PG150-C03

384b GDDR6 x16
TALL DP + DP + DP + HDMI/DP + USB

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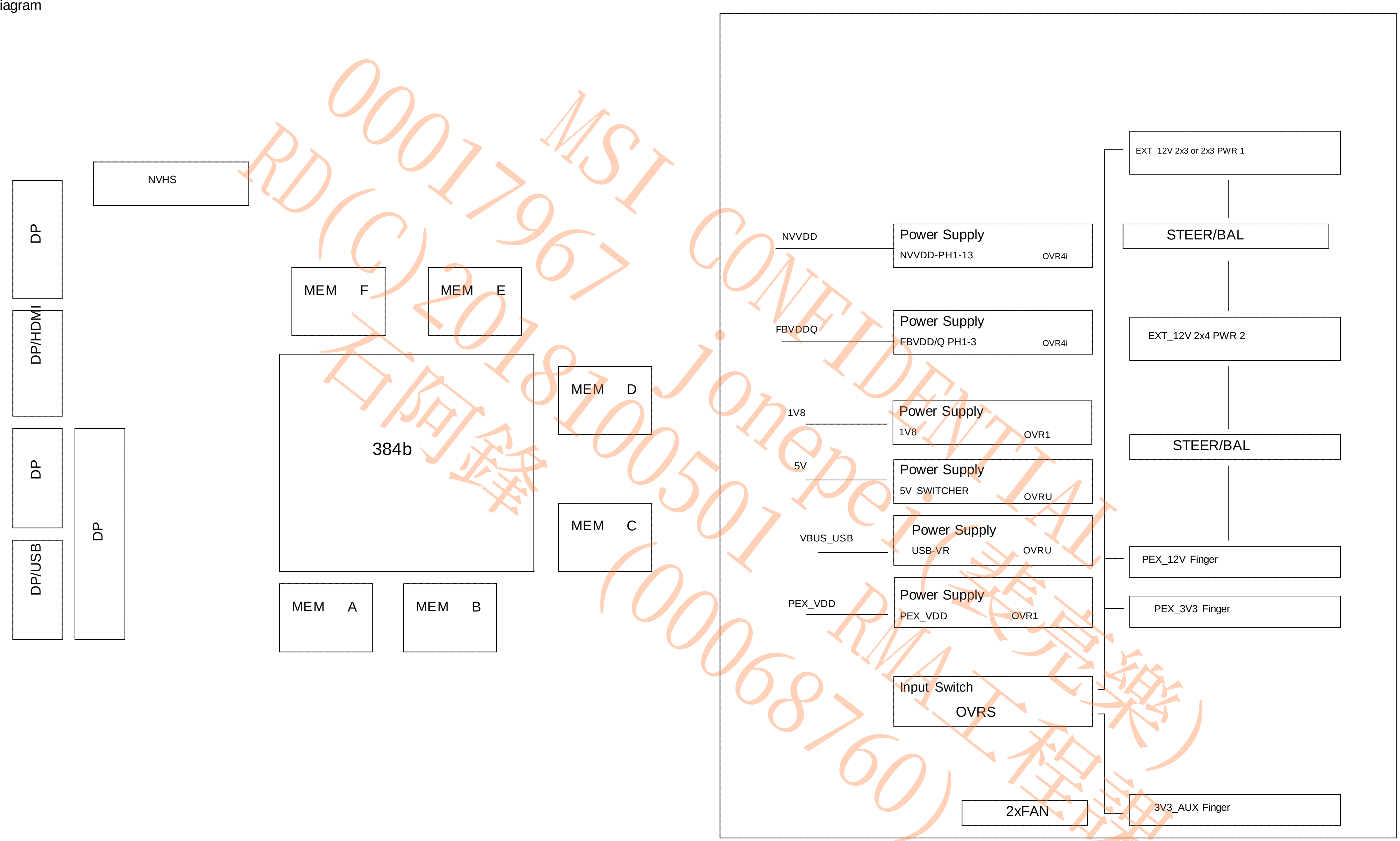
Block Diagram



NVHS
DP
DP/HDMI
DP
DP/USB
DP
MEM F
MEM E
MEM D
MEM C
MEM A
MEM B
384b
NVVDD
Power Supply
NVVDD-PH1-13
OVR4i
FBVDDQ
Power Supply
FBVDD/Q PH1-3
OVR4i
1V8
Power Supply
1V8
OVR1
5V
Power Supply
5V SWITCHER
OVRU
VBUS_USB
Power Supply
USB-VR
OVRU
PEX_VDD
Power Supply
PEX_VDD
OVR1
Input Switch
OVRS
2xFAN
EXT_12V 2x3 or 2x3 PWR 1
STEER/BAL
EXT_12V 2x4 PWR 2
STEER/BAL
PEX_12V Finger
PEX_3V3 Finger
3V3_AUX Finger

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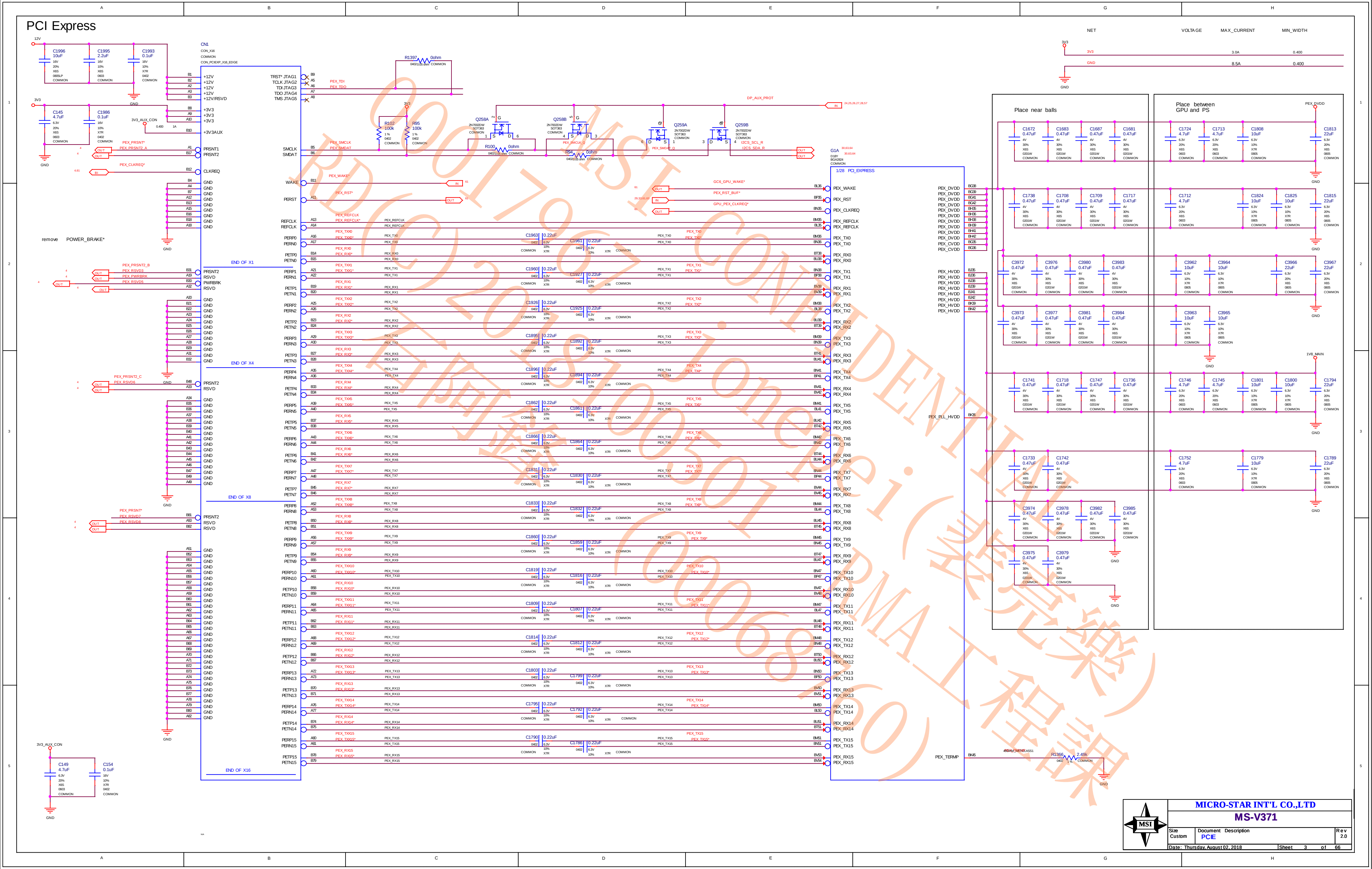
PCI Express



12V
C1996 10uF
C1995 2.2uF
C1993 0.1uF
3V3
C145 4.7uF
C1986 0.1uF
3V3_AUX_CON
CN1
CON_X16
COMMON
CON_PCIEXP_X16_EDGE
+12V
+12V
+12V
+12V/RSVD
+3V3
+3V3
+3V3
+3V3AUX
PRSNT1
PRSNT2
CLKREQ
GND
remove POWER_BRAKE*
END OF X1
PRSNT2
RSVD
PWRBRK
RSVD
END OF X4
PRSNT2
RSVD
END OF X8
PRSNT2
RSVD
RSVD
END OF X16
C149 4.7uF
C154 0.1uF
TRST* JTAG1
TCLK JTAG2
TDI JTAG3
TDO JTAG4
TMS JTAG5
SMCLK
SMDAT
WAKE
PERST
REFCLK
REFCLK
PERP0 PERN0 PETP0 PETN0
PERP1 PERN1 PETP1 PETN1
PERP2 PERN2 PETP2 PETN2
PERP3 PERN3 PETP3 PETN3
PERP4 PERN4 PETP4 PETN4
PERP5 PERN5 PETP5 PETN5
PERP6 PERN6 PETP6 PETN6
PERP7 PERN7 PETP7 PETN7
PERP8 PERN8 PETP8 PETN8
PERP9 PERN9 PETP9 PETN9
PERP10 PERN10 PETP10 PETN10
PERP11 PERN11 PETP11 PETN11
PERP12 PERN12 PETP12 PETN12
PERP13 PERN13 PETP13 PETN13
PERP14 PERN14 PETP14 PETN14
PERP15 PERN15 PETP15 PETN15
PEX_PRSNT*
PEX_PRSNT2_A
PEX_CLKREQ*
PEX_PRSNT2_B
PEX_RSVD3
PEX_PWRBRK
PEX_RSVD5
PEX_PRSNT2_C
PEX_RSVD6
PEX_PRSNT*
PEX_RSVD7
PEX_RSVD8
PEX_TDI
PEX_TDO
R1397 0ohm
R102 100k
R95 100k
Q258A 2N7002DW
Q258B 2N7002DW
Q259A 2N7002DW
Q259B 2N7002DW
R100 0ohm
R94 0ohm
PEX_SMCLK
PEX_SMDAT
PEX_SMCLK_Q
PEX_SMDAT_Q
DP_AUX_PROT
I2CS_SCL_R
I2CS_SDA_R
PEX_WAKE*
PEX_RST*
GC6_GPU_WAKE*
PEX_RST_BUF*
GPU_PEX_CLKREQ*
PEX_REFCLK
PEX_REFCLK*
PEX_TX0 … PEX_TX15
PEX_RX0 … PEX_RX15
C1963 C1961 C1960 C1927 C1926 C1925 C1895 C1892 C1896 C1894 C1862 C1861 C1866 C1864 C1831 C1830 C1833 C1832 C1860 C1859 C1819 C1816 C1809 C1807 C1814 C1812 C1803 C1799 C1795 C1792 C1790 C1786 0.22uF
G1A
BGA2824
1/28 PCI_EXPRESS
PEX_WAKE
PEX_RST
PEX_CLKREQ
PEX_REFCLK
PEX_REFCLK
PEX_DVDD
PEX_CVDD
PEX_HVDD
PEX_PLL_HVDD
PEX_TERMP
R1366 2.49k
NET
VOLTAGE
MAX_CURRENT
MIN_WIDTH
3V3 3.0A 0.400
GND 8.5A 0.400
Place near balls
Place between GPU and PS
PEX_DVDD
1V8_MAIN
C1672 C1683 C1687 C1681 0.47uF
C1724 4.7uF
C1713 4.7uF
C1808 10uF
C1813 22uF
C1738 C1708 C1709 C1717 0.47uF
C1712 4.7uF
C1824 10uF
C1825 10uF
C1815 22uF
C3972 C3976 C3980 C3983 0.47uF
C3962 10uF
C3964 10uF
C3966 22uF
C3967 22uF
C3973 C3977 C3981 C3984 0.47uF
C3963 10uF
C3965 10uF
C1741 C1718 C1747 C1736 0.47uF
C1746 4.7uF
C1745 4.7uF
C1801 10uF
C1800 10uF
C1794 22uF
C1733 C1742 0.47uF
C1752 4.7uF
C1779 10uF
C1789 22uF
C3974 C3978 C3982 C3985 0.47uF
C3975 C3979 0.47uF
GND

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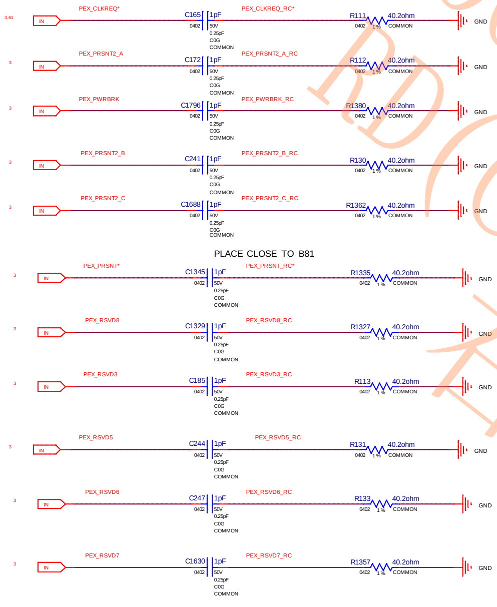
PCI TERM



3,61
IN
PEX_CLKREQ*
C165
0402
1pF
50V
0.25pF
C0G
COMMON
PEX_CLKREQ_RC*
R111
0402
1%
40.2ohm
COMMON
GND
3
IN
PEX_PRSNT2_A
C172
1pF
PEX_PRSNT2_A_RC
R112
40.2ohm
GND
3
IN
PEX_PWRBRK
C1796
1pF
PEX_PWRBRK_RC
R1380
40.2ohm
GND
3
IN
PEX_PRSNT2_B
C241
1pF
PEX_PRSNT2_B_RC
R130
40.2ohm
GND
3
IN
PEX_PRSNT2_C
C1688
1pF
PEX_PRSNT2_C_RC
R1362
40.2ohm
GND
PLACE CLOSE TO B81
3
IN
PEX_PRSNT*
C1345
1pF
PEX_PRSNT_RC*
R1335
40.2ohm
GND
3
IN
PEX_RSVD8
C1329
1pF
PEX_RSVD8_RC
R1327
40.2ohm
GND
3
IN
PEX_RSVD3
C185
1pF
PEX_RSVD3_RC
R113
40.2ohm
GND
3
IN
PEX_RSVD5
C244
1pF
PEX_RSVD5_RC
R131
40.2ohm
GND
3
IN
PEX_RSVD6
C247
1pF
PEX_RSVD6_RC
R133
40.2ohm
GND
3
IN
PEX_RSVD7
C1630
1pF
PEX_RSVD7_RC
R1357
40.2ohm
GND

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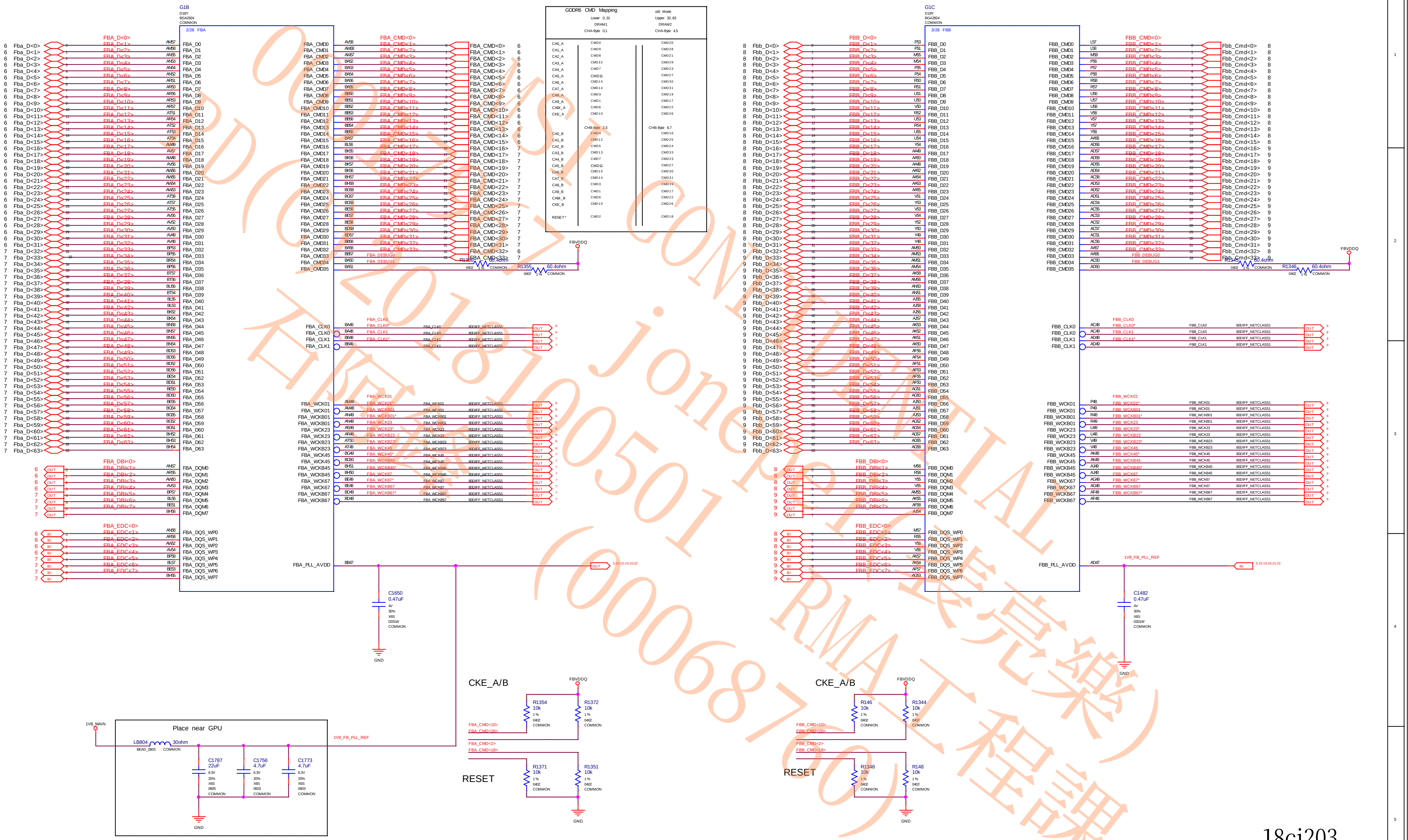
MEMORY: GPU Partition A/B


G1B
2/28 FBA
G1C
3/28 FBB
GDDR6 CMD Mapping
FBA_D<0>
FBA_CMD<0>
FBA_DBI<0>
FBA_EDC<0>
FBA_CLK0
FBA_WCK01
FBA_PLL_AVDD
FBB_D<0>
FBB_CMD<0>
FBB_DBI<0>
FBB_EDC<0>
FBB_CLK0
FBB_WCK01
FBB_PLL_AVDD
FBVDDQ
R1355
60.4ohm
R1346
60.4ohm
C1650
0.47uF
C1482
0.47uF
GND
1V8_FB_PLL_REF
CKE_A/B
RESET
R1354
10k
R1372
10k
R1371
10k
R1351
10k
R146
10k
R1344
10k
R1348
10k
R148
10k
Place near GPU
1V8_MAIN
LB804
30ohm
C1787
22uF
C1756
4.7uF
C1773
4.7uF

18ci203

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Size	Document Description	Rev
Custom	MEMORY: GPU Partition A/B	2.0

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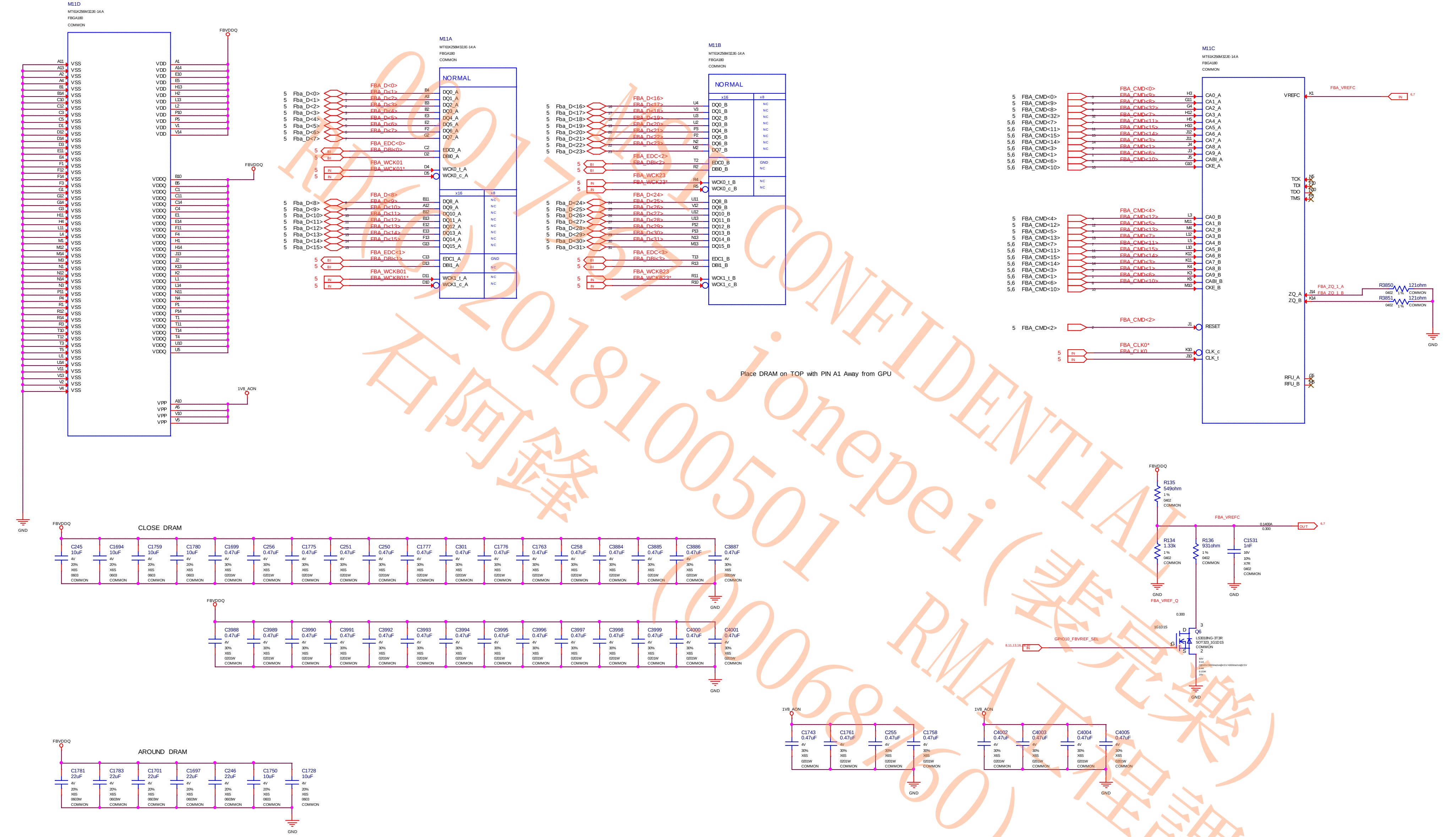
MEMORY: FBA Partition 31..0


M11D
MT61K256M32JE-14:A
FBGA180
COMMON
VSS
VDD
VDDQ
VPP
FBVDDQ
1V8_AON
GND
M11A
NORMAL
Fba_D<0> … Fba_D<15>
FBA_EDC<0>
FBA_DBI<0>
FBA_WCK01
FBA_WCK01*
FBA_EDC<1>
FBA_DBI<1>
FBA_WCKB01
FBA_WCKB01*
DQ0_A … DQ15_A
EDC0_A
DBI0_A
WCK0_t_A
WCK0_c_A
EDC1_A
DBI1_A
WCK1_t_A
WCK1_c_A
x16
x8
NC
GND
M11B
Fba_D<16> … Fba_D<31>
FBA_EDC<2>
FBA_DBI<2>
FBA_WCK23
FBA_WCK23*
FBA_EDC<3>
FBA_DBI<3>
FBA_WCKB23
FBA_WCKB23*
DQ0_B … DQ15_B
EDC0_B
DBI0_B
WCK0_t_B
WCK0_c_B
EDC1_B
DBI1_B
WCK1_t_B
WCK1_c_B
M11C
FBA_CMD<0> … FBA_CMD<32>
CA0_A … CA9_A
CABI_A
CKE_A
CA0_B … CA9_B
CABI_B
CKE_B
RESET
FBA_CLK0
FBA_CLK0*
CLK_c
CLK_t
VREFC
FBA_VREFC
TCK
TDI
TDO
TMS
ZQ_A
ZQ_B
FBA_ZQ_1_A
FBA_ZQ_1_B
R3850 121ohm
R3851 121ohm
RFU_A
RFU_B
Place DRAM on TOP with PIN A1 Away from GPU
CLOSE DRAM
C245 10uF
C1694 10uF
C1759 10uF
C1780 10uF
C1699 0.47uF
C256 0.47uF
C1775 0.47uF
C251 0.47uF
C250 0.47uF
C1777 0.47uF
C301 0.47uF
C1776 0.47uF
C1763 0.47uF
C258 0.47uF
C3884 0.47uF
C3885 0.47uF
C3886 0.47uF
C3887 0.47uF
C3988 0.47uF
C3989 0.47uF
C3990 0.47uF
C3991 0.47uF
C3992 0.47uF
C3993 0.47uF
C3994 0.47uF
C3995 0.47uF
C3996 0.47uF
C3997 0.47uF
C3998 0.47uF
C3999 0.47uF
C4000 0.47uF
C4001 0.47uF
AROUND DRAM
C1781 22uF
C1783 22uF
C1701 22uF
C1697 22uF
C246 22uF
C1750 10uF
C1728 10uF
R135 549ohm
R134 1.33k
R136 931ohm
C1531 1nF
FBA_VREF_Q
GPIO10_FBVREF_SEL
Q6
C1743 0.47uF
C1761 0.47uF
C255 0.47uF
C1758 0.47uF
C4002 0.47uF
C4003 0.47uF
C4004 0.47uF
C4005 0.47uF

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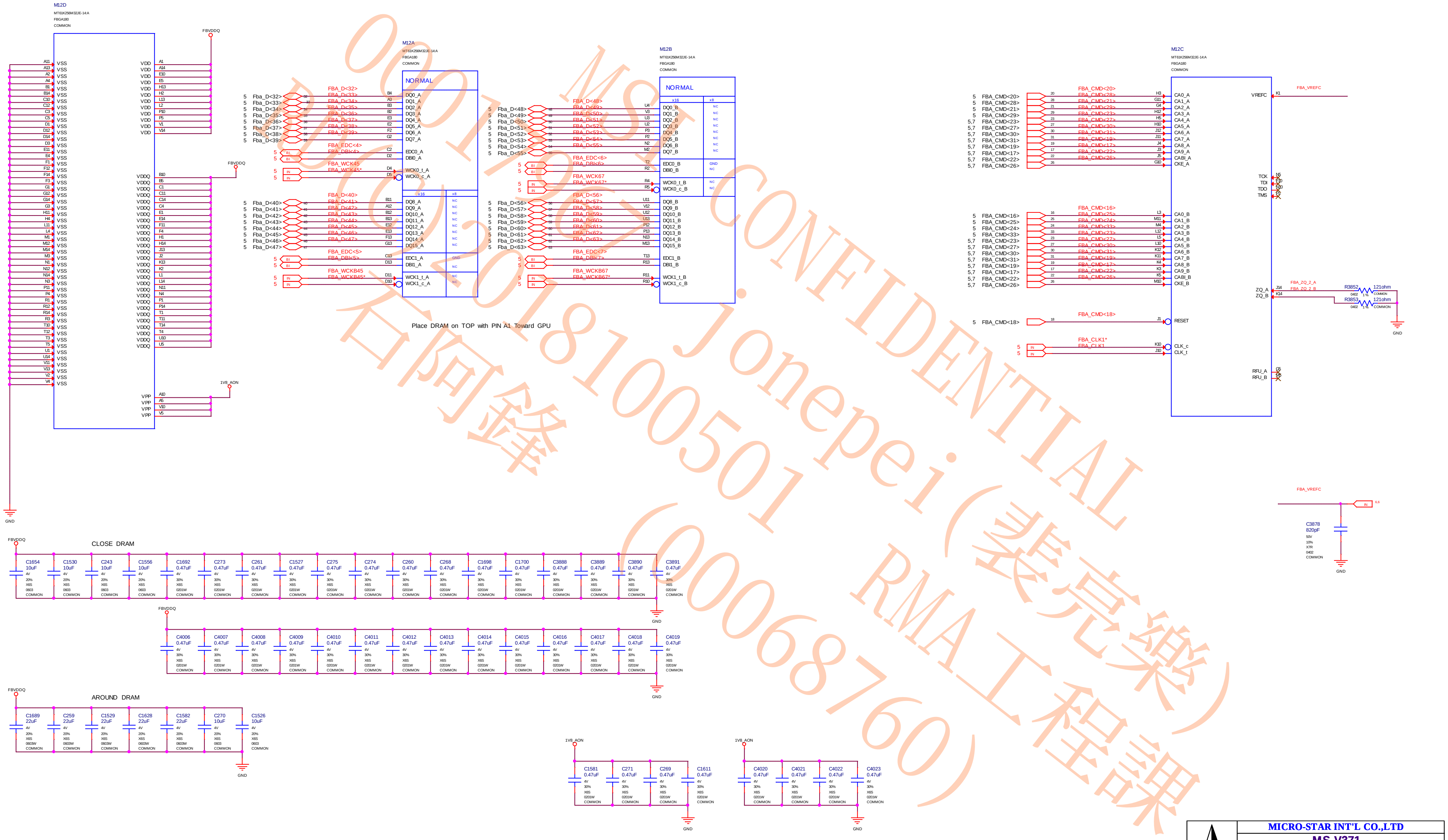
MEMORY: FBA Partition 63..32


M12D
MT61K256M32JE-14:A
FBGA180
COMMON
FBVDDQ
VSS
VDD
VDDQ
VPP
1V8_AON
GND
M12A
NORMAL
Fba_D<32> … Fba_D<47>
FBA_EDC<4>
FBA_DBI<4>
FBA_WCK45
FBA_WCK45*
FBA_EDC<5>
FBA_DBI<5>
FBA_WCKB45
FBA_WCKB45*
DQ0_A … DQ15_A
EDC0_A
DBI0_A
WCK0_t_A
WCK0_c_A
EDC1_A
DBI1_A
WCK1_t_A
WCK1_c_A
x16
x8
NC
Place DRAM on TOP with PIN A1 Toward GPU
M12B
Fba_D<48> … Fba_D<63>
FBA_EDC<6>
FBA_DBI<6>
FBA_WCK67
FBA_WCK67*
FBA_EDC<7>
FBA_DBI<7>
FBA_WCKB67
FBA_WCKB67*
DQ0_B … DQ15_B
EDC0_B
DBI0_B
WCK0_t_B
WCK0_c_B
EDC1_B
DBI1_B
WCK1_t_B
WCK1_c_B
M12C
FBA_CMD<20>
FBA_CMD<28>
FBA_CMD<21>
FBA_CMD<29>
FBA_CMD<23>
FBA_CMD<27>
FBA_CMD<30>
FBA_CMD<31>
FBA_CMD<19>
FBA_CMD<17>
FBA_CMD<22>
FBA_CMD<26>
FBA_CMD<16>
FBA_CMD<25>
FBA_CMD<24>
FBA_CMD<33>
FBA_CMD<18>
CA0_A … CA9_A
CABI_A
CKE_A
CA0_B … CA9_B
CABI_B
CKE_B
RESET
FBA_CLK1*
FBA_CLK1
CLK_c
CLK_t
VREFC
FBA_VREFC
TCK
TDI
TDO
TMS
ZQ_A
ZQ_B
FBA_ZQ_2_A
FBA_ZQ_2_B
R3852
R3853
121ohm
0402
1%
RFU_A
RFU_B
C3878
820pF
50V
10%
X7R
CLOSE DRAM
C1654 10uF
C1530 10uF
C243 10uF
C1556 10uF
C1692 0.47uF
C273 0.47uF
C261 0.47uF
C1527 0.47uF
C275 0.47uF
C274 0.47uF
C260 0.47uF
C268 0.47uF
C1698 0.47uF
C1700 0.47uF
C3888 0.47uF
C3889 0.47uF
C3890 0.47uF
C3891 0.47uF
C4006 0.47uF
C4007 0.47uF
C4008 0.47uF
C4009 0.47uF
C4010 0.47uF
C4011 0.47uF
C4012 0.47uF
C4013 0.47uF
C4014 0.47uF
C4015 0.47uF
C4016 0.47uF
C4017 0.47uF
C4018 0.47uF
C4019 0.47uF
AROUND DRAM
C1689 22uF
C259 22uF
C1529 22uF
C1628 22uF
C1582 22uF
C270 10uF
C1526 10uF
C1581 0.47uF
C271 0.47uF
C269 0.47uF
C1611 0.47uF
C4020 0.47uF
C4021 0.47uF
C4022 0.47uF
C4023 0.47uF

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Size	Document Description	Rev
Custom	MEMORY: GPU Partition A	2.0

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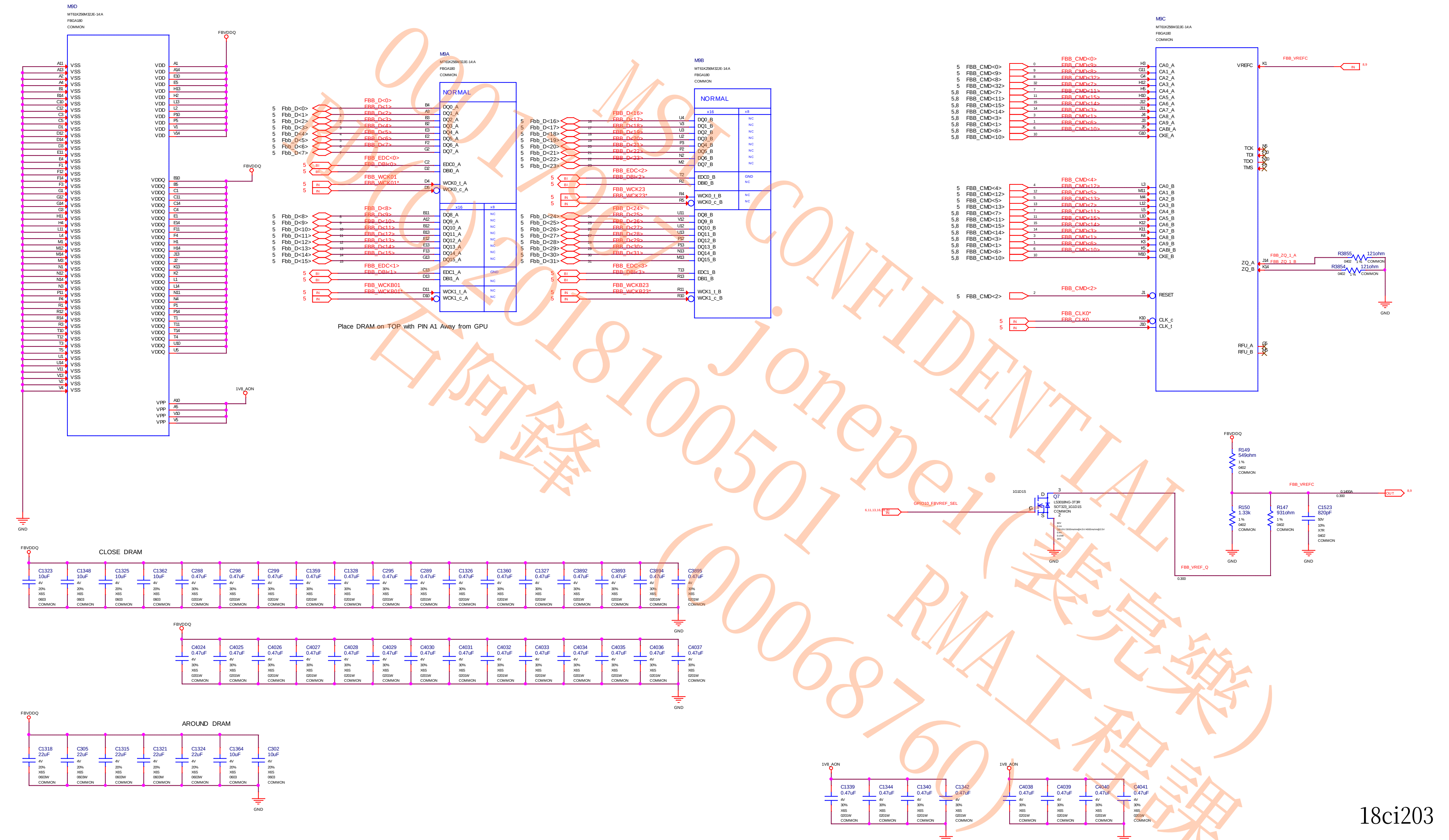
MEMORY: FBB Partition 31..0


M9D
MT61K256M32JE-14:A
FBGA180
COMMON
FBVDDQ
VSS
VDD
VDDQ
VPP
1V8_AON
GND
M9A
MT61K256M32JE-14:A
FBGA180
COMMON
NORMAL
x16
x8
FBB_D<0>
FBB_D<1>
FBB_D<2>
FBB_D<3>
FBB_D<4>
FBB_D<5>
FBB_D<6>
FBB_D<7>
FBB_EDC<0>
FBB_DBI<0>
FBB_WCK01
FBB_WCK01*
FBB_D<8>
FBB_D<15>
FBB_EDC<1>
FBB_DBI<1>
FBB_WCKB01
FBB_WCKB01*
DQ0_A
DQ7_A
EDC0_A
DBI0_A
WCK0_t_A
WCK0_c_A
DQ8_A
DQ15_A
EDC1_A
DBI1_A
WCK1_t_A
WCK1_c_A
Place DRAM on TOP with PIN A1 Away from GPU
M9B
MT61K256M32JE-14:A
FBGA180
COMMON
NORMAL
FBB_D<16>
FBB_D<23>
FBB_EDC<2>
FBB_DBI<2>
FBB_WCK23
FBB_WCK23*
FBB_D<24>
FBB_D<31>
FBB_EDC<3>
FBB_DBI<3>
FBB_WCKB23
FBB_WCKB23*
DQ0_B
DQ7_B
EDC0_B
DBI0_B
WCK0_t_B
WCK0_c_B
DQ8_B
DQ15_B
EDC1_B
DBI1_B
WCK1_t_B
WCK1_c_B
M9C
MT61K256M32JE-14:A
FBGA180
COMMON
FBB_CMD<0>
FBB_CMD<9>
FBB_CMD<8>
FBB_CMD<32>
FBB_CMD<7>
FBB_CMD<11>
FBB_CMD<15>
FBB_CMD<14>
FBB_CMD<3>
FBB_CMD<1>
FBB_CMD<6>
FBB_CMD<10>
FBB_CMD<4>
FBB_CMD<12>
FBB_CMD<5>
FBB_CMD<13>
FBB_CMD<2>
FBB_CLK0
FBB_CLK0*
CA0_A
CABI_A
CKE_A
CA0_B
CABI_B
CKE_B
RESET
CLK_c
CLK_t
VREFC
FBB_VREFC
TCK
TDI
TDO
TMS
ZQ_A
ZQ_B
FBB_ZQ_1_A
FBB_ZQ_1_B
R3855 121ohm
R3854 121ohm
RFU_A
RFU_B
R149 549ohm
R150 1.33k
R147 931ohm
C1523 820pF
Q7
LS3018NG-3T3R
SOT323_1G1D1S
GPIO10_FBVREF_SEL
FBB_VREF_Q
CLOSE DRAM
C1323 10uF
C1348 10uF
C1325 10uF
C1362 10uF
C288 0.47uF
C298 0.47uF
C299 0.47uF
C1359 0.47uF
C1328 0.47uF
C295 0.47uF
C289 0.47uF
C1326 0.47uF
C1360 0.47uF
C1327 0.47uF
C3892 0.47uF
C3893 0.47uF
C3894 0.47uF
C3895 0.47uF
C4024 0.47uF
C4025 0.47uF
C4026 0.47uF
C4027 0.47uF
C4028 0.47uF
C4029 0.47uF
C4030 0.47uF
C4031 0.47uF
C4032 0.47uF
C4033 0.47uF
C4034 0.47uF
C4035 0.47uF
C4036 0.47uF
C4037 0.47uF
AROUND DRAM
C1318 22uF
C305 22uF
C1315 22uF
C1321 22uF
C1324 22uF
C1364 10uF
C302 10uF
C1339 0.47uF
C1344 0.47uF
C1340 0.47uF
C1342 0.47uF
C4038 0.47uF
C4039 0.47uF
C4040 0.47uF
C4041 0.47uF

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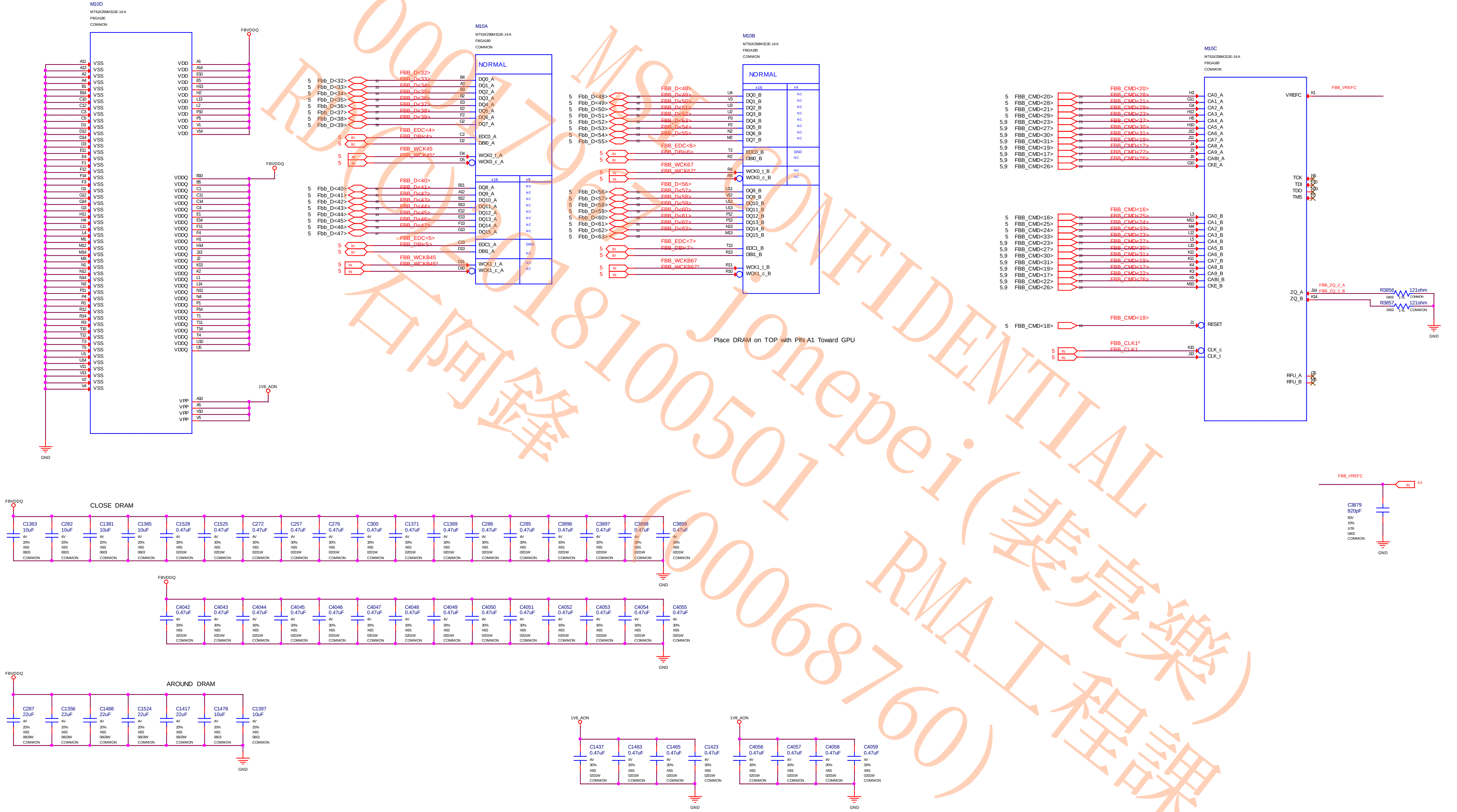
MS-V371

Size	Document Description	Rev
Custom	MEMORY: GPU Partition B	2.0

Date: Thursday, August 02, 2018 Sheet 8 of 66

MEMORY: FBB Partition 63..32



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MT61K256M32JE-14:A
FBGA180
COMMON
VSS
VDD
VDDQ
VPP
FBVDDQ
1V8_AON
GND
M10A
NORMAL
DQ0_A
DQ1_A
DQ2_A
DQ3_A
DQ4_A
DQ5_A
DQ6_A
DQ7_A
EDC0_A
DBI0_A
WCK0_t_A
WCK0_c_A
DQ8_A
DQ9_A
DQ10_A
DQ11_A
DQ12_A
DQ13_A
DQ14_A
DQ15_A
EDC1_A
DBI1_A
WCK1_t_A
WCK1_c_A
x16
x8
NC
Fbb_D<32>
Fbb_D<33>
Fbb_D<34>
Fbb_D<35>
Fbb_D<36>
Fbb_D<37>
Fbb_D<38>
Fbb_D<39>
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Fbb_D<47>
FBB_EDC<5>
FBB_DBI<5>
FBB_WCKB45
FBB_WCKB45*
M10B
DQ0_B
DQ1_B
DQ2_B
DQ3_B
DQ4_B
DQ5_B
DQ6_B
DQ7_B
EDC0_B
DBI0_B
WCK0_t_B
WCK0_c_B
DQ8_B
DQ9_B
DQ10_B
DQ11_B
DQ12_B
DQ13_B
DQ14_B
DQ15_B
EDC1_B
DBI1_B
WCK1_t_B
WCK1_c_B
Fbb_D<48>
Fbb_D<49>
Fbb_D<50>
Fbb_D<51>
Fbb_D<52>
Fbb_D<53>
Fbb_D<54>
Fbb_D<55>
FBB_EDC<6>
FBB_DBI<6>
FBB_WCK67
FBB_WCK67*
Fbb_D<56>
Fbb_D<57>
Fbb_D<58>
Fbb_D<59>
Fbb_D<60>
Fbb_D<61>
Fbb_D<62>
Fbb_D<63>
FBB_EDC<7>
FBB_DBI<7>
FBB_WCKB67
FBB_WCKB67*
Place DRAM on TOP with PIN A1 Toward GPU
M10C
VREFC
FBB_VREFC
CA0_A
CA1_A
CA2_A
CA3_A
CA4_A
CA5_A
CA6_A
CA7_A
CA8_A
CA9_A
CABI_A
CKE_A
FBB_CMD<20>
FBB_CMD<28>
FBB_CMD<21>
FBB_CMD<29>
FBB_CMD<23>
FBB_CMD<27>
FBB_CMD<30>
FBB_CMD<31>
FBB_CMD<19>
FBB_CMD<17>
FBB_CMD<22>
FBB_CMD<26>
TCK
TDI
TDO
TMS
CA0_B
CA1_B
CA2_B
CA3_B
CA4_B
CA5_B
CA6_B
CA7_B
CA8_B
CA9_B
CABI_B
CKE_B
FBB_CMD<16>
FBB_CMD<25>
FBB_CMD<24>
FBB_CMD<33>
ZQ_A
ZQ_B
FBB_ZQ_2_A
FBB_ZQ_2_B
R3856
R3857
121ohm
RESET
FBB_CMD<18>
CLK_c
CLK_t
FBB_CLK1*
FBB_CLK1
RFU_A
RFU_B
C3879
820pF
50V
10%
X7R
0402
CLOSE DRAM
C1363 10uF
C282 10uF
C1381 10uF
C1365 10uF
C1528 0.47uF
C1525 0.47uF
C272 0.47uF
C257 0.47uF
C276 0.47uF
C300 0.47uF
C1371 0.47uF
C1369 0.47uF
C286 0.47uF
C285 0.47uF
C3896 0.47uF
C3897 0.47uF
C3898 0.47uF
C3899 0.47uF
4V
20%
30%
X6S
0603
0201W
C4042 0.47uF
C4043 0.47uF
C4044 0.47uF
C4045 0.47uF
C4046 0.47uF
C4047 0.47uF
C4048 0.47uF
C4049 0.47uF
C4050 0.47uF
C4051 0.47uF
C4052 0.47uF
C4053 0.47uF
C4054 0.47uF
C4055 0.47uF
AROUND DRAM
C287 22uF
C1356 22uF
C1488 22uF
C1524 22uF
C1417 22uF
C1478 10uF
C1397 10uF
0603W
C1437 0.47uF
C1463 0.47uF
C1465 0.47uF
C1423 0.47uF
C4056 0.47uF
C4057 0.47uF
C4058 0.47uF
C4059 0.47uF

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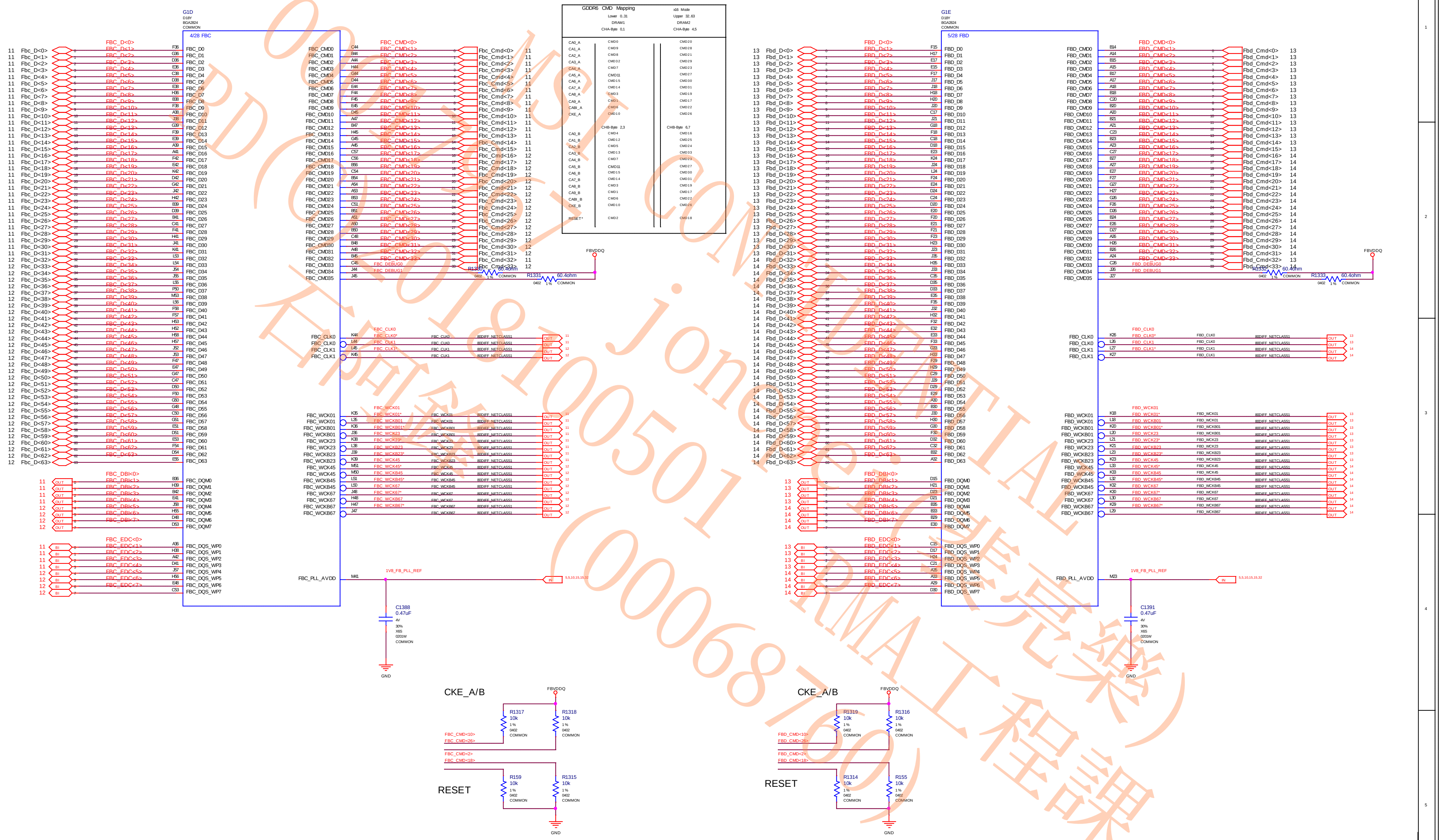
Size: Custom
Document Description: MEMORY: GPU Partition B
Rev: 2.0
Date: Thursday, August 02, 2018

MEMORY: GPU Partition C/D


G1D
D18Y
BGA2824
COMMON
4/28 FBC
FBC_D<0>
FBC_CMD<0>
FBC_CLK0
FBC_WCK01
FBC_DBI<0>
FBC_EDC<0>
FBC_PLL_AVDD
1V8_FB_PLL_REF
C1388
0.47uF
GND
FBVDDQ
R1331
60.4ohm
GDDR6 CMD Mapping
G1E
D18Y
BGA2824
COMMON
5/28 FBD
FBD_D<0>
FBD_CMD<0>
FBD_CLK0
FBD_WCK01
FBD_DBI<0>
FBD_EDC<0>
FBD_PLL_AVDD
C1391
0.47uF
R1333
60.4ohm
CKE_A/B
R1317
10k
R1318
10k
RESET
R159
10k
R1315
10k
CKE_A/B
R1319
10k
R1316
10k
RESET
R1314
10k
R155
10k

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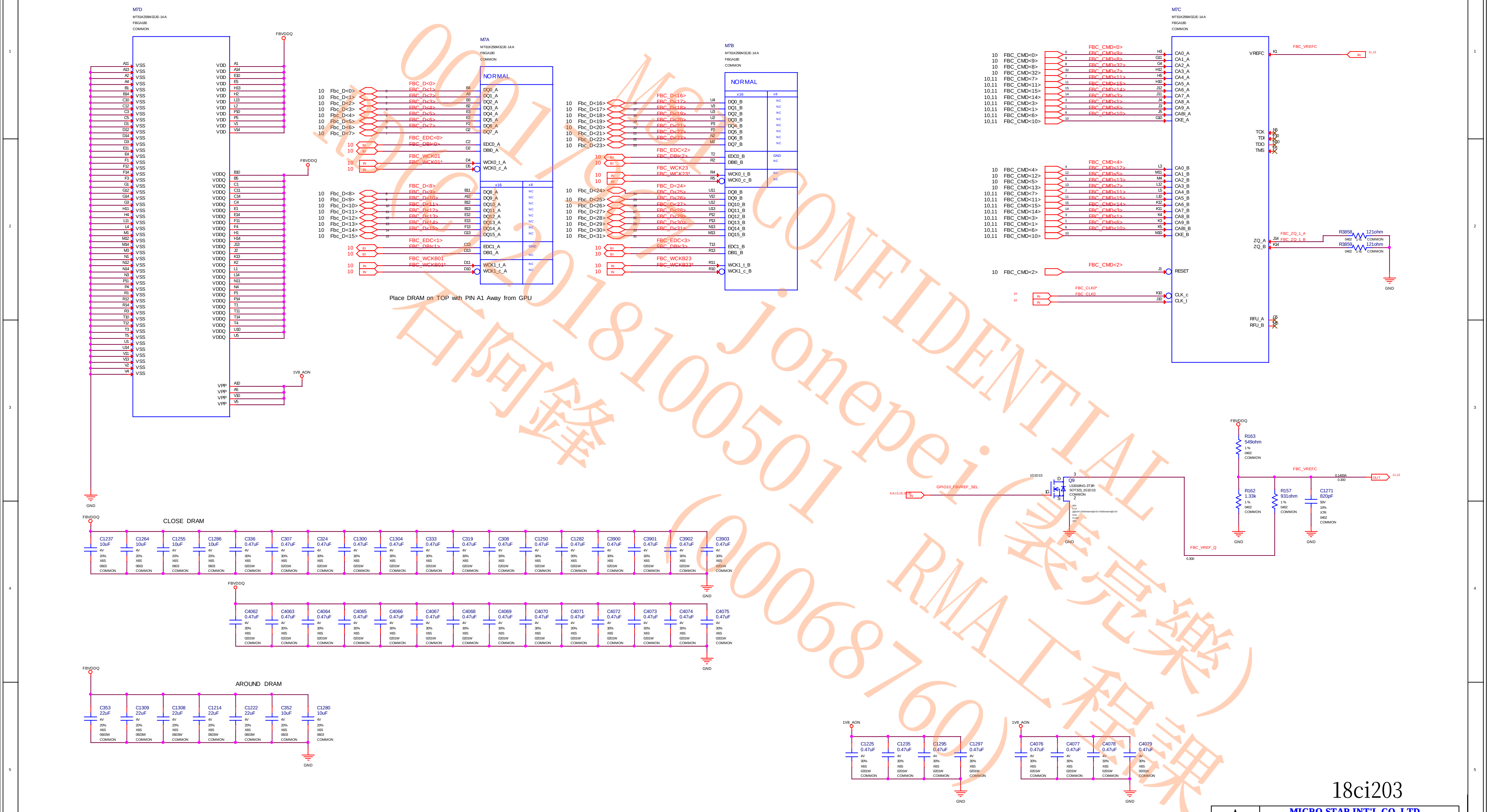
Size	Document Description	Rev
Custom	MEMORY: GPU Partition C/D	2.0

Date: Thursday, August 02, 2018 Sheet 10 of 66

MEMORY: FBC Partition 31..0



M7D
MT61K256M32JE-14:A
FBGA180
COMMON
VSS
VDD
VDDQ
VPP
FBVDDQ
1V8_AON
GND
M7A
NORMAL
DQ0_A
DQ1_A
DQ2_A
DQ3_A
DQ4_A
DQ5_A
DQ6_A
DQ7_A
EDC0_A
DBI0_A
WCK0_t_A
WCK0_c_A
DQ8_A
DQ9_A
DQ10_A
DQ11_A
DQ12_A
DQ13_A
DQ14_A
DQ15_A
EDC1_A
DBI1_A
WCK1_t_A
WCK1_c_A
x16
x8
NC
Fbc_D<0>
Fbc_D<1>
Fbc_D<2>
Fbc_D<3>
Fbc_D<4>
Fbc_D<5>
Fbc_D<6>
Fbc_D<7>
Fbc_D<8>
Fbc_D<9>
Fbc_D<10>
Fbc_D<11>
Fbc_D<12>
Fbc_D<13>
Fbc_D<14>
Fbc_D<15>
FBC_EDC<0>
FBC_DBI<0>
FBC_WCK01
FBC_WCK01*
FBC_EDC<1>
FBC_DBI<1>
FBC_WCKB01
FBC_WCKB01*
Place DRAM on TOP with PIN A1 Away from GPU
M7B
DQ0_B
DQ1_B
DQ2_B
DQ3_B
DQ4_B
DQ5_B
DQ6_B
DQ7_B
EDC0_B
DBI0_B
WCK0_t_B
WCK0_c_B
DQ8_B
DQ9_B
DQ10_B
DQ11_B
DQ12_B
DQ13_B
DQ14_B
DQ15_B
EDC1_B
DBI1_B
WCK1_t_B
WCK1_c_B
Fbc_D<16>
Fbc_D<17>
Fbc_D<18>
Fbc_D<19>
Fbc_D<20>
Fbc_D<21>
Fbc_D<22>
Fbc_D<23>
Fbc_D<24>
Fbc_D<25>
Fbc_D<26>
Fbc_D<27>
Fbc_D<28>
Fbc_D<29>
Fbc_D<30>
Fbc_D<31>
FBC_EDC<2>
FBC_DBI<2>
FBC_WCK23
FBC_WCK23*
FBC_EDC<3>
FBC_DBI<3>
FBC_WCKB23
FBC_WCKB23*
M7C
FBC_CMD<0>
FBC_CMD<9>
FBC_CMD<8>
FBC_CMD<32>
FBC_CMD<7>
FBC_CMD<11>
FBC_CMD<15>
FBC_CMD<14>
FBC_CMD<3>
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FBC_CMD<6>
FBC_CMD<10>
FBC_CMD<4>
FBC_CMD<12>
FBC_CMD<5>
FBC_CMD<13>
FBC_CMD<2>
CA0_A
CA1_A
CA2_A
CA3_A
CA4_A
CA5_A
CA6_A
CA7_A
CA8_A
CA9_A
CABI_A
CKE_A
CA0_B
CA1_B
CA2_B
CA3_B
CA4_B
CA5_B
CA6_B
CA7_B
CA8_B
CA9_B
CABI_B
CKE_B
RESET
FBC_CLK0*
FBC_CLK0
CLK_c
CLK_t
VREFC
FBC_VREFC
TCK
TDI
TDO
TMS
ZQ_A
ZQ_B
FBC_ZQ_1_A
FBC_ZQ_1_B
R3858 121ohm
R3859 121ohm
RFU_A
RFU_B
R163 549ohm
R162 1.33k
R157 931ohm
C1271 820pF
Q9
LS3018NG-3T3R
SOT323_1G1D1S
GPIO10_FBVREF_SEL
FBC_VREF_Q
CLOSE DRAM
C1237 10uF
C1264 10uF
C1255 10uF
C1286 10uF
C336 0.47uF
C307 0.47uF
C324 0.47uF
C1300 0.47uF
C1304 0.47uF
C333 0.47uF
C319 0.47uF
C308 0.47uF
C1250 0.47uF
C1282 0.47uF
C3900 0.47uF
C3901 0.47uF
C3902 0.47uF
C3903 0.47uF
C4062 0.47uF
C4063 0.47uF
C4064 0.47uF
C4065 0.47uF
C4066 0.47uF
C4067 0.47uF
C4068 0.47uF
C4069 0.47uF
C4070 0.47uF
C4071 0.47uF
C4072 0.47uF
C4073 0.47uF
C4074 0.47uF
C4075 0.47uF
AROUND DRAM
C353 22uF
C1309 22uF
C1308 22uF
C1214 22uF
C1222 22uF
C352 10uF
C1280 10uF
C1225 0.47uF
C1235 0.47uF
C1295 0.47uF
C1297 0.47uF
C4076 0.47uF
C4077 0.47uF
C4078 0.47uF
C4079 0.47uF

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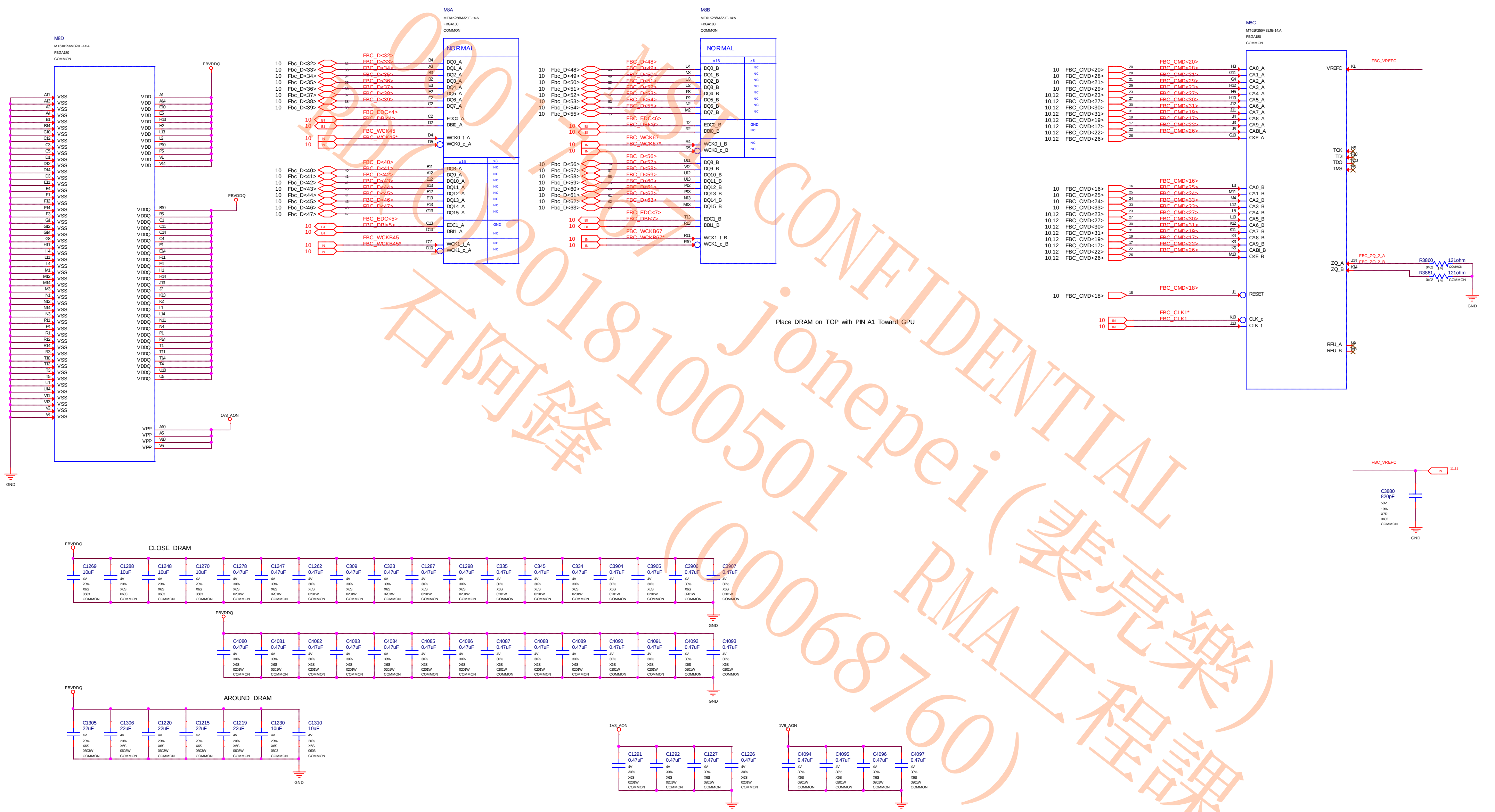
MS-V371

Size	Document Description	Rev
Custom	MEMORY: GPU Partition C	2.0

Date: Thursday, August 02, 2018

MEMORY: FBC Partition 63..32


M8D
MT61K256M32JE-14:A
FBGA180
COMMON
VSS
VDD
VDDQ
VPP
FBVDDQ
1V8_AON
GND
M8A
MT61K256M32JE-14:A
FBGA180
COMMON
NORMAL
x16
x8
NC
DQ0_A
DQ1_A
DQ2_A
DQ3_A
DQ4_A
DQ5_A
DQ6_A
DQ7_A
EDC0_A
DBI0_A
WCK0_t_A
WCK0_c_A
DQ8_A
DQ9_A
DQ10_A
DQ11_A
DQ12_A
DQ13_A
DQ14_A
DQ15_A
EDC1_A
DBI1_A
WCK1_t_A
WCK1_c_A
FBC_D<32>
FBC_D<39>
FBC_EDC<4>
FBC_DBI<4>
FBC_WCK45
FBC_WCK45*
FBC_D<40>
FBC_D<47>
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FBC_DBI<5>
FBC_WCKB45
FBC_WCKB45*
Fbc_D<32>
Fbc_D<47>
M8B
MT61K256M32JE-14:A
FBGA180
COMMON
NORMAL
DQ0_B
DQ15_B
EDC0_B
DBI0_B
WCK0_t_B
WCK0_c_B
EDC1_B
DBI1_B
WCK1_t_B
WCK1_c_B
FBC_D<48>
FBC_D<63>
FBC_EDC<6>
FBC_DBI<6>
FBC_WCK67
FBC_WCK67*
FBC_EDC<7>
FBC_DBI<7>
FBC_WCKB67
FBC_WCKB67*
BI
IN
M8C
MT61K256M32JE-14:A
FBGA180
COMMON
FBC_CMD<20>
FBC_CMD<28>
FBC_CMD<21>
FBC_CMD<29>
FBC_CMD<23>
FBC_CMD<27>
FBC_CMD<30>
FBC_CMD<31>
FBC_CMD<19>
FBC_CMD<17>
FBC_CMD<22>
FBC_CMD<26>
FBC_CMD<16>
FBC_CMD<25>
FBC_CMD<24>
FBC_CMD<33>
FBC_CMD<18>
FBC_CLK1*
FBC_CLK1
CA0_A
CA9_A
CABI_A
CKE_A
CA0_B
CA9_B
CABI_B
CKE_B
RESET
CLK_c
CLK_t
VREFC
FBC_VREFC
TCK
TDI
TDO
TMS
ZQ_A
ZQ_B
FBC_ZQ_2_A
FBC_ZQ_2_B
R3860
R3861
121ohm
RFU_A
RFU_B
Place DRAM on TOP with PIN A1 Toward GPU
C3880
820pF
CLOSE DRAM
C1269 10uF
C1288 10uF
C1248 10uF
C1270 10uF
C1278 0.47uF
C1247 0.47uF
C1262 0.47uF
C309 0.47uF
C323 0.47uF
C1287 0.47uF
C1298 0.47uF
C335 0.47uF
C345 0.47uF
C334 0.47uF
C3904 0.47uF
C3905 0.47uF
C3906 0.47uF
C3907 0.47uF
C4080 0.47uF
C4081 0.47uF
C4082 0.47uF
C4083 0.47uF
C4084 0.47uF
C4085 0.47uF
C4086 0.47uF
C4087 0.47uF
C4088 0.47uF
C4089 0.47uF
C4090 0.47uF
C4091 0.47uF
C4092 0.47uF
C4093 0.47uF
AROUND DRAM
C1305 22uF
C1306 22uF
C1220 22uF
C1215 22uF
C1219 22uF
C1230 10uF
C1310 10uF
C1291 0.47uF
C1292 0.47uF
C1227 0.47uF
C1226 0.47uF
C4094 0.47uF
C4095 0.47uF
C4096 0.47uF
C4097 0.47uF

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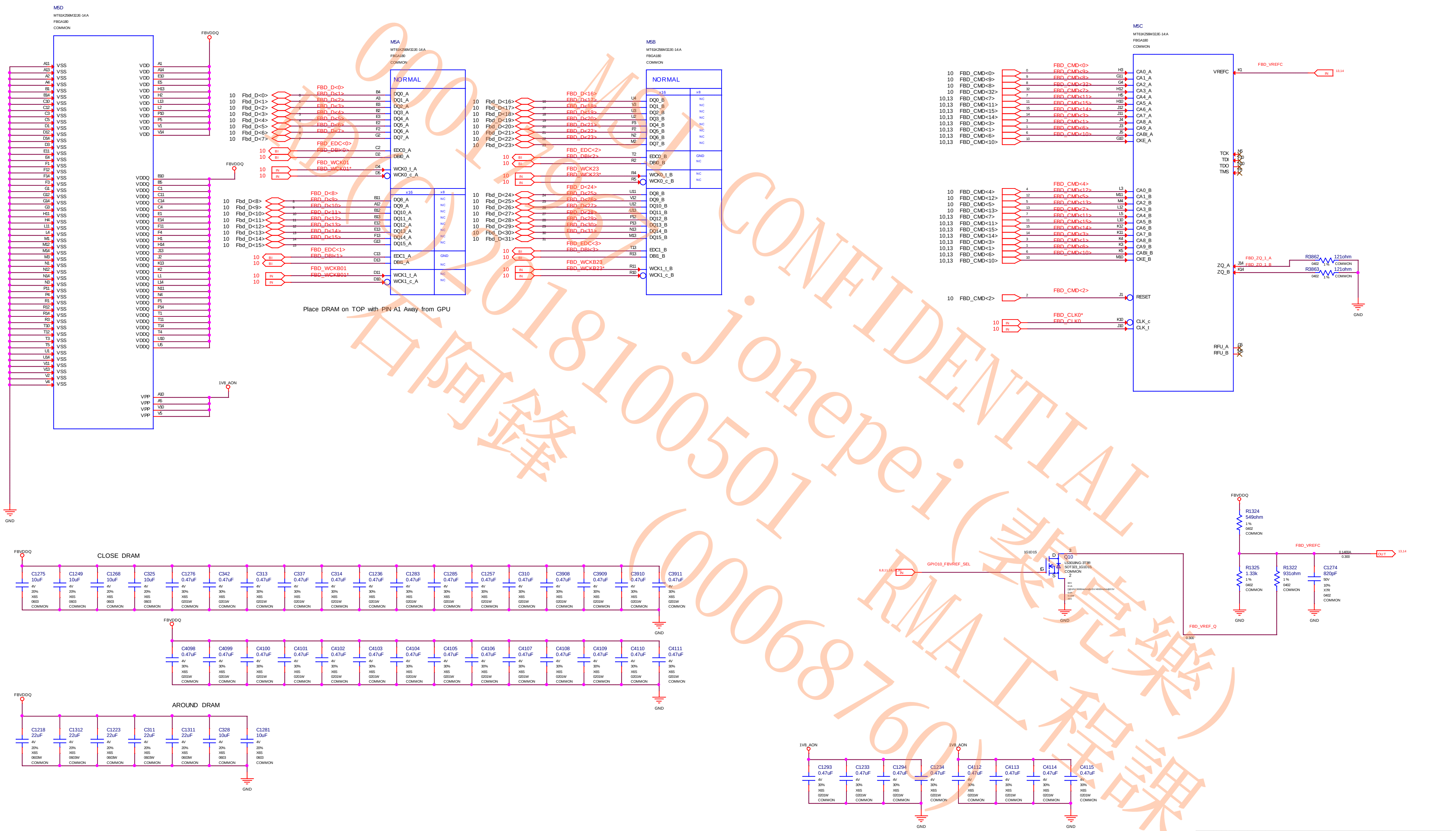
MS-V371

Size	Document Description	Rev
Custom	MEMORY: GPU Partition C	2.0

Date: Thursday, August 02, 2018 Sheet 12 of 66

MEMORY: FBD Partition 31..0


M5D
MT61K256M32JE-14:A
FBGA180
COMMON
VSS
VDD
VDDQ
VPP
FBVDDQ
1V8_AON
GND
M5A
NORMAL
DQ0_A
DQ1_A
DQ2_A
DQ3_A
DQ4_A
DQ5_A
DQ6_A
DQ7_A
EDC0_A
DBI0_A
WCK0_t_A
WCK0_c_A
DQ8_A
DQ9_A
DQ10_A
DQ11_A
DQ12_A
DQ13_A
DQ14_A
DQ15_A
EDC1_A
DBI1_A
WCK1_t_A
WCK1_c_A
Fbd_D<0>
Fbd_D<7>
Fbd_D<8>
Fbd_D<15>
FBD_EDC<0>
FBD_DBI<0>
FBD_WCK01
FBD_WCK01*
FBD_EDC<1>
FBD_DBI<1>
Place DRAM on TOP with PIN A1 Away from GPU
M5B
NORMAL
DQ0_B
DQ15_B
EDC0_B
DBI0_B
WCK0_t_B
WCK0_c_B
EDC1_B
DBI1_B
WCK1_t_B
WCK1_c_B
Fbd_D<16>
Fbd_D<31>
FBD_EDC<2>
FBD_DBI<2>
FBD_WCK23
FBD_WCK23*
FBD_EDC<3>
FBD_DBI<3>
M5C
MT61K256M32JE-14:A
FBGA180
COMMON
VREFC
FBD_VREFC
CA0_A
CA1_A
CA2_A
CA3_A
CA4_A
CA5_A
CA6_A
CA7_A
CA8_A
CA9_A
CABI_A
CKE_A
CA0_B
CABI_B
CKE_B
TCK
TDI
TDO
TMS
ZQ_A
ZQ_B
FBD_ZQ_1_A
FBD_ZQ_1_B
R3862 121ohm
R3863 121ohm
RESET
FBD_CMD<2>
CLK_c
CLK_t
FBD_CLK0*
FBD_CLK0
RFU_A
RFU_B
CLOSE DRAM
C1275 10uF
C1249 10uF
C1268 10uF
C325 10uF
C1276 0.47uF
C342 0.47uF
C313 0.47uF
C337 0.47uF
C314 0.47uF
C1236 0.47uF
C1283 0.47uF
C1285 0.47uF
C1257 0.47uF
C310 0.47uF
C3908 0.47uF
C3909 0.47uF
C3910 0.47uF
C3911 0.47uF
C4098 0.47uF
C4099 0.47uF
C4100 0.47uF
C4101 0.47uF
C4102 0.47uF
C4103 0.47uF
C4104 0.47uF
C4105 0.47uF
C4106 0.47uF
C4107 0.47uF
C4108 0.47uF
C4109 0.47uF
C4110 0.47uF
C4111 0.47uF
AROUND DRAM
C1218 22uF
C1312 22uF
C1223 22uF
C311 22uF
C1311 22uF
C328 10uF
C1281 10uF
GPIO10_FBVREF_SEL
Q10
R1324 549ohm
R1325 1.33k
R1322 931ohm
C1274 820pF
FBD_VREF_Q
C1293 0.47uF
C1233 0.47uF
C1294 0.47uF
C1234 0.47uF
C4112 0.47uF
C4113 0.47uF
C4114 0.47uF
C4115 0.47uF

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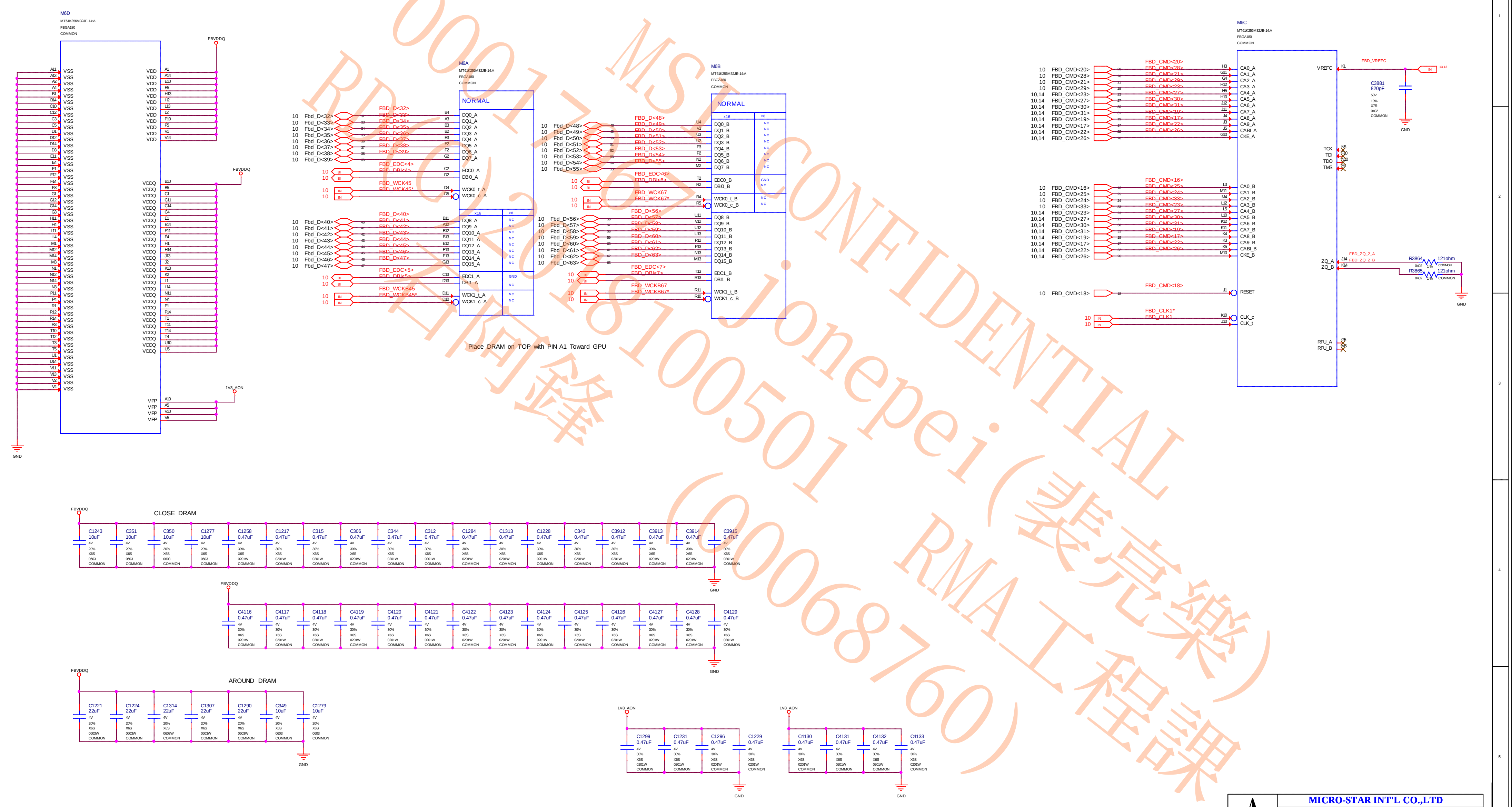
MEMORY: FBD Partition 63..32



M6D
MT61K256M32JE-14:A
FBGA180
COMMON
VSS
VDD
VDDQ
VPP
FBVDDQ
1V8_AON
GND
M6A
NORMAL
DQ0_A
DQ1_A
DQ2_A
DQ3_A
DQ4_A
DQ5_A
DQ6_A
DQ7_A
EDC0_A
DBI0_A
WCK0_t_A
WCK0_c_A
DQ8_A
DQ9_A
DQ10_A
DQ11_A
DQ12_A
DQ13_A
DQ14_A
DQ15_A
EDC1_A
DBI1_A
WCK1_t_A
WCK1_c_A
x16
x8
NC
Fbd_D<32>
Fbd_D<33>
Fbd_D<34>
Fbd_D<35>
Fbd_D<36>
Fbd_D<37>
Fbd_D<38>
Fbd_D<39>
FBD_EDC<4>
FBD_DBI<4>
FBD_WCK45
FBD_WCK45*
Fbd_D<40>
Fbd_D<41>
Fbd_D<42>
Fbd_D<43>
Fbd_D<44>
Fbd_D<45>
Fbd_D<46>
Fbd_D<47>
FBD_EDC<5>
FBD_DBI<5>
FBD_WCKB45
FBD_WCKB45*
Place DRAM on TOP with PIN A1 Toward GPU
M6B
NORMAL
DQ0_B
DQ1_B
DQ2_B
DQ3_B
DQ4_B
DQ5_B
DQ6_B
DQ7_B
EDC0_B
DBI0_B
WCK0_t_B
WCK0_c_B
DQ8_B
DQ9_B
DQ10_B
DQ11_B
DQ12_B
DQ13_B
DQ14_B
DQ15_B
EDC1_B
DBI1_B
WCK1_t_B
WCK1_c_B
Fbd_D<48>
Fbd_D<49>
Fbd_D<50>
Fbd_D<51>
Fbd_D<52>
Fbd_D<53>
Fbd_D<54>
Fbd_D<55>
FBD_EDC<6>
FBD_DBI<6>
FBD_WCK67
FBD_WCK67*
Fbd_D<56>
Fbd_D<57>
Fbd_D<58>
Fbd_D<59>
Fbd_D<60>
Fbd_D<61>
Fbd_D<62>
Fbd_D<63>
FBD_EDC<7>
FBD_DBI<7>
FBD_WCKB67
FBD_WCKB67*
M6C
FBD_CMD<20>
FBD_CMD<28>
FBD_CMD<21>
FBD_CMD<29>
FBD_CMD<23>
FBD_CMD<27>
FBD_CMD<30>
FBD_CMD<31>
FBD_CMD<19>
FBD_CMD<17>
FBD_CMD<22>
FBD_CMD<26>
CA0_A
CA1_A
CA2_A
CA3_A
CA4_A
CA5_A
CA6_A
CA7_A
CA8_A
CA9_A
CABI_A
CKE_A
FBD_CMD<16>
FBD_CMD<25>
FBD_CMD<24>
FBD_CMD<33>
CA0_B
CA1_B
CA2_B
CA3_B
CA4_B
CA5_B
CA6_B
CA7_B
CA8_B
CA9_B
CABI_B
CKE_B
FBD_CMD<18>
RESET
FBD_CLK1*
FBD_CLK1
CLK_c
CLK_t
RFU_A
RFU_B
VREFC
FBD_VREFC
C3881
820pF
TCK
TDI
TDO
TMS
ZQ_A
ZQ_B
FBD_ZQ_2_A
FBD_ZQ_2_B
R3864
R3865
121ohm
CLOSE DRAM
C1243 10uF
C351 10uF
C350 10uF
C1277 10uF
C1258 0.47uF
C1217 0.47uF
C315 0.47uF
C306 0.47uF
C344 0.47uF
C312 0.47uF
C1284 0.47uF
C1313 0.47uF
C1228 0.47uF
C343 0.47uF
C3912 0.47uF
C3913 0.47uF
C3914 0.47uF
C3915 0.47uF
C4116 0.47uF
C4117 0.47uF
C4118 0.47uF
C4119 0.47uF
C4120 0.47uF
C4121 0.47uF
C4122 0.47uF
C4123 0.47uF
C4124 0.47uF
C4125 0.47uF
C4126 0.47uF
C4127 0.47uF
C4128 0.47uF
C4129 0.47uF
AROUND DRAM
C1221 22uF
C1224 22uF
C1314 22uF
C1307 22uF
C1290 22uF
C349 10uF
C1279 10uF
C1299 0.47uF
C1231 0.47uF
C1296 0.47uF
C1229 0.47uF
C4130 0.47uF
C4131 0.47uF
C4132 0.47uF
C4133 0.47uF

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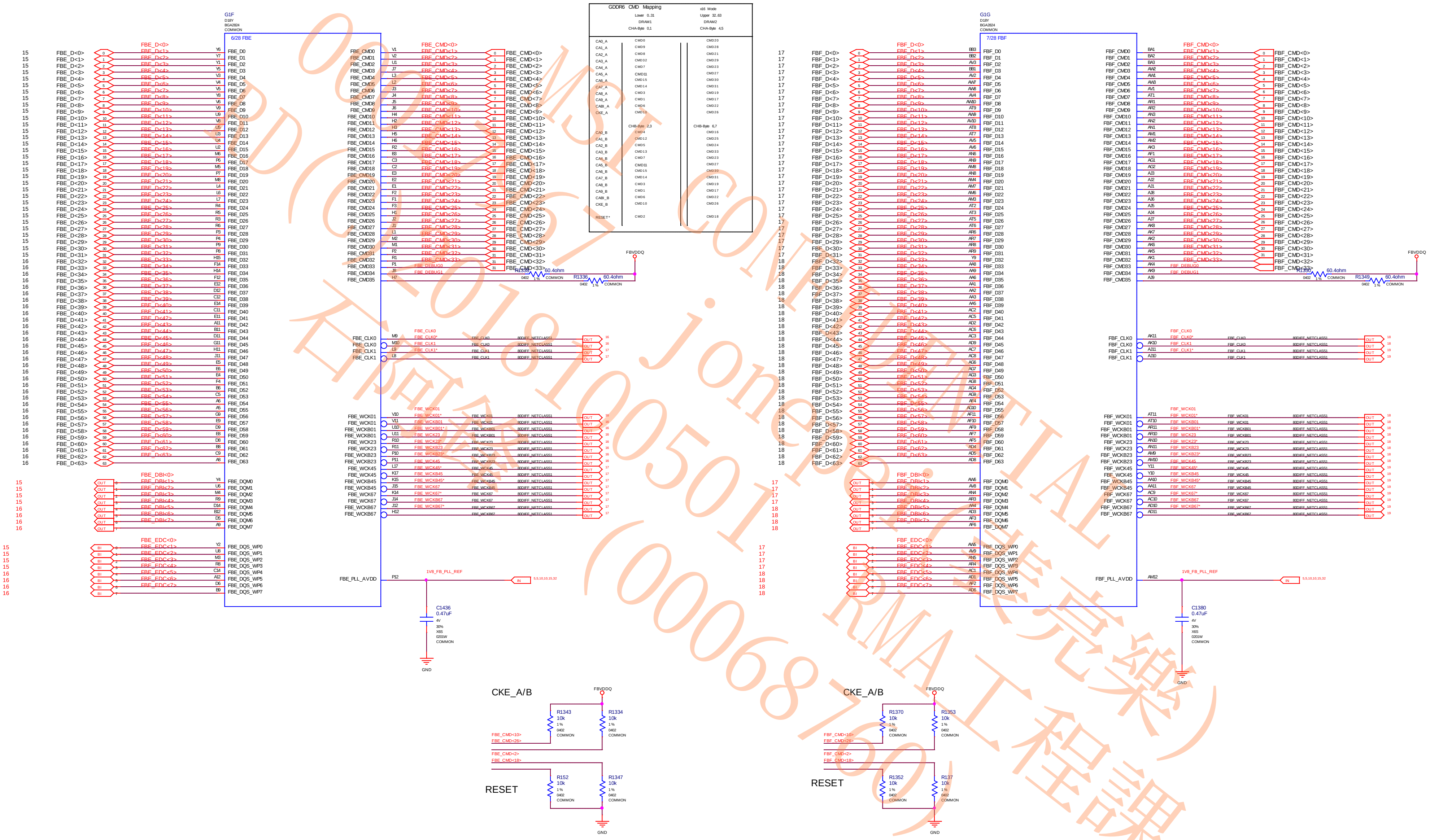
MEMORY: GPU Partition E/F


G1F
6/28 FBE
FBE_D<0>
FBE_CMD<0>
FBE_DBI<0>
FBE_EDC<0>
FBE_CLK0
FBE_WCK01
FBE_PLL_AVDD
1V8_FB_PLL_REF
C1436
0.47uF
GND
FBVDDQ
R1339
60.4ohm
R1336
60.4ohm
GDDR6 CMD Mapping
x16 Mode
Lower 0..31
Upper 32..63
DRAM1
DRAM2
CHA-Byte 0,1
CHA-Byte 4,5
CHB-Byte 2,3
CHB-Byte 6,7
G1G
7/28 FBF
FBF_D<0>
FBF_CMD<0>
FBF_DBI<0>
FBF_EDC<0>
FBF_CLK0
FBF_WCK01
FBF_PLL_AVDD
C1380
0.47uF
R1355
60.4ohm
R1349
60.4ohm
CKE_A/B
RESET
R1343
10k
R1334
10k
R152
10k
R1347
10k
R1370
10k
R1353
10k
R1352
10k
R137
10k
FBE_CMD<10>
FBE_CMD<26>
FBE_CMD<2>
FBE_CMD<18>
FBF_CMD<10>
FBF_CMD<26>
FBF_CMD<2>
FBF_CMD<18>

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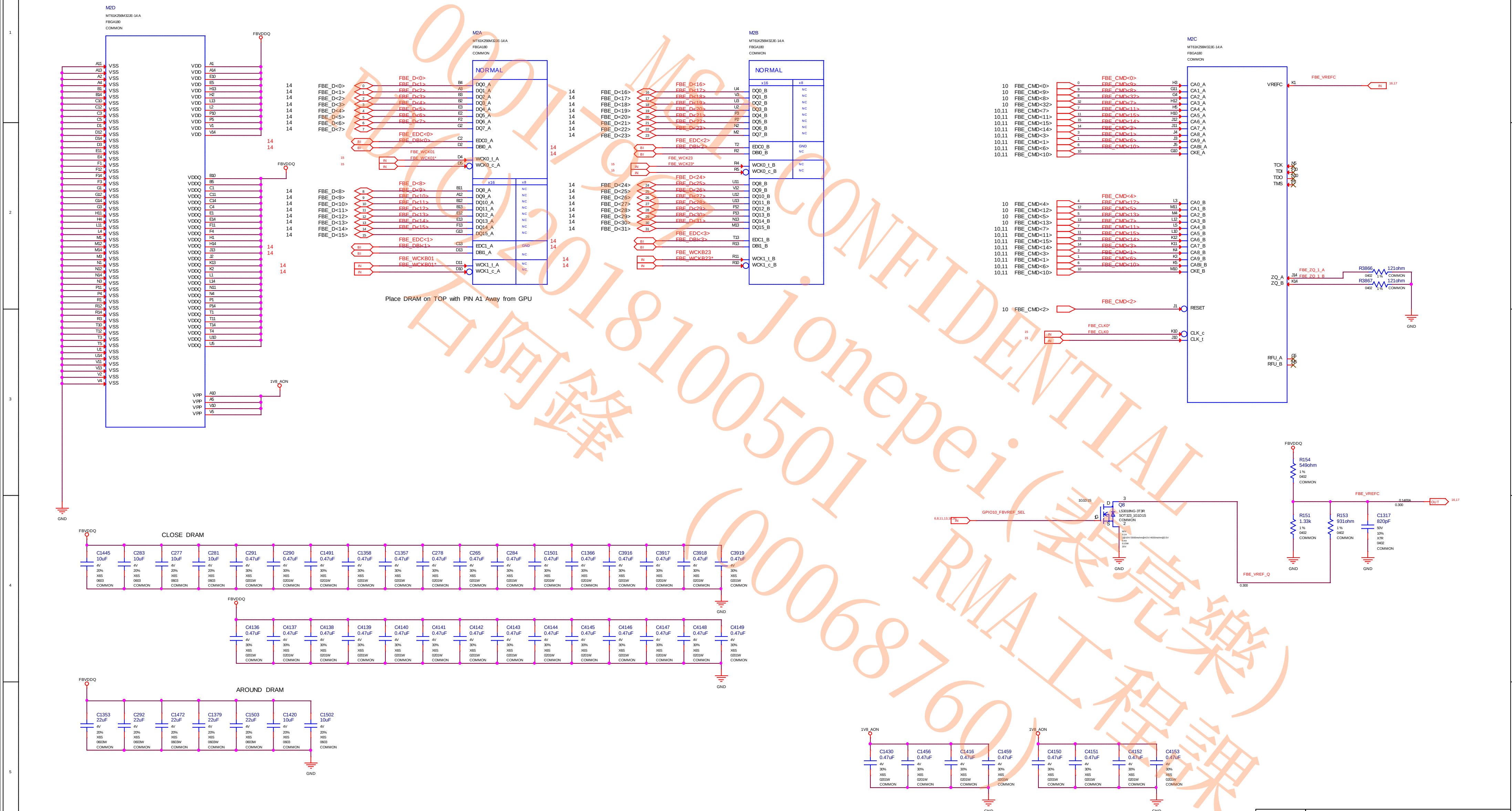
MEMORY: FBE Partition 31..0


M2D
MT61K256M32JE-14:A
FBGA180
COMMON
VSS
VDD
VDDQ
VPP
FBVDDQ
1V8_AON
GND
M2A
NORMAL
DQ0_A
DQ1_A
DQ2_A
DQ3_A
DQ4_A
DQ5_A
DQ6_A
DQ7_A
EDC0_A
DBI0_A
WCK0_t_A
WCK0_c_A
DQ8_A
DQ9_A
DQ10_A
DQ11_A
DQ12_A
DQ13_A
DQ14_A
DQ15_A
EDC1_A
DBI1_A
WCK1_t_A
WCK1_c_A
x16
x8
NC
FBE_D<0>
FBE_D<1>
FBE_D<2>
FBE_D<3>
FBE_D<4>
FBE_D<5>
FBE_D<6>
FBE_D<7>
FBE_EDC<0>
FBE_DBI<0>
FBE_WCK01
FBE_WCK01*
FBE_D<8>
FBE_D<9>
FBE_D<10>
FBE_D<11>
FBE_D<12>
FBE_D<13>
FBE_D<14>
FBE_D<15>
FBE_EDC<1>
FBE_DBI<1>
FBE_WCKB01
FBE_WCKB01*
Place DRAM on TOP with PIN A1 Away from GPU
M2B
NORMAL
DQ0_B
DQ1_B
DQ2_B
DQ3_B
DQ4_B
DQ5_B
DQ6_B
DQ7_B
EDC0_B
DBI0_B
WCK0_t_B
WCK0_c_B
DQ8_B
DQ9_B
DQ10_B
DQ11_B
DQ12_B
DQ13_B
DQ14_B
DQ15_B
EDC1_B
DBI1_B
WCK1_t_B
WCK1_c_B
FBE_D<16>
FBE_D<17>
FBE_D<18>
FBE_D<19>
FBE_D<20>
FBE_D<21>
FBE_D<22>
FBE_D<23>
FBE_EDC<2>
FBE_DBI<2>
FBE_WCK23
FBE_WCK23*
FBE_D<24>
FBE_D<25>
FBE_D<26>
FBE_D<27>
FBE_D<28>
FBE_D<29>
FBE_D<30>
FBE_D<31>
FBE_EDC<3>
FBE_DBI<3>
FBE_WCKB23
FBE_WCKB23*
M2C
CA0_A
CA1_A
CA2_A
CA3_A
CA4_A
CA5_A
CA6_A
CA7_A
CA8_A
CA9_A
CABI_A
CKE_A
CA0_B
CA1_B
CA2_B
CA3_B
CA4_B
CA5_B
CA6_B
CA7_B
CA8_B
CA9_B
CABI_B
CKE_B
RESET
CLK_c
CLK_t
VREFC
TCK
TDI
TDO
TMS
ZQ_A
ZQ_B
RFU_A
RFU_B
FBE_CMD<0>
FBE_CMD<9>
FBE_CMD<8>
FBE_CMD<32>
FBE_CMD<7>
FBE_CMD<11>
FBE_CMD<15>
FBE_CMD<14>
FBE_CMD<3>
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FBE_CMD<10>
FBE_CMD<4>
FBE_CMD<12>
FBE_CMD<5>
FBE_CMD<13>
FBE_CMD<2>
FBE_CLK0*
FBE_CLK0
FBE_VREFC
FBE_ZQ_1_A
FBE_ZQ_1_B
R3866
R3867
121ohm
R154
549ohm
R151
1.33k
R153
931ohm
C1317
820pF
Q8
LS3018NG-3T3R
SOT323_1G1D1S
GPIO10_FBVREF_SEL
FBE_VREF_Q
CLOSE DRAM
C1445 10uF
C283 10uF
C277 10uF
C281 10uF
C291 0.47uF
C290 0.47uF
C1491 0.47uF
C1358 0.47uF
C1357 0.47uF
C278 0.47uF
C265 0.47uF
C284 0.47uF
C1501 0.47uF
C1366 0.47uF
C3916 0.47uF
C3917 0.47uF
C3918 0.47uF
C3919 0.47uF
C4136 0.47uF
C4137 0.47uF
C4138 0.47uF
C4139 0.47uF
C4140 0.47uF
C4141 0.47uF
C4142 0.47uF
C4143 0.47uF
C4144 0.47uF
C4145 0.47uF
C4146 0.47uF
C4147 0.47uF
C4148 0.47uF
C4149 0.47uF
AROUND DRAM
C1353 22uF
C292 22uF
C1472 22uF
C1379 22uF
C1503 22uF
C1420 10uF
C1502 10uF
C1430 0.47uF
C1456 0.47uF
C1416 0.47uF
C1459 0.47uF
C4150 0.47uF
C4151 0.47uF
C4152 0.47uF
C4153 0.47uF

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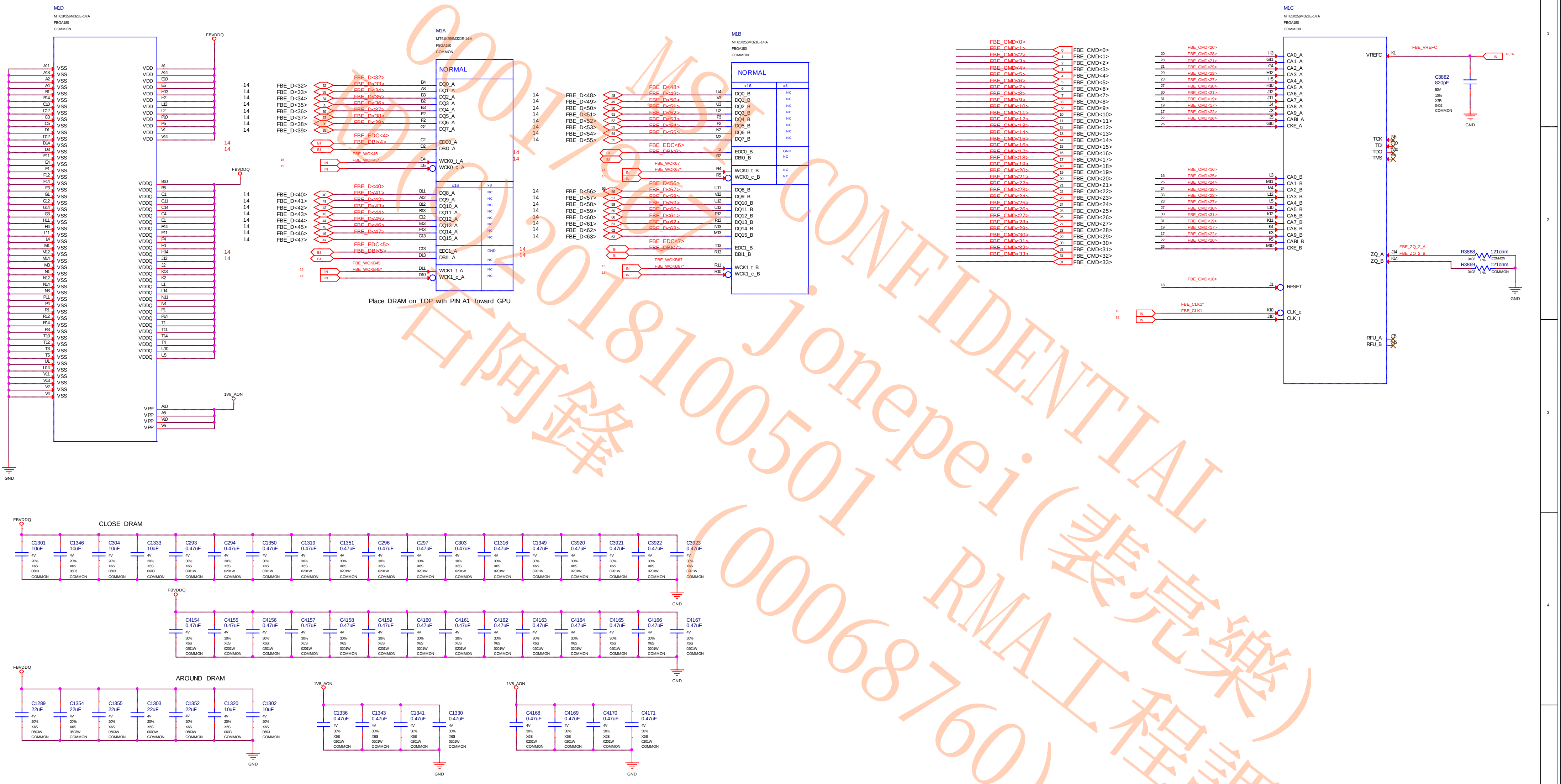
MEMORY: FBE Partition 63..32



M1D
MT61K256M32JE-14:A
FBGA180
COMMON
FBVDDQ
VSS
VDD
VDDQ
VPP
1V8_AON
GND
M1A
NORMAL
FBE_D<32>
FBE_D<39>
FBE_EDC<4>
FBE_DBI<4>
FBE_WCK45
FBE_WCK45*
FBE_D<40>
FBE_D<47>
FBE_EDC<5>
FBE_DBI<5>
Place DRAM on TOP with PIN A1 Toward GPU
M1B
FBE_D<48>
FBE_D<55>
FBE_EDC<6>
FBE_DBI<6>
FBE_WCK67
FBE_WCK67*
FBE_D<56>
FBE_D<63>
FBE_EDC<7>
FBE_DBI<7>
FBE_CMD<0>
FBE_CMD<33>
M1C
VREFC
FBE_VREFC
C3882
820pF
TCK
TDI
TDO
TMS
ZQ_A
ZQ_B
R3868
R3869
121ohm
RESET
CLK_c
CLK_t
FBE_CLK1*
FBE_CLK1
RFU_A
RFU_B
CLOSE DRAM
C1301
C1346
C304
C1333
C293
C294
C1350
C1319
C1351
C296
C297
C303
C1316
C1349
C3920
C3921
C3922
C3923
C4154
C4155
C4156
C4157
C4158
C4159
C4160
C4161
C4162
C4163
C4164
C4165
C4166
C4167
AROUND DRAM
C1289
C1354
C1355
C1303
C1352
C1320
C1302
C1336
C1343
C1341
C1330
C4168
C4169
C4170
C4171

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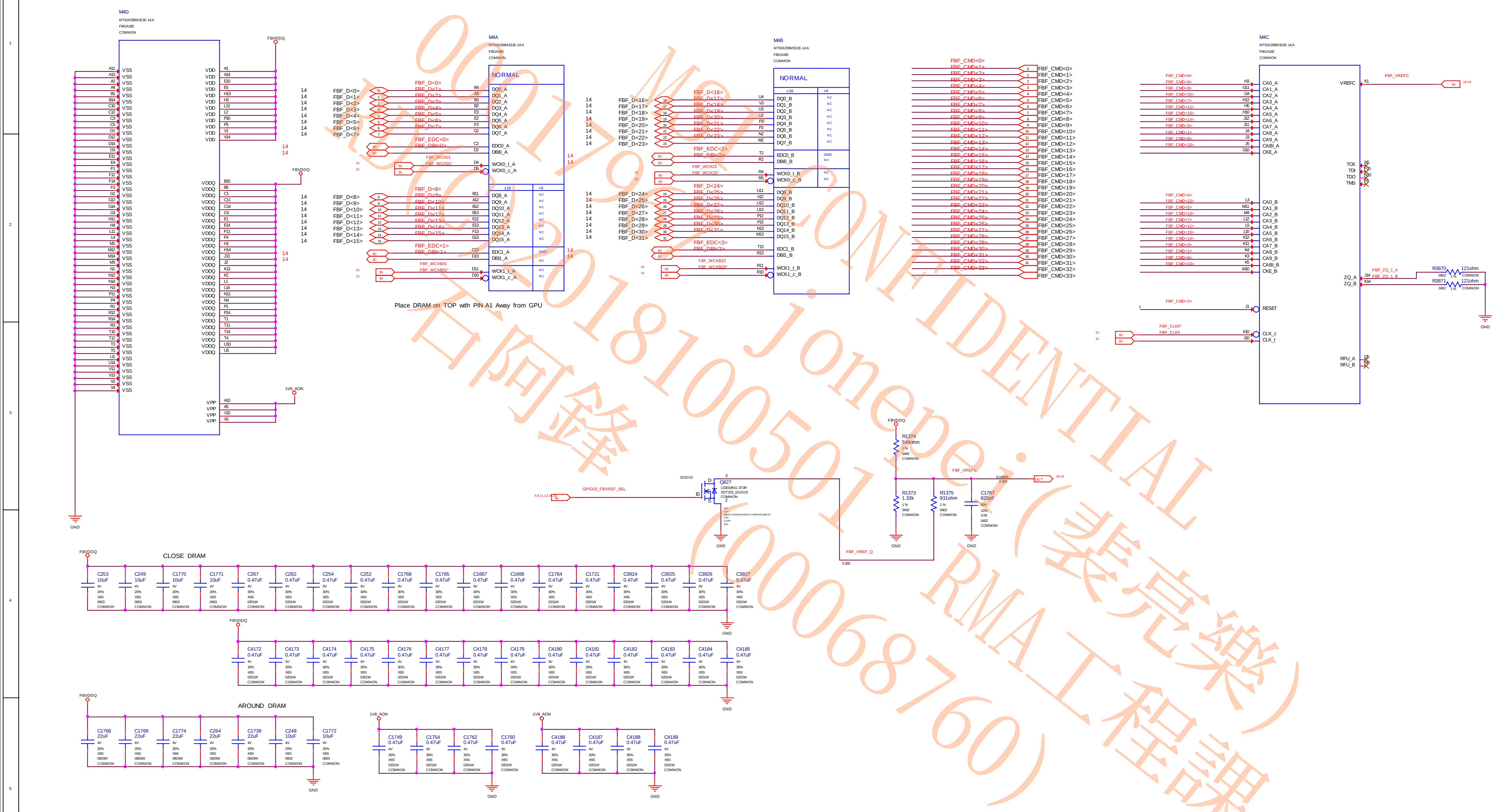
MEMORY: FBF Partition 31..0



M4D
MT61K256M32JE-14:A
FBGA180
COMMON
VSS
VDD
VDDQ
VPP
FBVDDQ
1V8_AON
GND
M4A
NORMAL
DQ0_A
DQ1_A
DQ2_A
DQ3_A
DQ4_A
DQ5_A
DQ6_A
DQ7_A
EDC0_A
DBI0_A
WCK0_t_A
WCK0_c_A
DQ8_A
DQ9_A
DQ10_A
DQ11_A
DQ12_A
DQ13_A
DQ14_A
DQ15_A
EDC1_A
DBI1_A
WCK1_t_A
WCK1_c_A
x16
x8
NC
FBF_D<0>
FBF_D<31>
FBF_EDC<0>
FBF_DBI<0>
FBF_WCK01
FBF_WCK01*
FBF_WCKB01
FBF_WCKB01*
FBF_WCK23
FBF_WCK23*
FBF_WCKB23
FBF_WCKB23*
Place DRAM on TOP with PIN A1 Away from GPU
M4B
DQ0_B
DQ15_B
EDC0_B
DBI0_B
WCK0_t_B
WCK0_c_B
EDC1_B
DBI1_B
WCK1_t_B
WCK1_c_B
FBF_CMD<0>
FBF_CMD<33>
M4C
VREFC
FBF_VREFC
CA0_A
CA1_A
CA2_A
CA3_A
CA4_A
CA5_A
CA6_A
CA7_A
CA8_A
CA9_A
CABI_A
CKE_A
CA0_B
CA9_B
CABI_B
CKE_B
TCK
TDI
TDO
TMS
ZQ_A
ZQ_B
FBF_ZQ_1_A
FBF_ZQ_1_B
R3870
R3871
121ohm
RESET
CLK_c
CLK_t
FBF_CLK0*
FBF_CLK0
RFU_A
RFU_B
R1374
549ohm
R1373
1.33k
R1375
931ohm
C1767
820pF
FBF_VREFC
FBF_VREF_Q
Q827
LS3018NG-3T3R
SOT323_1G1D1S
GPIO10_FBVREF_SEL
CLOSE DRAM
AROUND DRAM
C253
10uF
C249
C1770
C1771
C267
0.47uF
C262
C254
C252
C1768
C1765
C1667
C1666
C1764
C1721
C3924
C3925
C3926
C3927
C4172
C4173
C4174
C4175
C4176
C4177
C4178
C4179
C4180
C4181
C4182
C4183
C4184
C4185
C1766
22uF
C1769
C1774
C264
C1739
C248
C1772
C1749
C1754
C1762
C1760
C4186
C4187
C4188
C4189

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(00068760) RMA工程課
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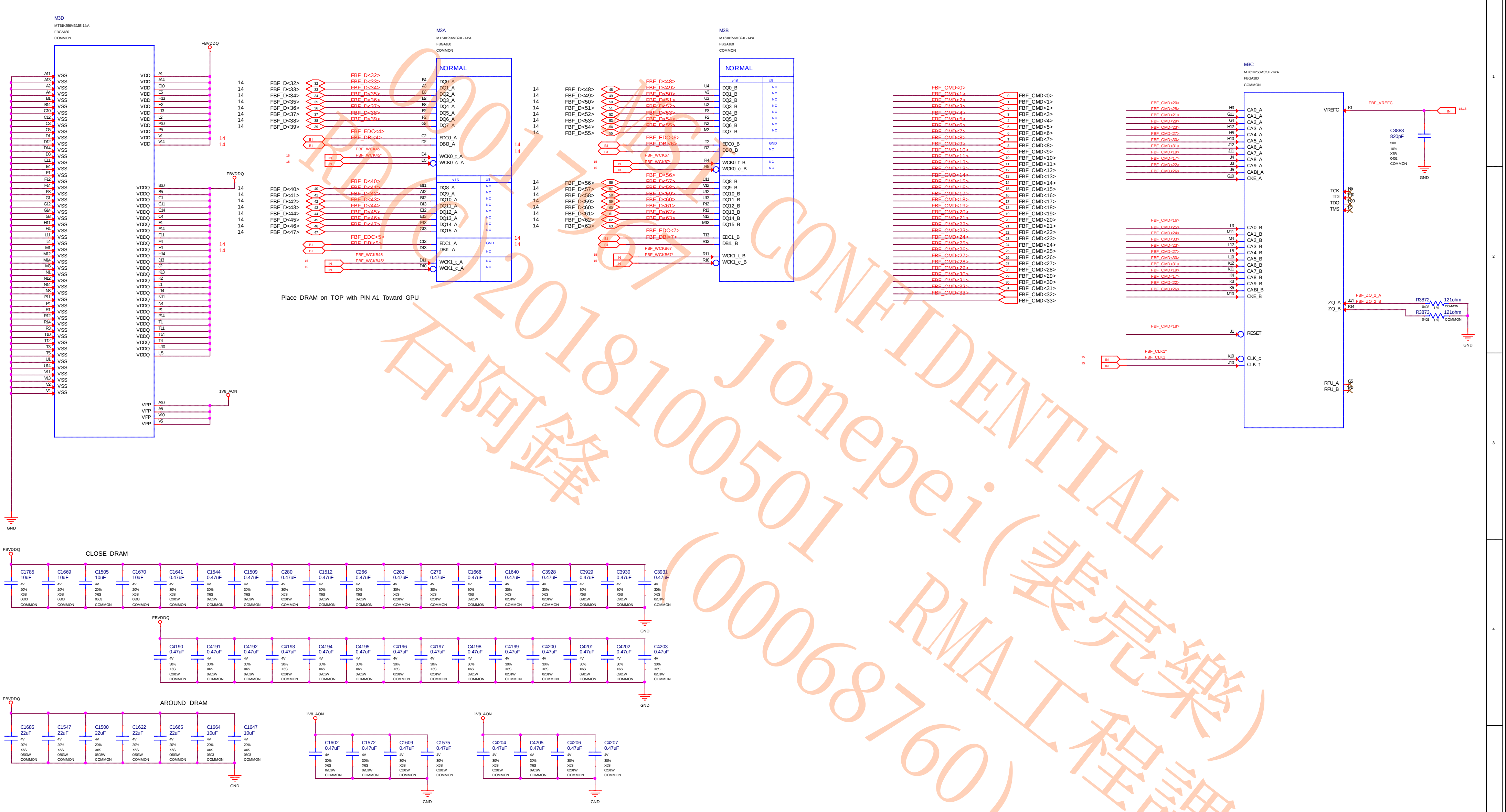
MEMORY: FBF Partition 63..32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MT61K256M32JE-14:A
FBGA180
COMMON
VSS
VDD
VDDQ
VPP
FBVDDQ
1V8_AON
GND
M3A
NORMAL
DQ0_A
DQ1_A
DQ2_A
DQ3_A
DQ4_A
DQ5_A
DQ6_A
DQ7_A
EDC0_A
DBI0_A
WCK0_t_A
WCK0_c_A
DQ8_A
DQ9_A
DQ10_A
DQ11_A
DQ12_A
DQ13_A
DQ14_A
DQ15_A
EDC1_A
DBI1_A
WCK1_t_A
WCK1_c_A
FBF_D<32>
FBF_D<33>
FBF_D<34>
FBF_D<35>
FBF_D<36>
FBF_D<37>
FBF_D<38>
FBF_D<39>
FBF_EDC<4>
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FBF_WCK45*
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FBF_D<41>
FBF_D<42>
FBF_D<43>
FBF_D<44>
FBF_D<45>
FBF_D<46>
FBF_D<47>
FBF_EDC<5>
FBF_DBI<5>
FBF_WCKB45
FBF_WCKB45*
Place DRAM on TOP with PIN A1 Toward GPU
M3B
NORMAL
DQ0_B
DQ1_B
DQ2_B
DQ3_B
DQ4_B
DQ5_B
DQ6_B
DQ7_B
EDC0_B
DBI0_B
WCK0_t_B
WCK0_c_B
DQ8_B
DQ9_B
DQ10_B
DQ11_B
DQ12_B
DQ13_B
DQ14_B
DQ15_B
EDC1_B
DBI1_B
WCK1_t_B
WCK1_c_B
FBF_D<48>
FBF_D<49>
FBF_D<50>
FBF_D<51>
FBF_D<52>
FBF_D<53>
FBF_D<54>
FBF_D<55>
FBF_EDC<6>
FBF_DBI<6>
FBF_WCK67
FBF_WCK67*
FBF_D<56>
FBF_D<57>
FBF_D<58>
FBF_D<59>
FBF_D<60>
FBF_D<61>
FBF_D<62>
FBF_D<63>
FBF_EDC<7>
FBF_DBI<7>
FBF_WCKB67
FBF_WCKB67*
FBF_CMD<0>
FBF_CMD<1>
FBF_CMD<2>
FBF_CMD<3>
FBF_CMD<4>
FBF_CMD<5>
FBF_CMD<6>
FBF_CMD<7>
FBF_CMD<8>
FBF_CMD<9>
FBF_CMD<10>
FBF_CMD<11>
FBF_CMD<12>
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FBF_CMD<14>
FBF_CMD<15>
FBF_CMD<16>
FBF_CMD<17>
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FBF_CMD<19>
FBF_CMD<20>
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FBF_CMD<22>
FBF_CMD<23>
FBF_CMD<24>
FBF_CMD<25>
FBF_CMD<26>
FBF_CMD<27>
FBF_CMD<28>
FBF_CMD<29>
FBF_CMD<30>
FBF_CMD<31>
FBF_CMD<32>
FBF_CMD<33>
M3C
VREFC
FBF_VREFC
C3883
820pF
CA0_A
CA1_A
CA2_A
CA3_A
CA4_A
CA5_A
CA6_A
CA7_A
CA8_A
CA9_A
CABI_A
CKE_A
TCK
TDI
TDO
TMS
CA0_B
CA1_B
CA2_B
CA3_B
CA4_B
CA5_B
CA6_B
CA7_B
CA8_B
CA9_B
CABI_B
CKE_B
ZQ_A
ZQ_B
FBF_ZQ_2_A
FBF_ZQ_2_B
R3872
121ohm
R3873
121ohm
RESET
FBF_CLK1*
FBF_CLK1
CLK_c
CLK_t
RFU_A
RFU_B
CLOSE DRAM
C1785 10uF
C1669 10uF
C1505 10uF
C1670 10uF
C1641 0.47uF
C1544 0.47uF
C1509 0.47uF
C280 0.47uF
C1512 0.47uF
C266 0.47uF
C263 0.47uF
C279 0.47uF
C1668 0.47uF
C1640 0.47uF
C3928 0.47uF
C3929 0.47uF
C3930 0.47uF
C3931 0.47uF
C4190 0.47uF
C4191 0.47uF
C4192 0.47uF
C4193 0.47uF
C4194 0.47uF
C4195 0.47uF
C4196 0.47uF
C4197 0.47uF
C4198 0.47uF
C4199 0.47uF
C4200 0.47uF
C4201 0.47uF
C4202 0.47uF
C4203 0.47uF
AROUND DRAM
C1685 22uF
C1547 22uF
C1500 22uF
C1622 22uF
C1665 22uF
C1664 10uF
C1647 10uF
C1602 0.47uF
C1572 0.47uF
C1609 0.47uF
C1575 0.47uF
C4204 0.47uF
C4205 0.47uF
C4206 0.47uF
C4207 0.47uF

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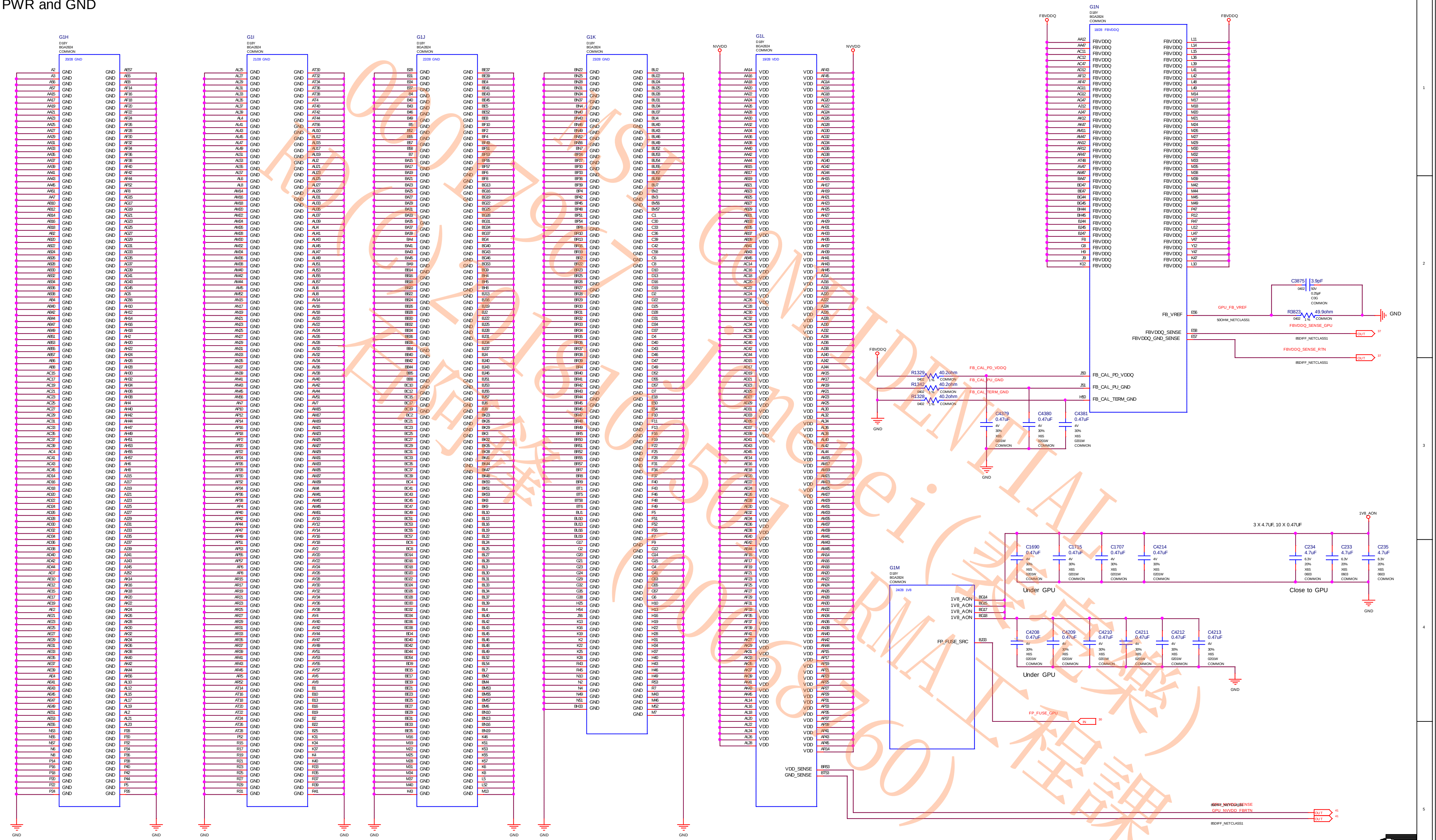
GPU PWR and GND


G1H
D18Y
BGA2824
COMMON
20/28 GND
G1I
21/28 GND
G1J
22/28 GND
G1K
23/28 GND
G1L
19/28 VDD
NVVDD
VDD_SENSE
GND_SENSE
BR53
BT53
G1N
18/28 FBVDDQ
FBVDDQ
FB_VREF
E56
GPU_FB_VREF
50OHM_NETCLASS1
C3875
3.9pF
0402
50V
0.25pF
C0G
COMMON
R3823
49.9ohm
0402
1%
GND
FBVDDQ_SENSE
FBVDDQ_GND_SENSE
E58
E57
FBVDDQ_SENSE_GPU
FBVDDQ_SENSE_RTN
OUT
37
85DIFF_NETCLASS1
FB_CAL_PD_VDDQ
FB_CAL_PU_GND
FB_CAL_TERM_GND
J50
J51
H50
R1329
R1342
R1328
40.2ohm
C4379
C4380
C4381
0.47uF
4V
30%
X6S
0201W
G1M
24/28 1V8
1V8_AON
BG14
BG15
BG17
BG18
FP_FUSE_SRC
BJ33
FP_FUSE_GPU
IN
30
3 X 4.7UF, 10 X 0.47UF
C1690
C1715
C1707
C4214
Under GPU
C234
C233
C235
4.7uF
6.3V
20%
0603
Close to GPU
C4208
C4209
C4210
C4211
C4212
C4213
Under GPU
GPU_NVVDD_SENSE
GPU_NVVDD_FBRTN
OUT
41
85DIFF_NETCLASS1

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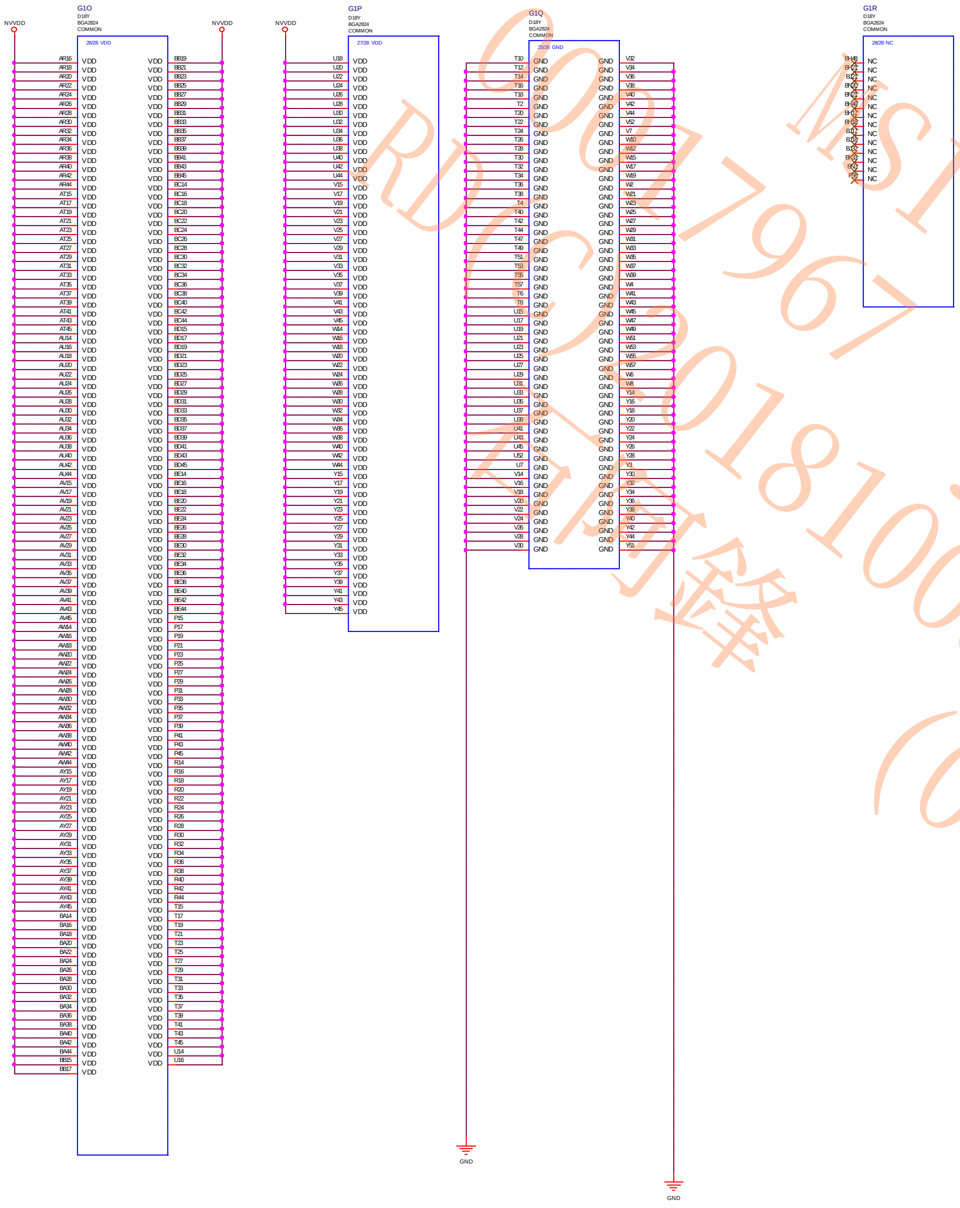
GPU PWR GND NCs


NVVDD
G1O
D18Y
BGA2824
COMMON
26/28 VDD
VDD
NVVDD
NVVDD
G1P
D18Y
BGA2824
COMMON
27/28 VDD
VDD
G1Q
D18Y
BGA2824
COMMON
25/28 GND
GND
GND
GND
G1R
D18Y
BGA2824
COMMON
28/28 NC
BH48 NC
BH21 NC
BJ21 NC
BN20 NC
BN21 NC
BH49 NC
BH17 NC
BH18 NC
BJ17 NC
BJ18 NC
BJ32 NC
BK33 NC
BN3 NC
F56 NC

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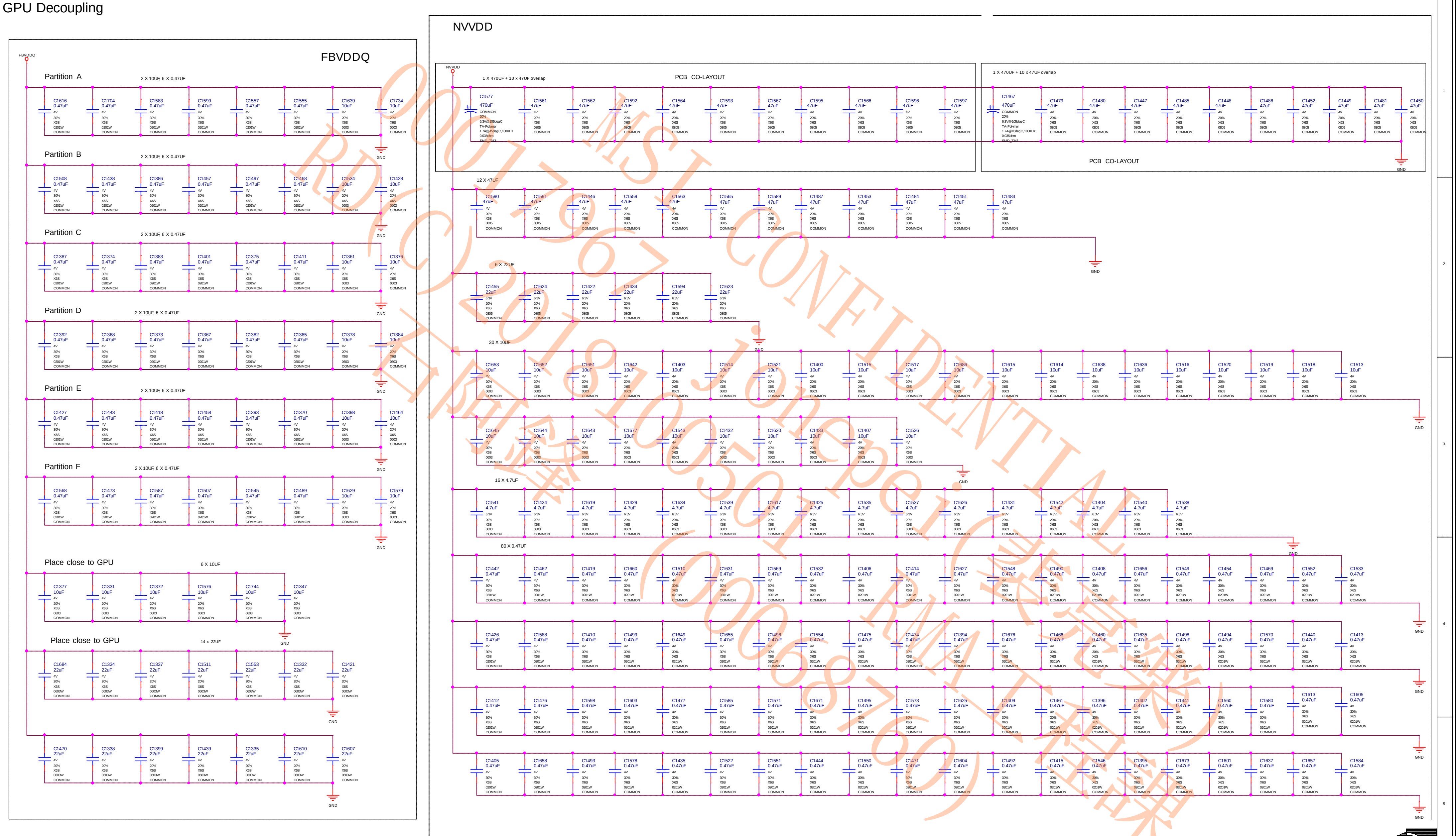
GPU Decoupling


FBVDDQ
FBVDDQ
Partition A
2 X 10UF, 6 X 0.47UF
Partition B
2 X 10UF, 6 X 0.47UF
Partition C
2 X 10UF, 6 X 0.47UF
Partition D
2 X 10UF, 6 X 0.47UF
Partition E
2 X 10UF, 6 X 0.47UF
Partition F
2 X 10UF, 6 X 0.47UF
Place close to GPU
6 X 10UF
Place close to GPU
14 x 22UF
NVVDD
NVVDD
1 X 470UF + 10 x 47UF overlap
PCB CO-LAYOUT
1 X 470UF + 10 x 47UF overlap
PCB CO-LAYOUT
12 X 47UF
6 X 22UF
30 X 10UF
16 X 4.7UF
80 X 0.47UF
GND

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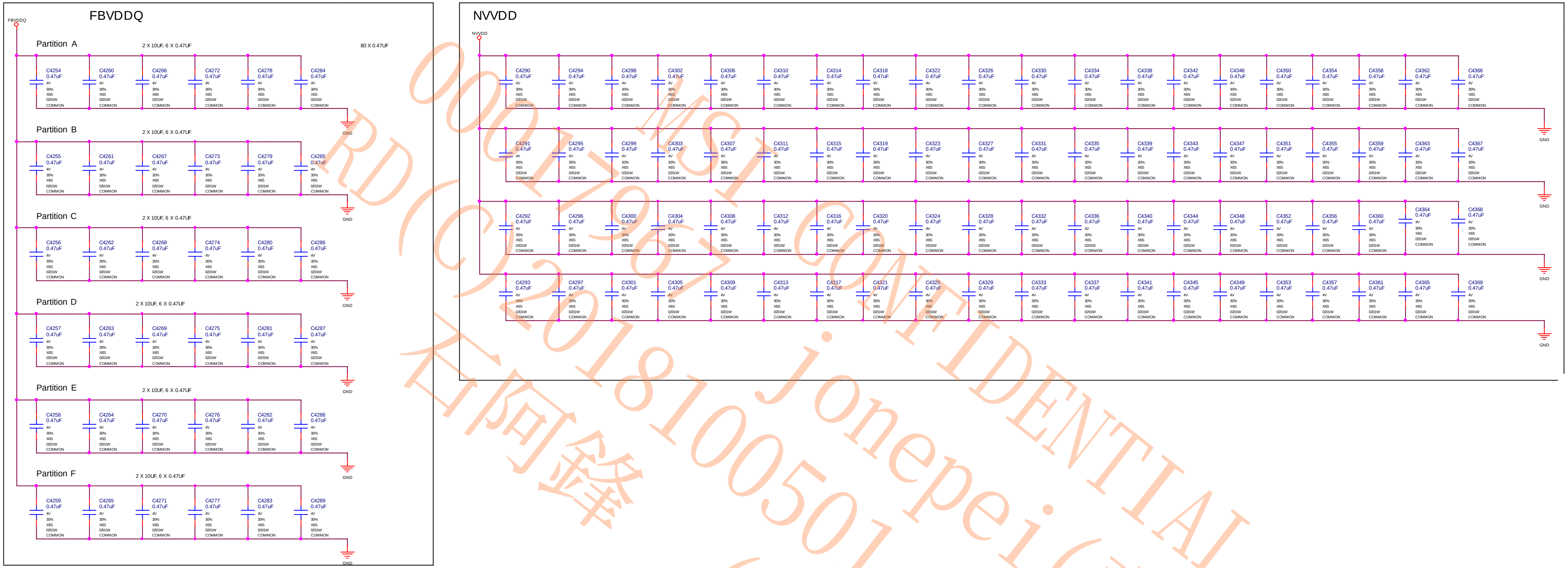
GPU Decoupling


FBVDDQ
FBVDDQ
Partition A
2 X 10UF, 6 X 0.47UF
80 X 0.47UF
C4254 C4260 C4266 C4272 C4278 C4284
Partition B
2 X 10UF, 6 X 0.47UF
C4255 C4261 C4267 C4273 C4279 C4285
Partition C
2 X 10UF, 6 X 0.47UF
C4256 C4262 C4268 C4274 C4280 C4286
Partition D
2 X 10UF, 6 X 0.47UF
C4257 C4263 C4269 C4275 C4281 C4287
Partition E
2 X 10UF, 6 X 0.47UF
C4258 C4264 C4270 C4276 C4282 C4288
Partition F
2 X 10UF, 6 X 0.47UF
C4259 C4265 C4271 C4277 C4283 C4289
0.47uF
4V
30%
X6S
0201W
COMMON
GND
NVVDD
NVVDD
C4290 C4294 C4298 C4302 C4306 C4310 C4314 C4318 C4322 C4326 C4330 C4334 C4338 C4342 C4346 C4350 C4354 C4358 C4362 C4366
C4291 C4295 C4299 C4303 C4307 C4311 C4315 C4319 C4323 C4327 C4331 C4335 C4339 C4343 C4347 C4351 C4355 C4359 C4363 C4367
C4292 C4296 C4300 C4304 C4308 C4312 C4316 C4320 C4324 C4328 C4332 C4336 C4340 C4344 C4348 C4352 C4356 C4360 C4364 C4368
C4293 C4297 C4301 C4305 C4309 C4313 C4317 C4321 C4325 C4329 C4333 C4337 C4341 C4345 C4349 C4353 C4357 C4361 C4365 C4369
0.47uF
4V
30%
X6S
0201W
COMMON
GND

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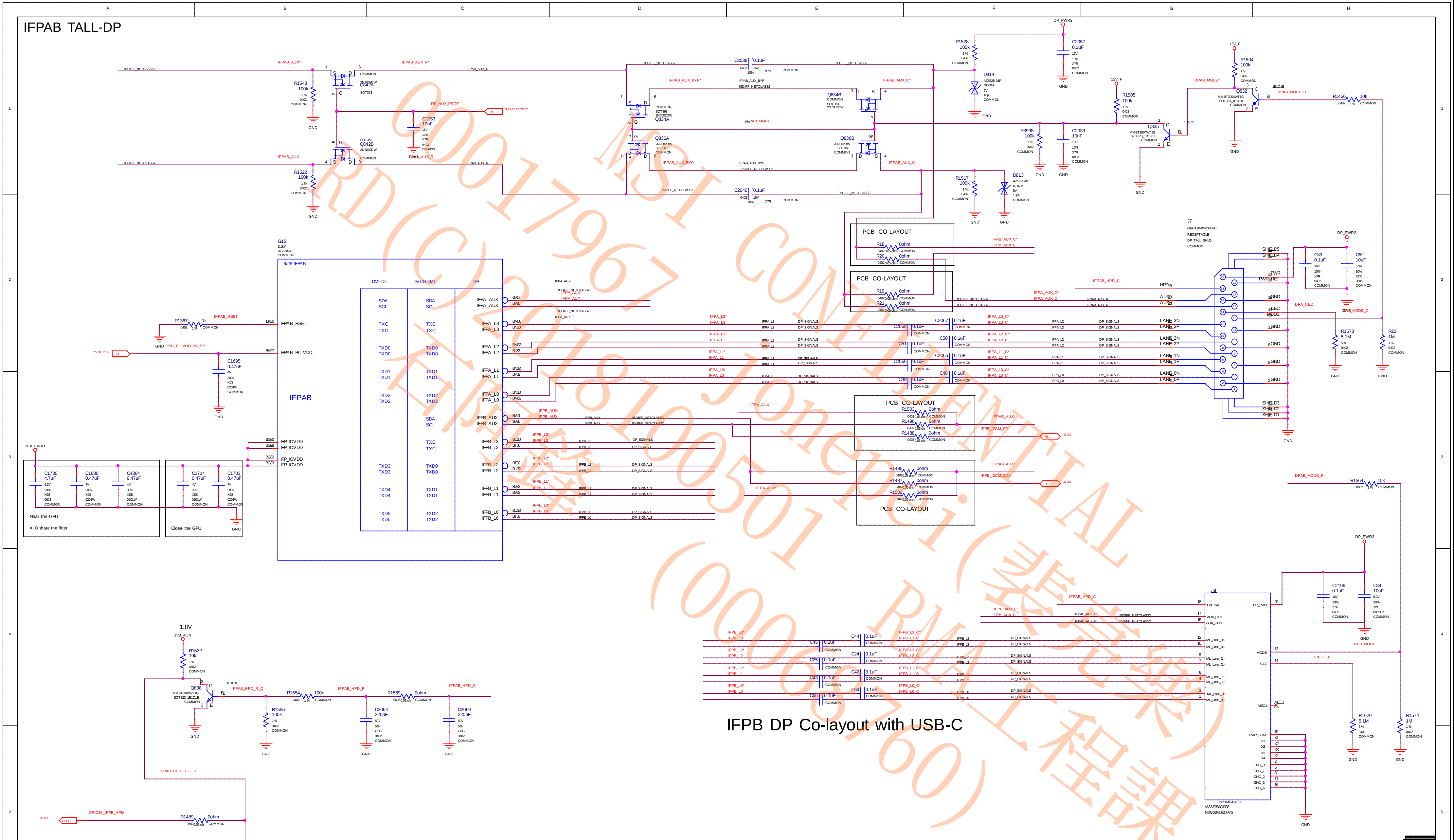
IFPAB TALL-DP



IFPAB_AUX*
IFPAB_AUX_R*
IFPAB_AUX_R
85DIFF_NETCLASS2
R1548 100k 1% 0402 COMMON
Q842A 2N7002DW SOT363
Q842B 2N7002DW SOT363
DP_AUX_PROT
3,25,26,27,28,57
C2053 10nF 16V 10% X7R 0402 COMMON
IFPAB_AUX
R1522 100k 1% 0402 COMMON
C2038 0.1uF 16V 10% X7R 0402 COMMON
C2040 0.1uF 16V 10% X7R 0402 COMMON
IFPAB_AUX_BYP*
IFPAB_AUX_BYP
IFPAB_AUX_C*
IFPAB_AUX_C
Q834A 2N7002DW SOT363
Q834B 2N7002DW SOT363
Q836A 2N7002DW SOT363
Q836B 2N7002DW SOT363
IFPAB_MODE
DP_PWR2
R1528 100k 1% 0402 COMMON
C2057 0.1uF 16V 10% X7R 0402 COMMON
D814 AZ5725-01F NORM 5V 10pF COMMON
D813 AZ5725-01F NORM 5V 10pF COMMON
R1517 100k 1% 0402 COMMON
R3998 100k 1% 0402 COMMON
C2039 10nF 16V 10% X7R 0402 COMMON
12V_F
R1505 100k 1% 0402 COMMON
Q835 MMBT3904WT1G SOT323_181C1E COMMON
R1504 100k 1% 0402 COMMON
DPAB_MODE*
Q832 MMBT3904WT1G SOT323_181C1E COMMON
DPAB_MODE_R
R1466 10k 0402 1% COMMON
PCB CO-LAYOUT
R18 0ohm
R20 0ohm
R19 0ohm
R21 0ohm
IFPB_AUX_C*
IFPB_AUX_C
IFPA_AUX_C*
IFPA_AUX_C
J7 699FA20-0N037D-H RECEPTACLE DP_TALL_SHLD COMMON
IFPAB_HPD_C
HPD
AUXN
AUXP
PWR
PWR_RET
GND
CEC
MODE
LANE_3N
LANE_3P
LANE_2N
LANE_2P
LANE_1N
LANE_1P
LANE_0N
LANE_0P
SHLD1 SHLD2 SHLD3 SHLD4 SHLD5
C33 0.1uF 16V 10% X7R 0402 COMMON
C52 10uF 6.3V 10% X7R 0805 COMMON
DPA_CEC
DPA_MODE_C
R1573 5.1M 5% 0402 COMMON
R22 1M 1% 0402 COMMON
G1S D18Y BGA2824 COMMON
9/28 IFPAB
DVI-DL
DVI/HDMI
DP
SDA SCL
TXC
TXD0 TXD1 TXD2 TXD3 TXD4 TXD5
IFPA_AUX
IFPA_L3 IFPA_L2 IFPA_L1 IFPA_L0
IFPB_AUX
IFPB_L3 IFPB_L2 IFPB_L1 IFPB_L0
IFPAB_RSET
IFPAB_PLLVDD
IFP_IOVDD
IFPAB
R1367 1k 0402 1% COMMON
GPU_PLLVDD_XS_SP
C1695 0.47uF 4V 30% X6S 0201W COMMON
PEX_DVDD
C1730 4.7uF 6.3V 20% X6S 0603 COMMON
C1680 0.47uF 4V 30% X6S 0201W COMMON
C4384 0.47uF 4V 30% X6S 0201W COMMON
C1714 0.47uF 4V 30% X6S 0201W COMMON
C1703 0.47uF 4V 30% X6S 0201W COMMON
Near the GPU
A, B share the filter
Close the GPU
C2067 0.1uF
C2068 0.1uF
C50 0.1uF
C51 0.1uF
C2065 0.1uF
C2066 0.1uF
C48 0.1uF
C49 0.1uF
DP_SIGNALS
R1503 0ohm
R1496 0ohm
R1488 0ohm
IFPB_I2CM_SCL
IFPB_I2CM_SDA
R1495 0ohm
R1487 0ohm
R1502 0ohm
33,33
DPAB_MODE_R
R1564 10k 0402 1% COMMON
1.8V
1V8_AON
R1532 10k 1% 0402 COMMON
Q838 MMBT3904WT1G SOT323_181C1E COMMON
IFPAB_HPD_R_Q
R1554 100k 0402 1% COMMON
IFPAB_HPD_R
R1569 0ohm 0603 COMMON
IFPAB_HPD_C
R1555 100k 1% 0402 COMMON
C2064 220pF 50V 5% C0G 0402 COMMON
C2069 220pF 50V 5% C0G 0402 COMMON
IFPAB_HPD_R_Q_R
GPIO15_IFPB_HPD
R1489 0ohm 0603 COMMON
GPIO14_IFPA_HPD
R1490 0ohm 0603 COMMON
OUT
30,63
30
J4
Hot_Det
AUX_CHn
AUX_CHp
ML_Lane_3n ML_Lane_3p ML_Lane_2n ML_Lane_2p ML_Lane_1n ML_Lane_1p ML_Lane_0n ML_Lane_0p
DP_PWR
MODE
CEC
MEC1
PWR_RTN
X1 X2 X3 X4
GND_0 GND_1 GND_2 GND_3 GND_6
DP_WGASKET
VWV336A01002
N5W-20M0820-A43
C45 C25 C43 C65 0.1uF COMMON
C44 C24 C42 C64 0.1uF COMMON
IFPB_L3_C* IFPB_L3_C IFPB_L2_C* IFPB_L2_C IFPB_L1_C* IFPB_L1_C IFPB_L0_C* IFPB_L0_C
C2106 0.1uF 16V 10% X7R 0402 COMMON
C34 10uF 6.3V 20% X6S 0805LP COMMON
DPB_MODE_C
DPB_CEC
R1620 5.1M 5% 0402 COMMON
R1574 1M 1% 0402 COMMON
IFPB DP Co-layout with USB-C

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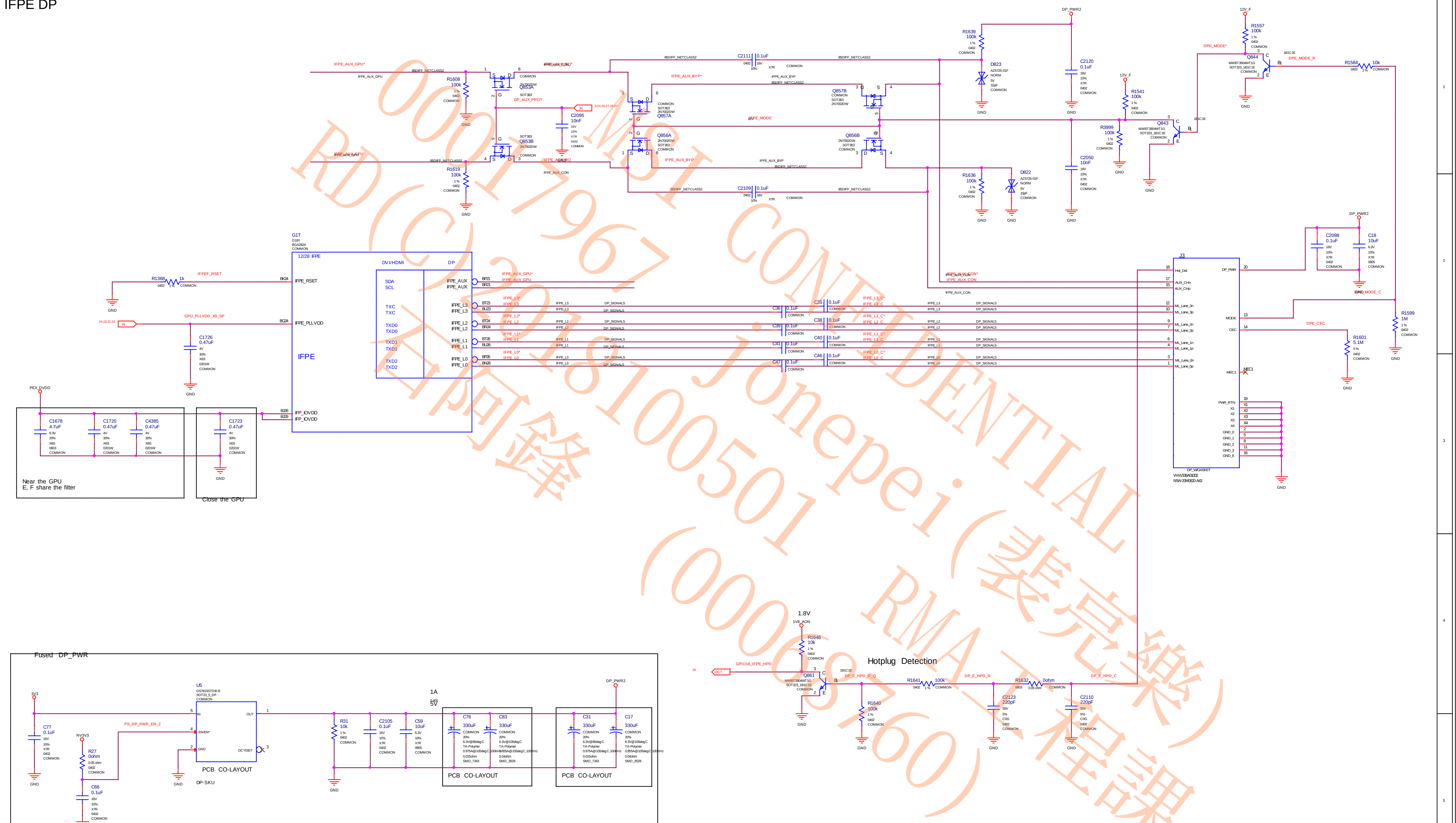
IFPE DP


IFPE_AUX_GPU*
IFPE_AUX_GPU
R1608 100k
Q853A
DP_AUX_PROT
C2095 10nF
R1619 100k
Q853B
Q857A
Q856A
Q857B
Q856B
IFPE_AUX_BYP*
IFPE_AUX_BYP
IFPE_MODE
C2111 0.1uF
C2109 0.1uF
85DIFF_NETCLASS2
R1639 100k
D823
D822
R1636 100k
DP_PWR2
C2120 0.1uF
C2050 10nF
12V_F
R1541 100k
R3999 100k
Q843
R1557 100k
Q844
DPE_MODE*
DPE_MODE_R
R1584 10k
G1T
12/28 IFPE
DVI/HDMI
DP
IFPE
IFPE_RSET
IFPE_PLLVDD
IFP_IOVDD
IFPE_AUX
IFPE_L3
IFPE_L2
IFPE_L1
IFPE_L0
SDA
SCL
TXC
TXD0
TXD1
TXD2
R1365 1k
IFPEF_RSET
GPU_PLLVDD_XS_SP
C1726 0.47uF
PEX_DVDD
C1678 4.7uF
C1720 0.47uF
C4385 0.47uF
C1723 0.47uF
Near the GPU
E, F share the filter
Close the GPU
C36 C35 C39 C38 C41 C40 C47 C46 0.1uF
DP_SIGNALS
IFPE_AUX_CON*
IFPE_AUX_CON
J3
DP_PWR
Hot_Det
AUX_CHn
AUX_CHp
ML_Lane_3n
ML_Lane_3p
ML_Lane_2n
ML_Lane_2p
ML_Lane_1n
ML_Lane_1p
ML_Lane_0n
ML_Lane_0p
MODE
CEC
MEC1
PWR_RTN
GND
C2098 0.1uF
C18 10uF
DPE_MODE_C
DPE_CEC
R1599 1M
R1601 5.1M
DP_W/GASKET
1.8V
1V8_AON
R1646 10k
Hotplug Detection
GPIO18_IFPE_HPD
Q861
DP_E_HPD_R_Q
R1641 100k
DP_E_HPD_R
R1632 0ohm
DP_E_HPD_C
R1640 100k
C2123 220pF
C2110 220pF
Fused DP_PWR
3V3
C77 0.1uF
NV3V3
R27 0ohm
C66 0.1uF
PS_DP_PWR_EN_2
U5
IN
EN/EN*
GND
OUT
OC*/SET
PCB CO-LAYOUT
DP-SKU
1A
5V
R31 10k
C2105 0.1uF
C59 10uF
C76 330uF
C83 330uF
C31 330uF
C17 330uF
PCB CO-LAYOUT
PCB CO-LAYOUT

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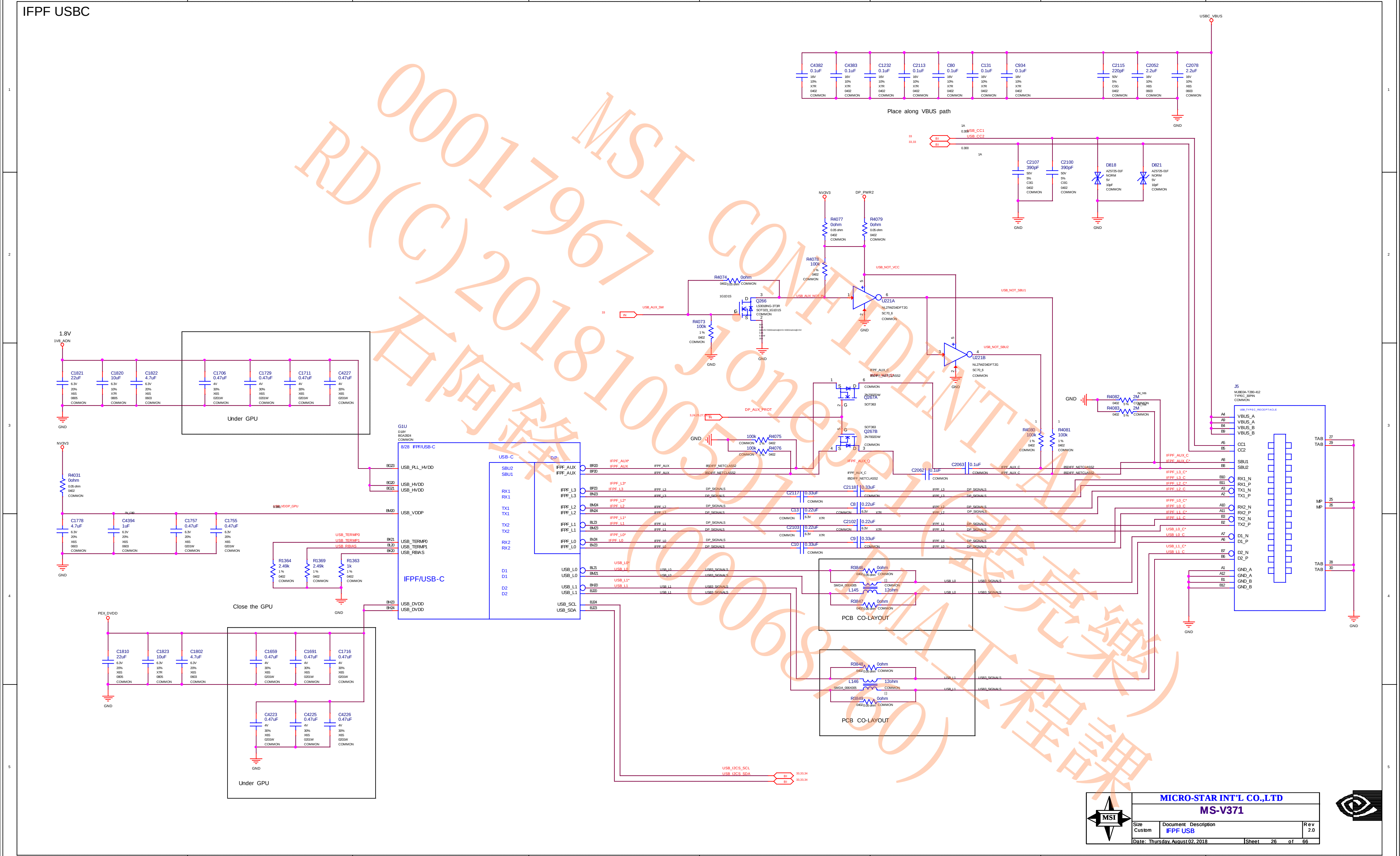
IFPF USBC


USBC_VBUS
C4382 0.1uF
C4383 0.1uF
C1232 0.1uF
C2113 0.1uF
C80 0.1uF
C131 0.1uF
C934 0.1uF
C2115 220pF
C2052 2.2uF
C2078 2.2uF
Place along VBUS path
GND
USB_CC1
USB_CC2
C2107 390pF
C2100 390pF
D818 AZ5725-01F
D821 AZ5725-01F
NV3V3
DP_PWR2
R4077 0ohm
R4079 0ohm
R4078 100k
R4074 0ohm
USB_NOT_VCC
USB_NOT_SBU1
USB_NOT_SBU2
USB_AUX_SW
USB_AUX_NOT_EN
Q266 LS3018NG-3T3R SOT323_1G1D1S
R4073 100k
U221A NL27WZ04DFT2G SC70_6
U221B NL27WZ04DFT2G SC70_6
Q267A 2N7002DW SOT363
Q267B 2N7002DW SOT363
DP_AUX_PROT
R4075 100k
R4076 100k
R4080 100k
R4081 100k
R4082 2M
R4083 2M
C2063 0.1uF
C2062 0.1uF
1.8V
1V8_AON
C1821 22uF
C1820 10uF
C1822 4.7uF
C1706 0.47uF
C1729 0.47uF
C1711 0.47uF
C4227 0.47uF
Under GPU
NV3V3
R4031 0ohm
C1778 4.7uF
C4394 1uF
C1757 0.47uF
C1755 0.47uF
USB_VDDP_GPU
USB_TERMP0
USB_TERMP1
USB_RBIAS
R1364 2.49k
R1369 2.49k
R1363 1k
Close the GPU
G1U
8/28 IFPF/USB-C
USB-C
DP
USB_PLL_HVDD
USB_HVDD
USB_VDDP
USB_TERMP0
USB_TERMP1
USB_RBIAS
IFPF/USB-C
USB_DVDD
SBU2
SBU1
RX1
TX1
TX2
RX2
D1
D2
IFPF_AUX
IFPF_L3
IFPF_L2
IFPF_L1
IFPF_L0
USB_L0
USB_L1
USB_SCL
USB_SDA
C2117 0.33uF
C2118 0.33uF
C13 0.22uF
C8 0.22uF
C2103 0.22uF
C2102 0.22uF
C10 0.33uF
C9 0.33uF
R3846 0ohm
L145 12ohm
R3847 0ohm
PCB CO-LAYOUT
R3848 0ohm
L146 12ohm
R3849 0ohm
PCB CO-LAYOUT
USB_I2CS_SCL
USB_I2CS_SDA
PEX_DVDD
C1810 22uF
C1823 10uF
C1802 4.7uF
C1659 0.47uF
C1691 0.47uF
C1716 0.47uF
C4223 0.47uF
C4225 0.47uF
C4226 0.47uF
Under GPU
J5
USB_TYPEC_RECEPTACLE
VBUS_A
VBUS_B
CC1
CC2
SBU1
SBU2
RX1_N
RX1_P
TX1_N
TX1_P
RX2_N
RX2_P
TX2_N
TX2_P
D1_N
D1_P
D2_N
D2_P
GND_A
GND_B
TAB
MP

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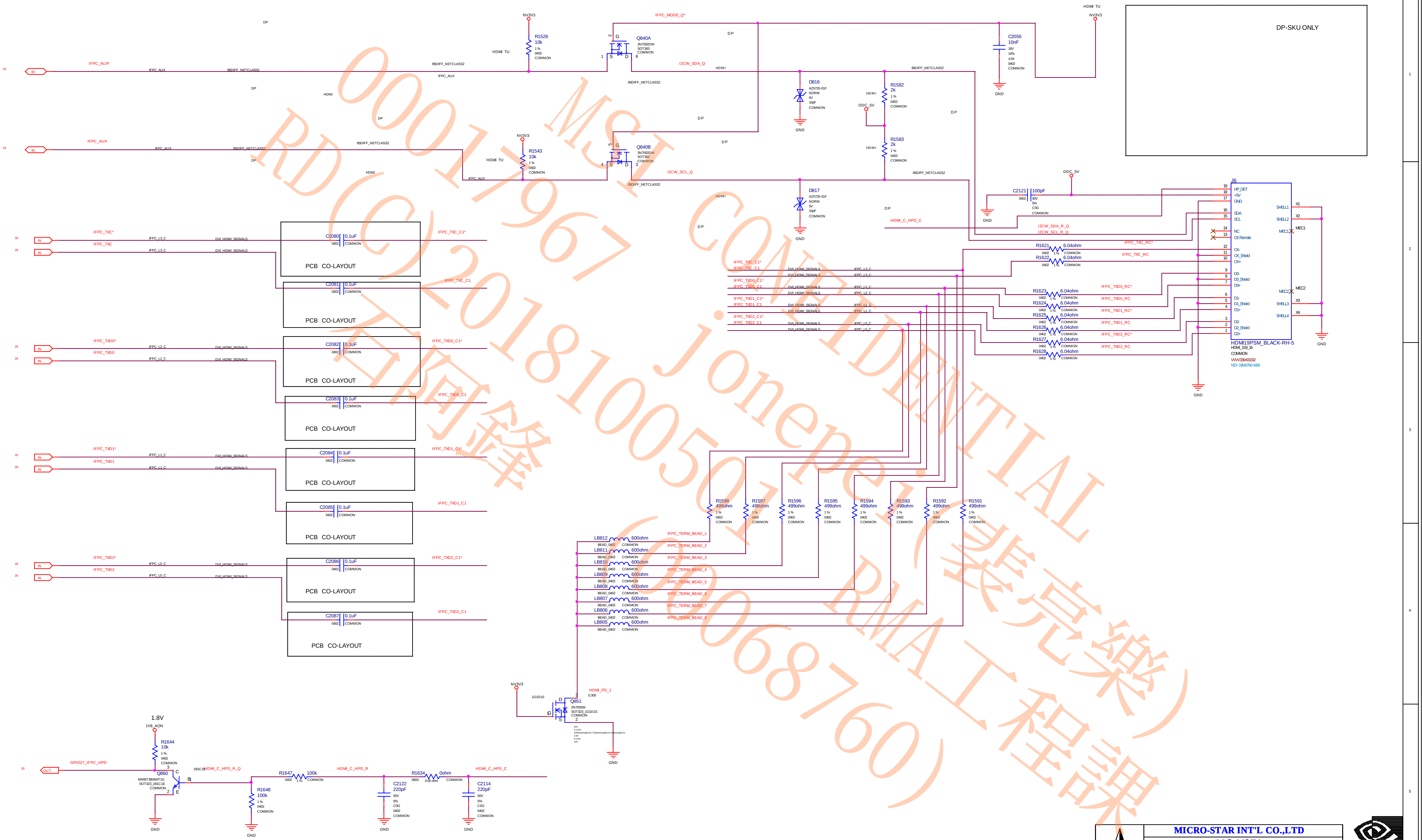
MSI CONFIDENTIAL
00017967 RD(C)20181005017 Jones1 (黃亮樂) DMA工程課
石向鋒 (000681780)

IFPC HDMI 2.0/DP



DP-SKU ONLY
HDMI TU
DP
HDMI
NV3V3
IFPC_AUX*
IFPC_AUX
85DIFF_NETCLASS2
IFPC_MODE_Q*
I2CW_SDA_Q
I2CW_SCL_Q
R1526 10k 1% 0402 COMMON
R1543 10k 1% 0402 COMMON
Q840A 2N7002DW SOT363 COMMON
Q840B 2N7002DW SOT363 COMMON
C2056 10nF 16V 10% X7R 0402 COMMON
D816 AZ5725-01F NORM 5V 10pF COMMON
D817 AZ5725-01F NORM 5V 10pF COMMON
R1582 2k 1% 0402 COMMON
R1583 2k 1% 0402 COMMON
DDC_5V
GND
C2121 100pF 50V 5% C0G 0402 COMMON
HDMI_C_HPD_C
I2CW_SDA_R_Q
I2CW_SCL_R_Q
J6
HP_DET
+5V
SDA
SCL
NC
CE Remote
CK-
CK_Shield
CK+
D0-
D0_Shield
D0+
D1-
D1_Shield
D1+
D2-
D2_Shield
D2+
SHELL1
SHELL2
SHELL3
SHELL4
MEC1
MEC2
HDMI19PSM_BLACK-RH-5
HDMI_S19_16
COMMON
IFPC_TXC*
IFPC_TXC
IFPC_TXD0*
IFPC_TXD0
IFPC_TXD1*
IFPC_TXD1
IFPC_TXD2*
IFPC_TXD2
IFPC_L3_C
IFPC_L2_C
IFPC_L1_C
IFPC_L0_C
DVI_HDMI_SIGNALS
C2080 0.1uF 0402 COMMON
C2081 0.1uF 0402 COMMON
C2082 0.1uF 0402 COMMON
C2083 0.1uF 0402 COMMON
C2084 0.1uF 0402 COMMON
C2085 0.1uF 0402 COMMON
C2086 0.1uF 0402 COMMON
C2087 0.1uF 0402 COMMON
PCB CO-LAYOUT
IFPC_TXC_C1*
IFPC_TXC_C1
IFPC_TXD0_C1*
IFPC_TXD0_C1
IFPC_TXD1_C1*
IFPC_TXD1_C1
IFPC_TXD2_C1*
IFPC_TXD2_C1
R1621 6.04ohm
R1622 6.04ohm
R1623 6.04ohm
R1624 6.04ohm
R1625 6.04ohm
R1626 6.04ohm
R1627 6.04ohm
R1628 6.04ohm
IFPC_TXC_RC*
IFPC_TXC_RC
IFPC_TXD0_RC*
IFPC_TXD0_RC
IFPC_TXD1_RC*
IFPC_TXD1_RC
IFPC_TXD2_RC*
IFPC_TXD2_RC
R1598 499ohm
R1597 499ohm
R1596 499ohm
R1595 499ohm
R1594 499ohm
R1593 499ohm
R1592 499ohm
R1591 499ohm
LB812 600ohm BEAD_0402 COMMON
LB811 600ohm
LB810 600ohm
LB809 600ohm
LB808 600ohm
LB807 600ohm
LB806 600ohm
LB805 600ohm
IFPC_TERM_BEAD_1
IFPC_TERM_BEAD_2
IFPC_TERM_BEAD_3
IFPC_TERM_BEAD_4
IFPC_TERM_BEAD_5
IFPC_TERM_BEAD_6
IFPC_TERM_BEAD_7
IFPC_TERM_BEAD_8
HDMI_PD_1
Q851 2N7002W SOT323_1G1D1S COMMON
1G1D1S
1.8V
1V8_AON
R1644 10k 1% 0402 COMMON
GPIO27_IFPC_HPD
OUT
Q860 MMBT3904WT1G SOT323_1B1C1E COMMON
HDMI_C_HPD_R_Q
R1647 100k 0402 1% COMMON
HDMI_C_HPD_R
R1634 0ohm 0603 0.05 ohm COMMON
R1648 100k 1% 0402 COMMON
C2122 220pF 50V 5% C0G 0402 COMMON
C2114 220pF 50V 5% C0G 0402 COMMON

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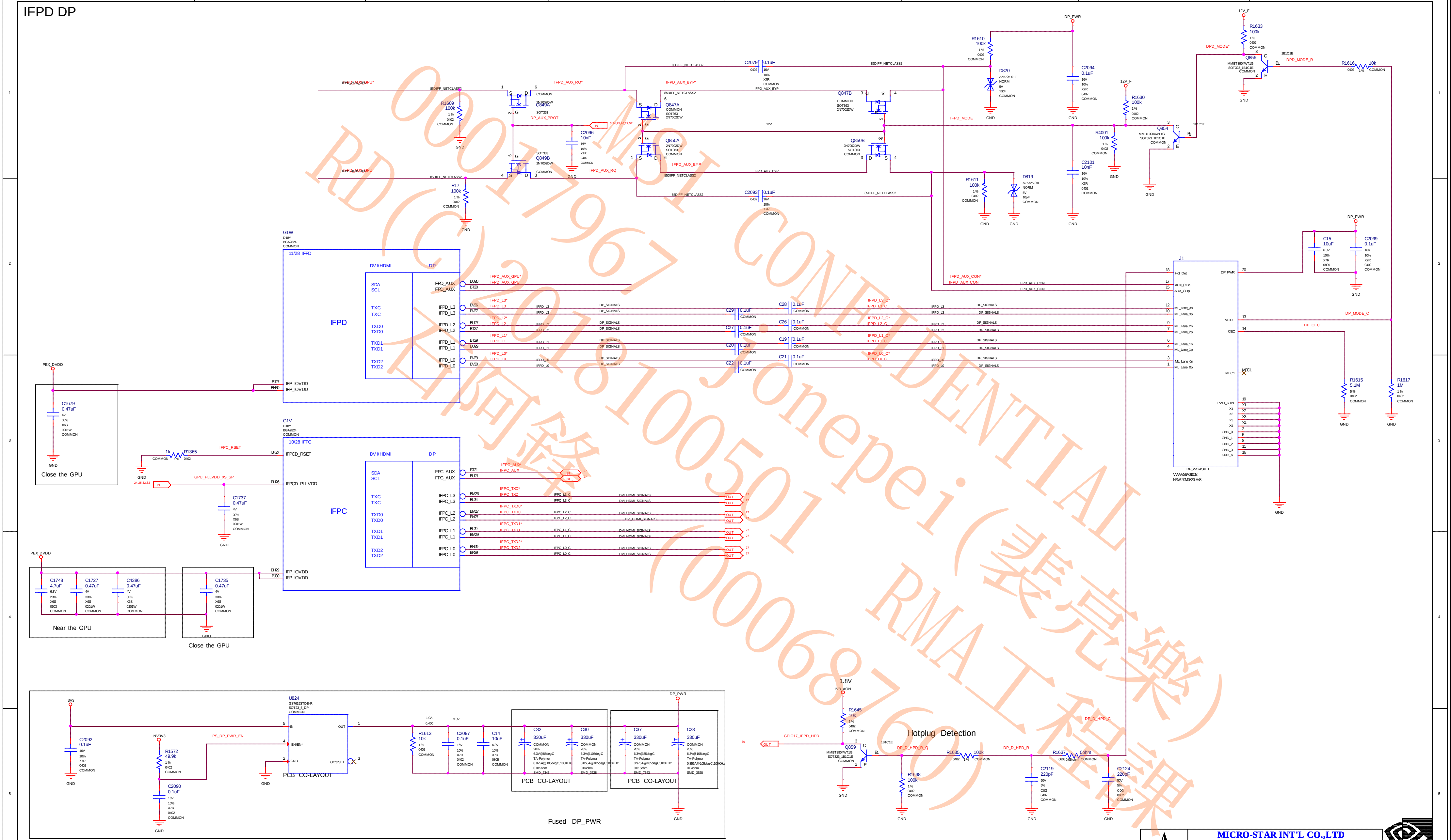
IFPD DP



DP_PWR
12V_F
R1633
100k
Q855
MMBT3904WT1G
DPD_MODE*
DPD_MODE_R
R1616
10k
R1610
100k
D820
AZ5725-01F
C2094
0.1uF
C2079
0.1uF
85DIFF_NETCLASS2
IFPD_AUX_GPU*
IFPD_AUX_RQ*
IFPD_AUX_BYP*
Q849A
Q847A
Q847B
2N7002DW
SOT363
R1609
100k
C2096
10nF
DP_AUX_PROT
IN
12V
IFPD_MODE
R1630
100k
Q854
R4001
100k
C2101
10nF
Q850A
Q850B
Q849B
IFPD_AUX_GPU
IFPD_AUX_RQ
IFPD_AUX_BYP
R17
100k
C2093
0.1uF
R1611
100k
D819
AZ5725-01F
GND
G1W
11/28 IFPD
IFPD
DVI/HDMI
DP
SDA
SCL
TXC
TXD0
TXD1
TXD2
IFPD_AUX
IFPD_L3
IFPD_L2
IFPD_L1
IFPD_L0
IFP_IOVDD
IFPD_AUX_GPU*
IFPD_AUX_GPU
IFPD_AUX_CON*
IFPD_AUX_CON
DP_SIGNALS
C29
C28
C27
C26
C20
C19
C22
C21
0.1uF
IFPD_L3_C*
IFPD_L2_C*
IFPD_L1_C*
IFPD_L0_C*
J1
Hot_Det
AUX_CHn
AUX_CHp
ML_Lane_3n
ML_Lane_3p
ML_Lane_2n
ML_Lane_2p
ML_Lane_1n
ML_Lane_1p
ML_Lane_0n
ML_Lane_0p
DP_PWR
MODE
CEC
MEC1
PWR_RTN
DP_WGASKET
DP_MODE_C
DP_CEC
C15
10uF
C2099
0.1uF
R1615
5.1M
R1617
1M
PEX_DVDD
C1679
0.47uF
Close the GPU
G1V
10/28 IFPC
IFPC
IFPCD_RSET
IFPCD_PLLVDD
IFPD_RSET
R1365
1k
GPU_PLLVDD_XS_SP
C1737
0.47uF
IFPC_AUX
IFPC_L3
IFPC_L2
IFPC_L1
IFPC_L0
IFPC_TXC
IFPC_TXD0
IFPC_TXD1
IFPC_TXD2
DVI_HDMI_SIGNALS
OUT
C1748
4.7uF
C1727
0.47uF
C4386
0.47uF
C1735
0.47uF
Near the GPU
Close the GPU
3V3
C2092
0.1uF
NV3V3
R1572
49.9k
C2090
0.1uF
PS_DP_PWR_EN
U824
GS7615STDB-R
IN
OUT
EN/EN*
GND
OC*/SET
PCB CO-LAYOUT
R1613
10k
C2097
0.1uF
C14
10uF
C32
330uF
C30
330uF
C37
330uF
C23
330uF
PCB CO-LAYOUT
Fused DP_PWR
1.8V
1V8_AON
R1645
10k
GPIO17_IFPD_HPD
Q859
Hotplug Detection
DP_D_HPD_C
DP_D_HPD_R_Q
DP_D_HPD_R
R1635
100k
R1637
0ohm
R1638
100k
C2119
220pF
C2124
220pF

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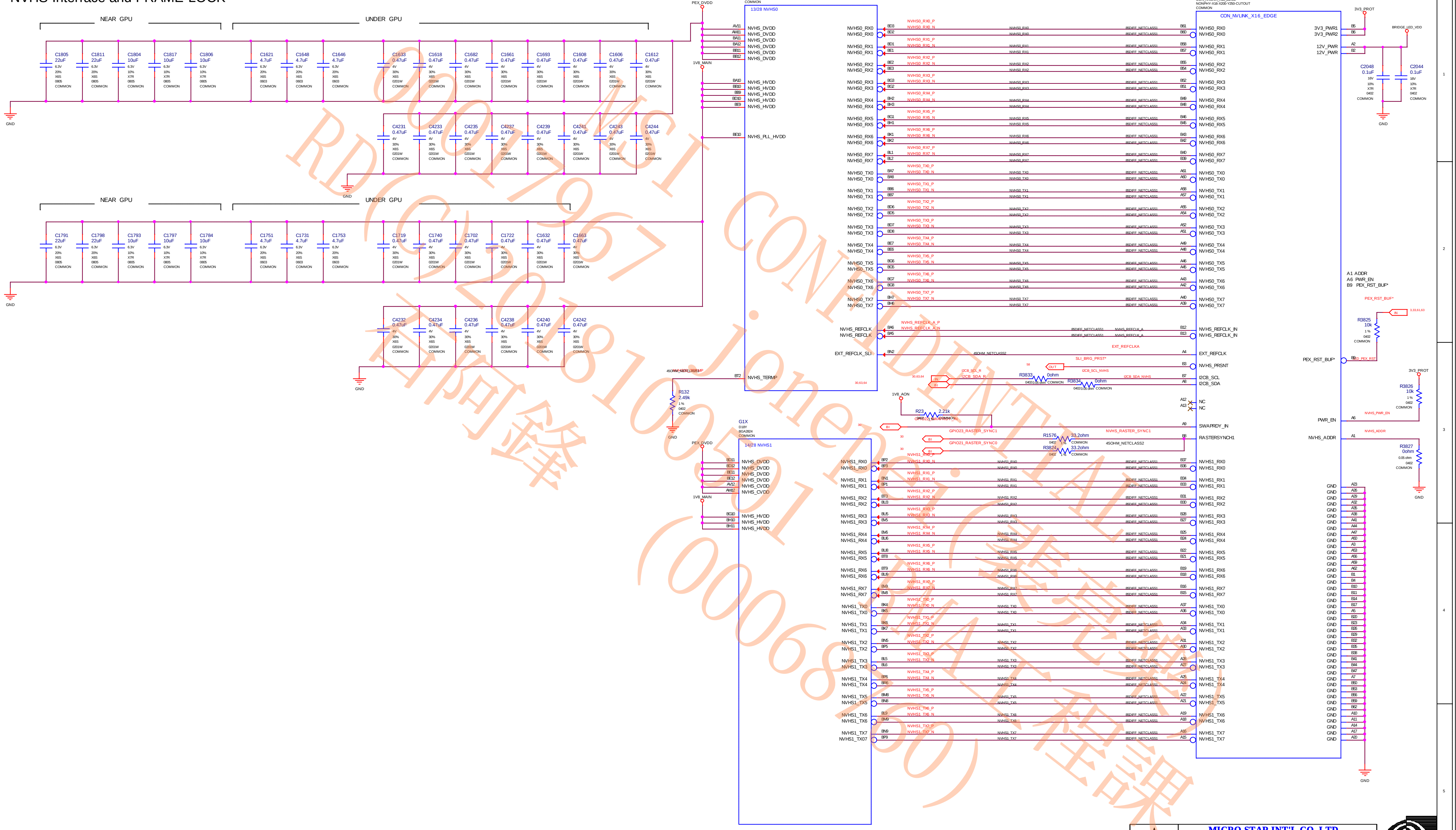
NVHS Interface and FRAME LOCK



NEAR GPU
UNDER GPU
C1805 22uF
C1811 22uF
C1804 10uF
C1817 10uF
C1806 10uF
C1621 4.7uF
C1648 4.7uF
C1646 4.7uF
C1633 0.47uF
C1618 0.47uF
C1682 0.47uF
C1661 0.47uF
C1693 0.47uF
C1608 0.47uF
C1606 0.47uF
C1612 0.47uF
C4231 0.47uF
C4233 0.47uF
C4235 0.47uF
C4237 0.47uF
C4239 0.47uF
C4241 0.47uF
C4243 0.47uF
C4244 0.47uF
C1791 22uF
C1798 22uF
C1793 10uF
C1797 10uF
C1784 10uF
C1751 4.7uF
C1731 4.7uF
C1753 4.7uF
C1719 0.47uF
C1740 0.47uF
C1702 0.47uF
C1722 0.47uF
C1632 0.47uF
C1663 0.47uF
C4232 0.47uF
C4234 0.47uF
C4236 0.47uF
C4238 0.47uF
C4240 0.47uF
C4242 0.47uF
GND
PEX_DVDD
1V8_MAIN
G1Y
13/28 NVHS0
NVHS_DVDD
NVHS_HVDD
NVHS_PLL_HVDD
NVHS_TERMP
NVHS0_RX0 … NVHS0_RX7
NVHS0_TX0 … NVHS0_TX7
NVHS_REFCLK
EXT_REFCLK_SLI
R132 2.49k
G1X
14/28 NVHS1
NVHS_CVDD
NVHS1_RX0 … NVHS1_RX7
NVHS1_TX0 … NVHS1_TX7
NVHS_REFCLK_A_P
NVHS_REFCLK_A_N
EXT_REFCLK
SLI_BRG_PRST*
I2CB_SCL_R
I2CB_SDA_R
I2CB_SCL_NVHS
I2CB_SDA_NVHS
R3833 0ohm
R3834 0ohm
1V8_AON
R23 2.21k
GPIO23_RASTER_SYNC1
GPIO21_RASTER_SYNC0
NVHS_RASTER_SYNC1
R1576 33.2ohm
R3824 33.2ohm
45OHM_NETCLASS2
CN4
CON_NVLINK_X16_EDGE
NVHS0_RX0 … NVHS0_RX7
NVHS0_TX0 … NVHS0_TX7
NVHS_REFCLK_IN
EXT_REFCLK
NVHS_PRSNT
I2CB_SCL
I2CB_SDA
NC
SWAPRDY_IN
RASTERSYNCH1
NVHS1_RX0 … NVHS1_RX7
NVHS1_TX0 … NVHS1_TX7
3V3_PROT
3V3_PWR1
3V3_PWR2
12V_PWR
BRIDGE_LED_VDD
C2048 0.1uF
C2044 0.1uF
A1 ADDR
A6 PWR_EN
B9 PEX_RST_BUF*
PEX_RST_BUF*
R3825 10k
R3826 10k
PWR_EN
NVHS_PWR_EN
NVHS_ADDR
R3827 0ohm

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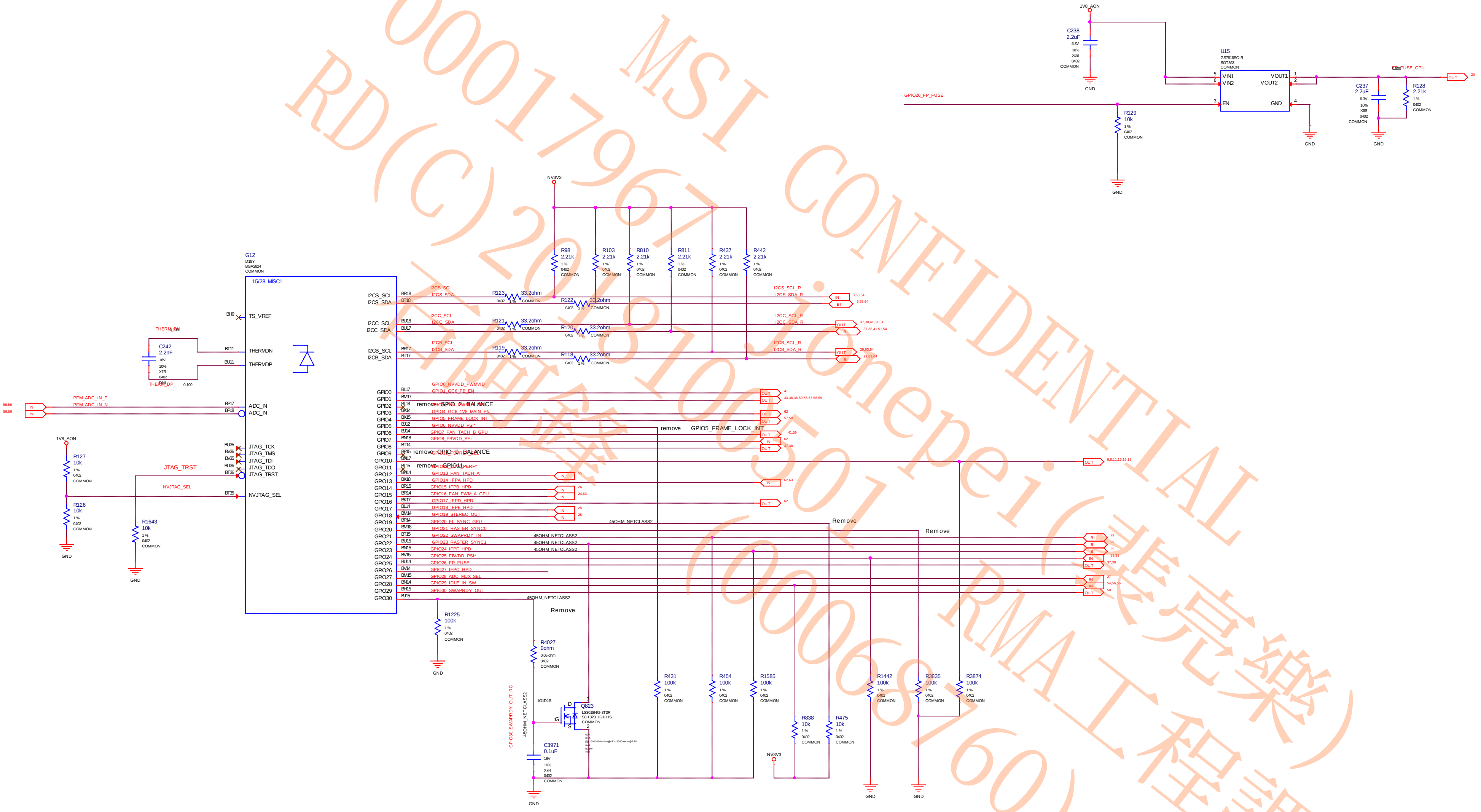
MISC1: Fan, Thermal, JTAG, GPIO, STEREO


1V8_AON
C238
2.2uF
U15
GS7616SC-R
SOT363
VIN1
VIN2
VOUT1
VOUT2
EN
GND
GPIO26_FP_FUSE
R129
10k
C237
2.2uF
R128
2.21k
FUSE_GPU
OUT
NV3V3
R98
R103
R810
R811
R437
R442
2.21k
G1Z
D18Y
BGA2824
15/28 MISC1
I2CS_SCL
I2CS_SDA
I2CC_SCL
I2CC_SDA
I2CB_SCL
I2CB_SDA
R123
R122
R121
R120
R119
R118
33.2ohm
I2CS_SCL_R
I2CS_SDA_R
I2CC_SCL_R
I2CC_SDA_R
I2CB_SCL_R
I2CB_SDA_R
TS_VREF
THERMDN
THERMDP
C242
2.2nF
ADC_IN
PFM_ADC_IN_P
PFM_ADC_IN_N
JTAG_TCK
JTAG_TMS
JTAG_TDI
JTAG_TDO
JTAG_TRST
NVJTAG_SEL
R127
10k
R126
10k
R1643
10k
GPIO0
GPIO1
GPIO2
GPIO3
GPIO4
GPIO5
GPIO6
GPIO7
GPIO8
GPIO9
GPIO10
GPIO11
GPIO12
GPIO13
GPIO14
GPIO15
GPIO16
GPIO17
GPIO18
GPIO19
GPIO20
GPIO21
GPIO22
GPIO23
GPIO24
GPIO25
GPIO26
GPIO27
GPIO28
GPIO29
GPIO30
GPIO0_NVVDD_PWMVID
GPIO1_GC6_FB_EN
remove GPIO_2_BALANCE
GPIO4_GC6_1V8_MAIN_EN
GPIO5_FRAME_LOCK_INT
GPIO6_NVVDD_PSI*
GPIO7_FAN_TACH_B_GPU
GPIO8_FBVDD_SEL
remove GPIO5_FRAME_LOCK_INT
remove GPIO_9_BALANCE
remove GPIO11
GPIO13_FAN_TACH_A
GPIO14_IFPA_HPD
GPIO15_IFPB_HPD
GPIO16_FAN_PWM_A_GPU
GPIO17_IFPD_HPD
GPIO18_IFPE_HPD
GPIO19_STEREO_OUT
GPIO20_FL_SYNC_GPU
GPIO21_RASTER_SYNC0
GPIO22_SWAPRDY_IN
GPIO23_RASTER_SYNC1
GPIO24_IFPF_HPD
GPIO25_FBVDD_PSI*
GPIO26_FP_FUSE
GPIO27_IFPC_HPD
GPIO28_ADC_MUX_SEL
GPIO29_IDLE_IN_SW
GPIO30_SWAPRDY_OUT
45OHM_NETCLASS2
Remove
R1225
100k
R4027
0ohm
Q823
LS3018NG-3T3R
SOT323_1G1D1S
C3971
0.1uF
GPIO30_SWAPRDY_OUT_RC
R431
R454
R1585
R1442
R3835
R3874
100k
R838
R475
10k
GND
IN
OUT
BI

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MISC2: ROM, Straps

STRAP2	STRAP1	STRAP0	RAMCFG[4:0]	
L	L	L	00000	
L	L	H	00001	DEFAULT
L	H	L	00010	
L	H	H	00011	
H	L	L	00100	
H	L	H	00101	
H	H	L	00110	
H	H	H	00111	
L	L	M	01000	
L	M	L	01001	

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

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	H	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	SKU 200

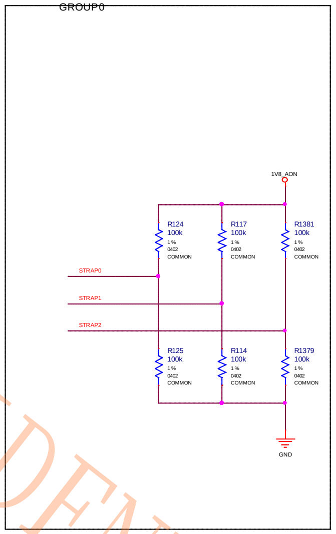
1:SMB_ALT_ADDR ENABLE
0:SMB_ALT_ADDR DISABLE

1:DEVID_SEL REBRAND
0:DEVID_SEL ORIGNAL

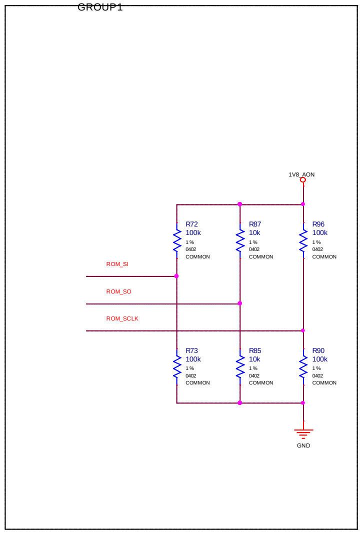
1:PCIE_CFG LOW POWER
0:PCIE_CFG HIGH POWER

1:VGA_DEVICE ENABLE
0:VGA_DEVICE DISABLE

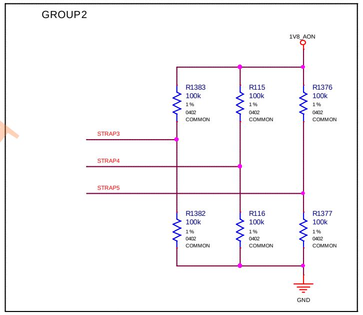
GROUP0

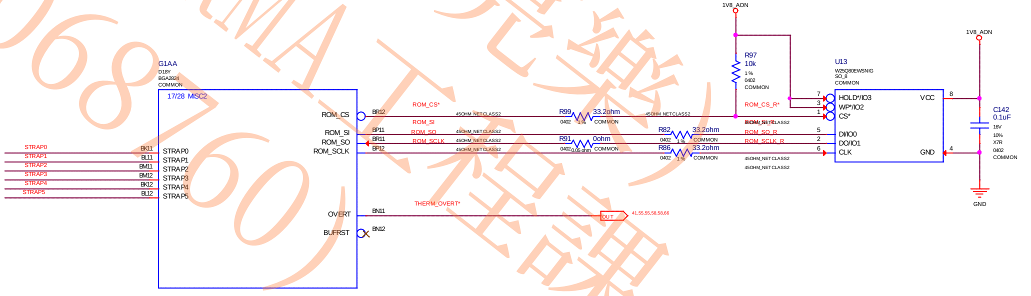

1V8_AON
R124
100k
1%
0402
COMMON
R117
100k
1%
0402
COMMON
R1381
100k
1%
0402
COMMON
STRAP0
STRAP1
STRAP2
R125
100k
1%
0402
COMMON
R114
100k
1%
0402
COMMON
R1379
100k
1%
0402
COMMON
GND

GROUP1


1V8_AON
R72
100k
1%
0402
COMMON
R87
10k
1%
0402
COMMON
R96
100k
1%
0402
COMMON
ROM_SI
ROM_SO
ROM_SCLK
R73
100k
1%
0402
COMMON
R85
10k
1%
0402
COMMON
R90
100k
1%
0402
COMMON
GND

GROUP2


1V8_AON
R1383
100k
1%
0402
COMMON
R115
100k
1%
0402
COMMON
R1376
100k
1%
0402
COMMON
STRAP3
STRAP4
STRAP5
R1382
100k
1%
0402
COMMON
R116
100k
1%
0402
COMMON
R1377
100k
1%
0402
COMMON
GND


G1AA
D18Y
BGA2824
COMMON
17/28 MISC2
STRAP0
STRAP1
STRAP2
STRAP3
STRAP4
STRAP5
BK11
BL11
BM11
BM12
BK12
BL12
ROM_CS
ROM_SI
ROM_SO
ROM_SCLK
OVERT
BUFRST
BR12
BP11
BR11
BP12
BN11
BN12
ROM_CS*
ROM_SI
ROM_SO
ROM_SCLK
THERM_OVERT*
45OHM_NETCLASS2
R99
33.2ohm
0402
1%
COMMON
R91
0ohm
0402
0.05 ohm
COMMON
R82
33.2ohm
0402
1%
COMMON
R86
33.2ohm
0402
1%
COMMON
1V8_AON
R97
10k
1%
0402
COMMON
ROM_CS_R*
ROM_SI_R
ROM_SO_R
ROM_SCLK_R
U13
W25Q80EWSNIG
SO_8
COMMON
HOLD*/IO3
WP*/IO2
CS*
DI/IO0
DO/IO1
CLK
VCC
GND
7
3
1
5
2
6
8
4
C142
0.1uF
16V
10%
X7R
0402
COMMON
GND
OUT
41,55,55,58,58,66

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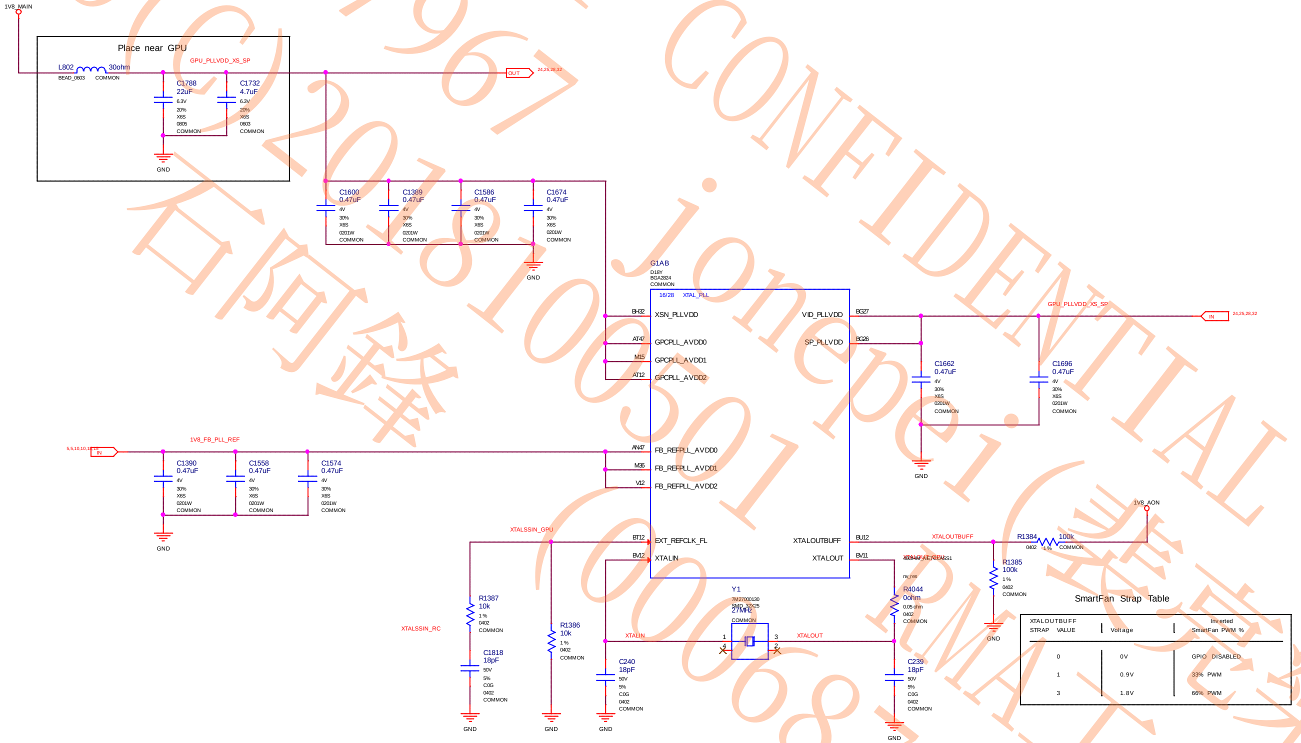
RD(C)2018100501
jonepei(裴亮樂)
(000068760) RMA工程課

MISC2: XTAL. PLL


1V8_MAIN
Place near GPU
L802
30ohm
BEAD_0603
COMMON
GPU_PLLVDD_XS_SP
OUT
24,25,28,32
C1788
22uF
6.3V
20%
X6S
0805
COMMON
C1732
4.7uF
6.3V
20%
X6S
0603
COMMON
GND
C1600
0.47uF
C1389
0.47uF
C1586
0.47uF
C1674
0.47uF
4V
30%
X6S
0201W
COMMON
GND
G1AB
D18Y
BGA2824
COMMON
16/28 XTAL_PLL
BH32 XSN_PLLVDD
AT47 GPCPLL_AVDD0
M15 GPCPLL_AVDD1
AT12 GPCPLL_AVDD2
AN47 FB_REFPLL_AVDD0
M36 FB_REFPLL_AVDD1
V12 FB_REFPLL_AVDD2
BT12 EXT_REFCLK_FL
BV12 XTALIN
VID_PLLVDD BG27
SP_PLLVDD BG26
XTALOUTBUFF BU12
XTALOUT BV11
GPU_PLLVDD_XS_SP
IN
24,25,28,32
C1662
0.47uF
C1696
0.47uF
4V
30%
X6S
0201W
COMMON
GND
5,5,10,10,15,15
IN
1V8_FB_PLL_REF
C1390
0.47uF
C1558
0.47uF
C1574
0.47uF
4V
30%
X6S
0201W
COMMON
GND
XTALSSIN_GPU
XTALSSIN_RC
R1387
10k
1%
0402
COMMON
C1818
18pF
50V
5%
C0G
0402
COMMON
R1386
10k
1%
0402
COMMON
C240
18pF
50V
5%
C0G
0402
COMMON
Y1
7M27000130
SMD_32X25
27MHz
COMMON
XTALIN
XTALOUT
1
2
3
4
XTALOUT_GPU
45OHM_NETCLASS1
nv_res
R4044
0ohm
0.05 ohm
0402
COMMON
C239
18pF
50V
5%
C0G
0402
COMMON
GND
XTALOUTBUFF
R1384
100k
0402
1%
COMMON
1V8_AON
R1385
100k
1%
0402
COMMON
GND

SmartFan Strap Table

XTALOUTBUFF STRAP VALUE	Voltage	Inverted SmartFan PWM %
0	0V	GPIO DISABLED
1	0.9V	33% PWM
3	1.8V	66% PWM

MICRO-STAR INT'L CO.,LTD

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Custom	XTAL	2.0

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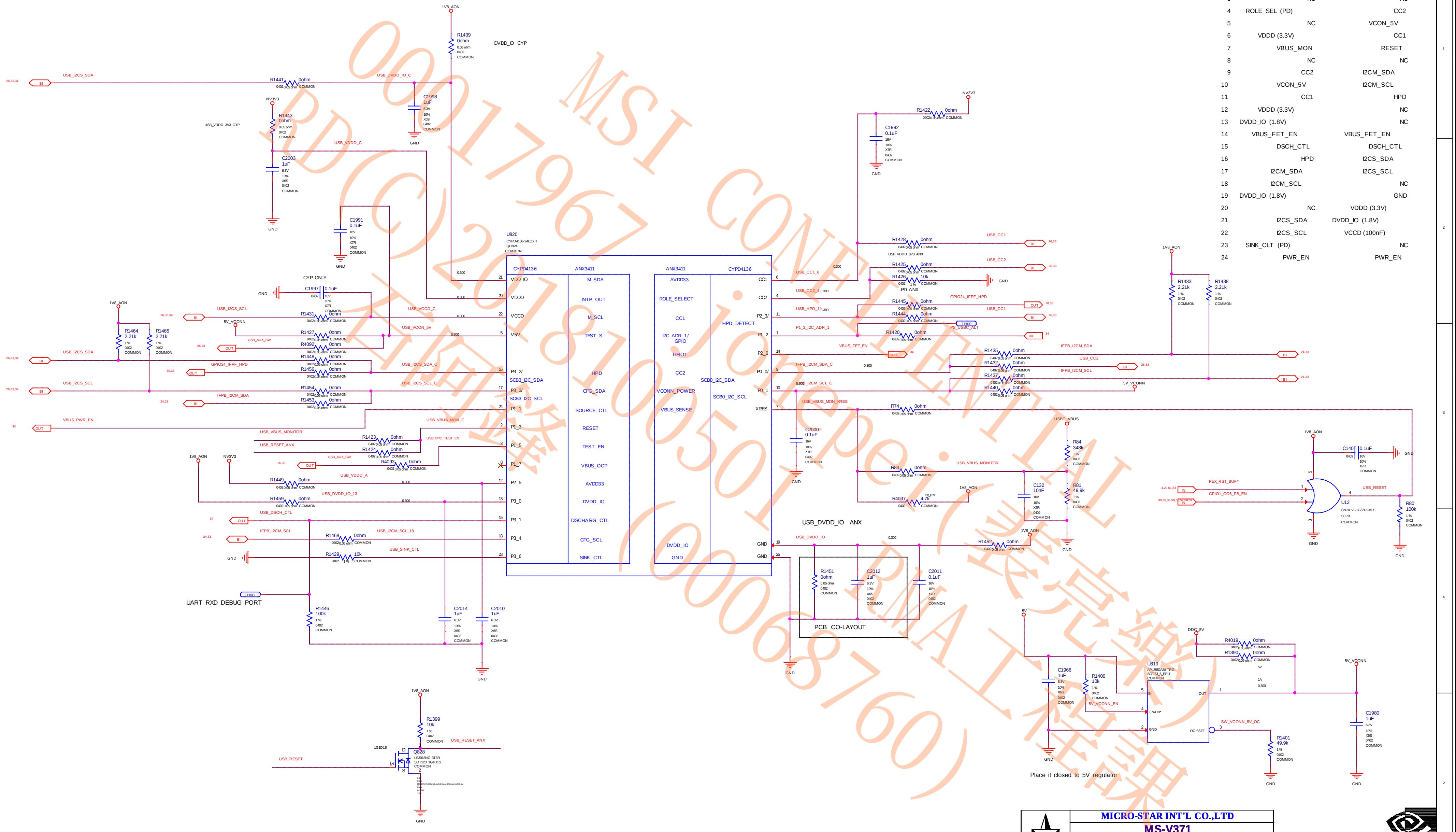
00017967
RD(C)2018100501
石向鋒
joncpei(裴宗樂)
(00068760)
RMA工程課

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



1V8_AON
R1439 0ohm
DVDD_IO CYP
USB_I2CS_SDA
R1441 0ohm
USB_DVDD_IO_C
C1998 1uF
NV3V3
R1443 0ohm
USB_VDDD 3V3 CYP
C2003 1uF
USB_VDDD_C
C1991 0.1uF
CYP ONLY
C1997 0.1uF
U820
CYPD4136-24LQXIT
QFN24
CYPD4136
ANX3411
VDD_IO
VDDD
VCCD
V5V
M_SDA
INTP_OUT
M_SCL
TEST_S
AVDD33
ROLE_SELECT
CC1
I2C_ADR_1/GPIO
GPIO1
CC2
VCONN_POWER
VBUS_SENSE
HPD_DETECT
SCB0_I2C_SDA
SCB0_I2C_SCL
XRES
P2_3/
P1_2
P2_6
P0_0/
P0_1
P3_2/
SCB3_I2C_SDA
P3_3/
SCB3_I2C_SCL
P1_1
P1_3
P1_5
P1_7
P2_5
P3_0
P3_1
P3_4
P3_6
HPD
CFG_SDA
SOURCE_CTL
RESET
TEST_EN
VBUS_OCP
AVDD33
DVDD_IO
DISCHARG_CTL
CFG_SCL
SINK_CTL
DVDD_IO
GND
USB_I2CS_SCL
R1464 2.21k
R1465 2.21k
5V_VCONN
USB_AUX_SW
GPIO24_IFPF_HPD
IFPB_I2CM_SDA
VBUS_PWR_EN
USB_VBUS_MONITOR
USB_RESET_ANX
USB_VBUS_MON_C
USB_PPC_TEST_EN
USB_VCCD_C
USB_VCON_5V
USB_I2CS_SDA_C
USB_I2CS_SCL_C
R1431 0ohm
R1427 0ohm
R4092 0ohm
R1448 0ohm
R1456 0ohm
R1454 0ohm
R1453 0ohm
R1423 0ohm
R1424 0ohm
R4093 0ohm
R1449 0ohm
R1459 0ohm
R1468 0ohm
R1429 10k
USB_VDDD_A
USB_DVDD_IO_13
USB_DSCH_CTL
IFPB_I2CM_SCL
USB_I2CM_SCL_18
USB_SINK_CTL
TP803
UART RXD DEBUG PORT
R1446 100k
C2014 1uF
C2010 1uF
NV3V3
R1422 0ohm
C1992 0.1uF
USB_CC1
USB_CC2
R1428 0ohm
R1425 0ohm
R1426 10k
PD ANX
R1445 0ohm
R1444 0ohm
R1420 0ohm
GPIO24_IFPF_HPD
USB_CC1_6
USB_CC2_4
USB_HPD_11
P1_2_I2C_ADR_1
VBUS_FET_EN
P3_USBC_ACT
TP802
IFPB_I2CM_SDA_C
IFPB_I2CM_SCL_C
USB_VBUS_MON_XRES
R1435 0ohm
R1432 0ohm
R1437 0ohm
R1440 0ohm
IFPB_I2CM_SDA
IFPB_I2CM_SCL
R1433 2.21k
R1438 2.21k
R74 0ohm
C2000 0.1uF
USBC_VBUS
R84 348k
R83 0ohm
R81 49.9k
C132 10nF
R4037 4.7k
USB_DVDD_IO ANX
USB_DVDD_IO
R1452 0ohm
R1451 0ohm
C2012 1uF
C2011 0.1uF
PCB CO-LAYOUT
C140 0.1uF
U12
SN74LVC1G32DCKR
PEX_RST_BUF*
GPIO1_GC6_FB_EN
USB_RESET
R80 100k
DDC_5V
R4019 0ohm
R1390 0ohm
5V_VCONN
U819
APL3552AB-TRG
SOT23_5_EFU
IN
OUT
EN/EN*
GND
OC*/ISET
C1966 1uF
R1400 10k
5V_VCONN_EN
SW_VCONN_5V_OC
R1401 49.9k
C1980 1uF
Place it closed to 5V regulator
R1399 10k
Q828
LS3018NG-3T3R
SOT323_1G1D1S
1G1D1S
USB_RESET_ANX
USB_RESET

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000179677
RD(C)20181005
Johnpei.
(00068760)
RMA

MICRO-STAR INT'L CO.,LTD
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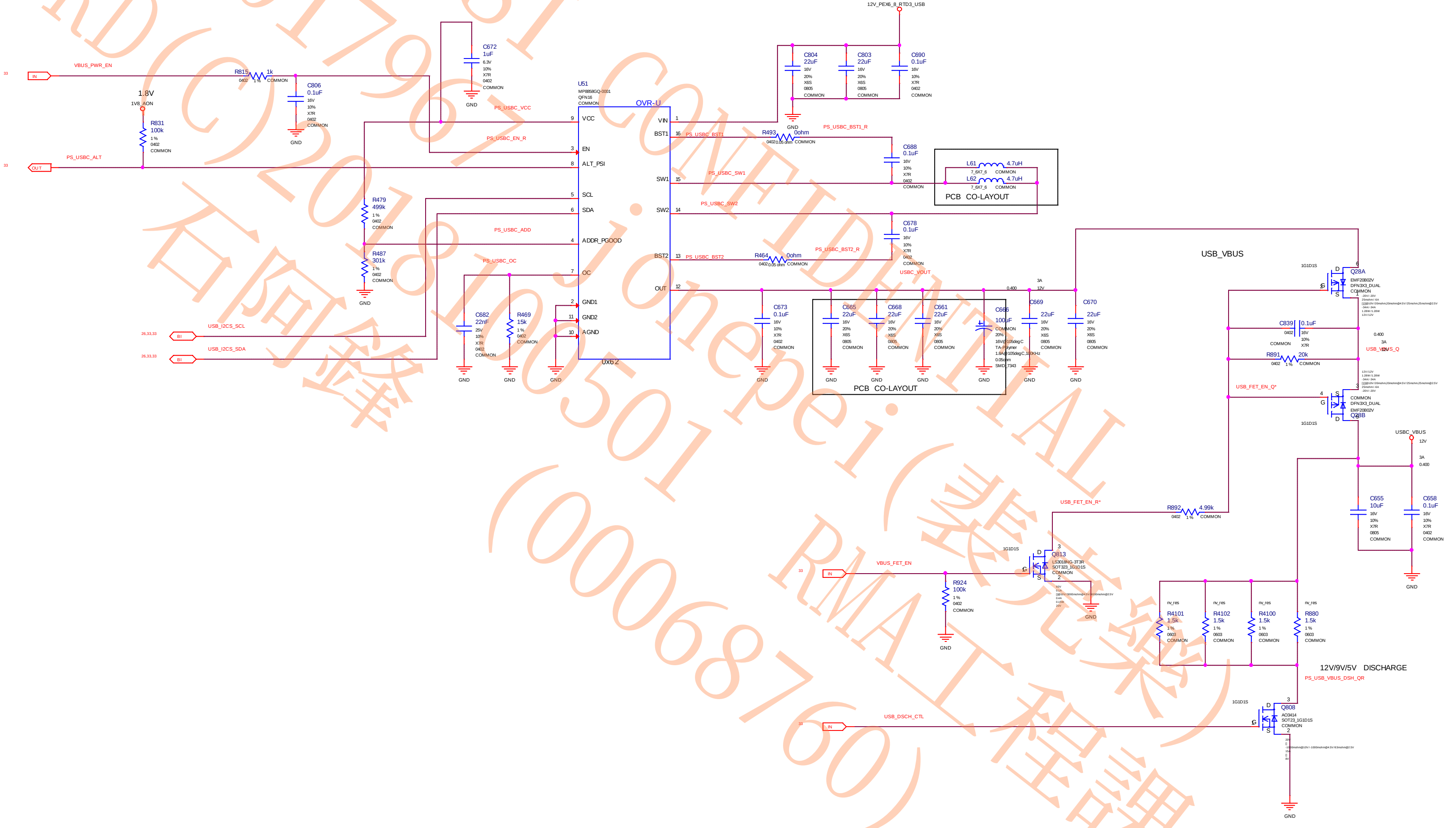
PS: USB VR


12V_PEX6_8_RTD3_USB
C804 22uF 16V 20% X6S 0805 COMMON
C803 22uF 16V 20% X6S 0805 COMMON
C690 0.1uF 16V 10% X7R 0402 COMMON
C672 1uF 6.3V 10% X7R 0402 COMMON
VBUS_PWR_EN
IN
R815 1k 0402 1% COMMON
C806 0.1uF 16V 10% X7R 0402 COMMON
1.8V
1V8_AON
R831 100k 1% 0402 COMMON
PS_USBC_ALT
OUT
PS_USBC_VCC
PS_USBC_EN_R
U51
MP8858GQ-0001
QFN16
COMMON
OVR-U
9 VCC
3 EN
8 ALT_PSI
5 SCL
6 SDA
4 ADDR_PGOOD
7 OC
2 GND1
11 GND2
10 AGND
1 VIN
16 BST1
15 SW1
14 SW2
13 BST2
12 OUT
0x62
PS_USBC_BST1
R493 0ohm 0402 0.05 ohm COMMON
PS_USBC_BST1_R
C688 0.1uF 16V 10% X7R 0402 COMMON
PS_USBC_SW1
L61 4.7uH 7_6X7_6 COMMON
L62 4.7uH 7_6X7_6 COMMON
PCB CO-LAYOUT
PS_USBC_SW2
C678 0.1uF 16V 10% X7R 0402 COMMON
PS_USBC_BST2
R464 0ohm 0402 0.05 ohm COMMON
PS_USBC_BST2_R
USBC_VOUT
R479 499k 1% 0402 COMMON
R487 301k 1% 0402 COMMON
PS_USBC_ADD
PS_USBC_OC
C682 22nF 25V 10% X7R 0402 COMMON
R469 15k 1% 0402 COMMON
USB_I2CS_SCL
USB_I2CS_SDA
BI
26,33,33
C673 0.1uF 16V 10% X7R 0402 COMMON
C665 22uF 16V 20% X6S 0805 COMMON
C668 22uF 16V 20% X6S 0805 COMMON
C661 22uF 16V 20% X6S 0805 COMMON
C686 100uF COMMON 20% 16V 105degC TA-Polymer 1.8A@105degC,100KHz 0.05ohm SMD_7343
C669 22uF 16V 20% X6S 0805 COMMON
C670 22uF 16V 20% X6S 0805 COMMON
PCB CO-LAYOUT
0.400 3A 12V
USB_VBUS
1G1D1S
Q28A EMF20B02V DFN3X3_DUAL COMMON
-20V/-20V 25mohm/-6A -34A/-34A 1.28W/1.28W 12V/12V
C839 0.1uF 0402 16V 10% X7R COMMON
R891 20k 0402 1% COMMON
USB_VBUS_Q
USB_FET_EN_Q*
Q28B EMF20B02V DFN3X3_DUAL COMMON
USBC_VBUS 12V 3A 0.400
C655 10uF 16V 10% X7R 0805 COMMON
C658 0.1uF 16V 10% X7R 0402 COMMON
USB_FET_EN_R*
R892 4.99k 0402 1% COMMON
VBUS_FET_EN
Q813 LS3019NG-3T3R SOT323_1G1D1S COMMON
R924 100k 1% 0402 COMMON
R4101 1.5k 1% 0603 COMMON
R4102 1.5k 1% 0603 COMMON
R4100 1.5k 1% 0603 COMMON
R880 1.5k 1% 0603 COMMON
12V/9V/5V DISCHARGE
PS_USB_VBUS_DSH_QR
USB_DSCH_CTL
Q808 AO3414 SOT23_1G1D1S COMMON
GND

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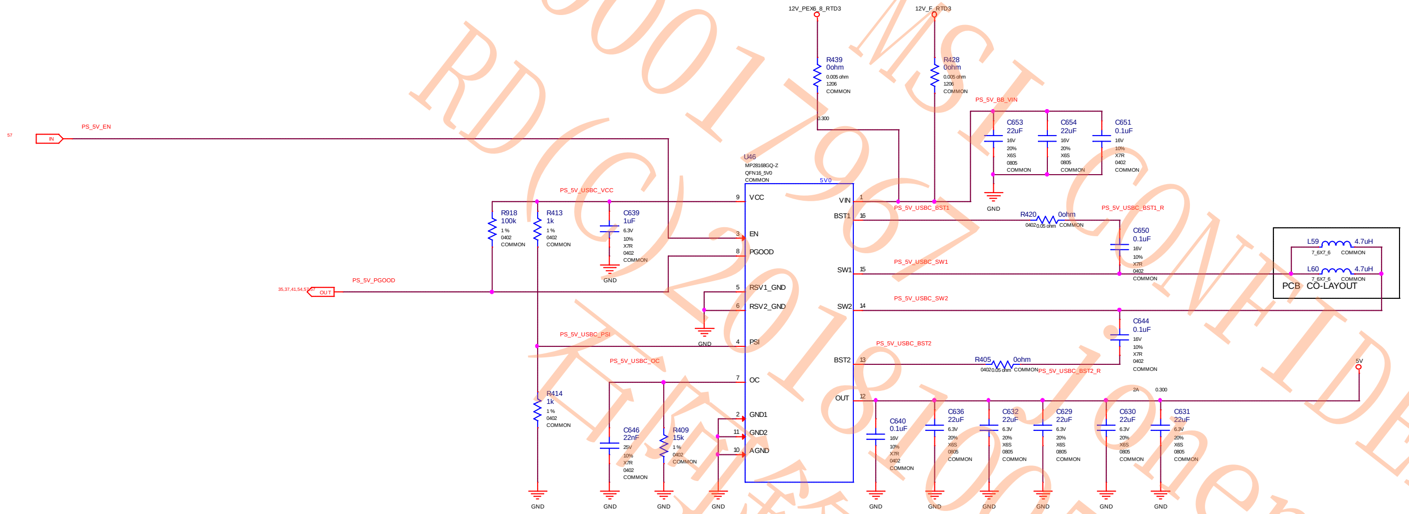
00017967
RD(C)20180501 Jonepei(裴元樂)
石向鋒 (00068760) RMA工程課

PS: 5V, 5V_BACKUP


57
IN
PS_5V_EN
35,37,41,54,57,57
OUT
PS_5V_PGOOD
12V_PEX6_8_RTD3
R439
0ohm
0.005 ohm
1206
COMMON
0.300
12V_F_RTD3
R428
0ohm
0.005 ohm
1206
COMMON
PS_5V_BB_VIN
C653
22uF
16V
20%
X6S
0805
COMMON
C654
22uF
16V
20%
X6S
0805
COMMON
C651
0.1uF
16V
10%
X7R
0402
COMMON
GND
U46
MP28168GQ-Z
QFN16_5V0
COMMON
5V0
PS_5V_USBC_VCC
9 VCC
3 EN
8 PGOOD
5 RSV1_GND
6 RSV2_GND
4 PSI
7 OC
2 GND1
11 GND2
10 AGND
VIN 1
BST1 16
SW1 15
SW2 14
BST2 13
OUT 12
R918
100k
1%
0402
COMMON
R413
1k
1%
0402
COMMON
C639
1uF
6.3V
10%
X7R
0402
COMMON
PS_5V_USBC_PSI
PS_5V_USBC_OC
R414
1k
1%
0402
COMMON
C646
22nF
25V
10%
X7R
0402
COMMON
R409
15k
1%
0402
COMMON
PS_5V_USBC_BST1
R420
0ohm
0402 0.05 ohm
COMMON
PS_5V_USBC_BST1_R
C650
0.1uF
16V
10%
X7R
0402
COMMON
PS_5V_USBC_SW1
PS_5V_USBC_SW2
L59
4.7uH
7_6X7_6
COMMON
L60
4.7uH
7_6X7_6
COMMON
PCB CO-LAYOUT
C644
0.1uF
16V
10%
X7R
0402
COMMON
PS_5V_USBC_BST2
R405
0ohm
0402 0.05 ohm
COMMON
PS_5V_USBC_BST2_R
5V
2A
0.300
C640
0.1uF
16V
10%
X7R
0402
COMMON
C636
22uF
6.3V
20%
X6S
0805
COMMON
C632
22uF
6.3V
20%
X6S
0805
COMMON
C629
22uF
6.3V
20%
X6S
0805
COMMON
C630
22uF
6.3V
20%
X6S
0805
COMMON
C631
22uF
6.3V
20%
X6S
0805
COMMON
GND

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RMA工程課 (00068760)
(裴亮樂)

MICRO-STAR INT'L CO.,LTD

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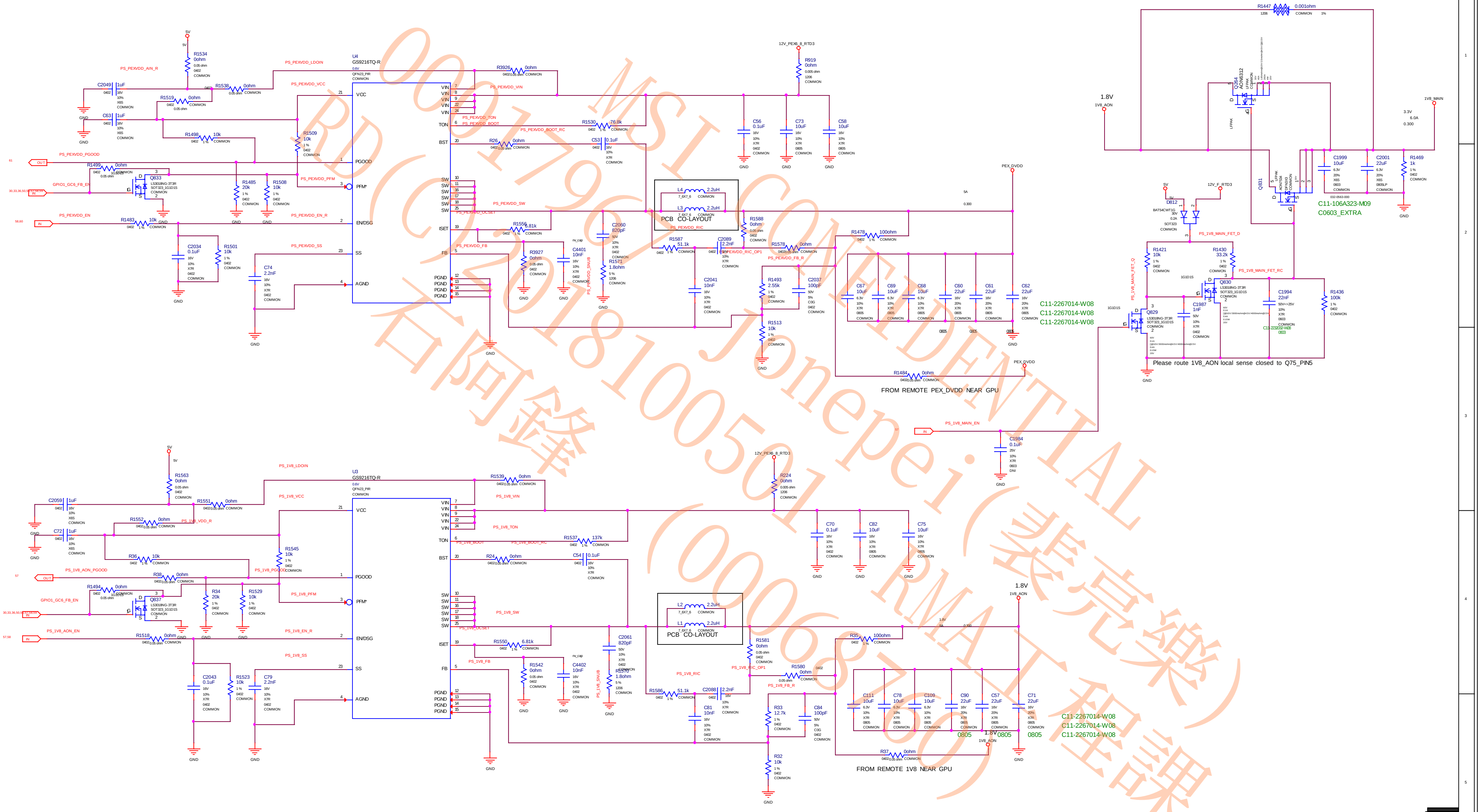
PS: PEXVDD 1V8 Rail


U4
GS9216TQ-R
QFN23_PIR
VCC
PGOOD
PFM*
EN/DSG
SS
AGND
VIN
TON
BST
SW
ISET
FB
PGND
PS_PEXVDD_LDOIN
PS_PEXVDD_VCC
PS_PEXVDD_AIN_R
PS_PEXVDD_PGOOD
PS_PEXVDD_PFM
PS_PEXVDD_EN
PS_PEXVDD_EN_R
PS_PEXVDD_SS
PS_PEXVDD_VIN
PS_PEXVDD_TON
PS_PEXVDD_BOOT
PS_PEXVDD_BOOT_RC
PS_PEXVDD_SW
PS_PEXVDD_OCSET
PS_PEXVDD_FB
PS_PEXVDD_RIC
PS_PEXVDD_RIC_OP1
PS_PEXVDD_FB_R
GPIO1_GC6_FB_EN
12V_PEX6_8_RTD3
PEX_DVDD
PCB CO-LAYOUT
L4 2.2uH
L3 2.2uH
FROM REMOTE PEX_DVDD NEAR GPU
C11-2267014-W08
C11-2267014-W08
C11-2267014-W08
1.8V
1V8_AON
1V8_MAIN
3.3V
R1447 0.001ohm
C11-106A323-M09
C0603_EXTRA
PS_1V8_MAIN_FET_D
PS_1V8_MAIN_FET_RC
PS_1V8_MAIN_FET_G
PS_1V8_MAIN_EN
Please route 1V8_AON local sense closed to Q75_PIN5
U3
GS9216TQ-R
QFN23_PIR
PS_1V8_LDOIN
PS_1V8_VCC
PS_1V8_VDD_R
PS_1V8_AON_PGOOD
PS_1V8_PGOOD
PS_1V8_PFM
PS_1V8_AON_EN
PS_1V8_EN_R
PS_1V8_SS
PS_1V8_VIN
PS_1V8_TON
PS_1V8_BOOT
PS_1V8_BOOT_RC
PS_1V8_SW
PS_1V8_OCSET
PS_1V8_FB
PS_1V8_RIC
PS_1V8_RIC_OP1
PS_1V8_FB_R
L2 2.2uH
L1 2.2uH
PCB CO-LAYOUT
FROM REMOTE 1V8 NEAR GPU
C11-2267014-W08
C11-2267014-W08
C11-2267014-W08
0805
GND
5V

MICRO-STAR INT'L CO.,LTD

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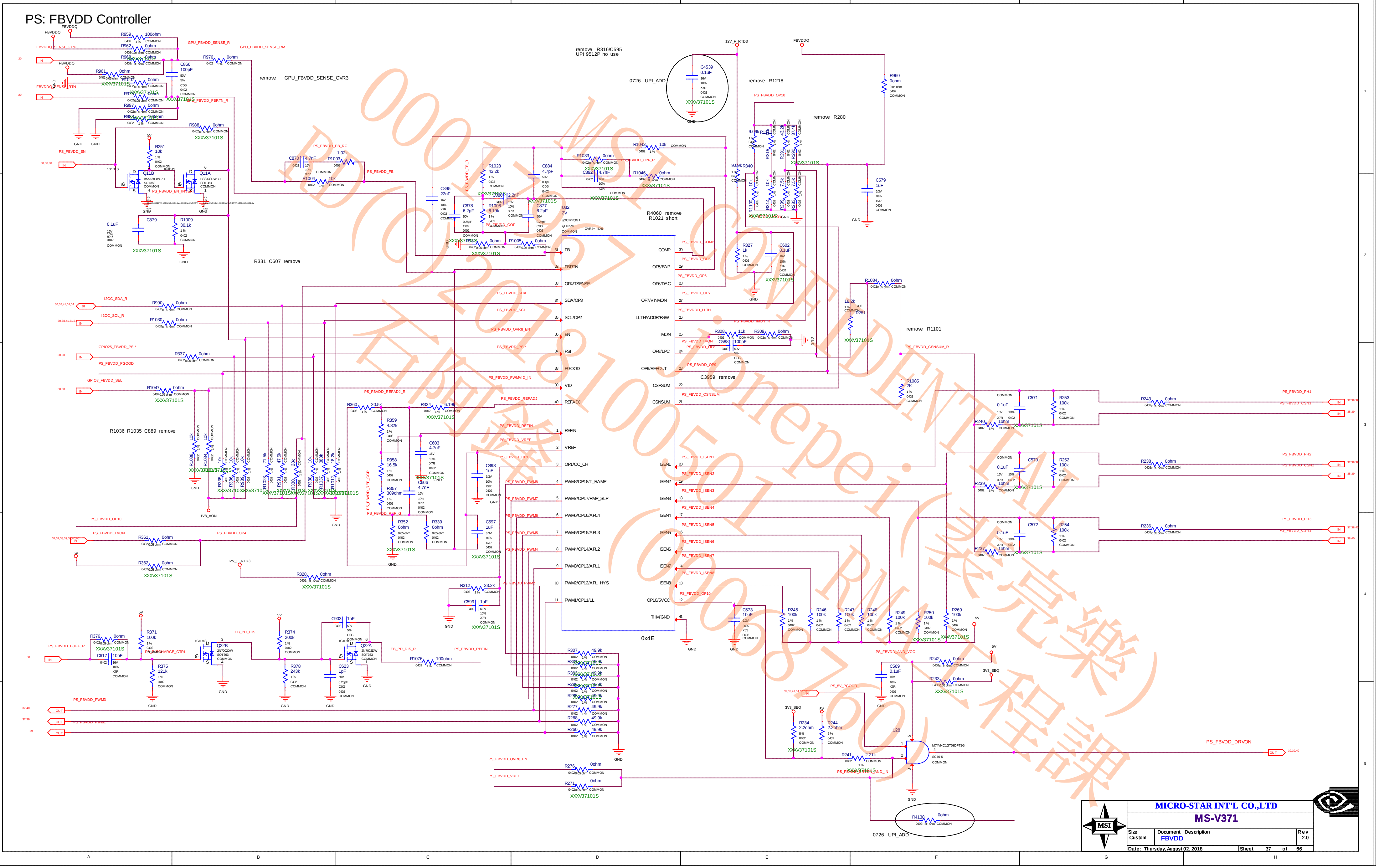
00017961 RD(C)201810050 石同鋒
Jonepei(裴亮樂) (00068760) RMA工程課

PS: FBVDD Controller


U32
up9512PQGJ
QFN/5X5
FB
FBRTN
OP4/TSENSE
SDA/OP3
SCL/OP2
EN
PSI
PGOOD
VID
REFADJ
REFIN
VREF
OP1/OC_CH
PWM8/OP18/T_RAMP
PWM7/OP17/RMP_SLP
PWM6/OP16/APL4
PWM5/OP15/APL3
PWM4/OP14/APL2
PWM3/OP13/APL1
PWM2/OP12/APL_HYS
PWM1/OP11/LL
COMP
OP5/EAP
OP6/DAC
OP7/VINMON
LLTH/ADDR/FSW
IMON
OP8/LPC
OP9/REFOUT
CSPSUM
CSNSUM
ISEN1
ISEN2
ISEN3
ISEN4
ISEN5
ISEN6
ISEN7
ISEN8
OP10/5VCC
THM/GND
0x4E
remove R316/C595
UPI 9512P no use
0726 UPI_ADD
remove R1218
remove R280
remove GPU_FBVDD_SENSE_OVR3
R4060 remove
R1021 short
R331 C607 remove
remove R1101
C3959 remove
R1036 R1035 C889 remove
FBVDDQ
FBVDDQ_SENSE_GPU
FBVDDQ_SENSE_RTN
GPU_FBVDD_SENSE_R
GPU_FBVDD_SENSE_RM
PS_FBVDD_EN
I2CC_SDA_R
I2CC_SCL_R
GPIO25_FBVDD_PSI*
PS_FBVDD_PGOOD
GPIO8_FBVDD_SEL
PS_FBVDD_OP10
PS_FBVDD_TMON
PS_FBVDD_OP4
PS_FBVDD_BUFF_R
FB_PD_DIS
FB_PD_DIS_R
PS_FBVDD_REFIN
PS_FBVDD_PWM3
PS_FBVDD_PWM1
PS_FBVDD_PH1
PS_FBVDD_PH2
PS_FBVDD_PH3
PS_FBVDD_CSN1
PS_FBVDD_CSN2
PS_FBVDD_CSN3
PS_FBVDD_AND_VCC
PS_5V_PGOOD
PS_FBVDD_DRVON
PS_FBVDD_OVR8_EN
PS_FBVDD_VREF
U28
M74VHC1GT08DFT2G
SC70-5
Q11B
Q11A
BSS138DW-7-F
SOT363
Q22B
Q22A
2N7002DW
12V_F_RTD3
3V3_SEQ
5V
GND
XXXV37101S
COMMON

MICRO-STAR INT'L CO.,LTD

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PS: FBVDD Controller OVR3

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00017967 jonepei(裴亮樂)
RD(C)2018100501 RMA工程課
石阿鋒 (00068760)

remove FBVDDQ

MICRO-STAR INT'L CO.,LTD

MS-V371

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Custom	NA	2.0

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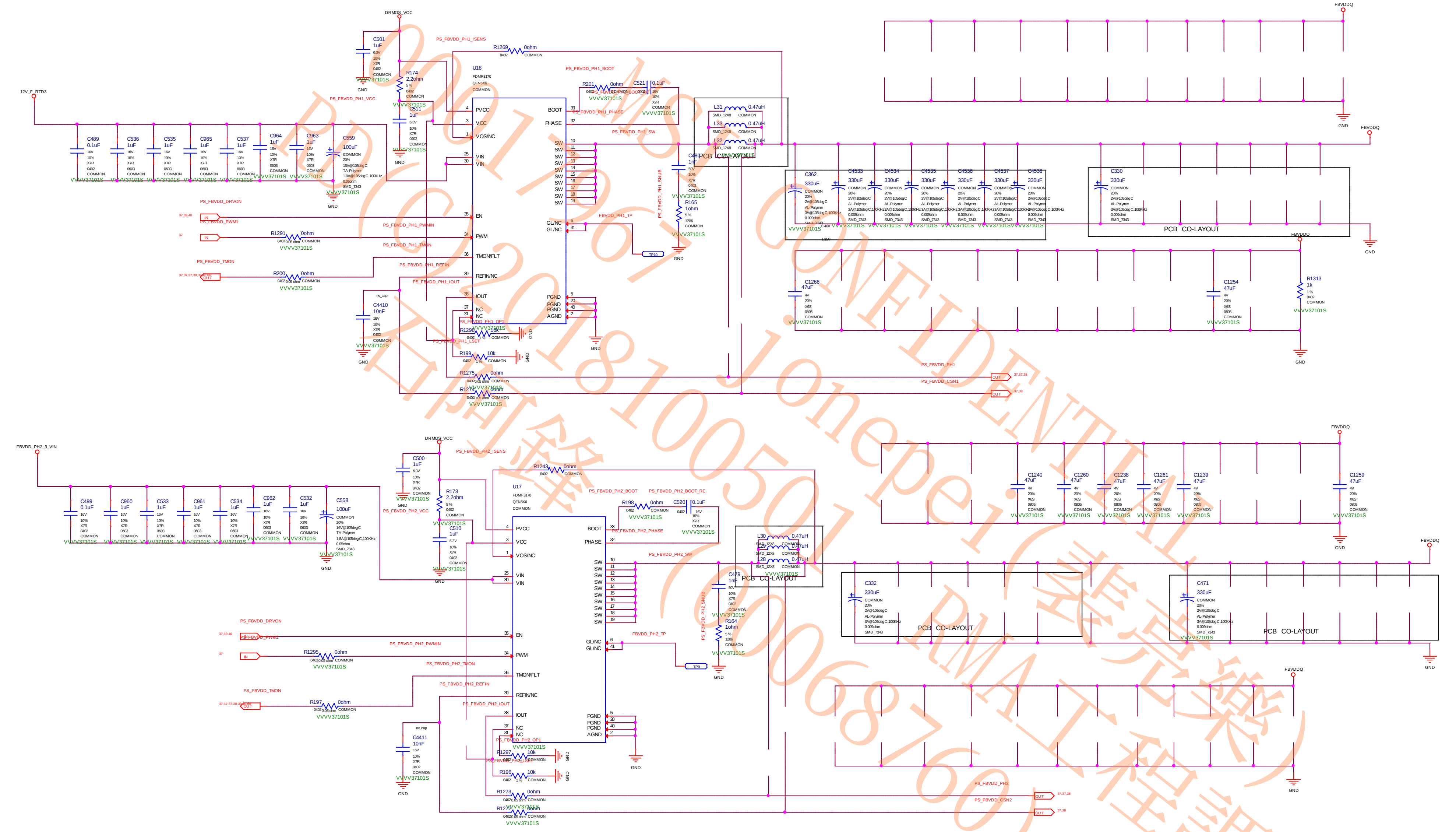
PS: FBVDD PH1, 2


DRMOS_VCC
12V_F_RTD3
FBVDD_PH2_3_VIN
U18
FDMF3170
QFN5X6
COMMON
U17
PVCC
VCC
VOS/NC
VIN
EN
PWM
TMON/FLT
REFIN/NC
IOUT
NC
BOOT
PHASE
SW
GL/NC
PGND
AGND
PS_FBVDD_PH1_ISENS
PS_FBVDD_PH1_VCC
PS_FBVDD_PH1_BOOT
PS_FBVDD_PH1_PHASE
PS_FBVDD_PH1_SW
PS_FBVDD_PH1_SNUB
FBVDD_PH1_TP
PS_FBVDD_DRVON
PS_FBVDD_PWM1
PS_FBVDD_PH1_PWMIN
PS_FBVDD_PH1_TMON
PS_FBVDD_TMON
PS_FBVDD_PH1_REFIN
PS_FBVDD_PH1_IOUT
PS_FBVDD_PH1_OP1
PS_FBVDD_PH1_LSET
PS_FBVDD_PH1
PS_FBVDD_CSN1
PS_FBVDD_PH2_ISENS
PS_FBVDD_PH2_VCC
PS_FBVDD_PH2_BOOT
PS_FBVDD_PH2_BOOT_RC
PS_FBVDD_PH2_PHASE
PS_FBVDD_PH2_SW
PS_FBVDD_PH2_SNUB
FBVDD_PH2_TP
PS_FBVDD_PWM2
PS_FBVDD_PH2_PWMIN
PS_FBVDD_PH2_TMON
PS_FBVDD_PH2_REFIN
PS_FBVDD_PH2_IOUT
PS_FBVDD_PH2_OP1
PS_FBVDD_PH2_LSET
PS_FBVDD_PH2
PS_FBVDD_CSN2
FBVDDQ
GND
C501 1uF
C511 1uF
R174 2.2ohm
R1269 0ohm
R201 0ohm
C521 0.1uF
L31 0.47uH
L33 0.47uH
L32 0.47uH
C480 1nF
R165 1ohm
C489 0.1uF
C536 1uF
C535 1uF
C965 1uF
C537 1uF
C964 1uF
C963 1uF
C559 100uF
C362 330uF
C4333 330uF
C4334 330uF
C4335 330uF
C4336 330uF
C4337 330uF
C4338 330uF
C330 330uF
C1266 47uF
C1254 47uF
R1313 1k
C4410 10nF
R1291 0ohm
R200 0ohm
R1298 10k
R199 10k
R1275 0ohm
R1274 0ohm
TP10
PCB CO-LAYOUT
C500 1uF
C510 1uF
R173 2.2ohm
R1243 0ohm
R198 0ohm
C520 0.1uF
L30 0.47uH
L29 0.47uH
L28 0.47uH
C479 1nF
R164 1ohm
C499 0.1uF
C960 1uF
C533 1uF
C961 1uF
C534 1uF
C962 1uF
C532 1uF
C558 100uF
C332 330uF
C471 330uF
C1240 47uF
C1260 47uF
C1238 47uF
C1261 47uF
C1239 47uF
C1259 47uF
C4411 10nF
R1295 0ohm
R197 0ohm
R1297 10k
R196 10k
R1273 0ohm
R1272 0ohm
TP9
VVVV37101S
IN
OUT

MICRO-STAR INT'L CO.,LTD

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Size	Document Description	Rev
Custom	FBVDD 1/2	2.0

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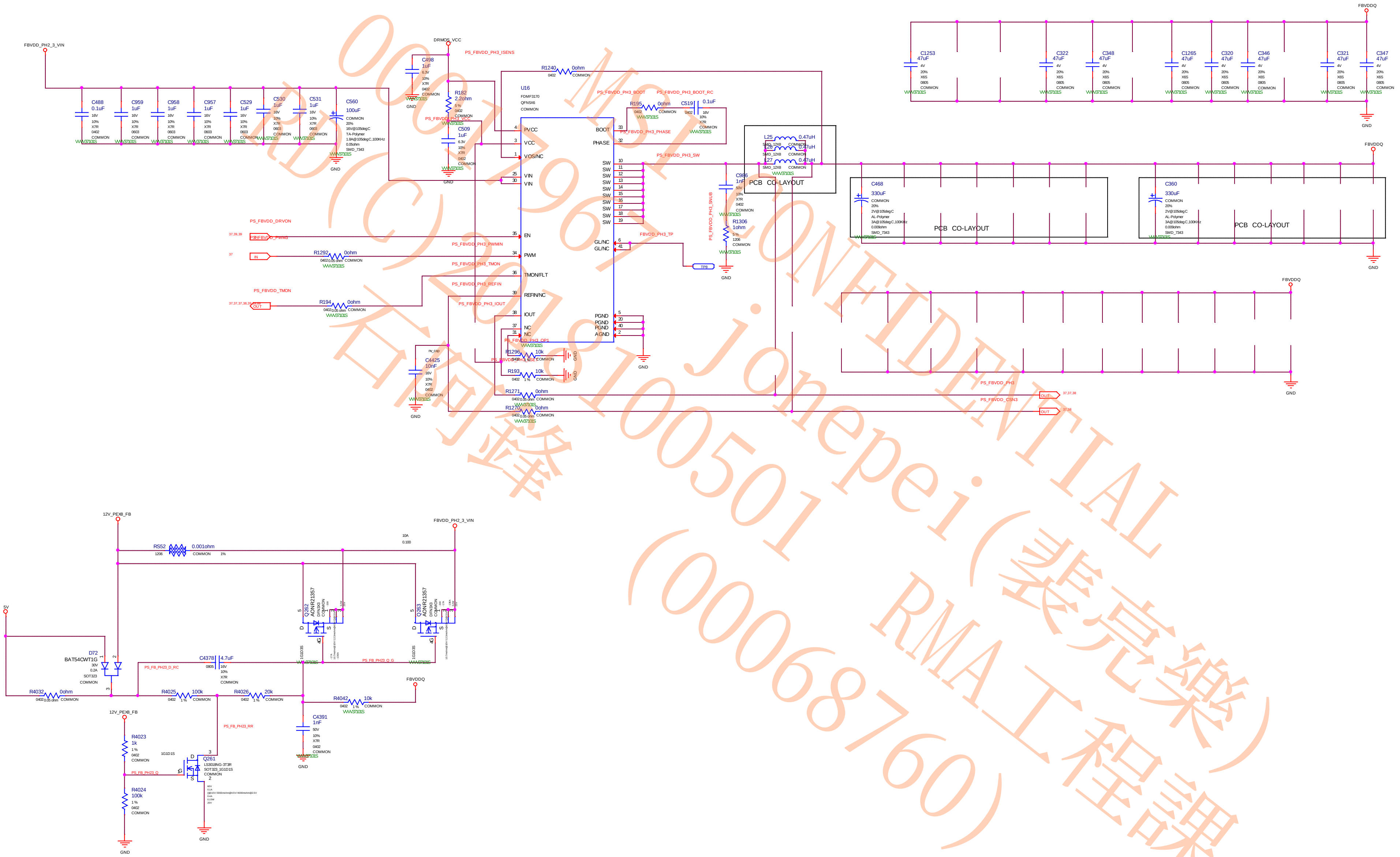
PS: FBVDD PH3



FBVDD_PH2_3_VIN
DRMOS_VCC
PS_FBVDD_PH3_ISENS
R1240 0ohm
U16
FDMF3170
QFN/S40
COMMON
C488 0.1uF
C959 1uF
C958 1uF
C957 1uF
C529 1uF
C530 1uF
C531 1uF
C560 100uF
C498 1uF
R182 2.2ohm
C509 1uF
PVCC
VCC
VOS/NC
VIN
BOOT
PHASE
SW
EN
PWM
TMON/FLT
REFIN/NC
IOUT
NC
GL/NC
PGND
AGND
PS_FBVDD_PH3_BOOT
PS_FBVDD_PH3_BOOT_RC
R195 0ohm
C519 0.1uF
PS_FBVDD_PH3_PHASE
PS_FBVDD_PH3_SW
L25 0.47uH
L26 0.47uH
L27 0.47uH
PCB CO-LAYOUT
C986 1nF
R1306 1ohm
PS_FBVDD_PH3_SNUB
FBVDD_PH3_TP
TP8
PS_FBVDD_DRVON
PS_FBVDD_PWM3
R1292 0ohm
PS_FBVDD_PH3_PWMIN
PS_FBVDD_PH3_TMON
PS_FBVDD_TMON
R194 0ohm
PS_FBVDD_PH3_REFIN
PS_FBVDD_PH3_IOUT
C4425 10nF
R1296 10k
R193 10k
R1271 0ohm
R1270 0ohm
PS_FBVDD_PH3
PS_FBVDD_CSN3
FBVDDQ
C1253 47uF
C322 47uF
C348 47uF
C1265 47uF
C320 47uF
C346 47uF
C321 47uF
C347 47uF
C468 330uF
C360 330uF
GND
12V_PEX8_FB
RS52 0.001ohm
FBVDD_PH2_3_VIN
Q262 AON6R21357
Q263 AON6R21357
D72 BAT54CWT1G
C4378 4.7uF
PS_FB_PH23_D_RC
PS_FB_PH23_Q_G
R4032 0ohm
R4025 100k
R4026 20k
R4042 10k
FBVDDQ
C4391 1nF
PS_FB_PH23_RR
R4023 1k
PS_FB_PH23_Q
Q261 L2N7002LT1G
R4024 100k

MICRO-STAR INT'L CO.,LTD		
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Size: Custom	Document Description: FBVDD 3	Rev 2.0
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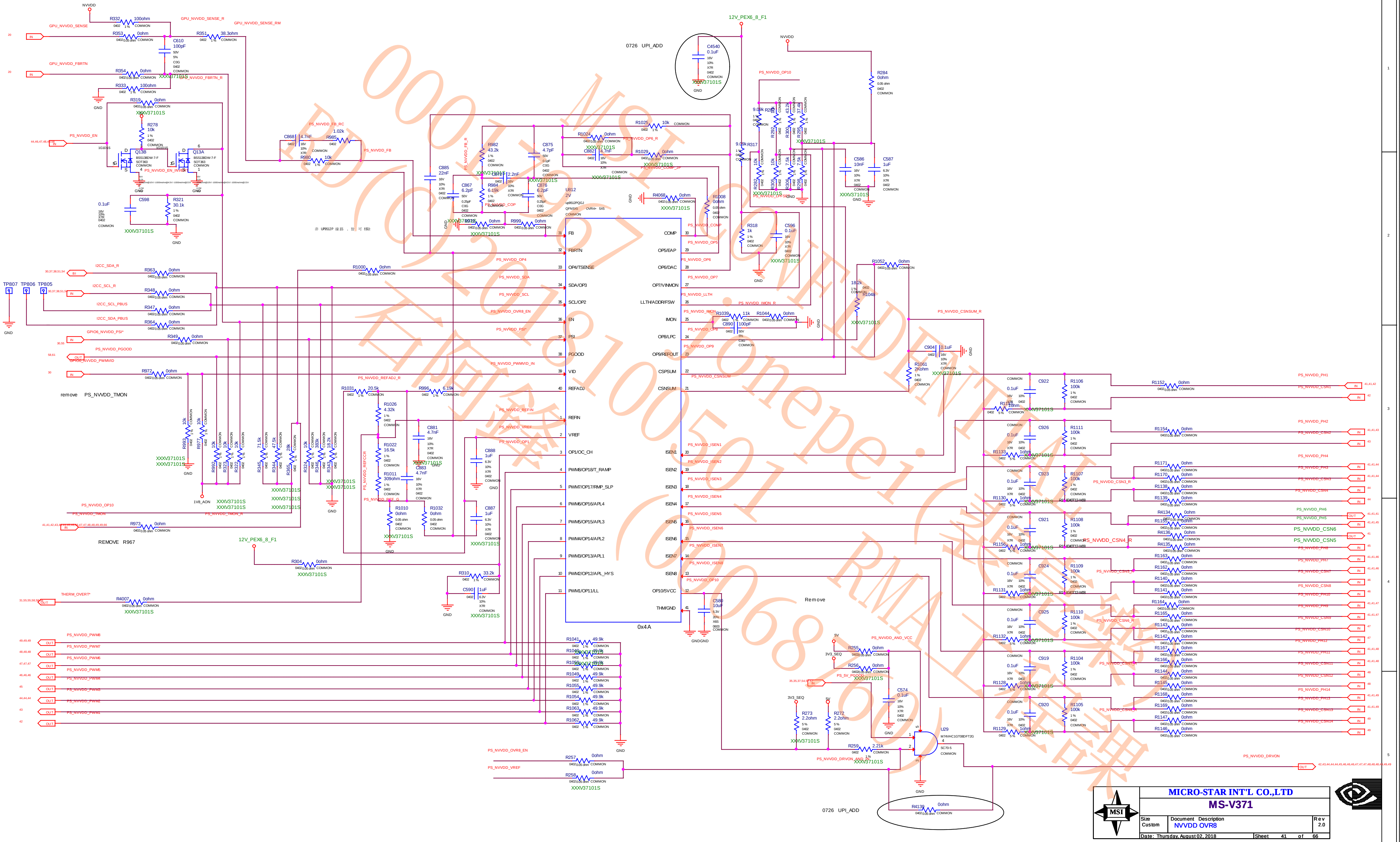
PS: NVVDD Controller_OVR8


NVVDD
GPU_NVVDD_SENSE
GPU_NVVDD_SENSE_R
GPU_NVVDD_SENSE_RM
GPU_NVVDD_FBRTN
PS_NVVDD_FBRTN_R
R332 100ohm
R353 0ohm
R351 38.3ohm
C610 100pF
R354 0ohm
R333 100ohm
R319 0ohm
XXXV37101S
R278 10k
PS_NVVDD_EN
Q13B
Q13A
BSS138DW-7-F
SOT363
PS_NVVDD_EN_INV
C598 0.1uF
R321 30.1k
GND
PS_NVVDD_FB_RC
C868 4.7nF
R985 1.02k
R980 10k
PS_NVVDD_FB
12V_PEX6_8_F1
C4540 0.1uF
0726 UPI_ADD
C885 22nF
C867 6.2pF
R982 43.2k
R984 6.19k
C877 2.2nF
C875 4.7pF
C876 6.2pF
R1024 0ohm
C882 4.7nF
R1025 10k
R1029 0ohm
PS_NVVDD_OP6_R
PS_NVVDD_COMP_R
PS_NVVDD_COP
U812
uP9512PQGJ
QFN5X5
OVR4+ 5X5
R998 0ohm
R999 0ohm
R4068 0ohm
R1008 0ohm
PS_NVVDD_OP10
R284 0ohm
C586 10nF
C587 1uF
FB
FBRTN
OP4/TSENSE
SDA/OP3
SCL/OP2
EN
PSI
PGOOD
VID
REFADJ
REFIN
VREF
OP1/OC_CH
PWM8/OP18/T_RAMP
PWM7/OP17/RMP_SLP
PWM6/OP16/APL4
PWM5/OP15/APL3
PWM4/OP14/APL2
PWM3/OP13/APL1
PWM2/OP12/APL_HYS
PWM1/OP11/LL
COMP
OP5/EAP
OP6/DAC
OP7/VINMON
LLTH/ADDR/FSW
IMON
OP8/LPC
OP9/REFOUT
CSPSUM
CSNSUM
ISEN1
ISEN2
ISEN3
ISEN4
ISEN5
ISEN6
ISEN7
ISEN8
OP10/5VCC
THMGND
0x4A
R318 1k
C596 0.1uF
PS_NVVDD_COMP
PS_NVVDD_OP5
PS_NVVDD_OP6
PS_NVVDD_OP7
PS_NVVDD_LLTH
PS_NVVDD_IMON
PS_NVVDD_IMON_R
R1039 11k
R1044 0ohm
C890 100pF
PS_NVVDD_OP8
PS_NVVDD_OP9
PS_NVVDD_CSNSUM
R1052 0ohm
R1048 182k
PS_NVVDD_CSNSUM_R
C904 0.1uF
R1061 2Kohm
I2CC_SDA_R
I2CC_SCL_R
I2CC_SCL_PBUS
I2CC_SDA_PBUS
TP807
TP806
TP805
R363 0ohm
R348 0ohm
R347 0ohm
R364 0ohm
R1000 0ohm
GPIO6_NVVDD_PSI*
R349 0ohm
PS_NVVDD_PGOOD
GPIO_NVVDD_PWMVID
R972 0ohm
remove PS_NVVDD_TMON
PS_NVVDD_OP4
PS_NVVDD_SDA
PS_NVVDD_SCL
PS_NVVDD_OVR8_EN
PS_NVVDD_PSI*
PS_NVVDD_PWMVID_IN
PS_NVVDD_REFADJ_R
R1031 20.5k
R996 6.19k
R1026 4.32k
R1022 16.5k
R1011 309ohm
C881 4.7nF
C883 4.7nF
C888 1uF
C887 1uF
R1010 0ohm
R1032 0ohm
PS_NVVDD_REFIN
PS_NVVDD_VREF
PS_NVVDD_OP1
PS_NVVDD_REFCR
PS_NVVDD_REF_G
R993 10k
R977 10k
R992 10k
R323 10k
R322 10k
R345 71.5k
R344 47.5k
R285 28k
R324 10k
R346 383k
R343 18.2k
1V8_AON
PS_NVVDD_OP10
PS_NVVDD_TMON
PS_NVVDD_TMON_R
R973 0ohm
REMOVE R967
R304 0ohm
R310 33.2k
C590 1uF
THERM_OVERT*
R4007 0ohm
C580 10uF
GNDGND
PS_NVVDD_PWM8
PS_NVVDD_PWM7
PS_NVVDD_PWM6
PS_NVVDD_PWM5
PS_NVVDD_PWM4
PS_NVVDD_PWM3
PS_NVVDD_PWM2
PS_NVVDD_PWM1
R1041 49.9k
R1040 49.9k
R1050 49.9k
R1049 49.9k
R1055 49.9k
R1054 49.9k
R1063 49.9k
R1062 49.9k
PS_NVVDD_OVR8_EN
PS_NVVDD_VREF
R257 0ohm
R258 0ohm
PS_NVVDD_ISEN1
PS_NVVDD_ISEN2
PS_NVVDD_ISEN3
PS_NVVDD_ISEN4
PS_NVVDD_ISEN5
PS_NVVDD_ISEN6
PS_NVVDD_ISEN7
PS_NVVDD_ISEN8
Remove
PS_NVVDD_AND_VCC
5V
3V3_SEQ
R255 0ohm
R256 0ohm
PS_5V_PGOOD
C574 0.1uF
R273 2.2ohm
R272 2.2ohm
R259 2.21k
PS_NVVDD_DRVON_AND_R
U29
M74VHC1GT08DFT2G
SC70-5
R4139 0ohm
0726 UPI_ADD
PS_NVVDD_DRVON
C922 0.1uF
R1106 100k
R1152 0ohm
PS_NVVDD_PH1
PS_NVVDD_CSN1
C926 0.1uF
R1111 100k
R1154 0ohm
PS_NVVDD_PH2
PS_NVVDD_CSN2
C923 0.1uF
R1107 100k
R1171 0ohm
R1170 0ohm
R1138 0ohm
R1139 0ohm
PS_NVVDD_PH3
PS_NVVDD_CSN3
PS_NVVDD_PH4
PS_NVVDD_CSN4
PS_NVVDD_CSN3_R
C921 0.1uF
R1108 100k
R4134 0ohm
R1135 0ohm
R4136 0ohm
R4135 0ohm
PS_NVVDD_PH6
PS_NVVDD_PH5
PS_NVVDD_CSN6
PS_NVVDD_CSN5
PS_NVVDD_CSN4_R
C924 0.1uF
R1109 100k
R1163 0ohm
R1162 0ohm
R1140 0ohm
R1141 0ohm
PS_NVVDD_PH8
PS_NVVDD_PH7
PS_NVVDD_CSN7
PS_NVVDD_CSN8
C925 0.1uF
R1110 100k
R1164 0ohm
R1165 0ohm
R1143 0ohm
R1142 0ohm
PS_NVVDD_PH10
PS_NVVDD_PH9
PS_NVVDD_CSN9
PS_NVVDD_CSN10
C919 0.1uF
R1104 100k
R1167 0ohm
R1166 0ohm
R1144 0ohm
R1145 0ohm
PS_NVVDD_PH12
PS_NVVDD_PH11
PS_NVVDD_CSN11
PS_NVVDD_CSN12
C920 0.1uF
R1105 100k
R1168 0ohm
R1169 0ohm
R1147 0ohm
R1146 0ohm
PS_NVVDD_PH14
PS_NVVDD_PH13
PS_NVVDD_CSN13
PS_NVVDD_CSN14
R1133 1ohm
R1134 1ohm
R1130 1ohm
R1156 1ohm
R1131 1ohm
R1132 1ohm
R1128 1ohm
R1129 1ohm
COMMON

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Custom	NVVDD OVR8	2.0

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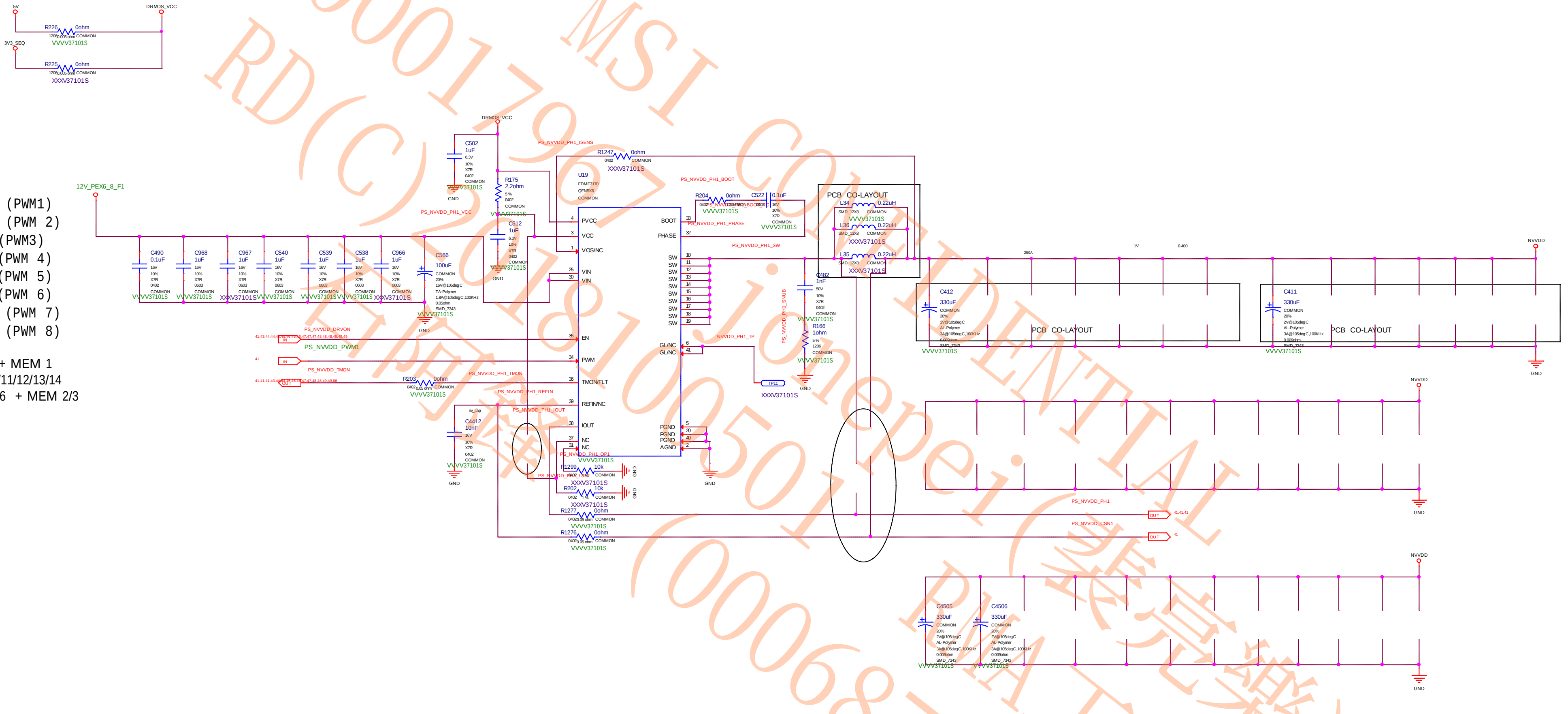
PS: NVVDD Phase 1

1	F1	(PWM1)
2	F2	(PWM 2)
3/4	F2	(PWM3)
5/6	F2	(PWM 4)
7/8	12V_F	(PWM 5)
9/10	F1	(PWM 6)
11/12	F1	(PWM 7)
13/14	F1	(PWM 8)

12V_F NVVDD 7/8 + MEM 1
F1 NVVDD-1/9/10/11/12/13/14
F2 NVVDD-2/3/4/5/6 + MEM 2/3



5V
DRMOS_VCC
3V3_SEQ
R226 0ohm
R225 0ohm
VVVV37101S
XXXV37101S
12V_PEX6_8_F
C490 0.1uF
C968 1uF
C967 1uF
C540 1uF
C539 1uF
C538 1uF
C966 1uF
C566 100uF
C502 1uF
R175 2.2ohm
C512 1uF
PS_NVVDD_PH1_VCC
PS_NVVDD_PH1_ISENS
R1247 0ohm
U19
PVCC
VCC
VOS/NC
VIN
EN
PWM
TMON/FLT
REFIN/NC
IOUT
NC
BOOT
PHASE
SW
GL/NC
PGND
AGND
PS_NVVDD_PH1_BOOT
R204 0ohm
C522 0.1uF
PS_NVVDD_PH1_PHASE
PS_NVVDD_PH1_SW
PCB CO-LAYOUT
L34 0.22uH
L36 0.22uH
L35 0.22uH
C482 1nF
R166 1ohm
PS_NVVDD_PH1_SNUB
NVVDD_PH1_TP
TP11
PS_NVVDD_DRVON
PS_NVVDD_PWM1
PS_NVVDD_TMON
PS_NVVDD_PH1_TMON
R203 0ohm
PS_NVVDD_PH1_REFIN
PS_NVVDD_PH1_IOUT
C4412 10nF
R1299 10k
R202 10k
R1277 0ohm
R1276 0ohm
GND
NVVDD
C412 330uF
C411 330uF
C4505 330uF
C4506 330uF
PS_NVVDD_PH1
PS_NVVDD_CSN1
OUT
IN

Remove PS_NVVDD_TSENSE_PTC

MICRO-STAR INT'L CO.,LTD

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Custom	NVVDD PH1	2.0

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(00068760)
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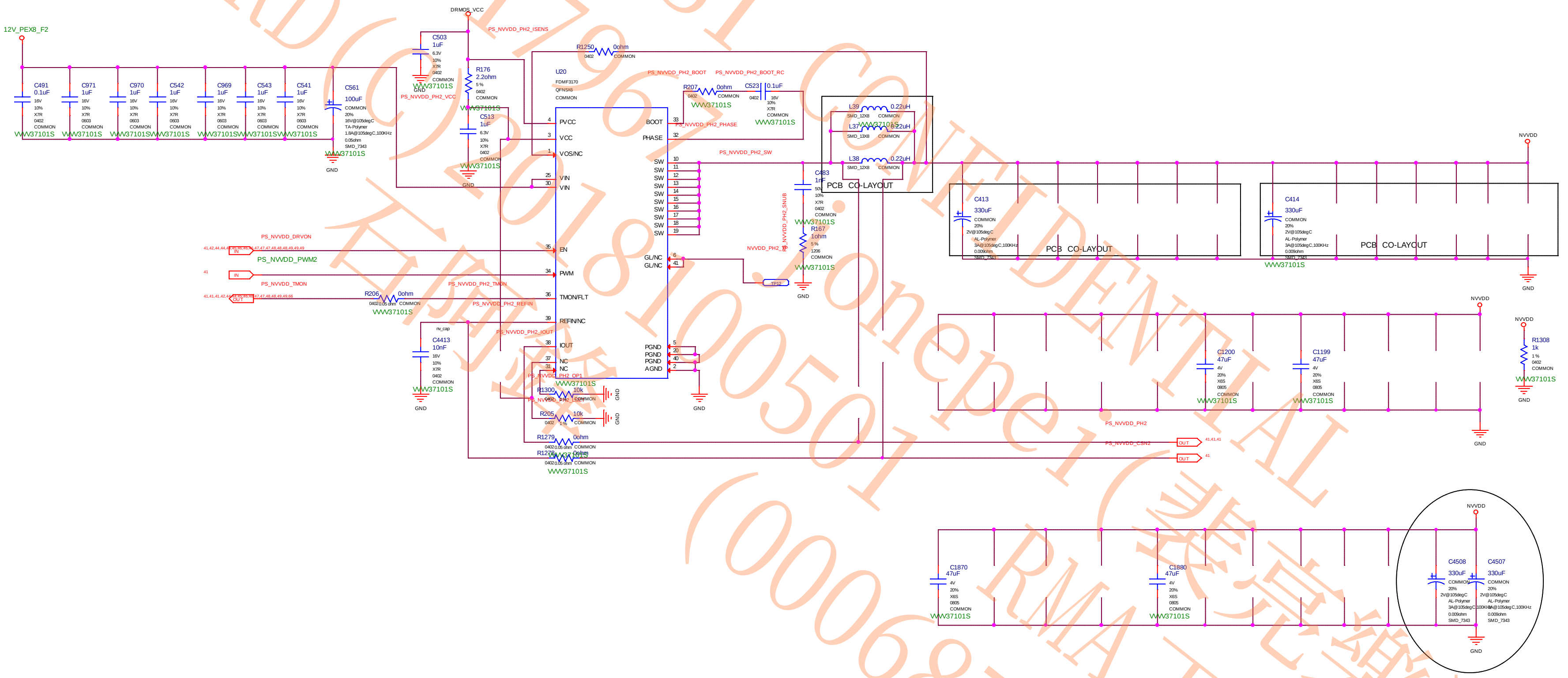
PS: NVVDD Phase 2


12V_PEX8_F2
C491 0.1uF 16V 10% X7R 0402 COMMON WW37101S
C971 1uF 16V 10% X7R 0603 COMMON WW37101S
C970 1uF 16V 10% X7R 0603 COMMON WW37101S
C542 1uF 16V 10% X7R 0603 COMMON WW37101S
C969 1uF 16V 10% X7R 0603 COMMON WW37101S
C543 1uF 16V 10% X7R 0603 COMMON WW37101S
C541 1uF 16V 10% X7R 0603 COMMON WW37101S
C561 100uF COMMON 20% 16V@105degC TA-Polymer 1.8A@105degC,100KHz 0.05ohm SMD_7343 WW37101S
GND
DRMOS_VCC
PS_NVVDD_PH2_ISENS
C503 1uF 6.3V 10% X7R 0402 COMMON WW37101S
GND
PS_NVVDD_PH2_VCC
R176 2.2ohm 5% 0402 COMMON WW37101S
C513 1uF 6.3V 10% X7R 0402 COMMON WW37101S
GND
R1250 0ohm 0402 COMMON
U20 FDMF3170 QFN5X6 COMMON
4 PVCC
3 VCC
1 VOS/NC
25 VIN
30 VIN
35 EN
34 PWM
36 TMON/FLT
39 REFIN/NC
38 IOUT
37 NC
31 NC
BOOT 33
PHASE 32
SW 10
SW 11
SW 12
SW 13
SW 14
SW 15
SW 16
SW 17
SW 18
SW 19
GL/NC 6
GL/NC 41
PGND 5
PGND 20
PGND 40
AGND 2
GND
PS_NVVDD_PH2_BOOT
PS_NVVDD_PH2_BOOT_RC
R207 0ohm 0402 COMMON WW37101S
C523 0.1uF 0402 16V 10% X7R COMMON WW37101S
PS_NVVDD_PH2_PHASE
PS_NVVDD_PH2_SW
L39 0.22uH SMD_12X8 COMMON
L37 0.22uH SMD_13X8 COMMON WW37101S
L38 0.22uH SMD_12X8 COMMON
PCB CO-LAYOUT
C483 1nF 50V 10% X7R 0402 COMMON WW37101S
PS_NVVDD_PH2_SNUB
R167 1ohm 5% 1206 COMMON WW37101S
NVVDD_PH2_TP
TP12
GND
PS_NVVDD_DRVON
41,42,44,44,44,45,46,46,46,47,47,47,48,48,48,49,49,49
IN
PS_NVVDD_PWM2
41
IN
PS_NVVDD_TMON
41,41,41,42,44,44,45,46,46,47,47,48,48,49,49,66
OUT
R206 0ohm 0402 0.05 ohm COMMON WW37101S
PS_NVVDD_PH2_TMON
PS_NVVDD_PH2_REFIN
PS_NVVDD_PH2_IOUT
nv_cap
C4413 10nF 16V 10% X7R 0402 COMMON WW37101S
GND
PS_NVVDD_PH2_OP1
WW37101S
R1300 10k 0402 1% COMMON
PS_NVVDD_PH2_LSET
R205 10k 0402 1% COMMON
GND
GND
R1279 0ohm 0402 0.05 ohm COMMON
R1278 0ohm 0402 0.05 ohm COMMON WW37101S
WW37101S
NVVDD
C413 330uF COMMON 20% 2V@105degC AL-Polymer 3A@105degC,100KHz 0.009ohm SMD_7343
PCB CO-LAYOUT
C414 330uF COMMON 20% 2V@105degC AL-Polymer 3A@105degC,100KHz 0.009ohm SMD_7343 WW37101S
PCB CO-LAYOUT
GND
NVVDD
C1200 47uF 4V 20% X6S 0805 COMMON WW37101S
C1199 47uF 4V 20% X6S 0805 COMMON WW37101S
GND
NVVDD
R1308 1k 1% 0402 COMMON WW37101S
GND
PS_NVVDD_PH2
PS_NVVDD_CSN2
OUT 41,41,41
OUT 41
NVVDD
C1870 47uF 4V 20% X6S 0805 COMMON WW37101S
C1880 47uF 4V 20% X6S 0805 COMMON WW37101S
C4508 330uF COMMON 20% 2V@105degC AL-Polymer 3A@105degC,100KHz 0.009ohm SMD_7343
C4507 330uF COMMON 20% 2V@105degC AL-Polymer 3A@105degC,100KHz 0.009ohm SMD_7343
GND

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MICRO-STAR INT'L CO.,LTD
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Size Custom | Document Description NVVDD PH2 | Rev 2.0
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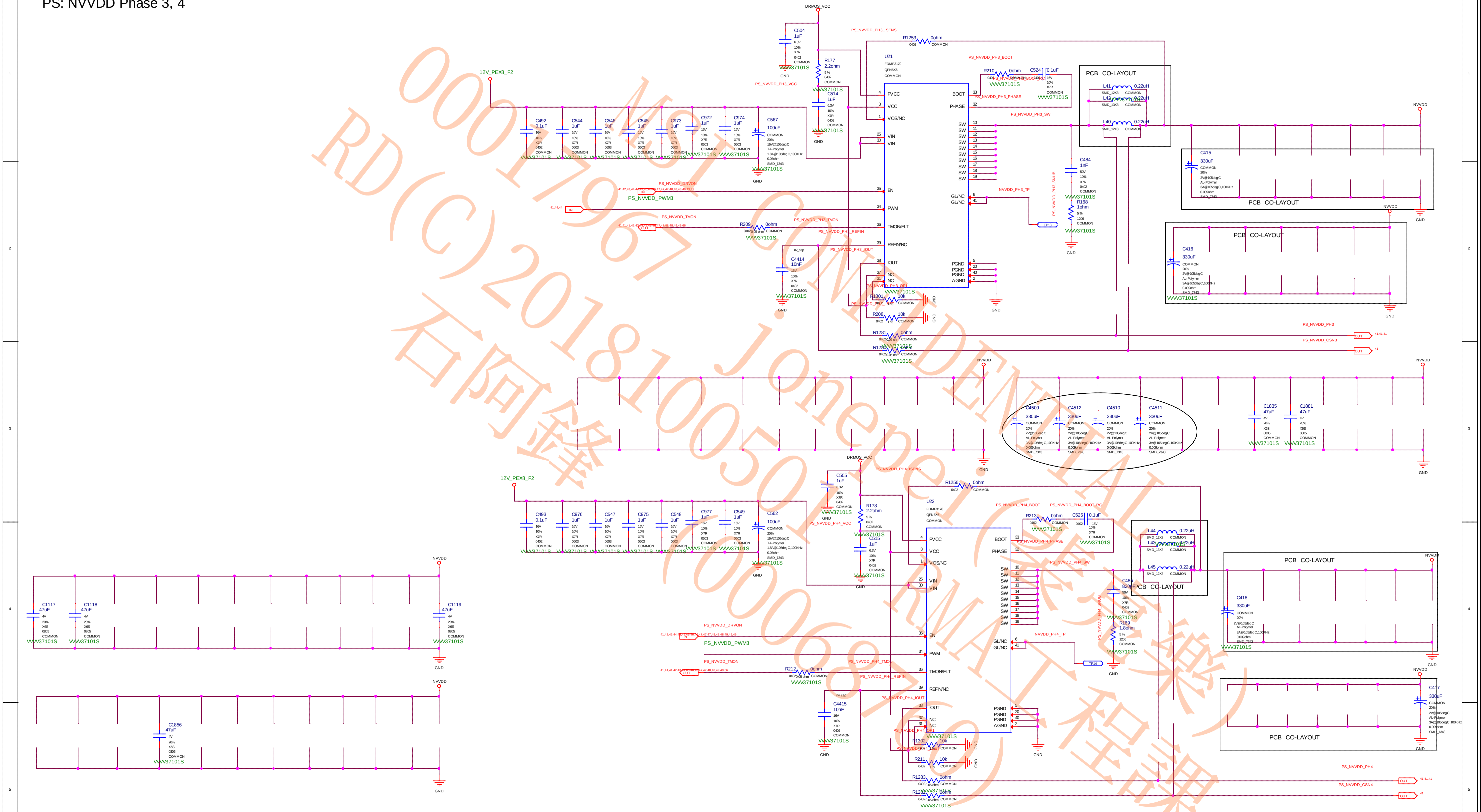
PS: NVVDD Phase 3, 4



DRMOS_VCC
12V_PEX8_F2
U21
FDMF3170
QFN5X6
COMMON
PVCC
VCC
VOS/NC
VIN
EN
PWM
TMON/FLT
REFIN/NC
IOUT
NC
BOOT
PHASE
SW
GL/NC
PGND
AGND
C504 1uF
R177 2.2ohm
C514 1uF
C492 0.1uF
C544 1uF
C546 1uF
C545 1uF
C973 1uF
C972 1uF
C974 1uF
C567 100uF
R1253 0ohm
R210 0ohm
C524 0.1uF
L41 0.22uH
L42 0.22uH
L40 0.22uH
C484 1nF
R168 1ohm
C4414 10nF
R209 0ohm
R1301 10k
R208 10k
R1281 0ohm
R1280 0ohm
C415 330uF
C416 330uF
PCB CO-LAYOUT
PS_NVVDD_PH3_ISENS
PS_NVVDD_PH3_BOOT
PS_NVVDD_PH3_VCC
PS_NVVDD_PH3_PHASE
PS_NVVDD_PH3_SW
PS_NVVDD_DRVON
PS_NVVDD_PWM3
PS_NVVDD_TMON
PS_NVVDD_PH3_TMON
PS_NVVDD_PH3_REFIN
PS_NVVDD_PH3_IOUT
NVVDD_PH3_TP
PS_NVVDD_PH3_SNUB
PS_NVVDD_PH3
PS_NVVDD_CSN3
TP13
NVVDD
GND
IN
OUT
C4509 330uF
C4512 330uF
C4510 330uF
C4511 330uF
C1835 47uF
C1881 47uF
U22
C505 1uF
R178 2.2ohm
C515 1uF
C493 0.1uF
C976 1uF
C547 1uF
C975 1uF
C548 1uF
C977 1uF
C549 1uF
C562 100uF
R1256 0ohm
R213 0ohm
C525 0.1uF
L44 0.22uH
L43 0.22uH
L45 0.22uH
C485 820pF
R169 1.8ohm
C4415 10nF
R212 0ohm
R1302 10k
R211 10k
R1283 0ohm
R1282 0ohm
C418 330uF
C417 330uF
C1117 47uF
C1118 47uF
C1119 47uF
C1856 47uF
PS_NVVDD_PH4_ISENS
PS_NVVDD_PH4_BOOT
PS_NVVDD_PH4_BOOT_RC
PS_NVVDD_PH4_VCC
PS_NVVDD_PH4_PHASE
PS_NVVDD_PH4_SW
PS_NVVDD_PH4_TMON
PS_NVVDD_PH4_REFIN
PS_NVVDD_PH4_IOUT
NVVDD_PH4_TP
PS_NVVDD_PH4_SNUB
PS_NVVDD_PH4
PS_NVVDD_CSN4
TP14
WW37101S

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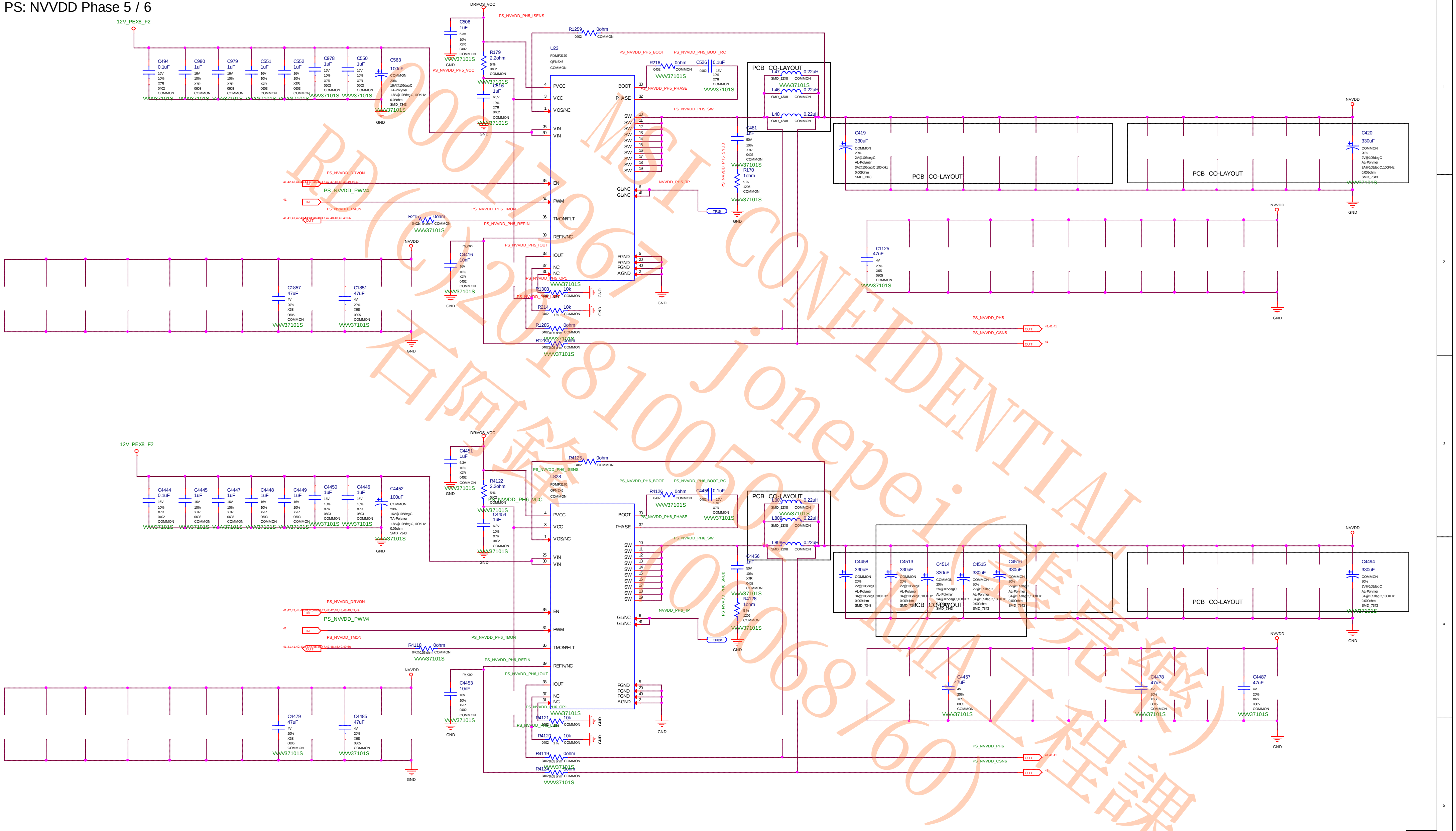
PS: NVVDD Phase 5 / 6



12V_PEX8_F2
DRMOS_VCC
NVVDD
GND
U23
FDMF3170
QFN5X6
U828
PVCC
VCC
VOS/NC
VIN
EN
PWM
TMON/FLT
REFIN/NC
IOUT
NC
BOOT
PHASE
SW
GL/NC
PGND
AGND
PS_NVVDD_PH5_ISENS
PS_NVVDD_PH5_VCC
PS_NVVDD_PH5_BOOT
PS_NVVDD_PH5_BOOT_RC
PS_NVVDD_PH5_PHASE
PS_NVVDD_PH5_SW
PS_NVVDD_PH5_SNUB
NVVDD_PH5_TP
PS_NVVDD_DRVON
PS_NVVDD_PWM4
PS_NVVDD_TMON
PS_NVVDD_PH5_TMON
PS_NVVDD_PH5_REFIN
PS_NVVDD_PH5_IOUT
PS_NVVDD_PH5_OP1
PS_NVVDD_PH5
PS_NVVDD_CSN5
PS_NVVDD_PH6_ISENS
PS_NVVDD_PH6_VCC
PS_NVVDD_PH6_BOOT
PS_NVVDD_PH6_BOOT_RC
PS_NVVDD_PH6_PHASE
PS_NVVDD_PH6_SW
PS_NVVDD_PH6_SNUB
NVVDD_PH6_TP
PS_NVVDD_PH6_TMON
PS_NVVDD_PH6_REFIN
PS_NVVDD_PH6_IOUT
PS_NVVDD_PH6_OP1
PS_NVVDD_PH6
PS_NVVDD_CSN6
IN
OUT
TP15
TP804
PCB CO-LAYOUT
C494 0.1uF
C980 1uF
C979 1uF
C551 1uF
C552 1uF
C978 1uF
C550 1uF
C563 100uF
C506 1uF
C516 1uF
C526 0.1uF
C481 1nF
C4416 10nF
C1857 47uF
C1851 47uF
C1125 47uF
C419 330uF
C420 330uF
R1259 0ohm
R179 2.2ohm
R216 0ohm
R170 1ohm
R215 0ohm
R1303 10k
R214 10k
R1285 0ohm
R1284 0ohm
L47 0.22uH
L46 0.22uH
L48 0.22uH
C4444 0.1uF
C4445 1uF
C4447 1uF
C4448 1uF
C4449 1uF
C4450 1uF
C4446 1uF
C4452 100uF
C4451 1uF
C4454 1uF
C4455 0.1uF
C4456 1nF
C4453 10nF
C4479 47uF
C4485 47uF
C4457 47uF
C4478 47uF
C4487 47uF
C4458 330uF
C4513 330uF
C4514 330uF
C4515 330uF
C4516 330uF
C4494 330uF
R4125 0ohm
R4122 2.2ohm
R4126 0ohm
R4128 1ohm
R4118 0ohm
R4121 10k
R4120 10k
R4119 0ohm
R4124 0ohm
L807 0.22uH
L809 0.22uH
L808 0.22uH
VWV37101S
COMMON
nv_cap

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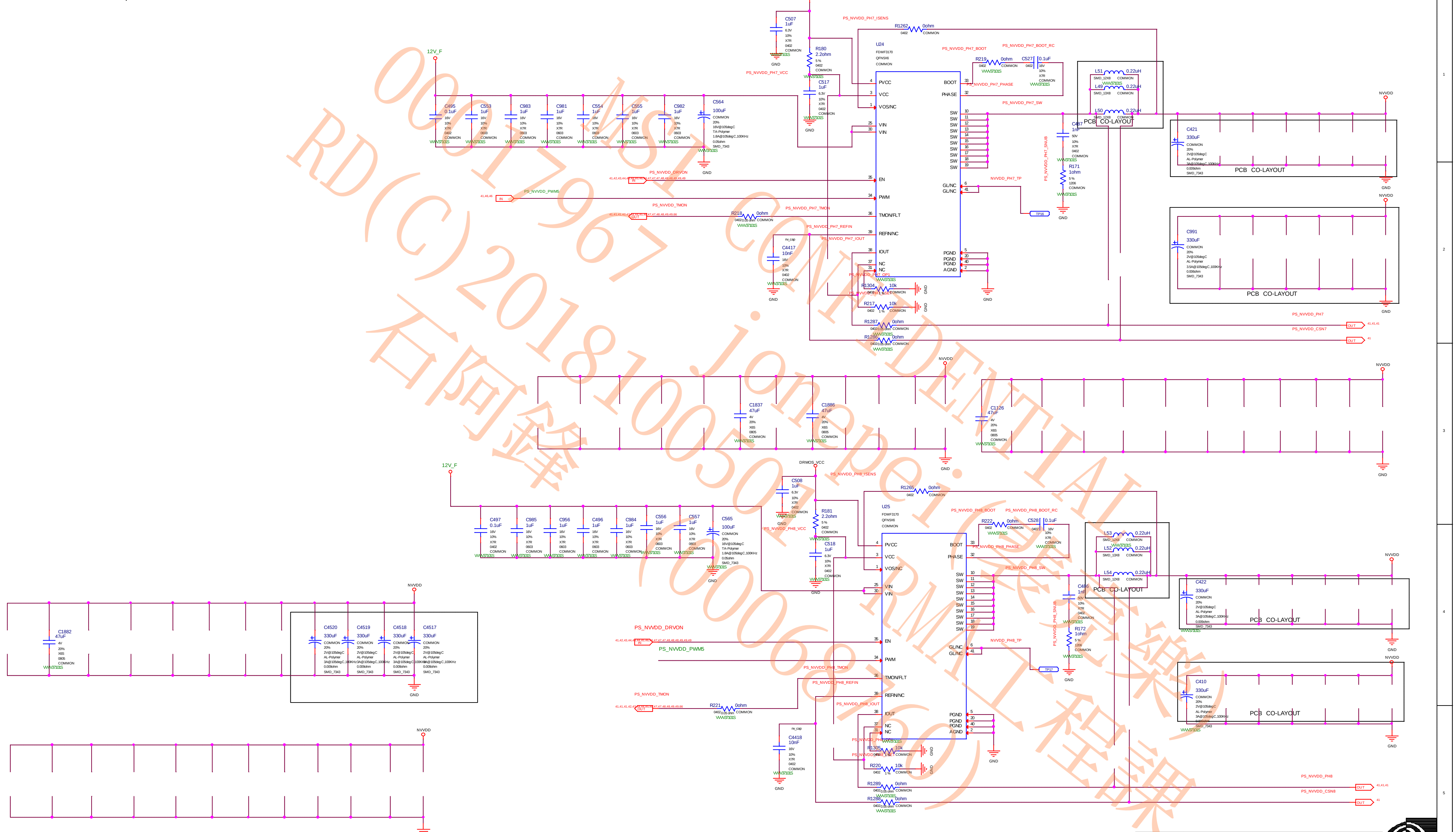
RD(C)2018100502 Jonepei(姜亮樂)
石向鑫 (1006687 60)
MA工程課

PS:NVVDD Phase 7, 8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DRMOS_VCC
U24
FDMF3170
QFN5X6
COMMON
U25
PVCC
VCC
VOS/NC
VIN
EN
PWM
TMON/FLT
REFIN/NC
IOUT
NC
BOOT
PHASE
SW
GL/NC
PGND
AGND
PS_NVVDD_PH7_ISENS
PS_NVVDD_PH7_BOOT
PS_NVVDD_PH7_BOOT_RC
PS_NVVDD_PH7_PHASE
PS_NVVDD_PH7_SW
PS_NVVDD_PH7_VCC
PS_NVVDD_PH7_SNUB
PS_NVVDD_DRVON
PS_NVVDD_PWM5
PS_NVVDD_TMON
PS_NVVDD_PH7_TMON
PS_NVVDD_PH7_REFIN
PS_NVVDD_PH7_IOUT
NVVDD_PH7_TP
PS_NVVDD_PH7
PS_NVVDD_CSN7
PS_NVVDD_PH8_ISENS
PS_NVVDD_PH8_BOOT
PS_NVVDD_PH8_BOOT_RC
PS_NVVDD_PH8_PHASE
PS_NVVDD_PH8_SW
PS_NVVDD_PH8_VCC
PS_NVVDD_PH8_SNUB
PS_NVVDD_PH8_TMON
PS_NVVDD_PH8_REFIN
PS_NVVDD_PH8_IOUT
NVVDD_PH8_TP
PS_NVVDD_PH8
PS_NVVDD_CSN8
TP16
TP17
R1262 0ohm
R180 2.2ohm
R219 0ohm
C527 0.1uF
L51 0.22uH
L49 0.22uH
L50 0.22uH
C487 1nF
R171 1ohm
C507 1uF
C517 1uF
C495 0.1uF
C553 1uF
C983 1uF
C981 1uF
C554 1uF
C555 1uF
C982 1uF
C564 100uF
R218 0ohm
C4417 10nF
R1304 10k
R217 10k
R1287 0ohm
R1286 0ohm
C421 330uF
C991 330uF
PCB CO-LAYOUT
NVVDD
GND
C1837 47uF
C1886 47uF
C1126 47uF
R1265 0ohm
R181 2.2ohm
R222 0ohm
C528 0.1uF
L53 0.22uH
L52 0.22uH
L54 0.22uH
C486 1nF
R172 1ohm
C508 1uF
C518 1uF
C497 0.1uF
C985 1uF
C956 1uF
C496 1uF
C984 1uF
C556 1uF
C557 1uF
C565 100uF
R221 0ohm
C4418 10nF
R1305 10k
R220 10k
R1289 0ohm
R1288 0ohm
C422 330uF
C410 330uF
C1882 47uF
C4520 330uF
C4519 330uF
C4518 330uF
C4517 330uF
IN
OUT
WWSMS

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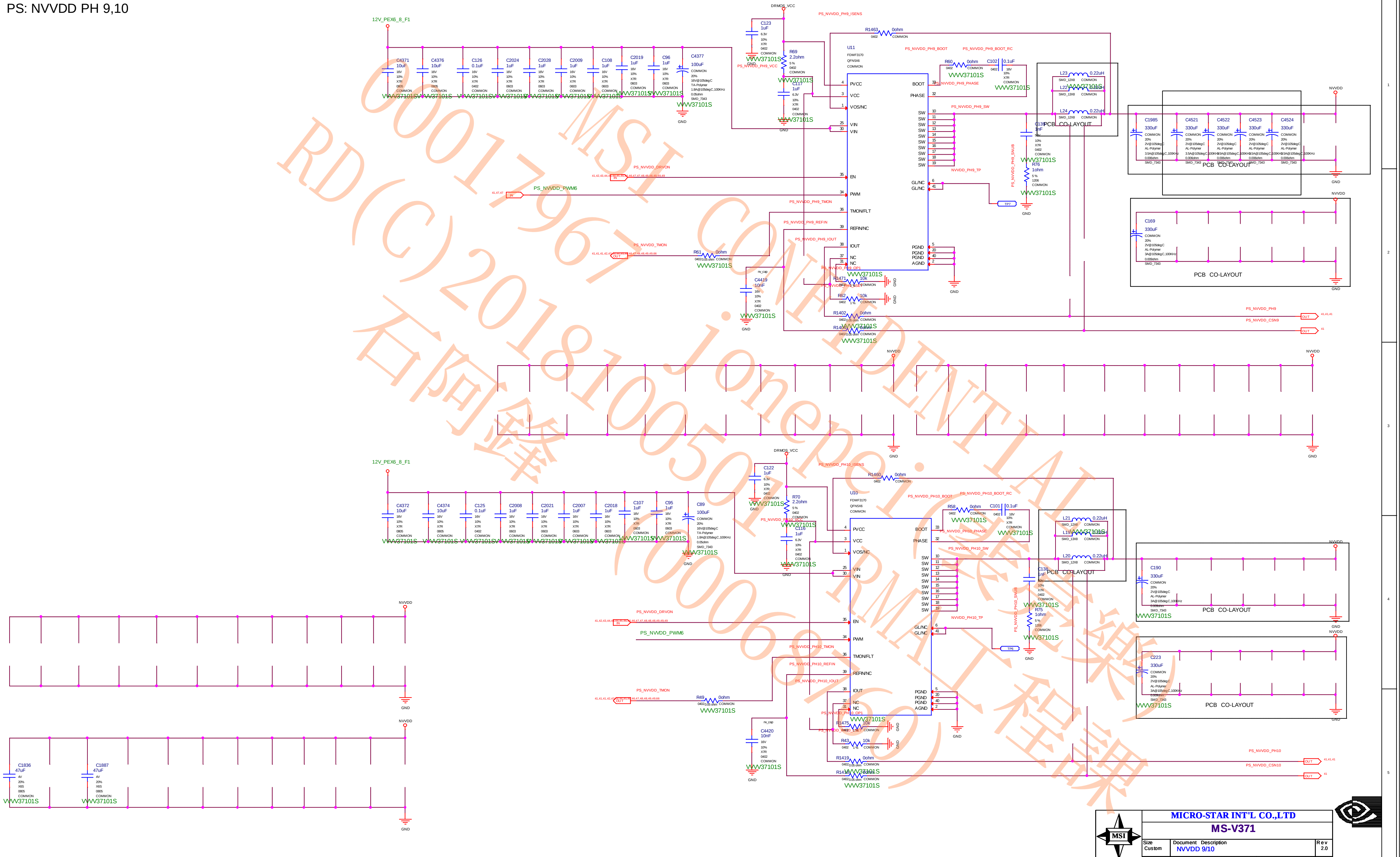
RD(C)20181005 Jonepei(裴宁乐)
石向锋(00068150) RM工程課

PS: NVVDD PH 9,10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DRMOS_VCC
C4371 10uF
C4376 10uF
C126 0.1uF
C2024 1uF
C2028 1uF
C2009 1uF
C108 1uF
C2019 1uF
C96 1uF
C4377 100uF
C123 1uF
R69 2.2ohm
C117 1uF
PS_NVVDD_PH9_ISENS
R1463 0ohm
U11
FDMF3170
QFN56
PS_NVVDD_PH9_BOOT
PS_NVVDD_PH9_BOOT_RC
R60 0ohm
C102 0.1uF
PS_NVVDD_PH9_PHASE
PS_NVVDD_PH9_SW
L23 0.22uH
L22 0.22uH
L24 0.22uH
PCB CO-LAYOUT
C137 1nF
R76 1ohm
NVVDD_PH9_TP
TP7
PVCC
VCC
VOS/NC
VIN
EN
PWM
TMON/FLT
REFIN/NC
IOUT
NC
BOOT
PHASE
SW
GL/NC
PGND
AGND
PS_NVVDD_DRVON
PS_NVVDD_PWM6
PS_NVVDD_PH9_TMON
PS_NVVDD_PH9_REFIN
PS_NVVDD_PH9_IOUT
PS_NVVDD_TMON
R61 0ohm
C4419 10nF
R1471 10k
R82 10k
R1402 0ohm
PS_NVVDD_PH9
PS_NVVDD_CSN9
NVVDD
C1985 330uF
C4521 330uF
C4522 330uF
C4523 330uF
C4524 330uF
C169 330uF
PCB CO-LAYOUT
GND
WW37101S
12V_PEX6_8_F1
DRMOS_VCC
C4372 10uF
C4374 10uF
C125 0.1uF
C2008 1uF
C2021 1uF
C2007 1uF
C2018 1uF
C107 1uF
C95 1uF
C89 100uF
C122 1uF
R70 2.2ohm
C116 1uF
PS_NVVDD_PH10_ISENS
R1460 0ohm
U10
FDMF3170
QFN56
PS_NVVDD_PH10_BOOT
PS_NVVDD_PH10_BOOT_RC
R58 0ohm
C101 0.1uF
PS_NVVDD_PH10_PHASE
PS_NVVDD_PH10_SW
L21 0.22uH
L19 0.22uH
L20 0.22uH
C136 1nF
R75 1ohm
NVVDD_PH10_TP
TP6
PS_NVVDD_PH10_TMON
PS_NVVDD_PH10_REFIN
PS_NVVDD_PH10_IOUT
R49 0ohm
C4420 10nF
R1475 10k
R43 10k
R1419 0ohm
PS_NVVDD_PH10
PS_NVVDD_CSN10
C190 330uF
C223 330uF
C1836 47uF
C1887 47uF
NVVDD
GND

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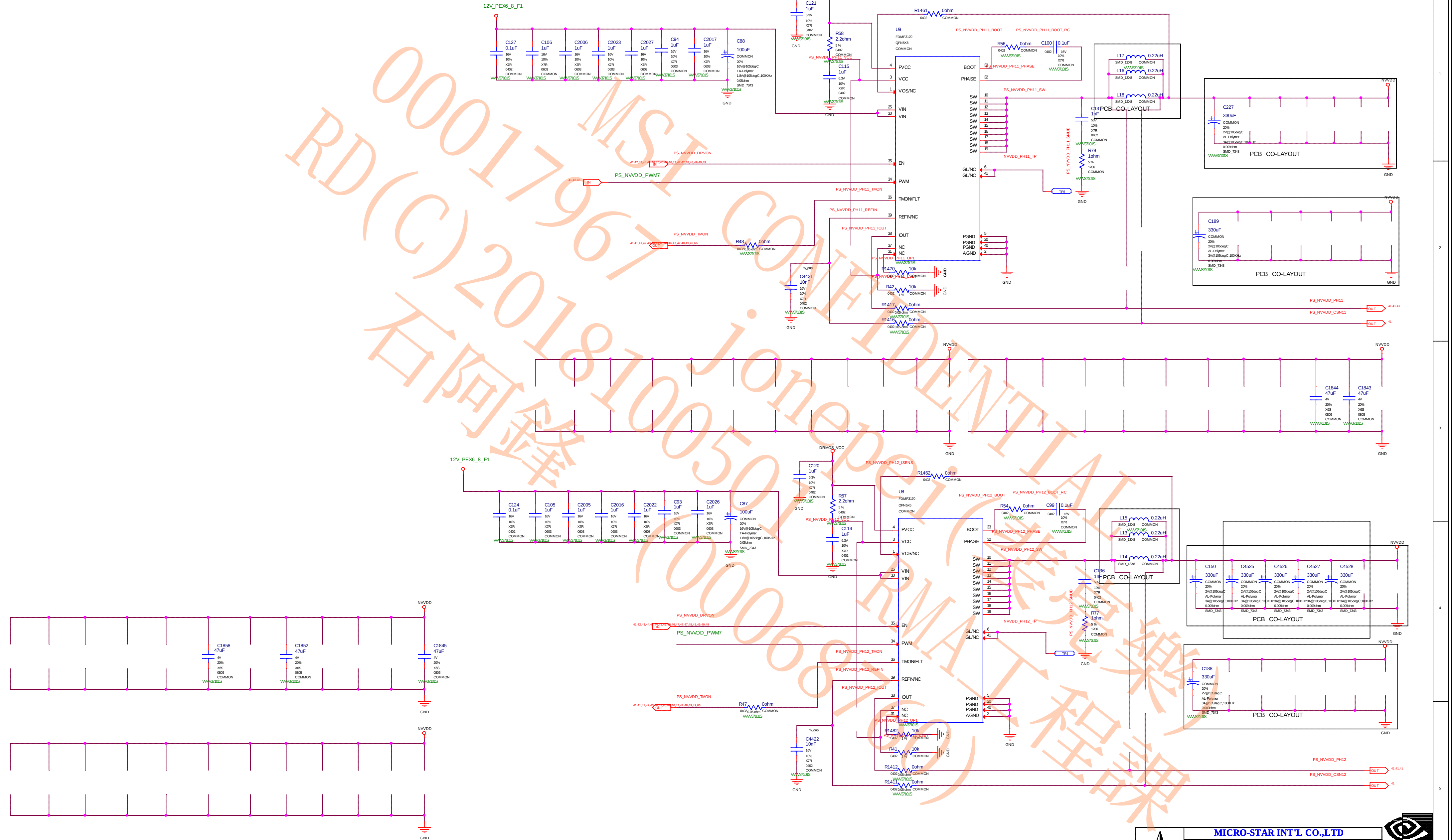
PS: NVVDD PH 11,12



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C127 0.1uF
C106 1uF
C2006 1uF
C2023 1uF
C2027 1uF
C94 1uF
C2017 1uF
C88 100uF
DRMOS_VCC
C121 1uF
R68 2.2ohm
C115 1uF
PS_NVVDD_PH11_ISENS
R1461 0ohm
U9
FDMF3170
QFN5X6
PS_NVVDD_PH11_BOOT
PS_NVVDD_PH11_BOOT_RC
R56 0ohm
C100 0.1uF
PS_NVVDD_PH11_PHASE
PVCC
VCC
VOS/NC
VIN
BOOT
PHASE
SW
EN
PWM
TMON/FLT
REFIN/NC
IOUT
NC
GL/NC
PGND
AGND
L17 0.22uH
L16 0.22uH
L18 0.22uH
PCB CO-LAYOUT
PS_NVVDD_PH11_SW
C137 1nF
R79 1ohm
PS_NVVDD_PH11_SNUB
NVVDD_PH11_TP
TP5
C227 330uF
C189 330uF
NVVDD
GND
PS_NVVDD_DRVON
PS_NVVDD_PWM7
PS_NVVDD_PH11_TMON
PS_NVVDD_PH11_REFIN
PS_NVVDD_PH11_IOUT
PS_NVVDD_TMON
R48 0ohm
C4421 10nF
nv_cap
R1470 10k
R42 10k
PS_NVVDD_PH11_OP1
R1417 0ohm
R1416 0ohm
PS_NVVDD_PH11
PS_NVVDD_CSN11
OUT
IN
C1844 47uF
C1843 47uF
C124 0.1uF
C105 1uF
C2005 1uF
C2016 1uF
C2022 1uF
C93 1uF
C2026 1uF
C87 100uF
C120 1uF
R67 2.2ohm
C114 1uF
PS_NVVDD_PH12_ISENS
R1462 0ohm
U8
PS_NVVDD_PH12_BOOT
PS_NVVDD_PH12_BOOT_RC
R54 0ohm
C99 0.1uF
PS_NVVDD_PH12_PHASE
L15 0.22uH
L13 0.22uH
L14 0.22uH
PS_NVVDD_PH12_SW
C136 1nF
R77 1ohm
PS_NVVDD_PH12_SNUB
NVVDD_PH12_TP
TP4
C150 330uF
C4525 330uF
C4526 330uF
C4527 330uF
C4528 330uF
C188 330uF
PS_NVVDD_PH12_TMON
PS_NVVDD_PH12_REFIN
PS_NVVDD_PH12_IOUT
R47 0ohm
C4422 10nF
R1482 10k
R41 10k
PS_NVVDD_PH12_OP1
R1412 0ohm
R1411 0ohm
PS_NVVDD_PH12
PS_NVVDD_CSN12
C1858 47uF
C1852 47uF
C1845 47uF

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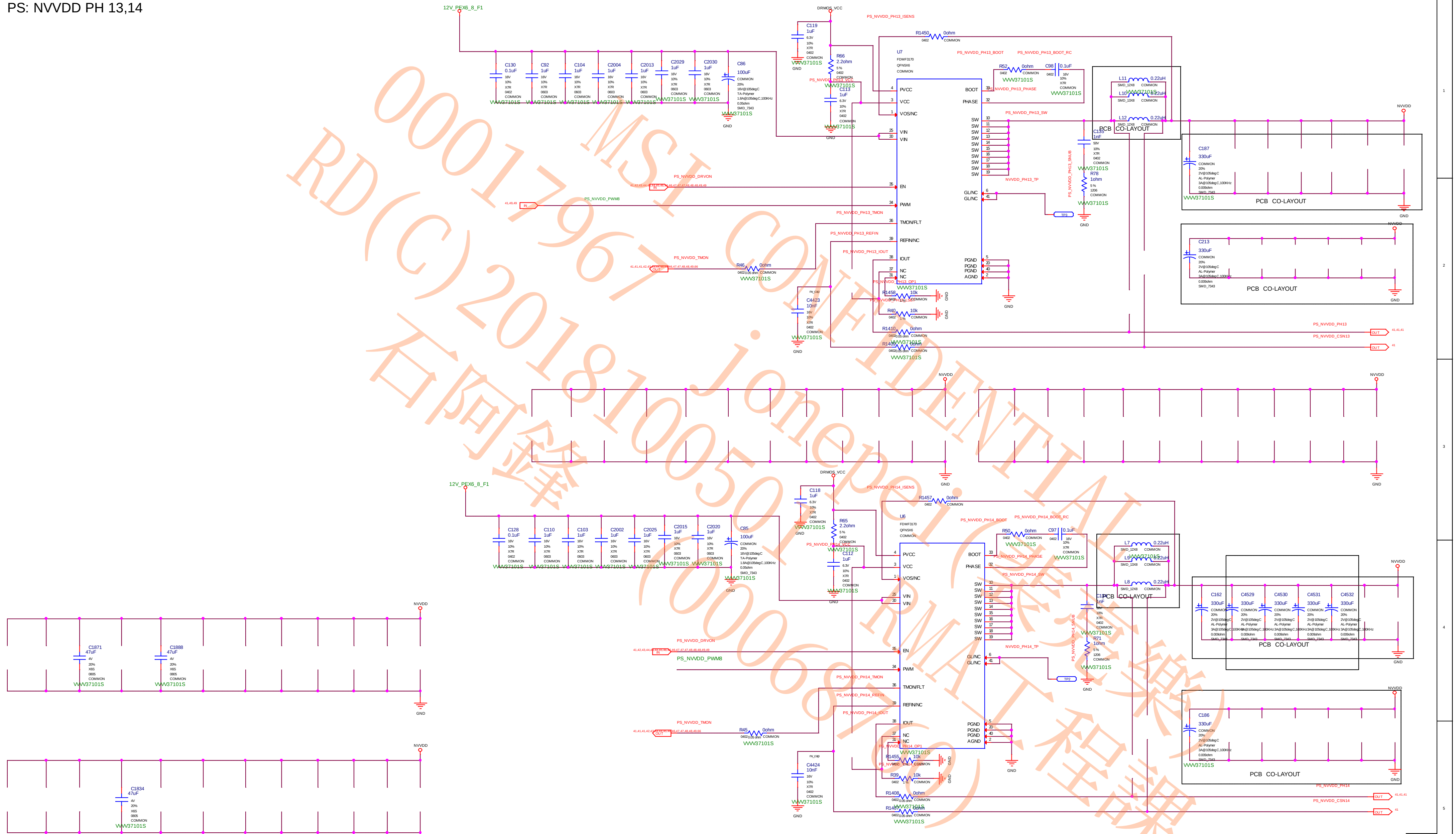
PS: NVVDD PH 13,14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DRMOS_VCC
PS_NVVDD_PH13_ISENS
R1450 0ohm
U7
FDMF3170
QFN56
PS_NVVDD_PH13_BOOT
PS_NVVDD_PH13_BOOT_RC
R52 0ohm
C98 0.1uF
PVCC
VCC
VOS/NC
VIN
BOOT
PHASE
SW
EN
PWM
TMON/FLT
REFIN/NC
IOUT
NC
GL/NC
PGND
AGND
PS_NVVDD_PH13_PHASE
PS_NVVDD_PH13_SW
L11 0.22uH
L10 0.22uH
L12 0.22uH
PCB CO-LAYOUT
C130 0.1uF
C92 1uF
C104 1uF
C2004 1uF
C2013 1uF
C2029 1uF
C2030 1uF
C86 100uF
C119 1uF
R66 2.2ohm
C113 1uF
C133 1nF
R78 1ohm
PS_NVVDD_PH13_SNUB
NVVDD_PH13_TP
TP3
C187 330uF
C213 330uF
NVVDD
GND
PS_NVVDD_DRVON
PS_NVVDD_PWM8
PS_NVVDD_PH13_TMON
PS_NVVDD_PH13_REFIN
PS_NVVDD_PH13_IOUT
PS_NVVDD_TMON
R46 0ohm
C4423 10nF
R1458 10k
R40 10k
R1410 0ohm
R1409 0ohm
PS_NVVDD_PH13
PS_NVVDD_CSN13
OUT
IN
WW37101S
DRMOS_VCC
PS_NVVDD_PH14_ISENS
R1457 0ohm
U6
FDMF3170
QFN56
PS_NVVDD_PH14_BOOT
PS_NVVDD_PH14_BOOT_RC
R50 0ohm
C97 0.1uF
PS_NVVDD_PH14_PHASE
PS_NVVDD_PH14_SW
L7 0.22uH
L9 0.22uH
L8 0.22uH
C128 0.1uF
C110 1uF
C103 1uF
C2002 1uF
C2025 1uF
C2015 1uF
C2020 1uF
C85 100uF
C118 1uF
R65 2.2ohm
C112 1uF
R71 1ohm
NVVDD_PH14_TP
TP2
C162 330uF
C4529 330uF
C4530 330uF
C4531 330uF
C4532 330uF
C186 330uF
PS_NVVDD_PH14_TMON
PS_NVVDD_PH14_REFIN
PS_NVVDD_PH14_IOUT
R45 0ohm
C4424 10nF
R1455 10k
R39 10k
R1408 0ohm
R1407 0ohm
PS_NVVDD_PH14
PS_NVVDD_CSN14
C1871 47uF
C1888 47uF
C1834 47uF

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Size: Custom

Document Description: NVVDD 13/14

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RMA工程課

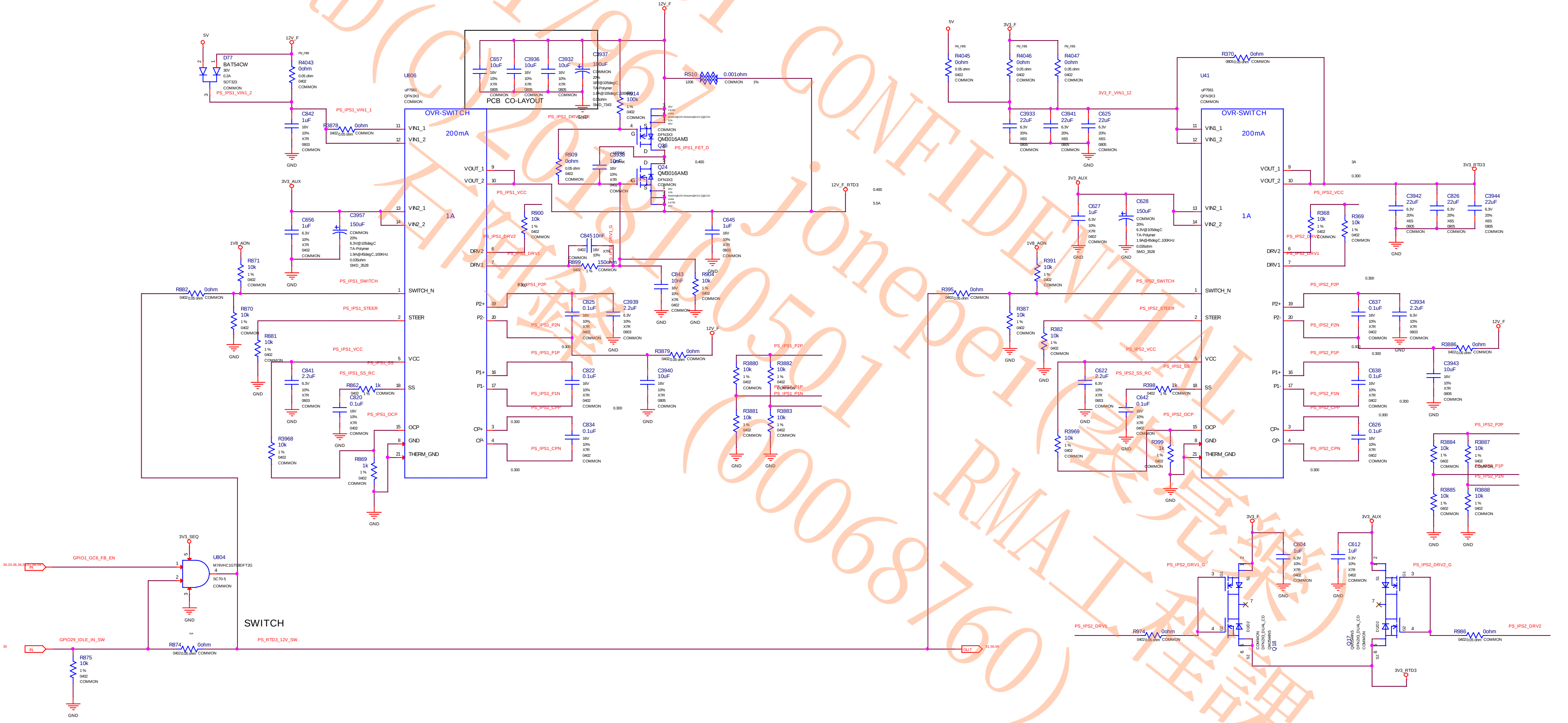
PS: INPUT SWITCH RTD3

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



12V_F
5V
D77
BAT54CW
R4043
0ohm
PS_IPS1_VIN1_2
C842
1uF
R3878
0ohm
U806
uP7561
QFN3X3
OVR-SWITCH
VIN1_1
VIN1_2
200mA
VOUT_1
VOUT_2
VIN2_1
VIN2_2
1A
DRV2
DRV1
SWITCH_N
STEER
VCC
SS
OCP
GND
THERM_GND
P2+
P2-
P1+
P1-
CP+
CP-
PCB CO-LAYOUT
C657
10uF
C3936
10uF
C3932
10uF
C3937
100uF
R914
100k
Q26
QM3016AM3
Q24
QM3016AM3
R510
0.001ohm
PS_IPS1_FET_D
R909
0ohm
C3938
10nF
3V3_AUX
C656
1uF
C3957
150uF
1V8_AON
R871
10k
R882
0ohm
R870
10k
R881
10k
C841
2.2uF
R862
1k
C820
0.1uF
R3968
10k
R869
1k
R900
10k
C845
10nF
R899
150ohm
C843
10nF
R904
10k
C645
1uF
C825
0.1uF
C3939
2.2uF
C822
0.1uF
C834
0.1uF
R3879
0ohm
C3940
10uF
R3880
10k
R3882
10k
R3881
10k
R3883
10k
12V_F_RTD3
3V3_SEQ
U804
M74VHC1GT08DFT2G
SC70-5
GPIO1_GC6_FB_EN
GPIO29_IDLE_IN_SW
R874
0ohm
R875
10k
SWITCH
PS_RTD3_12V_SW
3V3_F
R4045
0ohm
R4046
0ohm
R4047
0ohm
3V3_F_VIN1_12
C3933
22uF
C3941
22uF
C625
22uF
R370
0ohm
U41
uP7561
QFN3X3
OVR-SWITCH
200mA
1A
C627
1uF
C628
150uF
R391
10k
R395
0ohm
R387
10k
R382
10k
C622
2.2uF
R398
1k
C642
0.1uF
R3969
10k
R399
1k
C637
0.1uF
C3934
2.2uF
C638
0.1uF
C626
0.1uF
C3942
22uF
C826
22uF
C3944
22uF
R368
10k
R369
10k
3V3_RTD3
R3886
0ohm
C3943
10uF
R3884
10k
R3887
10k
R3885
10k
R3888
10k
C604
1uF
C612
1uF
3V3_AUX
Q18
Q17
DMN2040LDQ
PS_IPS2_DRV1_G
PS_IPS2_DRV2_G
R974
0ohm
R986
0ohm
PS_IPS2_DRV1
PS_IPS2_DRV2
3V3_RTD3

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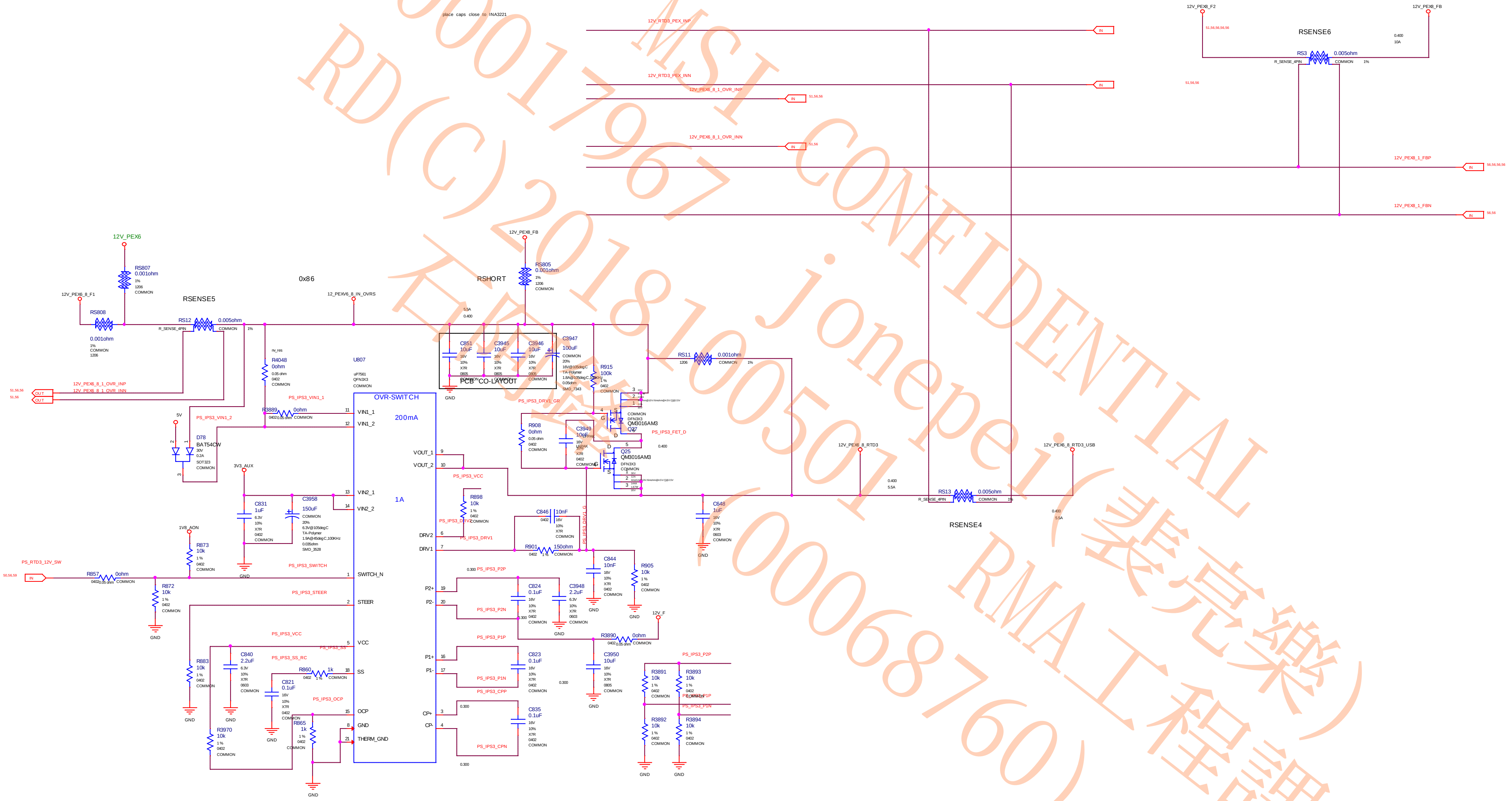
place caps close to INA3221
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12V_RTD3_PEX_INN
12V_PEX6_8_1_OVR_INP
12V_PEX6_8_1_OVR_INN
12V_PEX8_F2
12V_PEX8_FB
RSENSE6
RS3
0.005ohm
R_SENSE_4PIN
COMMON
1%
12V_PEX8_1_FBP
12V_PEX8_1_FBN
IN
12V_PEX6
RS807
0.001ohm
12V_PEX6_8_F1
RS808
0.001ohm
RSENSE5
RS12
0.005ohm
0x86
12_PEXV6_8_IN_OVRS
RSHORT
RS805
0.001ohm
12V_PEX8_FB
C851
10uF
C3945
10uF
C3946
10uF
C3947
100uF
PCB CO-LAYOUT
RS11
0.001ohm
R915
100k
Q27
QM3016AM3
Q25
QM3016AM3
PS_IPS3_FET_D
PS_IPS3_DRV1_GR
R908
0ohm
C3949
10nF
12V_PEX6_8_1_OVR_INP
12V_PEX6_8_1_OVR_INN
OUT
R4048
0ohm
U807
uP7561
QFN3X3
COMMON
OVR-SWITCH
200mA
1A
VIN1_1
VIN1_2
VIN2_1
VIN2_2
VOUT_1
VOUT_2
DRV2
DRV1
SWITCH_N
STEER
VCC
SS
OCP
GND
THERM_GND
P2+
P2-
P1+
P1-
CP+
CP-
PS_IPS3_VIN1_1
PS_IPS3_VIN1_2
R3889
0ohm
D78
BAT54CW
3V3_AUX
C831
1uF
C3958
150uF
1V8_AON
R873
10k
PS_RTD3_12V_SW
R857
0ohm
R872
10k
PS_IPS3_SWITCH
PS_IPS3_STEER
PS_IPS3_VCC
PS_IPS3_SS
PS_IPS3_SS_RC
PS_IPS3_OCP
R883
10k
C840
2.2uF
R860
1k
C821
0.1uF
R865
1k
R3970
10k
R898
10k
PS_IPS3_DRV2
PS_IPS3_DRV1
C846
10nF
R901
150ohm
C844
10nF
R905
10k
12V_F
PS_IPS3_P2P
PS_IPS3_P2N
PS_IPS3_P1P
PS_IPS3_P1N
PS_IPS3_CPP
PS_IPS3_CPN
C824
0.1uF
C3948
2.2uF
C823
0.1uF
C835
0.1uF
R3890
0ohm
C3950
10uF
R3891
10k
R3893
10k
R3892
10k
R3894
10k
12V_PEX6_8_RTD3
12V_PEX6_8_RTD3_USB
RS13
0.005ohm
RSENSE4
C648
1uF
GND

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MICRO-STAR INT'L CO.,LTD

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PS: Input Switch Rail Balance

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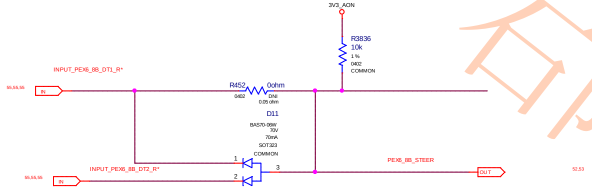
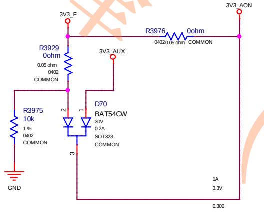
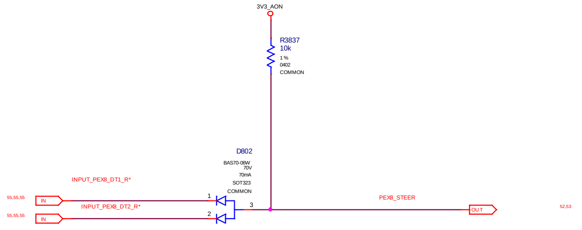
RD(C)2018100501 RMA工程課
石向鋒(00068760)


3V3_AON
R3836
10k
1 %
0402
COMMON
INPUT_PEX6_8B_DT1_R*
55,55,55
IN
R452
0ohm
0402
DNI
0.05 ohm
D11
BAS70-06W
70V
70mA
SOT323
COMMON
1
2
3
INPUT_PEX6_8B_DT2_R*
55,55,55
IN
PEX6_8B_STEER
OUT
52,53


3V3_F
3V3_AON
R3976
0ohm
0402
0.05 ohm
COMMON
R3929
0ohm
0.05 ohm
0402
COMMON
3V3_AUX
R3975
10k
1 %
0402
COMMON
GND
D70
BAT54CW
30V
0.2A
SOT323
COMMON
2
1
3
1A
3.3V
0.300


3V3_AON
R3837
10k
1 %
0402
COMMON
D802
BAS70-06W
70V
70mA
SOT323
COMMON
INPUT_PEX8_DT1_R*
55,55,55
IN
1
INPUT_PEX8_DT2_R*
55,55,55
IN
2
3
PEX8_STEER
OUT
52,53

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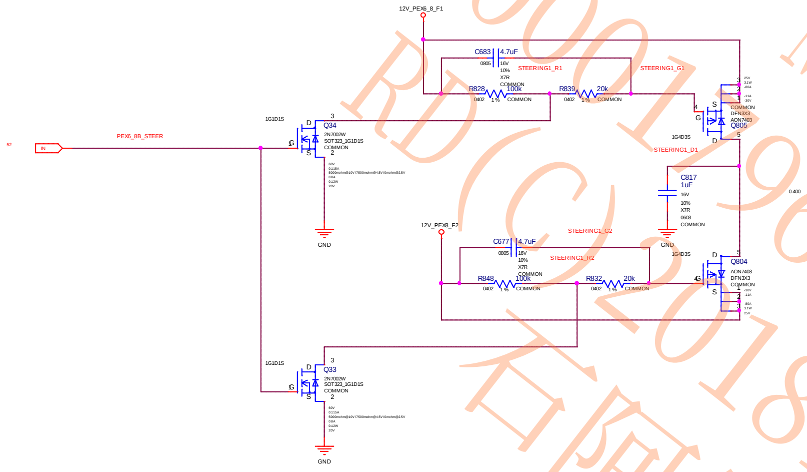
12V CURRENT STEERING (UNDER POWER BOOT):

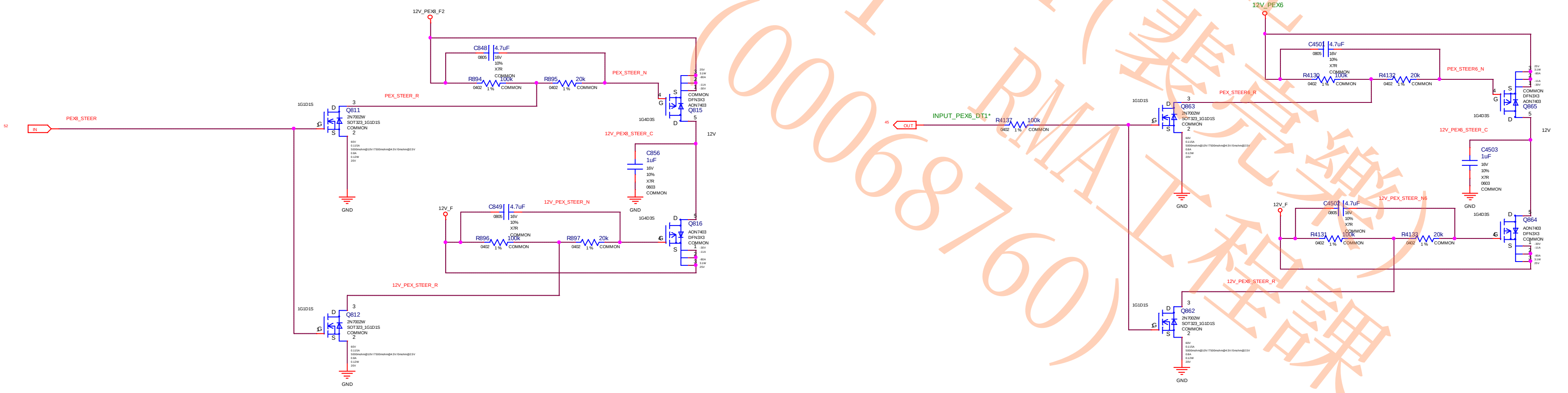
GUIDES CURRENT FROM PEX EDGE TO PEX 6/8 PIN INPUT AREA


12V_PEX6_8_F1
C683 4.7uF 0805 16V 10% X7R COMMON
STEERING1_R1
STEERING1_G1
R828 100k 0402 1% COMMON
R830 20k 0402 1% COMMON
Q805 AON7403 DFN3X3 COMMON
1G4D3S
STEERING1_D1
C817 1uF 16V 10% X7R 0603 COMMON
GND
0.400
52
IN
PEX6_8B_STEER
1G1D1S
Q34 2N7002W SOT323_1G1D1S COMMON
GND
12V_PEX8_F2
C677 4.7uF 0805 16V 10% X7R COMMON
STEERING1_G2
STEERING1_R2
R848 100k 0402 1% COMMON
R832 20k 0402 1% COMMON
Q804 AON7403 DFN3X3 COMMON
1G4D3S
1G1D1S
Q33 2N7002W SOT323_1G1D1S COMMON
GND

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


12V_PEX8_F2
C848 4.7uF 0805 16V 10% X7R COMMON
R894 100k 0402 1% COMMON
R895 20k 0402 1% COMMON
PEX_STEER_N
PEX_STEER_R
Q815 AON7403 DFN3X3 COMMON
1G4D3S
52
IN
PEX8_STEER
1G1D1S
Q811 2N7002W SOT323_1G1D1S COMMON
GND
12V_PEX8_STEER_C
12V
C856 1uF 16V 10% X7R 0603 COMMON
GND
12V_F
C849 4.7uF 0805 16V 10% X7R COMMON
12V_PEX_STEER_N
R896 100k 0402 1% COMMON
R897 20k 0402 1% COMMON
Q816 AON7403 DFN3X3 COMMON
1G4D3S
12V_PEX_STEER_R
1G1D1S
Q812 2N7002W SOT323_1G1D1S COMMON
GND
12V_PEX6
C4501 4.7uF 0805 16V 10% X7R COMMON
R4130 100k 0402 1% COMMON
R4132 20k 0402 1% COMMON
PEX_STEER6_N
PEX_STEER6_R
Q865 AON7403 DFN3X3 COMMON
1G4D3S
45
OUT
INPUT_PEX6_DT1*
R4137 100k 0402 1% COMMON
1G1D1S
Q863 2N7002W SOT323_1G1D1S COMMON
GND
12V_PEX6_STEER_C
12V
C4503 1uF 16V 10% X7R 0603 COMMON
GND
12V_F
C4502 4.7uF 0805 16V 10% X7R COMMON
12V_PEX_STEER_N6
R4131 100k 0402 1% COMMON
R4133 20k 0402 1% COMMON
Q864 AON7403 DFN3X3 COMMON
1G4D3S
12V_PEX6_STEER_R
1G1D1S
Q862 2N7002W SOT323_1G1D1S COMMON
GND

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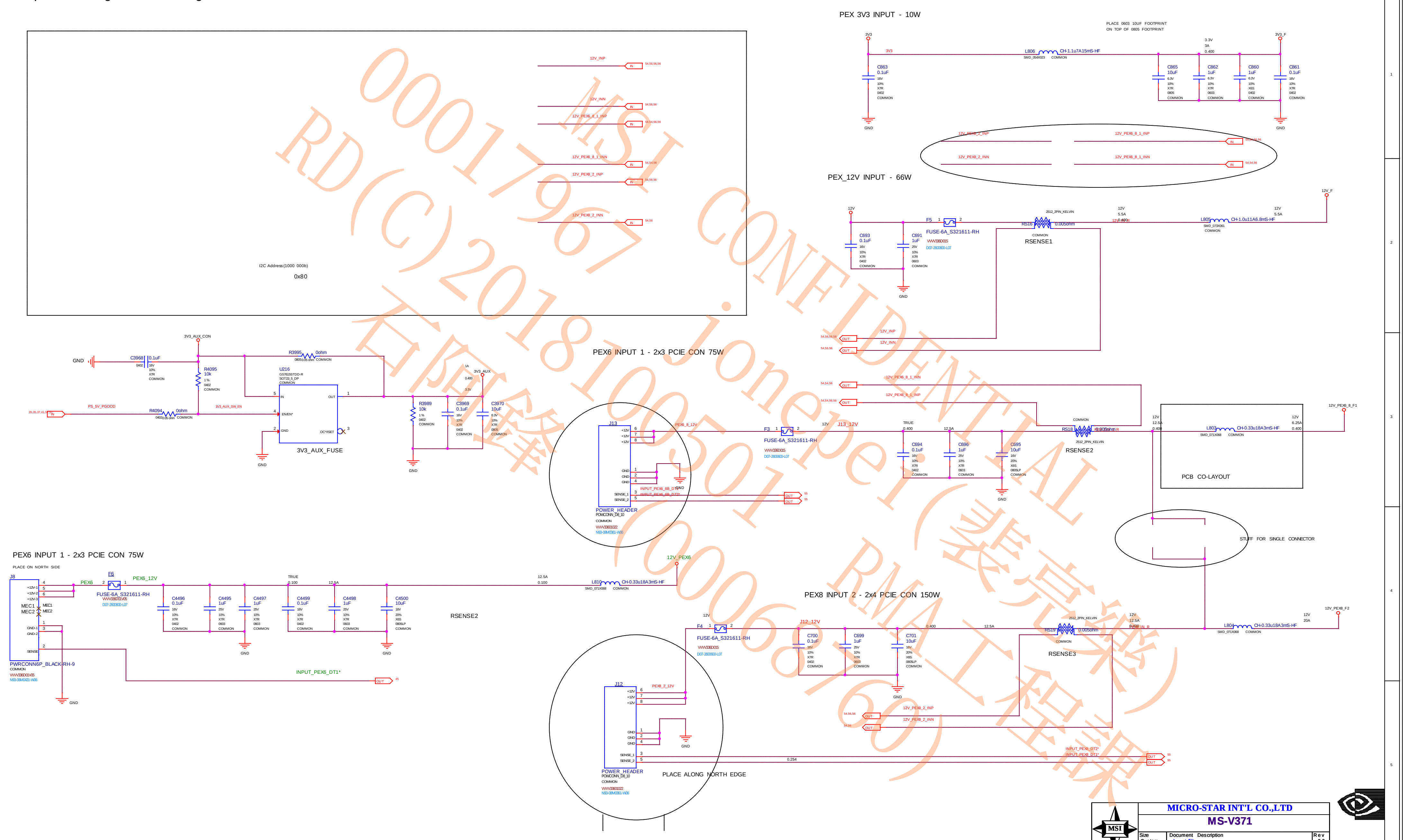
0001967
RD(C)2018100501 石向鋒
jonepei(裴亮樂)
RMA工程課
(00068760)

PS: Inputs, Filtering, and Monitoring


PEX 3V3 INPUT - 10W
PLACE 0603 10UF FOOTPRINT ON TOP OF 0805 FOOTPRINT
3V3
L806 CH-1.1u7A15mS-HF
3.3V 3A 0.400
3V3_F
C863 0.1uF
C865 10uF
C862 1uF
C860 1uF
C861 0.1uF
GND
12V_PEX8_2_INP
12V_PEX6_8_1_INP
12V_PEX8_2_INN
12V_PEX6_8_1_INN
PEX_12V INPUT - 66W
12V
F5
FUSE-6A_S321611-RH
C693 0.1uF
C691 1uF
RS16 0.005ohm
2512_2PIN_KELVIN
RSENSE1
12V 5.5A 0.400
L805 CH-1.0u11A6.8mS-HF
12V_F
12V_INP
12V_INN
12V_PEX6_8_1_INP
12V_PEX6_8_1_INN
12V_PEX8_2_INP
12V_PEX8_2_INN
I2C Address:(1000 000b)
0x80
3V3_AUX_CON
GND
C3968 0.1uF
R4095 10k
R3995 0ohm
U216
GS7615STDD-R
SOT23_5_DP
IN
OUT
EN/EN*
GND
OC*/ISET
3V3_AUX_FUSE
PS_5V_PGOOD
R4094 0ohm
3V3_AUX_SW_EN
1A 3V3_AUX 0.400 3.3V
R3989 10k
C3969 0.1uF
C3970 10uF
PEX6 INPUT 1 - 2x3 PCIE CON 75W
J13
+12V
GND
SENSE_1
SENSE_2
POWER_HEADER
POWCONN_D8_10
PEX6_8_12V
INPUT_PEX6_8B_DT1*
INPUT_PEX6_8B_DT2*
F3
FUSE-6A_S321611-RH
J13_12V
TRUE 0.400
12.5A
C694 0.1uF
C696 1uF
C695 10uF
RS18 0.005ohm
RSENSE2
12V 12.5A 0.400
L803 CH-0.33u18A3mS-HF
12V 6.25A 0.400
12V_PEX6_8_F1
PCB CO-LAYOUT
STUFF FOR SINGLE CONNECTOR
PEX6 INPUT 1 - 2x3 PCIE CON 75W
PLACE ON NORTH SIDE
J8
PEX6
F6
FUSE-6A_S321611-RH
PEX6_12V
C4496 0.1uF
C4495 1uF
C4497 1uF
C4499 0.1uF
C4498 1uF
C4500 10uF
TRUE 0.100
12.5A
L810 CH-0.33u18A3mS-HF
12V_PEX6
RSENSE2
PWRCONN6P_BLACK_RH-9
INPUT_PEX6_DT1*
PEX8 INPUT 2 - 2x4 PCIE CON 150W
12V
F4
FUSE-6A_S321611-RH
J12_12V
C700 0.1uF
C699 1uF
C701 10uF
0.400
12.5A
RS19 0.005ohm
RSENSE3
12V 12.5A 0.400
L804 CH-0.33u18A3mS-HF
12V 20A
12V_PEX8_F2
J12
PEX8_2_12V
POWER_HEADER
POWCONN_D8_10
PLACE ALONG NORTH EDGE
INPUT_PEX8_DT2*
INPUT_PEX8_DT1*
0.254

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00017967
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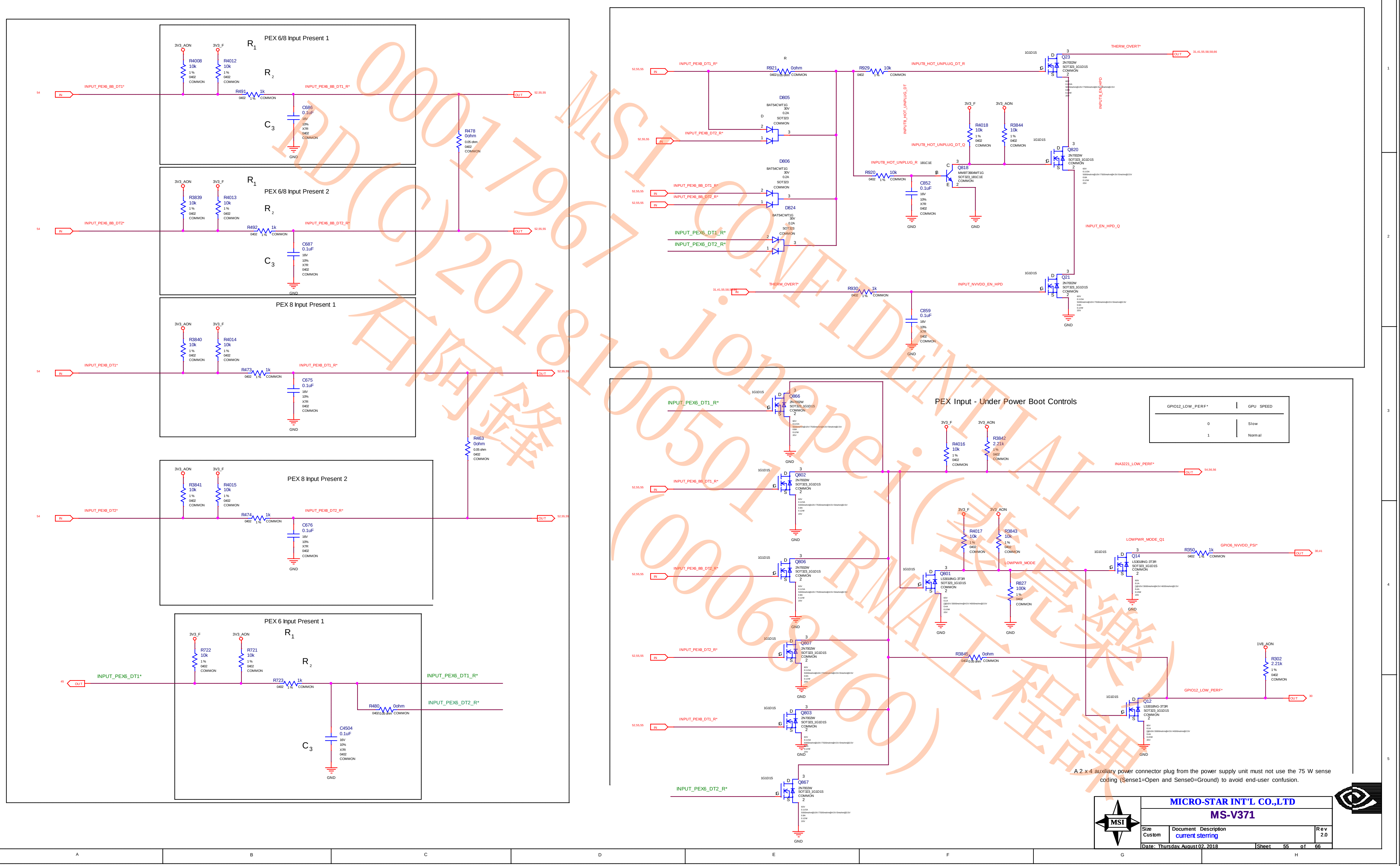
Jonepei(裴亮樂)
(00063760) RMA工程課

PS: 12V Current Steering & Hot Unplug Detect


PEX 6/8 Input Present 1
R1
R2
C3
3V3_AON
3V3_F
R4008 10k 1% 0402 COMMON
R4012 10k 1% 0402 COMMON
INPUT_PEX6_8B_DT1*
R491 1k 0402 1% COMMON
INPUT_PEX6_8B_DT1_R*
C686 0.1uF 16V 10% X7R 0402 COMMON
GND
R478 0ohm 0.05 ohm 0402 COMMON
PEX 6/8 Input Present 2
R3839 10k 1% 0402 COMMON
R4013 10k 1% 0402 COMMON
INPUT_PEX6_8B_DT2*
R492 1k 0402 1% COMMON
INPUT_PEX6_8B_DT2_R*
C687 0.1uF 16V 10% X7R 0402 COMMON
PEX 8 Input Present 1
R3840 10k 1% 0402 COMMON
R4014 10k 1% 0402 COMMON
INPUT_PEX8_DT1*
R473 1k 0402 1% COMMON
INPUT_PEX8_DT1_R*
C675 0.1uF 16V 10% X7R 0402 COMMON
R463 0ohm 0.05 ohm 0402 COMMON
PEX 8 Input Present 2
R3841 10k 1% 0402 COMMON
R4015 10k 1% 0402 COMMON
INPUT_PEX8_DT2*
R474 1k 0402 1% COMMON
INPUT_PEX8_DT2_R*
C676 0.1uF 16V 10% X7R 0402 COMMON
PEX 6 Input Present 1
R722 10k 1% 0402 COMMON
R721 10k 1% 0402 COMMON
INPUT_PEX6_DT1*
R723 1k 0402 1% COMMON
INPUT_PEX6_DT1_R*
R480 0ohm 0402 0.05 ohm COMMON
INPUT_PEX6_DT2_R*
C4504 0.1uF 16V 10% X7R 0402 COMMON
IN
OUT
54
52,55,55
45
INPUT8_DT1_R*
R921 0ohm 0402 0.05 ohm COMMON
R929 10k 0402 1% COMMON
INPUT8_HOT_UNPLUG_DT_R
THERM_OVERT*
31,41,55,58,58,66
Q23 2N7002W SOT323_1G1D1S COMMON
D805 BAT54CWT1G 30V 0.2A SOT323 COMMON
INPUT8_DT2_R*
D806 BAT54CWT1G 30V 0.2A SOT323 COMMON
INPUT_PEX6_8B_DT1_R*
INPUT_PEX6_8B_DT2_R*
D824 BAT54CWT1G 30V 0.2A SOT323 COMMON
INPUT_PEX6_DT1_R*
INPUT_PEX6_DT2_R*
INPUT8_HOT_UNPLUG_DT
INPUT8_HOT_UNPLUG_DT_Q
INPUT8_HOT_UNPLUG_R
R920 10k 0402 1% COMMON
Q818 MMBT3904WT1G SOT323_1B1C1E COMMON
C852 0.1uF 16V 10% X7R 0402 COMMON
R4018 10k 1% 0402 COMMON
R3844 10k 1% 0402 COMMON
Q820 2N7002W SOT323_1G1D1S COMMON
INPUT8_EN_HPD
INPUT_EN_HPD_Q
R930 1k 0402 1% COMMON
INPUT_NVVDD_EN_HPD
Q21 2N7002W SOT323_1G1D1S COMMON
C859 0.1uF 16V 10% X7R 0402 COMMON
PEX Input - Under Power Boot Controls
Q866 2N7002W SOT323_1G1D1S COMMON
Q802 2N7002W SOT323_1G1D1S COMMON
Q806 2N7002W SOT323_1G1D1S COMMON
Q807 2N7002W SOT323_1G1D1S COMMON
Q803 2N7002W SOT323_1G1D1S COMMON
Q867 2N7002W SOT323_1G1D1S COMMON
R4016 10k 1% 0402 COMMON
R3842 2.21k 1% 0402 COMMON
INA3221_LOW_PERF*
54,56,56
R4017 10k 1% 0402 COMMON
R3843 10k 1% 0402 COMMON
Q801 LS3018NG-3T3R SOT323_1G1D1S COMMON
LOWPWR_MODE
R827 100k 1% 0402 COMMON
LOWPWR_MODE_Q1
Q14 LS3018NG-3T3R SOT323_1G1D1S COMMON
R350 1k 0402 1% COMMON
GPIO6_NVVDD_PSI*
R3845 0ohm 0402 0.05 ohm COMMON
1V8_AON
R302 2.21k 1% 0402 COMMON
GPIO12_LOW_PERF*
Q12 LS3018NG-3T3R SOT323_1G1D1S COMMON

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.

MICRO-STAR INT'L CO.,LTD

MS-V371

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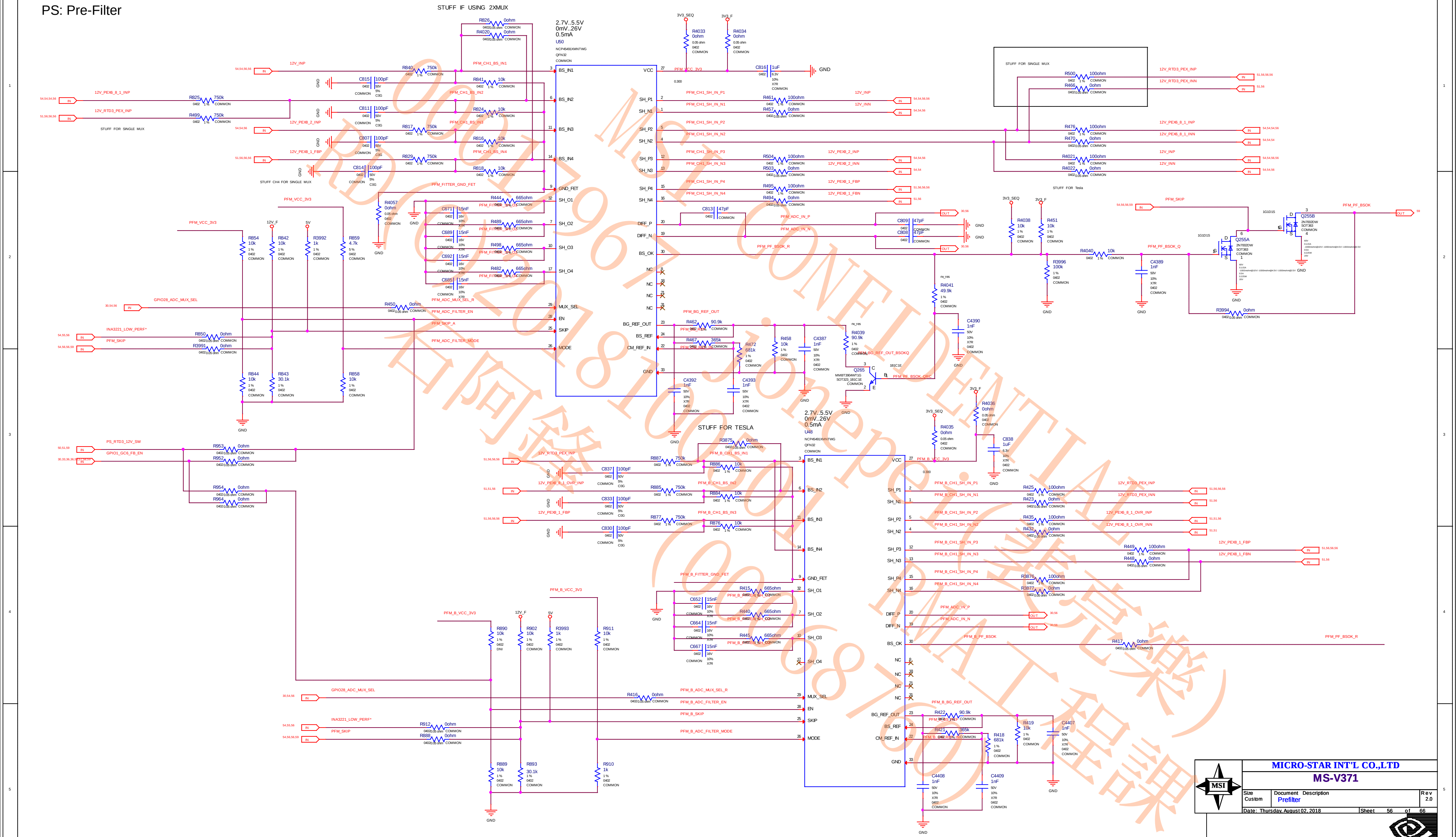
00017967
RD(C)20181005
石向锋
MSI CONFIDENTIAL
Jonpei.(黄俊乐)
(00063760)
RMA工程课

PS: Pre-Filter


STUFF IF USING 2XMUX
2.7V..5.5V
0mV..26V
0.5mA
U50
NCP45492XMNTWG
QFN32
COMMON
BS_IN1
BS_IN2
BS_IN3
BS_IN4
GND_FET
SH_O1
SH_O2
SH_O3
SH_O4
MUX_SEL
EN
SKIP
MODE
VCC
SH_P1
SH_N1
SH_P2
SH_N2
SH_P3
SH_N3
SH_P4
SH_N4
DIFF_P
DIFF_N
BS_OK
NC
BG_REF_OUT
BS_REF
CM_REF_IN
GND
3V3_SEQ
3V3_F
12V_F
5V
R4033
R4034
C816
1uF
R826
R4020
R840
R841
R825
R499
R817
R824
R829
R816
R818
C815
C811
C807
C814
100pF
750k
10k
0ohm
12V_INP
12V_PEX6_8_1_INP
12V_RTD3_PEX_INP
12V_PEX8_2_INP
12V_PEX8_1_FBP
STUFF FOR SINGLE MUX
STUFF CH4 FOR SINGLE MUX
PFM_CH1_BS_IN1
PFM_CH1_BS_IN2
PFM_CH1_BS_IN3
PFM_CH1_BS_IN4
PFM_FITTER_GND_FET
PFM_VCC_3V3
R4057
R854
R842
R3992
R859
R844
R843
R858
R850
R3991
R450
C671
C689
C692
C685
15nF
R444
R489
R498
R482
665ohm
GPIO28_ADC_MUX_SEL
INA3221_LOW_PERF*
PFM_SKIP
PFM_ADC_MUX_SEL_R
PFM_ADC_FILTER_EN
PFM_SKIP_A
PFM_ADC_FILTER_MODE
PFM_CH1_SH_IN_P1
PFM_CH1_SH_IN_N1
PFM_CH1_SH_IN_P2
PFM_CH1_SH_IN_N2
PFM_CH1_SH_IN_P3
PFM_CH1_SH_IN_N3
PFM_CH1_SH_IN_P4
PFM_CH1_SH_IN_N4
R461
R457
R504
R503
R495
R494
100ohm
12V_INN
12V_PEX8_2_INP
12V_PEX8_2_INN
12V_PEX8_1_FBP
12V_PEX8_1_FBN
C813
47pF
C809
C808
PFM_ADC_IN_P
PFM_ADC_IN_N
PFM_PF_BSOK_R
PFM_BG_REF_OUT
R462
90.9k
R467
365k
R472
681k
R458
C4387
1nF
C4392
C4393
R4039
R4041
49.9k
C4390
Q265
MMBT3904WT1G
SOT323_1B1C1E
PFM_BG_REF_OUT_BSOKQ
PFM_PF_BSOK_ORG
STUFF FOR SINGLE MUX
R500
R466
R476
R470
R4021
R4022
12V_RTD3_PEX_INP
12V_RTD3_PEX_INN
12V_PEX6_8_1_INP
12V_PEX6_8_1_INN
STUFF FOR Tesla
PFM_SKIP
PFM_PF_BSOK
R4038
R451
R3996
100k
R4040
C4389
PFM_PF_BSOK_Q
Q255A
Q255B
2N7002DW
SOT363
R3994
STUFF FOR TESLA
2.7V..5.5V
0mV..26V
0.5mA
U48
NCP45492XMNTWG
QFN32
R4036
R4035
C838
PFM_B_VCC_3V3
R3875
PFM_B_CH1_BS_IN1
PFM_B_CH1_BS_IN2
PFM_B_CH1_BS_IN3
12V_RTD3_PEX_INP
12V_PEX6_8_1_OVR_INP
12V_PEX8_1_FBP
R887
R886
R885
R884
R877
R876
C837
C833
C830
PFM_B_FITTER_GND_FET
R415
R440
R445
C652
C664
C667
R425
R423
R435
R432
R449
R448
R3876
R3877
12V_RTD3_PEX_INN
12V_PEX6_8_1_OVR_INN
12V_PEX8_1_FBN
PFM_B_CH1_SH_IN_P1
PFM_B_CH1_SH_IN_N1
PFM_B_CH1_SH_IN_P2
PFM_B_CH1_SH_IN_N2
PFM_B_CH1_SH_IN_P3
PFM_B_CH1_SH_IN_N3
PFM_B_CH1_SH_IN_P4
PFM_B_CH1_SH_IN_N4
PFM_B_PF_BSOK
PFM_PF_BSOK_R
R417
PS_RTD3_12V_SW
GPIO1_GC6_FB_EN
R953
R952
R954
R964
R890
R902
R3993
R911
R889
R893
R910
30.1k
R416
R912
R888
PFM_B_ADC_MUX_SEL_R
PFM_B_ADC_FILTER_EN
PFM_B_SKIP
PFM_B_ADC_FILTER_MODE
PFM_B_BG_REF_OUT
R422
R421
R418
R419
C4407
C4408
C4409
IN
OUT
GND
COMMON
0402
DNI

MSI CONFIDENTIAL
Johnsonpeng(彭建樂)
RD(20181001)
PMA工程課

MICRO-STAR INT'L CO.,LTD

MS-V371

Size Custom
Document Description **Prefilter**
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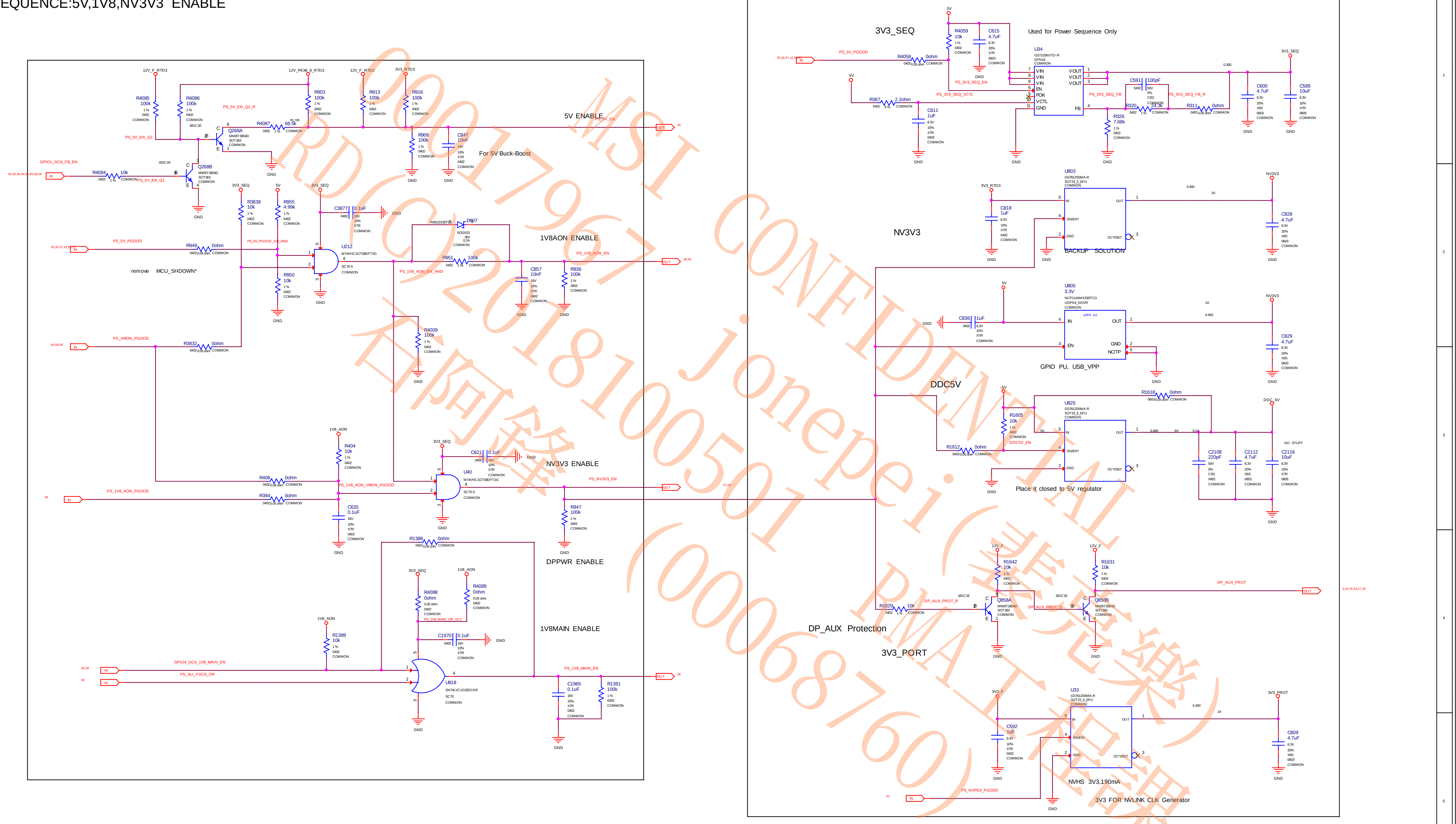
SEQUENCE:5V,1V8,NV3V3 ENABLE


5V ENABLE
For 5V Buck-Boost
1V8AON ENABLE
remove MCU_SHDOWN*
NV3V3 ENABLE
DPPWR ENABLE
1V8MAIN ENABLE
3V3_SEQ
Used for Power Sequence Only
NV3V3
BACKUP SOLUTION
GPIO PU, USB_VPP
DDC5V
Place it closed to 5V regulator
DP_AUX Protection
3V3_PORT
NVHS 3V3,190mA
3V3 FOR NVLINK CLK Generator
U212
U40
U818
U34
U803
U805
U825
U33
Q268A
Q268B
Q858A
Q858B
D807
PS_5V_EN
PS_5V_PGOOD
PS_VMON_PGOOD
PS_1V8_AON_EN
PS_1V8_AON_PGOOD
PS_NV3V3_EN
PS_1V8_MAIN_EN
PS_3V3_SEQ_EN
PS_NVPEX_PGOOD
DP_AUX_PROT
GPIO1_GC6_FB_EN
GPIO4_GC6_1V8_MAIN_EN
PS_SLI_FGC6_OR
GND

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ASSEMBLY
PAGE DETAIL

<ASSEMBLY_DESCRIPTION>
Sequence: 5V, 1V8, NV3V3 EN

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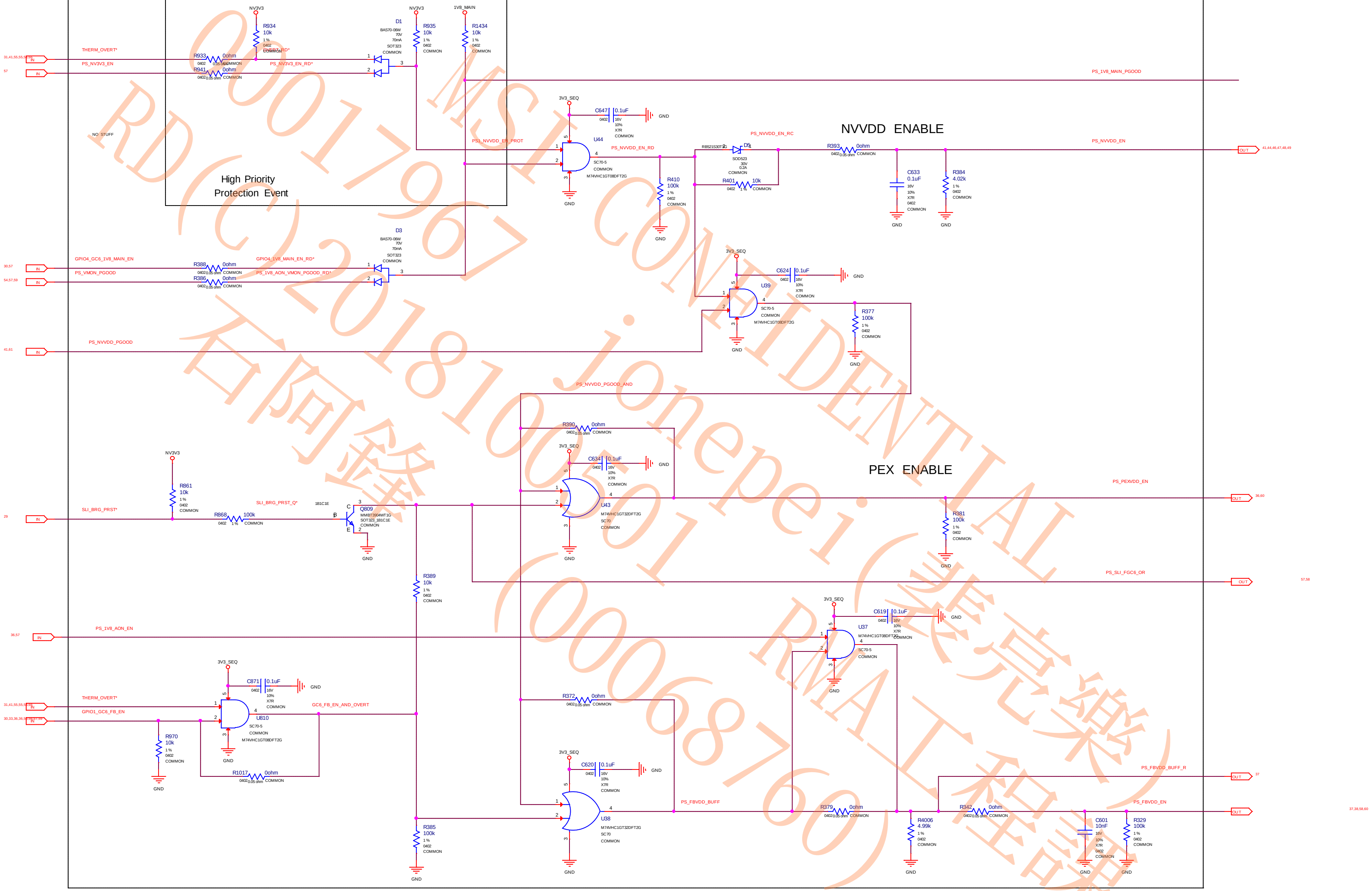
SEQUENCE:NV,PEX,FB ENABLE

remove   OC_CRIT

remove   MCU_SHDOWN*



High Priority
Protection Event
NVVDD ENABLE
PEX ENABLE
NO STUFF
THERM_OVERT*
PS_NV3V3_EN
PS_NV3V3_EN_RD*
OVERT_RD*
GPIO4_GC6_1V8_MAIN_EN
GPIO4_1V8_MAIN_EN_RD*
PS_VMON_PGOOD
PS_1V8_AON_VMON_PGOOD_RD*
PS_NVVDD_PGOOD
PS_1V8_MAIN_PGOOD
PS1_NVVDD_EN_PROT
PS_NVVDD_EN_RD
PS_NVVDD_EN_RC
PS_NVVDD_EN
PS_NVVDD_PGOOD_AND
SLI_BRG_PRST*
SLI_BRG_PRST_Q*
PS_PEXVDD_EN
PS_SLI_FGC6_OR
PS_1V8_AON_EN
GPIO1_GC6_FB_EN
GC6_FB_EN_AND_OVERT
PS_FBVDD_BUFF
PS_FBVDD_BUFF_R
PS_FBVDD_EN
NV3V3
1V8_MAIN
3V3_SEQ
GND
IN
OUT
31,41,55,55,56,66
57
30,57
54,57,59
41,61
29
36,57
30,33,36,36,56,56,57,59
41,44,46,47,48,49
36,60
57,58
37
37,38,58,60
D1
D3
BAS70-06W
70V
70mA
SOT323
COMMON
D5
RB521S30T1G
SOD523
30V
0.2A
R934 10k 1% 0402 COMMON
R935 10k 1% 0402 COMMON
R1434 10k 1% 0402 COMMON
R933 0ohm 0402 0.05 ohm COMMON
R941 0ohm 0402 0.05 ohm COMMON
R388 0ohm 0402 0.05 ohm COMMON
R386 0ohm 0402 0.05 ohm COMMON
U44
U39
U37
U810
SC70-5
COMMON
M74VHC1GT08DFT2G
U43
U38
M74VHC1GT32DFT2G
SC70
C647 0.1uF 0402 16V 10% X7R COMMON
C624 0.1uF 0402 16V 10% X7R COMMON
C634 0.1uF 0402 16V 10% X7R COMMON
C620 0.1uF 0402 16V 10% X7R COMMON
C619 0.1uF 0402 16V 10% X7R COMMON
C871 0.1uF 0402 16V 10% X7R COMMON
C633 0.1uF 16V 10% X7R 0402 COMMON
C601 10nF 16V 10% X7R 0402 COMMON
R410 100k 1% 0402 COMMON
R401 10k 0402 1% COMMON
R393 0ohm 0402 0.05 ohm COMMON
R384 4.02k 1% 0402 COMMON
R377 100k 1% 0402 COMMON
R390 0ohm 0402 0.05 ohm COMMON
R372 0ohm 0402 0.05 ohm COMMON
R861 10k 1% 0402 COMMON
R868 100k 0402 1% COMMON
Q809
MMBT3904WT1G
SOT323_1B1C1E
1B1C1E
B
C
E
R389 10k 1% 0402 COMMON
R385 100k 1% 0402 COMMON
R970 10k 1% 0402 COMMON
R1017 0ohm 0402 0.05 ohm COMMON
R381 100k 1% 0402 COMMON
R379 0ohm 0402 0.05 ohm COMMON
R4006 4.99k 1% 0402 COMMON
R342 0ohm 0402 0.05 ohm COMMON
R329 100k 1% 0402 COMMON

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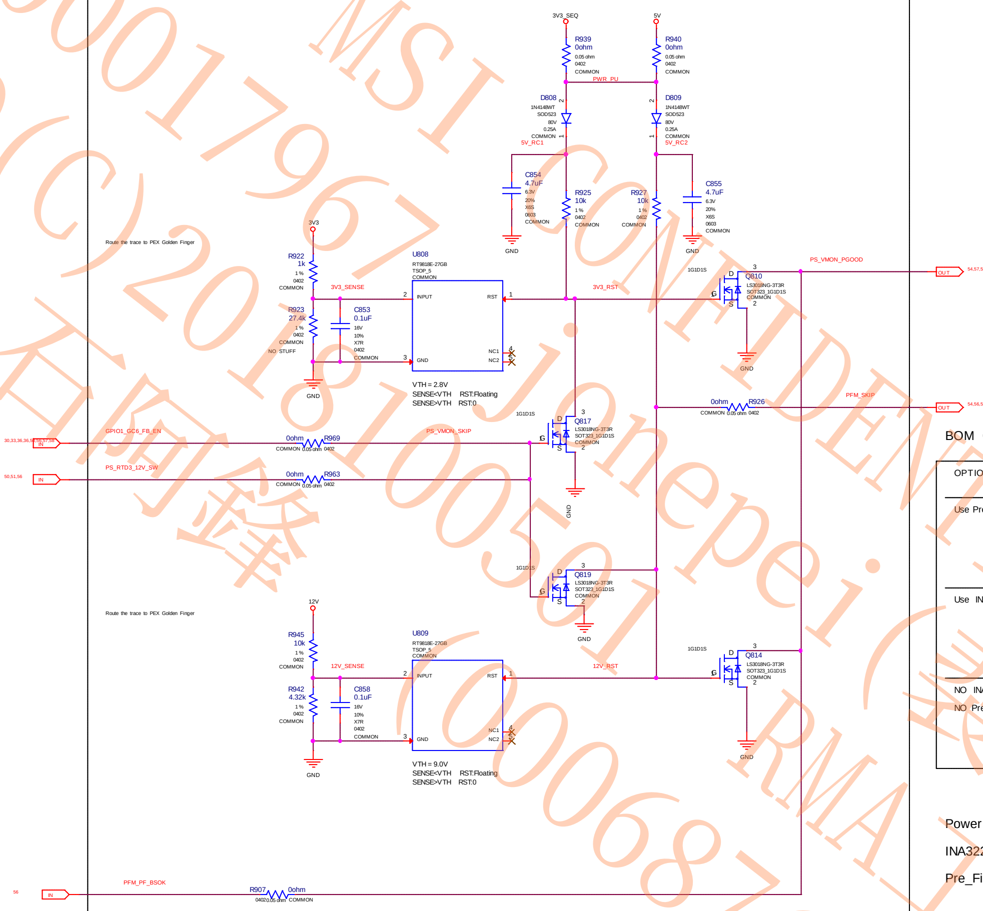
SEQUENCE:PCIE Voltage Monitor

PCIE Voltage Monitor


3V3_SEQ
5V
R939
0ohm
0.05 ohm
0402
COMMON
R940
0ohm
0.05 ohm
0402
COMMON
PWR_PU
D808
1N4148WT
SOD523
80V
0.25A
COMMON
5V_RC1
D809
1N4148WT
SOD523
80V
0.25A
COMMON
5V_RC2
C854
4.7uF
6.3V
20%
X6S
0603
COMMON
R925
10k
1 %
0402
COMMON
R927
10k
1 %
0402
COMMON
C855
4.7uF
6.3V
20%
X6S
0603
COMMON
GND
Route the trace to PEX Golden Finger
3V3
R922
1k
1 %
0402
COMMON
3V3_SENSE
R923
27.4k
1 %
0402
COMMON
NO STUFF
C853
0.1uF
16V
10%
X7R
0402
COMMON
U808
RT9818E-27GB
TSOP_5
COMMON
INPUT
RST
GND
NC1
NC2
VTH = 2.8V
SENSE<VTH RST:Floating
SENSE>VTH RST:0
3V3_RST
PS_VMON_PGOOD
1G1D1S
Q810
LS3018NG-3T3R
SOT323_1G1D1S
COMMON
OUT
54,57,58
PFM_SKIP
0ohm
R926
COMMON 0.05 ohm 0402
OUT
54,56,56,56
Q817
LS3018NG-3T3R
SOT323_1G1D1S
COMMON
PS_VMON_SKIP
30,33,36,36,56,56,57,58
IN
GPIO1_GC6_FB_EN
0ohm
R969
COMMON 0.05 ohm 0402
50,51,56
IN
PS_RTD3_12V_SW
0ohm
R963
COMMON 0.05 ohm 0402
Q819
LS3018NG-3T3R
SOT323_1G1D1S
COMMON
Route the trace to PEX Golden Finger
12V
R945
10k
1 %
0402
COMMON
12V_SENSE
R942
4.32k
1 %
0402
COMMON
C858
0.1uF
16V
10%
X7R
0402
COMMON
U809
RT9818E-27GB
TSOP_5
COMMON
INPUT
RST
GND
NC1
NC2
VTH = 9.0V
SENSE<VTH RST:Floating
SENSE>VTH RST:0
12V_RST
Q814
LS3018NG-3T3R
SOT323_1G1D1S
COMMON
58
IN
PFM_PF_BSOK
R907
0ohm
0402 0.05 ohm COMMON

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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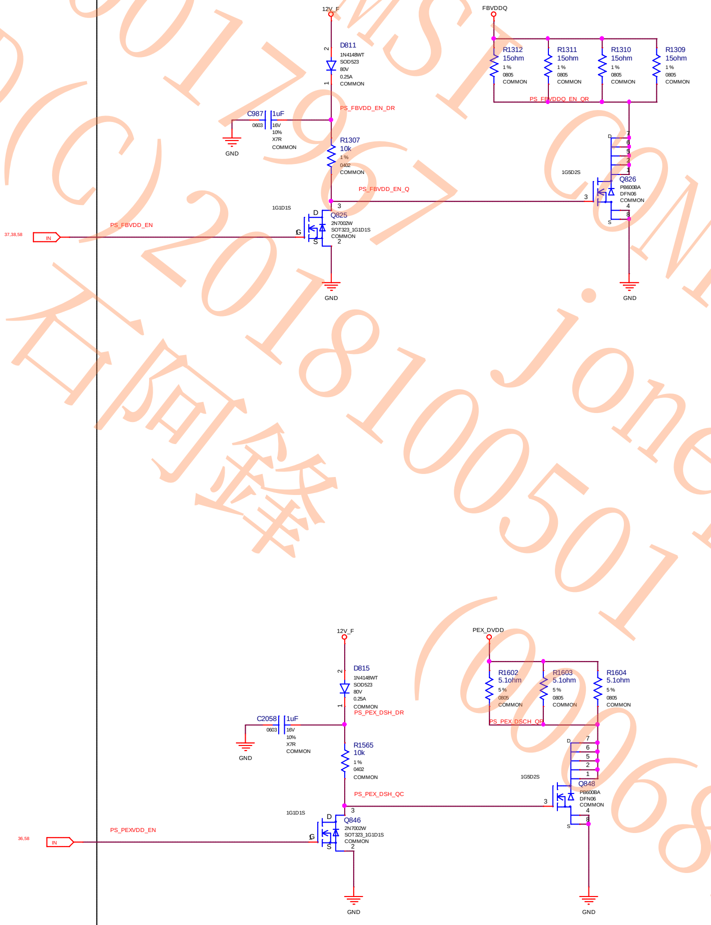
SEQUENCE:Discharge


12V_F
D811
1N4148WT
SOD523
80V
0.25A
COMMON
PS_FBVDD_EN_DR
C987
1uF
0603
16V
10%
X7R
COMMON
GND
R1307
10k
1%
0402
COMMON
PS_FBVDD_EN_Q
1G1D1S
Q825
2N7002W
SOT323_1G1D1S
COMMON
D
G
S
37,38,58
IN
PS_FBVDD_EN
GND
FBVDDQ
R1312
15ohm
R1311
15ohm
R1310
15ohm
R1309
15ohm
1%
0805
COMMON
PS_FBVDDQ_EN_QR
1G5D2S
Q826
PB600BA
DFN06
COMMON
GND
12V_F
D815
1N4148WT
SOD523
80V
0.25A
COMMON
PS_PEX_DSH_DR
C2058
1uF
0603
16V
10%
X7R
COMMON
GND
R1565
10k
1%
0402
COMMON
PS_PEX_DSH_QC
1G1D1S
Q846
2N7002W
SOT323_1G1D1S
COMMON
36,58
IN
PS_PEXVDD_EN
GND
PEX_DVDD
R1602
5.1ohm
R1603
5.1ohm
R1604
5.1ohm
5%
0805
COMMON
PS_PEX_DSCH_QR
1G5D2S
Q848
PB600BA
DFN06
COMMON
GND

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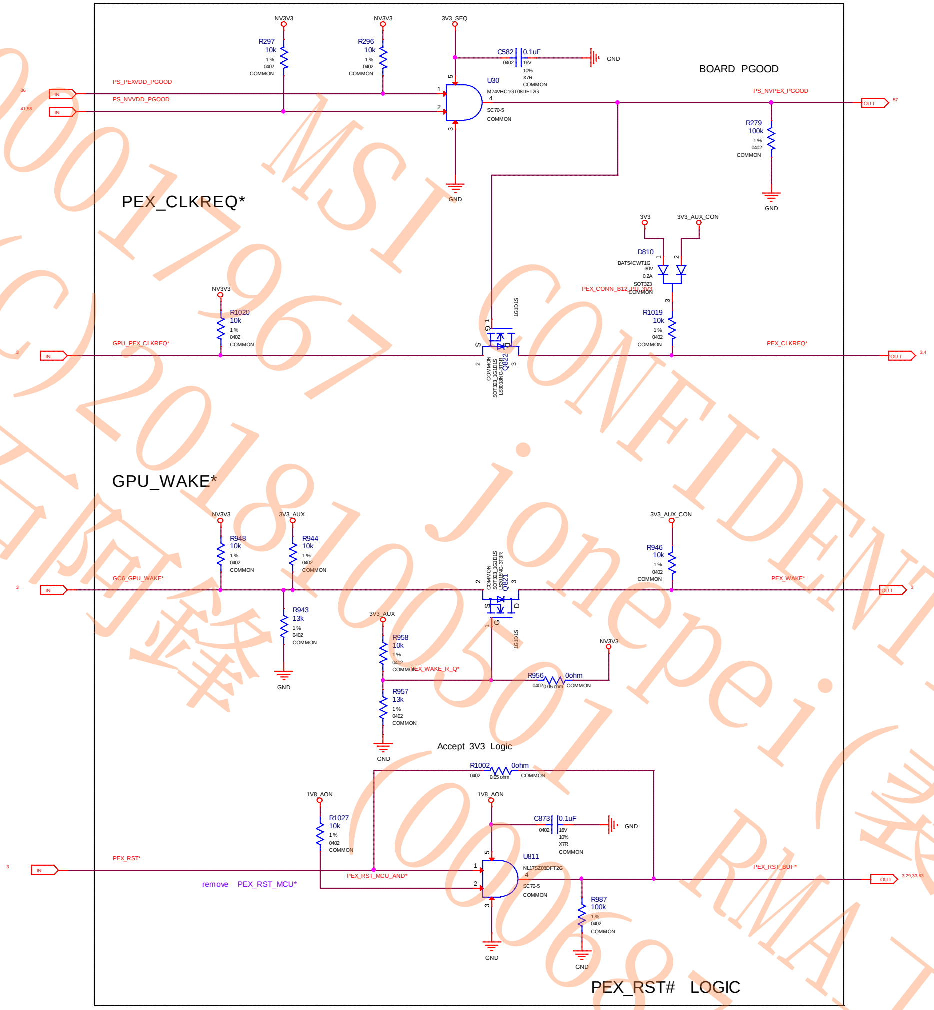
SEQUENCE:MISC



BOARD PGOOD
NV3V3
R297
10k
1%
0402
COMMON
NV3V3
R296
10k
1%
0402
COMMON
3V3_SEQ
C582
0.1uF
0402
16V
10%
X7R
COMMON
GND
U30
M74VHC1GT08DFT2G
SC70-5
COMMON
36
IN
PS_PEXVDD_PGOOD
41,58
IN
PS_NVVDD_PGOOD
PS_NVPEX_PGOOD
OUT
57
R279
100k
1%
0402
COMMON
GND
PEX_CLKREQ*
3V3
3V3_AUX_CON
D810
BAT54CWT1G
30V
0.2A
SOT323
COMMON
PEX_CONN_B12_PU_3V3
NV3V3
R1020
10k
1%
0402
COMMON
3
IN
GPU_PEX_CLKREQ*
Q822
LS3018NG-3T3R
SOT323_1G1D1S
COMMON
1G1D1S
R1019
10k
1%
0402
COMMON
PEX_CLKREQ*
OUT
3,4
GPU_WAKE*
NV3V3
R948
10k
1%
0402
COMMON
3V3_AUX
R944
10k
1%
0402
COMMON
3
IN
GC6_GPU_WAKE*
R943
13k
1%
0402
COMMON
GND
Q821
LS3018NG-3T3R
SOT323_1G1D1S
COMMON
1G1D1S
3V3_AUX_CON
R946
10k
1%
0402
COMMON
PEX_WAKE*
OUT
3
3V3_AUX
R958
10k
1%
0402
COMMON
PEX_WAKE_R_Q*
NV3V3
R956
0ohm
0402
0.05 ohm
COMMON
R957
13k
1%
0402
COMMON
GND
Accept 3V3 Logic
R1002
0ohm
0402
0.05 ohm
COMMON
1V8_AON
R1027
10k
1%
0402
COMMON
1V8_AON
C873
0.1uF
0402
16V
10%
X7R
COMMON
GND
U811
NL17SZ08DFT2G
SC70-5
COMMON
3
IN
PEX_RST*
PEX_RST_MCU_AND*
remove PEX_RST_MCU*
PEX_RST_BUF*
OUT
3,29,33,63
R987
100k
1%
0402
COMMON
GND
GND
PEX_RST# LOGIC

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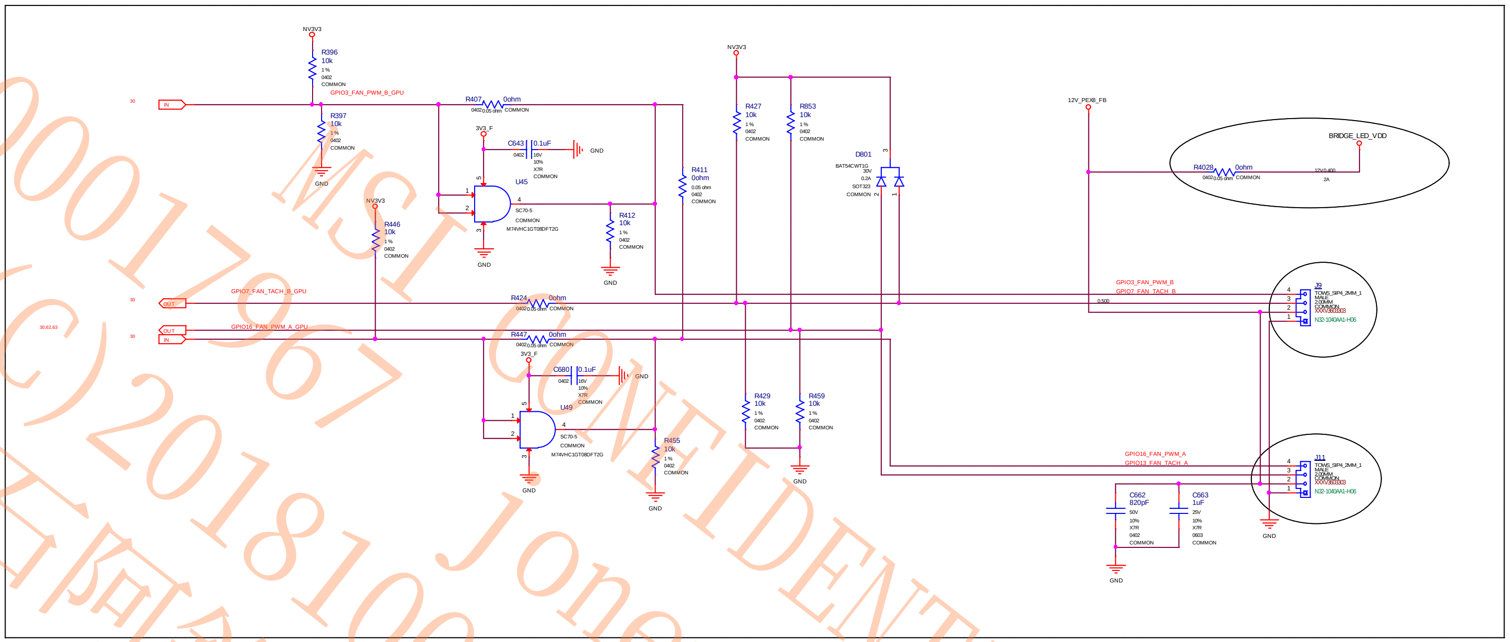
MISC: FAN & LED1


NV3V3
R396
10k
1%
0402
COMMON
GPIO3_FAN_PWM_B_GPU
30
IN
R397
10k
1%
0402
COMMON
GND
R407
0ohm
0402
0.05 ohm
COMMON
3V3_F
C643
0.1uF
0402
16V
10%
X7R
COMMON
GND
U45
5
1
2
3
4
SC70-5
COMMON
M74VHC1GT08DFT2G
GND
R412
10k
1%
0402
COMMON
GND
R411
0ohm
0.05 ohm
0402
COMMON
NV3V3
R446
10k
1%
0402
COMMON
GPIO7_FAN_TACH_B_GPU
30
OUT
R424
0ohm
0402
0.05 ohm
COMMON
30,62,63
OUT
GPIO16_FAN_PWM_A_GPU
30
IN
R447
0ohm
0402
0.05 ohm
COMMON
3V3_F
C680
0.1uF
0402
16V
10%
X7R
COMMON
GND
U49
5
1
2
3
4
SC70-5
COMMON
M74VHC1GT08DFT2G
GND
R455
10k
1%
0402
COMMON
GND
NV3V3
R427
10k
1%
0402
COMMON
R853
10k
1%
0402
COMMON
D801
BAT54CWT1G
30V
0.2A
SOT323
COMMON
3
2
1
R429
10k
1%
0402
COMMON
R459
10k
1%
0402
COMMON
GND
12V_PEX8_FB
BRIDGE_LED_VDD
R4028
0ohm
0402
0.05 ohm
COMMON
12V0.400
2A
GPIO3_FAN_PWM_B
GPIO7_FAN_TACH_B
0.500
J9
4
3
2
1
TOWS_SIP4_2MM_1
MALE
2.00MM
COMMON
XXXV3603303
N32-1040AA1-H06
GPIO16_FAN_PWM_A
GPIO13_FAN_TACH_A
J11
4
3
2
1
TOWS_SIP4_2MM_1
MALE
2.00MM
COMMON
XXXV3603303
N32-1040AA1-H06
C662
820pF
50V
10%
X7R
0402
COMMON
C663
1uF
25V
10%
X7R
0603
COMMON
GND
GND

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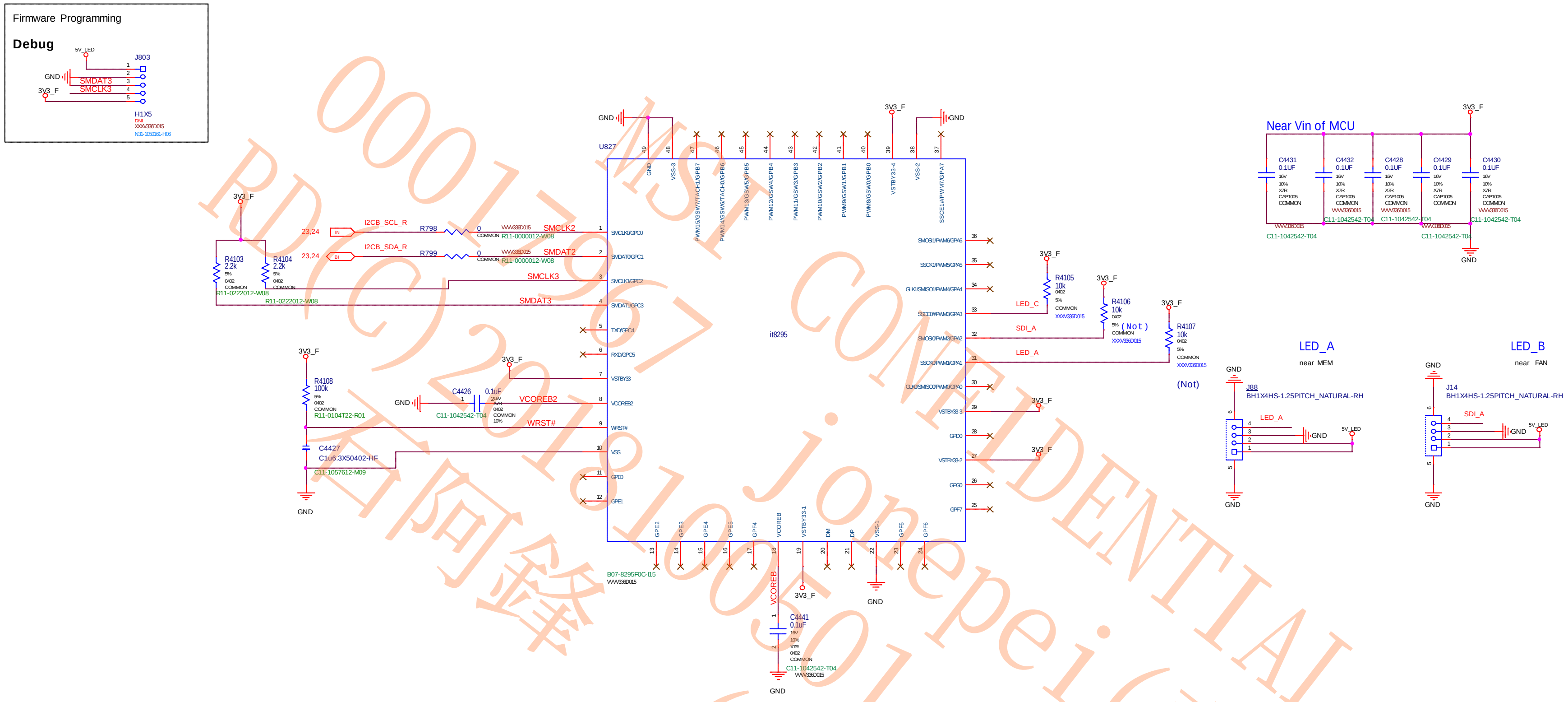
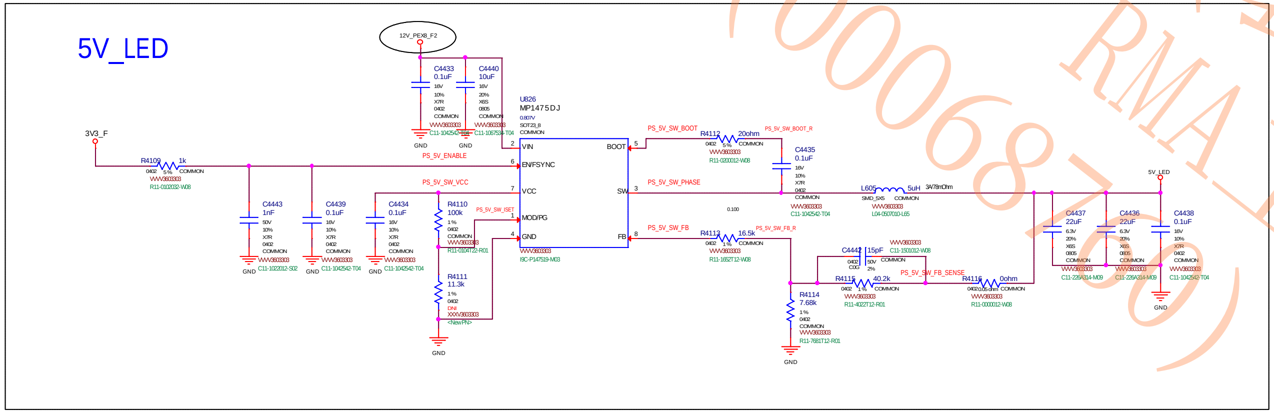
LED_CONTROLLER_IT8295



Firmware Programming
Debug
J803
H1X5
5V_LED
GND
SMDAT3
SMCLK3
3V3_F
U827
it8295
B07-8295F0C-I15
I2CB_SCL_R
I2CB_SDA_R
R798
R799
0
SMCLK2
SMDAT2
SMCLK3
SMDAT3
R4103
2.2k
R4104
2.2k
R11-0222012-W08
R4108
100k
R11-0104T22-R01
C4427
C1u6.3X50402-HF
C11-1057612-M09
C4426
0.1uF
C11-1042542-T04
VCOREB2
WRST#
VCOREB
C4441
0.1uF
3V3_F
GND
R4105
10k
R4106
10k
R4107
10k
(Not)
LED_C
SDI_A
LED_A
Near Vin of MCU
C4431
C4432
C4428
C4429
C4430
0.1UF
C11-1042542-T04
LED_A
near MEM
J88
BH1X4HS-1.25PITCH_NATURAL-RH
LED_B
near FAN
J14
BH1X4HS-1.25PITCH_NATURAL-RH
SDI_A

5V_LED



12V_PEX8_F2
C4433
0.1uF
C4440
10uF
U826
MP1475DJ
VIN
EN/SYNC
VCC
MOD/PG
GND
BOOT
SW
FB
PS_5V_ENABLE
PS_5V_SW_VCC
PS_5V_SW_BOOT
PS_5V_SW_PHASE
PS_5V_SW_FB
3V3_F
R4109
1k
C4443
1nF
C4439
0.1uF
C4434
0.1uF
R4110
100k
R4111
11.3k
R4112
20ohm
C4435
0.1uF
L605
5uH
R4113
16.5k
C4442
15pF
R4115
40.2k
R4116
0ohm
R4114
7.68k
C4437
22uF
C4436
22uF
C4438
0.1uF
5V_LED
GND

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ZERO IDLE POWER MCU

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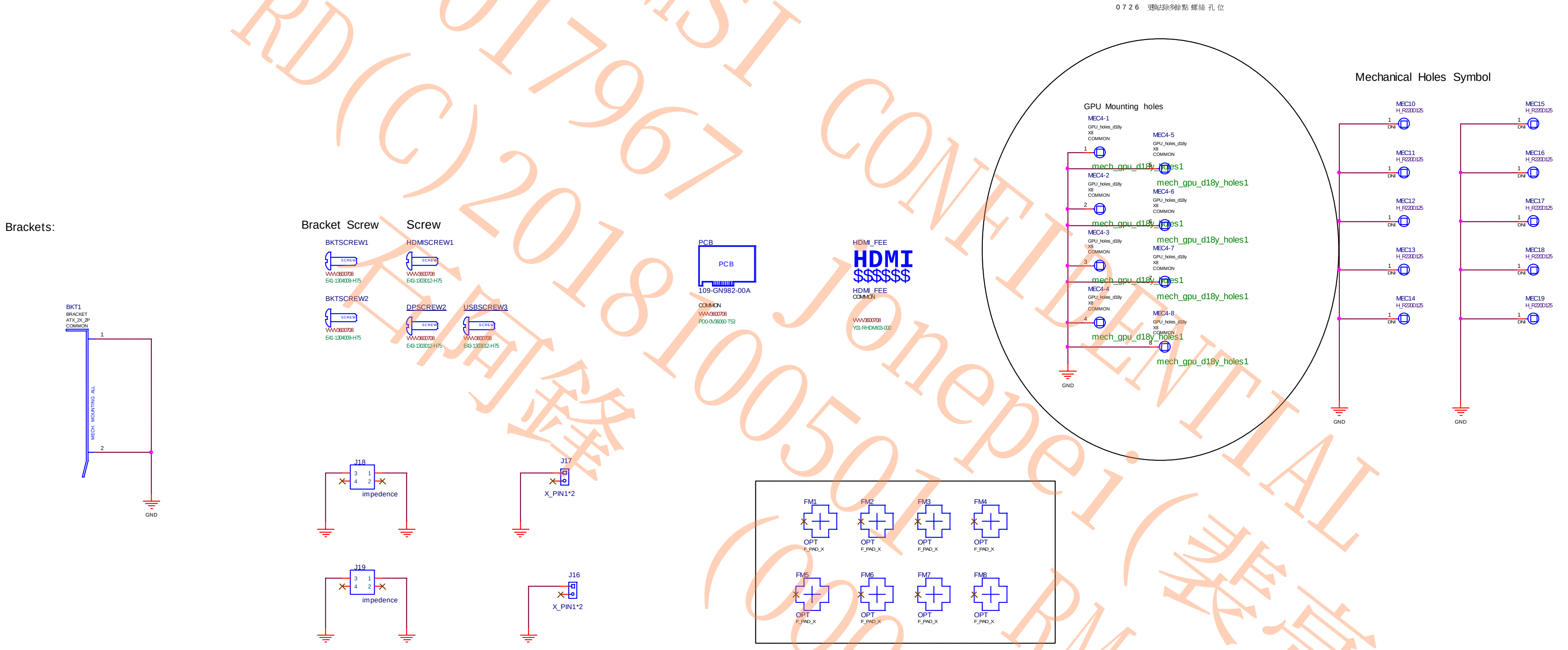
Mechanical: Bracket/Thermal Solution


0726 更換去除多餘點 螺絲 孔 位
Brackets:
BKT1
BRACKET
ATX_2X_2P
COMMON
1
2
MECH. MOUNTING ALL
GND
Bracket Screw
Screw
BKTSCREW1
SCREW
WVV3600708
E41-1304009-H75
BKTSCREW2
SCREW
WVV3600708
E41-1304009-H75
HDMISCREW1
SCREW
WVV3600708
E43-1303012-H75
DPSCREW2
SCREW
WVV3600708
E43-1303012-H75
USBSCREW3
SCREW
WVV3600708
E43-1303012-H75
PCB
PCB
109-GN982-00A
COMMON
WVV3600708
PD0-0V36060-T53
HDMI_FEE
HDMI
$$$$$$
HDMI_FEE
COMMON
WVV3600708
Y01-RHDMI03-000
J18
3 1
4 2
impedence
J19
3 1
4 2
impedence
J17
X_PIN1*2
J16
X_PIN1*2
FM1 OPT F_PAD_X
FM2 OPT F_PAD_X
FM3 OPT F_PAD_X
FM4 OPT F_PAD_X
FM5 OPT F_PAD_X
FM6 OPT F_PAD_X
FM7 OPT F_PAD_X
FM8 OPT F_PAD_X
GPU Mounting holes
MEC4-1 GPU_holes_d18y X8 COMMON 1
MEC4-2 GPU_holes_d18y X8 COMMON 2
MEC4-3 GPU_holes_d18y X8 COMMON 3
MEC4-4 GPU_holes_d18y X8 COMMON 4
MEC4-5 GPU_holes_d18y X8 COMMON 5
MEC4-6 GPU_holes_d18y X8 COMMON 6
MEC4-7 GPU_holes_d18y X8 COMMON 7
MEC4-8 GPU_holes_d18y X8 COMMON 8
mech_gpu_d18y_holes1
GND
Mechanical Holes Symbol
MEC10 H_R220D125 1 DNI
MEC11 H_R220D125 1 DNI
MEC12 H_R220D125 1 DNI
MEC13 H_R220D125 1 DNI
MEC14 H_R220D125 1 DNI
MEC15 H_R220D125 1 DNI
MEC16 H_R220D125 1 DNI
MEC17 H_R220D125 1 DNI
MEC18 H_R220D125 1 DNI
MEC19 H_R220D125 1 DNI
GND
GND

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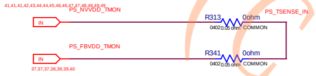
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IN
R313
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0402
0.05 ohm
COMMON
PS_TSENSE_IN
PS_FBVDD_TMON
IN
R341
0ohm
0402
0.05 ohm
COMMON
37,37,37,38,39,39,40

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