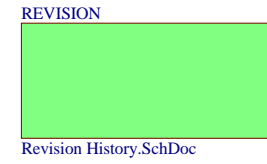
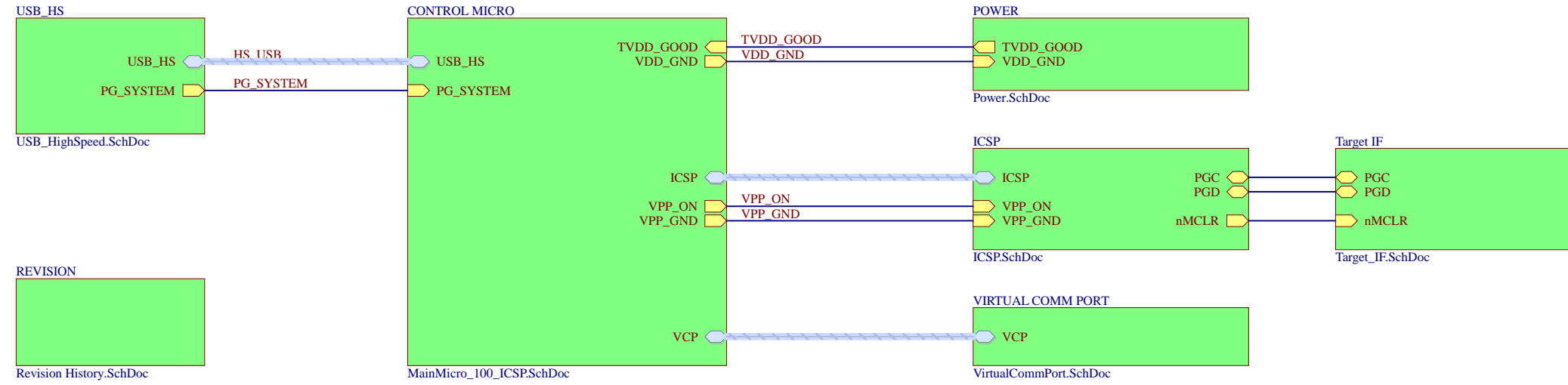


# Main System Interconnect

## Curiosity HPC

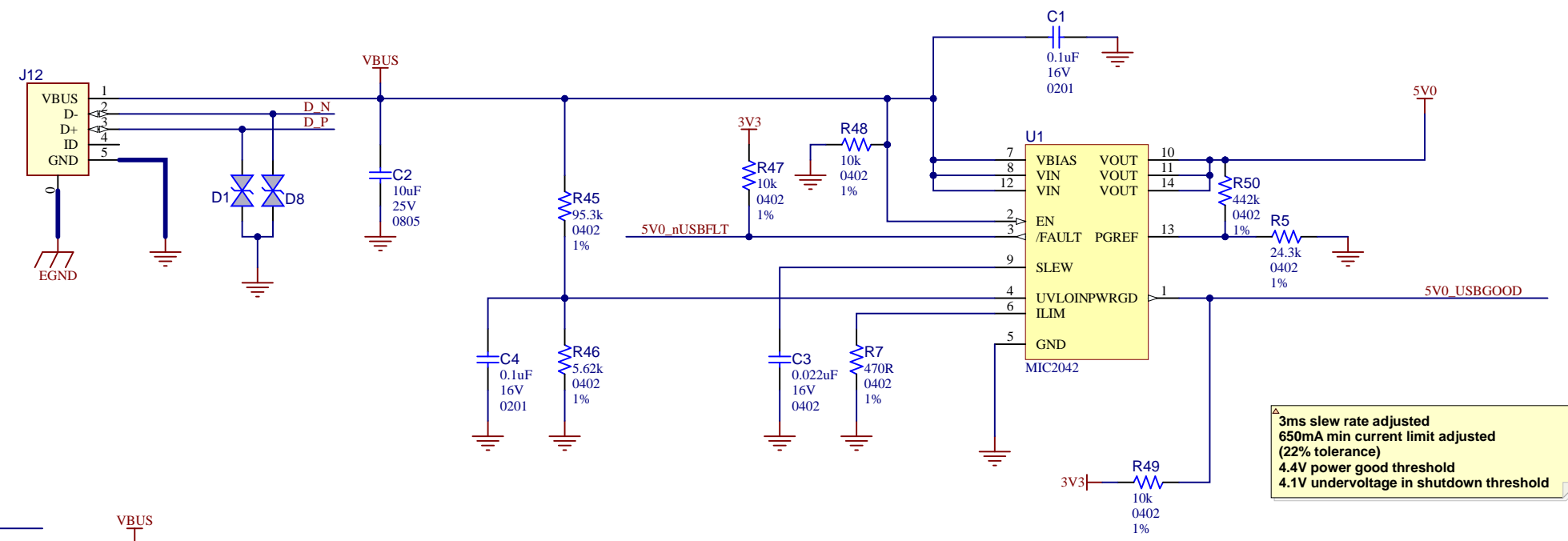


Drawn By: M.Loper/M.Ragsdale		
Engineer: M.Pearce/A.Rodriguez		
PartNumber: DM164136	Project Title <b>Curiosity HPC</b>	Variant: Production
Sheet Title <b>PKoB4 Main Block</b>		
Size B	Sch #:03-10536	Date: 10/29/2020 7:50:15 PM
Revision:2		Sheet 1 of 9
File: 03-10536.SchDoc		

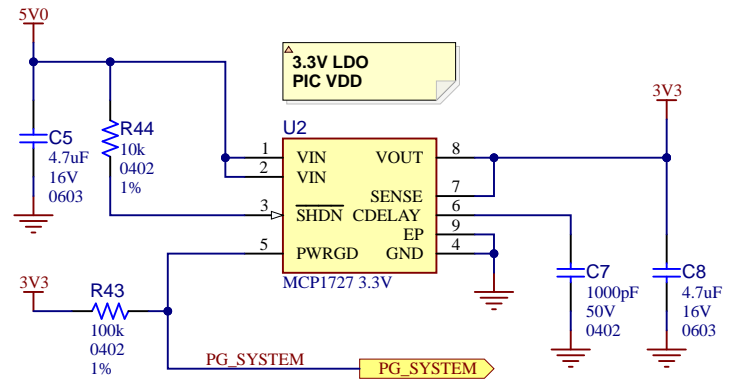
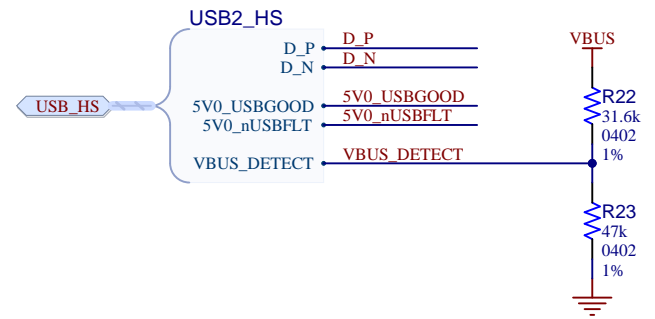


# USB High Speed

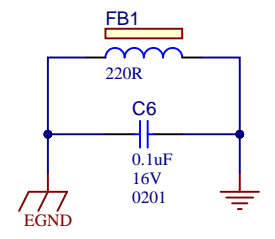
Micro B USB connector.  
5V@0.5A max (2.5W)



3ms slew rate adjusted  
650mA min current limit adjusted  
(22% tolerance)  
4.4V power good threshold  
4.1V undervoltage in shutdown threshold

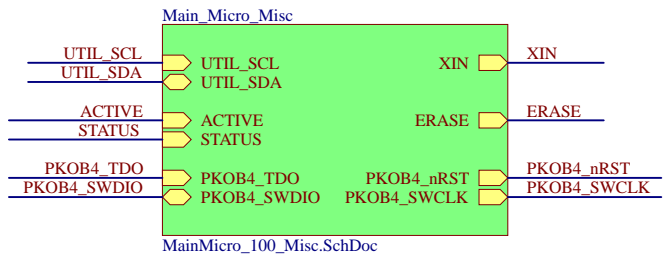
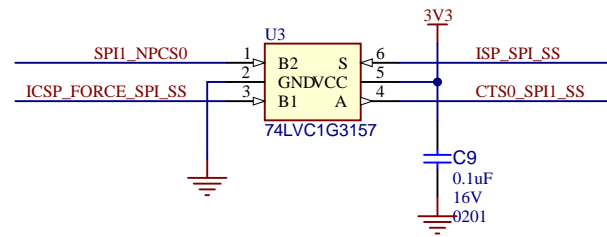
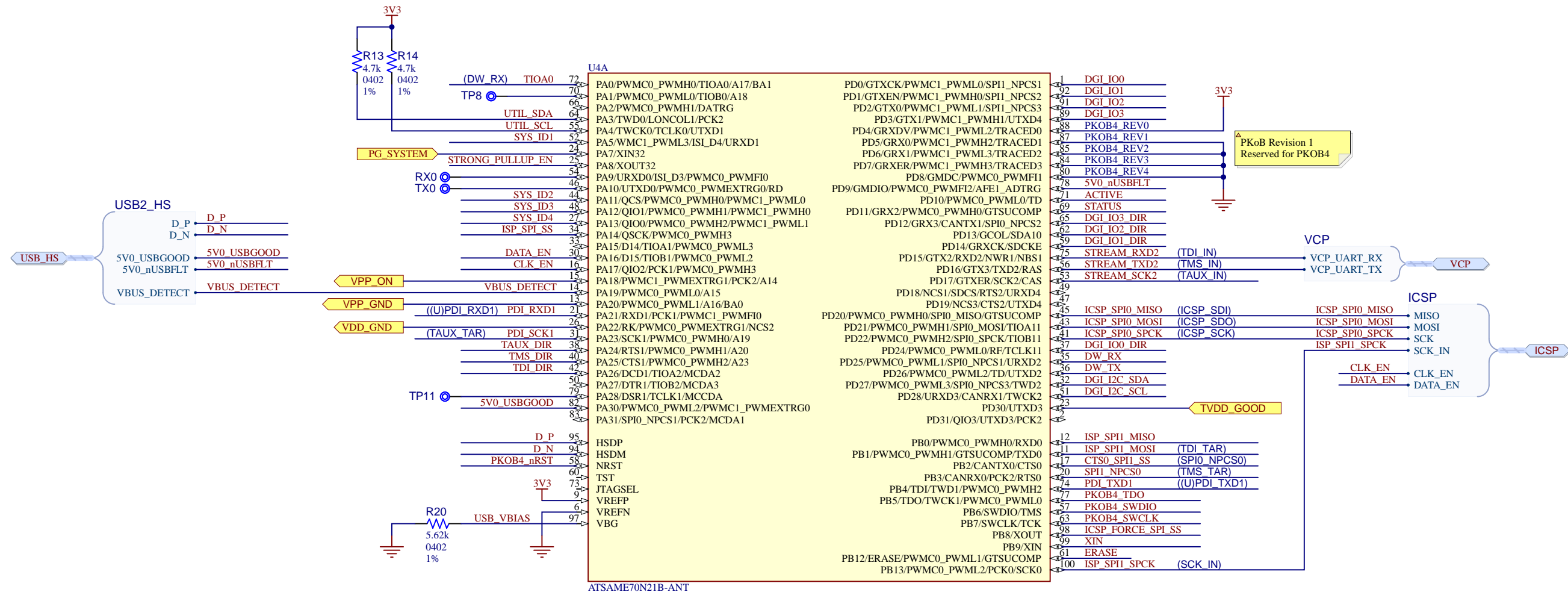


CDELAY  
C = (140na/.42v) \* t or  
t = (C\*0.42)/140na = 3ms



Drawn By: M.Loper/M.Ragsdale			
Engineer: M.Pearce/A.Rodriguez			
PartNumber: DM164136	Project Title <b>Curiosity HPC</b>	Variant: Production	
Sheet Title <b>PKoB4 USB High Speed</b>			
Size B	Sch #:03-10536	Date: 10/29/2020 7:50:15 PM	 Altium.com
Revision:2		Sheet 2 of 9	
File: USB_HighSpeed.SchDoc			

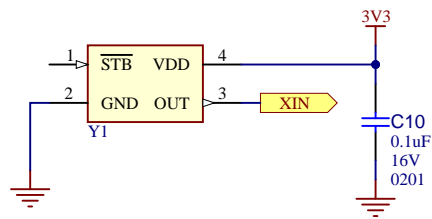
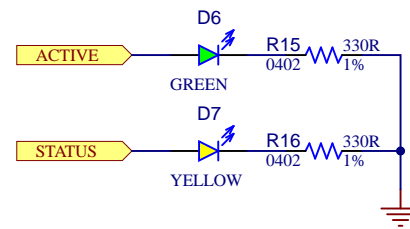
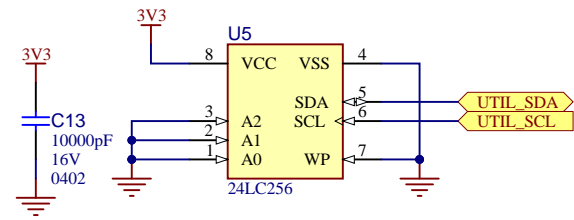
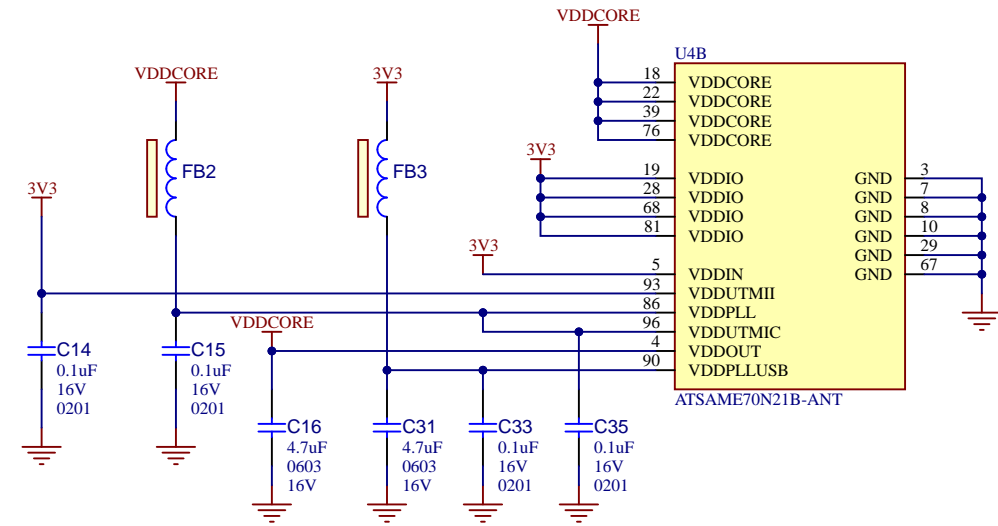
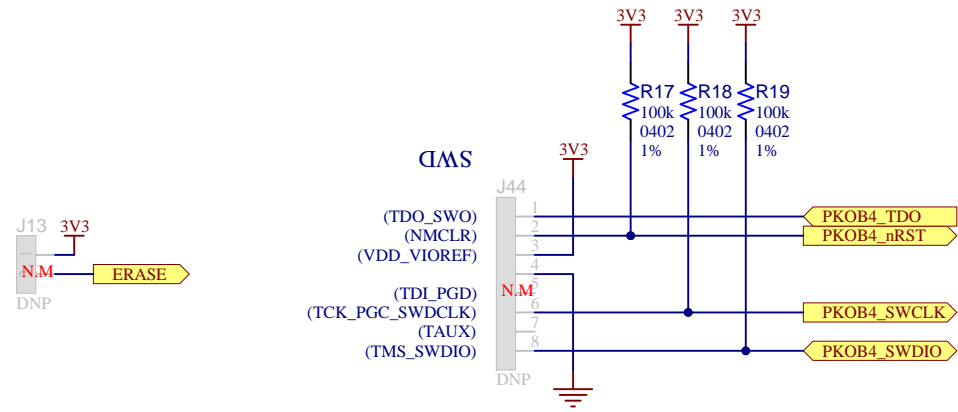
# Main Micro



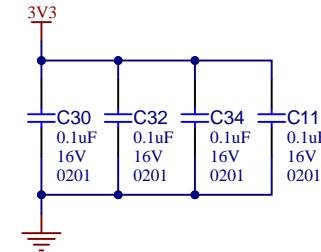
Drawn By: M.Loper/M.Ragsdale		
Engineer: M.Pearce/A.Rodriguez		
PartNumber: DM164136	Project Title <b>Curiosity HPC</b>	Variant: Production
Sheet Title <b>PKoB4 Main Micro</b>		
Size B	Sch #03-10536	Date: 10/29/2020 7:50:15 PM
Revision:2		Sheet 3 of 9
File: MainMicro_100_ICSP.SchDoc		

**Altium**  
Altium.com

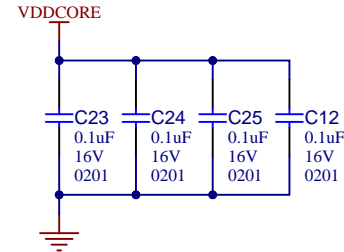
# Main Micro Misc.



VDDIO Bypass Caps

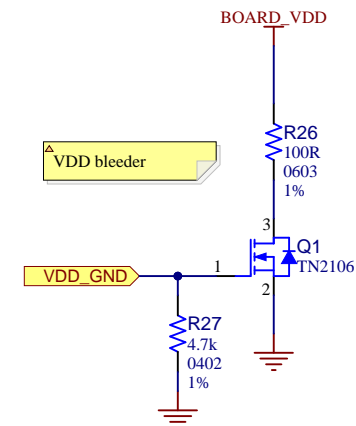
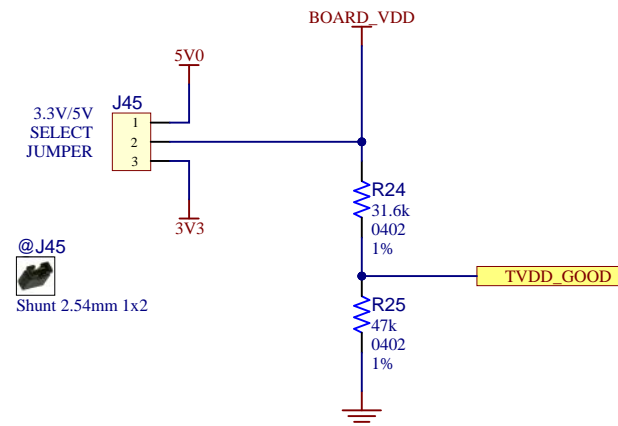




VDDCORE Bypass Caps



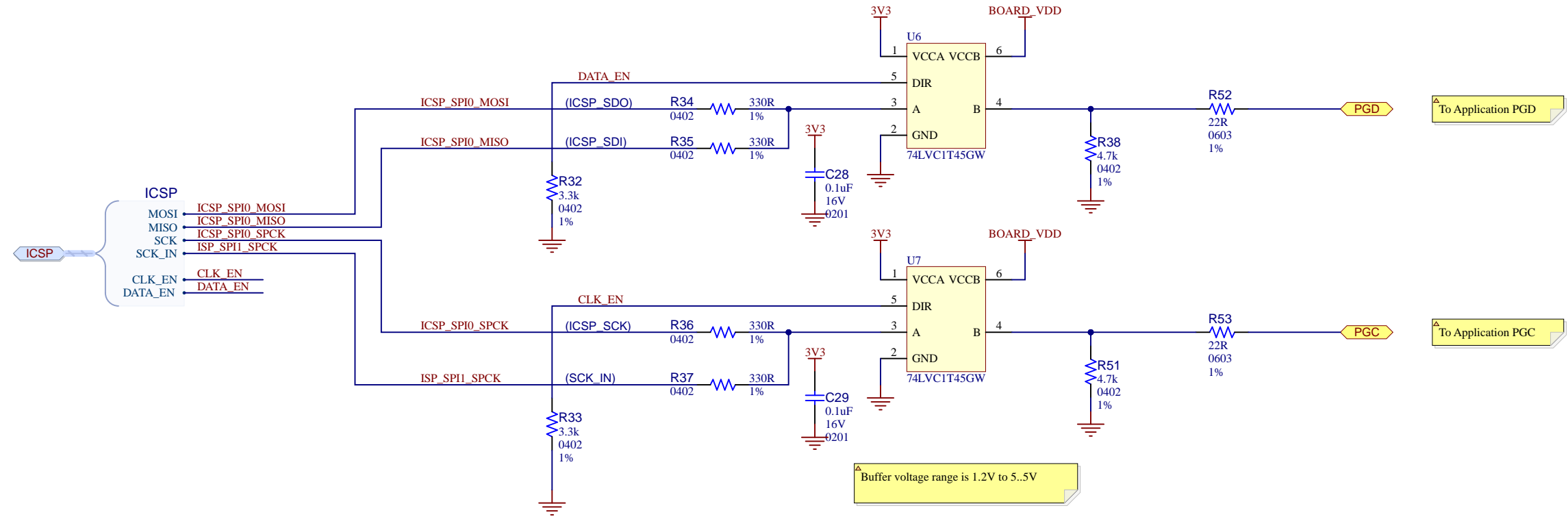
Drawn By: M.Loper/M.Ragsdale		
Engineer: M.Pearce/A.Rodriguez		
PartNumber: DM164136	Project Title <b>Curiosity HPC</b>	Variant: Production
Sheet Title <b>PKoB4 Main Micro Misc.</b>		 Altium.com
Size B	Sch #:03-10536 Revision:2	
File: MainMicro_100_Misc.SchDoc		

# Power

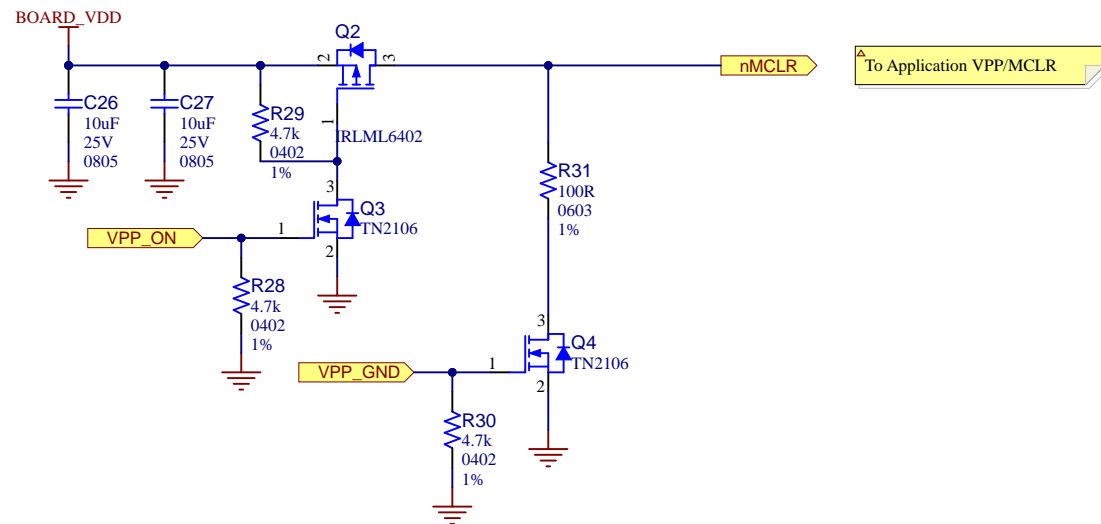


Drawn By: M.Loper/M.Ragsdale		
Engineer: M.Pearce/A.Rodriguez		
PartNumber: DM164136	Project Title <b>Curiosity HPC</b>	Variant: Production
Sheet Title <b>Power</b>		Designed with 
Size B	Sch #:03-10536	Date: 10/29/2020 7:50:15 PM
	Revision:2	Sheet 5 of 9
File: Power.SchDoc		

# ICSP

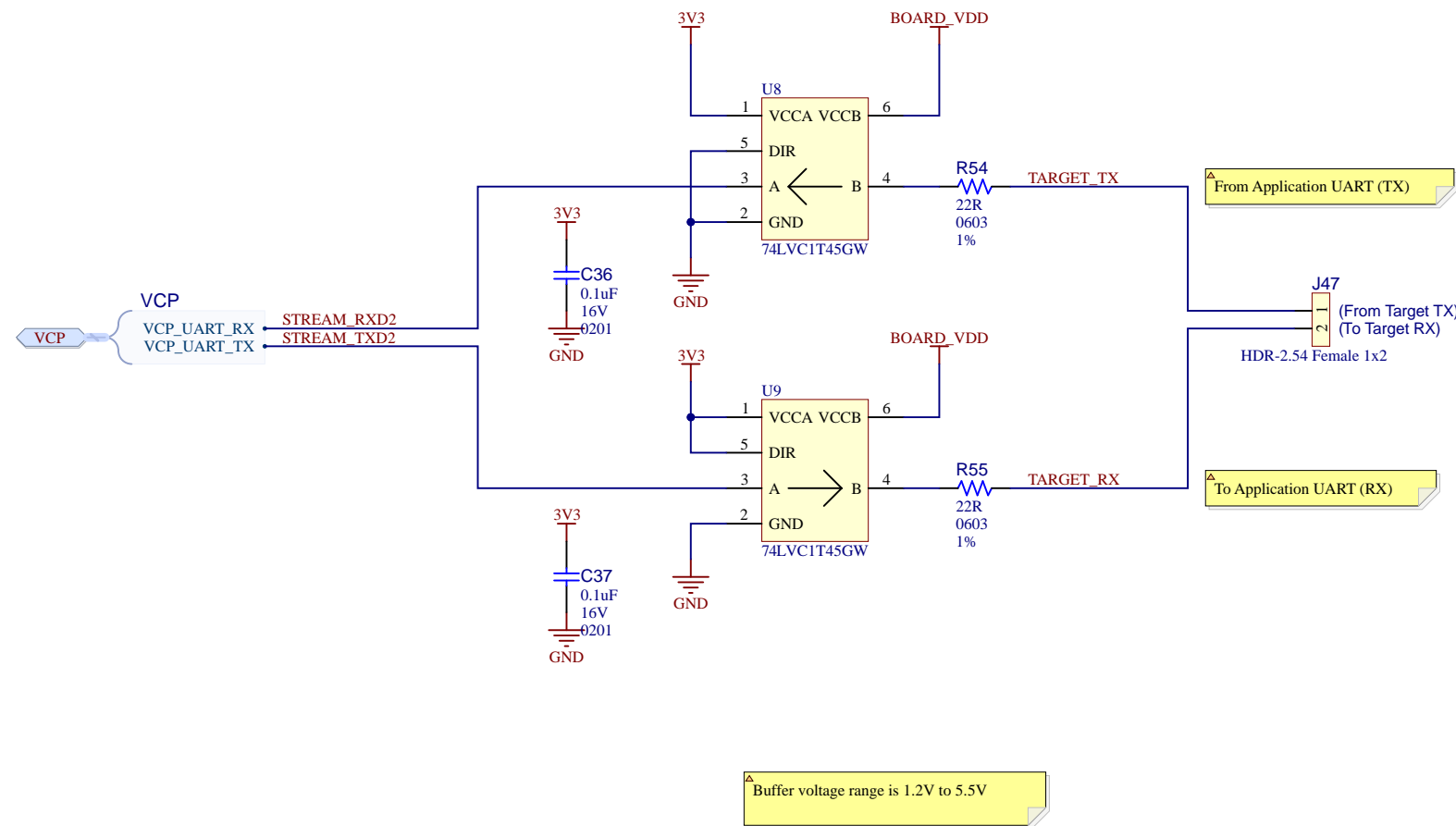



# VPP Switch



Drawn By: M.Loper/M.Ragsdale			
Engineer: M.Pearce/A.Rodriguez			
PartNumber: DMI64136	Project Title <b>Curiosity HPC</b>	Variant: Production	
Sheet Title <b>ICSP</b>			
Size B	Sch #:03-10536	Date: 10/29/2020 7:50:16 PM	 Altium.com
Revision:2		Sheet 6 of 9	
File: ICSP.SchDoc			

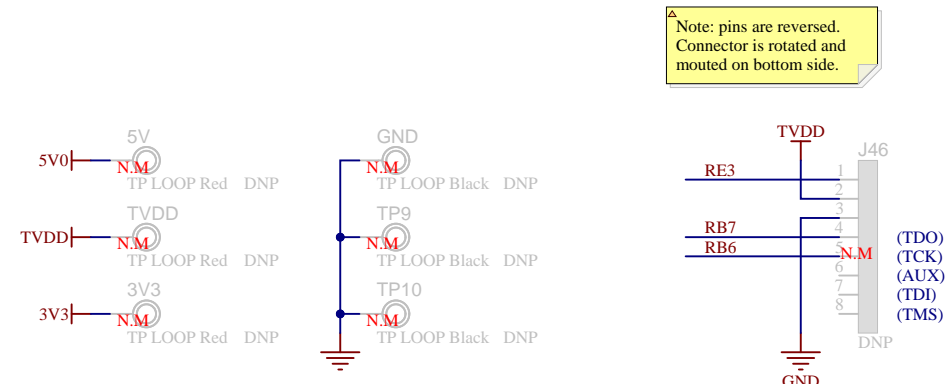
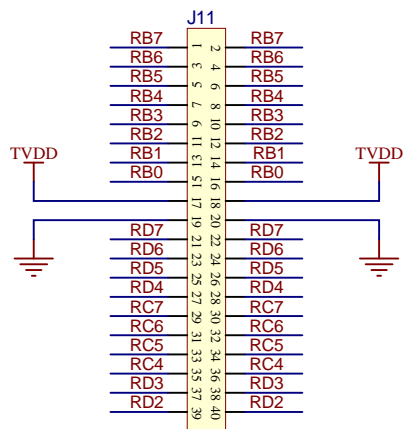
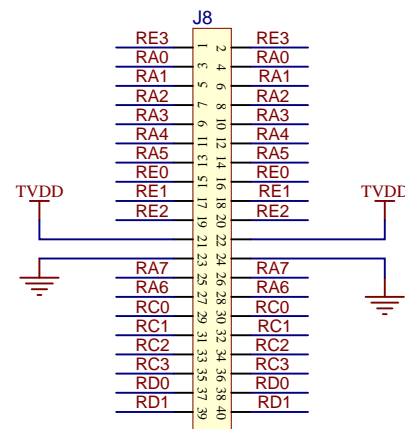
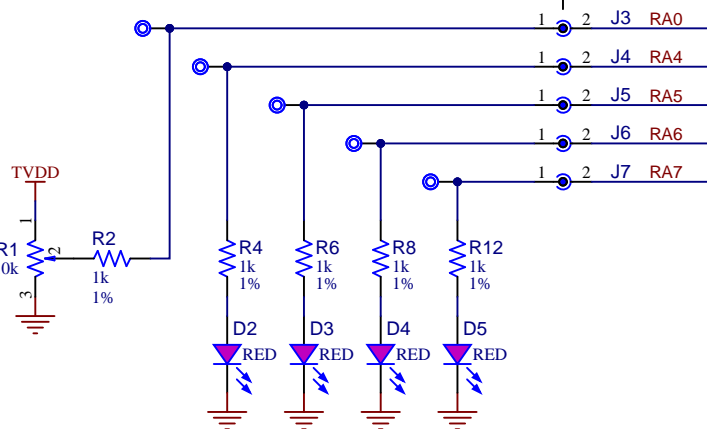
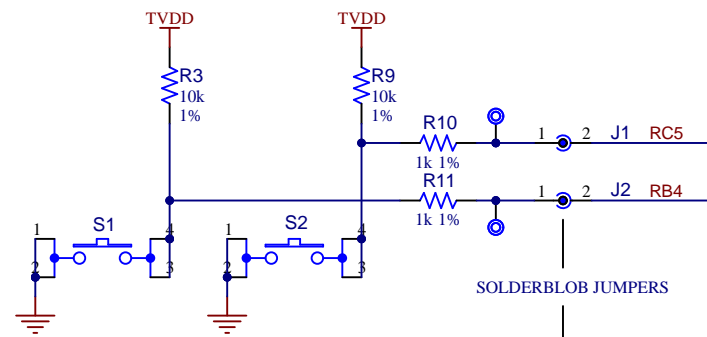
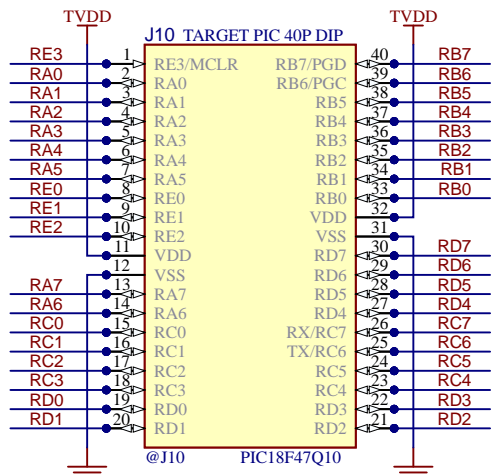
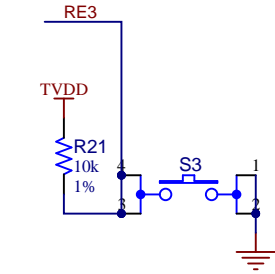
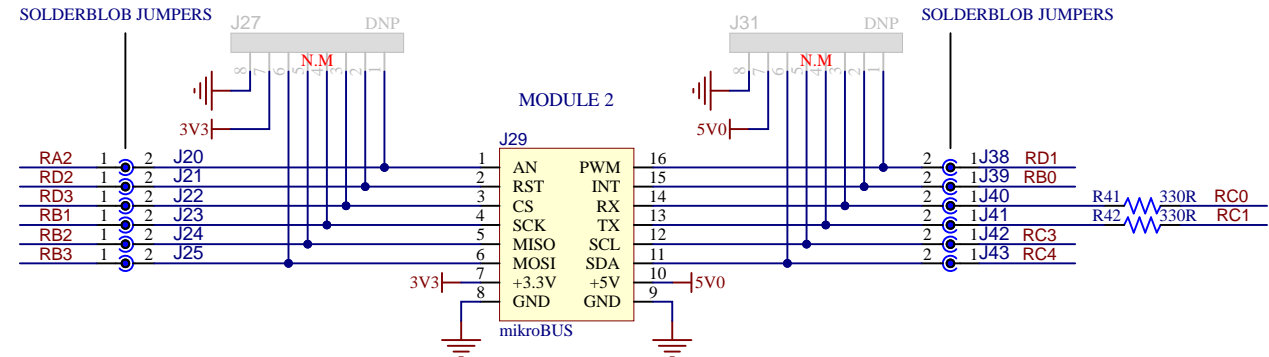
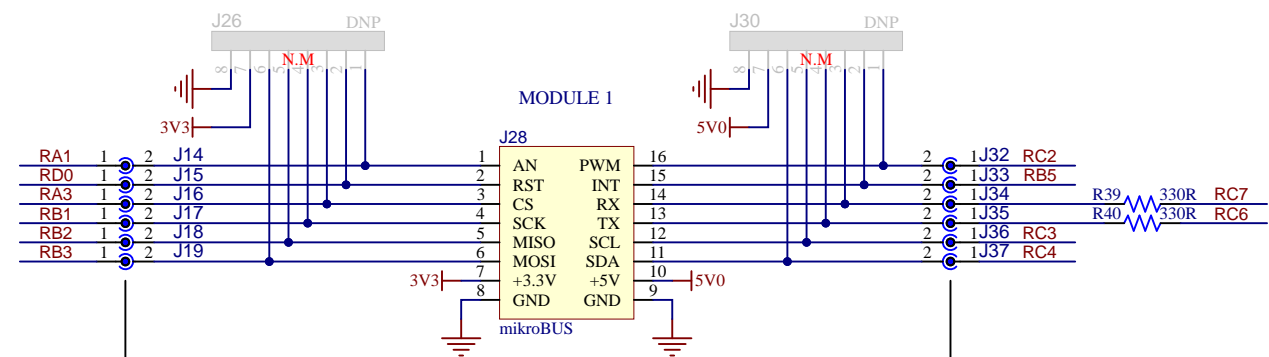
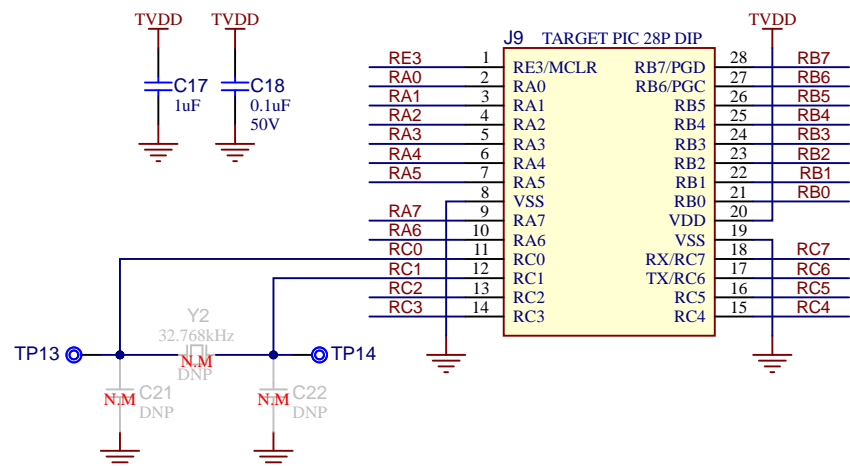
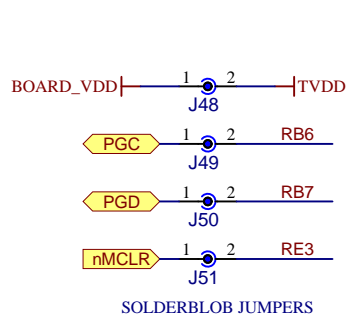
# Virtual Comm Port



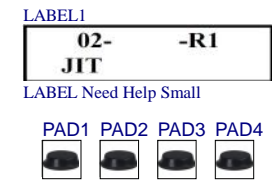
Drawn By: M.Loper/M.Ragsdale		
Engineer: M.Pearce/A.Rodriguez		
PartNumber: DM164136	Project Title <b>Curiosity HPC</b>	Variant: Production
Sheet Title <b>Virtual Comm Port</b>		
Size B	Sch #:03-10536	Date: 10/29/2020 7:50:16 PM
Revision:2		Sheet 7 of 9
File: VirtualCommPort.SchDoc		



BOARD\_VDD:  
Board Supplied Target Power



Note: pins are reversed.  
Connector is rotated and  
mounted on bottom side.



Drawn By: M.Loper/M.Ragsdale  
Engineer: M.Pearce/A.Rodriguez

PartNumber: DM164136 Project Title: Curiosity HPC Variant: Production

Sheet Title: mikroBUS and Target PIC Interface

Size B Sch #:03-10536 Date: 10/29/2020 7:50:16 PM  
Revision:2 Sheet 8 of 9

Designed with Altium Altium.com

# Revision History

**Rev. A:** **2016-02-17**



Initial Design

**Rev. 1:** **2016-03-31**

**Rev. 1.1:** **2016-06-23**

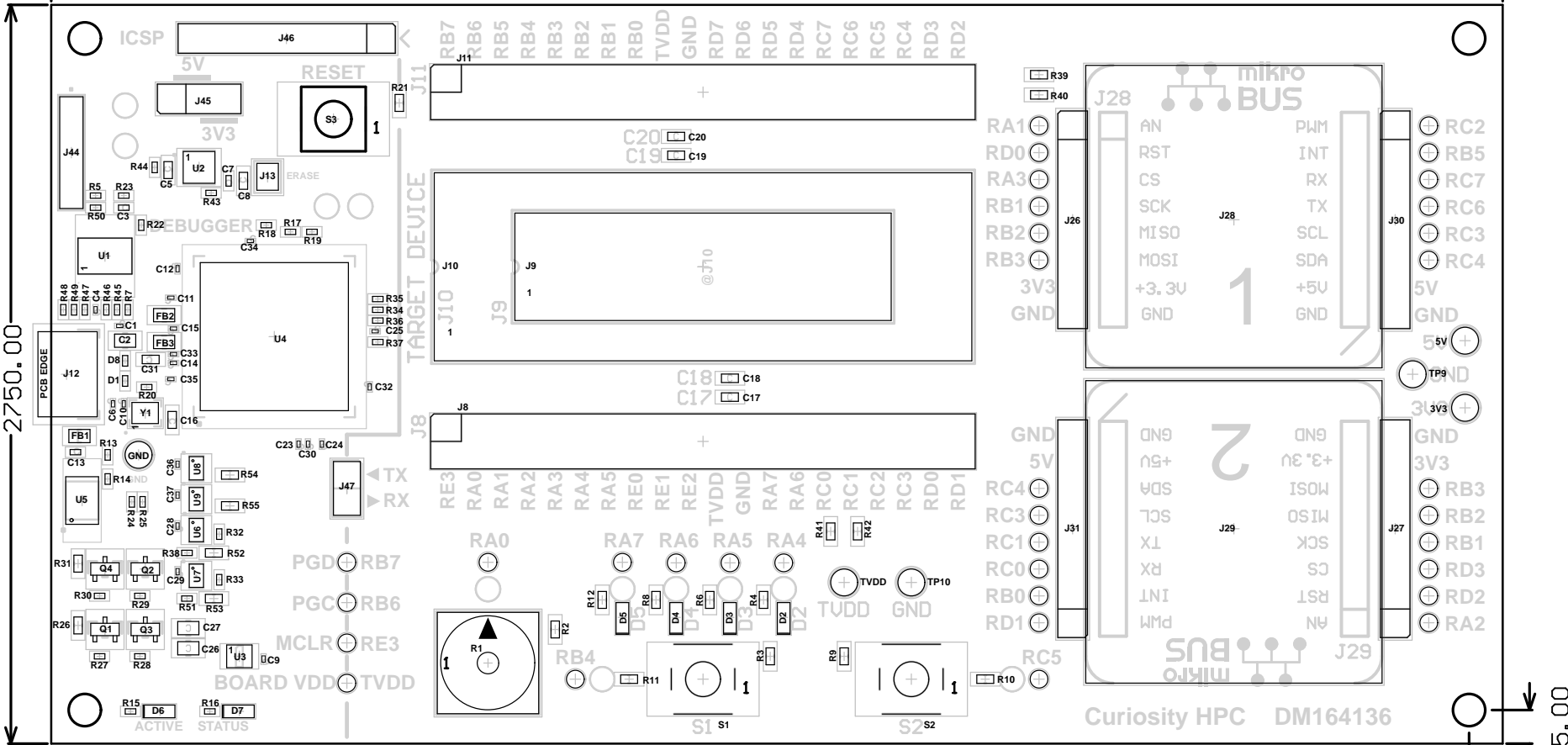
**Rev. 2:** **2019-10-25**

Updated to use PkoB 4 debugger design.  
All components updated to MCL standards.

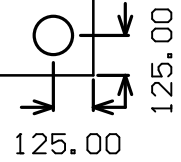
Drawn By: M.Loper/M.Ragsdale		
Engineer: M.Pearce/A.Rodriguez		
PartNumber: DM164136	Project Title <b>Curiosity HPC</b>	Variant: Production
Sheet Title <b>Revision History</b>		<i>Designed with</i>  <a href="http://Altium.com">Altium.com</a>
Size B	Sch #:03-10536	Date: 10/29/2020 7:50:17 PM
File: Revision History.SchDoc		Revision:2 Sheet 9 of 9

5400.00

Board Outline



2750.00

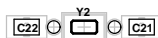
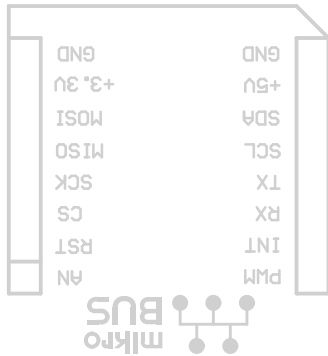
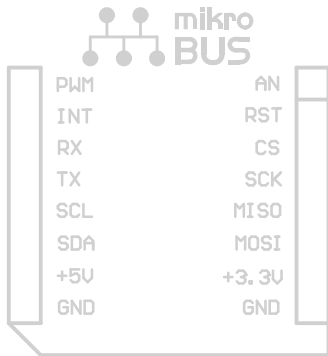


Curiosity HPC DM164136

04-10536 Rev

Rubber Pad

Rubber Pad



LABEL 1



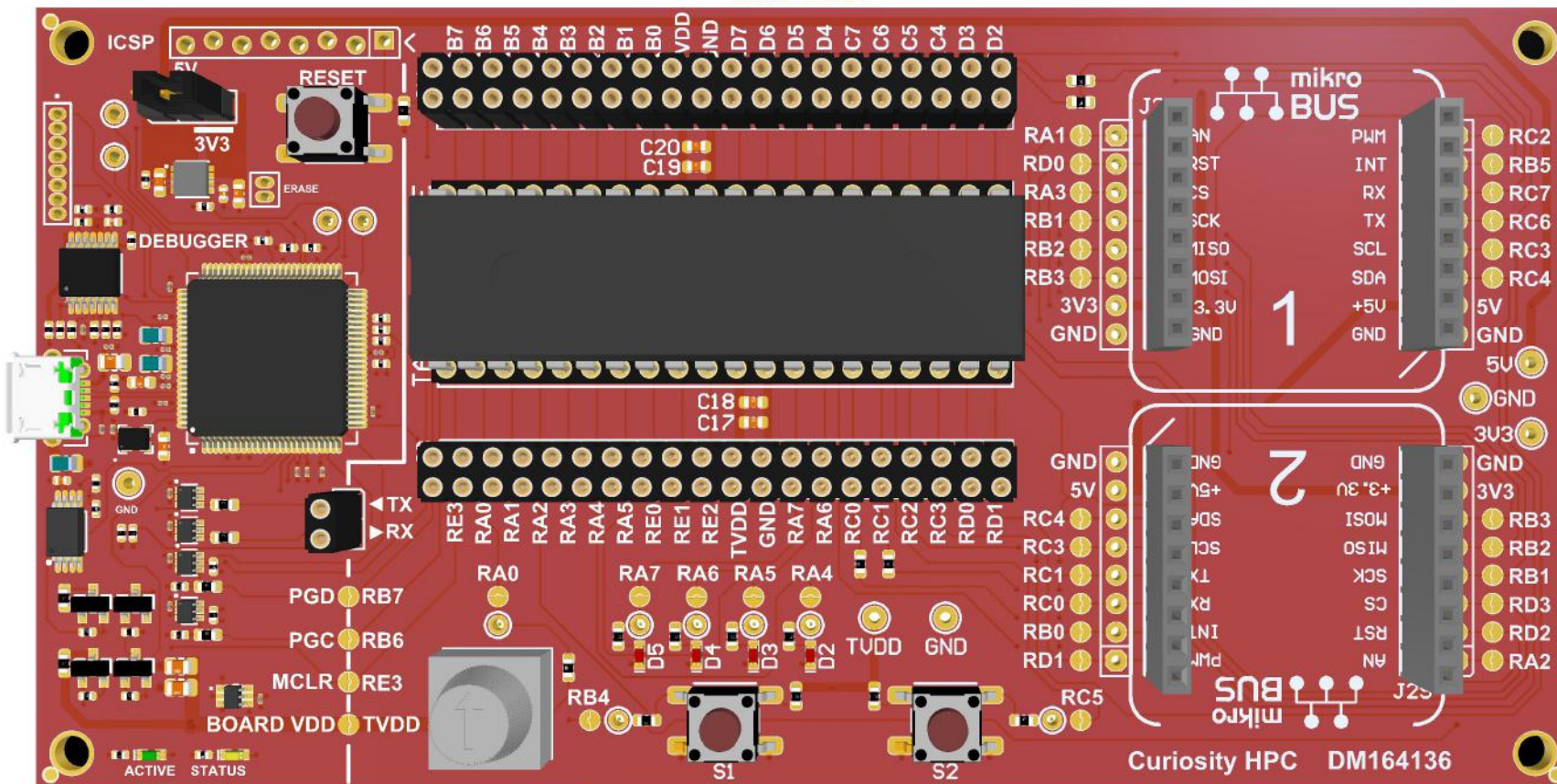
[www.microchip.com/curiosityhpc](http://www.microchip.com/curiosityhpc)



Rubber Pad

Rubber Pad

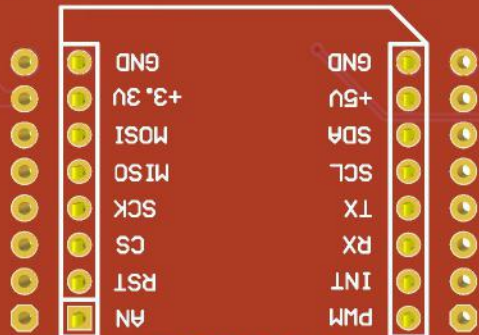
Bottom Side



04-10536 Rev

04-10536 Rev

mikro  
BUS



mikro  
BUS

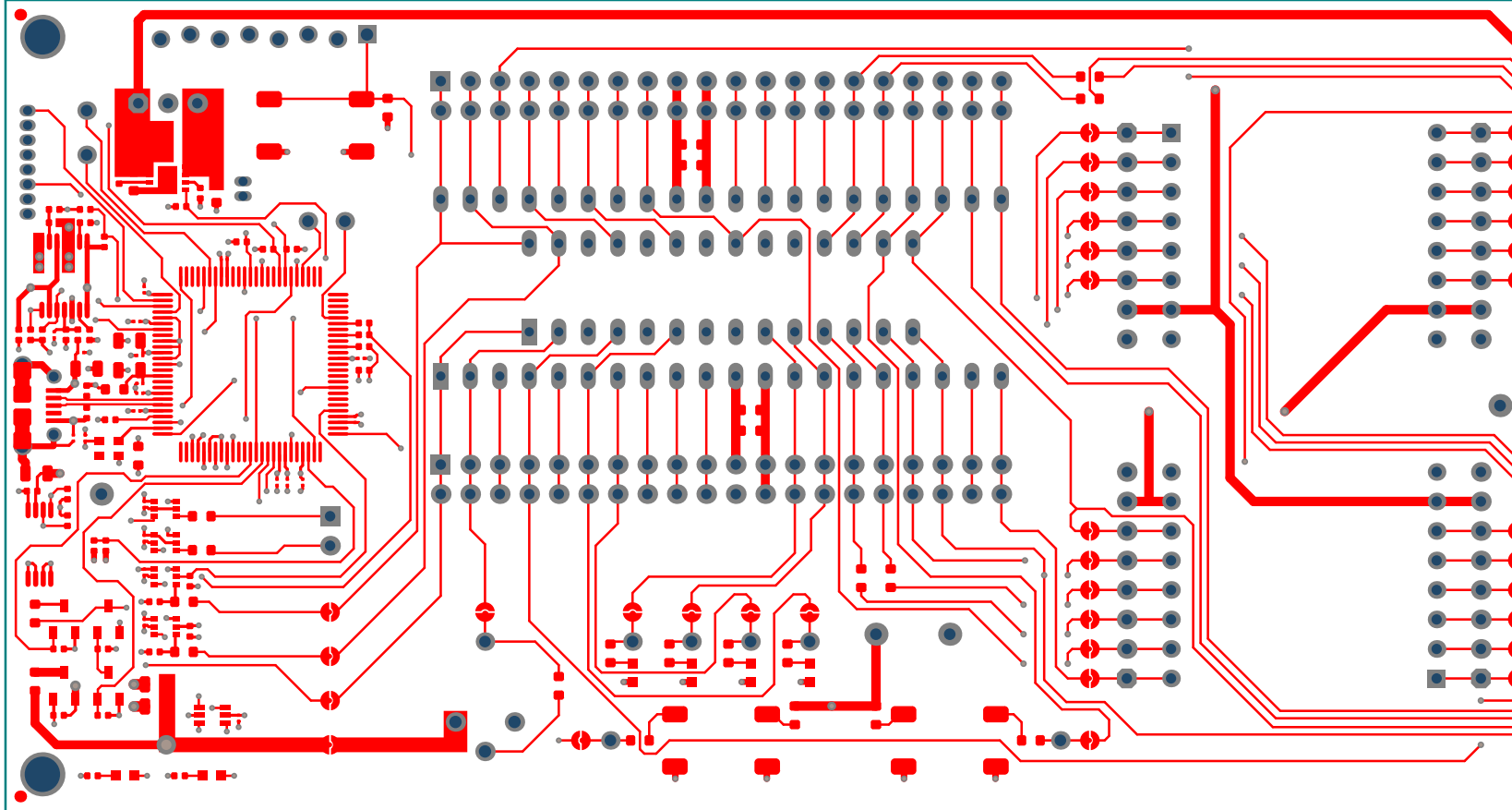


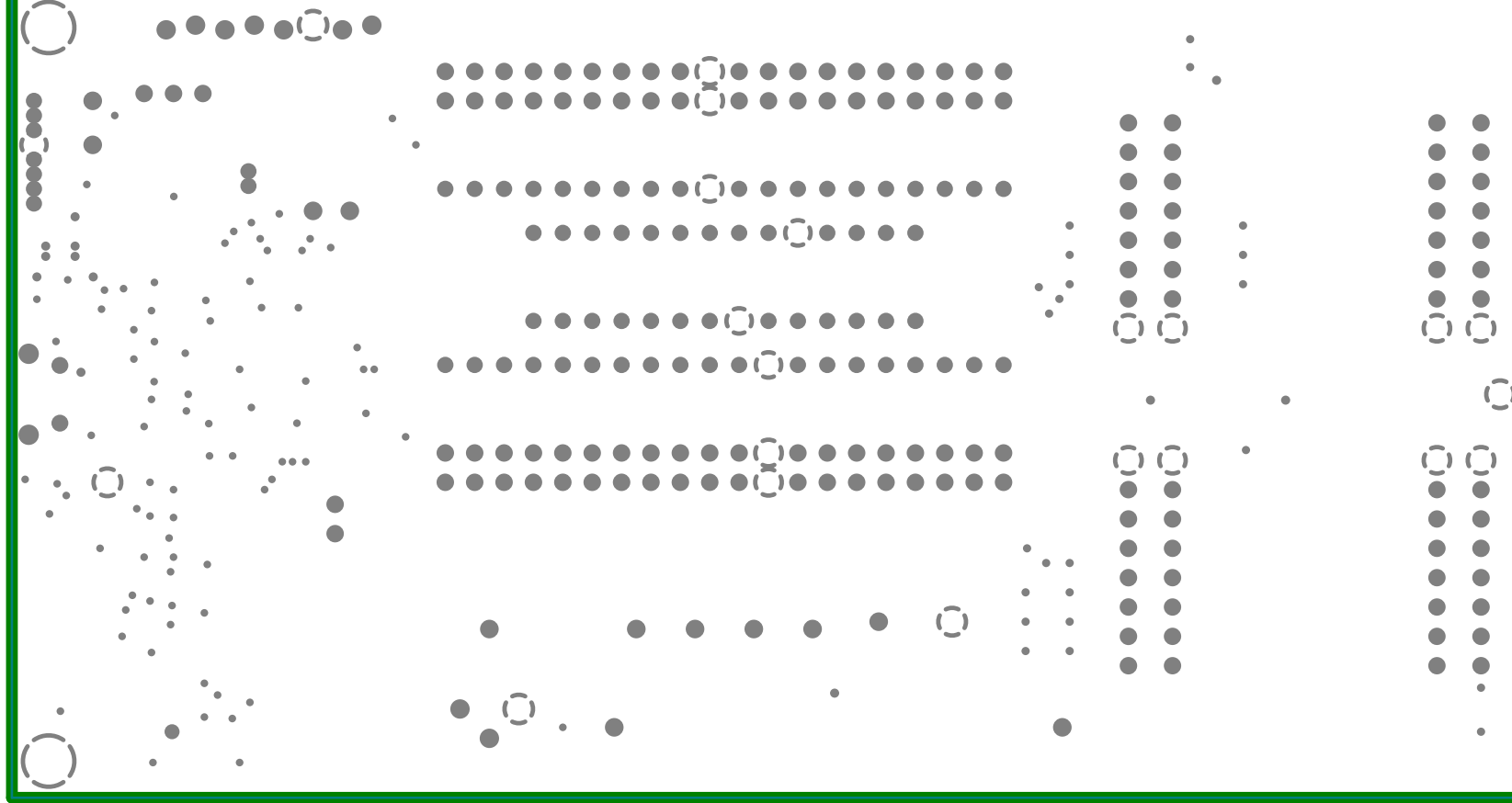
LABEL1

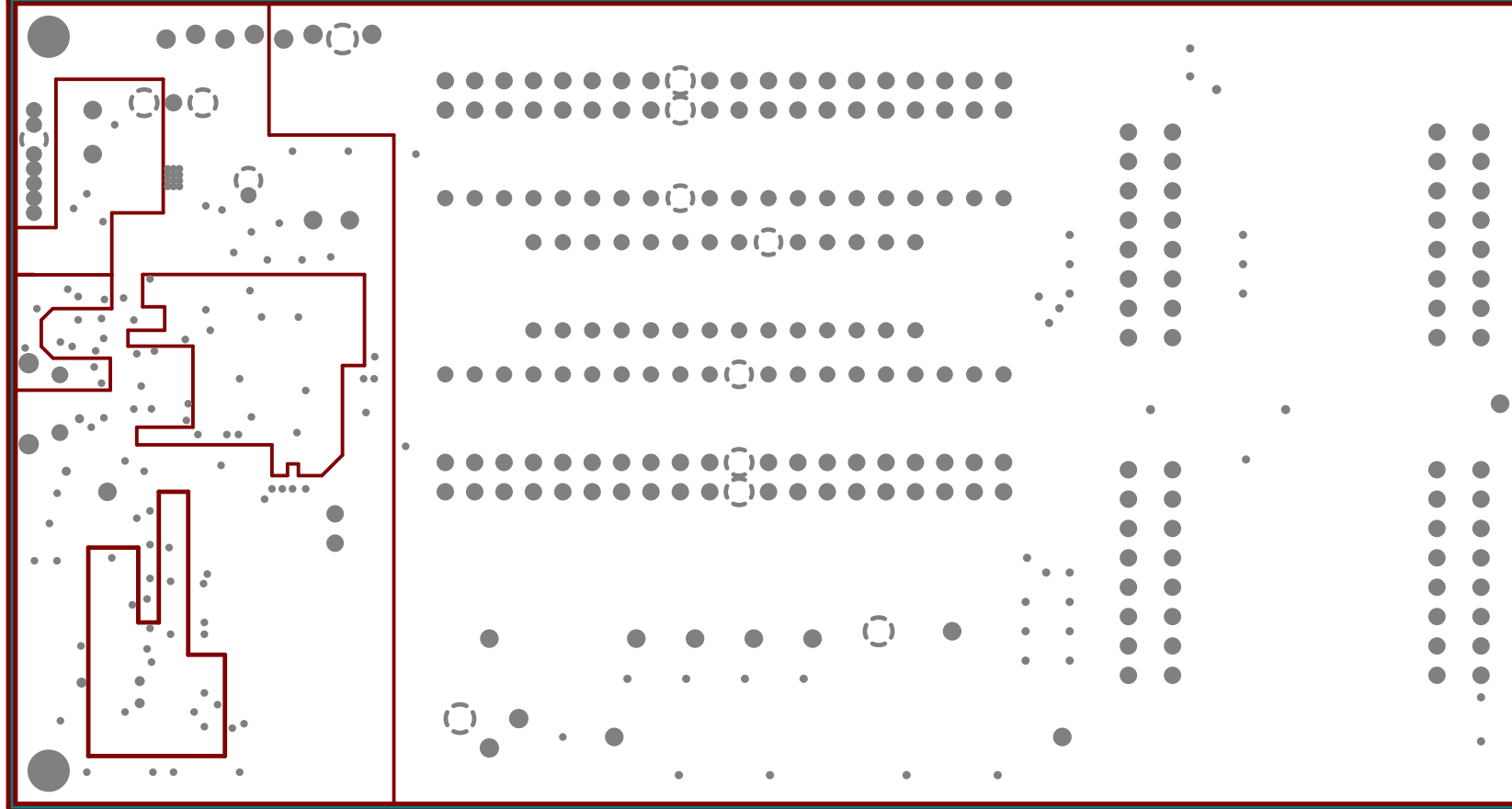


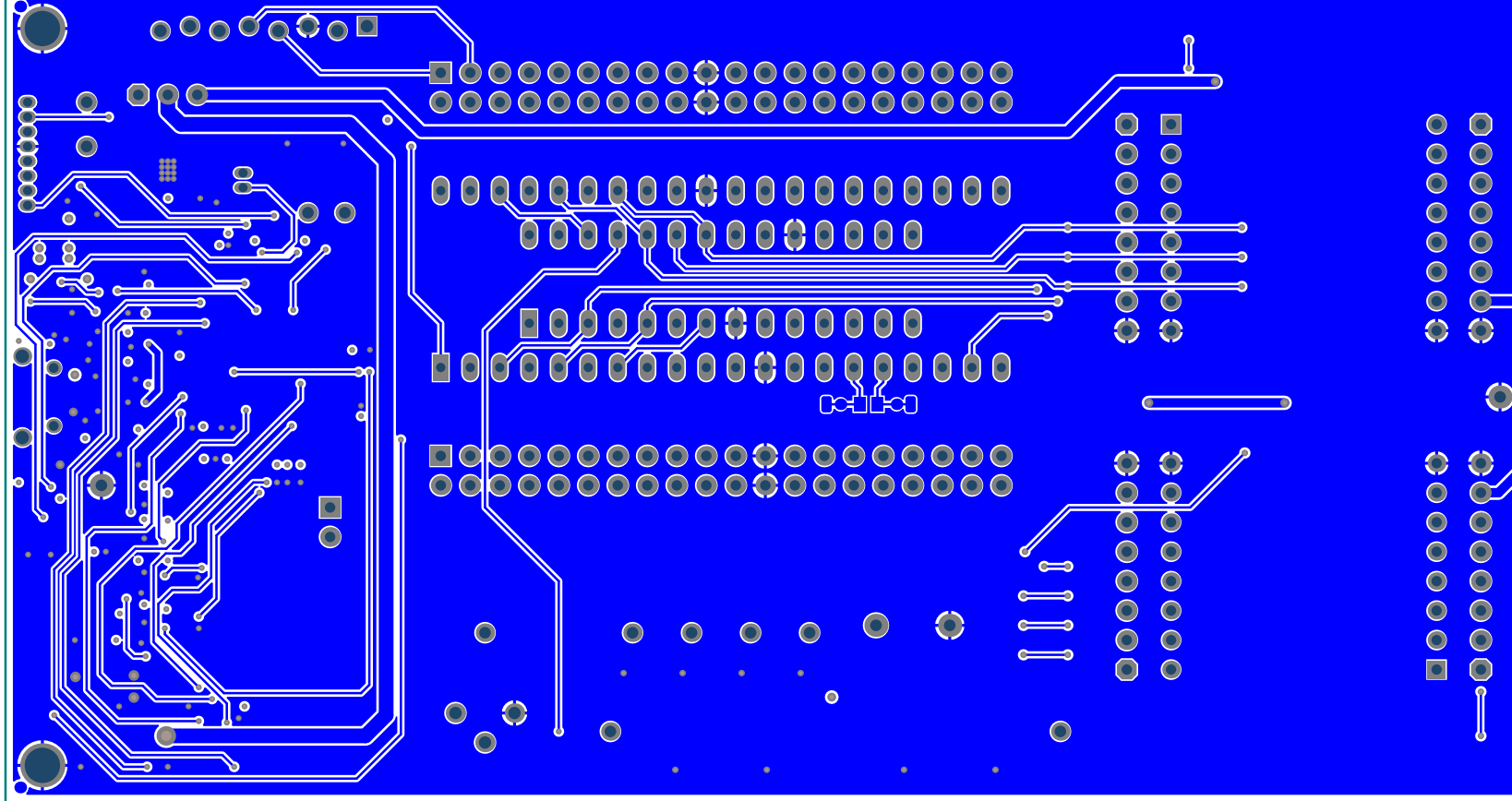
[www.microchip.com/curiosityhpc](http://www.microchip.com/curiosityhpc)











# Component list

Bill of Materials Fitted for Variant [Production] of Project [High Pin Count Curiosity.PrjPcb] (No PCB Document Selected)

Source Data From: High Pin Count Curiosity.PrjPcb  
 Project: High Pin Count Curiosity.PrjPcb  
 Variant: Production



Report Date: 10/29/2020 7:50 PM  
 Print Date: 10/29/2020 7:50:27 PM

Fitted	Designator	Quantity	Value	Manufacturer 1	Manufacturer Part Number 1	Description
Fitted	@J10	1	PC18F47Q10	Microchip Technology	PC18F47Q10-IP	Microcontroller
Fitted	@J45	1	Shunt 2.54mm 1x2	Würth Electronics Inc.	60900213421	
Fitted	C1, C4, C6, C9, C10, C11, C12, C14, C15, C23, C24, C25, C28, C29, C30, C32, C33, C34, C35, C36, C37	21	0.1uF	Murata Electronics North America	GRM033R61C104KE84D	Capacitor
Fitted	C2, C26, C27	3	10uF	TDK Corporation	C2012X5R1E106K125AB	Capacitor
Fitted	C3	1	0.022uF	Samsung Electro-Mechanics America, Inc	CL05B223K05NNNC	Capacitor
Fitted	C5, C8, C16, C31	4	4.7uF	TDK Corporation	C1608X5R1C475K080AC	Capacitor
Fitted	C7	1	1000pF	Murata	GRM155R71H102KA01D	Capacitor
Fitted	C13	1	10000pF	KEMET	C0402C103K4RACTU	Capacitor
Fitted	C17, C19	2	1uF	Taiyo Yuden	LMK107B7105KA-T	Capacitor
Fitted	C18, C20	2	0.1uF	TDK	C1608X7R1H104M	Capacitor
Fitted	D1, D8	2	PGB101	Littlefuse	PGB1010402KR	
Fitted	D2, D3, D4, D5	4	RED	Kingbright	APT1608EC	LED
Fitted	D6	1	GREEN	Lite-On Inc	LTST-C191K9KGT	LED
Fitted	D7	1	YELLOW	Lite-On	LTST-C190YKT	LED
Fitted	FB1	1	220R	Murata Electronics North America	BLM21PG221SN1D	FERRITE 180R 1.5A SMD 0603
Fitted	FB2, FB3	2	600R	TDK Corporation	MPZ2012S601AT000	FERRITE 180R 1.5A SMD 0603
Fitted	J8, J11	2	HDR-2.54 Female 2x20	Mil-Max	803-43-040-10-001000	
Fitted	J9	1	110-91-328-41-001	Mil-Max	110-43-328-41-001000	Connector
Fitted	J10	1	110-87-640-41-001151	Preci-Dip	110-87-640-41-001151	Connector
Fitted	J12	1	USB2.0 MICRO-B FEMALE	FCI	10118194-0001LF	
Fitted	J28, J29	2	mkroBUS	Sullins Connector Solutions	PPTC081LFBN-RC	
Fitted	J45	1	HDR-2.54 Male 1x3	FCI	68000-103HLF	
Fitted	J47	1	HDR-2.54 Female 1x2	Mil-Max	803-43-002-10-001000	
Fitted	LABEL1	1	LABEL Need Help Small			
Fitted	PAD1, PAD2, PAD3, PAD4	4	Rubber Pad Cyl D7.9H5.3	3M	SJ61A11	
Fitted	Q1, Q3, Q4	3	TN2106	Microchip Technology	TN2106K1-G	Transistor MOS
Fitted	Q2	1	IRLM6402	International Rectifier	IRML6402TRPBF	Transistor MOS
Fitted	R1	1	10k	TT Electronics/BI TT Electronics/BI	72PTR10KLF	Resistor Var
Fitted	R2, R4, R6, R8, R10, R11, R12	7	1k	Panasonic	ERJ-3EKF1001V	Resistor
Fitted	R3, R9, R21	3	10k	Panasonic	ERJ-3EKF1002V	Resistor
Fitted	R5	1	24.3k	Samsung	RC1005F2432CS	Resistor
Fitted	R7	1	470R	Yageo	RC0402FR-07470RL	Resistor
Fitted	R13, R14, R27, R28, R29, R30, R38, R51	8	4.7k	Yageo	RC0402FR-074K7L	Resistor
Fitted	R15, R16, R34, R35, R36, R37	6	330R	Yageo	RC0402FR-07330RL	Resistor
Fitted	R17, R18, R19, R43	4	100k	Panasonic	ERJ-2RKF1003X	Resistor
Fitted	R20, R46	2	5.62k	Vishay Dale	CRCW04025K62FKED	Resistor
Fitted	R22, R24	2	31.6k	Panasonic	ERJ-2RKF3162X	Resistor
Fitted	R23, R25	2	47k	Panasonic - ECG	ERJ-2RKF4702X	Resistor
Fitted	R26, R31	2	100R	ROHM	MCR03EZPFX1000	Resistor
Fitted	R32, R33	2	3.3k	Panasonic - ECG	ERJ-2RKF3301X	Resistor
Fitted	R39, R40, R41, R42	4	330R	Panasonic	ERJ-3EKF3300V	Resistor
Fitted	R44, R47, R48, R49	4	10k	Panasonic	ERJ-2RKF1002X	Resistor
Fitted	R45	1	95.3k	Rohm Semiconductor	MCR01MRTF9532	Resistor
Fitted	R50	1	442k	Samsung Electro-Mechanics America, Inc	RC1005F4423CS	Resistor
Fitted	R52, R53, R54, R55	4	22R	Yageo	RC0603FR-0722RL	Resistor
Fitted	S1, S2, S3	3	PTS645SM43SMTR92 LFS	C&K Components	PTS645SM43SMTR92 LFS	Switch
Fitted	U1	1	MIC2042	Microchip Technology	MIC2042-1YTS	IC SMT, MIC2042, DISTRIBUTION SW SGL 14-TSSOP
Fitted	U2	1	MCP1727 3.3V	Microchip Technology	MCP1727-3302EMF	LDO
Fitted	U3	1	74LVC1G3157	Texas Instruments	SN74LVC1G3157DKR	
Fitted	U4	1	ATSAME70N21B-ANT	Microchip Technology	ATSAME70N21B-ANT	
Fitted	U5	1	24LC256	Microchip Technology	24LC256T-E/ST	EEPROM I2C
Fitted	U6, U7, U8, U9	4	74LVC1T45GW	NXP USA Inc.	74LVC1T45GW,125	
Fitted	Y1	1	12.00 MHz	Microchip Technology Inc	DSC6011J11A-012.0000	
Not Fitted	3V3, 5V, TVDD	0	TP LOOP Red	Keystone	5000	Test Point
Not Fitted	C21, C22	0	22pF	Johanson Dielectrics	500R15N220JV4T	Capacitor
Not Fitted	GND, TP9, TP10	0	TP LOOP Black	Keystone	5001	Test Point
Not Fitted	J13	0	HDR-1.27 Male 1x2	Digikey	952-3598-ND	
Not Fitted	J26, J27, J30, J31	0	HDR-2.54 Male 1x8	FCI	68001-108HLF	CON HDR-2.54 Female 1x8 Gold TH
Not Fitted	J44	0	HDR-1.27 Female 1x8	Greenconn	FSEA120-0802A002B1AB	CON HDR-2.54 Female 1x8 Gold TH
Not Fitted	J46	0	HDR-2.54 Male 1X8 STAGGERED			CON HDR-2.54 Female 1x8 Gold TH
Not Fitted	Y2	0	32.768kHz	NDK	NX2012SA-32.768K-STD-MUB-1	Crystal

134

Approved

Notes