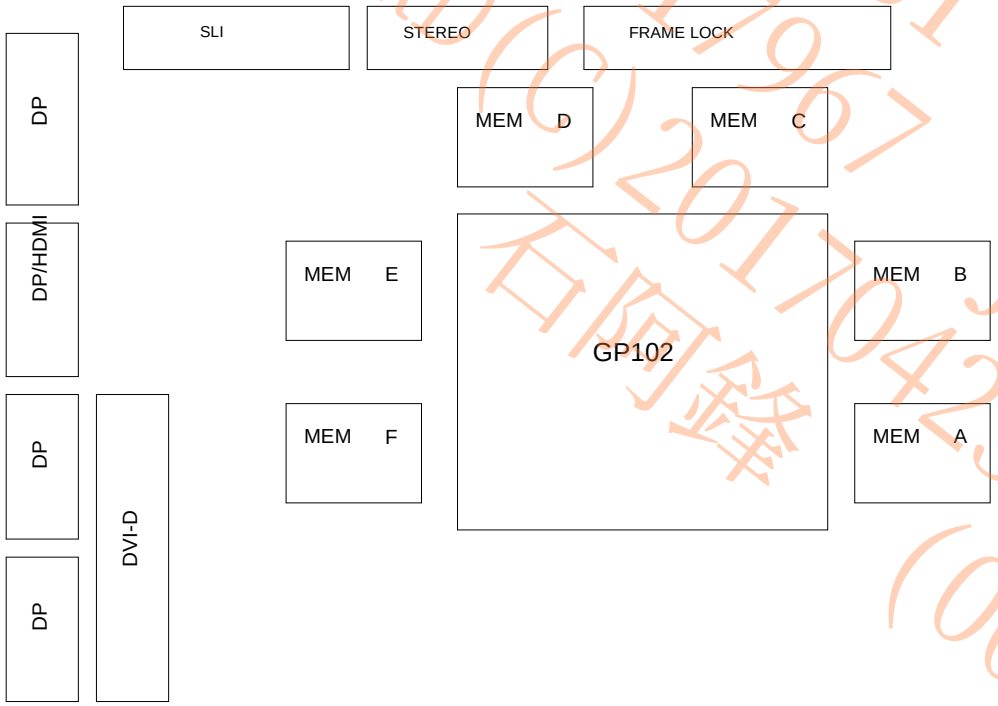
PG611 A00

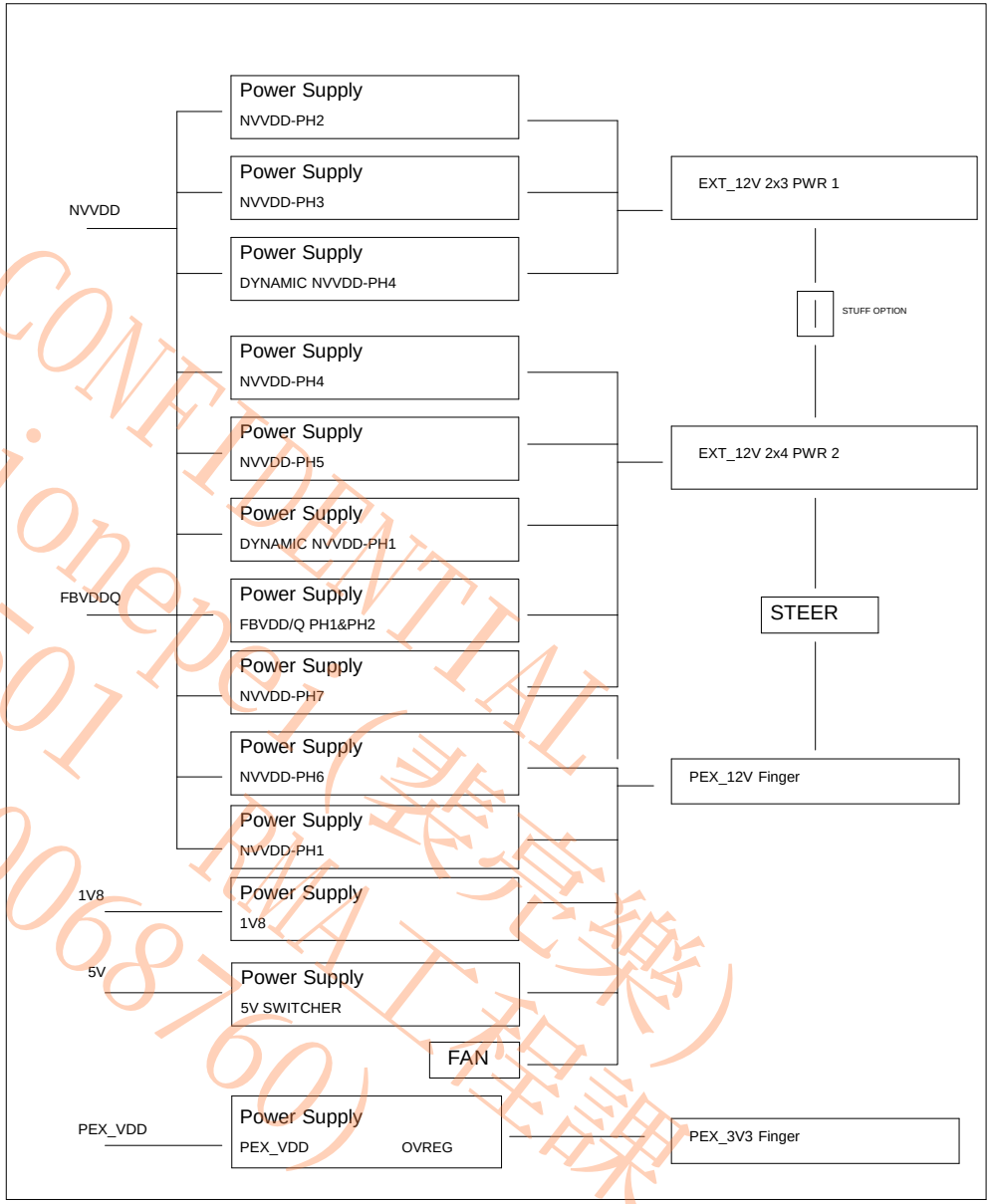
12GB GDDR5X, 384b, 256Mx32
TALL DVI-D + DP + DP + HDMI/DP + DP

TABLE OF CONTENTS

MSI	MICRO-STAR INT'L CO.,LTD
	MS-V360
Size: Custom	Document Description: Table of Contents
Rev: 2.0	
Date: Friday, March 03, 2017	Sheet 1 of 50

Page2: Block Diagram





MSI	MICRO-STAR INT'L CO.,LTD	
	MS-V360	
Size: Custom	Document Description: Block Diagram	Rev: 2.0
Date: Friday, March 03, 2017	Sheet 2 of 50	

Page3: PCI Express

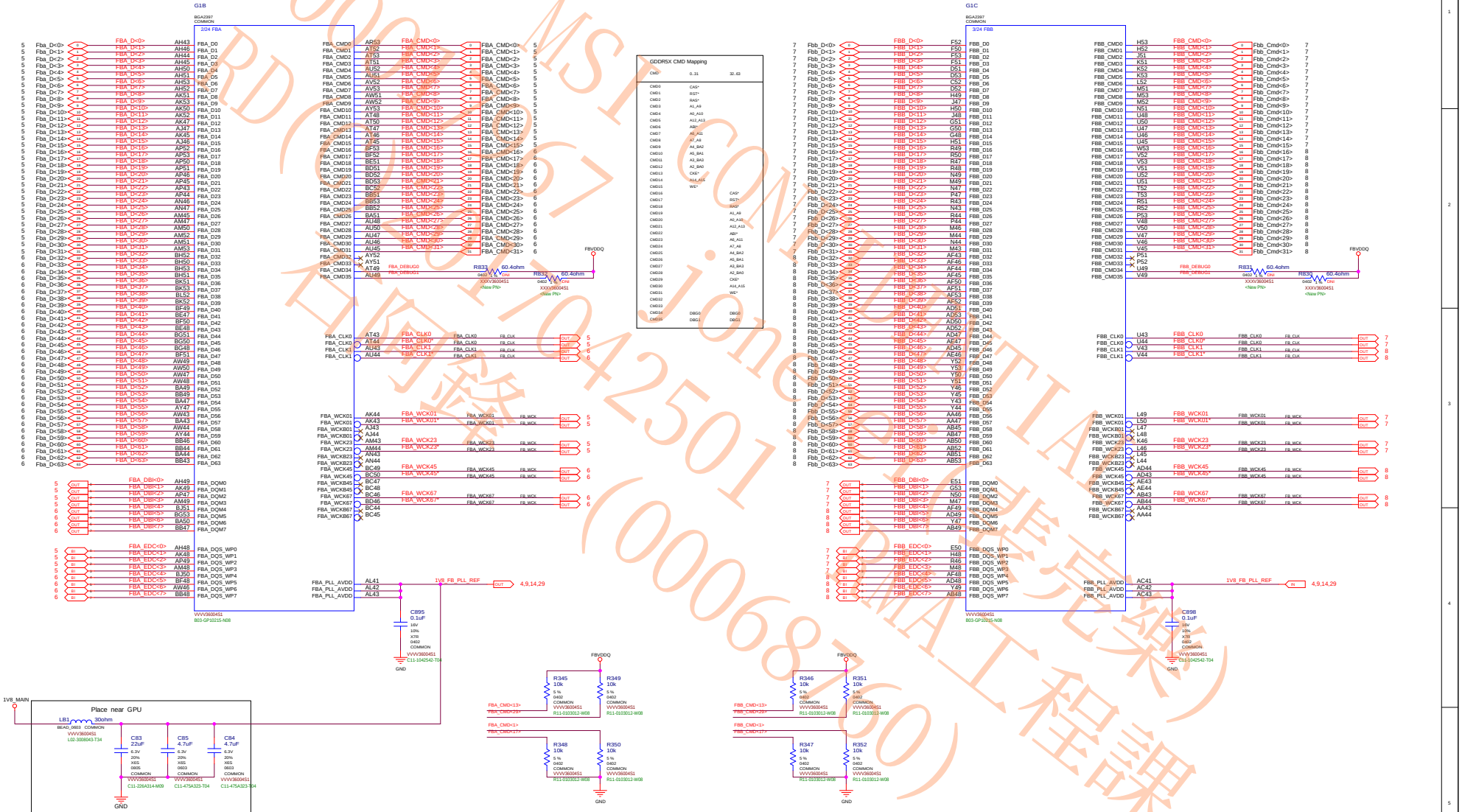
MICRO-STAR INT'L CO.,LTD

MS-V360

Size	Document Description	Rev
Custom	PCI Express	2.0

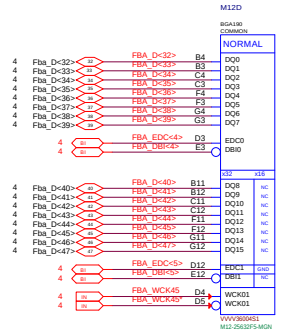
Date: Friday, March 03, 2017 Sheet 3 of 50

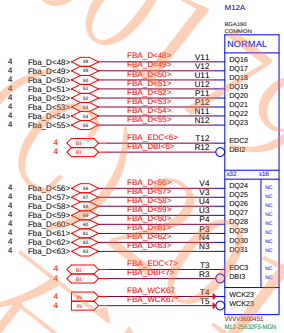
Page4: MEMORY: GPU Partition A/B

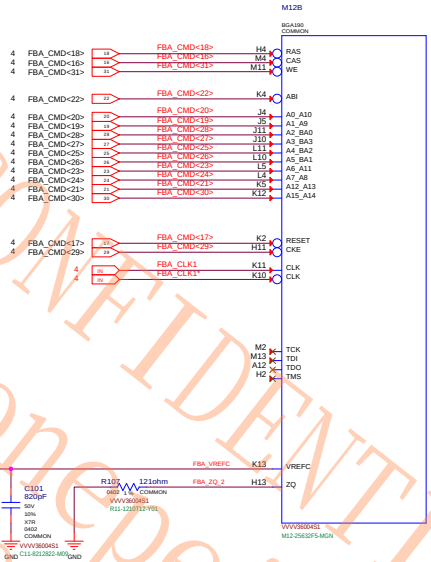


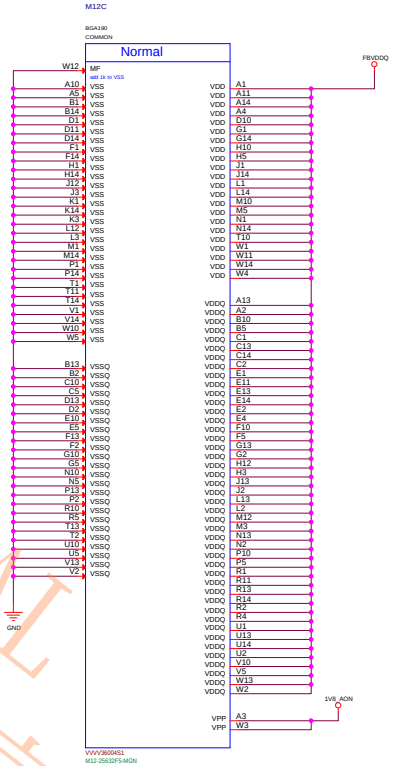
MICRO-STAR INT'L CO.,LTD	
MS-V360	
Size: Custom	Document Description: MEMORY: GPU Partition A/B
Rev: 2.0	
Date: Friday, March 03, 2017	Sheet 4 of 50

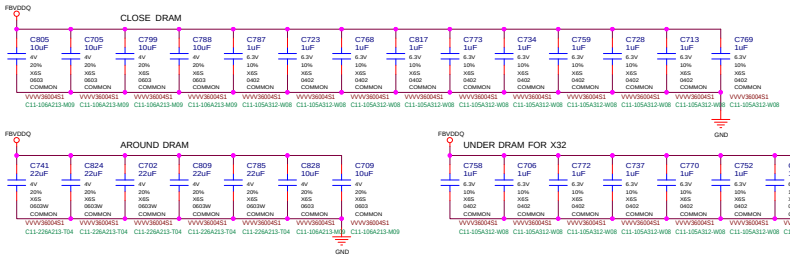
MICRO-STAR INT'L CO.,LTD		
MS-V360		
Size: Custom	Document Description: MEMORY: FBA Partition 31..0	Rev: 2.0
Date: Friday, March 03, 2017	Sheet 5 of 50	

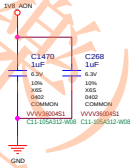




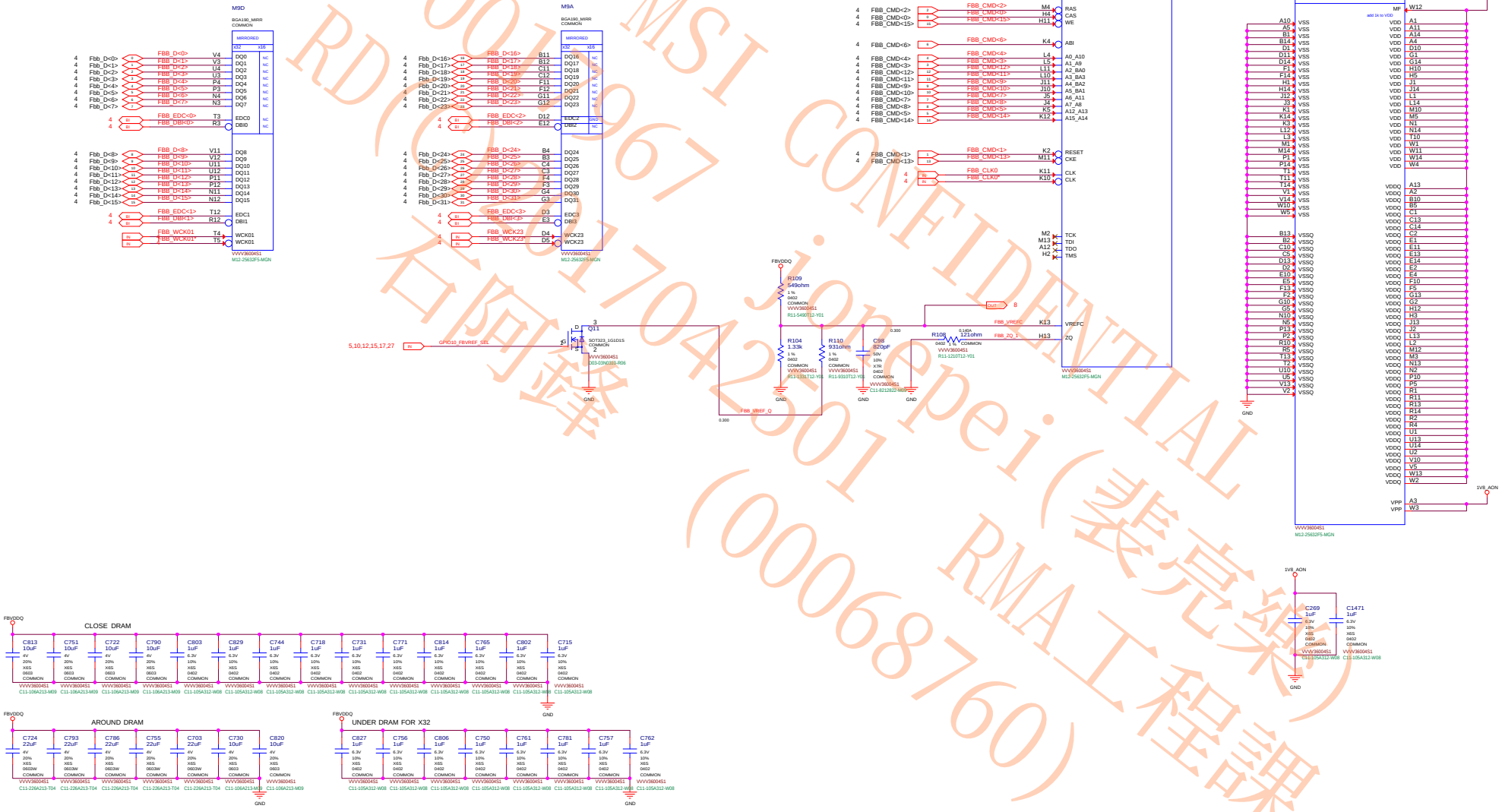




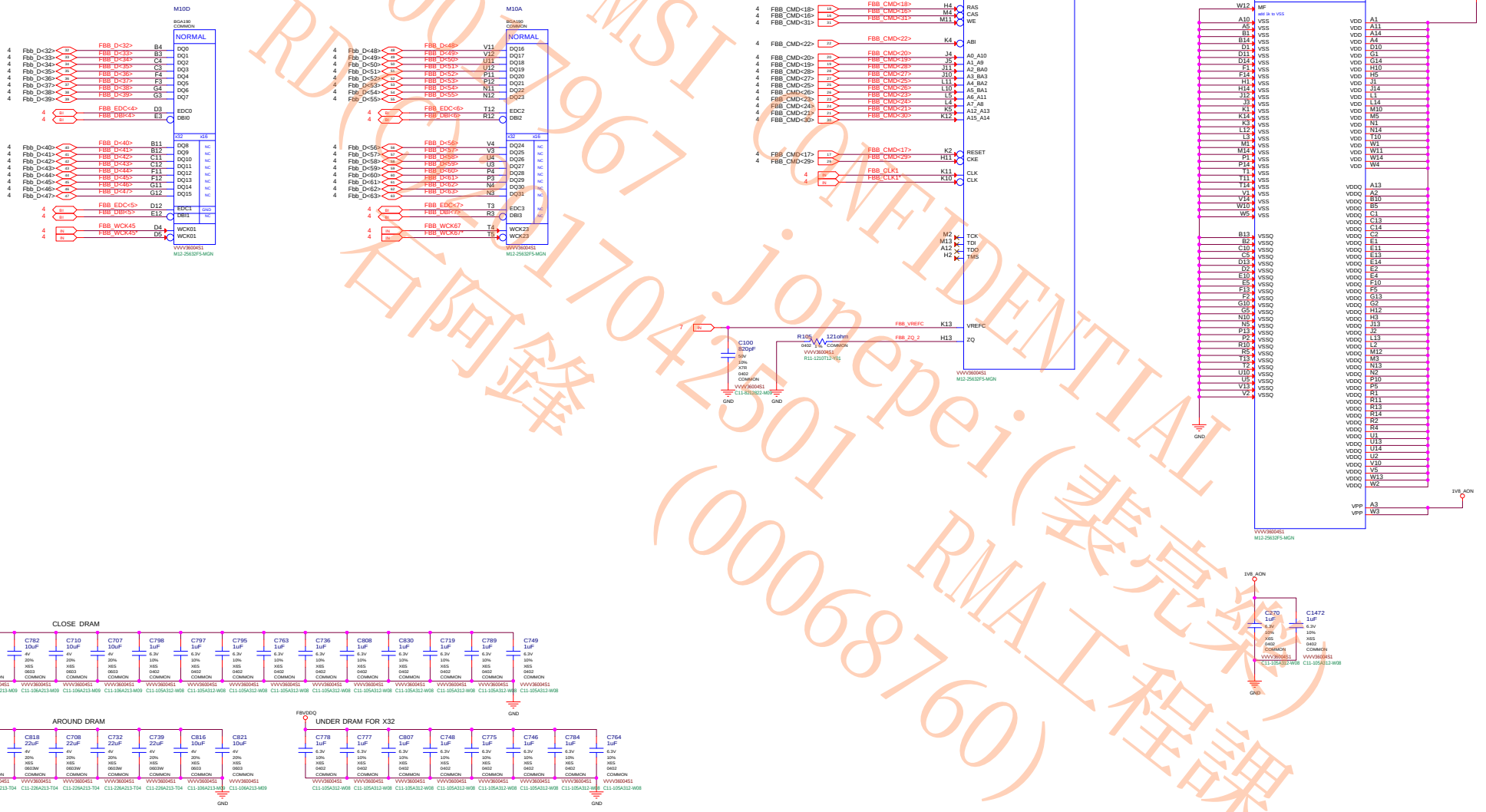




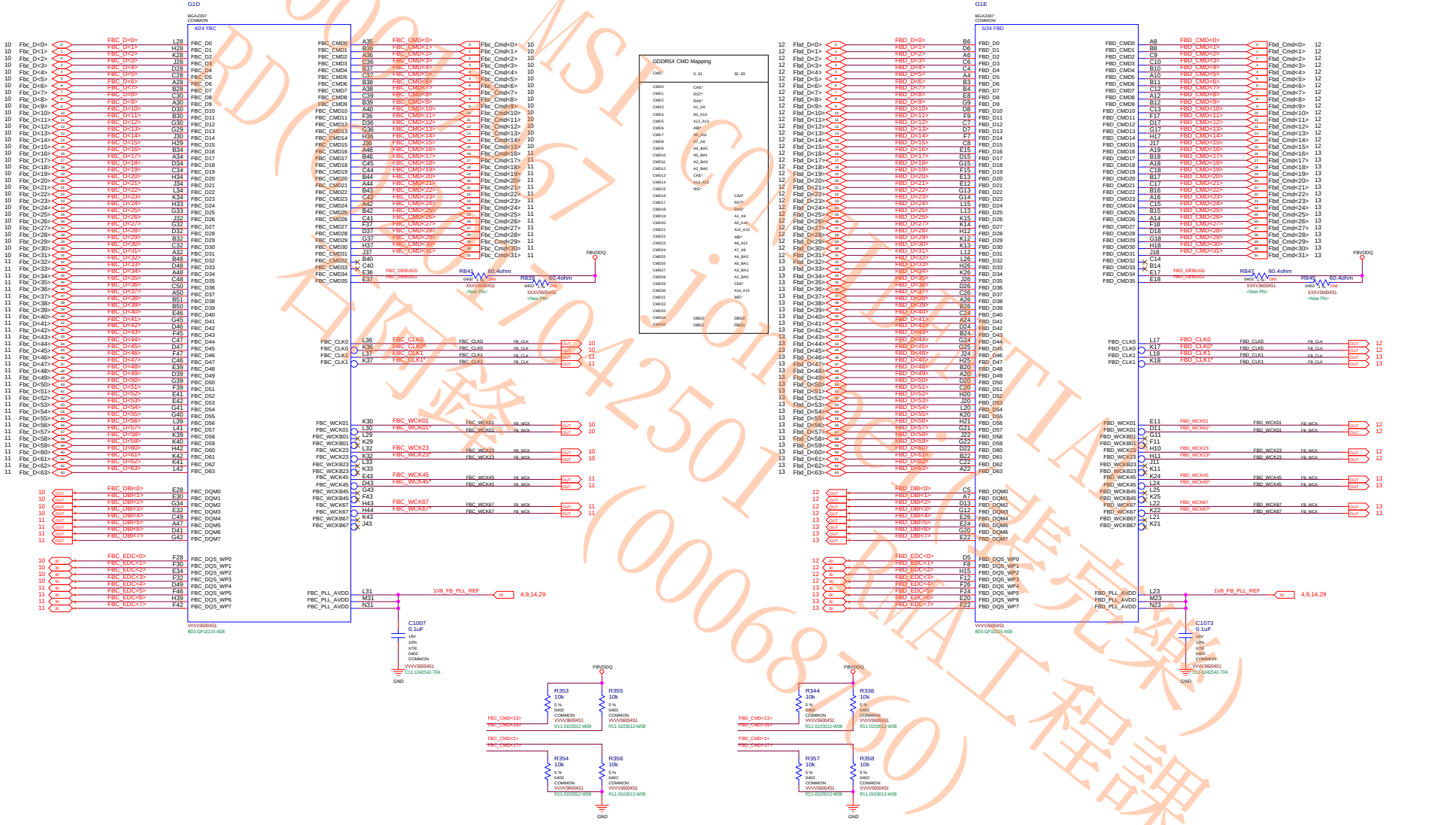
MICRO-STAR INT'L CO.,LTD		
MS-V360		
Size: Custom	Document Description: MEMORY: FBA Partition 63..32	Rev: 2.0
Date: Friday, March 03, 2017	Sheet 6 of 50	



MSI	MICRO-STAR INT'L CO.,LTD		
	MS-V360		
Size: Custom	Document Description: MEMORY: FBB Partition 31..0		Rev: 2.0
Date: Friday, March 03, 2017	Sheet 7 of 50		

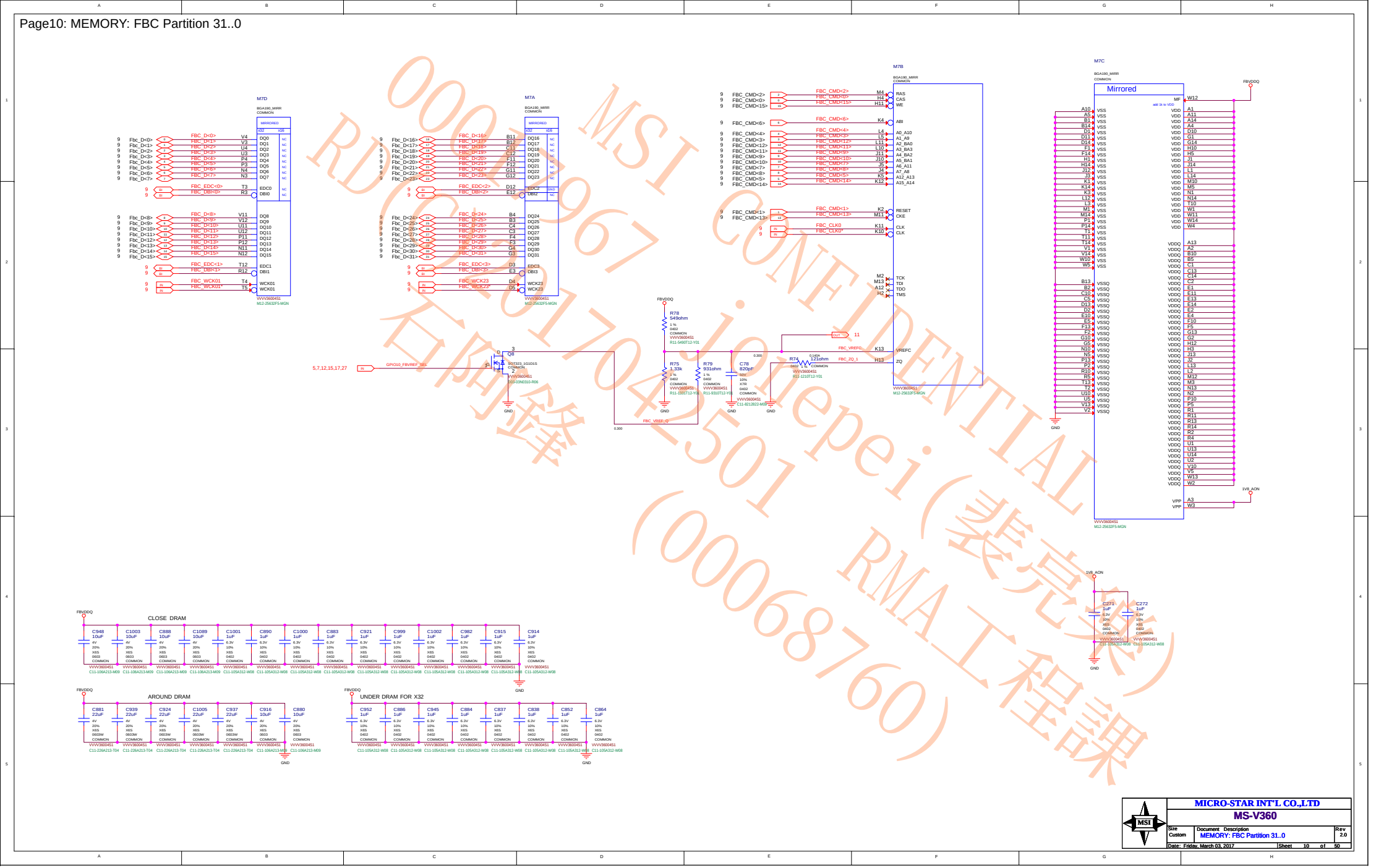


MICRO-STAR INT'L CO.,LTD		
MS-V360		
Size: Custom	Document Description: MEMORY: FBB Partition 63..32	Rev: 2.0
Date: Friday, March 03, 2017	Sheet 8 of 50	

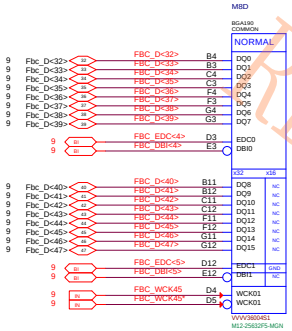


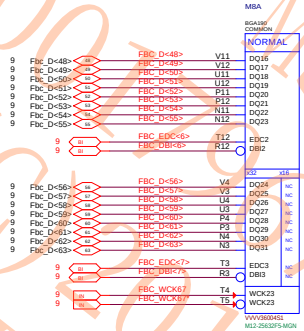
MICRO-STAR INT'L CO.,LTD	
MS-V360	
Size: Custom	Document Description: MEMORY: GPU Partition C/D
Rev: 2.0	
Date: Friday, March 03, 2017	Sheet 9 of 50

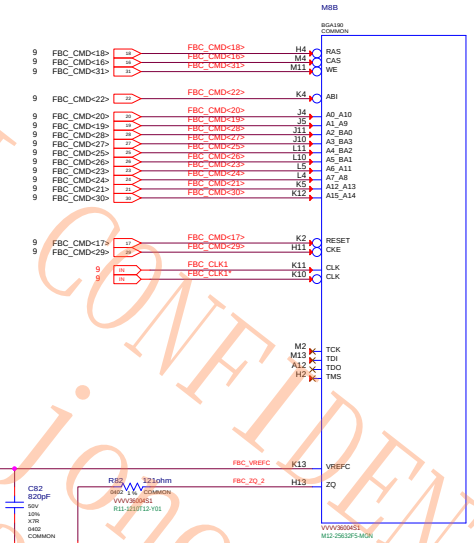
Page10: MEMORY: FBC Partition 31..0

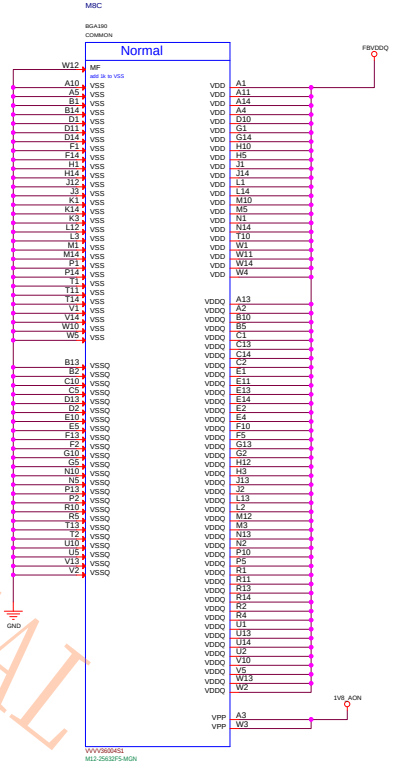


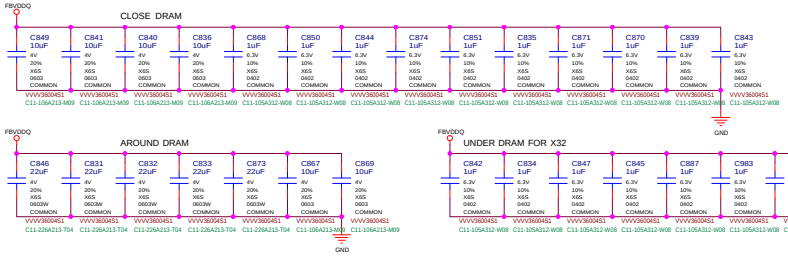
MICRO-STAR INT'L CO.,LTD		
MS-V360		
Size: Custom	Document Description: MEMORY: FBC Partition 31..0	Rev: 2.0
Date: Friday, March 03, 2017	Sheet 10 of 50	

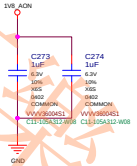




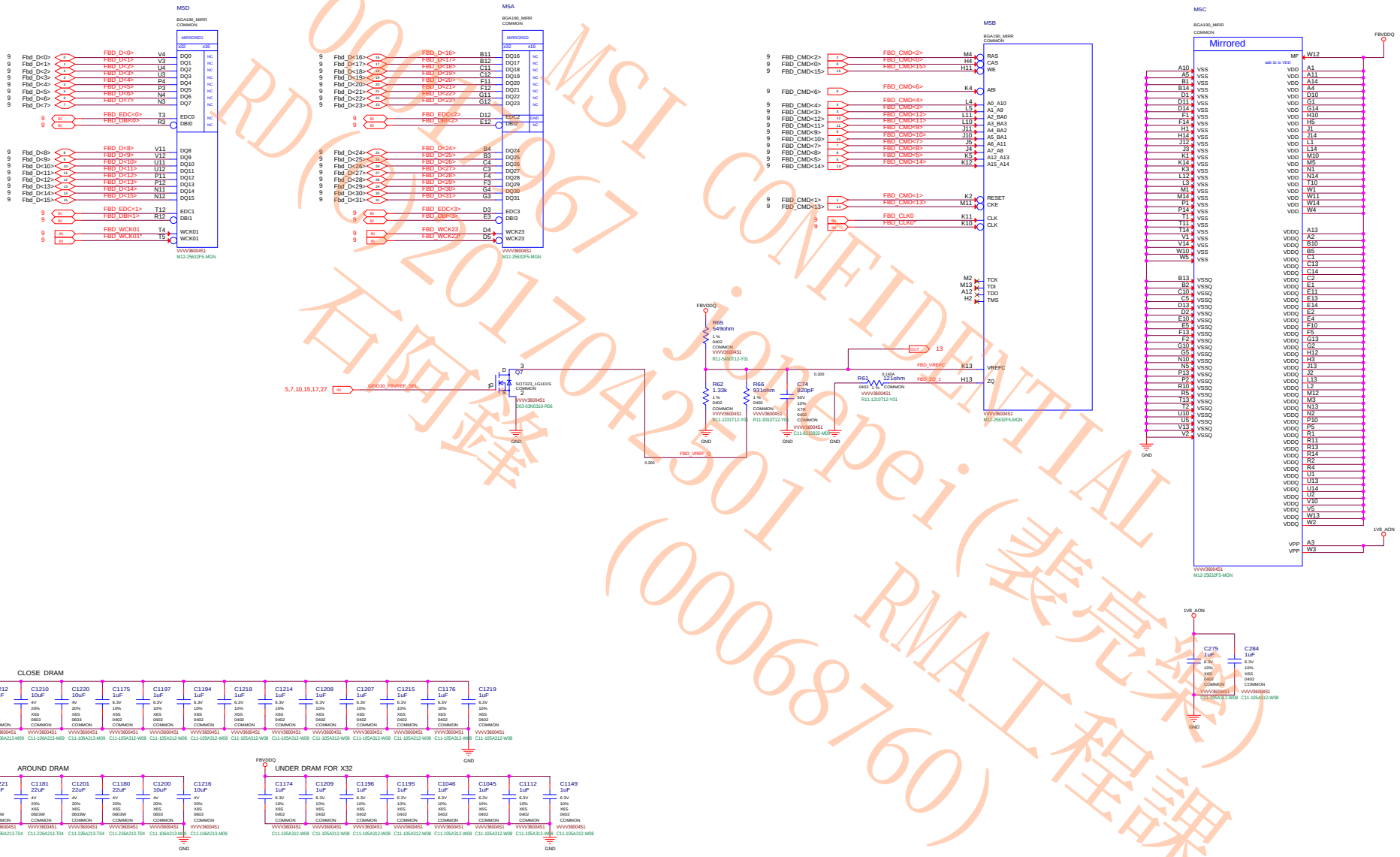




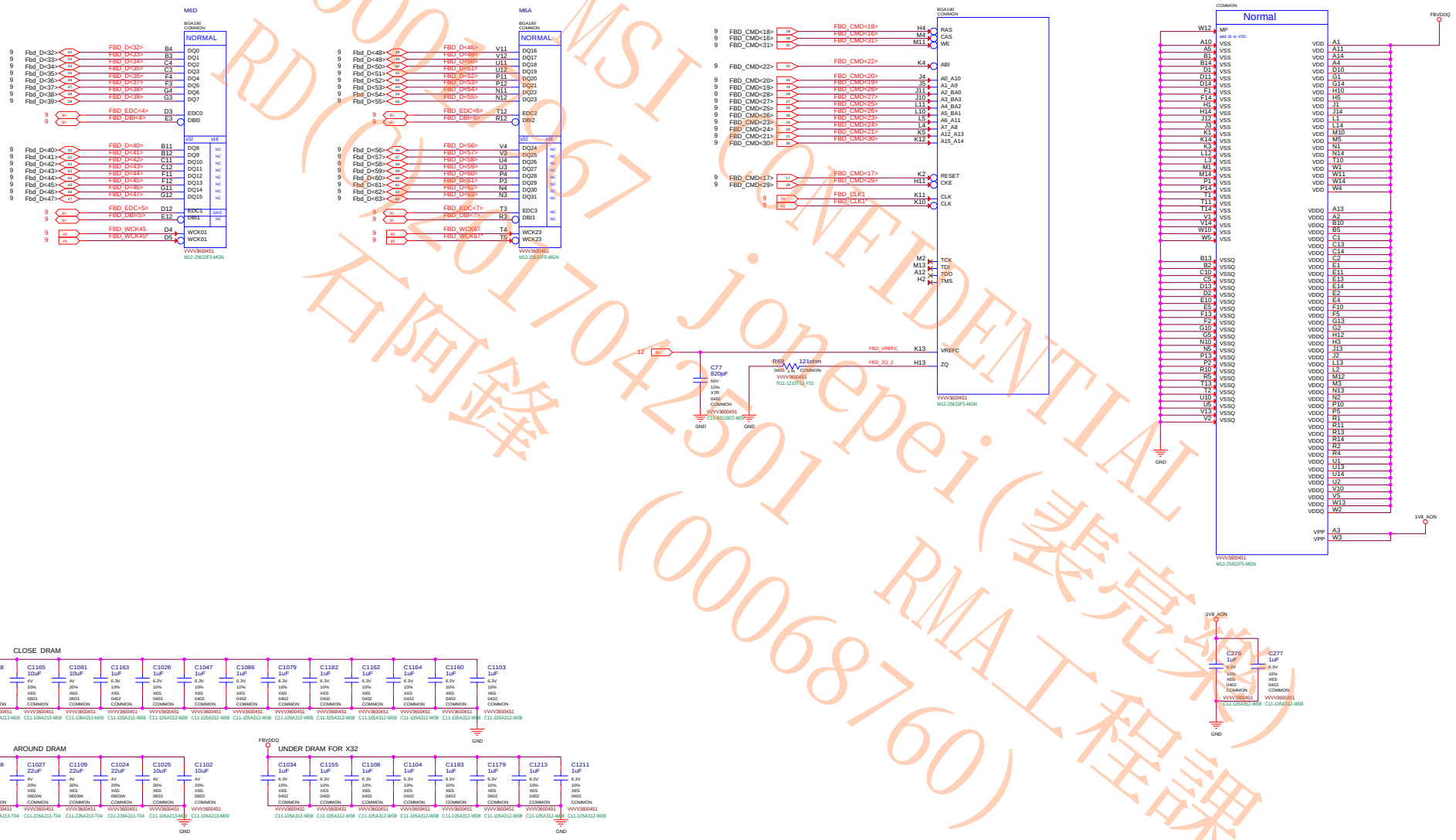




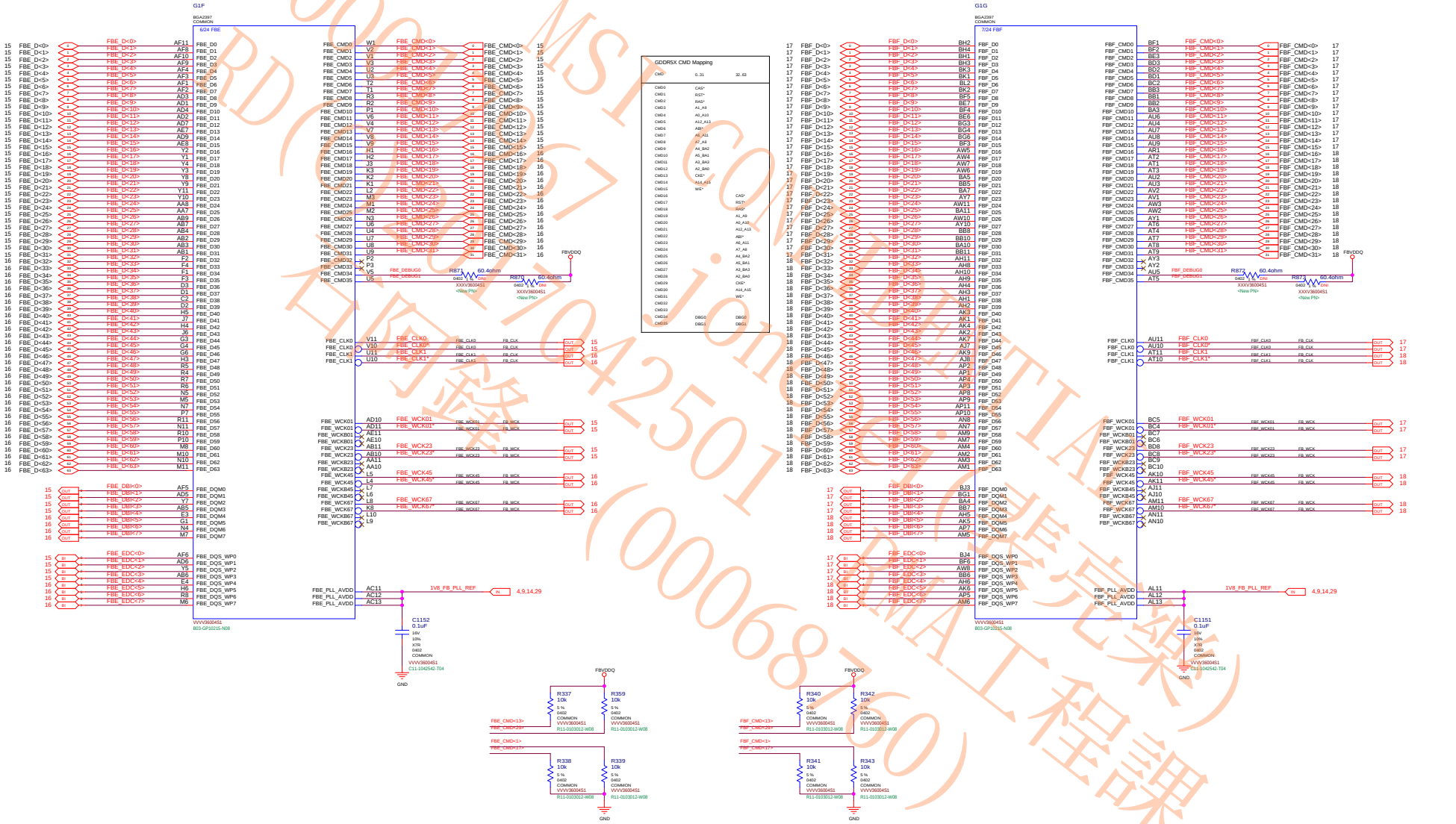
MICRO-STAR INT'L CO.,LTD		
MS-V360		
Size: Custom	Document Description: MEMORY: FBC Partition 63..32	Rev: 2.0
Date: Friday, March 03, 2017	Sheet 11 of 50	



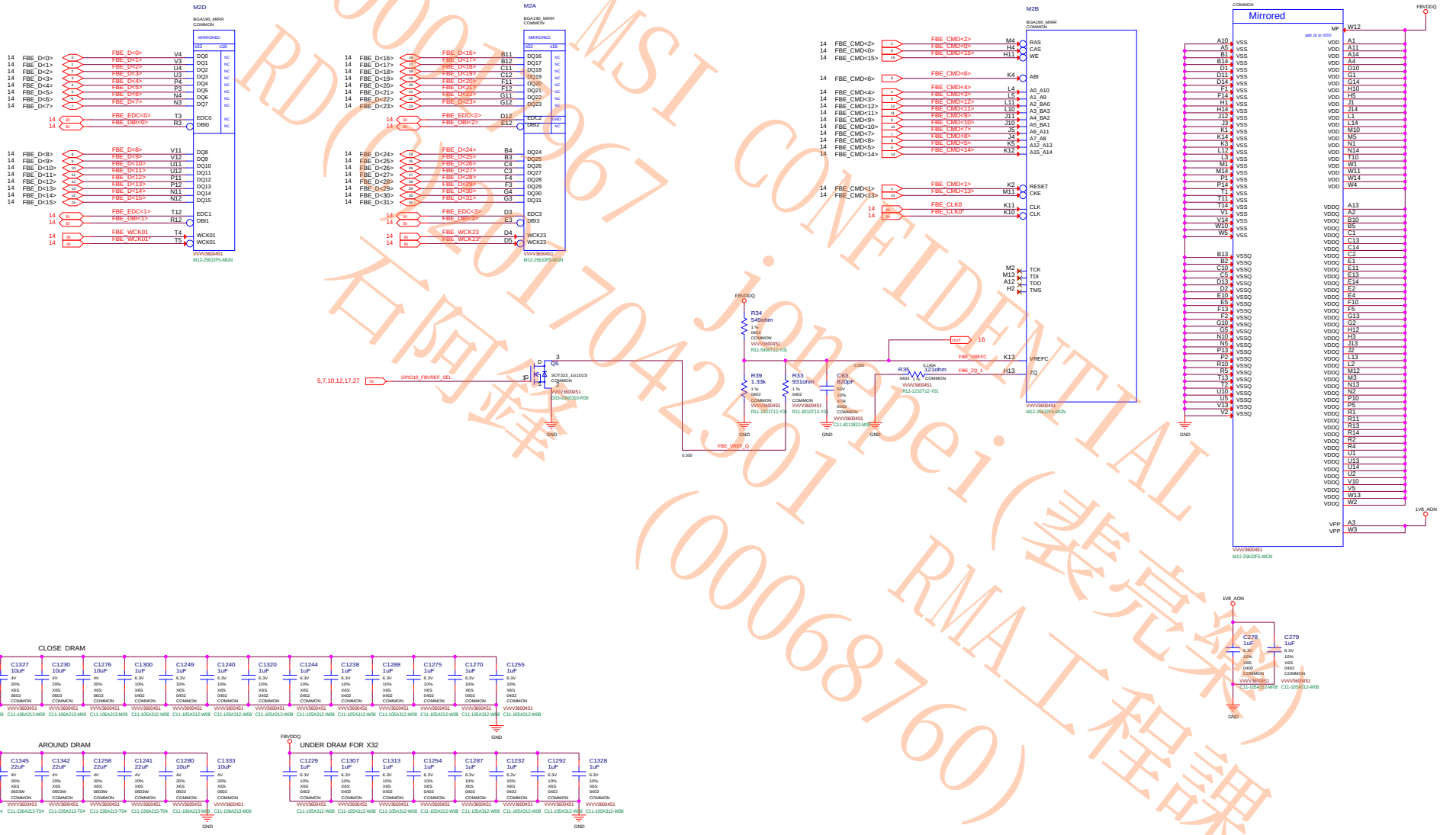
MICRO-STAR INT'L CO.,LTD			
MS-V360			
Size: Custom	Document Description: MEMORY: FBD Partition 31..0		Rev: 2.0
Date: Friday, March 03, 2017	Sheet 12 of 50		



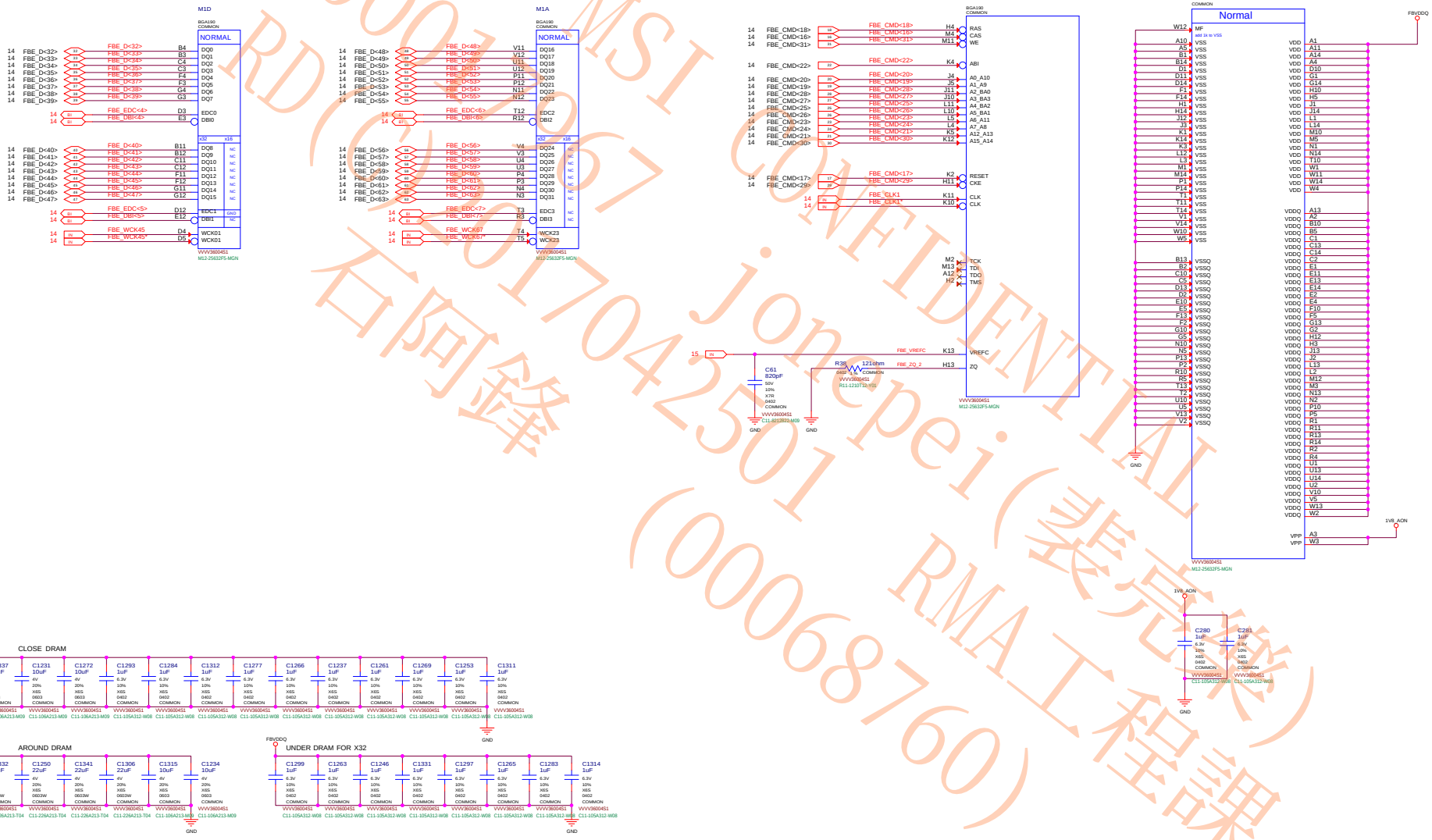
MICRO-STAR INT'L CO.,LTD	
MS-V360	
Size: Custom	Document Description: MEMORY: FBD Partition 63..32
Rev: 2.0	
Date: Friday, March 03, 2017	Sheet 13 of 50



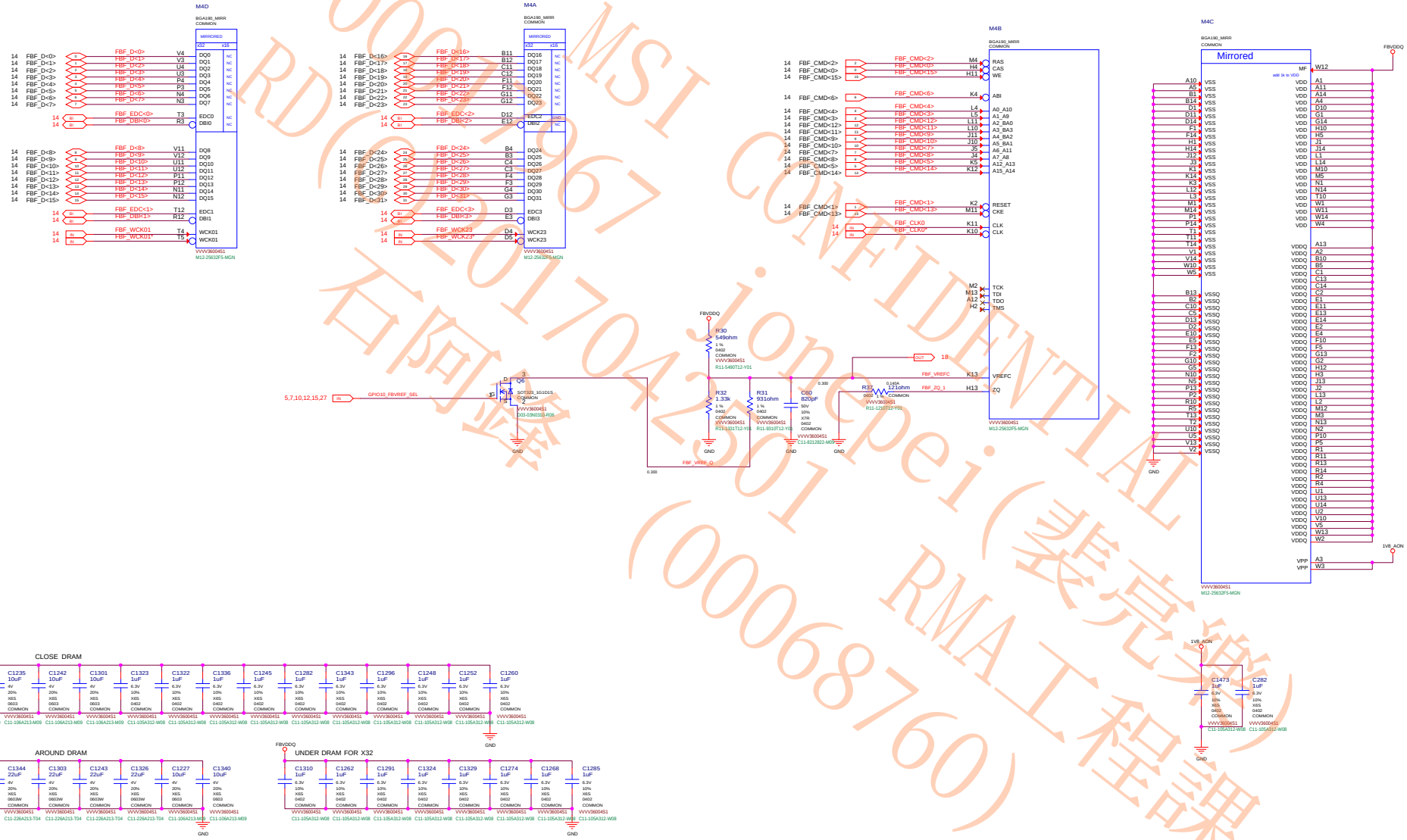
MICRO-STAR INT'L CO.,LTD	
MS-V360	
Size: Custom	Document Description: MEMORY: GPU Partition E/F
Rev: 2.0	
Date: Friday, March 03, 2017	Sheet 14 of 50

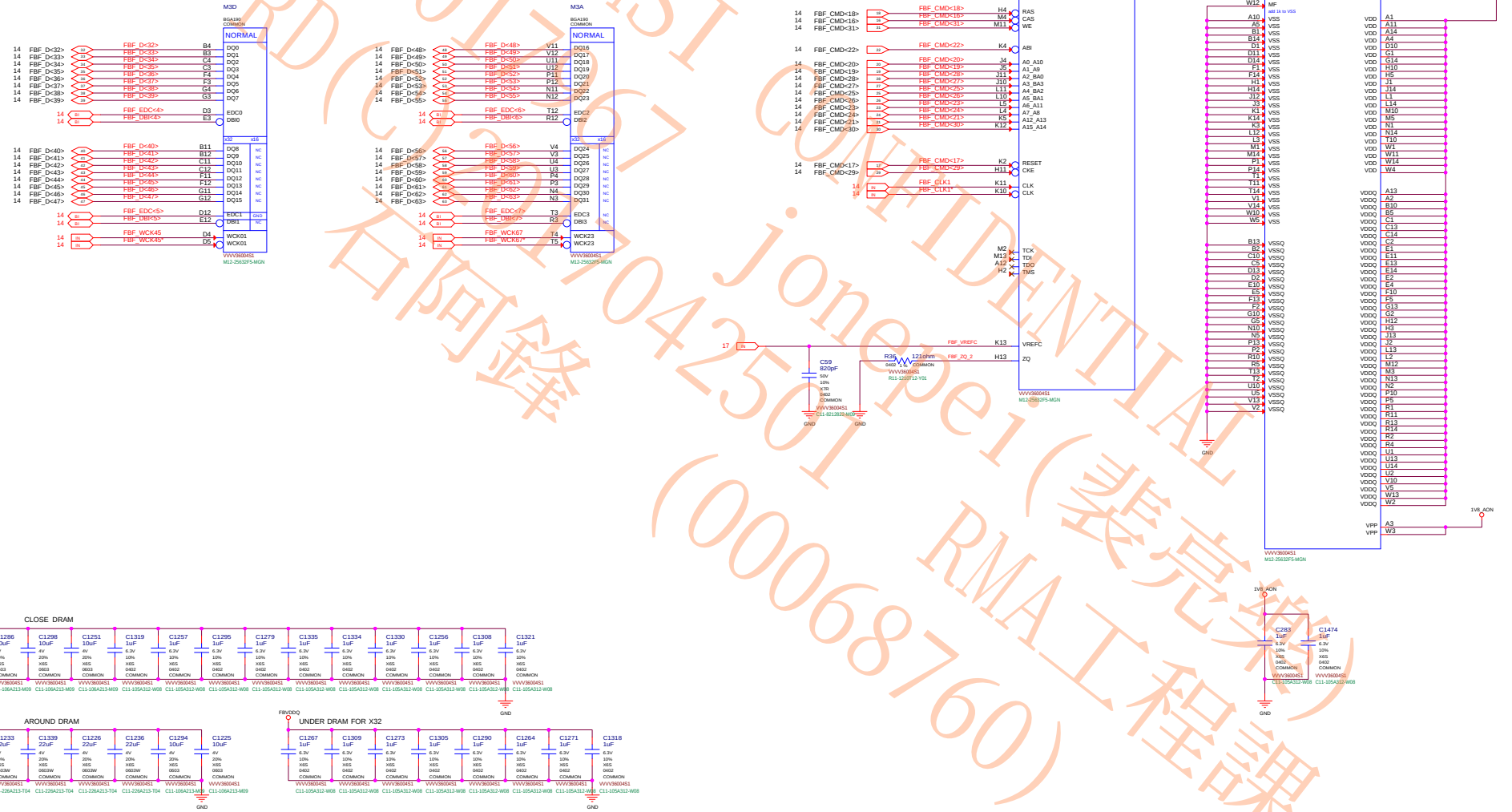


MICRO-STAR INT'L CO.,LTD		
MS-V360		
Size: Custom	Document Description: MEMORY: FBE Partition 31..0	Rev: 2.0
Date: Friday, March 03, 2017	Sheet 15 of 50	



MICRO-STAR INT'L CO.,LTD		
MS-V360		
Size: Custom	Document Description: MEMORY: FBE Partition 63..32	Rev: 2.0
Date: Friday, March 03, 2017	Sheet 16 of 50	

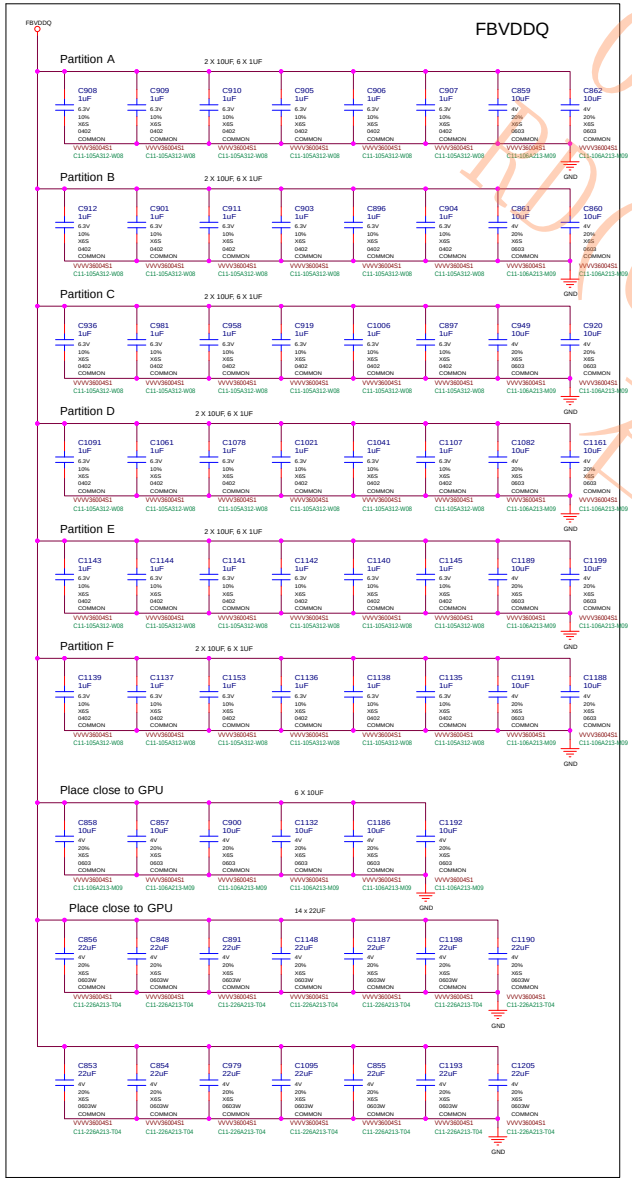


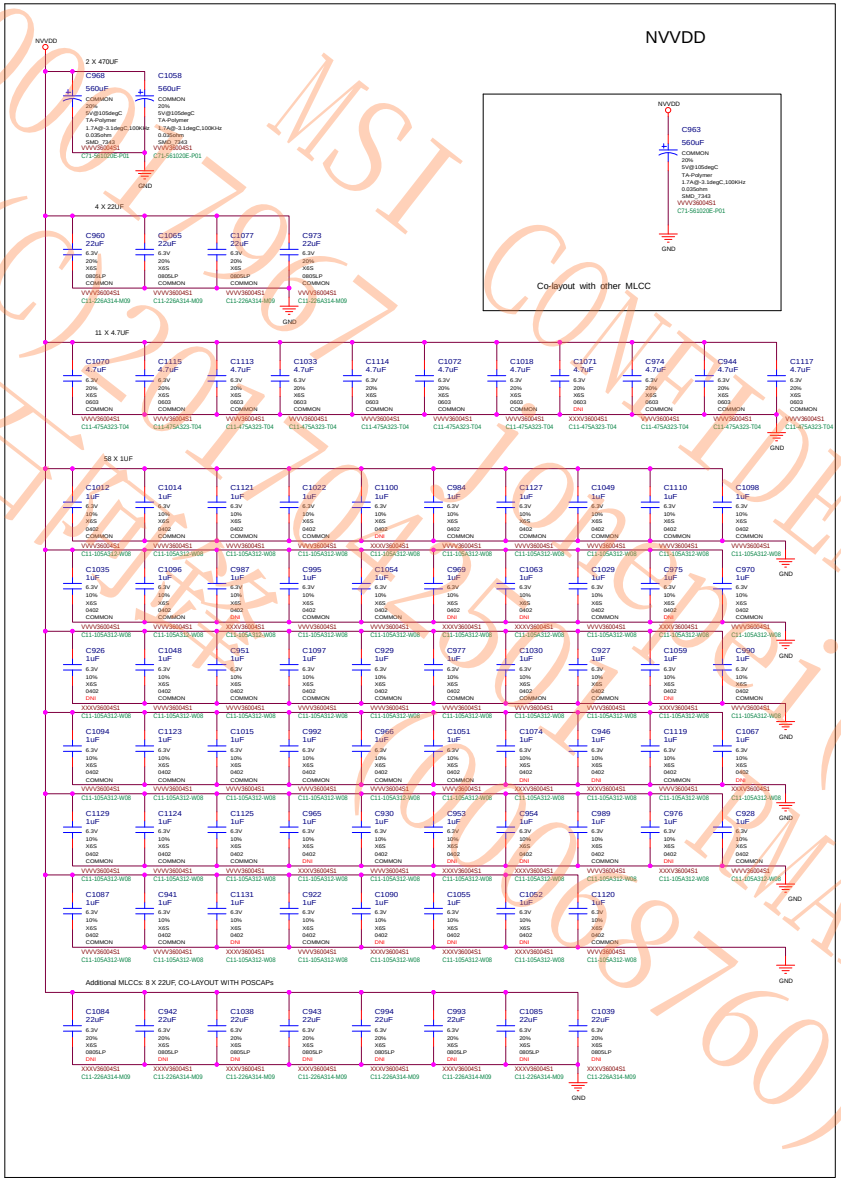


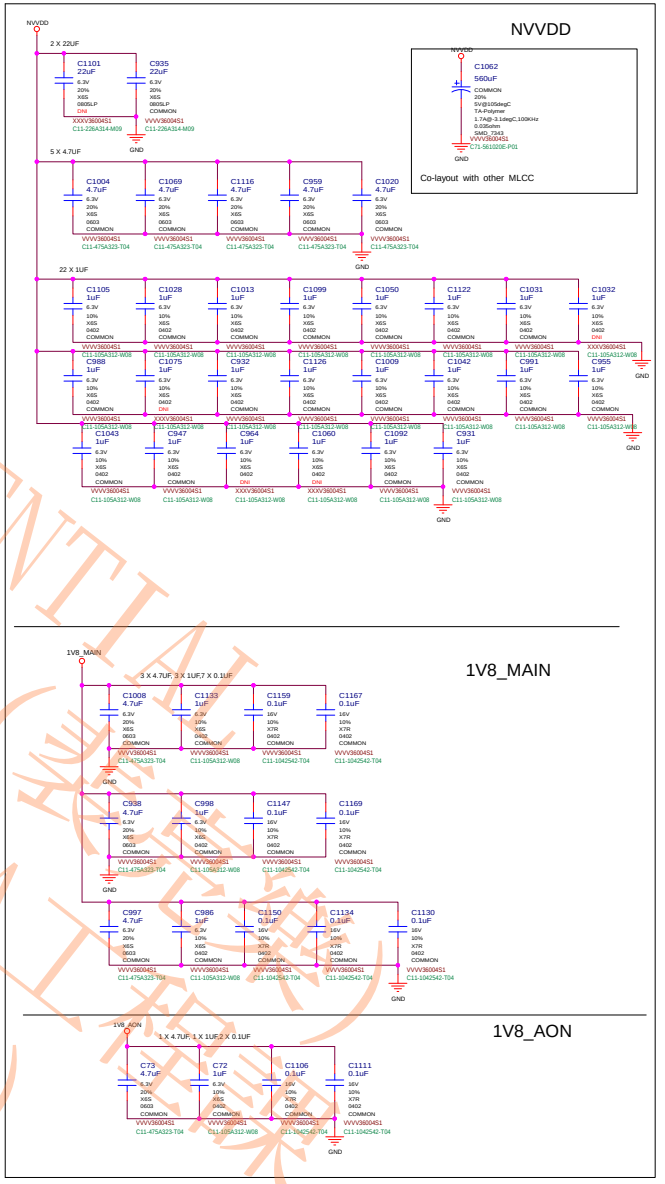
MICRO-STAR INT'L CO.,LTD			
MS-V360			
Size: Custom	Document Description: MEMORY: FBF Partition 63..32		Rev: 2.0
Date: Friday, March 03, 2017	Sheet 18 of 50		

Page19: GPU PWR and GND

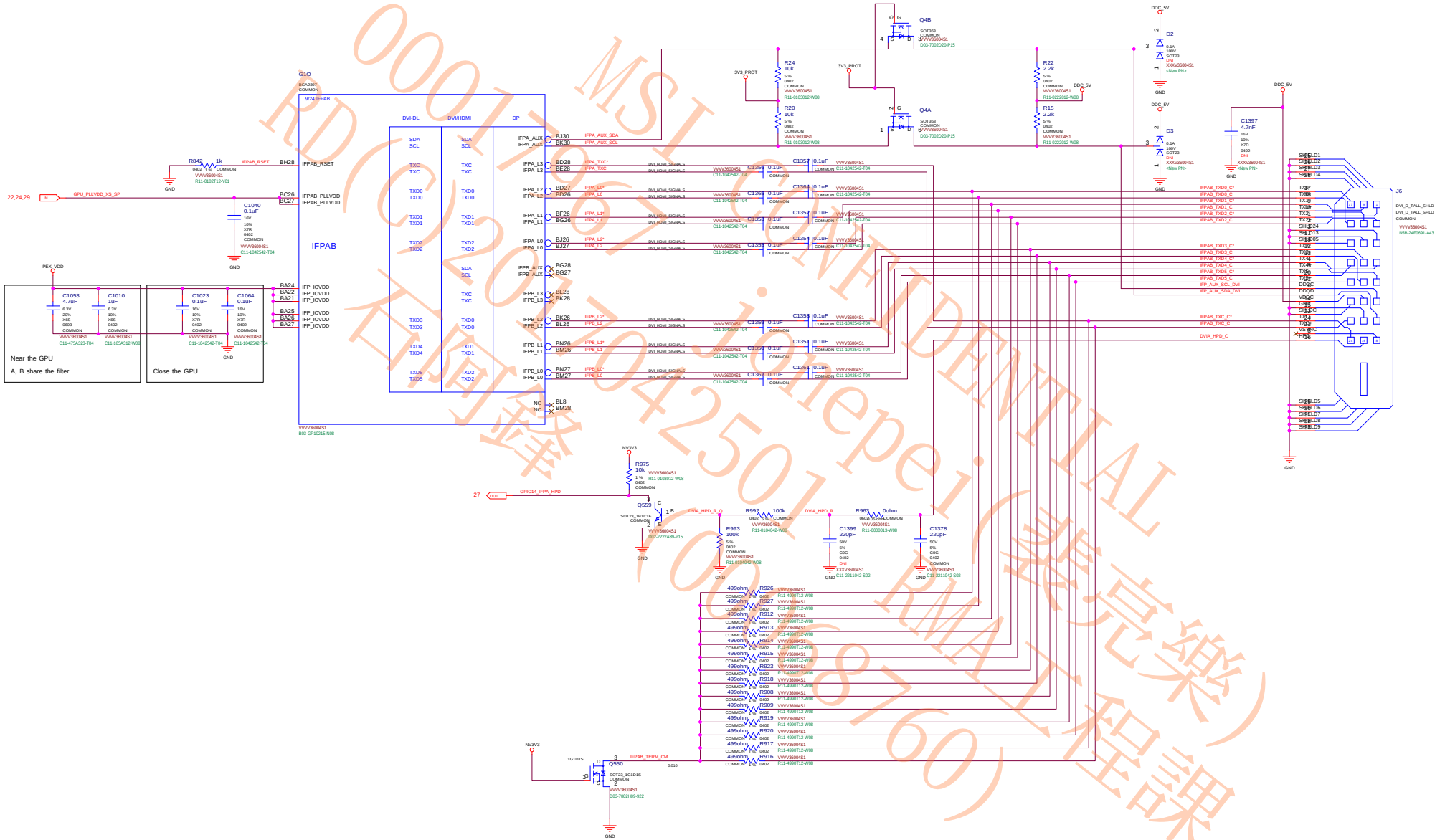
MICRO-STAR INT'L CO.,LTD		
MS-V360		
Size: Custom	Document Description: GPU PWR and GND	Rev: 2.0
Date: Friday, March 03, 2017	Sheet 19 of 50	



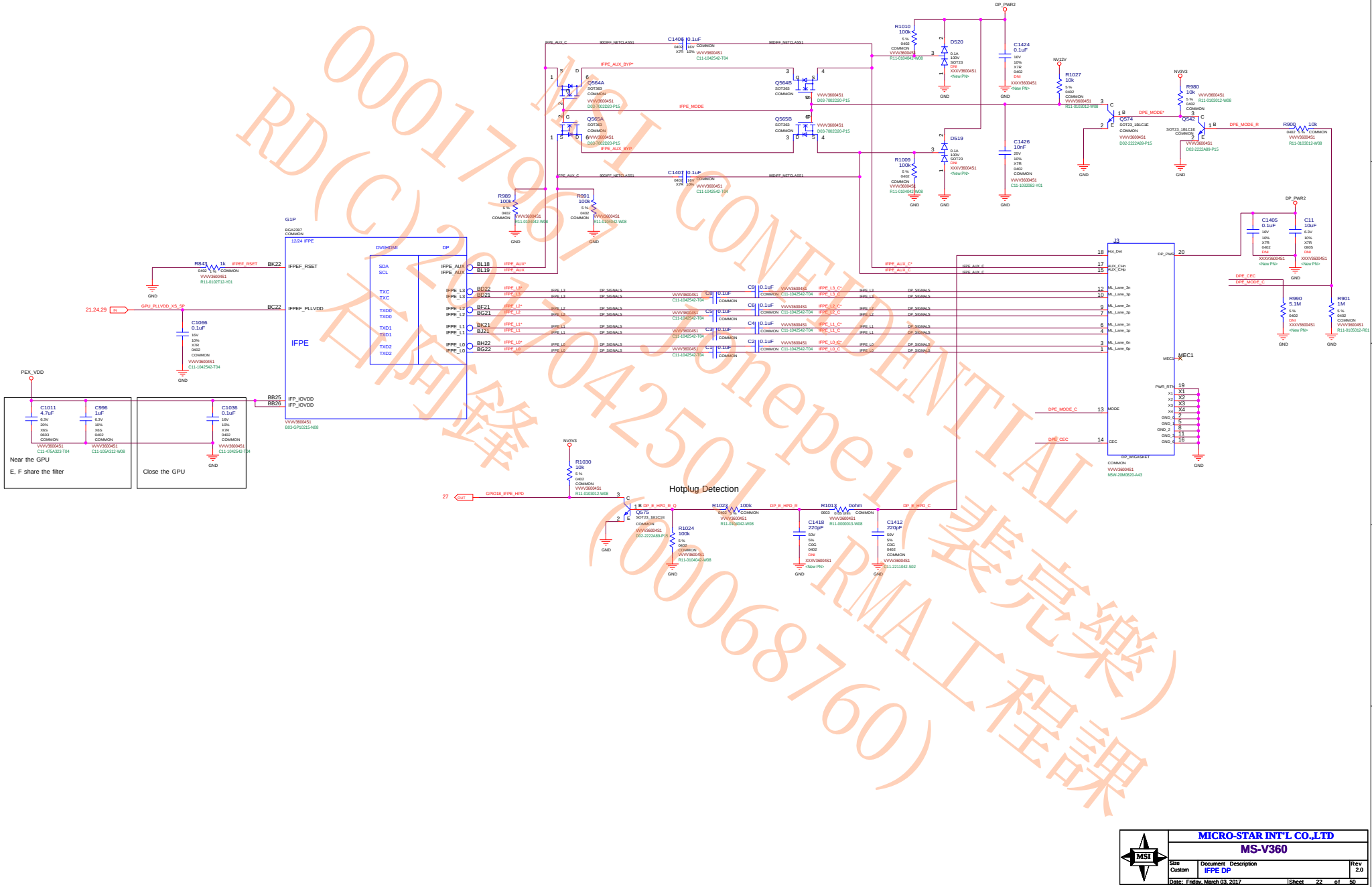




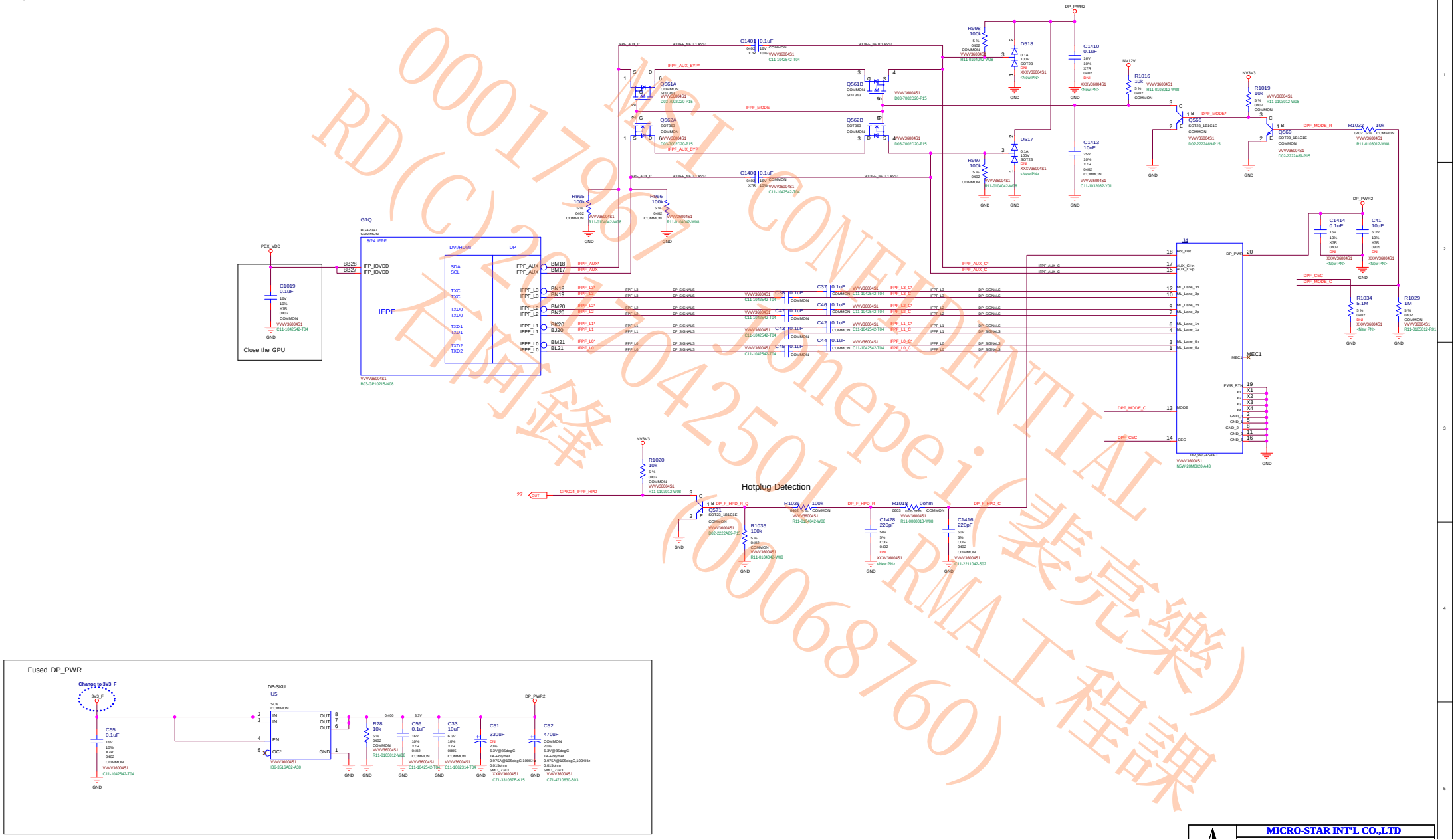
MICRO-STAR INT'L CO.,LTD		
MS-V360		
Size: Custom	Document Description: GPU Decoupling	Rev: 2.0
Date: Friday, March 03, 2017	Sheet 20 of 50	



MICRO-STAR INT'L CO.,LTD		
MS-V360		
Size: Custom	Document Description: IFPAB DVI-D-DL	Rev: 2.0
Date: Friday, March 03, 2017	Sheet 21 of 50	

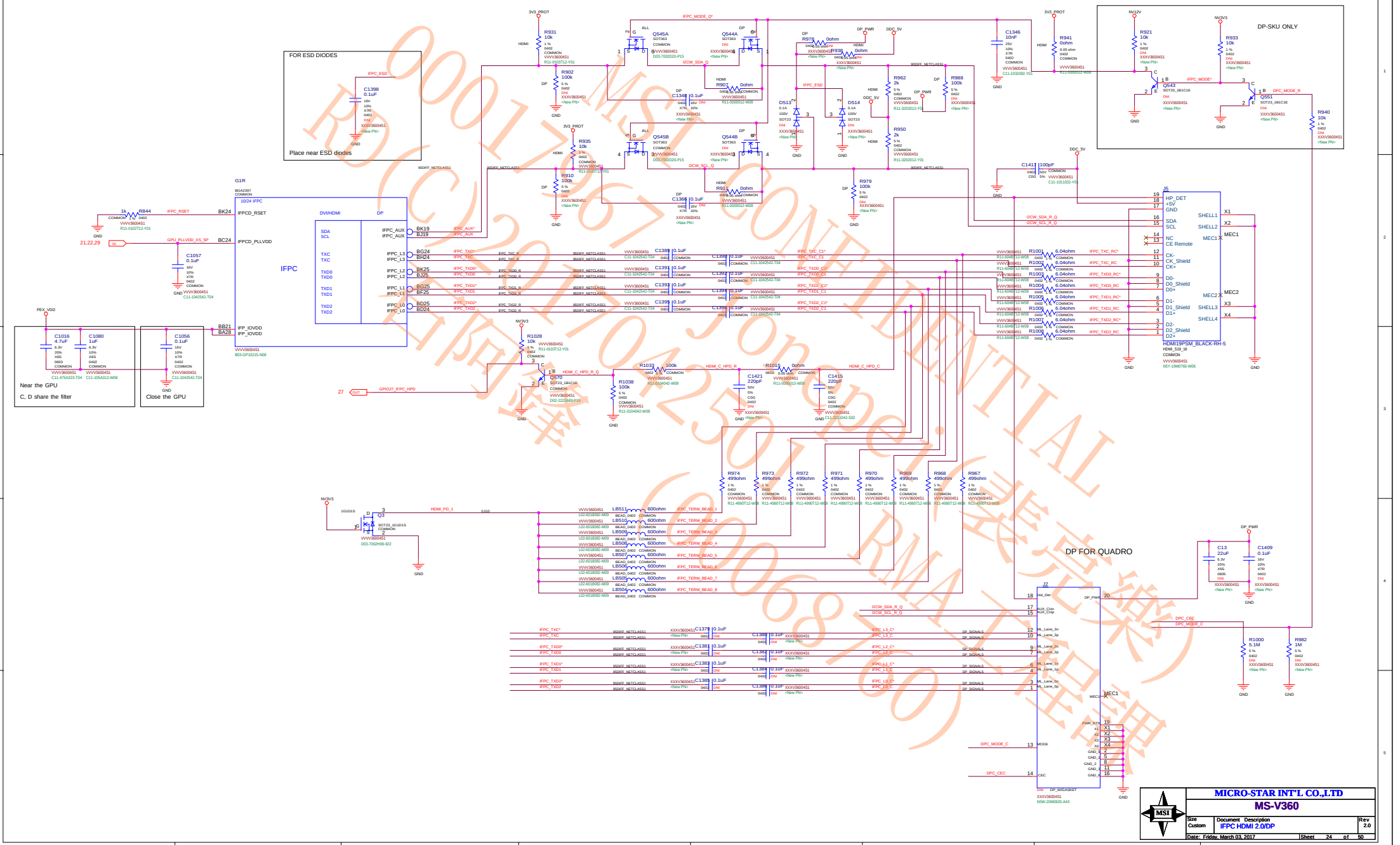


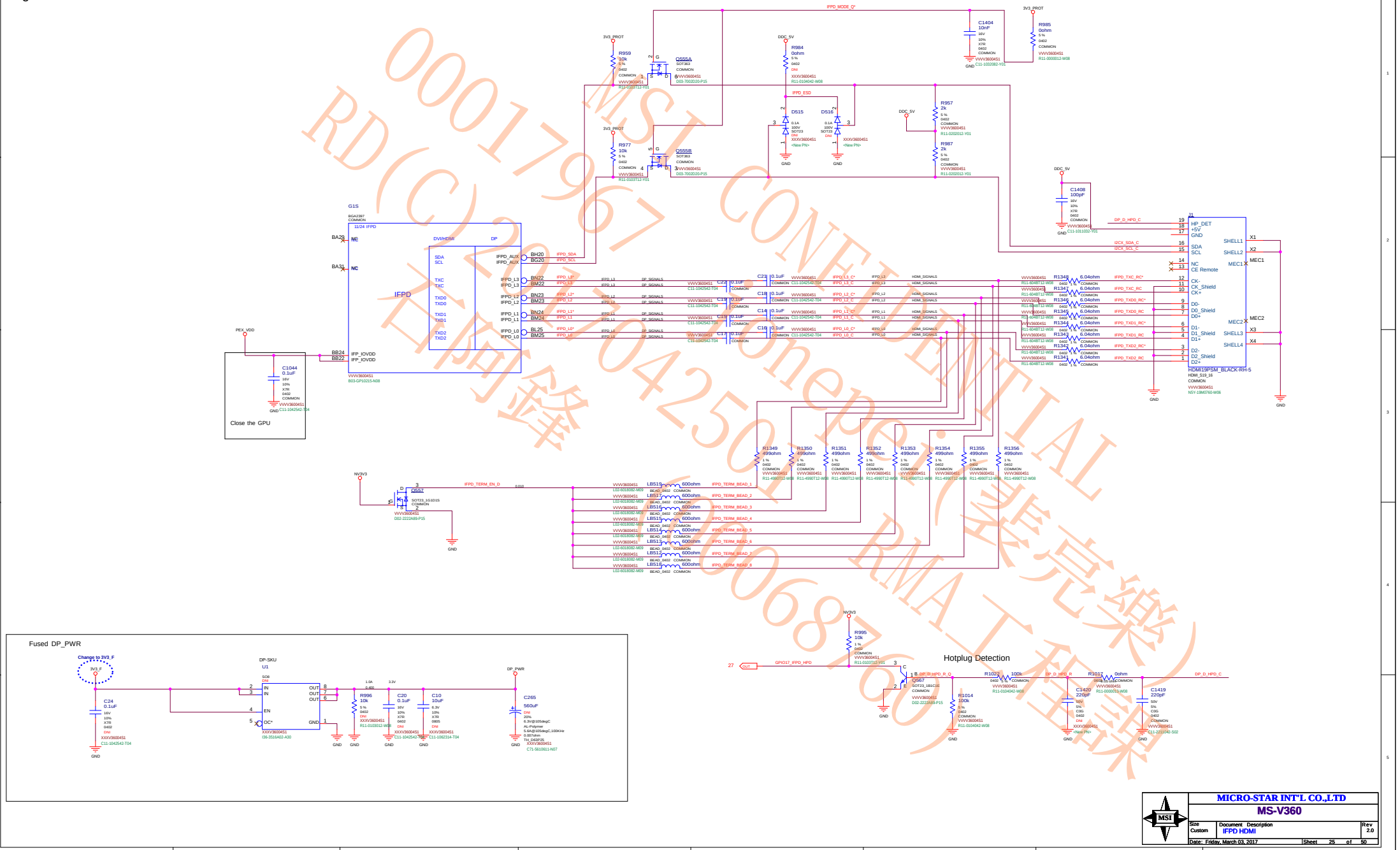
MICRO-STAR INT'L CO.,LTD		
MS-V360		
Size: Custom	Document Description: IFPE DP	Rev: 2.0
Date: Friday, March 03, 2017	Sheet 22 of 50	



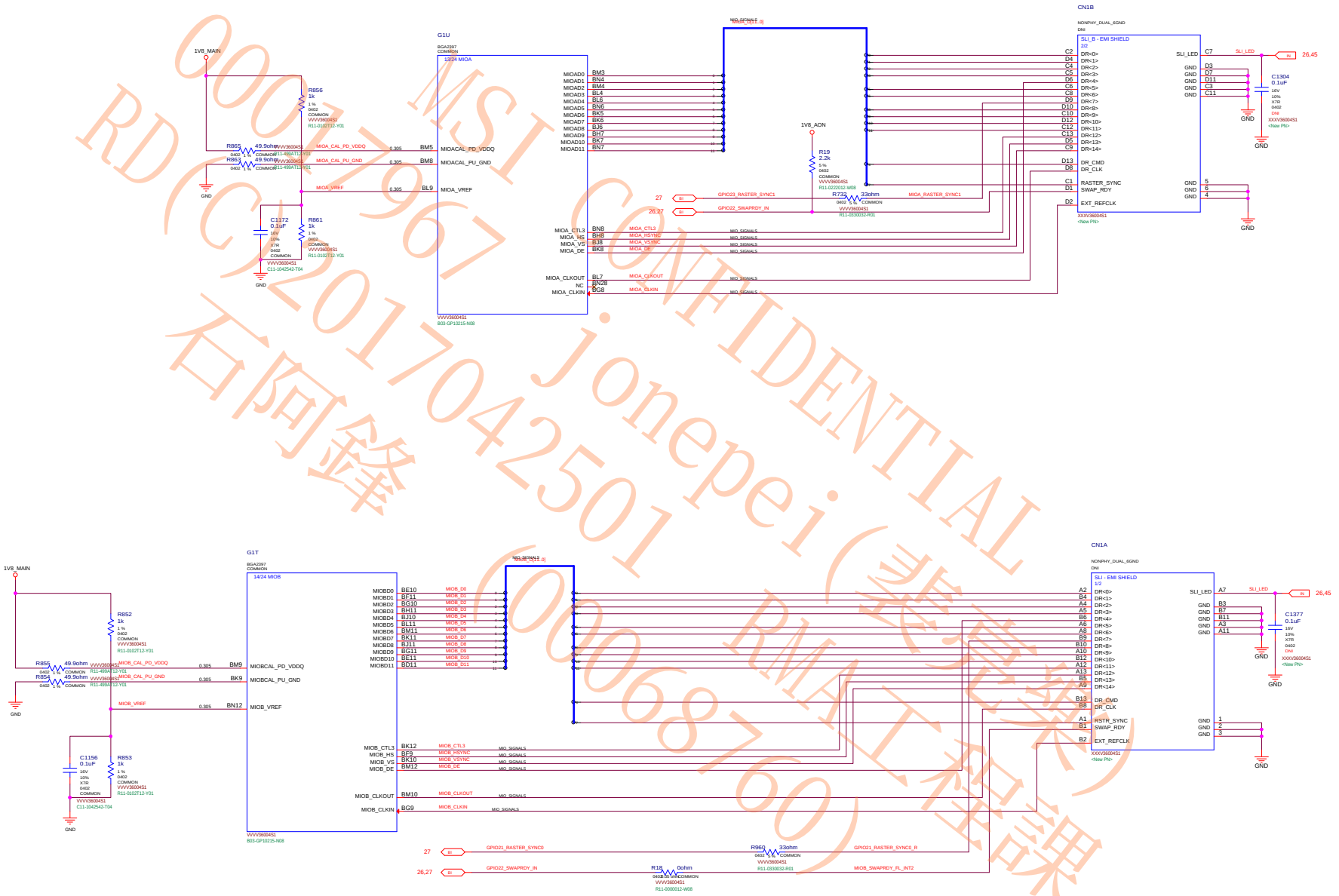
MICRO-STAR INT'L CO.,LTD	
MS-V360	
Size: Custom	Document Description: IFPF DP
Rev: 2.0	
Date: Friday, March 03, 2017	Sheet 23 of 50

Page24: IFPC HDMI 2.0/DP

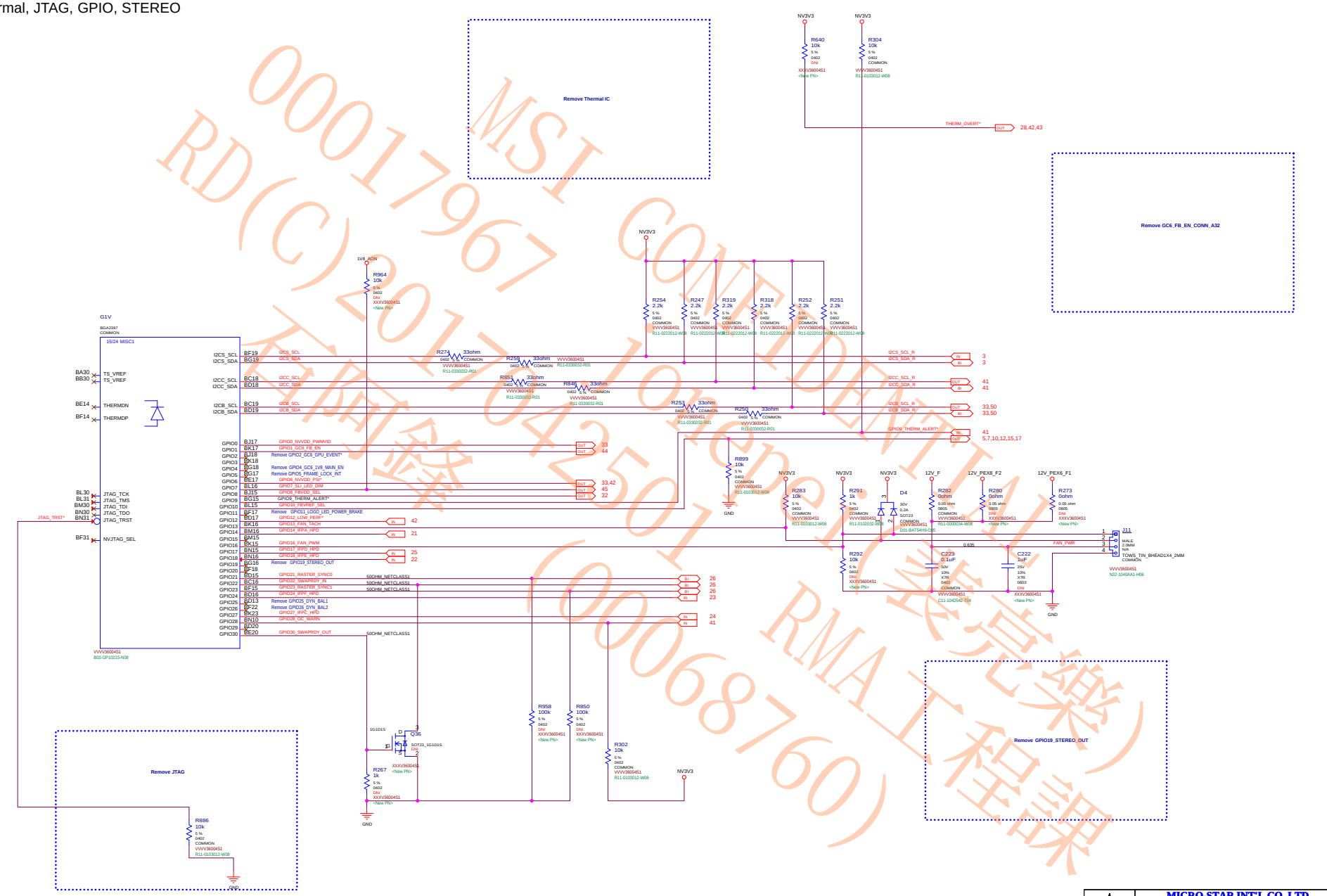




MICRO-STAR INT'L CO.,LTD		
MS-V360		
Size: Custom	Document Description: IFPD HDMI	Rev: 2.0
Date: Friday, March 03, 2017	Sheet 25 of 50	



MSI	MICRO-STAR INT'L CO.,LTD	
	MS-V360	
Size: Custom	Document Description: MIOA/B Interface	Rev: 2.0
Date: Friday, March 03, 2017	Sheet 26 of 50	



MICRO-STAR INT'L CO.,LTD		
MS-V360		
Size: Custom	Document Description: MISC1: Fan, Thermal, JTAG, GPIO, STEREO	Rev: 2.0
Date: Friday, March 03, 2017	Sheet 27 of 50	

Page28: MISC2: ROM, Straps

STRAP2	STRAP1	STRAP0	RAMCFG[4:0]
L	L	L	00000
L	H	L	00010
L	H	H	00011
H	H	L	00110
H	H	H	00111

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

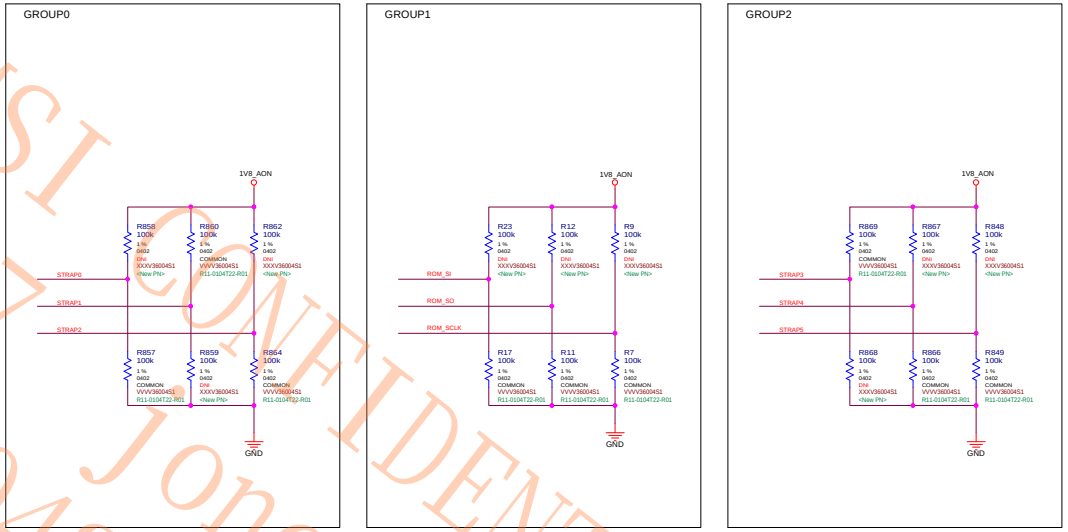
H=High :Tied to 1.8V
M=Middle:Tied to 0.9V
L=Low :Tied to 0V

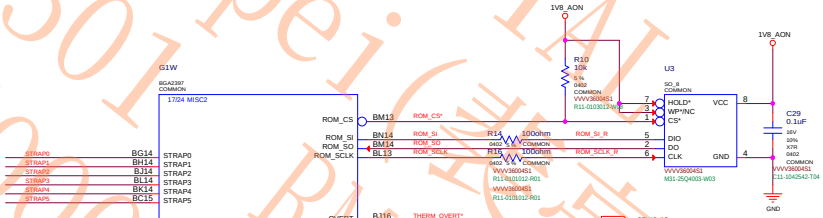
1:SMB_ALT_ADDR ENABLE
0:SMB_ALT_ADDR DISABLE

1:DEVID_SEL REBRAND
0:DEVID_SEL ORIGNAL

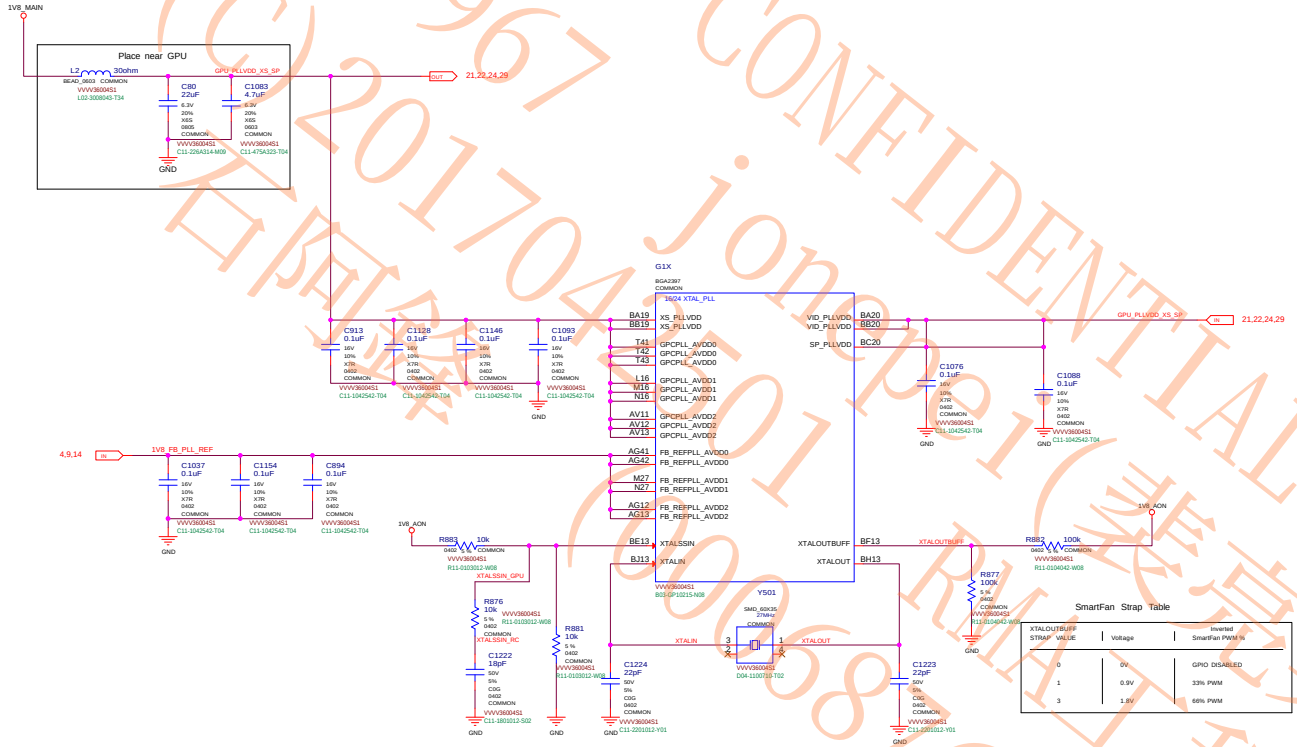
1:PCIE_CFG LOW POWER
0:PCIE_CFG HIGH POWER

1:VGA_DEVICE ENABLE
0:VGA_DEVICE DISABLE

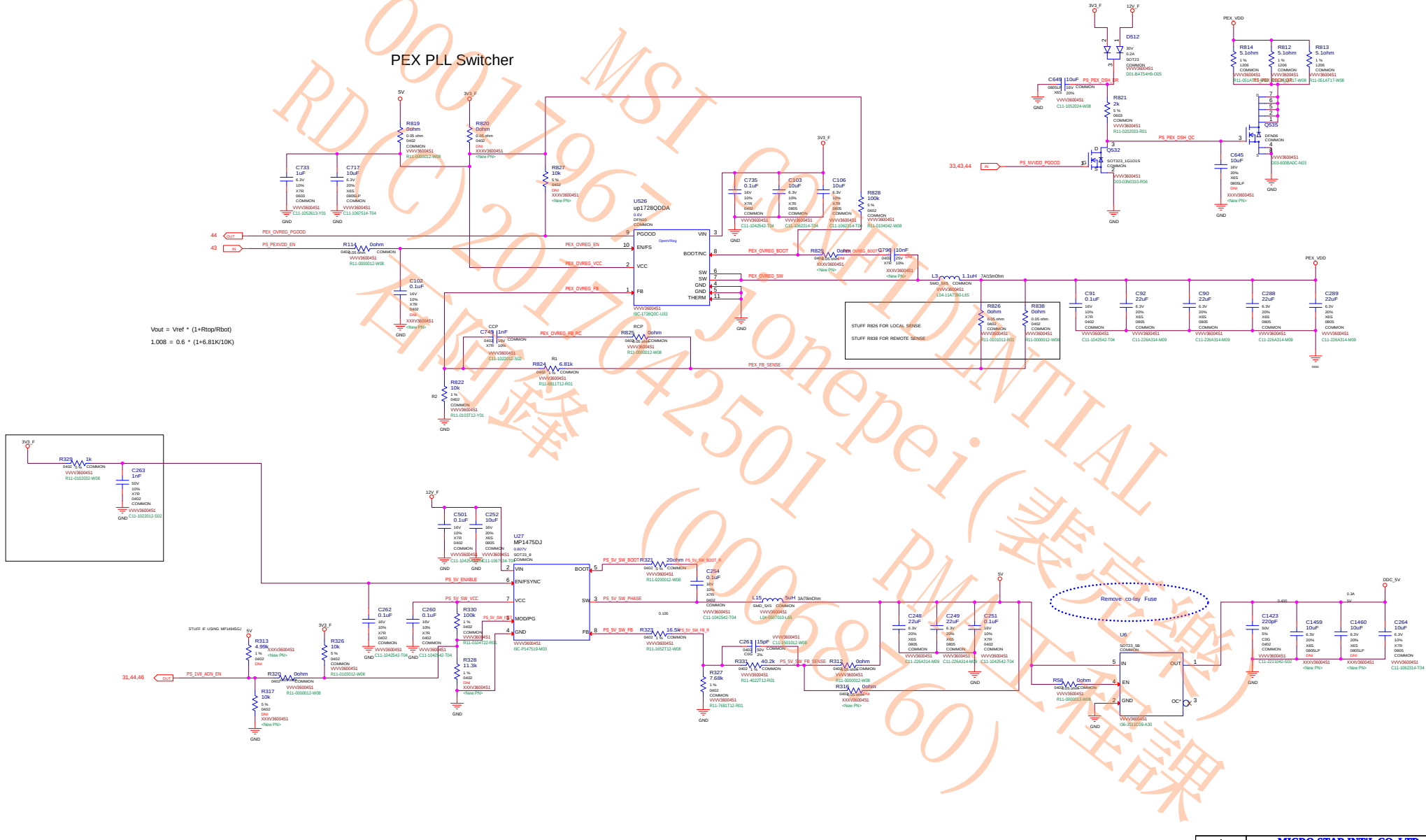




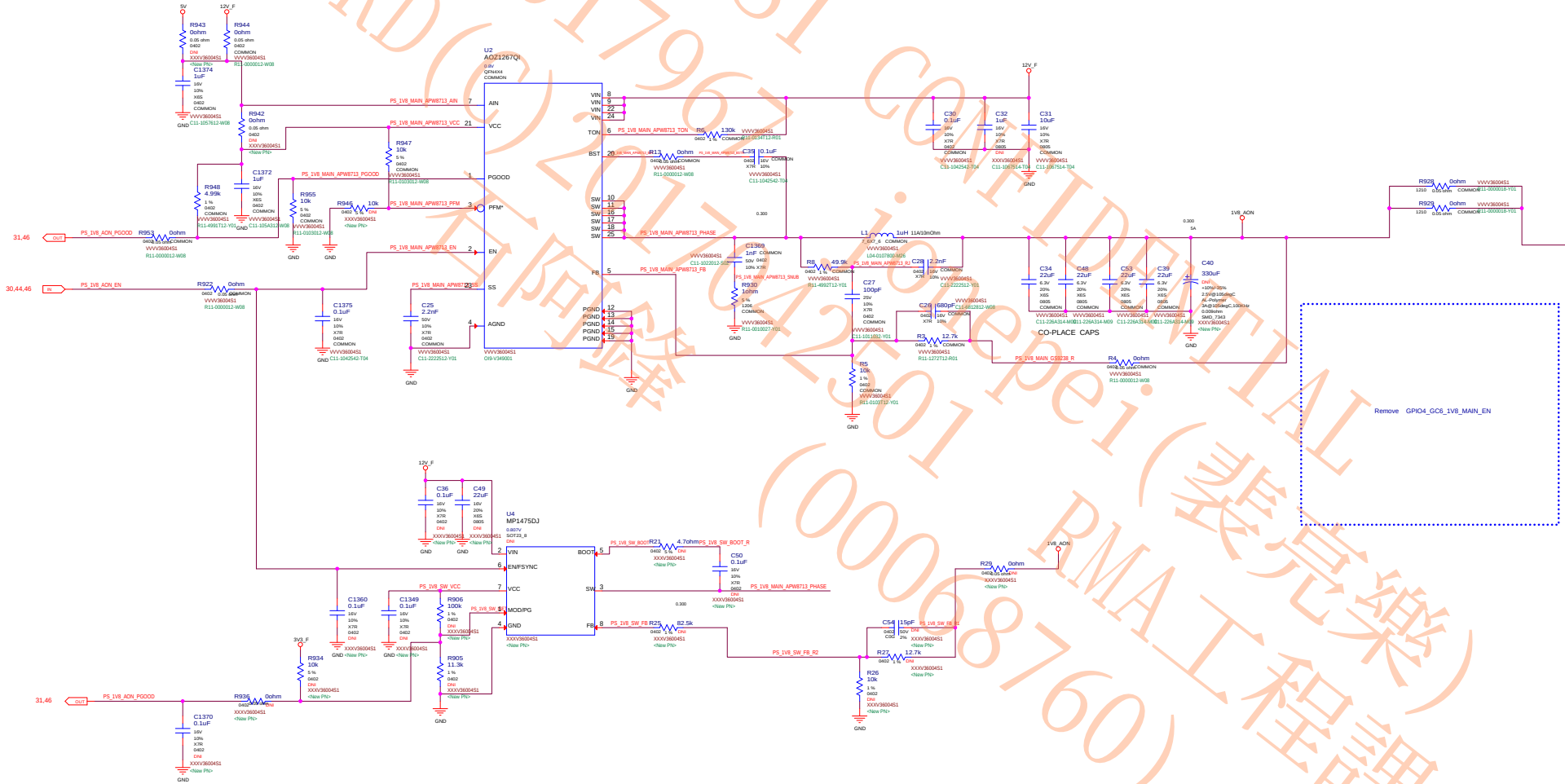
MICRO-STAR INT'L CO.,LTD
MS-V360
Size: Custom | Document Description: MISC2: ROM, Straps | Rev: 2.0
Date: Friday, March 03, 2017 | Sheet 28 of 50



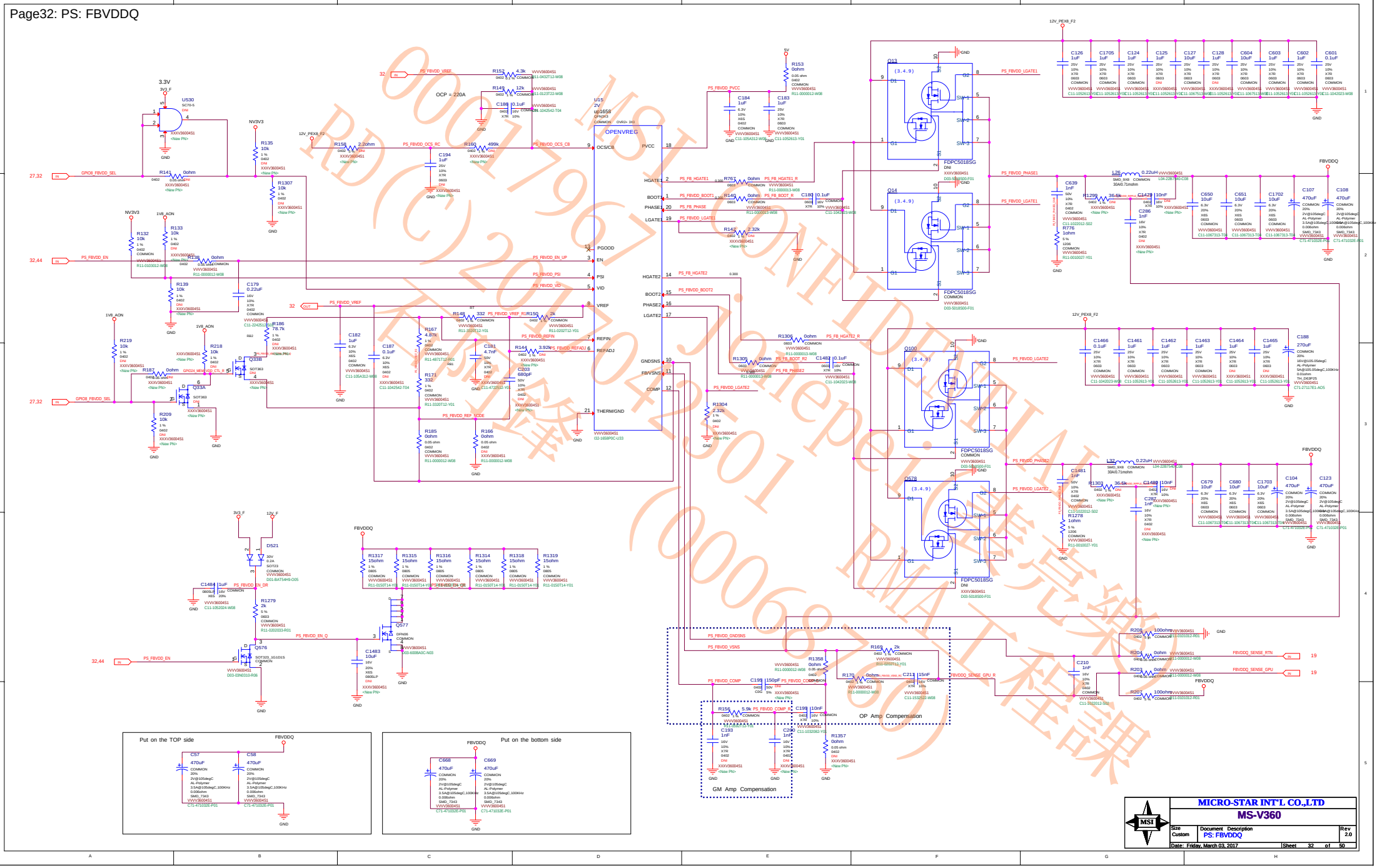
MICRO-STAR INT'L CO.,LTD	
MS-V360	
Size: Custom	Document Description: MISC2: XTAL. PLL
Rev: 2.0	
Date: Friday, March 03, 2017	Sheet 29 of 50



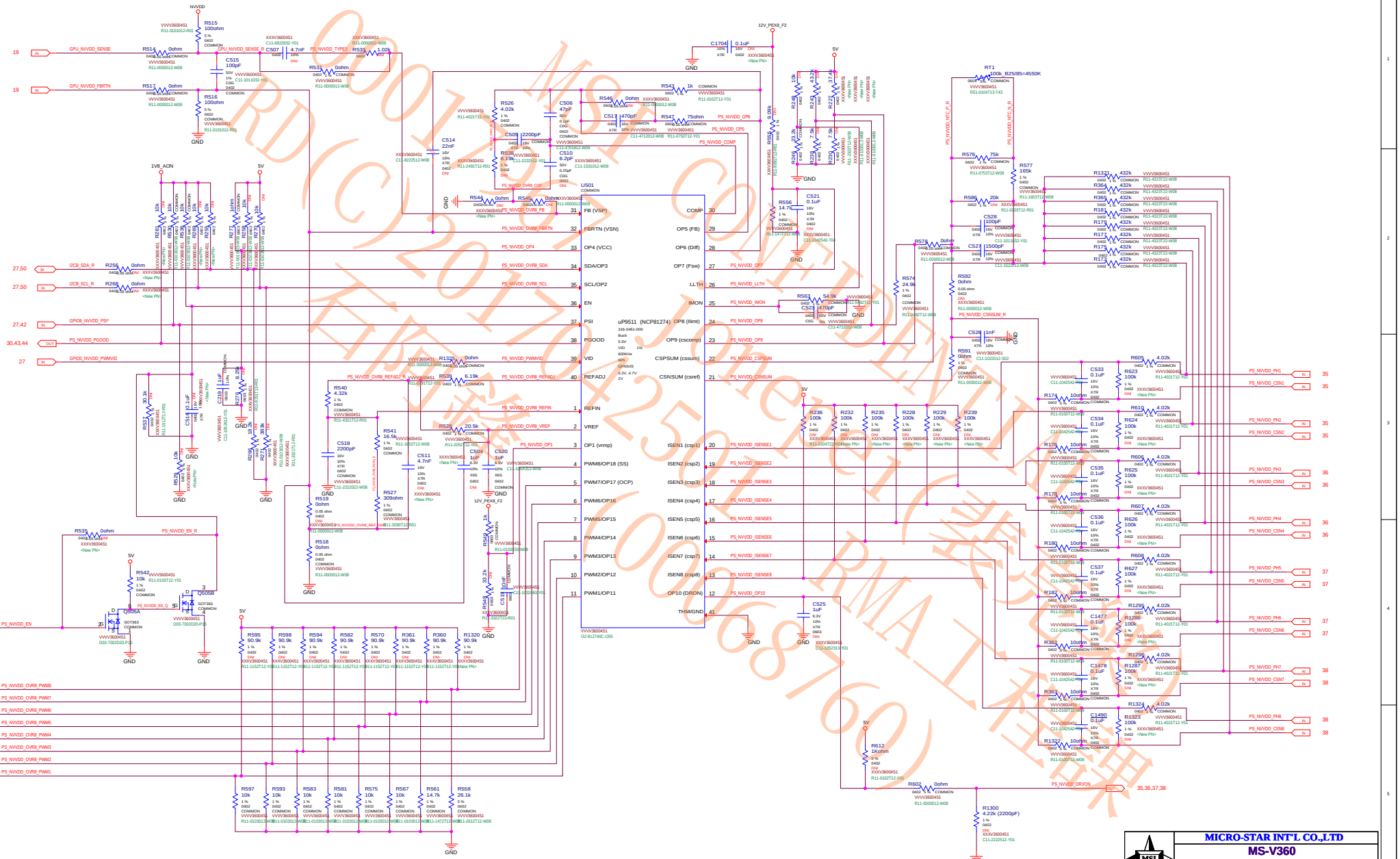
MICRO-STAR INT'L CO.,LTD		
MS-V360		
Size: Custom	Document Description: PS: 5V, PEX_VDD	Rev: 2.0
Date: Friday, March 03, 2017	Sheet 30 of 50	



MICRO-STAR INT'L CO.,LTD		
MS-V360		
Size: Custom	Document Description: PS: 1V8 Rails	Rev: 2.0
Date: Friday, March 03, 2017	Sheet 31 of 50	


Page32: PS: FBVDDQ
OPENVREG
U15
uP1658
OCP = 220A
PS_FBVDD_VREF
PS_FBVDD_OCS_RC
PS_FBVDD_OCS_CB
PS_FBVDD_PVCC
PS_FBVDD_EN
PS_FBVDD_PSI
PS_FBVDD_VID
PS_FBVDD_REFIN
PS_FBVDD_REFADJ
PS_FBVDD_REF_NODE
PS_FBVDD_HGATE1_R
PS_FBVDD_BOOT1
PS_FBVDD_PHASE1
PS_FBVDD_LGATE1
PS_FBVDD_HGATE2_R
PS_FBVDD_BOOT2
PS_FBVDD_PHASE2
PS_FBVDD_LGATE2
PS_FBVDD_GNDSNS
PS_FBVDD_VSNS
PS_FBVDD_COMP
PS_FBVDD_EN_DR
PS_FBVDD_EN_Q
FBVDDQ_SENSE_GPU_R
FBVDDQ_SENSE_RTN
FBVDDQ_SENSE_GPU
FDPC5018SG
OP Amp Compensation
GM Amp Compensation
Put on the TOP side
Put on the bottom side
MICRO-STAR INT'L CO.,LTD
MS-V360
PS: FBVDDQ
Date: Friday, March 03, 2017
Sheet 32 of 50
Rev 2.0

Page33: PS: NVVDD Controller_OVR8



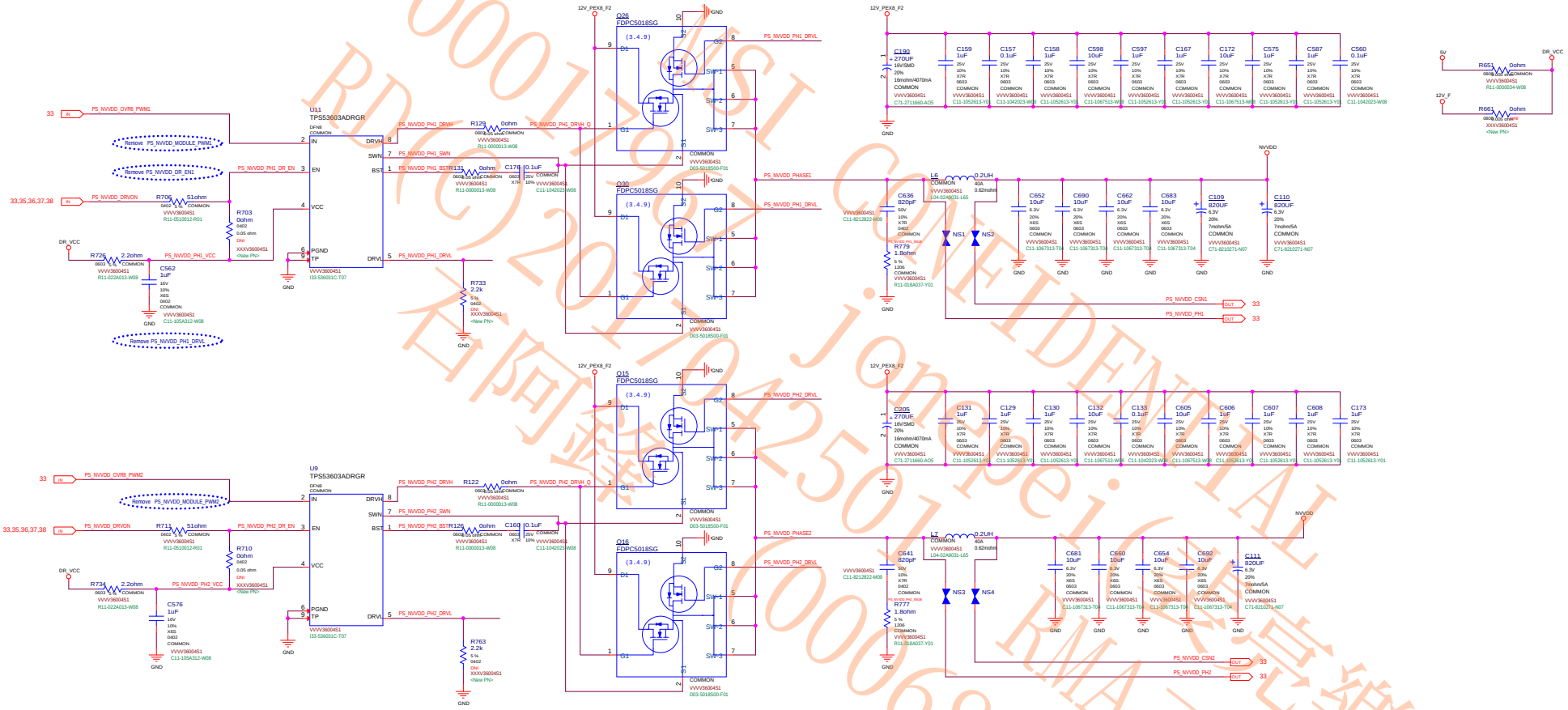
Page34: PS: NVVDD CONTROLLER_PWR-MODULE

MICRO-STAR INT'L CO.,LTD

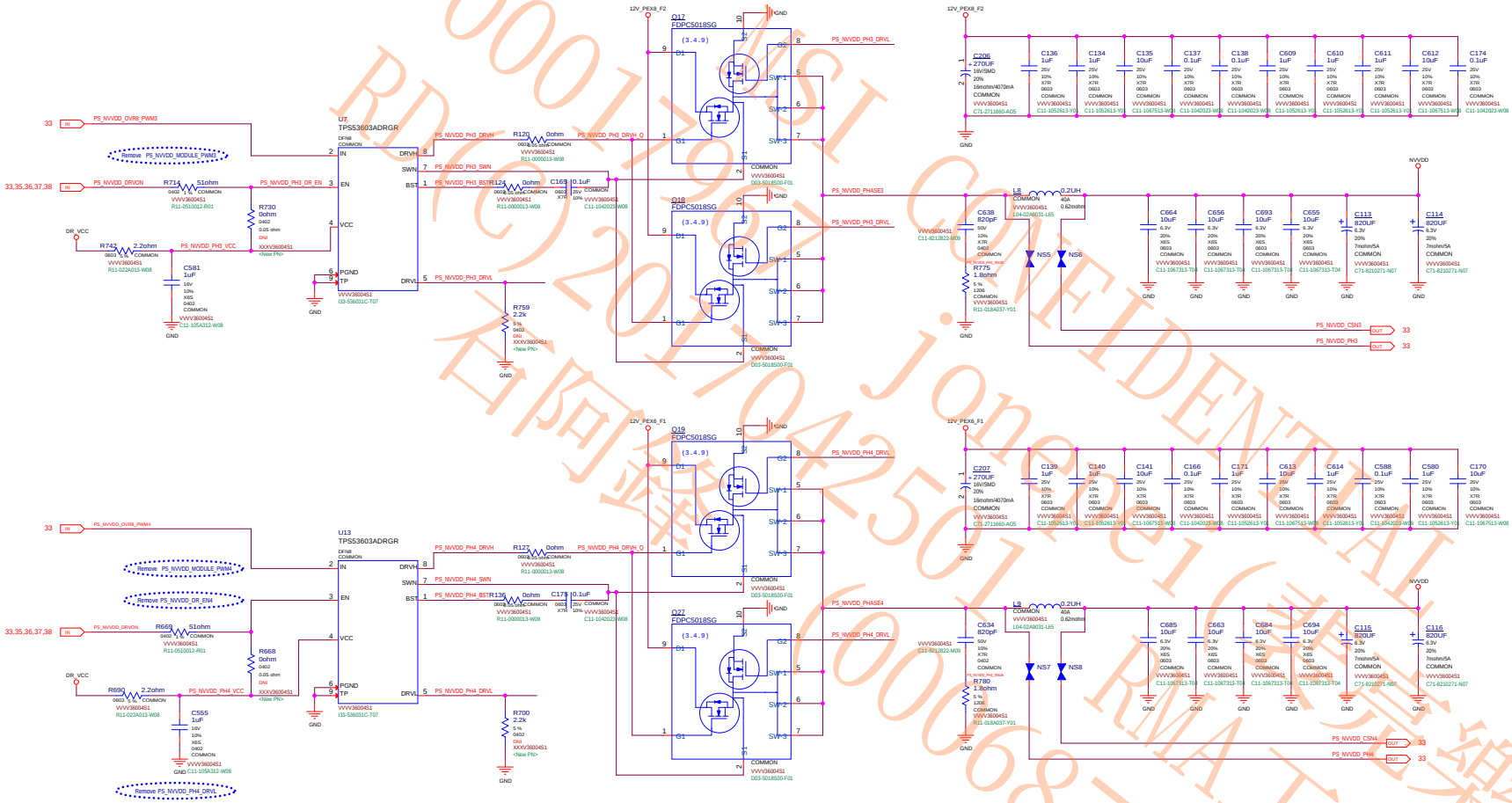
MS-V360

Size	Document Description	Rev
Custom	PS: NVVDD CONTROLLER_PWR-MODULE	2.0

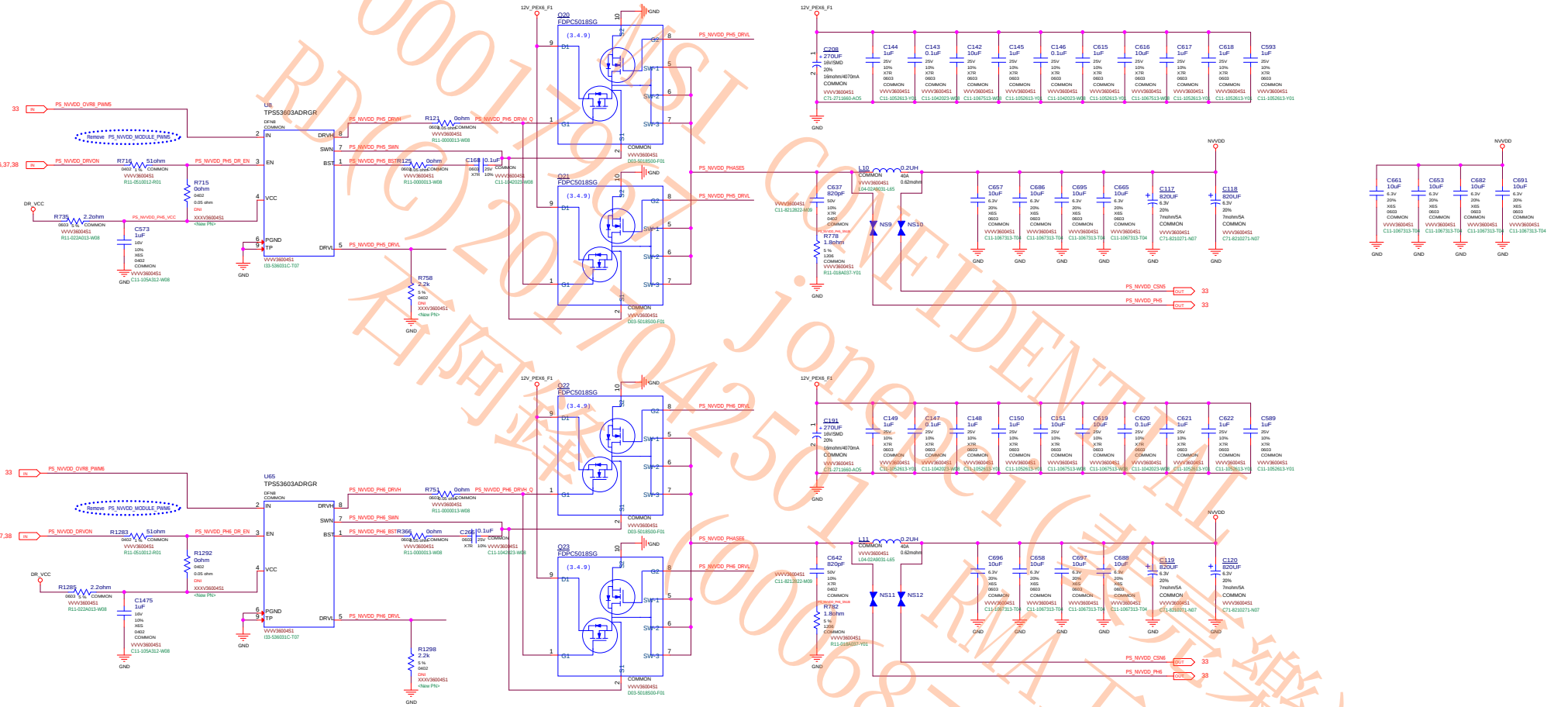
Date: Friday, March 03, 2017 Sheet 34 of 50



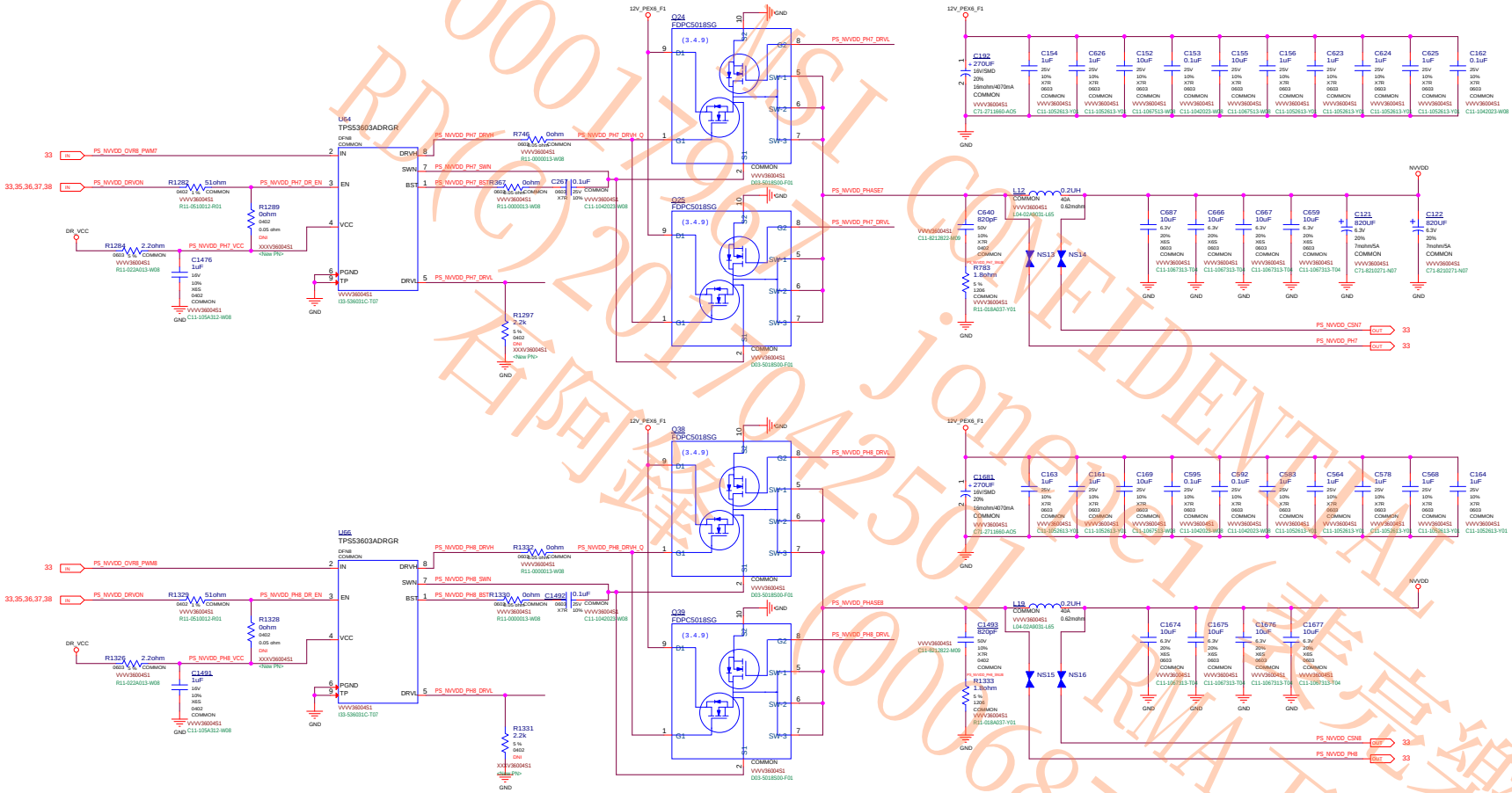
MICRO-STAR INT'L CO.,LTD	
MS-V360	
Size: Custom	Document Description: PS: NVVDD Phase 1,2
Rev: 2.0	
Date: Friday, March 03, 2017	Sheet 35 of 50



MICRO-STAR INT'L CO.,LTD		
MS-V360		
Size: Custom	Document Description: PS: NVVDD Phase 3,4	Rev: 2.0
Date: Friday, March 03, 2017	Sheet 36 of 50	



MICRO-STAR INT'L CO.,LTD		
MS-V360		
Size: Custom	Document Description: PS: NVVDD Phase 5,6	Rev: 2.0
Date: Friday, March 03, 2017	Sheet 37 of 50	



MICRO-STAR INT'L CO.,LTD	
MS-V360	
Size: Custom	Document Description: PS:NVVDD Phase 6,7
Rev: 2.0	
Date: Friday, March 03, 2017	Sheet 38 of 50

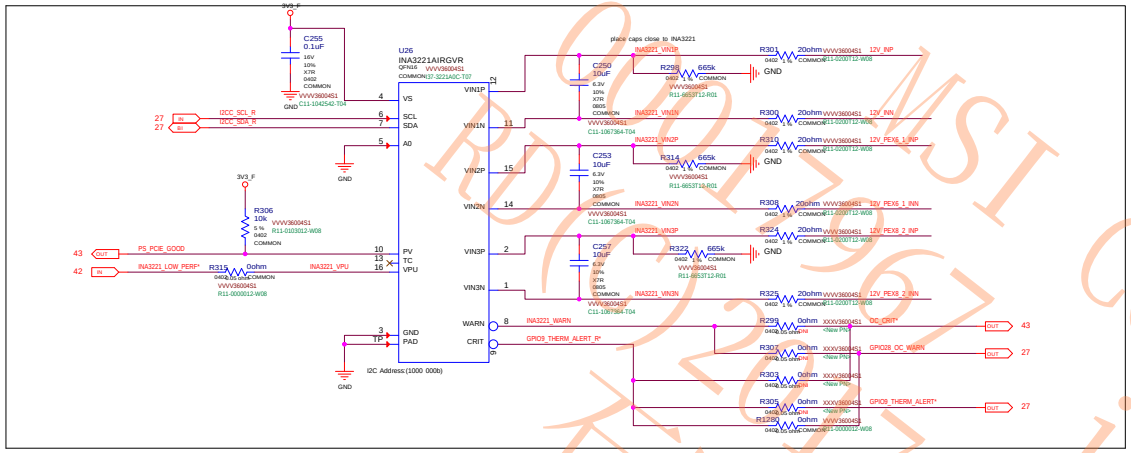
Page39: PS: Dynamic Power Balance Phases

MSI	MICRO-STAR INT'L CO.,LTD	
	MS-V360	
Size: Custom	Document Description: Dynamic Power Balance Phases	Rev: 2.0
Date: Friday, March 03, 2017	Sheet 39 of 50	

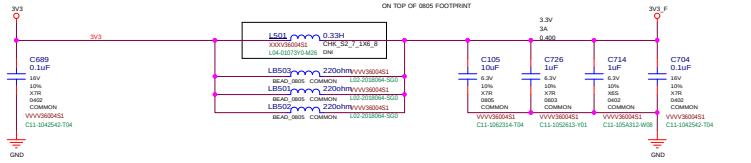
Page40: PS: Dynamic Power Balance Logic

MSI	MICRO-STAR INT'L CO.,LTD	
	MS-V360	
Size: Custom	Document Description: PS: Dynamic Power Balance Logic	Rev: 2.0
Date: Friday, March 03, 2017	Sheet 40 of 50	

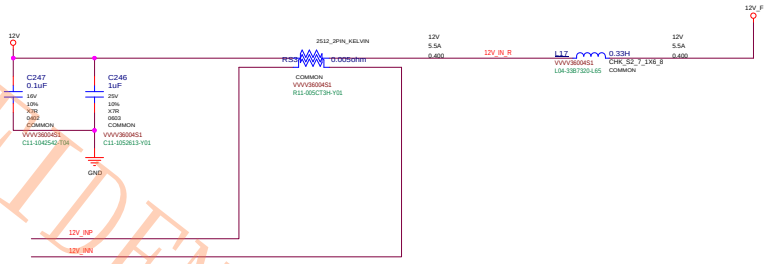
Page41: PS: Inputs, Filtering, and Monitoring



PEX 3V3 INPUT - 10W

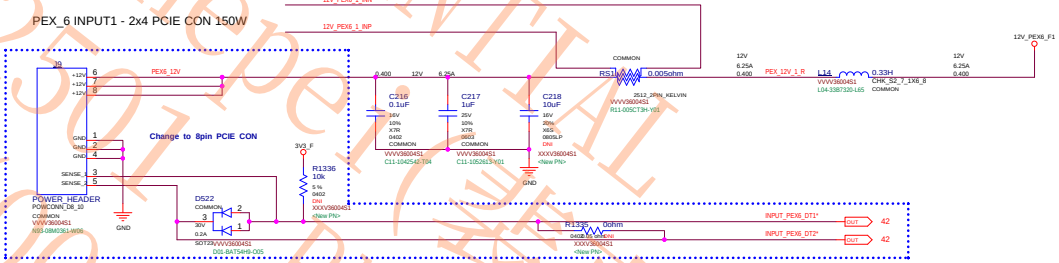


PEX_12V INPUT - 66W

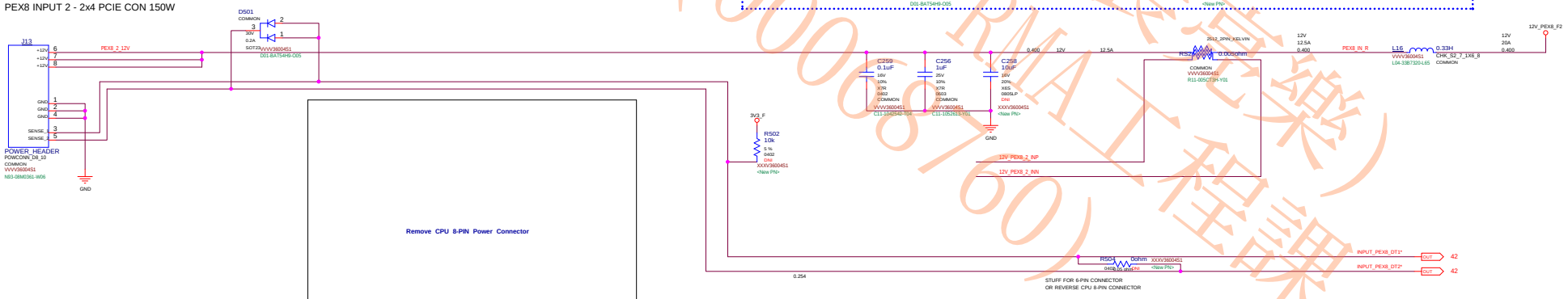


Remove PEX_12V bypass resistors

PEX_6 INPUT1 - 2x4 PCIE CON 150W



PEX8 INPUT 2 - 2x4 PCIE CON 150W



Remove CPU 8-PIN Power Connector

MICRO-STAR INT'L CO.,LTD		
MS-V360		
Size: Custom	Document Description: PS: Inputs, Filtering, and Monitoring	Rev: 2.0
Date: Friday, March 03, 2017	Sheet 41 of 50	

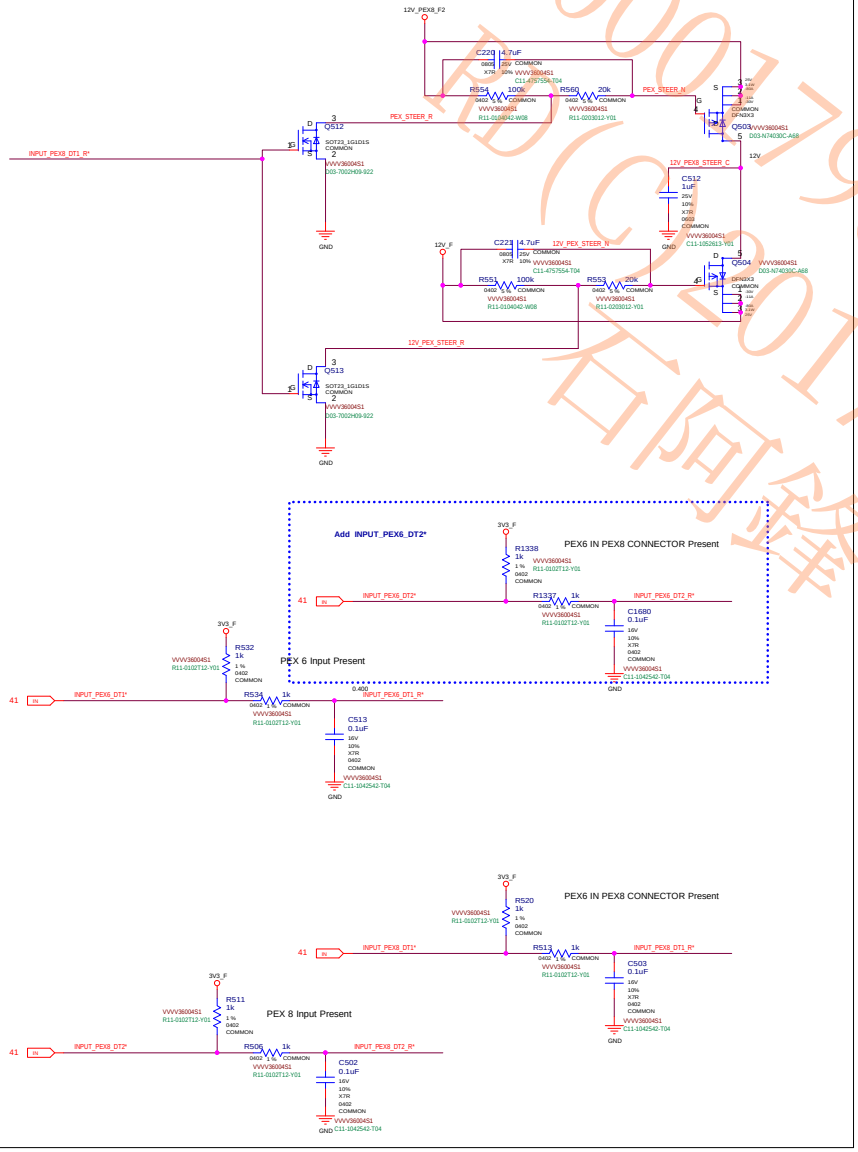
Page42: PS: 12V Current Steering & Hot Unplug Detect

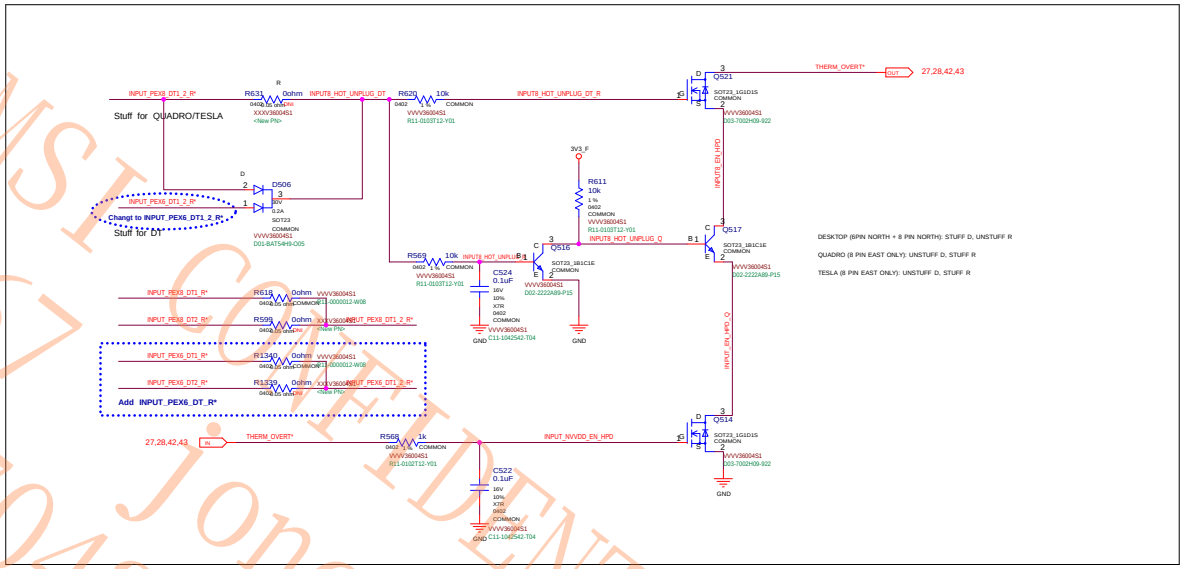
QUADRO/TESLA:

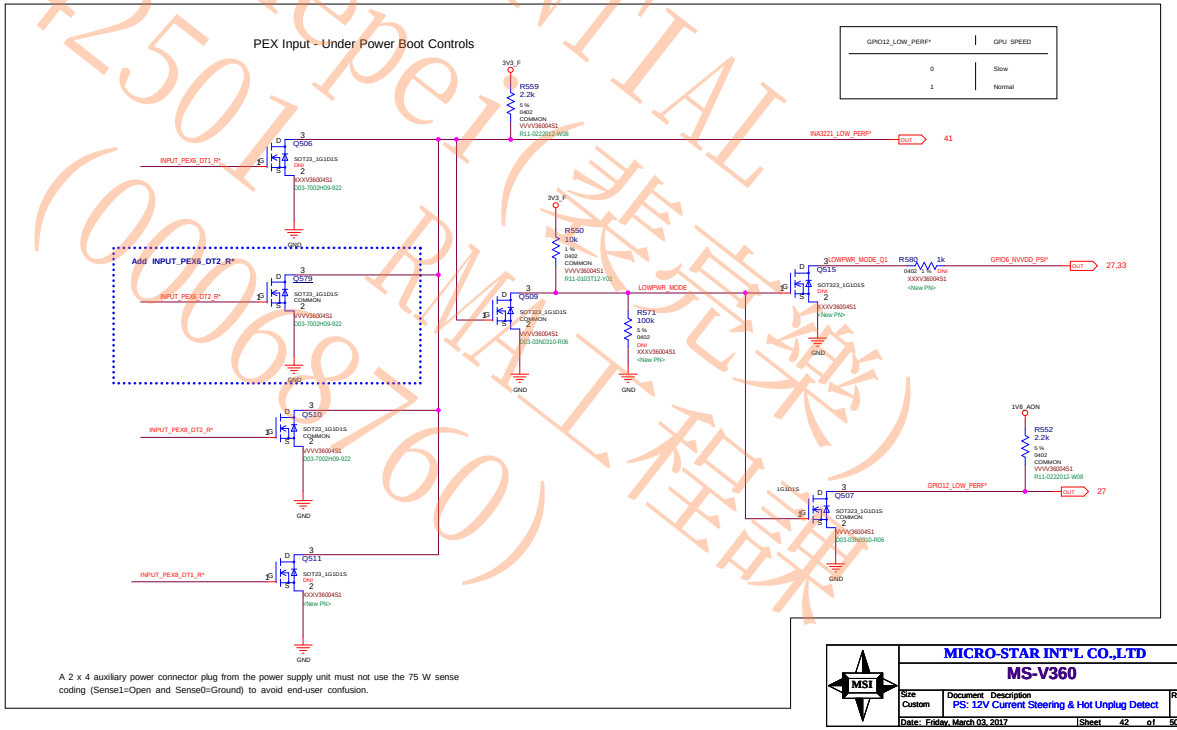
12V CURRENT STEERING (UNDER POWER BOOT):

GUIDES CURRENT FROM PEX EDGE TO PEX 8 PIN INPUT AREA

For OpenVreg Type4 + Phase Doubler, 2 phase PSI mode

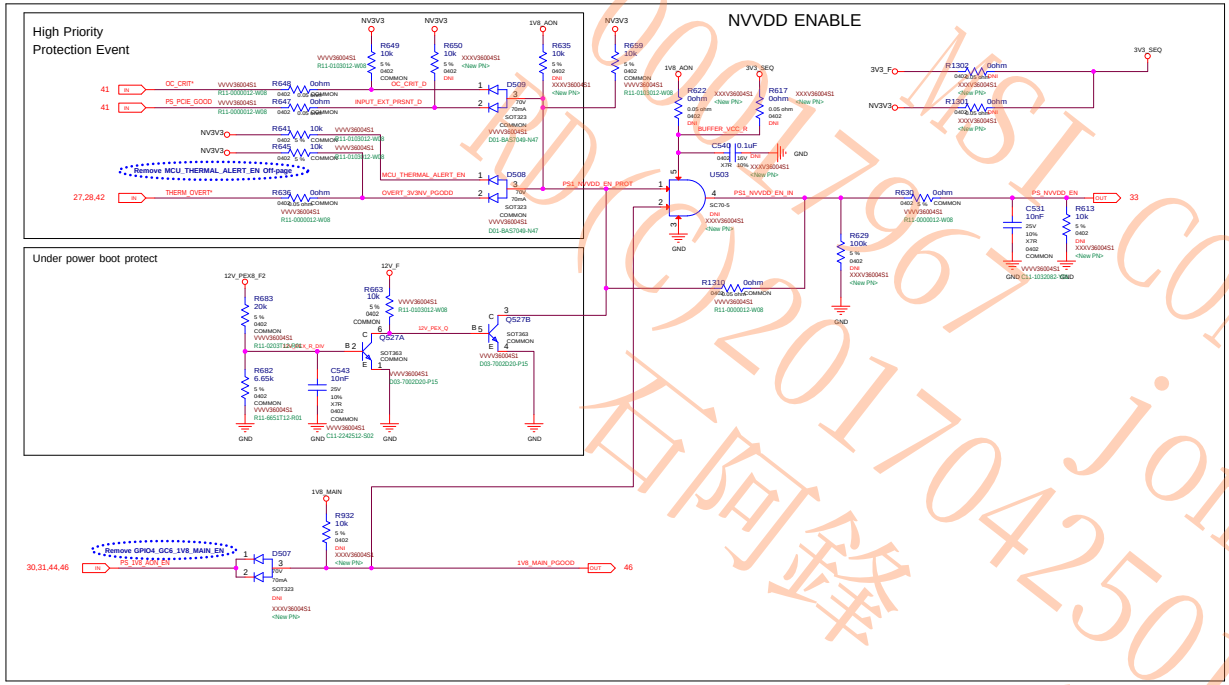


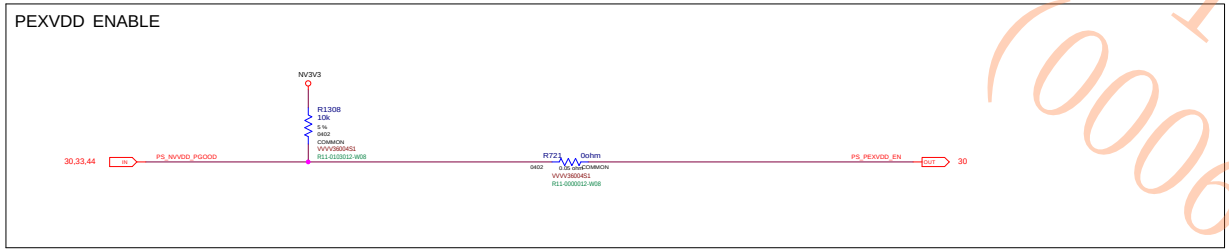




MSI	MICRO-STAR INT'L CO.,LTD	
	MS-V360	
Size: Custom	Document Description: PS: 12V Current Steering & Hot Unplug Detect	Rev: 2.0
Date: Friday, March 03, 2017	Sheet 42 of 50	

Page43: PS: NVVDD ENABLE



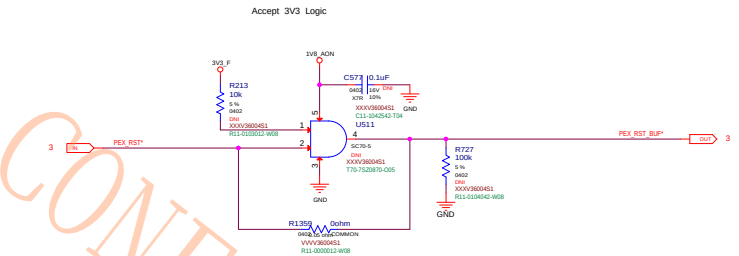


MSI	MICRO-STAR INT'L CO.,LTD	
	MS-V360	
Size: Custom	Document Description: PS: NVVDD ENABLE	Rev: 2.0
Date: Friday, March 03, 2017	Sheet 43 of 50	

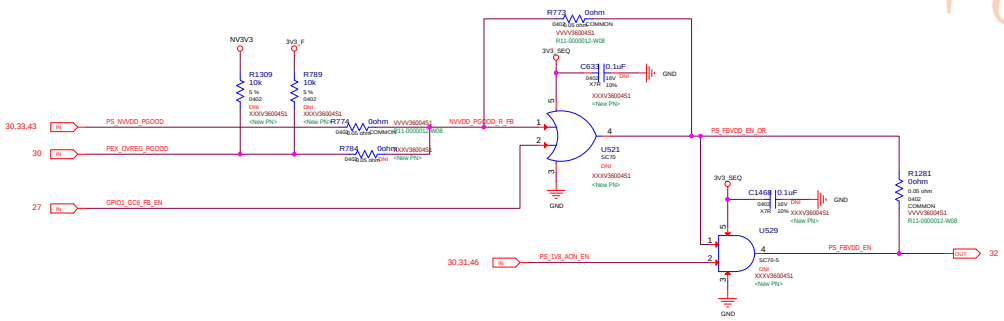
Remove PEX_CLKREQ*

Remove GPU_EVENT*

PEX_RST# LOGIC



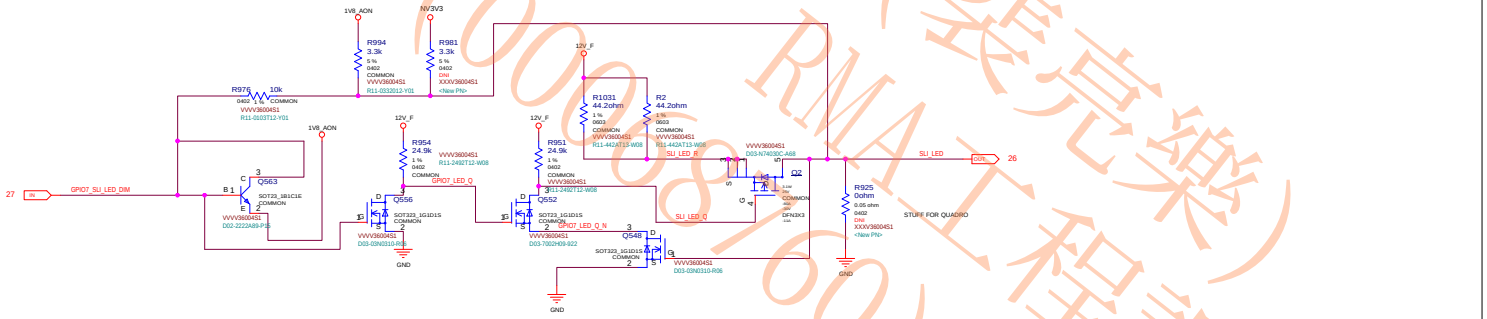
FBVDD/Q ENABLE



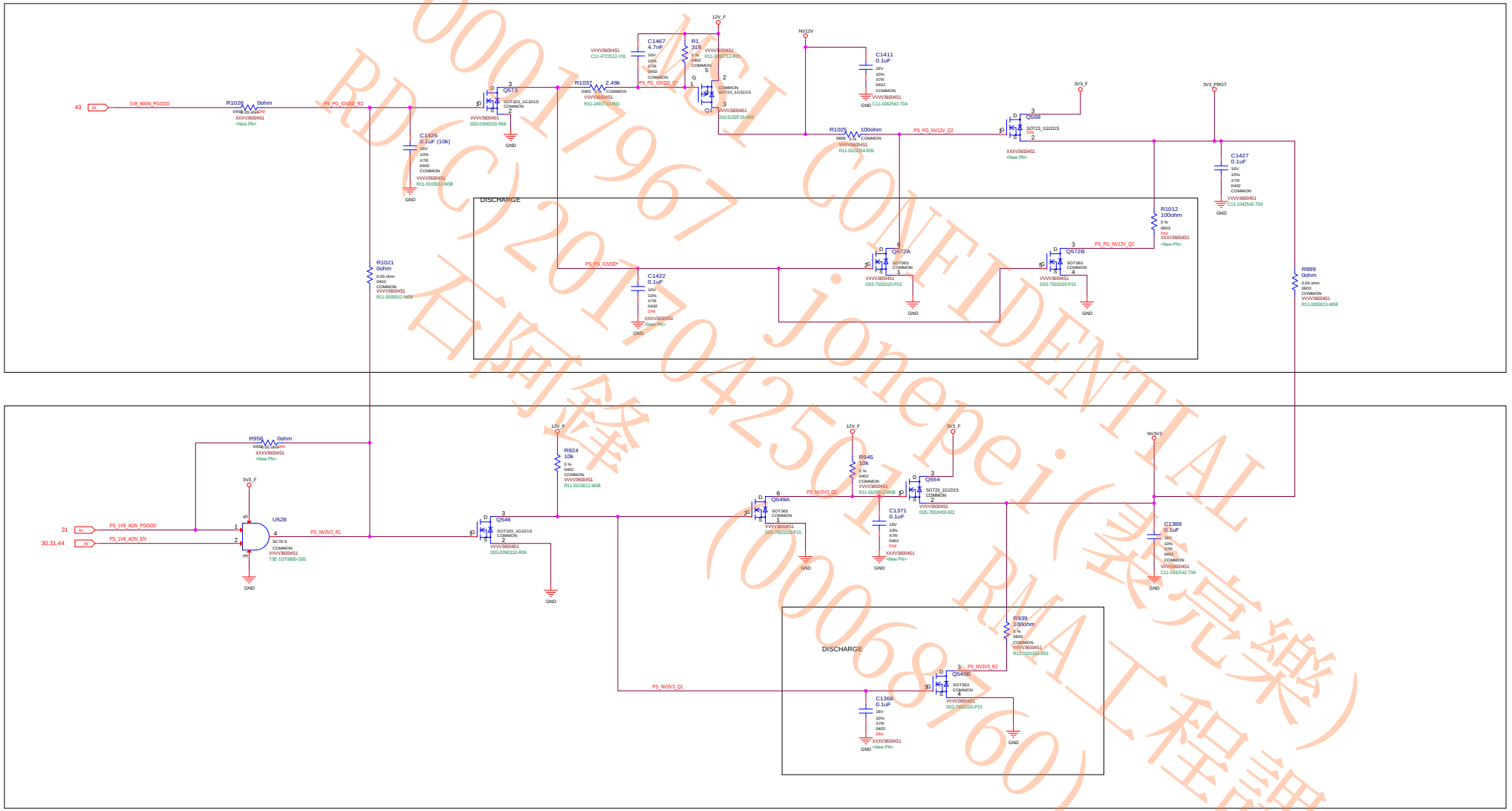
MICRO-STAR INT'L CO.,LTD		
MS-V360		
Size: Custom	Document Description: GC6 MISC	Rev: 2.0
Date: Friday, March 03, 2017	Sheet 44 of 50	

Remove LED HEADER(GEFORCE ONLY)

SLI LED (GEFORCE ONLY)



MICRO-STAR INT'L CO.,LTD
MS-V360
Size: Custom
Document Description: GEFORCE LED & SLI LED
Rev: 2.0
Date: Friday, March 03, 2017
Sheet 45 of 50



MICRO-STAR INT'L CO.,LTD	
MS-V360	
Size: Custom	Document Description: NV3V3, NV12V
Rev: 2.0	
Date: Friday, March 03, 2017	Sheet 46 of 50

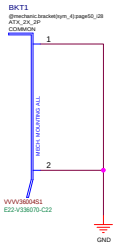
Page47: MCU

MICRO-STAR INT'L CO.,LTD
MS-V360

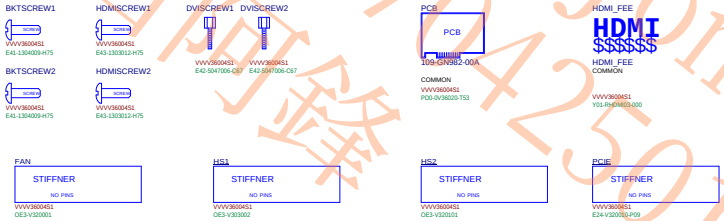
Size	Document Description	Rev
Custom	MCU	2.0

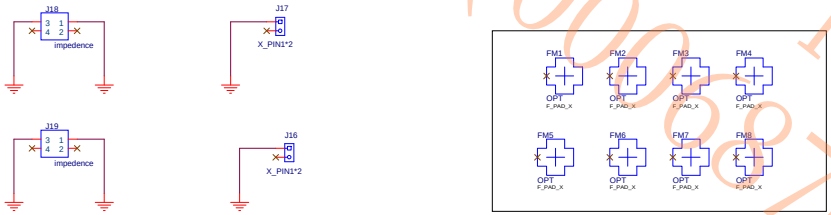
Date: Friday, March 03, 2017 Sheet 47 of 50

Brackets:

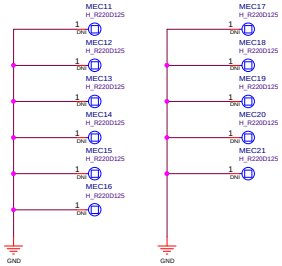


Screw

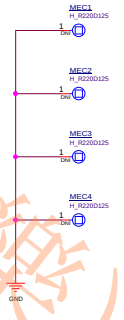




Mechanical Holes Symbol



GPU HOLES SYMBOL

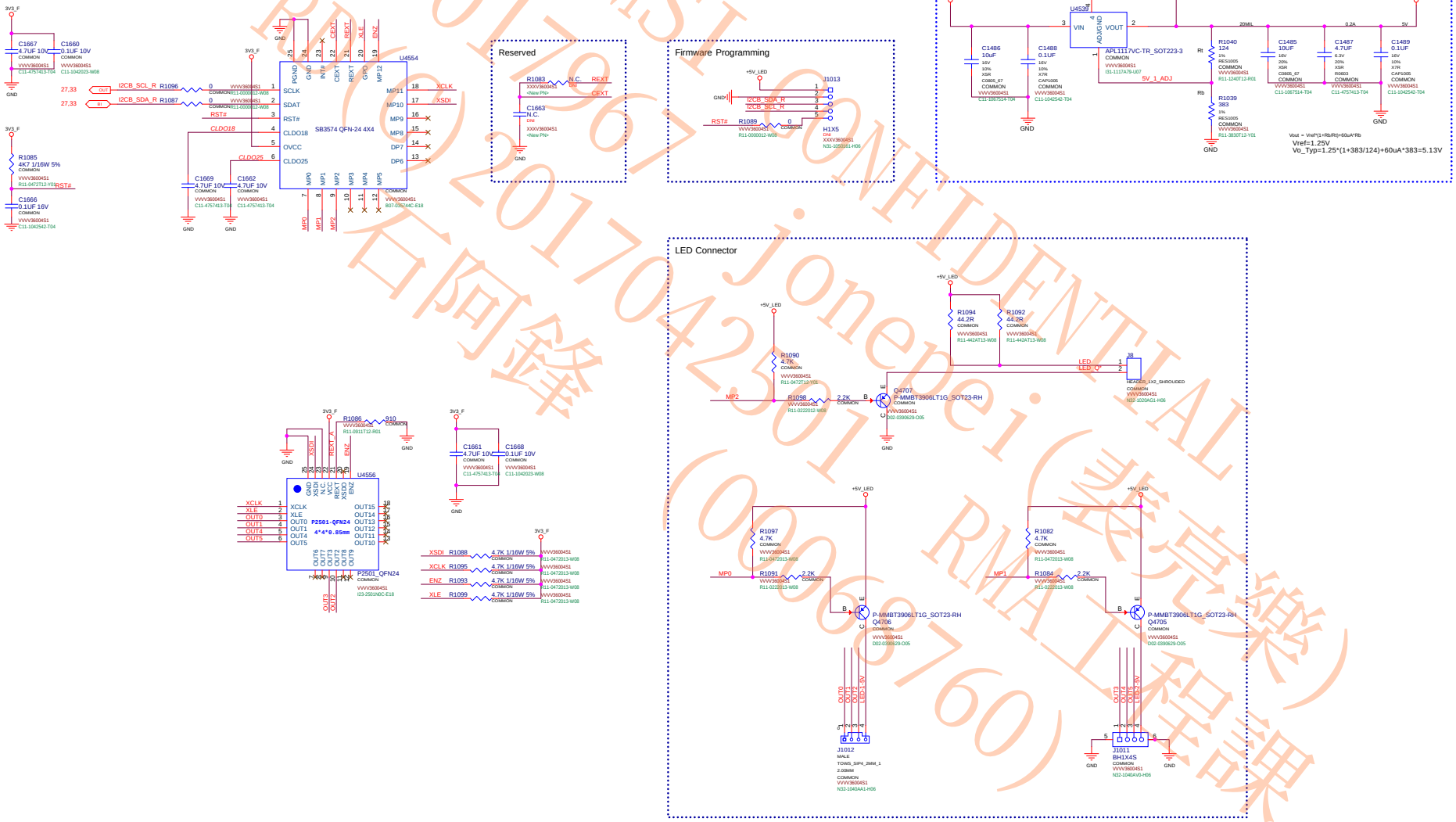


MSI	MICRO-STAR INT'L CO.,LTD	
	MS-V360	
Size: Custom	Document Description: Mechanical: Bracket/Thermal Solution	Rev: 2.0
Date: Friday, March 03, 2017	Sheet 48 of 50	

Page49: VR THERMAL PROTECTION

MSI	MICRO-STAR INT'L CO.,LTD	
	MS-V360	
Size: Custom	Document Description: VR THERMAL PROTECTION	Rev: 2.0
Date: Friday, March 03, 2017	Sheet 49 of 50	

Page39: LED_CONTROLLER_ENE3574



MICRO-STAR INT'L CO.,LTD	
MS-V360	
Size: Custom	Document Description: LED_CONTROLLER_ENE3574
Rev: 2.0	
Date: Friday, March 03, 2017	Sheet 50 of 50