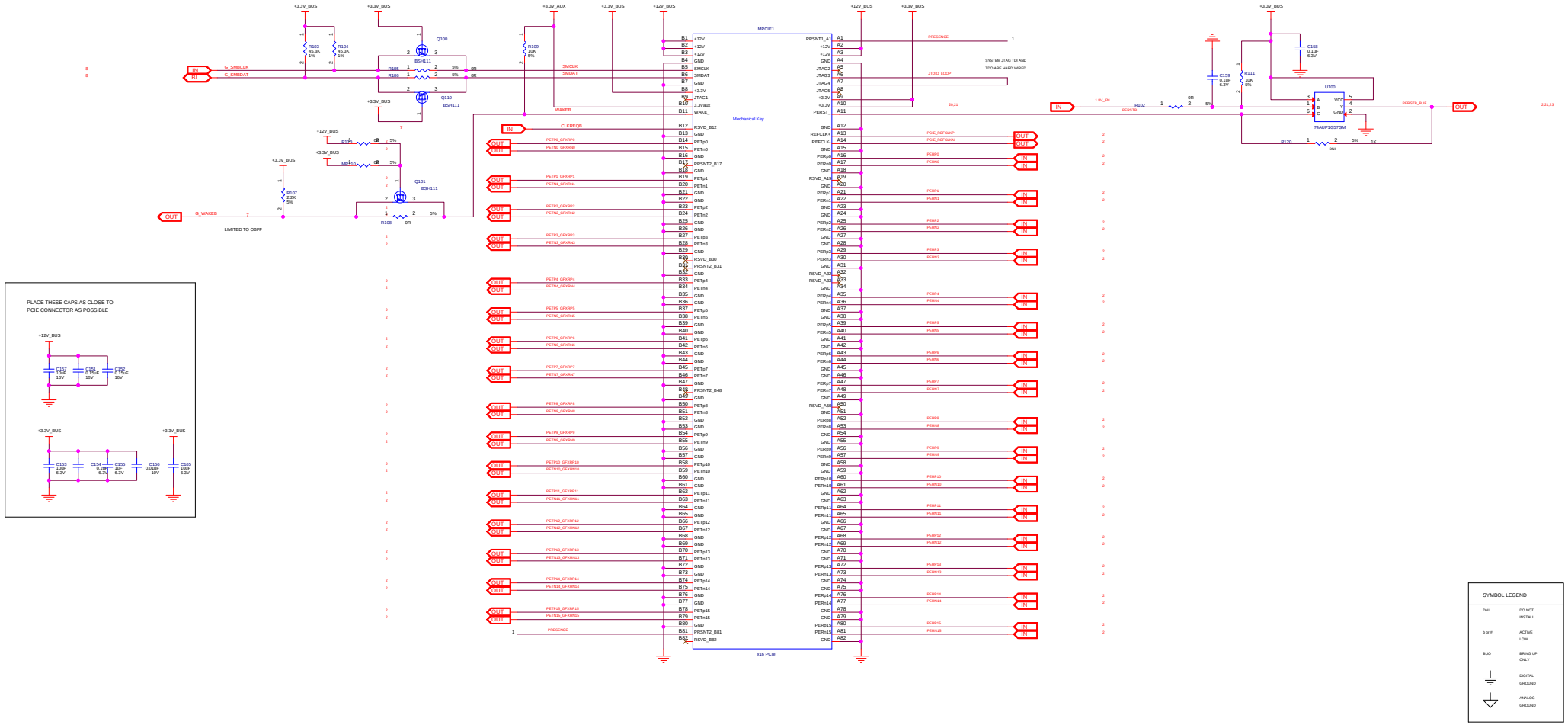
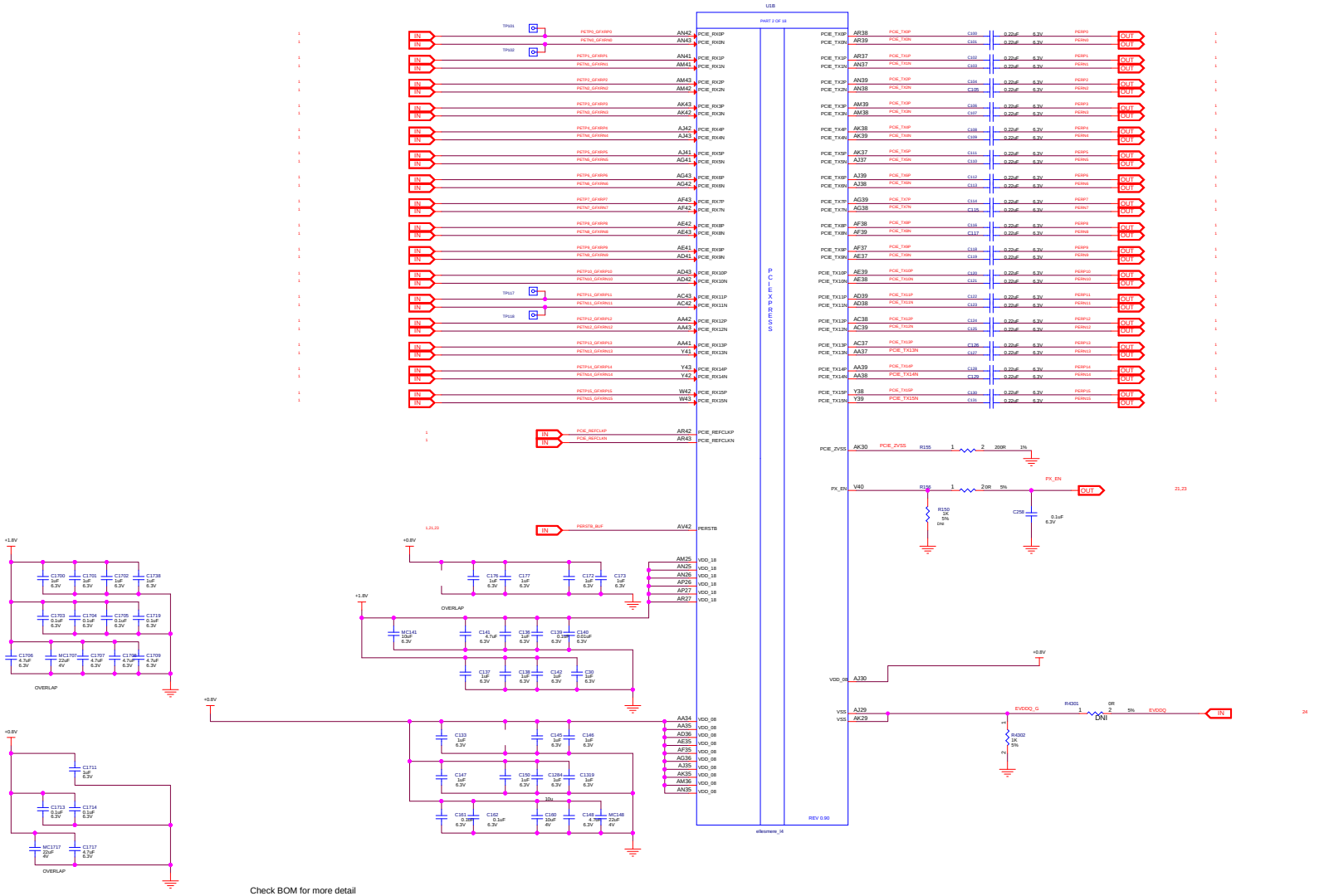
(1) PCI-EXPRESS EDGE CONNECTOR



MICRO-STAR INT'L CO.,LTD		
MS-V341		
Size: Custom	Document Description: TABLE OF CONTENTS	Rev: 1.0
Date: Monday, June 06, 2016	Sheet 1 of 26	

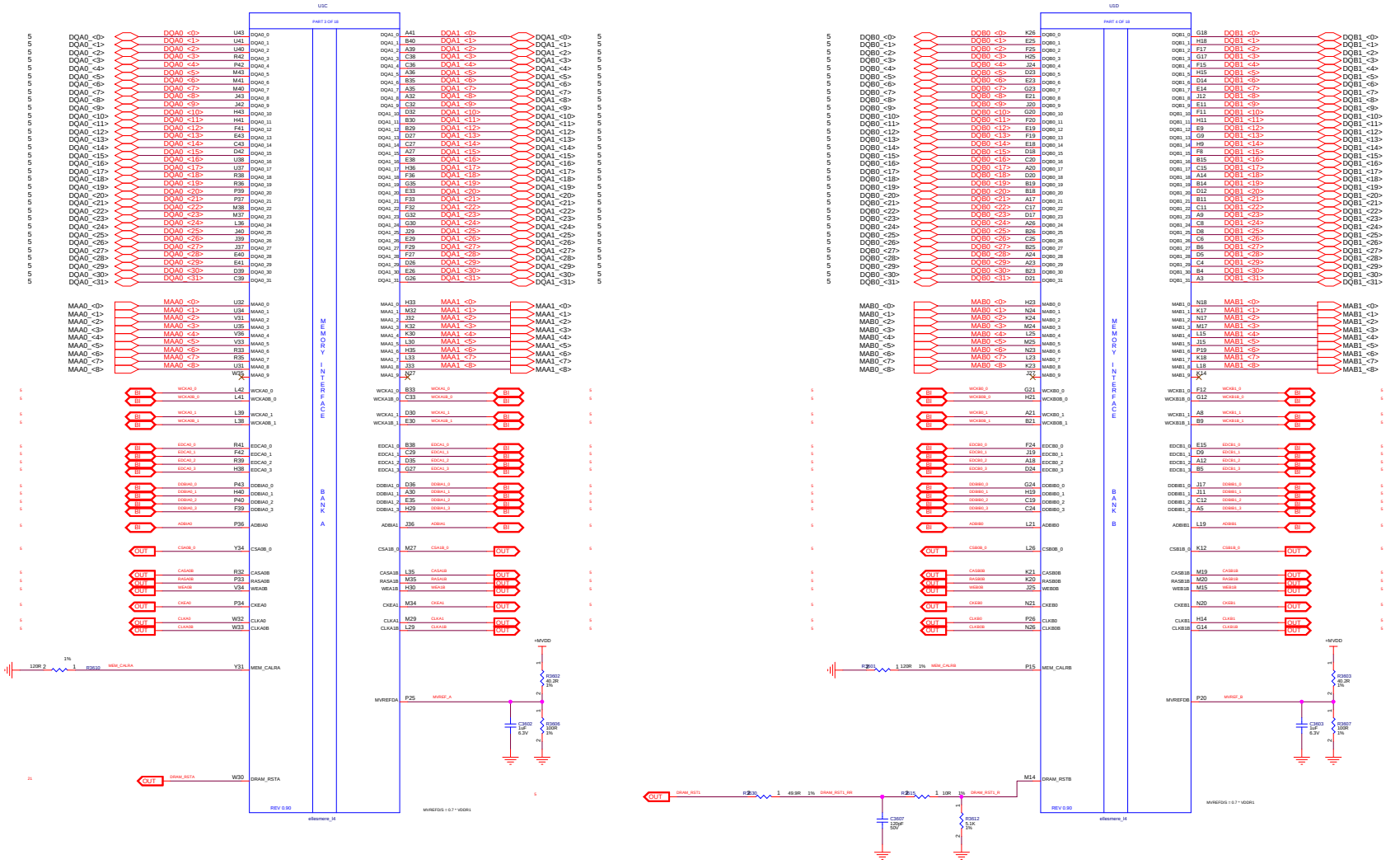
(2) ELLESMERE PCIE INTERFACE



Check BOM for more detail

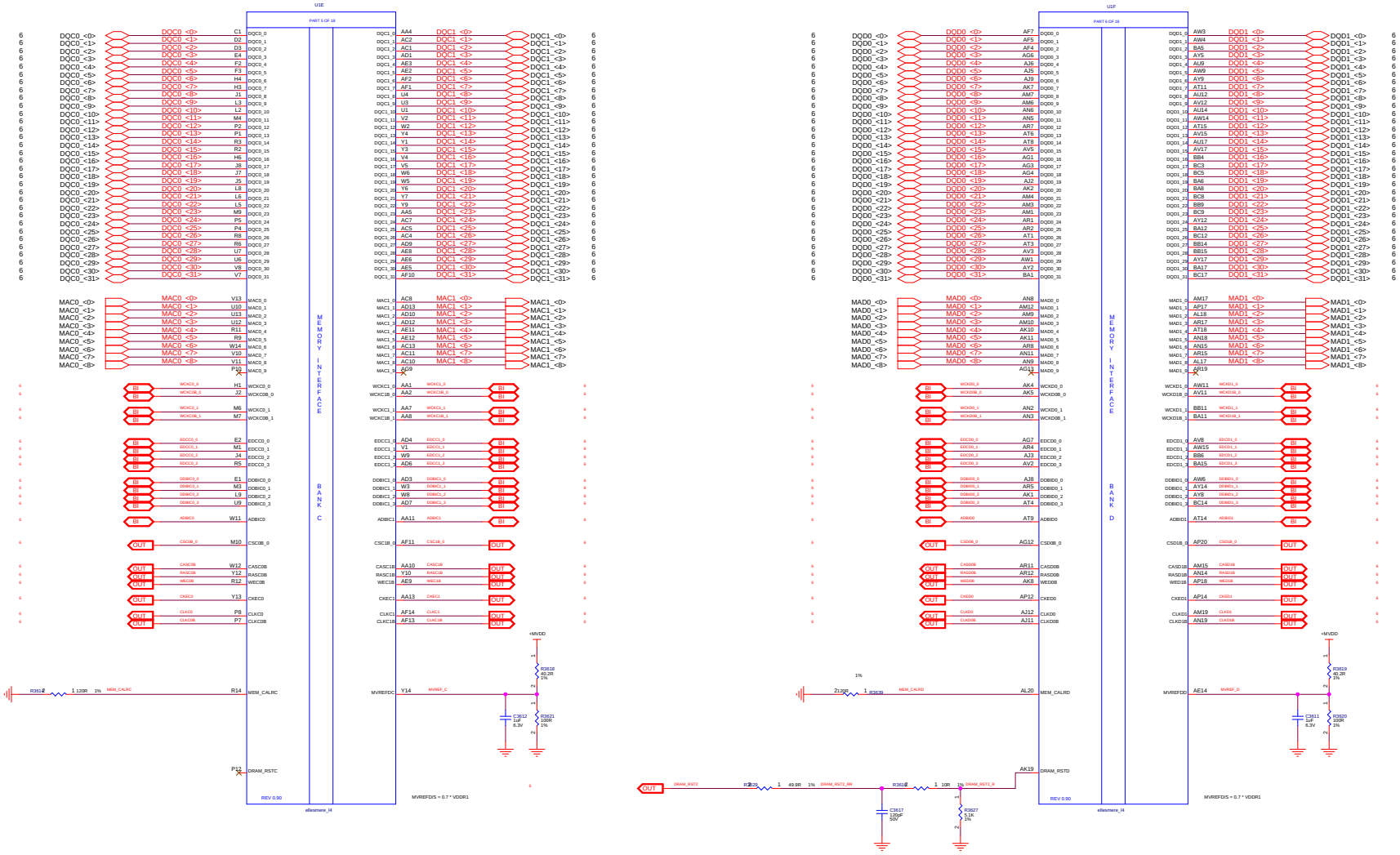
MICRO-STAR INT'L CO.,LTD		
MS-V341		
Size: Custom	Document Description: TABLE OF CONTENTS	Rev: 1.0
Date: Monday, June 06, 2016	Sheet 2 of 26	

(3) ELLESMERE MEM INTERFACE CH A/B



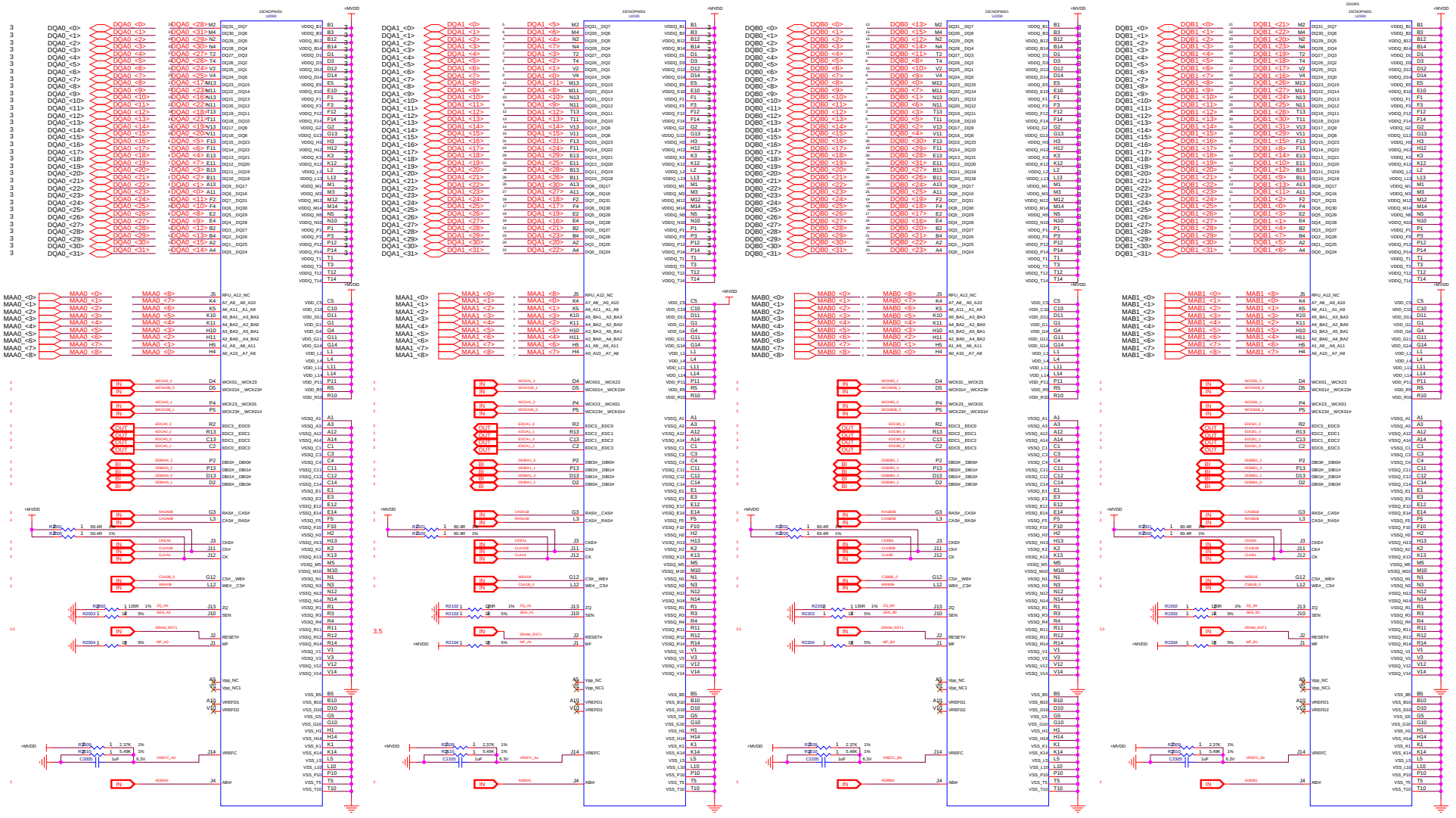
MICRO-STAR INT'L CO.,LTD			
MS-V341			
Size: Custom	Document Description: TABLE OF CONTENTS		Rev: 1.0
Date: Monday, June 06, 2016	Sheet 3 of 26		

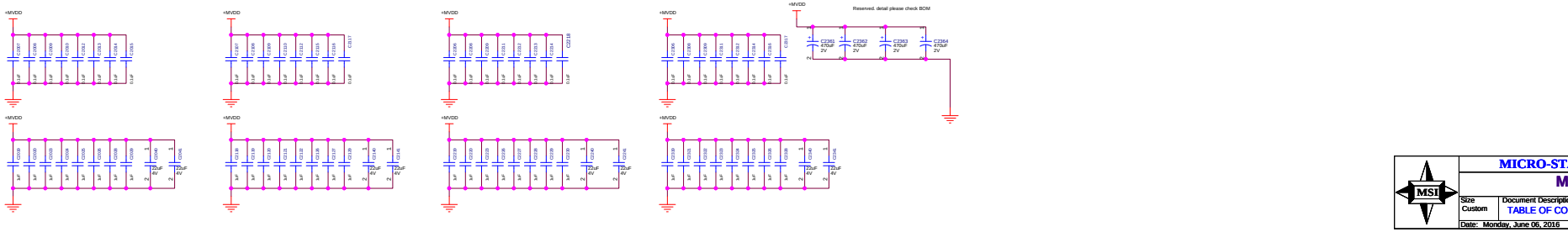
(4) ELLESMERE MEM INTERFACE CH C/D



MICRO-STAR INT'L CO.,LTD		
MS-V341		
Size: Custom	Document Description: TABLE OF CONTENTS	Rev: 1.0
Date: Monday, June 06, 2016	Sheet 4 of 26	

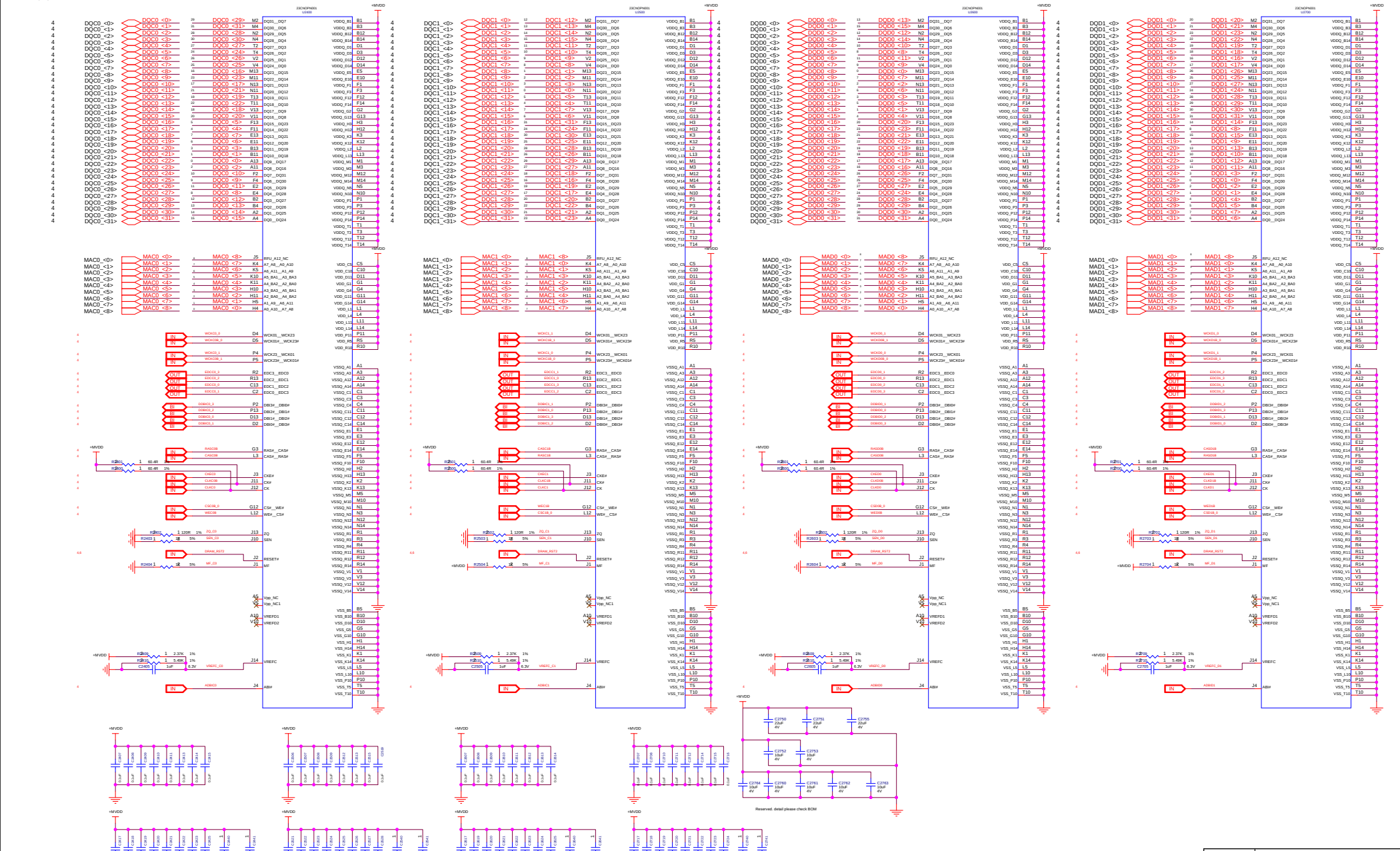
(5) GDDR5 MEMORY CH A/B





MICRO-STAR INT'L CO.,LTD			
MS-V341			
Size: Custom	Document Description: TABLE OF CONTENTS		Rev: 1.0
Date: Monday, June 06, 2016	Sheet 5 of 26		

(6) GDDR5 MEMORY CH C/D



Reserved. detail please check BOM

MICRO-STAR INT'L CO.,LTD		
MS-V341		
Size: Custom	Document Description: TABLE OF CONTENTS	Rev: 1.0
Date: Monday, June 06, 2016	Sheet 6 of 26	

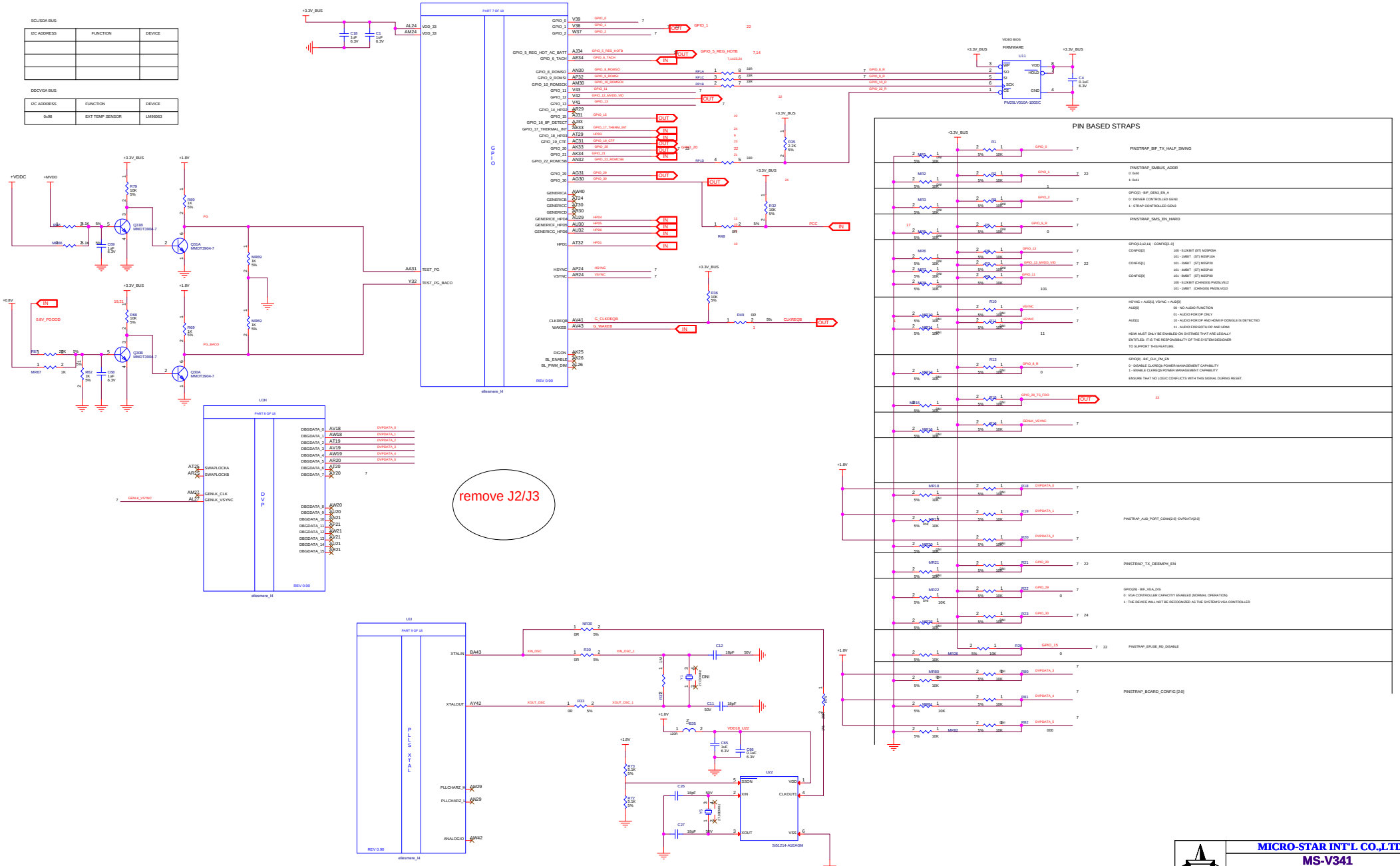
(7) ELLESMERE GPIO STRAP CF XTAL

SCL/SDA BUS:

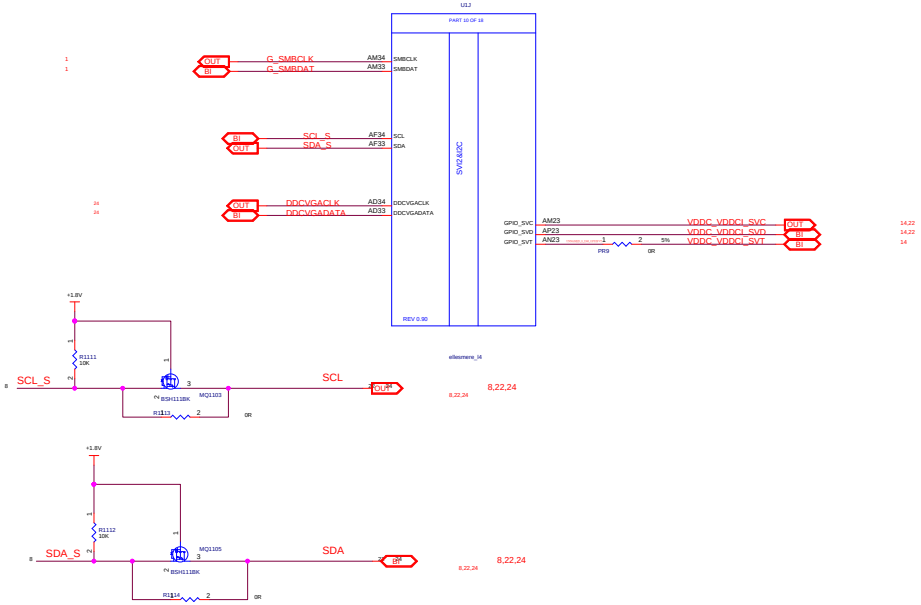
I2C ADDRESS	FUNCTION	DEVICE

DDC/VGA BUS:

I2C ADDRESS	FUNCTION	DEVICE
0x98	EXT TEMP SENSOR	LM96063

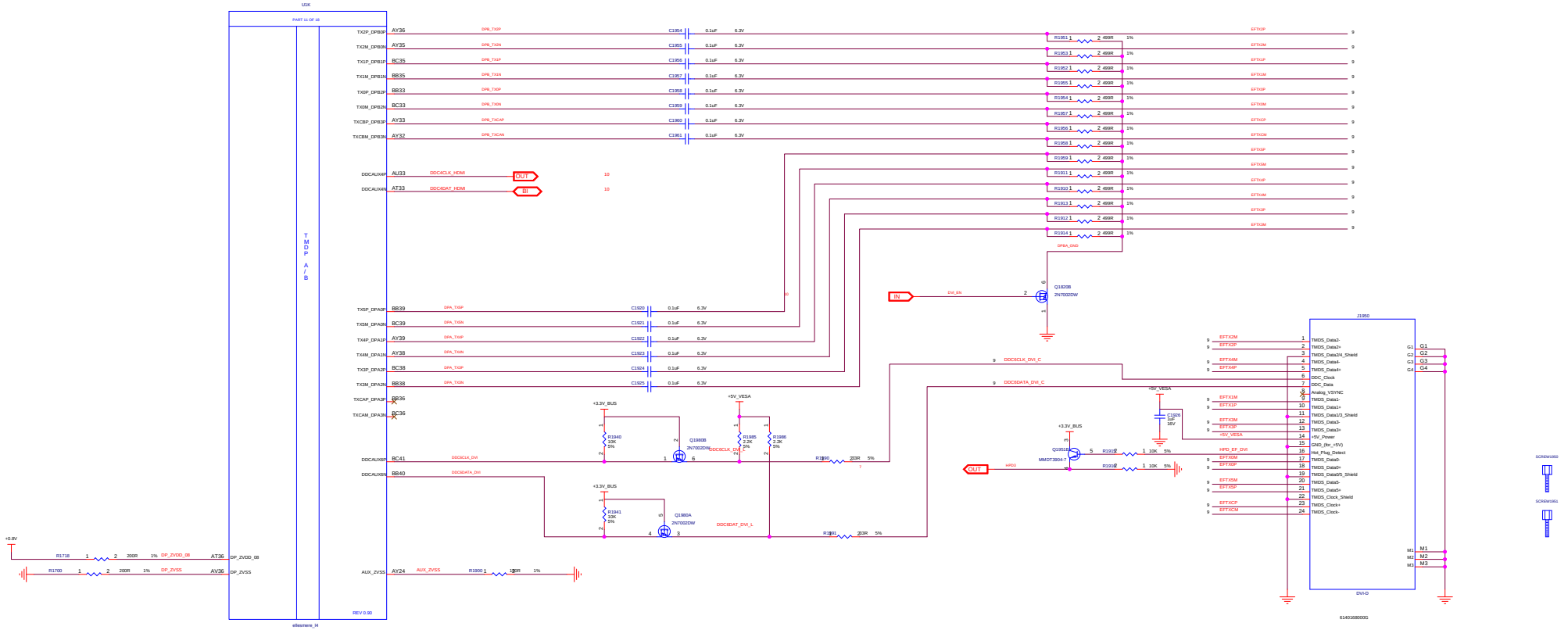


(8) ELLESMERE DAC1 LOCK

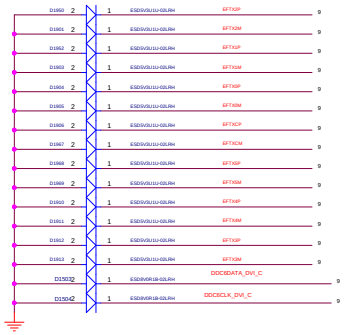


MICRO-STAR INT'L CO.,LTD		
MS-V341		
Size: Custom	Document Description: TABLE OF CONTENTS	Rev: 1.0
Date: Monday, June 06, 2016	Sheet 8 of 26	

(9) ELLESMERE TMDP A/B

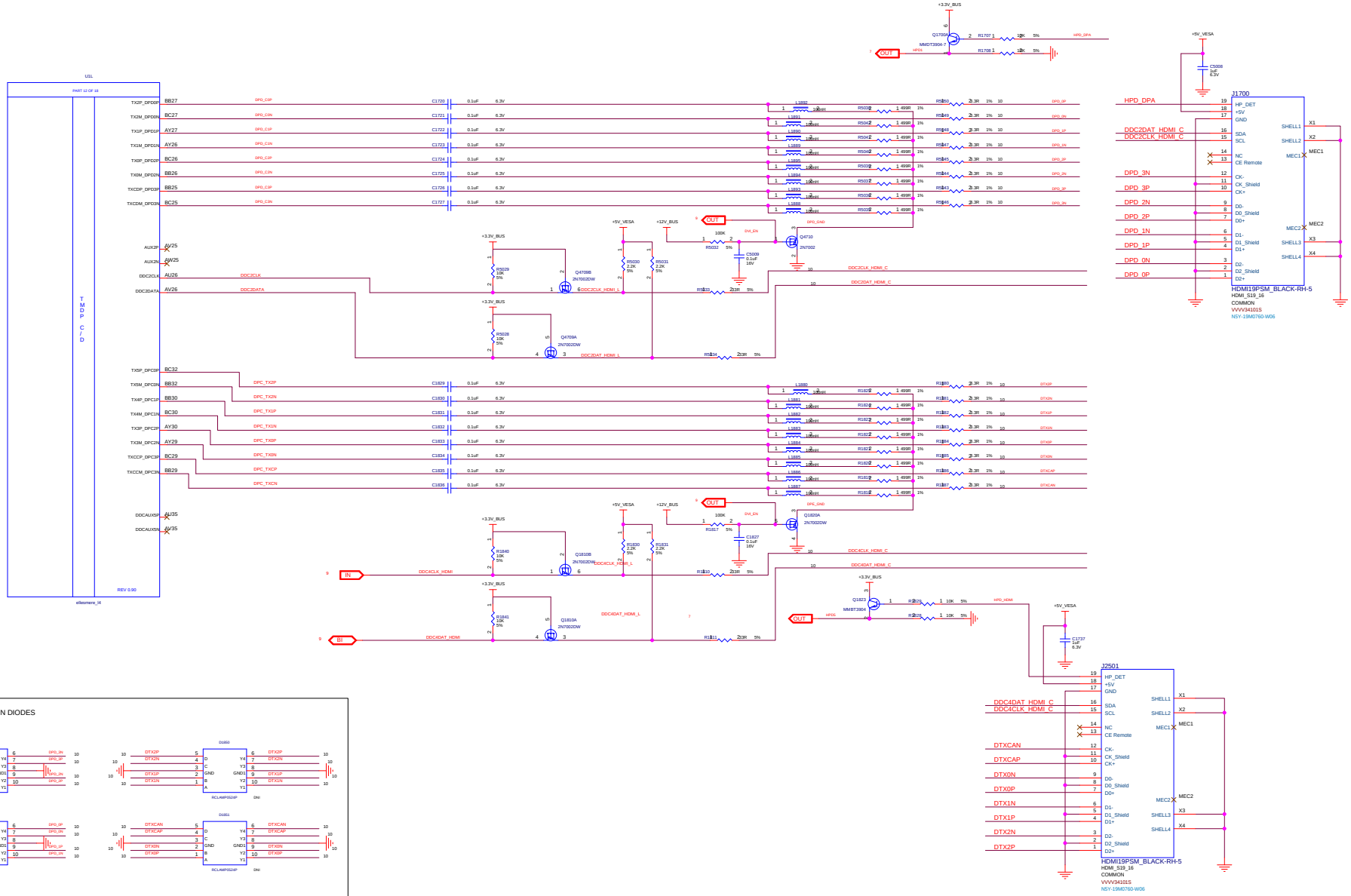


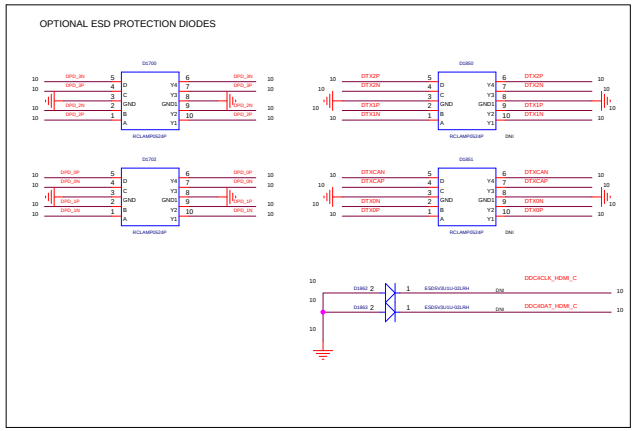
OPTIONAL ESD PROTECTION DIODES



MICRO-STAR INT'L CO.,LTD		
MS-V341		
Size: Custom	Document Description: TABLE OF CONTENTS	Rev: 1.0
Date: Monday, June 06, 2016	Sheet 9 of 26	

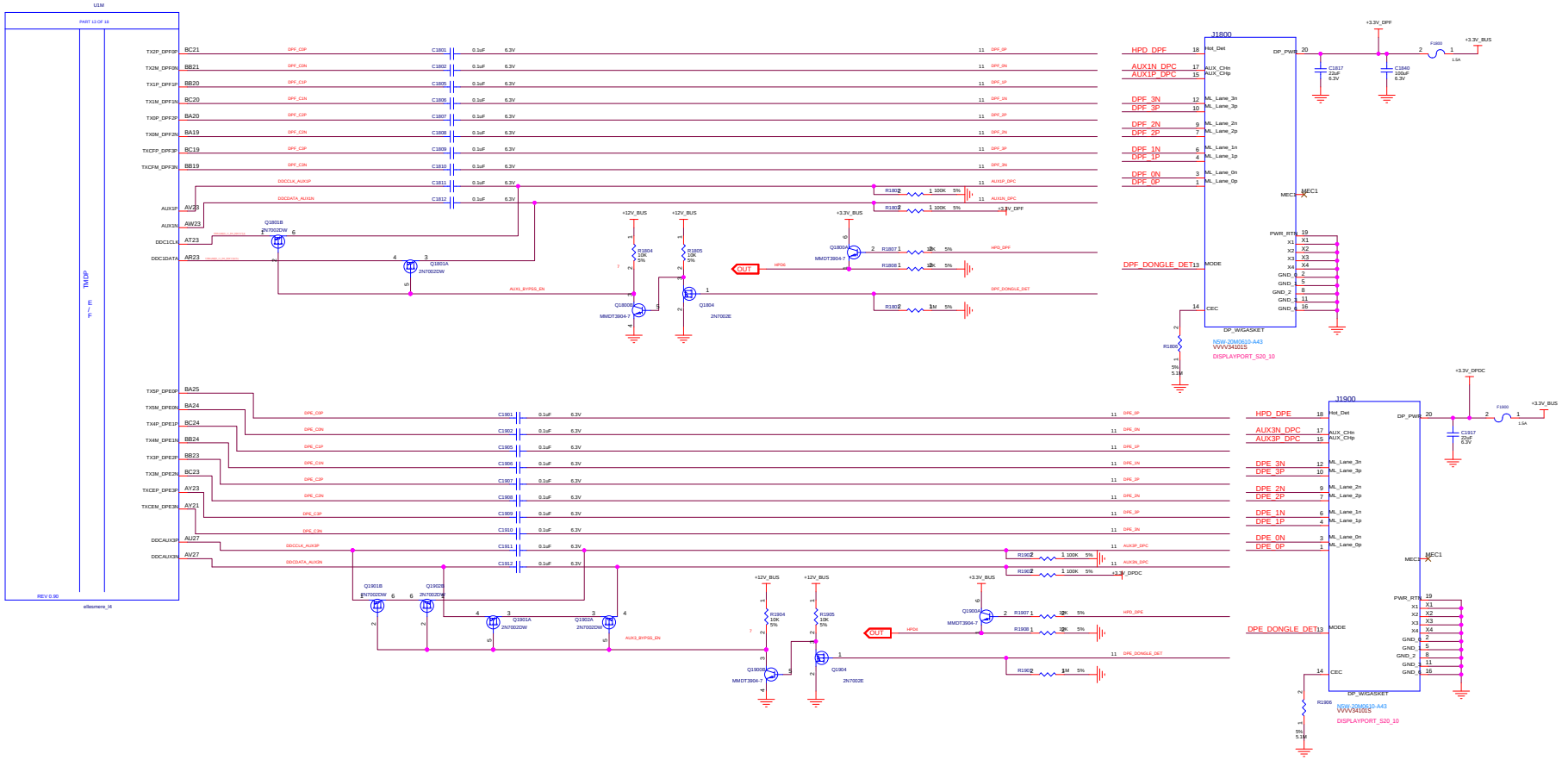
(10) ELLESMERE TMDP C/D



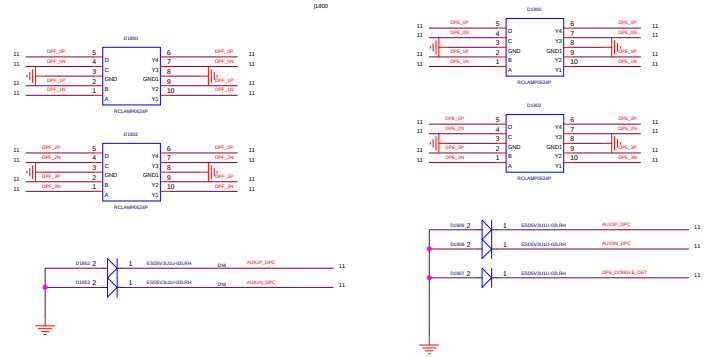


MICRO-STAR INT'L CO.,LTD		
MS-V341		
Size: Custom	Document Description: TABLE OF CONTENTS	Rev: 1.0
Date: Tuesday, June 07, 2016	Sheet 10 of 26	

(11) ELLESMERE LVTMDP E/F

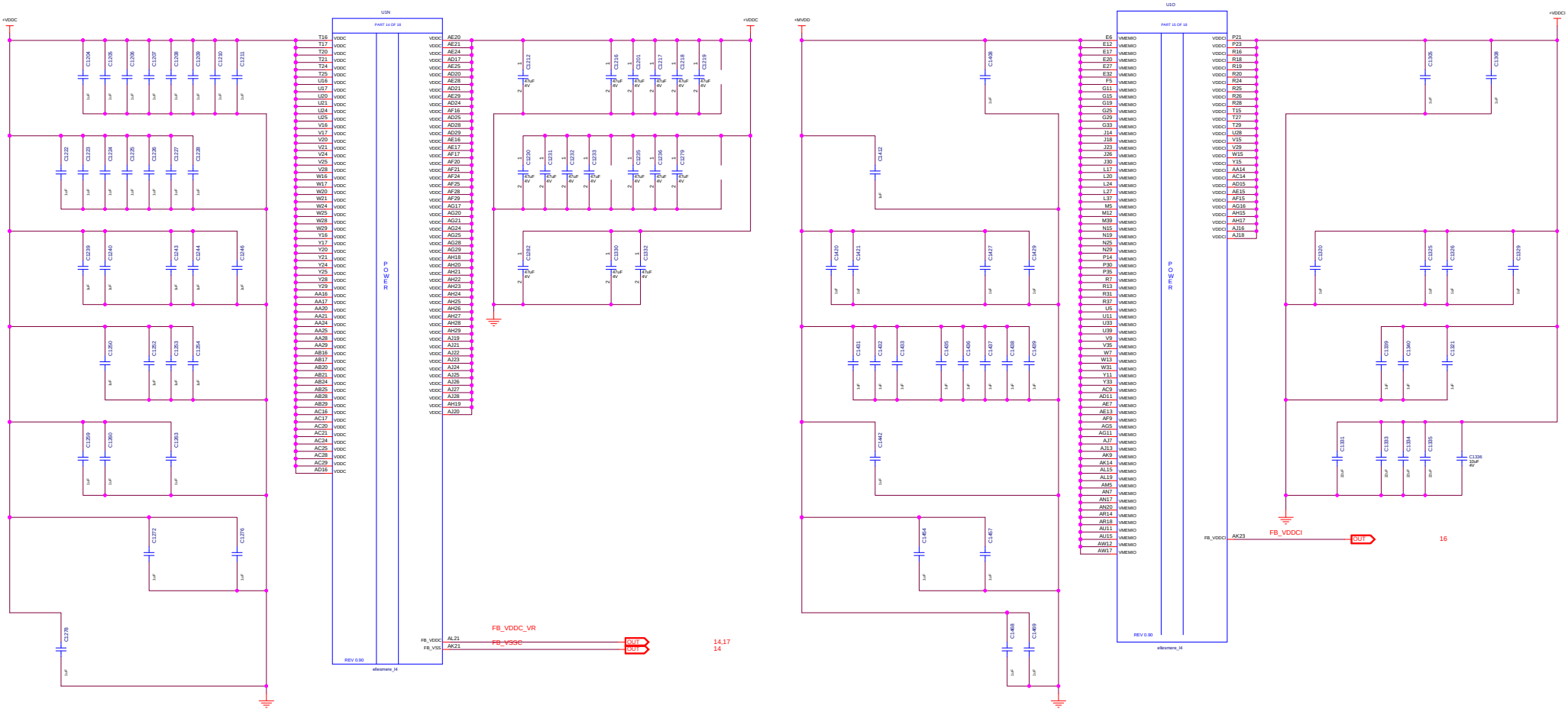


OPTIONAL ESD PROTECTION DIODES



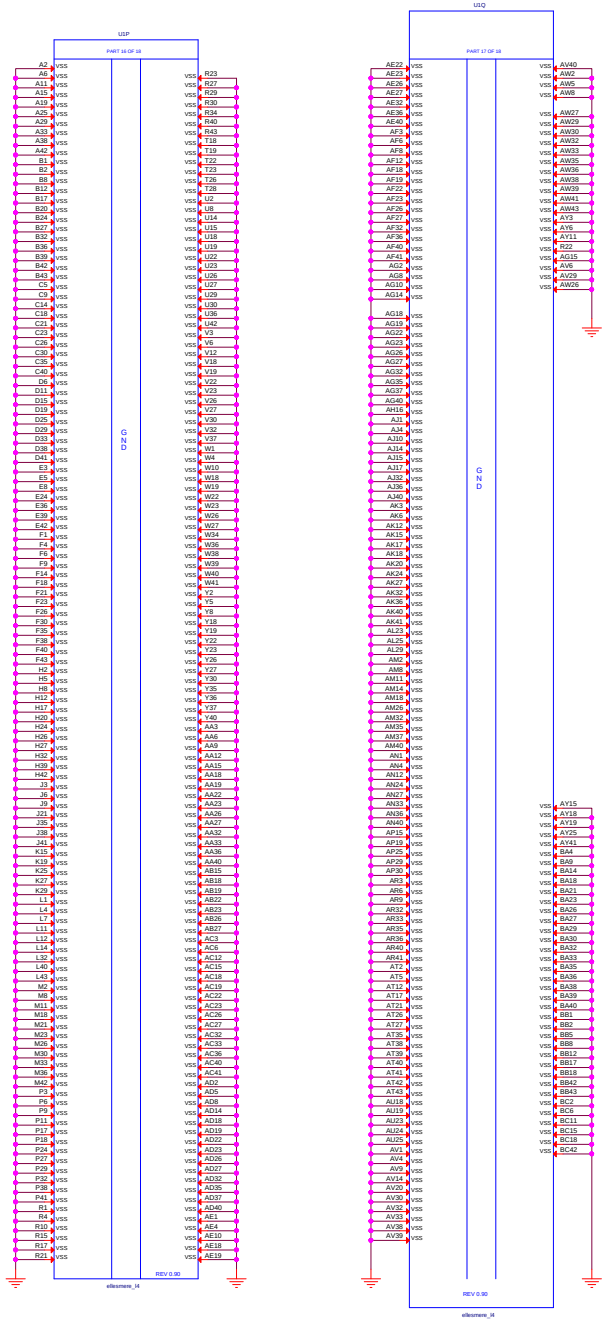
MICRO-STAR INT'L CO.,LTD		
MS-V341		
Size: Custom	Document Description: TABLE OF CONTENTS	Rev: 1.0
Date: Monday, June 06, 2016	Sheet 11 of 26	

(12) ELLESMERE POWER

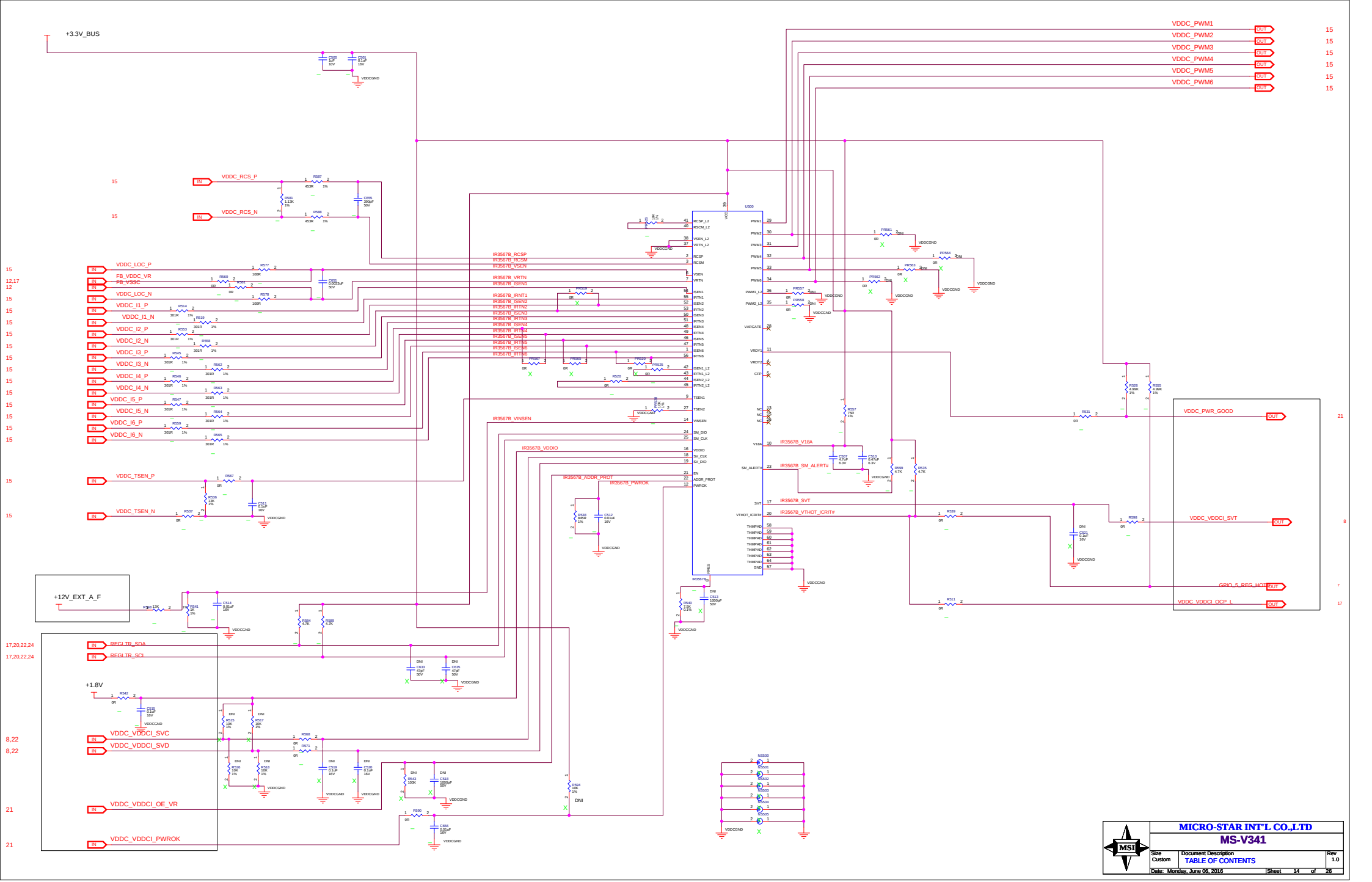


MICRO-STAR INT'L CO.,LTD		
MS-V341		
Size: Custom	Document Description: TABLE OF CONTENTS	Rev: 1.0
Date: Monday, June 06, 2016	Sheet 12 of 26	

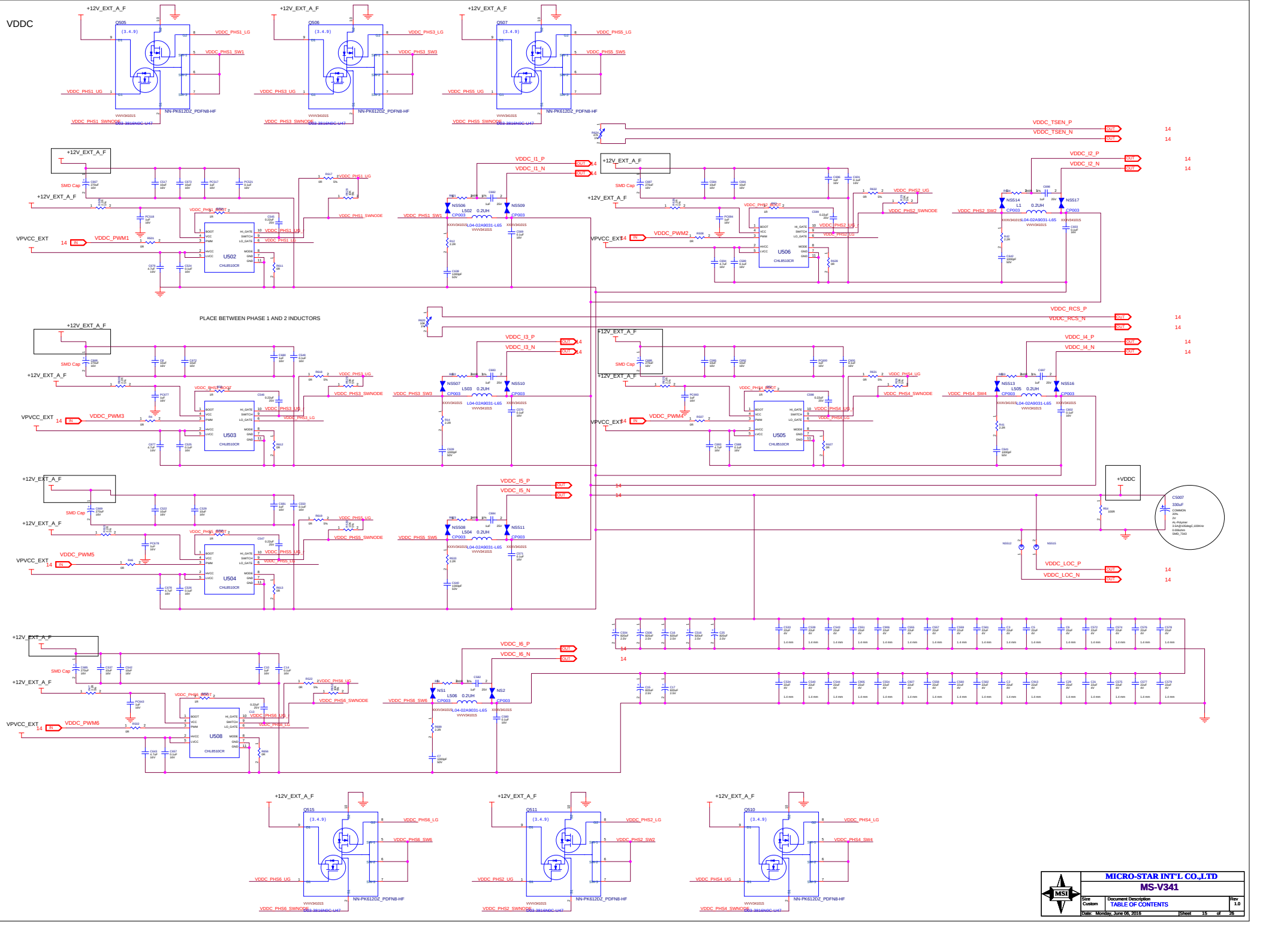
(13) ELLESMERE GROUND

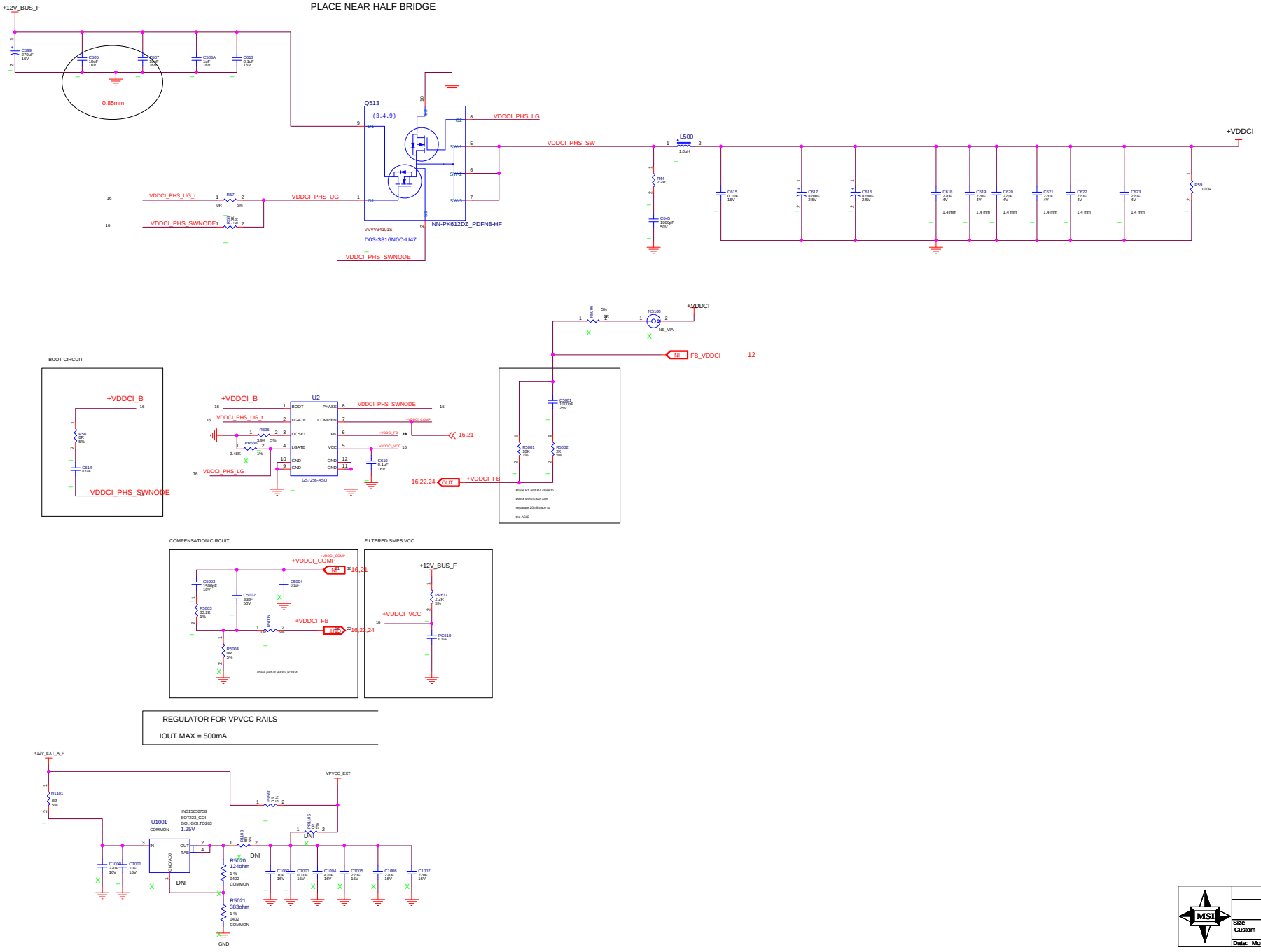


MICRO-STAR INT'L CO.,LTD		
MS-V341		
Size: Custom	Document Description: TABLE OF CONTENTS	Rev: 1.0
Date: Monday, June 06, 2016	Sheet 13 of 26	

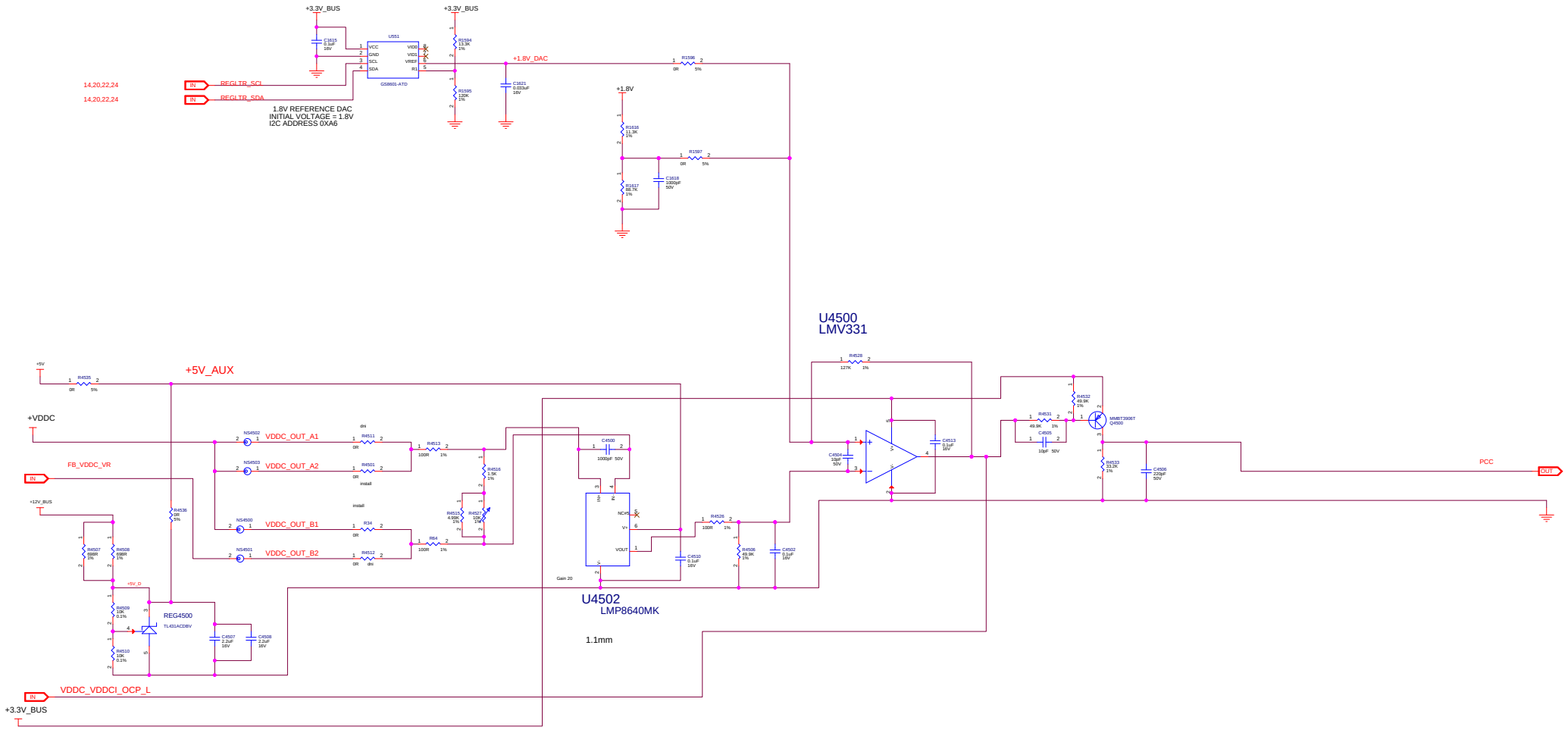


Company	MICRO-STAR INT'L CO.,LTD
Model	MS-V341
Size	Custom
Document Description	TABLE OF CONTENTS
Rev	1.0
Date:	Monday, June 06, 2016
Sheet	14 of 26


VDDC
PLACE BETWEEN PHASE 1 AND 2 INDUCTORS
VDDC_PHS1_LG
VDDC_PHS1_SW1
VDDC_PHS1_UG
VDDC_PHS1_SWNODE
VDDC_PHS3_LG
VDDC_PHS3_SW3
VDDC_PHS3_UG
VDDC_PHS3_SWNODE
VDDC_PHS5_LG
VDDC_PHS5_SW5
VDDC_PHS5_UG
VDDC_PHS5_SWNODE
VDDC_PHS6_LG
VDDC_PHS6_SW6
VDDC_PHS6_UG
VDDC_PHS6_SWNODE
VDDC_PHS2_LG
VDDC_PHS2_SW2
VDDC_PHS2_UG
VDDC_PHS2_SWNODE
VDDC_PHS4_LG
VDDC_PHS4_SW4
VDDC_PHS4_UG
VDDC_PHS4_SWNODE
VDDC_PWM1
VDDC_PWM2
VDDC_PWM3
VDDC_PWM4
VDDC_PWM5
VDDC_PWM6
VPVCC_EXT
VDDC_I1_P
VDDC_I1_N
VDDC_I2_P
VDDC_I2_N
VDDC_I3_P
VDDC_I3_N
VDDC_I4_P
VDDC_I4_N
VDDC_I5_P
VDDC_I5_N
VDDC_I6_P
VDDC_I6_N
VDDC_TSEN_P
VDDC_TSEN_N
VDDC_RCS_P
VDDC_RCS_N
VDDC_LOC_P
VDDC_LOC_N
+VDDC
+12V_EXT_A_F
SMD Cap
U502
U503
U504
U505
U506
U508
CHL8510CR
Q505
Q506
Q507
Q510
Q511
Q515
NN-PK612DZ_PDFN8-HF
L502 0.2UH
L503 0.2UH
L504 0.2UH
L505 0.2UH
L506 0.2UH
C5007
330uF
MICRO-STAR INT'L CO.,LTD
MS-V341
TABLE OF CONTENTS
Monday, June 06, 2016
Sheet 15 of 26

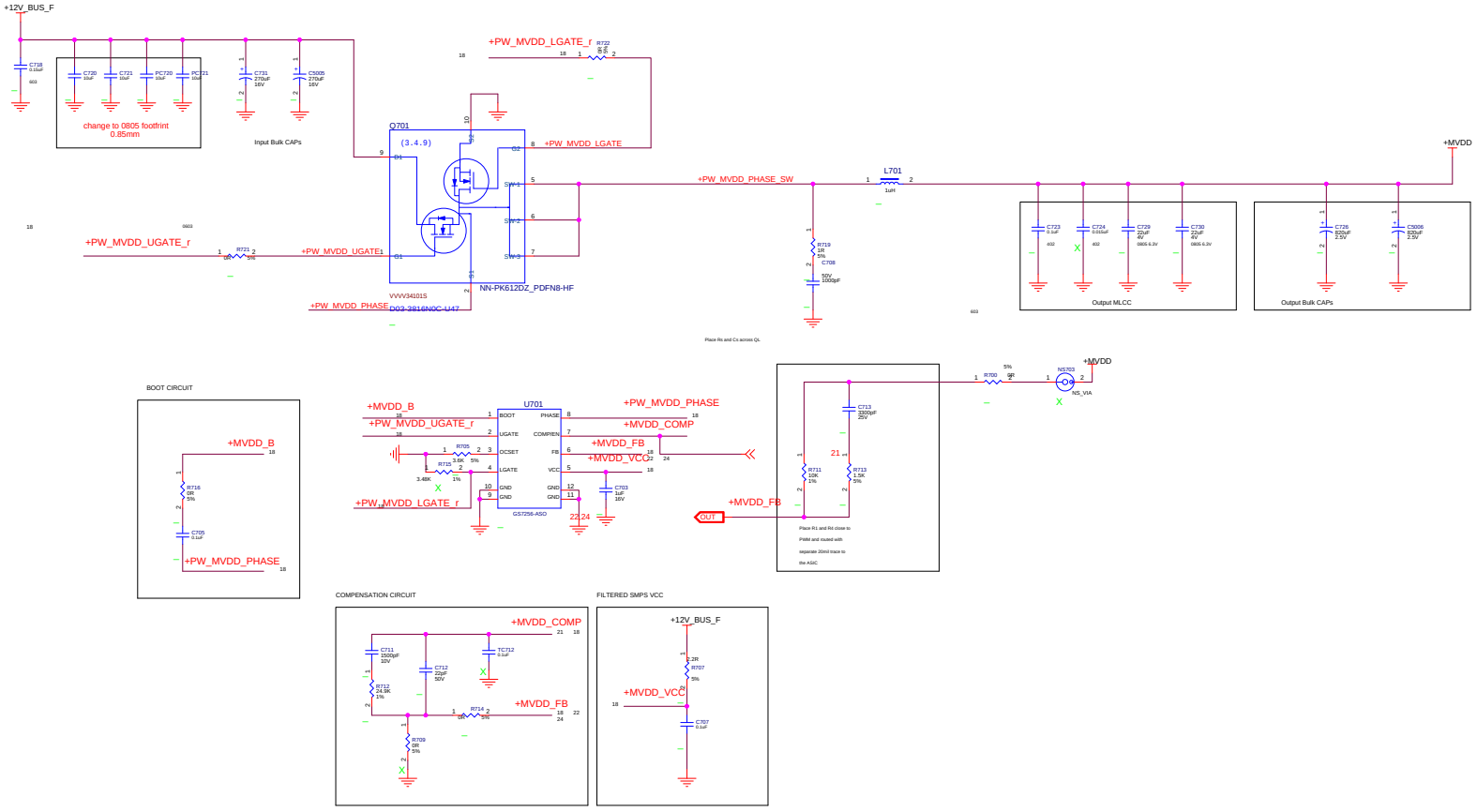


MSI	MICRO-STAR INT'L CO.,LTD	
	MS-V341	
Size: Custom	Document Description: TABLE OF CONTENTS	Rev: 1.0
Date: Monday, June 06, 2016	Sheet 16 of 26	



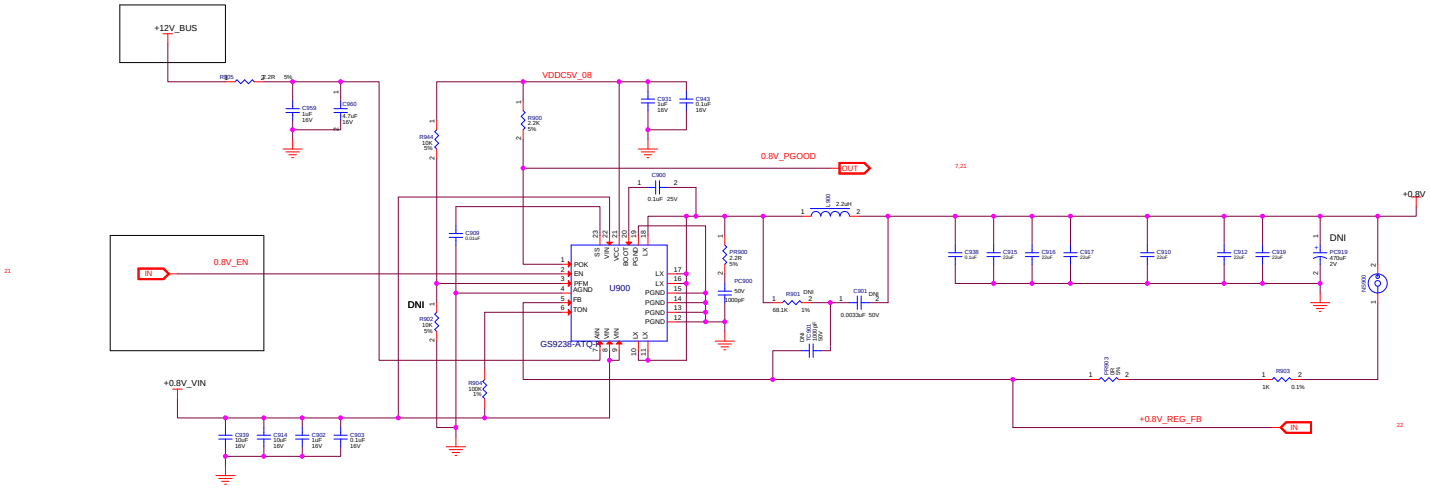
MICRO-STAR INT'L CO.,LTD		
MS-V341		
Size: Custom	Document Description: TABLE OF CONTENTS	Rev: 1.0
Date: Monday, June 06, 2016	Sheet 17 of 26	

(16) MVDD



MICRO-STAR INT'L CO.,LTD		
MS-V341		
Size: Custom	Document Description: TABLE OF CONTENTS	Rev: 1.0
Date: Monday, June 06, 2016	Sheet 18 of 26	

(17) 0.95V



MICRO-STAR INT'L CO.,LTD		
MS-V341		
Size: Custom	Document Description: TABLE OF CONTENTS	Rev: 1.0
Date: Monday, June 06, 2016	Sheet 19 of 26	

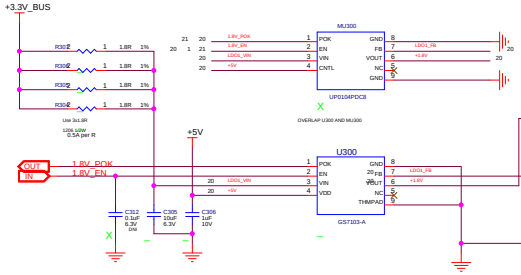
(18) SMALL RAIL REGULATORS , LED_CONTROLLER_ENE3574

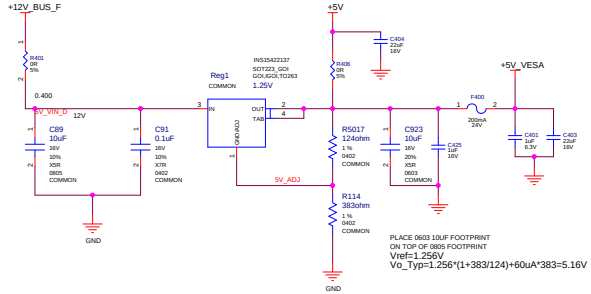
LDO #1: VIN = 3.0V TO 3.6V MAX VOUT = +1.8V +/- 2% IOUT = 1.3A RMS MAX

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

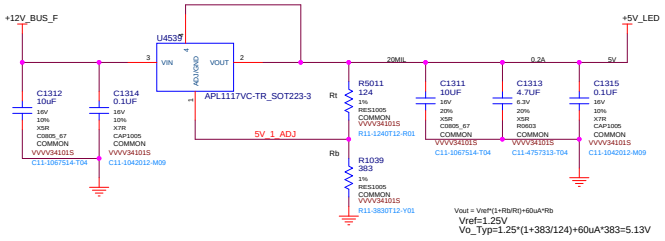
REGULATOR FOR +5V RAILS

IOUT MAX = 150mA

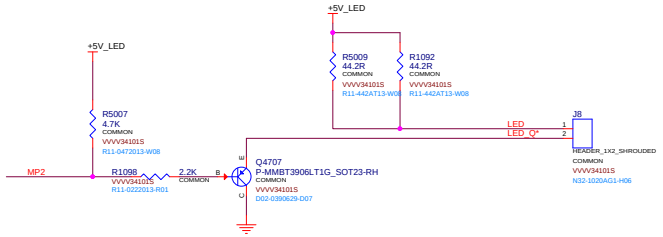


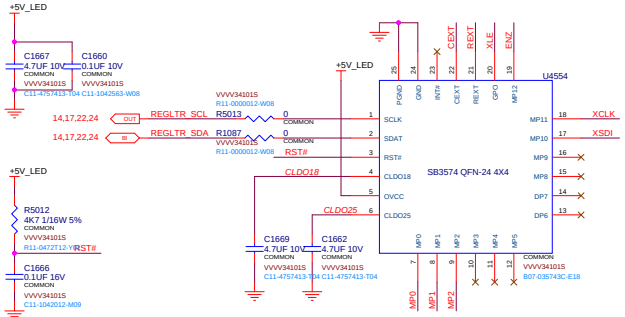


Regulators for +5V_LED

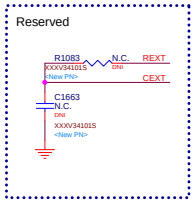


LED Connector

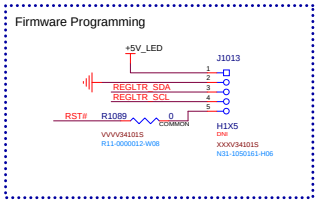


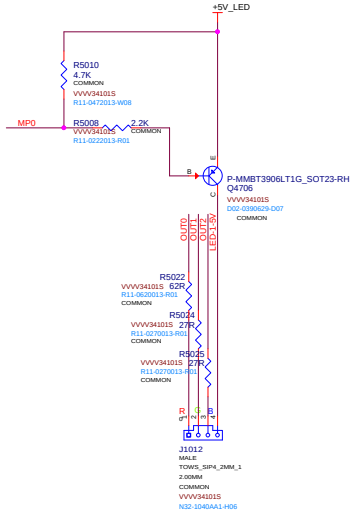


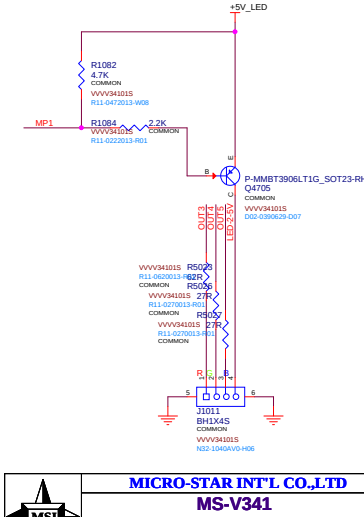
Reserved

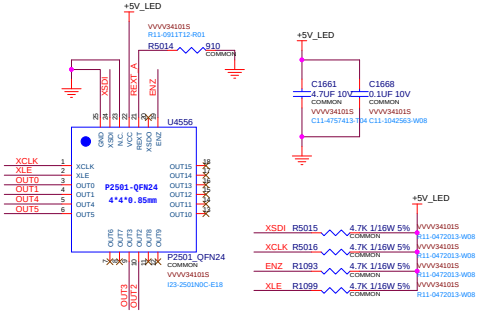


Firmware Programming



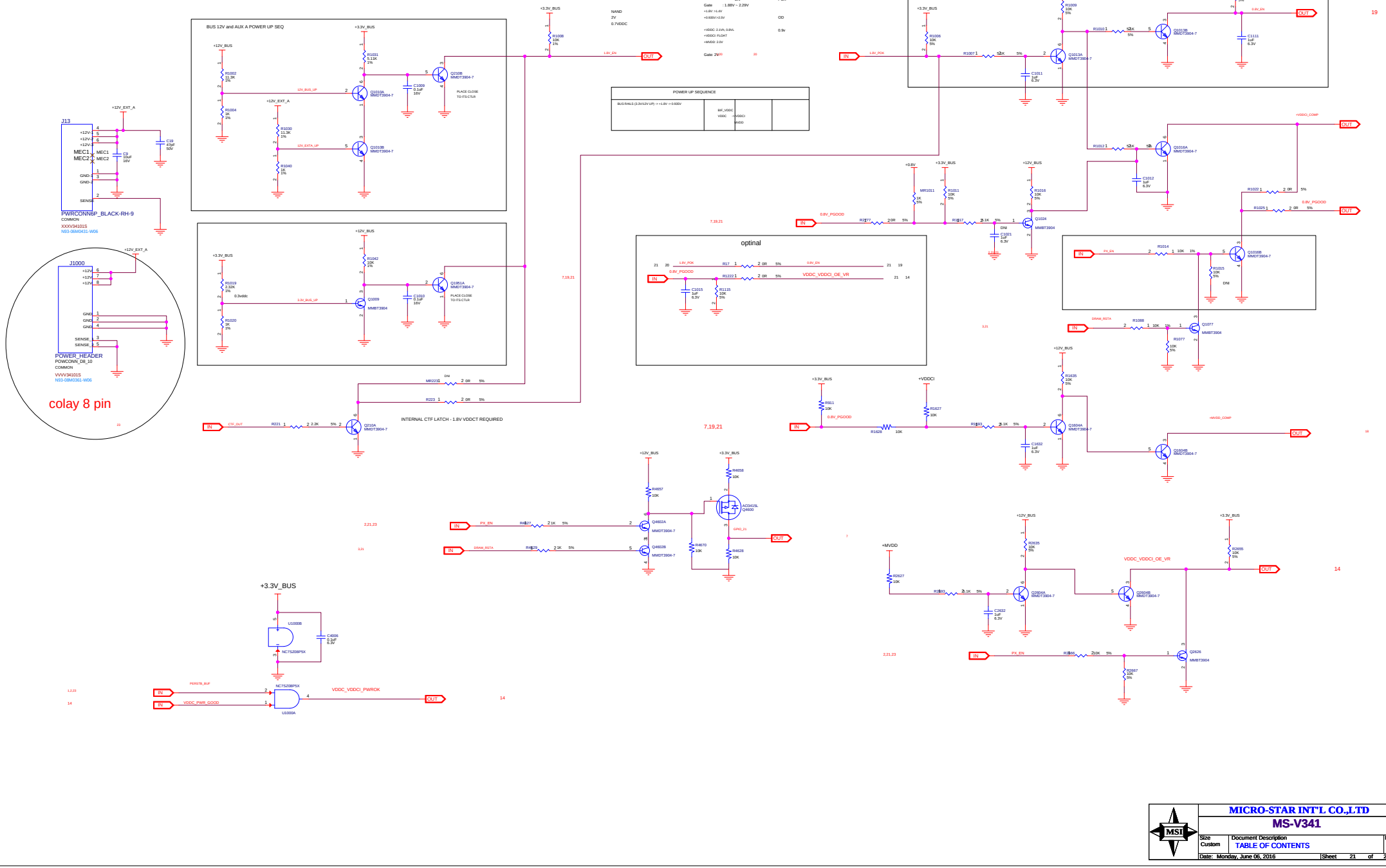


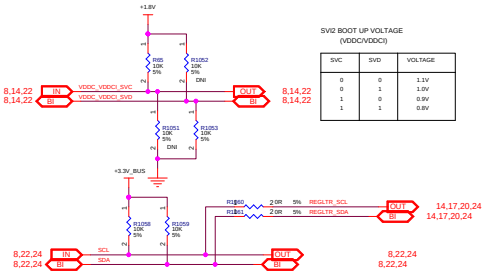




MICRO-STAR INT'L CO.,LTD	
MS-V341	
Size: Custom	Document Description: TABLE OF CONTENTS
Rev: 1.0	
Date: Monday, June 06, 2016	Sheet 20 of 26

(19) POWER MANAGEMENT

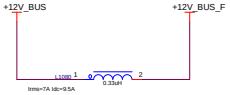




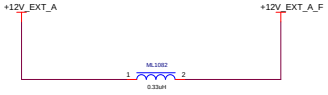
SVI2 BOOT UP VOLTAGE
(VDDC/VDDCI)

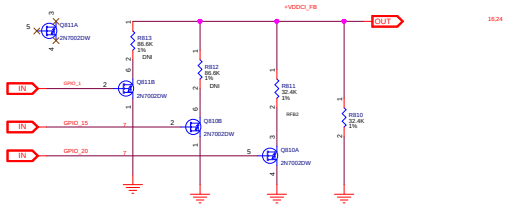
SVC	SVD	VOLTAGE
0	0	1.1V
0	1	1.0V
1	0	0.9V
1	1	0.8V

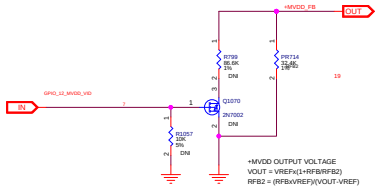
+12V_BUS INPUT



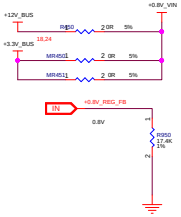
+12V_EXT_A INPUT





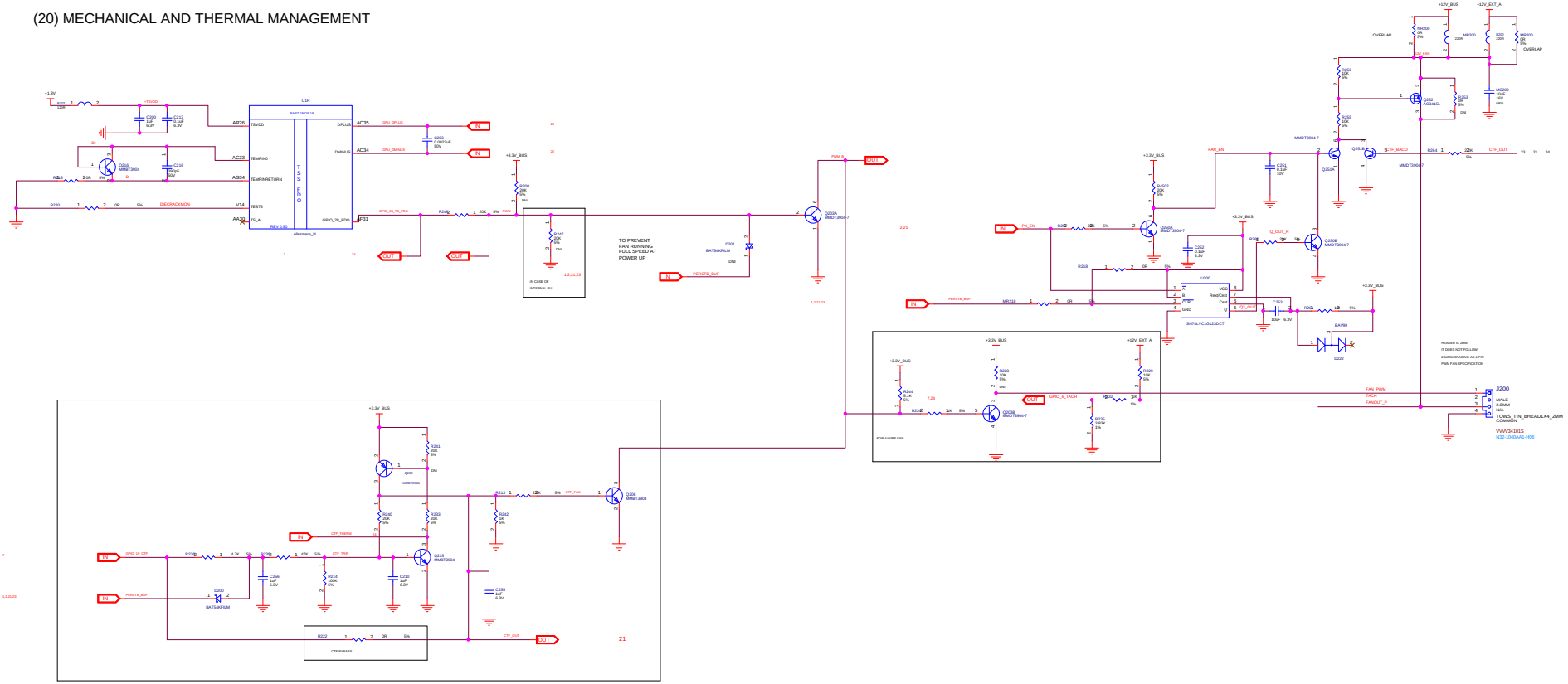


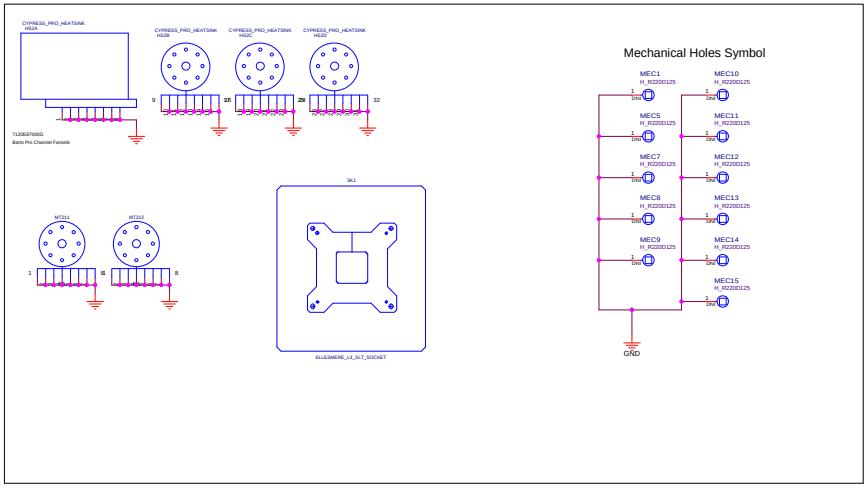
+MVDD OUTPUT VOLTAGE
VOUT = VREFx(1+RFB/RFB2)
RFB2 = (RFBxVREF)/(VOUT-VREF)

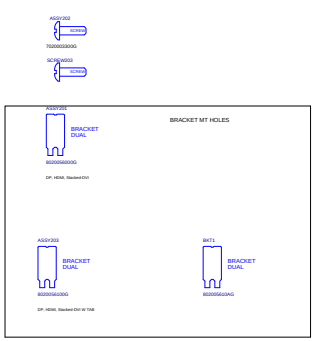


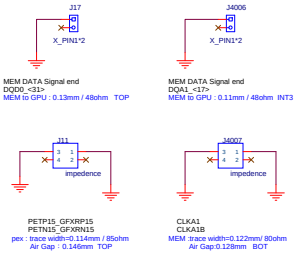
MSI	MICRO-STAR INT'L CO.,LTD	
	MS-V341	
Size: Custom	Document Description: TABLE OF CONTENTS	Rev: 1.0
Date: Monday, June 06, 2016	Sheet 22 of 26	

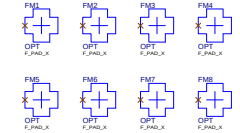
(20) MECHANICAL AND THERMAL MANAGEMENT







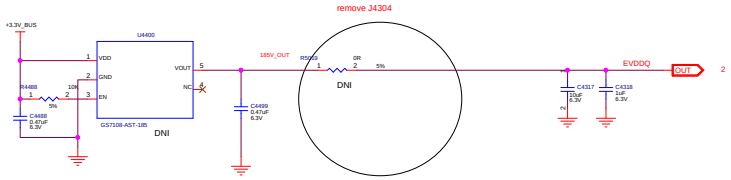




MICRO-STAR INT'L CO.,LTD		
MS-V341		
Size: Custom	Document Description: TABLE OF CONTENTS	Rev: 1.0
Date: Monday, June 06, 2016	Sheet 23 of 26	

(21) DEBUG CIRCUITS

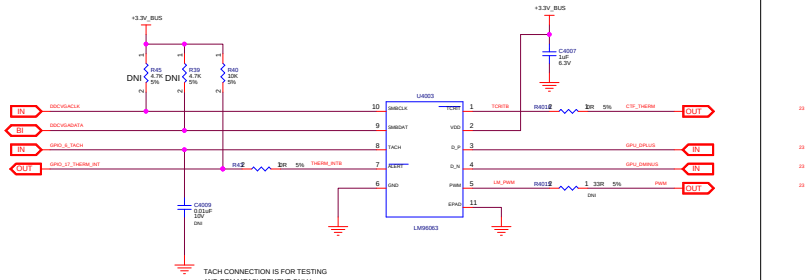
JTAG



E-FUSE CAPABILITY

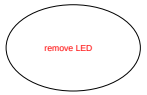
DEFAULT = GPIO-CONTROLLED
(MANUAL OPTION AS BACK-UP)

LM96163 FOR BACKUP THERMAL CONTROL



LED LIGHTS

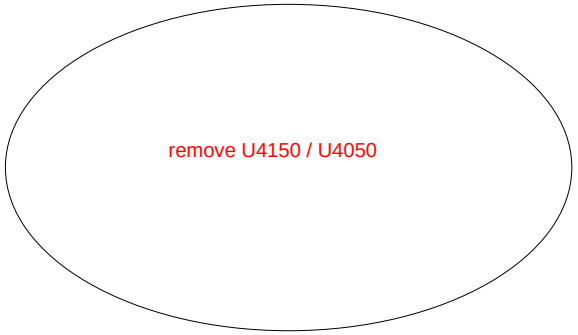
LED RED "ON" INDICATES CTF FAULT



LED GREEN "ON" INDICATES BACO MODE

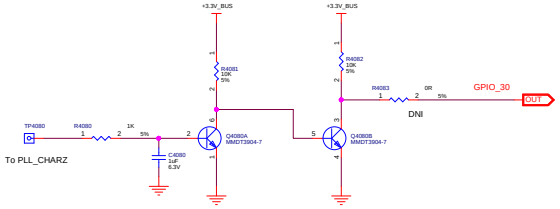
LED ORANGE "ON" INDICATES MACO MODE

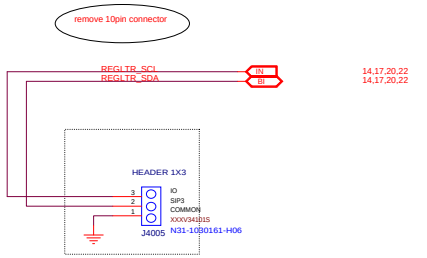
DIGITAL POTS



DIGITAL POTS

VTMM - TEST CONNECTOR FOR VOLTAGE MEASUREMENTS



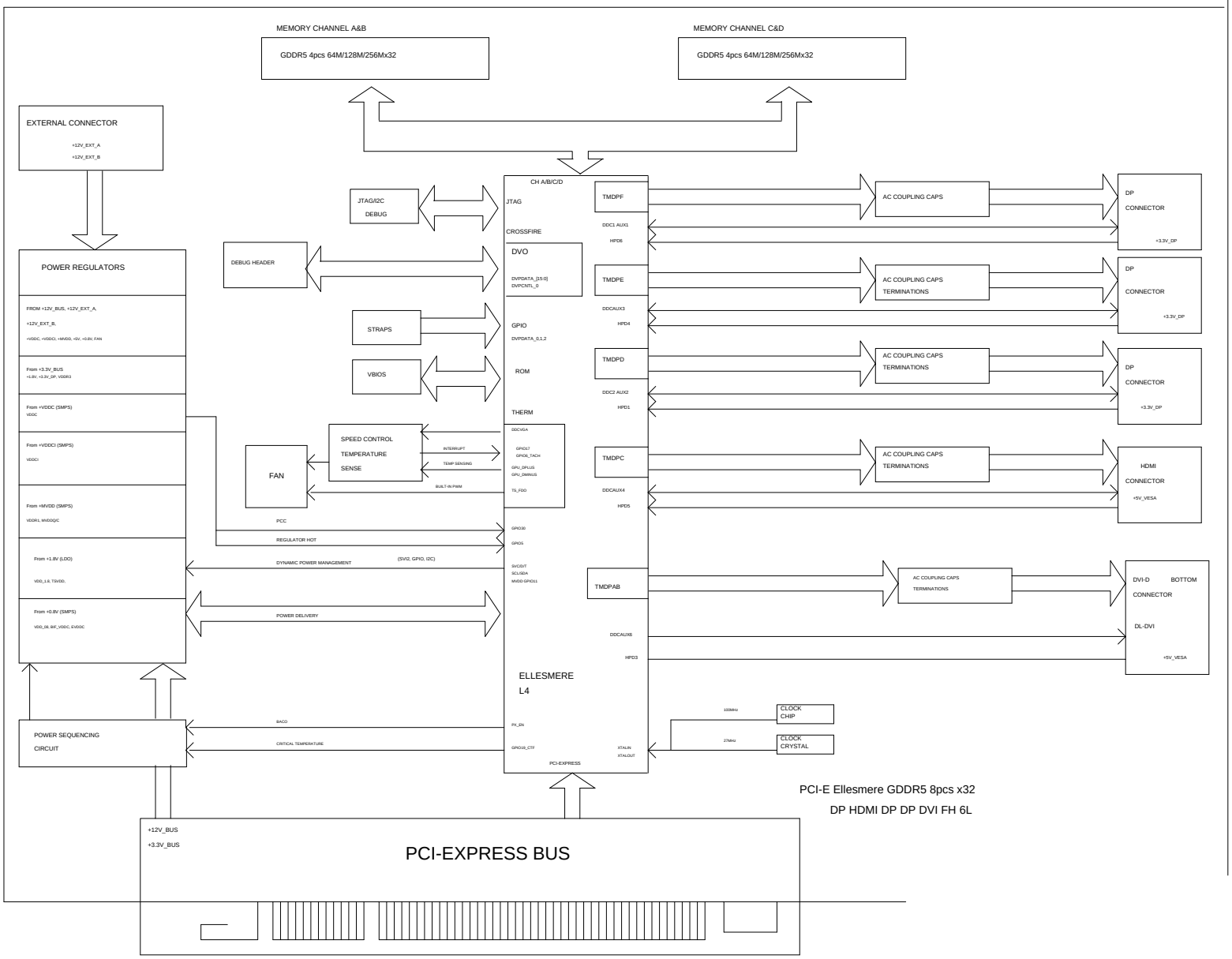


SWITCHES

BYPASS/DISABLE CTF

MAXIMIZE FAN

MICRO-STAR INT'L CO.,LTD		
MS-V341		
Size: Custom	Document Description: TABLE OF CONTENTS	Rev: 1.0
Date: Monday, June 06, 2016	Sheet 24 of 26	



PCI-E Ellesmere GDDR5 8pcs x32

DP HDMI DP DP DVI FH 6L

MICRO-STAR INT'L CO.,LTD		
MS-V341		
Size: Custom	Document Description: TABLE OF CONTENTS	Rev: 1.0
Date: Monday, June 06, 2016	Sheet 25 of 26	

0	00A	08/26/2016	
1	00B	10/19/2016	1. Add GPIOs for dynamic VDDCI 2. update VDDC driver sequence
2	00C	01/23/2016	HDMI: - add series resistor R1880 ~R1887 - add pull down inductor L1880 ~L1887 remove C405, C403, VR400,C410,C414,R405

Page7: remove J2,J3

Page9: enable DVI

Page10: DP change to HDMI

Page15: change dual-N MOS

Page16: change dual-N MOS

Page18: change dual-N MOS

Page20: Add LED circuit

Page21: colay 8pin power connecter

Page24: remove debug circuit