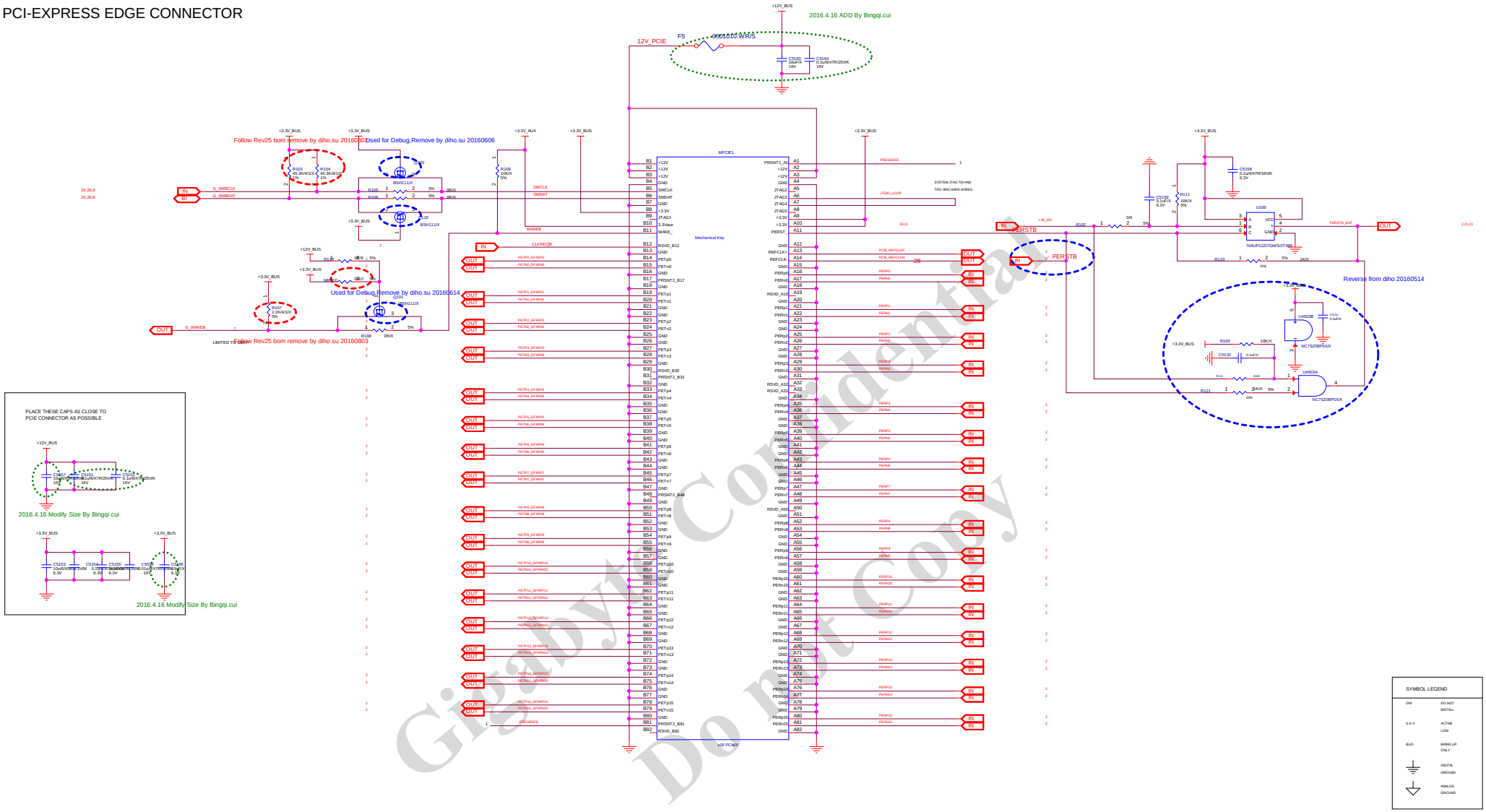
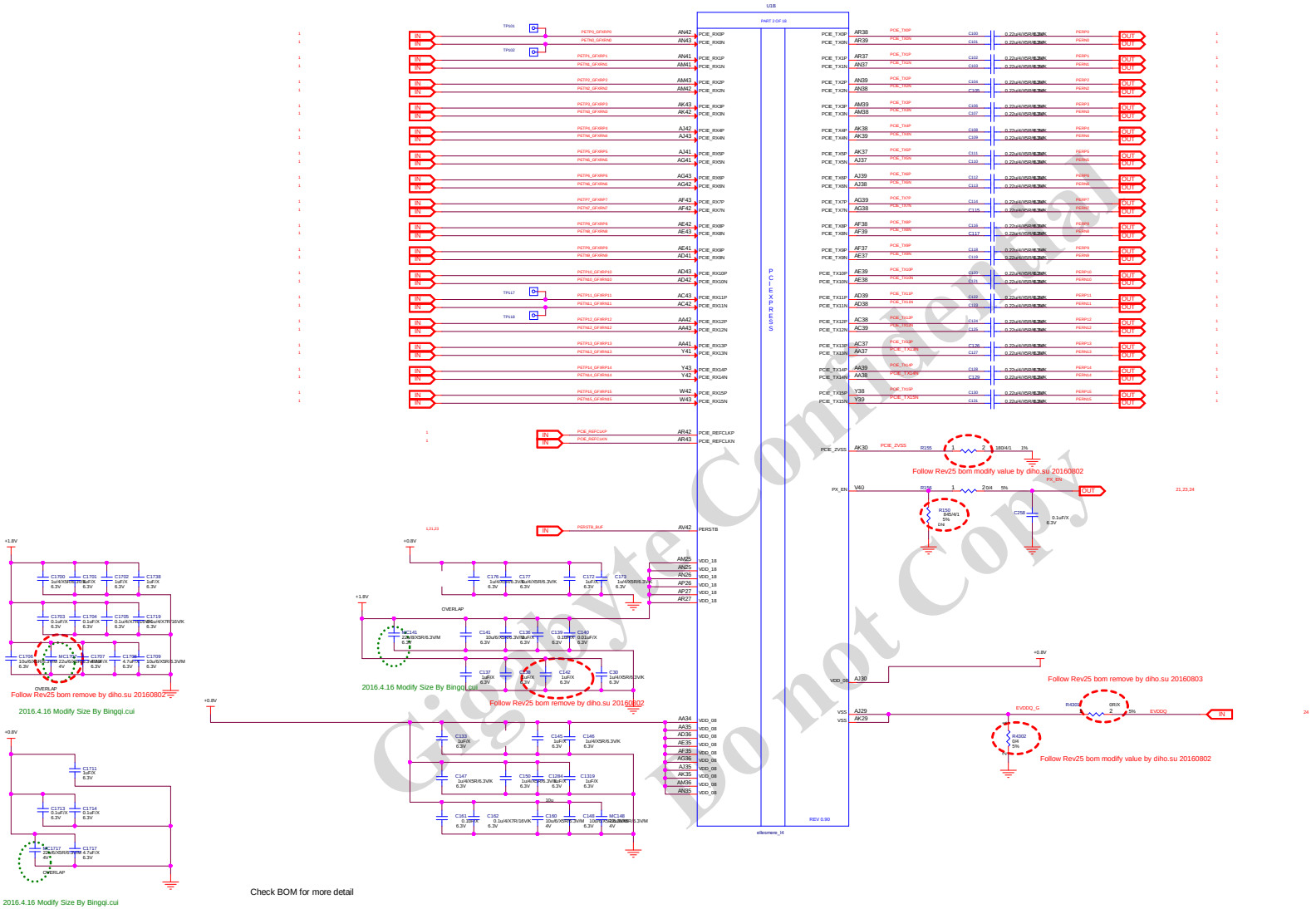
(1) PCI-EXPRESS EDGE CONNECTOR



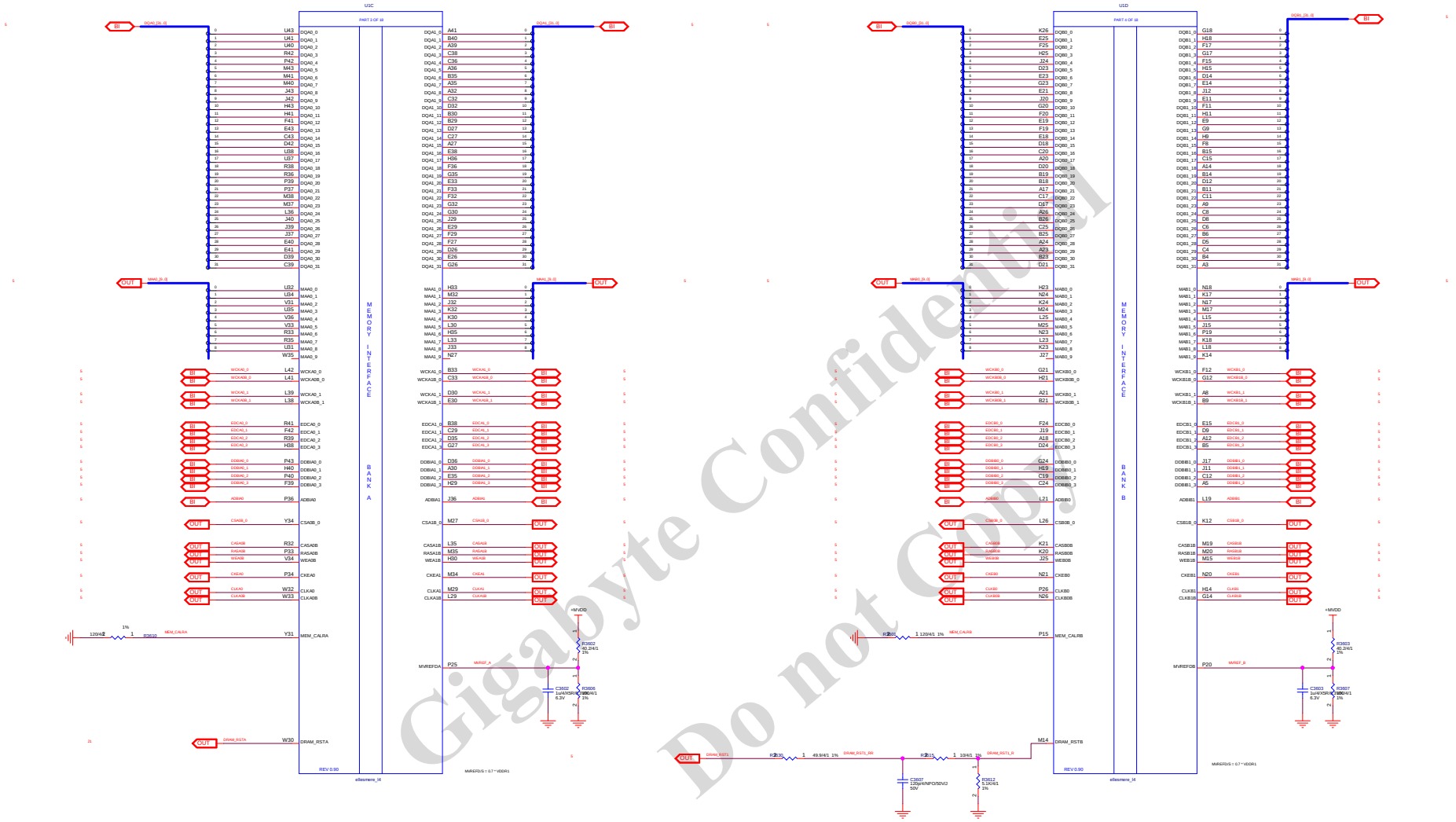
GIGABYTE		
Title: PCI Express		
Size: Custom	Document Number: GV-RX590 GME-8GD	Rev: 1.0
Date: Monday, April 13, 2020	Sheet 1 of 29	

(2) ELLESMERE PCIE INTERFACE



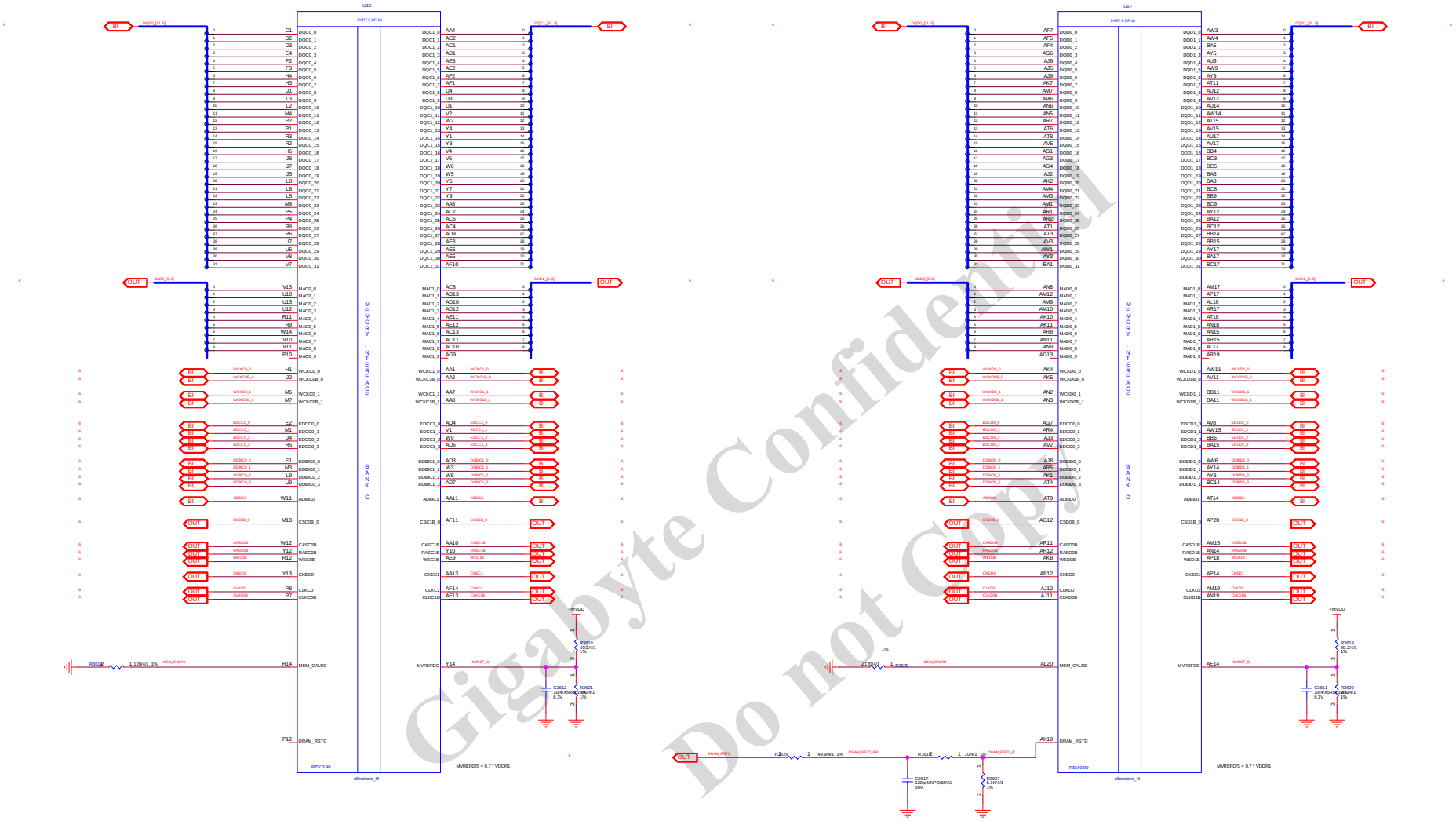
GIGABYTE			
Title: ELLESMERE PCIE INTERFACE			
Size: Custom	Document Number: GV-RX590 GME-8GD		Rev: 1.0
Date: Monday, April 13, 2020	Sheet 2 of 29		

(3) ELLESMERE MEM INTERFACE CH A/B



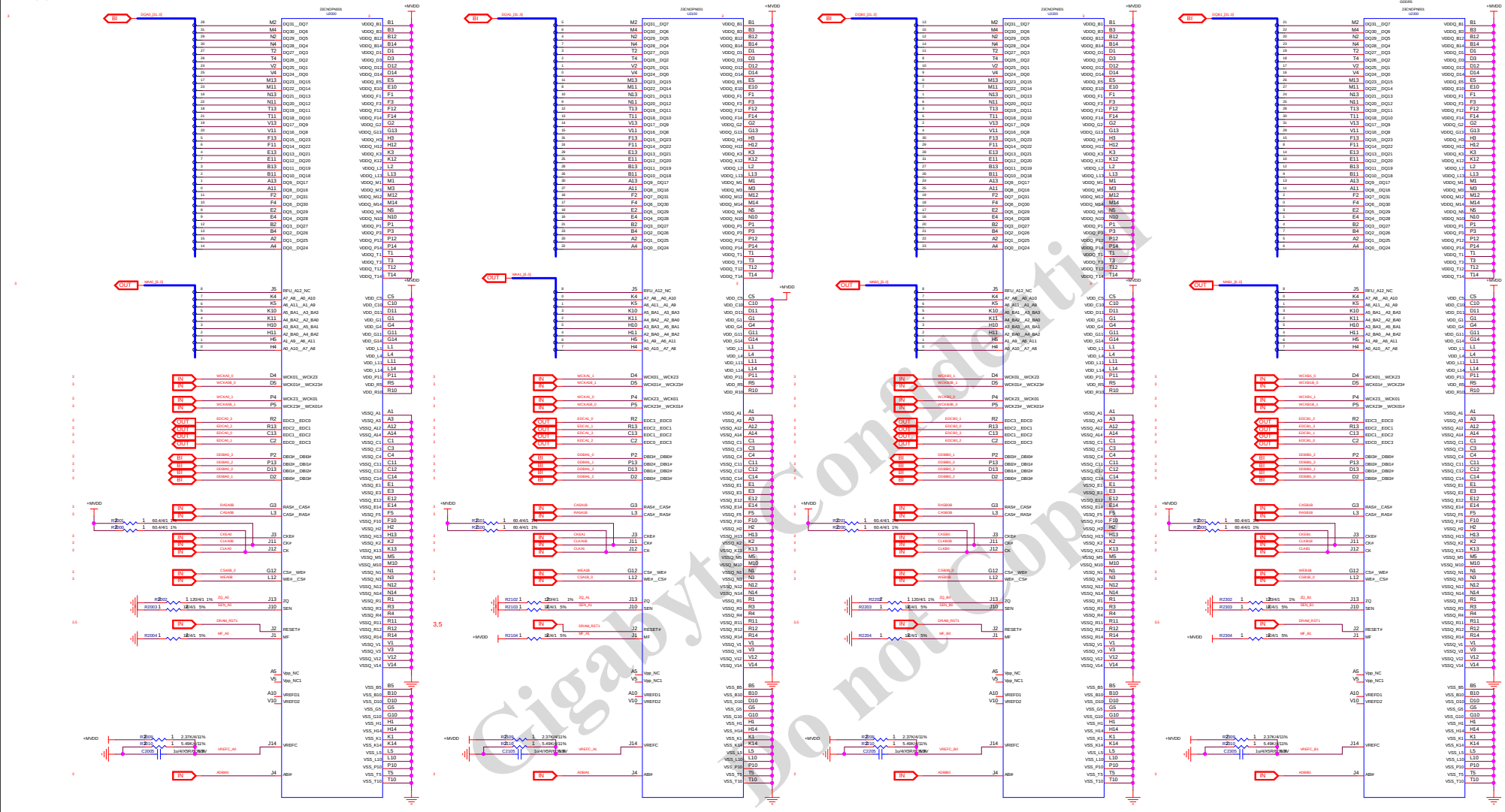
GIGABYTE		
Title: ELLESMERE MEM INTERFACE CH A/B		
Size: Custom	Document Number: GV-RX590 GME-8GD	Rev: 1.0
Date: Monday, April 13, 2020	Sheet 3 of 29	

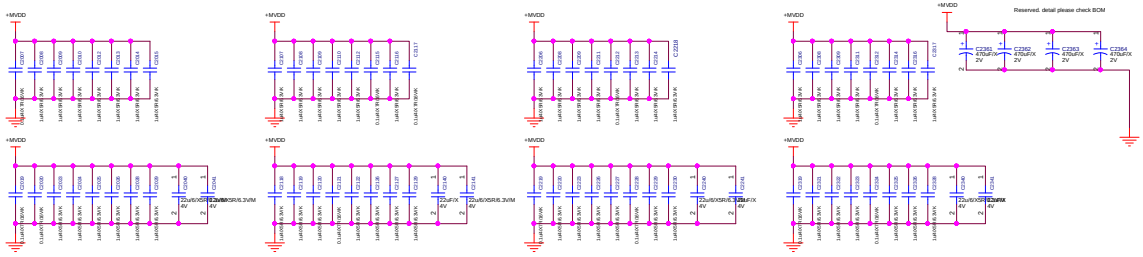
(4) ELLESMERE MEM INTERFACE CH C/D



GIGABYTE		
Title	ELLESMERE MEM INTERFACE CH C/D	
Size: Custom	Document Number: GV-RX590 GME-8GD	Rev: 1.0
Date: Monday, April 13, 2020	Sheet 4 of 29	

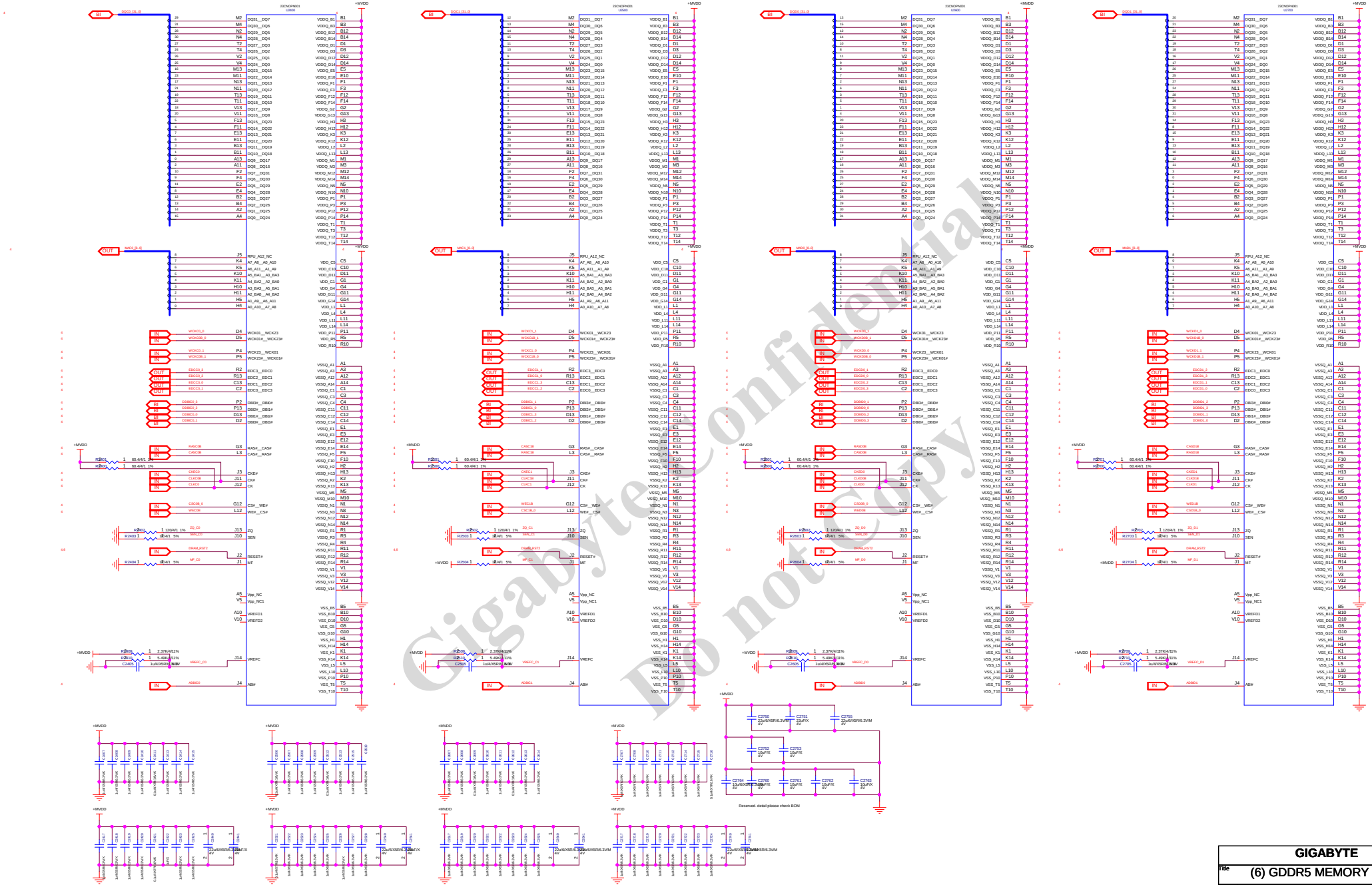
(5) GDDR5 MEMORY CH A/B





	GIGABYTE		
Title	(5) GDDR5 MEMORY CH A/B		
Size: Custom	Document Number: GV-RX590 GME-8GD		Rev: 1.0
Date: Monday, April 13, 2020	Sheet 5 of 29		

(6) GDDR5 MEMORY CH C/D



GIGABYTE		
Title	(6) GDDR5 MEMORY CH C/D	
Size: Custom	Document Number: GV-RX590 GME-8GD	Rev: 1.0
Date: Monday, April 13, 2020	Sheet 6 of 29	

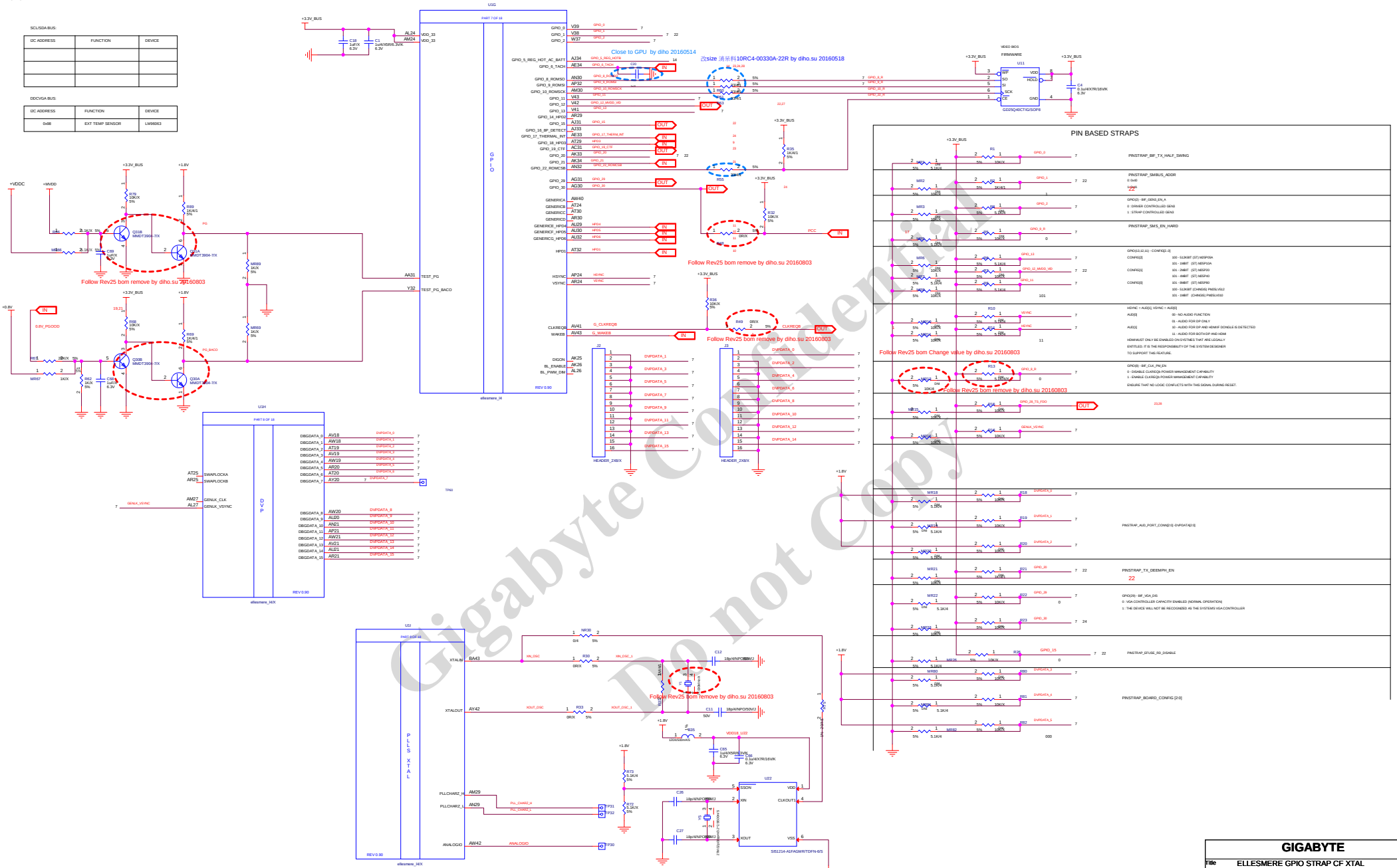
(7) ELLESMERE GPIO STRAP CF XTAL

SCL/SDA BUS:

I2C ADDRESS	FUNCTION	DEVICE

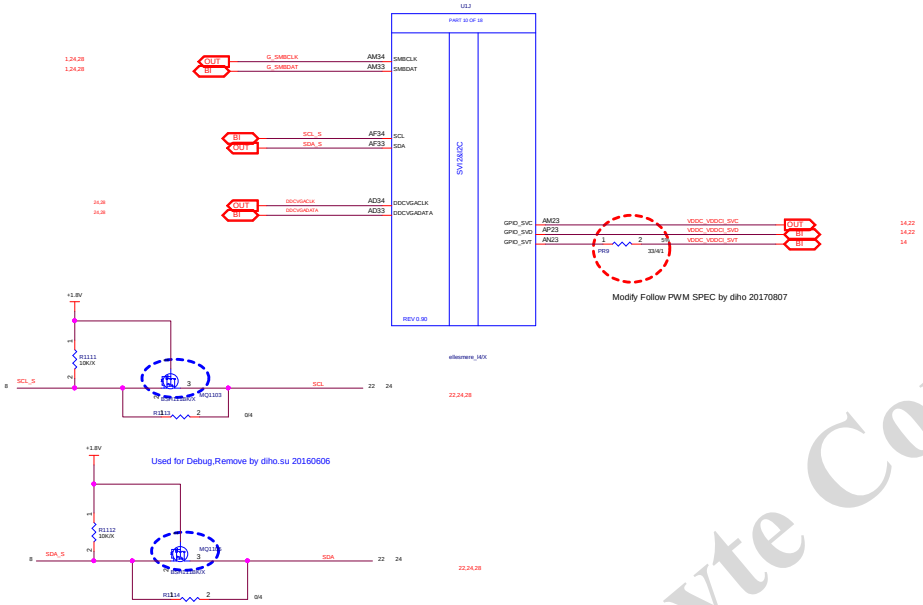
DDC/VGA BUS:

I2C ADDRESS	FUNCTION	DEVICE
0x98	EXT TEMP SENSOR	LM96063



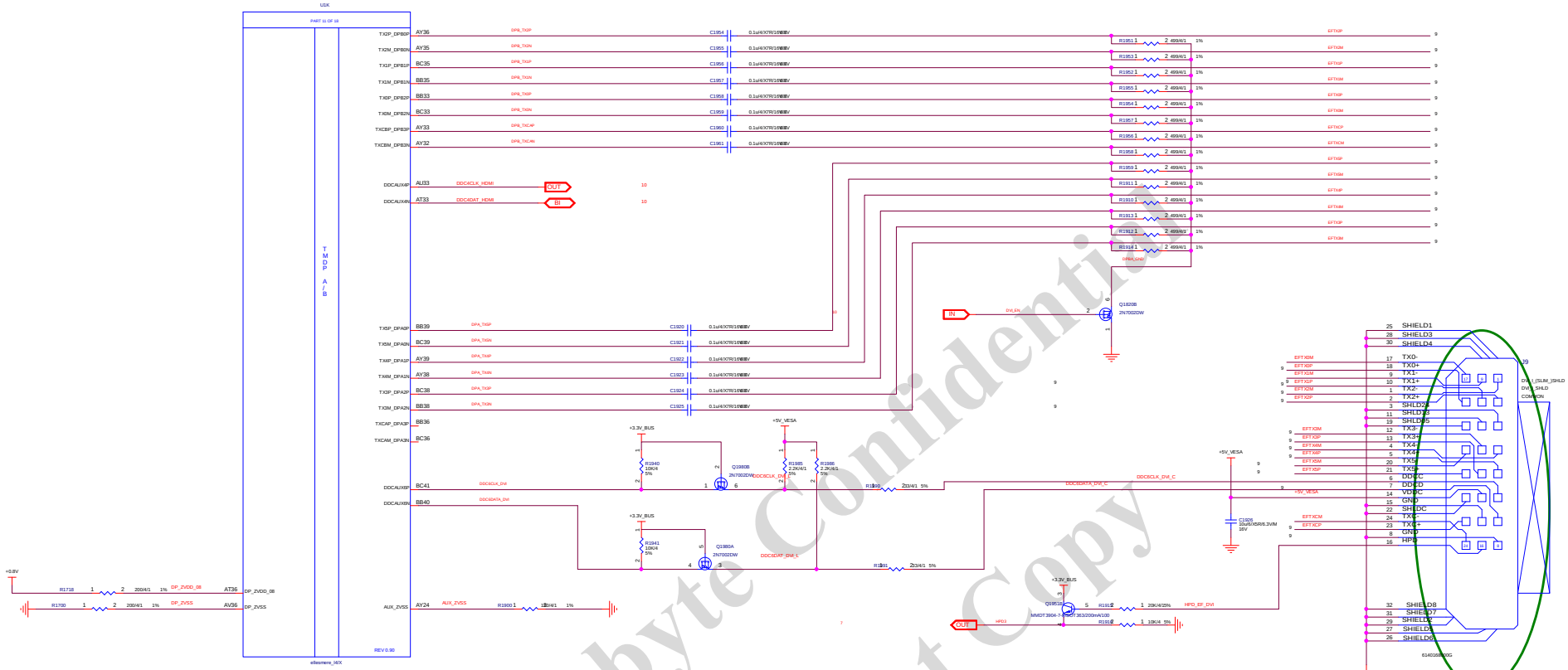
GIGABYTE		
Title	ELLESMERE GPIO STRAP CF XTAL	
Size: Custom	Document Number: GV-RX590 GME-8GD	Rev: 1.0
Date: Monday, April 13, 2020	Sheet 7 of 29	

(8) ELLESMERE DAC1 LOCK

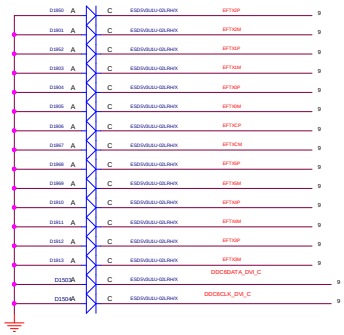


GIGABYTE			
Title: ELLESMERE DAC1 LOCK			
Size: Custom	Document Number: GV-RX590 GME-8GD		Rev: 1.0
Date: Monday, April 13, 2020	Sheet 8 of 29		

(9) ELLESMERE TMDP A/B



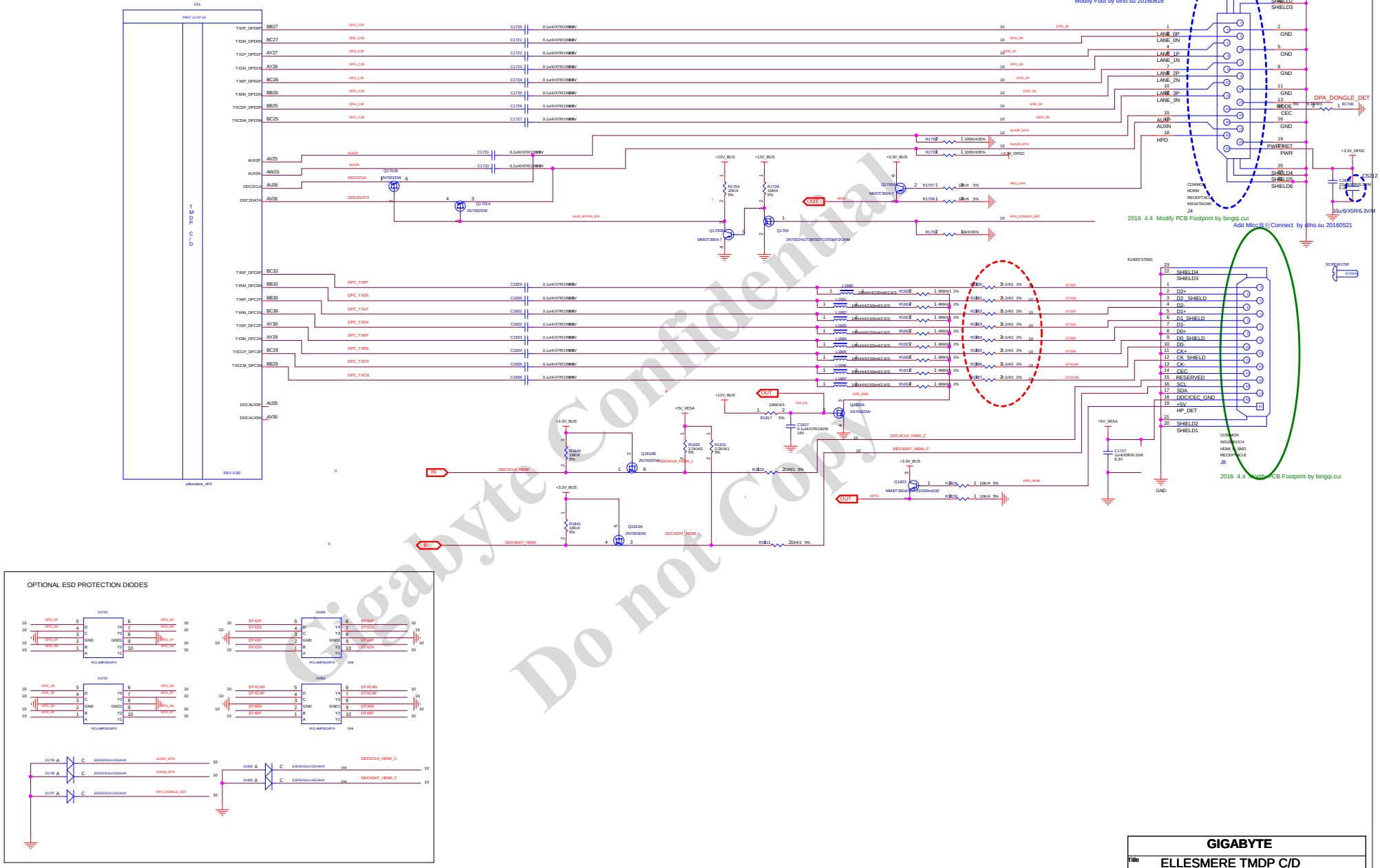
OPTIONAL ESD PROTECTION DIODES



2016 5.20 Modify PCB Footprint by DIHO.SU

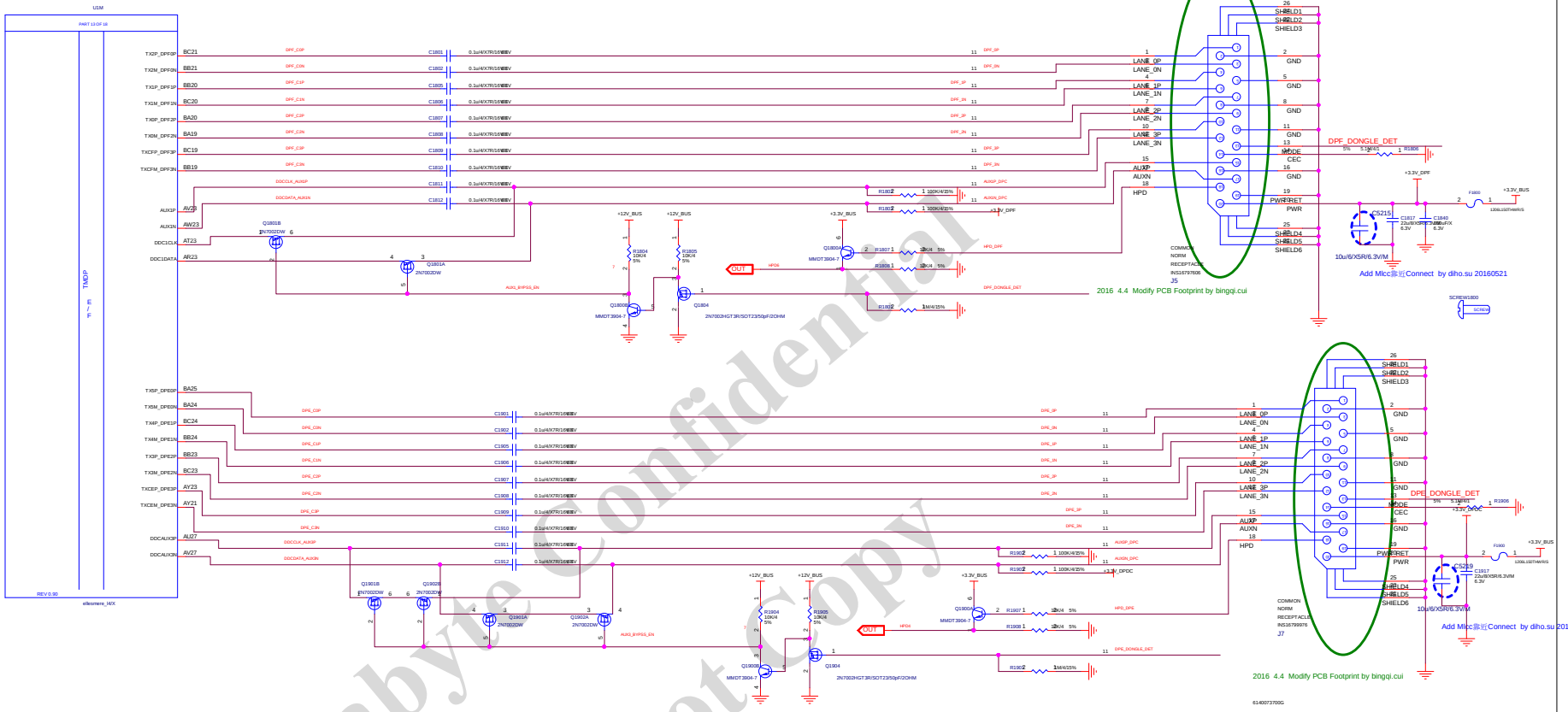
GIGABYTE			
Title: ELLESMERE TMDP A/B			
Size: Custom	Document Number: GV-RX590 GME-8GD		Rev: 1.0
Date: Monday, April 13, 2020	Sheet 9 of 29		

(10) ELLESMERE TMDP C/D

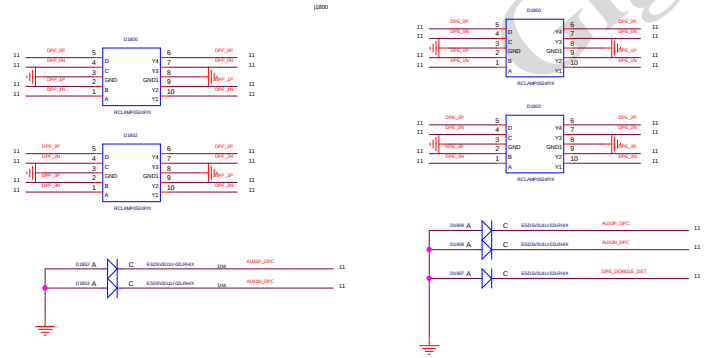


GIGABYTE		
Title	ELLESMERE TMDP C/D	
Size: Custom	Document Number: GV-RX590 GME-8GD	Rev: 1.0
Date: Monday, April 13, 2020	Sheet 10 of 29	

(11) ELLESMERE LVTMDP E/F

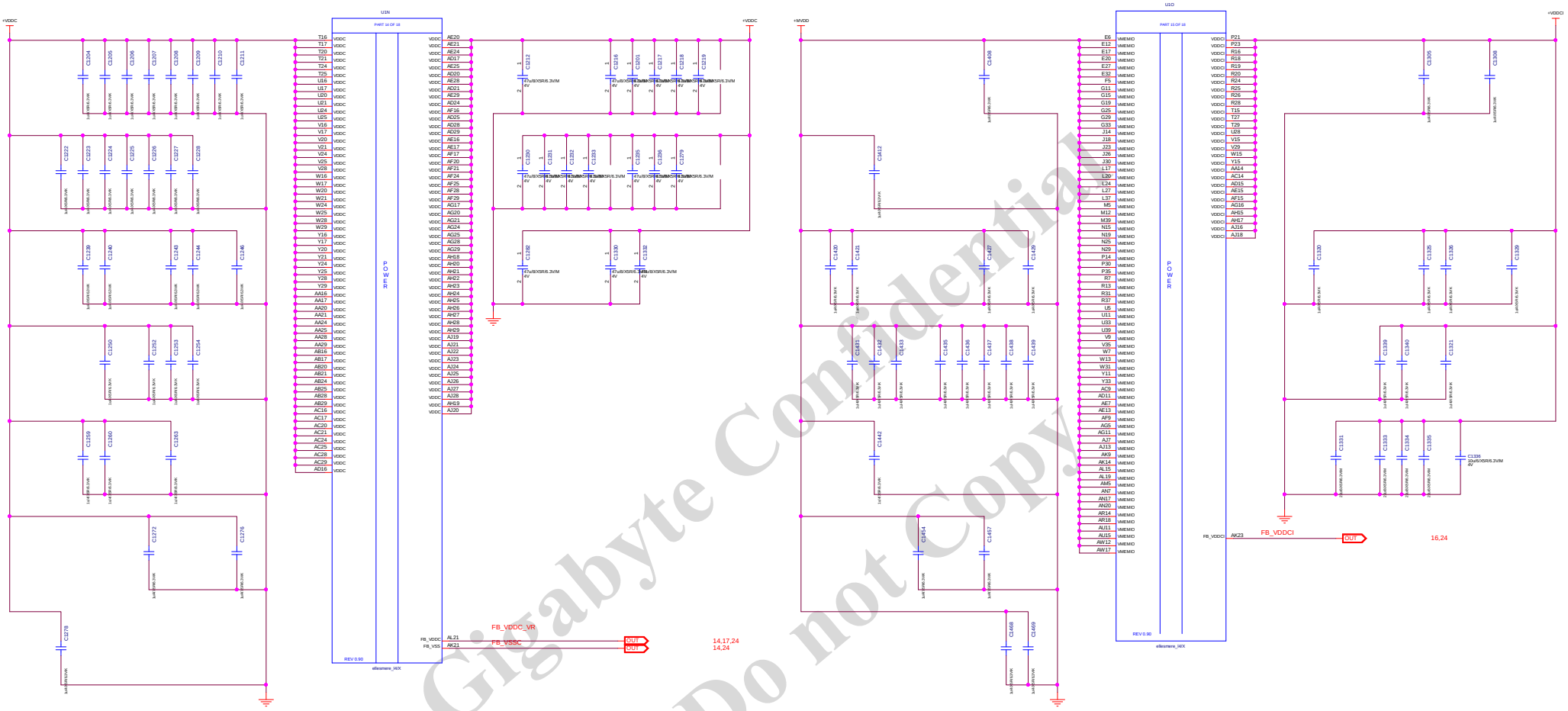


OPTIONAL ESD PROTECTION DIODES



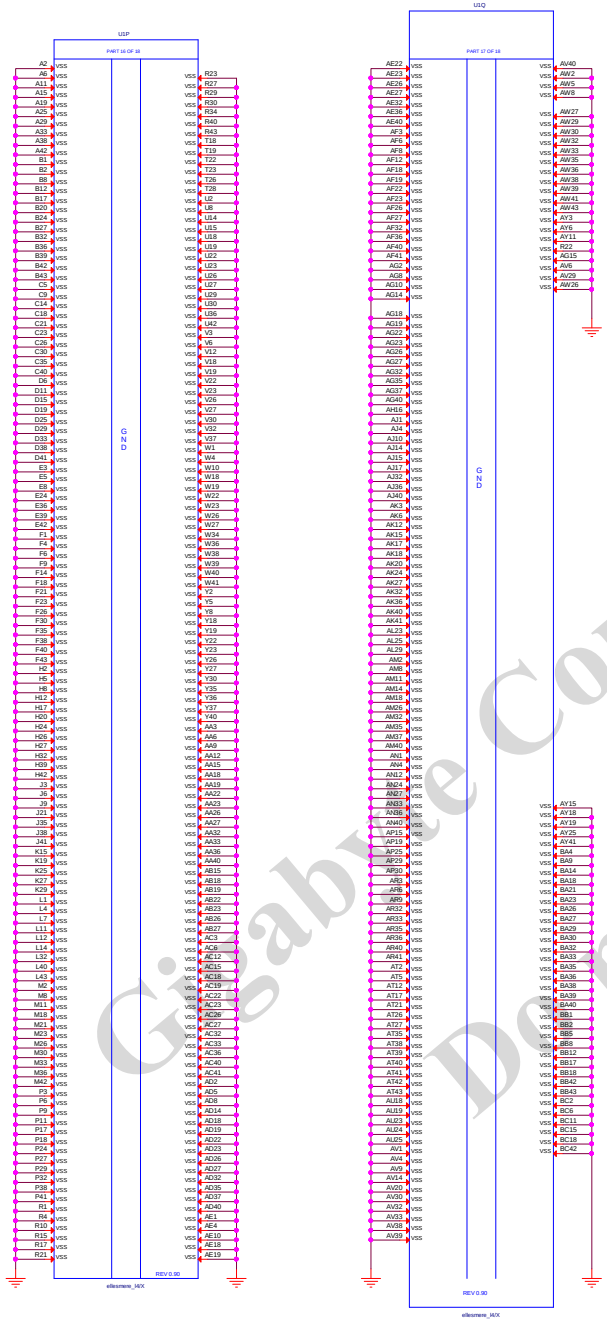
GIGABYTE		
Title	ELLESMERE LVTMDP E/F	
Size: Custom	Document Number: GV-RX590 GME-8GD	Rev: 1.0
Date: Monday, April 13, 2020	Sheet 11 of 29	

(12) ELLESMERE POWER

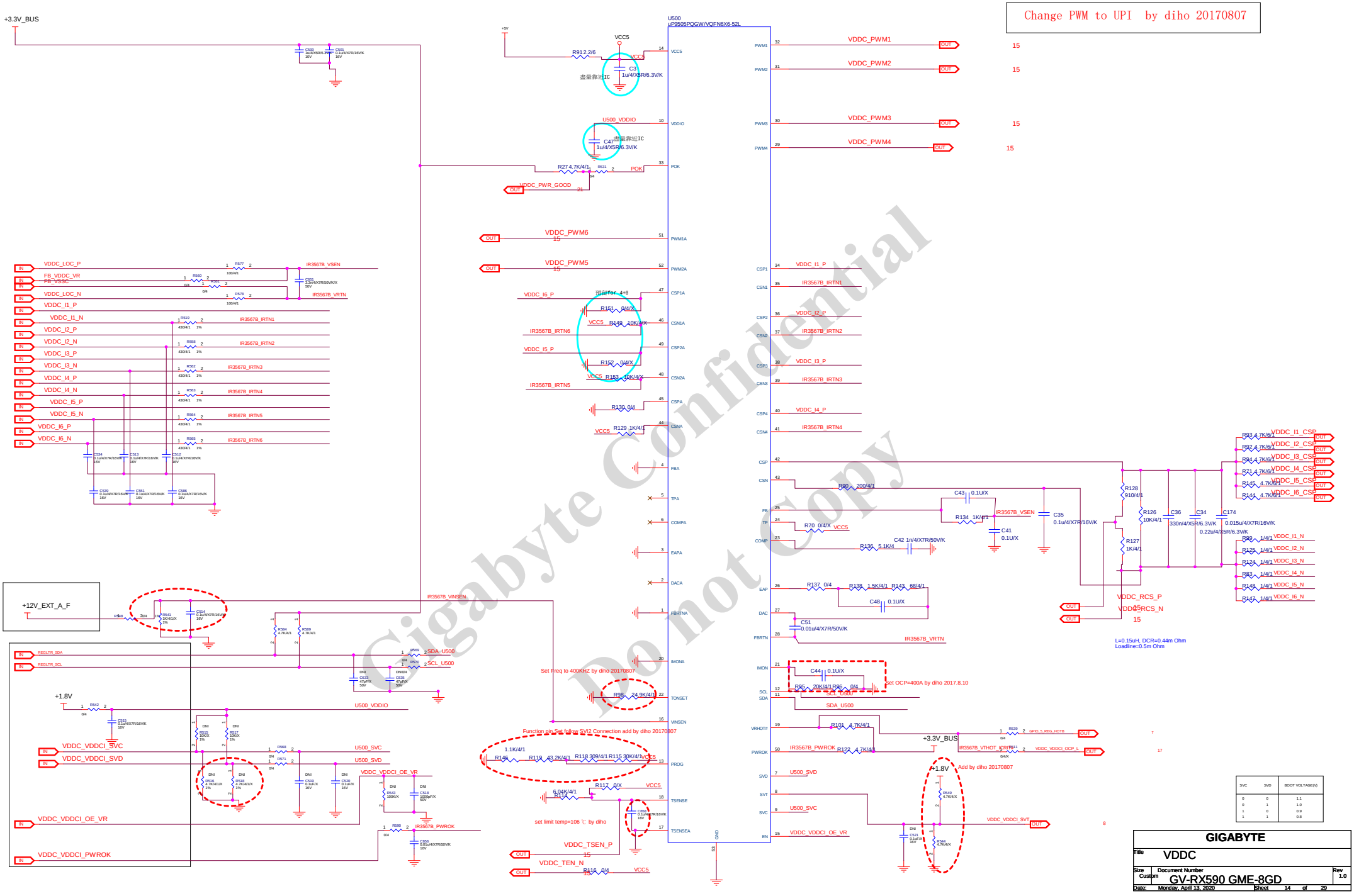


GIGABYTE		
Title: PCI Express		
Size: Custom	Document Number: GV-RX590 GME-8GD	Rev: 1.0
Date: Monday, April 13, 2020	Sheet 12 of 29	

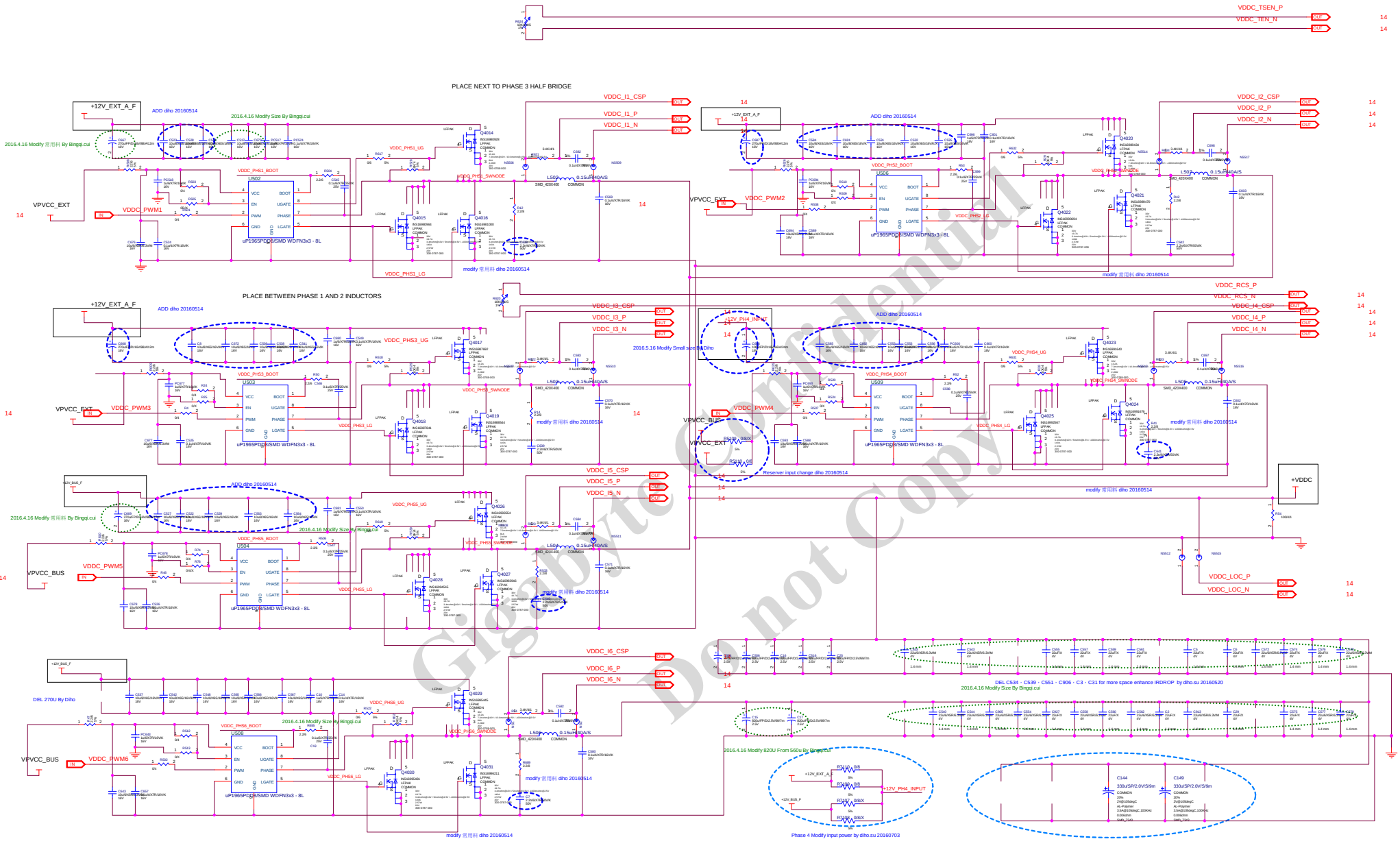
(13) ELLESMERE GROUND



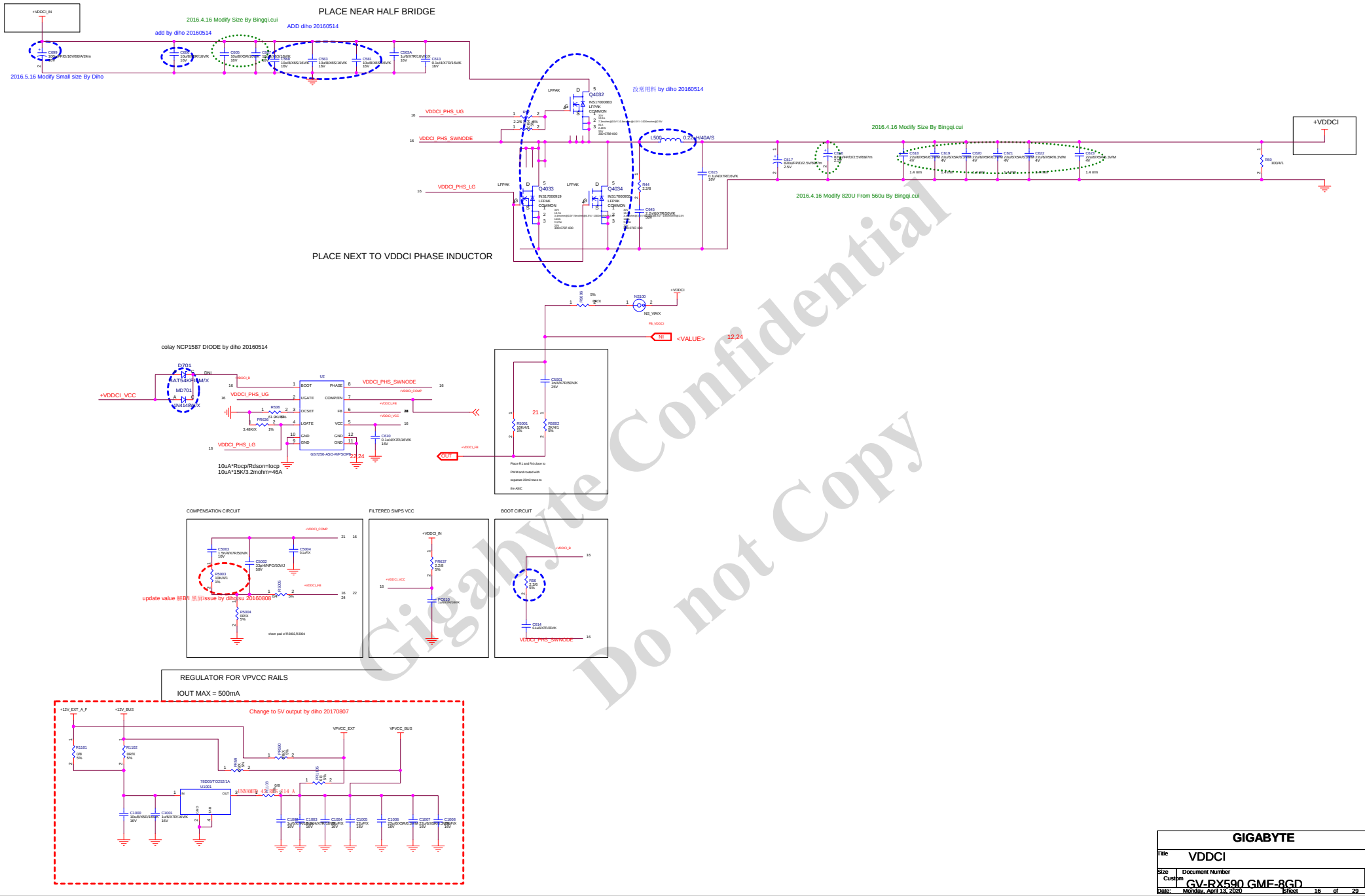
GIGABYTE		
Title: ELLESMERE GND		
Size: Custom	Document Number: GV-RX590 GME-8GD	Rev: 1.0
Date: Monday, April 13, 2020	Sheet 13 of 29	


Change PWM to UPI by diho 20170807
+3.3V_BUS
U500
uP9505PQGW/VQFN6X6-52L
VCC5
VDDC_PWM1
VDDC_PWM2
VDDC_PWM3
VDDC_PWM4
VDDC_PWM5
VDDC_PWM6
U500_VDDIO
VDDC_PWR_GOOD
POK
VDDC_I1_P
VDDC_I2_P
VDDC_I3_P
VDDC_I4_P
VDDC_I5_P
VDDC_I6_P
IR3567B_VSEN
IR3567B_VRTN
IR3567B_IRTN1
IR3567B_IRTN2
IR3567B_IRTN3
IR3567B_IRTN4
IR3567B_IRTN5
IR3567B_IRTN6
+12V_EXT_A_F
IR3567B_VINSEN
SDA_U500
SCL_U500
U500_VDDIO
+1.8V
VDDC_VDDCI_SVC
VDDC_VDDCI_SVD
U500_SVC
U500_SVD
VDDC_VDDCI_OE_VR
IR3567B_PWROK
VDDC_VDDCI_PWROK
Set Freq to 400KHZ by diho 20170807
Function pin Set follow SVI2 Connection add by diho 20170807
set limit temp=106℃ by diho
VDDC_TSEN_P
VDDC_TEN_N
Set OCP=400A by diho 2017.8.10
+3.3V_BUS
+1.8V
Add by diho 20170807
VDDC_RCS_P
VDDC_RCS_N
L=0.15uH, DCR=0.44m Ohm
Loadline=0.5m Ohm
Cigabyte Confidential
Do not Copy
GIGABYTE
Title VDDC
Size Custom
Document Number GV-RX590 GME-8GD
Rev 1.0
Date: Monday, April 13, 2020
Sheet 14 of 29

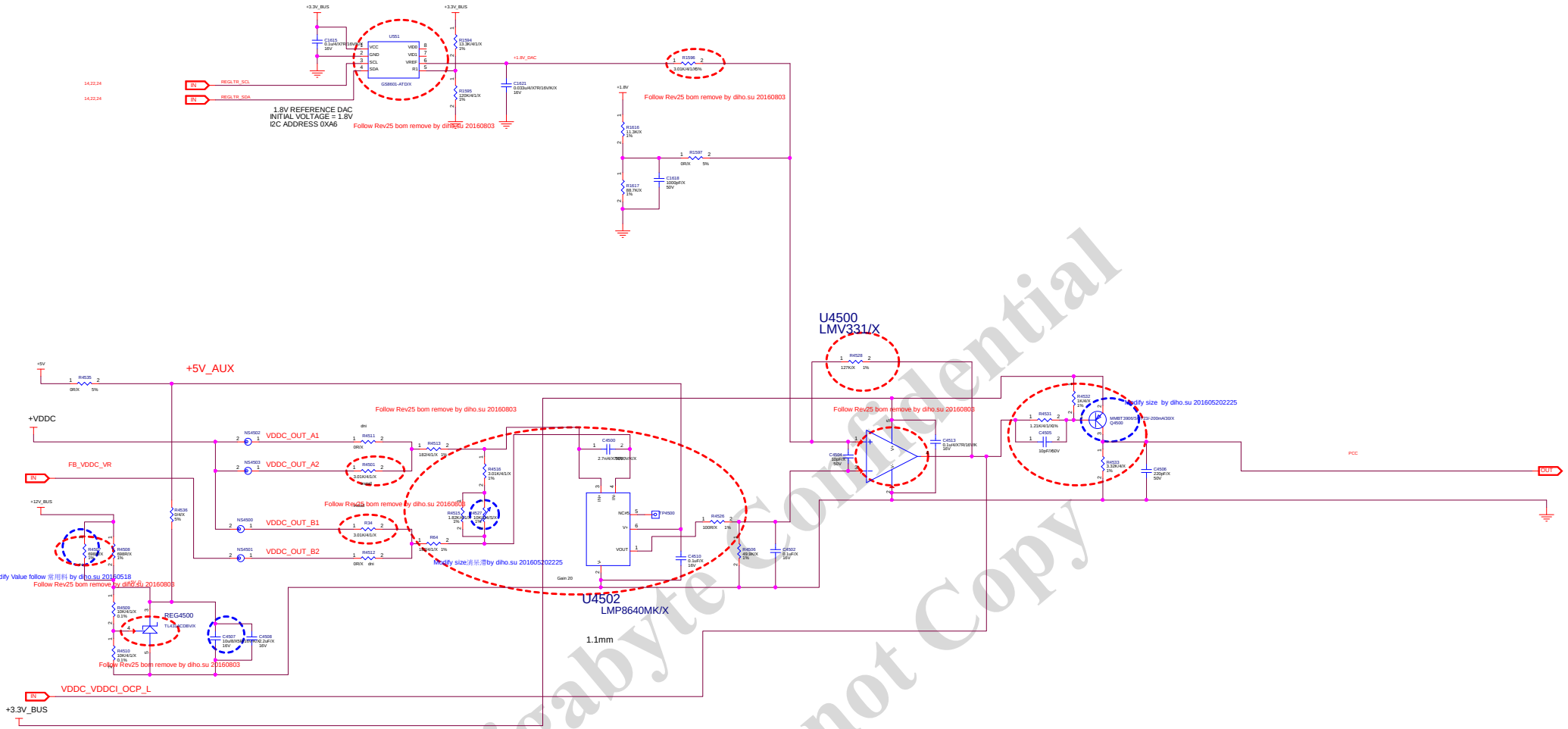
VDDC



GIGABYTE			
Title: VDDC Driver			
Size: Custom	Document Number: GV-RX590 GME-8GD		Rev: 1.0
Date: Monday, April 13, 2020	Sheet 15 of 29		



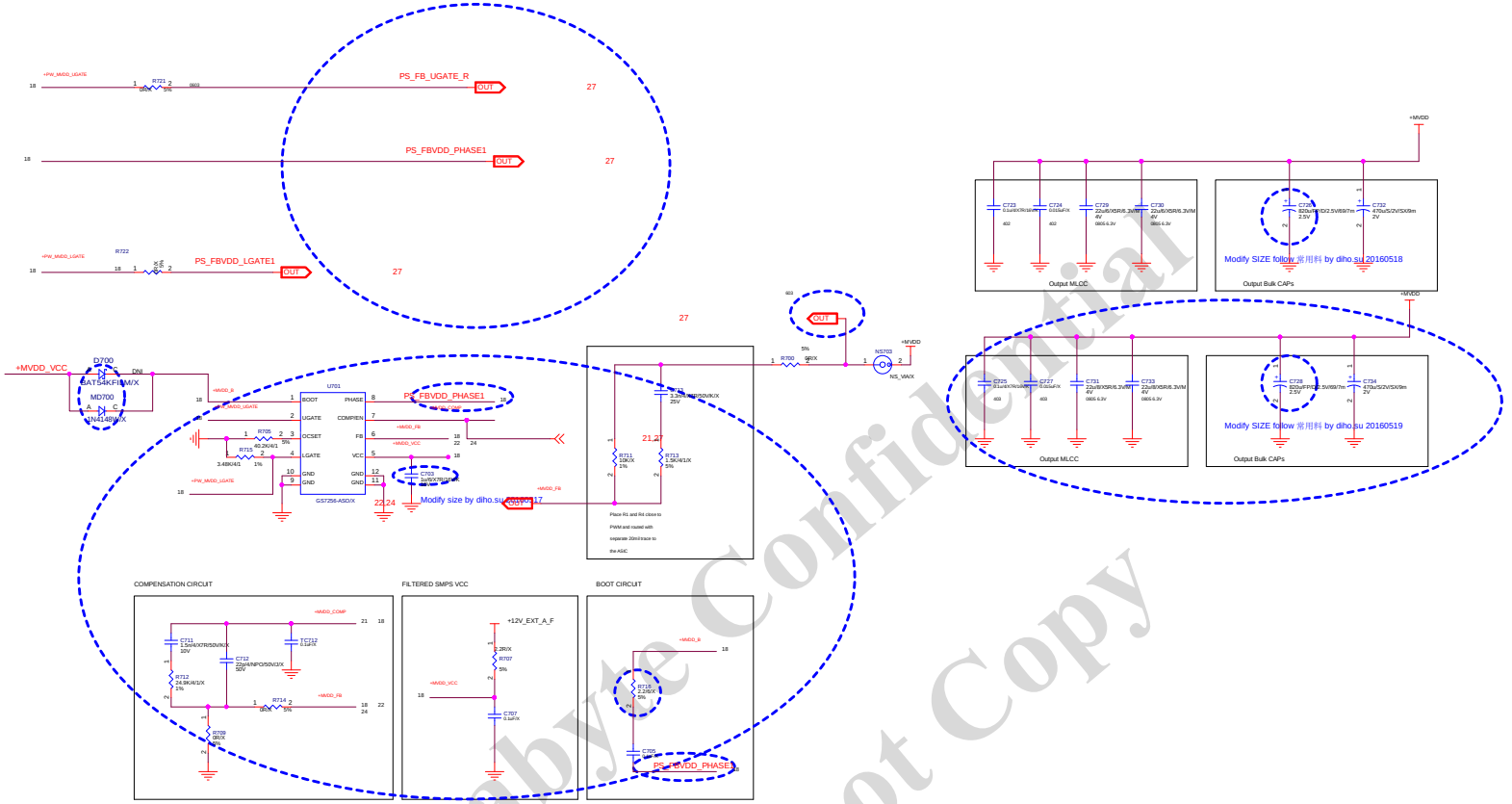
GIGABYTE		
Title: VDDCI		
Size: Custom	Document Number: GV-RX590 GME-8GD	Rev: 1.0
Date: Monday, April 13, 2020	Sheet 16 of 29	



GIGABYTE		
Title: PCC VDDC		
Size: Custom	Document Number: GV-RX590 GME-8GD	Rev: 1.0
Date: Monday, April 13, 2020	Sheet 17 of 29	

(16) MVDD

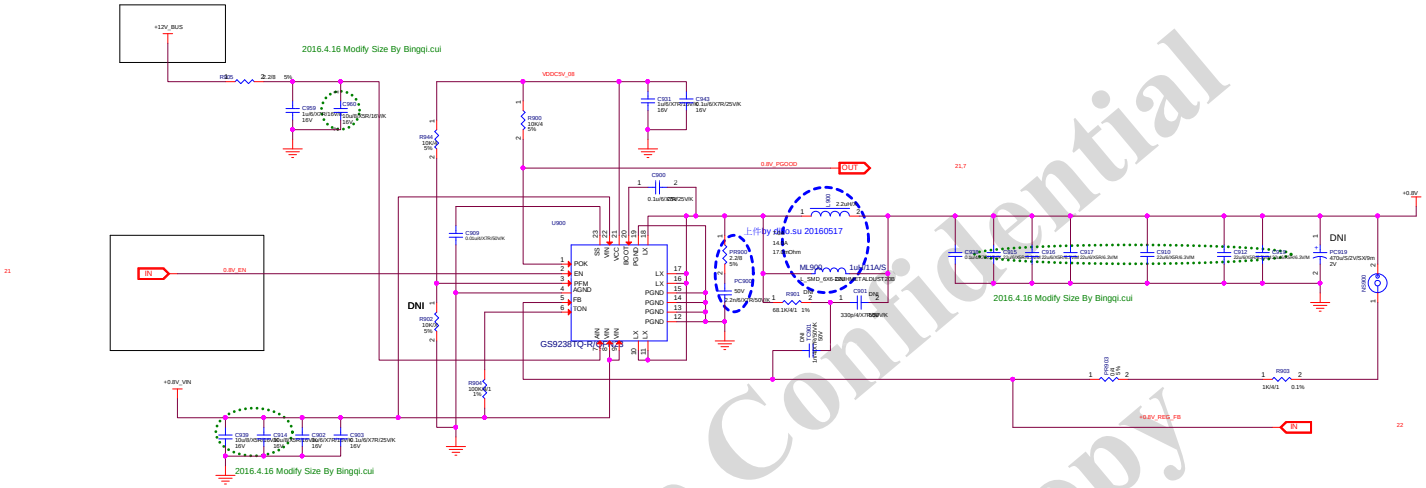
CHANGE POWER PHASE TO PAGE26 by diho 20160514



/X Single phase power by diho.su 20160517

GIGABYTE		
Title: MVDD		
Size: Custom	Document Number: GV-RX590 GME-8GD	Rev: 1.0
Date: Monday, April 13, 2020	Sheet 18 of 29	

(17) 0.95V

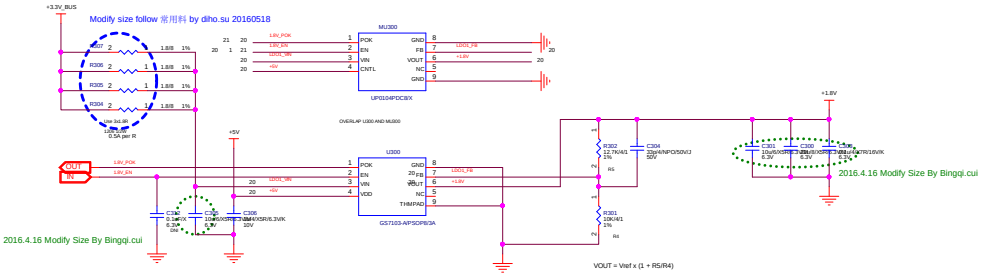


GIGABYTE		
Title: 0.95V		
Size: Custom	Document Number: GV-RX590 GME-8GD	Rev: 1.0
Date: Monday, April 13, 2020	Sheet 19 of 29	

(18) SMALL RAIL REGULATORS

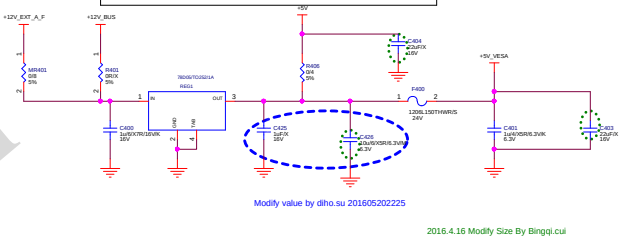
LDO #1: VIN = 3.0V TO 3.6V MAX VOUT = +1.8V +/- 2% IOUT = 1.3A RMS MAX

PCB: 50 TO 70mm SQ. COPPER AREA FOR COOLING

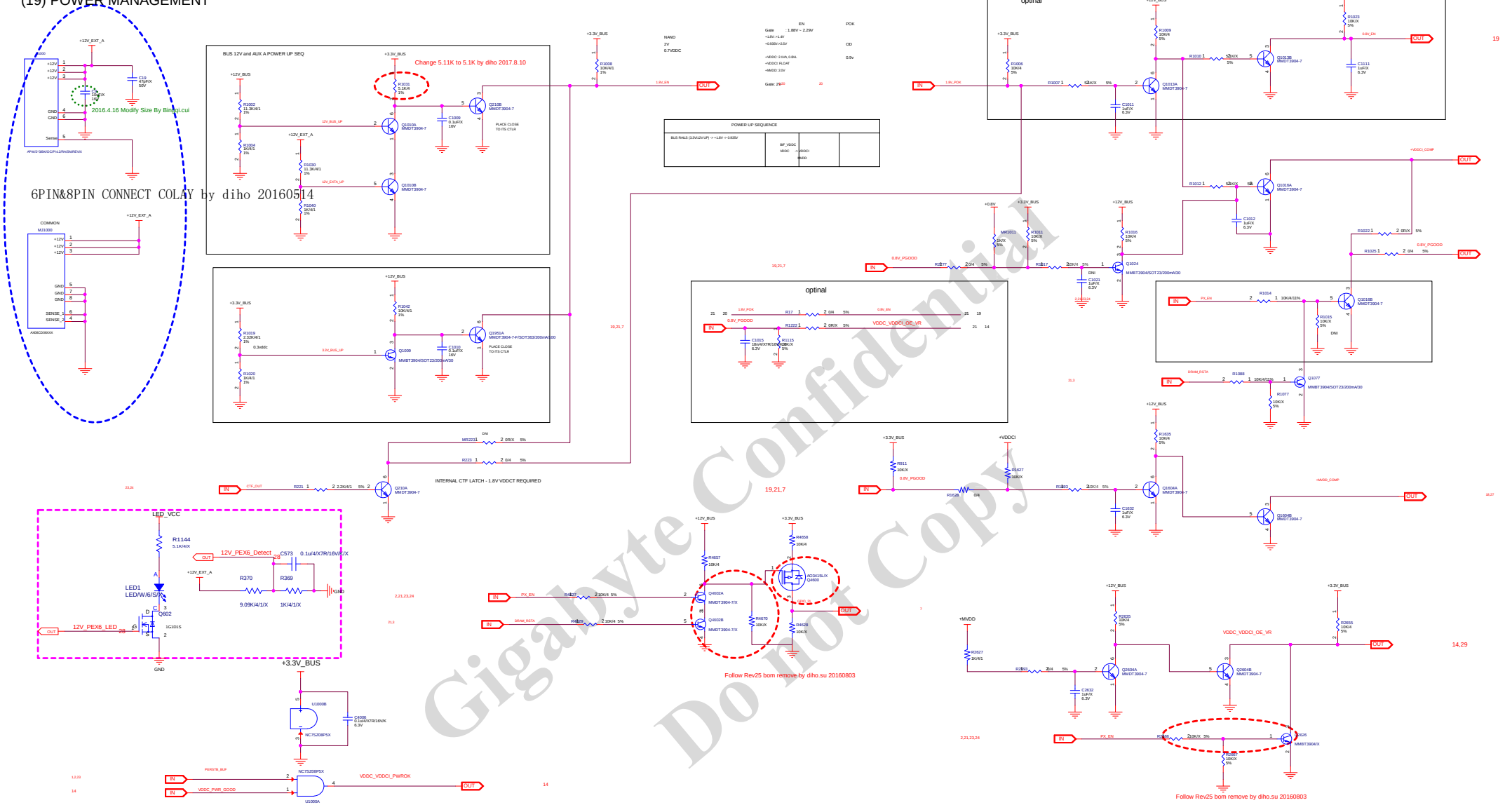


REGULATOR FOR +5V RAILS

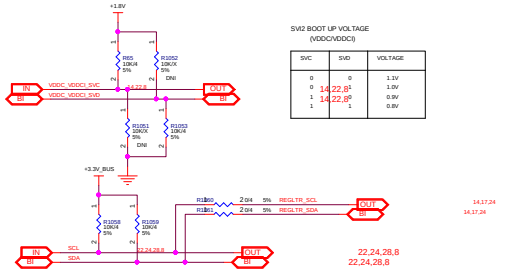
IOUT MAX = 150mA



GIGABYTE			
Title: SMALL RAIL REGULATORS			
Size: Custom	Document Number: GV-RX590 GME-8GD		Rev: 1.0
Date: Monday, April 13, 2020	Sheet 20 of 29		



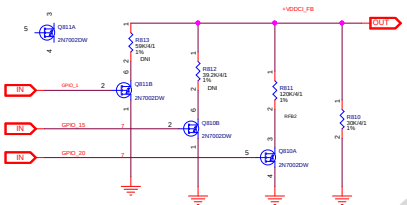
GIGABYTE		
Title	POWER MANAGEMENT1	
Size: Custom	Document Number: GV-RX590 GME-8GD	Rev: 1.0
Date: Monday, April 13, 2020	Sheet 21 of 29	



SVI2 BOOT UP VOLTAGE
(VDDC/VDDCI)

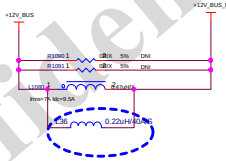
SVC	SVD	VOLTAGE
0	0	1.1V
0	1	1.0V
1	0	0.9V
1	1	0.8V

14,22,8

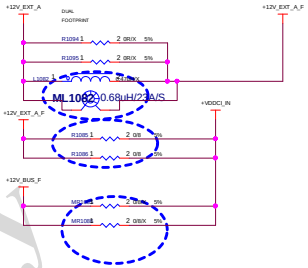


16,24

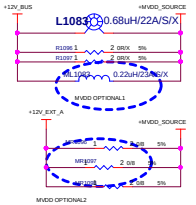
+12V_BUS INPUT



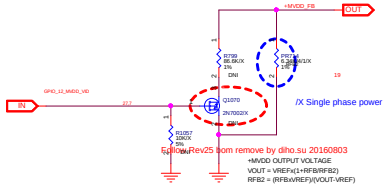
+12V_EXT_A INPUT



Modify size follow 常用料 by diho.su 20160519



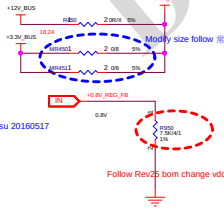
Modify size follow 常用料 by diho.su 20160518



/X Single phase power by diho.su 20160517

Follow Rev25 bom remove by diho.su 20160803

+MVDD OUTPUT VOLTAGE
VOUT = VREF(x(1+RFB/RFB2)
RFB2 = (RFBxVREF)/(VOUT-VREF)

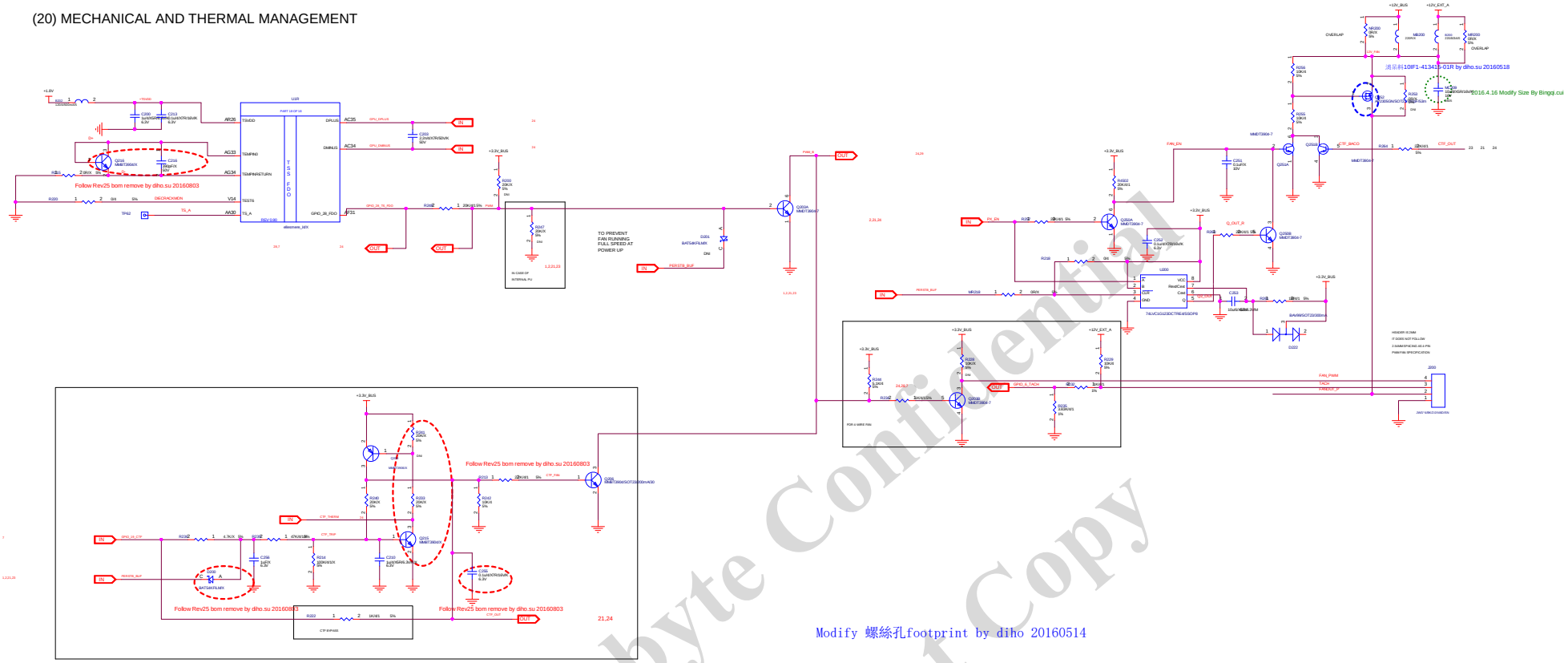


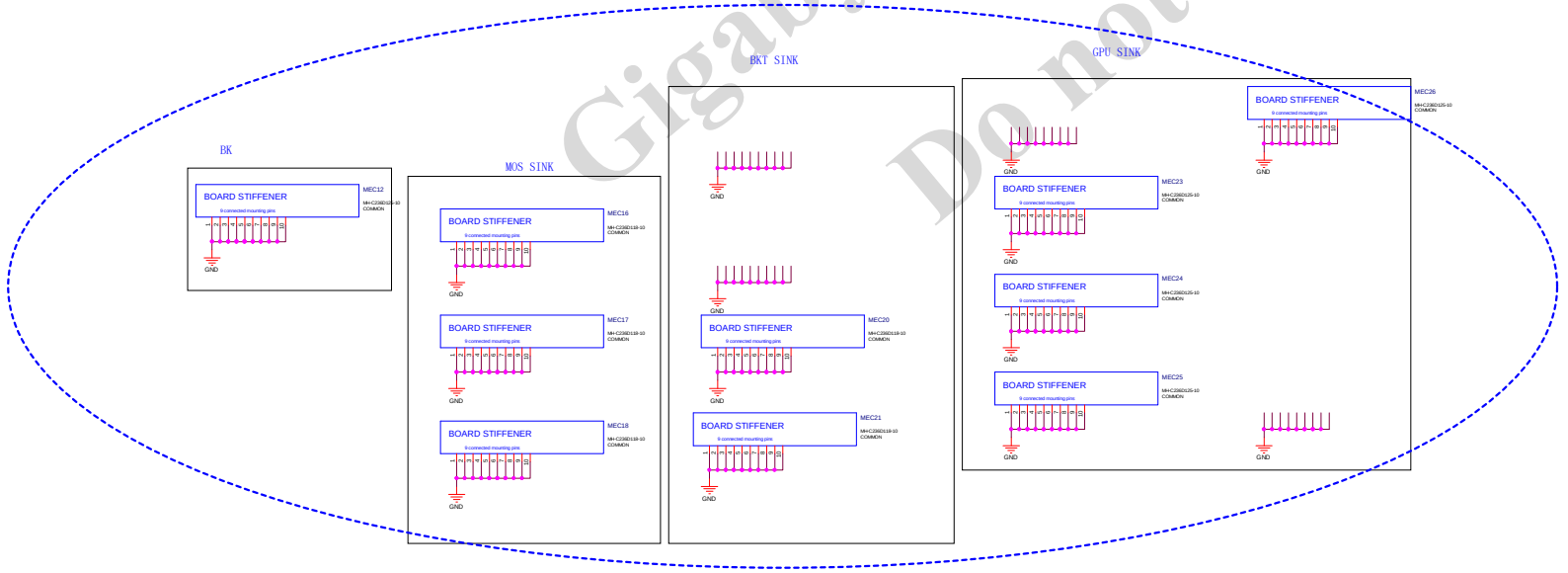
Modify size follow 常用料 by diho.su 20160520

Follow Rev25 bom change vdd_08 to 0.9V by diho.su 20160803

GIGABYTE		
Title	POWER MANAGEMENT2	
Size: Custom	Document Number: GV-RX590 GME-8GD	Rev: 1.0
Date: Monday, April 13, 2020	Sheet 22 of 29	

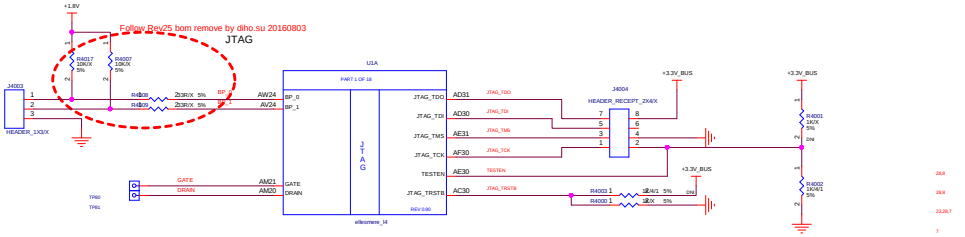
(20) MECHANICAL AND THERMAL MANAGEMENT

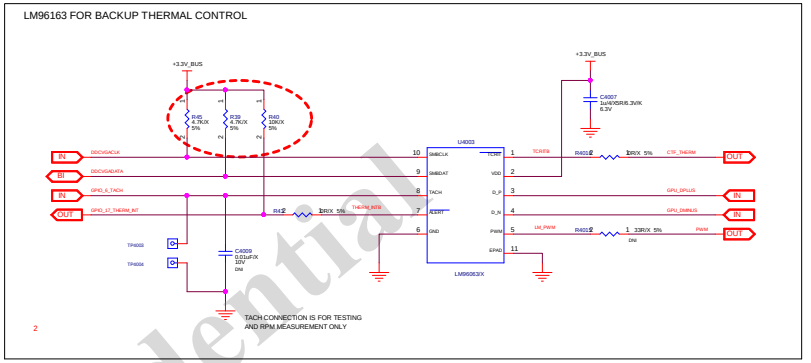


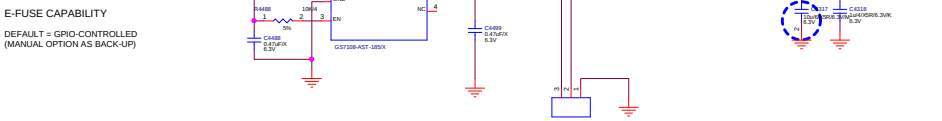


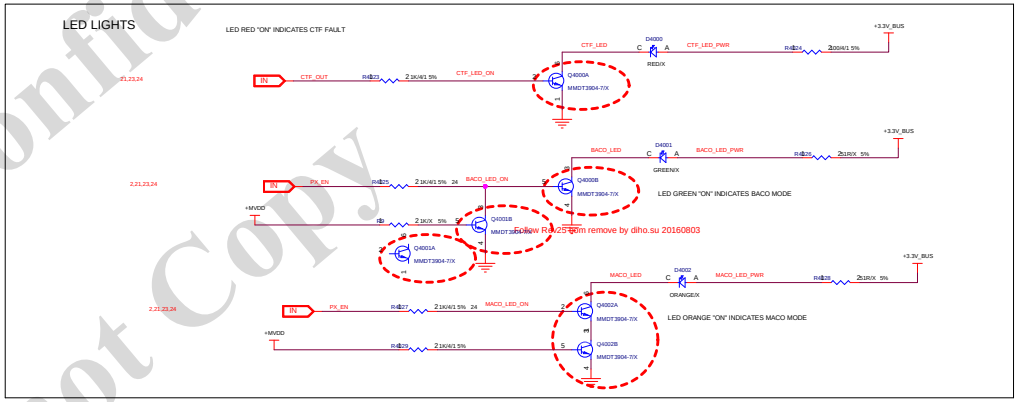
GIGABYTE		
Title: MECHANICAL AND THERMAL MANAGEMENT		
Size: Custom	Document Number: GV-RX590 GME-8GD	Rev: 1.0
Date: Monday, April 13, 2020	Sheet 23 of 29	

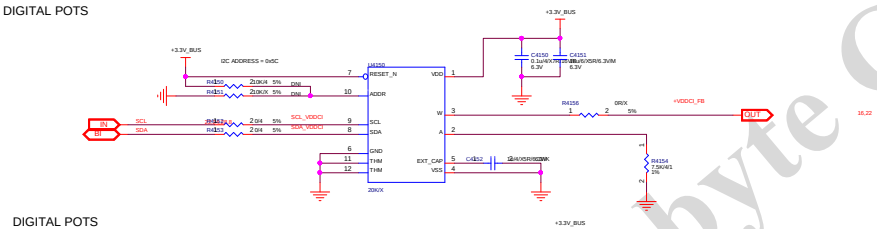
(21) DEBUG CIRCUITS

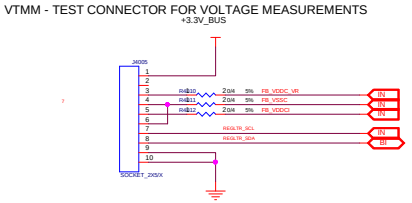


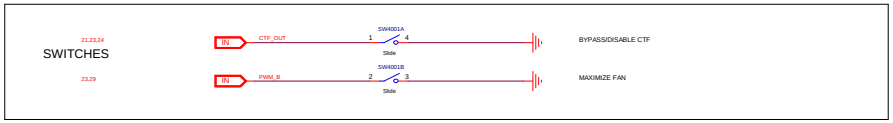




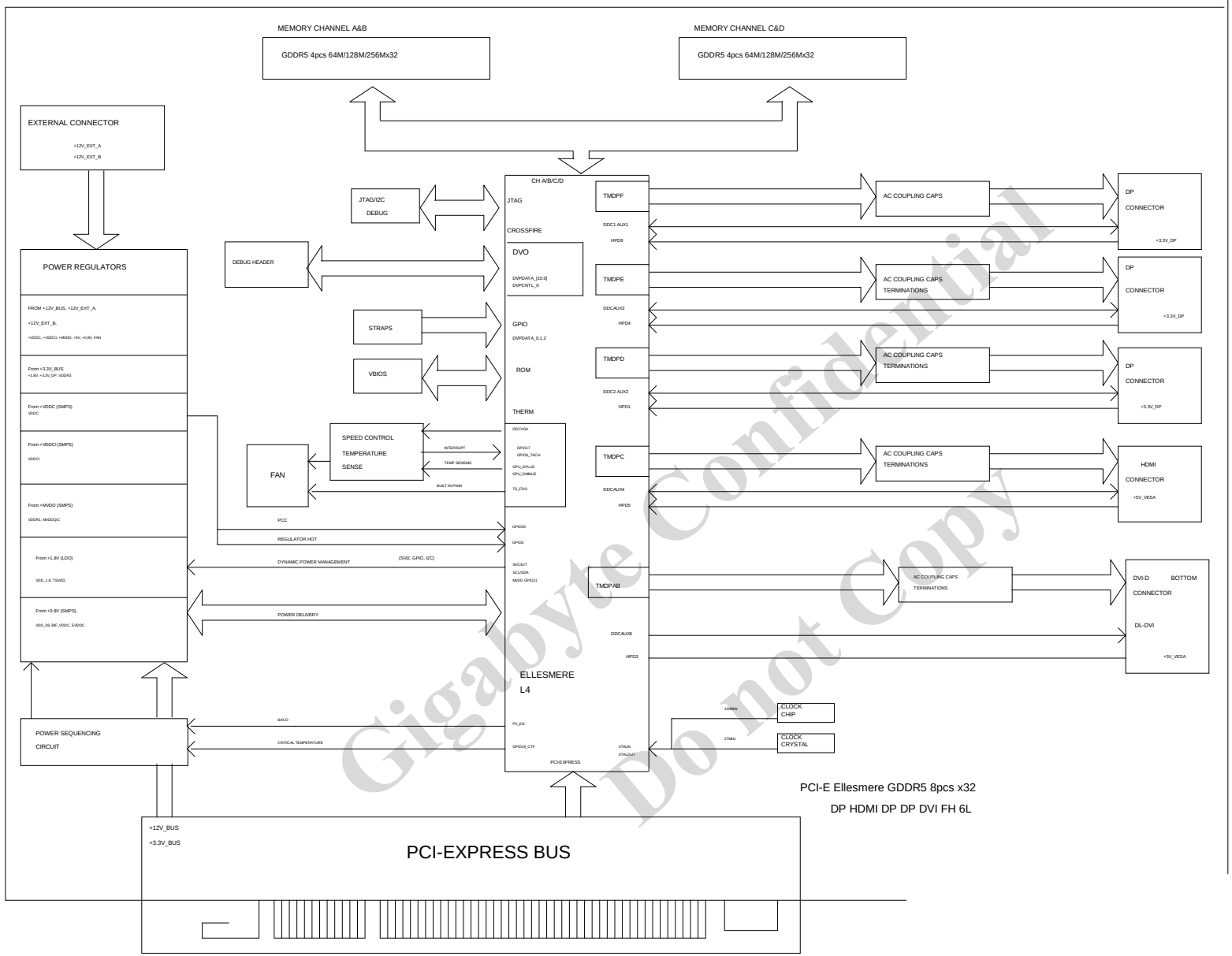








GIGABYTE		
Title: DEBUG CIRCUITS		
Size: Custom	Document Number: GV-RX590 GME-8GD	Rev: 1.0
Date: Monday, April 13, 2020	Sheet 24 of 29	



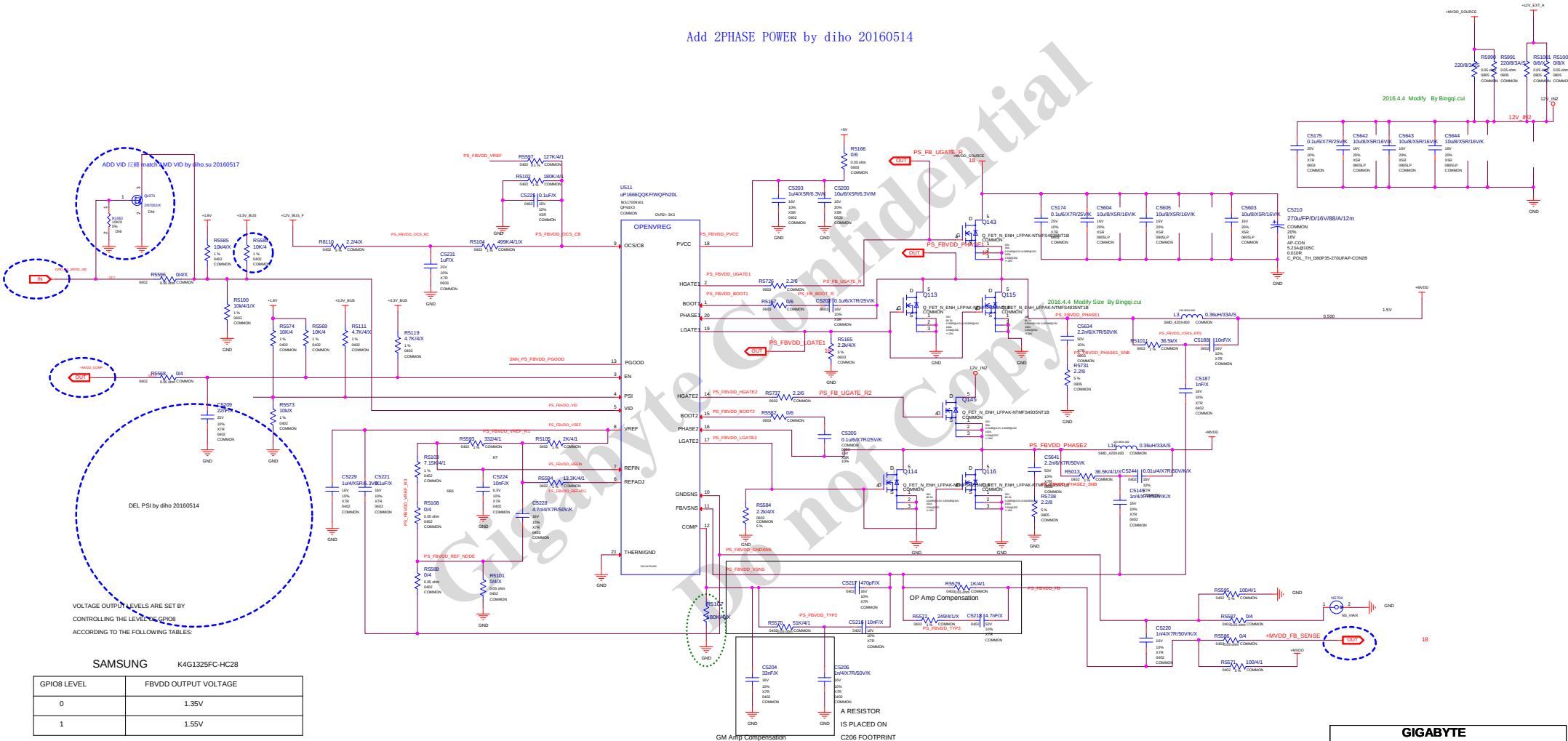
PCI-E Ellesmere GDDR5 8pcs x32

DP HDMI DP DP DVI FH 6L

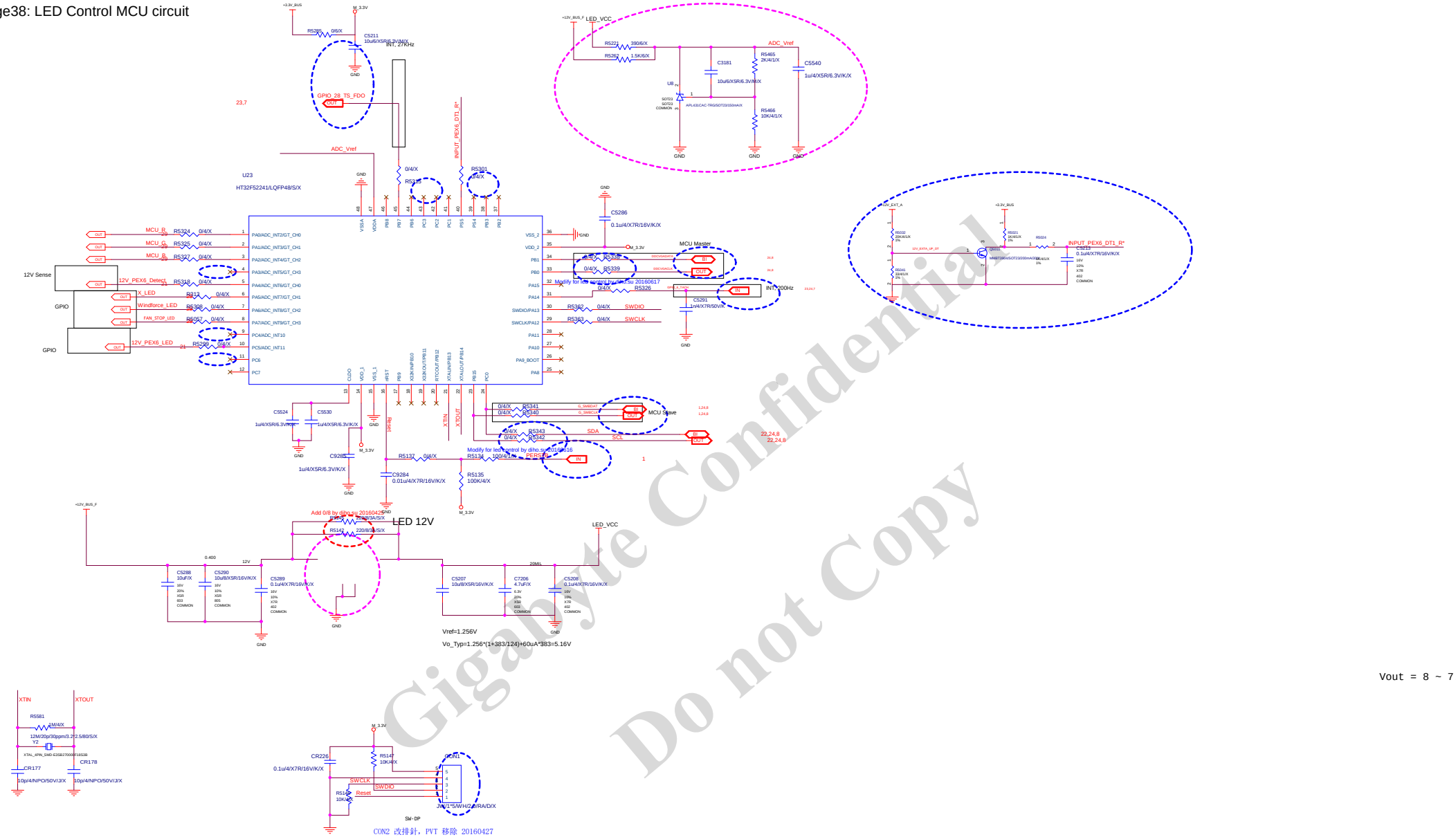
GIGABYTE		
Title: BLOCK DIAGRAM		
Size: Custom	Document Number: GV-RX590 GME-8GD	Rev: 1.0
Date: Monday, April 13, 2020	Sheet 25 of 29	

0	00A	08/26/2019	
1	00B	10/19/2019	1. Add GPIO1 for dynamic VDDCI 2. update VDDC driver sequence
2	00C	03/23/2016	HDMI: - add series resistor R1880 ~R1887 - add pull down inductor L1880 ~L1887 remove C405, C403, VR400,C410,C414,R405
3	00D	04/18/2016	Modify GBT Design

GIGABYTE			
Title: BLOCK DIAGRAM			
Size: Custom	Document Number: GV-RX590 GME-8GD		Rev: 1.0
Date: Monday, April 13, 2020	Sheet 26 of 29		



Page38: LED Control MCU circuit



ASSEMBLY <ASSEMBLY_DESCRIPTION>
PAGE DETAIL MECH: Bracket/Thermal

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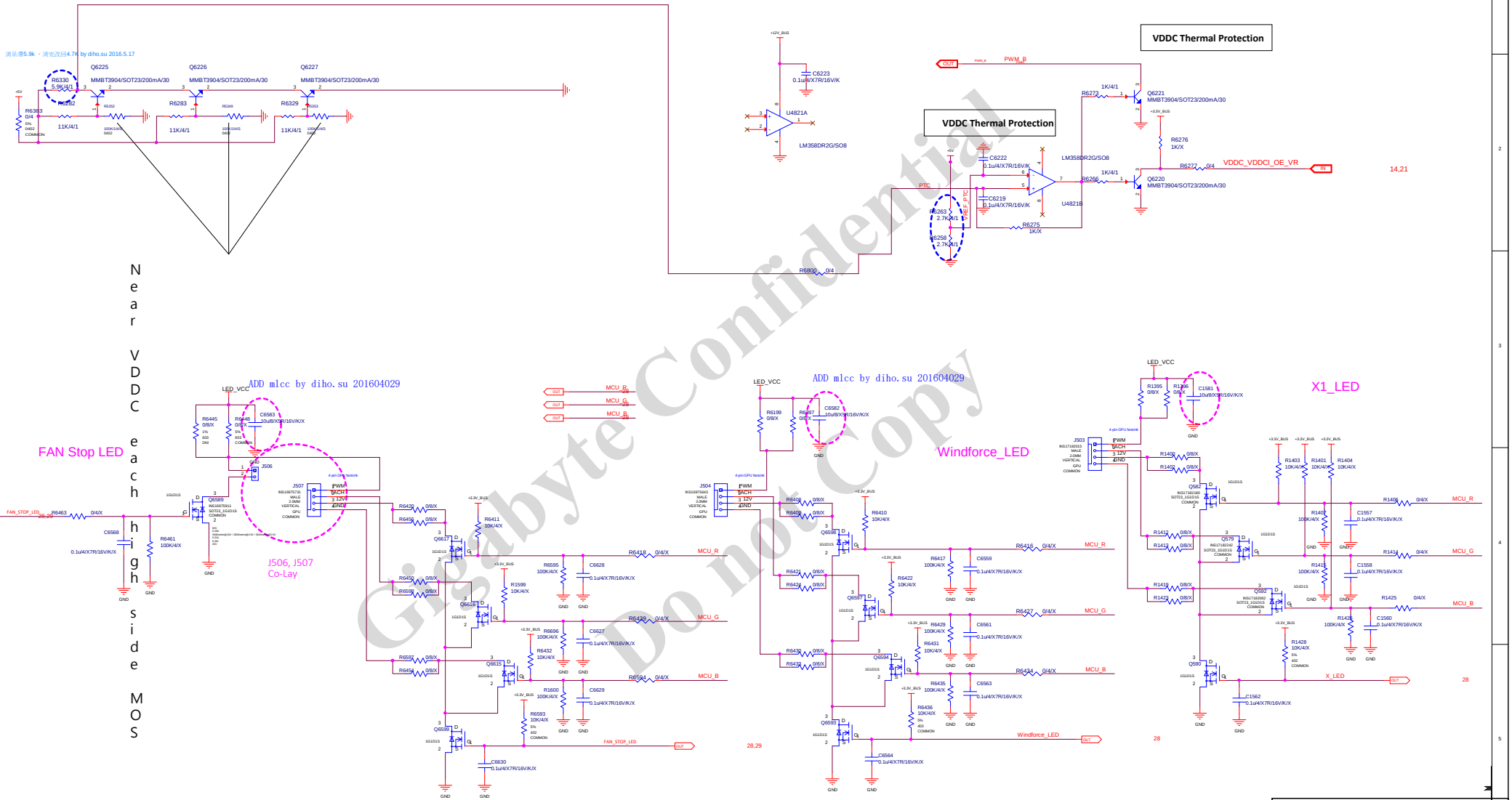
Size: Custom	Document Number: LED GV-RX590 GME-8GD	Rev: 1.0
Date: Monday, April 13, 2020	Sheet: 28 of 29	

Add MOS VRHOT CIRCUIT



PAGE DETAIL

MECH: Bracket/Thermal

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Date: Monday, April 13, 2020	Sheet 29 of 29		