

PG600-B02 NI GHTHAWK

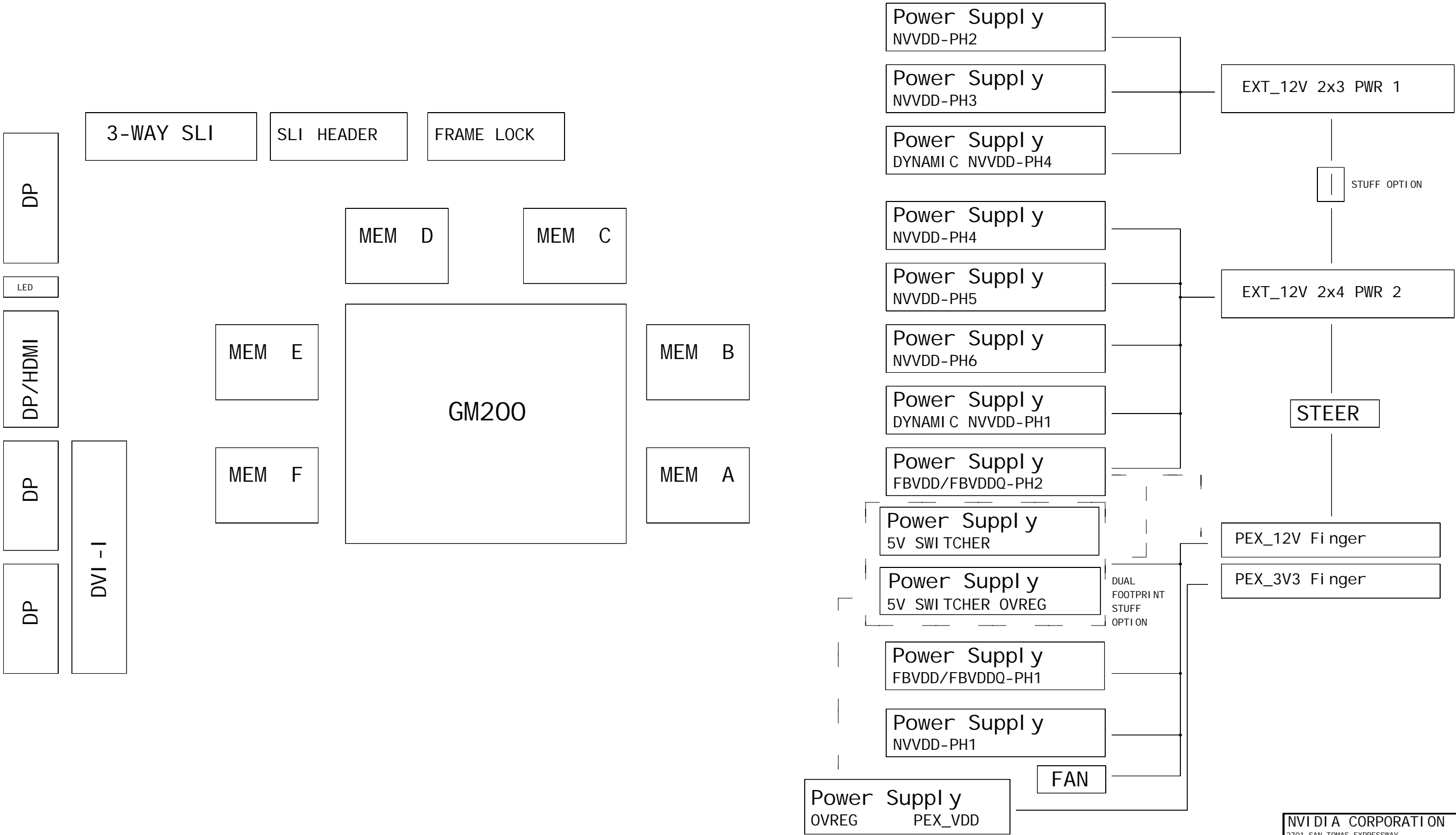
GB3B-384, 6GB GDDR5 128Mx32

DP + HDMI /DP + DP + DP + DVI -I

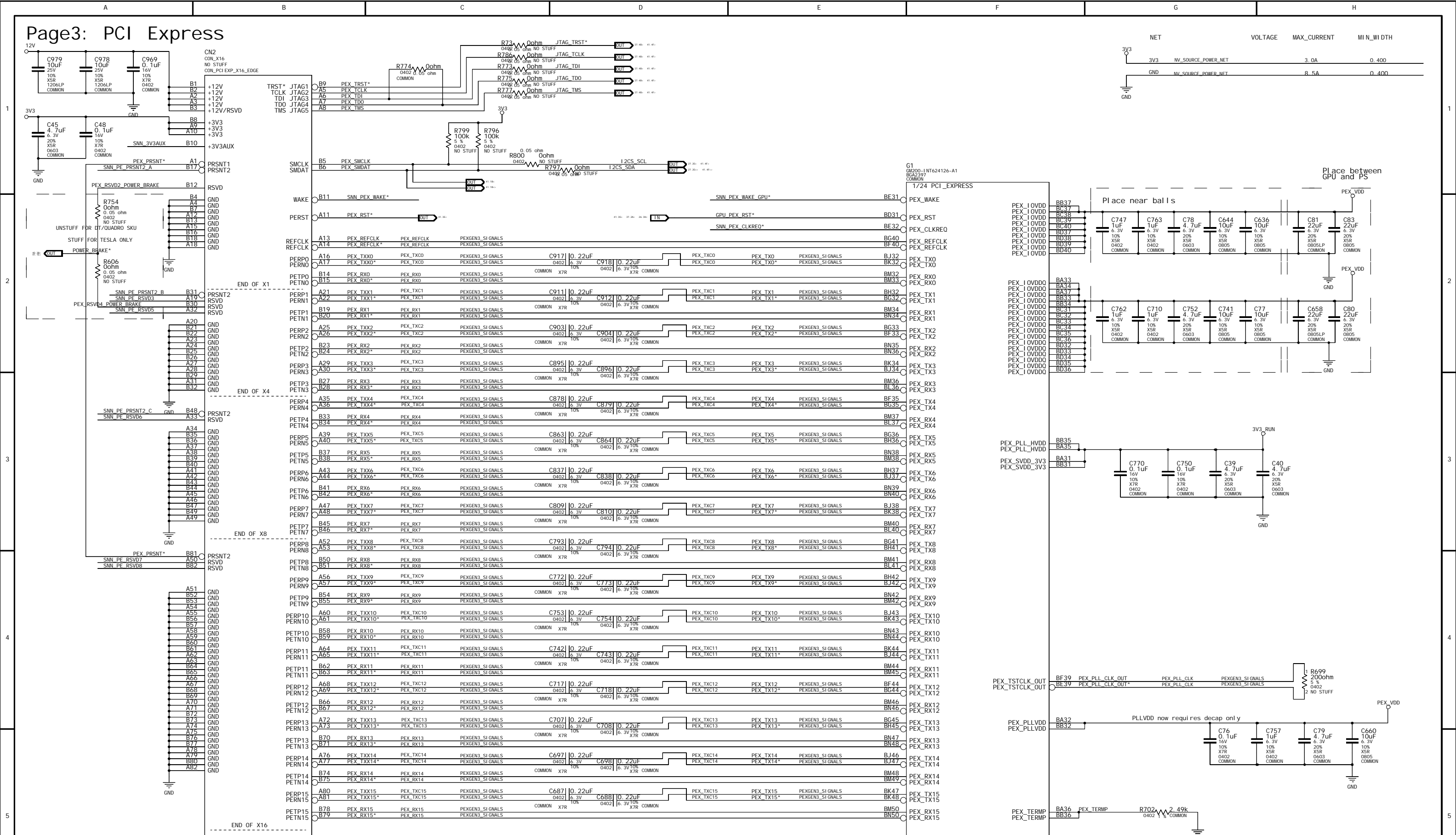
TABLE OF CONTENTS

Page	Descripti on
1	Table of Contents
2	Block Di agram
3	PCI Express
4	MEMORY: GPU Parti tion A/B
5	MEMORY: FBA[31:0]
6	MEMORY: FBA[63:32]
7	MEMORY: FBB[31:0]
8	MEMORY: FBB[63:32]
9	MEMORY: GPU Parti tion C/D
10	MEMORY: FBC[31:0]
11	MEMORY: FBC[63:32]
12	MEMORY: FBD[31:0]
13	MEMORY: FBD[63:32]
14	MEMORY: GPU Parti tion E/F
15	MEMORY: FBE[31:0]
16	MEMORY: FBE[63:32]
17	MEMORY: FBF[31:0]
18	MEMORY: FBF[63:32]
19	GPU PWR and GND
20	GPU Decoupling
21	DACA Interface
22	I FPAB DVI -I -DL
23	I FPEF DP + DP
24	I FPC HDMI / DP
25	I FPD DP

Page	Descripti on
26	MI 0A/B and FRAMELOCK I /F
27	MI SC1: Fan, Thermal , JTAG, GPIO
28	MI SC2: ROM, XTAL, STRAPS, PLL_LDO
29	PS: 5V, PEX_VDD
30	PS: FBVDD/Q
31	PS: NVVDD Controller
32	PS: NVVDD Phase 1, 2
33	PS: NVVDD Phase 3, 4
34	PS: NVVDD Phase 5, 6
35	PS: NVVDD Dynamic Swi tch Phases
36	PS: Inputs, Filtering, and Monitoring
37	PS: Shutdown
38	PS: 12V Current Steering & Hot Unplug Detect
39	MECH: Bracket/Thermal
40	POWER BRAKE AND LED
41	MI CROCONTROLLER



Page3: PCI Express



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PAGE

3 OF 41

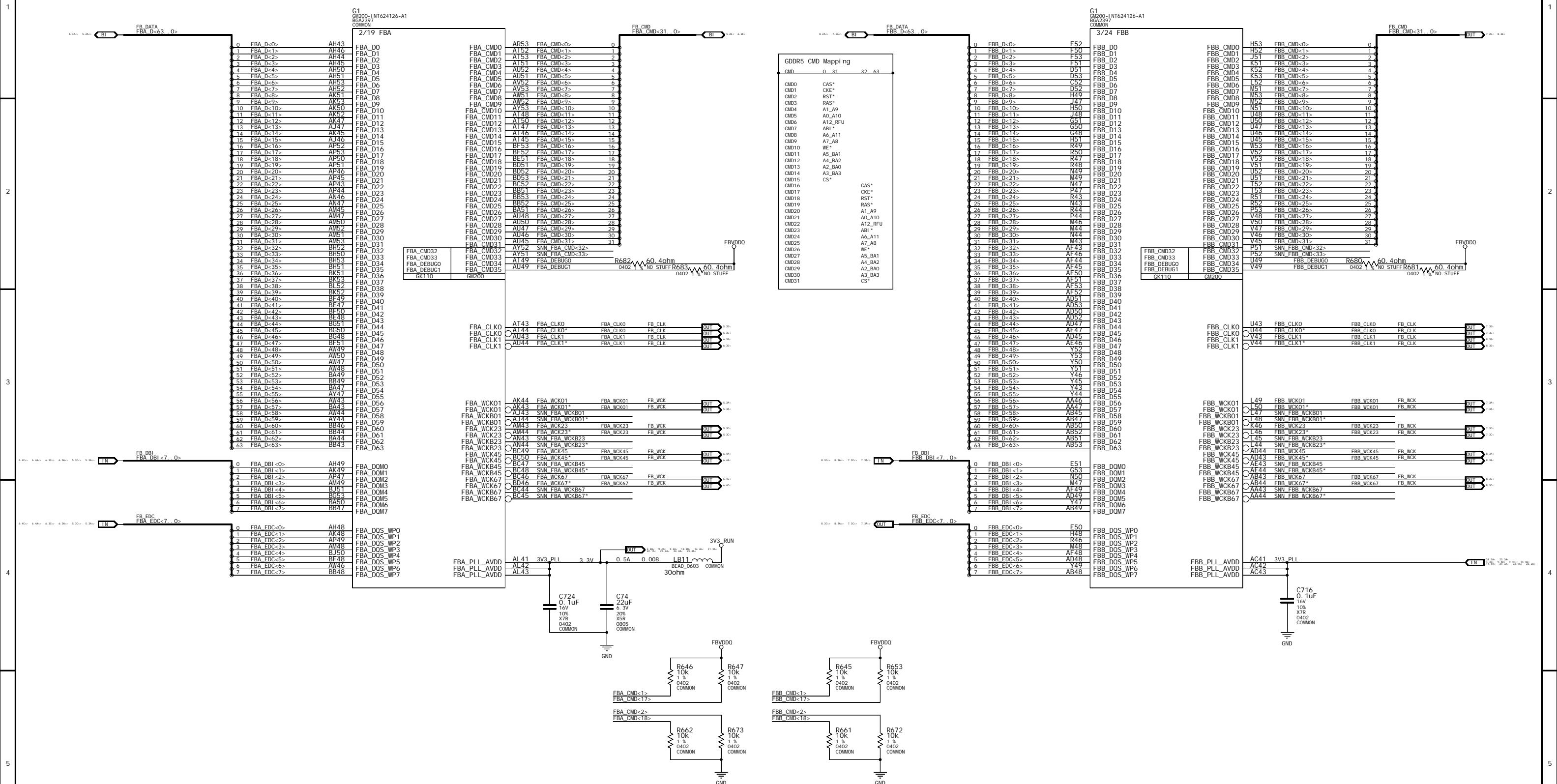
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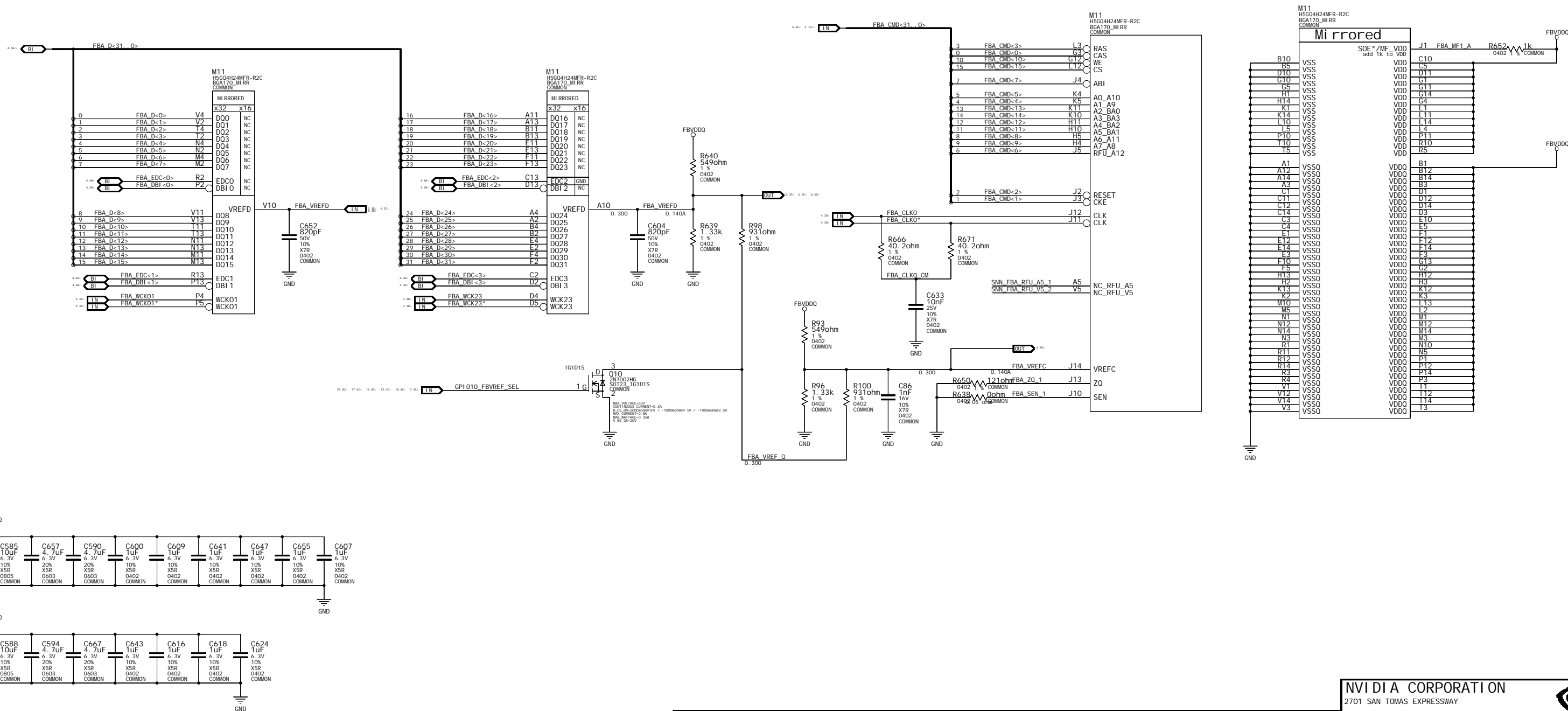
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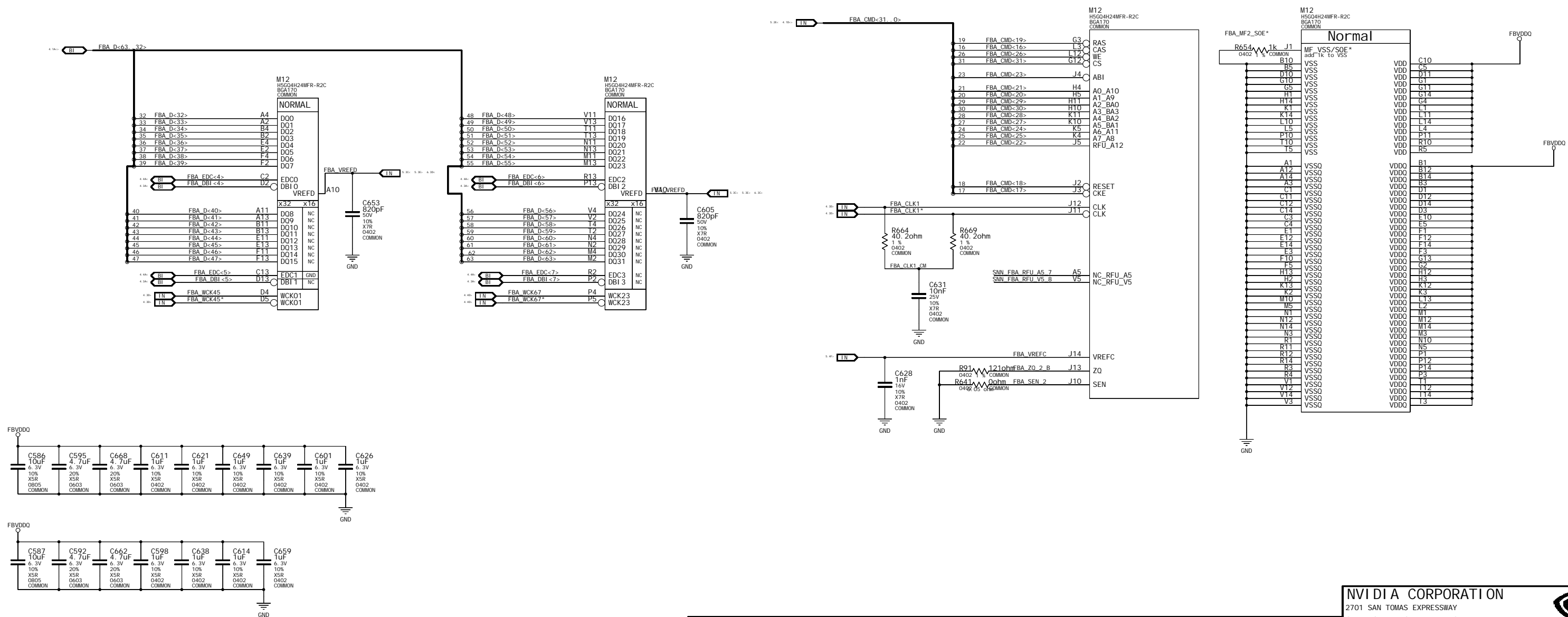
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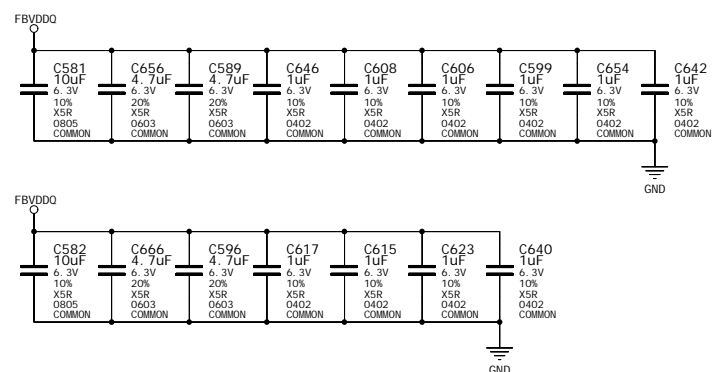
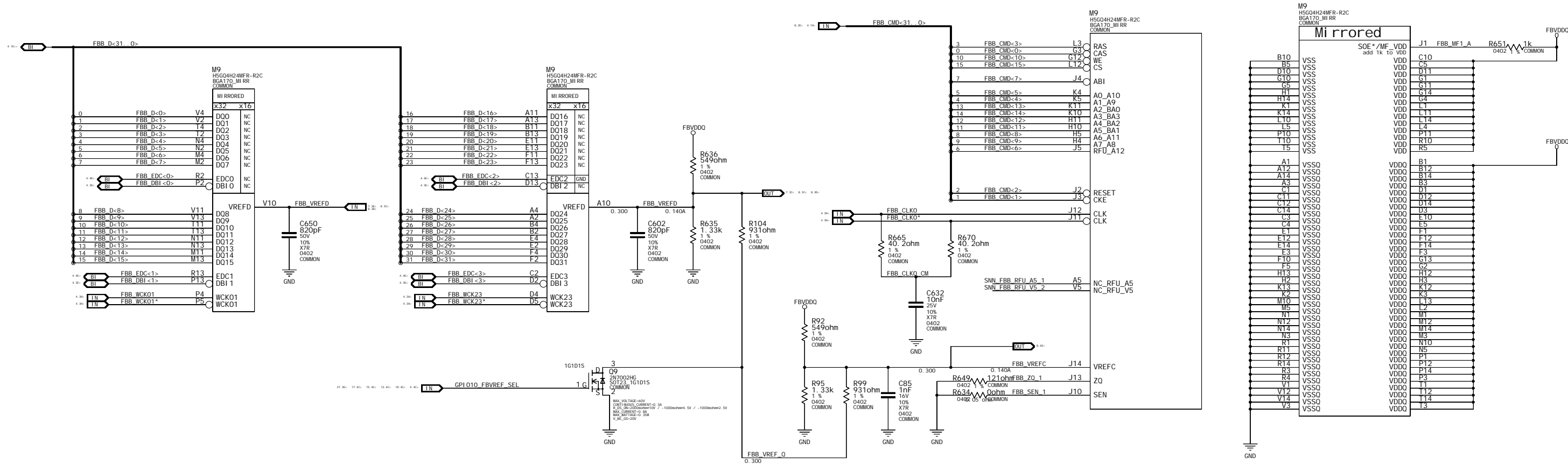
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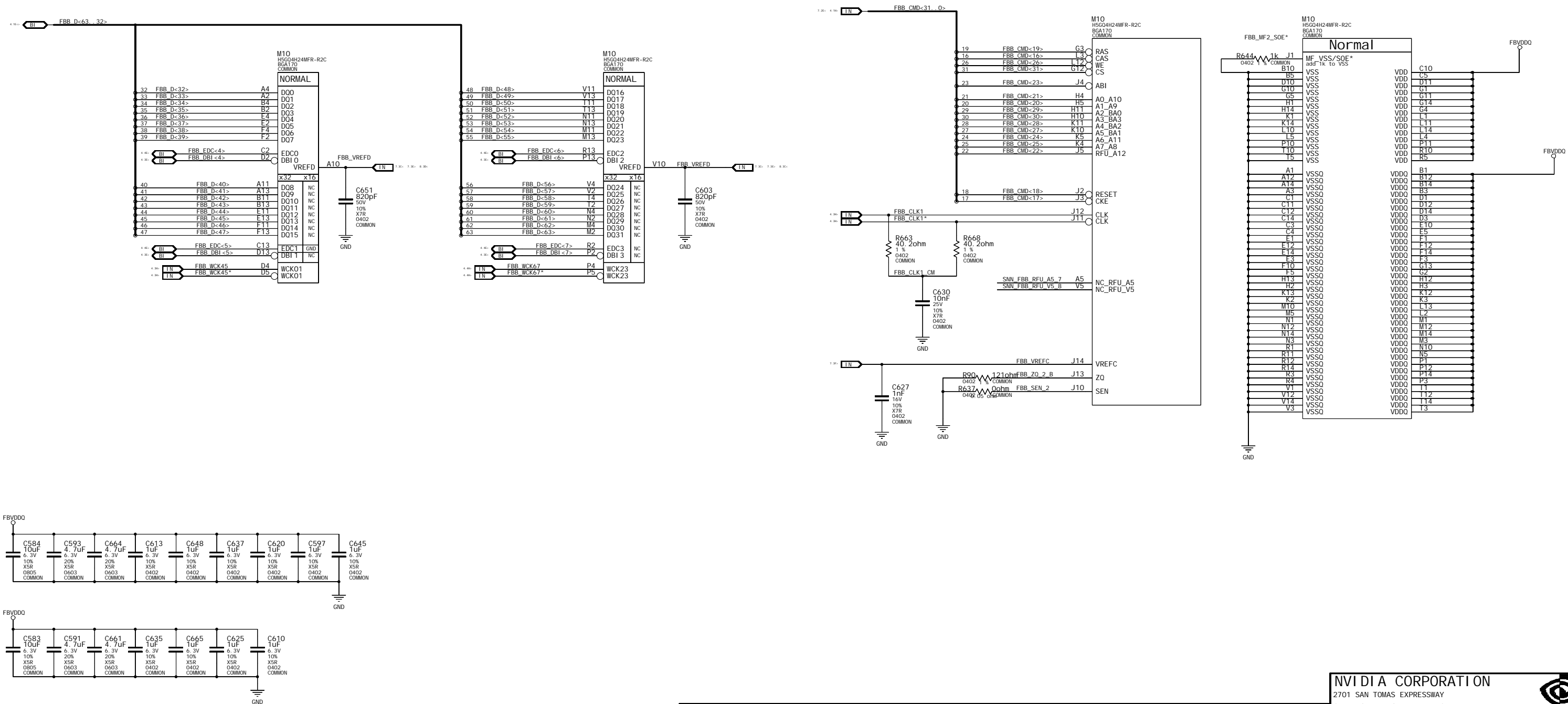
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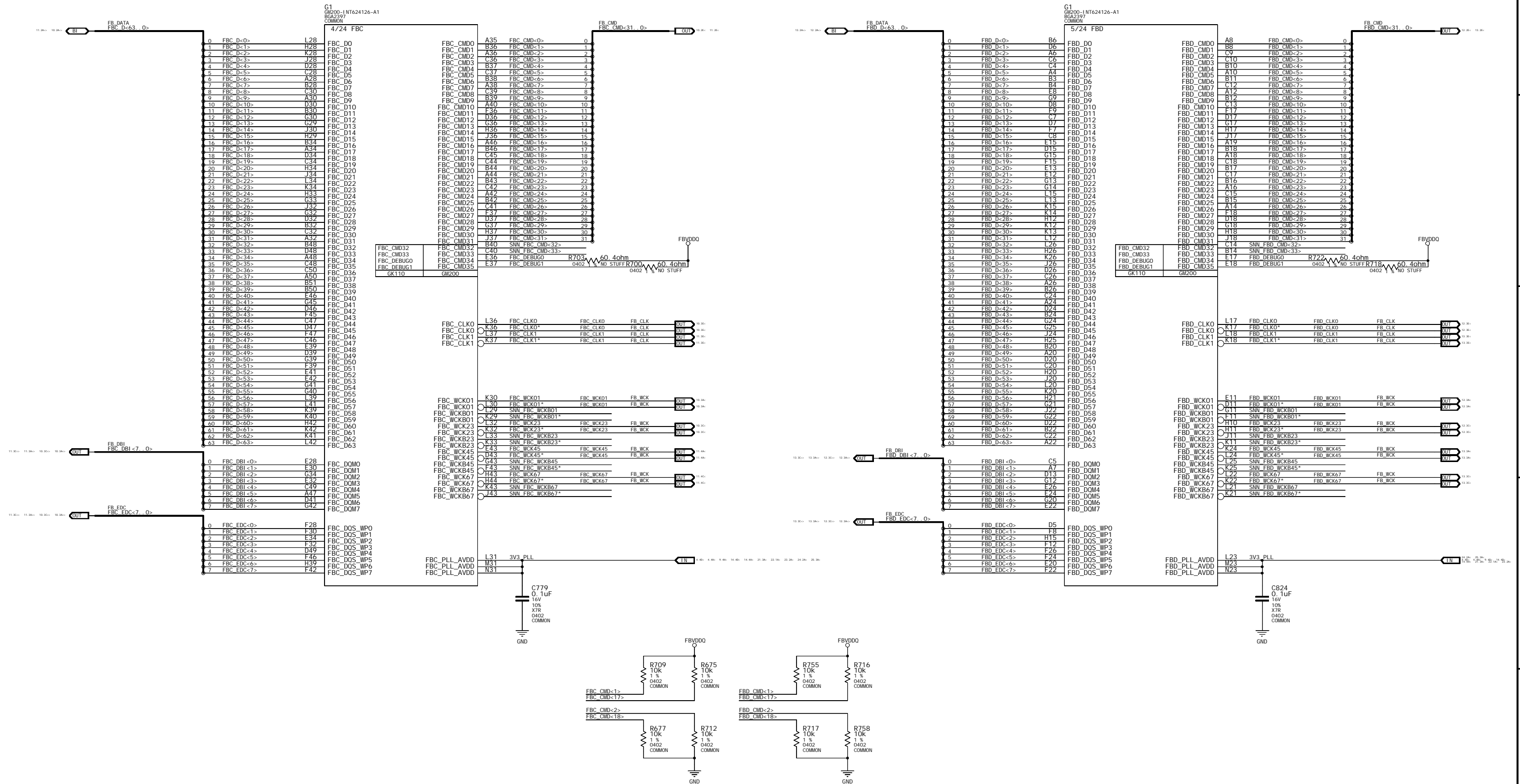


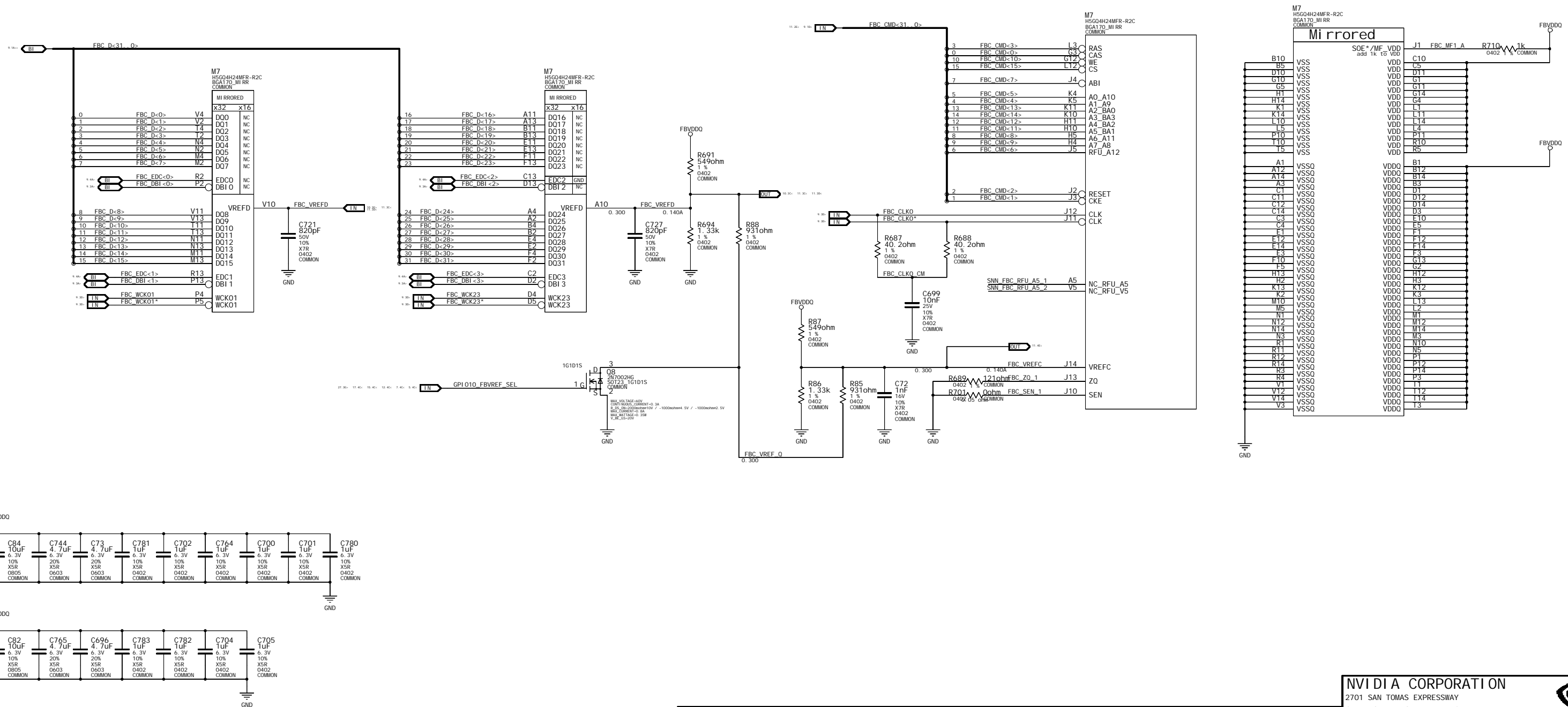


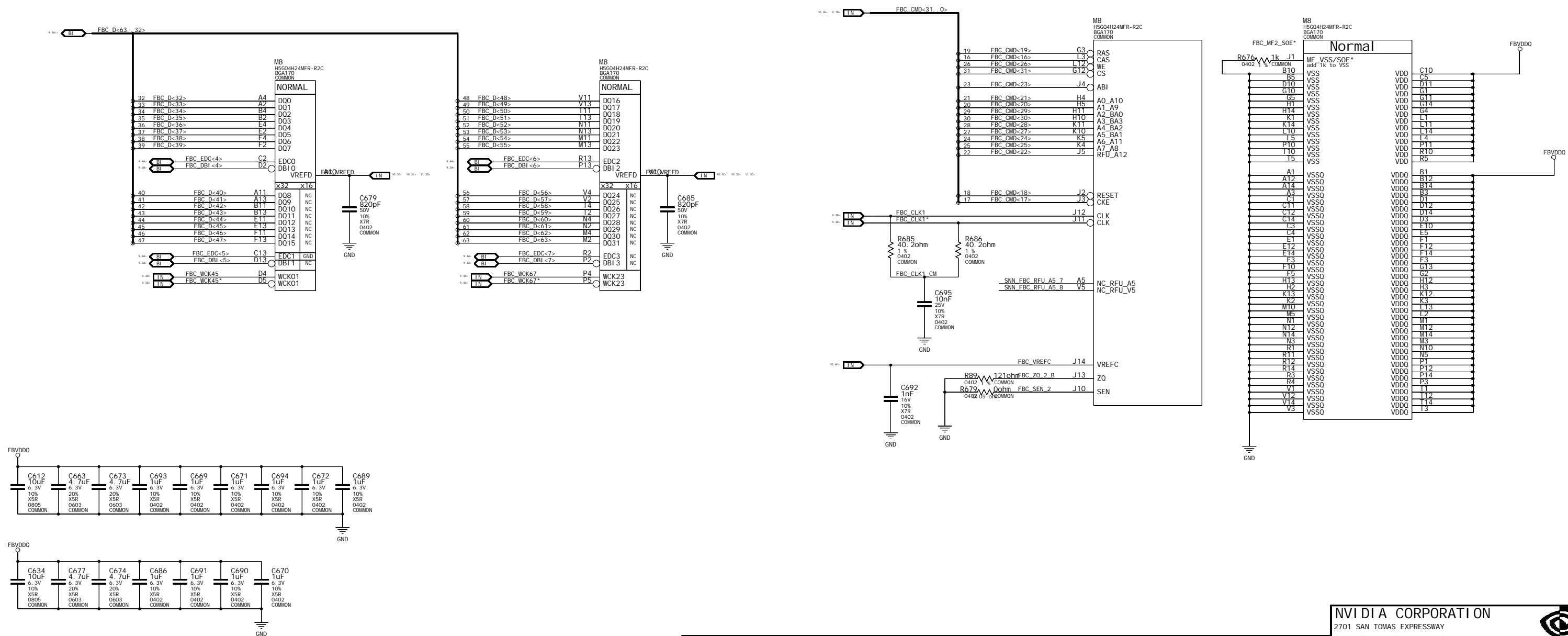












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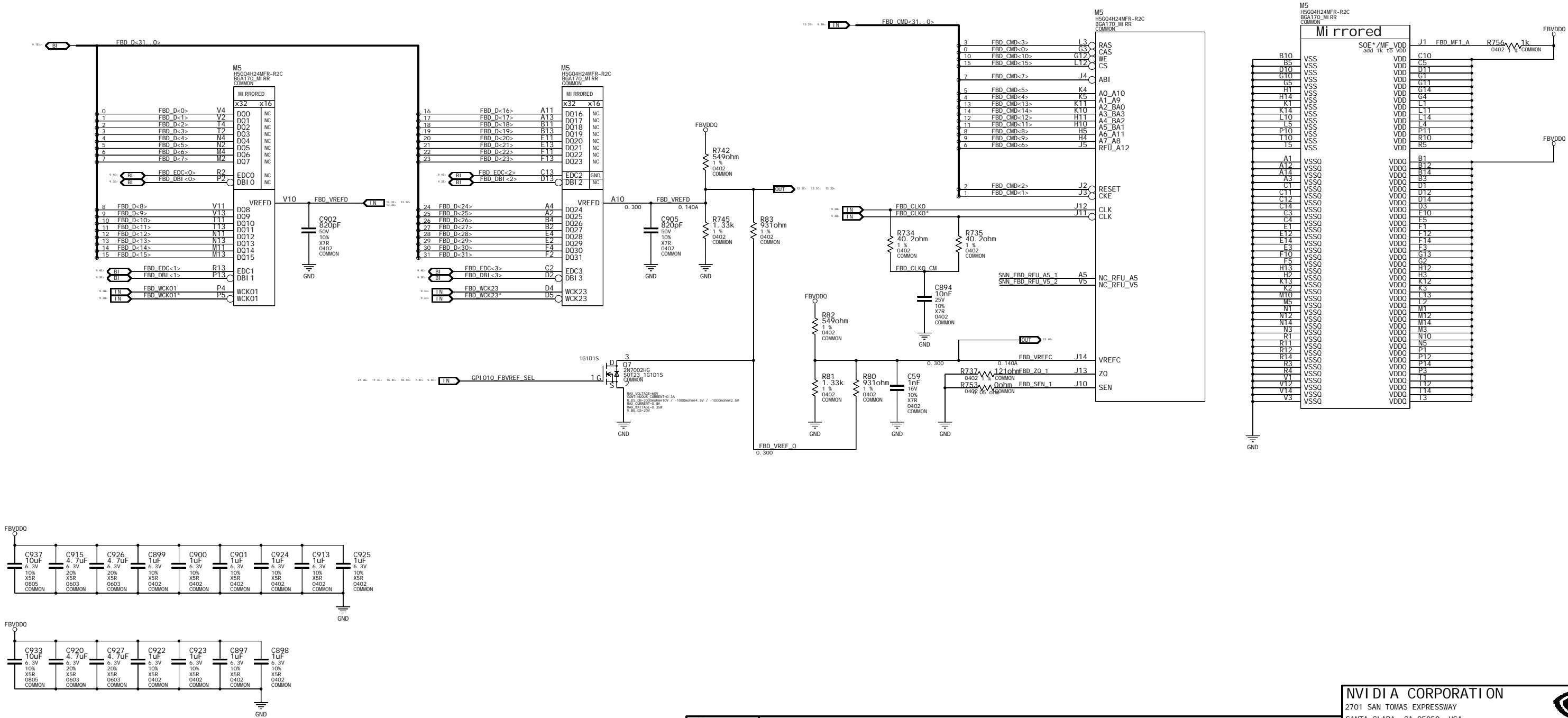
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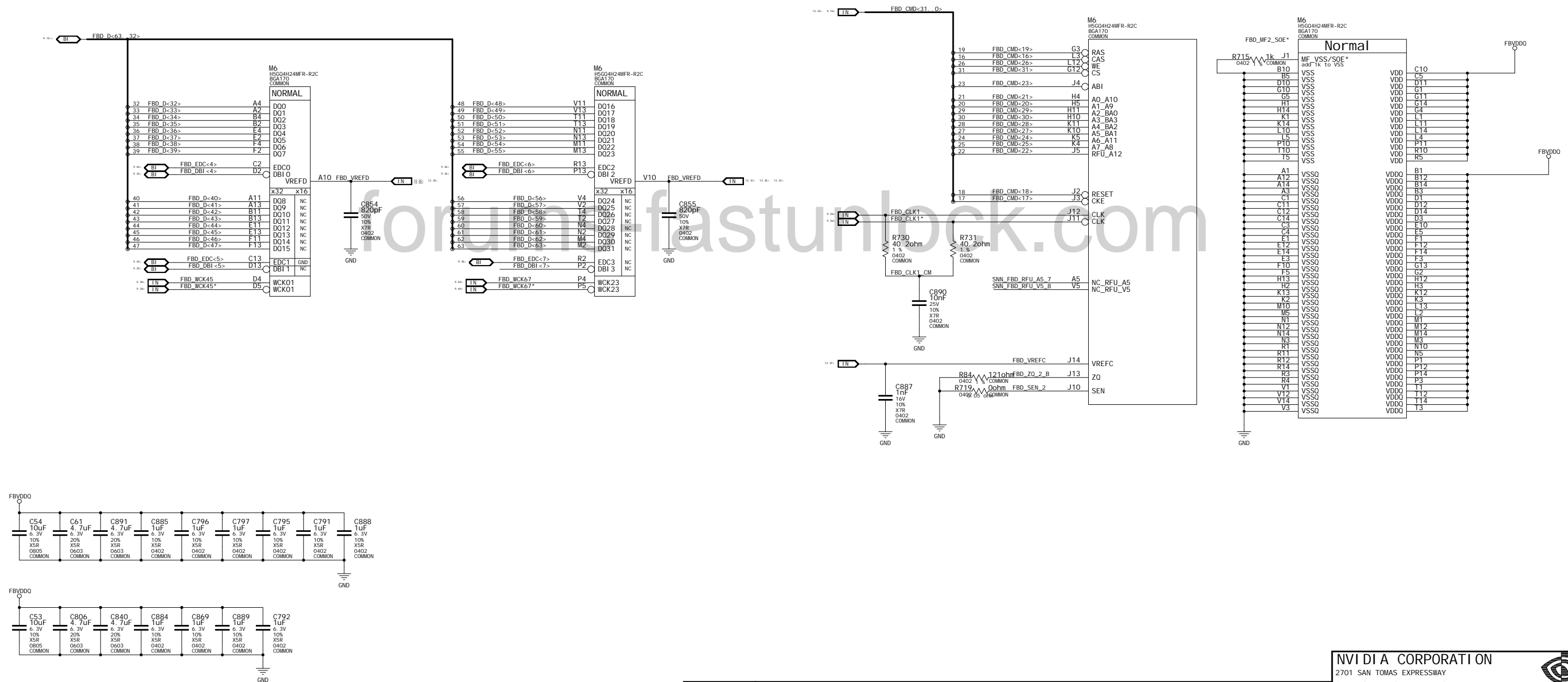
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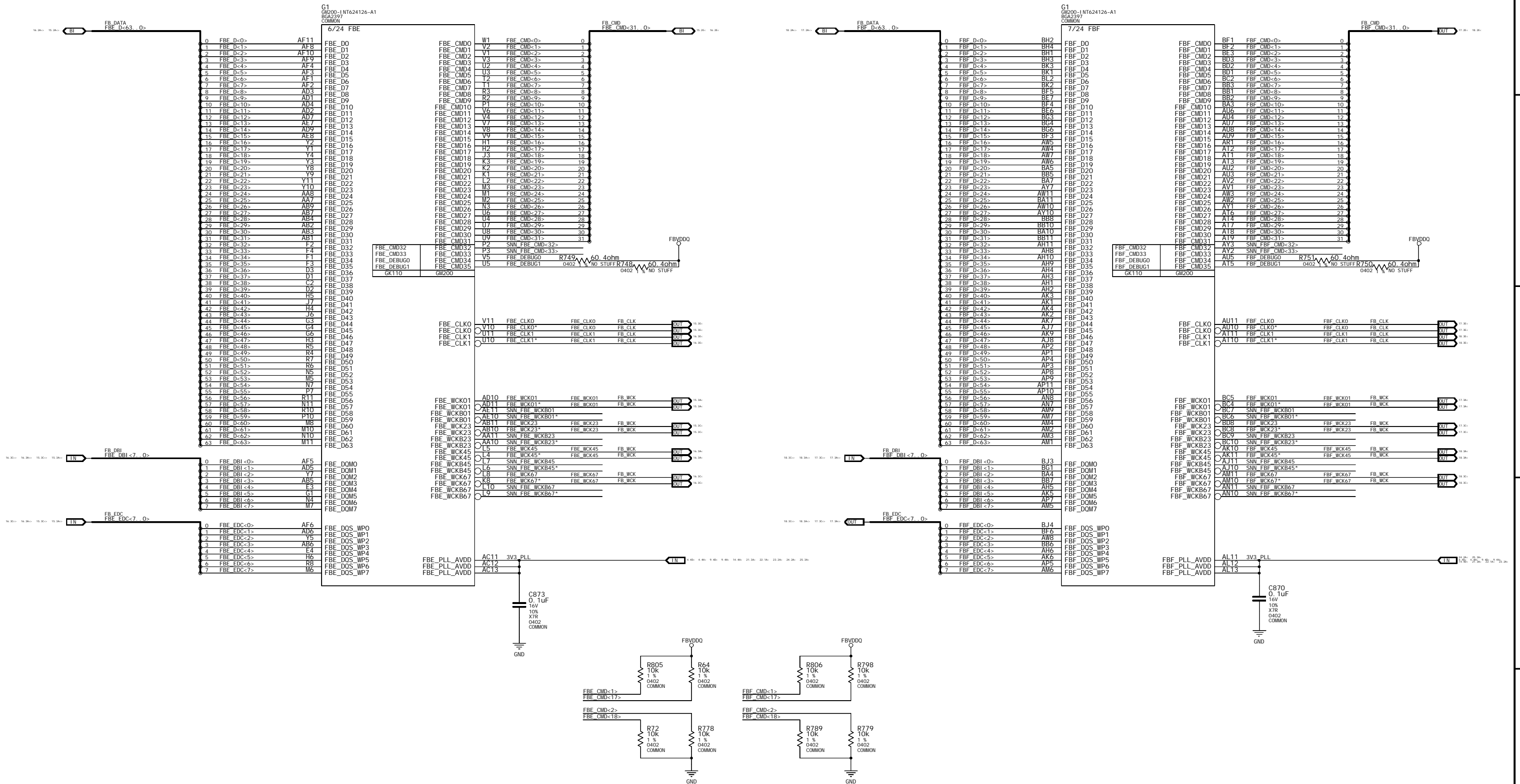
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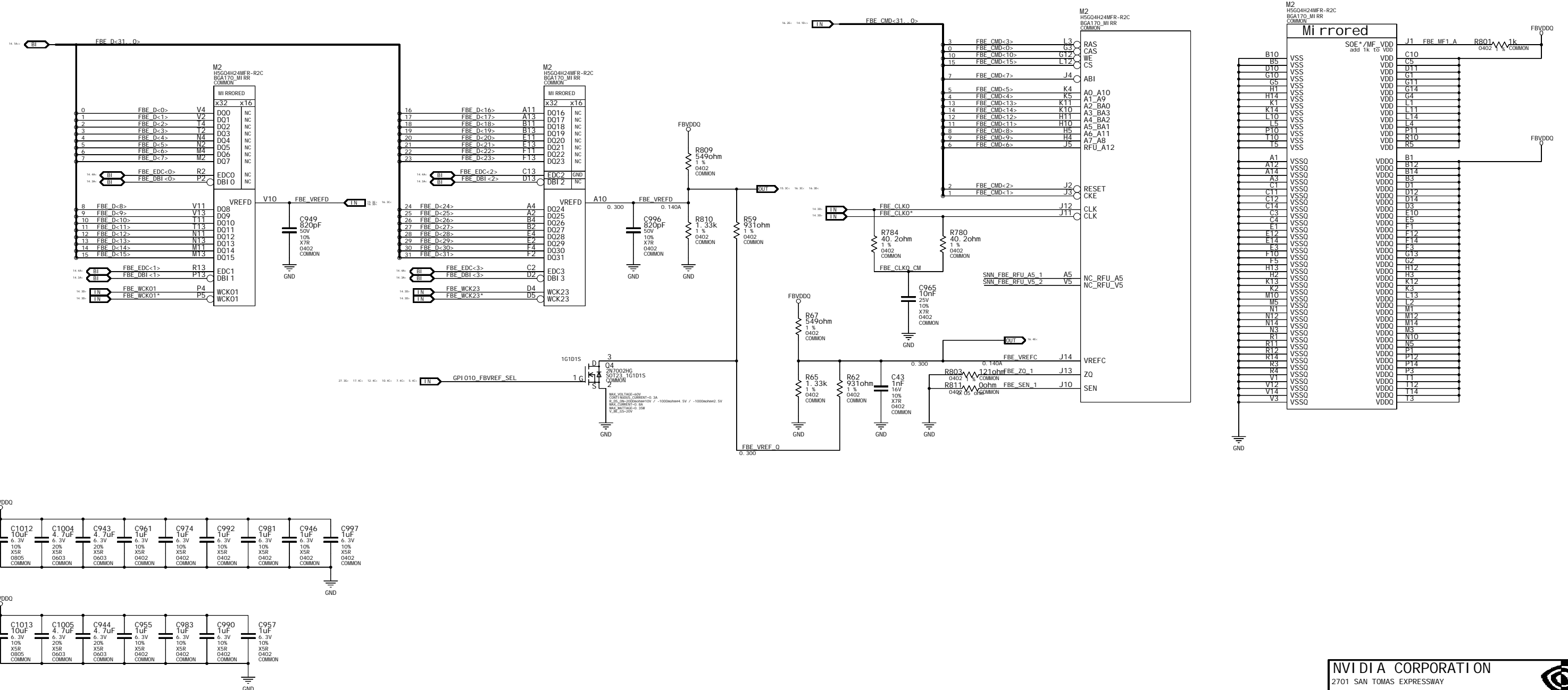
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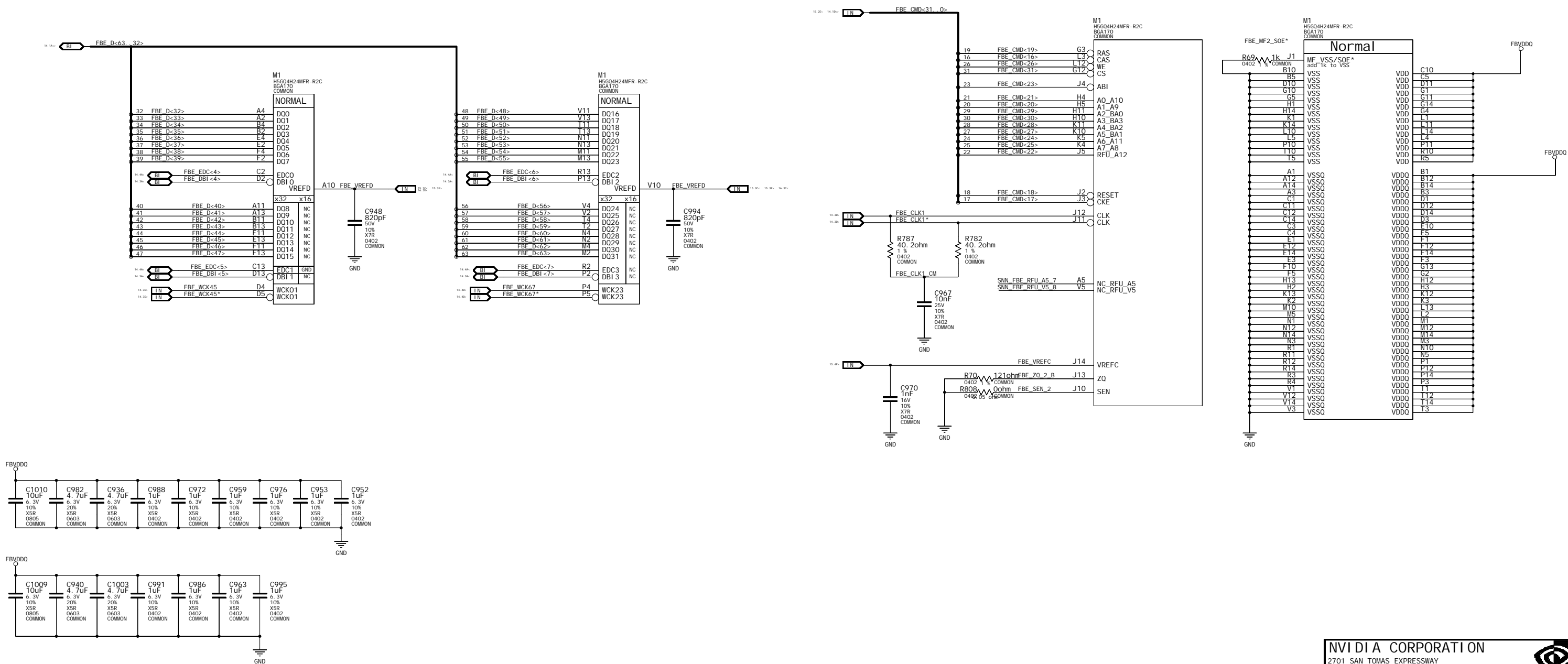


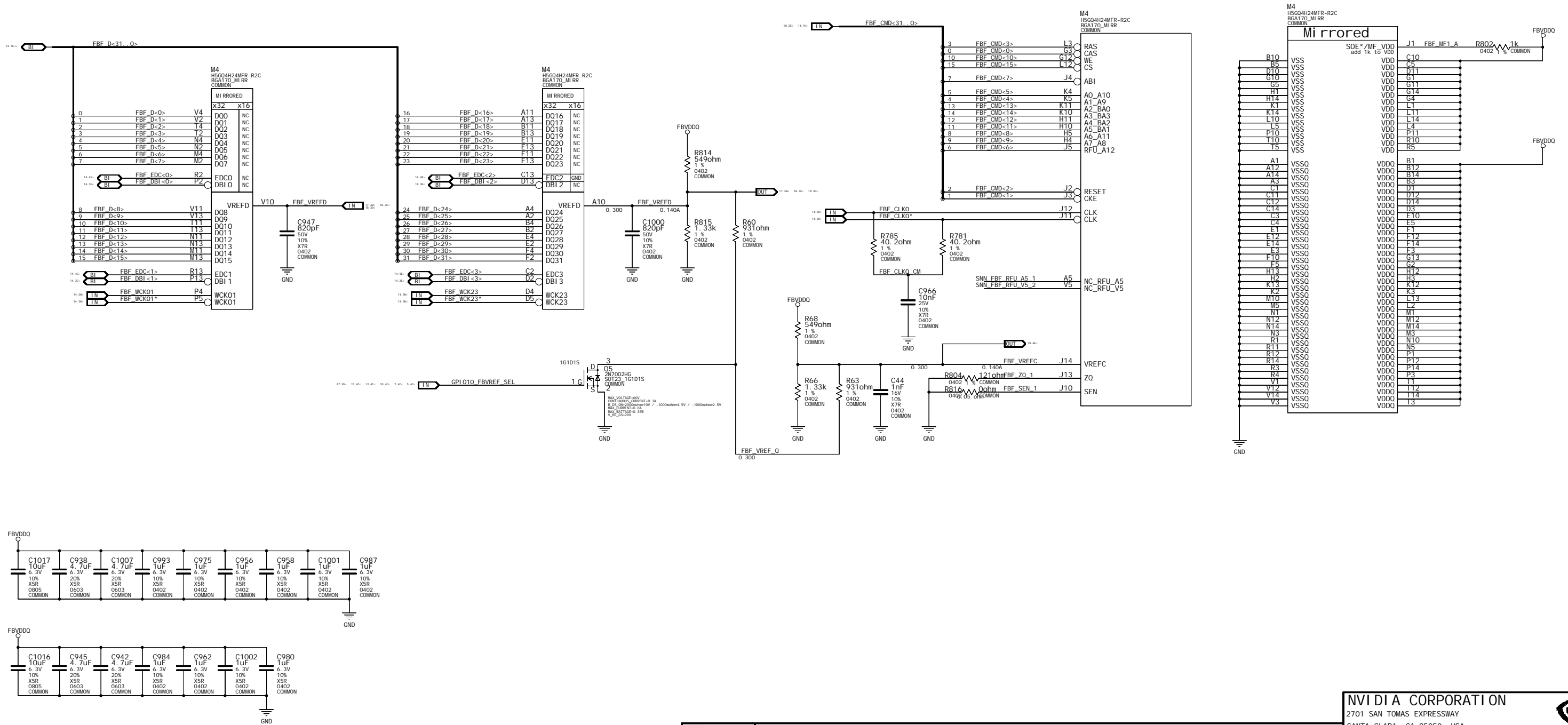
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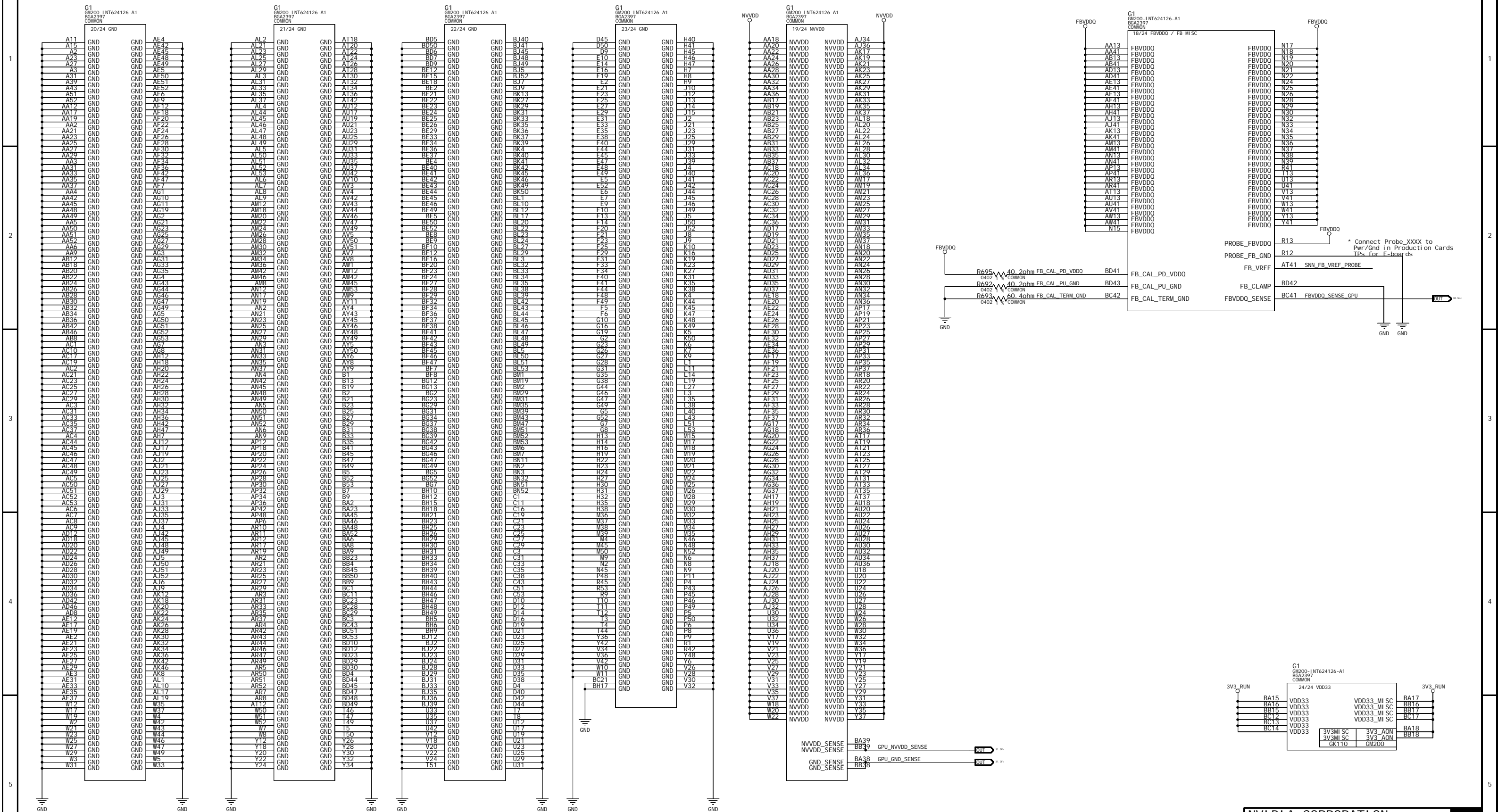




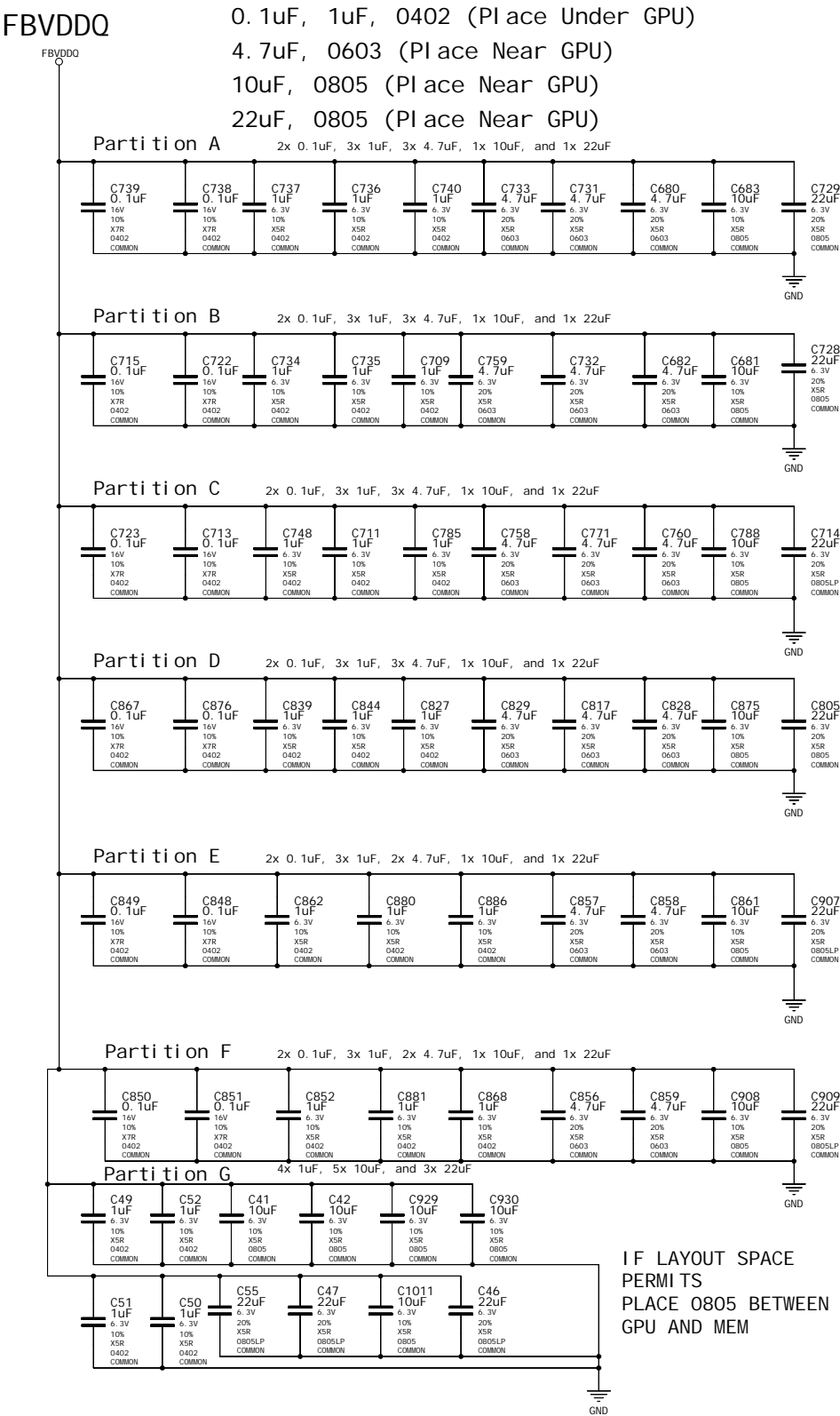




Page19: GPU PWR and GND

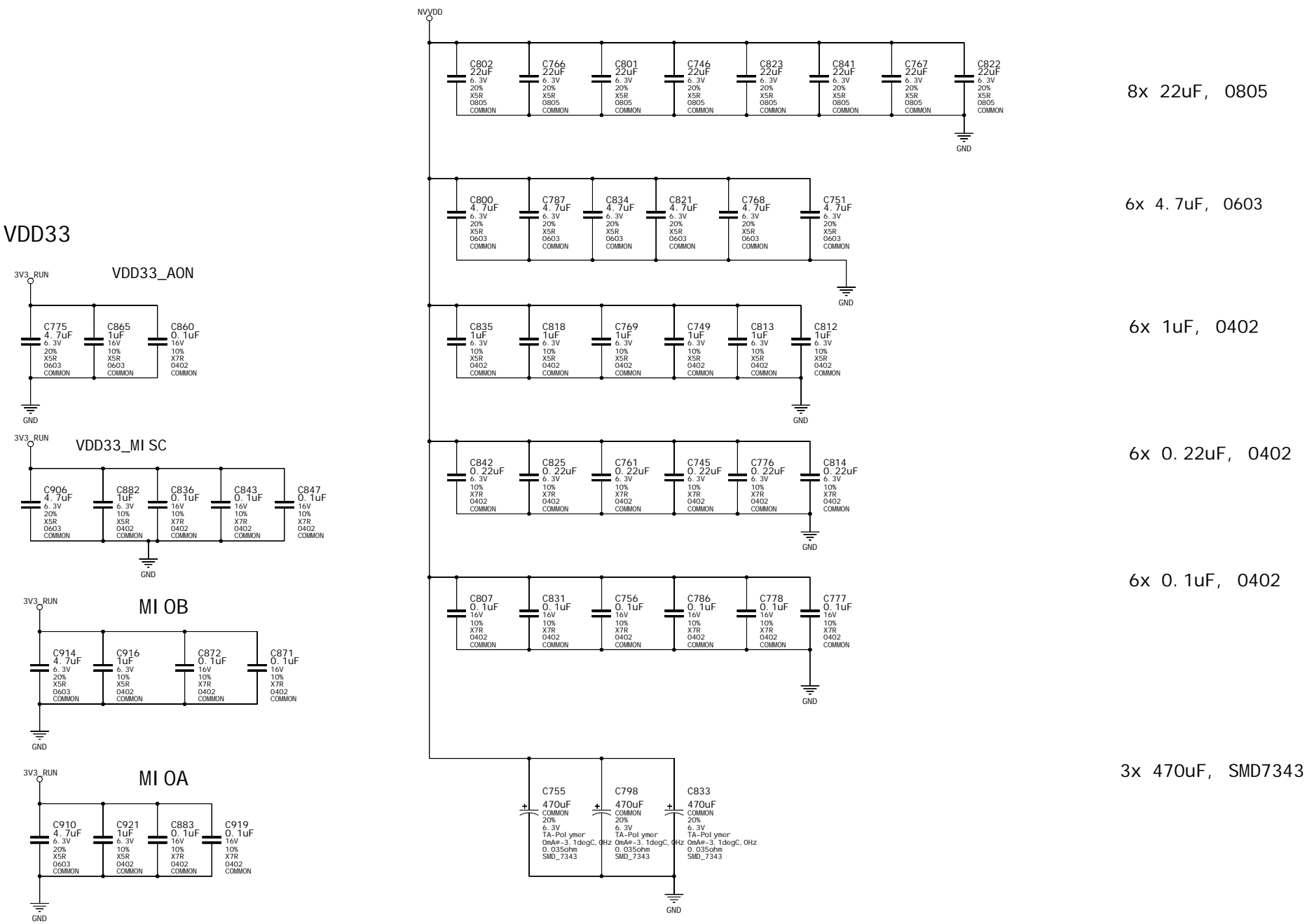


Based on GB3-X GDDR5 FBVDDQ Decap Guideline

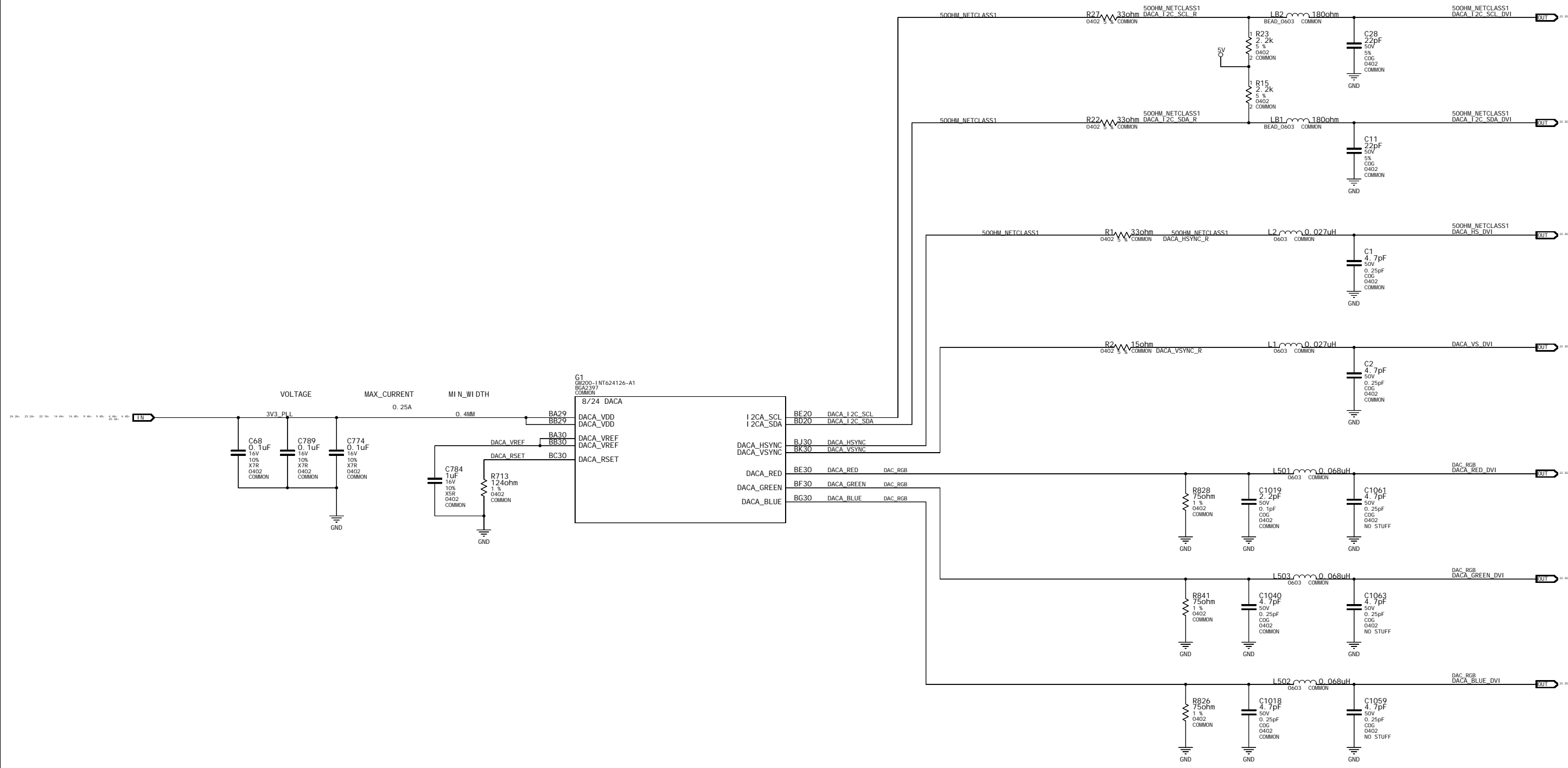


NVVDD Decoupling caps. Place under GPU.

NVVDD



Page21: DACA Interface



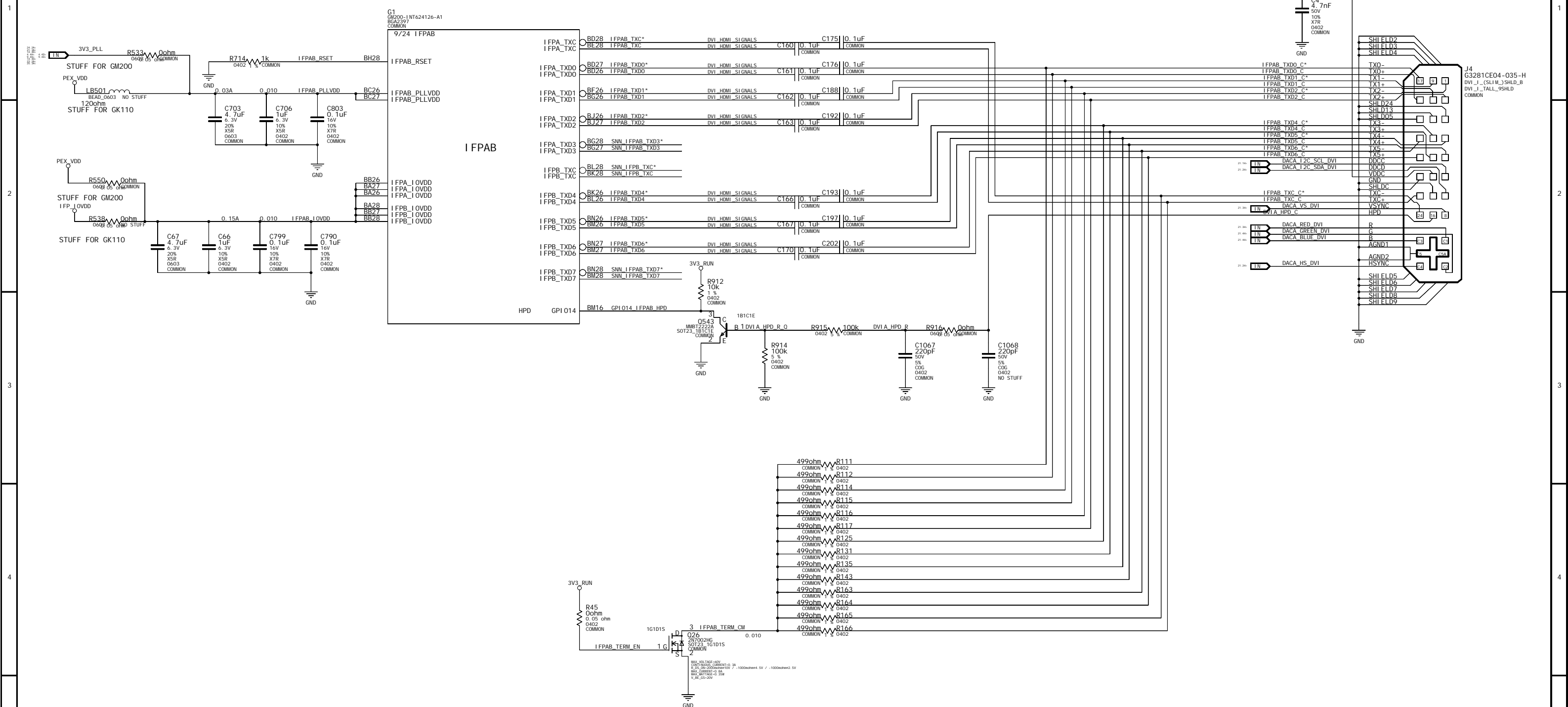
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NV_PN	600-1G600-0030-QS1		
PCB REV	PG600-B02	PAGE	21 OF 41
BOM REV	A	DATE	21-APR-2015

Page22: I FPAB DVI -I -DL

AC COUPLING NOT NEEDED for KEPLER

REPLACE WITH ZERO OHM RESISTORS FOR KEPLER SKUs



ASSEMBLY	PG600-B02 SKU0030 G83B-384 GM200 6GB GDDR5 128MX32 DP+DP+HDMI+DP+DVI -I
PAGE DETAIL	IFPAB DVI -I -DL

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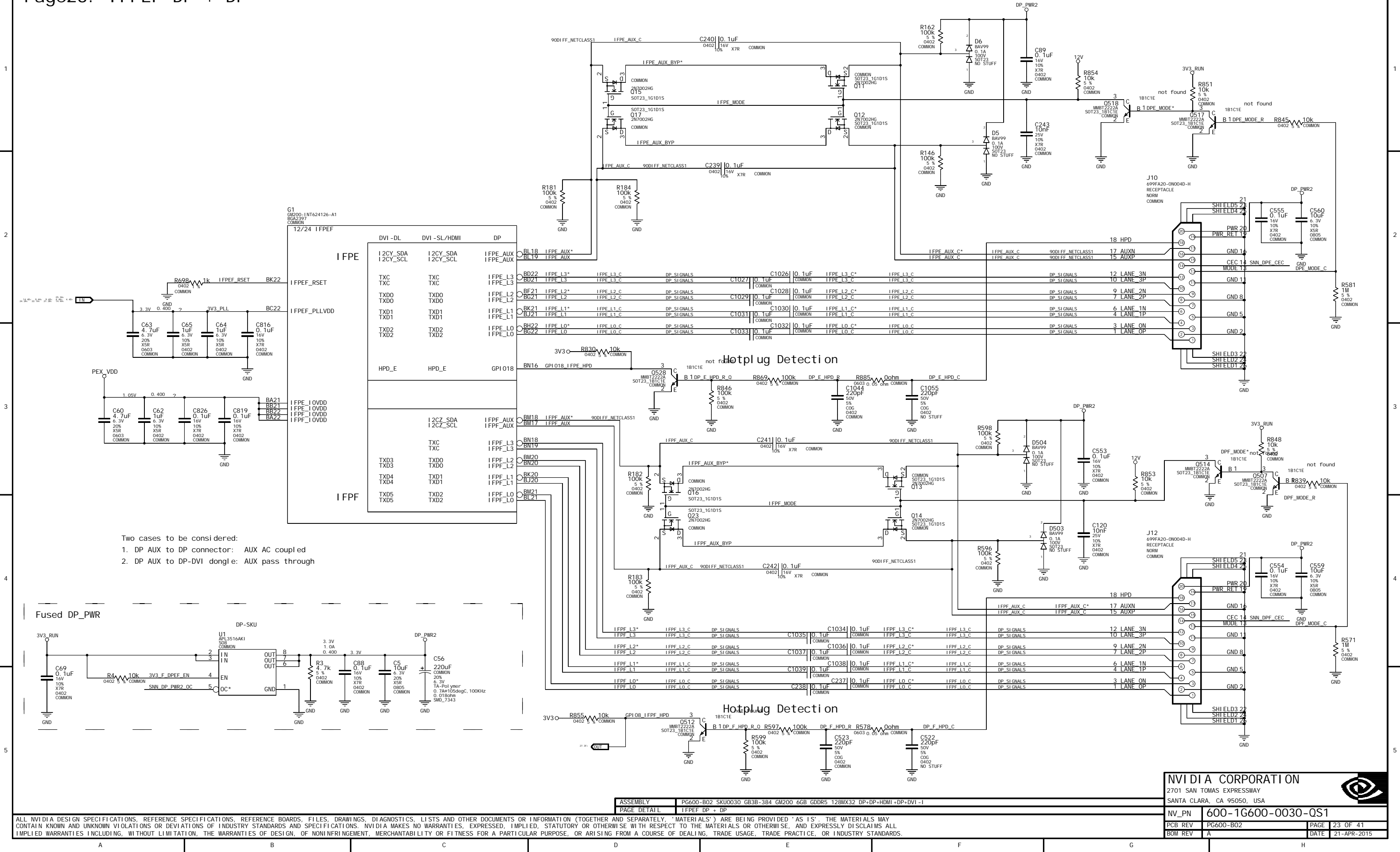
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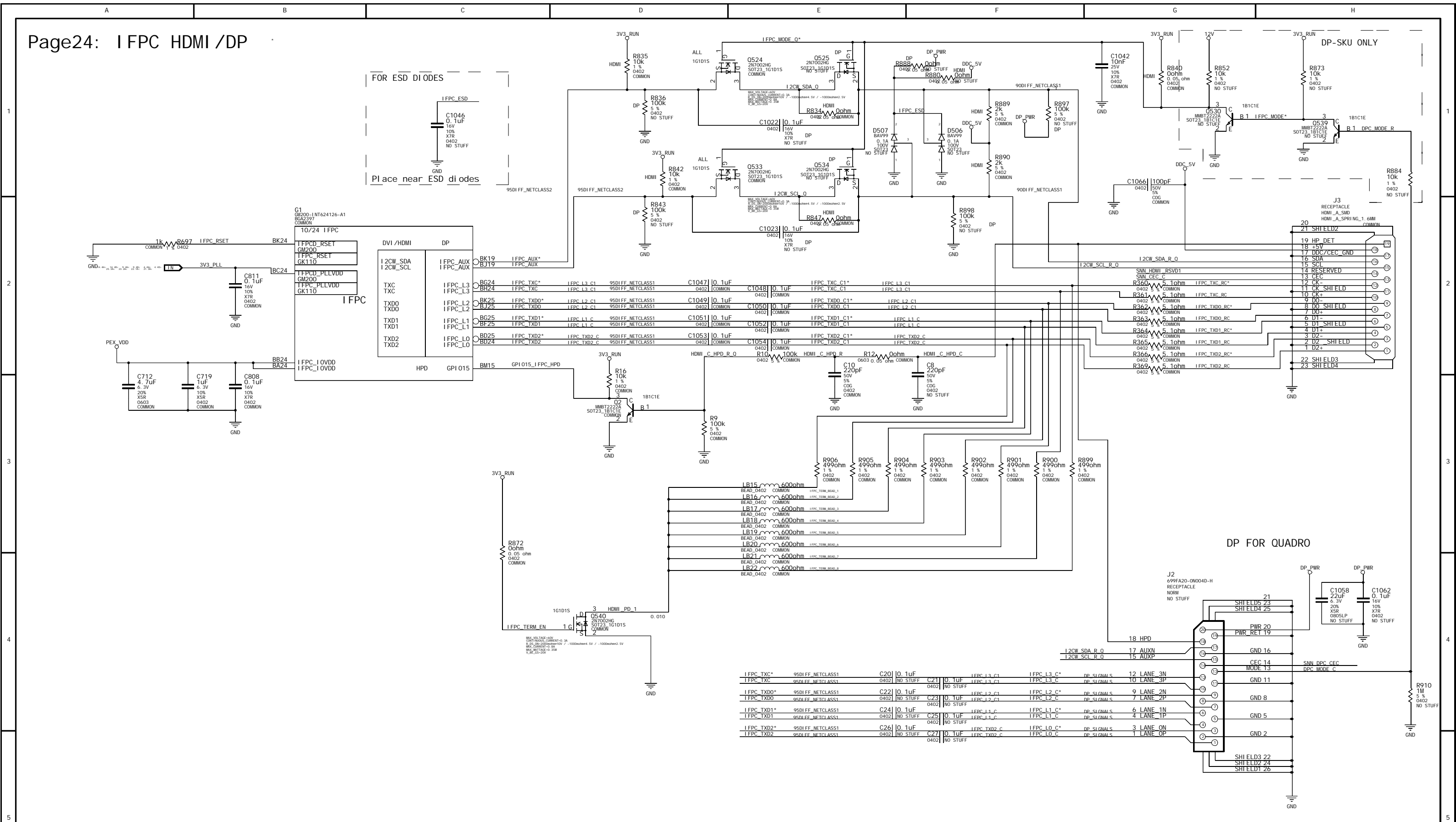
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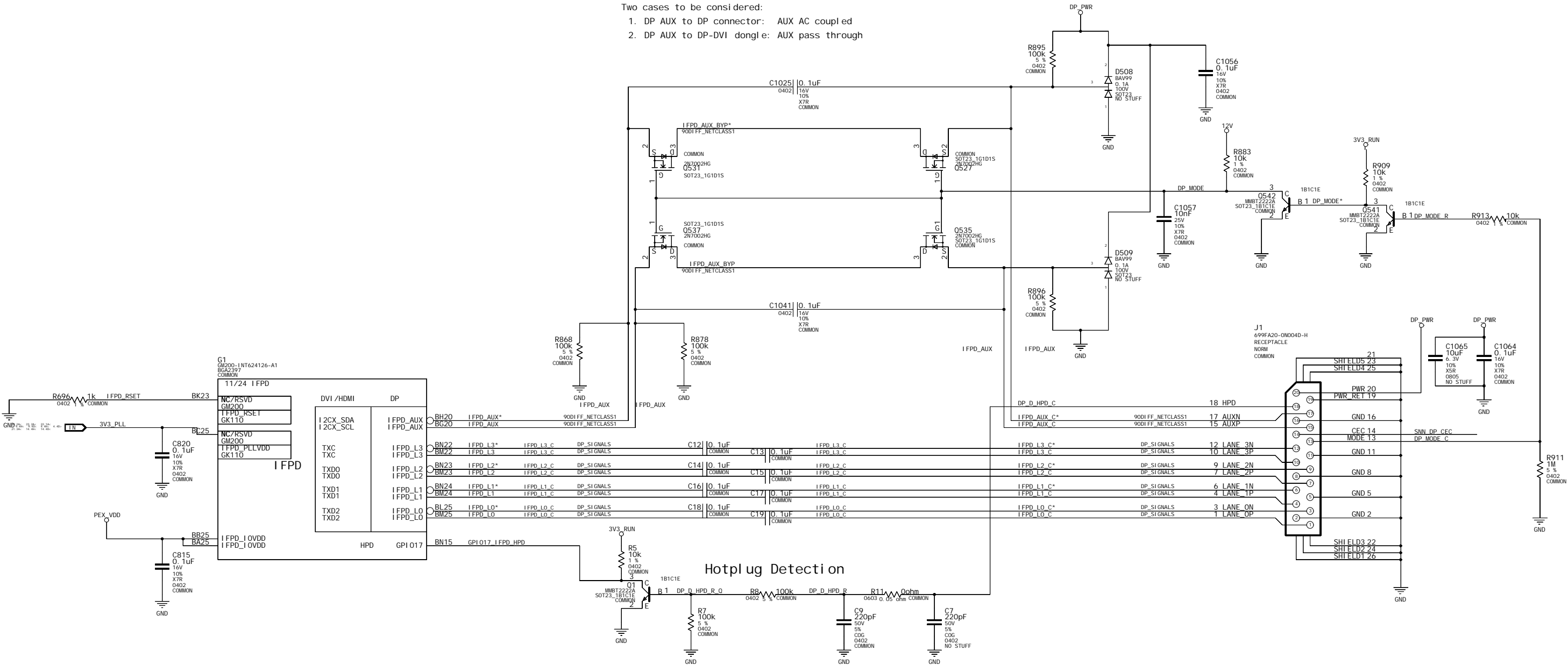
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PCB REV	PG600-B02	PAGE	22 OF 41
BOM REV	A	DATE	21-APR-2015

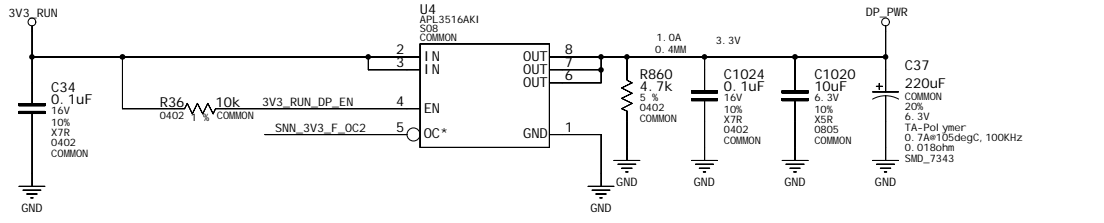




- Two cases to be considered:
1. DP AUX to DP connector: AUX AC coupled
 2. DP AUX to DP-DVI dongle: AUX pass through



Fused DP_PWR



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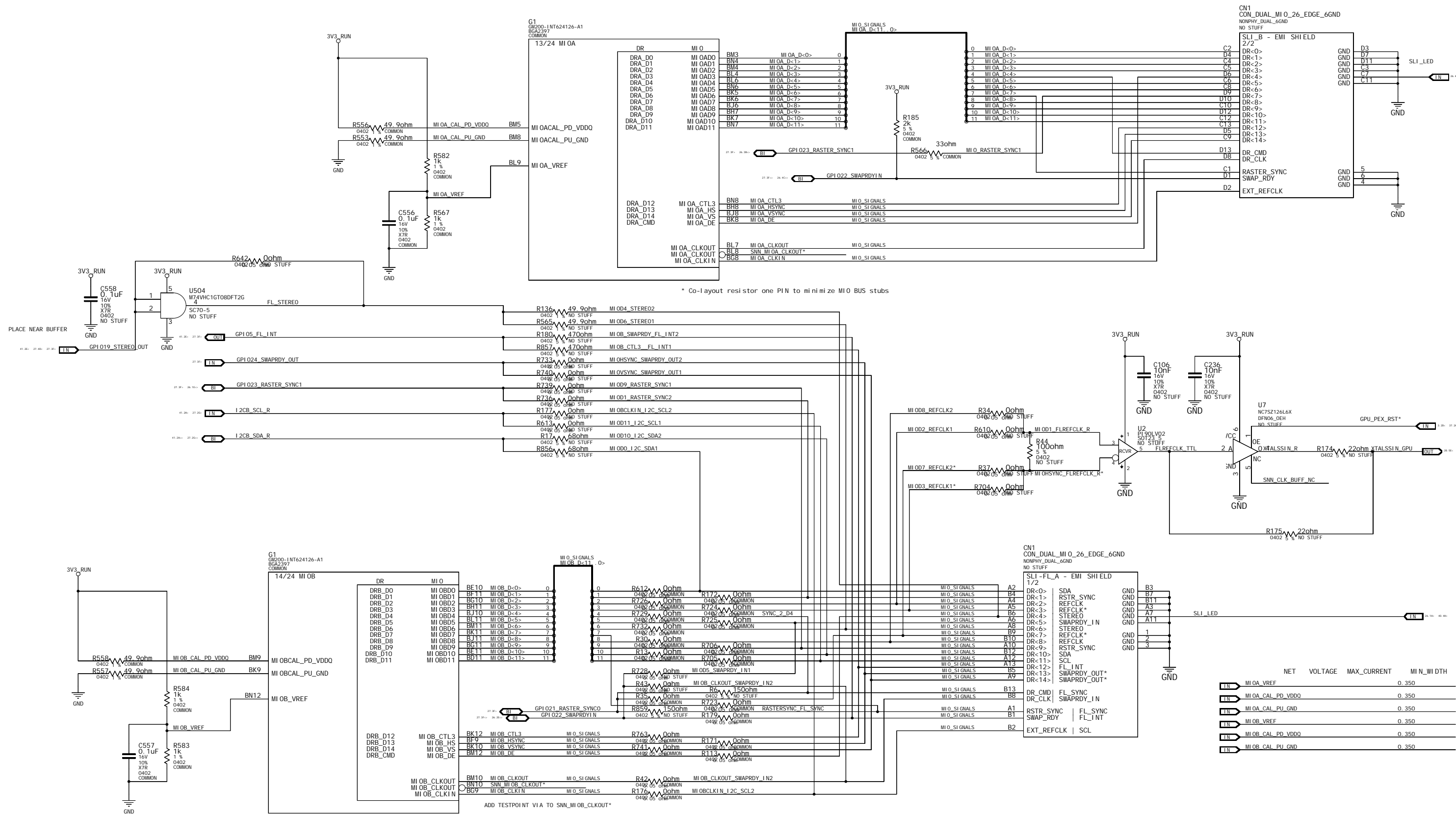


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PAGE DETAIL	I FPD DP

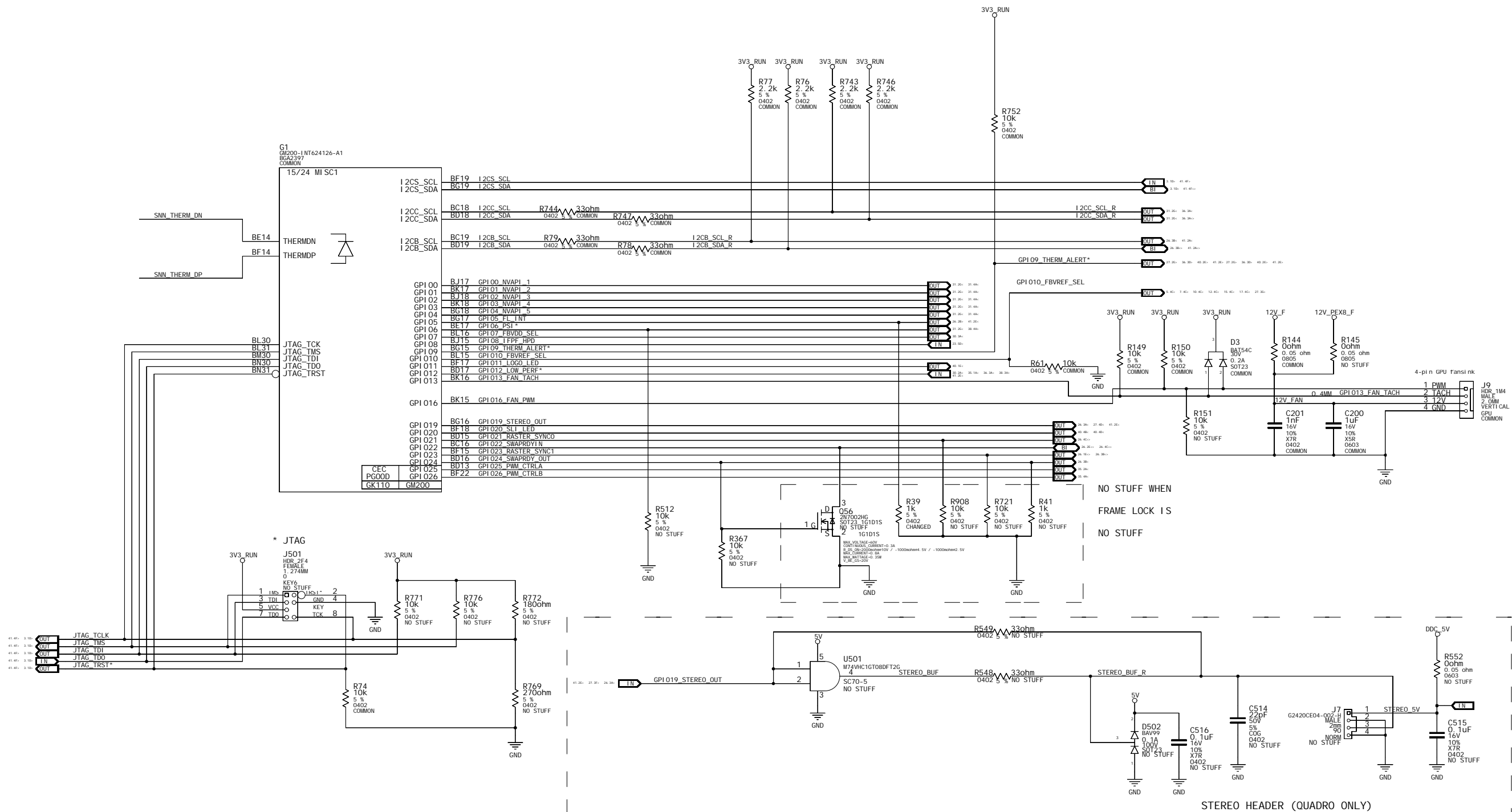
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PCB REV	PG600-B02	PAGE	25 OF 41
BOM REV	A	DATE	21-APR-2015

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Page26: MI 0A/B and FRAMELOCK Interface



	NET	VOLTAGE	MAX_CURRENT	MIN_WI DTH
1	MI OA_VREF			0.350
1	MI OA_CAL_PD_VDDQ			0.350
1	MI OA_CAL_PU_GND			0.350
1	MI OB_VREF			0.350
1	MI OB_CAL_PD_VDDQ			0.350
1	MI OB_CAL_PU_GND			0.350



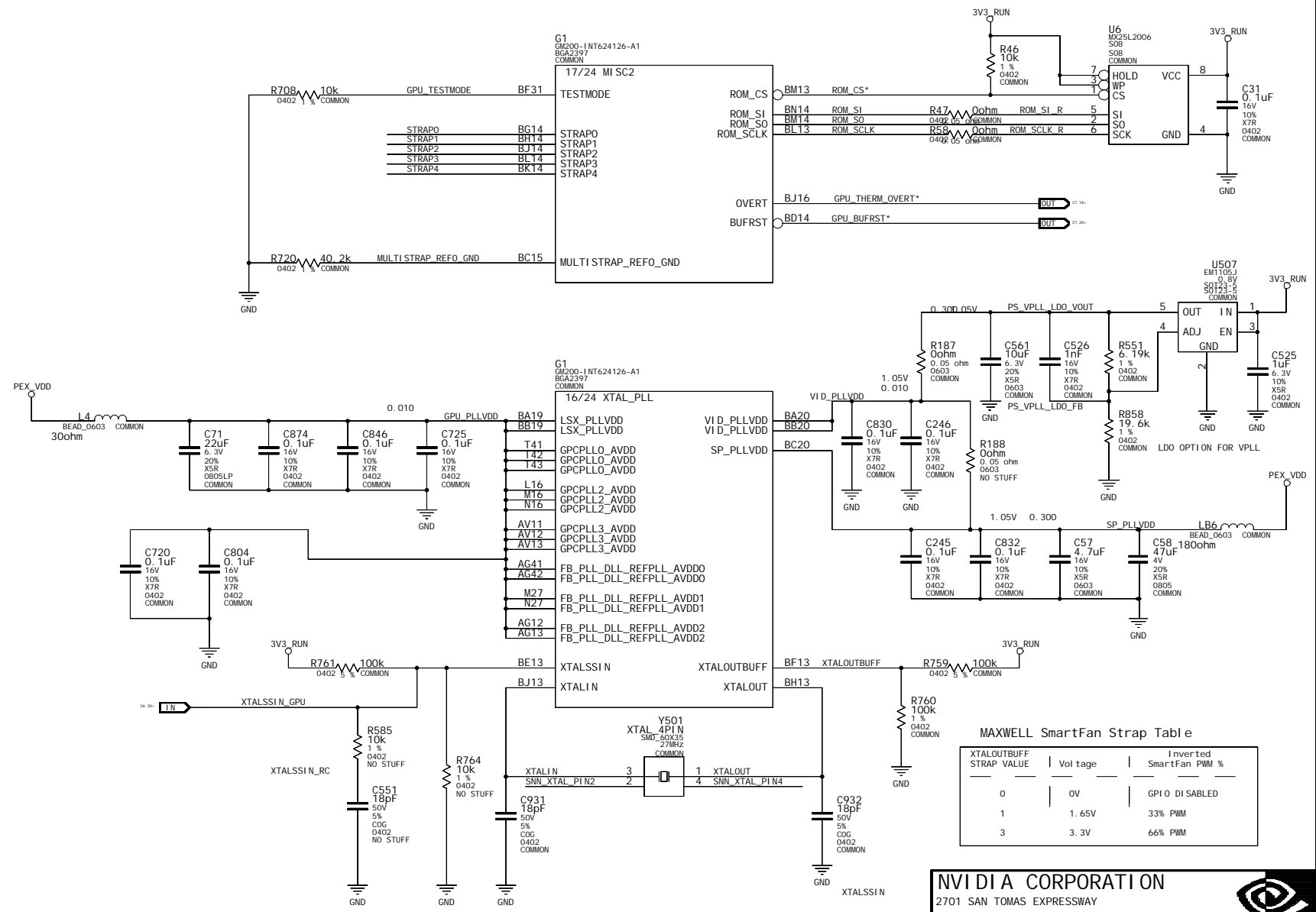
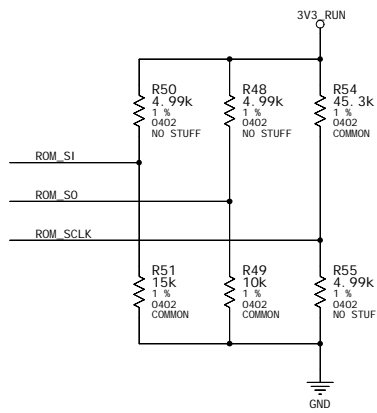
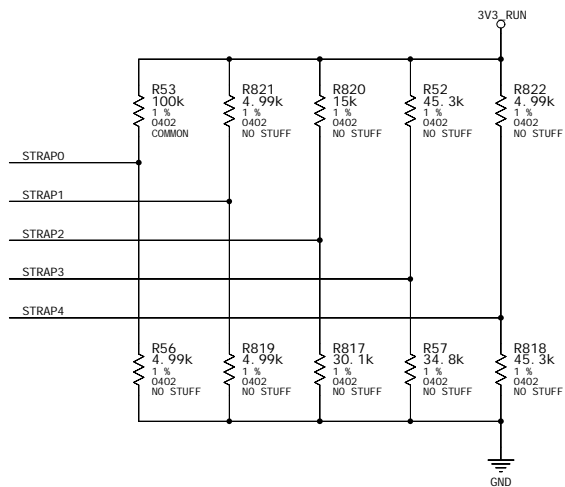
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PCB REV	PG600-B02	PAGE	27 OF 41
BOM REV	A	DATE	21-APR-2015

Page28: MI SC2: ROM, XTAL, Straps

		GK110	GM200
STRAP0	USER_BIT [3:0]*	0000*	GC6_ENABLE(3.3V) PU
STRAP1	3GIO_PADCFG_LUT_ADR*	0000*	N/A
STRAP2	PCI_DEVICE [3:0]*	100A*	N/A
STRAP3	SOR_EXPOSED [3:0]*	1111*	N/A
STRAP4	DP_PLL_VDD_33V*	1* FOR 3_3V*	N/A
	PEX_MAX_SPEED*	1* FOR GEN2/3*	N/A
	PEX_SPD_CHANGE_GEN3*	1* ENABLED*	N/A
	RESERVED	0*	N/A
	RAMCFG[0]*	1*	RAMCFG[0]*
ROM_SI	RAMCFG[1]*	0*	RAMCFG[1]*
	RAMCFG[2]*	1*	RAMCFG[2]*
	RAMCFG[3]*	0*	RAMCFG[3]*
	VGA_DEVICE*	1*	VGA_DEVICE* 1* For Enable
ROM_SO	SMB_ALT_ADDR*	0*	SMB_ALT_ADDR 0* For Disable
	FB[0]_APERTURE_SIZE*	1* For 128MB*	PCI_E_CFG 0* For Desktop
	FB[1]_APERTURE_SIZE*	0* For 128MB*	DEVICE_SEL 0* For Device A
	PEX_PLL_EN_TERM100*	0* DISABLED*	SOR0_EXPOSED
ROM_SCLK	PCI_DEVICE_EXT[5]*	0*	SOR1_EXPOSED
	SUB_VENDOR*	1* Dedicated BIOS*	SOR2_EXPOSED
	PCI_DEVICE_EXT[4]*	0*	SOR3_EXPOSED

BINARY PRODUCTION	NC
BINARY BRINGUP	NC
MULTI-LEVEL	40.2k 1% TO GND

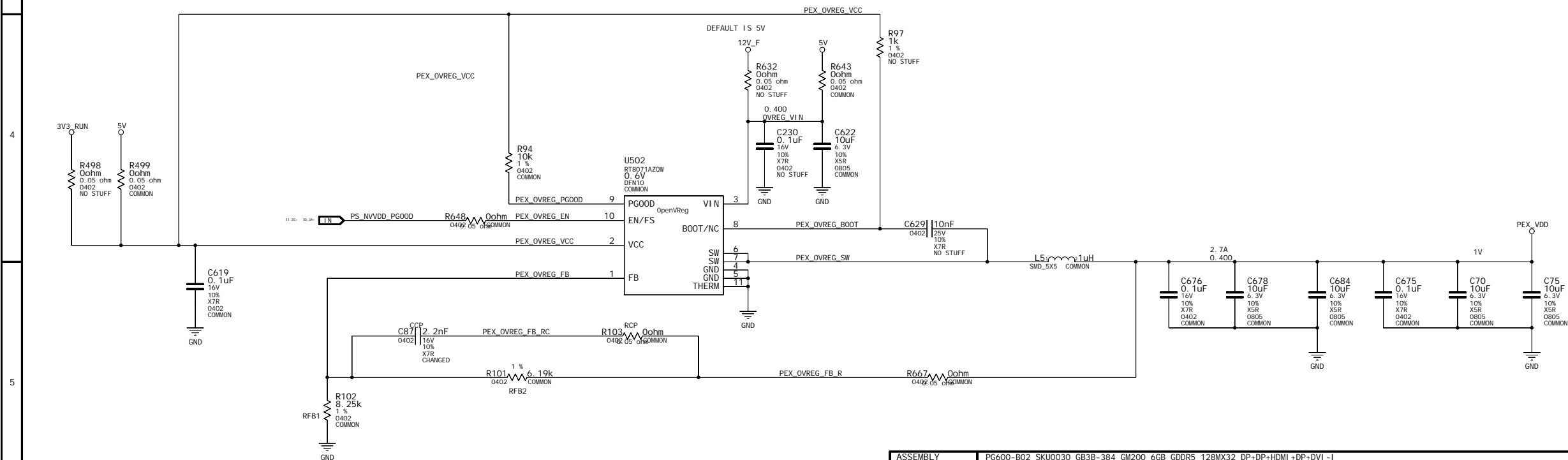
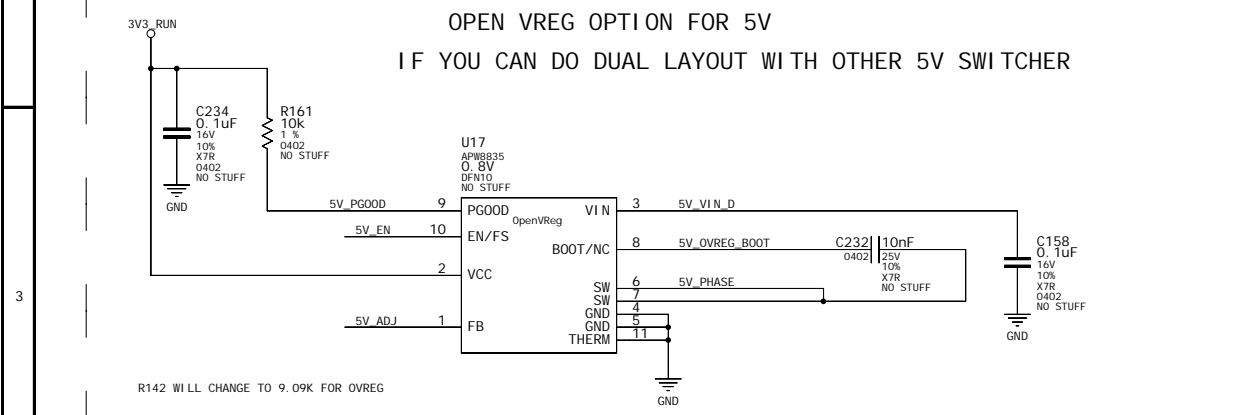
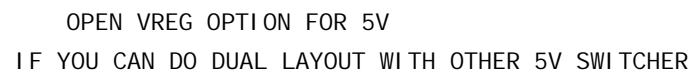
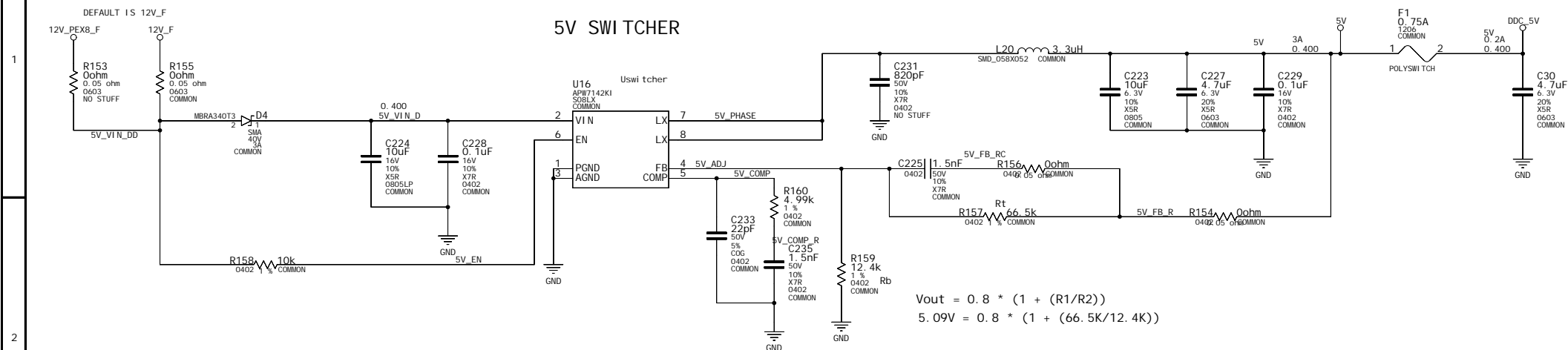



MAXWELL SmartFan Strap Table		
XTALOUTBUFF STRAP VALUE	Voltage	Inverted SmartFan PWM %
0	0V	GPIO DISABLED
1	1.65V	33% PWM
3	3.3V	66% PWM

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PCB REV	PG600-B02	PAGE 28 OF 41
BOM REV	A	DATE 21-APR-2015

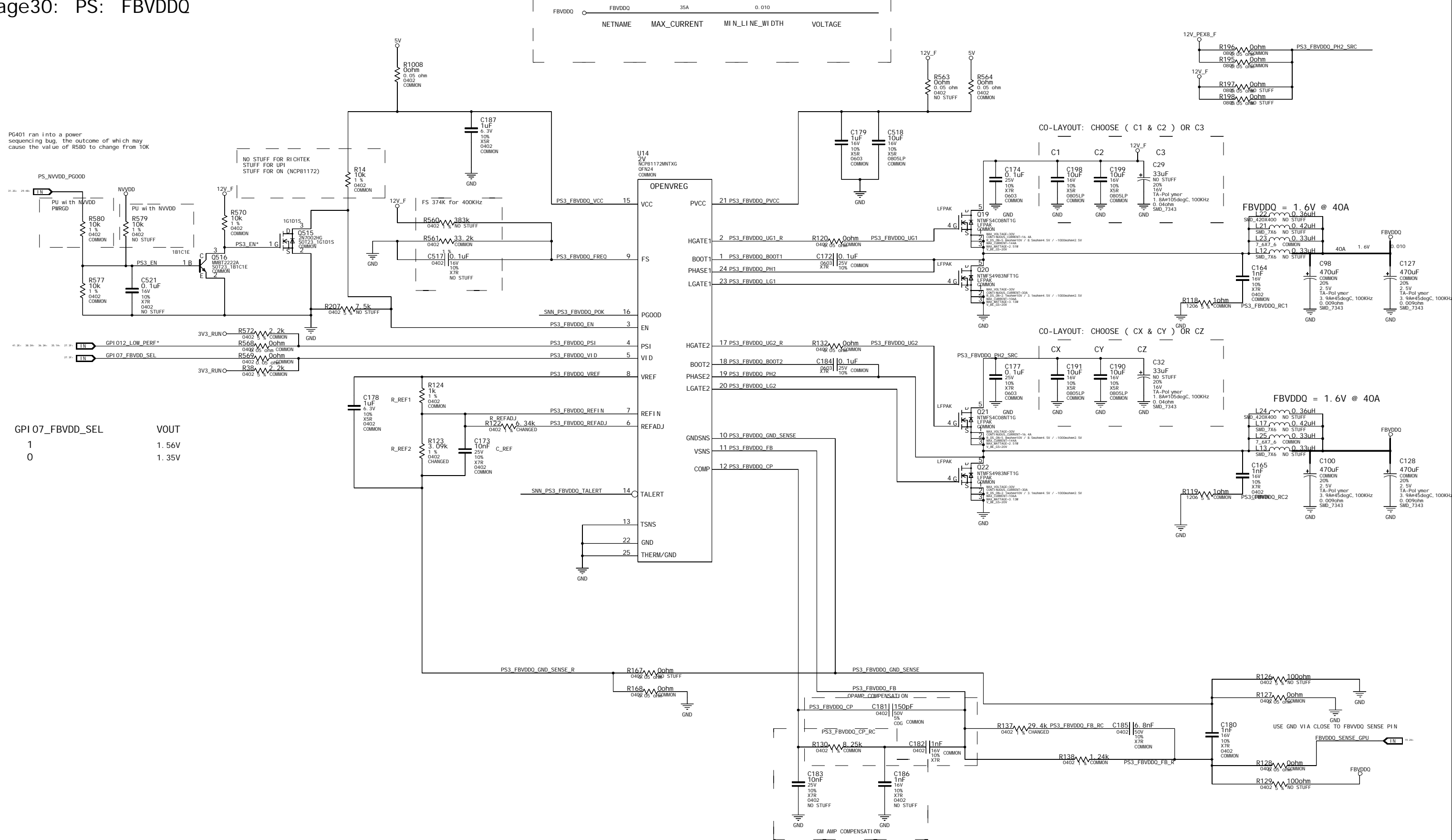
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Page29: PS: 5V, PEX_VDD



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PCB REV	A6000-B02	PAGE	29 OF 41
BOM REV	PG	DATE	21-APR-2015

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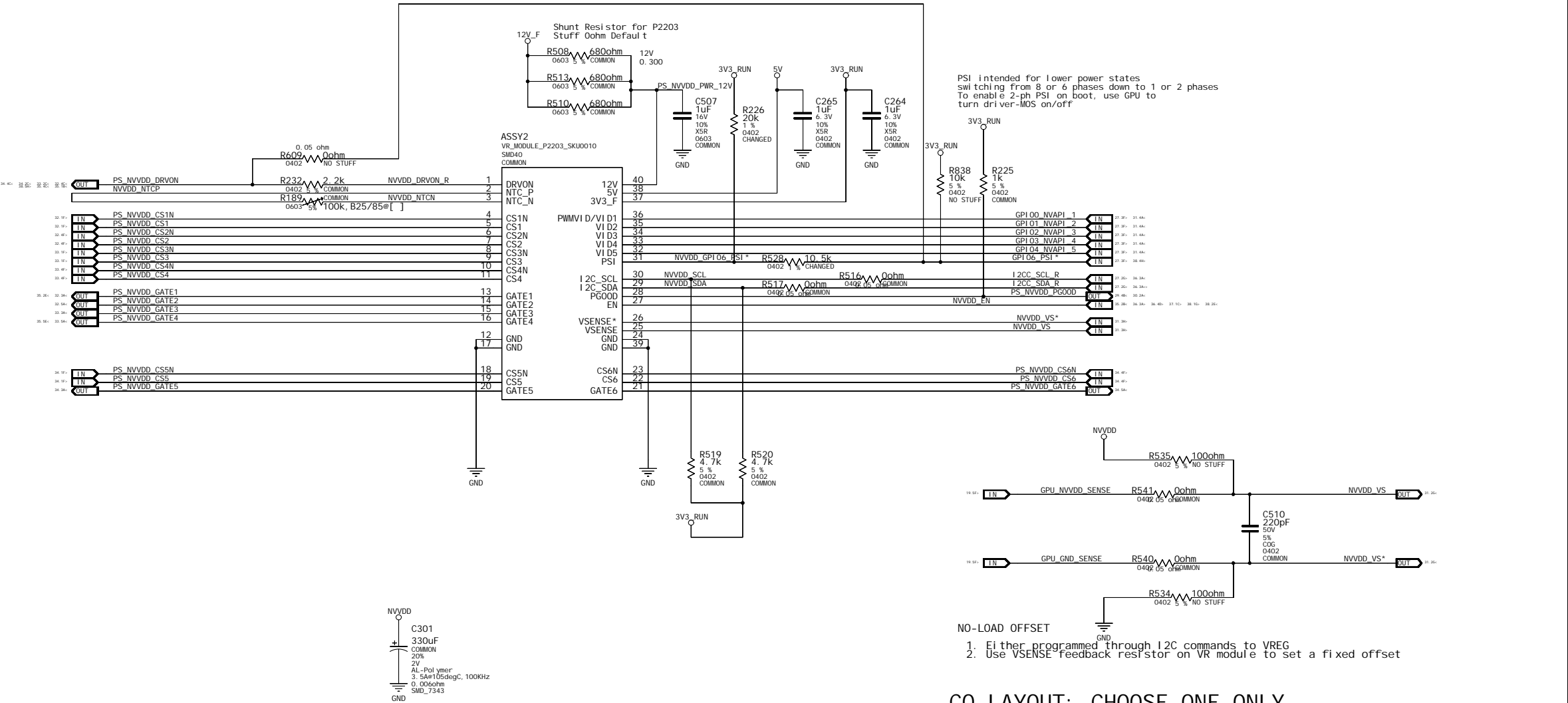


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PAGE DETAIL	PS: FBVDD/Q

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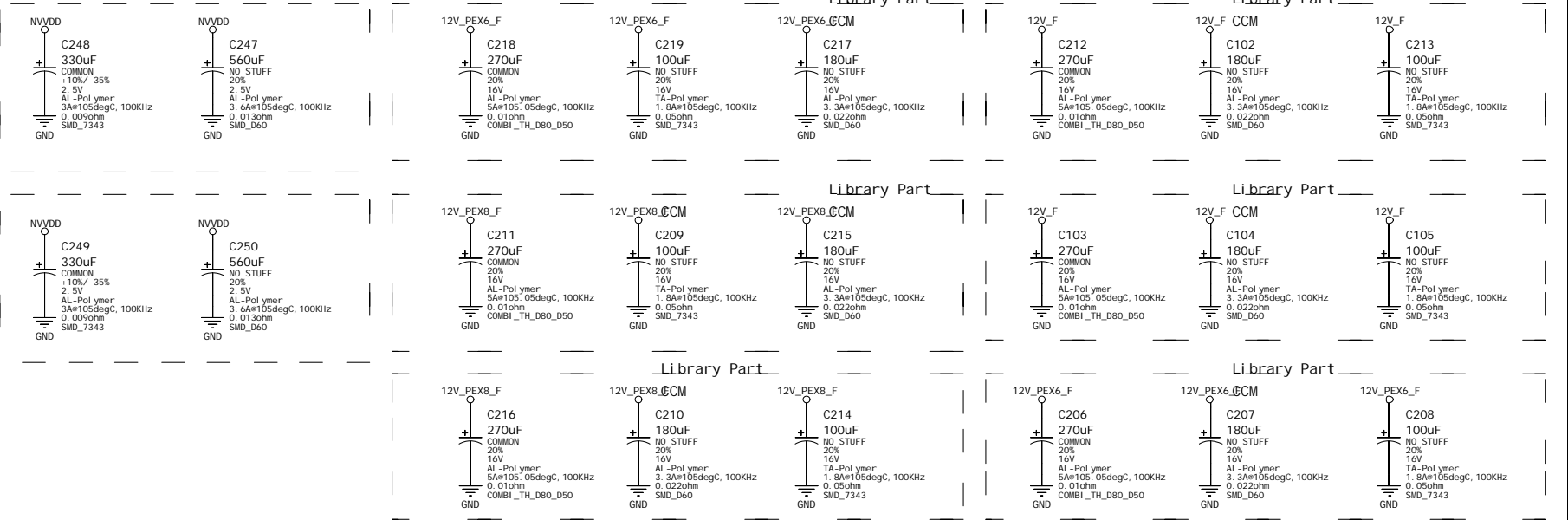
VID Table

GPI04	GPI03	GPI02	GPI01	GPI00	VOUT
VID_5	VID_4	VID_3	VID_2	VID_1	
0	0	0	0	0	1.2125V
0	0	0	0	1	1.2000V
0	0	0	1	0	1.1875V
0	0	0	1	1	1.1750V
0	0	1	0	0	1.1625V
0	0	1	0	1	1.1500V
0	0	1	1	0	1.1375V
0	0	1	1	1	1.1250V
0	1	0	0	0	1.1125V
0	1	0	0	1	1.1000V
0	1	0	1	0	1.0875V
0	1	0	1	1	1.0750V
0	1	1	0	0	1.0625V
0	1	1	0	1	1.0500V
0	1	1	1	0	1.0375V
0	1	1	1	1	1.0250V
1	0	0	0	0	1.0125V
1	0	0	0	1	1.0000V
1	0	0	1	0	0.9875V
1	0	0	1	1	0.9750V
1	0	1	0	0	0.9625V
1	0	1	0	1	0.9500V
1	0	1	1	0	0.9375V
1	0	1	1	1	0.9250V
1	1	0	0	0	0.9125V
1	1	0	0	1	0.9000V
1	1	0	1	0	0.8875V
1	1	0	1	1	0.8750V
1	1	1	0	0	0.8625V
1	1	1	0	1	0.8500V
1	1	1	1	0	0.8375V
1	1	1	1	1	0.8250V



- NO-LOAD OFFSET
1. Either programmed through I2C commands to VREG
 2. Use VSENSE feedback resistor on VR module to set a fixed offset

CO-LAYOUT: CHOOSE ONE ONLY



- SOFT START (VR11)
1. Ramp 0V to 1.10V in ~2ms
 2. Hold at 1.10V for 170uS
 3. Read VID
 4. VID set to 0.9V during GPIO tri-state
VID[5:1]=11001 to set 0.9V

- P-STATE VOLTAGES
1. P0 at 1.05V to 1.15V (depending on VB)
 2. P8/P12 at 0.80V

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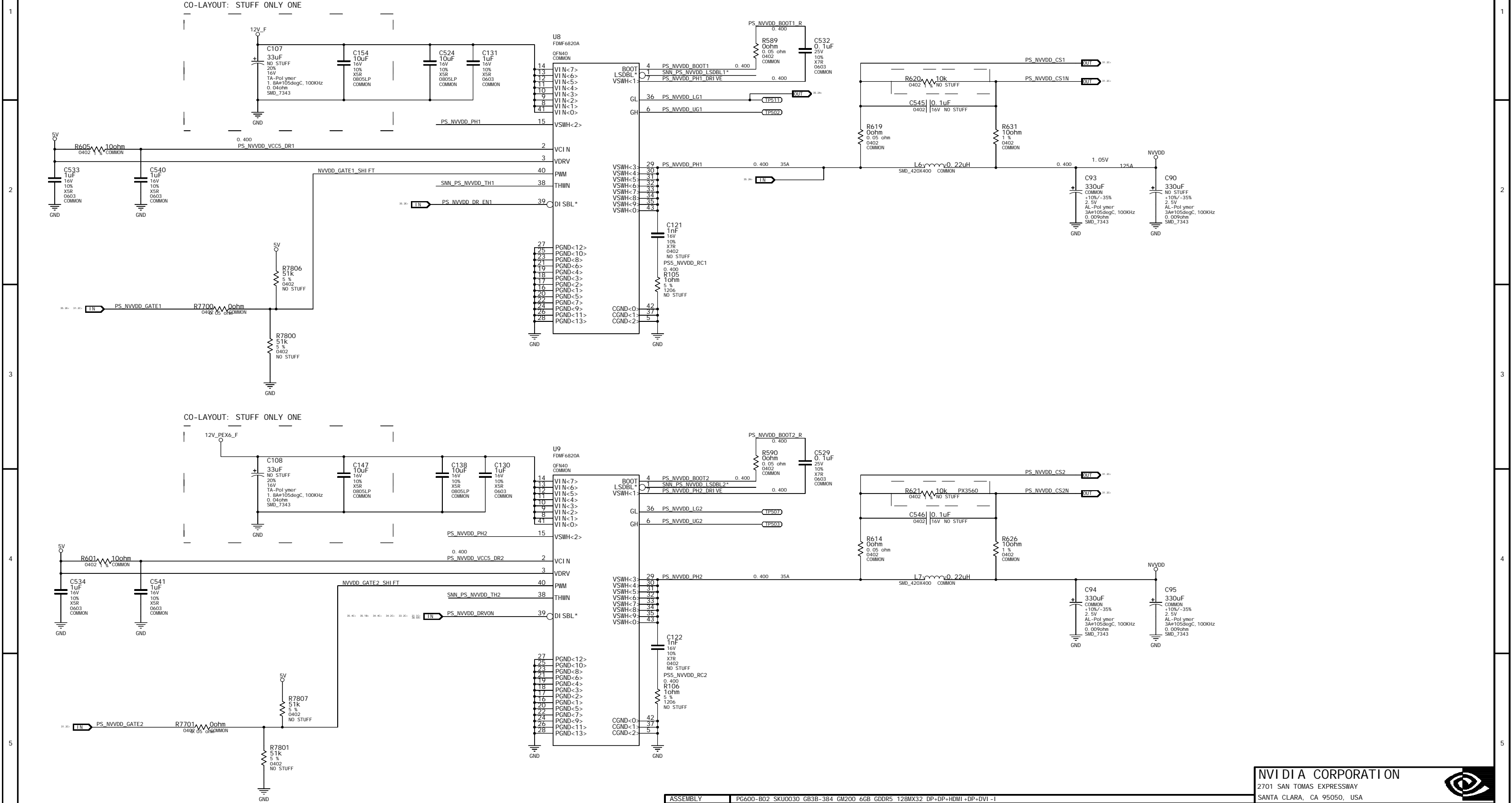
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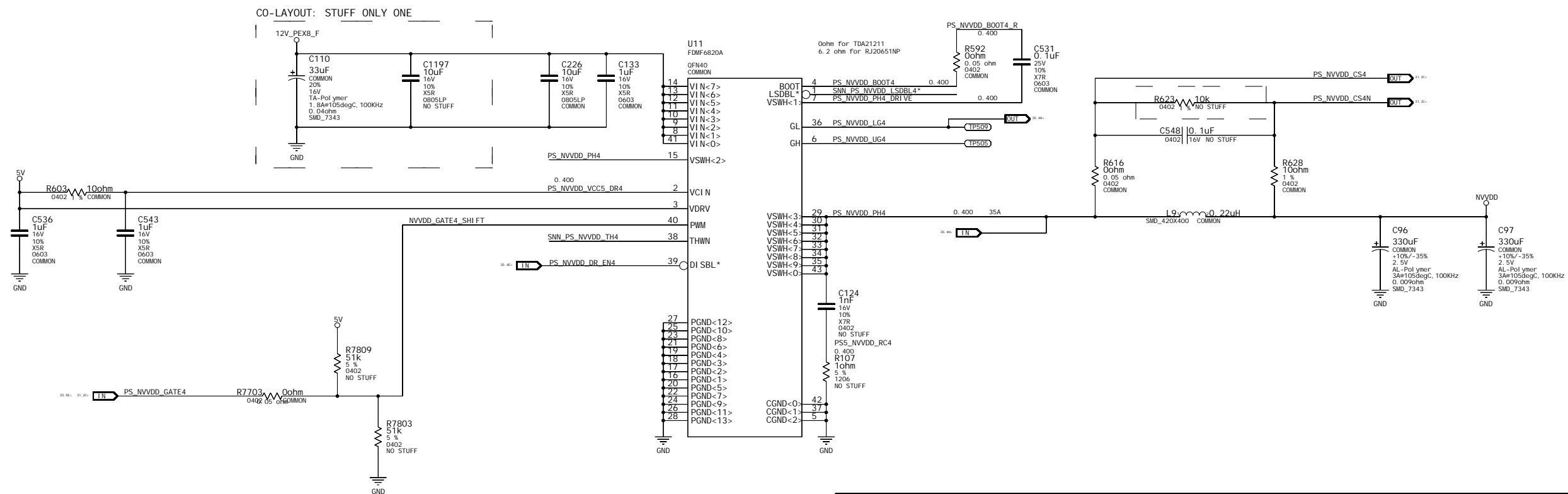
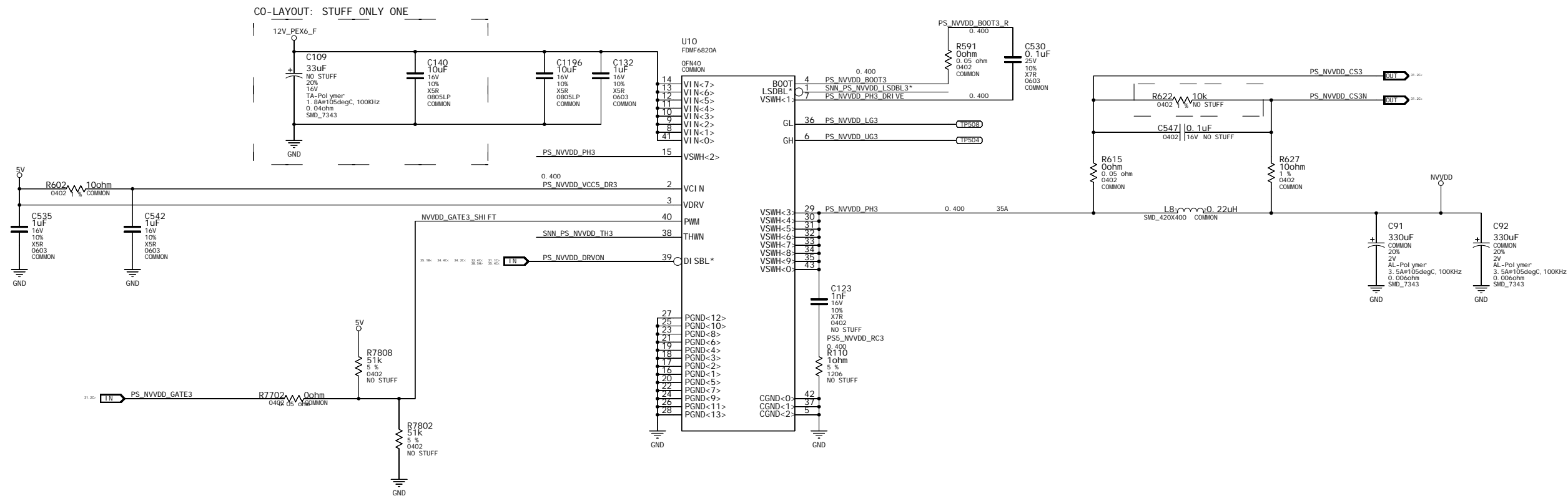
31 OF 41

DATE

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ASSEMBLY	PG600-B02 SKU0030 G83B-384 GM200 6GB GDDR5 128MX32 DP+DP+HDMI +DP+DVI -I
PAGE DETAIL	PS: NVVDD Phase 3, 4

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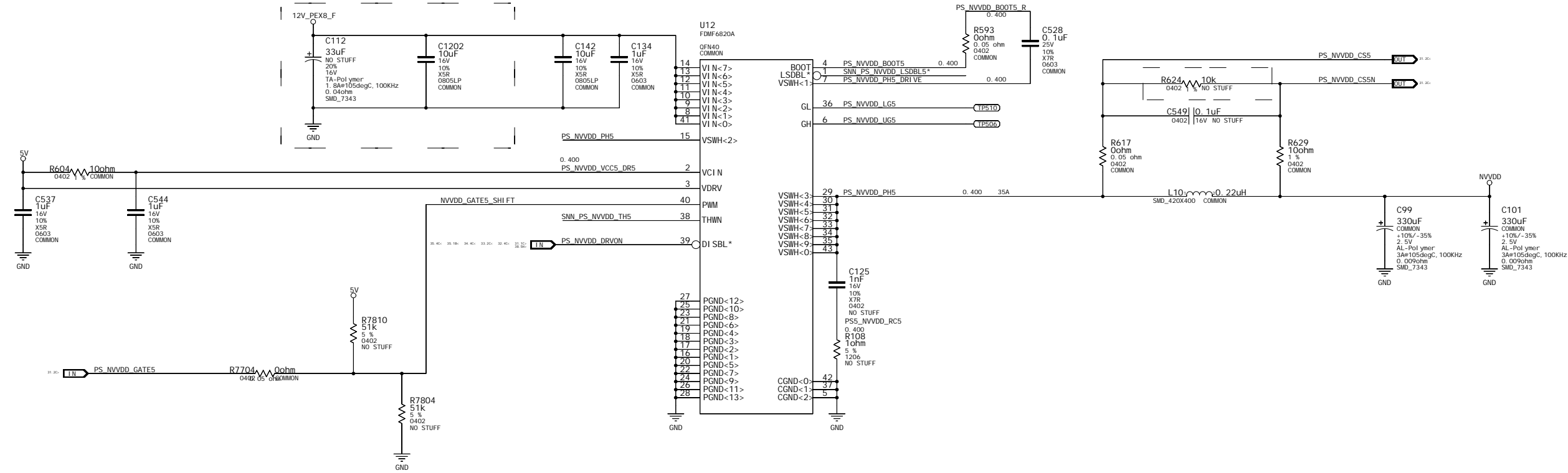
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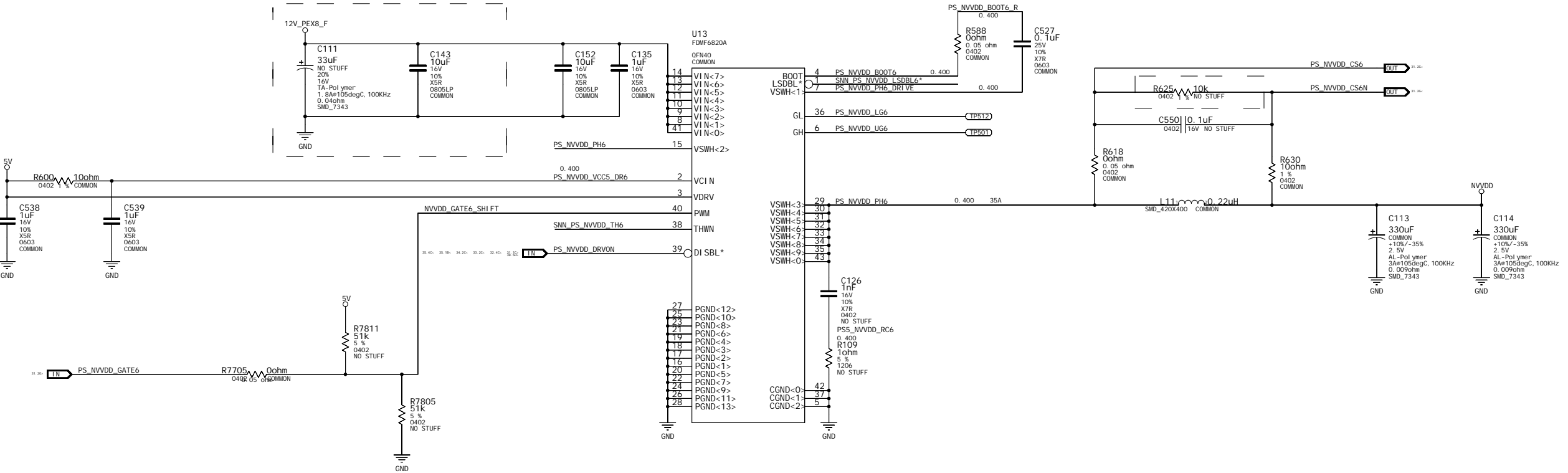
3

5

CO-LAYOUT: STUFF ONLY ONE



CO-LAYOUT: STUFF ONLY ONE



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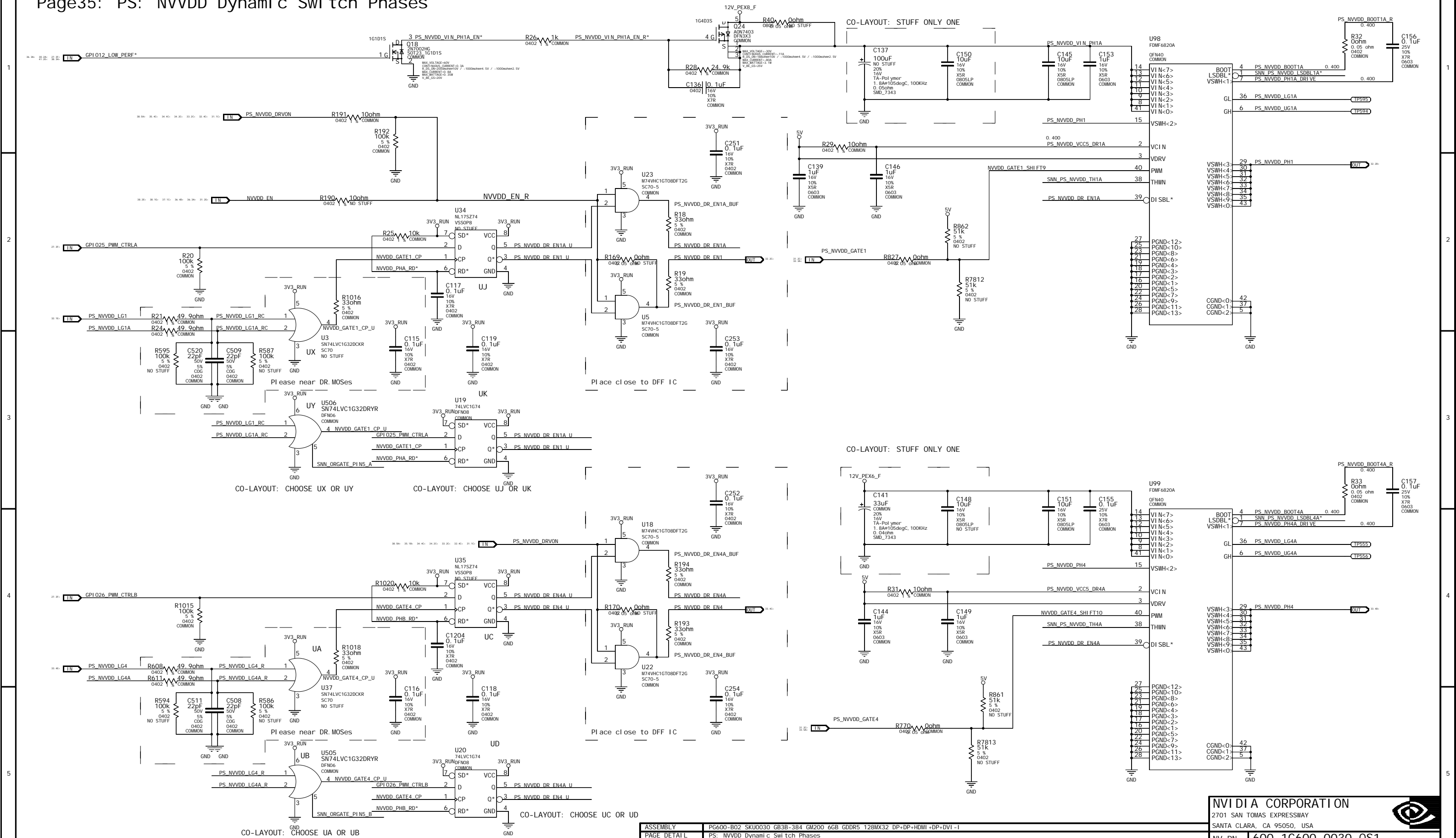


ASSEMBLY	PG600-B02 SKU0030 GB3B-384 GM200 6GB GDDR5 128MX32 DP+DP+HDMI+DP+DVI-I
PAGE DETAIL	PS: NVVDD Phase 5, 6

NV_PN	600-1G600-0030-QS1		
PCB REV	PG600-B02	PAGE	34 OF 41
BOM REV	A	DATE	21-APR-2015


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Page35: PS: NVVDD Dynami c Swi tch Phases



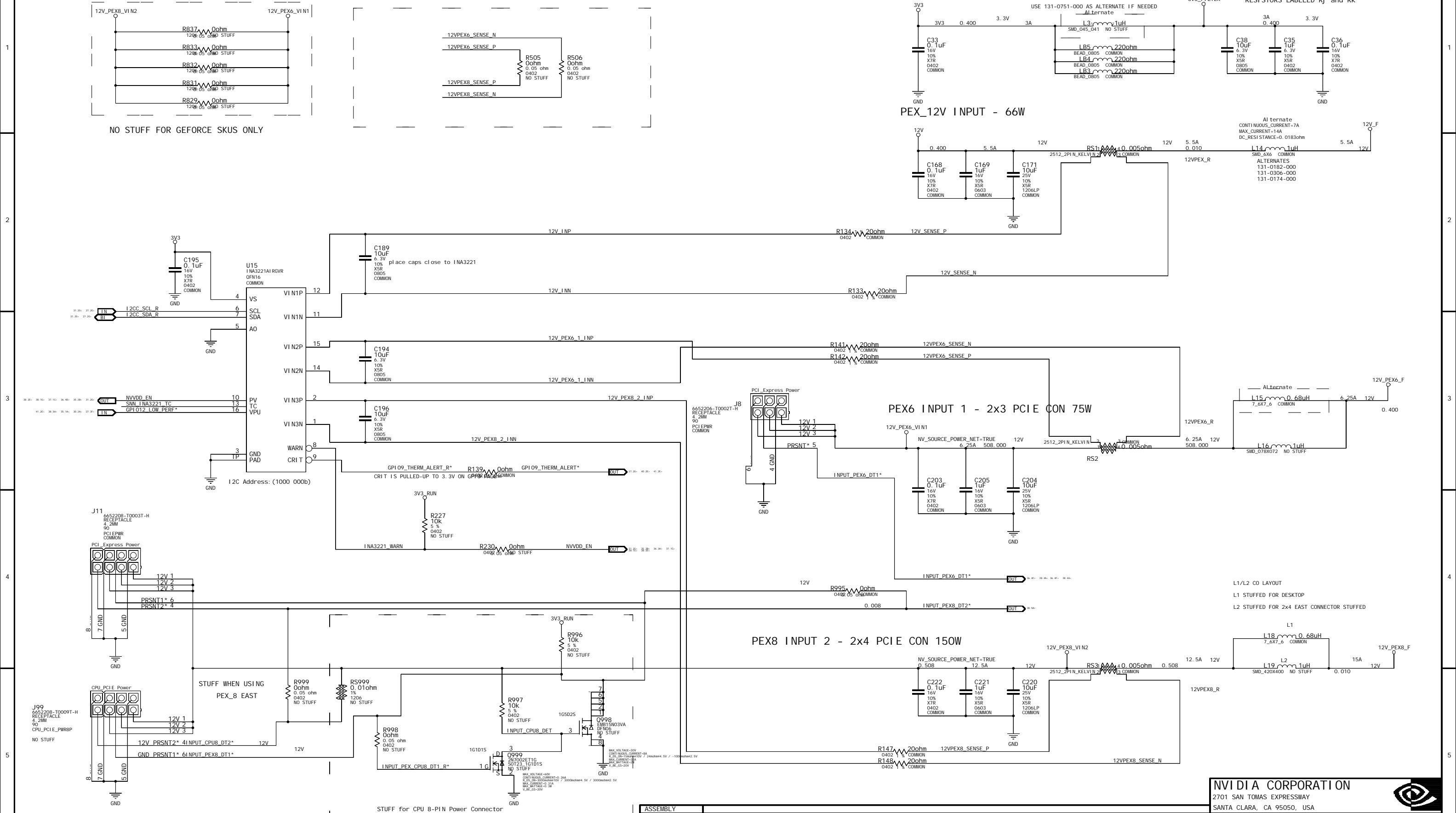
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ASSEMBLY	PG600-B02 SKU0030 GB3B-384 GM200 6GB GDDR5 128MX32 DP+DP+HDMI +DP+DVI -
PAGE DETAIL	PS: NVDD Dynamic Switch Phases

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NV_PLN		600-1G600-0030-QS1	
PCB REV	AG600-B02	PAGE	35 OF 41
BOM REV	P	DATE	21-APR-2015



Page36: PS: Inputs, Filtering, and Monitoring



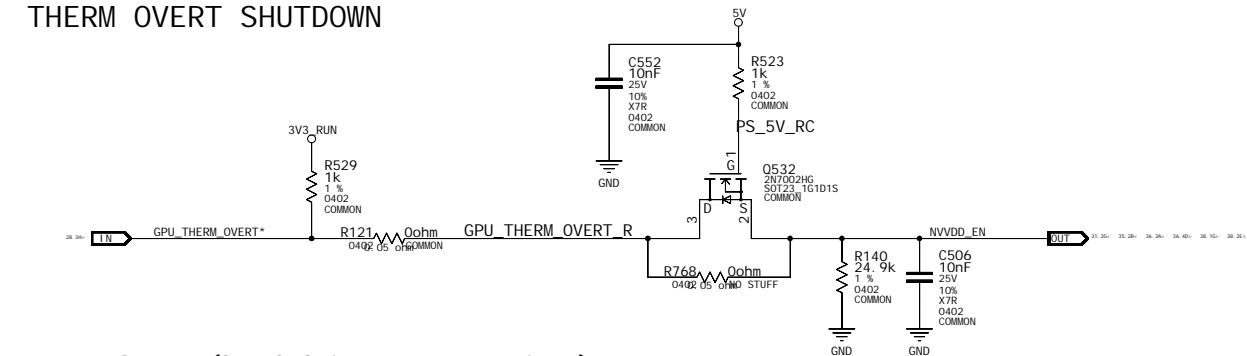
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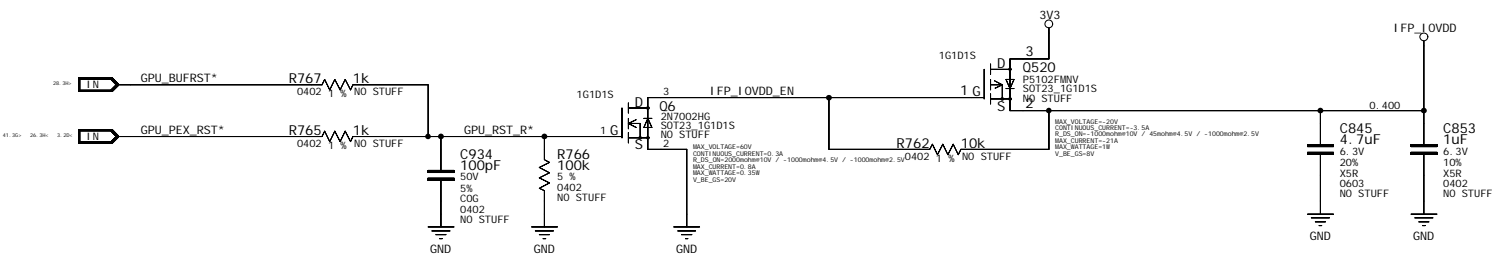
NV_PN	600-1G600-0030-QS1		
PCB REV	PG600-B02	PAGE	36 OF 41
BOM REV	A	DATE	21-APR-2015

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THERM OVERT SHUTDOWN



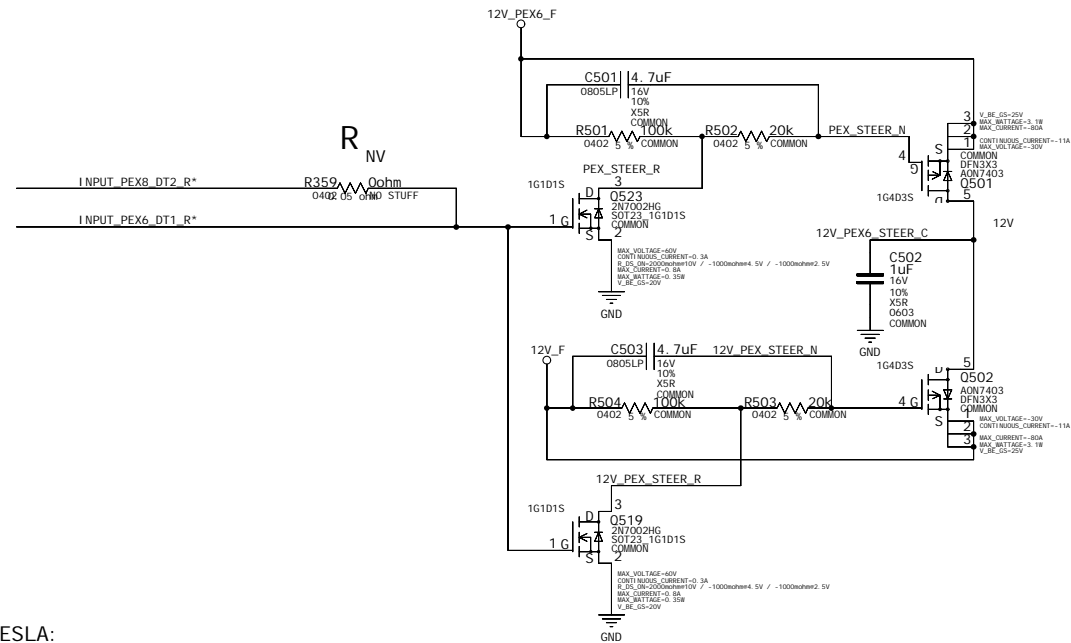
IFP_I0VDD (backdrive prevention)



Page38: PS: 12V Current Steering & Hot Unplug Detect

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

For OpenVreg Type4 + Phase Doubler, 2 phase PSI mode



QUADRO/TESLA:

PEX 6 INPUT CONNECTOR IS NOT LOADED

PEX 6 INPUT DETECT MUST BE DI SABLED

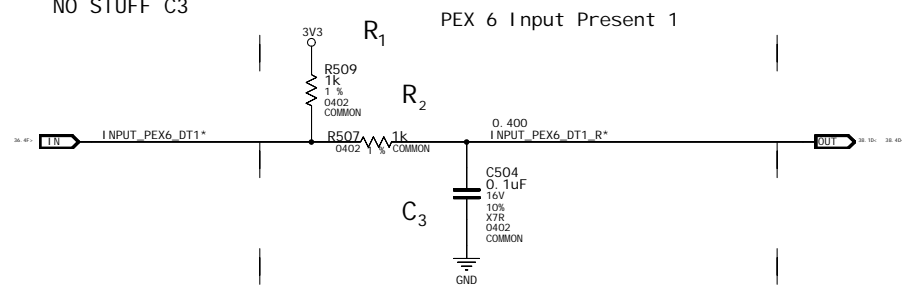
PEX 8 INPUT DETECT MUST BE USED TO CONTROL STEERING

STUFF Rnv IN STEERING CIRCUIT

NO STUFF R1

NO STUFF R2

NO STUFF C3



GeFORCE:

PEX 6 INPUT CONNECTOR IS LOADED

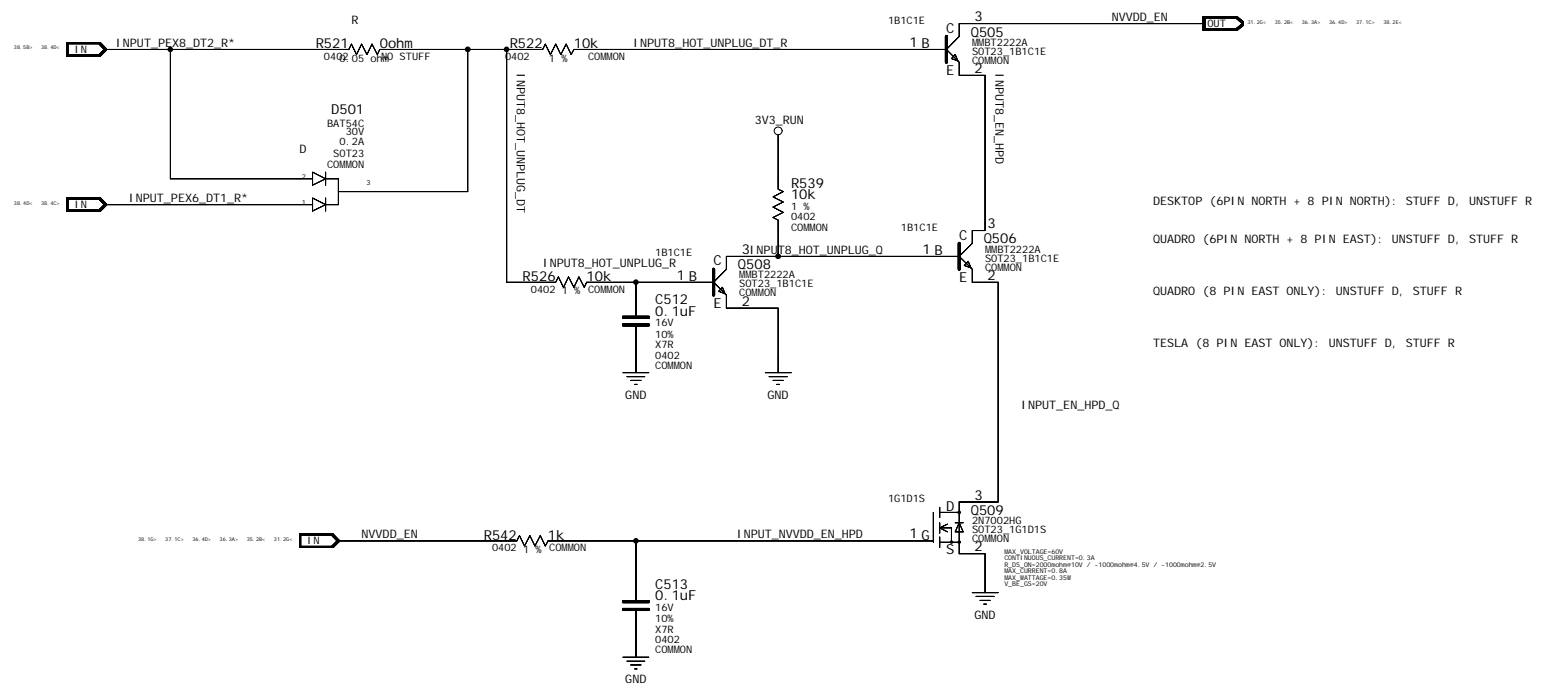
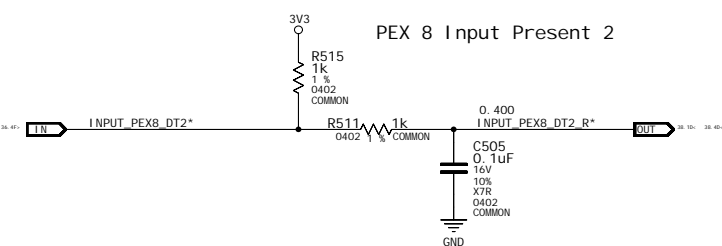
PEX 6 INPUT DETECT MUST BE USED TO CONTROL STEERING

NO STUFF Rnv IN STEERING CIRCUIT

STUFF R1

STUFF R2

STUFF C3



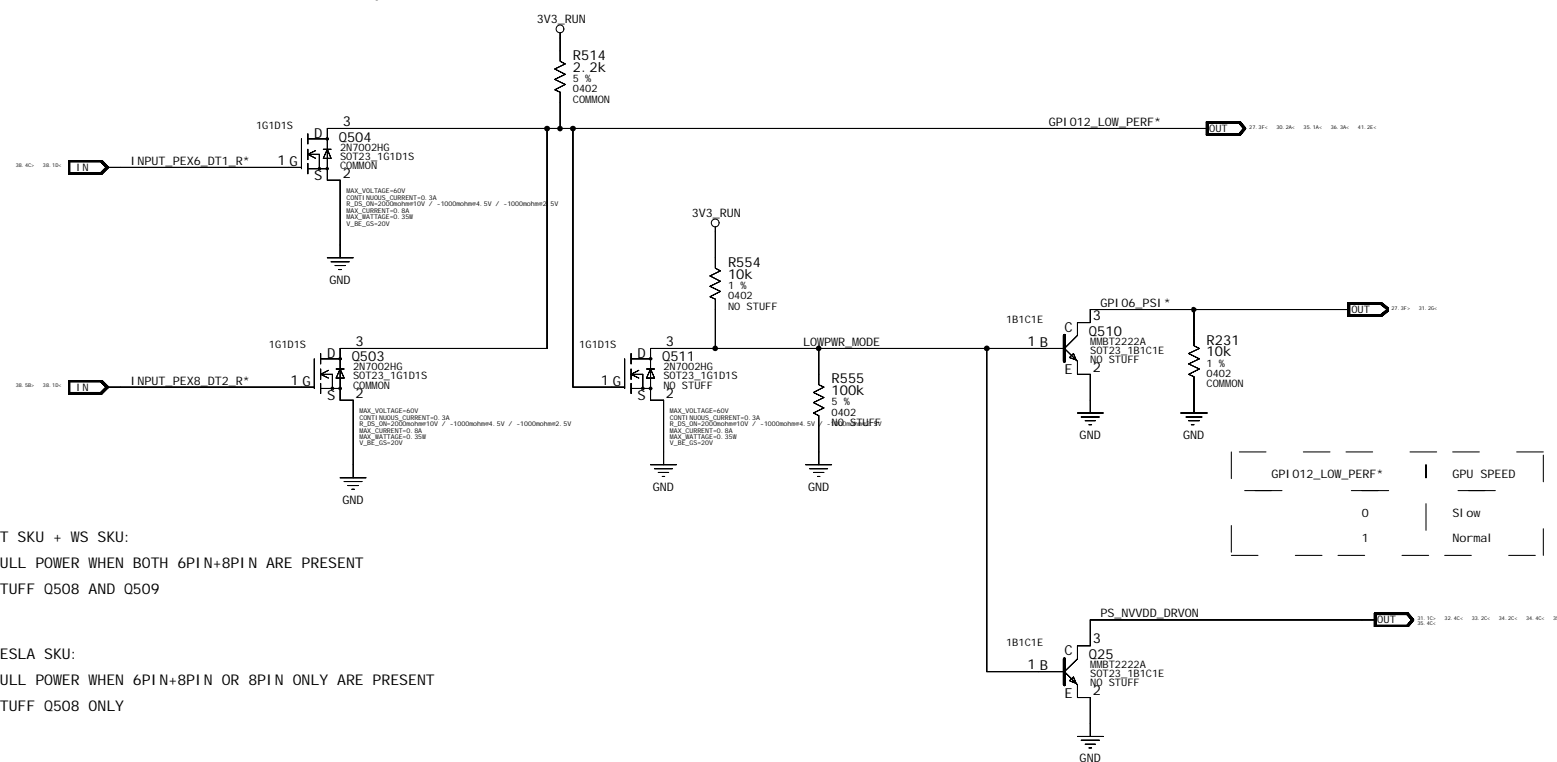
DESKTOP (6PIN NORTH + 8 PIN NORTH): STUFF D, UNSTUFF R

QUADRO (6PIN NORTH + 8 PIN EAST): UNSTUFF D, STUFF R

QUADRO (8 PIN EAST ONLY): UNSTUFF D, STUFF R

TESLA (8 PIN EAST ONLY): UNSTUFF D, STUFF R

PEX Input - Under Power Boot Controls



DT SKU + WS SKU:

FULL POWER WHEN BOTH 6PIN+8PIN ARE PRESENT

STUFF Q508 AND Q509

TESLA SKU:

FULL POWER WHEN 6PIN+8PIN OR 8PIN ONLY ARE PRESENT

STUFF Q508 ONLY

ASSEMBLY	PG600-B02 SKU0030 GB3B-384 GM200 6GB GDDR5 128MX32 DP+DP+HDMI+DP+DVI-I
PAGE DETAIL	PS: 12V Current Steering & Hot Unplug Detect

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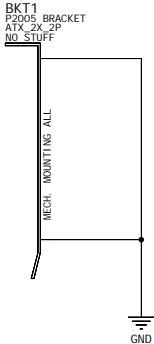
NV_PN	600-1G600-0030-QS1
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PCB REV	PG600-B02	PAGE	38 OF 41
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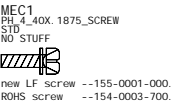
BOM REV	A	DATE	21-APR-2015
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Brackets:

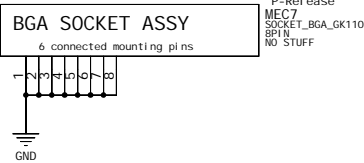
DVI DVI_HDMI_DP : 151-10001-0441-092



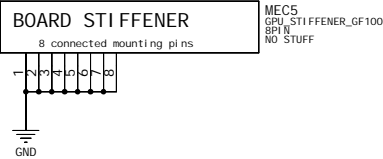
Bracket Screw



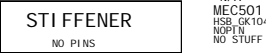
GPU SOCKET



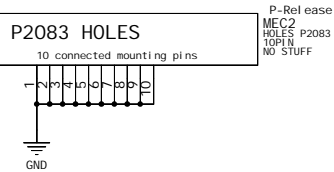
GPU Sti ffener (BRING-UP COOLER)



Sti ffener



Mechani cal Hol es Symbol



Bri ng Up Cool er

