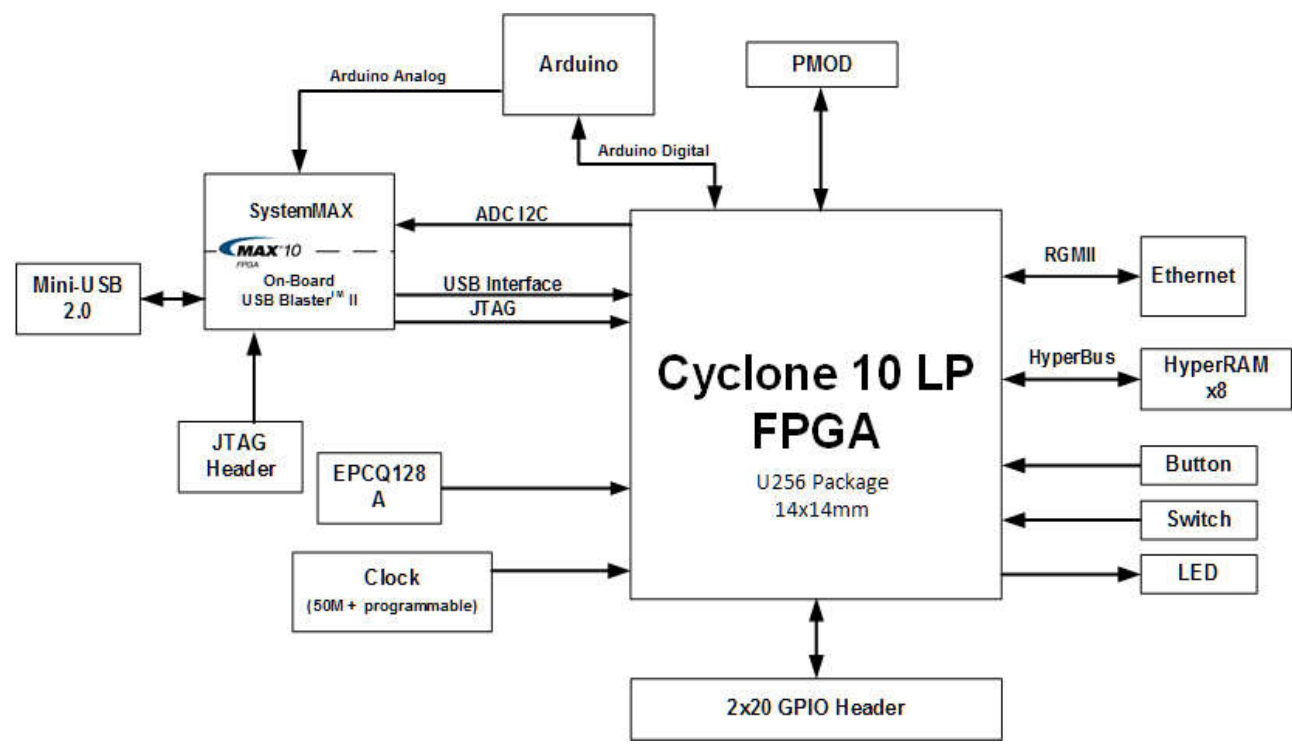


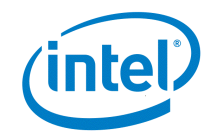
NOTES:

1. Project Drawing Numbers:
- Raw PCB 100-0321321-A1
 - Gerber Files 110-0321321-A1
 - PCB Design Files 120-0321321-A1
 - Assembly Drawing 130-0321321-A1
 - Fab Drawing 140-0321321-A1
 - Schematic Drawing 150-0321321-A1
 - PCB Film 160-0321321-A1
 - Bill of Materials 170-0321321-A1
 - Schematic Design Files 180-0321321-A1
 - Functional Specification 210-0321321-A1
 - PCB Layout Guidelines 220-0321321-A1
 - Assembly Rework 320-0321321-A1

REV	DATE	PAGES	DESCRIPTION
A1	08/16/17	All	Initial Release
A1.1	10/12/17	Pg. 4, 6	Delete comment which may confuse users
A2	11/27/17	Pg.4	1. Change U2 from EPCQ64 to EPCQ128A 2. Add compatible HyperRAM note



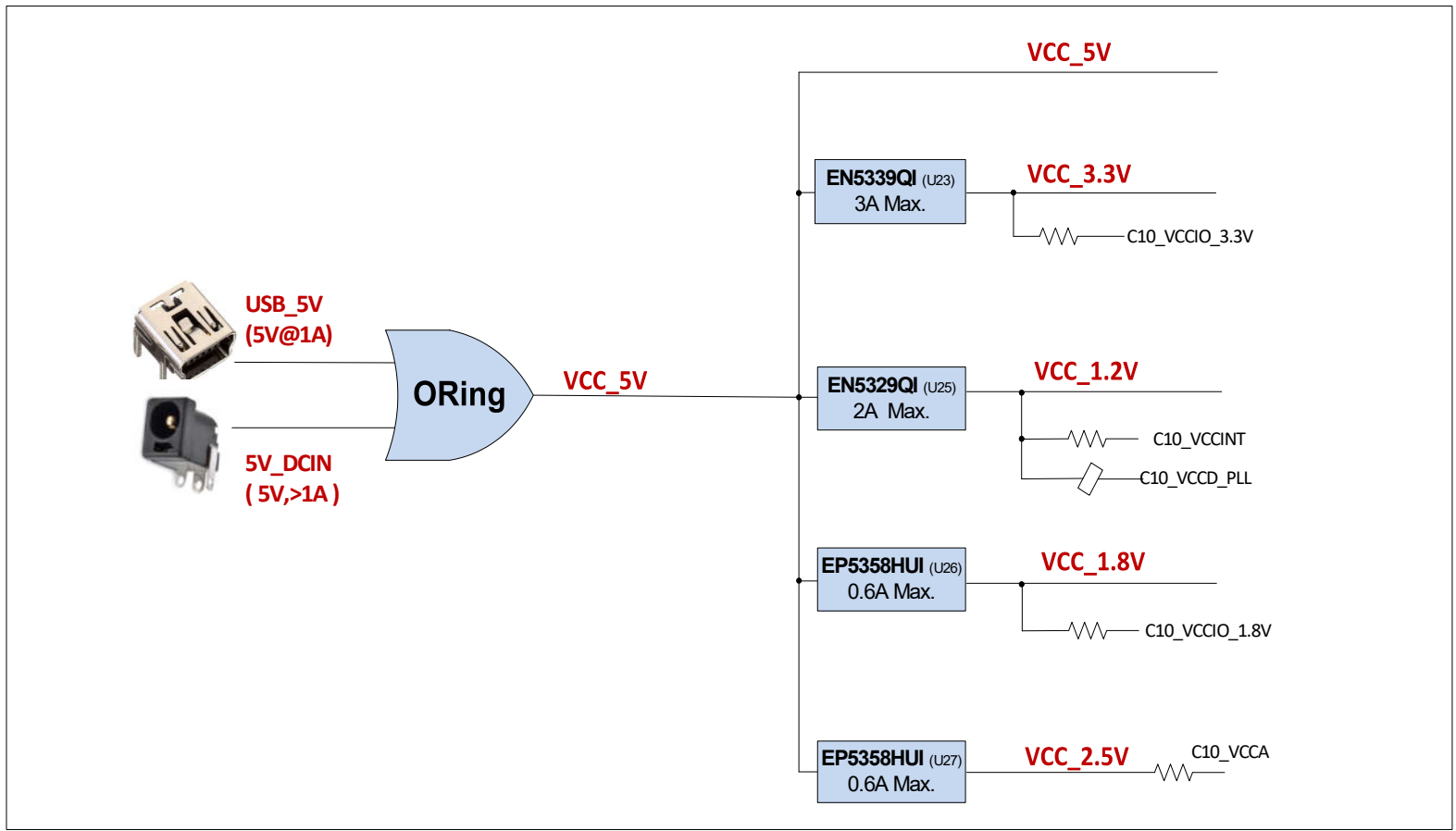
PAGE	DESCRIPTION
1	Title, Notes, Block Diagram, Rev. History
2	Power Diagram
3	Clock Diagram
4	Cyclone 10 Bank 1~4
5	Cyclone 10 Bank 5~8
6	Cyclone 10 Power
7	MAX10 - UBII-A
8	MAX10 - UBII-B
9	MAX10 - ADC
10	HyperRAM
11	Ethernet
12	Arduino Header
13	PMOD, 2x20 GPIO
14	LED, PB, DIP SW
15	Clock
16	Power Input
17	1.2V, 1.8V, 2.5V, 3.3V



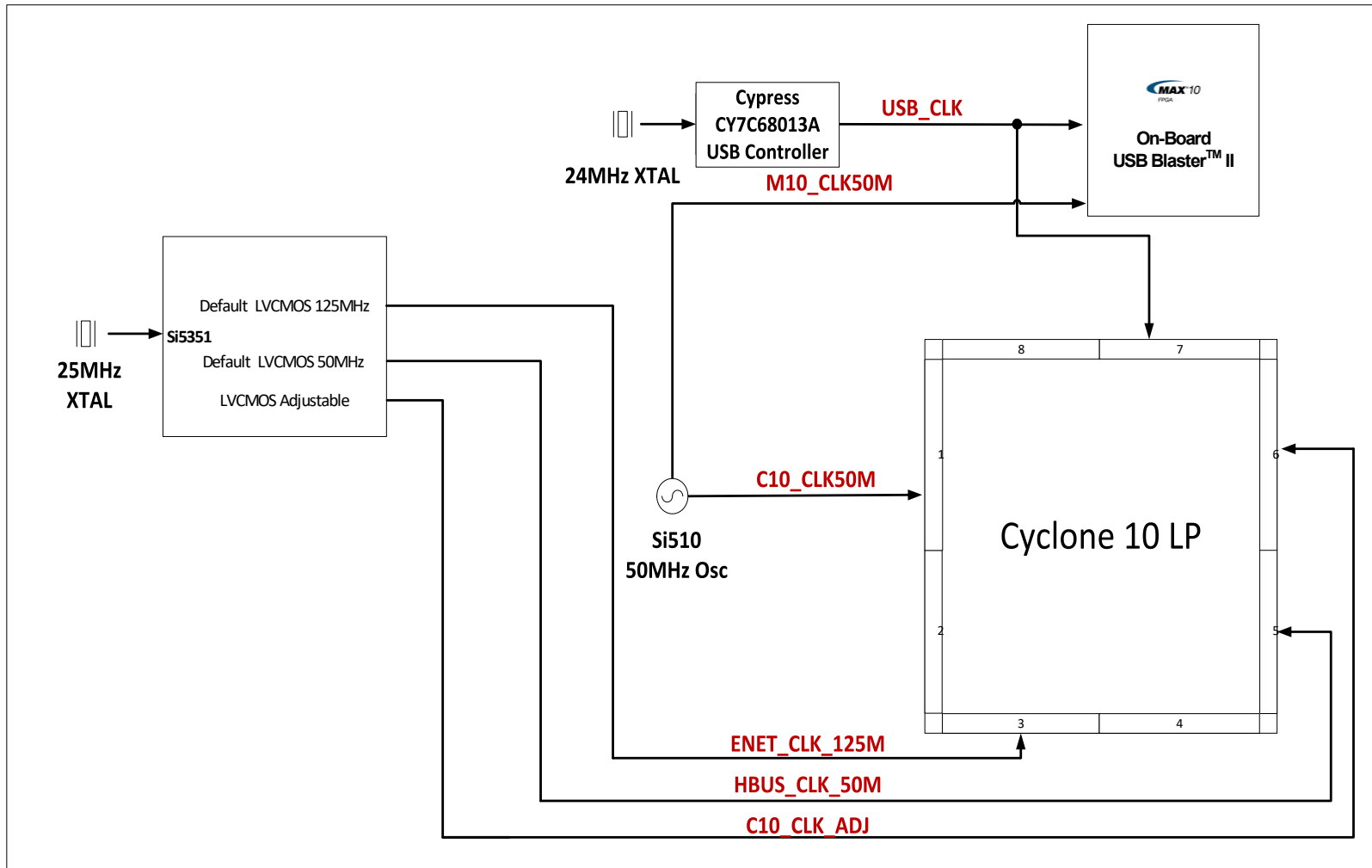
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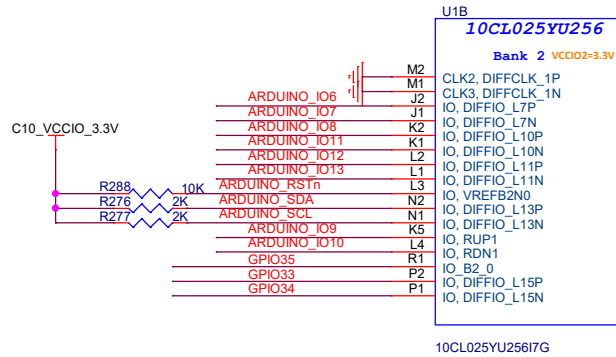
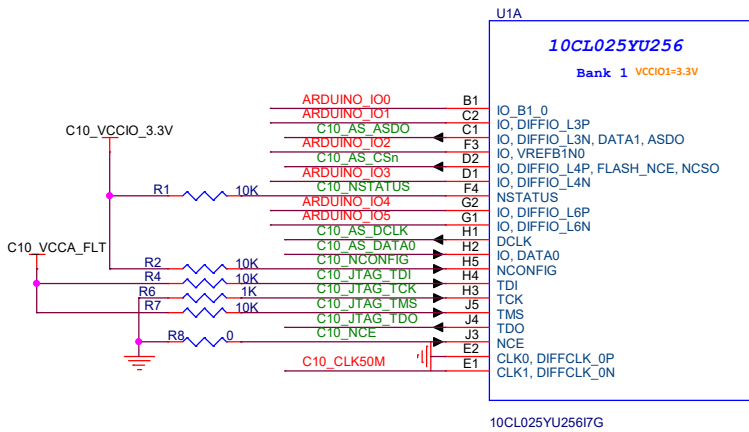
Size B	Document Number 150-0321321-A1 (6XX-44504R)	Rev A2
Date:	Monday, November 27, 2017	Sheet 1 of 17



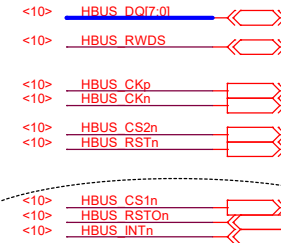
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Date:	Monday, November 27, 2017	Sheet 2 of 17



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Size	Document Number		Rev
B	150-0321321-A1 (6XX-44504R)		A2
Date:	Monday, November 27, 2017		Sheet 3 of 17

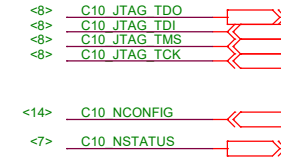


HyperRAM (HyperBUS)

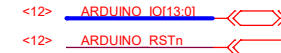


Reserved For MCP/Flash

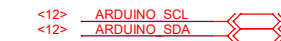
C10 JTAG



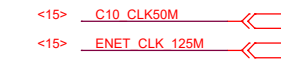
Arduino Digital IO



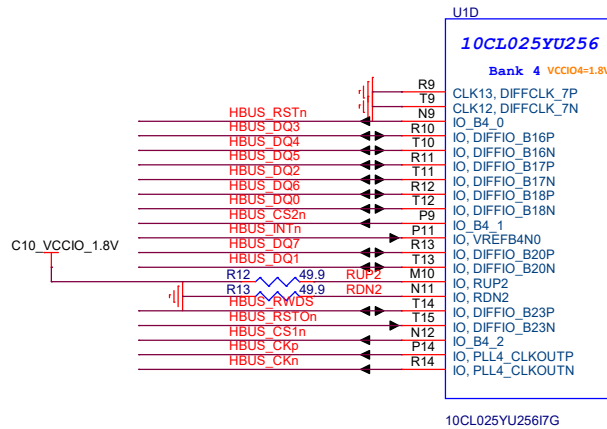
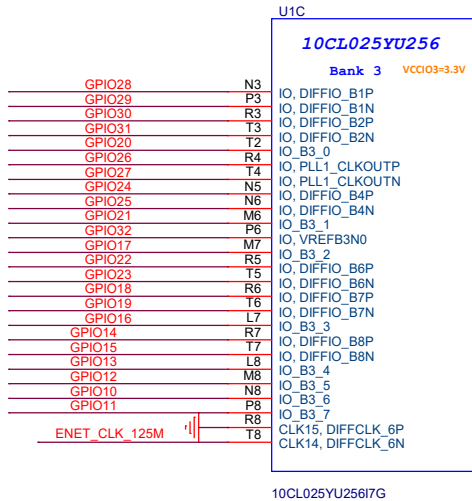
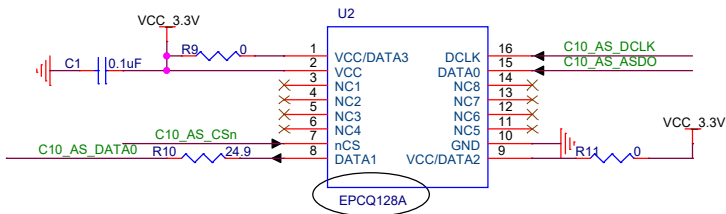
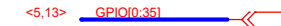
Arduino I2C



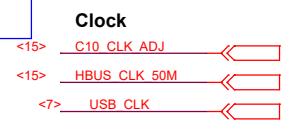
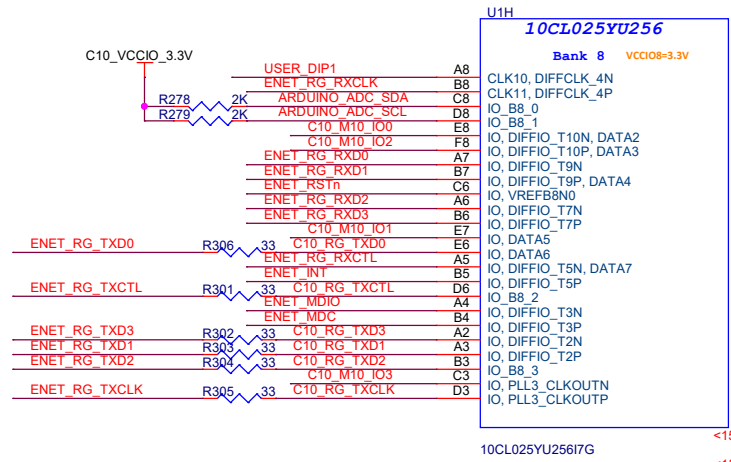
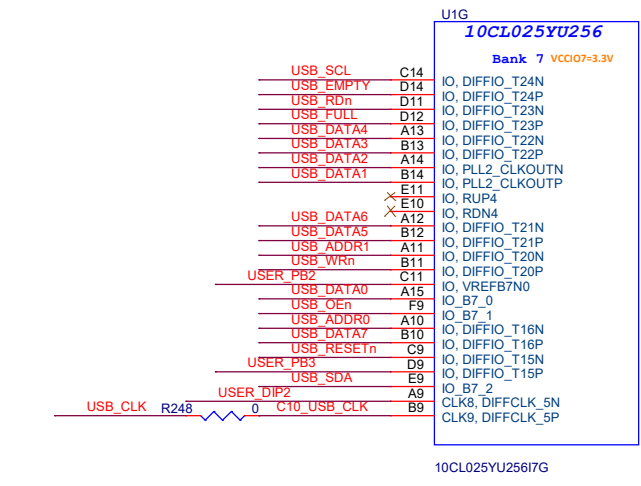
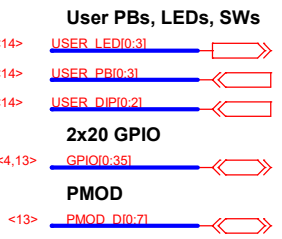
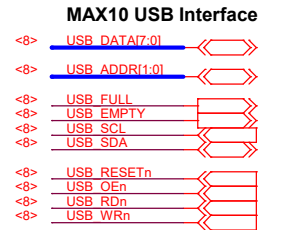
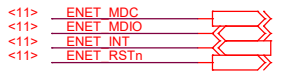
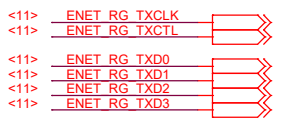
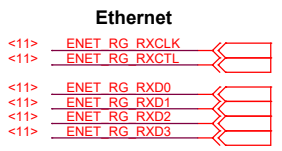
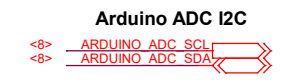
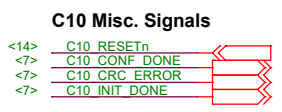
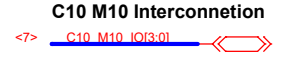
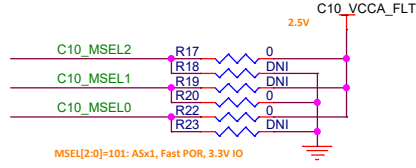
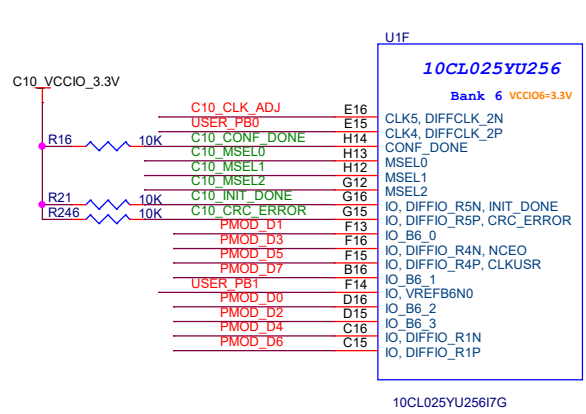
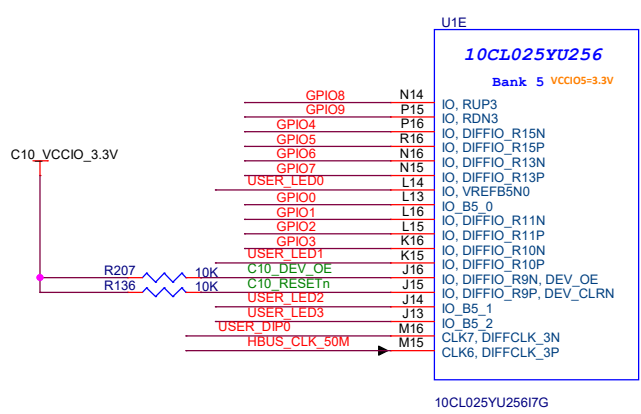
Clocks



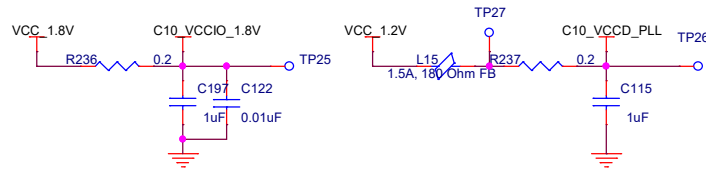
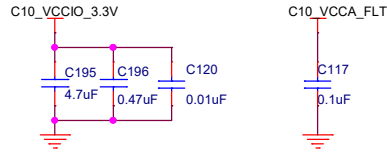
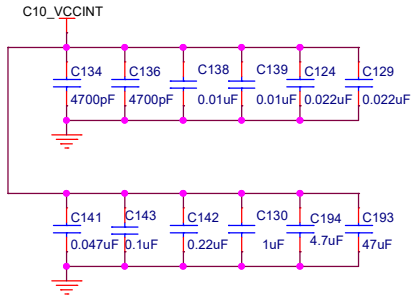
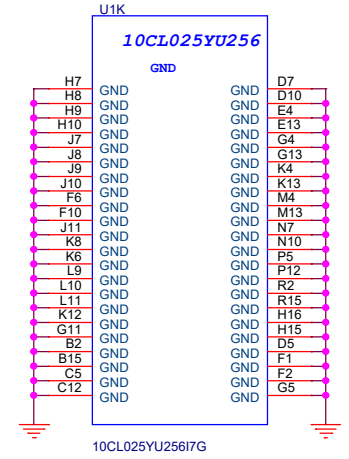
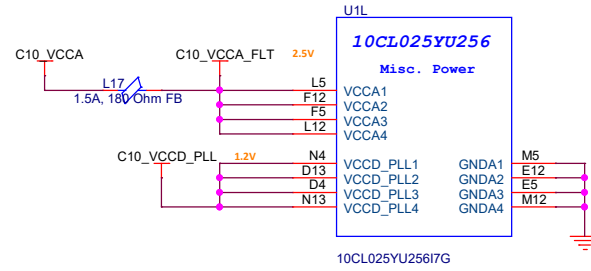
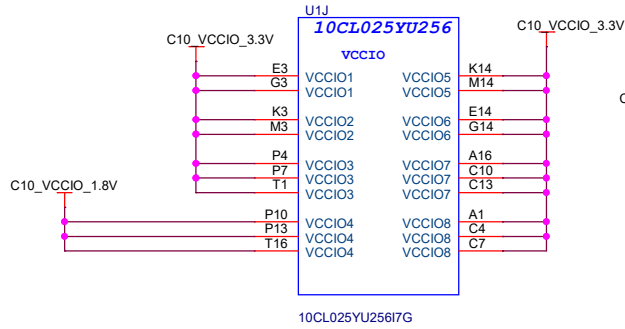
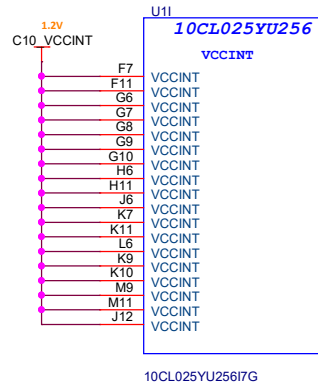
2x20 GPIO



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Date:	Monday, November 27, 2017	Sheet	4 of 17



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Date:	Monday, November 27, 2017	Sheet 5 of 17



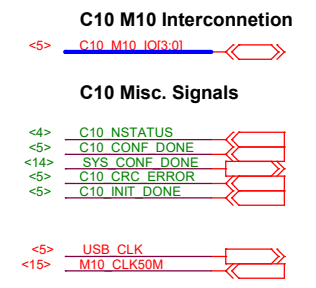
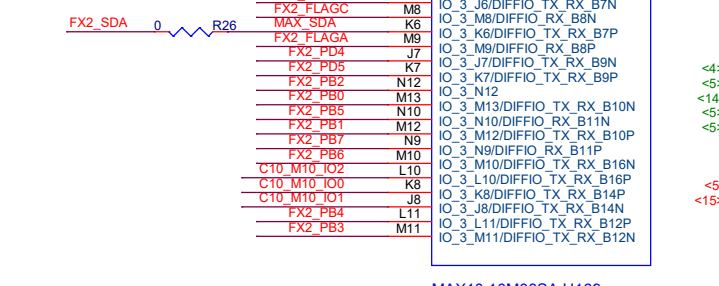
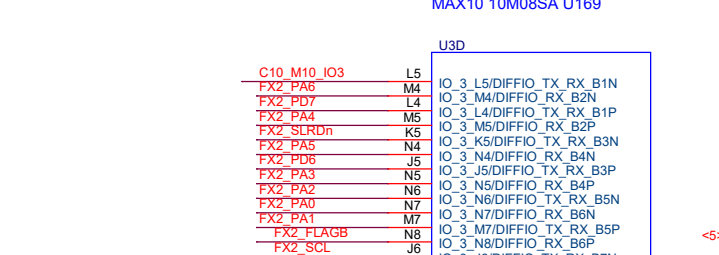
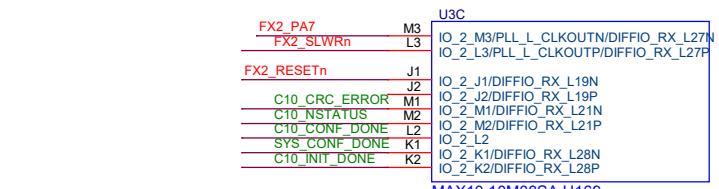
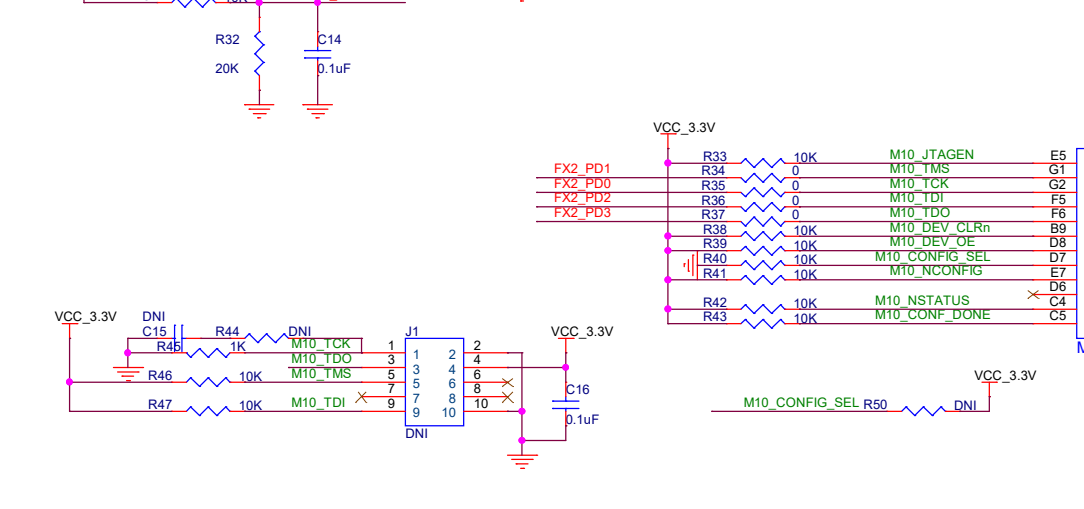
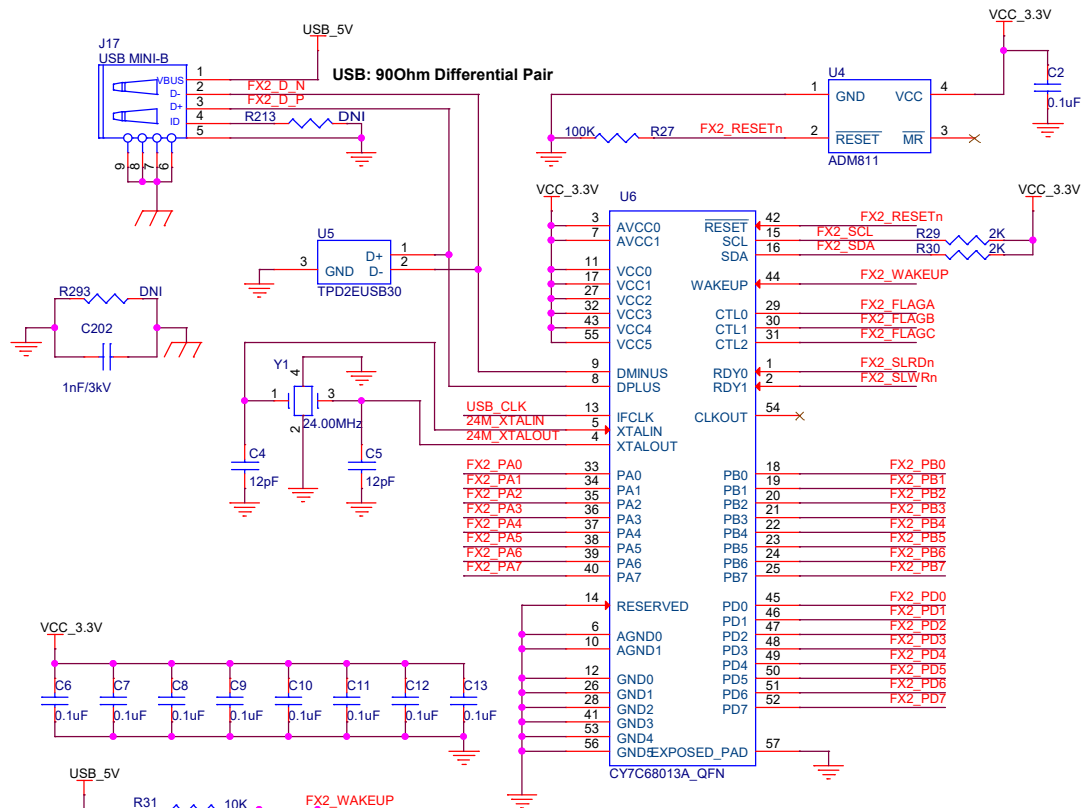
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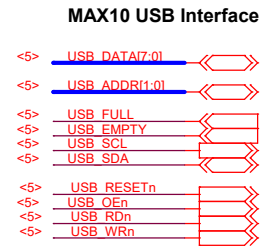
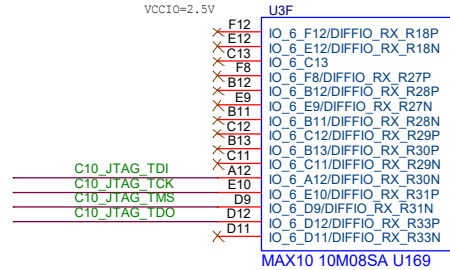
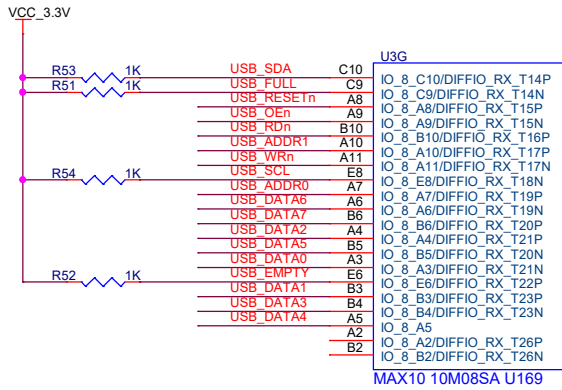
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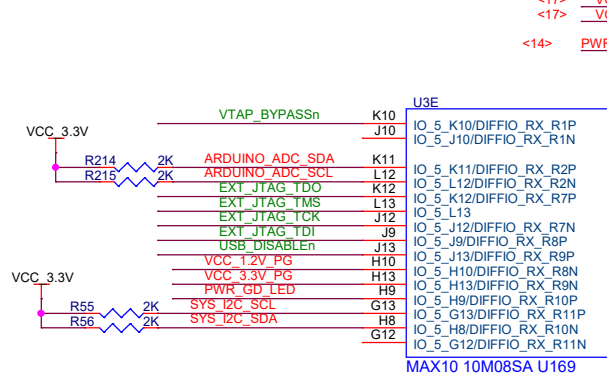
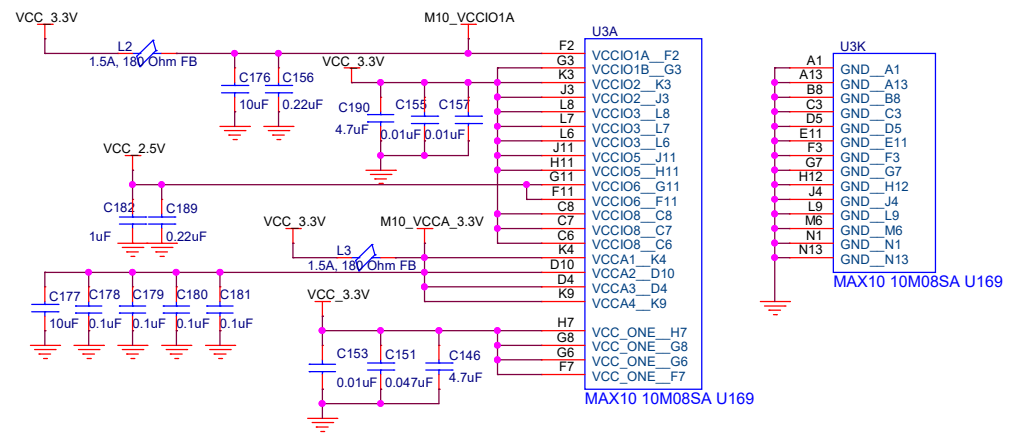
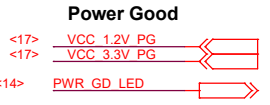
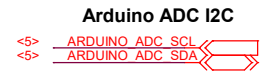
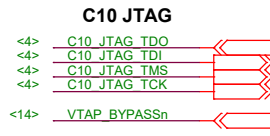
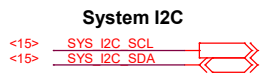
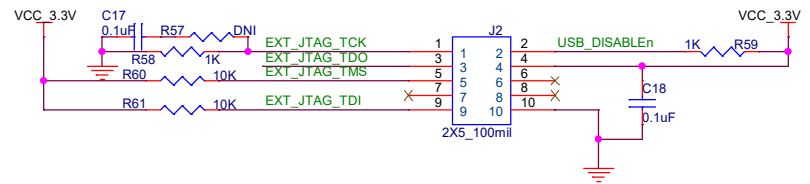
Size B Document Number 150-0321321-A1 (6XX-44504R) Rev A2

Date: Monday, November 27, 2017 Sheet 6 of 17

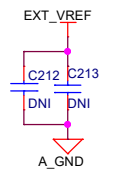
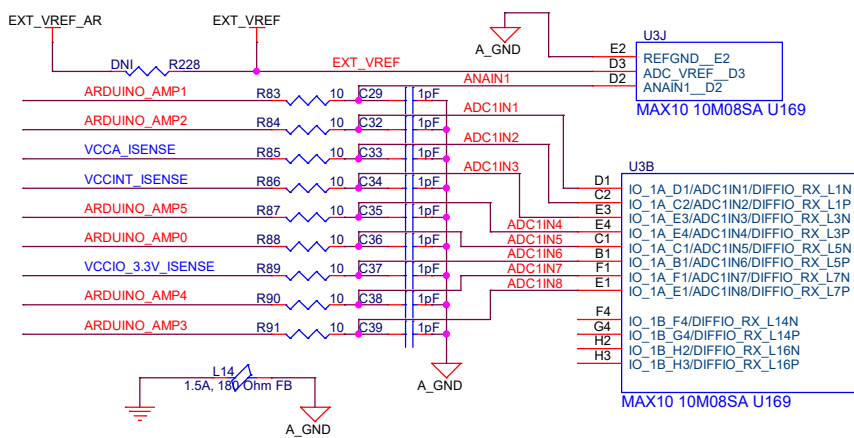
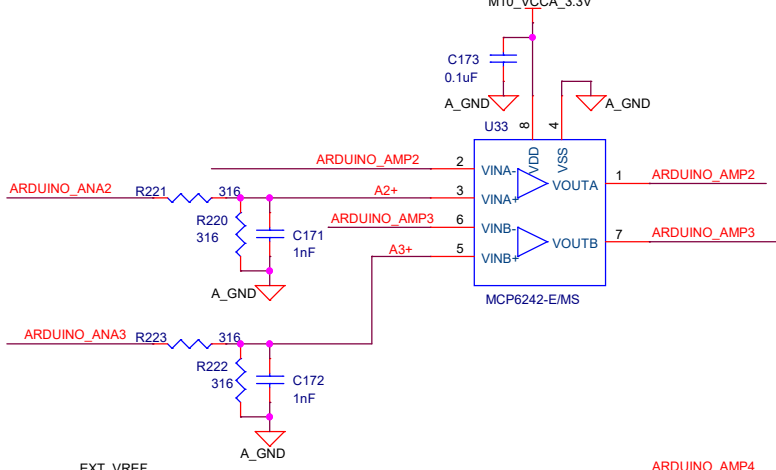
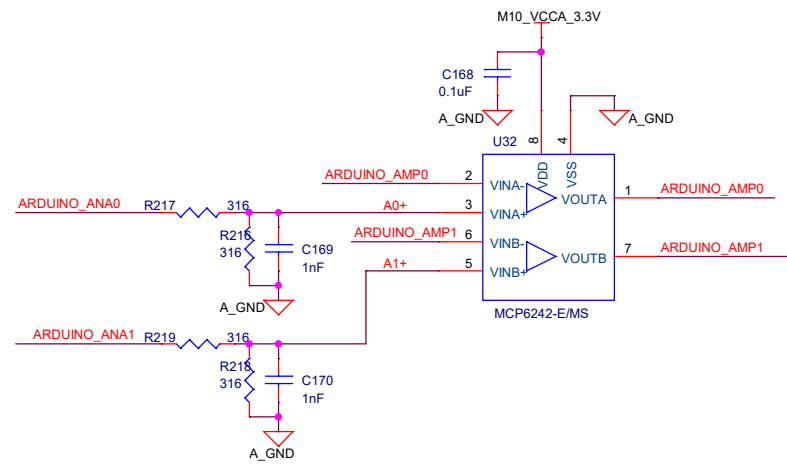
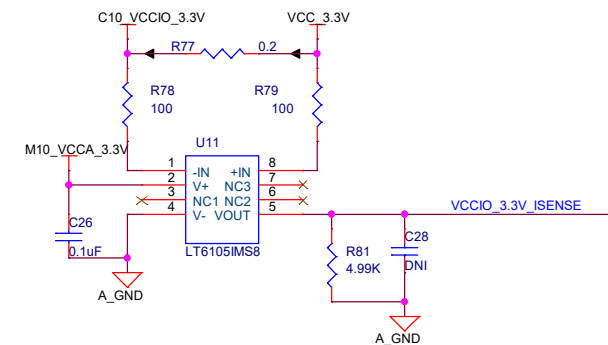
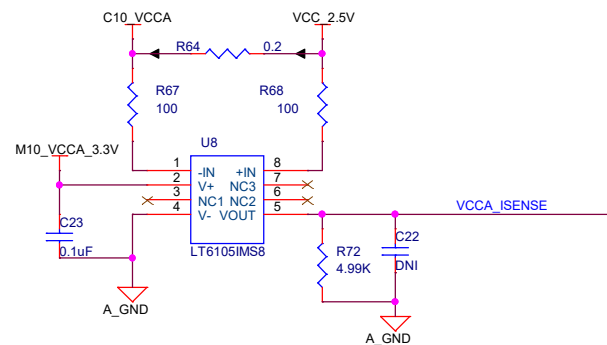
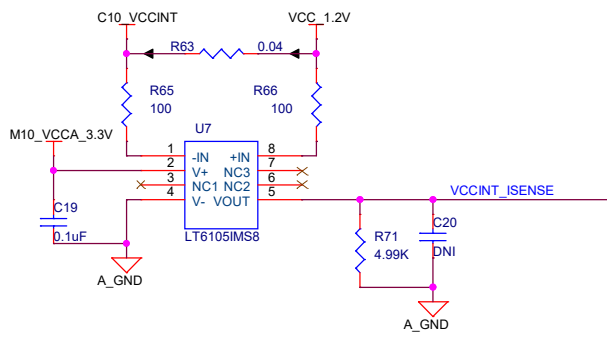




USB Blaster Programming Header
(uses JTAG mode only)



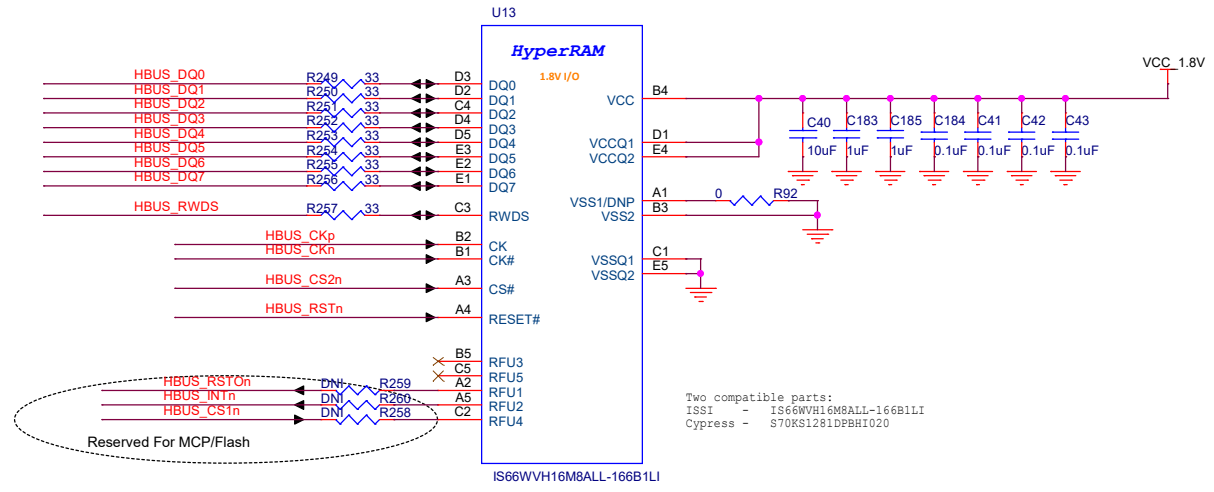
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Date:	Monday, November 27, 2017	Sheet	8 of 17



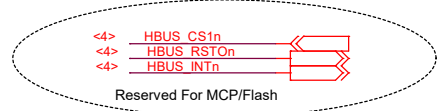
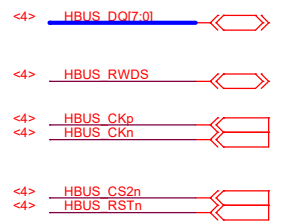
Arduino Analog IO
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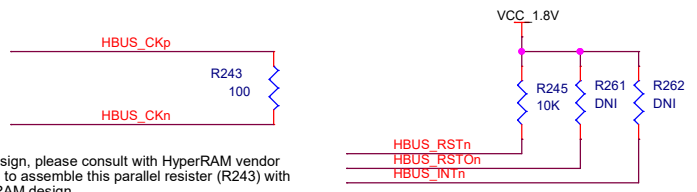
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Title	Cyclone 10 LP FPGA Evaluation Kit Board	
Size	Document Number 150-0321321-A1 (6XX-44504R)	
B	Rev A2	
Date:	Monday, November 27, 2017	Sheet 9 of 17



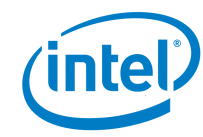
HyperRAM (HyperBUS)



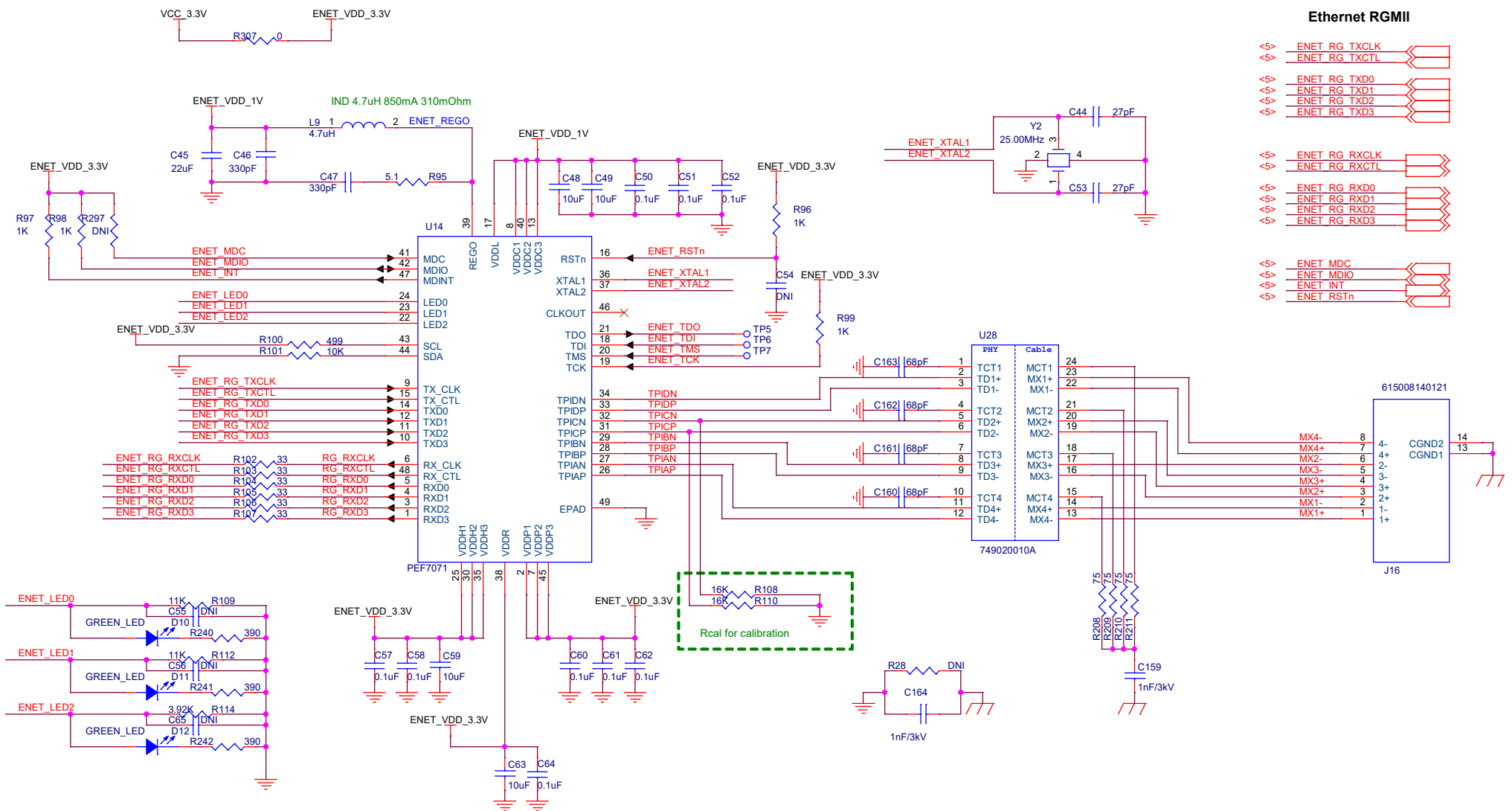
HBUS_CS1n: For Flash (Reserved)
 HBUS_CS2n: For RAM



In customer's design, please consult with HyperRAM vendor to decide if need to assemble this parallel resistor (R243) with specified HyperRAM design



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	150-0321321-A1 (6XX-44504R)	A2	
Date:	Monday, November 27, 2017	Sheet	10 of 17



- ### Ethernet RGMII
- <-> ENET_RG_TXCLK
 - <-> ENET_RG_TXCTL
 - <-> ENET_RG_TXD0
 - <-> ENET_RG_TXD1
 - <-> ENET_RG_TXD2
 - <-> ENET_RG_TXD3
 - <-> ENET_RG_RXCLK
 - <-> ENET_RG_RXCTL
 - <-> ENET_RG_RXD0
 - <-> ENET_RG_RXD1
 - <-> ENET_RG_RXD2
 - <-> ENET_RG_RXD3
 - <-> ENET_MDC
 - <-> ENET_MDIO
 - <-> ENET_INT
 - <-> ENET_RSTn

	CBV[3]	CBV[2]	CBV[1]	CBV[0]	Rcfg + Ccfg				
LED0	ADR[3]	0	ADR[2]	0	ADR[1]	0	ADR[0]	0	11K+DNI
LED1	ADR[4]	0	MODE[1]	0	MODE[0]	0	FLOW	0	11K+DNI
LED2	CONF[1]	0	CONF[0]	1	ANEG[1]	0	ANEG[0]	0	3.92K+DNI

NET	ON	OFF	Blink
NET_LED0	Link-up	Link-down	Traffic
NET_LED1	100Mbps	Other Status	N/A
NET_LED2	1000Mbps	Other Status	N/A



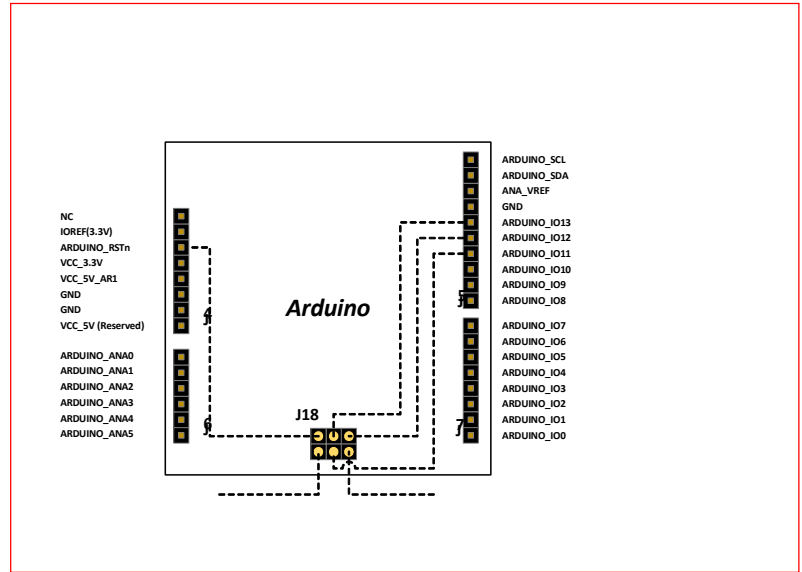
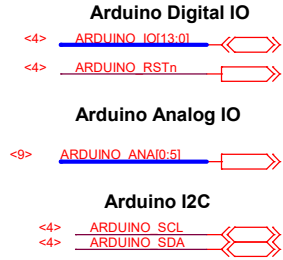
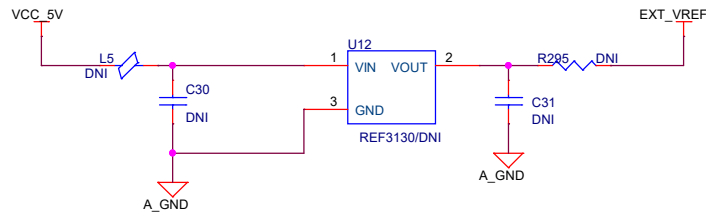
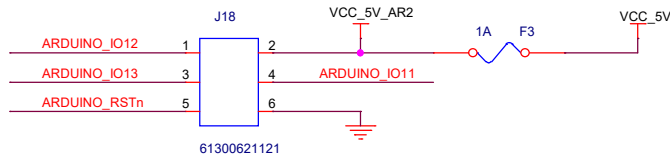
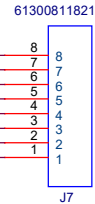
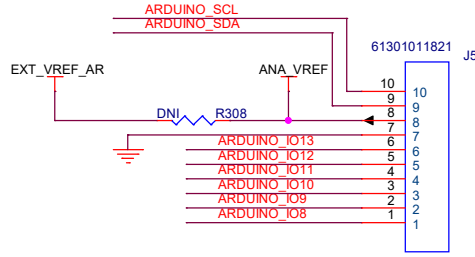
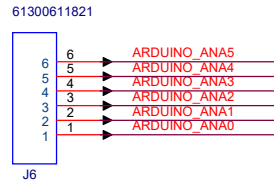
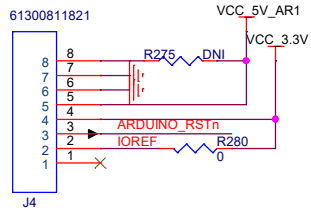
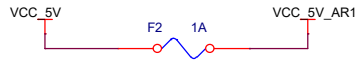
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Size	Document Number	Rev
B	150-0321321-A1 (6XX-44504R)	A2

Date: Monday, November 27, 2017 Sheet 11 of 17

Arduino Power Output Capability
 3.3V: J4.2, J4.4 100mA Max. total
 5V: J4.5, J18.2 500mA Max. total
 Using external adaptor power input (J12)



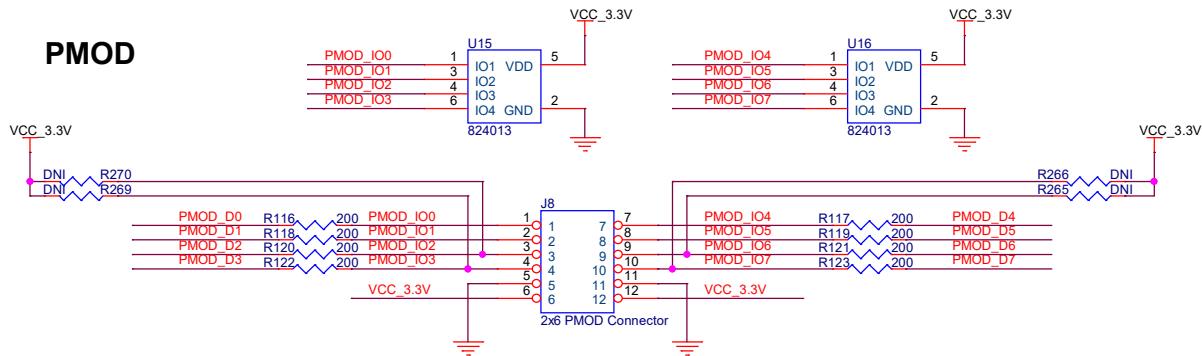
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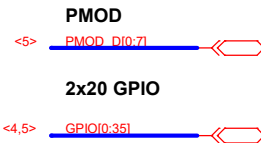
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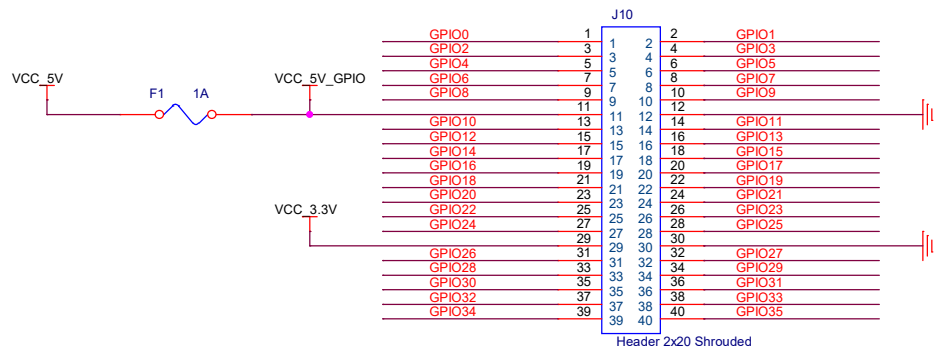
Date: Monday, November 27, 2017 Sheet 12 of 17



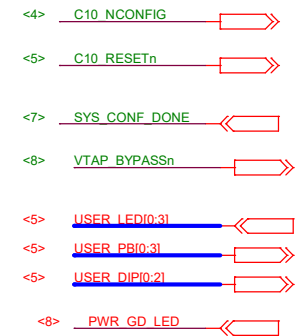
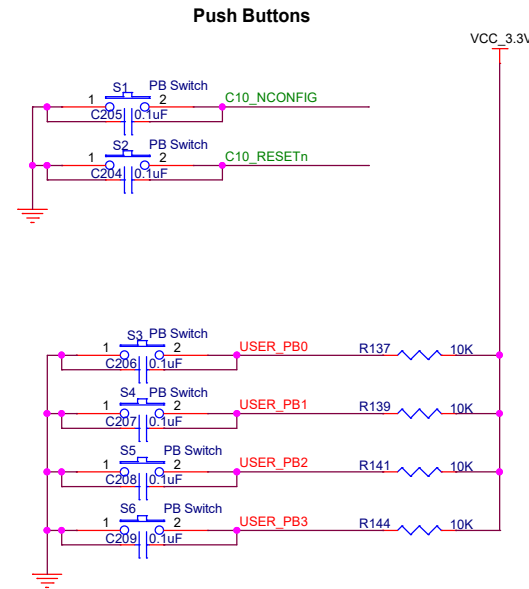
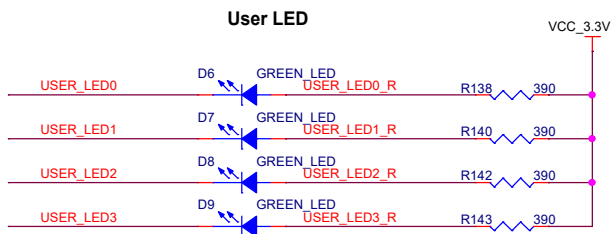
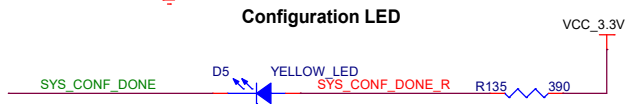
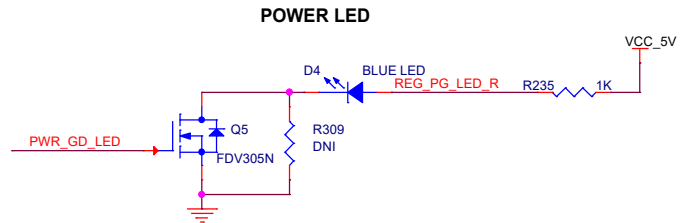
PMOD Specification not specified module power consumption but assumed no more than approximately 100mA.



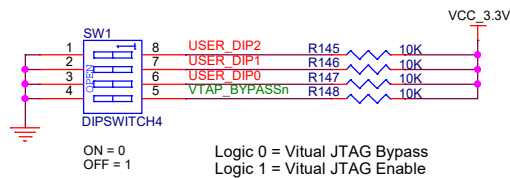
2x20pin GPIO Header



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Size B	Document Number	Rev	
	150-0321321-A1 (6XX-44504R)	A2	
Date:	Monday, November 27, 2017	Sheet	13 of 17



DIP Switches



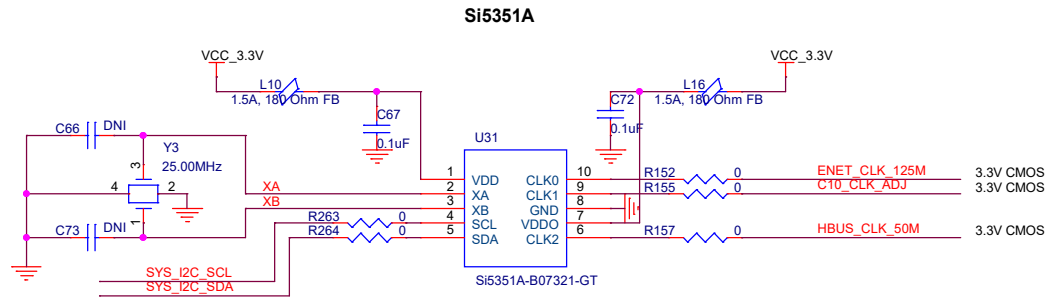
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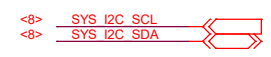
Size B	Document Number 150-0321321-A1 (6XX-44504R)	Rev A2
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Date: Monday, November 27, 2017 ESheet 14 of 17

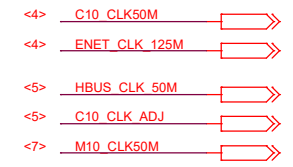


Use Clock GUI to Program Si5351A
 Default Frequency:
 CLK0: 125MHz
 CLK1: 100MHz
 CLK2: 50MHz
 I2C Address: 0x60

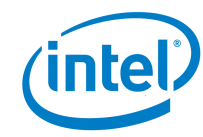
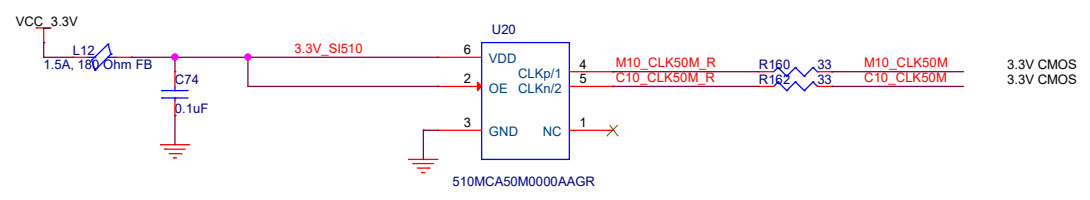
System I2C



Clocks

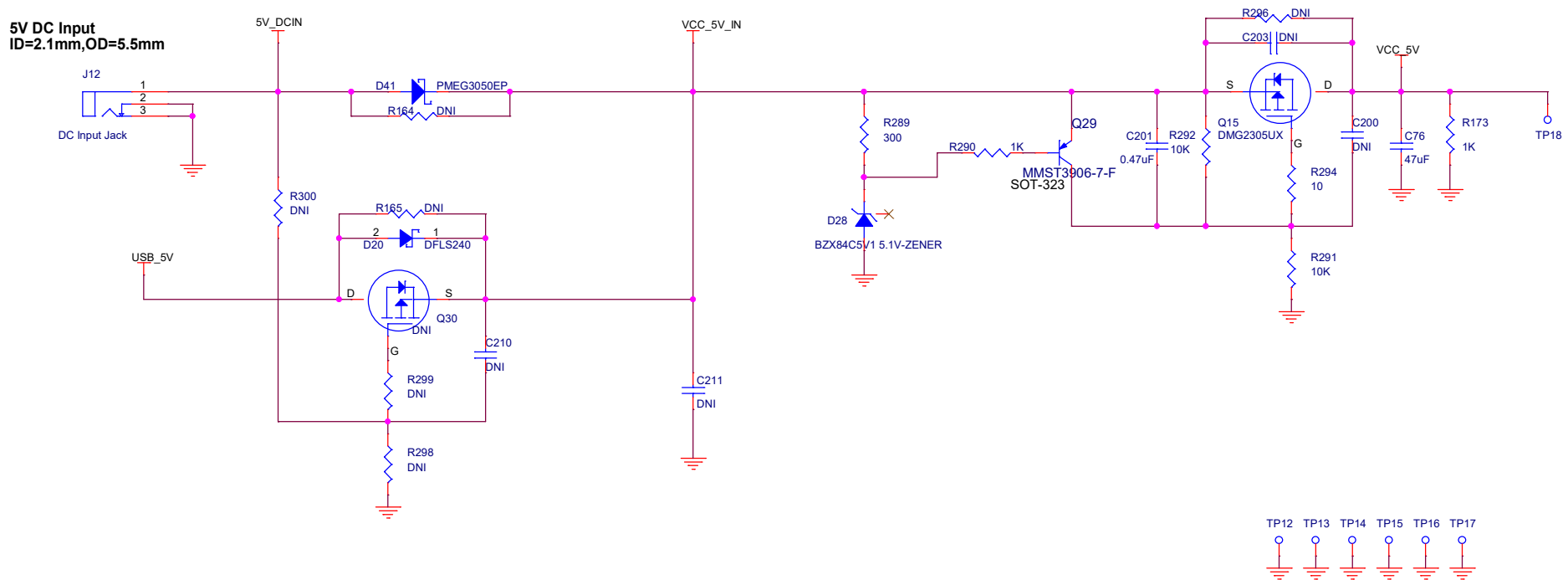


50MHz Oscillator



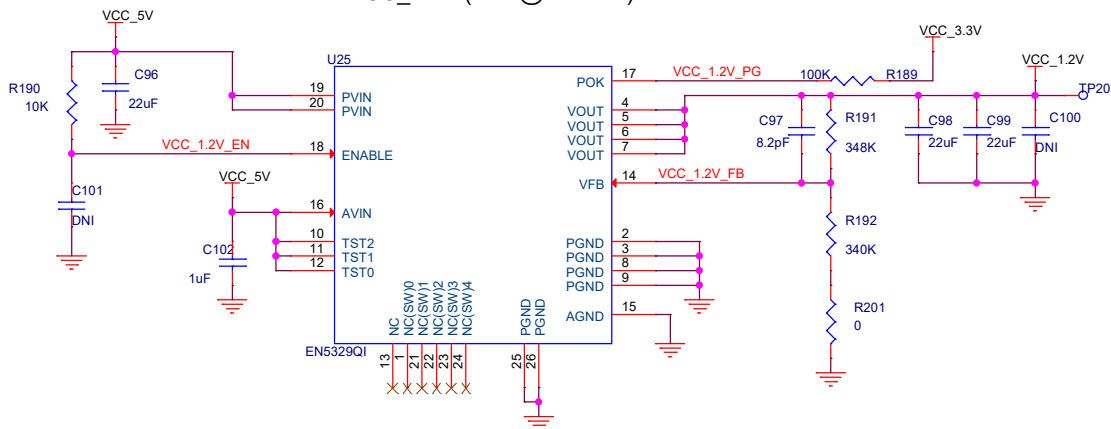
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Size B	Document Number 150-0321321-A1 (6XX-44504R)	Rev A2
Date:	Monday, November 27, 2017	Sheet 15 of 17

5V Input Selection, Protection and Control

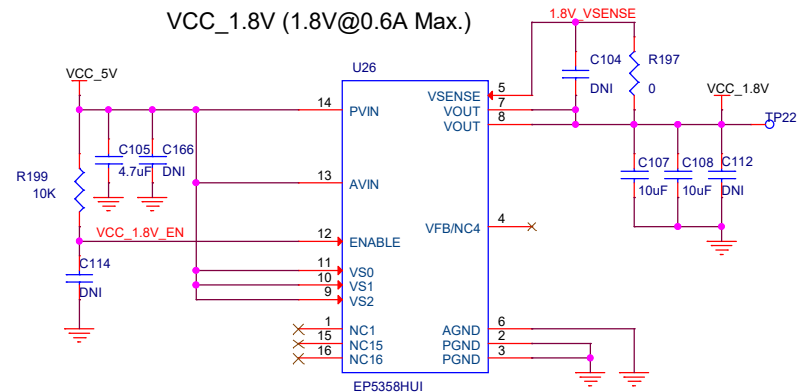


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Size	Document Number		Rev
B	150-0321321-A1 (6XX-44504R)		A2
Date:	Monday, November 27, 2017	Sheet	16 of 17

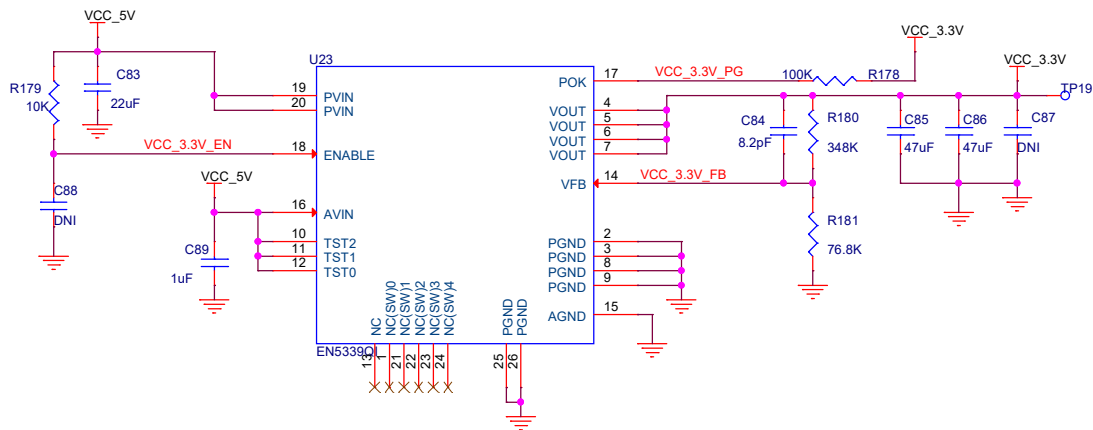
VCC_1.2V (1.2V@2A Max.)



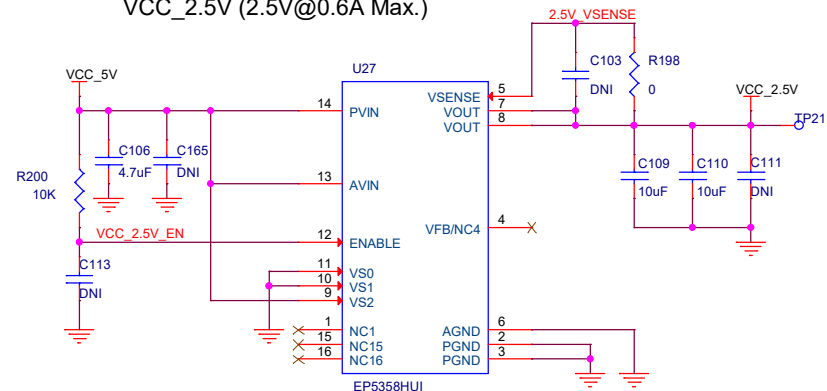
VCC_1.8V (1.8V@0.6A Max.)



VCC_3.3V (3.3V@3A Max.)



VCC_2.5V (2.5V@0.6A Max.)



<8> VCC_3.3V_PG
 <8> VCC_1.2V_PG



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Size B	Document Number	Rev	A2
	150-0321321-A1 (6XX-44504R)		
Date:	Monday, November 27, 2017	Sheet	17 of 17