MS-V378-22
E2904
4GB GDDR5, 128b, 256Mx32
modular displays

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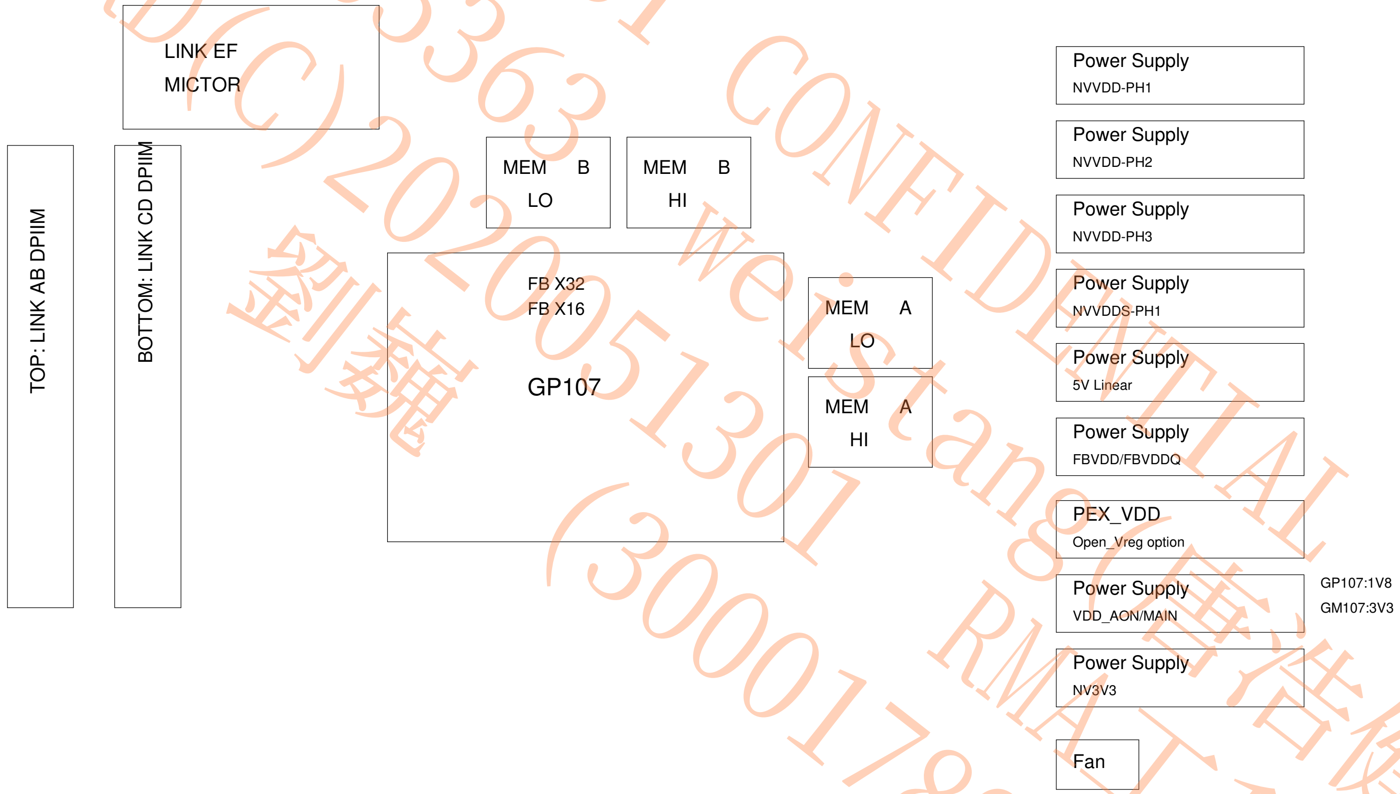
Page2: Block Diagram



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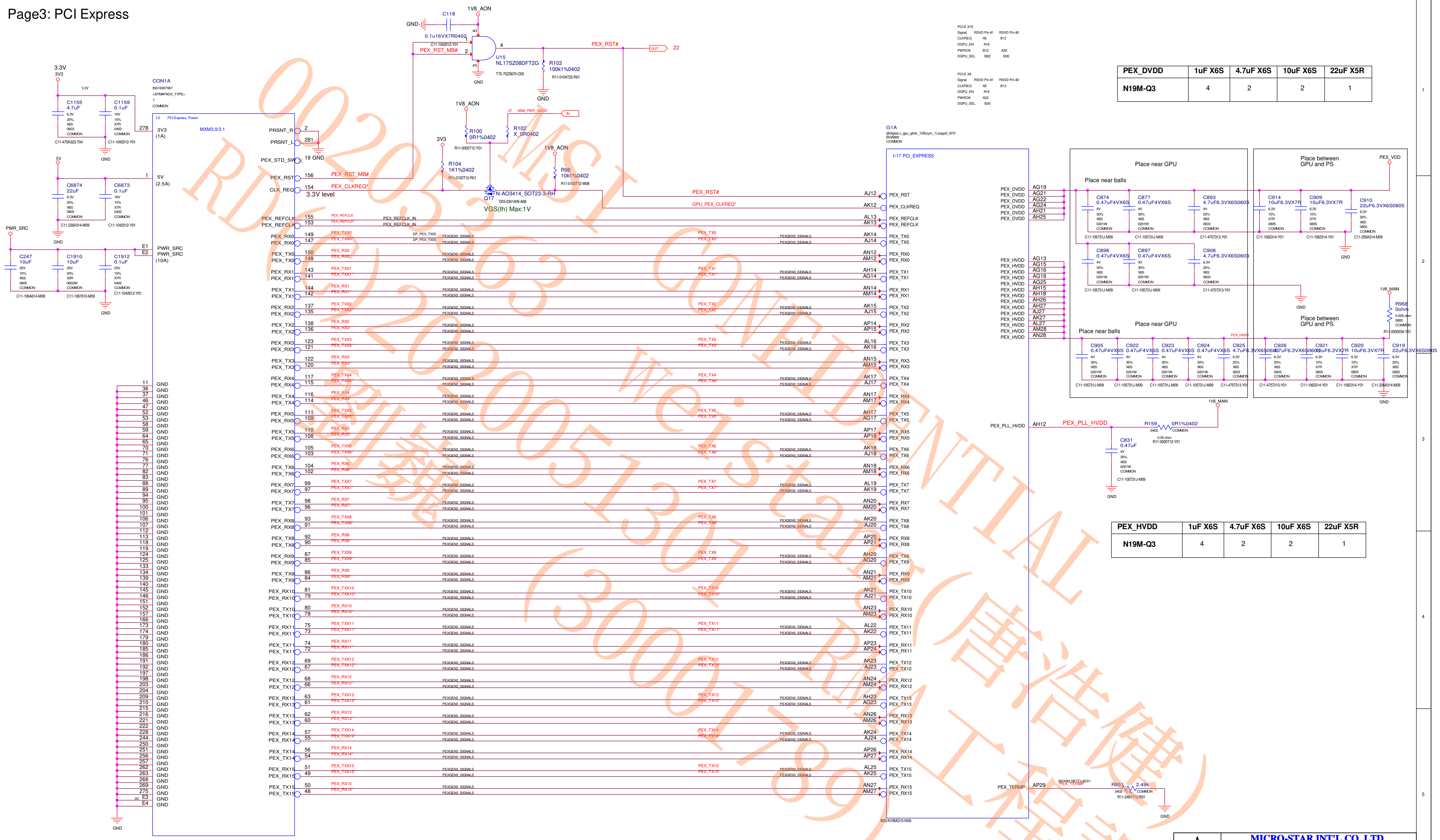
Page3: PCI Express



PEX_DVDD	1uF X6S	4.7uF X6S	10uF X6S	22uF X5R
N19M-Q3	4	2	2	1

PEX_HVDD	1uF X6S	4.7uF X6S	10uF X6S	22uF X5R
N19M-Q3	4	2	2	1

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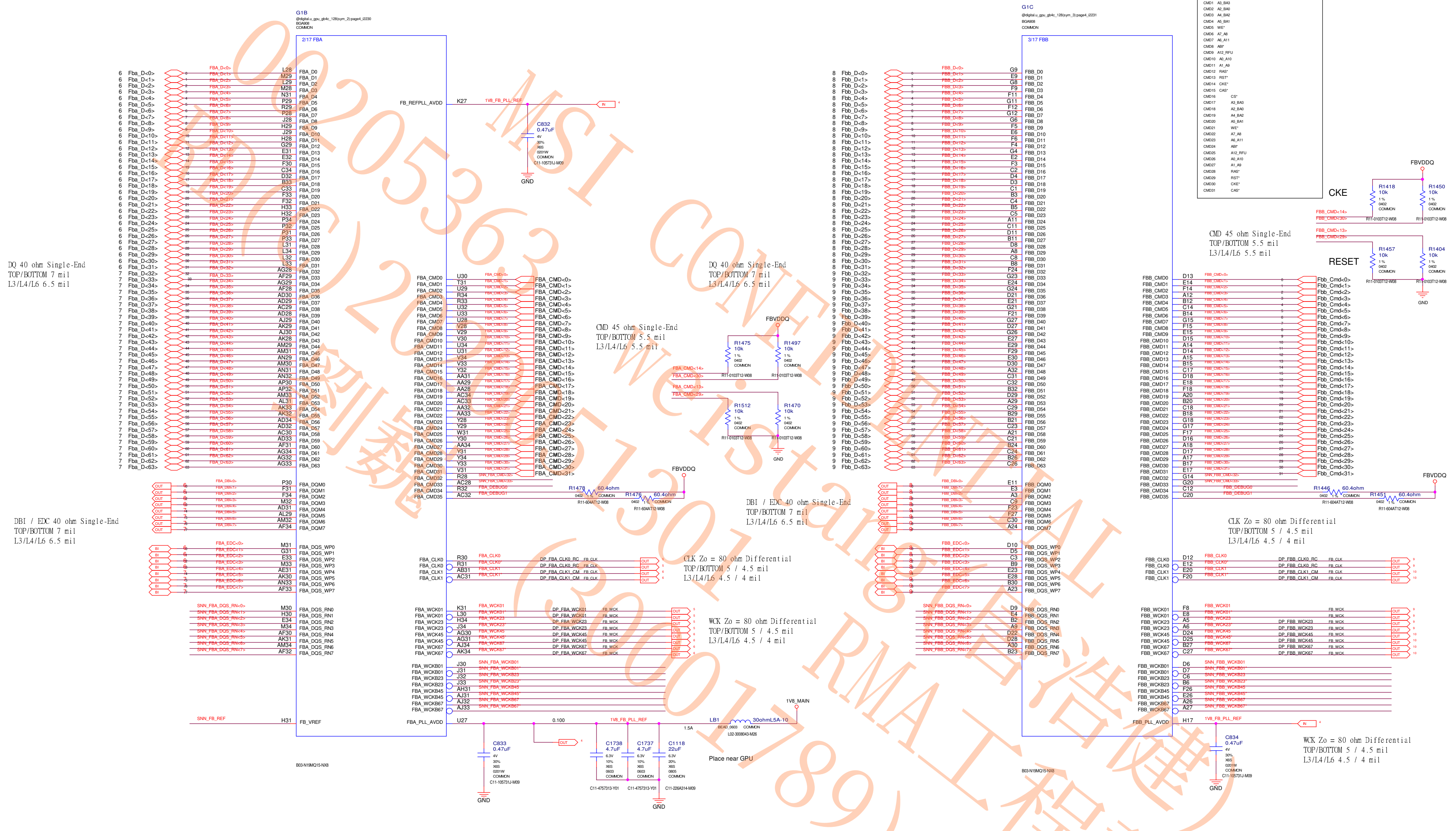
Page4: MEMORY: GPU Partition A/B



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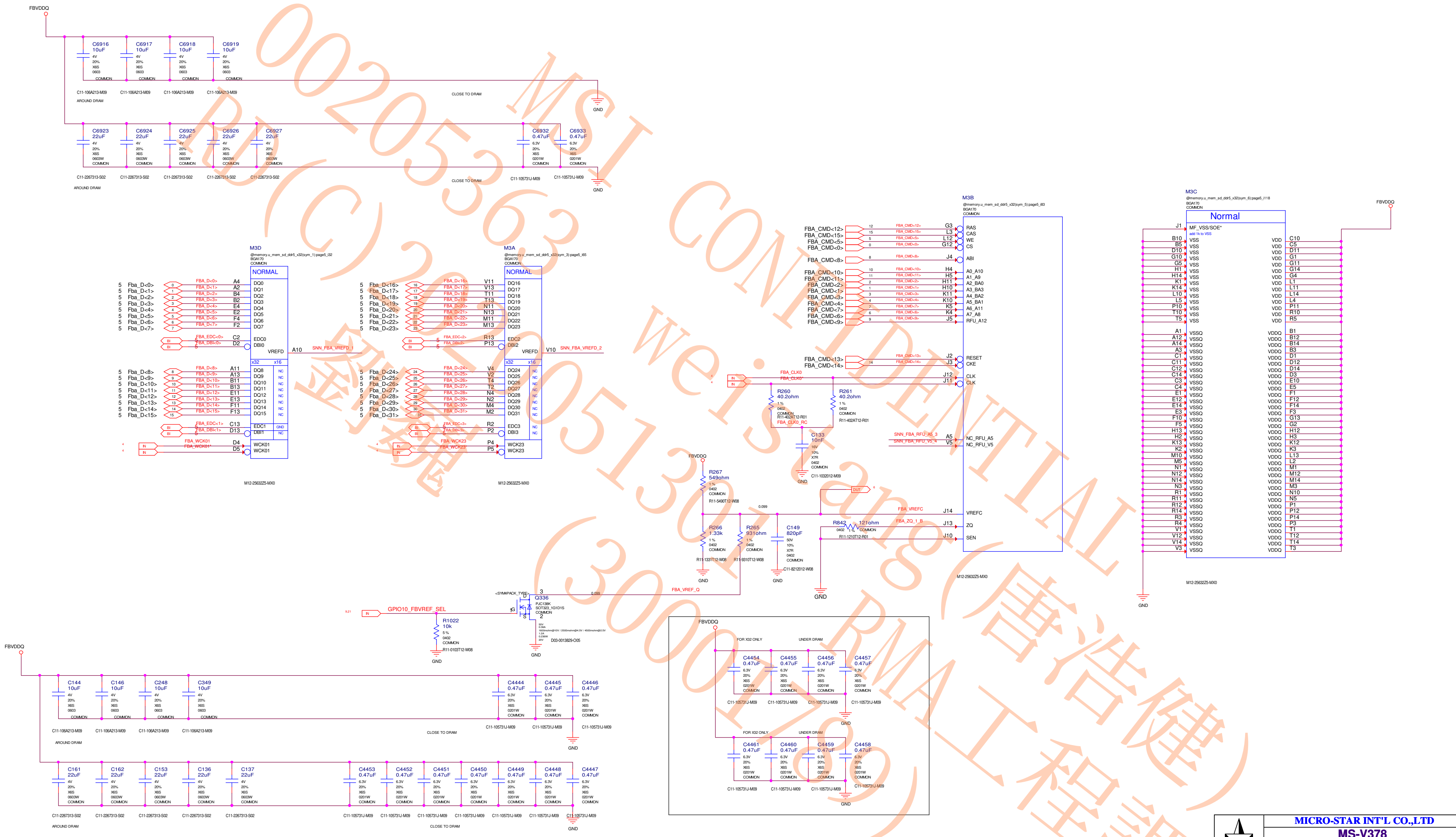
Page5: MEMORY: FBA Partition 31..0



FBVDDQ
C6916 10uF
C6917 10uF
C6918 10uF
C6919 10uF
AROUND DRAM
CLOSE TO DRAM
GND
C6923 22uF
C6924 22uF
C6925 22uF
C6926 22uF
C6927 22uF
C6932 0.47uF
C6933 0.47uF
M3D
M3A
M3B
M3C
NORMAL
Normal
SNN_FBA_VREFD_1
SNN_FBA_VREFD_2
VREFC
ZQ
SEN
RESET
CKE
CLK
R260 40.2ohm
R261 40.2ohm
C133 10nF
R267 549ohm
R266 1.33k
R265 931ohm
C149 820pF
R842 121ohm
Q336
R1022 10k
GPIO10_FBVREF_SEL
FBA_VREF_Q
FOR X32 ONLY
UNDER DRAM
C144 10uF
C146 10uF
C248 10uF
C349 10uF
C4444 0.47uF
C4445 0.47uF
C4446 0.47uF
C161 22uF
C162 22uF
C153 22uF
C136 22uF
C137 22uF
C4453 0.47uF
C4452 0.47uF
C4451 0.47uF
C4450 0.47uF
C4449 0.47uF
C4448 0.47uF
C4447 0.47uF
C4454 0.47uF
C4455 0.47uF
C4456 0.47uF
C4457 0.47uF
C4461 0.47uF
C4460 0.47uF
C4459 0.47uF
C4458 0.47uF

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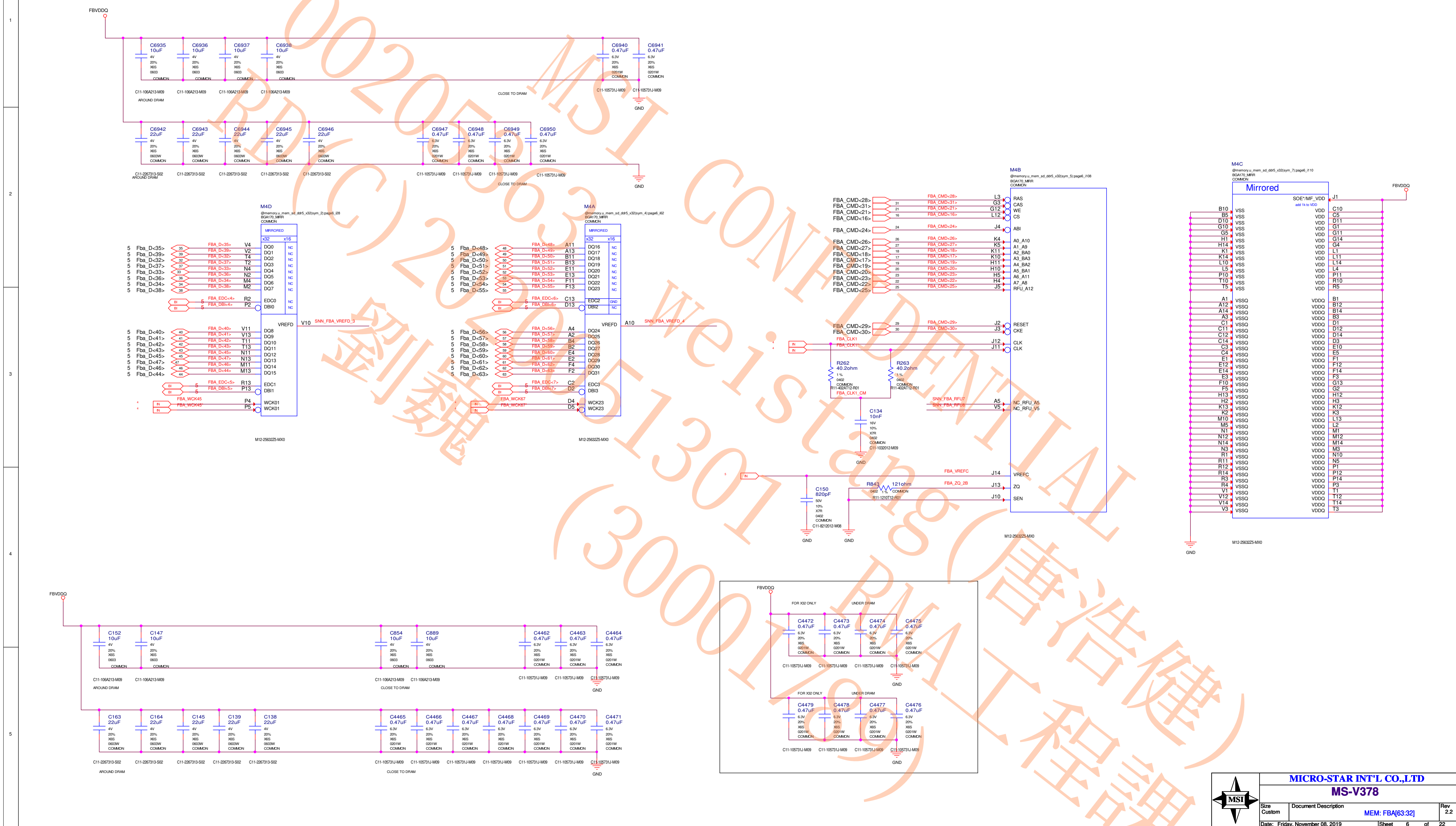
Page6: MEMORY: FBA Partition 63..32


FBVDDQ
C6935 10uF
C6936 10uF
C6937 10uF
C6938 10uF
C6940 0.47uF
C6941 0.47uF
AROUND DRAM
CLOSE TO DRAM
C6942 22uF
C6943 22uF
C6944 22uF
C6945 22uF
C6946 22uF
C6947 0.47uF
C6948 0.47uF
C6949 0.47uF
C6950 0.47uF
GND
M4D
M4A
M4B
M4C
Mirrored
VREFD
SNN_FBA_VREFD_3
SNN_FBA_VREFD_4
R262 40.2ohm
R263 40.2ohm
C134 10nF
C150 820pF
R843 121ohm
FBA_VREFC
FBA_ZQ_2B
RAS
CAS
WE
CS
ABI
RESET
CKE
CLK
VREFC
ZQ
SEN
NC_RFU_A5
NC_RFU_V5
SOE*/MF_VDD
VSS
VDD
VSSQ
VDDQ
C152 10uF
C147 10uF
C854 10uF
C889 10uF
C4462 0.47uF
C4463 0.47uF
C4464 0.47uF
C163 22uF
C164 22uF
C145 22uF
C139 22uF
C138 22uF
C4465 0.47uF
C4466 0.47uF
C4467 0.47uF
C4468 0.47uF
C4469 0.47uF
C4470 0.47uF
C4471 0.47uF
FOR X32 ONLY
UNDER DRAM
C4472 0.47uF
C4473 0.47uF
C4474 0.47uF
C4475 0.47uF
C4479 0.47uF
C4478 0.47uF
C4477 0.47uF
C4476 0.47uF

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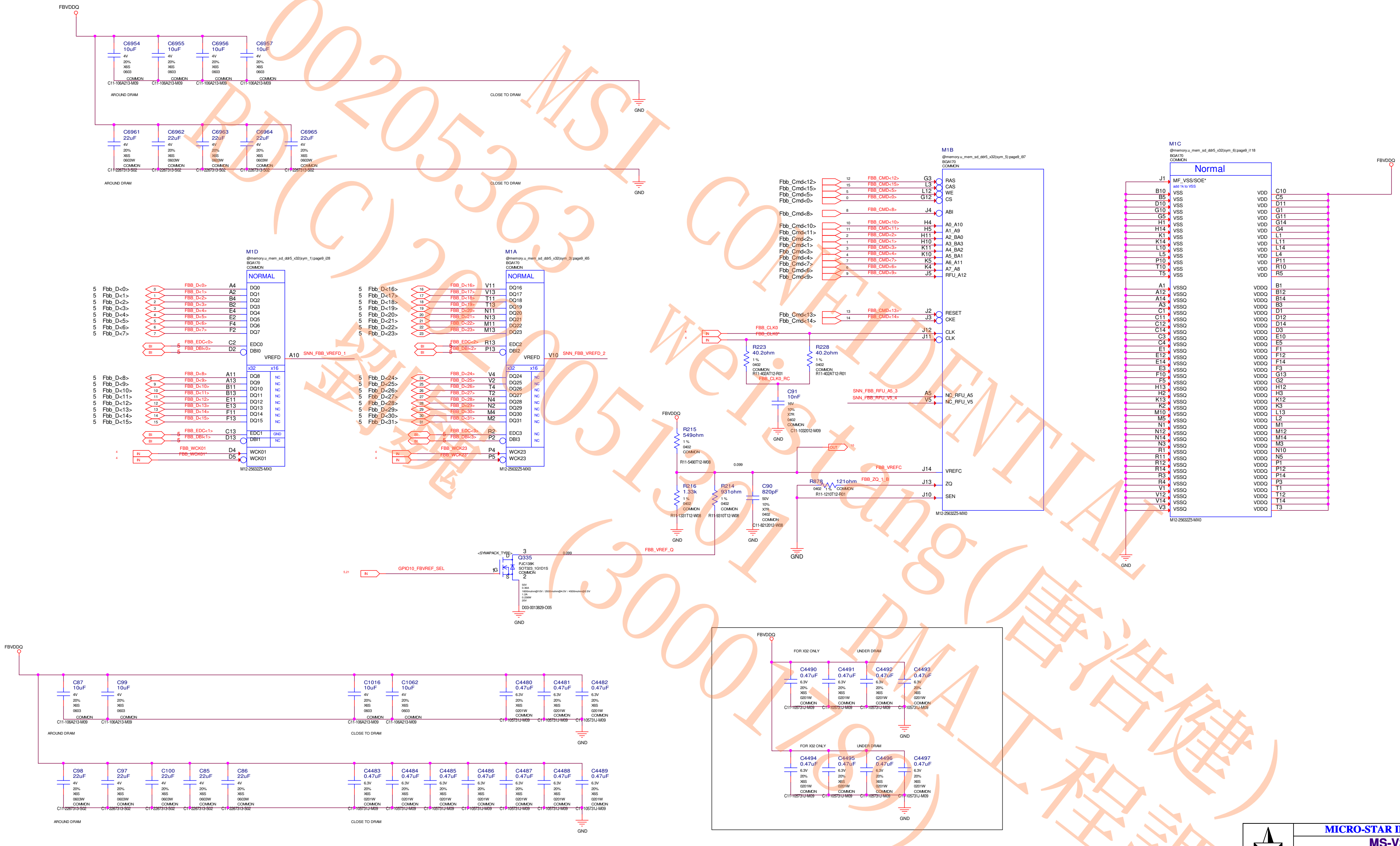
Page7: MEMORY: FBB Partition 31..0



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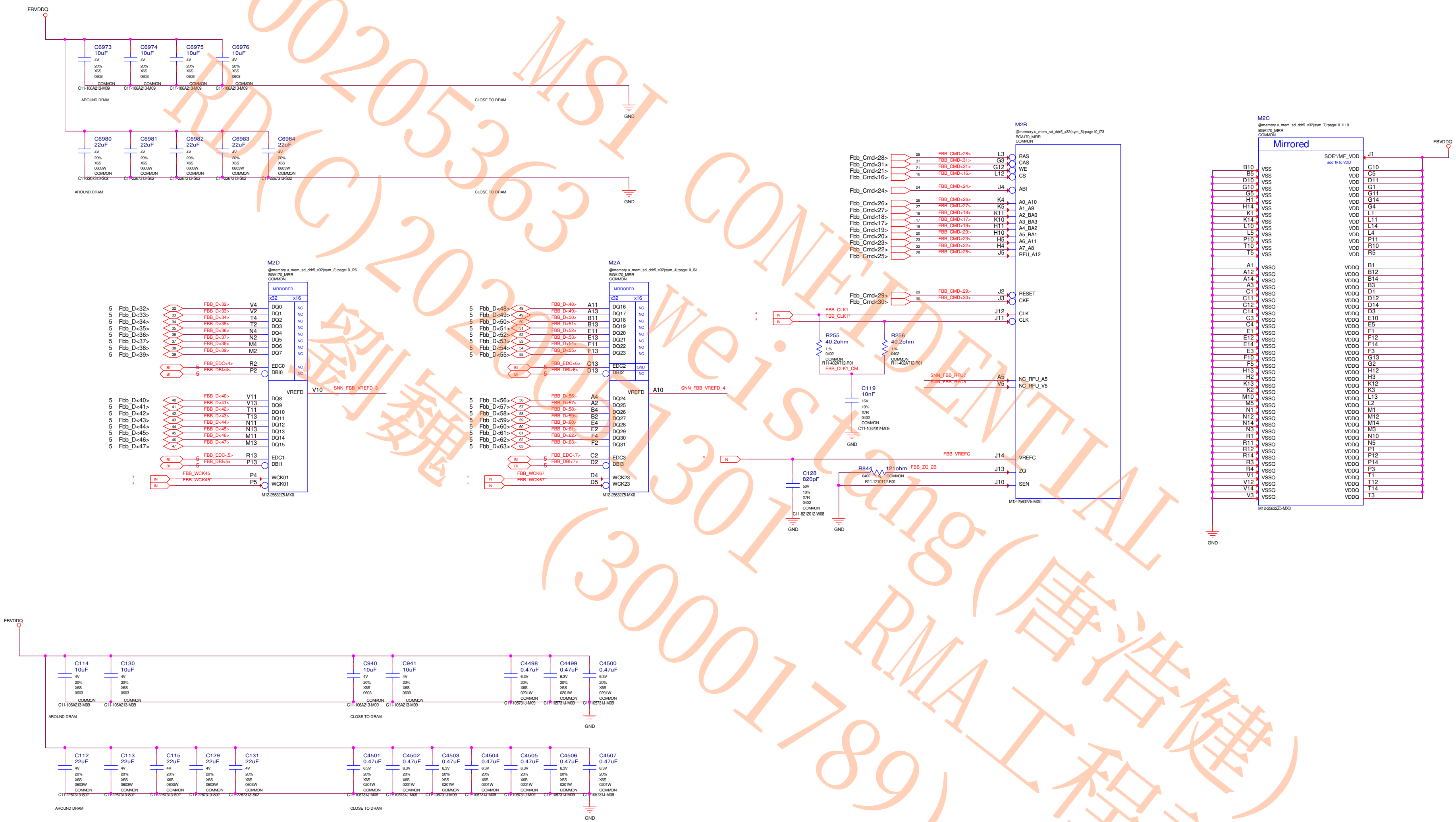
Page8: MEMORY: FBB Partition 63..32



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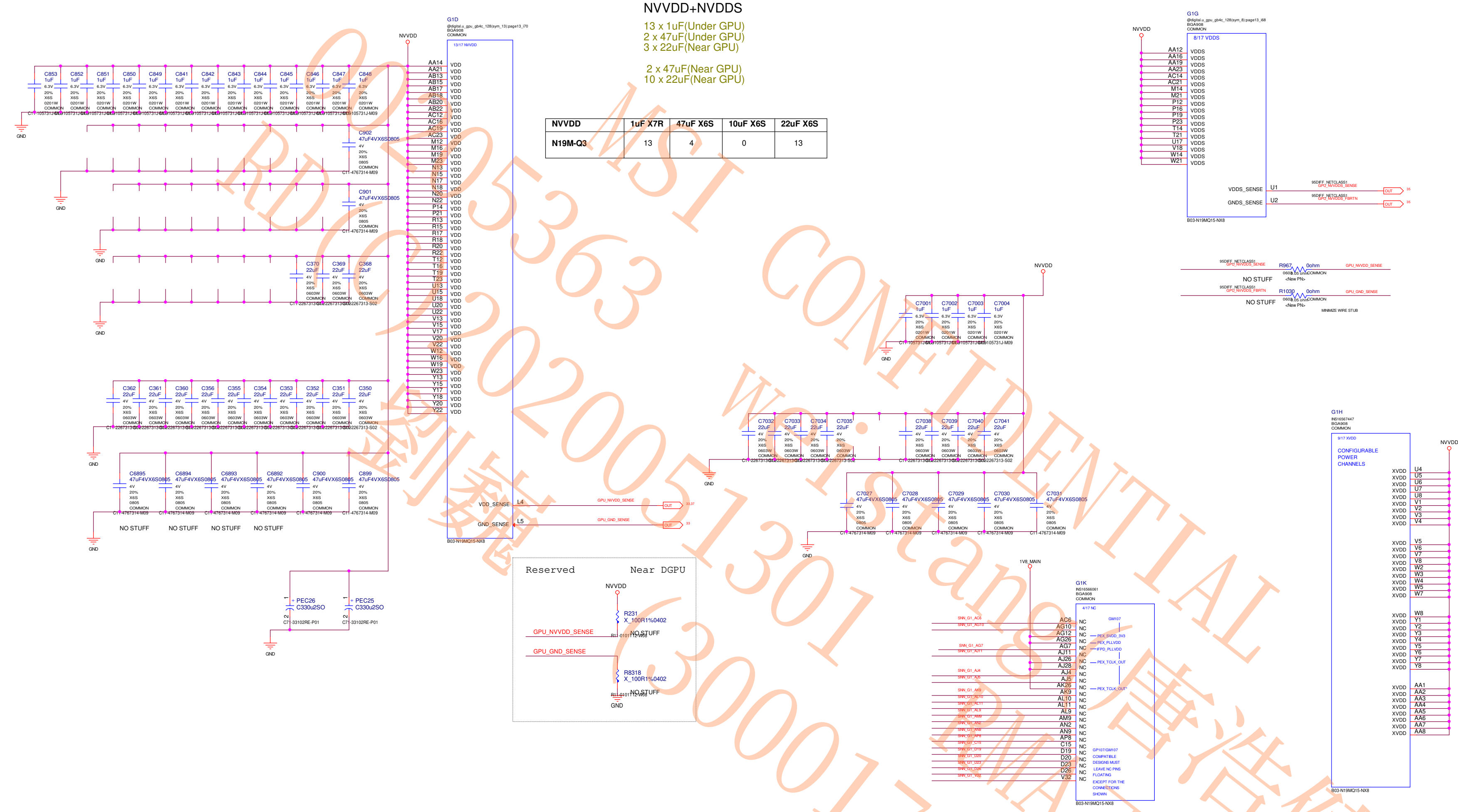
Page09: GPU PWR

NVVDD+NVDDS

13 x 1uF(Under GPU)
2 x 47uF(Under GPU)
3 x 22uF(Near GPU)

2 x 47uF(Near GPU)
10 x 22uF(Near GPU)

NVVDD	1uF X7R	47uF X6S	10uF X6S	22uF X6S
N19M-Q3	13	4	0	13



Reserved Near DGPU

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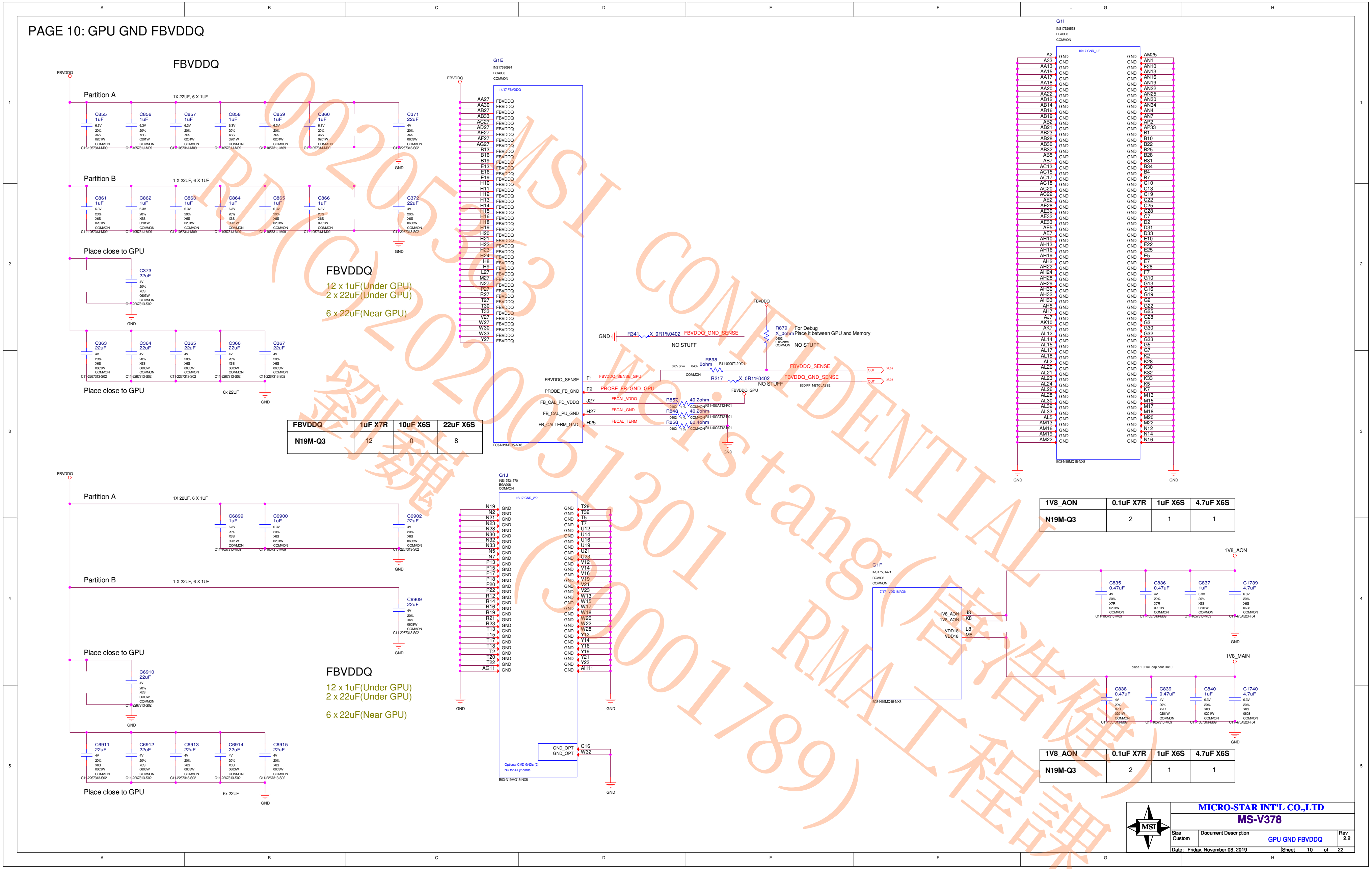
PAGE 10: GPU GND FBVDDQ



FBVDDQ	1uF X7R	10uF X6S	22uF X6S
N19M-Q3	12	0	8

1V8_AON	0.1uF X7R	1uF X6S	4.7uF X6S
N19M-Q3	2	1	1

1V8_AON	0.1uF X7R	1uF X6S	4.7uF X6S
N19M-Q3	2	1	1

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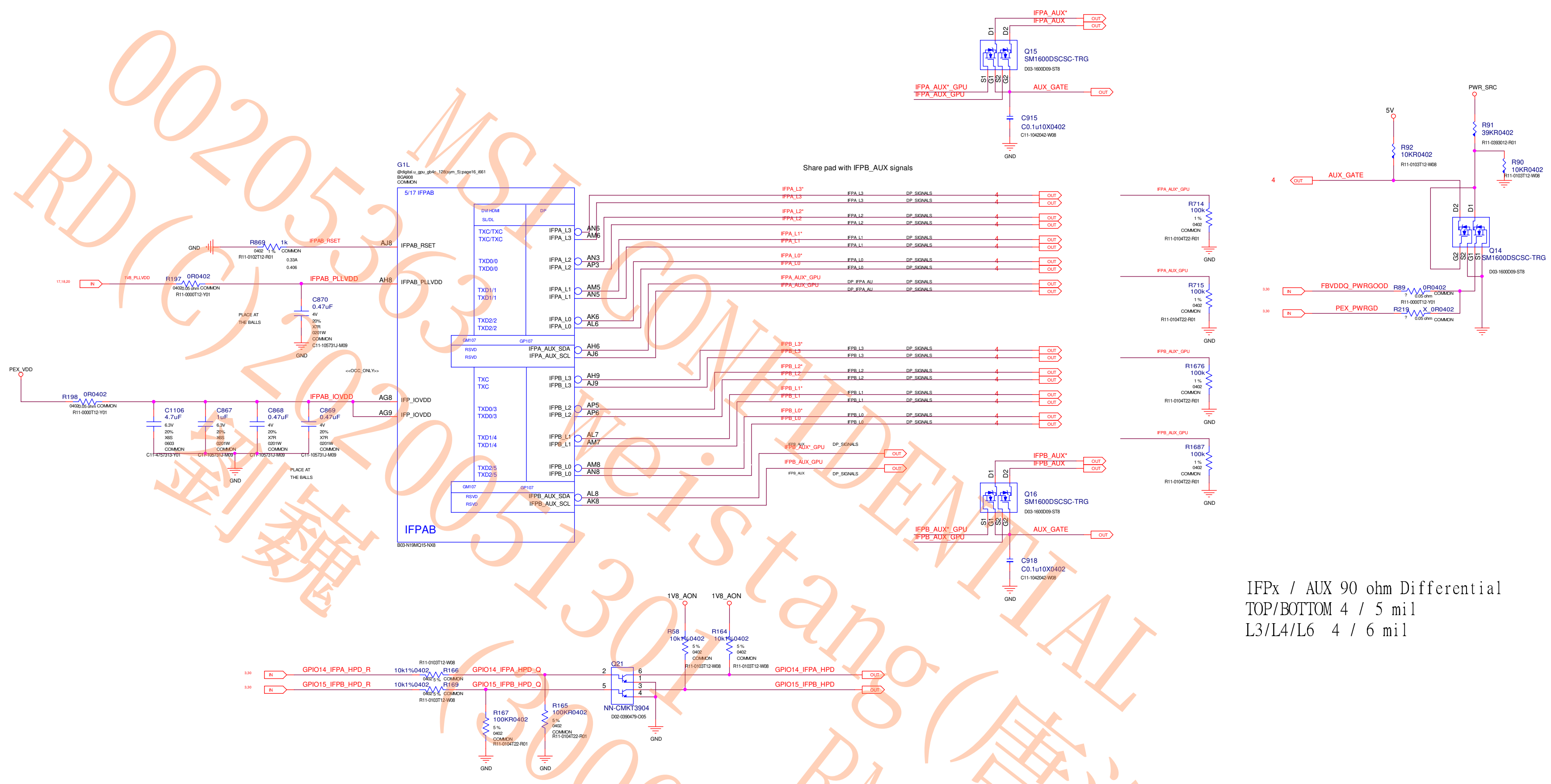
Page11: IFPAB



Share pad with IFPB_AUX signals
G1L
IFPAB
IFPAB_RSET
IFPAB_PLLVDD
IFP_IOVDD
IFPA_AUX*
IFPA_AUX
IFPA_AUX*_GPU
IFPA_AUX_GPU
AUX_GATE
IFPB_AUX*
IFPB_AUX
IFPB_AUX*_GPU
IFPB_AUX_GPU
Q15 SM1600DSCSC-TRG
Q16 SM1600DSCSC-TRG
Q14 SM1600DSCSC-TRG
C915 C0.1u10X0402
C918 C0.1u10X0402
PWR_SRC
5V
R91 39KR0402
R92 10KR0402
R90 10KR0402
FBVDDQ_PWRGOOD
PEX_PWRGD
R89 0R0402
R219 X_0R0402
R714 100k
R715 100k
R1676 100k
R1687 100k
PEX_VDD
R198 0R0402
C1106 4.7uF
C867 1uF
C868 0.47uF
C869 0.47uF
R869 1k
R197 0R0402
C870 0.47uF
PLACE AT THE BALLS
1V8_AON
R58 10k1%0402
R164 10k1%0402
GPIO14_IFPA_HPD_R
GPIO15_IFPB_HPD_R
R166 10k1%0402
R169 10k1%0402
GPIO14_IFPA_HPD_Q
GPIO15_IFPB_HPD_Q
Q21 NN-CMKT3904
R167 100KR0402
R165 100KR0402
GPIO14_IFPA_HPD
GPIO15_IFPB_HPD
GND

IFPx / AUX 90 ohm Differential
TOP/BOTTOM 4 / 5 mil
L3/L4/L6 4 / 6 mil

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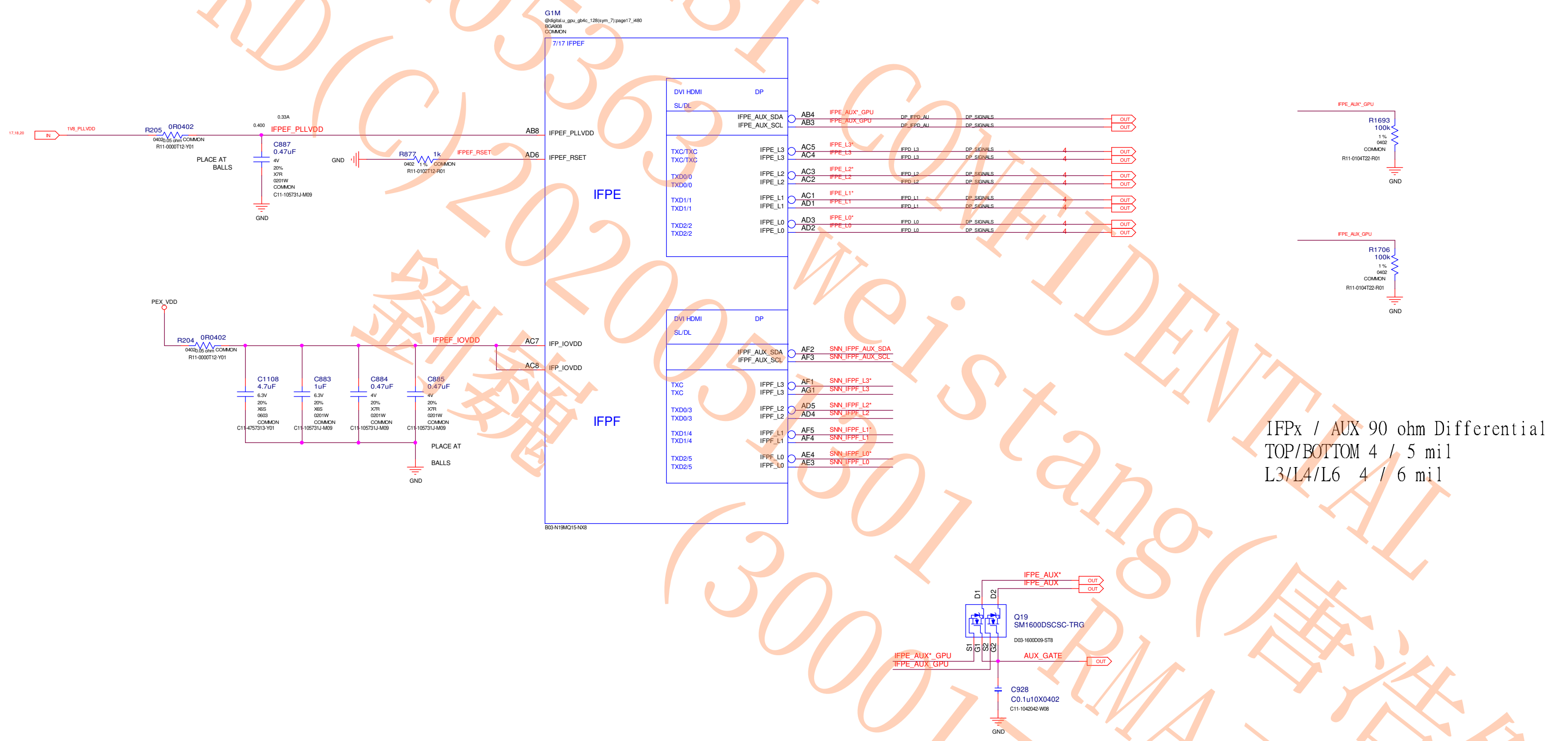
Page12: IFPEF



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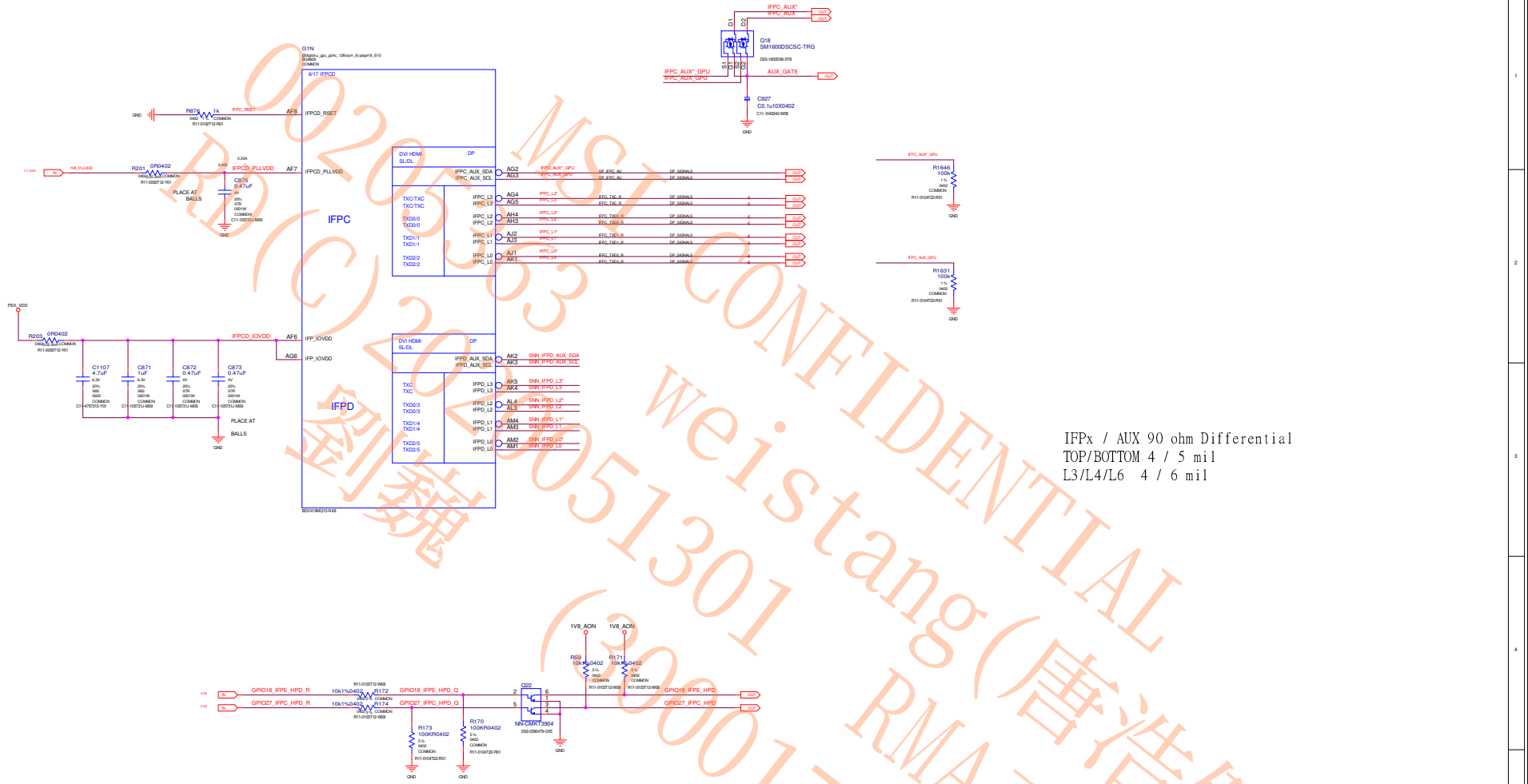
Page13: IFPCD



IFPx / AUX 90 ohm Differential
TOP/BOTTOM 4 / 5 mil
L3/L4/L6 4 / 6 mil

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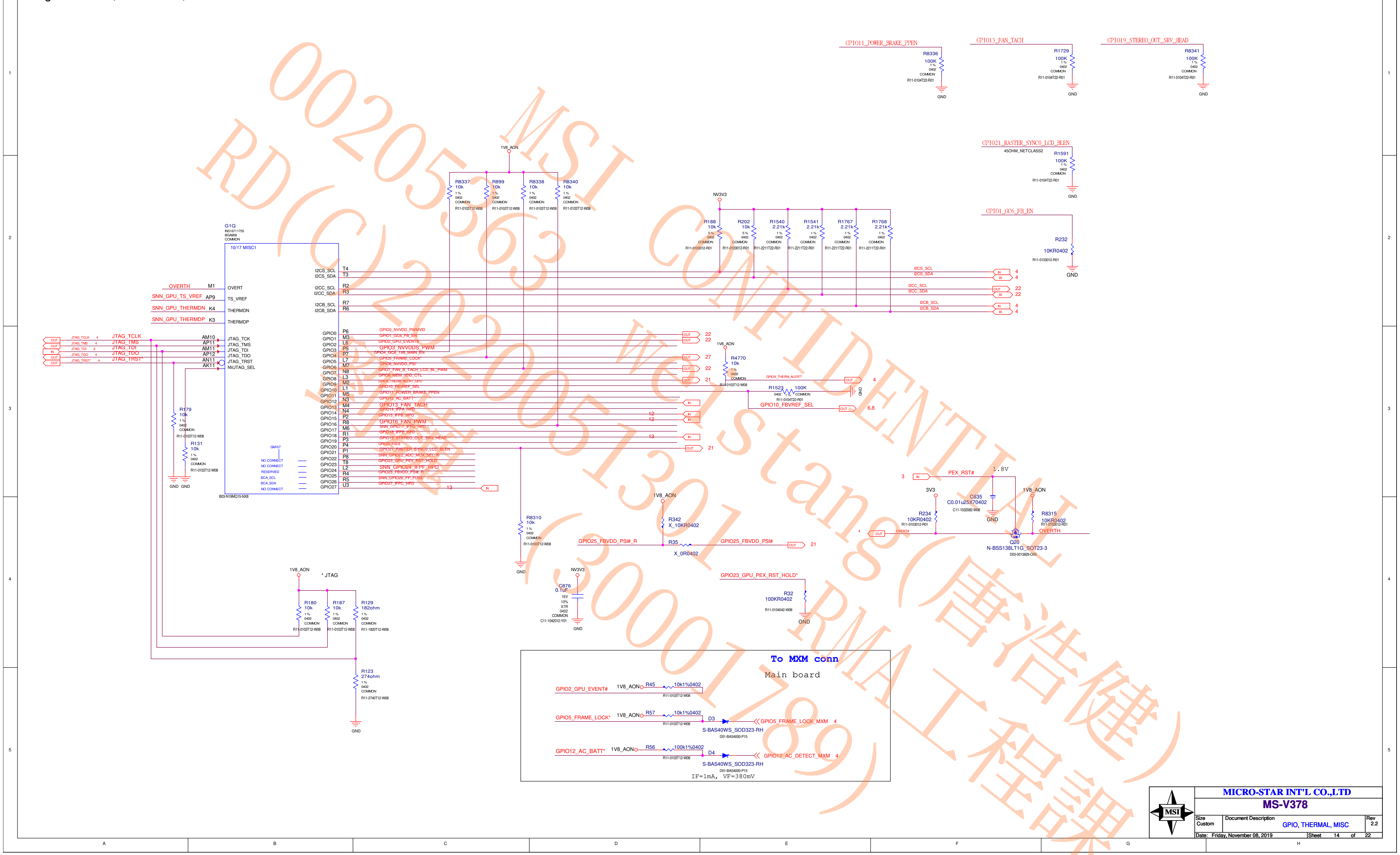
Page14: GPIO, THERMAL, MISC


GPIO11_POWER_BRAKE_PPEN
R8336 100K
GPIO13_FAN_TACH
R1729 100K
GPIO19_STEREO_OUT_SRV_HEAD
R8341 100K
GPIO21_RASTER_SYNC0_LCD_BLEN
R1591 100K
GPIO1_OC6_FB_EN
R232 10KR0402
1V8_AON
R8337 10k
R899 10k
R8338 10k
R8340 10k
NV3V3
R188 10k
R202 10k
R1540 2.21k
R1541 2.21k
R1767 2.21k
R1768 2.21k
G1Q
10/17 MISC1
OVERTH
SNN_GPU_TS_VREF
SNN_GPU_THERMDN
SNN_GPU_THERMDP
OVERT
TS_VREF
THERMDN
THERMDP
JTAG_TCLK
JTAG_TMS
JTAG_TDI
JTAG_TDO
JTAG_TRST*
JTAG_TCK
JTAG_TRST
NVJTAG_SEL
I2CS_SCL
I2CS_SDA
I2CC_SCL
I2CC_SDA
I2CB_SCL
I2CB_SDA
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
GPIO3_NVVDDS_PWM
GPIO13_FAN_TACH
GPIO16_FAN_PWM
SNN_GPIO24_IFPF_HPD
R4770 10k
R1523 100K
GPIO10_FBVREF_SEL
R179 10k
R131 10k
GND
PEX_RST#
1.8V
3V3
C635 C0.01u25X70402
1V8_AON
R234 10KR0402
R8315 10KR0402
OVERTH
Q20
N-BSS138LT1G_SOT23-3
R342 X_10KR0402
GPIO25_FBVDD_PSI#_R
R35 X_0R0402
GPIO25_FBVDD_PSI#
R8310 10k
NV3V3
C876 0.1uF
GPIO23_GPU_PEX_RST_HOLD*
R32 100KR0402
1V8_AON
* JTAG
R180 10k
R187 10k
R129 182ohm
R123 274ohm
To MXM conn
Main board
GPIO2_GPU_EVENT#
1V8_AON
R45 10k1%0402
GPIO5_FRAME_LOCK*
R57 10k1%0402
D3
S-BAS40WS_SOD323-RH
GPIO5_FRAME_LOCK_MXM
GPIO12_AC_BATT*
R56 100k1%0402
D4
S-BAS40WS_SOD323-RH
GPIO12_AC_DETECT_MXM
IF=1mA, VF=380mV
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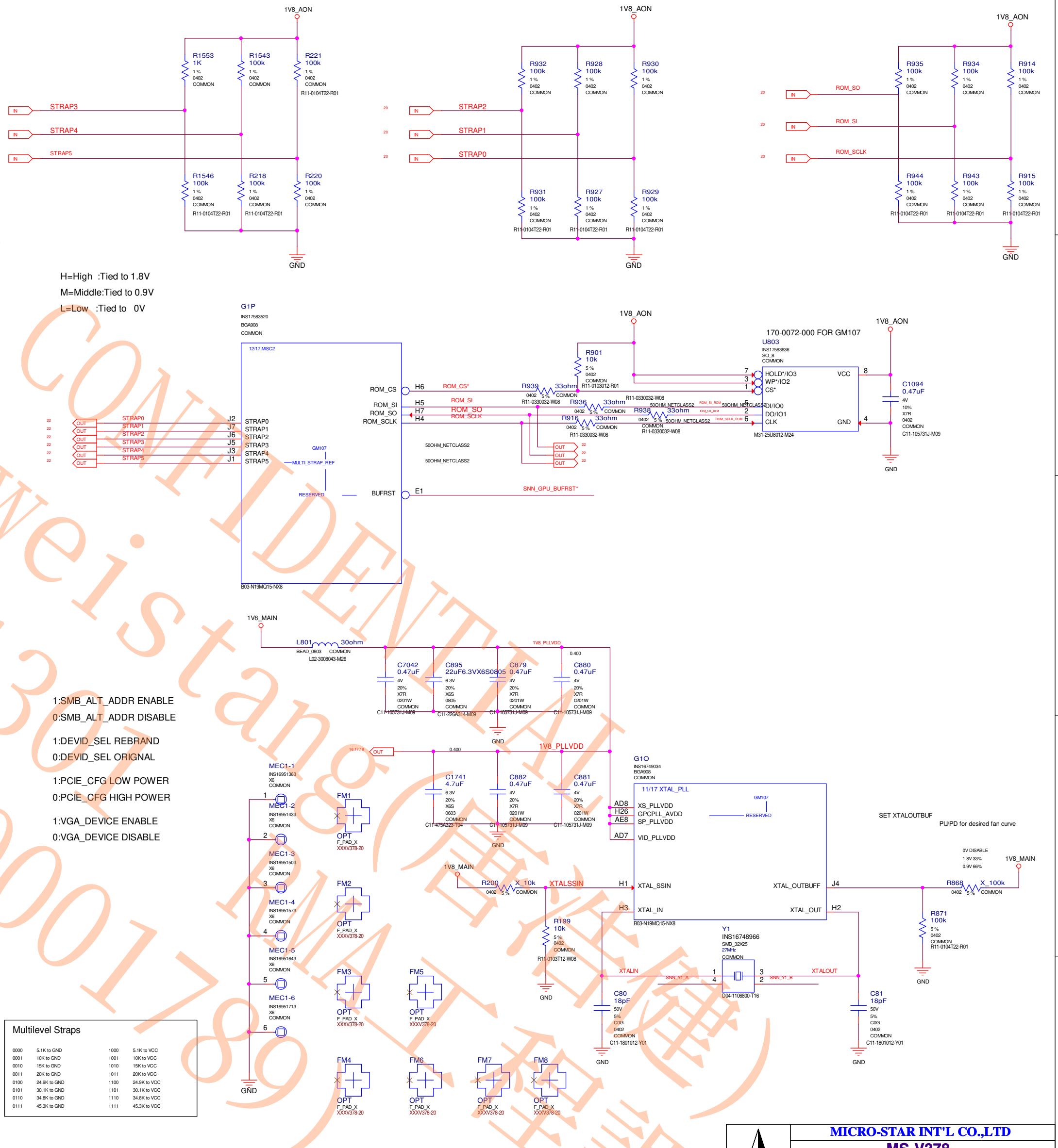
Page15: Straps,ROM, XTAL

STRAP2	STRAP1	STRAP0	RAMCFG[4:0]	
L	L	L	0000	SAMSUNG 256x32
L	L	H	0001	MICRON-F 256x32 8G
L	H	L	0010	HYNIX-M 256x32 8G
L	H	H	0011	
H	H	L	0110	HYNIX-A 128Mx32 4G
H	H	H	0111	SAMSUNG-E 128Mx32 4G
L	L	M	1000	HYNIX-B 128x32 4G

ROM_SO	ROM_SI	ROM_SCLK	SOR_EXPOSED[3:0]	1:ENABLE 0:DISABLE
L	L	L	1111 DEFAULT	SOR0/1/2/3 ENABLE
L	L	H	1110	
L	H	L	1101	
L	H	H	1100	
H	L	L	1011	
H	L	H	1010	
H	H	L	1001	
H	H	H	1000	
L	L	M	0111	
L	M	L	0110	
L	M	H	0101	
L	H	M	0100	
H	L	M	0011	
H	M	L	0010	
H	M	H	0001	
H	H	M	0000	

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



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

1:SMB_ALT_ADDR ENABLE
0:SMB_ALT_ADDR DISABLE

1:DEVID_SEL REBRAND
0:DEVID_SEL ORIGNAL

1:PCIE_CFG LOW POWER
0:PCIE_CFG HIGH POWER

1:VGA_DEVICE ENABLE
0:VGA_DEVICE DISABLE

Multilevel Straps

0000	5.1K to GND	1000	5.1K to VCC
0001	10K to GND	1001	10K to VCC
0010	15K to GND	1010	15K to VCC
0011	20K to GND	1011	20K to VCC
0100	24.9K to GND	1100	24.9K to VCC
0101	30.1K to GND	1101	30.1K to VCC
0110	34.8K to GND	1110	34.8K to VCC
0111	45.3K to GND	1111	45.3K to VCC

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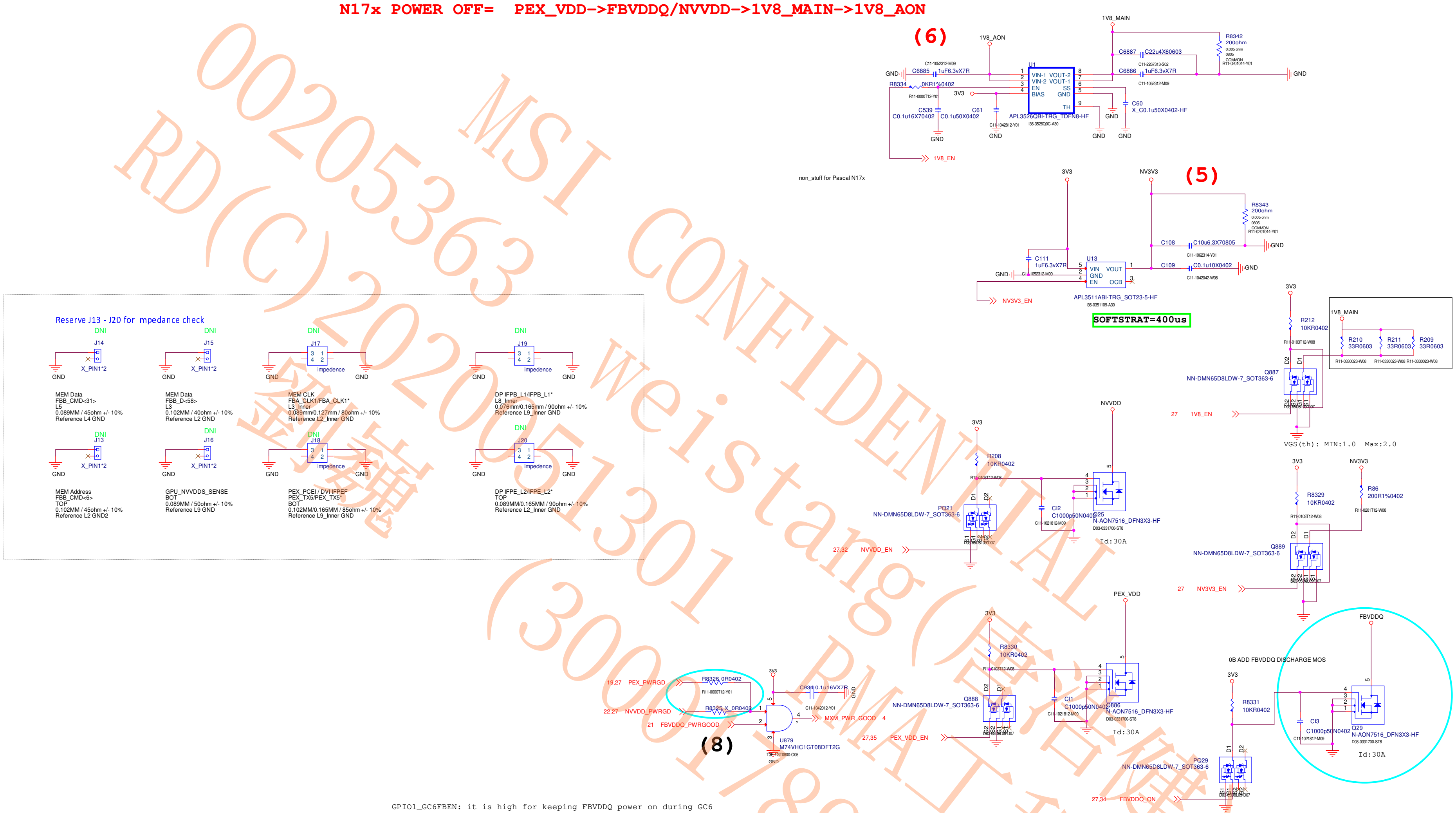
Page16: Power Sequence Control

N17x POWER ON= 1V8_AON->1V8_MAIN->NVVDD->PEX_VDD->FBVDDQ->DGPU_PWRGD

N17x POWER OFF= PEX_VDD->FBVDDQ/NVVDD->1V8_MAIN->1V8_AON



GPIO1_GC6FBEN: it is high for keeping FBVDDQ power on during GC6

OR GATE	M74VHC1GT32DFT2G	VCC=3V (VIH Min=1.4 V; LH Max=0.53V)
AND GATE	M74VHC1GT08DFT2G	VCC=3V (VIH Min=1.4 V; LH Max=0.53V)

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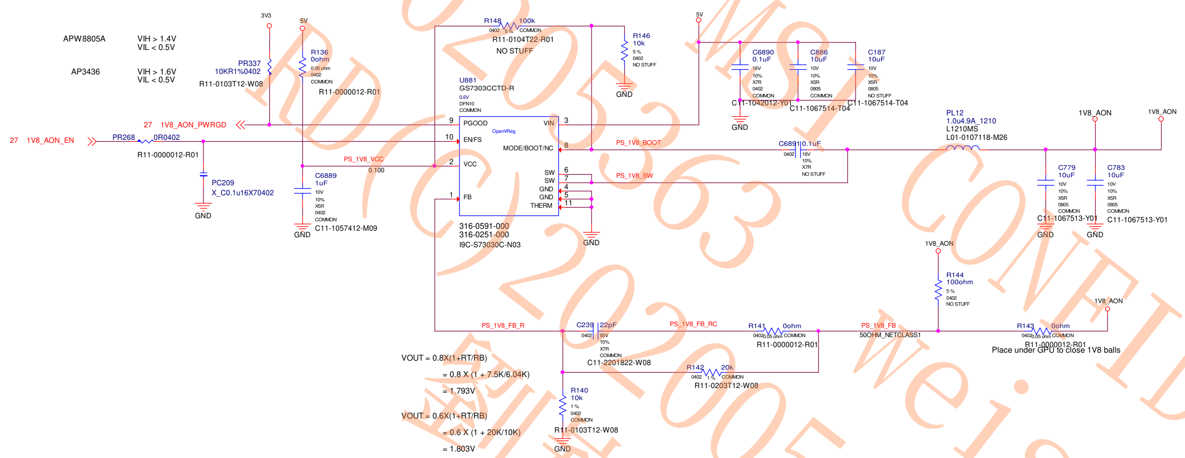
PAGE 17: 1V8_AON

POWER UP Sequence

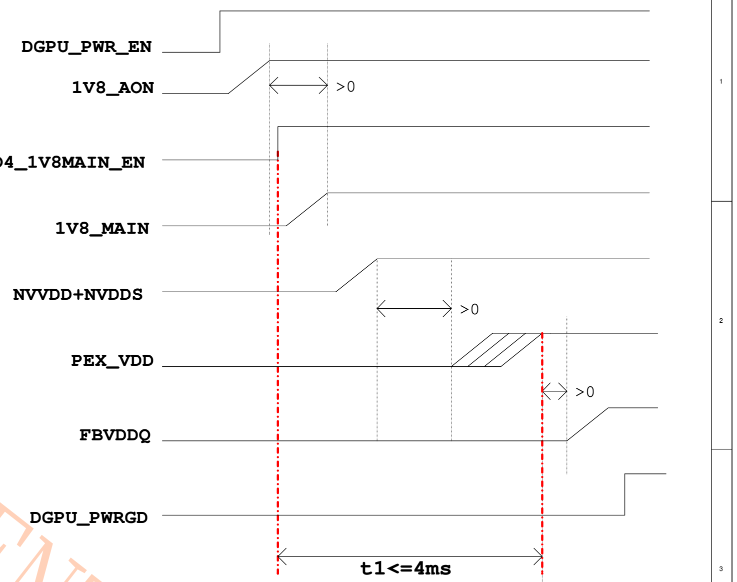
1V8_AON -> 1V8_MAIN->NV3V3 -> NVVDD -> NVVDDS / PEX_VDD -> FBVDDQ

Voltage = 1.8V
Current = ? A
OCP(typi) = ? A

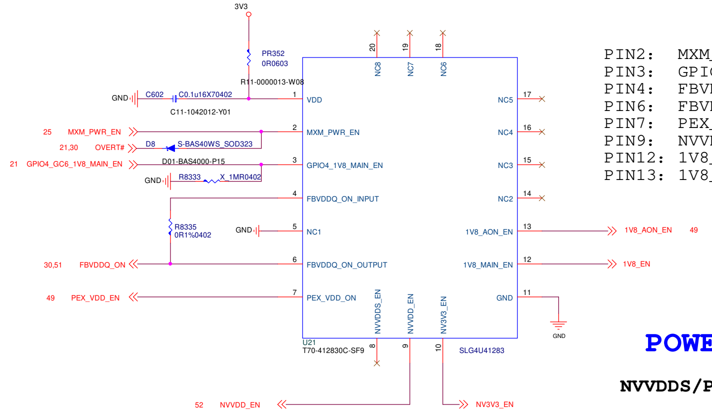
1V8_AON



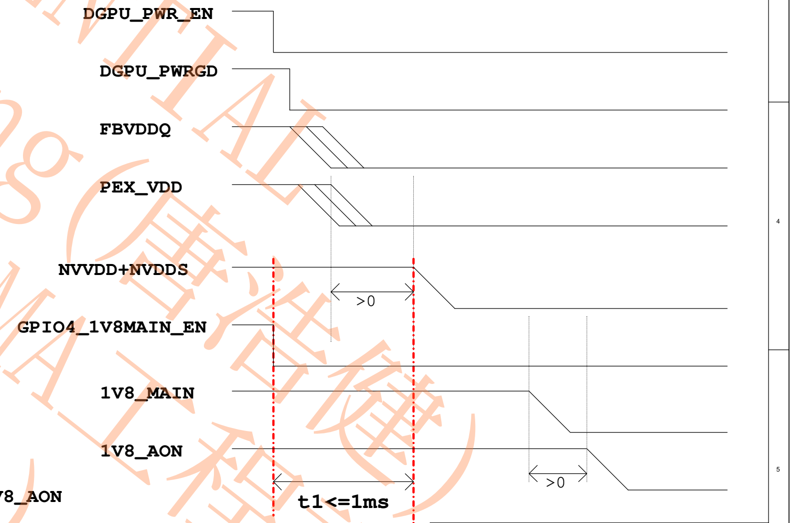
APW8805A VIH > 1.4V VIL < 0.5V
AP3436 VIH > 1.6V VIL < 0.5V
1V8_AON_EN
1V8_AON_PWRGD
U881
GS7303CCTD-R
PGOOD
EN/FS
VCC
FB
VIN
MODE/BOOT/NC
SW
GND
THERM
PL12
1.0u4.9A_1210
Place under GPU to close 1V8 balls
VOUT = 0.8X(1+RT/RB)
= 0.8 X (1 + 7.5K/6.04K)
= 1.793V
VOUT = 0.6X(1+RT/RB)
= 0.6 X (1 + 20K/10K)
= 1.803V



Power Sequence Control



PIN2: MXM_PWR_EN is 3.3V INPUT
PIN3: GPIO4_GC6_PWR_EN is 1.8V INPUT
PIN4: FBVDDQ_ON_INPUT 3.3V INPUT
PIN6: FBVDDQ_ON_OUTPUT 3.3V OUTPUT
PIN7: PEX_VDD_EN_IC 3.3V OUTPUT
PIN9: NVVDD_EN_IC 3.3V OUTPUT
PIN12: 1V8_MAIN_EN_IC 3.3V OUTPUT
PIN13: 1V8_AON_EN_IC 3.3V OUTPUT



POWER Down Sequence

NVVDDS/PEX_VDD/FBVDDQ ->NVVDD/NV3V3->1V8_MAIN> 1V8_AON

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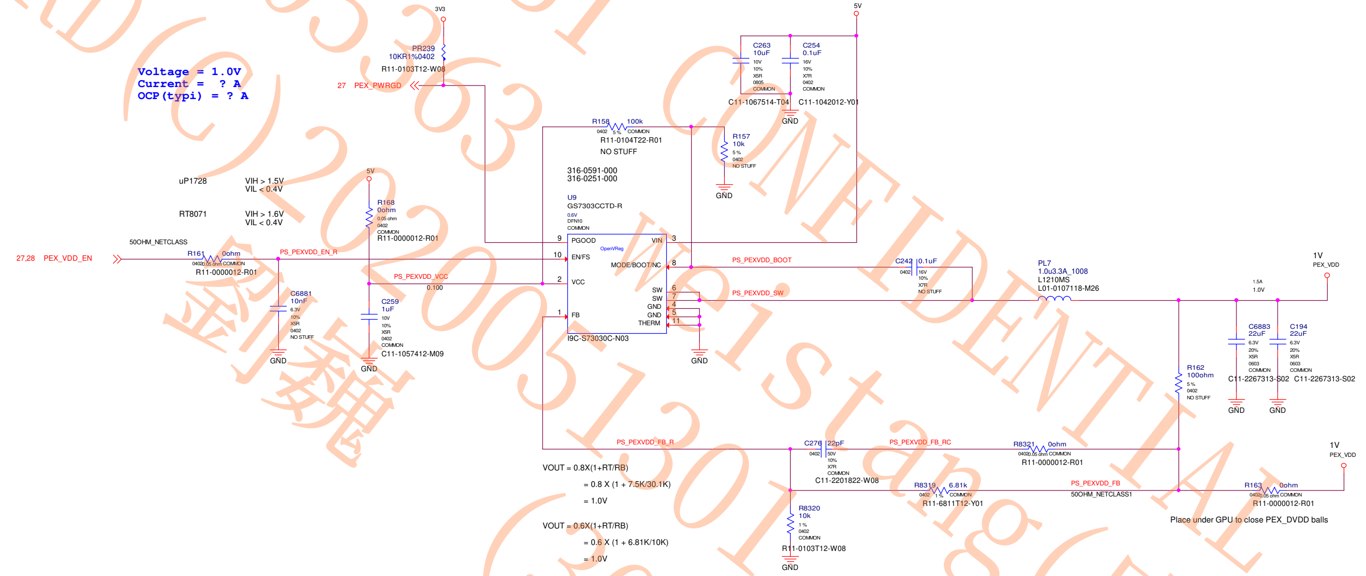
PAGE 18: PEXVDD



Voltage = 1.0V
Current = ? A
OCP(typi) = ? A
3V3
PR239
10KR1%0402
R11-0103T12-W08
27 PEX_PWRGD
5V
C263 10uF
C254 0.1uF
C11-1067514-T04
C11-1042012-Y01
GND
R158 100k
R11-0104T22-R01
NO STUFF
R157 10k
316-0591-000
316-0251-000
U9
GS7303CCTD-R
uP1728 VIH > 1.5V VIL < 0.4V
RT8071 VIH > 1.6V VIL < 0.4V
R168 0ohm
R11-0000012-R01
50OHM_NETCLASS
27,28 PEX_VDD_EN
R161 0ohm
R11-0000012-R01
PS_PEXVDD_EN_R
PS_PEXVDD_VCC
C6881 10nF
C259 1uF
C11-1057412-M09
PGOOD
EN/FS
VCC
FB
VIN
MODE/BOOT/NC
SW
SW
GND
GND
THERM
I9C-S73030C-N03
PS_PEXVDD_BOOT
PS_PEXVDD_SW
C242 0.1uF
PL7
1.0u3.3A_1008
L1210MS
L01-0107118-M26
1V
PEX_VDD
C6883 22uF
C194 22uF
C11-2267313-S02
C11-2267313-S02
R162 100ohm
PS_PEXVDD_FB_R
C276 22pF
C11-2201822-W08
PS_PEXVDD_FB_RC
R8321 0ohm
R11-0000012-R01
R8319 6.81k
R11-6811T12-Y01
PS_PEXVDD_FB
50OHM_NETCLASS1
R163 0ohm
R11-0000012-R01
R8320 10k
R11-0103T12-W08
Place under GPU to close PEX_DVDD balls
VOUT = 0.8X(1+RT/RB)
= 0.8 X (1 + 7.5K/30.1K)
= 1.0V
VOUT = 0.6X(1+RT/RB)
= 0.6 X (1 + 6.81K/10K)
= 1.0V

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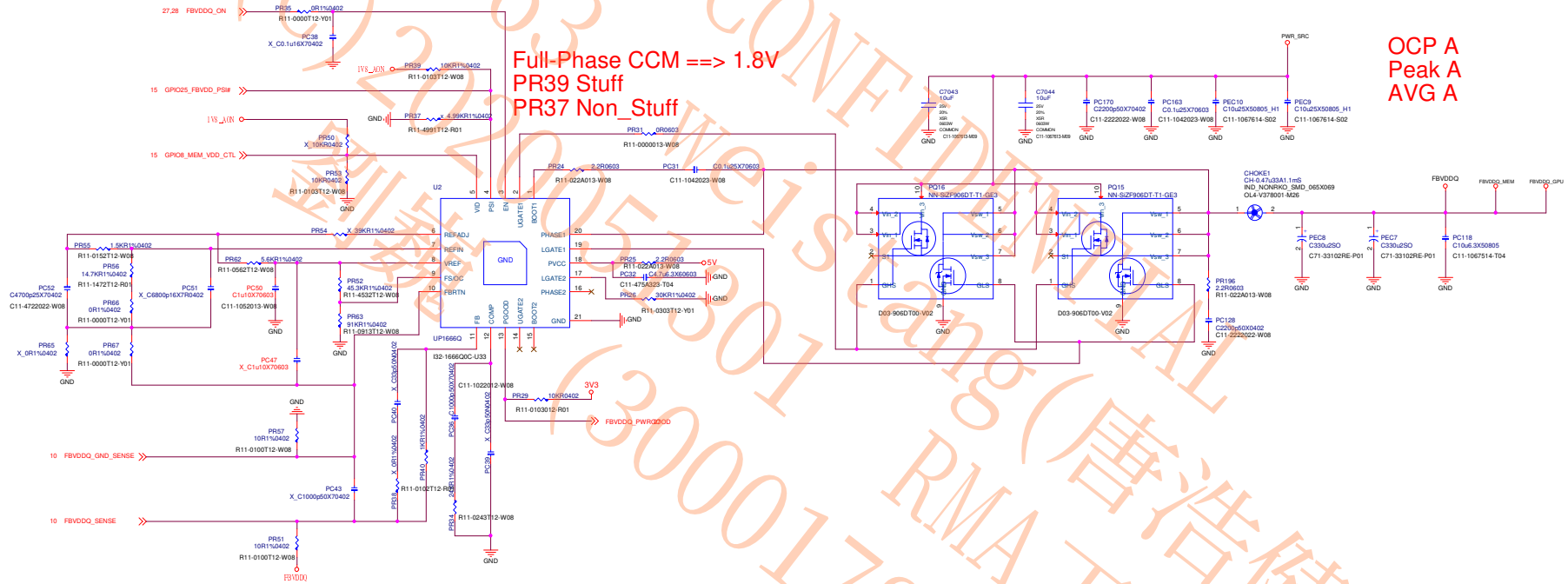
Page 19: FBVDD CONTROLLER

Copy from
MS-16R3-1.0



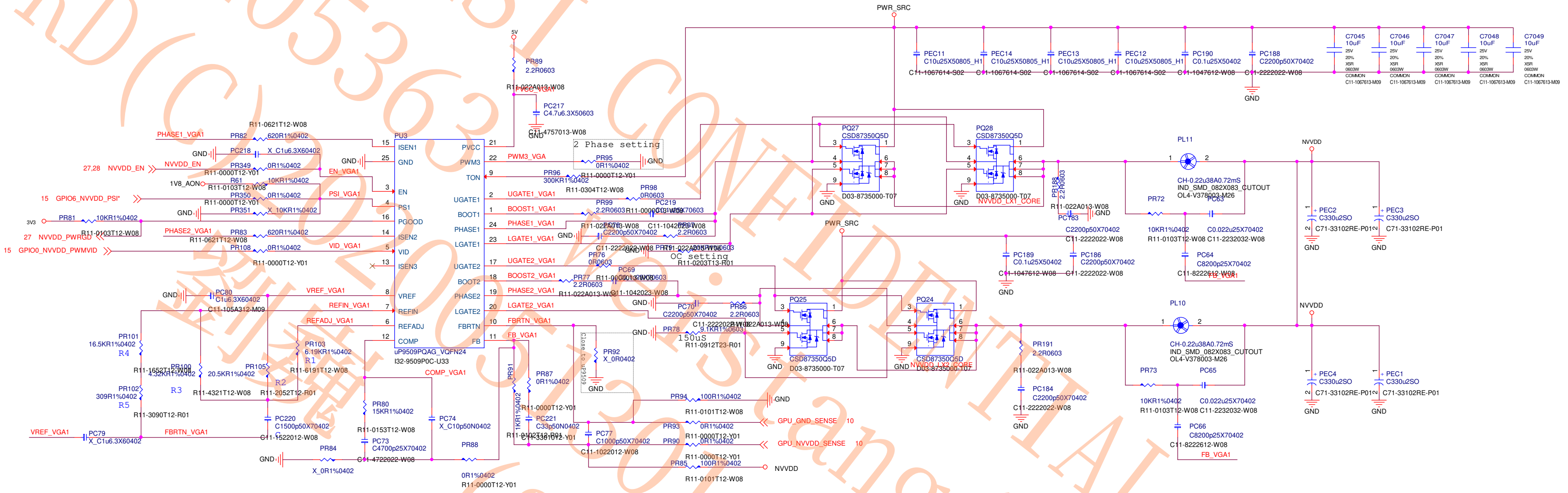
Page20: NVVDD CONTROLLER

Copy from
MS-16R1-1.0

UP9509P

EDP-Peak 90A
EDP-Con 47A

VBoot:0.8V
Vmin:0.5V / Vmax:1.25V



PWR_SRC
5V
PR89
2.2R0603
PC217
C4.7u6.3X50603
PU3
ISEN1
GND
EN
PS1
PGOOD
ISEN2
VID
ISEN3
VREF
REFIN
REFADJ
COMP
PVCC
PWM3
TON
UGATE1
BOOT1
PHASE1
LGATE1
UGATE2
BOOT2
PHASE2
LGATE2
FBRTN
FB
uP9509PQAG_VQFN24
I32-9509P0C-U33
2 Phase setting
OC setting
150uS
PHASE1_VGA1
PHASE2_VGA1
NVVDD_EN
1V8_AON
GPIO6_NVVDD_PSI
NVVDD_PWRGD
GPIO0_NVVDD_PWMVID
VREF_VGA1
REFIN_VGA1
REFADJ_VGA1
COMP_VGA1
FBRTN_VGA1
FB_VGA1
PWM3_VGA
UGATE1_VGA1
BOOST1_VGA1
LGATE1_VGA1
UGATE2_VGA1
BOOST2_VGA1
LGATE2_VGA1
PQ27
PQ28
PQ25
PQ24
CSD87350Q5D
D03-8735000-T07
PL11
PL10
CH-0.22u38A0.72mS
IND_SMD_082X083_CUTOUT
NVVDD
PEC2
PEC3
PEC4
PEC1
C330u2SO
C71-33102RE-P01
GPU_GND_SENSE
GPU_NVVDD_SENSE
GND

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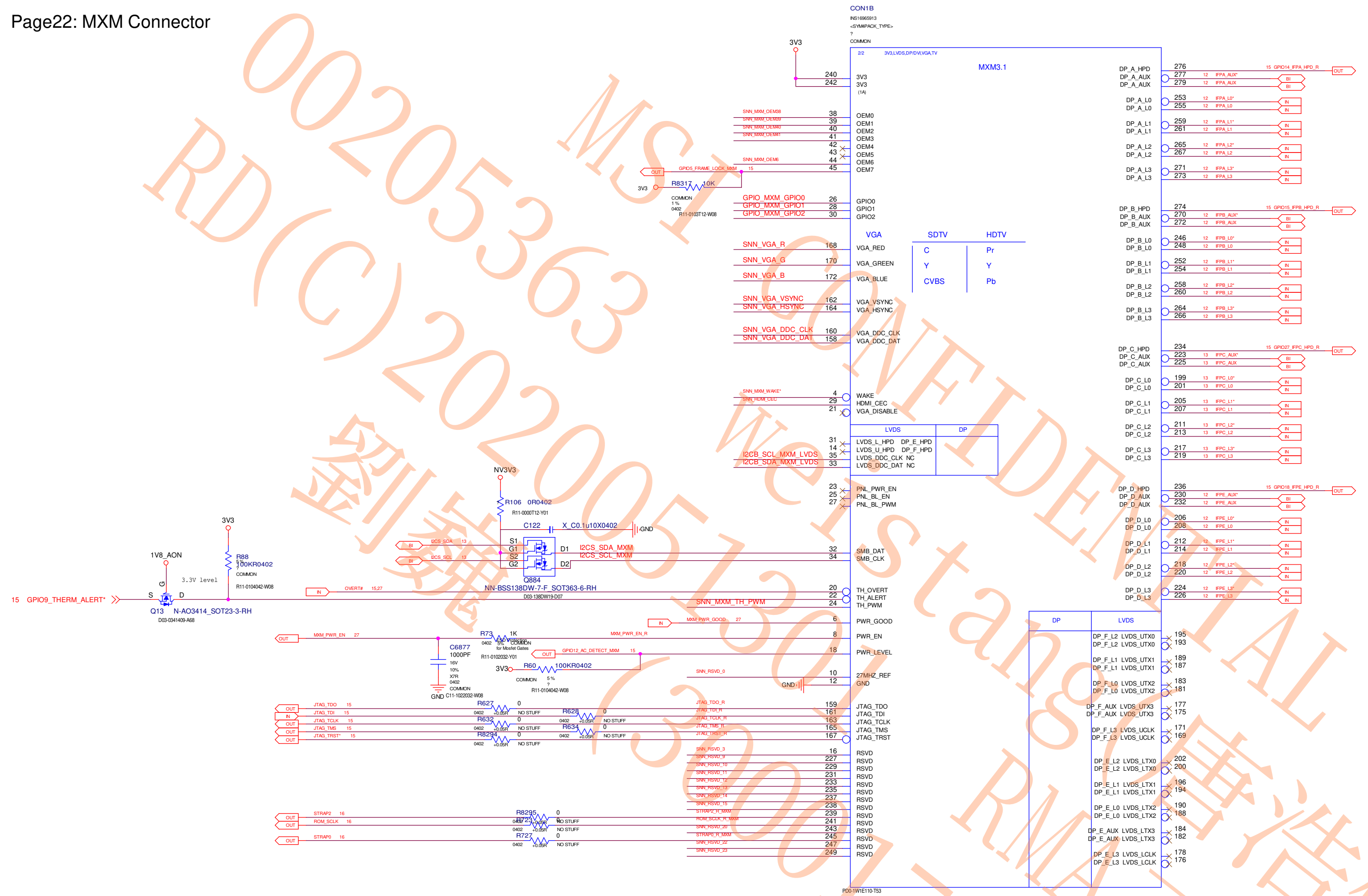
Page22: MXM Connector



CON1B
MXM3.1
3V3
3V3
3V3
OEM0
OEM1
OEM2
OEM3
OEM4
OEM5
OEM6
OEM7
GPIO0
GPIO1
GPIO2
GPIO_MXM_GPIO0
GPIO_MXM_GPIO1
GPIO_MXM_GPIO2
R8317 10K
VGA
SDTV
HDTV
VGA_RED
VGA_GREEN
VGA_BLUE
C
Y
CVBS
Pr
Y
Pb
SNN_VGA_R
SNN_VGA_G
SNN_VGA_B
SNN_VGA_VSYNC
SNN_VGA_HSYNC
VGA_VSYNC
VGA_HSYNC
SNN_VGA_DDC_CLK
SNN_VGA_DDC_DAT
VGA_DDC_CLK
VGA_DDC_DAT
WAKE
HDMI_CEC
VGA_DISABLE
LVDS
DP
LVDS_L_HPD DP_E_HPD
LVDS_U_HPD DP_F_HPD
LVDS_DDC_CLK NC
LVDS_DDC_DAT NC
I2CB_SCL_MXM_LVDS
I2CB_SDA_MXM_LVDS
PNL_PWR_EN
PNL_BL_EN
PNL_BL_PWM
NV3V3
R106 0R0402
C122 X_C0.1u10X0402
GND
Q884
NN-BSS138DW-7-F_SOT363-6-RH
I2CS_SDA_MXM
I2CS_SCL_MXM
SMB_DAT
SMB_CLK
1V8_AON
R88 100KR0402
3.3V level
Q13 N-AO3414_SOT23-3-RH
15 GPIO9_THERM_ALERT*
TH_OVERT
TH_ALERT
TH_PWM
SNN_MXM_TH_PWM
PWR_GOOD
PWR_EN
PWR_LEVEL
27MHZ_REF
GND
R73 1K
C6877 1000PF
R60 100KR0402
JTAG_TDO
JTAG_TDI
JTAG_TCLK
JTAG_TMS
JTAG_TRST
R627
R633
R8294
R628
R634
RSVD
R8295
R723
R727
DP_A_HPD
DP_A_AUX
DP_A_L0
DP_A_L1
DP_A_L2
DP_A_L3
DP_B_HPD
DP_B_AUX
DP_B_L0
DP_B_L1
DP_B_L2
DP_B_L3
DP_C_HPD
DP_C_AUX
DP_C_L0
DP_C_L1
DP_C_L2
DP_C_L3
DP_D_HPD
DP_D_AUX
DP_D_L0
DP_D_L1
DP_D_L2
DP_D_L3
DP_F_L2 LVDS_UTX0
DP_F_L1 LVDS_UTX1
DP_F_L0 LVDS_UTX2
DP_F_AUX LVDS_UTX3
DP_F_L3 LVDS_UCLK
DP_E_L2 LVDS_LTX0
DP_E_L1 LVDS_LTX1
DP_E_L0 LVDS_LTX2
DP_E_AUX LVDS_LTX3
DP_E_L3 LVDS_LCLK

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Page23: GPIO Pin Define

Pin Name	N17P	N18P	N17P Functional Description	N17P Recommended Default Pull-up or Pull-down	N18P Recommended Default Pull-up or Pull-down
GPIO0	NVVDD_PWM	NVVDD_PWM_VID	PWM Output to control NVVDD	0 to 1V8 PWM output	
GPIO1	GC6_FB_EN	GC6_FB_EN	FB Enable for GC6 2.1	OD, 10K pull-down	OD, 10K pull-down
GPIO2	GPU_EVENT#	GPU_EVENT#	GPU wake signal for GC6 2.1	10K pull-up to 1V8 _AON	10K pull-up to 1V8 _AON
GPIO3	NVVDDS_PWM	UNUSED	PWM output to control the NVVDDS power supply	0 to 1V8 output	
GPIO4	1V8_MAIN_EN	1V8_MAIN_EN	GPU POWER Sequencing for GC6 2.1	OD, 10K pull-up to 1V8 _AON	OD, 10K pull-up to 1V8 _AON
GPIO5	FRM_LCK#	FRM_LCK#	Active low Frame Lock	OD, 10K pull-up to 1V8 _AON	OD, 10K pull-up to 1V8 _AON
GPIO6	NVVDD_PSI	NVVDD_PSI	Phase shedding	10K pull-up to 1V8 _AON	10K pull-up to 1V8 _AON
GPIO7	LCD_BL_PWM	LCD_BL_PWM	Panel Backlight PWM Brightness Control	100K pull-down	100K pull-down
GPIO8	MEM_VDD_CTL	MEM_VDD_CTL	Memory Voltage Control	pull-up/pull-down to set the FBVDD/Q power-on voltage	pull-up/pull-down to set the FBVDD/Q power-on voltage
GPIO9	THERM_ALERT	THERM_ALERT	Active Low Thermal Alert	OD, 10K pull-up to 1V8_AON	OD, 10K pull-up to 1V8_AON
GPIO10	MEM_VREF_CTL	MEM_VREF_CTL	Memory VREF Control	100K pull-down	100K pull-down
GPIO11	LCD_VCC	LCD_VCC	Panel Power Enable	100K pull-down	100K pull-down
GPIO12	PWR_LEVEL	PWR_LEVEL	AC power detect or power supply overdraw input	100K pull-up to 1V8_AON	10K pull-up to 1V8_AON
GPIO13	LCD_BLEN	UNUSED	Panel Backlight Enable	100K pull-down	
GPIO14	HPD_A	HPD_A	Hot Plug Detect for IFPA		10K pull-up to 1V8 _AON
GPIO15	HPD_B	HPD_B	Hot Plug Detect for IFPB		10K pull-up to 1V8 _AON
GPIO16	SYS_PEX_RST_MON#	UNUSED	System side PCIe reset monitor	10K pull-up to 1V8 _AON	
GPIO17	HPD_D	HPD_D	Hot Plug Detect for IFPD		10K pull-up to 1V8 _AON
GPIO18	HPD_E	HPD_E	Hot Plug Detect for IFPE		10K pull-up to 1V8 _AON
GPIO19	3DVision	UNUSED	3D Vision L/R signal	100K pull-down	
GPIO20	GC5_MODE	NB_GC6			10K pull-down
GPIO21	UNUSED	LCD_BLEN			100K pull-down
GPIO22	UNUSED	ADC_MUX_SEL			2.2K pull-up See Circuit
GPIO23	GPU_PEX_RST_HOLD#	RESERVED	GPU PCIe self-reset control	OD, 10K pull-up to a gated 3V3	100K pull-down
GPIO24	HPD_F	UNUSED	Hot Plug Detect for IFPF		
GPIO25	UNUSED	FBVDD_PSI#			
GPIO26	UNUSED	FP_FUSE			10K pull-down
GPIO27	HPD_C	HPD_C	Hot Plug Detect for IFPC		10K pull-up to 1V8 _AON

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