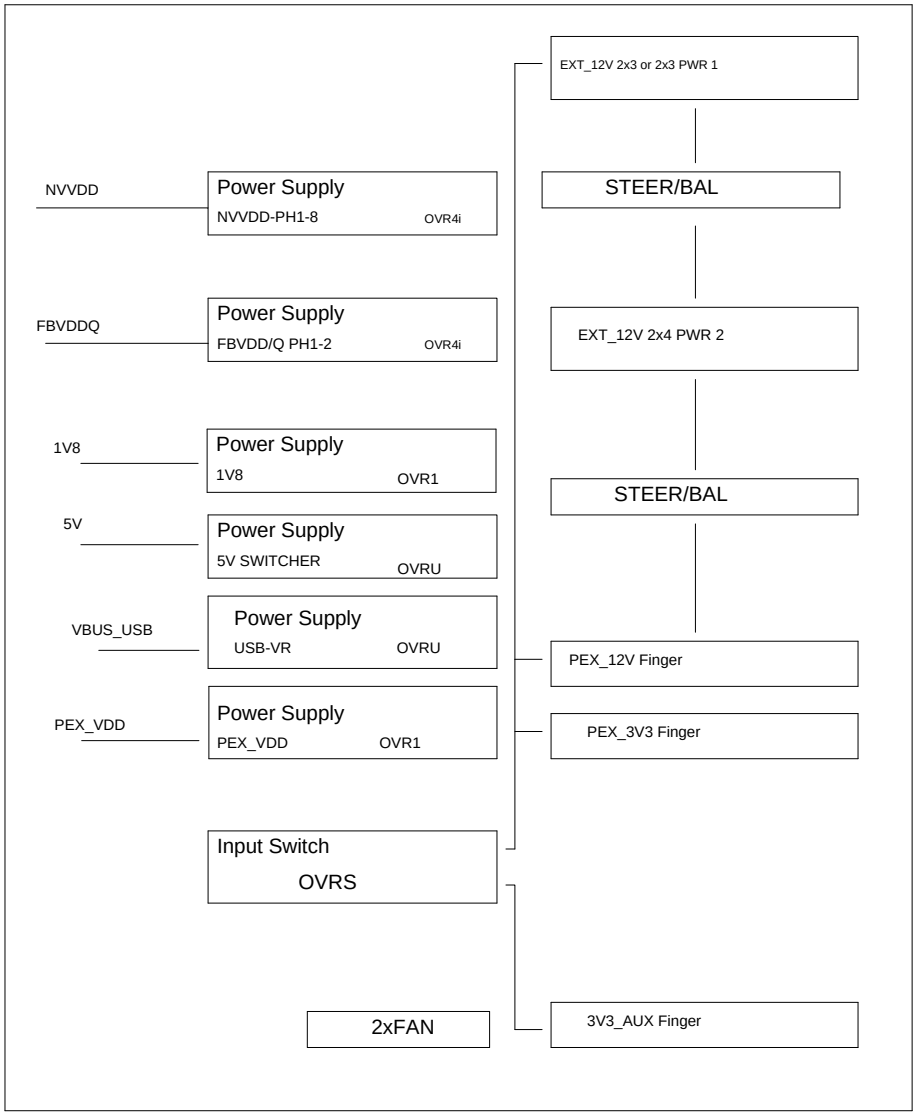
Page2: Block Diagram





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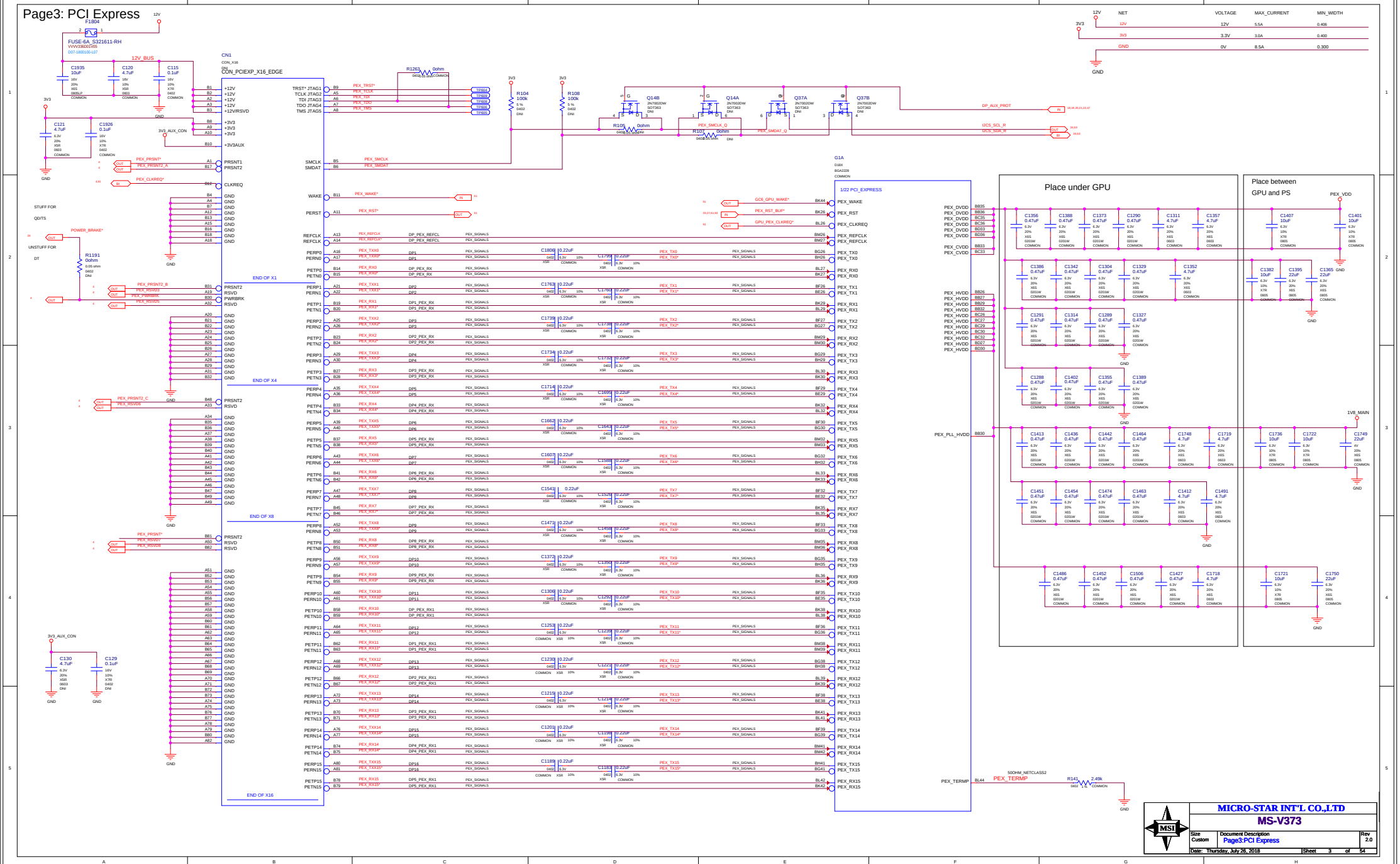
Page3: PCI Express



NET	VOLTAGE	MAX_CURRENT	MIN_WIDTH
12V	12V	5.5A	0.406
3V3	3.3V	3.0A	0.400
GND	0V	8.5A	0.300

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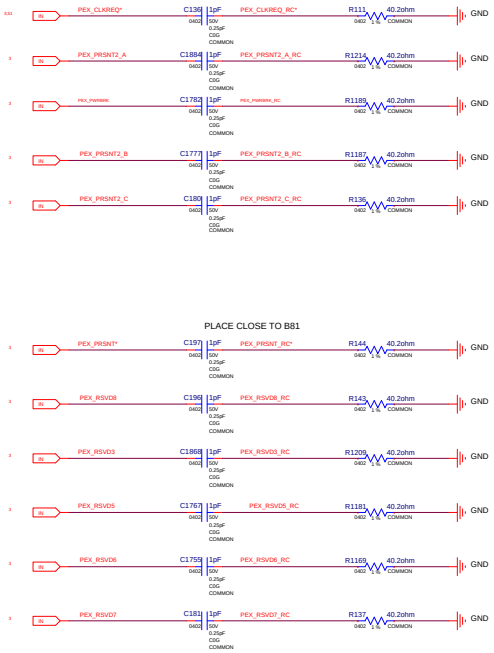
Page4: PCI Termination



PLACE CLOSE TO B81

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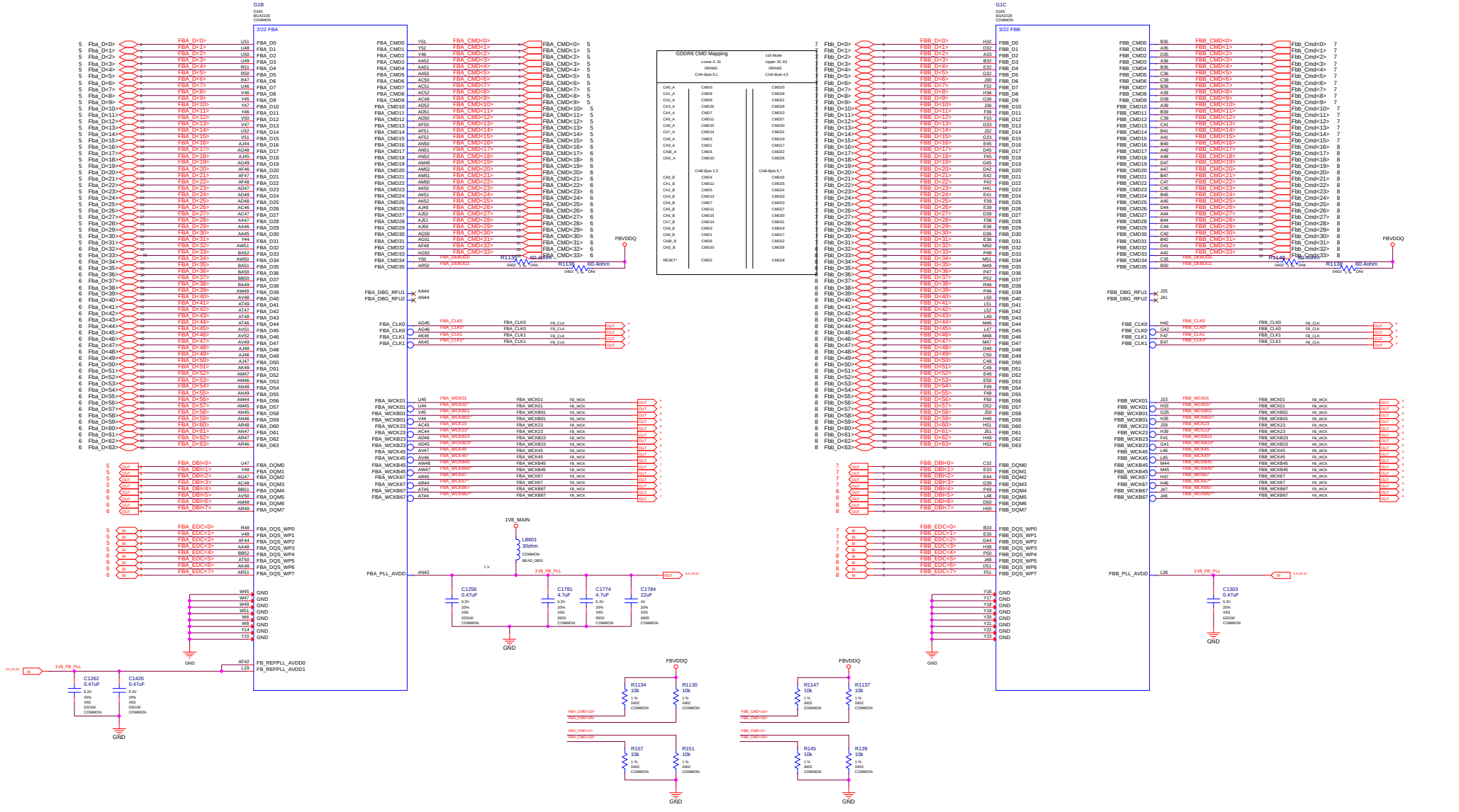
Page5: MEMORY: GPU Partition A/B



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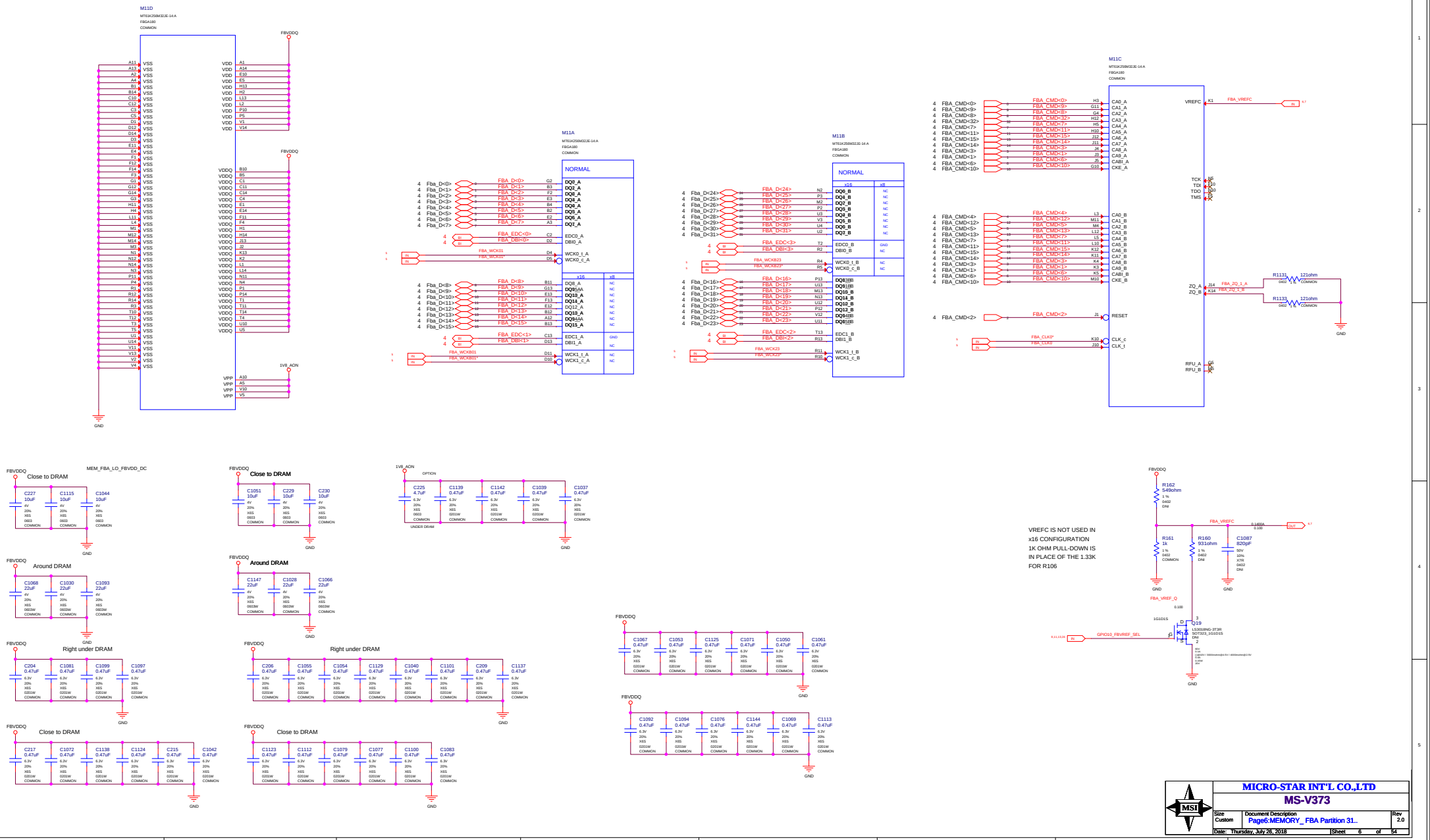
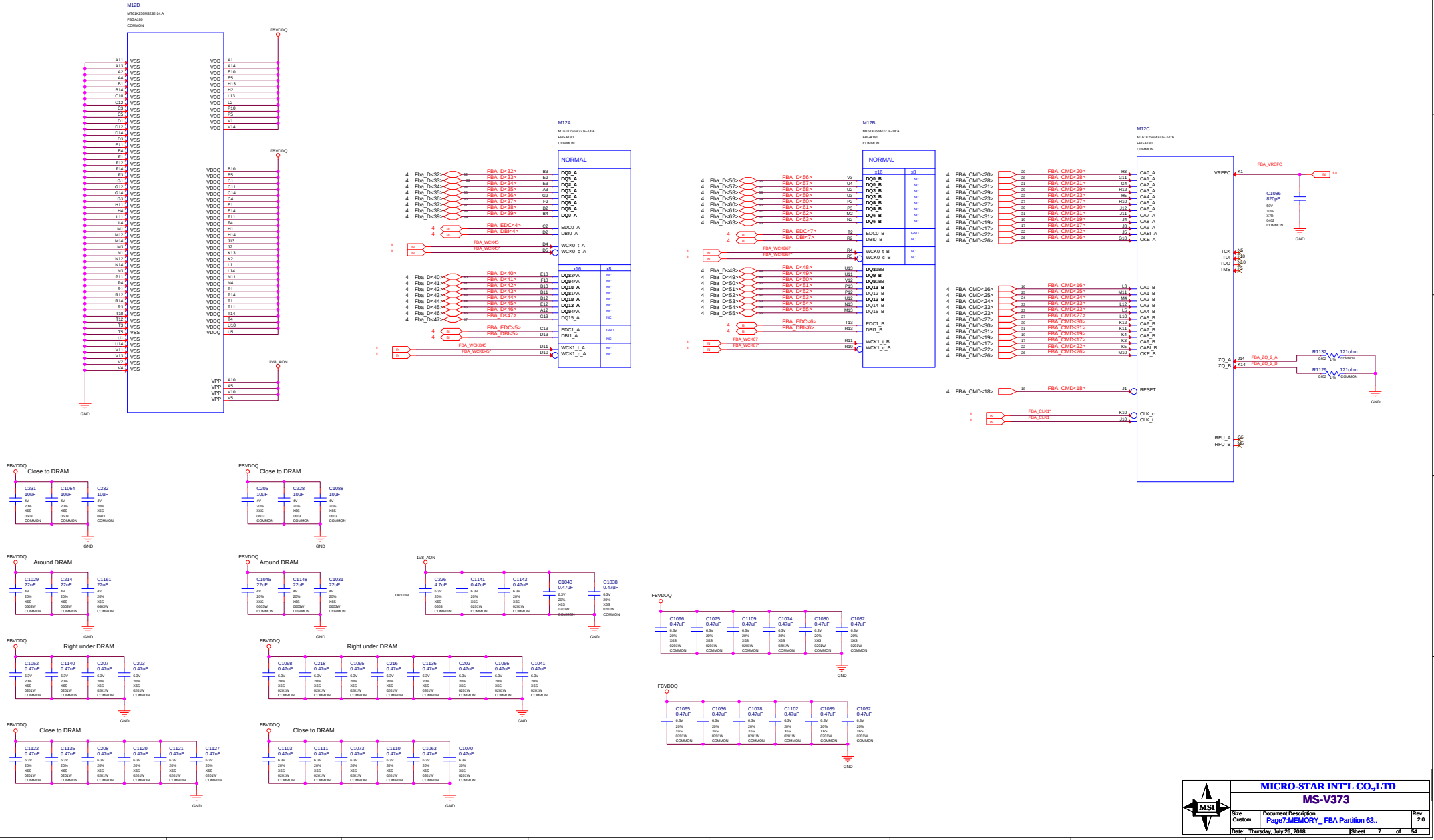
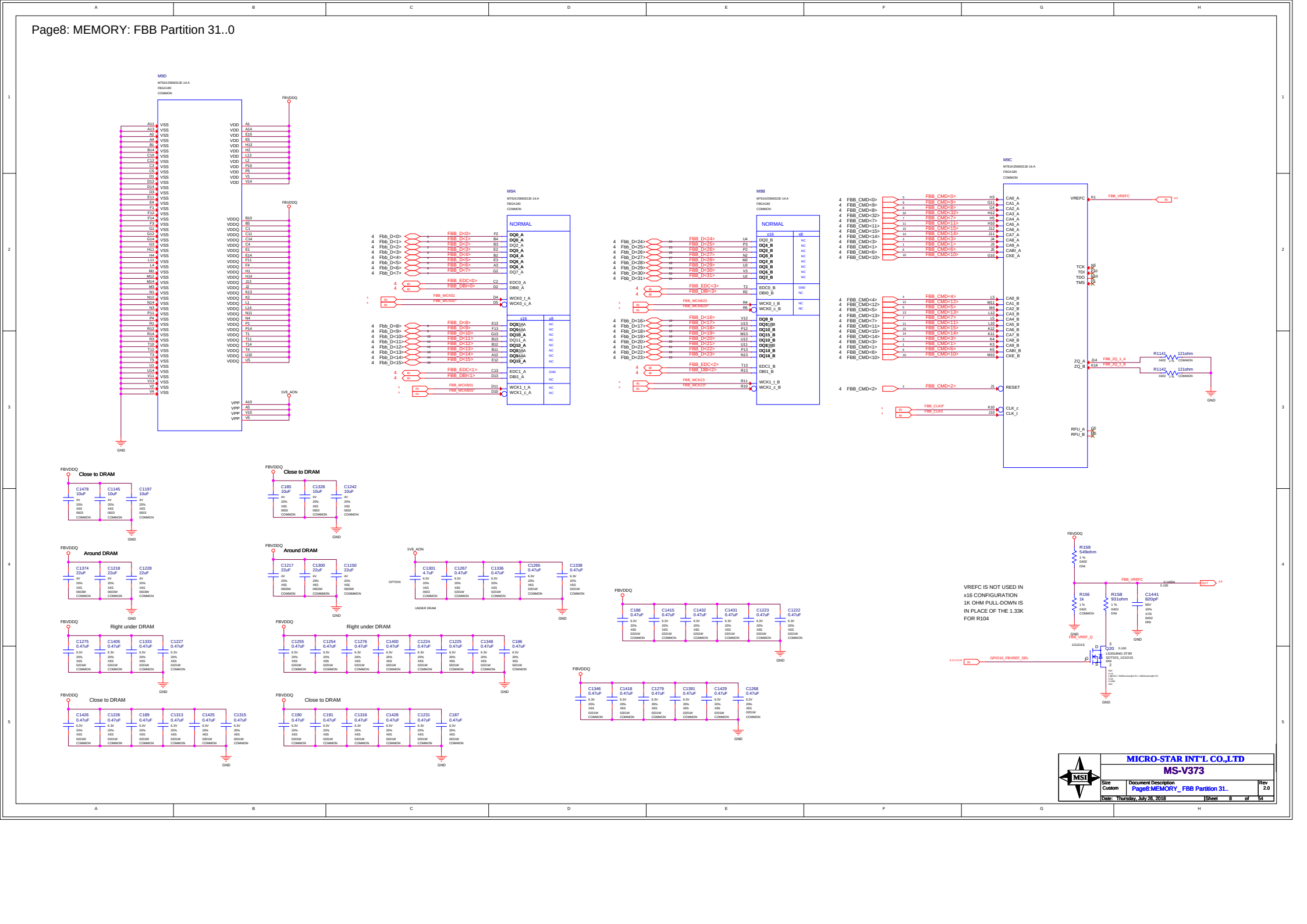
Page6: MEMORY: FBA Partition 31..0



Page7: MEMORY: FBA Partition 63..32



Page8: MEMORY: FBB Partition 31..0



Page9: MEMORY: FBB Partition 63..32

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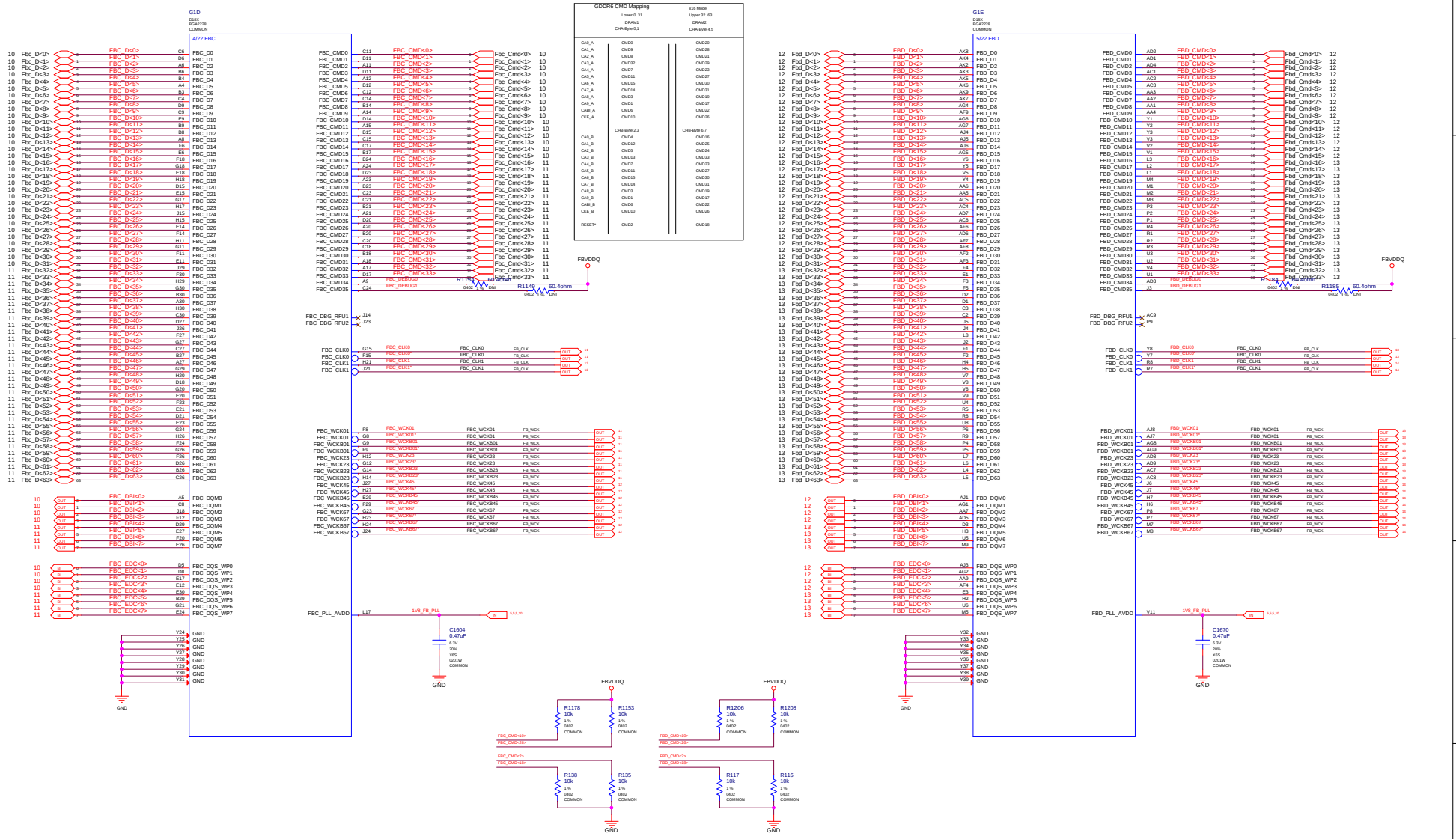
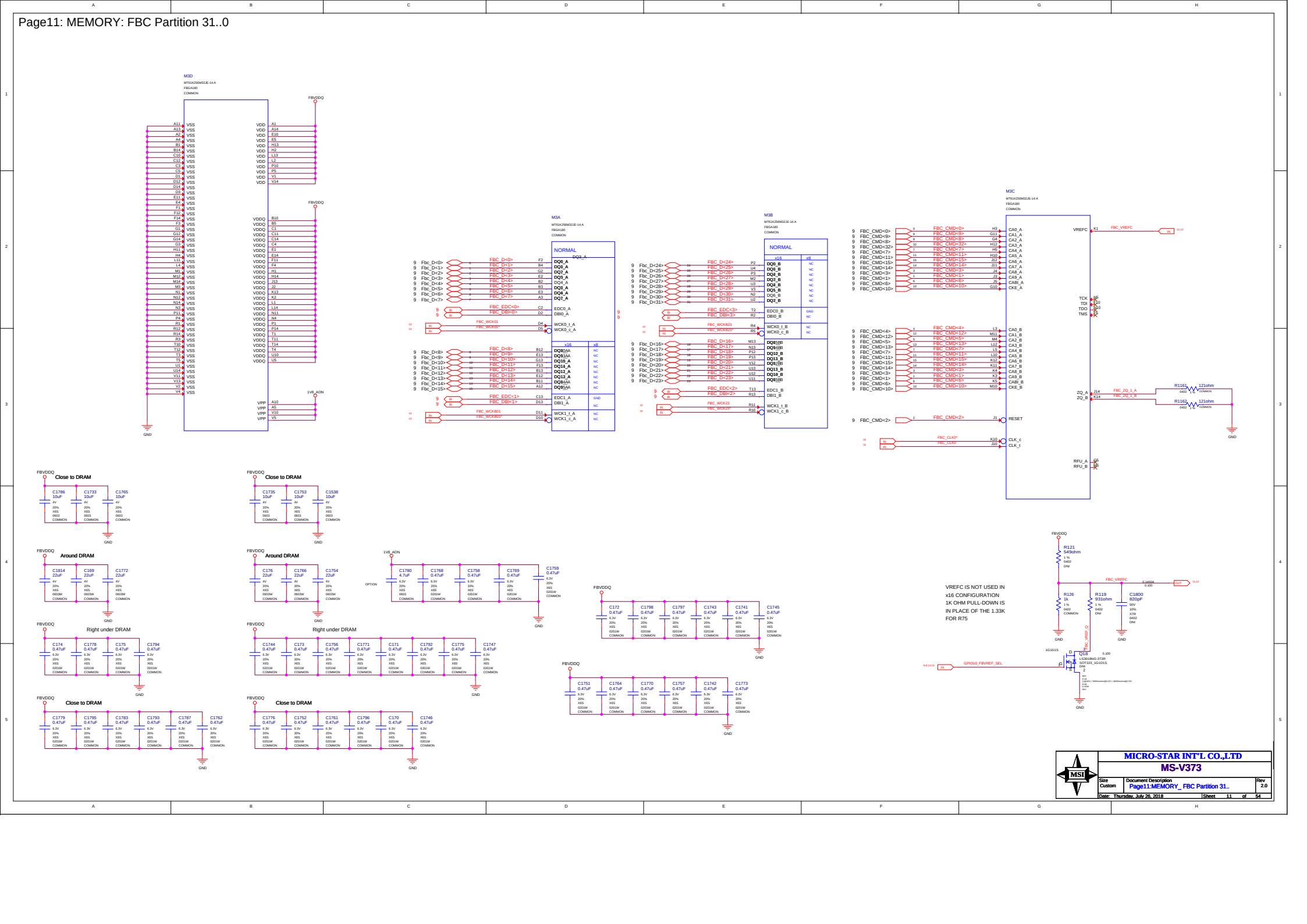
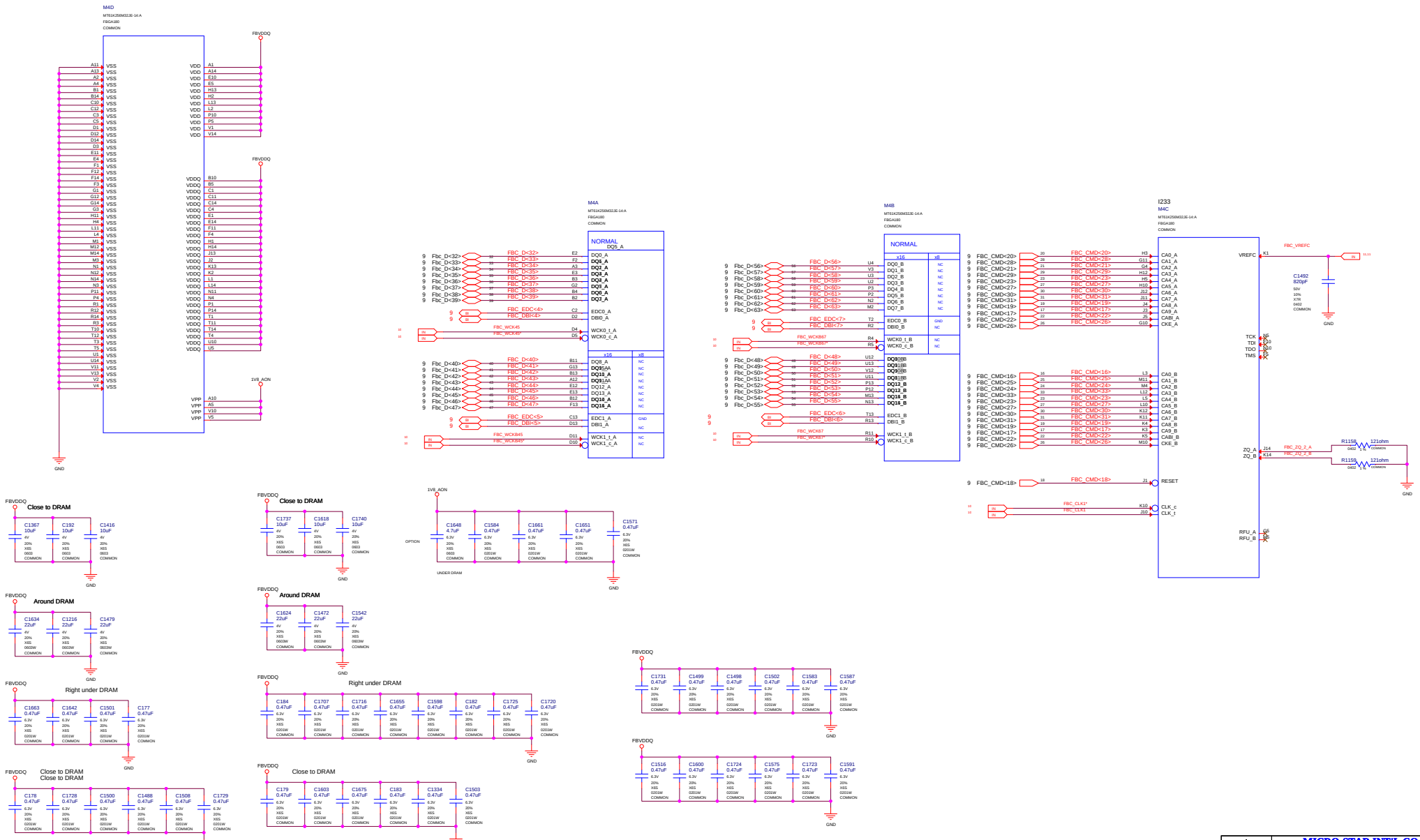
Page10: MEMORY: GPU Partition C/D



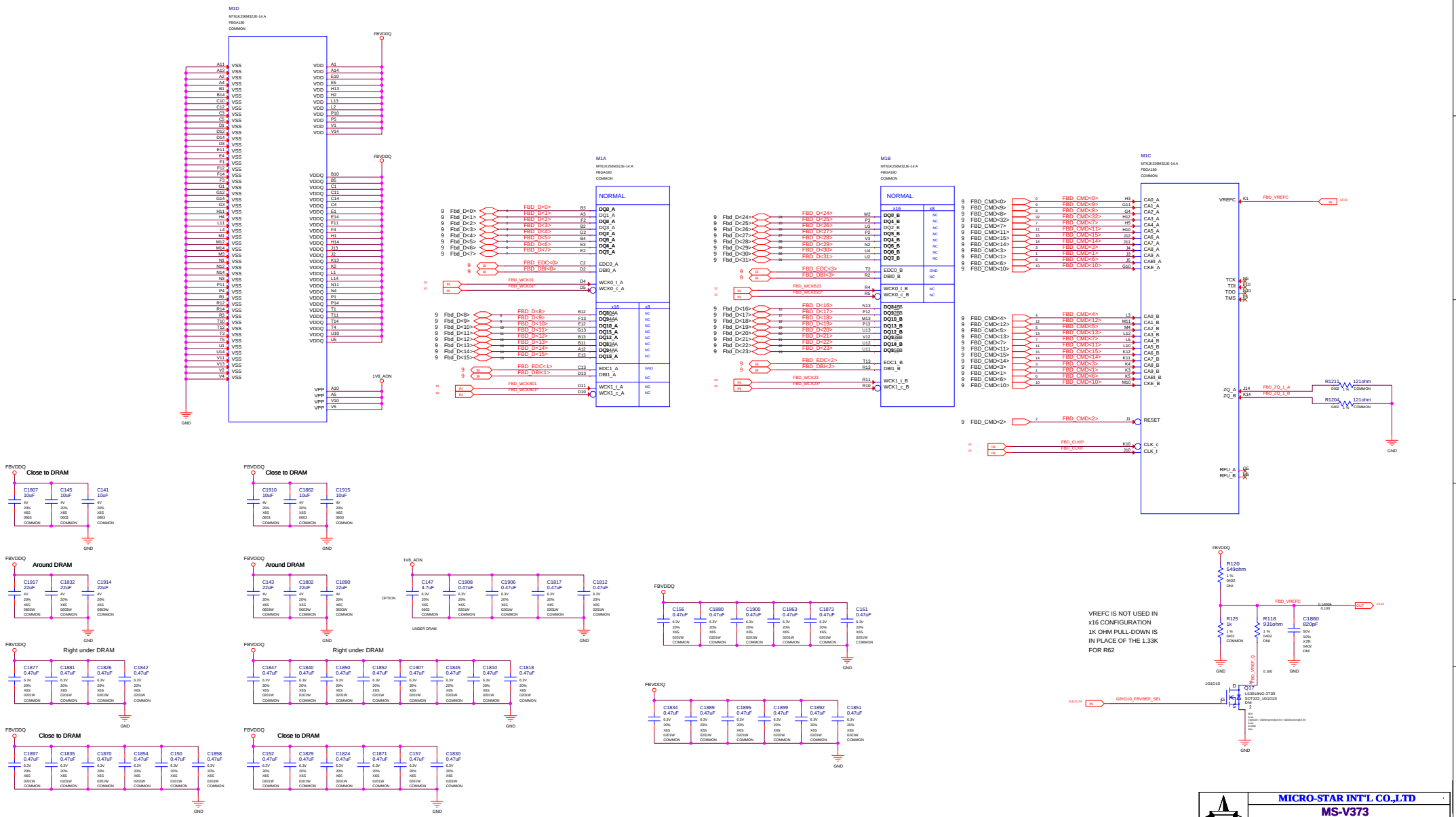
Page11: MEMORY: FBC Partition 31..0



Page12: MEMORY: FBC Partition 63..32



Page13: MEMORY: FBD Partition 31..0



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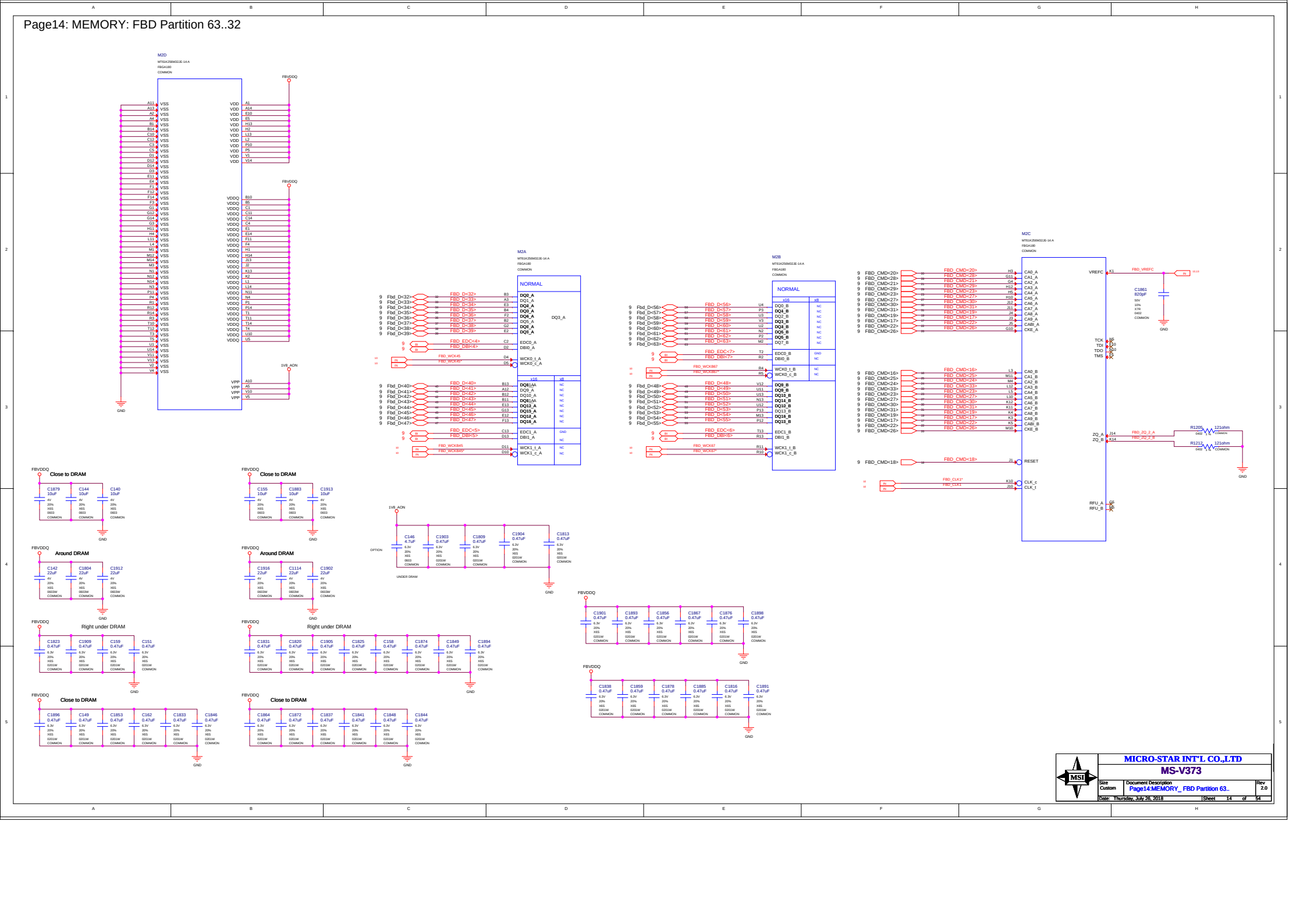
Page14: MEMORY: FBD Partition 63..32



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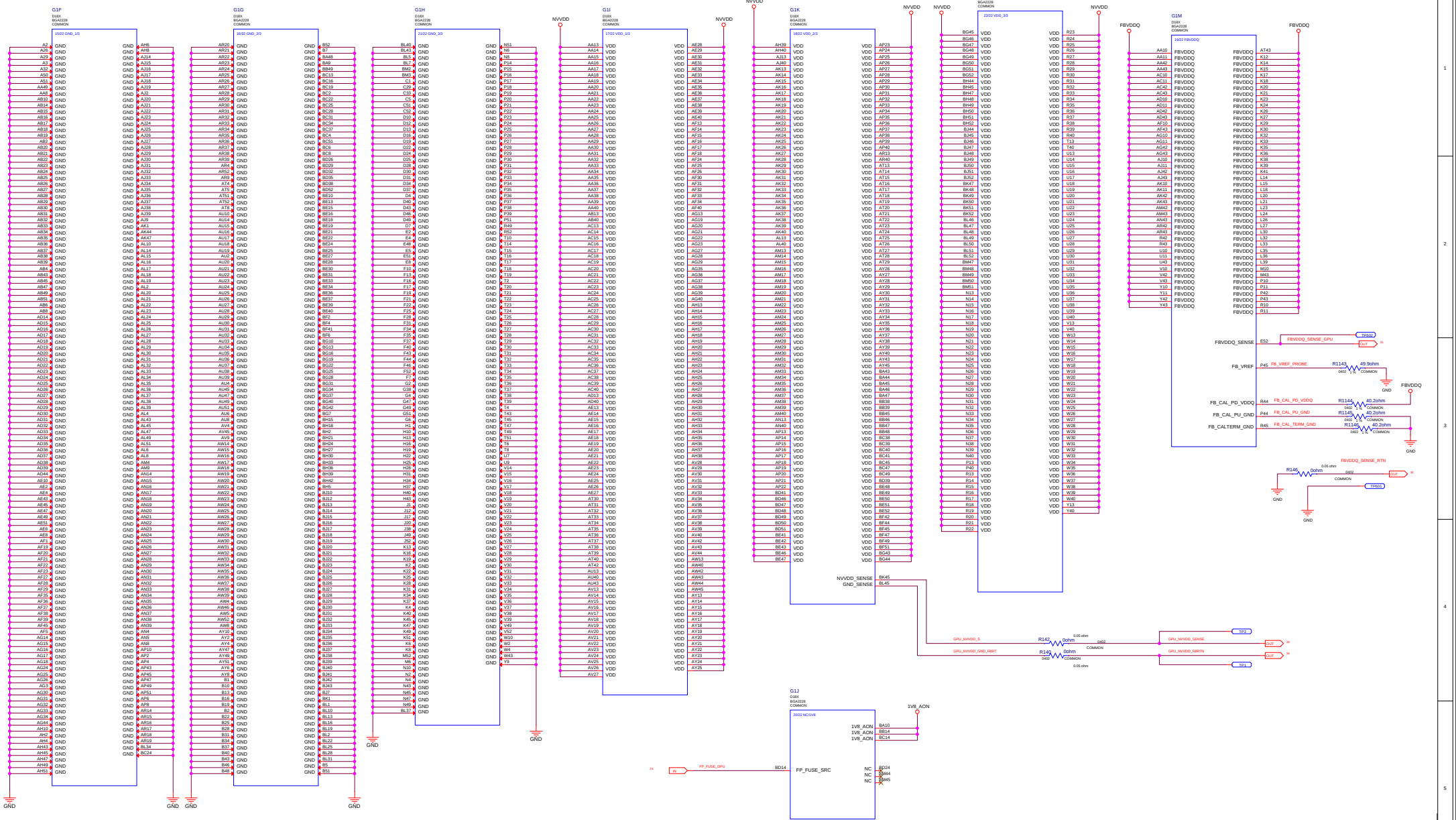
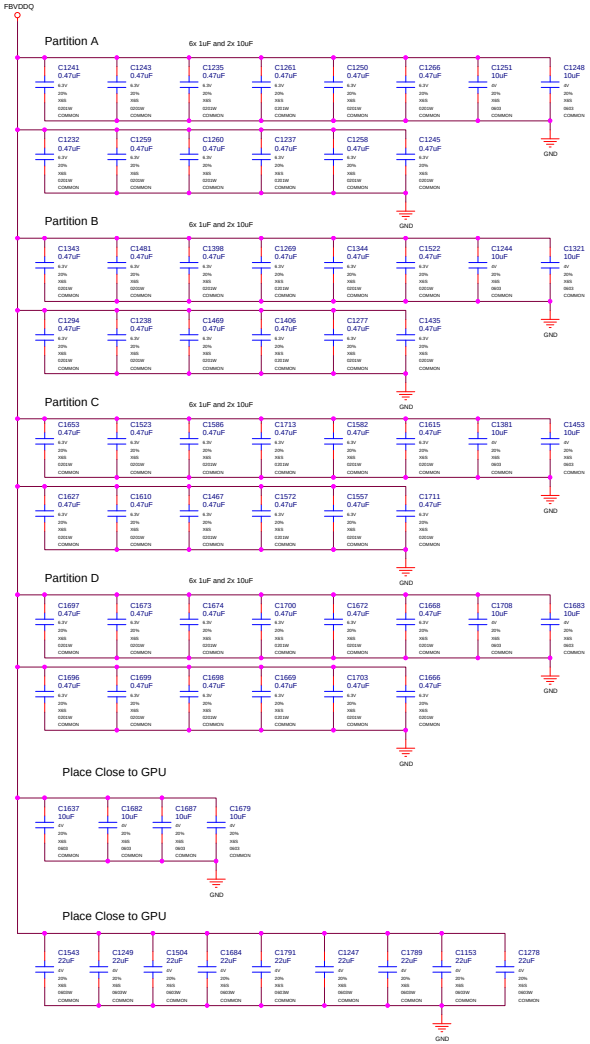
Page15: GPU PWR and GND



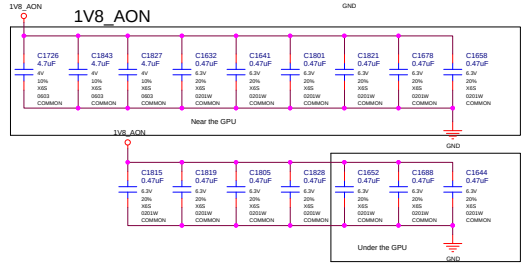
Page16: GPU Decoupling

FBVDDQ

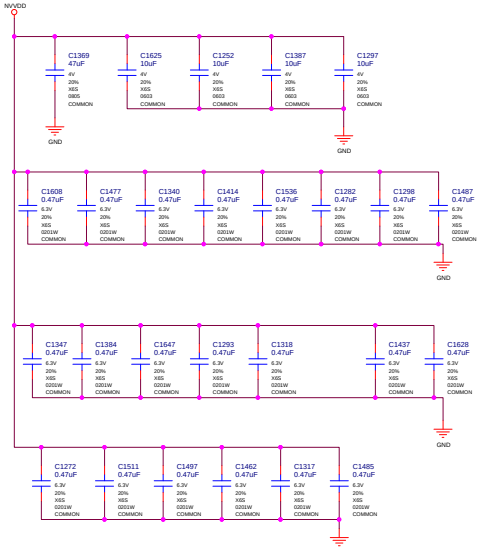


NVVDD

1V8_AON



NVVDD



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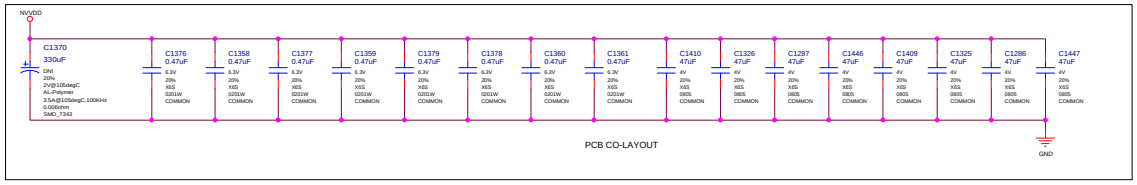
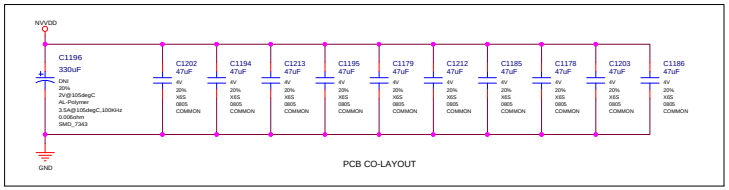
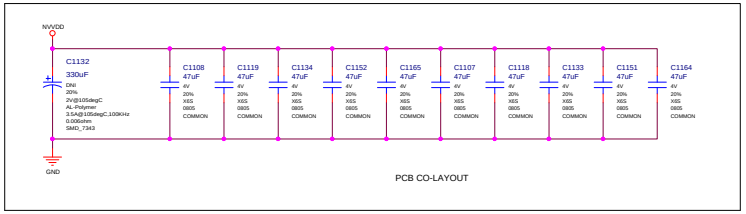
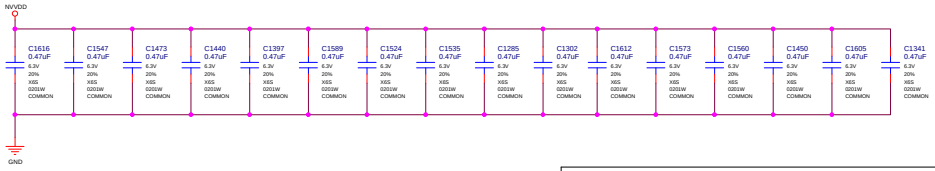
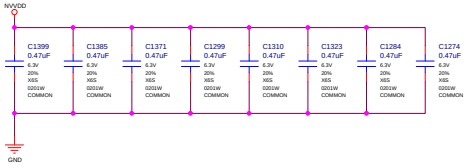
Page17: GPU Decoupling

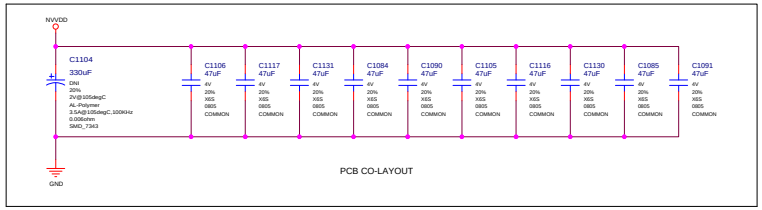


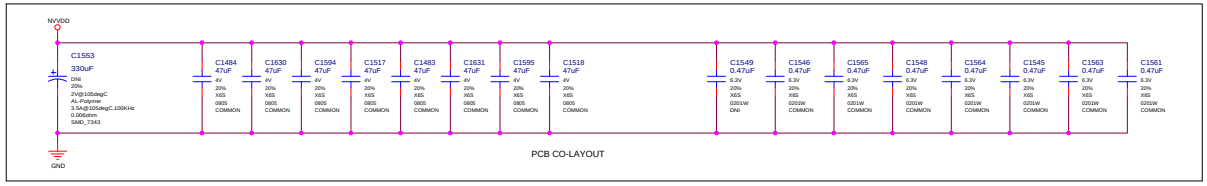












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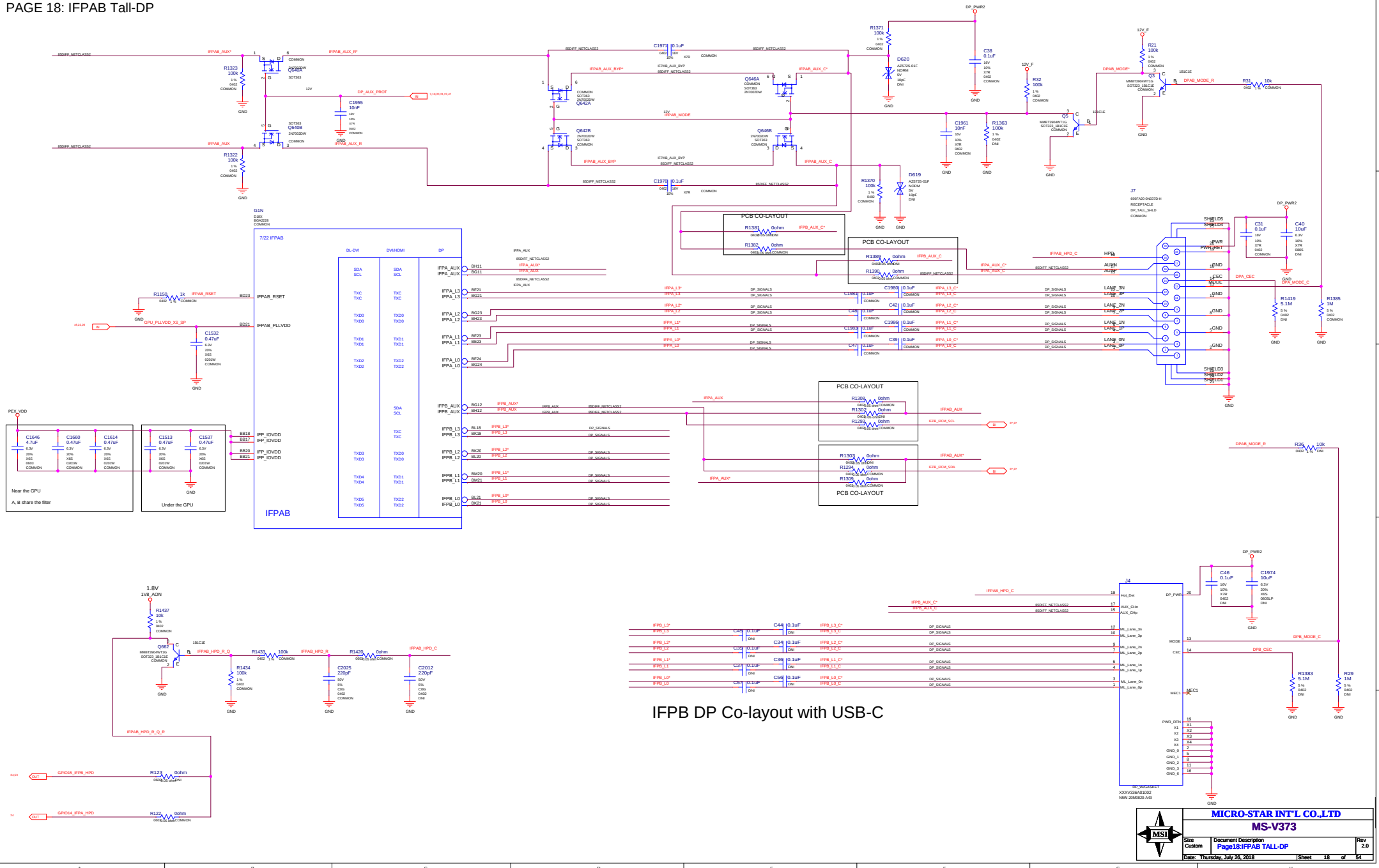
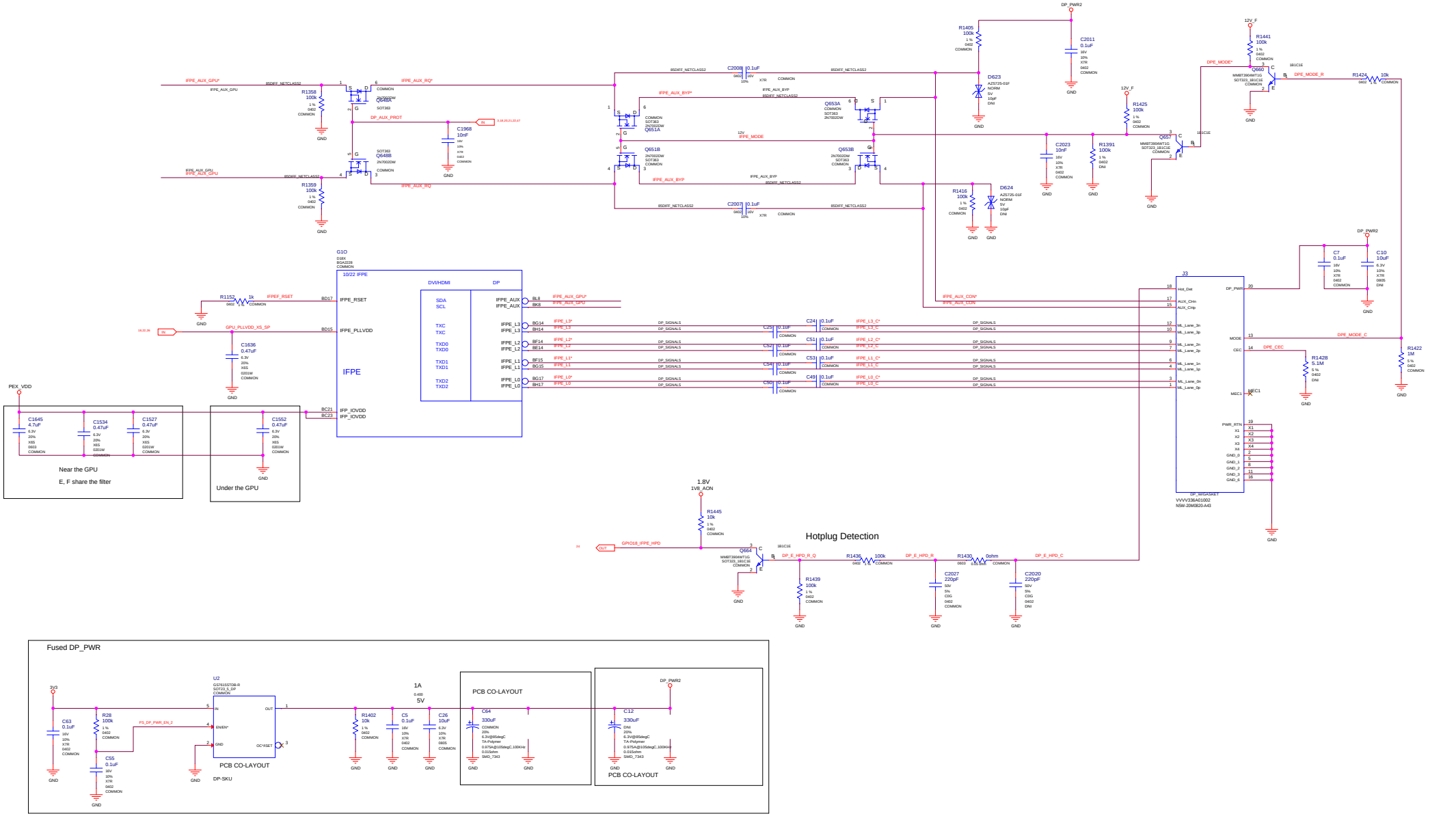
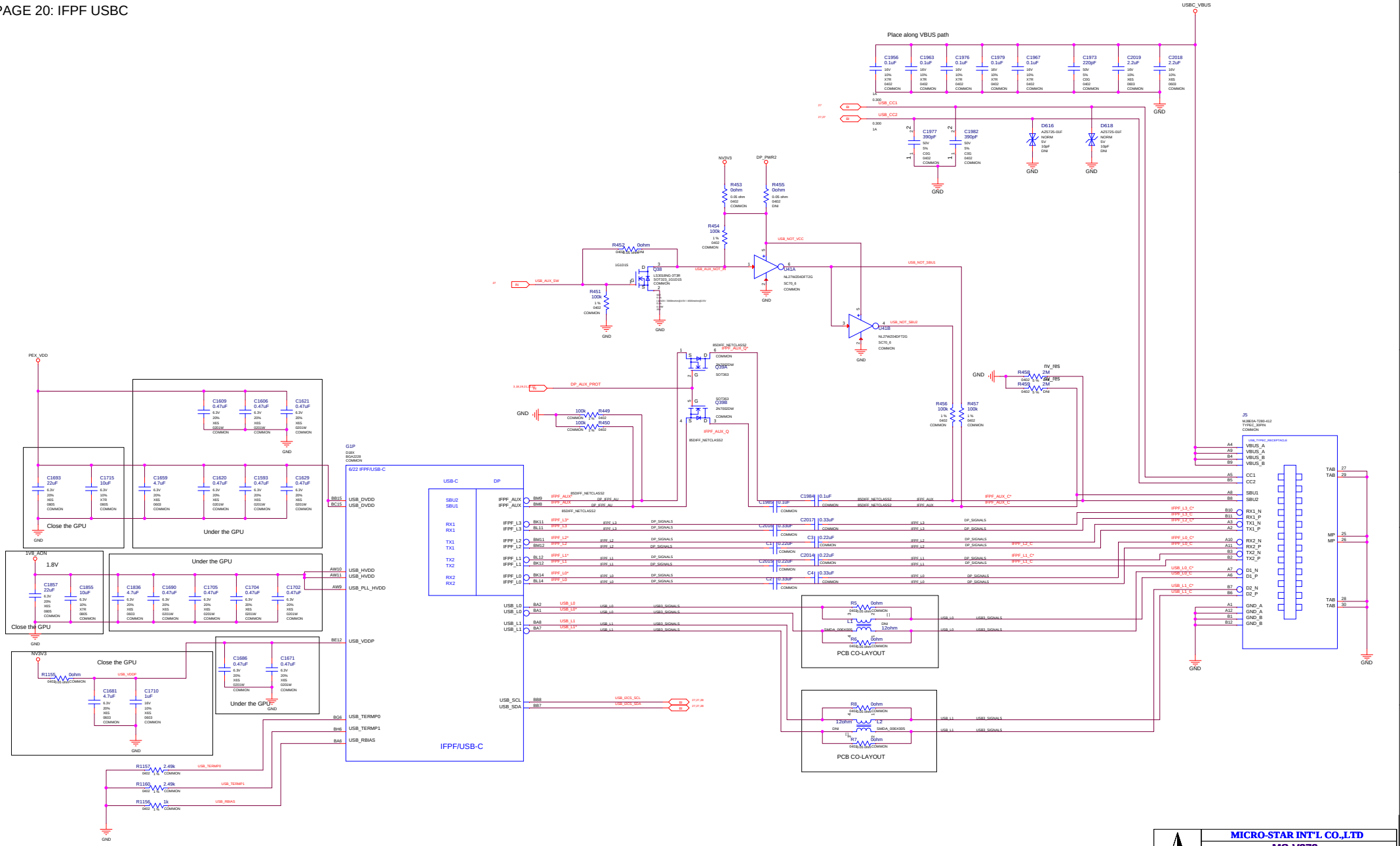


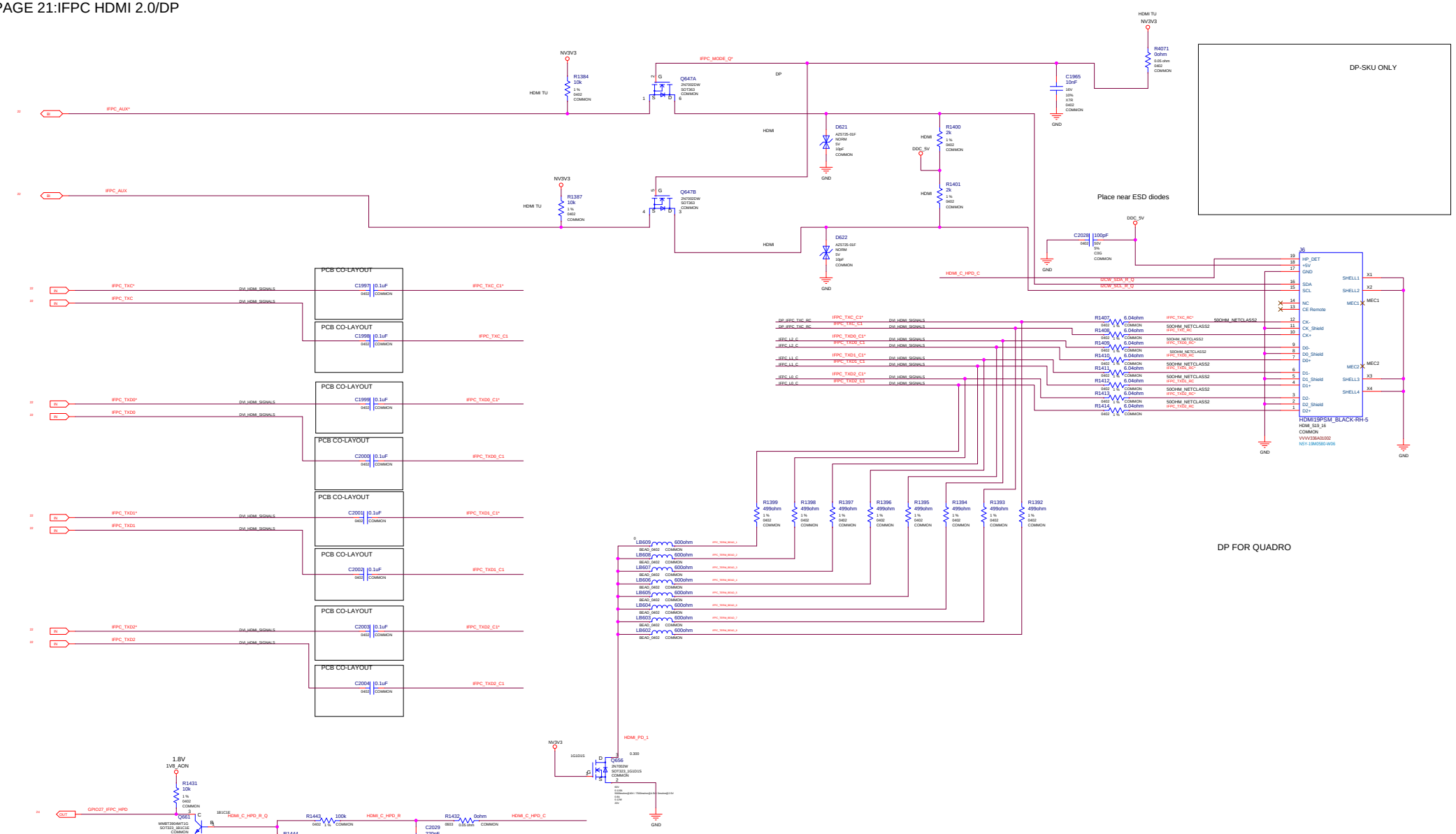
PAGE 19: IFPE DP

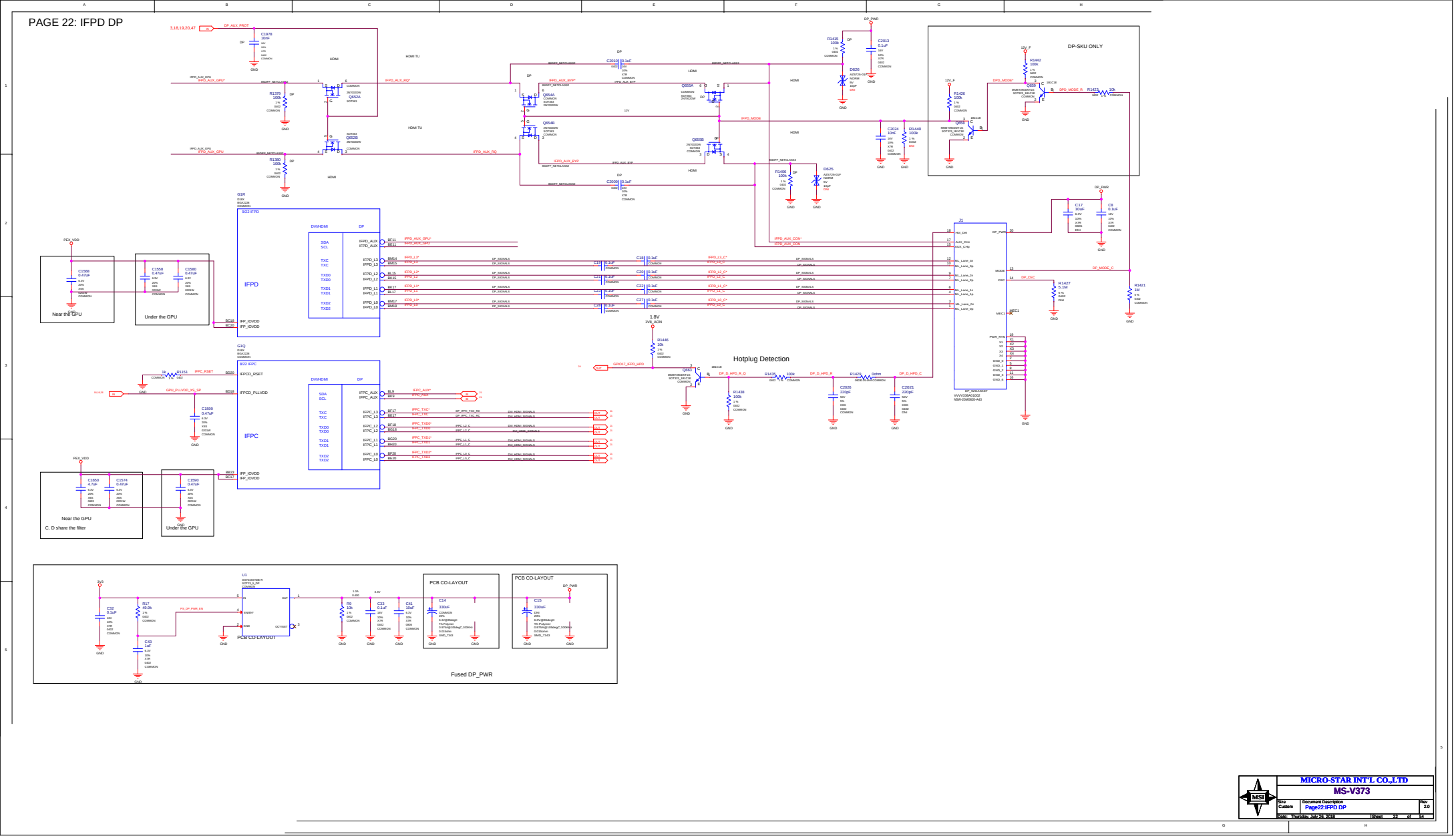


PAGE 20: IFPF USBC



PAGE 21:IFPC HDMI 2.0/DP




PAGE 22: IFPD DP
DP-SKU ONLY
IFPD
IFPC
Hotplug Detection
Near the GPU
Under the GPU
C, D share the filter
PCB CO-LAYOUT
Fused DP_PWR
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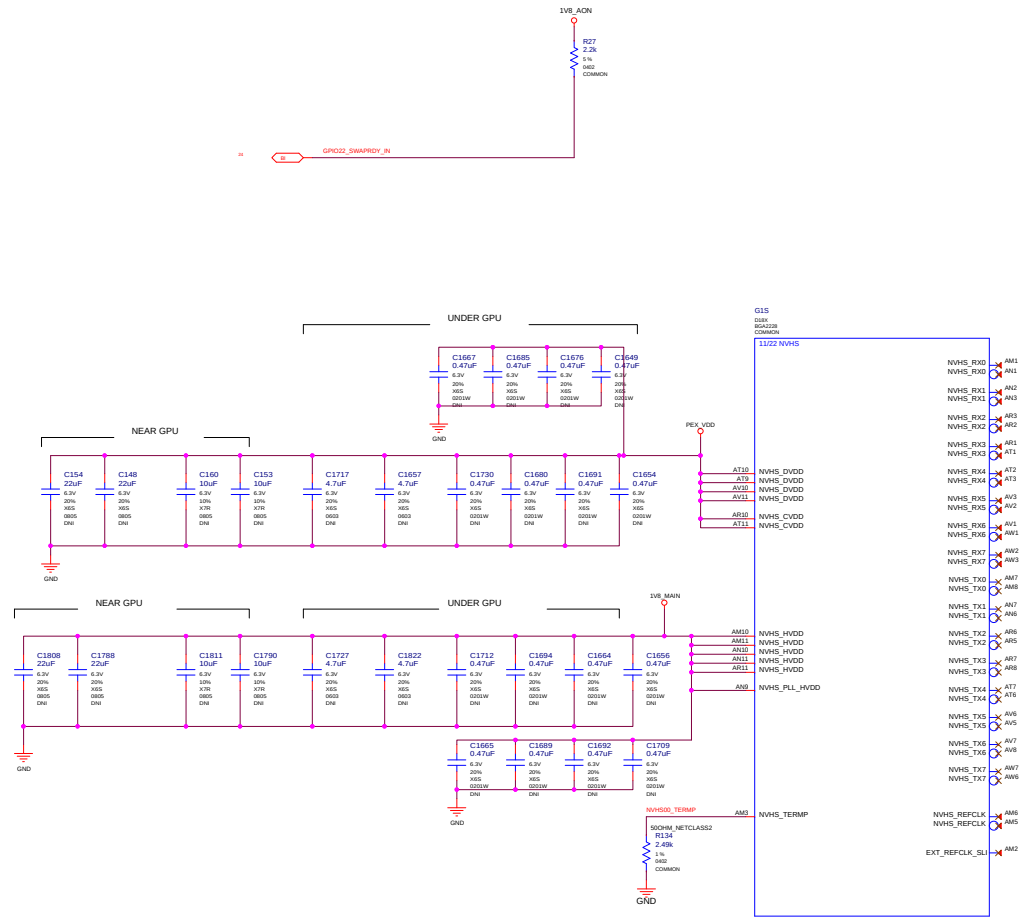
PAGE 23: NVHS Interface



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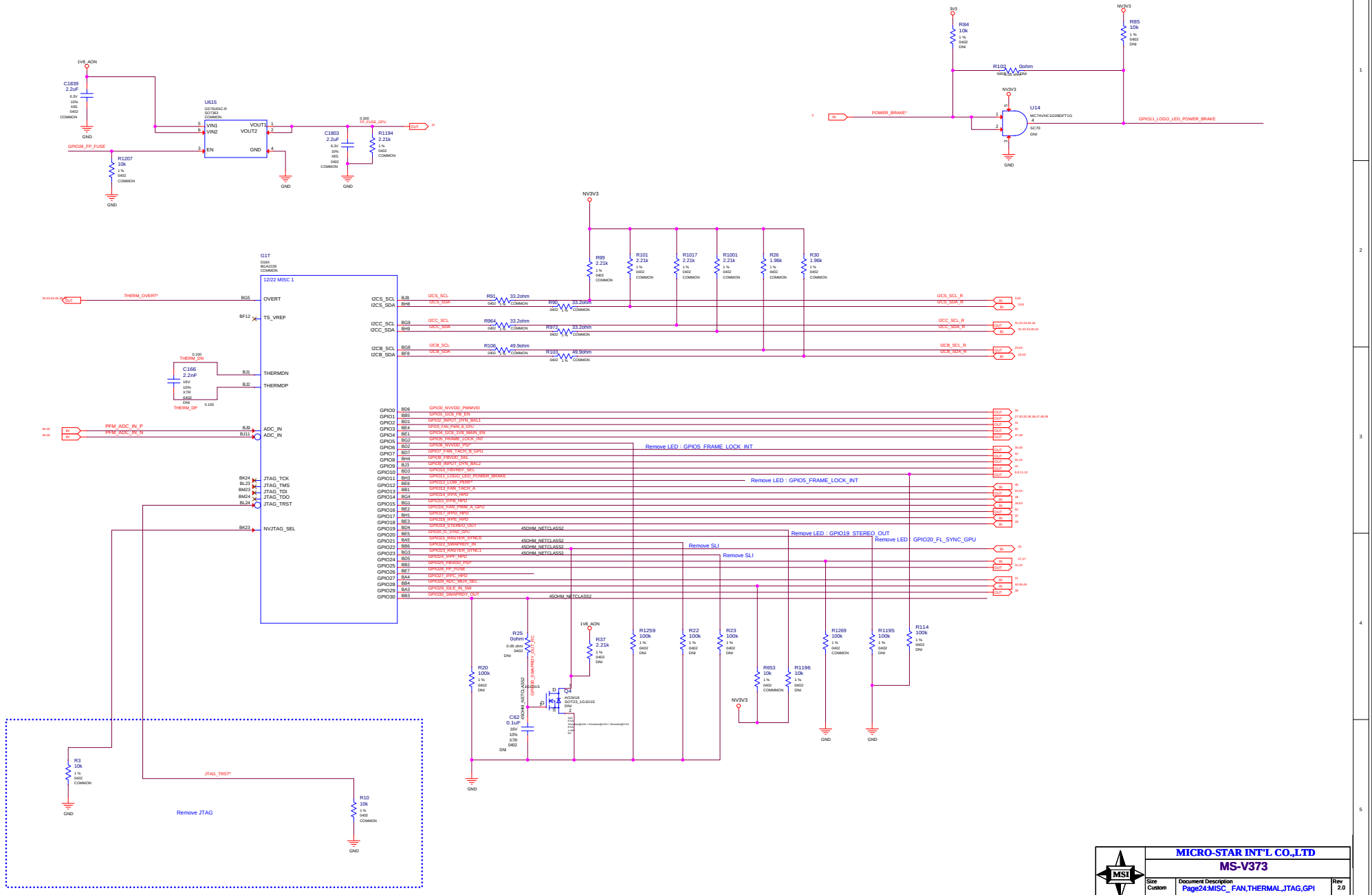
PAGE 24: MISC: Fan, Thermal, JTAG, GPIO, STEREO



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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	DEFAULT
L	H	L	00010	RAMCFG TBD	
L	H	H	00011	RAMCFG TBD	
H	H	L	00110	RAMCFG TBD	
H	H	H	00111	RAMCFG TBD	

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	Samsung
00111	16Gb	256-bit	Samsung

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	

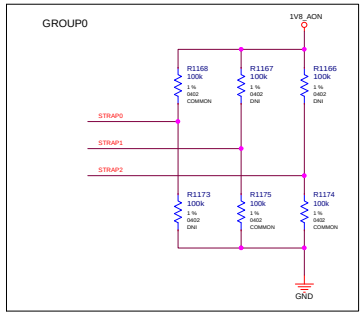
STRAP5	STRAP4	STRAP3	SMB_ALT_ADDR	DEVID_SEL	PCIE_CFG	VGA_DEVICE	
M	H	H	1	1	1	1	
M	H	L	1	1	1	0	
M	L	H	1	1	0	1	
M	L	L	1	1	0	0	
L	H	M	1	0	1	1	
L	M	H	1	0	1	0	
L	M	L	1	0	0	1	
L	L	M	1	0	0	0	
H	H	H	0	1	1	1	
H	H	L	0	1	1	0	
H	L	H	0	1	0	1	
H	L	L	0	1	0	0	
L	H	H	0	0	1	1	
L	H	L	0	0	1	0	
L	L	H	0	0	0	1	Default
L	L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

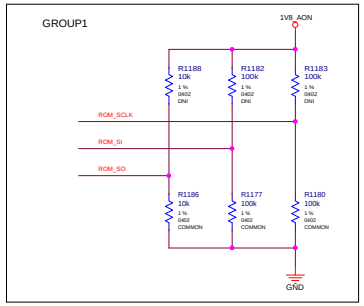
1:SMB_ALT_ADDR ENABLE
0:SMB_ALT_ADDR DISABLE

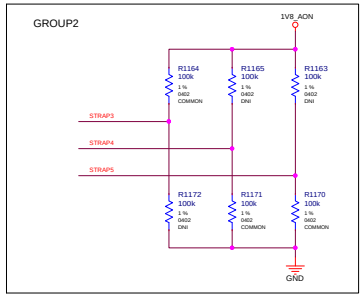
1:DEVID_SEL REBRAND
0:DEVID_SEL ORIGNAL

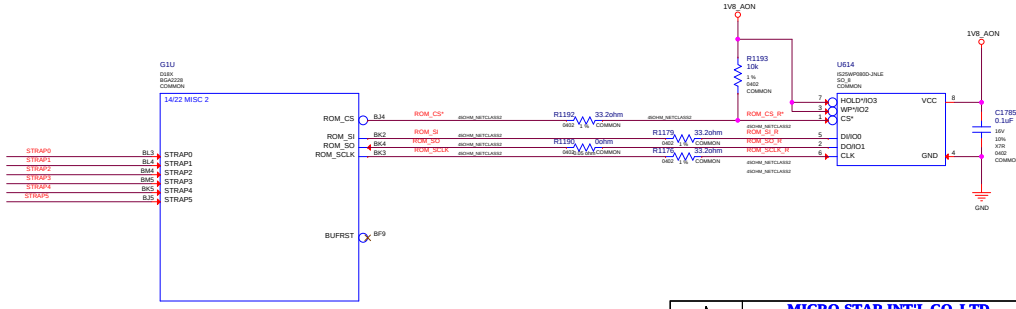
1:PCIE_CFG LOW POWER
0:PCIE_CFG HIGH POWER

1:VGA_DEVICE ENABLE
0:VGA_DEVICE DISABLE









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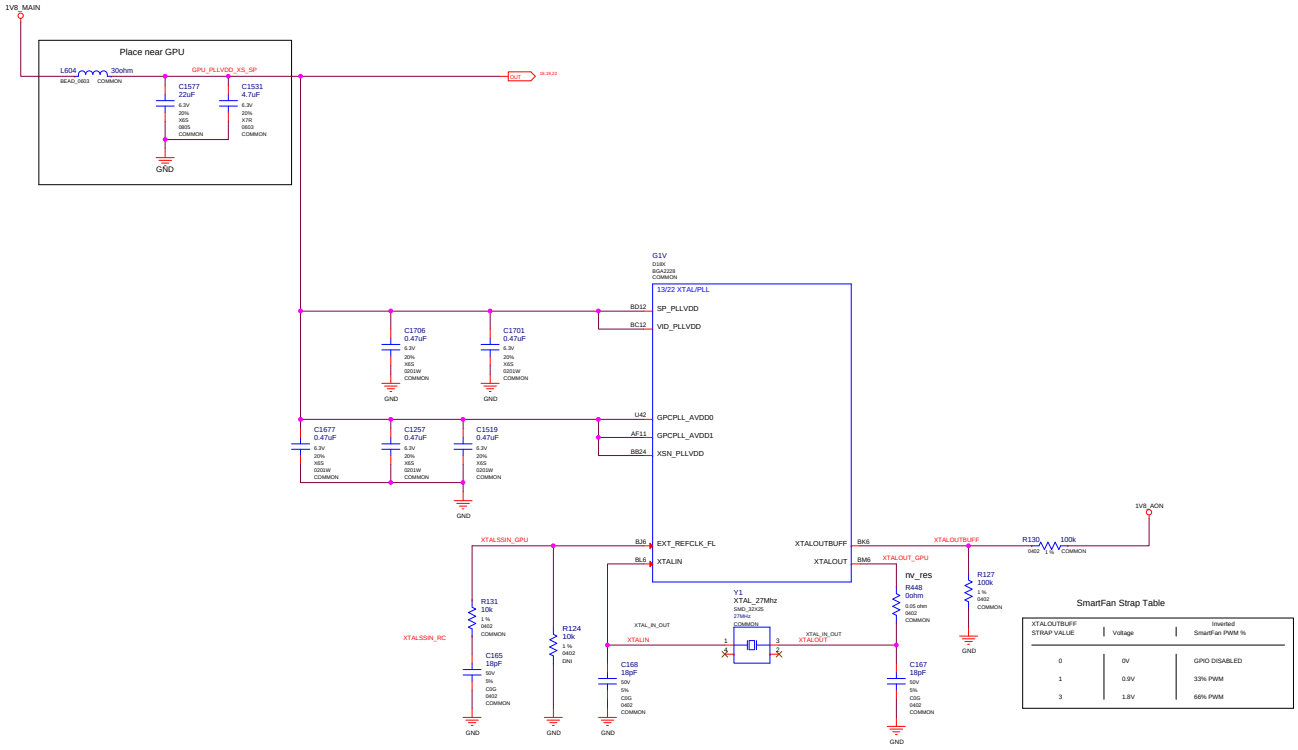
PAGE 26: MISC: XTAL. PLL



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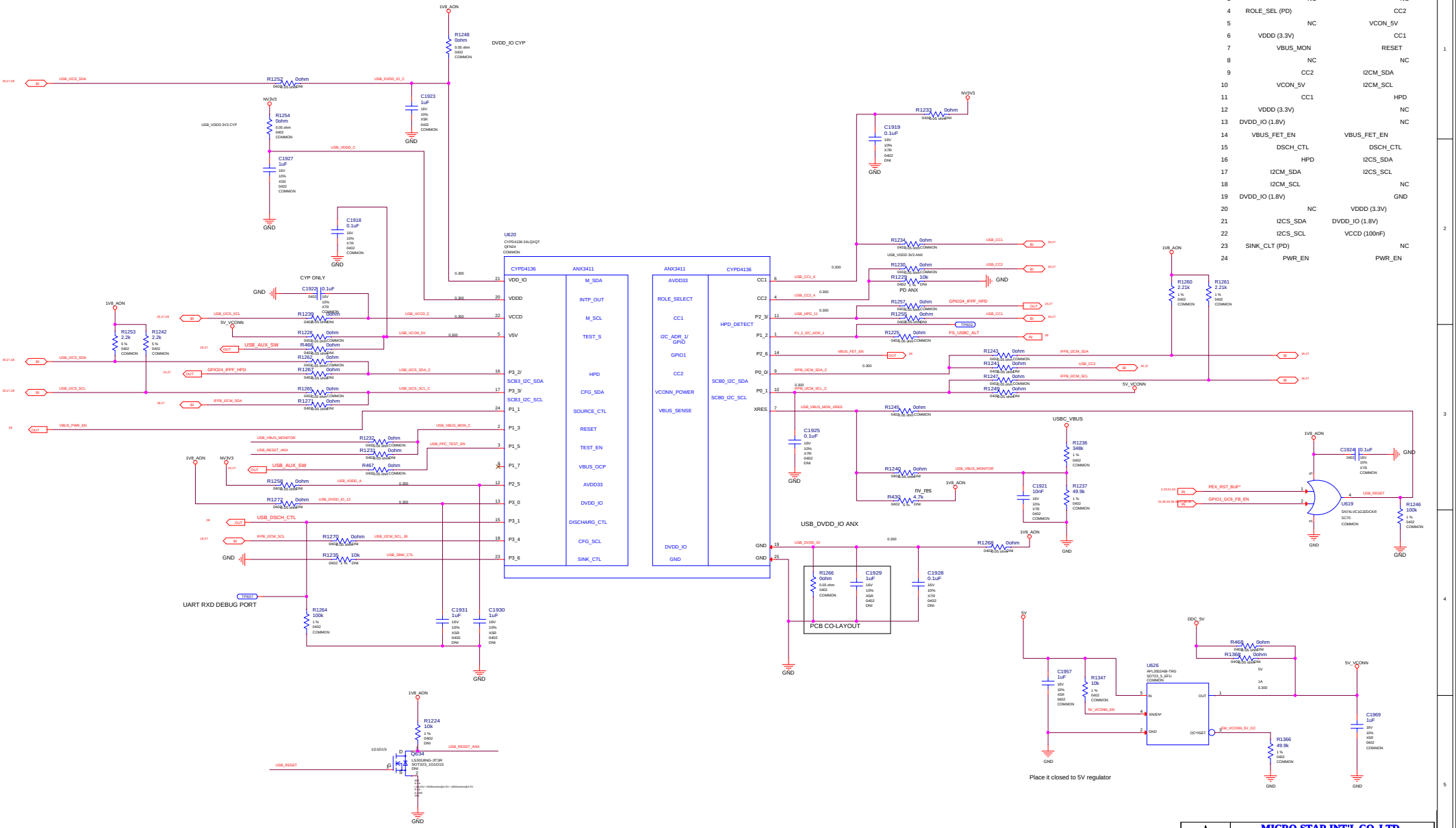
PAGE 27: MISC: USB PPC

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



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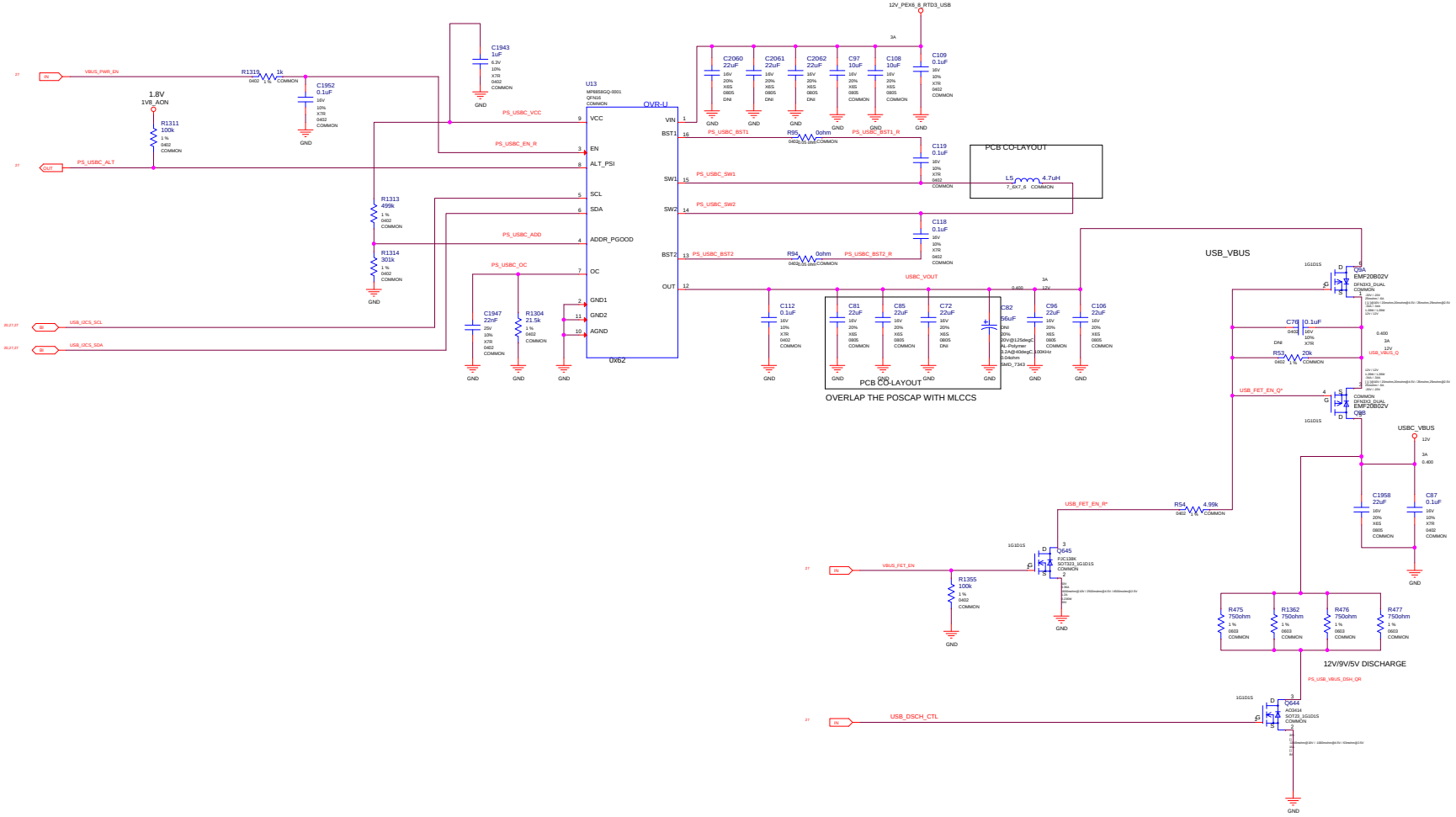
PAGE 28: PS: USB VR



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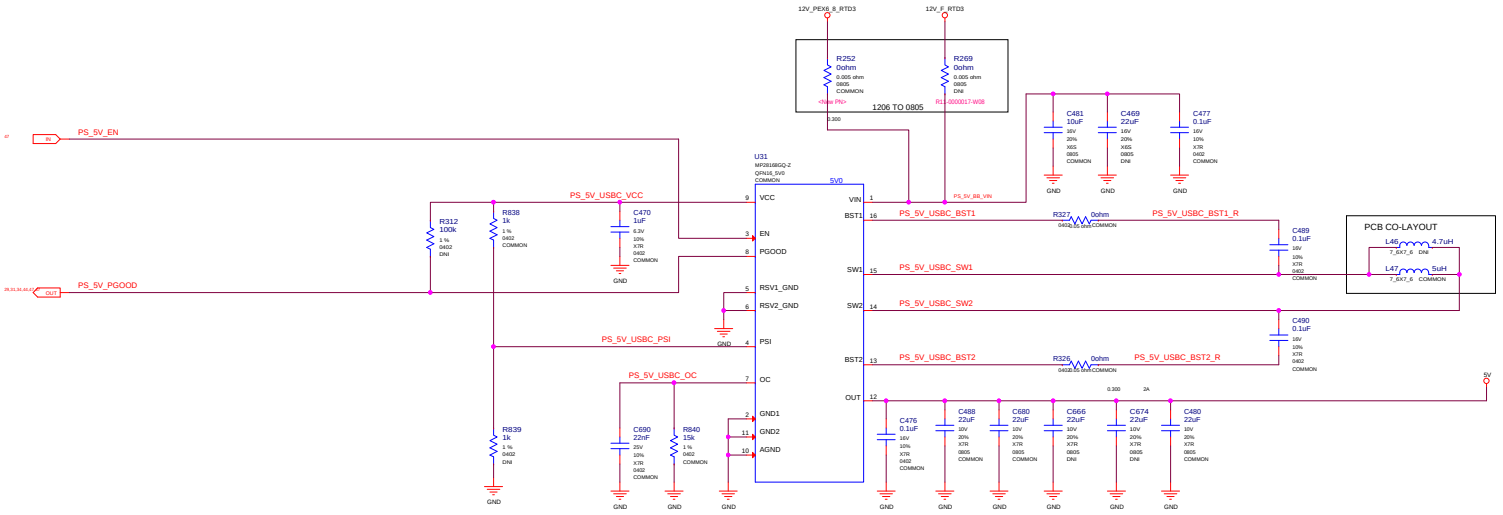
PAGE 29: PS: 5V, 5V_BACKUP



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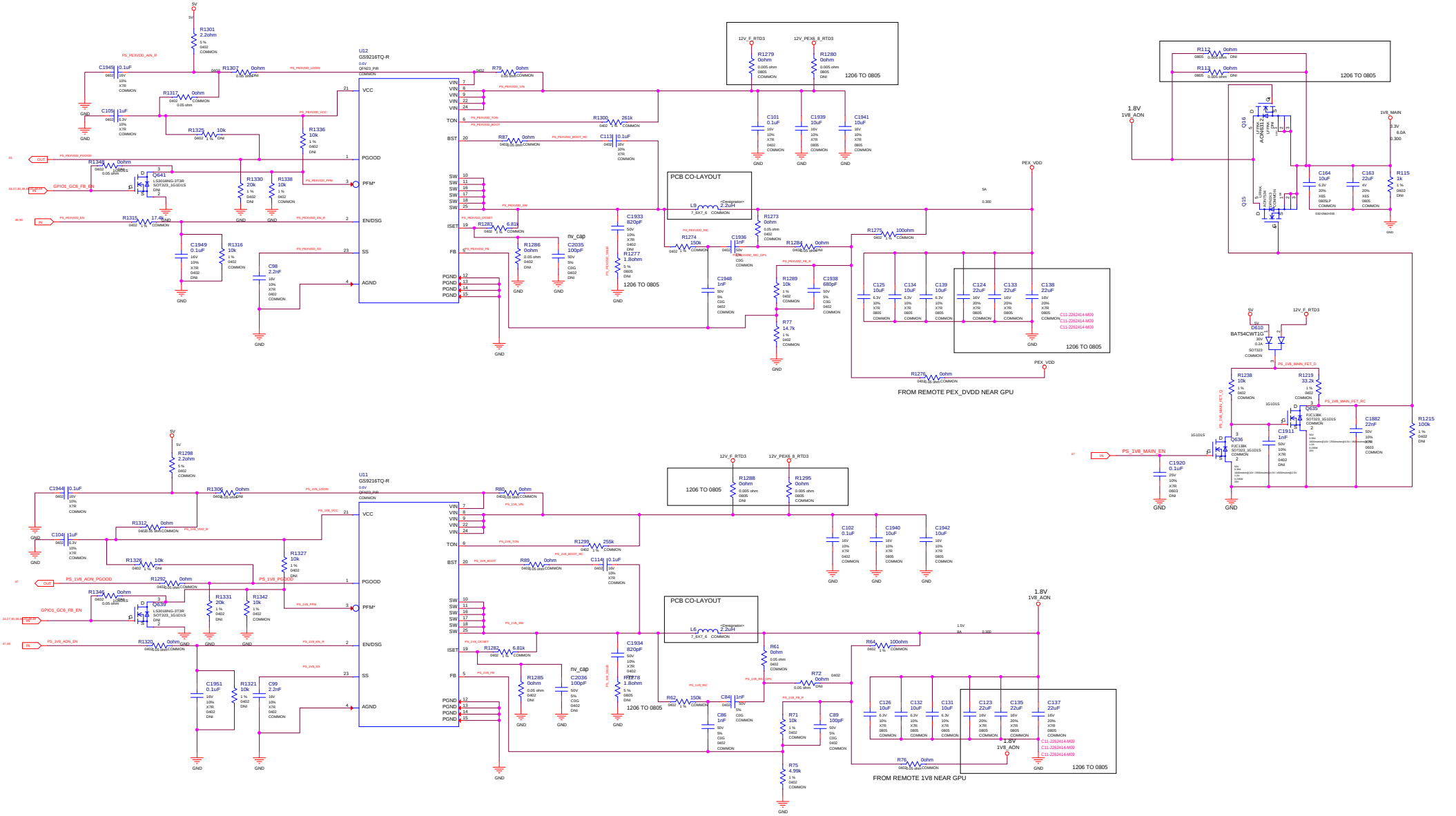
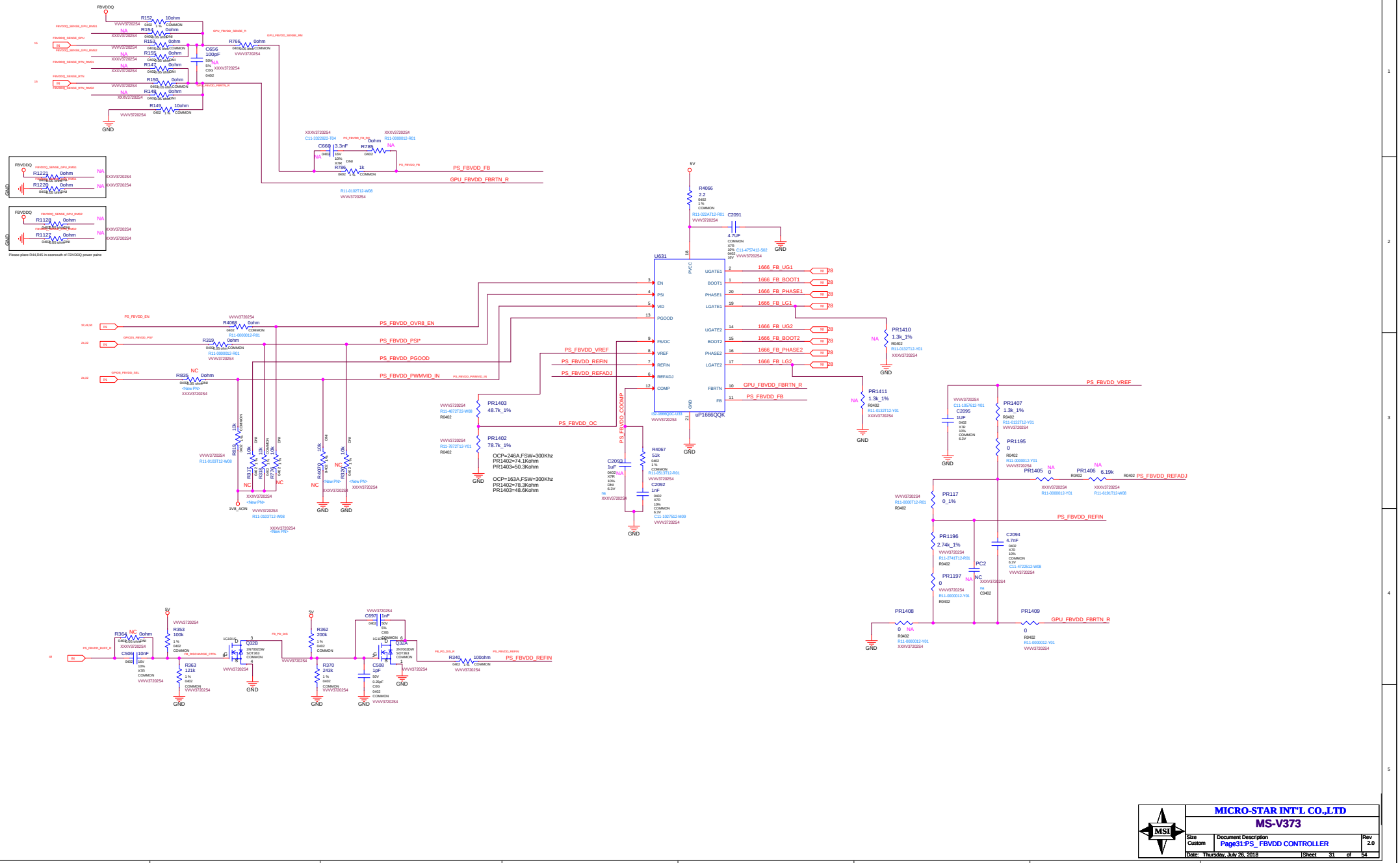
PAGE 30: PS: PEXVDD, 1V8



PAGE 31: PS: FBVDD Controller



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PAGE 32: PS: FBVDD Controller OVR3

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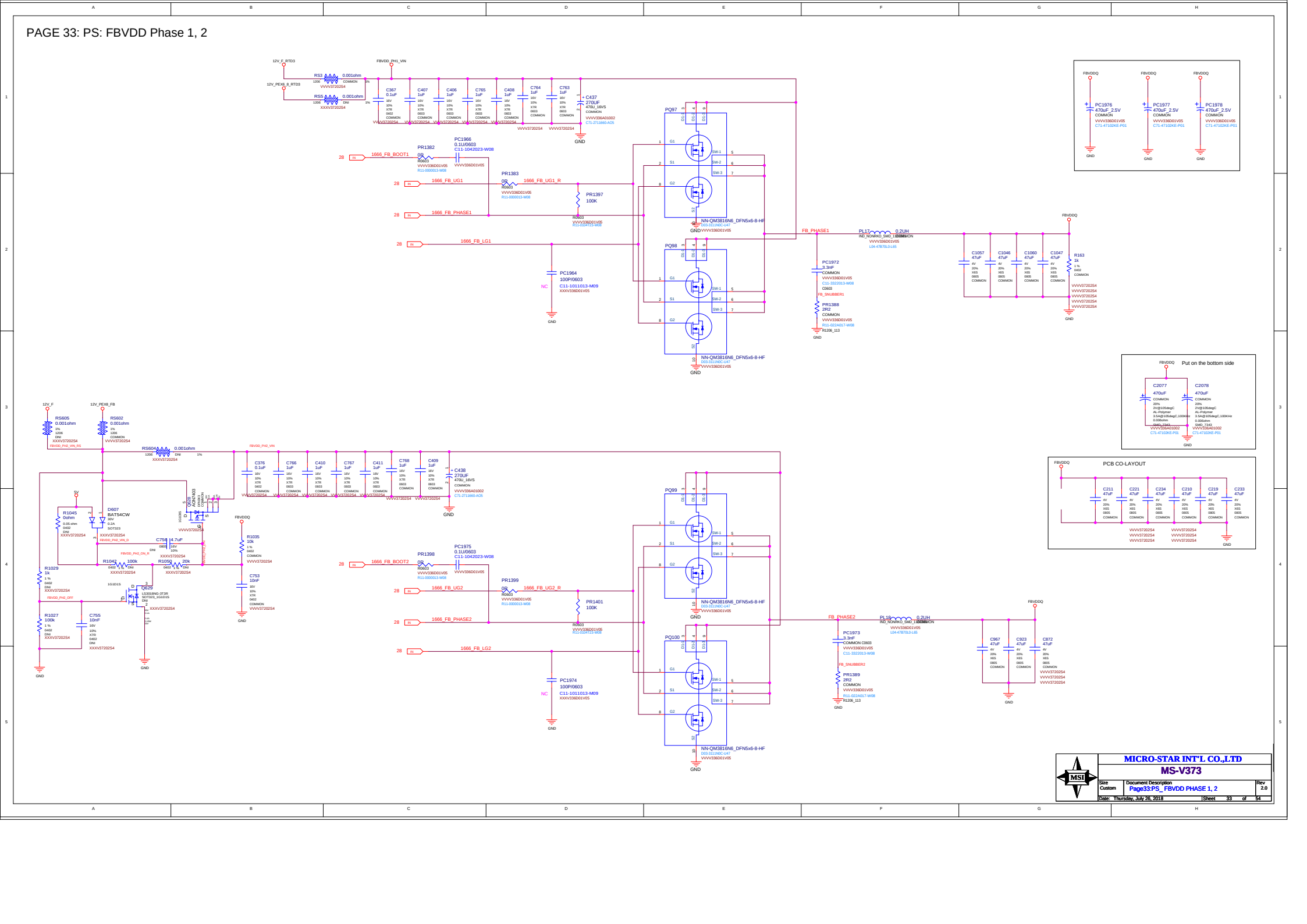
PAGE 33: PS: FBVDD Phase 1, 2



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Size: Custom	Document Description: Page33:PS_ FBVDD PHASE 1, 2 — Rev: 2.0
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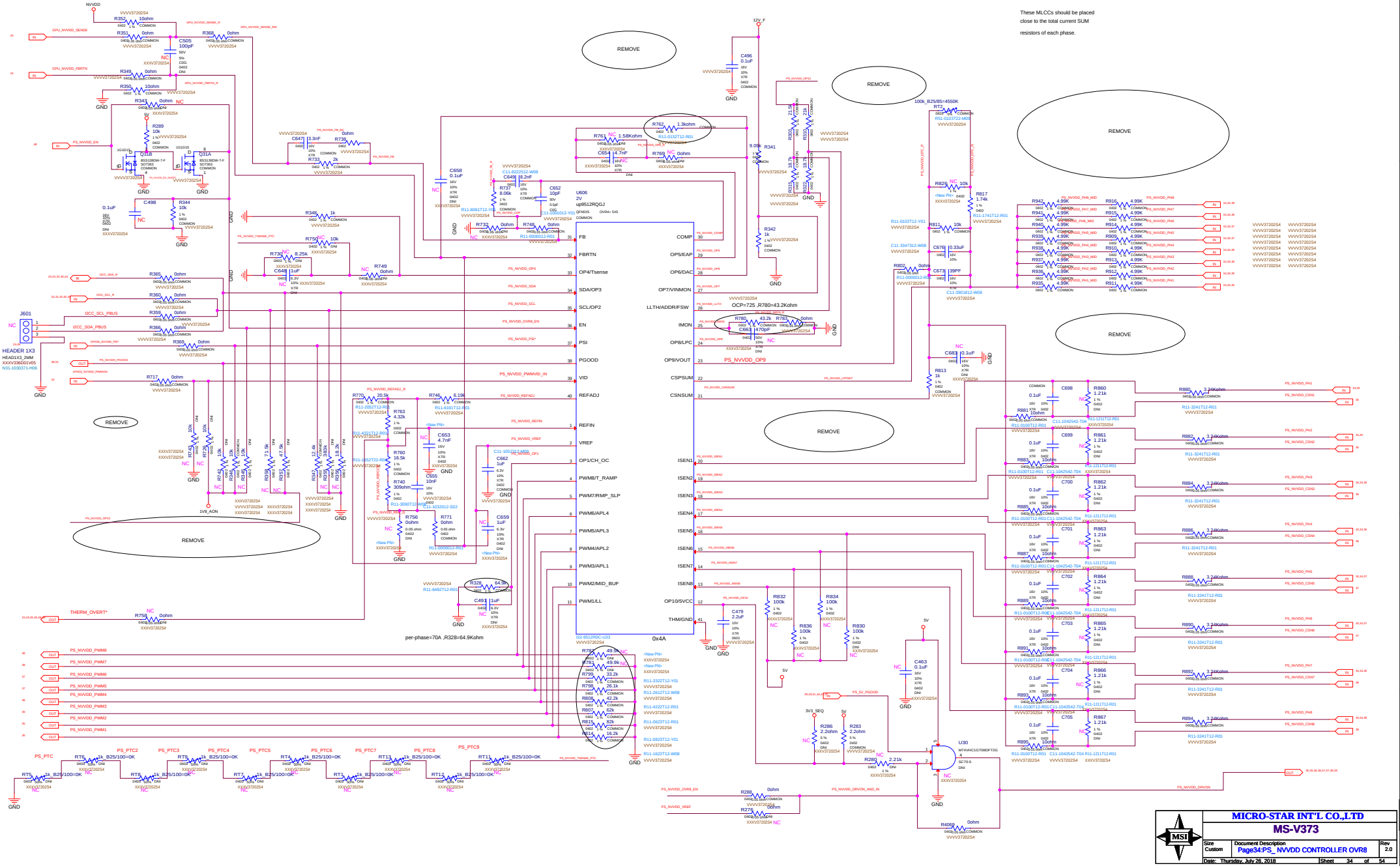
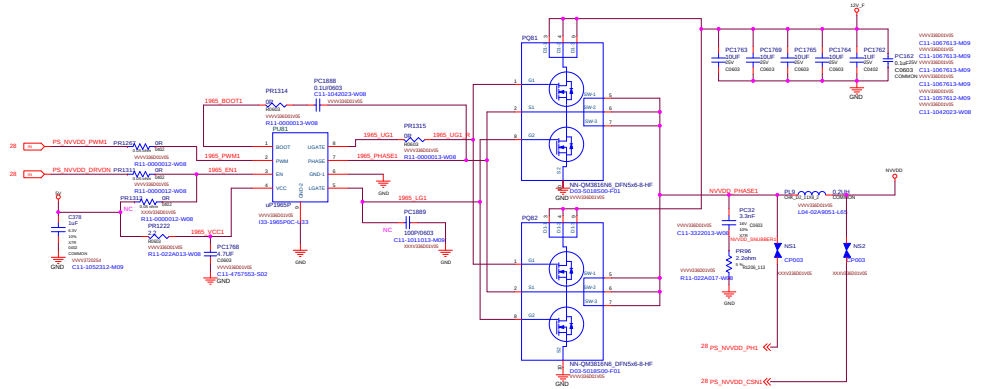
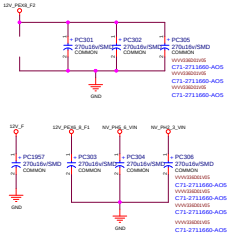
PAGE 34: PS: NVVDD Controller OVR8



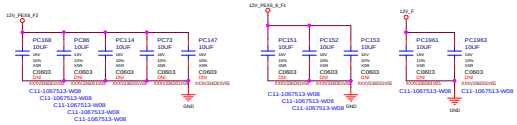
PAGE 35: PS: NVVDD Phase 1, 2

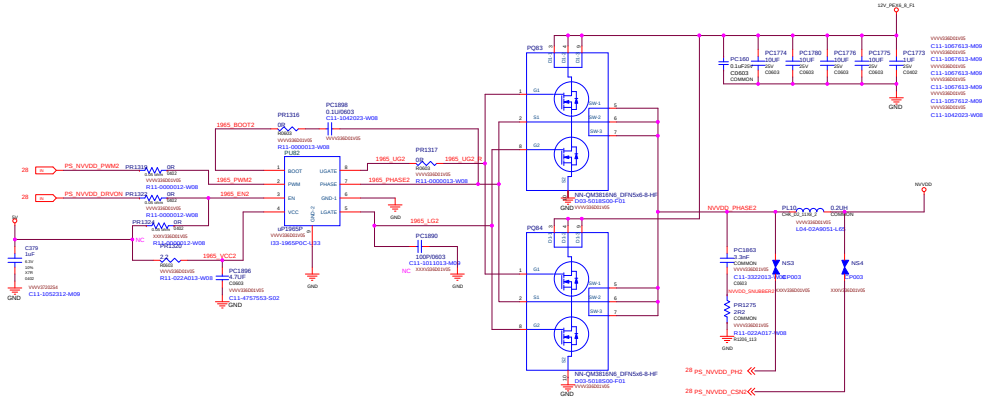


EXT_12V Input CAP



Backup





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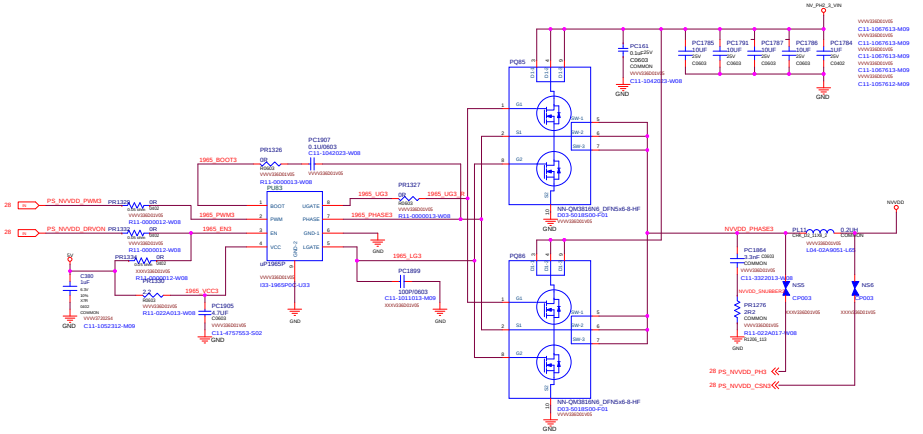

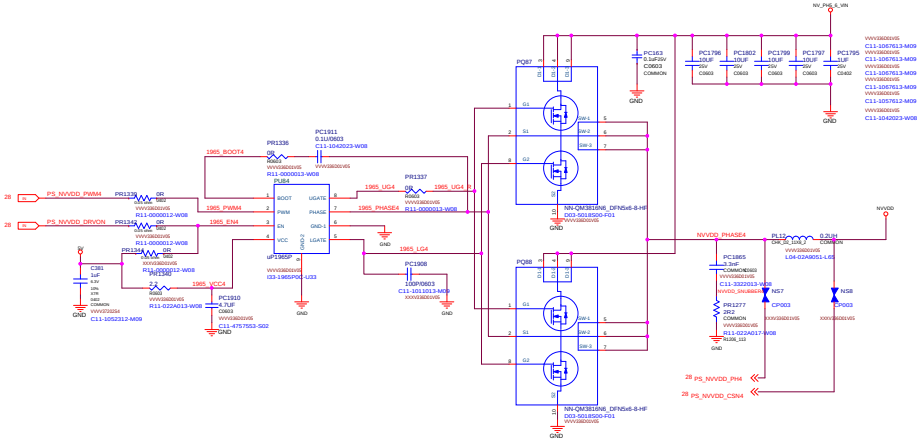

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Size: D	Document Description: Page36:PS_ NVVDD Phase 3, 4		Rev: 2.0
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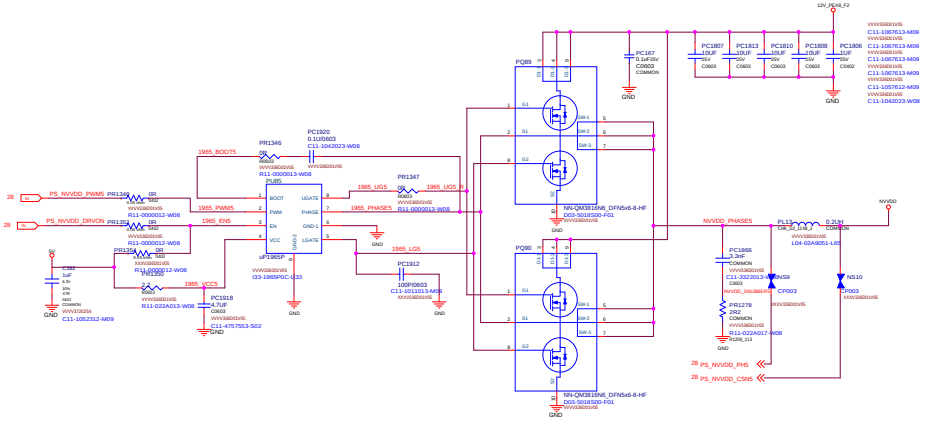

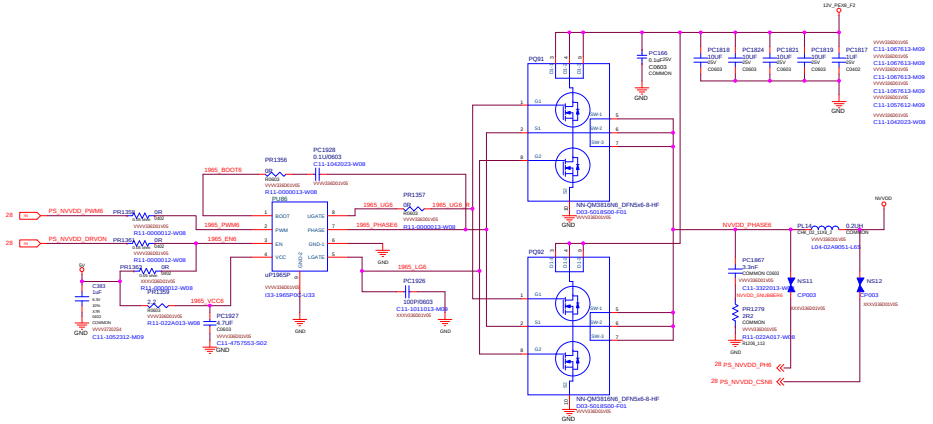

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Size: D	Document Description: Page37:PS_ NVVDD Phase 5, 6		Rev: 2.0
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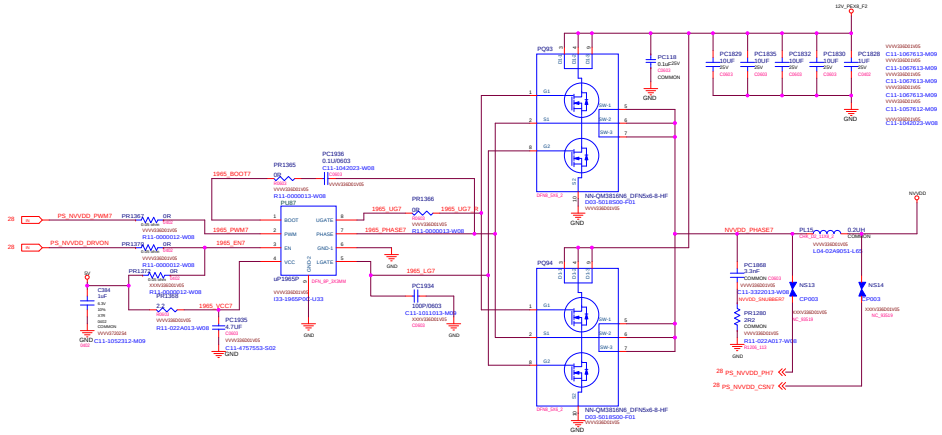
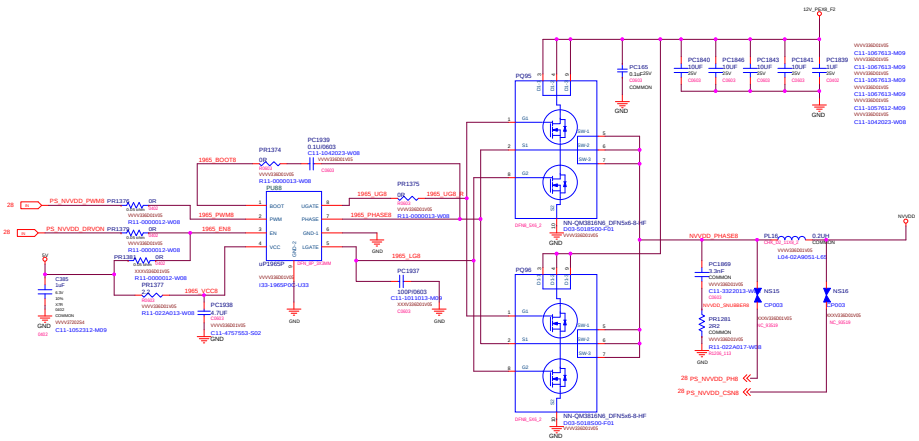
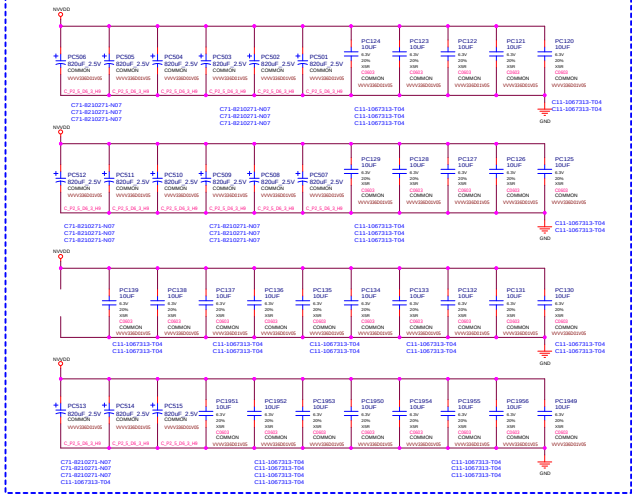




NVVDD Output CAP



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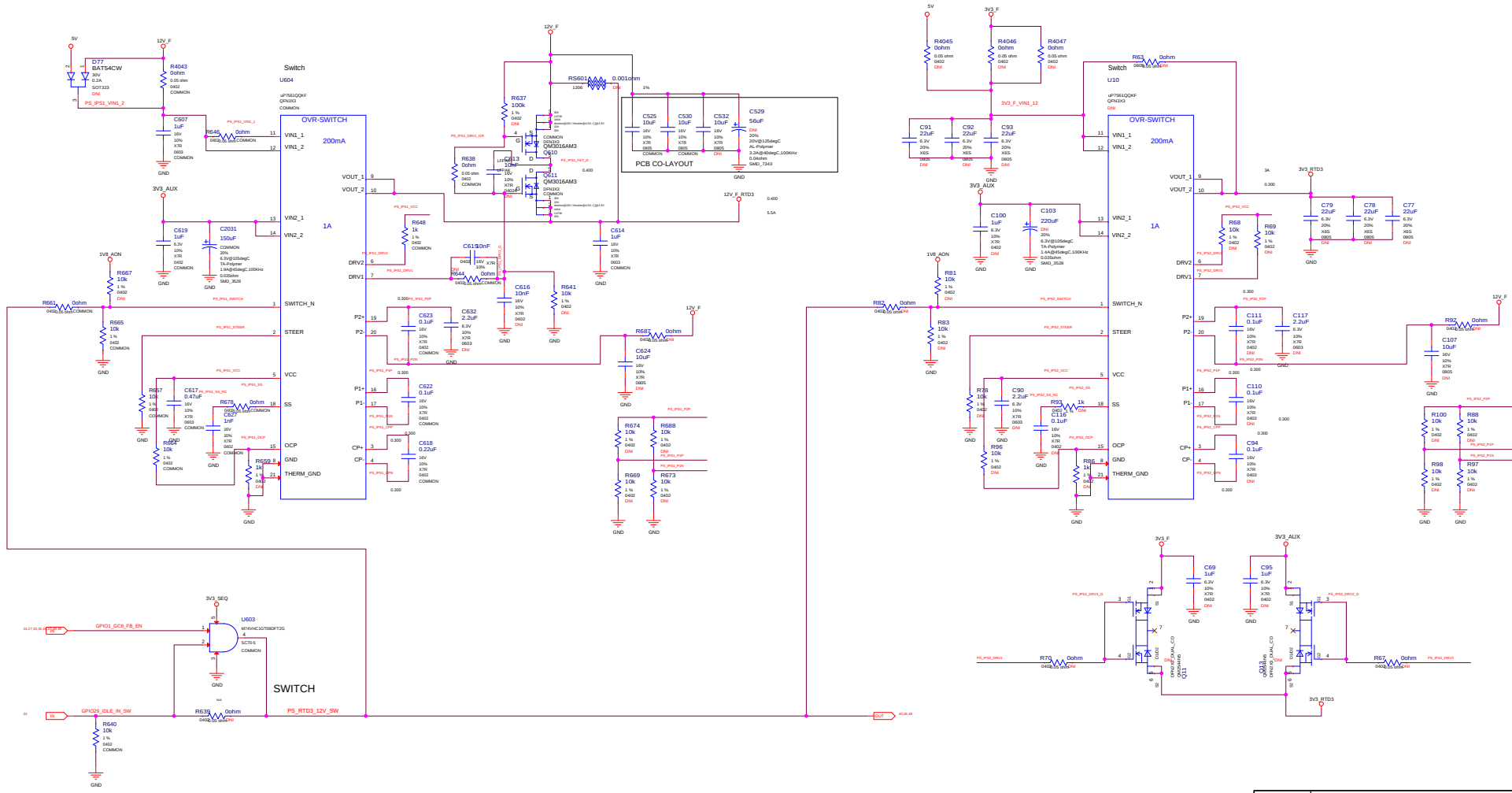
PAGE 39: PS: INPUT SWITCH RTD3

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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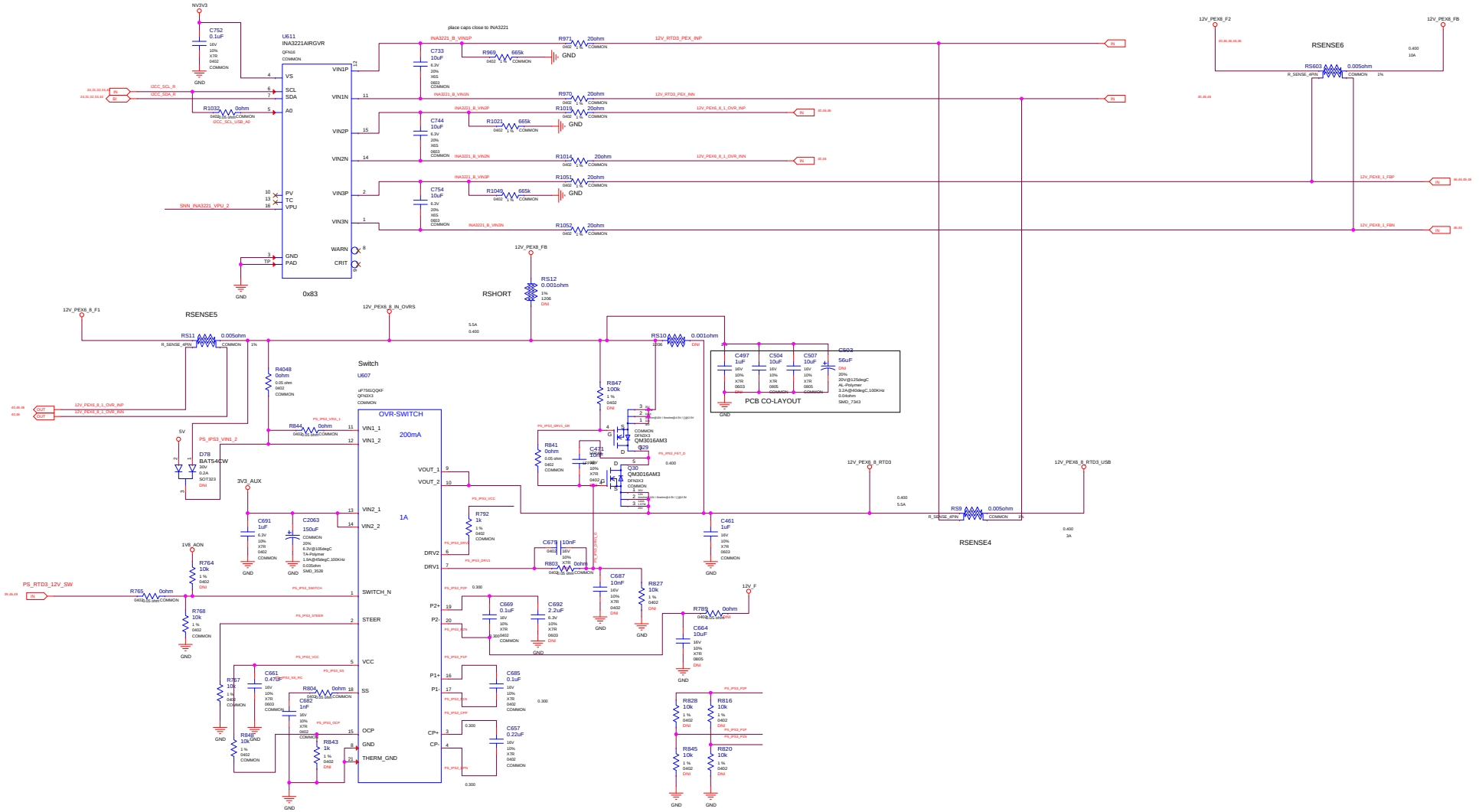
PAGE 40: PS: INPUT SWITCH RTD3 USB



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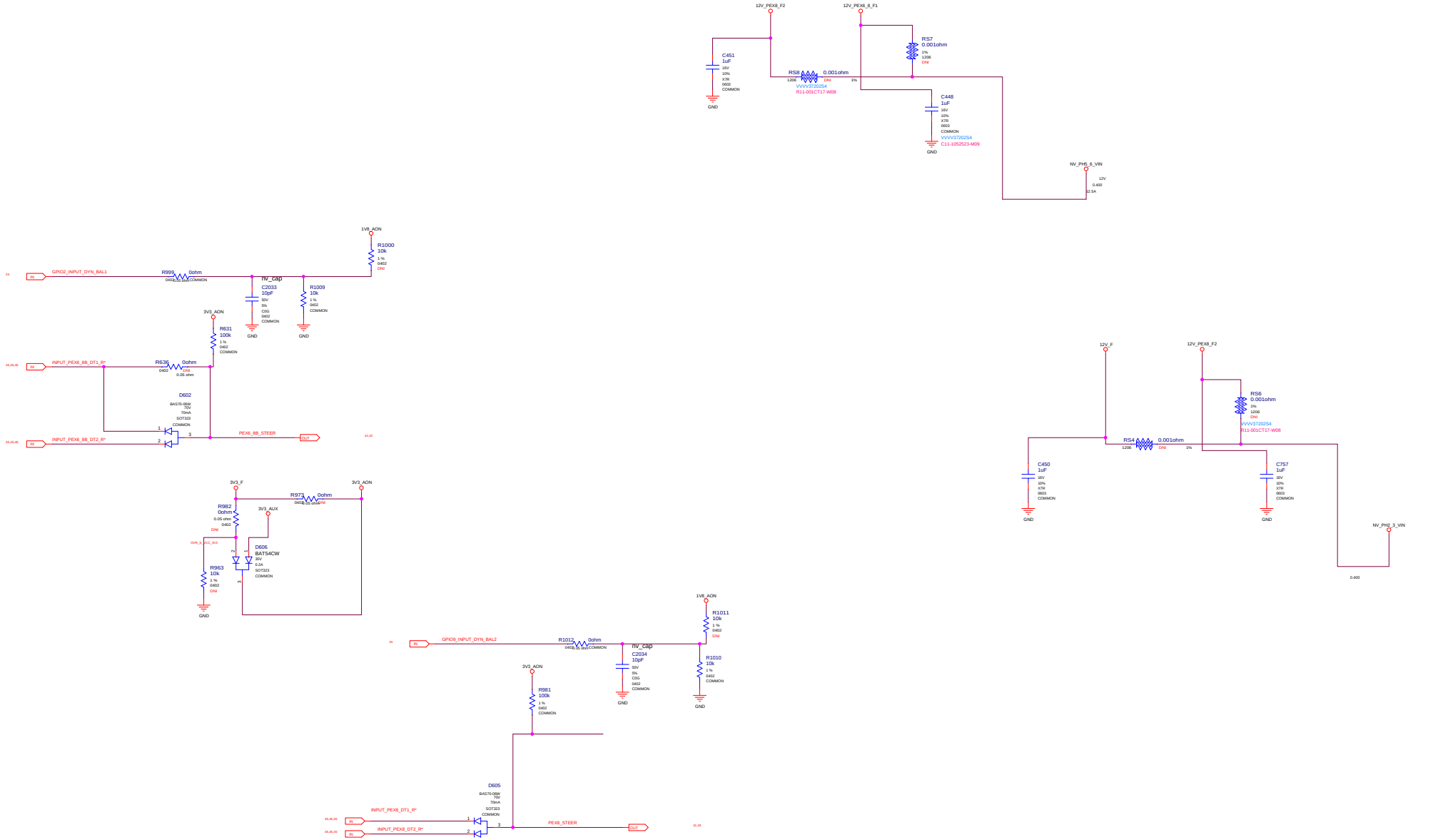
PAGE 41: PS: INPUT SWITCH Rail Balance



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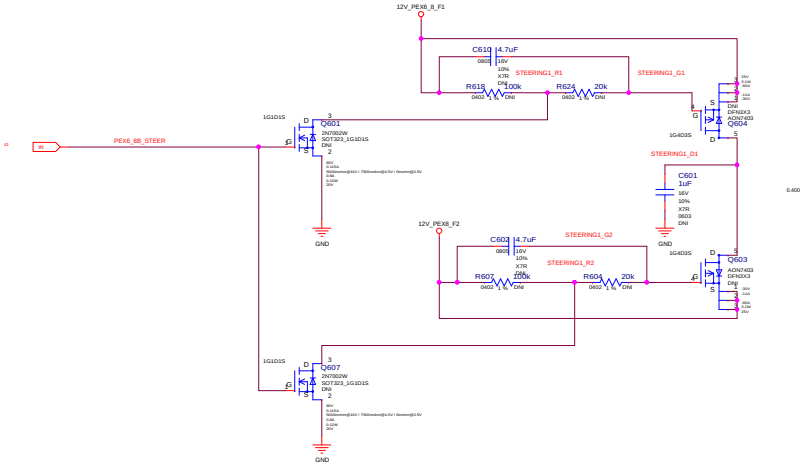
PAGE 42: PS: 12V CURRENT STEERING

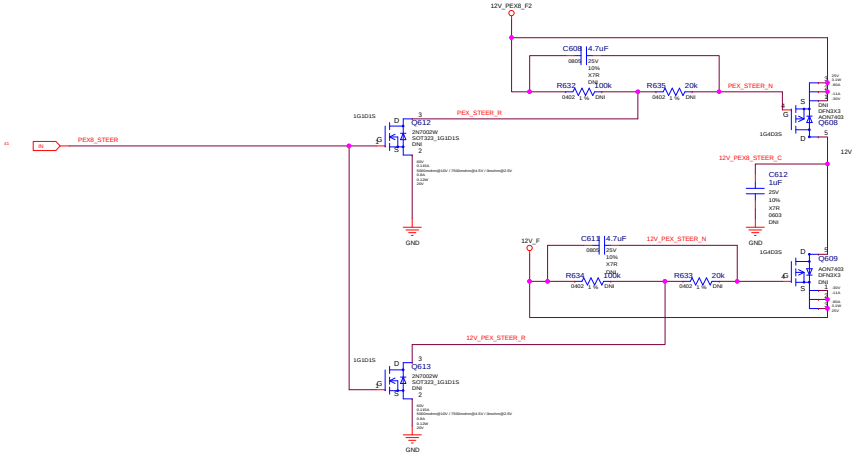
12V CURRENT STEERING (UNDER POWER BOOT):

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 43: PS: VR THERMAL PROTECTION

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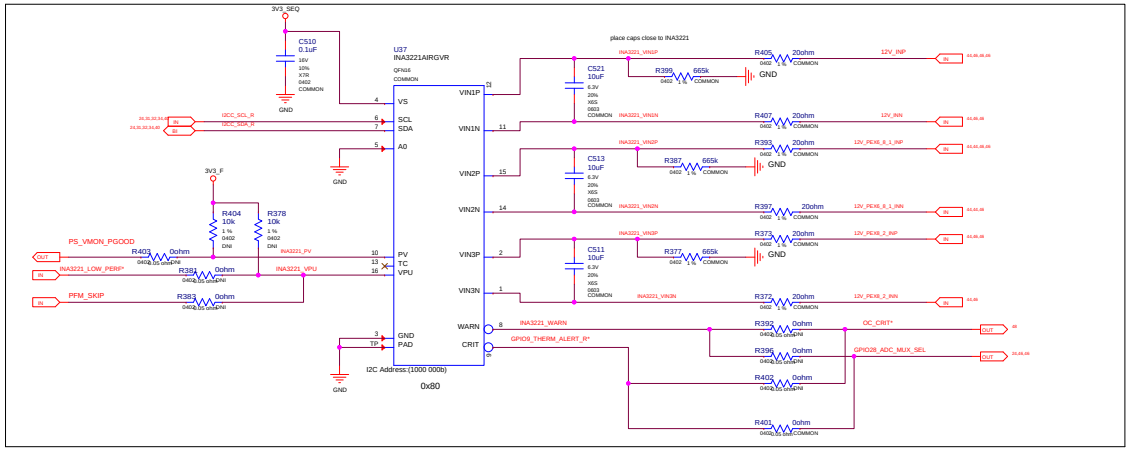
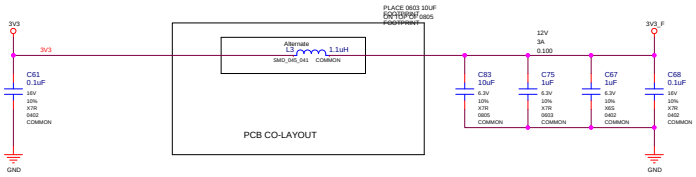
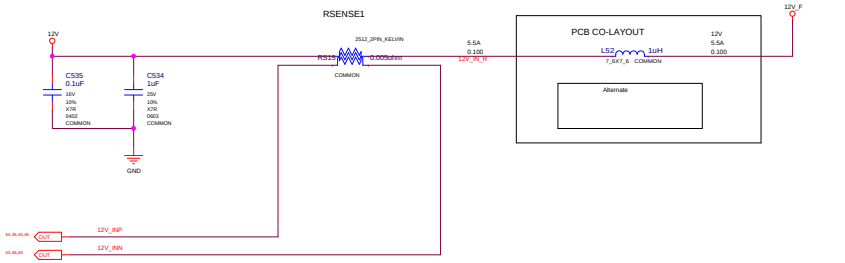
PAGE 44: PS: Inputs, Filtering, and Monitoring



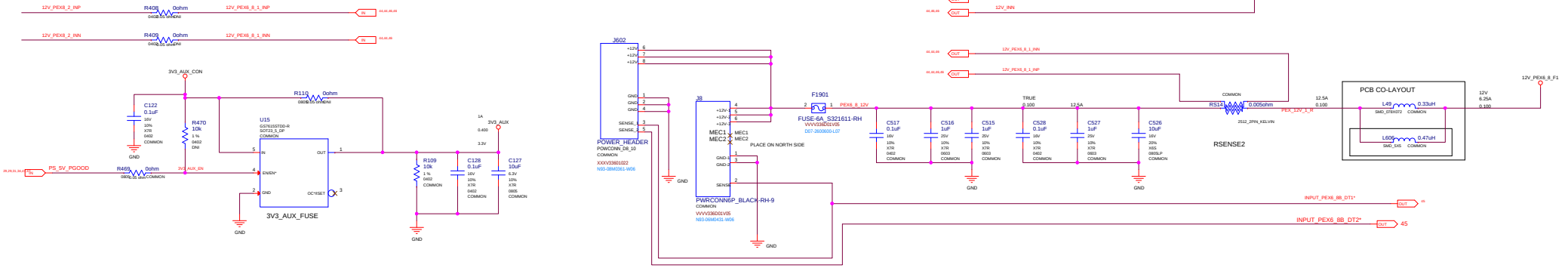
PEX 3V3 INPUT - 10W



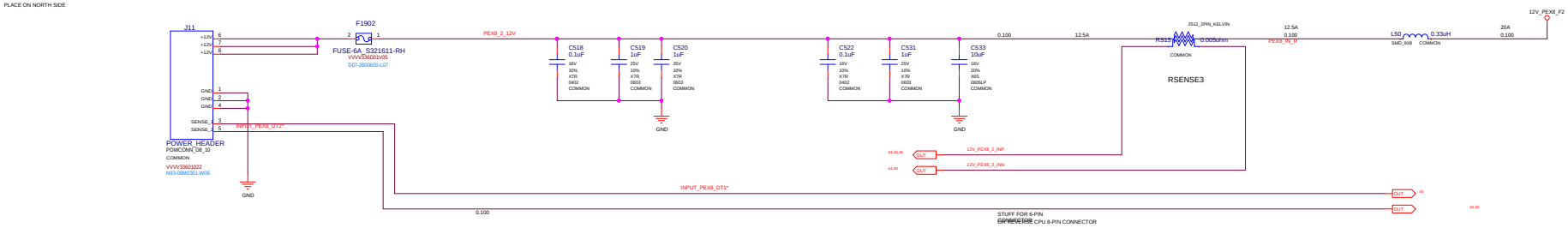
PEX_12V INPUT - 66W



PEX6 INPUT 1 - 2x3 PCIE CON 75W



PEX8 INPUT 2 - 2x4 PCIE CON 150W



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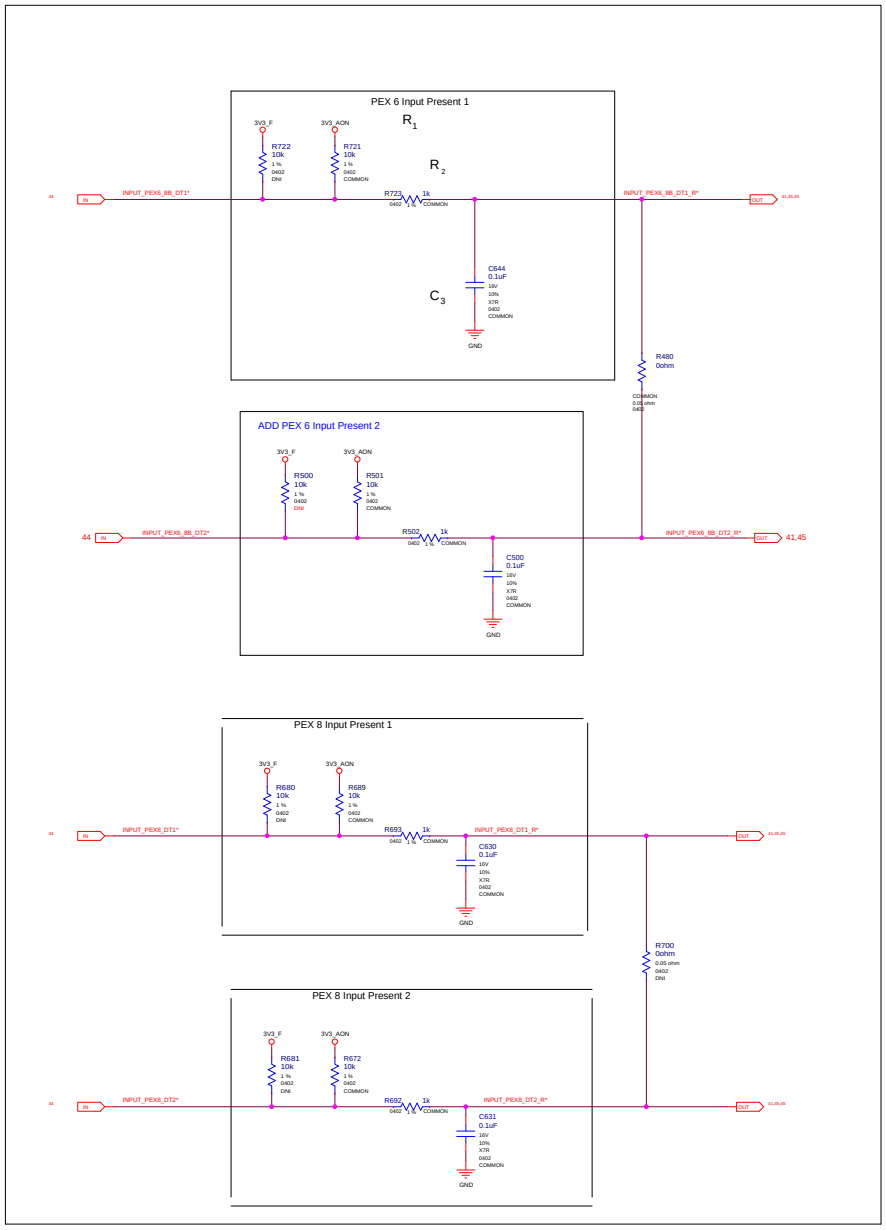
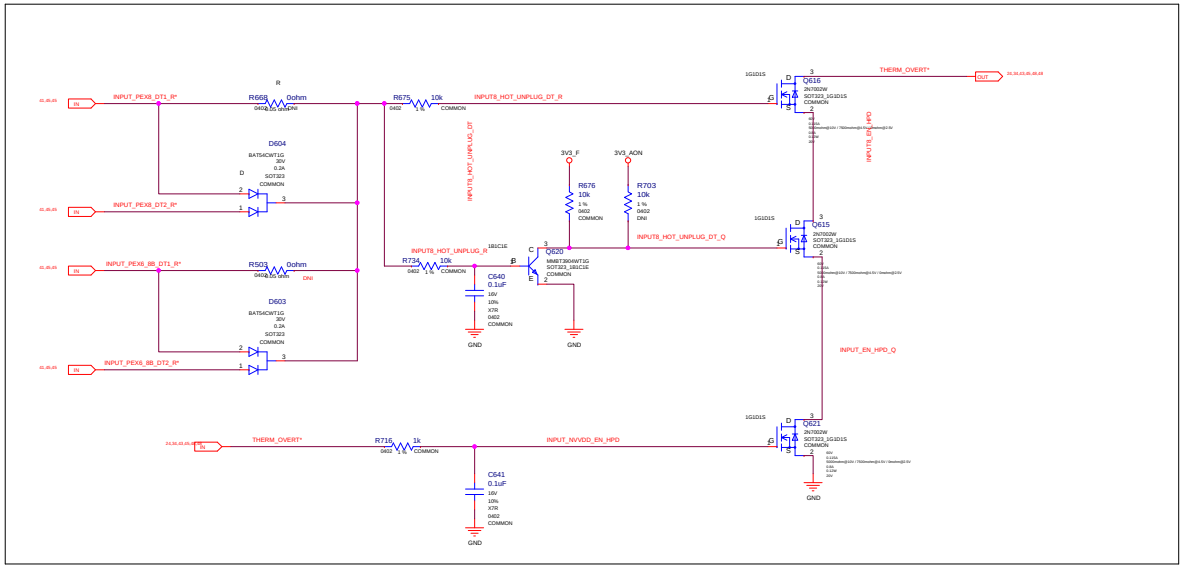
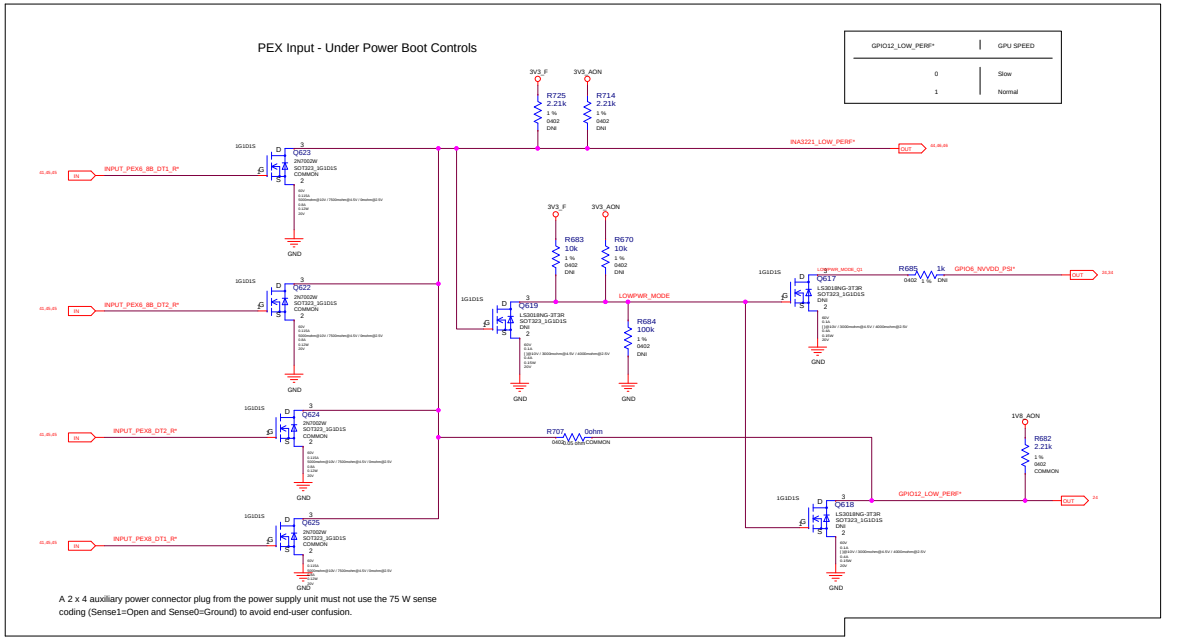
PAGE 45: PS: Current Steering, Hot Unplug Detect







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Size: Custom	Document Description: Page45:PS_ CURRENT STEERING,HOT U
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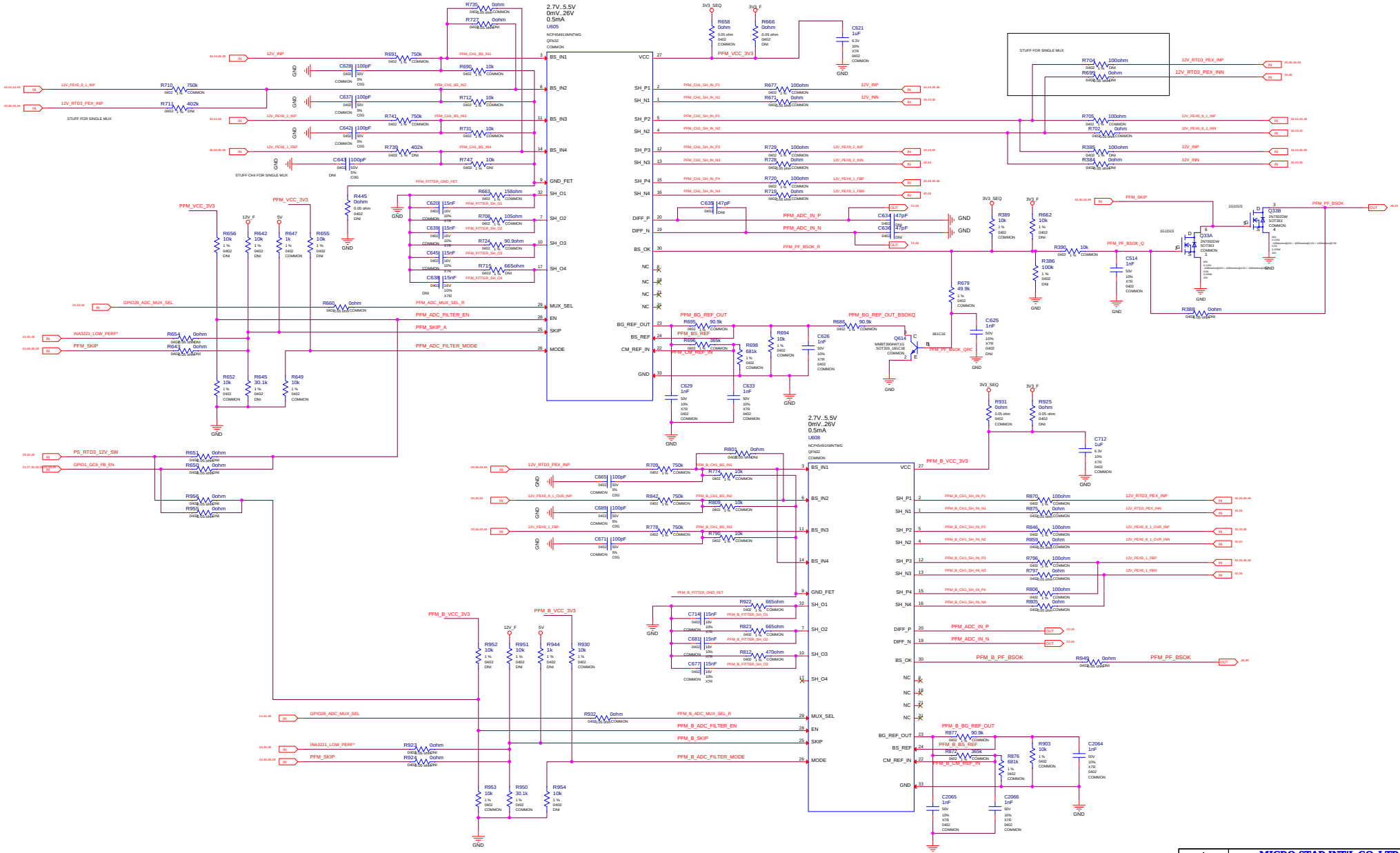
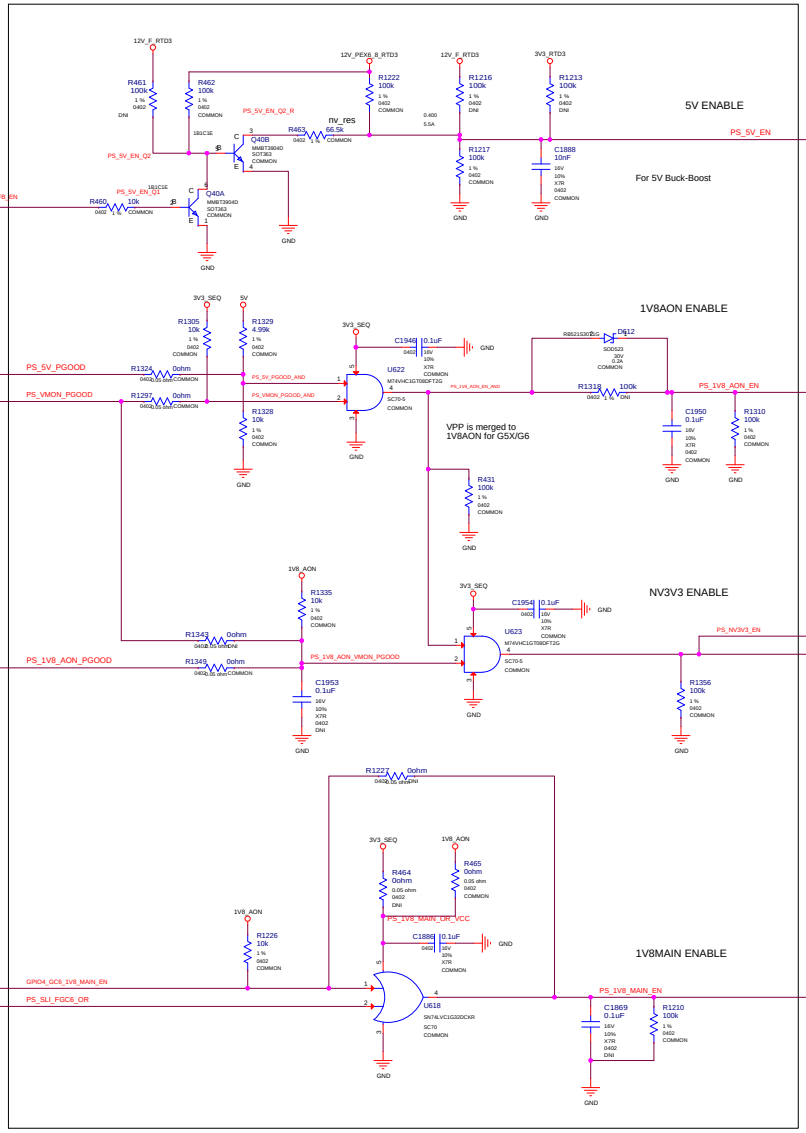
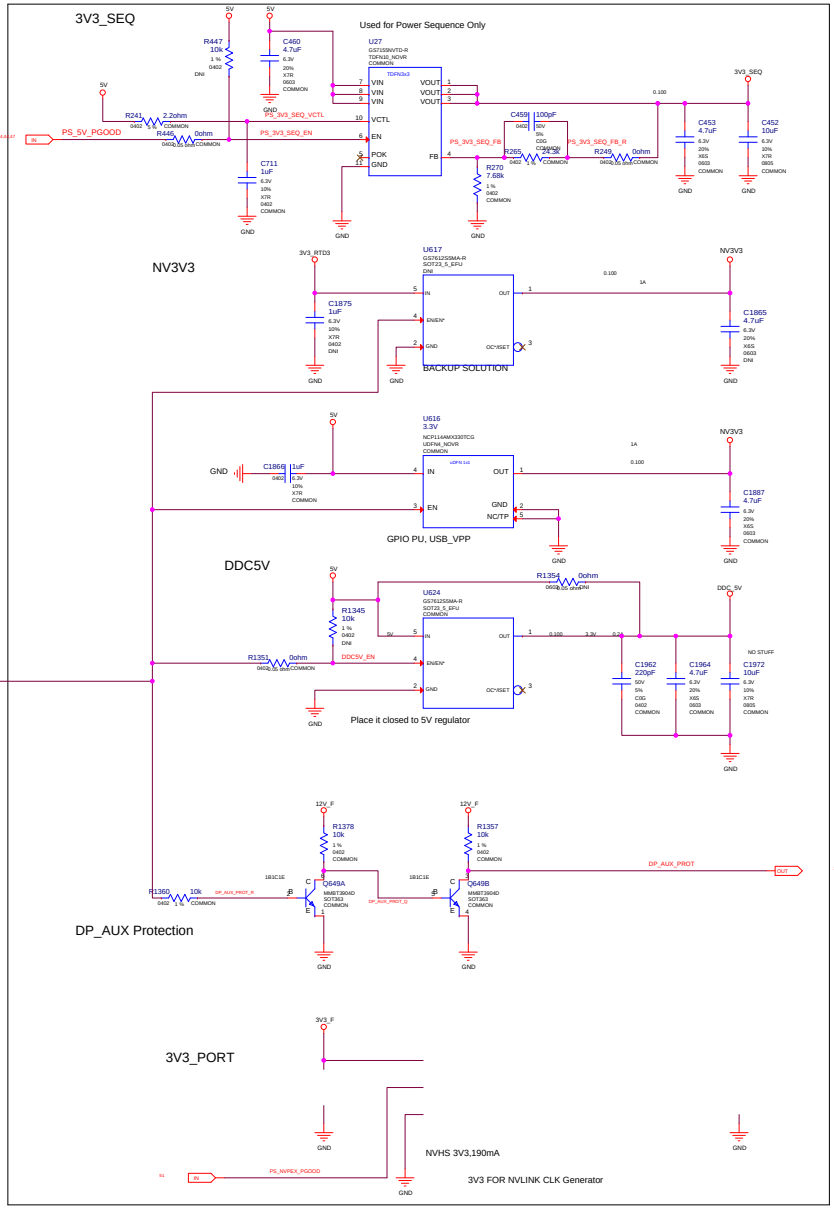
PAGE46; PS: Pre-Filter



PAGE 47: SEQUENCE:5V,1V8,NV3V3 ENABLE





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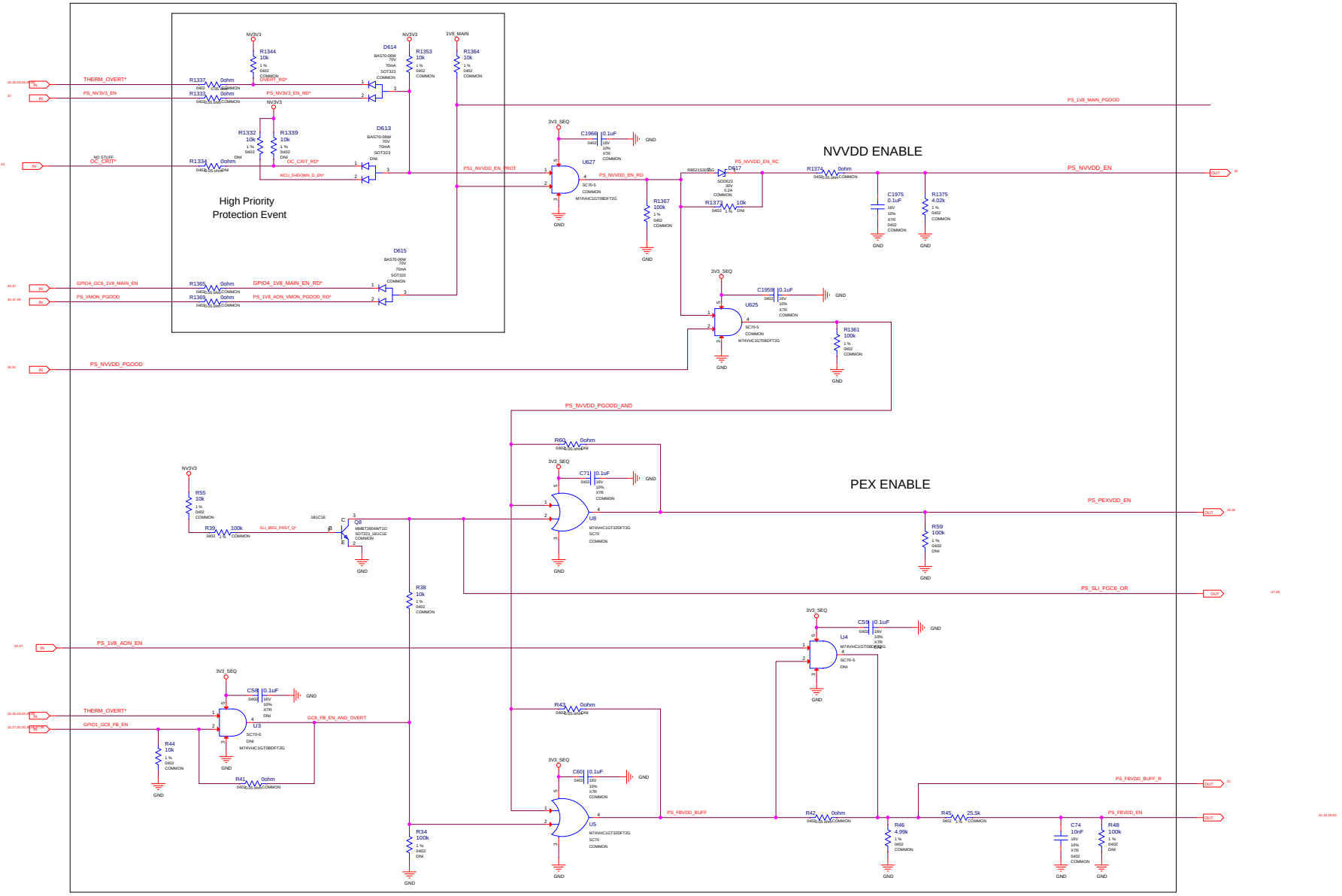
PAGE 48: SEQUENCE:NV,PEX,FB ENABLE



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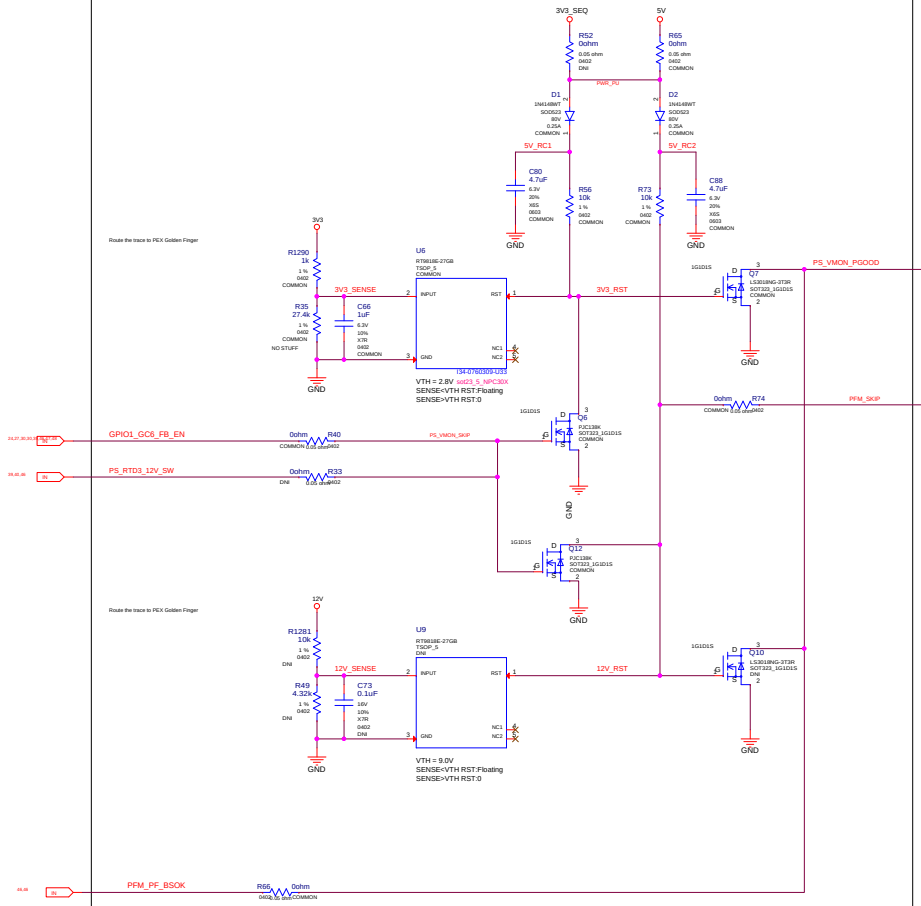
PAGE 49: SEQUENCE:PCIE VOLTAGE MONITOR

PCIE Voltage Monitor



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

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

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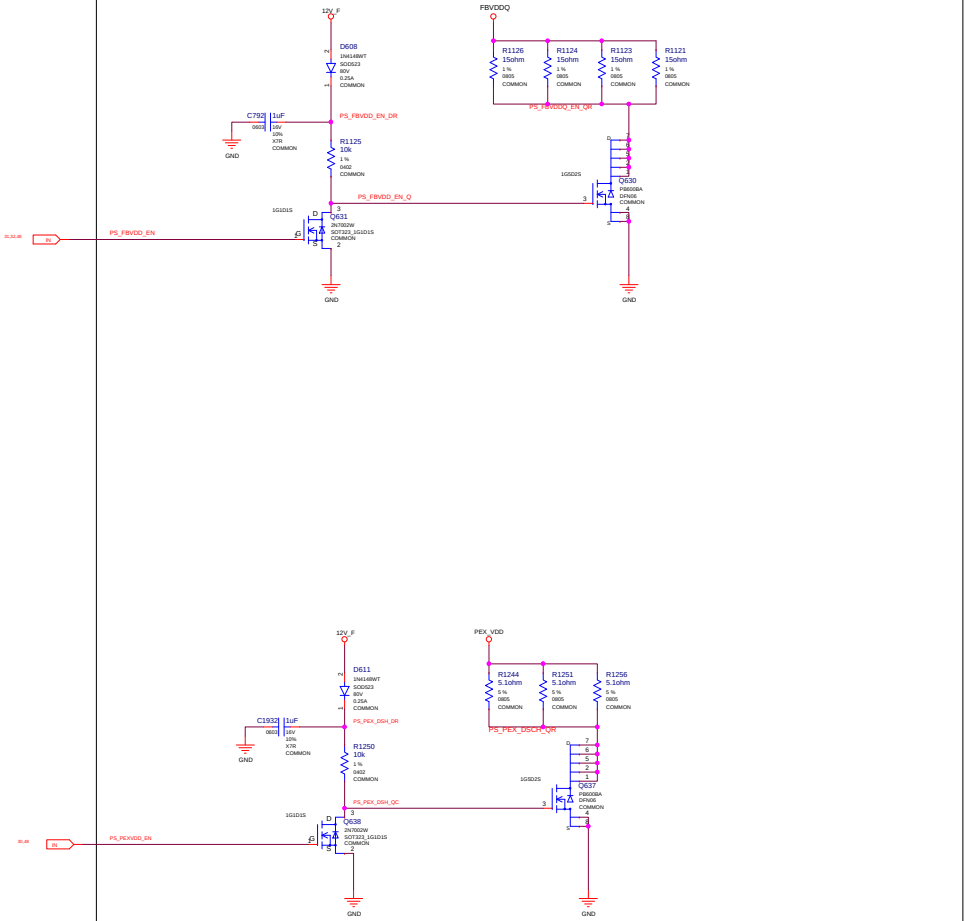
PAGE 50: SEQUENCE:DISCHARGE



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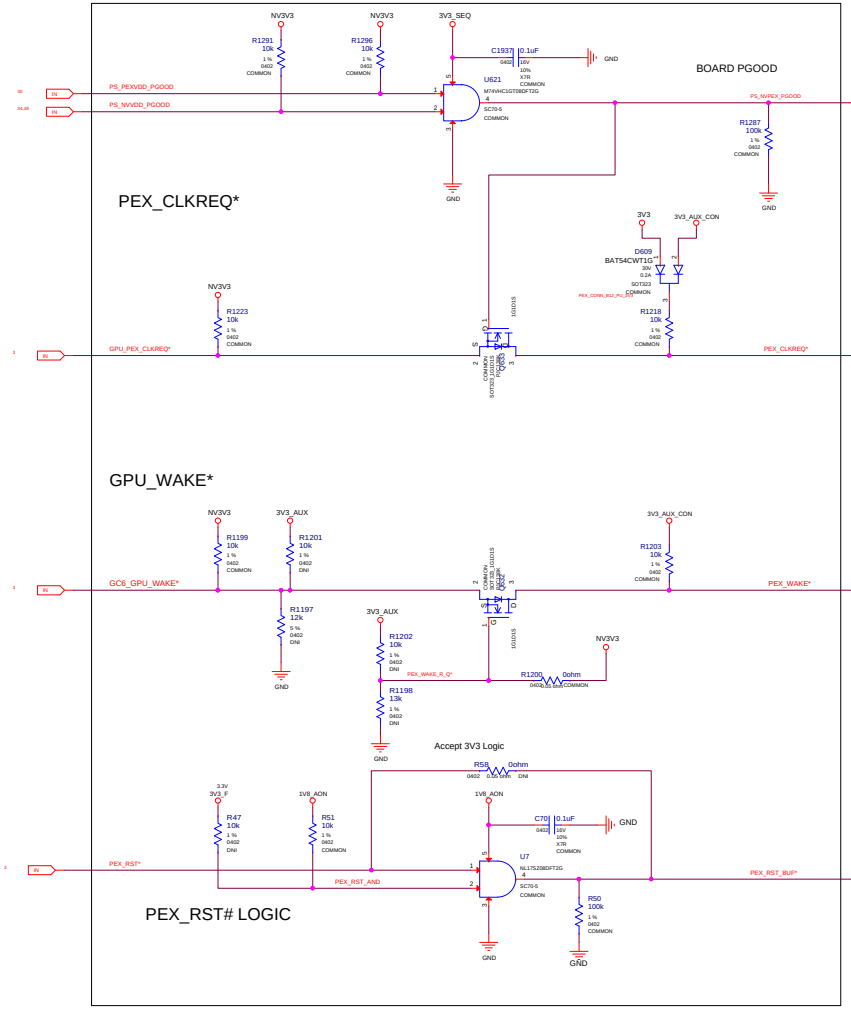

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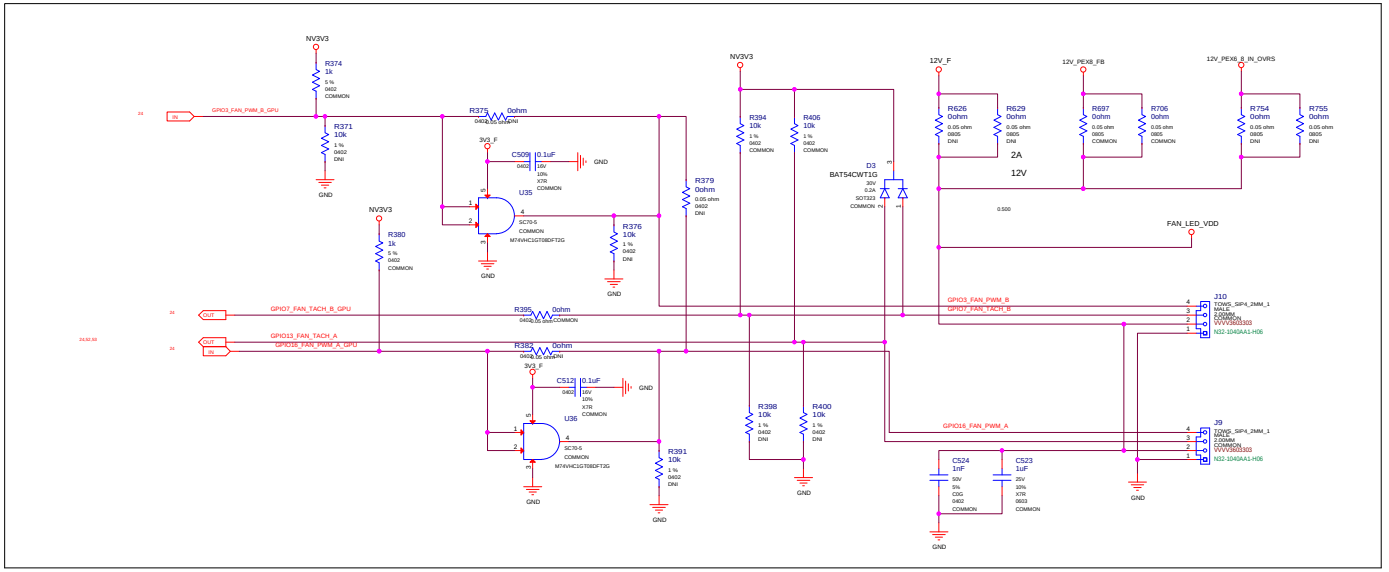
PAGE 52: LED & FAN HEADERS



LED BOOST

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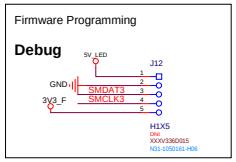
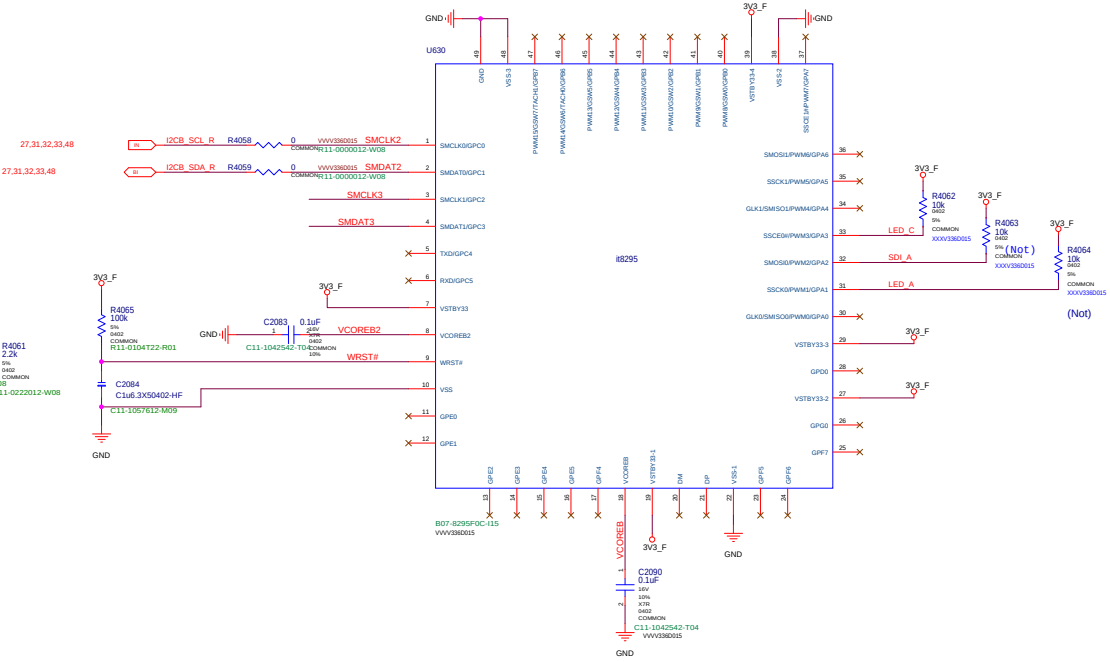
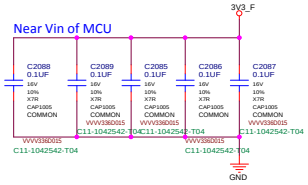
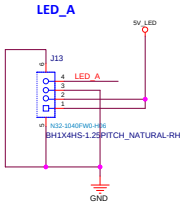
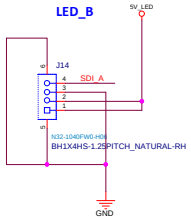
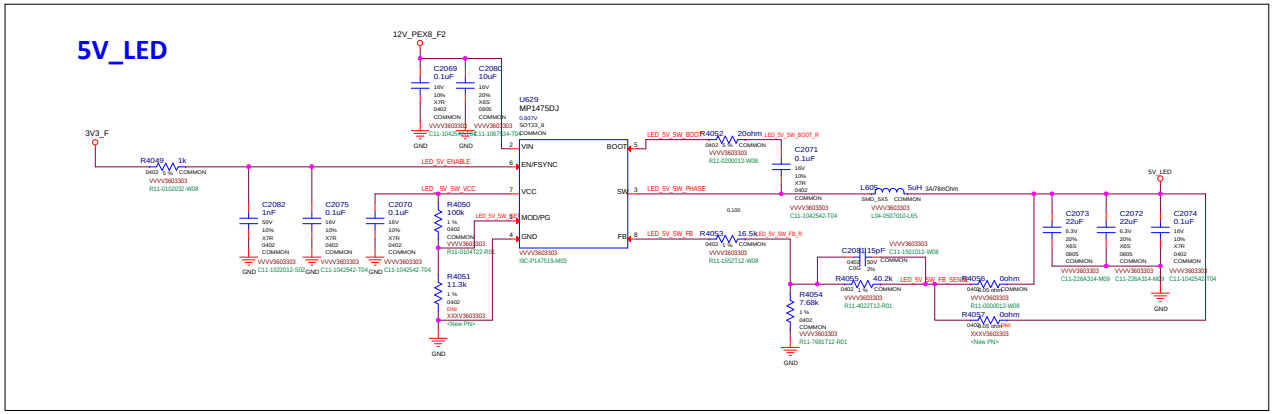

Firmware Programming
Debug
5V_LED
J12
GND
SMDAT3
SMCLK3
3V3_F
H1X5


U630
it8295
GND
3V3_F
I2CB_SCL_R
I2CB_SDA_R
R4058
R4059
SMCLK2
SMDAT2
SMCLK3
SMDAT3
VCOREB2
WRST#
LED_C
SDI_A
LED_A
(Not)
R4062
R4063
R4064
R4060
R4061
R4065
C2083
C2084
C2090
VCOREB


Near Vin of MCU
C2088
C2089
C2085
C2086
C2087
0.1UF
C11-1042542-T04
GND


LED_A
5V_LED
J13
LED_A
BH1X4HS-1.25PITCH_NATURAL-RH
GND


LED_B
5V_LED
J14
SDI_A
BH1X4HS-1.25PITCH_NATURAL-RH
GND


5V_LED
12V_PEX8_F2
U629
MP1475DJ
3V3_F
R4049
C2082
C2075
C2070
C2069
C2080
R4050
R4051
R4052
R4053
R4054
R4055
R4056
R4057
C2071
C2081
C2073
C2072
C2074
L605
5uH
VIN
EN/FSYNC
VCC
MODE/PG
GND
BOOT
SW
FB
LED_5V_ENABLE
LED_5V_SW_VCC
LED_5V_SW_PHASE
LED_5V_SW_FB
LED_5V_FB_SENSE


MICRO-STAR INT'L CO.,LTD
MS-V373
Size
Custom
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FAN
STIFFNER
NO PINS
VVVV3600708
OE3-V320001

HS1
STIFFNER
NO PINS
VVVV3600708
OE3-V303002

HS2
STIFFNER
NO PINS
VVVV3600708
OE3-V320101

PCIE
STIFFNER
NO PINS
VVVV3600708
E24-V320010-P09

Screw

BKTSCREW1
SCREW
VVVV3600708
E41-1304009-H75

HDMISCREW1
SCREW
VVVV3600708
E43-1303012-H75

TYPE-C
SCREW
VVVV3600708
E43-1203040-P65

BKTSCREW2
SCREW
VVVV3600708
E41-1304009-H75

HI_DP
SCREW
VVVV3600708
E43-1203040-P65

BOARD STIFFENER
No connected mounting pins
MEC501
Back Cover
NOPIN
DNI

GPU Mounting holes

MEC4-1
MEC4-2
MEC4-3
MEC4-4
MEC4-5
MEC4-6
MEC4-7
MEC4-8
D18X
X8
DNI
GND

Mechanical Holes Symbol

MEC10
MEC11
MEC12
MEC13
MEC14
MEC15
MEC16
MEC17
MEC18
MEC19
H_R220D125
GND

Brackets:

BKT1
BRACKET
ATX_2X_2P
SYM
MECH MOUNTING ALL
GND

J18
impedence

J19
impedence

J17
X_PIN1*2

J16
X_PIN1*2

PCB
PCB
109-GN982-00A
COMMON
VVVV3600708
PD0-0V36060-T53

HDMI_FEE
HDMI
$$$$$$
HDMI_FEE
COMMON
VVVV3600708
Y01-RHDM003-000

STIFFENER

FM1
FM2
FM3
FM4
FM5
FM6
FM7
FM8
OPT
F_PAD_X

GPU Socket Symbol

BGA SOCKET ASSY
12 connected mounting pins
MEC3
SOCKET_BGA
128PIN
DNI
GND

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