PG611 A00

10GB GDDR5X, 320b, 256Mx32
DP + DP + HDMI/DP + DP

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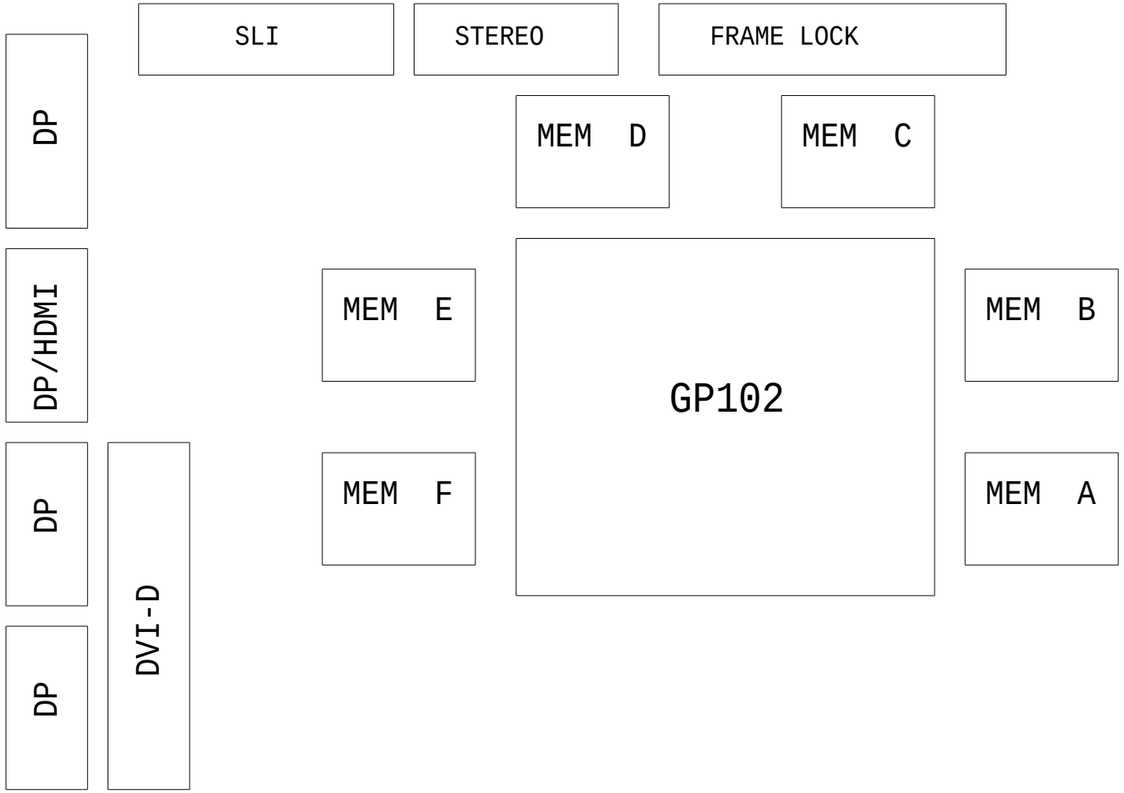
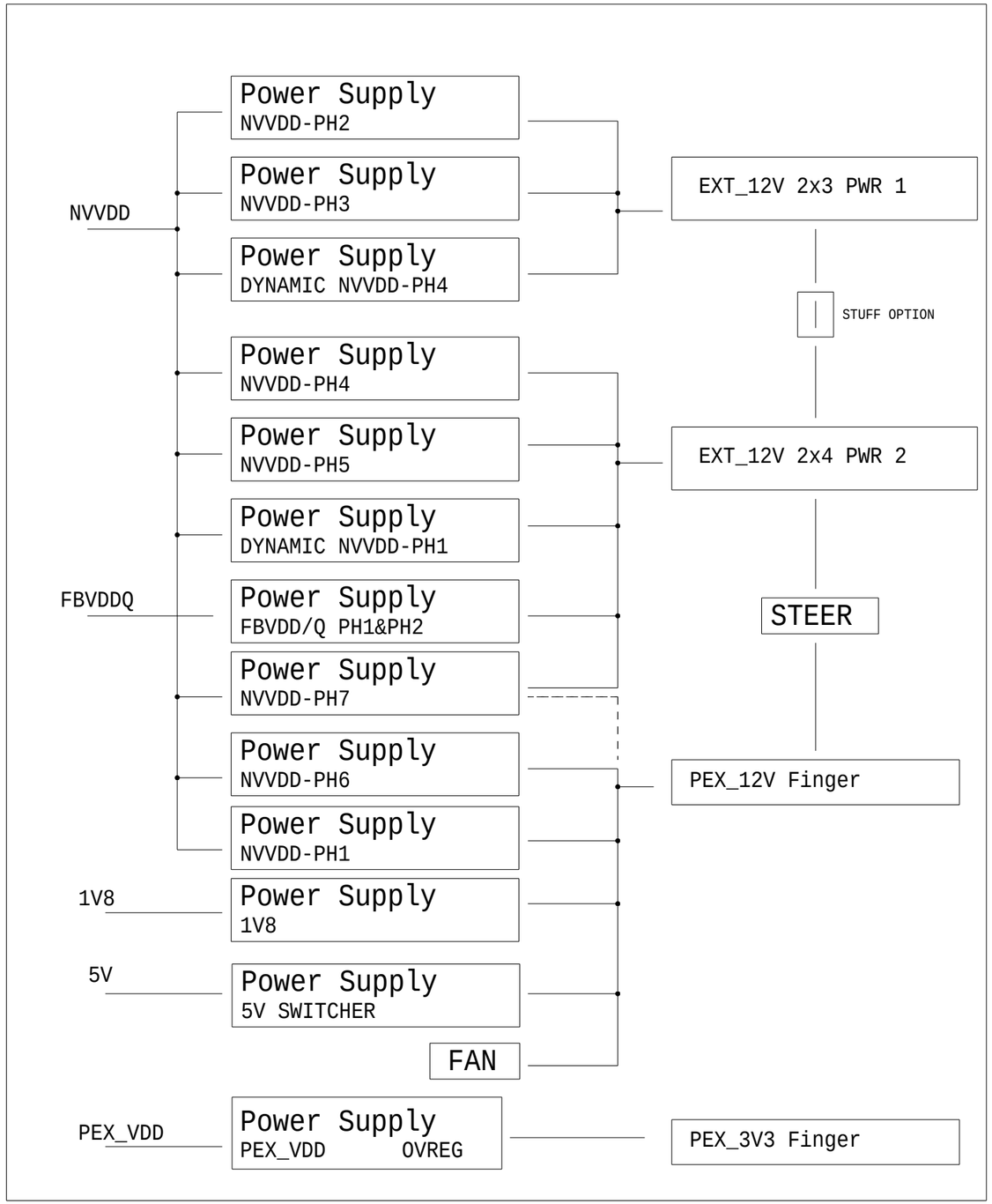
Page2: Block Diagram





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Page3: PCI Express

NET	VOLTAGE	MAX_CURRENT	MIN_WIDTH
3V3	NV_SOURCE_POWER_NET	3.0A	0.400
GND	NV_SOURCE_POWER_NET	8.5A	0.400

CN2
CON_X16
COMMON
CON_PCIEXP_X16_EDGE

G1
GF102-350-K1-A1
BGA2397
CHANGED
1/24 PCI_EXPRESS

Place near balls

Place between GPU and PS

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PAGE DETAIL	PCI EXPRESS

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Page4: MEMORY: GPU Partition A/B

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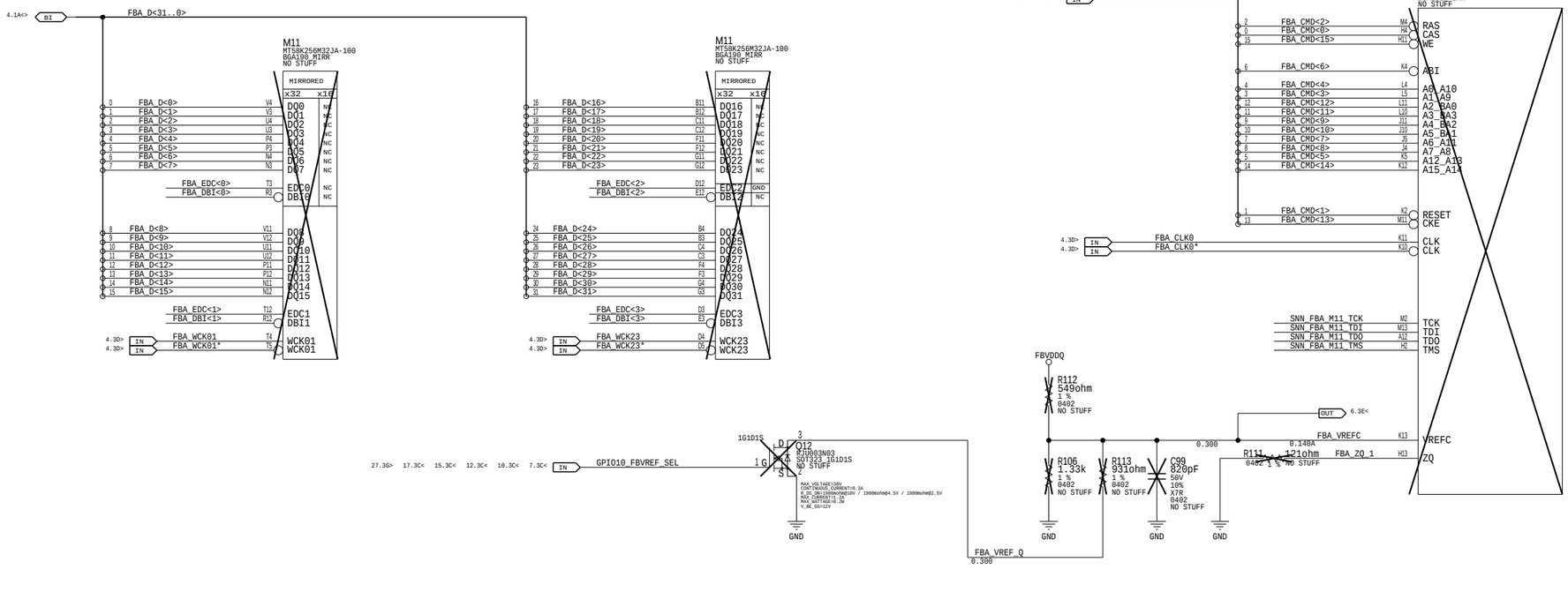
Page5: MEMORY: FBA Partition 31..0



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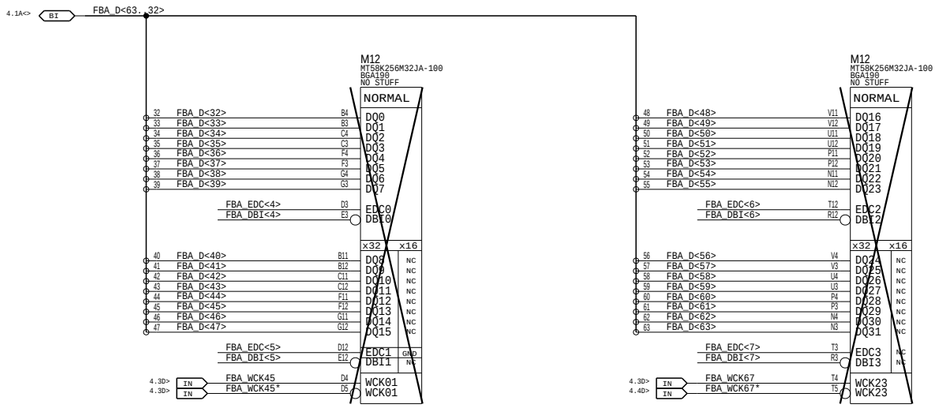
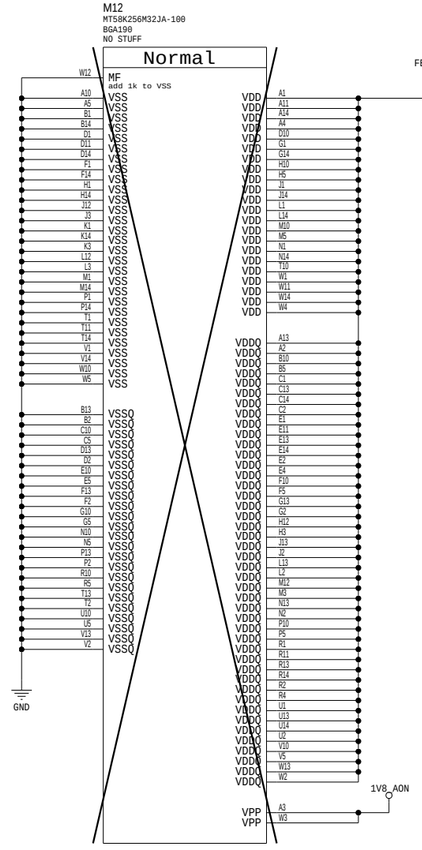
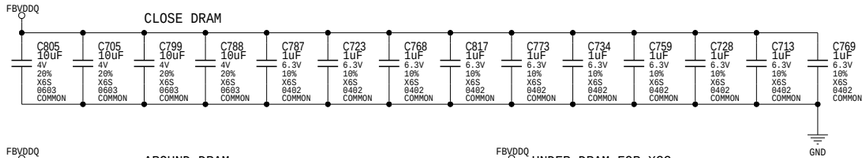
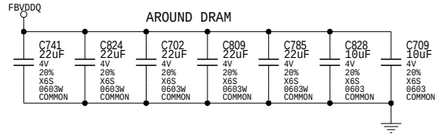
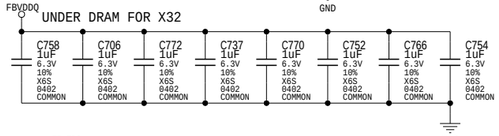
Page6: MEMORY: FBA Partition 63..32

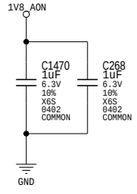


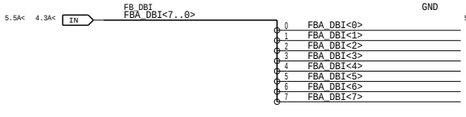


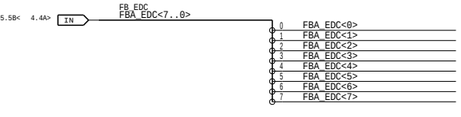












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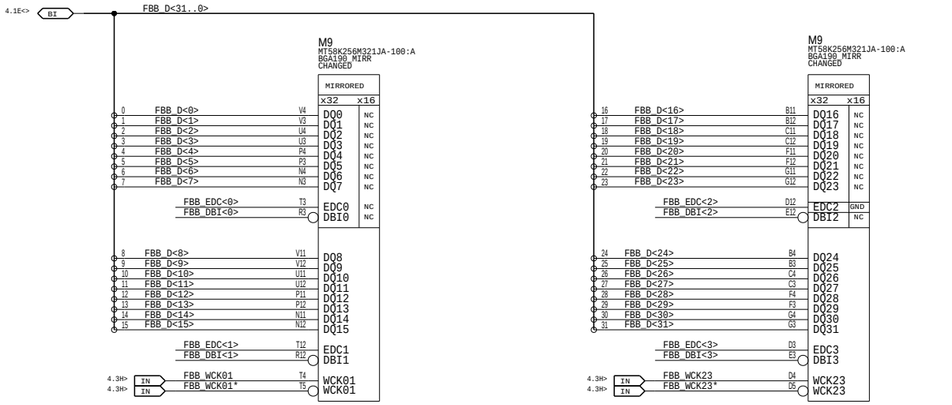
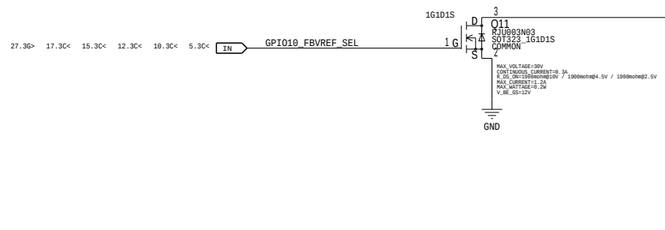
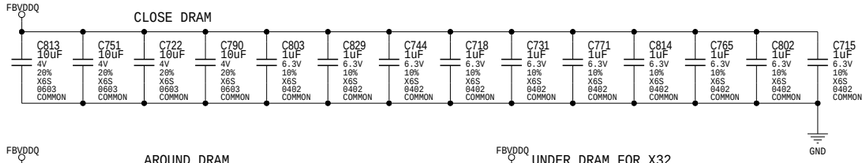
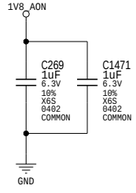
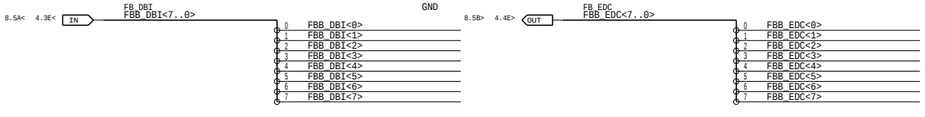
Page7: MEMORY: FBB Partition 31..0











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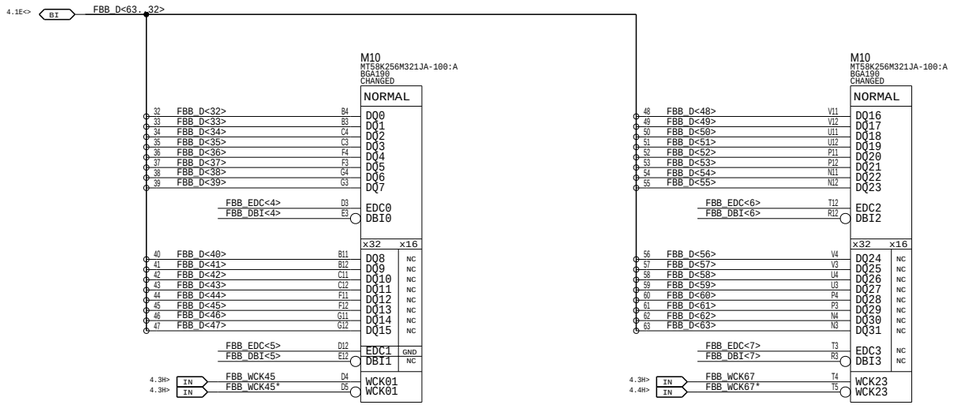

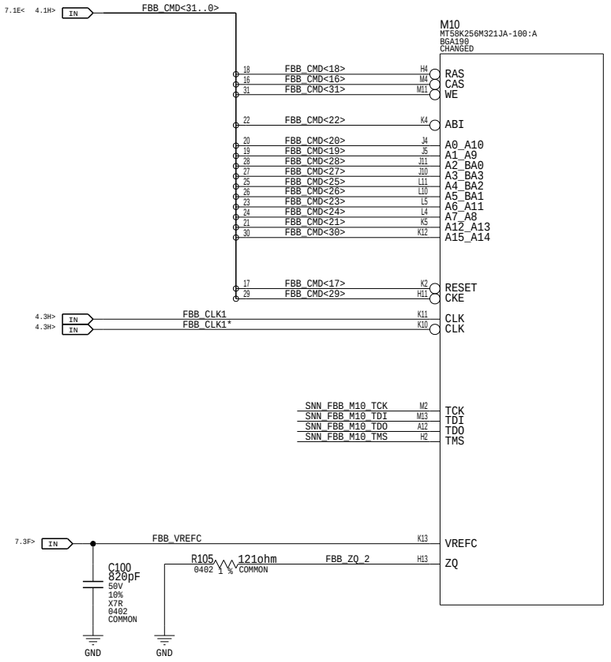

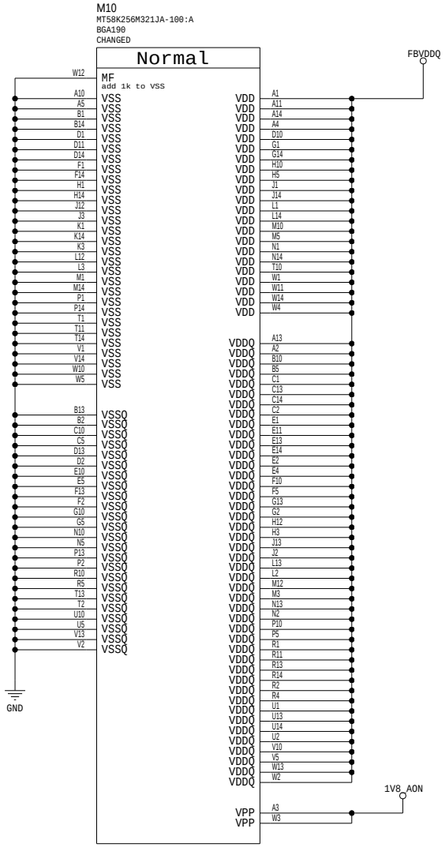

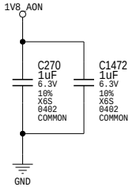

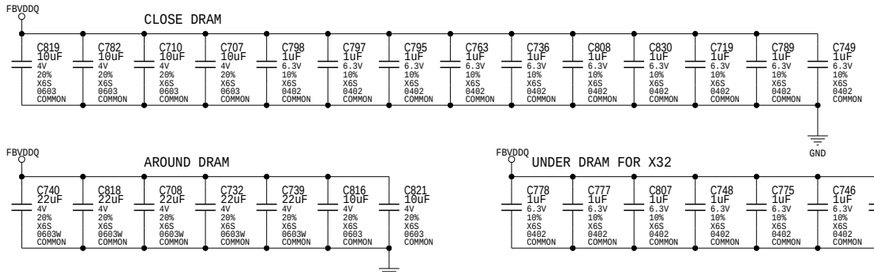

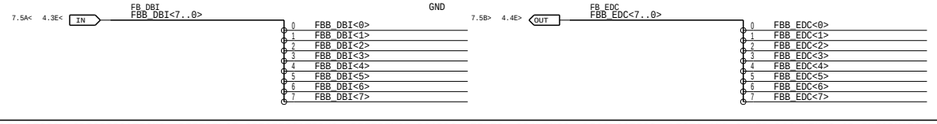

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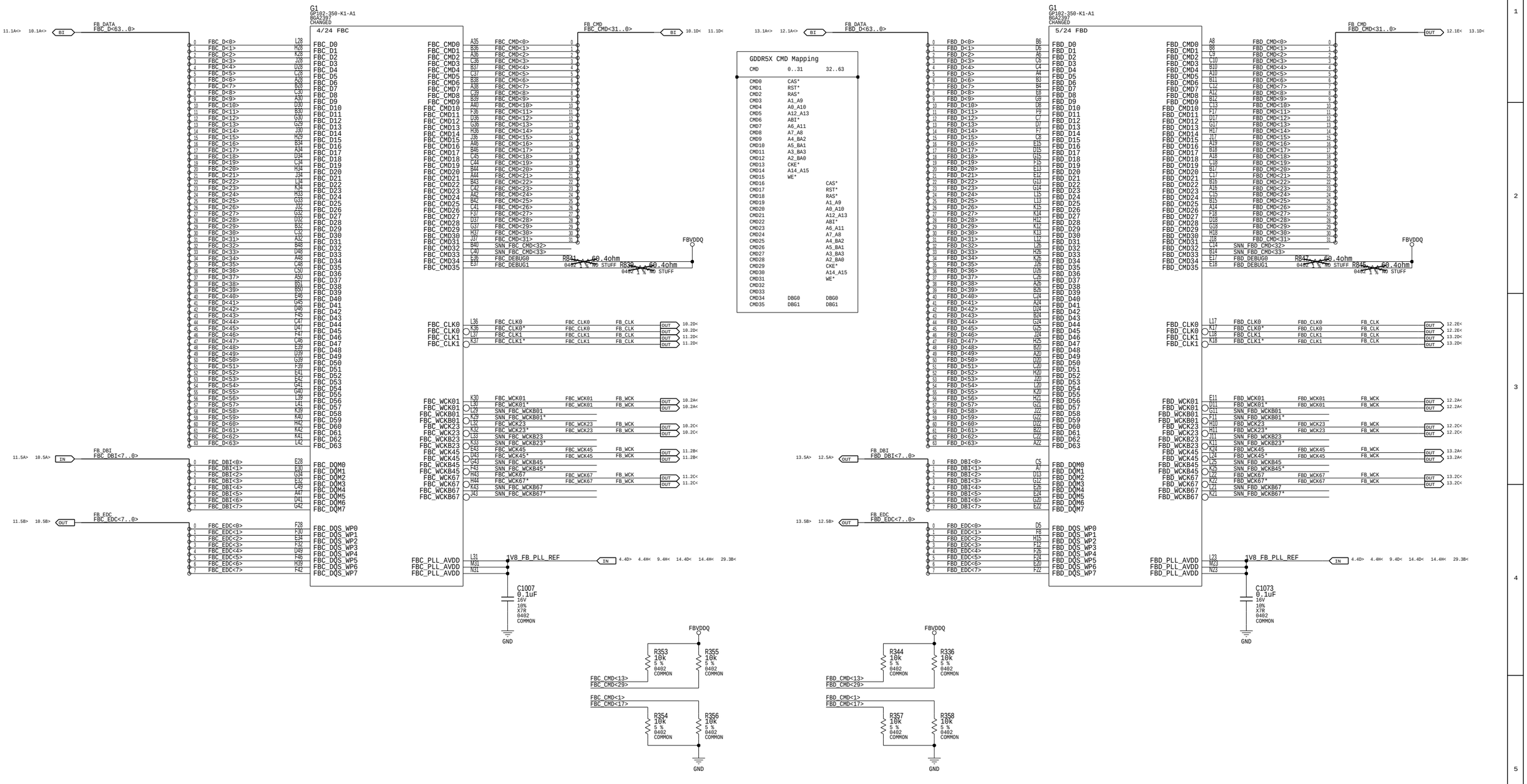
Page9: MEMORY: GPU Partition C/D



ASSEMBLY	SKU50
PAGE DETAIL	MEMORY: GPU PARTITION C/D

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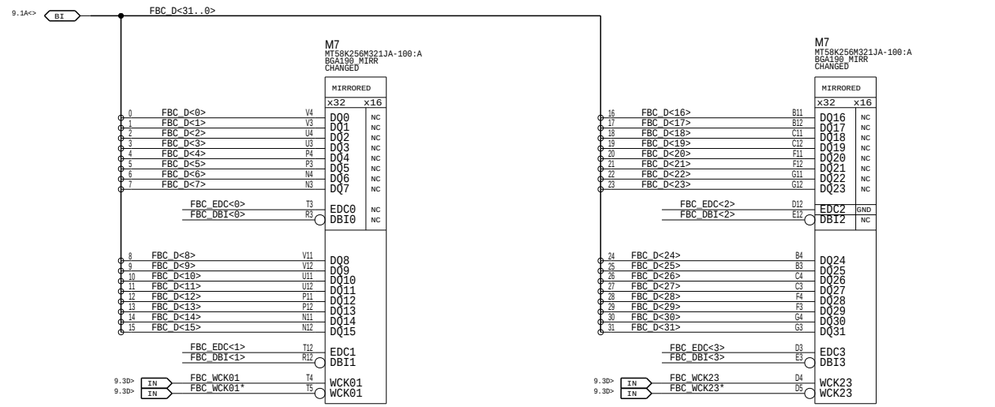
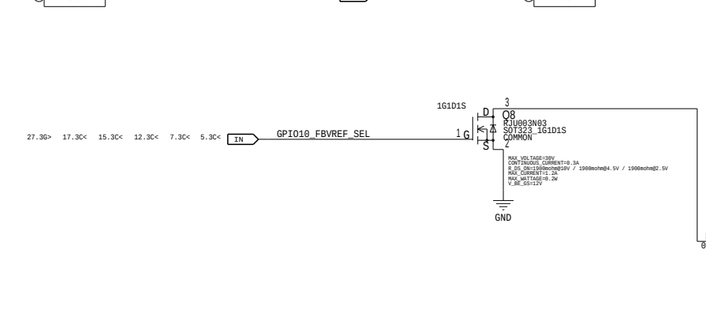
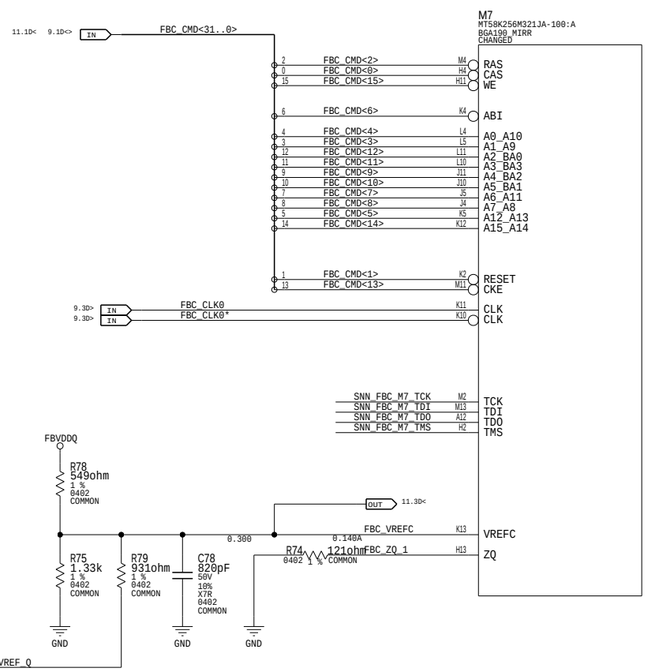
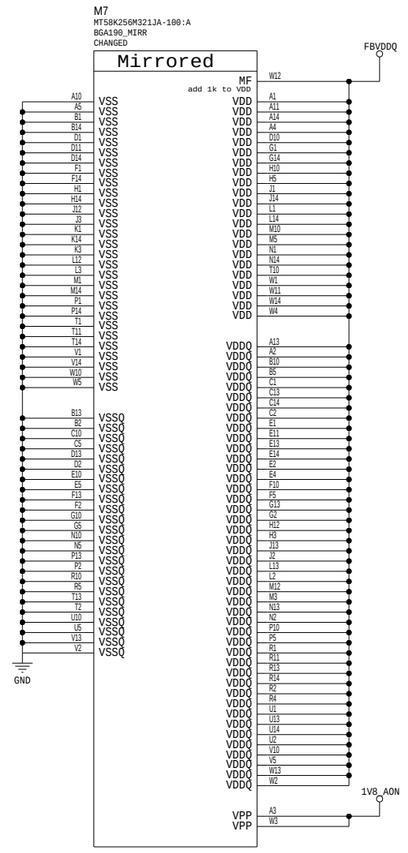
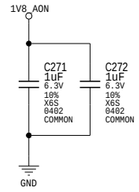
Page10: MEMORY: FBC Partition 31..0

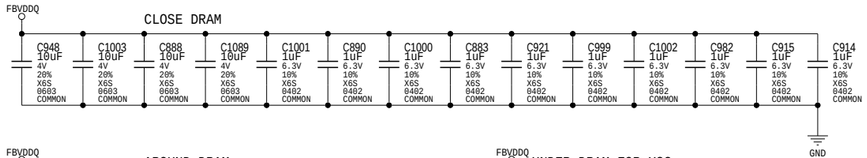


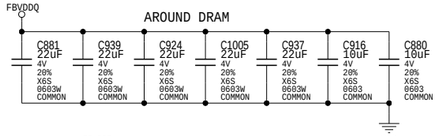


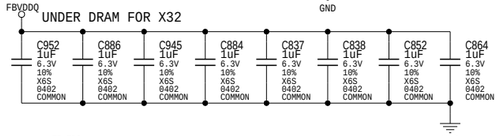


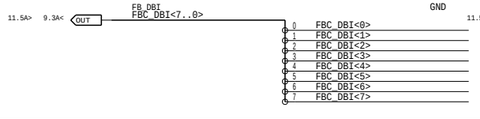


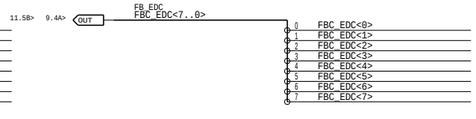












ASSEMBLY	SKU50
PAGE DETAIL	MEMORY: FBC PARTITION[31:0]

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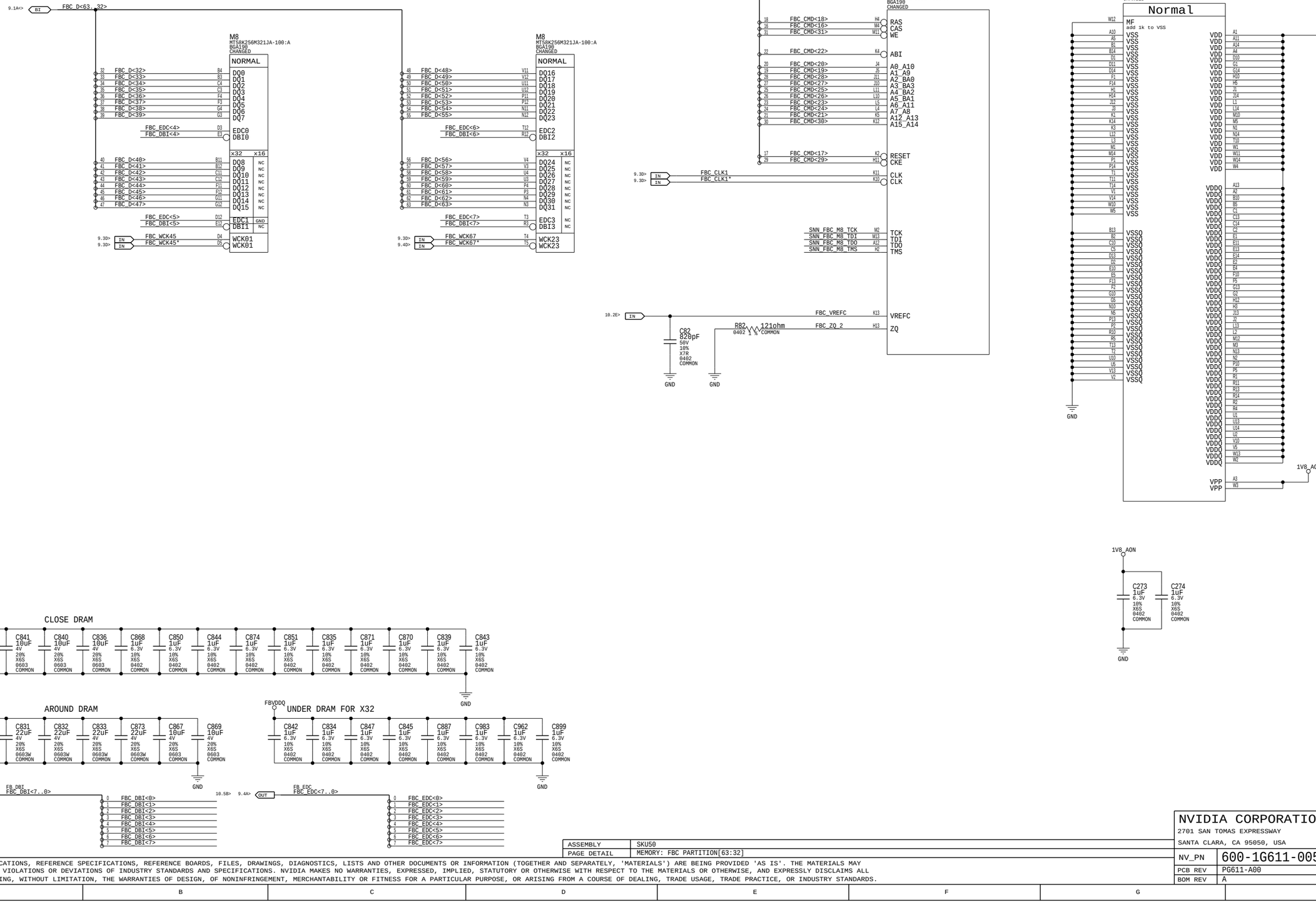

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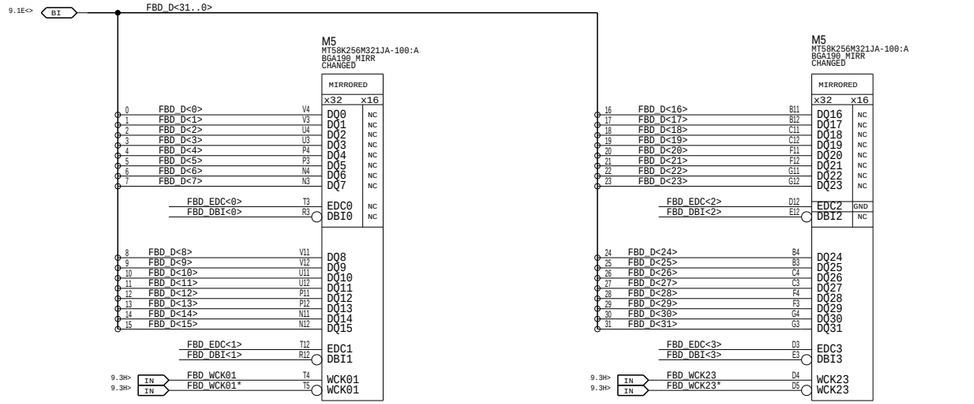

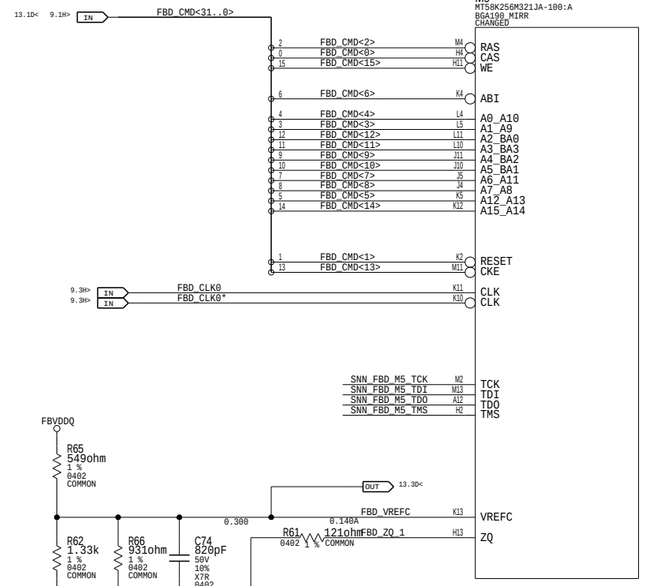

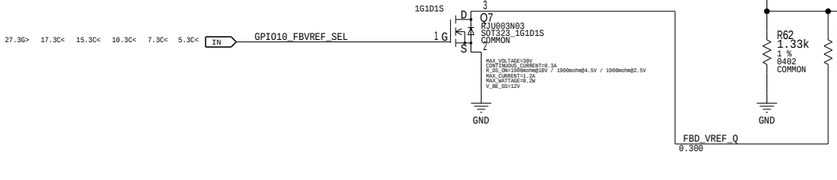

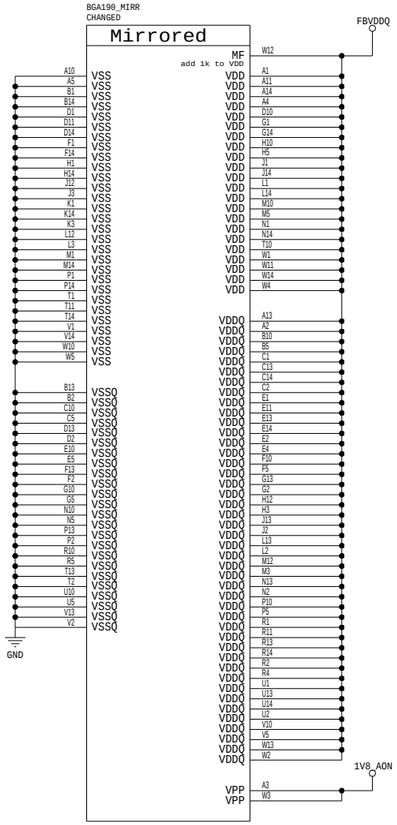

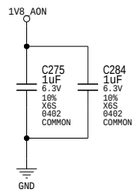

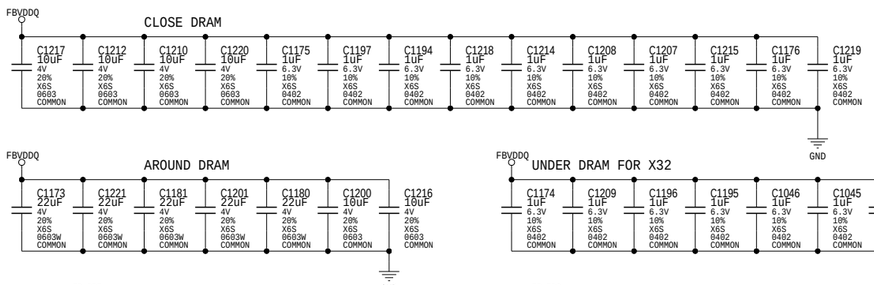

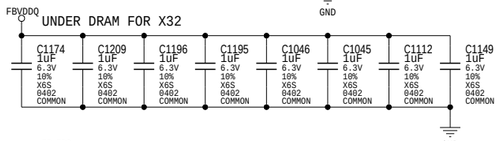

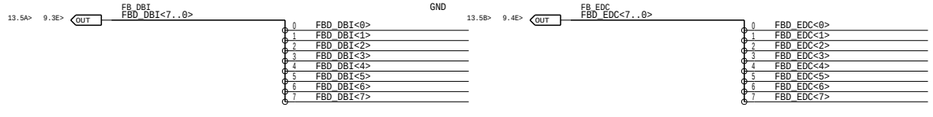

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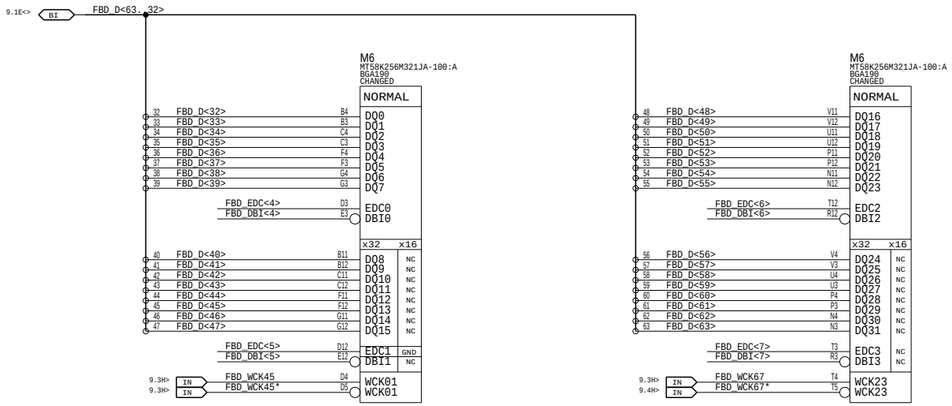

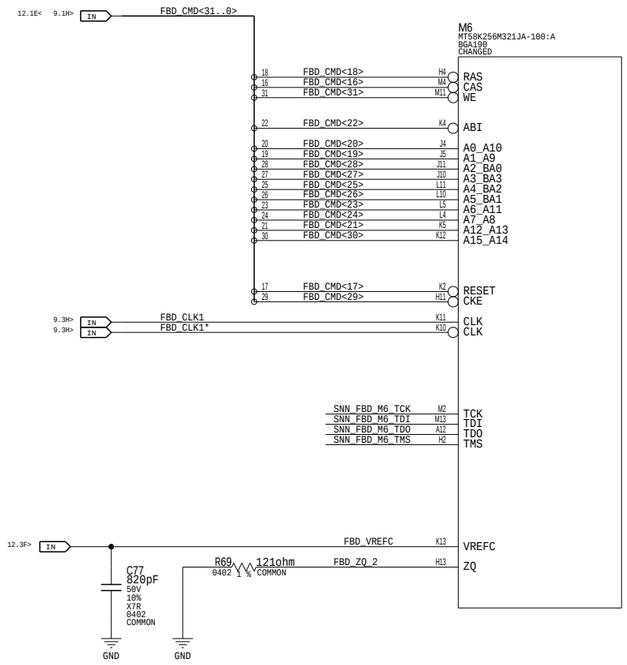

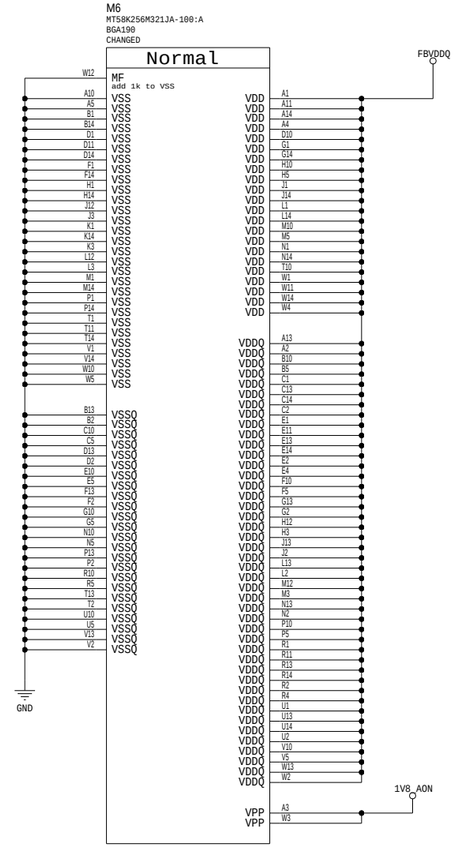

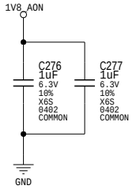

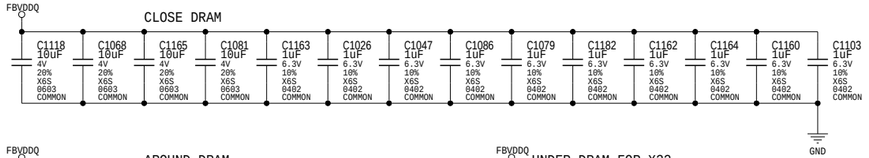

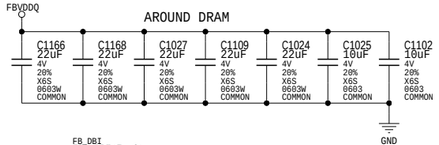

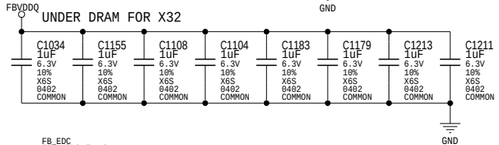

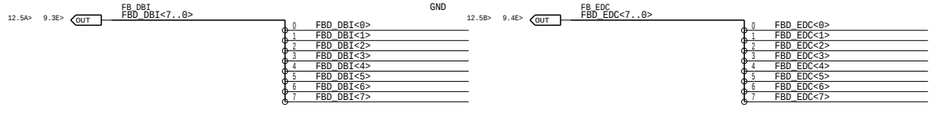

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PAGE DETAIL	MEMORY: FBD PARTITION[63:32]

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Page14: MEMORY: GPU Partition E/F

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PAGE DETAIL	MEMORY: GPU PARTITION E/F

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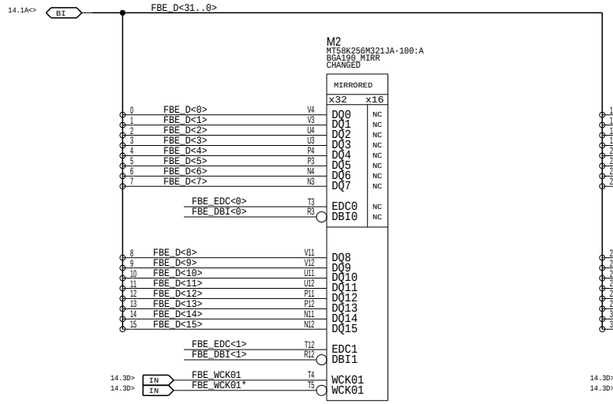
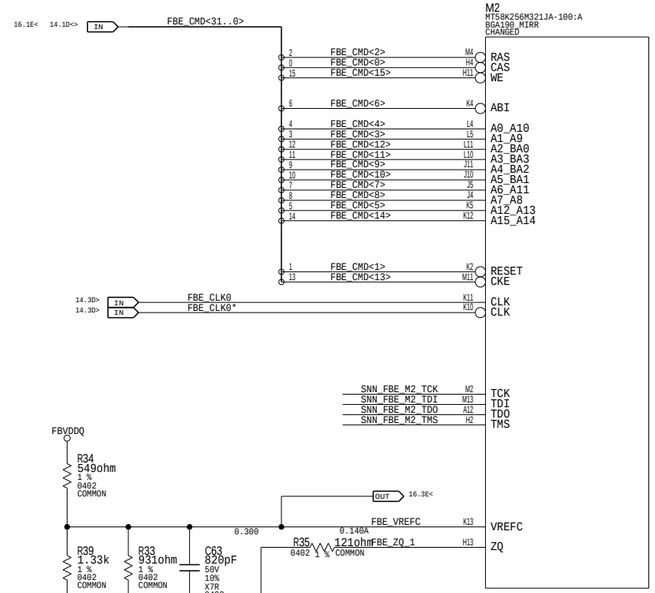
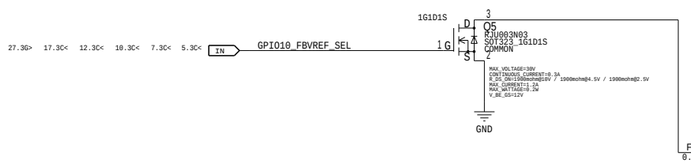
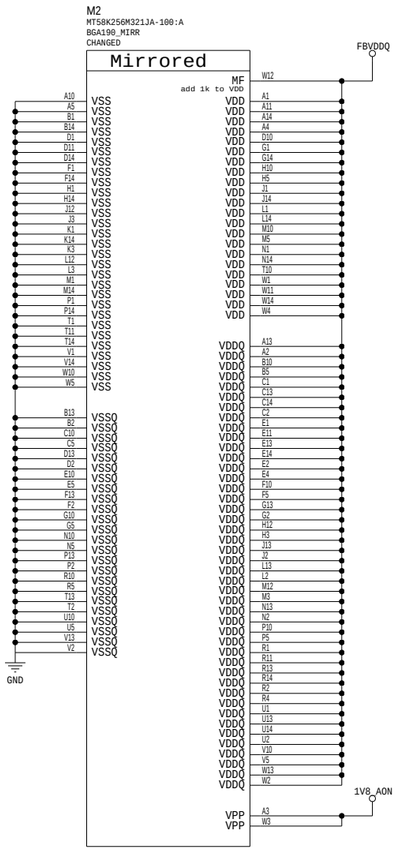
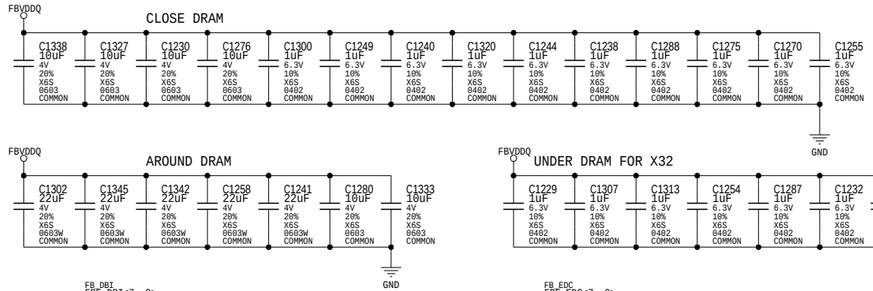
Page15: MEMORY: FBE Partition 31..0

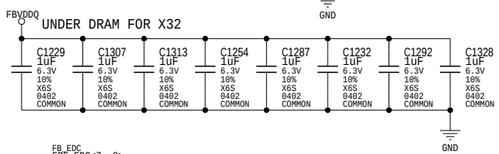


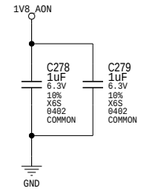


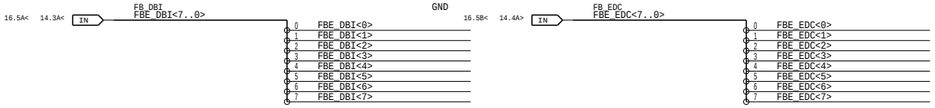












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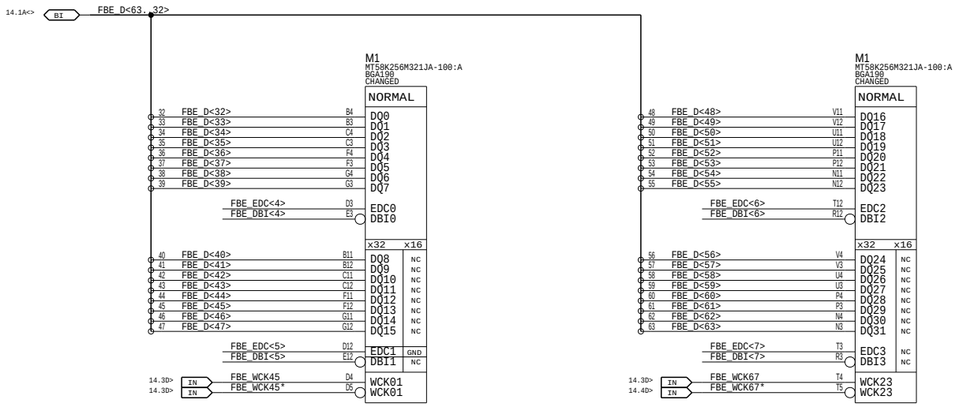

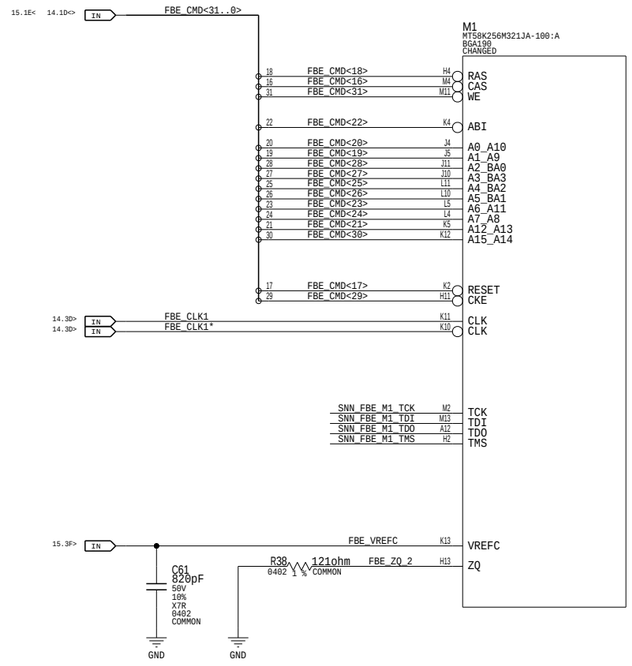

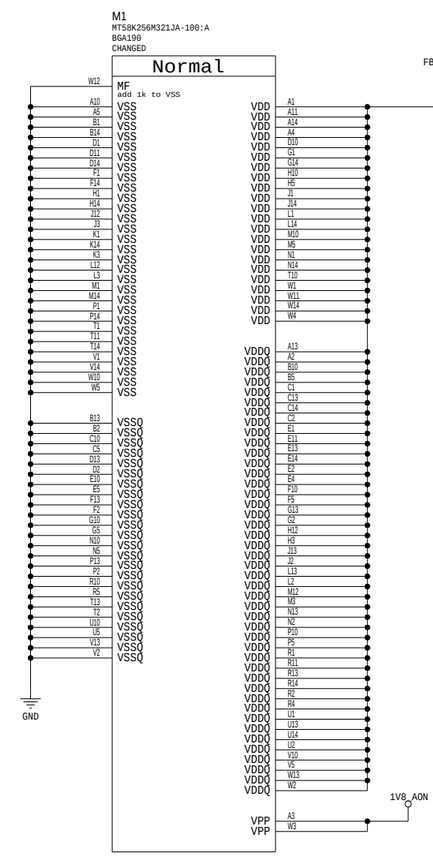

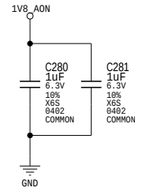

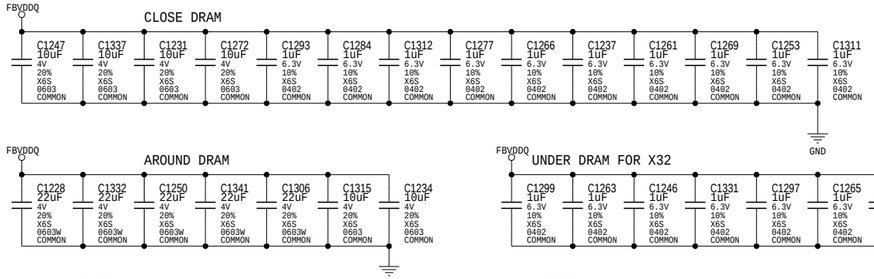

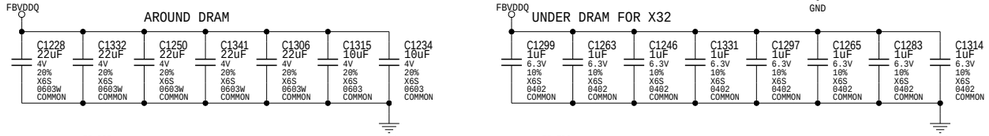

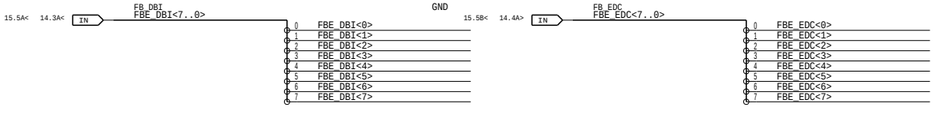

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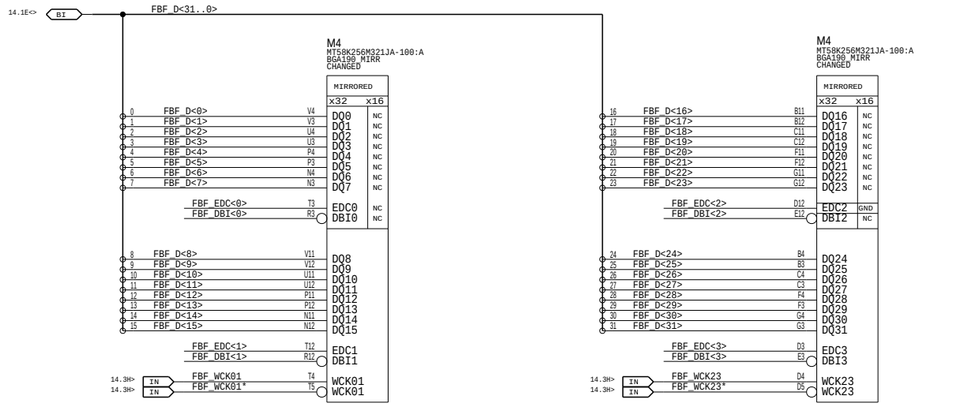

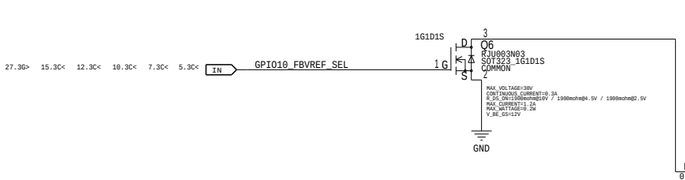

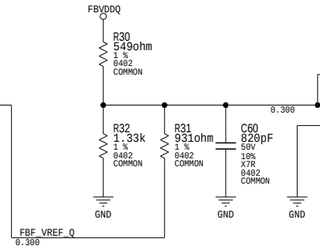

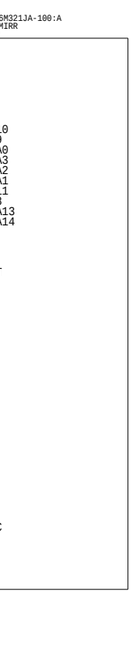

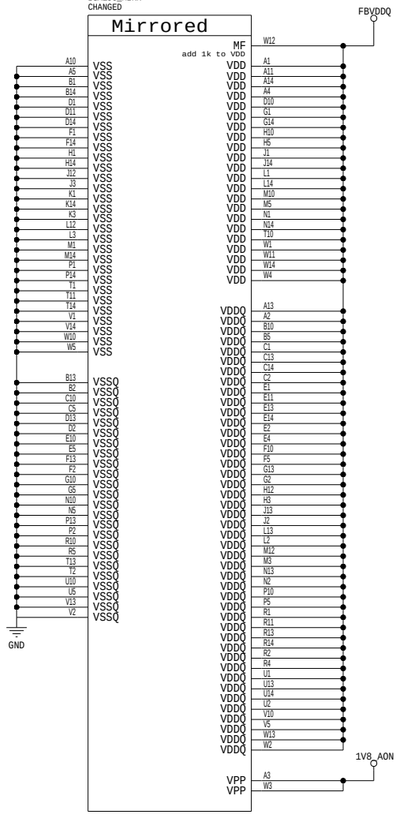

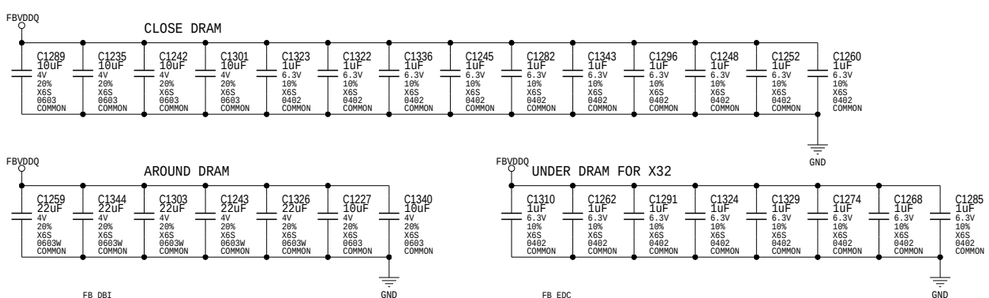

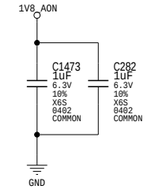

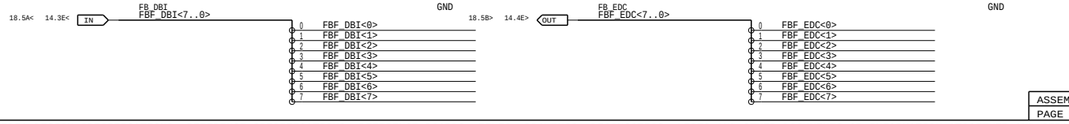

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PAGE DETAIL	MEMORY: FBF PARTITION[31:0]

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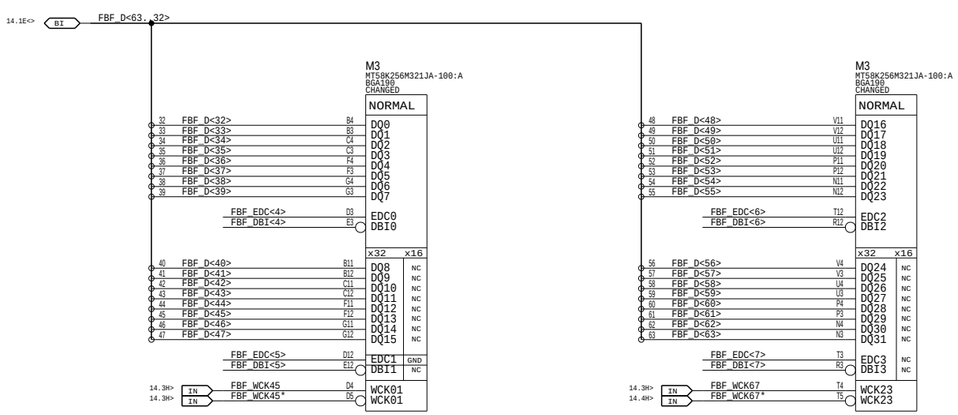
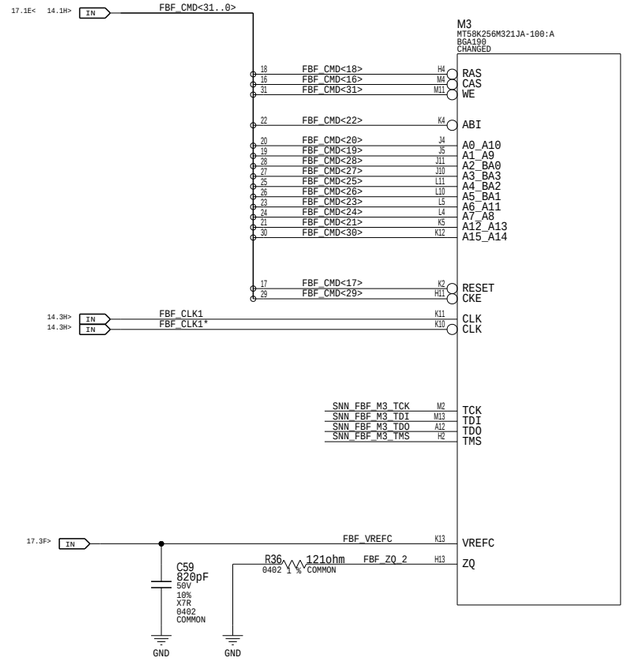
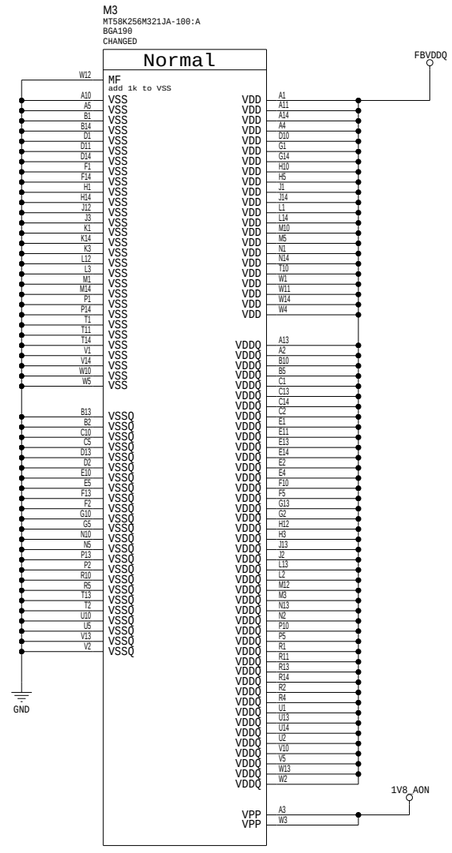
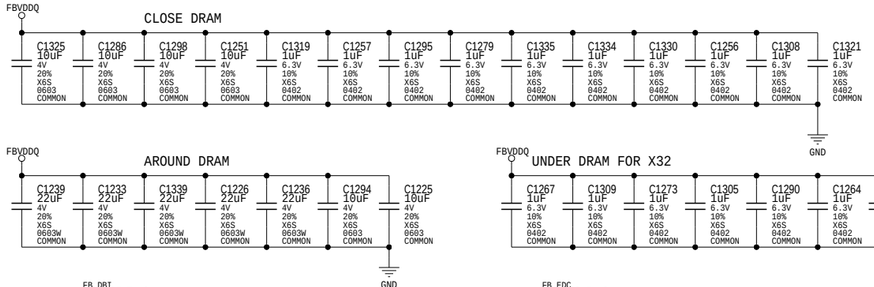
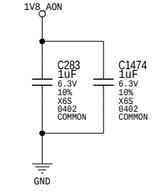
Page18: MEMORY: FBF Partition 63..32

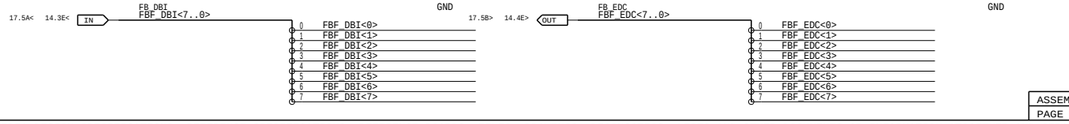












ASSEMBLY	SKU50
PAGE DETAIL	MEMORY: FBF PARTITION[63:32]

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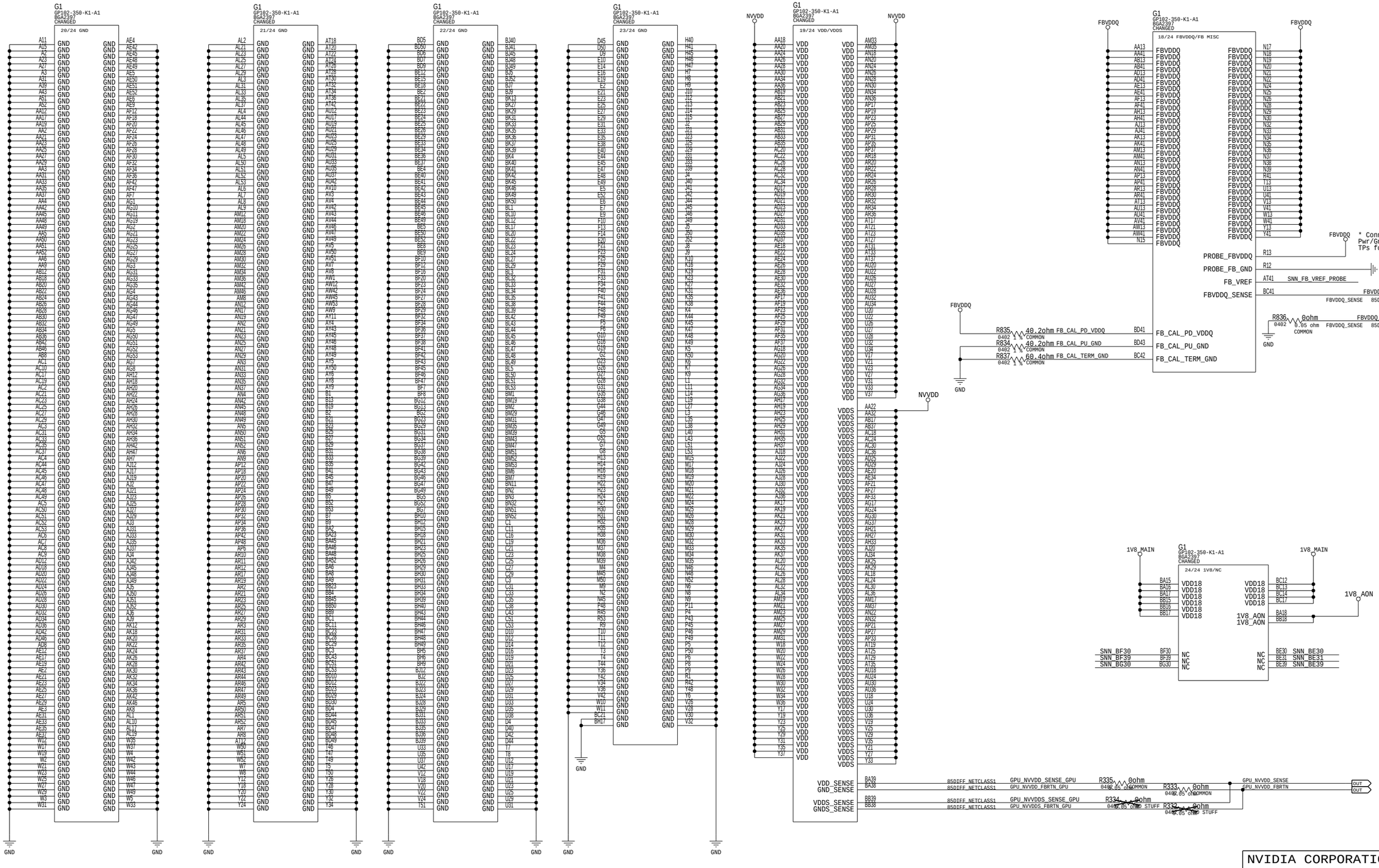
Page19: GPU PWR and GND



ASSEMBLY	SKU50
PAGE DETAIL	GPU PWR AND GND

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Page20: GPU Decoupling

FBVDDQ

FBVDDQ

Partition A — 2 X 10UF, 6 X 1UF

C908 1uF 6.3V 10% X6S 0402 COMMON
C909 1uF 6.3V 10% X6S 0402 COMMON
C910 1uF 6.3V 10% X6S 0402 COMMON
C905 1uF 6.3V 10% X6S 0402 COMMON
C906 1uF 6.3V 10% X6S 0402 COMMON
C907 1uF 6.3V 10% X6S 0402 COMMON
C859 10uF 4V 20% X6S 0603 COMMON
C862 10uF 4V 20% X6S 0603 COMMON
GND

Partition B — 2 X 10UF, 6 X 1UF

C912 1uF 6.3V 10% X6S 0402 COMMON
C901 1uF 6.3V 10% X6S 0402 COMMON
C911 1uF 6.3V 10% X6S 0402 COMMON
C903 1uF 6.3V 10% X6S 0402 COMMON
C896 1uF 6.3V 10% X6S 0402 COMMON
C904 1uF 6.3V 10% X6S 0402 COMMON
C861 10uF 4V 20% X6S 0603 COMMON
C860 10uF 4V 20% X6S 0603 COMMON
GND

Partition C — 2 X 10UF, 6 X 1UF

C936 1uF 6.3V 10% X6S 0402 COMMON
C981 1uF 6.3V 10% X6S 0402 COMMON
C958 1uF 6.3V 10% X6S 0402 COMMON
C919 1uF 6.3V 10% X6S 0402 COMMON
C1006 1uF 6.3V 10% X6S 0402 COMMON
C897 1uF 6.3V 10% X6S 0402 COMMON
C949 10uF 4V 20% X6S 0603 COMMON
C920 10uF 4V 20% X6S 0603 COMMON
GND

Partition D — 2 X 10UF, 6 X 1UF

C1091 1uF 6.3V 10% X6S 0402 COMMON
C1061 1uF 6.3V 10% X6S 0402 COMMON
C1078 1uF 6.3V 10% X6S 0402 COMMON
C1021 1uF 6.3V 10% X6S 0402 COMMON
C1041 1uF 6.3V 10% X6S 0402 COMMON
C1107 1uF 6.3V 10% X6S 0402 COMMON
C1082 10uF 4V 20% X6S 0603 COMMON
C1161 10uF 4V 20% X6S 0603 COMMON
GND

Partition E — 2 X 10UF, 6 X 1UF

C1143 1uF 6.3V 10% X6S 0402 COMMON
C1144 1uF 6.3V 10% X6S 0402 COMMON
C1141 1uF 6.3V 10% X6S 0402 COMMON
C1142 1uF 6.3V 10% X6S 0402 COMMON
C1140 1uF 6.3V 10% X6S 0402 COMMON
C1145 1uF 6.3V 10% X6S 0402 COMMON
C1189 10uF 4V 20% X6S 0603 COMMON
C1199 10uF 4V 20% X6S 0603 COMMON
GND

Partition F — 2 X 10UF, 6 X 1UF

C1139 1uF 6.3V 10% X6S 0402 COMMON
C1137 1uF 6.3V 10% X6S 0402 COMMON
C1153 1uF 6.3V 10% X6S 0402 COMMON
C1136 1uF 6.3V 10% X6S 0402 COMMON
C1138 1uF 6.3V 10% X6S 0402 COMMON
C1135 1uF 6.3V 10% X6S 0402 COMMON
C1191 10uF 4V 20% X6S 0603 COMMON
C1188 10uF 4V 20% X6S 0603 COMMON
GND

Place close to GPU — 6 X 10UF

C858 10uF 4V 20% X6S 0603 COMMON
C857 10uF 4V 20% X6S 0603 COMMON
C900 10uF 4V 20% X6S 0603 COMMON
C1132 10uF 4V 20% X6S 0603 COMMON
C1186 10uF 4V 20% X6S 0603 COMMON
C1192 10uF 4V 20% X6S 0603 COMMON
GND

Place close to GPU — 14 X 22UF

C856 22uF 4V 20% X6S 0603W COMMON
C848 22uF 4V 20% X6S 0603W COMMON
C891 22uF 4V 20% X6S 0603W COMMON
C1148 22uF 4V 20% X6S 0603W COMMON
C1187 22uF 4V 20% X6S 0603W COMMON
C1198 22uF 4V 20% X6S 0603W COMMON
C1190 22uF 4V 20% X6S 0603W COMMON
C853 22uF 4V 20% X6S 0603W COMMON
C854 22uF 4V 20% X6S 0603W COMMON
C979 22uF 4V 20% X6S 0603W COMMON
C1095 22uF 4V 20% X6S 0603W COMMON
C855 22uF 4V 20% X6S 0603W COMMON
C1193 22uF 4V 20% X6S 0603W COMMON
C1205 22uF 4V 20% X6S 0603W COMMON
GND

NVVDD

NVVDD

2 X 470UF

C968 470uF NO STUFF 20% 6.3V@105degC TA-Polymer 1.7A@45degC,100KHz 0.035ohm SMD_7343
C1058 470uF NO STUFF 20% 6.3V@105degC TA-Polymer 1.7A@45degC,100KHz 0.035ohm SMD_7343
GND

4 X 22UF

C960 22uF 6.3V 20% X6S 0805LP COMMON
C1065 22uF 6.3V 20% X6S 0805LP COMMON
C1077 22uF 6.3V 20% X6S 0805LP COMMON
C973 22uF 6.3V 20% X6S 0805LP COMMON
GND

11 X 4.7UF

C1070 4.7uF 6.3V 20% X6S 0603 COMMON
C1115 4.7uF 6.3V 20% X6S 0603 COMMON
C1113 4.7uF 6.3V 20% X6S 0603 COMMON
C1033 4.7uF 6.3V 20% X6S 0603 COMMON
C1114 4.7uF 6.3V 20% X6S 0603 COMMON
C1072 4.7uF 6.3V 20% X6S 0603 COMMON
C1018 4.7uF 6.3V 20% X6S 0603 COMMON
C1071 4.7uF 6.3V 20% X6S 0603 COMMON
C974 4.7uF 6.3V 20% X6S 0603 COMMON
C944 4.7uF 6.3V 20% X6S 0603 COMMON
C1117 4.7uF 6.3V 20% X6S 0603 COMMON
GND

58 X 1UF

C1012 1uF 6.3V 10% X6S 0402 COMMON
C1014 1uF 6.3V 10% X6S 0402 COMMON
C1121 1uF 6.3V 10% X6S 0402 COMMON
C1022 1uF 6.3V 10% X6S 0402 COMMON
C1100 1uF 6.3V 10% X6S 0402 COMMON
C984 1uF 6.3V 10% X6S 0402 COMMON
C1127 1uF 6.3V 10% X6S 0402 COMMON
C1049 1uF 6.3V 10% X6S 0402 COMMON
C1110 1uF 6.3V 10% X6S 0402 COMMON
C1098 1uF 6.3V 10% X6S 0402 COMMON
GND

C1035 1uF 6.3V 10% X6S 0402 COMMON
C1096 1uF 6.3V 10% X6S 0402 COMMON
C987 1uF 6.3V 10% X6S 0402 COMMON
C995 1uF 6.3V 10% X6S 0402 COMMON
C1054 1uF 6.3V 10% X6S 0402 COMMON
C969 1uF 6.3V 10% X6S 0402 COMMON
C1063 1uF 6.3V 10% X6S 0402 COMMON
C1029 1uF 6.3V 10% X6S 0402 COMMON
C975 1uF 6.3V 10% X6S 0402 COMMON
C970 1uF 6.3V 10% X6S 0402 COMMON
GND

C926 1uF 6.3V 10% X6S 0402 COMMON
C1048 1uF 6.3V 10% X6S 0402 COMMON
C951 1uF 6.3V 10% X6S 0402 COMMON
C1097 1uF 6.3V 10% X6S 0402 COMMON
C929 1uF 6.3V 10% X6S 0402 COMMON
C977 1uF 6.3V 10% X6S 0402 COMMON
C1030 1uF 6.3V 10% X6S 0402 COMMON
C927 1uF 6.3V 10% X6S 0402 COMMON
C1059 1uF 6.3V 10% X6S 0402 COMMON
C990 1uF 6.3V 10% X6S 0402 COMMON
GND

C1094 1uF 6.3V 10% X6S 0402 COMMON
C1123 1uF 6.3V 10% X6S 0402 COMMON
C1015 1uF 6.3V 10% X6S 0402 COMMON
C992 1uF 6.3V 10% X6S 0402 COMMON
C966 1uF 6.3V 10% X6S 0402 COMMON
C1051 1uF 6.3V 10% X6S 0402 COMMON
C1074 1uF 6.3V 10% X6S 0402 COMMON
C946 1uF 6.3V 10% X6S 0402 COMMON
C1119 1uF 6.3V 10% X6S 0402 COMMON
C1067 1uF 6.3V 10% X6S 0402 COMMON
GND

C1129 1uF 6.3V 10% X6S 0402 COMMON
C1124 1uF 6.3V 10% X6S 0402 COMMON
C1125 1uF 6.3V 10% X6S 0402 COMMON
C965 1uF 6.3V 10% X6S 0402 COMMON
C930 1uF 6.3V 10% X6S 0402 COMMON
C953 1uF 6.3V 10% X6S 0402 COMMON
C954 1uF 6.3V 10% X6S 0402 COMMON
C989 1uF 6.3V 10% X6S 0402 COMMON
C976 1uF 6.3V 10% X6S 0402 COMMON
C928 1uF 6.3V 10% X6S 0402 COMMON
GND

C1087 1uF 6.3V 10% X6S 0402 COMMON
C941 1uF 6.3V 10% X6S 0402 COMMON
C1131 1uF 6.3V 10% X6S 0402 COMMON
C922 1uF 6.3V 10% X6S 0402 COMMON
C1090 1uF 6.3V 10% X6S 0402 COMMON
C1055 1uF 6.3V 10% X6S 0402 COMMON
C1052 1uF 6.3V 10% X6S 0402 COMMON
C1120 1uF 6.3V 10% X6S 0402 COMMON
GND

Additional MLCCs: 8 X 22UF, CO-LAYOUT WITH POSCAPs

C1084 22uF 6.3V 20% X6S 0805LP COMMON
C942 22uF 6.3V 20% X6S 0805LP COMMON
C1038 22uF 6.3V 20% X6S 0805LP COMMON
C943 22uF 6.3V 20% X6S 0805LP COMMON
C994 22uF 6.3V 20% X6S 0805LP COMMON
C993 22uF 6.3V 20% X6S 0805LP COMMON
C1085 22uF 6.3V 20% X6S 0805LP COMMON
C1039 22uF 6.3V 20% X6S 0805LP COMMON
GND

NVVDD

C963 470uF NO STUFF 20% 6.3V@105degC TA-Polymer 1.7A@45degC,100KHz 0.035ohm SMD_7343
GND

Co-layout with other MLCC

NVVDD

NVVDD

2 X 22UF

C1101 22uF 6.3V 20% X6S 0805LP COMMON
C935 22uF 6.3V 20% X6S 0805LP COMMON
GND

5 X 4.7UF

C1004 4.7uF 6.3V 20% X6S 0603 COMMON
C1069 4.7uF 6.3V 20% X6S 0603 COMMON
C1116 4.7uF 6.3V 20% X6S 0603 COMMON
C959 4.7uF 6.3V 20% X6S 0603 COMMON
C1020 4.7uF 6.3V 20% X6S 0603 COMMON
GND

22 X 1UF

C1105 1uF 6.3V 10% X6S 0402 COMMON
C1028 1uF 6.3V 10% X6S 0402 COMMON
C1013 1uF 6.3V 10% X6S 0402 COMMON
C1099 1uF 6.3V 10% X6S 0402 COMMON
C1050 1uF 6.3V 10% X6S 0402 COMMON
C1122 1uF 6.3V 10% X6S 0402 COMMON
C1031 1uF 6.3V 10% X6S 0402 COMMON
C1032 1uF 6.3V 10% X6S 0402 COMMON
GND

C988 1uF 6.3V 10% X6S 0402 COMMON
C1075 1uF 6.3V 10% X6S 0402 COMMON
C932 1uF 6.3V 10% X6S 0402 COMMON
C1126 1uF 6.3V 10% X6S 0402 COMMON
C1009 1uF 6.3V 10% X6S 0402 COMMON
C1042 1uF 6.3V 10% X6S 0402 COMMON
C991 1uF 6.3V 10% X6S 0402 COMMON
C955 1uF 6.3V 10% X6S 0402 COMMON
GND

C1043 1uF 6.3V 10% X6S 0402 COMMON
C947 1uF 6.3V 10% X6S 0402 COMMON
C964 1uF 6.3V 10% X6S 0402 COMMON
C1060 1uF 6.3V 10% X6S 0402 COMMON
C1092 1uF 6.3V 10% X6S 0402 COMMON
C931 1uF 6.3V 10% X6S 0402 COMMON
GND

NVVDD

C1062 470uF NO STUFF 20% 6.3V@105degC TA-Polymer 1.7A@45degC,100KHz 0.035ohm SMD_7343
GND

Co-layout with other MLCC

1V8_MAIN

1V8_MAIN

3 X 4.7UF, 3 X 1UF,7 X 0.1UF

C1008 4.7uF 6.3V 20% X6S 0603 COMMON
C1133 1uF 6.3V 10% X6S 0402 COMMON
C1159 0.1uF 16V 10% X7R 0402 COMMON
C1167 0.1uF 16V 10% X7R 0402 COMMON
GND

C938 4.7uF 6.3V 20% X6S 0603 COMMON
C998 1uF 6.3V 10% X6S 0402 COMMON
C1147 0.1uF 16V 10% X7R 0402 COMMON
C1169 0.1uF 16V 10% X7R 0402 COMMON
GND

C997 4.7uF 6.3V 20% X6S 0603 COMMON
C986 1uF 6.3V 10% X6S 0402 COMMON
C1150 0.1uF 16V 10% X7R 0402 COMMON
C1134 0.1uF 16V 10% X7R 0402 COMMON
C1130 0.1uF 16V 10% X7R 0402 COMMON
GND

1V8_AON

1V8_AON

1 X 4.7UF, 1 X 1UF,2 X 0.1UF

C73 4.7uF 6.3V 20% X6S 0603 COMMON
C72 1uF 6.3V 10% X6S 0402 COMMON
C1106 0.1uF 16V 10% X7R 0402 COMMON
C1111 0.1uF 16V 10% X7R 0402 COMMON
GND

ASSEMBLY	SKU50
PAGE DETAIL	GPU DECOUPLING

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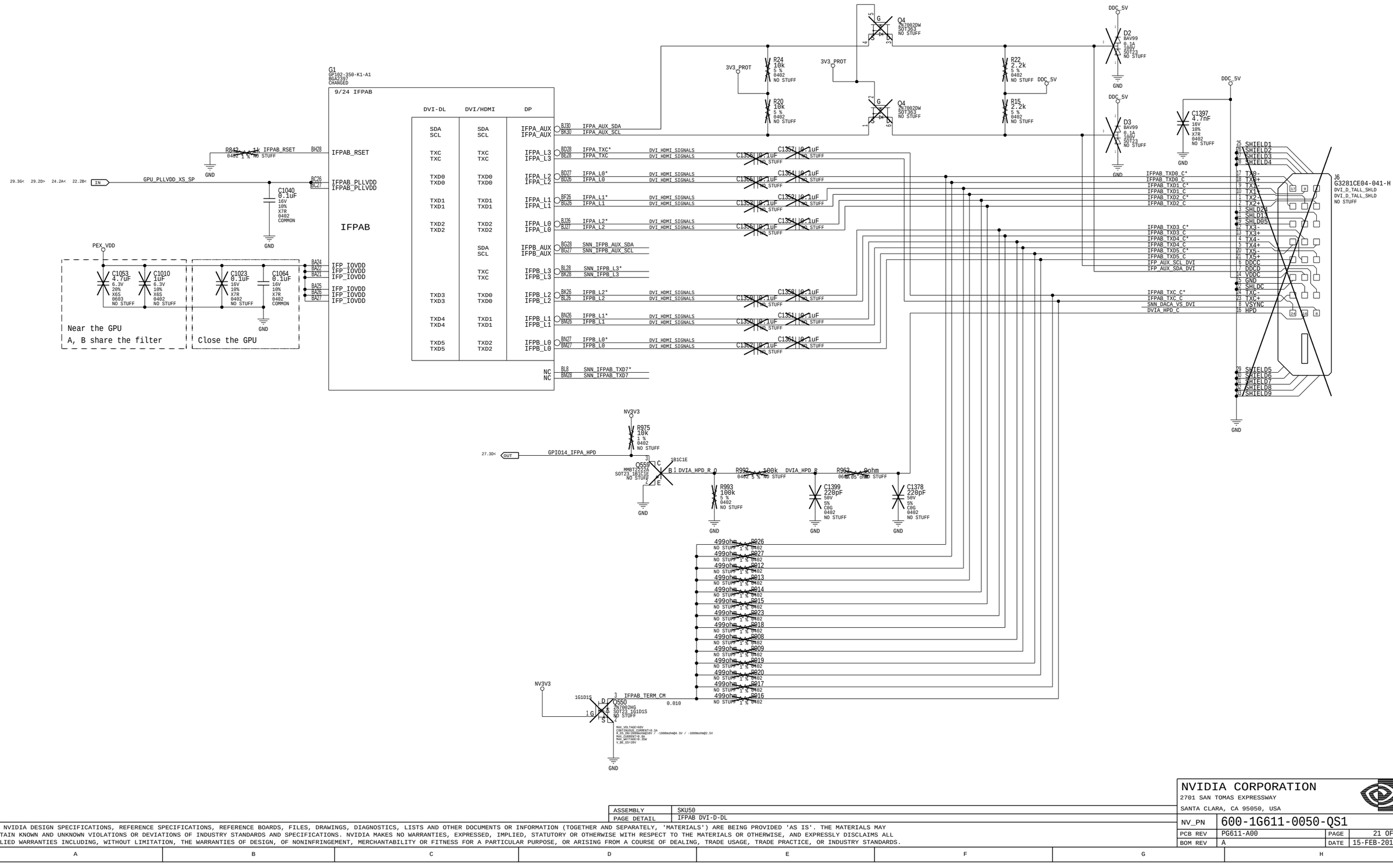

ASSEMBLY	SKU50
PAGE DETAIL	IFPAB DVI-D-DL

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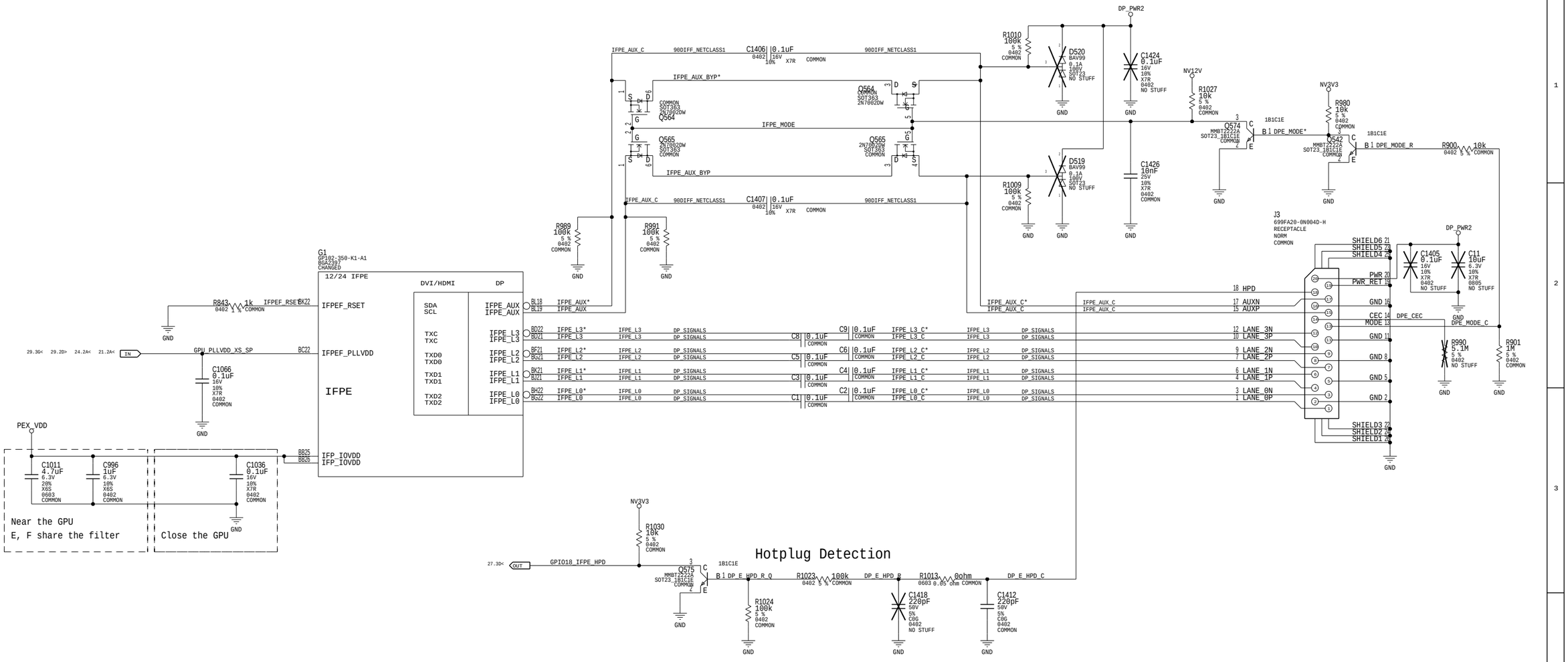
Page22: IFPE DP



ASSEMBLY	SKU50
PAGE DETAIL	IFPE DP

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Page23: IFPF DP

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ASSEMBLY	SKU50
PAGE DETAIL	IFPF DP

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Page24: IFPC HDMI 2.0/DP

FOR ESD DIODES

IFPC_ESD

C1398 0.1uF 16V 10% X7R 0402 NO STUFF

GND

Place near ESD diodes

90DIFF_NETCLASS1

3V3_PROT

R931 10k HDMI 1 % 0402 COMMON

R902 100k DP 5 % 0402 NO STUFF

GND

IFPC_MODE_Q*

ALL

Q545 2N7002DW SOT363 COMMON

Q544 2N7002DW SOT363 NO STUFF

I2CW_SDA_Q

R907 0ohm HDMI 0402 0.05 ohm COMMON

C1348 0.1uF 0402 16V 10% X7R NO STUFF DP

R978 0ohm DP 0402 0.05 ohm NO STUFF

R938 0ohm HDMI 0402 0.05 ohm STUFF

DP_PWR

DDC_5V

90DIFF_NETCLASS1

IFPC_ESD

D513 BAV99 0.1A 100V SOT23 NO STUFF

D514 BAV99 0.1A 100V SOT23 NO STUFF

R962 2k 5 % 0402 COMMON HDMI

R988 100k 5 % 0402 NO STUFF DP

R950 2k 5 % 0402 COMMON HDMI

R935 10k HDMI 1 % 0402 COMMON

R910 100k DP 5 % 0402 NO STUFF

I2CW_SCL_Q

R911 0ohm HDMI 0402 0.05 ohm COMMON

C1356 0.1uF 0402 16V 10% X7R NO STUFF DP

R979 100k 5 % 0402 NO STUFF DP

C1346 10nF 25V 10% X7R 0402 COMMON

R941 0ohm HDMI 0.05 ohm 0402 COMMON

NV12V

R921 10k 1 % 0402 NO STUFF

Q543 MMBT2222A SOT23_1B1C1E NO STUFF 1B1C1E

IFPC_MODE*

NV3V3

R933 10k 1 % 0402 NO STUFF

Q551 MMBT2222A SOT23_1B1C1E NO STUFF 1B1C1E

DPC_MODE_R

R940 10k 1 % 0402 NO STUFF

DP-SKU ONLY

C1417 100pF 0402 50V 5% C0G COMMON

J5 RECEPTACLE HDMI_A_SMD HDMI_A_SPRING_1.6MM COMMON

20 SHIELD1
21 SHIELD2
19 HP_DET
18 +5V
17 DDC/CEC_GND
16 SDA
15 SCL
14 RESERVED
13 CEC
12 CK-
11 CK_SHIELD
10 CK+
9 D0-
8 D0_SHIELD
7 D0+
6 D1-
5 D1_SHIELD
4 D1+
3 D2-
2 D2_SHIELD
1 D2+
22 SHIELD3
23 SHIELD4

I2CW_SDA_R_Q
I2CW_SCL_R_Q
SNN_HDMI_RSVD1
SNN_CEC_C

R1001 6.04ohm 0402 1 % COMMON IFPC_TXC_RC*
R1002 6.04ohm 0402 1 % COMMON IFPC_TXC_RC
R1003 6.04ohm 0402 1 % COMMON IFPC_TXD0_RC*
R1004 6.04ohm 0402 1 % COMMON IFPC_TXD0_RC
R1005 6.04ohm 0402 1 % COMMON IFPC_TXD1_RC*
R1006 6.04ohm 0402 1 % COMMON IFPC_TXD1_RC
R1007 6.04ohm 0402 1 % COMMON IFPC_TXD2_RC*
R1008 6.04ohm 0402 1 % COMMON IFPC_TXD2_RC

G1 GP102-350-K1-A1 BGA2397 CHANGED

10/24 IFPC

1k R844 COMMON 1 % 0402 IFPC_RSET BK24

IFPCD_RSET

29.3G< 29.2D> 22.2B< 21.2A< IN GPU_PLLVDD_XS_SP BC24

IFPCD_PLLVDD

C1057 0.1uF 16V 10% X7R 0402 COMMON

GND

IFPC

DVI/HDMI	DP			
SDA SCL	IFPC_AUX IFPC_AUX	BK19 BJ19	IFPC_AUX* IFPC_AUX	
TXC TXC	IFPC_L3 IFPC_L3	BG24 BH24	IFPC_TXC* IFPC_TXC	IFPC_TXC_R 95DIFF_NETCLASS1 C1389 0.1uF 0402 COMMON IFPC_TXC_C1*
TXD0 TXD0	IFPC_L2 IFPC_L2	BK25 BJ25	IFPC_TXD0* IFPC_TXD0	IFPC_TXD0_R 95DIFF_NETCLASS1 C1391 0.1uF 0402 COMMON IFPC_TXD0_C1*
TXD1 TXD1	IFPC_L1 IFPC_L1	BG25 BF25	IFPC_TXD1* IFPC_TXD1	IFPC_TXD1_R 95DIFF_NETCLASS1 C1393 0.1uF 0402 COMMON IFPC_TXD1_C1*
TXD2 TXD2	IFPC_L0 IFPC_L0	BD25 BD24	IFPC_TXD2* IFPC_TXD2	IFPC_TXD2_R 95DIFF_NETCLASS1 C1395 0.1uF 0402 COMMON IFPC_TXD2_C1*

PEX_VDD

C1016 4.7uF 6.3V 20% X6S 0603 COMMON

C1080 1uF 6.3V 10% X6S 0402 COMMON

C1056 0.1uF 16V 10% X7R 0402 COMMON

GND

Near the GPU
C, D share the filter

Close the GPU

BB21 BA26 IFP_IOVDD IFP_IOVDD

NV3V3

R1028 10k 1 % 0402 COMMON

Q570 MMBT2222A SOT23_1B1C1E COMMON 1B1C1E

HDMI_C_HPD_R_Q

R1033 100k 0402 5 % COMMON HDMI_C_HPD_R

R1015 0ohm 0603 0.05 ohm COMMON HDMI_C_HPD_C

R1038 100k 5 % 0402 COMMON

C1421 220pF 50V 5% C0G 0402 NO STUFF

C1415 220pF 50V 5% C0G 0402 COMMON

27.4E< OUT GPIO27_IFPC_HPD

R974 499ohm 1 % 0402 COMMON
R973 499ohm 1 % 0402 COMMON
R972 499ohm 1 % 0402 COMMON
R971 499ohm 1 % 0402 COMMON
R970 499ohm 1 % 0402 COMMON
R969 499ohm 1 % 0402 COMMON
R968 499ohm 1 % 0402 COMMON
R967 499ohm 1 % 0402 COMMON

NV3V3

1G1D1S

Q3 2N7002HG SOT23_1G1D1S COMMON

HDMI_PD_1 0.010

MAX_VOLTAGE=60V
MAX_CONTINUOUS_CURRENT=0.2A
P_DS_ON=3500ohm@10V / 5000ohm@5V
MAX_CURRENT=0.6A
MAX_WATTAGE=0.35W
V_BE_GS=20V

GND

LB511 600ohm BEAD_0402 COMMON IFPC_TERM_BEAD_1
LB510 600ohm BEAD_0402 COMMON IFPC_TERM_BEAD_2
LB509 600ohm BEAD_0402 COMMON IFPC_TERM_BEAD_3
LB508 600ohm BEAD_0402 COMMON IFPC_TERM_BEAD_4
LB507 600ohm BEAD_0402 COMMON IFPC_TERM_BEAD_5
LB506 600ohm BEAD_0402 COMMON IFPC_TERM_BEAD_6
LB505 600ohm BEAD_0402 COMMON IFPC_TERM_BEAD_7
LB504 600ohm BEAD_0402 COMMON IFPC_TERM_BEAD_8

DP FOR QUADRO

J2 699FA20-0N004D-H RECEPTACLE NORM NO STUFF

SHIELD6 21
SHIELD7 23
SHIELD4 25
PWR 20
GNR_RET 19
18 HPD
17 AUXN
15 AUXP
GND 16
CEC 14
MODE 13
GND 11
GND 8
GND 5
GND 2
SHIELD3 22
SHIELD2 24
SHIELD1 26

DP_PWR

C13 22uF 6.3V 20% X6S 0805 NO STUFF

C1409 0.1uF 16V 10% X7R 0402 NO STUFF

GND

DPC_CEC
DPC_MODE_C

R1000 5.1M 5 % 0402 NO STUFF

R982 1M 5 % 0402 NO STUFF

IFPC_TXC*	95DIFF_NETCLASS1	C1370 0.1uF 0402 NO STUFF	IFPC_L3_C* DP_SIGNALS 12 LANE_3N
IFPC_TXC	95DIFF_NETCLASS1	C1380 0.1uF 0402 NO STUFF	IFPC_L3_C DP_SIGNALS 10 LANE_3P
IFPC_TXD0*	95DIFF_NETCLASS1	C1381 0.1uF 0402 NO STUFF	IFPC_L2_C* DP_SIGNALS 9 LANE_2N
IFPC_TXD0	95DIFF_NETCLASS1	C1382 0.1uF 0402 NO STUFF	IFPC_L2_C DP_SIGNALS 7 LANE_2P
IFPC_TXD1*	95DIFF_NETCLASS1	C1383 0.1uF 0402 NO STUFF	IFPC_L1_C* DP_SIGNALS 6 LANE_1N
IFPC_TXD1	95DIFF_NETCLASS1	C1384 0.1uF 0402 NO STUFF	IFPC_L1_C DP_SIGNALS 4 LANE_1P
IFPC_TXD2*	95DIFF_NETCLASS1	C1385 0.1uF 0402 NO STUFF	IFPC_L0_C* DP_SIGNALS 3 LANE_0N
IFPC_TXD2	95DIFF_NETCLASS1	C1386 0.1uF 0402 NO STUFF	IFPC_L0_C DP_SIGNALS 1 LANE_0P

I2CW_SDA_R_Q
I2CW_SCL_R_Q

GND

ASSEMBLY	SKU50
PAGE DETAIL	IFPC HDMI/DP

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Page25: IFPD DP

ASSEMBLY	SKU50
PAGE_DETAIL	IFPD DP

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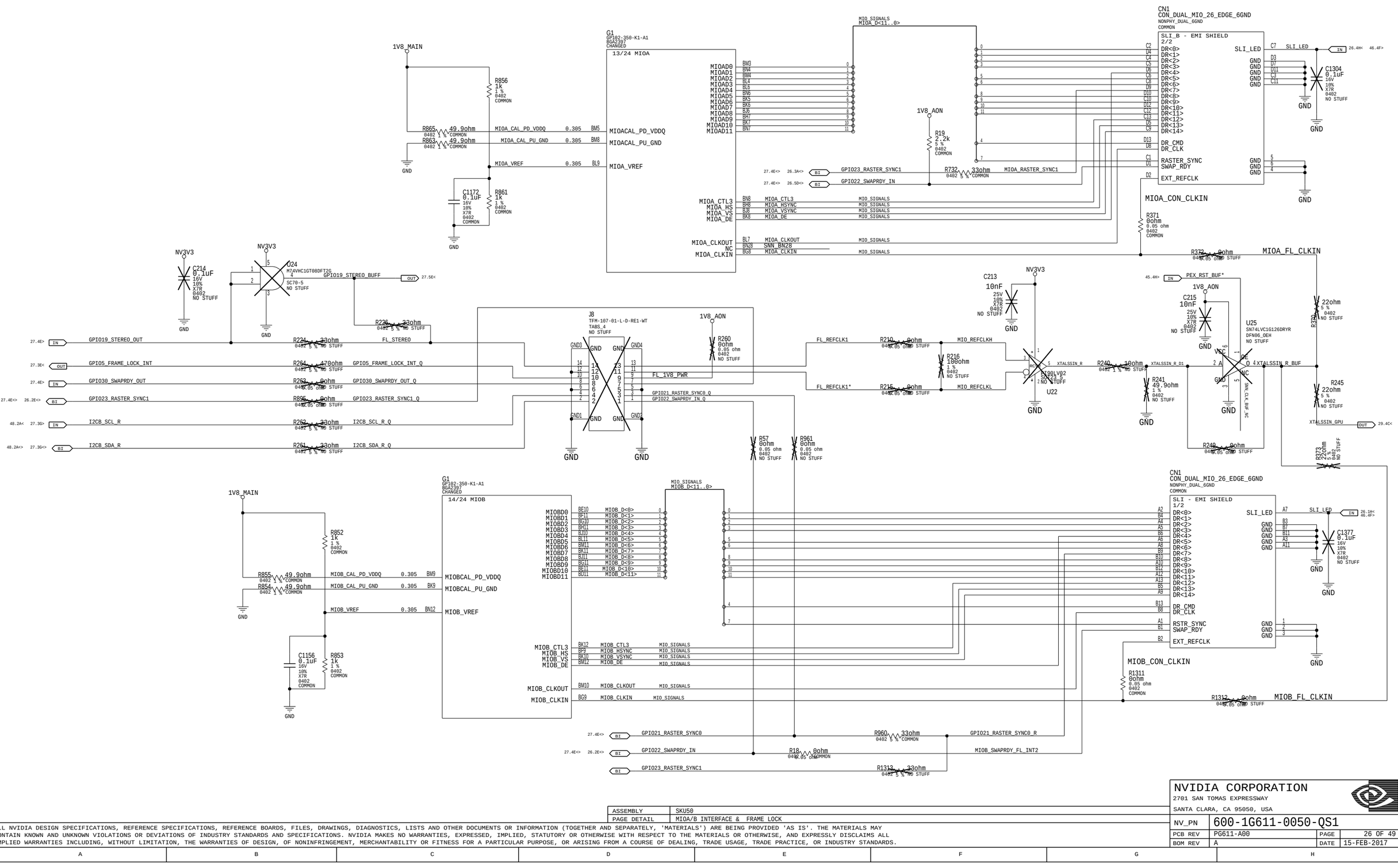
Page26: MIOA/B Interface and FRAME LOCK



ASSEMBLY	SKU50
PAGE DETAIL	MIOA/B INTERFACE & FRAME LOCK

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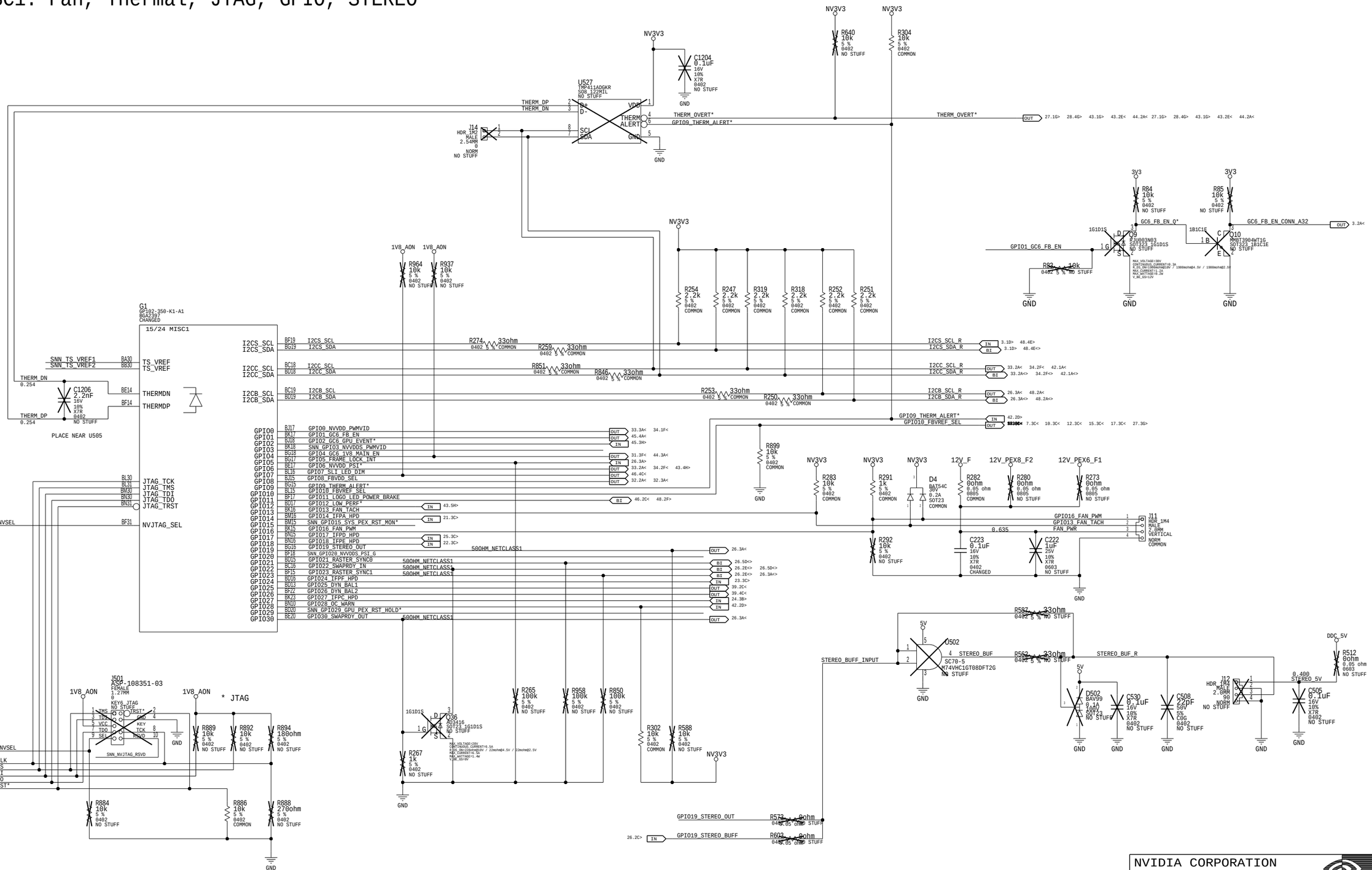
Page27: MISC1: Fan, Thermal, JTAG, GPIO, STEREO



ASSEMBLY	SKU50
PAGE DETAIL	MISC: FAN, THERMAL, JTAG, GPIO, STEREO

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Page28: MISC2: ROM, Straps

STRAP2	STRAP1	STRAP0	RAMCFG[4:0]	
L	L	L	00000	
L	L	H	00001	
L	H	L	00010	MICRON 10Gbps
L	H	H	00011	
H	L	L	00100	

ROM_SO	ROM_SI	ROM_SCLK	SOR_EXPOSED[3:0]	1:ENABLE 0:DISABLE
L	L	L	1111 DEFAULT	SOR0/1/2/3 ENABLE
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	

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

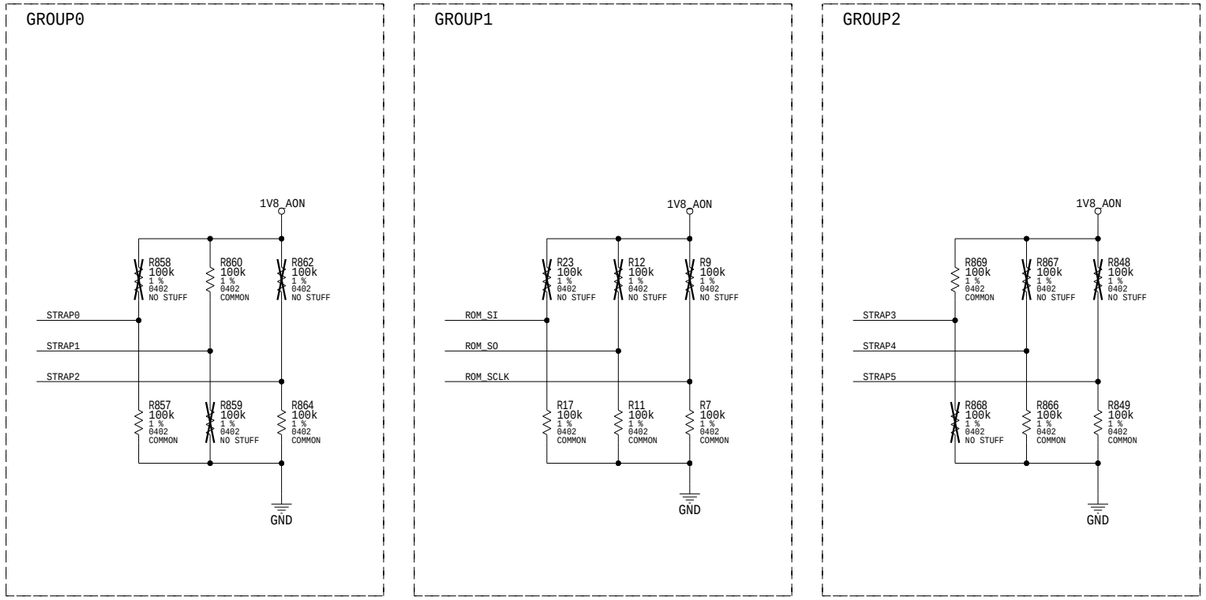
H=High :Tied to 1.8V
M=Middle:Tied to 0.9V
L=Low :Tied to 0V

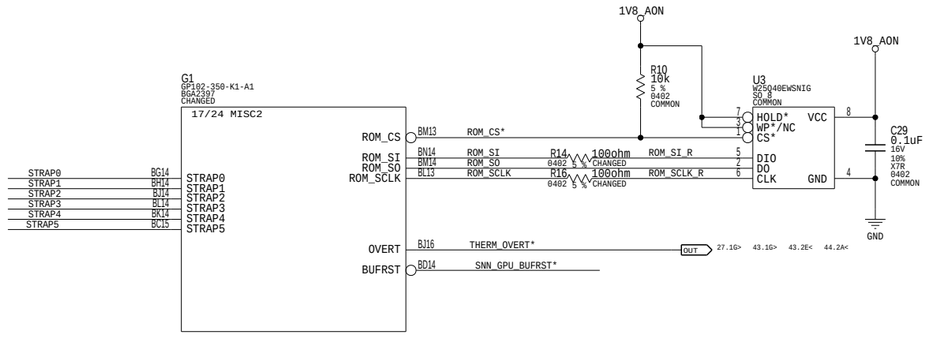
1:SMB_ALT_ADDR ENABLE
0:SMB_ALT_ADDR DISABLE

1:DEVID_SEL REBRAND
0:DEVID_SEL ORIGNAL

1:PCIE_CFG LOW POWER
0:PCIE_CFG HIGH POWER

1:VGA_DEVICE ENABLE
0:VGA_DEVICE DISABLE





ASSEMBLY	SKU50
PAGE DETAIL	MISC: ROM, STRAPS

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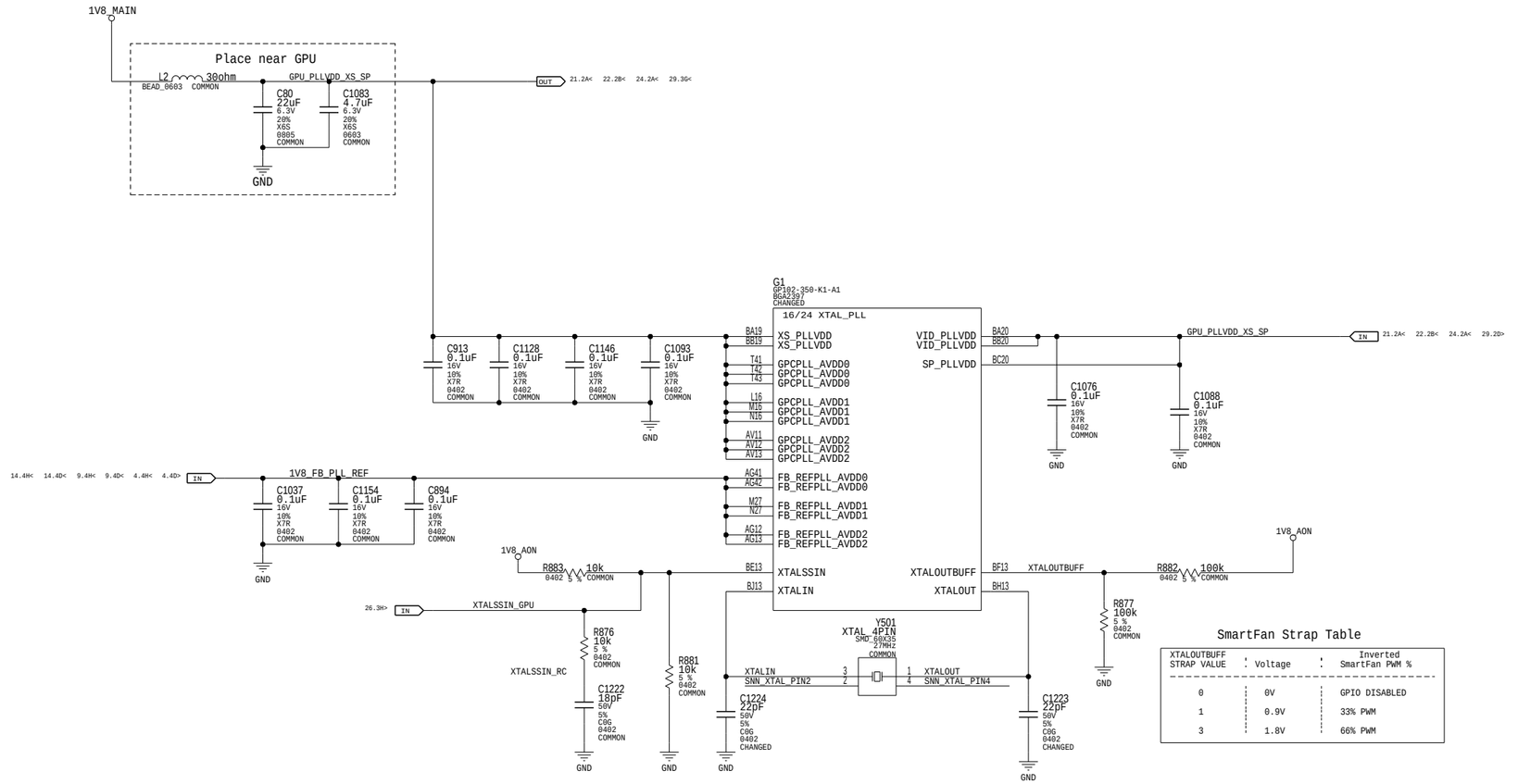
Page29: MISC2: XTAL. PLL



ASSEMBLY	SKU50
PAGE DETAIL	MISC: XTAL, PLL

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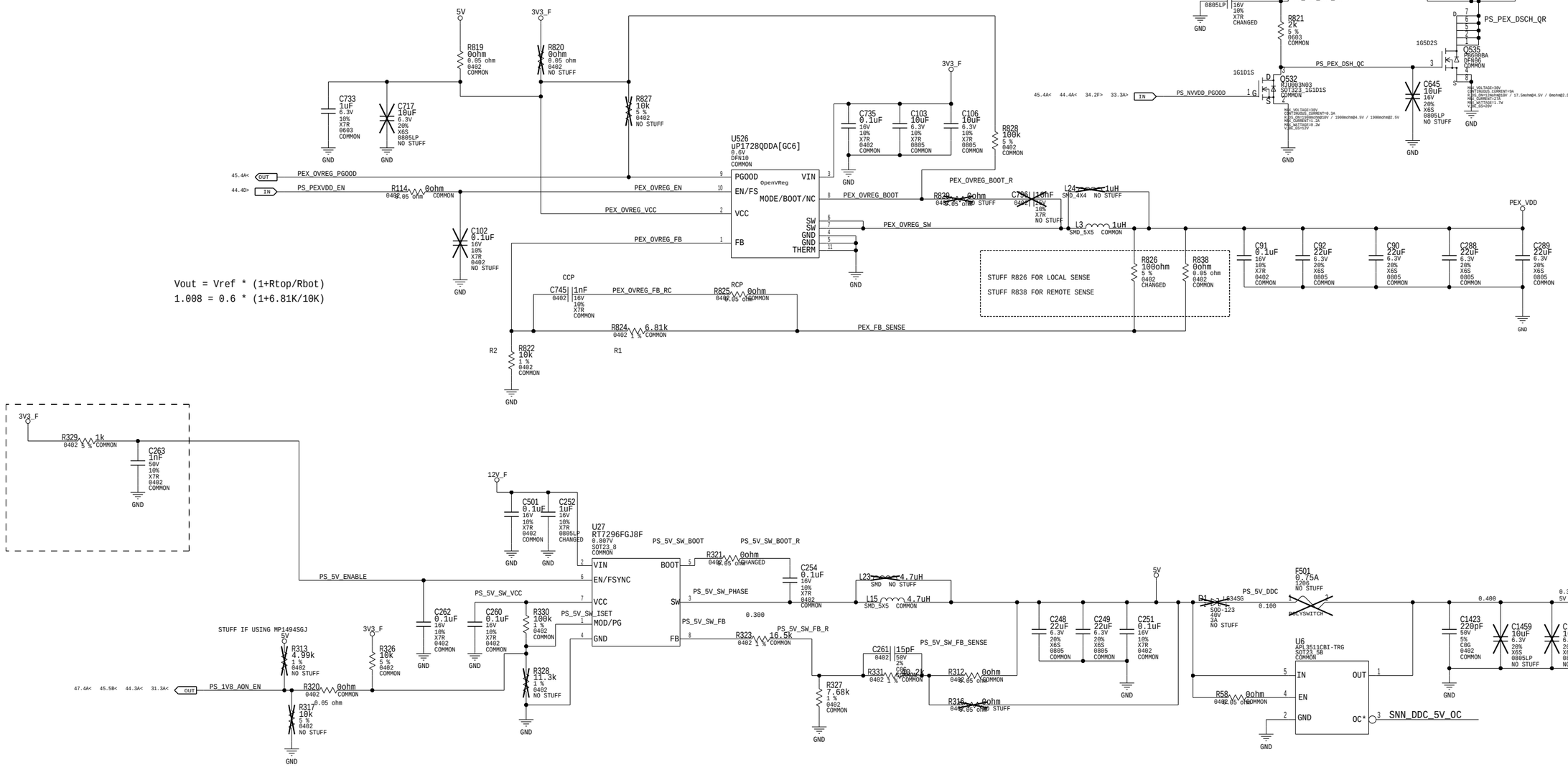
Page30: PS: 5V, PEX_VDD

PEX PLL Switcher



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ASSEMBLY	SKU50
PAGE DETAIL	PS: 5V, PEXVDD

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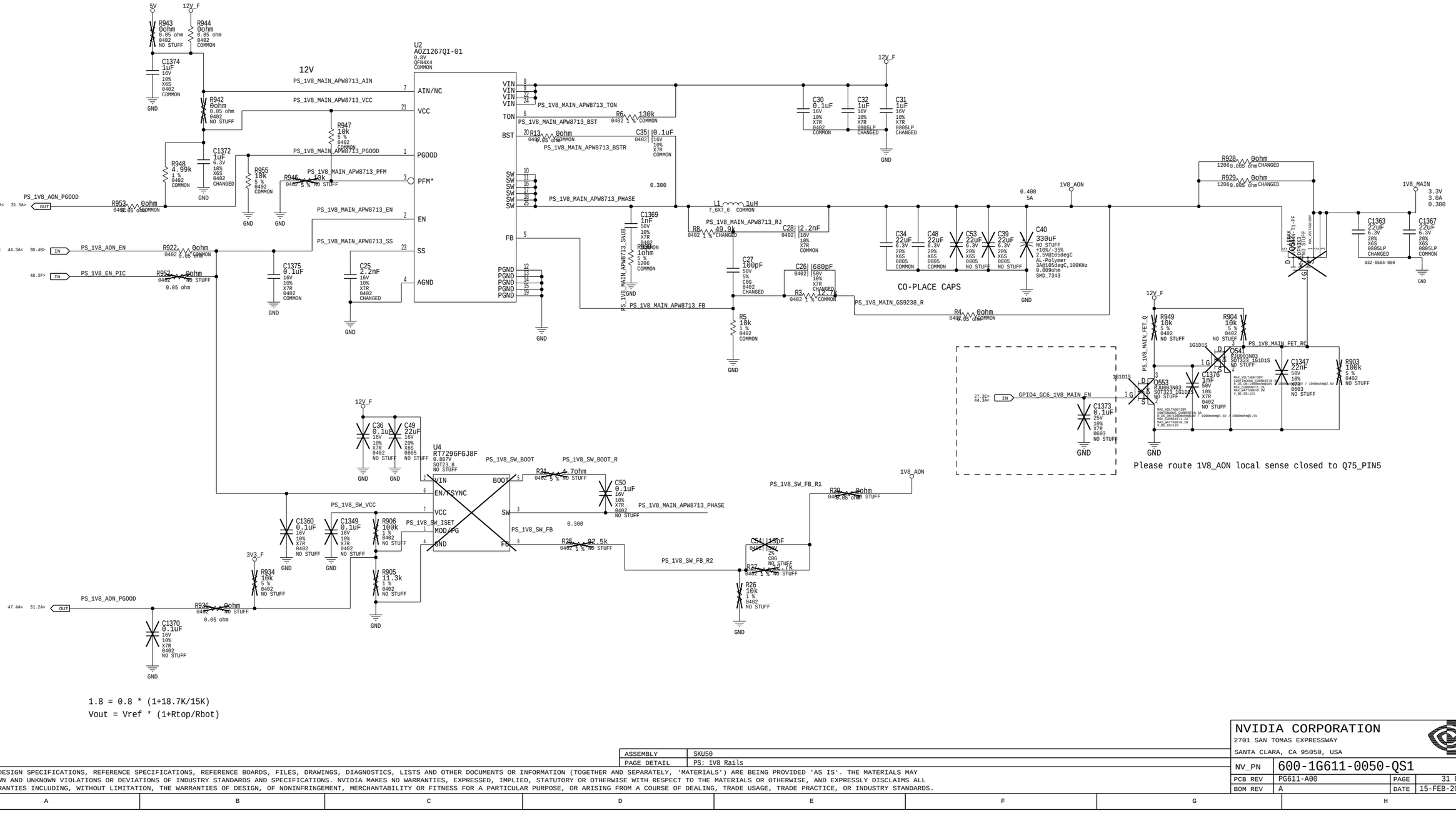
Page31: PS: 1V8 Rails



ASSEMBLY	SKU50
PAGE DETAIL	PS: 1V8 Rails

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Page32: PS: FBVDDQ

ASSEMBLY	SKU50
PAGE DETAIL	PS: FBVDDQ

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PCB REV	PG611-A00	PAGE	32 OF 49
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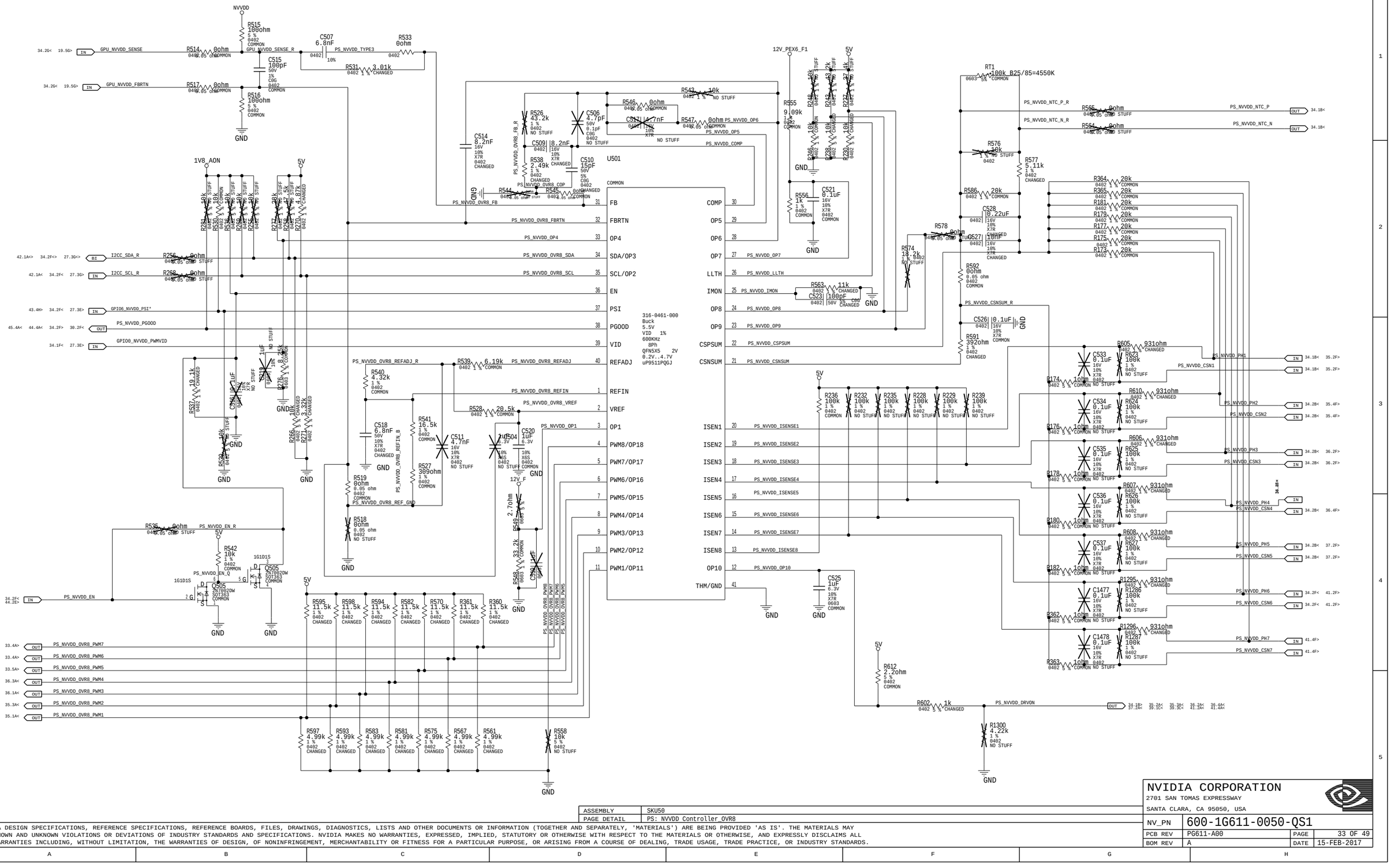
Page33: PS: NVVDD Controller_OVR8



ASSEMBLY	SKU50
PAGE DETAIL	PS: NVVDD Controller_OVR8

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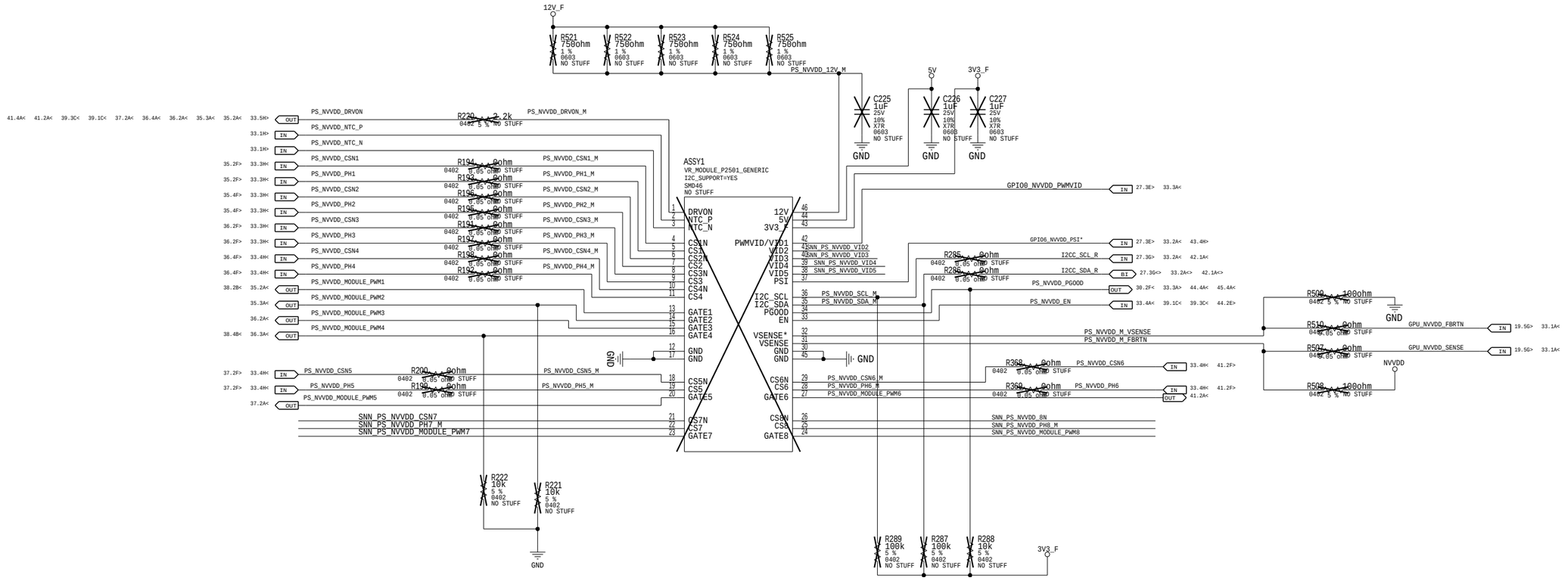
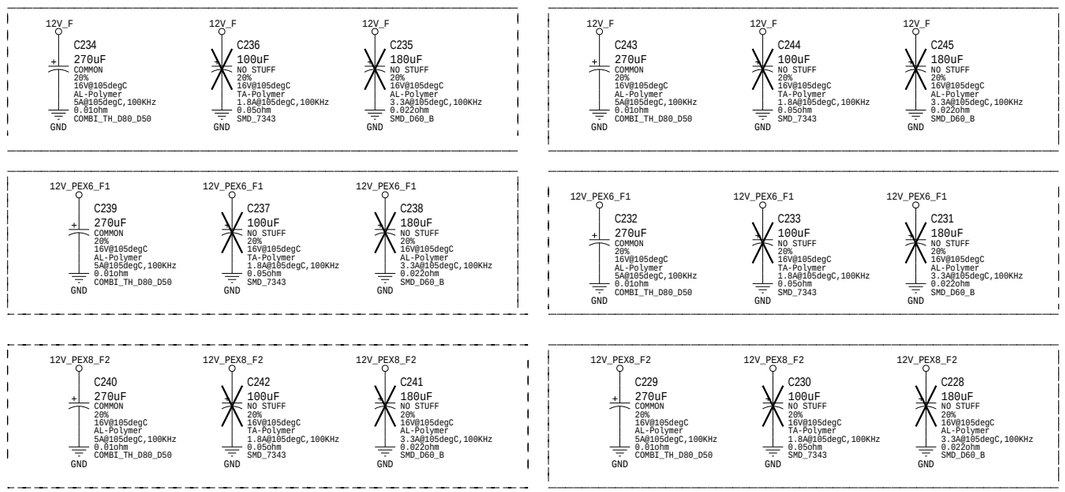
Page34: PS: NVVDD CONTROLLER_PWR-MODULE



CO-LAYOUT: CHOOSE ONE ONLY



ASSEMBLY	SKU50
PAGE DETAIL	PS: NVVDD Controller_PWR-MODULE

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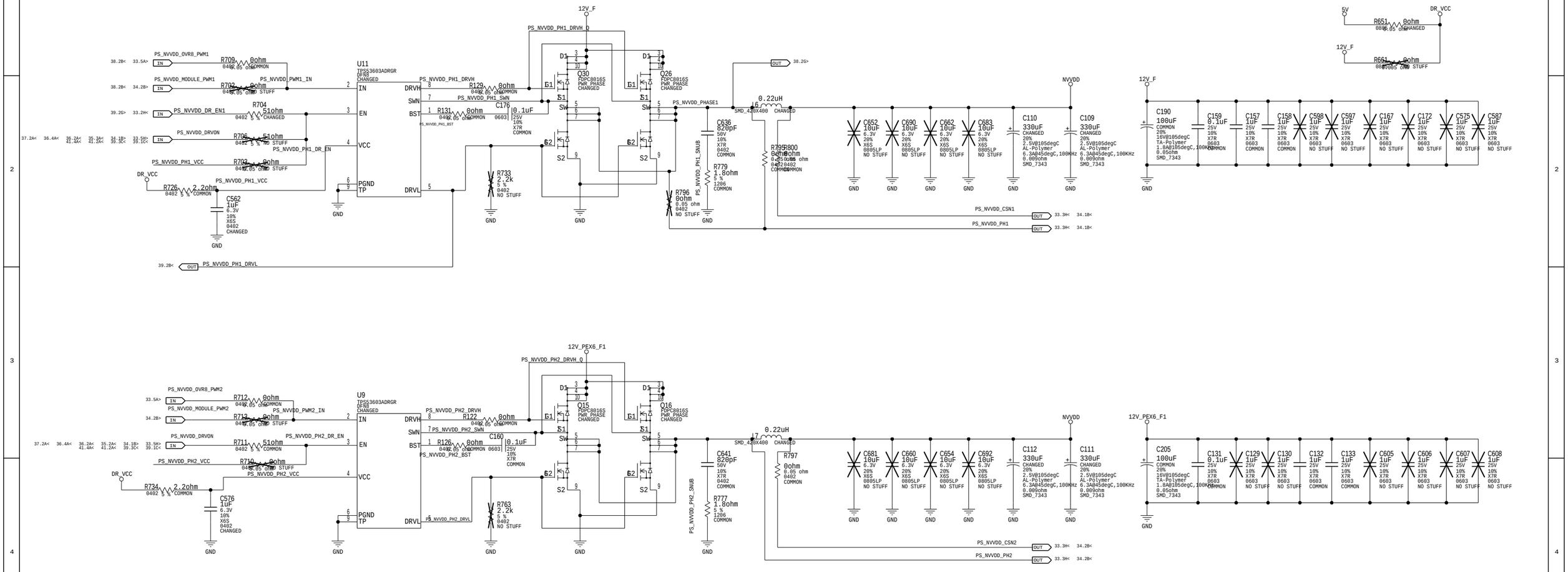
Page35: PS: NVVDD Phase 1,2



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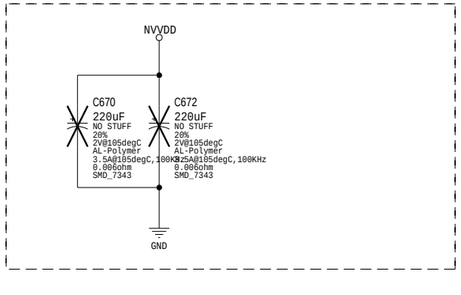

ASSEMBLY	SKU50
PAGE DETAIL	PS: NVVDD Phase 1, 2

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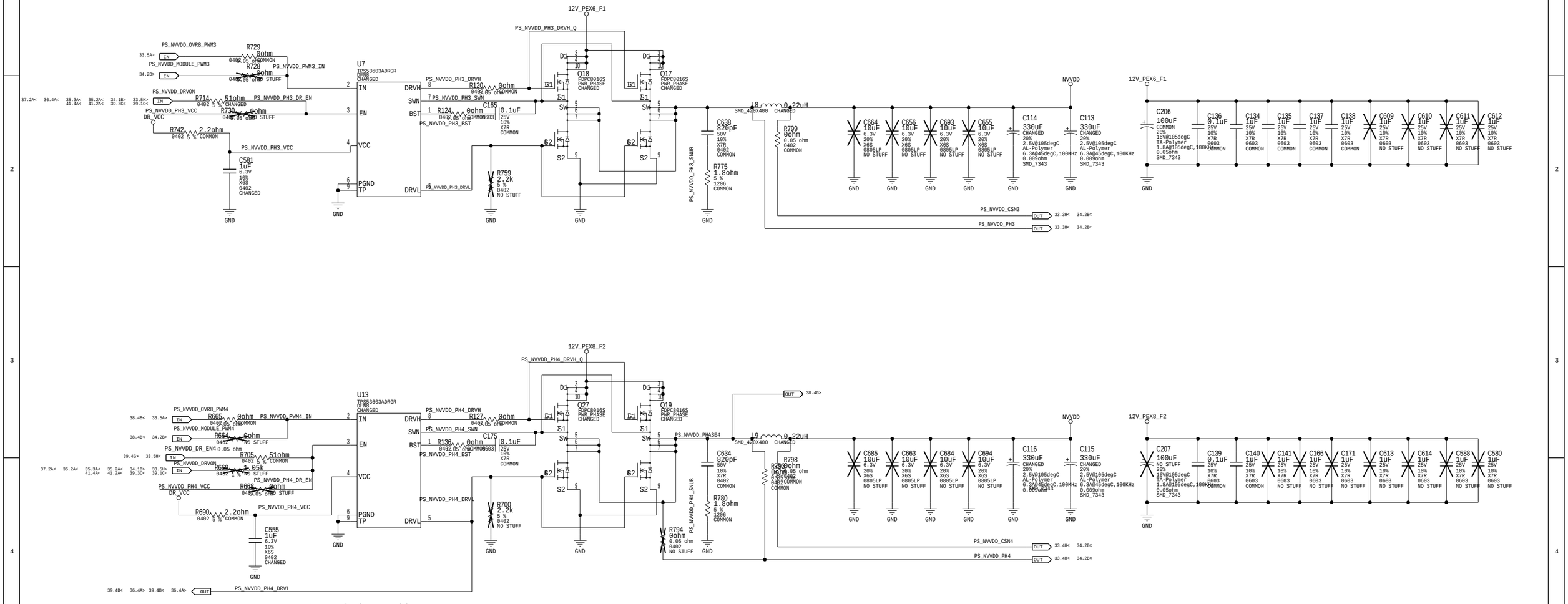
Page36: PS: NVVDD Phase 3,4



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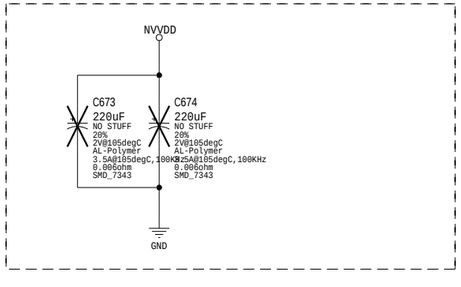

ASSEMBLY	SKU50
PAGE DETAIL	PS: NVVDD Phase 3, 4

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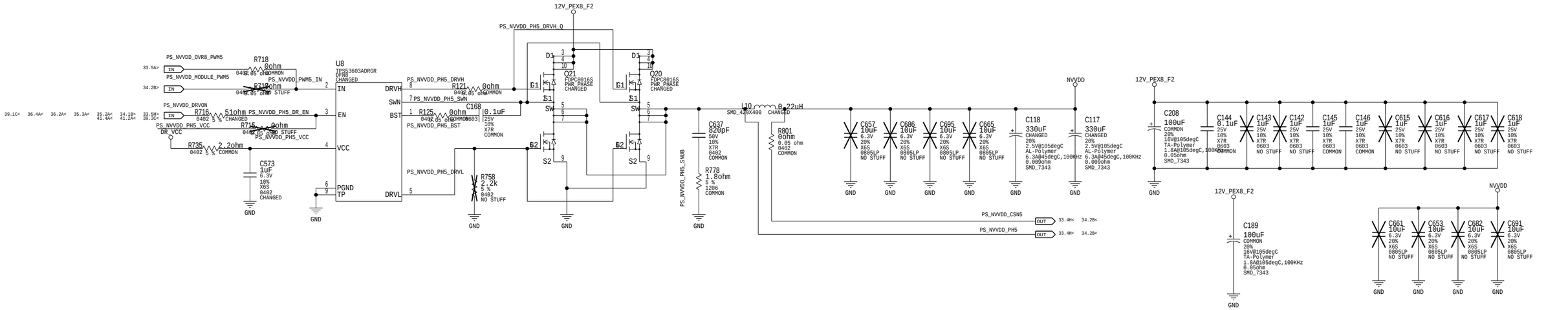
Page37: PS: NVVDD Phase 5



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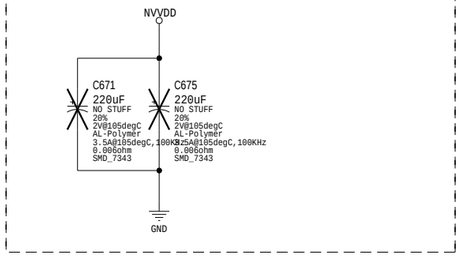

ASSEMBLY	SKU50
PAGE DETAIL	PS: NVVDD Phase 5

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PCB REV	PG611-A00	PAGE	37 OF 49
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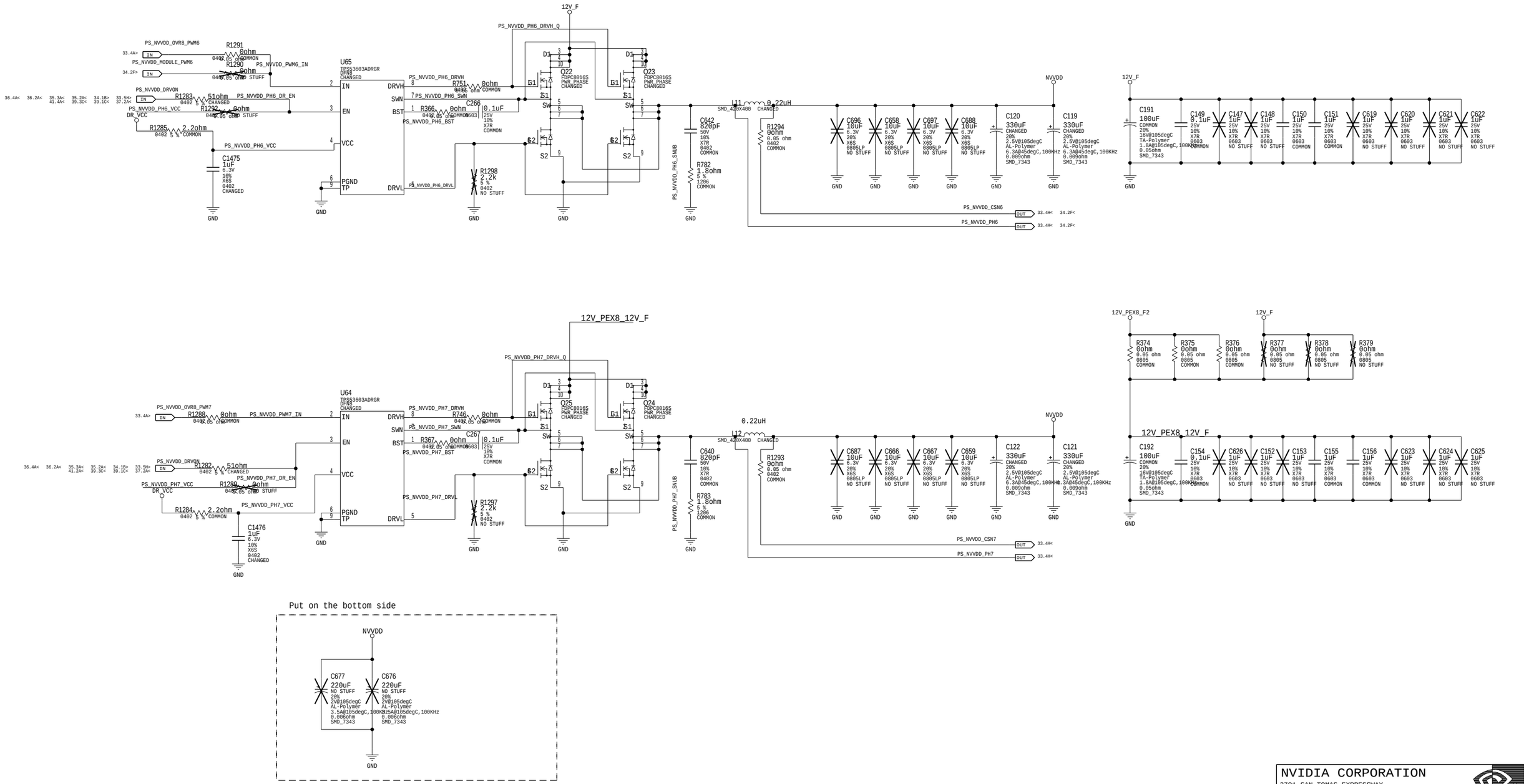
Page41: PS:NVVDD Phase 6,7



ASSEMBLY	SKU50
PAGE DETAIL	PS: NVVDD Phase 6, 7

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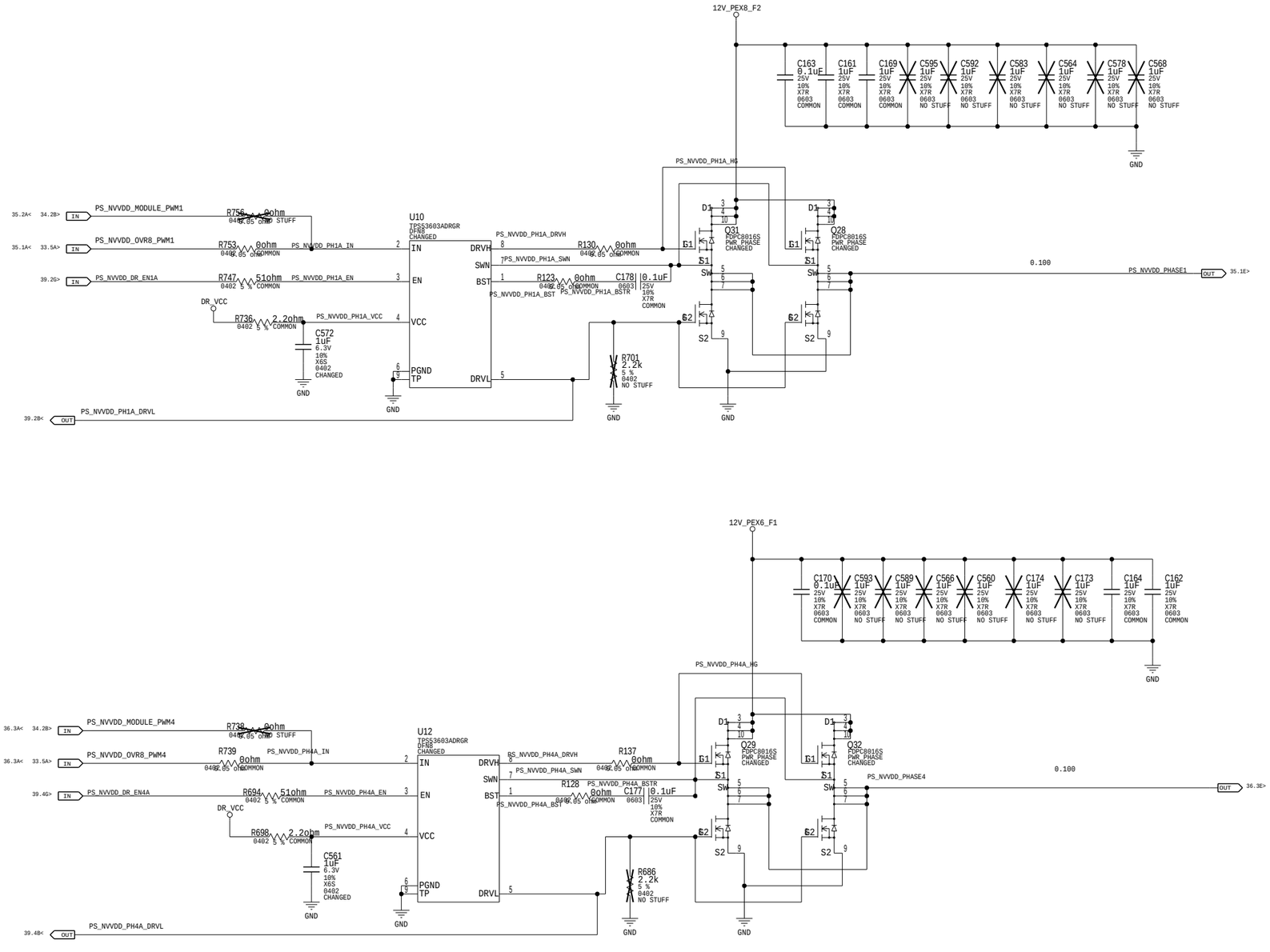
Page39: PS: Dynamic Power Balance Phases



ASSEMBLY	SKU50
PAGE DETAIL	PS: Dynamic power balance phase

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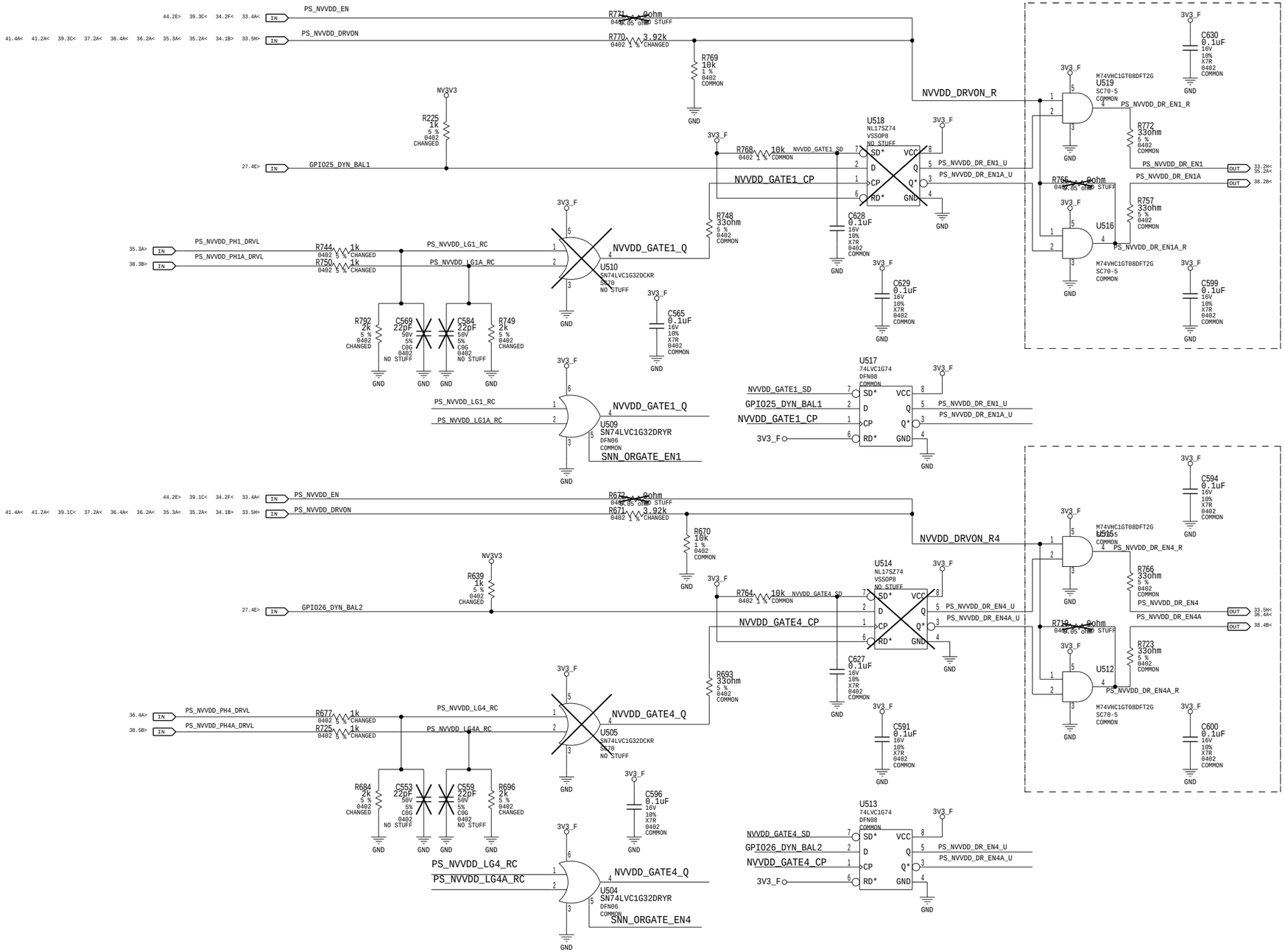
Page40: PS: Dynamic Power Balance Logic



ASSEMBLY	SKU50
PAGE DETAIL	PS: Dynamic power balance logic

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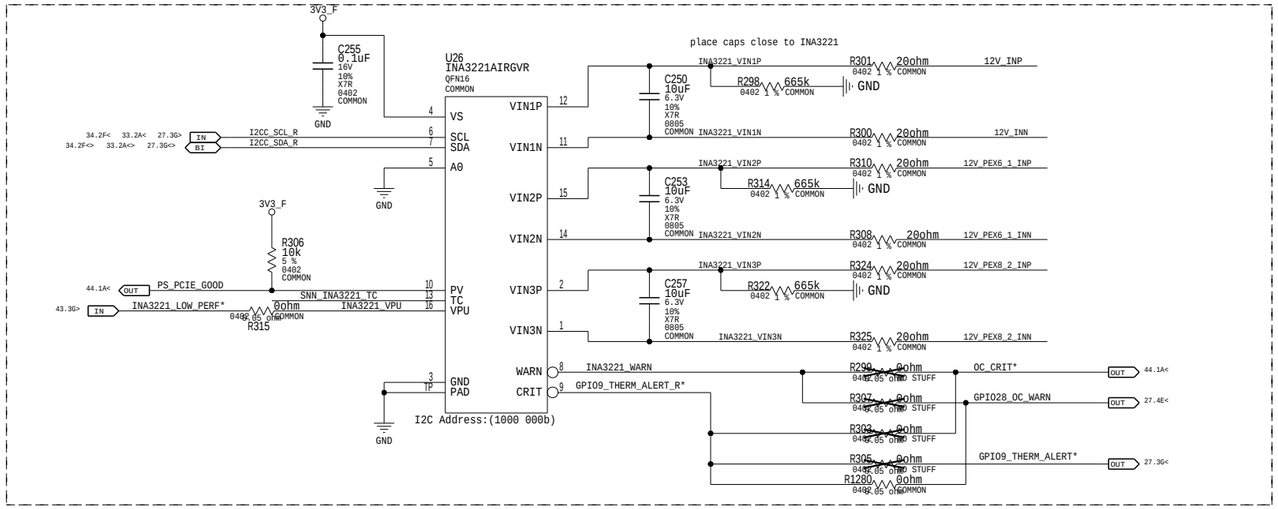
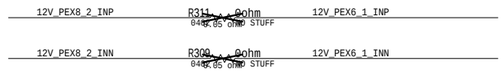
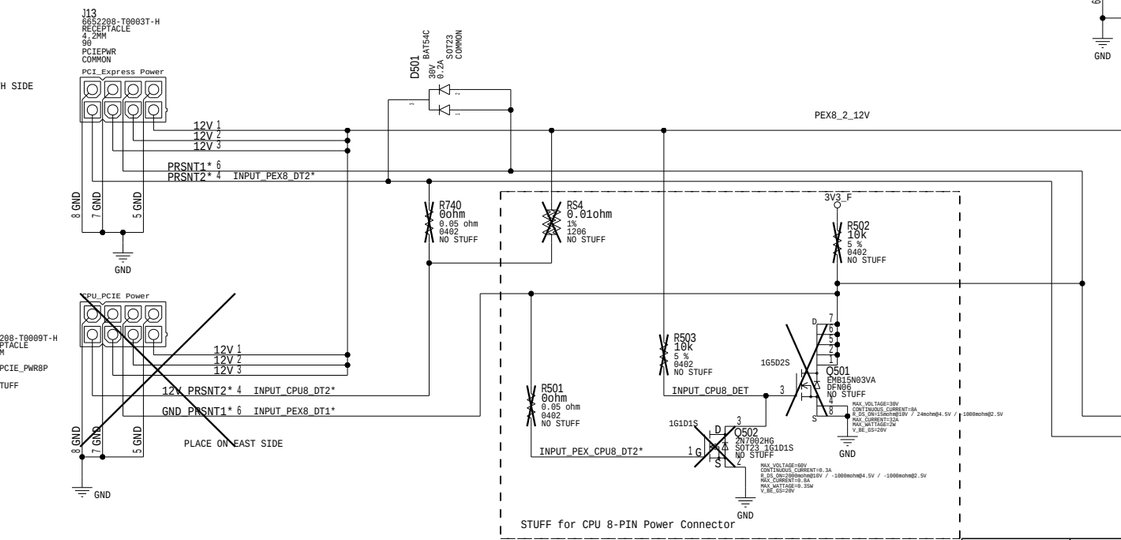
Page41: PS: Inputs, Filtering, and Monitoring

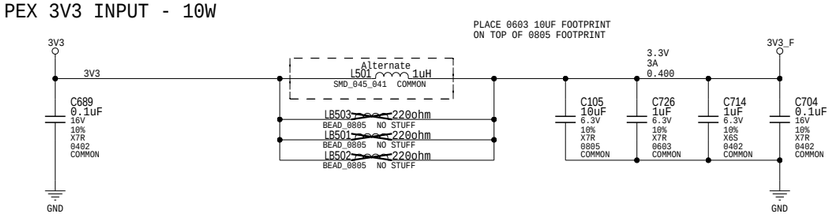


PEX6 INPUT 1 - 2x3 PCIE CON 75W

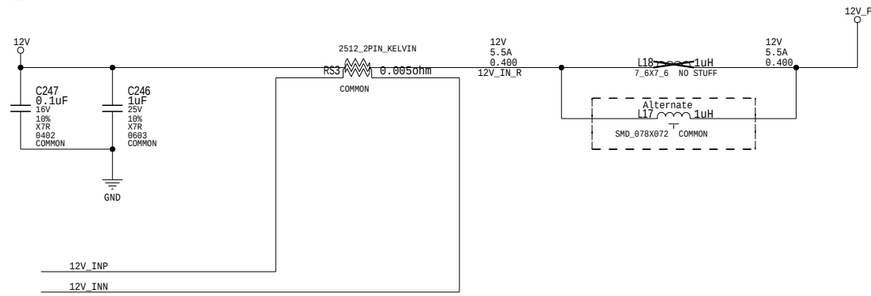


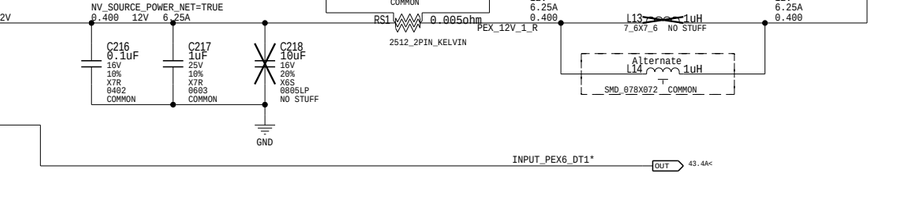


PEX 3V3 INPUT - 10W

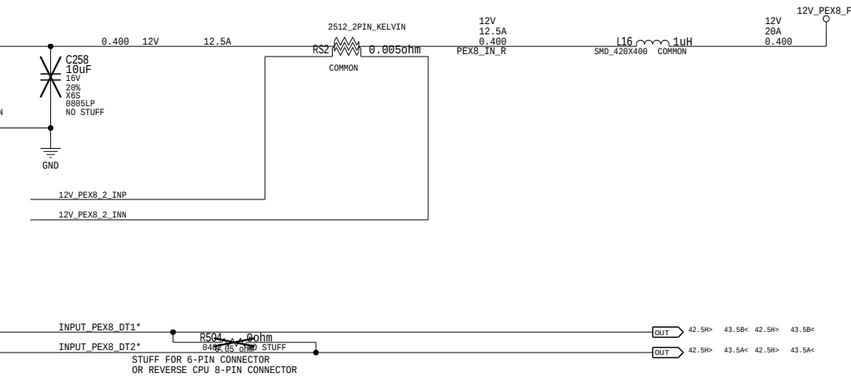


PEX_12V INPUT - 66W





PEX8 INPUT 2 - 2x4 PCIE CON 150W



ASSEMBLY	SKU50
PAGE DETAIL	PS: Input, filtering, and Monitoring

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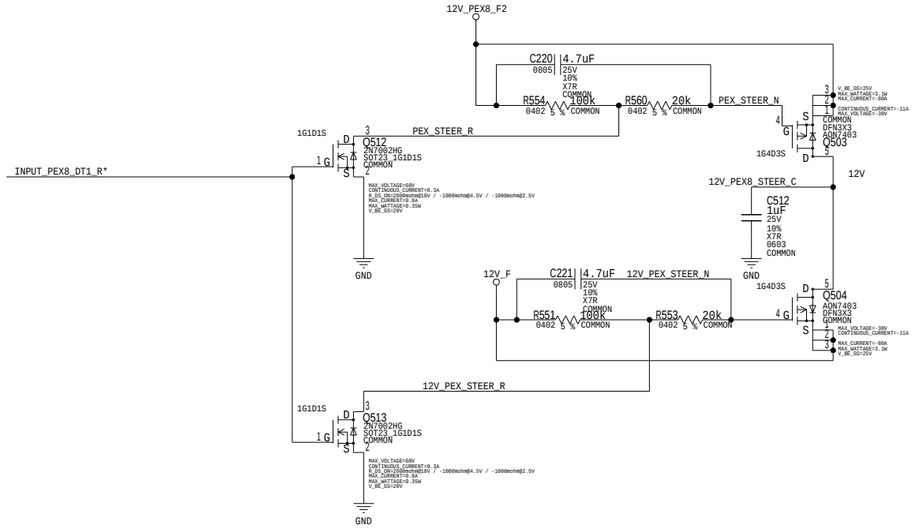
Page42: PS: 12V Current Steering & Hot Unplug Detect

QUADRO/TESLA:

12V CURRENT STEERING (UNDER POWER BOOT):

GUIDES CURRENT FROM PEX EDGE TO PEX 8 PIN INPUT AREA

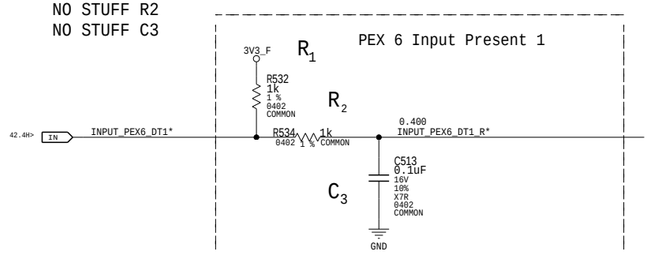
For OpenVreg Type4 + Phase Doubler, 2 phase PSI mode



PEX 6 INPUT CONNECTOR IS NOT LOADED
PEX 6 INPUT DETECT MUST BE DISABLED
PEX 8 INPUT DETECT MUST BE USED TO CONTROL STEERING

NO STUFF R1
NO STUFF R2
NO STUFF C3

PEX 6 Input Present 1

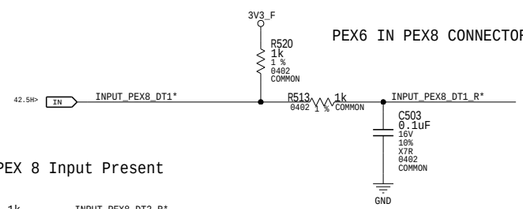


GeFORCE:

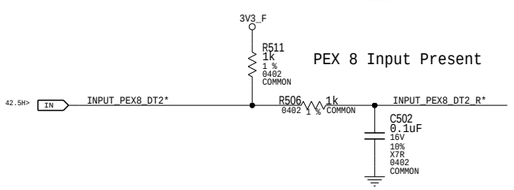
PEX 6 INPUT CONNECTOR IS LOADED
PEX 6 INPUT DETECT MUST BE USED TO CONTROL STEERING

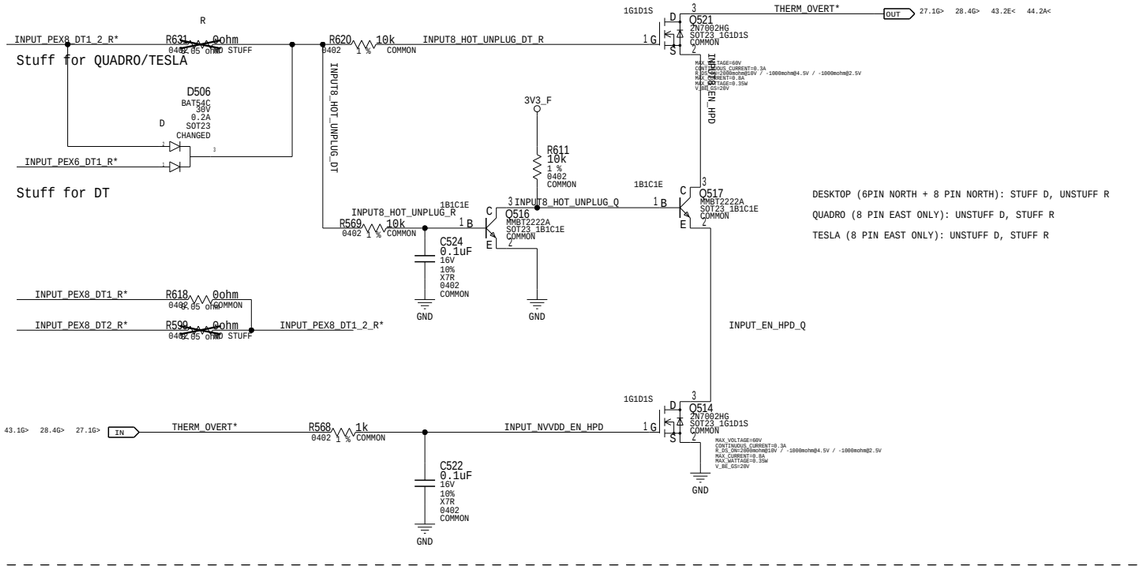
STUFF R1
STUFF R2
STUFF C3

PEX6 IN PEX8 CONNECTOR Present



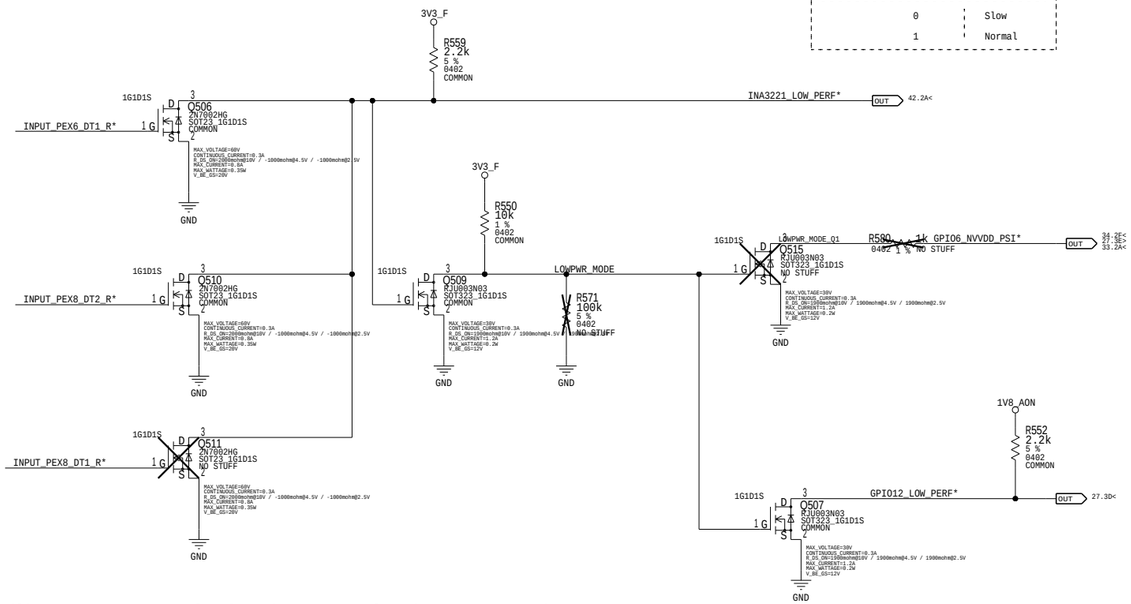
PEX 8 Input Present





PEX Input - Under Power Boot Controls

GPIO12_LOW_PERF*	GPU SPEED
0	Slow
1	Normal



A 2 x 4 auxiliary power connector plug from the power supply unit must not use the 75 W sense coding (Sense1=Open and Sense0=Ground) to avoid end-user confusion.

ASSEMBLY	SKU50
PAGE DETAIL	PS: Current Sterring, Hot Unplug

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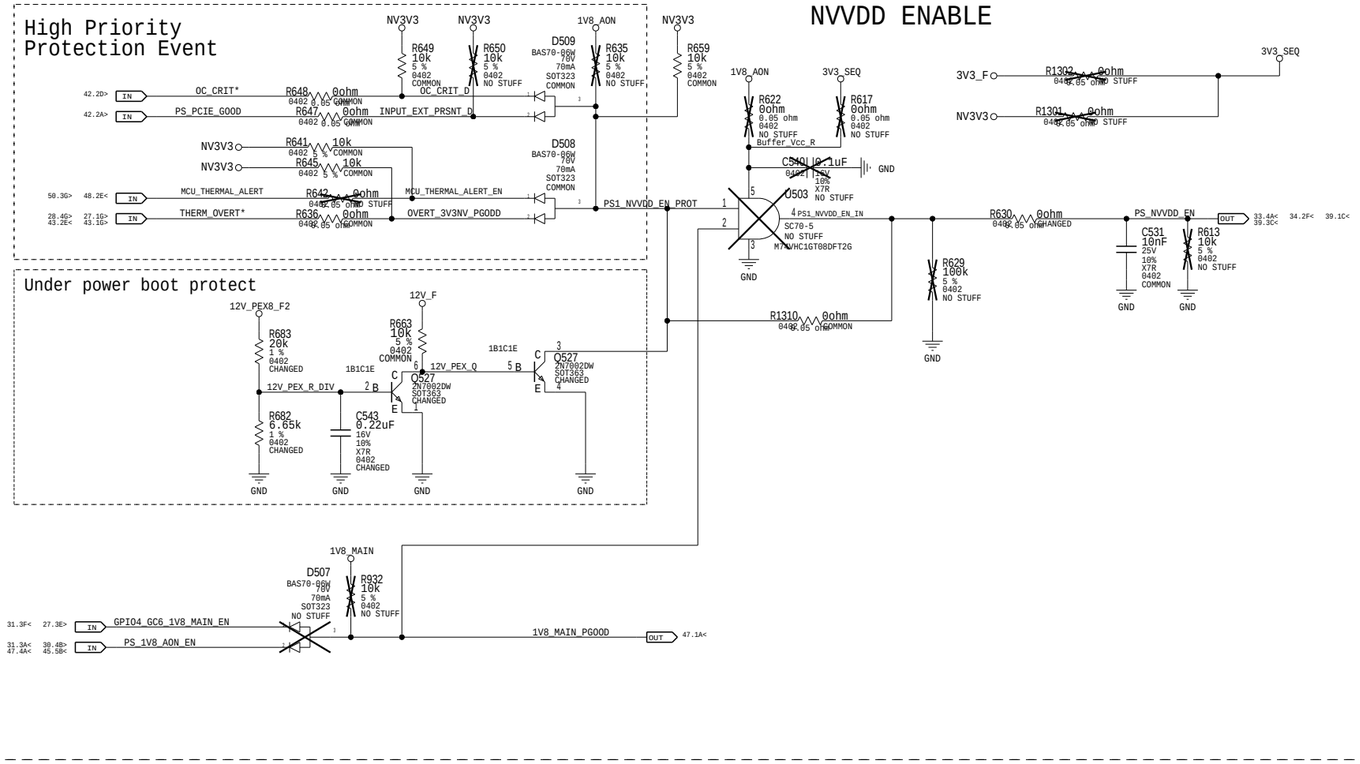
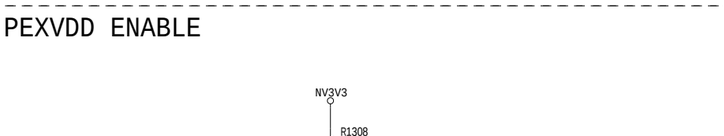
Page43: PS: NVVDD ENABLE

NVVDD ENABLE

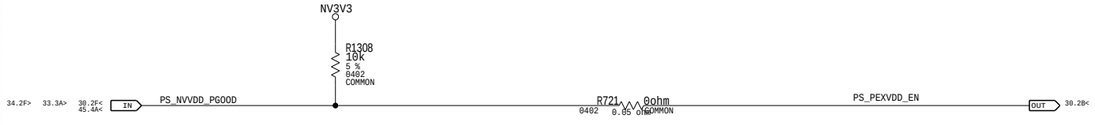
High Priority Protection Event



Under power boot protect



PEXVDD ENABLE



ASSEMBLY	SKU50
PAGE DETAIL	PS: NVVDD ENABLE

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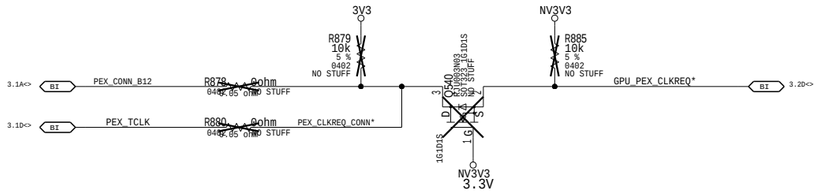
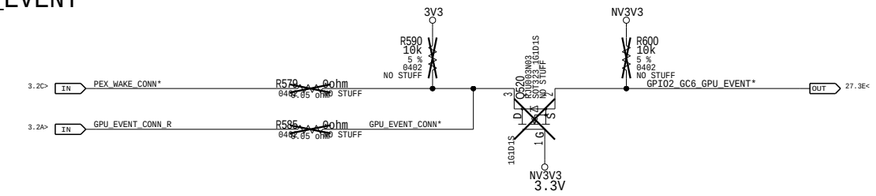
Page44: GC6 MISC

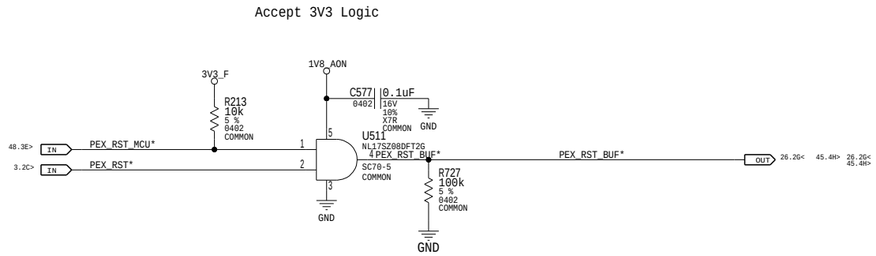
PEX_CLKREQ*



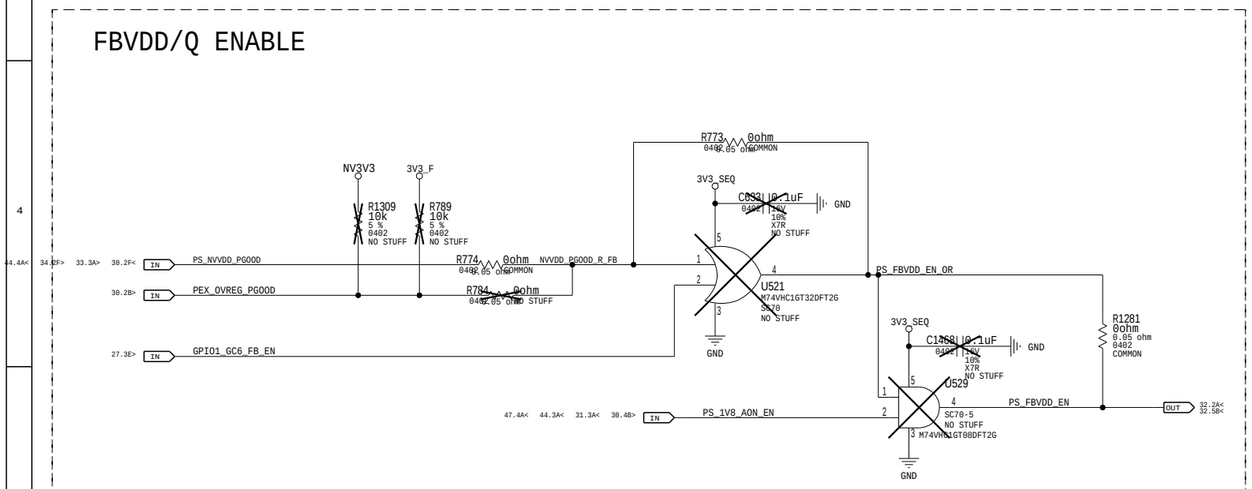
GPU_EVENT*



PEX_RST# LOGIC



FBVDD/Q ENABLE



ASSEMBLY	SKU50
PAGE DETAIL	PS: GC6 MISC

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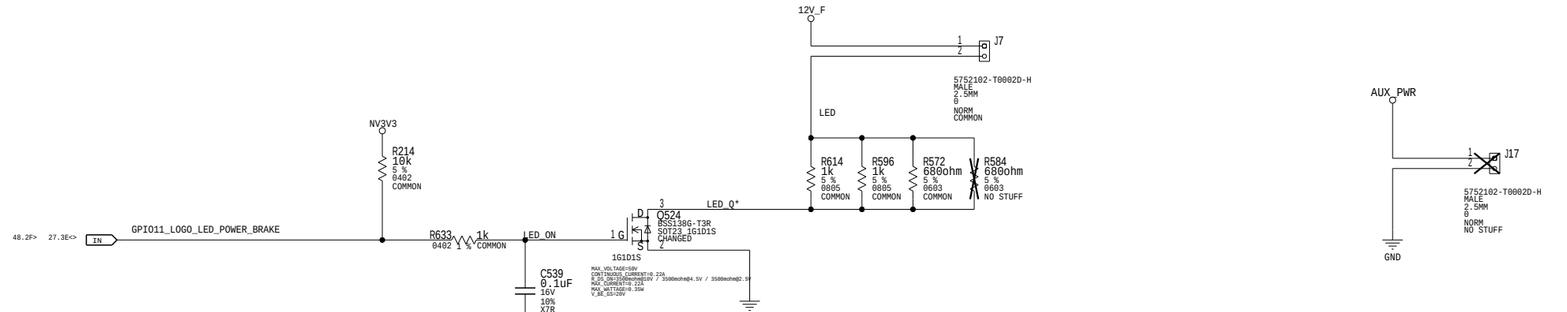
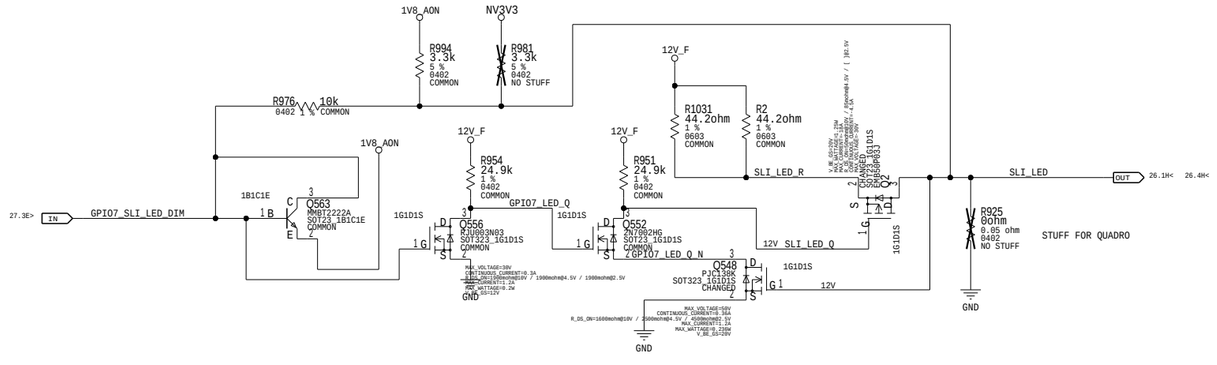
Page45:GEFORCE LED & SLI LED

LED HEADER(GEFORCE ONLY)



SLI LED (GEFORCE ONLY)



ASSEMBLY	SKU50
PAGE DETAIL	GEFORCE LED AND SLI LED

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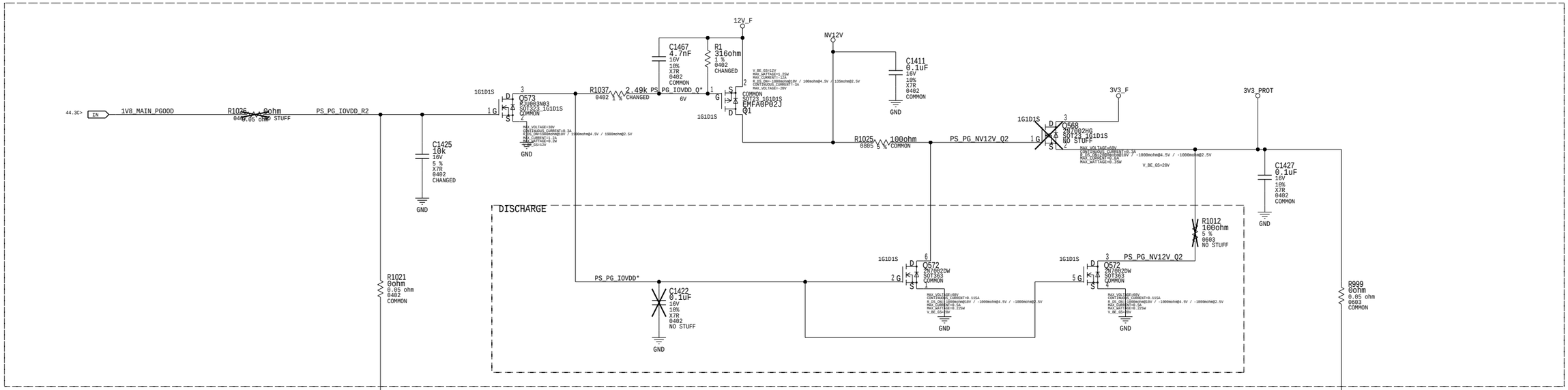
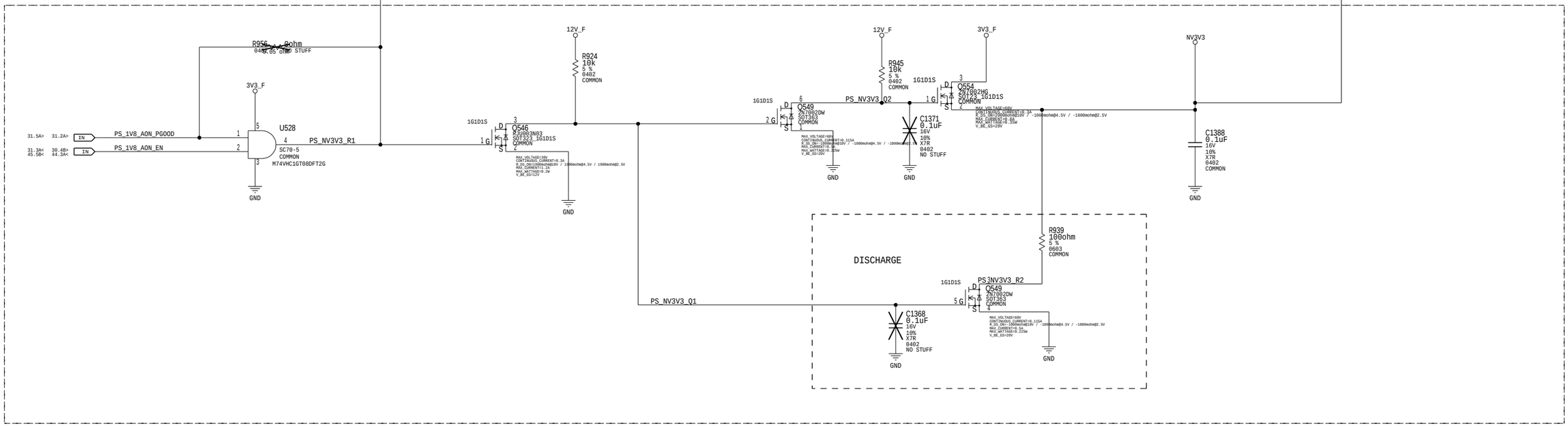
Page46:NV3V3, NV12V





ASSEMBLY	SKU50
PAGE DETAIL	PS: NV3V3, NV12V

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Page47: MCU

U20
STM32F051C8T6TR
LQFP48
NO STUFF

PA0/USART2_CTS 10 AD_12V_PEX8_1
PA1/USART2_RTS 11 AD_12V_PEX
PA2 12 AD_12V_PEX8_2
PA3 13 MCU_JTAG_TRST*
PA4/USART2_CK 14 POWER_BRAKE* IN 3.2A>
PA5 15
PA6 16 SNN_G1_GPIO9_THERM_ALERT*
PA7 17 SNN_G2_GPIO9_THERM_ALERT*
PA8/USART1_CK 29 SNN_G3_GPIO9_THERM_ALERT*
PA9/USART1_TX 30 MCU_USART1_TX
PA10/USART1_RX 31 MCU_USART1_RX
PA11/USART1_CTS 32 MCU_LED2_EN
PA12/USART1_RTS 33 MCU_THERMAL_ALERT_R R643 0ohm 0402 0.05 ohm NO STUFF MCU_THERMAL_ALERT IN 44.2A< 50.3G>
PA13/SWDAT 34 MCU_SWDIO
PA14/USART2_TX/SWCLK 37 MCU_SWCLK R279 10k 0402 5 % NO STUFF
PA15/USART2_RX 38 MCU_G0_JTAG_TD_TP

PB0 18 SNN_PEX_RST_PLX_BUF*
PB1 19 PEX_RST_MCU* PEX_RST_MCU* OUT 45.4E< 48.3E> 45.4E< 48.3E>
PB2 20 SNN_G1_PEX_RST_MCU*
PB3 39 SNN_G2_PEX_RST_MCU*
PB4 40 SNN_G3_PEX_RST_MCU*
PB5 41 SNN_RESERVED_0
PB8 45 PS_1V8_SW_SHDN* R211 0ohm 0402 0.05 ohm NO STUFF PS_1V8_EN_PIC OUT 31.3A<
PB9 46 SNN_G2_NVVDD_PS_SHDN*
PB10 21 SNN_G3_NVVDD_PS_SHDN*
PB11 22 SNN_G4_NVVDD_PS_SHDN*
PB12 25 MCU_I2C0_SDA R233 33ohm 0402 5 % NO STUFF I2CS_SDA_R BI 3.1D> 27.2G<>
PB13 26 MCU_I2C0_SCL R242 33ohm 0402 5 % NO STUFF I2CS_SCL_R OUT 3.1D> 27.2G<
PB14 27 SNN_MCU_I2C1_SDA
PB15 28 SNN_MCU_I2C1_CLK

PC13 2 SNN_LOWPWR_GOOD
PC14/OSC32_IN 3 MCU_JTAG_TCLK
PC15/OSC32_OUT 4 MCU_JTAG_TDI
PF0/OSC_IN 5 MCU_JTAG_TDO
PF1/OSC_OUT 6 MCU_JTAG_TMS

3.1C> IN PEX_SMCLK 42 PB6/I2C1_SCL
3.1C> BI PEX_SMDAT 43 PB7/I2C1_SDA
27.3G> 26.3A< IN I2CB_SCL_R 35 PF6/I2C2_SCL
27.3G<> 26.3A<> BI I2CB_SDA_R 36 PF7/I2C2_SDA
MCU_RESET* 7 NRST*
MCU_BOOT0 44 BOOT0

C198 0.1uF 16V 10% X7R 0402 NO STUFF
R151 200k 5 % 0402 NO STUFF
R154 1M 5 % 0402 NO STUFF
12V_PEX6_F
R157 1M 5 % 0402 NO STUFF
12V_F
R172 1M 5 % 0402 NO STUFF
12V_PEX8_F2
AD_12V_PEX
AD_12V_PEX8_2
C201 0.1uF 16V 10% X7R 0402 NO STUFF
R165 200k 5 % 0402 NO STUFF
C202 0.1uF 16V 10% X7R 0402 NO STUFF
R168 200k 5 % 0402 NO STUFF
GND

3V3
R190 10k 5 % 0402 NO STUFF
R189 0ohm 0.05 ohm 0402 NO STUFF
NV3V3
U18 M74VHC1GT08DFT2G SC70-5 NO STUFF
GPIO11_LOGO_LED_POWER_BRAKE OUT 27.3E<> 46.2C<

3V3_F
R272 100ohm 5 % 0402 NO STUFF LED2_3V3
DS1 LTST-C281KRKT-5A 30mA 2.3V Red 0402 NO STUFF
LED_EN2_FET
R275 10k 5 % 0402 NO STUFF
R278 10k 5 % 0402 NO STUFF
Q37 2N7002HG SOT23_161D1S NO STUFF
MAX_VOLTAGE=60V CONTINUOUS_CURRENT=0.3A
MAX_CURRENT=0.8A R_ON_4.5V=3.5ohm R_ON_10V=2ohm
R257 0ohm 0402 0.05 ohm NO STUFF
MCU_LED2_EN_R

3V3_F
R223 10k 5 % 0402 NO STUFF
C224 0.1uF 16V 10% X7R 0402 NO STUFF
R217 10k 5 % 0402 NO STUFF

BOOT0	BOOT MODE
0	Main Flash memory
1	System memory

3V3_F
LB2 120ohm NO STUFF BEAD_0402
0.100
MCU_VBAT
C196 4.7uF 6.3V 20% X6S 0603 NO STUFF
C209 0.1uF 16V 10% X7R 0402 NO STUFF
C204 0.1uF 16V 10% X7R 0402 NO STUFF
C197 0.1uF 16V 10% X7R 0402 NO STUFF
C212 0.1uF 16V 10% X7R 0402 NO STUFF
VBAT 1
VDD 24
VDD 48
VDDA 9
VSS 23
VSS 47
VSSA 8
GND

3V3_F
R164 10k 5 % 0402 NO STUFF
R163 10k 5 % 0402 NO STUFF
R162 180ohm 5 % 0402 NO STUFF
R161 270ohm 5 % 0402 NO STUFF

3V3_F
MCU_RESET*
MCU_SWDIO
MCU_SWCLK
J10 22284-05G-BK-NH NALE 4MM NO STUFF
PAD1 PAD2

U21 SN74AVC1T45 SC70_6PIN NO STUFF LevelShifter
MCU_JTAG_TDO JTAG_TDO IN 3.1D> 27.5A<
R231 0ohm 0402 0.05 ohm NO STUFF

U19 SN74AVC1T45 SC70_6PIN NO STUFF LevelShifter
MCU_JTAG_TDI JTAG_TDI OUT 3.1D> 27.5A>
R188 0ohm 0402 0.05 ohm NO STUFF

U17 SN74AVC1T45 SC70_6PIN NO STUFF LevelShifter
MCU_JTAG_TRST* JTAG_TRST* OUT 3.1D> 27.5A>
R206 10K 5 % 0402 NO STUFF
R205 0ohm 0402 0.05 ohm NO STUFF

U16 SN74AVC1T45 SC70_6PIN NO STUFF LevelShifter
MCU_JTAG_TMS JTAG_TMS OUT 3.1D> 27.5A>
R150 0ohm 0402 0.05 ohm NO STUFF

U23 SN74AVC1T45 SC70_6PIN NO STUFF LevelShifter
MCU_JTAG_TCLK JTAG_TCLK OUT 3.1D> 27.5A>
R234 0ohm 0402 0.05 ohm NO STUFF

ASSEMBLY	SKU50
PAGE DETAIL	PS: MCU

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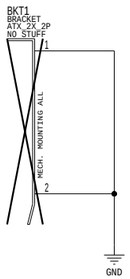
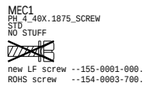
Page48: Mechanical: Bracket/Thermal Solution

Brackets:

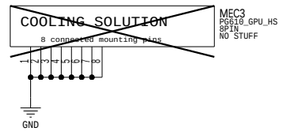


Bracket Screw

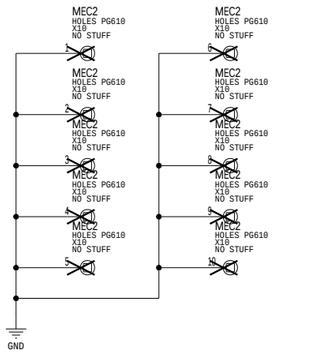


GPU SOCKET

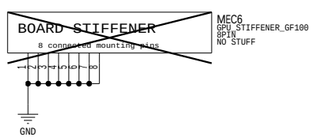
GPU HEATLINK



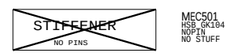
Mechanical Holes Symbol



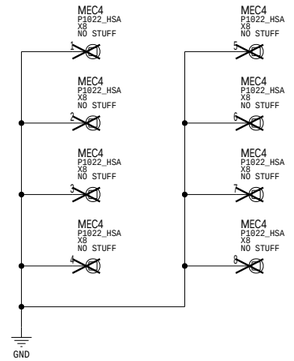
GPU Stiffener (BRING-UP COOLER)



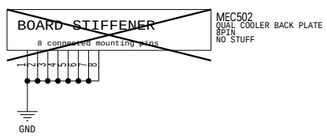
STIFFENER



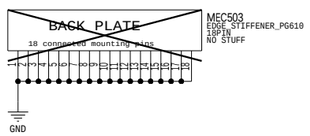
GPU HOLES SYMBOL



QUAL COOLER STIFFENER



BOARD BACK PLATE



ASSEMBLY	SKU50
PAGE DETAIL	MECH

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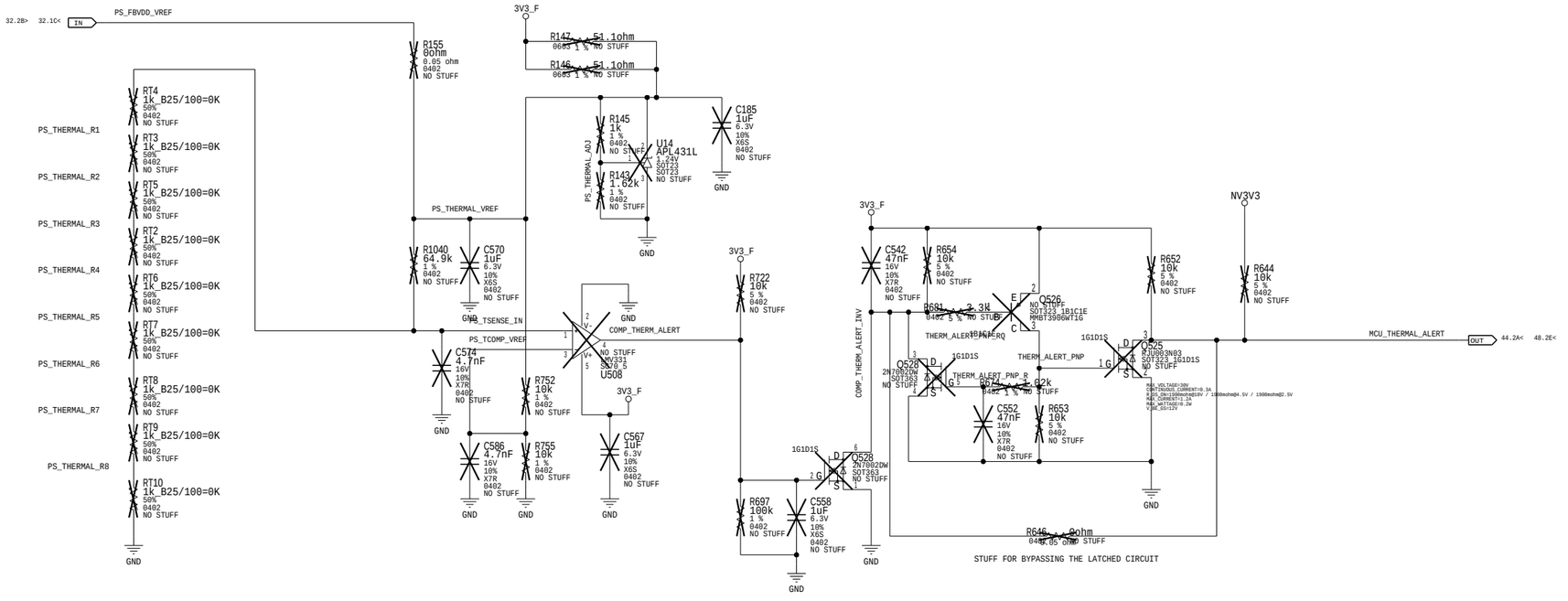
Page49: VR THERMAL PROTECTION



ASSEMBLY	SKU50
PAGE DETAIL	VR Thermal Protection

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