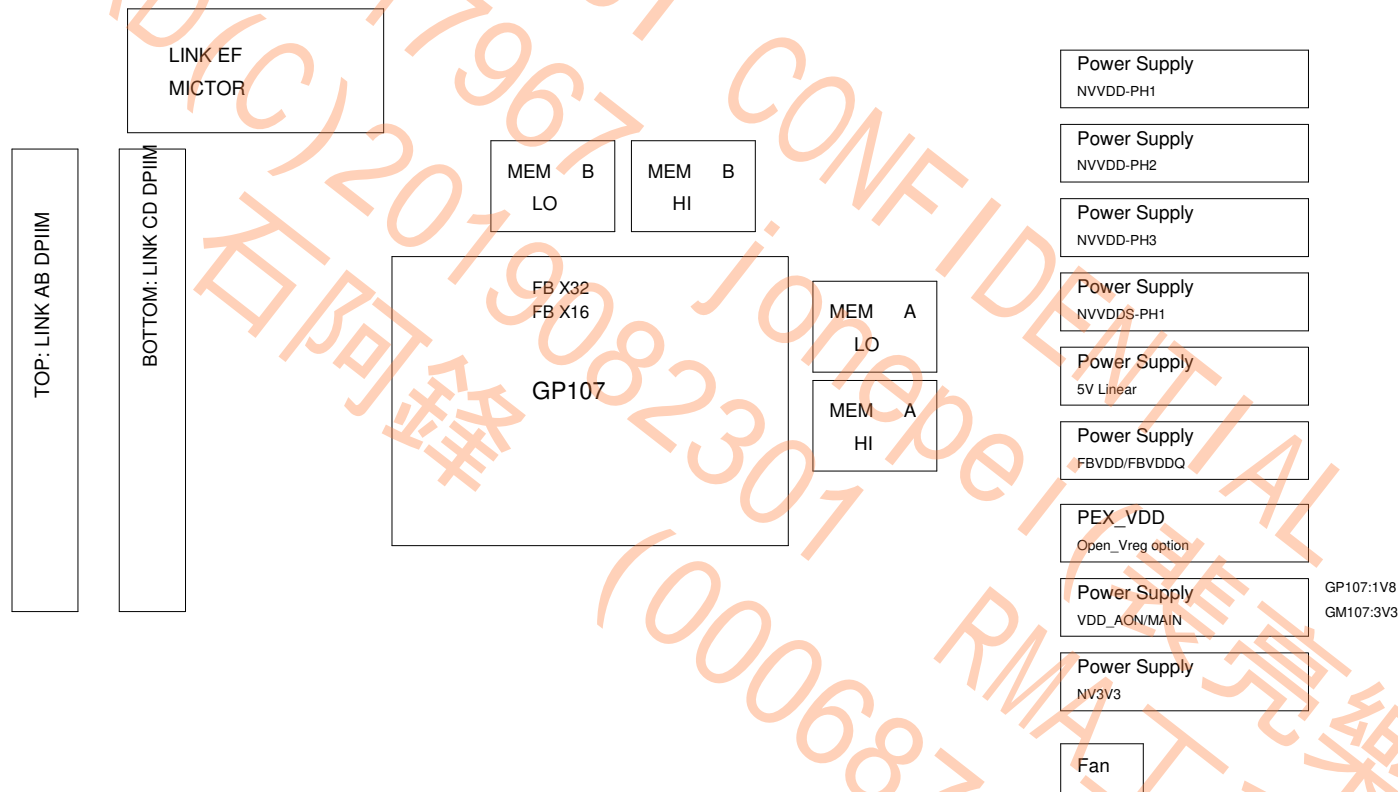


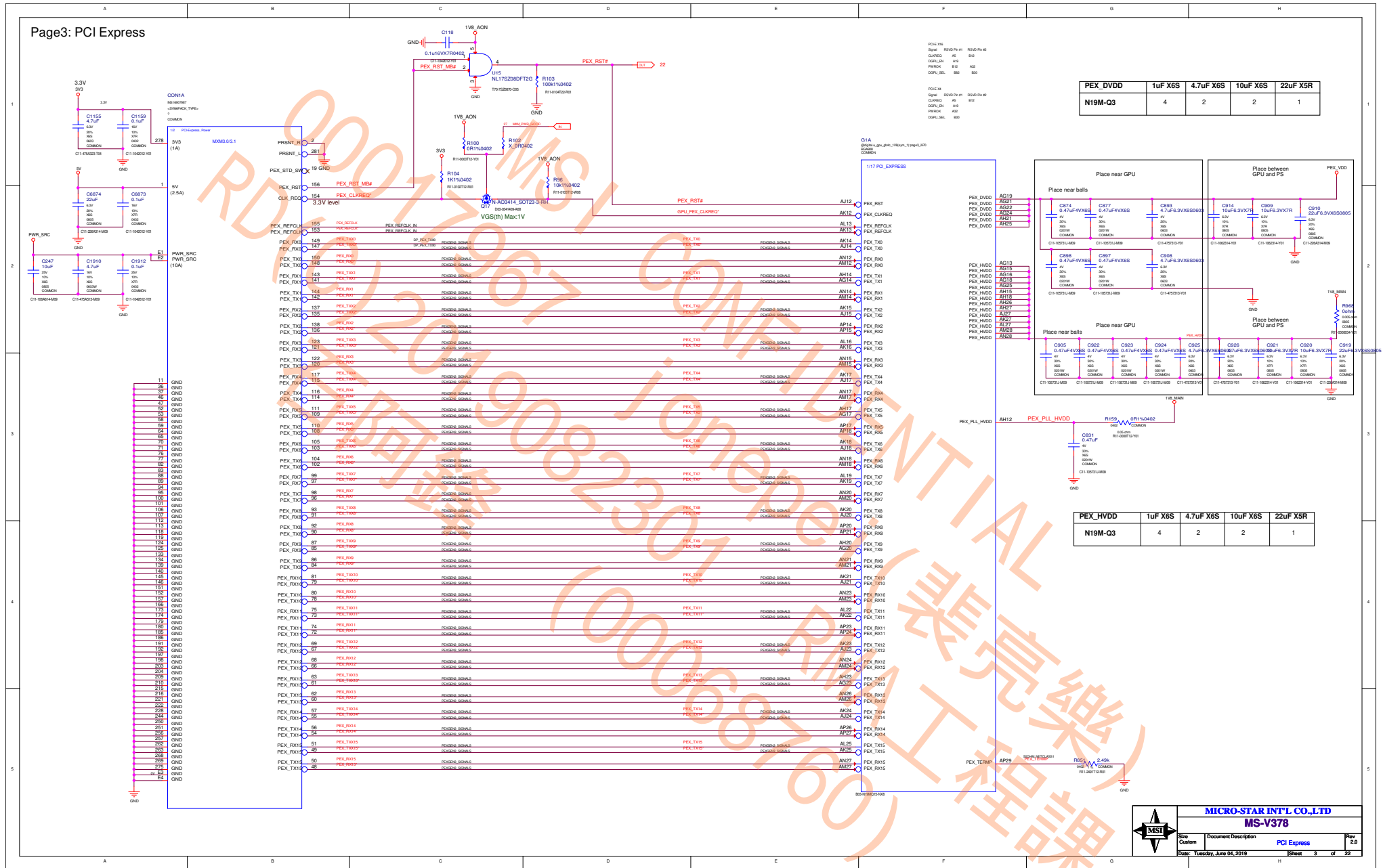
E2904

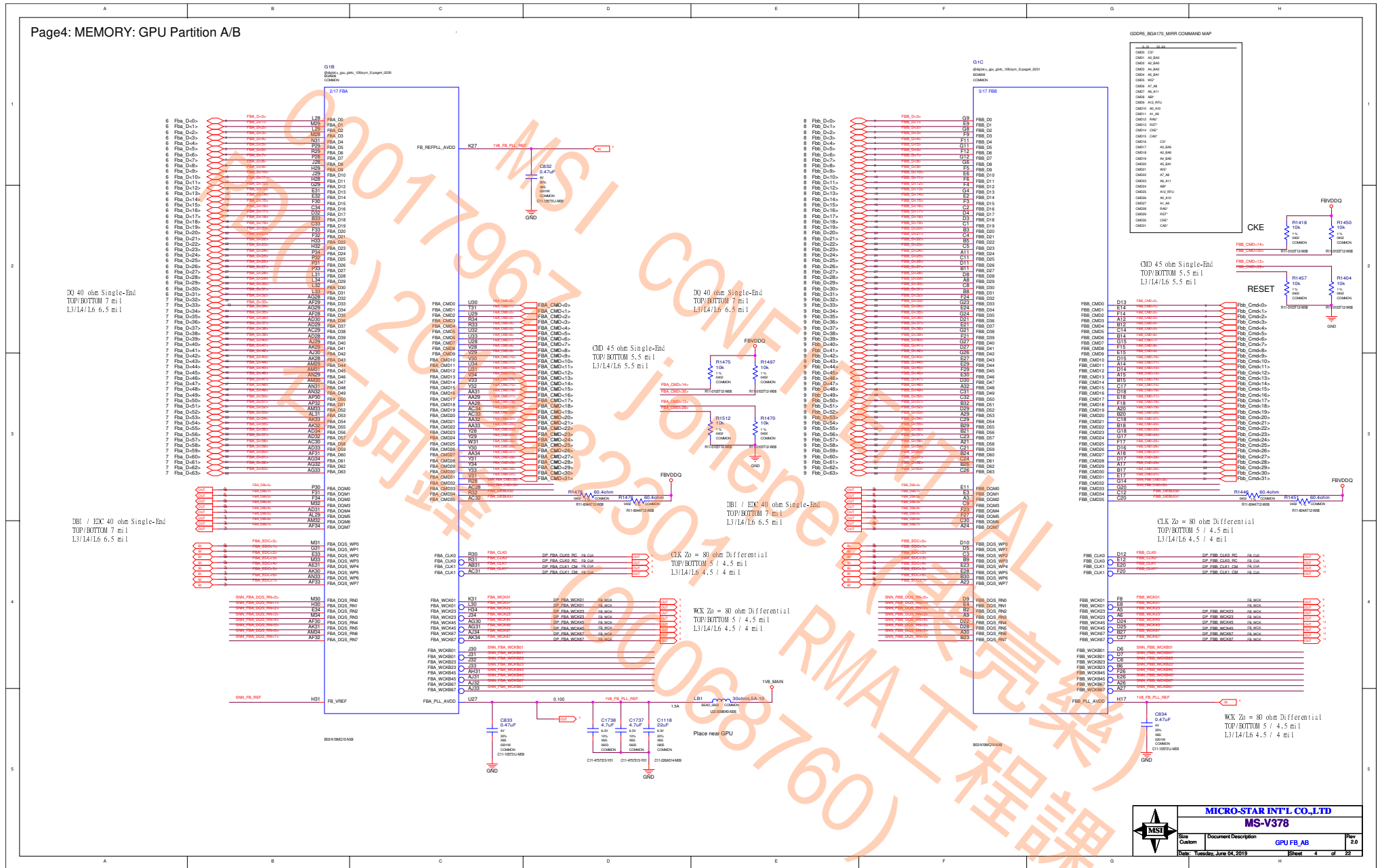
4GB GDDR5, 128b, 256Mx32
modular displays

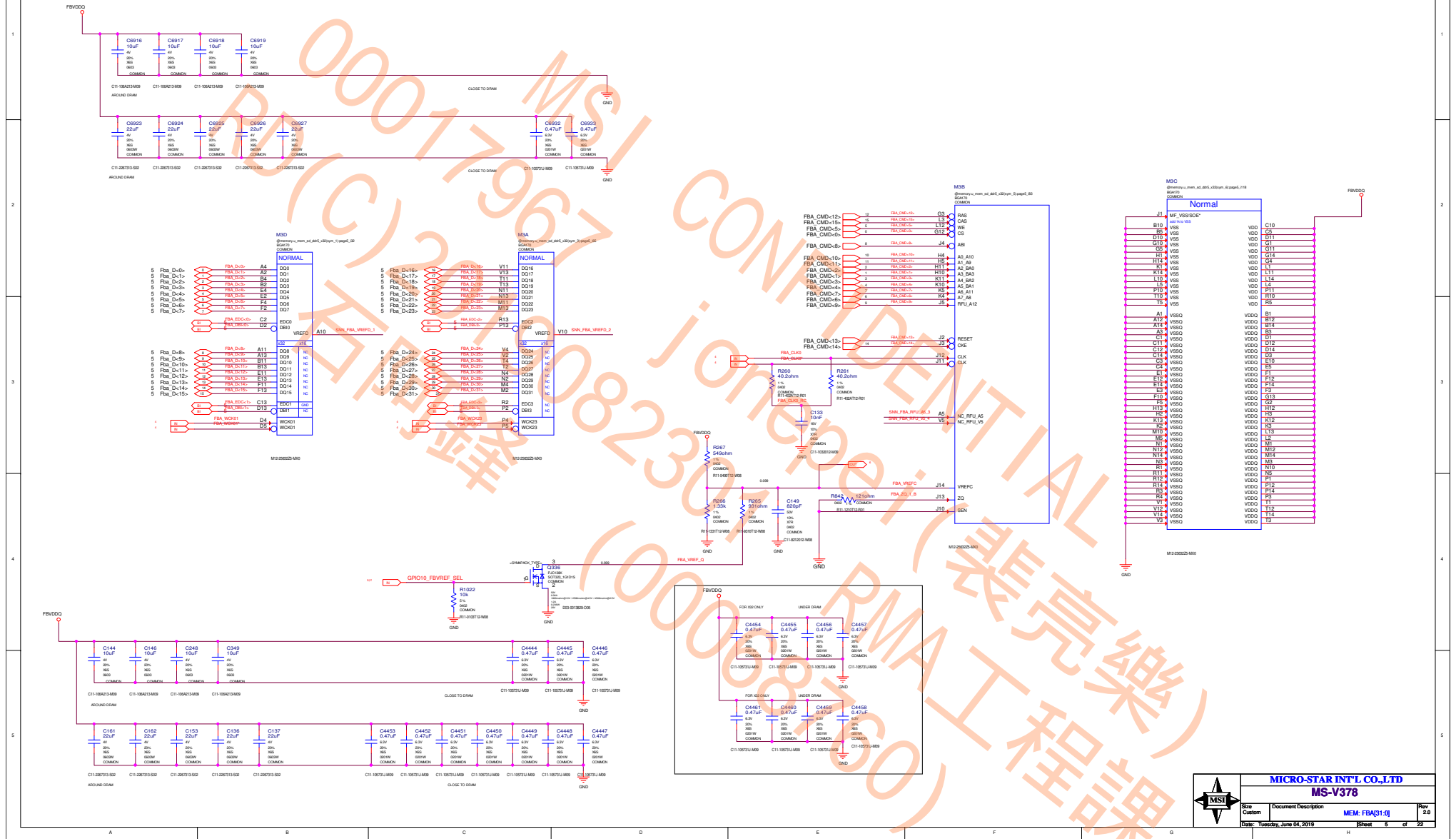
TABLE OF CONTENTS

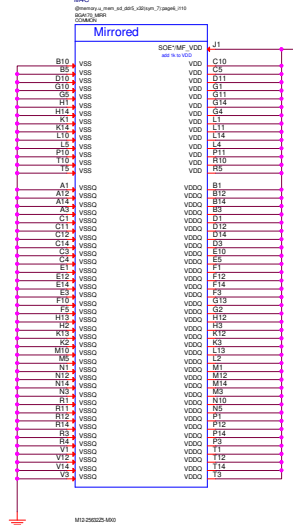
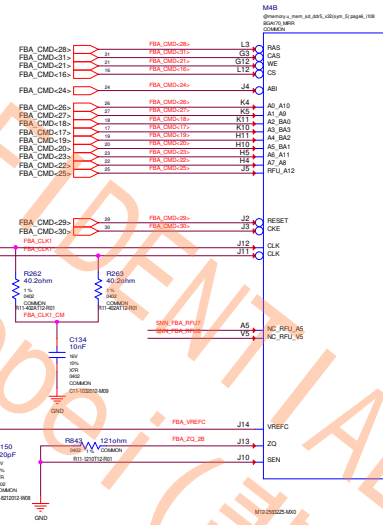
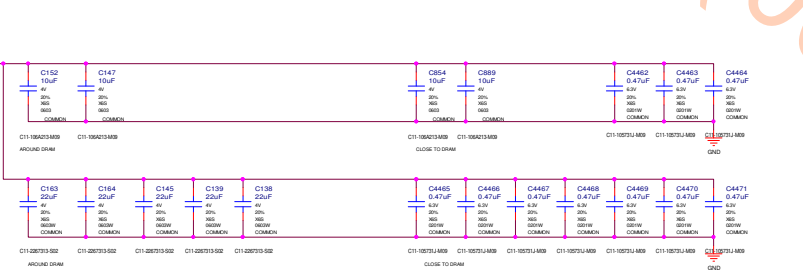
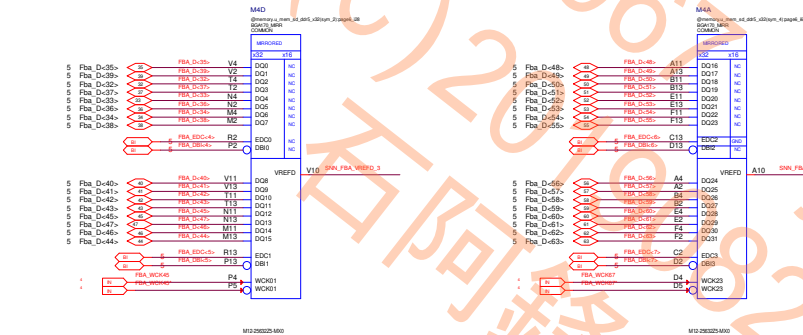
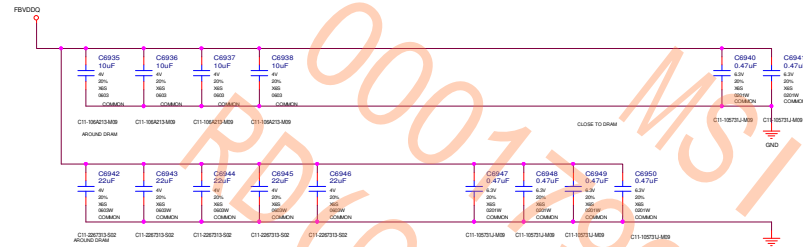
Page	Description
1	Table of Contents
2	BLOCK DIAGRAM
3	PCI Express
4	GPU FB_AB
5	MEM: FBA[31:0]
6	MEM: FBA[63:32]
7	MEM: FBB[31:0]
8	MEM: FBB[63:32]
9	GPU PWR
10	GPU GND FBVDDQ
11	IFPAB
12	IFPEF
13	IFPCD
14	GPIO, THERMAL, MISC
15	Straps,ROM, XTAL,
16	Power Sequence Control
17	1V8_AON
18	PEXVDD
19	FBVDD CONTROLLER
20	NVVDD CONTROLLER
21	MXM Connector
22	GPIO Pin Define

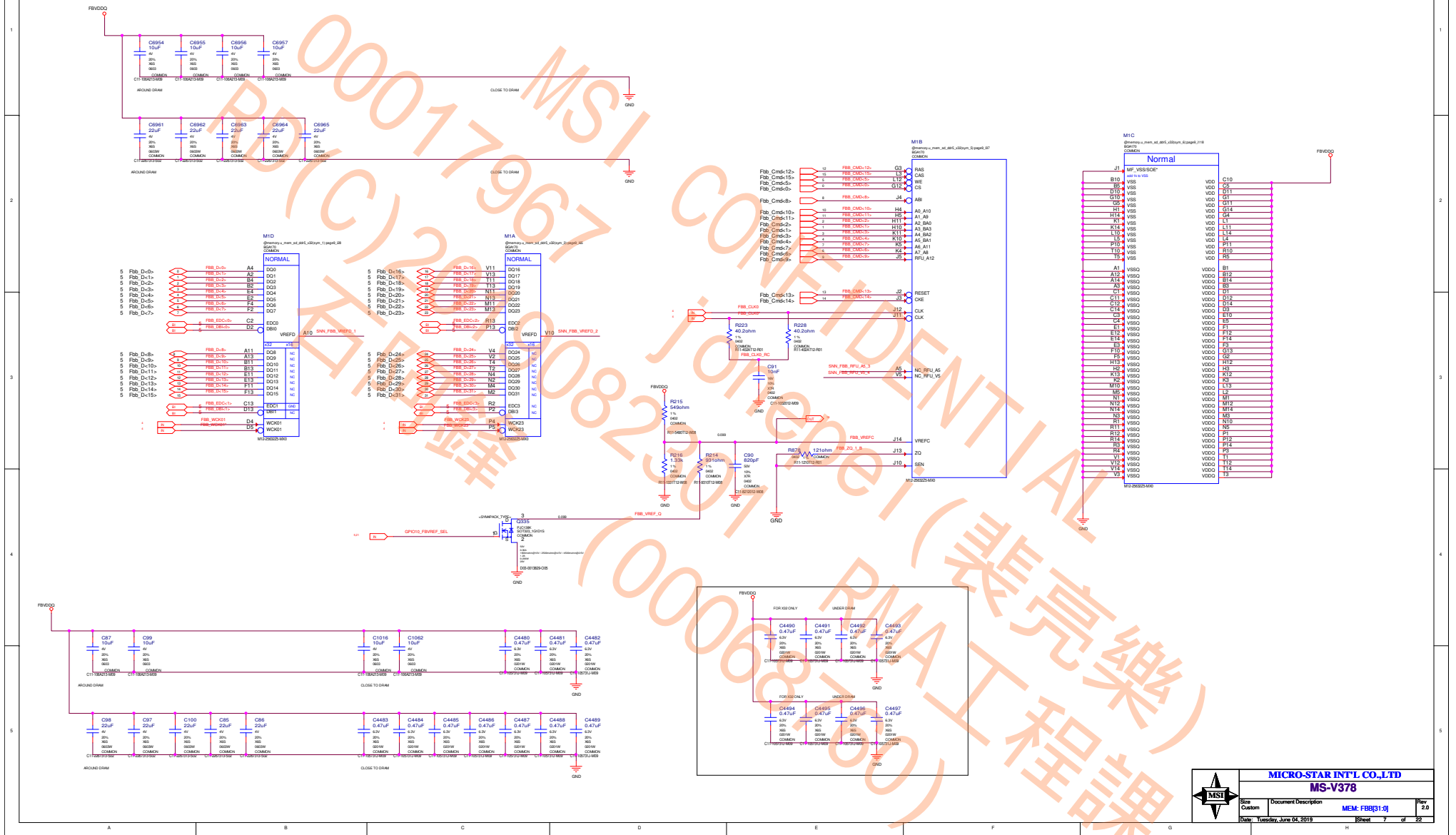


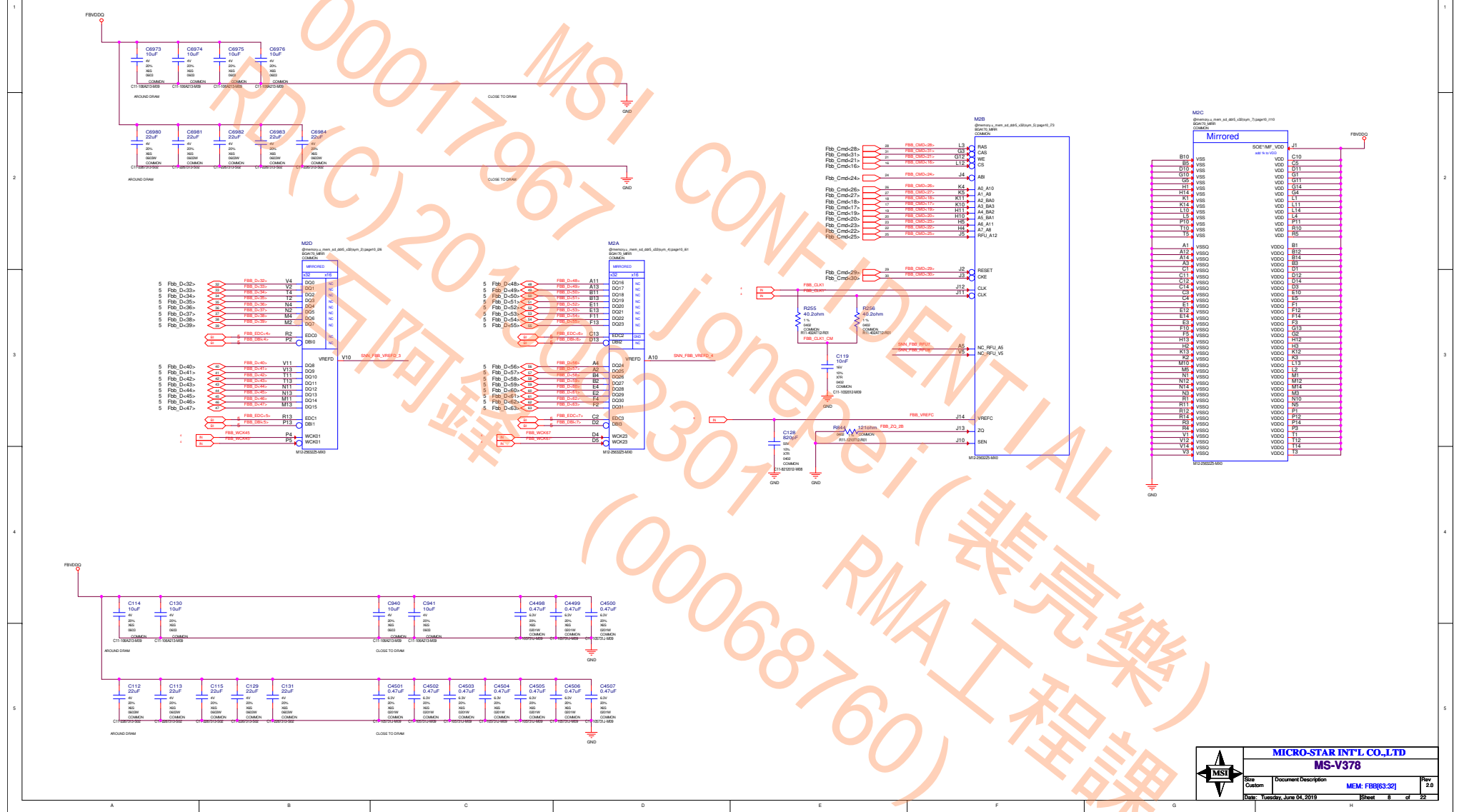










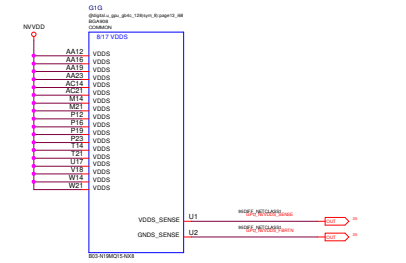


NVDD+NVDD5

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

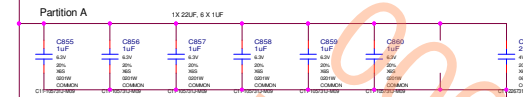
2 x 47uF(Near GPU)
10 x 22uF(Near GPU)

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

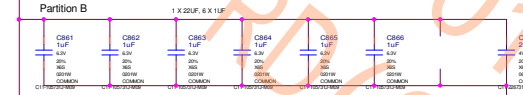


FBVDDQ

Partition A



Partition B



Place close to GPU

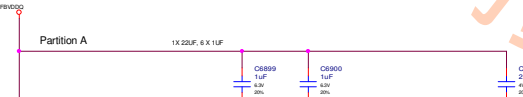


Place close to GPU



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

Partition A



Partition B



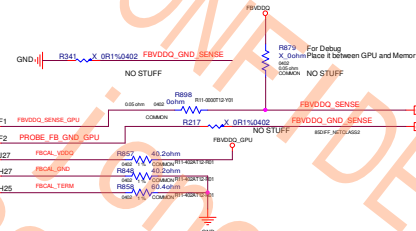
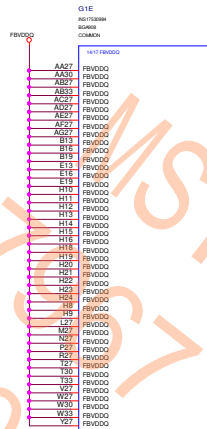
Place close to GPU



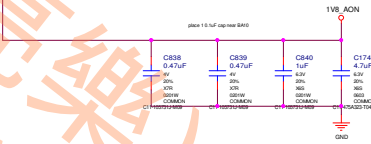
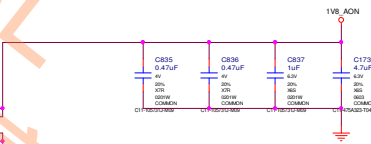
Place close to GPU



FBVDDQ
12 x 1uF(Under GPU)
2 x 22uF(Under GPU)
6 x 22uF(Near GPU)



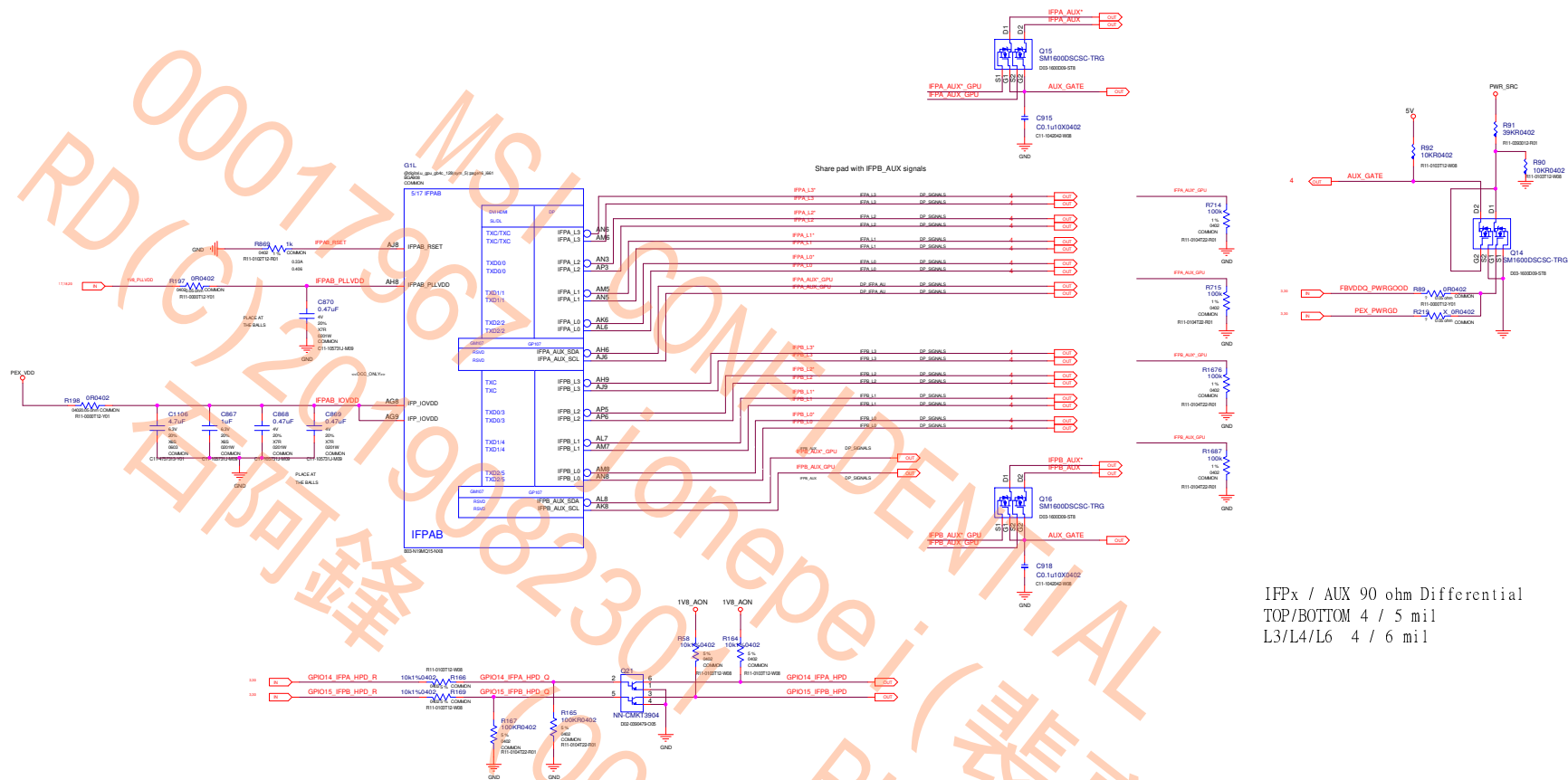
1V8_AON	0.1uF X7R	1uF X6S	4.7uF X6S
N19M-Q3	2	1	1



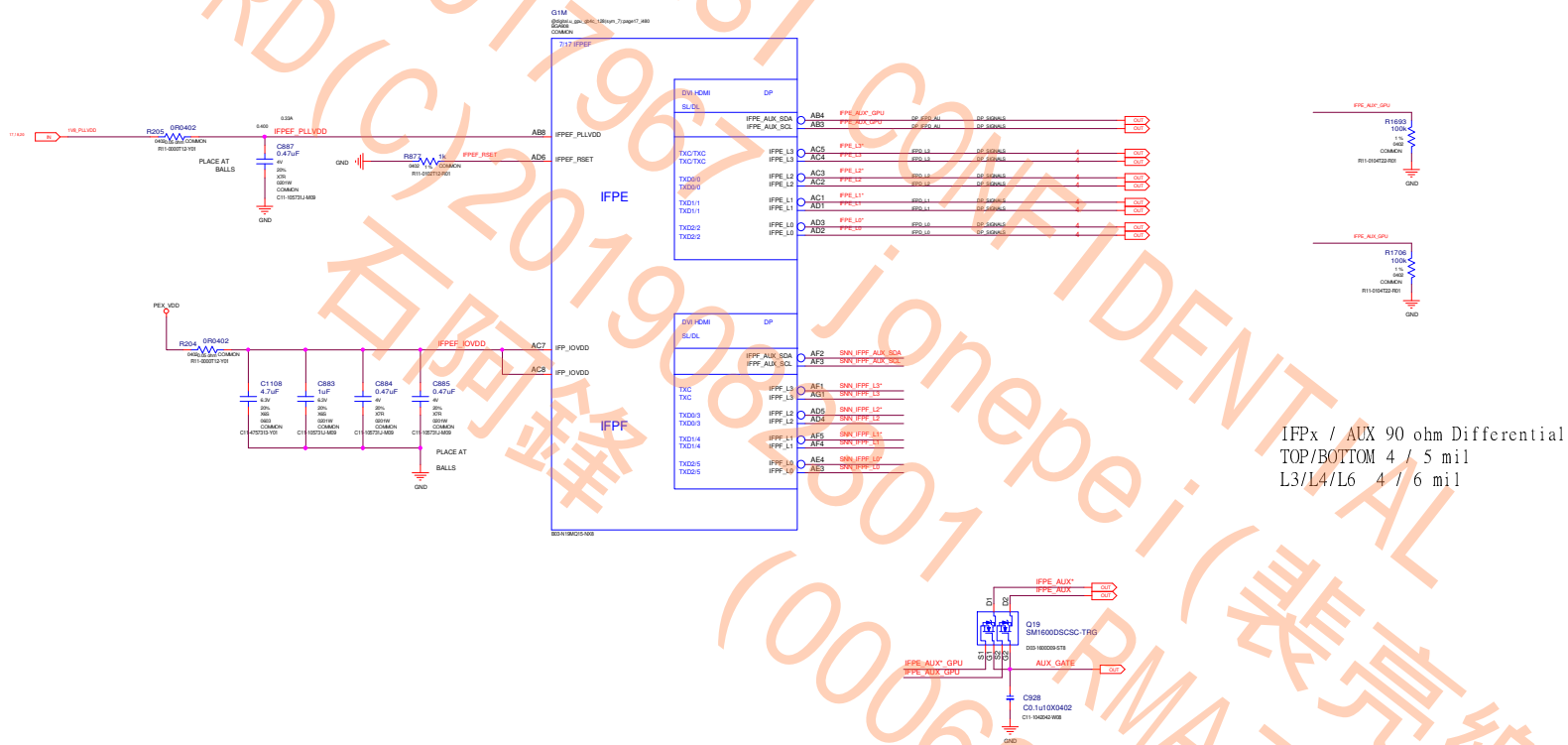
1V8_AON	0.1uF X7R	1uF X6S	4.7uF X6S
N19M-Q3	2	1	1

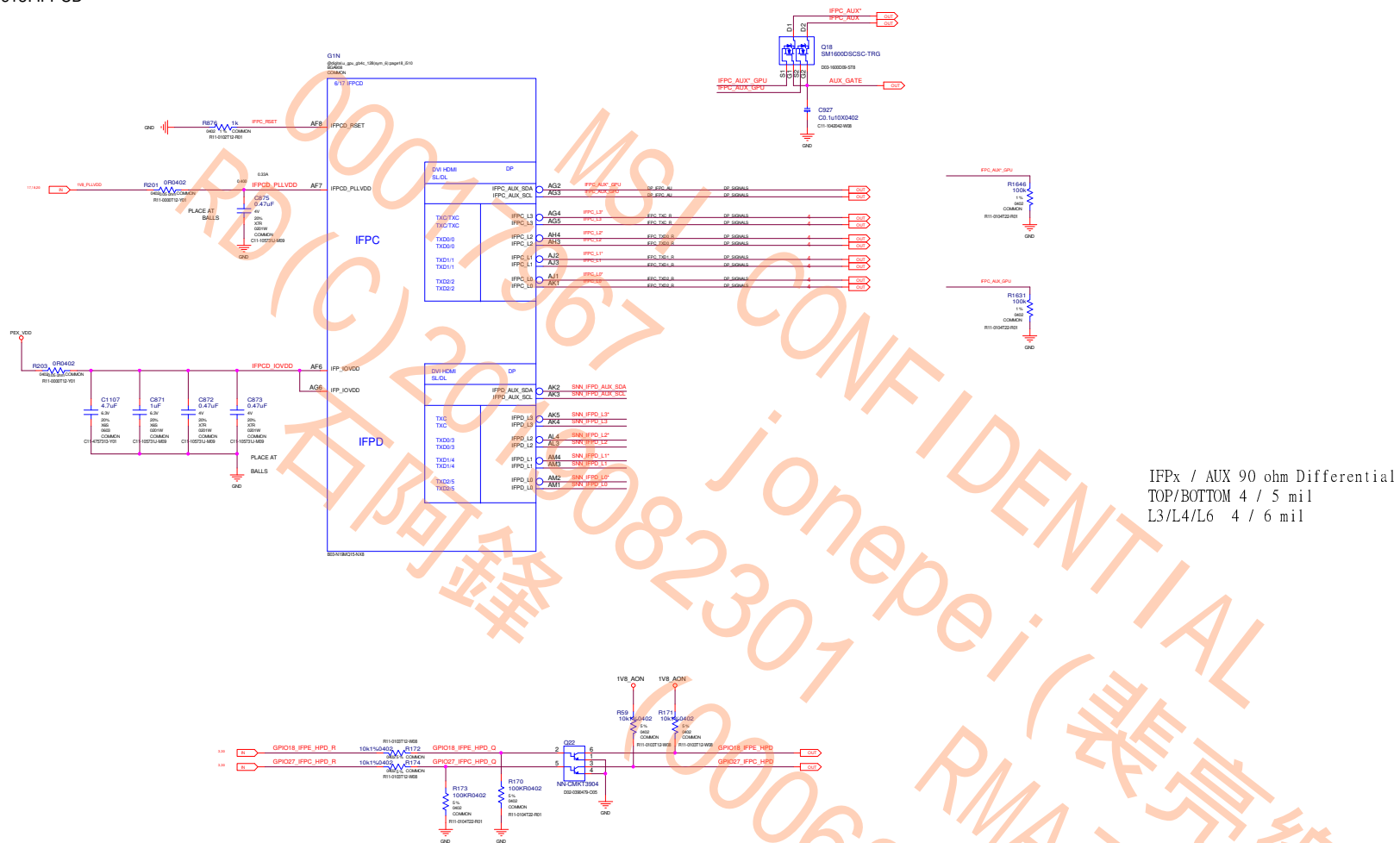


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MS-V378
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Document Description: GPU GND FBVDDQ
Date: Tuesday, June 04, 2019
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IFP_x / AUX 90 ohm Differential
TOP/BOTTOM 4 / 5 mil
L3/L4/L6 4 / 6 mil

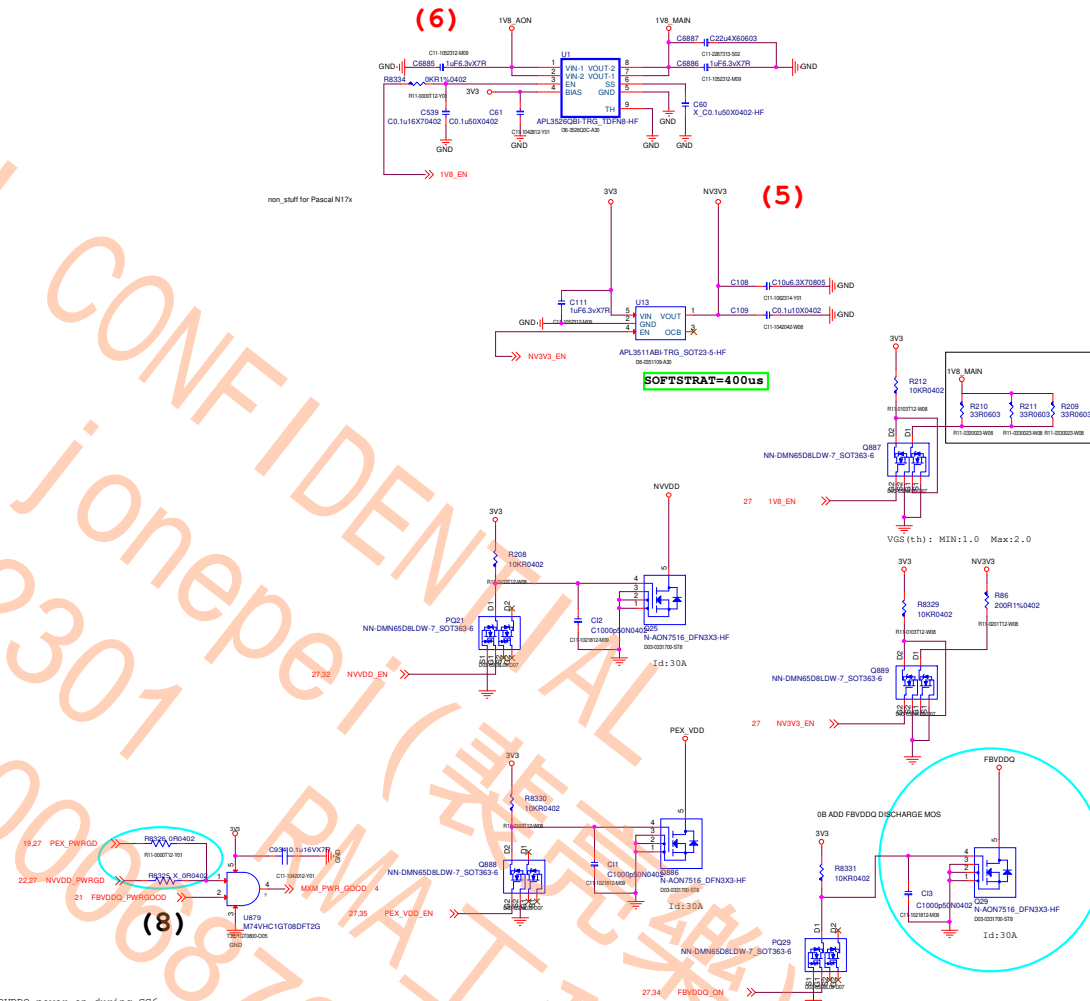




IFPx / AUX 90 ohm Differential
TOP/BOTTOM 4 / 5 mil
L3/L4/L6 4 / 6 mil

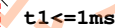
N17x POWER ON= 1V8_AON->1V8_MAIN->NVVDD->PEX_VDD->FBVDDQ->>DGPU_PWRGD

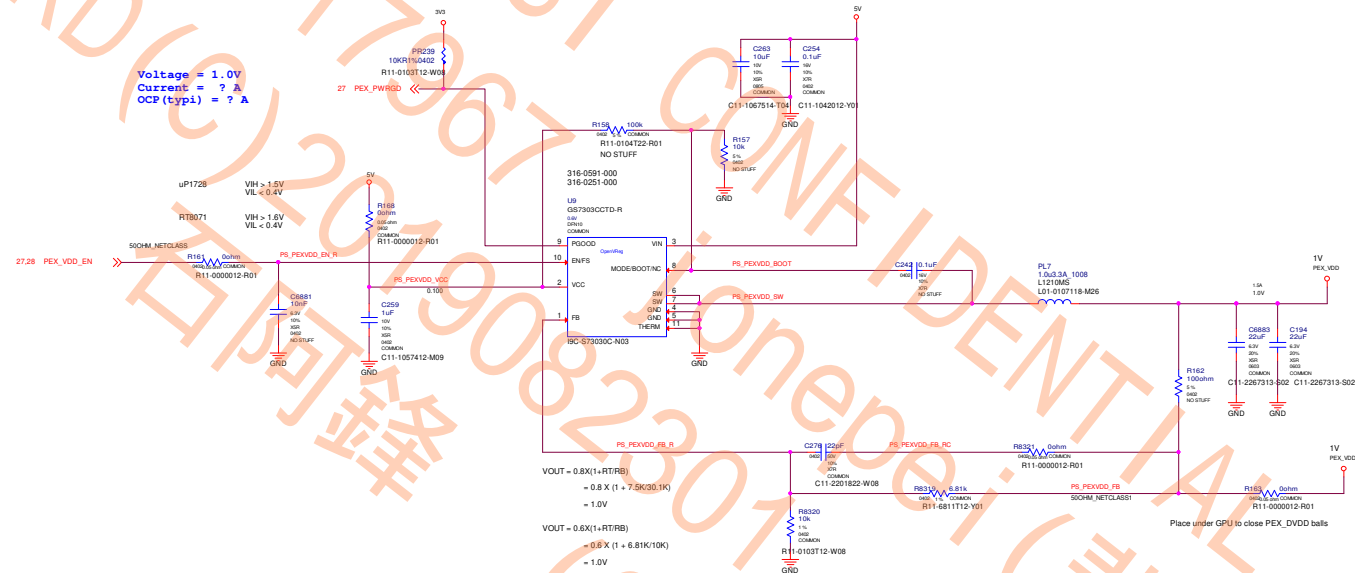
N17x POWER OFF= PEX_VDD->FBVDDQ/NVVDD->1V8 MAIN->1V8 AON



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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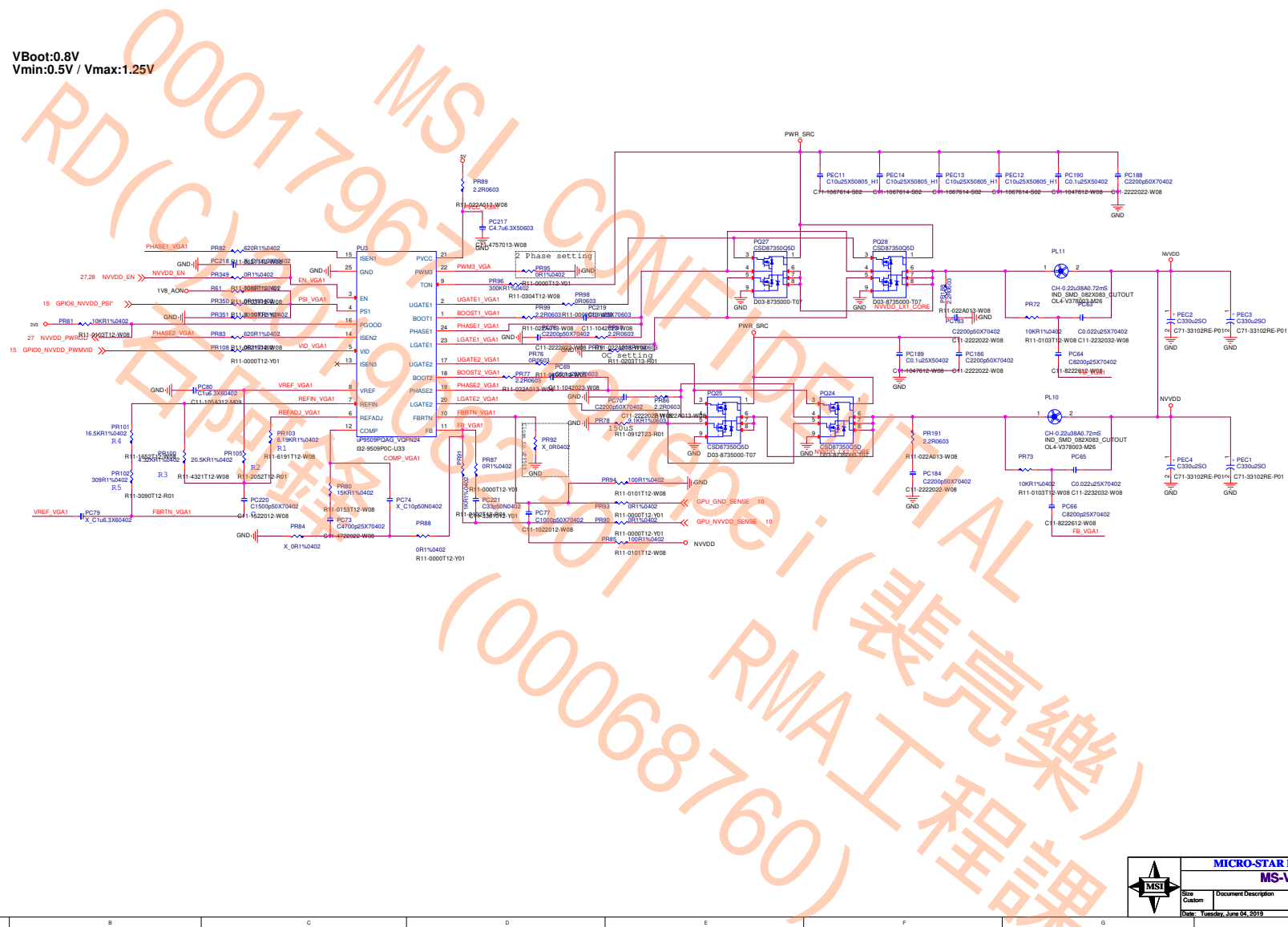
MS-V378

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Custom	PEXVDD	2.0
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MS-16R1-1.0

UP9509P

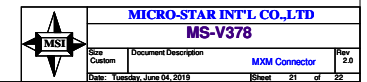
EDP-Peak 90A
EDP-Con 47AVBoot:0.8V
Vmin:0.5V / Vmax:1.25V

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Rev	Document Description	Rev
2.0	NVVDD CONTROLLER	2.0

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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	0Ω, 10K pull-down	0Ω, 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	NVVDD_PWM	UNUSED	PWM output to control the NVVDD power supply	0 to 1V8 output	
GPIO4	1V8_MAIN_EN	1V8_MAIN_EN	GPU POWER Sequencing for GC6 2.1	0Ω, 10K pull-up to 1V8_AON	0Ω, 10K pull-up to 1V8_AON
GPIO5	FRM_LCK#	FRM_LCK#	Active low Frame Lock	0Ω, 10K pull-up to 1V8_AON	0Ω, 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 PSVD/G power-on voltage	pull-up/pull-down to set the PSVD/G power-on voltage
GPIO9	THERM_ALERT	THERM_ALERT	Active Low Thermal Alert	0Ω, 10K pull-up to 1V8_AON	0Ω, 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_FEX_RST_MON#	UNUSED	System side PCIe reset monitor	10K pull-up to 1V8_AON	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	1V8_AON
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	5Ω, 10K pull-up to a gated 3V3	100K pull-down
GPIO24	HPD_F	UNUSED	Hot Plug Detect for IFPF		
GPIO25	UNUSED	PSVD_PSI#			
GPIO26	UNUSED	FP_FUSE			10K pull-down
GPIO27	HPD_C	HPD_C	Hot Plug Detect for IFPC		10K pull-up to 1V8_AON