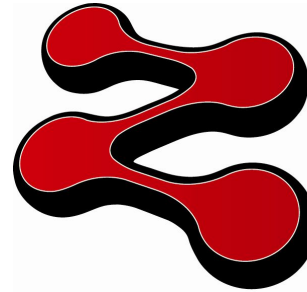


ZED Board	
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Function	Sheet Number
Cover Sheet	1
FMC, AMS Connectors	2
PMODS, General I/O	3
Audio Codec	4
HDMI, VGA	5
Ethernet, OLED, SD Card	6
USB, UART	7
FPGA Configuration	8
FPGA Banks	9
DDR, MIO Banks	10
FPGA Power	11
USB Programming	12
DDR3 Memory	13
DDR Termination	14
Power Regulation	15
Power Regulation	16
Power Regulation	17



# ZedBoard

## Revision F Changes

8 July 2020

- Re-routed PS-POR-B trace, which was causing cable plug events resulting in board reset, if the devices were at different ground potential.
- Re-named MODE nets so that their indices match Xilinx Zynq-7000 documentation
- Re-name VCFG nets to VMODE to match Xilinx Zynq-7000 documentation
- Added series termination resistors to buffered FMC JTAG lines.
- Reordered decoupling cap placement where not the lowest values were closest to the SoC
- Increase VCC1V0 nominal voltage by 19mV to allow for power distribution plane drop in high-current applications
- Changed L2, L4, L6 part numbers due to end-of-life.

## Revision E Changes

16 Jan 2019

- Replaced micro USB receptacles with four-legged through-hole variant for greater mechanical stability
- Fixed IC1B floating OE# pin
- Interchanged VCC1V0 and VCC1V5 on power supply channels to allow for larger current on VCC1V0: <4A
- Ferrite bead FB13 was replaced by 0-ohm shunt.

## Revision D Changes

29 Jan 2013

- Sheet 6: Replaced RJ-45 connector 1840808-7 (obsolete) with replacement 1840750-7
- Sheet 6: Added 50ohm series termination resistor to SD Clock signal
- Sheet 7: Modified C89 to 150uF to match USB requirements
- Sheet 7: Modified R150 connection to directly connect to pin 1 on J14
- Sheet 13: Modified DDR3 symbols to include missing pins
- Sheet 13: Modified CKE0 termination to connect to VTT rail
- Sheet 17: Added connectors to power heatsink fan

26 Feb 2013

- Sheet 4: Modified R87 to 10K to match datasheet recommendation
- Sheet 5: Modified R108 to show "No Load" status
- Sheet 16: Corrected typo

1 Mar 2013

- Sheet 1: Corrected typo
- Sheet 6: Removed R293 and note on termination placement, and added it to R293 circuit to sheet 10
- Sheet 13: Modified IC25, IC26 part number to MT41K128M16JT-125:K to match loaded part

# 10/20/2020

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Title <b>ZED</b>		Rev <b>F.1</b>
Circuit	Title Page	
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A

A

B

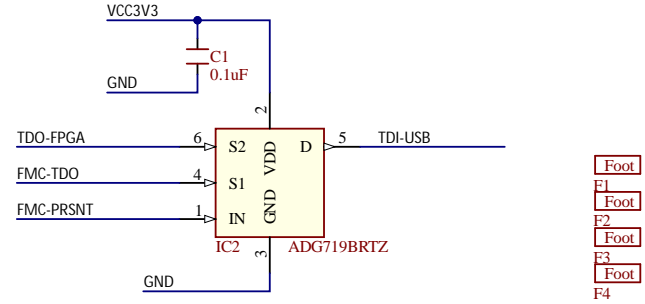
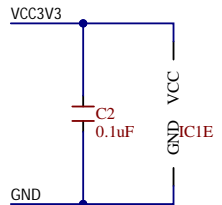
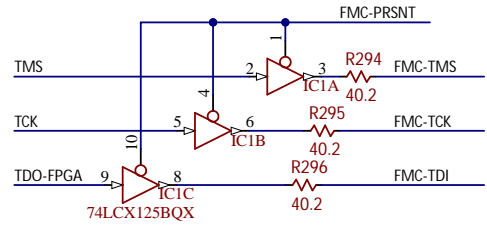
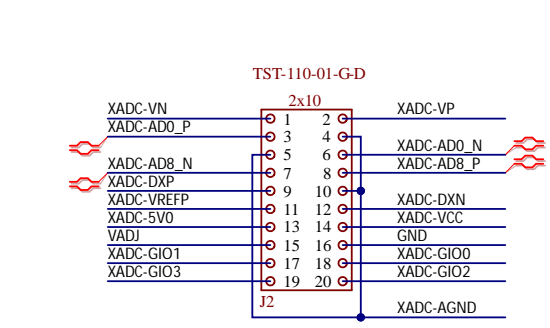
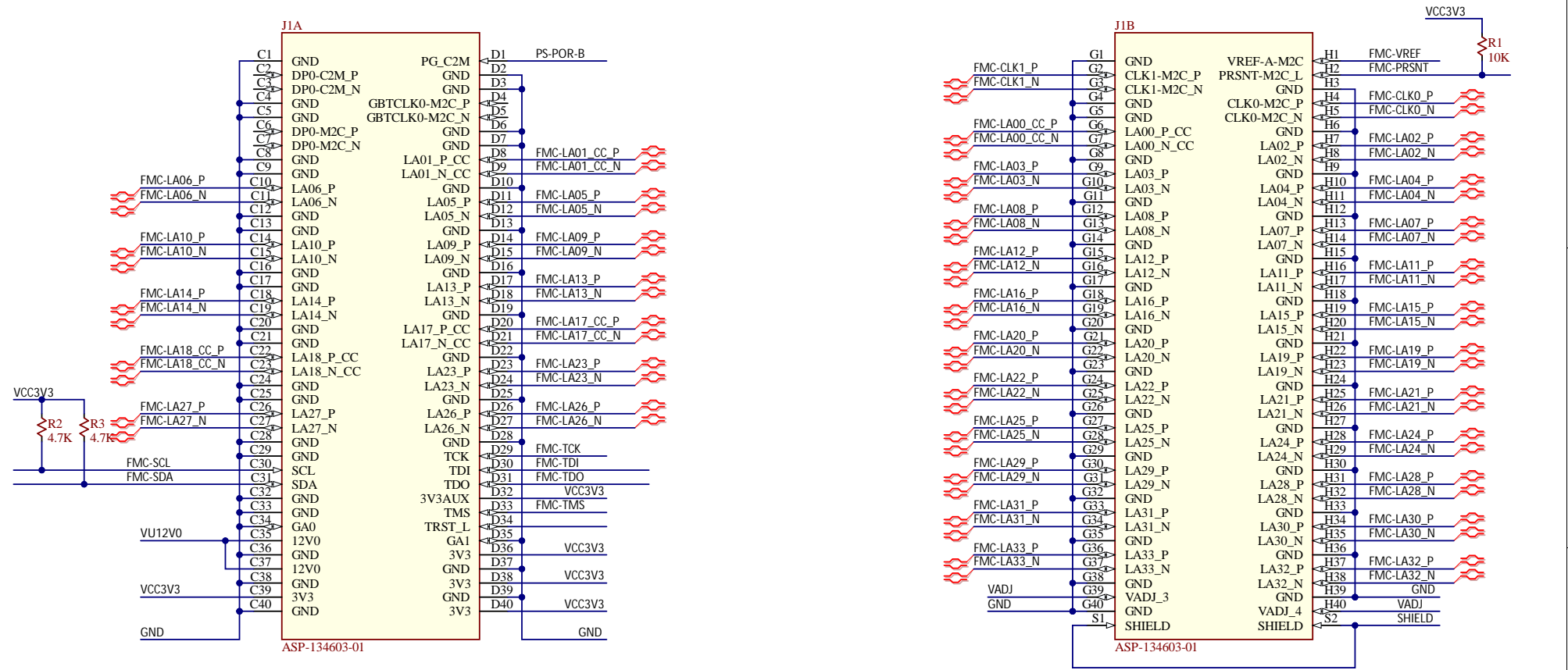
B

C

C

D

D

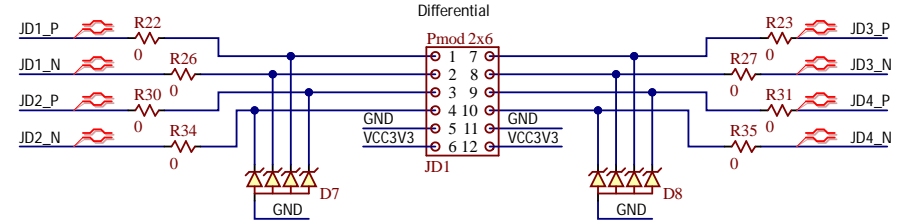
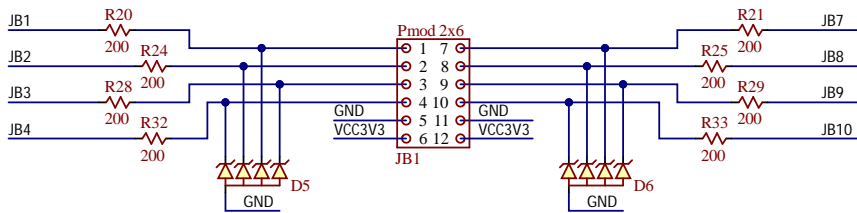
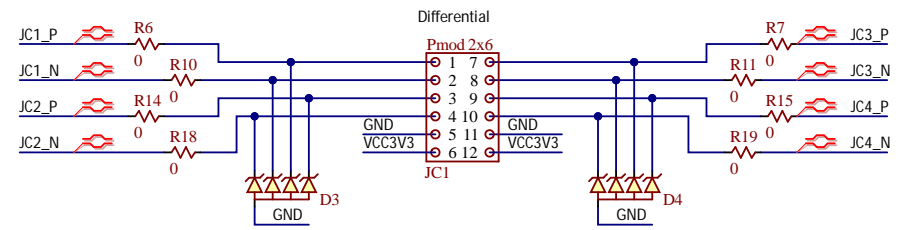
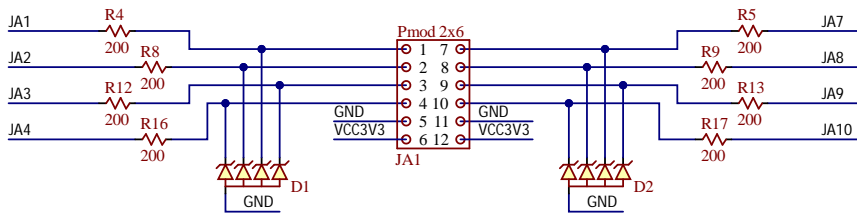


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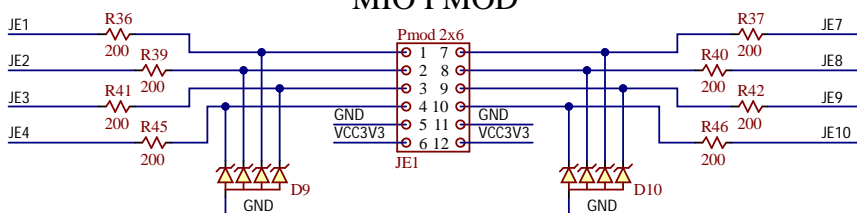
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Doc# 500-248		
Engineer EG		
Author GMA		
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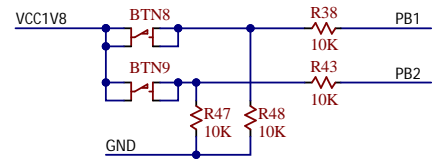
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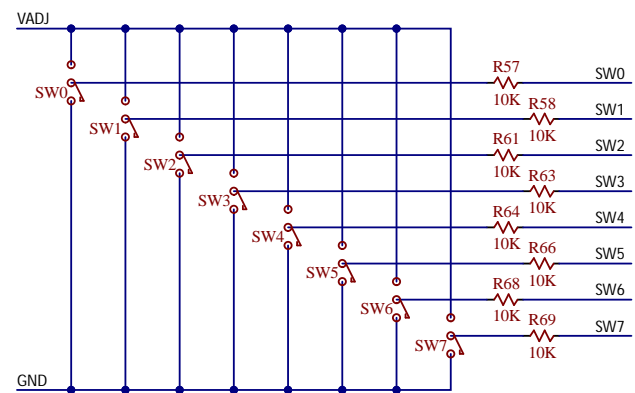
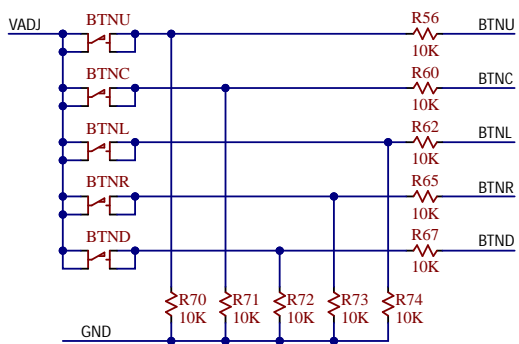
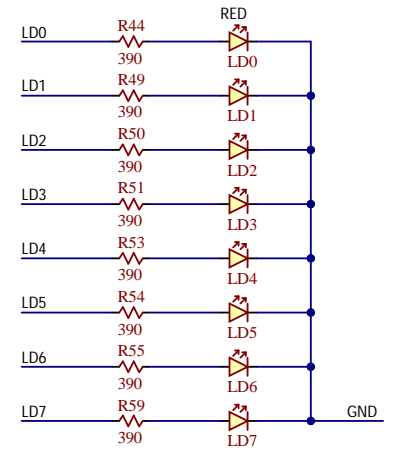
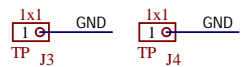
MIO PMOD



MIO BUTTON



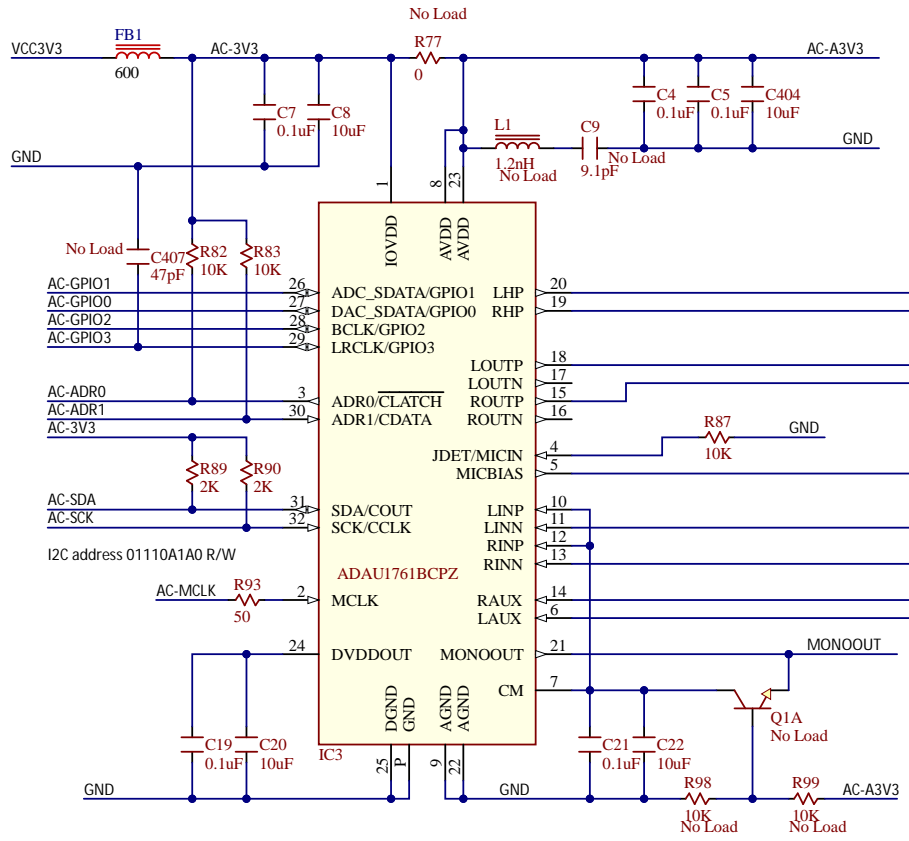
MIO LED



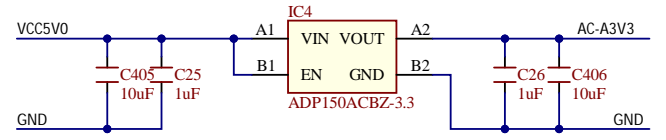
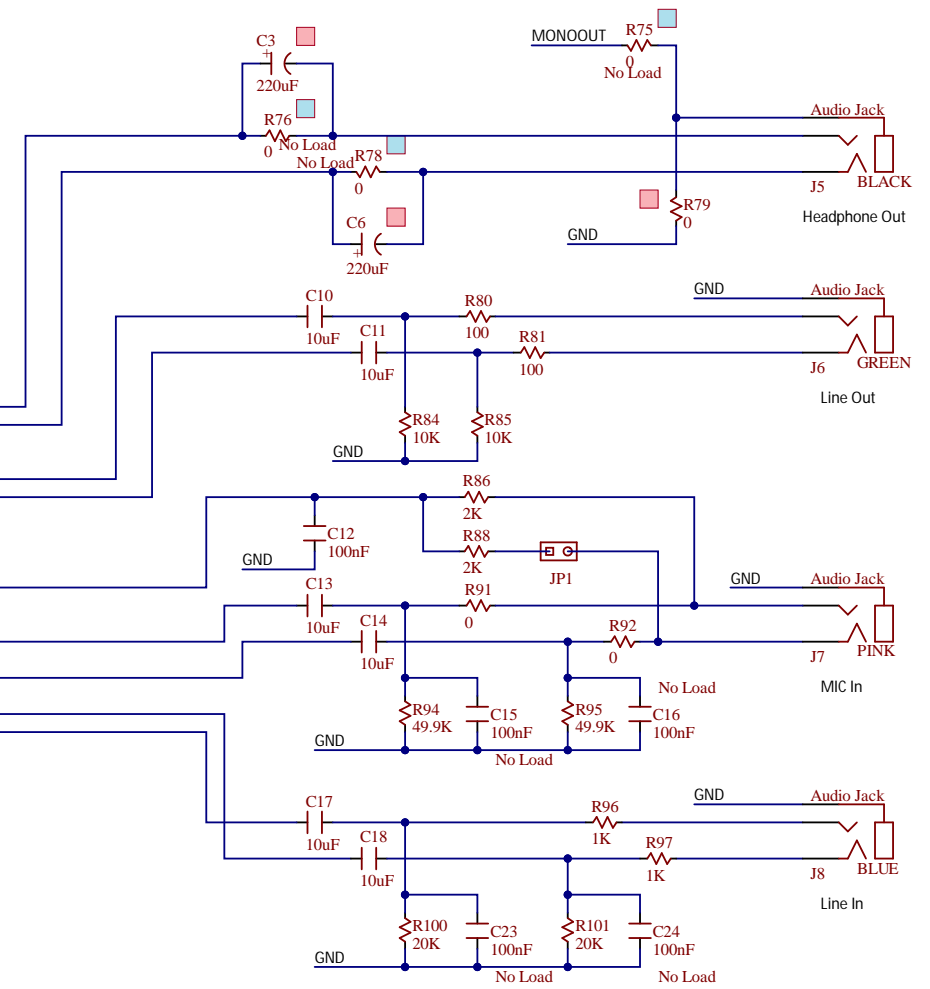
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Circuit PMods and General I/O		
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Author GMA		
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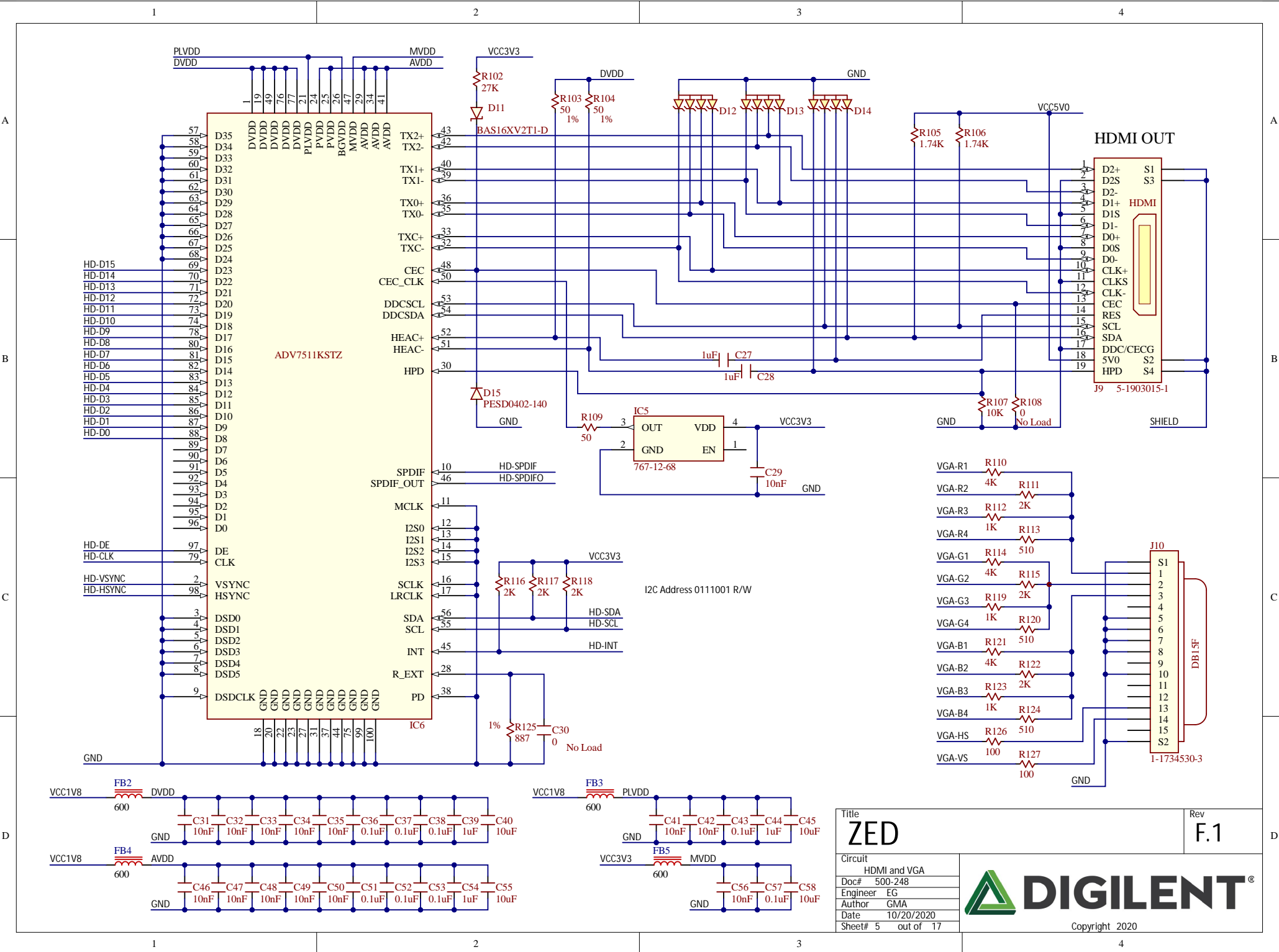
NOTE: Load No Load  
 Capless Headphone ■ ■  
 AC-Coupled Headphone ■ ■



Title <b>ZED</b>		Rev <b>F.1</b>
Circuit Audio Codec		
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Author GMA		
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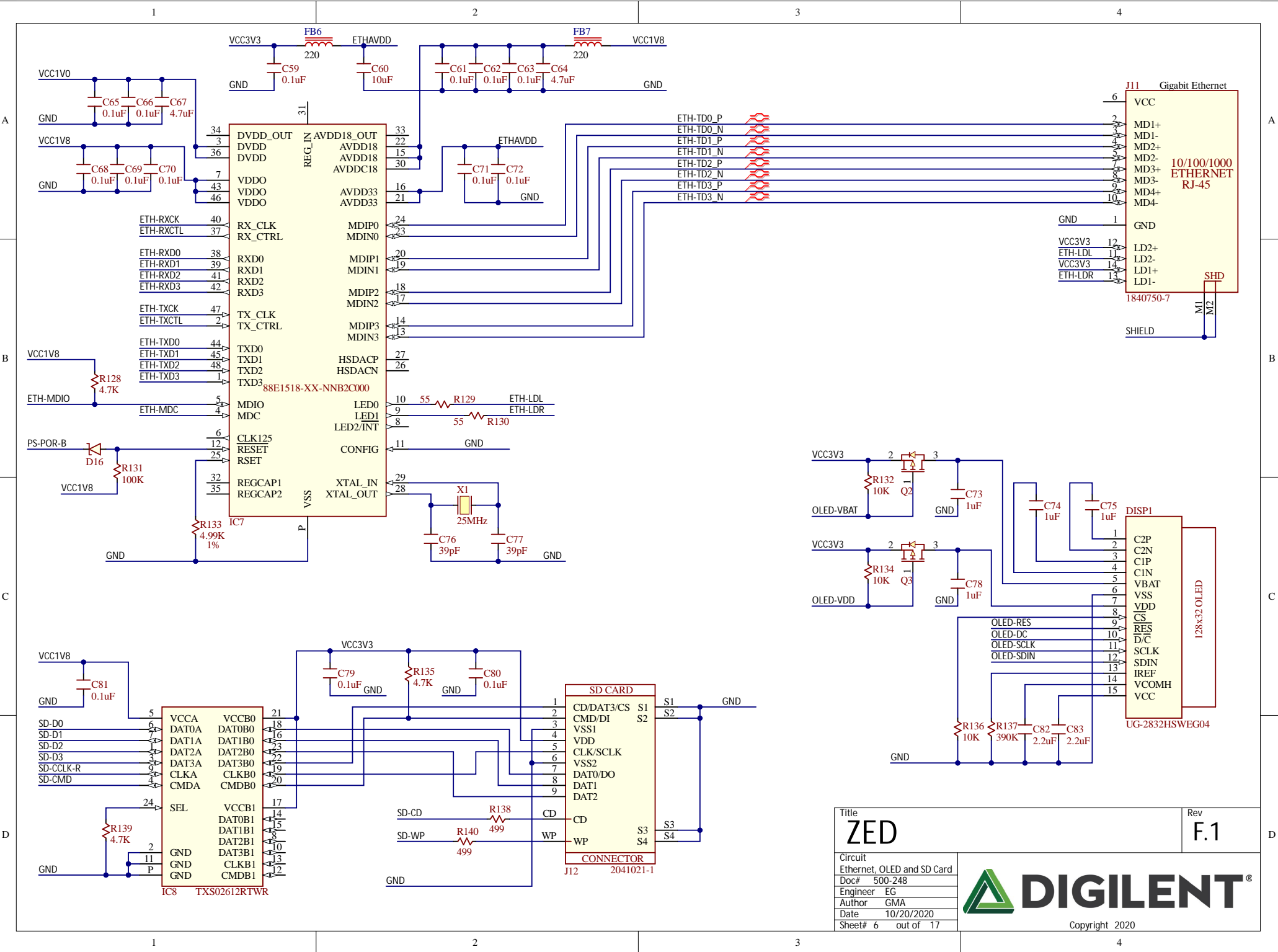
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Title <b>ZED</b>		Rev <b>F.1</b>
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Doc# 500-248		
Engineer EG		
Author GMA		
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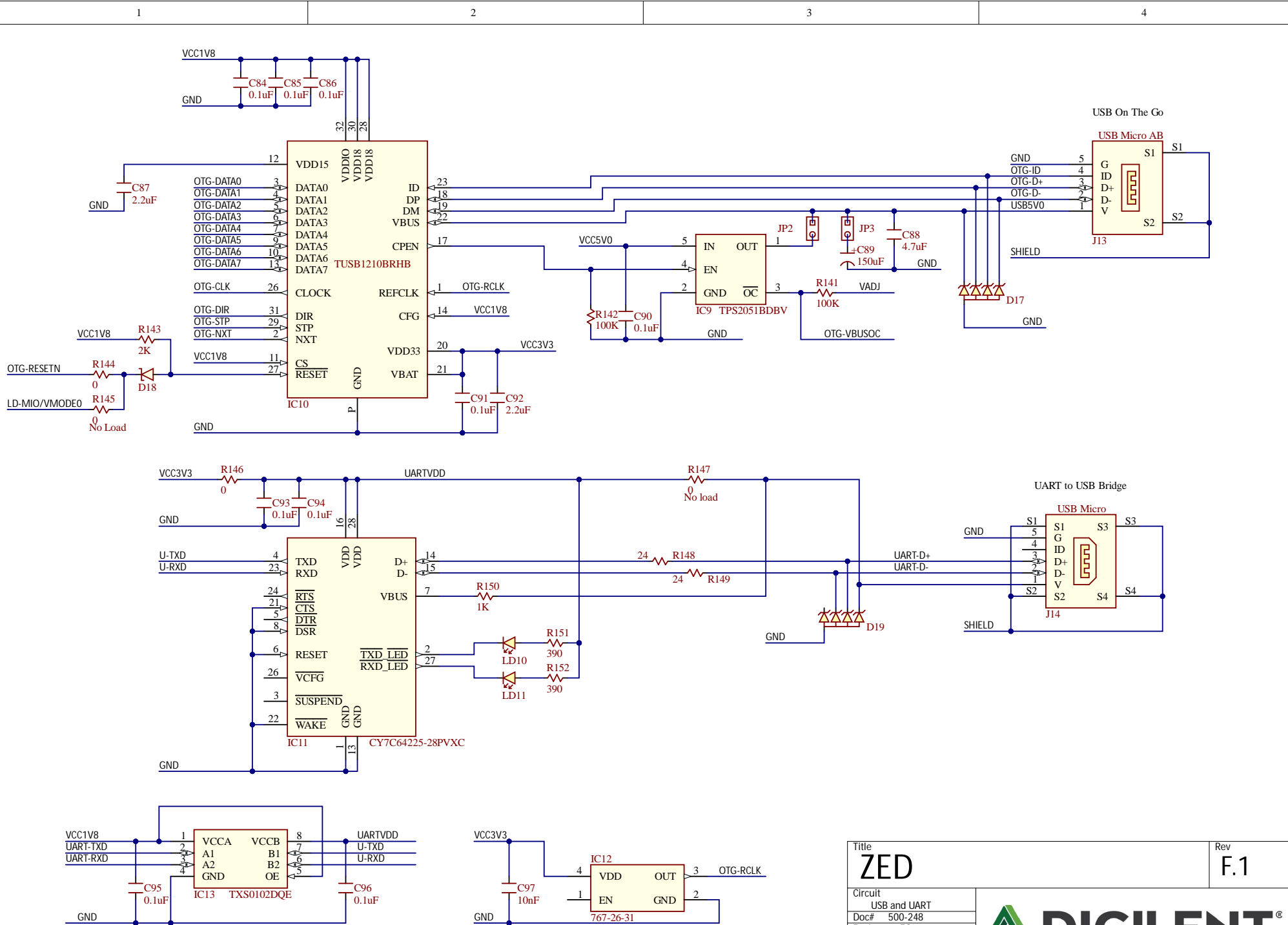


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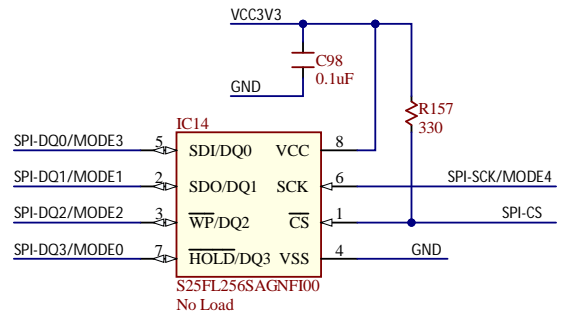
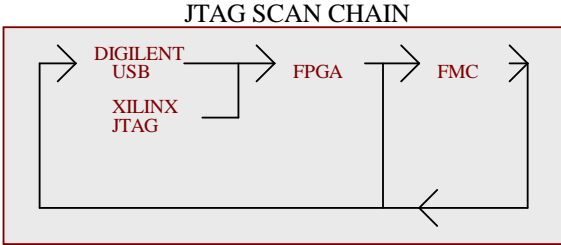
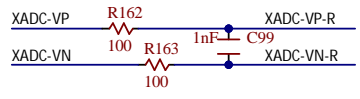
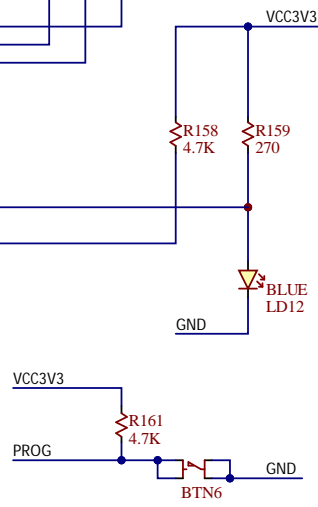
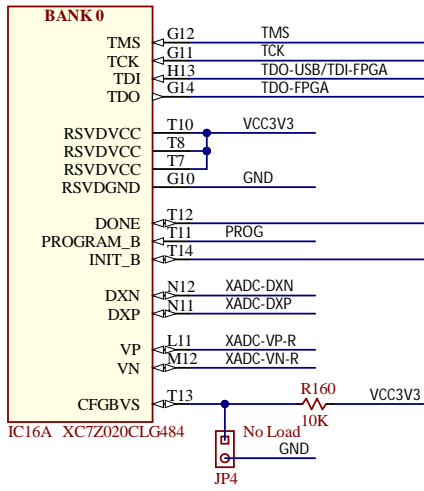
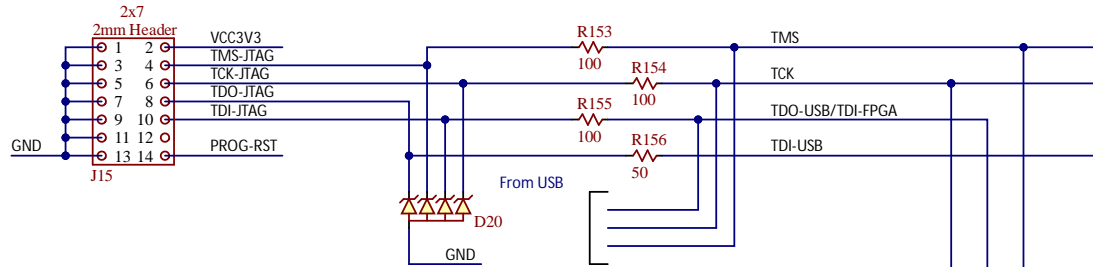
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Circuit			
Ethernet, OLED and SD Card			
Doc# 500-248			
Engineer EG			
Author GMA			
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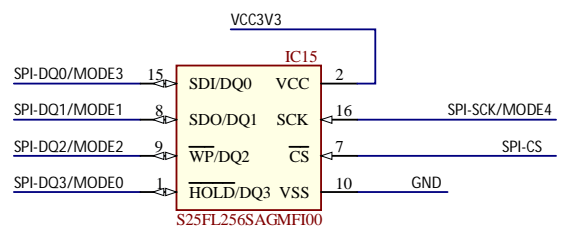


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Circuit		
USB and UART		
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Xilinx JTAG Header



Note: Load either package, not both. Default SOIC16



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Circuit FPGA Configuration		
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VCC3V3

VCC3V3

VADJ

VADJ

**BANK 13**

IO_0	R7	FMC-SCL
IO_25	U7	FMC-SDA
IO_L1N_T0	V9	JB9
IO_L1P_T0	V10	JB3
IO_L2N_T0	W8	JB4
IO_L2P_T0	V8	JB10
IO_L3N_T0_DQS	W10	JB8
IO_L3P_T0_DQS	W11	JB2
IO_L4N_T0	W12	JB1
IO_L4P_T0	V12	JB7
IO_L5N_T0	U11	OLED-VBAT
IO_L5P_T0	U12	OLED-VDD
IO_L6N_T0_VREF	U9	OLED-RES
IO_L6P_T0	U10	OLED-DC
IO_L7N_T1	AB12	OLED-SCLK
IO_L7P_T1	AA12	OLED-SDIN
IO_L8N_T1	AB11	JA7
IO_L8P_T1	AA11	JA2
IO_L9N_T1_DQS	AB9	JA9
IO_L9P_T1_DQS	AB10	JA8
IO_L10N_T1	Y10	JA3
IO_L10P_T1	Y11	JA1
IO_L11N_T1_SRCC	AA8	JA10
IO_L11P_T1_SRCC	AA9	JA4
IO_L12N_T1_MRCC	Y8	AC-GPIO0
IO_L12P_T1_MRCC	Y9	GCLK
IO_L13N_T2_MRCC	Y5	AC-ADR1
IO_L13P_T2_MRCC	Y6	AC-GPIO3
IO_L14N_T2_SRCC	AA6	AC-GPIO2
IO_L14P_T2_SRCC	AA7	AC-GPIO1
IO_L15N_T2_DQS	AB1	AC-ADRO
IO_L15P_T2_DQS	AB2	AC-MCLK
IO_L16N_T2	AB4	AC-SCK
IO_L16P_T2	AB5	AC-SDA
IO_L17N_T2	AB6	JC1_N
IO_L17P_T2	AB7	JC1_P
IO_L18N_T2	AA4	JC2_N
IO_L18P_T2	Y4	JC2_P
IO_L19N_T3_VREF	T6	JC3_N
IO_L19P_T3	R6	JC3_P
IO_L20N_T3	U4	JC4_N
IO_L20P_T3	T4	JC4_P
IO_L21N_T3_DQS	V4	JD2_N
IO_L21P_T3_DQS	V5	JD2_P
IO_L22N_T3	U5	JD4_N
IO_L22P_T3	U6	JD4_P
IO_L23N_T3	W7	JD1_N
IO_L23P_T3	V7	JD1_P
IO_L24N_T3	W5	JD3_N
IO_L24P_T3	W6	JD3_P

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**BANK 33**

IO_0	U19	LD6
IO_25	U14	LD7
IO_L1N_T0	U21	LD3
IO_L1P_T0	T21	LD1
IO_L2N_T0	T22	LD2
IO_L2P_T0	T22	LD0
IO_L3N_T0_DQS	W22	LD5
IO_L3P_T0_DQS	V22	LD4
IO_L4N_T0	W21	
IO_L4P_T0	W20	VGA-R1
IO_L5N_T0	V20	VGA-R2
IO_L5P_T0	V19	VGA-R3
IO_L6N_T0_VREF	V18	VGA-R4
IO_L6P_T0	AB22	VGA-G1
IO_L7N_T1	AA22	VGA-G2
IO_L7P_T1	AB21	VGA-G3
IO_L8N_T1	AA21	VGA-G4
IO_L8P_T1	Y21	VGA-B1
IO_L9N_T1_DQS	Y20	VGA-B2
IO_L9P_T1_DQS	AB20	VGA-B3
IO_L10N_T1	AB19	VGA-B4
IO_L10P_T1	AA19	VGA-HS
IO_L11N_T1_SRCC	Y19	VGA-VS
IO_L11P_T1_SRCC	AA18	HD-SCL
IO_L12N_T1_MRCC	Y18	HD-SPDIFO
IO_L12P_T1_MRCC	W18	HD-CLK
IO_L13N_T2_MRCC	W17	HD-VSYNC
IO_L13P_T2_MRCC	Y16	HD-SDA
IO_L14N_T2_SRCC	W16	HD-INT
IO_L14P_T2_SRCC	U16	HD-DE
IO_L15N_T2_DQS	U15	HD-SPDIF
IO_L15P_T2_DQS	V17	HD-HSYNC
IO_L16N_T2	U17	HD-DT3
IO_L16P_T2	AB17	HD-D7
IO_L17N_T2	AA17	HD-D8
IO_L17P_T2	AB16	HD-D5
IO_L18N_T2	AA16	HD-D6
IO_L18P_T2	V15	HD-DT2
IO_L19N_T3_VREF	V14	HD-DT4
IO_L19P_T3	W13	HD-DT0
IO_L20N_T3	V13	HD-DT5
IO_L20P_T3	Y15	HD-D9
IO_L21N_T3_DQS	W15	HD-D11
IO_L21P_T3_DQS	AA14	HD-D2
IO_L22N_T3	Y14	HD-D3
IO_L22P_T3	AA13	HD-D1
IO_L23N_T3	Y13	HD-D0
IO_L23P_T3	AB15	HD-D4
IO_L24N_T3	AB14	FMC-PRSN1
IO_L24P_T3	AB14	FMC-PRSN2

IC16C XC7Z020CLG484

**BANK 34**

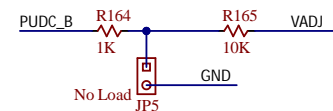
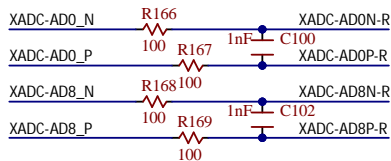
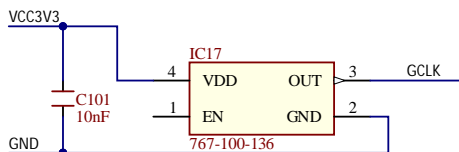
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IO_25	R15	XADC-GIO1
IO_L1N_T0	K15	XADC-GIO2
IO_L1P_T0	J15	XADC-GIO3
IO_L2N_T0	J17	FMC-LA15_N
IO_L2P_T0	J16	FMC-LA15_P
IO_L3N_T0_DQS	L16	OTG-VBUSOC
IO_L3P_T0_DQS_PUDC_B	K16	PUDC_B
IO_L4N_T0	M17	FMC-LA13_N
IO_L4P_T0	L17	FMC-LA13_P
IO_L5N_T0	N18	FMC-LA11_N
IO_L5P_T0	N17	FMC-LA11_P
IO_L6N_T0_VREF	M16	FMC-VREF
IO_L6P_T0	M15	SW7
IO_L7N_T1	K18	FMC-LA05_N
IO_L7P_T1	J18	FMC-LA05_P
IO_L8N_T1	J22	FMC-LA08_N
IO_L8P_T1	J21	FMC-LA08_P
IO_L9N_T1_DQS	K21	FMC-LA16_N
IO_L9P_T1_DQS	J20	FMC-LA16_P
IO_L10N_T1	L22	FMC-LA06_N
IO_L10P_T1	L21	FMC-LA06_P
IO_L11N_T1_SRCC	K20	FMC-LA14_N
IO_L11P_T1_SRCC	K19	FMC-LA14_P
IO_L12N_T1_MRCC	L19	FMC-CLK0_N
IO_L12P_T1_MRCC	L18	FMC-CLK0_P
IO_L13N_T2_MRCC	M20	FMC-LA00_CC_N
IO_L13P_T2_MRCC	M19	FMC-LA00_CC_P
IO_L14N_T2_SRCC	N20	FMC-LA01_CC_N
IO_L14P_T2_SRCC	N19	FMC-LA01_CC_P
IO_L15N_T2_DQS	M22	FMC-LA04_N
IO_L15P_T2_DQS	M21	FMC-LA04_P
IO_L16N_T2	P22	FMC-LA03_N
IO_L16P_T2	N22	FMC-LA03_P
IO_L17N_T2	R21	FMC-LA09_N
IO_L17P_T2	R20	FMC-LA09_P
IO_L18N_T2	P21	FMC-LA12_N
IO_L18P_T2	P20	FMC-LA12_P
IO_L19N_T3_VREF	P15	FMC-VREF
IO_L19P_T3	N15	BTNL
IO_L20N_T3	P18	FMC-LA02_N
IO_L20P_T3	P17	FMC-LA02_P
IO_L21N_T3_DQS	T17	FMC-LA07_N
IO_L21P_T3_DQS	T16	FMC-LA07_P
IO_L22N_T3	T19	FMC-LA10_N
IO_L22P_T3	R19	FMC-LA10_P
IO_L23N_T3	T18	BTNU
IO_L23P_T3	R18	BTNR
IO_L24N_T3	R16	BTND
IO_L24P_T3	P16	BTNC

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**BANK 35**

IO_0	H17	SW6
IO_25	H18	SW5
IO_L1N_T0_AD0N	E16	XADC-AD0N-R
IO_L1P_T0_AD0P	F16	XADC-AD0P-R
IO_L2N_T0_AD8N	D17	XADC-AD8N-R
IO_L2P_T0_AD8P	D16	XADC-AD8P-R
IO_L3N_T0_DQS_AD1N	E15	FMC-LA23_N
IO_L3P_T0_DQS_AD1P	E15	FMC-LA23_P
IO_L4N_T0	G16	FMC-LA19_N
IO_L4P_T0	G15	FMC-LA19_P
IO_L5N_T0_AD9N	E18	FMC-LA26_N
IO_L5P_T0_AD9P	F18	FMC-LA26_P
IO_L6N_T0_VREF	F17	FMC-VREF
IO_L6P_T0	G17	OTG-RESETN
IO_L7N_T1_AD2N	B15	FMC-LA30_N
IO_L7P_T1_AD2P	C15	FMC-LA30_P
IO_L8N_T1_AD10N	B17	FMC-LA31_N
IO_L8P_T1_AD10P	B16	FMC-LA31_P
IO_L9N_T1_DQS_AD3N	A17	FMC-LA28_N
IO_L9P_T1_DQS_AD3P	A16	FMC-LA28_P
IO_L10N_T1_AD11N	A19	FMC-LA24_N
IO_L10P_T1_AD11P	A18	FMC-LA24_P
IO_L11N_T1_SRCC	C18	FMC-LA29_N
IO_L11P_T1_SRCC	C17	FMC-LA29_P
IO_L12N_T1_MRCC	C19	FMC-CLK1_N
IO_L12P_T1_MRCC	D18	FMC-CLK1_P
IO_L13N_T2_MRCC	B20	FMC-LA17_CC_N
IO_L13P_T2_MRCC	B19	FMC-LA17_CC_P
IO_L14N_T2_AD4N_SRCC	C20	FMC-LA18_CC_N
IO_L14P_T2_AD4P_SRCC	D20	FMC-LA18_CC_P
IO_L15N_T2_DQS_AD12N	A22	FMC-LA32_N
IO_L15P_T2_DQS_AD12P	A21	FMC-LA32_P
IO_L16N_T2	C22	FMC-LA25_N
IO_L16P_T2	D22	FMC-LA25_P
IO_L17N_T2_AD5N	D21	FMC-LA27_N
IO_L17P_T2_AD5P	E21	FMC-LA27_P
IO_L18N_T2_AD13N	B22	FMC-LA33_N
IO_L18P_T2_AD13P	B21	FMC-LA33_P
IO_L19N_T3_VREF	H20	FMC-VREF
IO_L19P_T3	H19	SW4
IO_L20N_T3_AD6N	F19	FMC-LA22_N
IO_L20P_T3_AD6P	G19	FMC-LA22_P
IO_L21N_T3_DQS_AD14N	E20	FMC-LA21_N
IO_L21P_T3_DQS_AD14P	F19	FMC-LA21_P
IO_L22N_T3_AD7N	G21	FMC-LA20_N
IO_L22P_T3_AD7P	G20	FMC-LA20_P
IO_L23N_T3	F22	SW0
IO_L23P_T3	E21	SW3
IO_L24N_T3_AD15N	G22	SW1
IO_L24P_T3_AD15P	H22	SW2

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Author	GMA	
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A

A

B

B

C

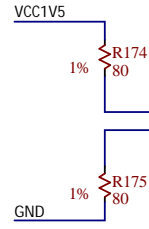
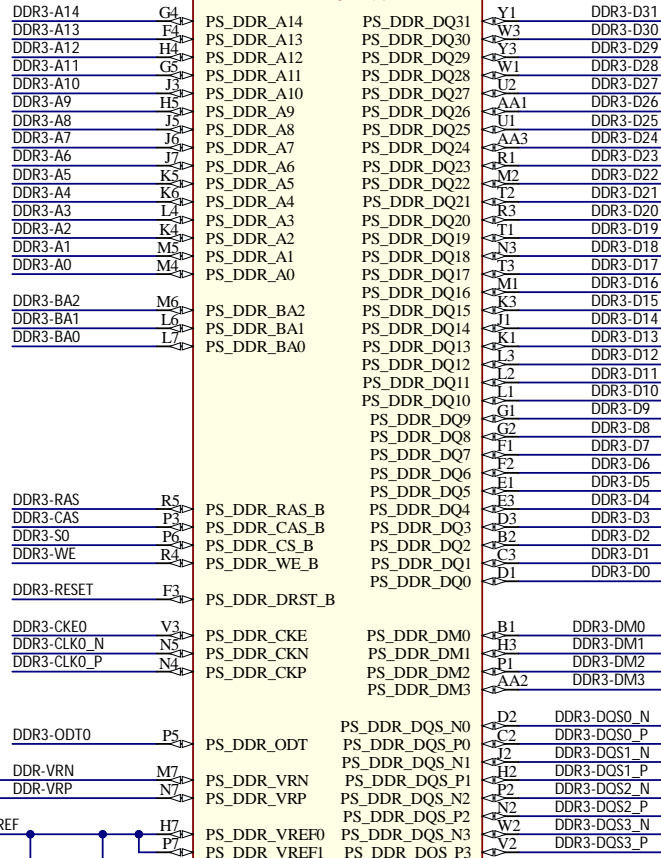
C

D

D

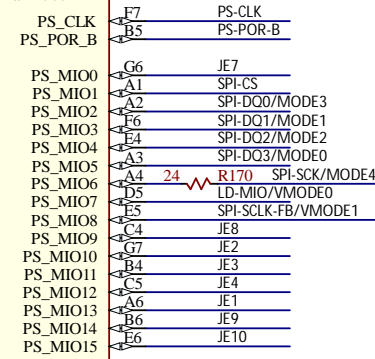
DDR1V5

DDR PORT 502

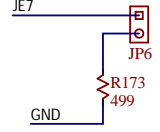
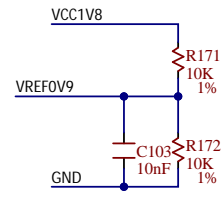


VCC3V3

Bank 500

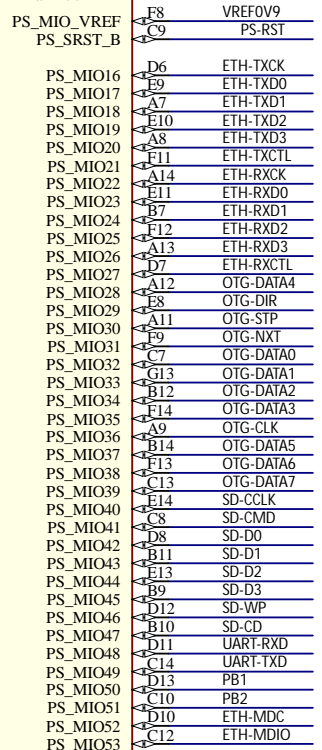


XC7Z020CLG484 IC16G

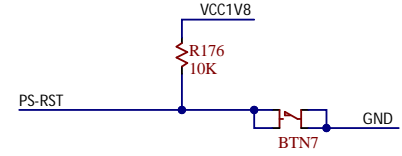


VCC1V8

Bank 501

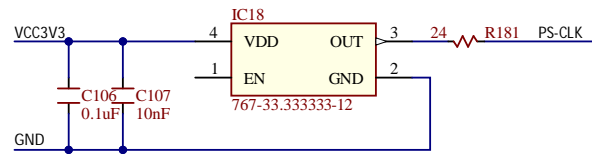
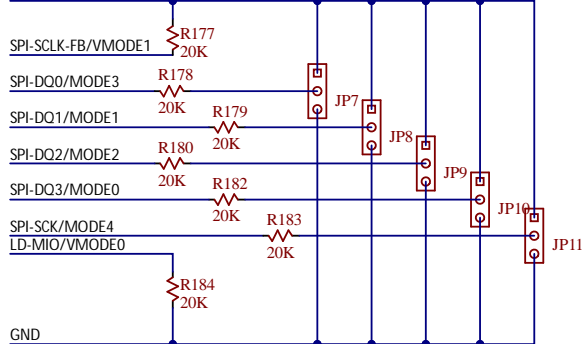


IC16H XC7Z020CLG484



BOOT SETTING  
 QSPI X001X  
 JTAG 0000X

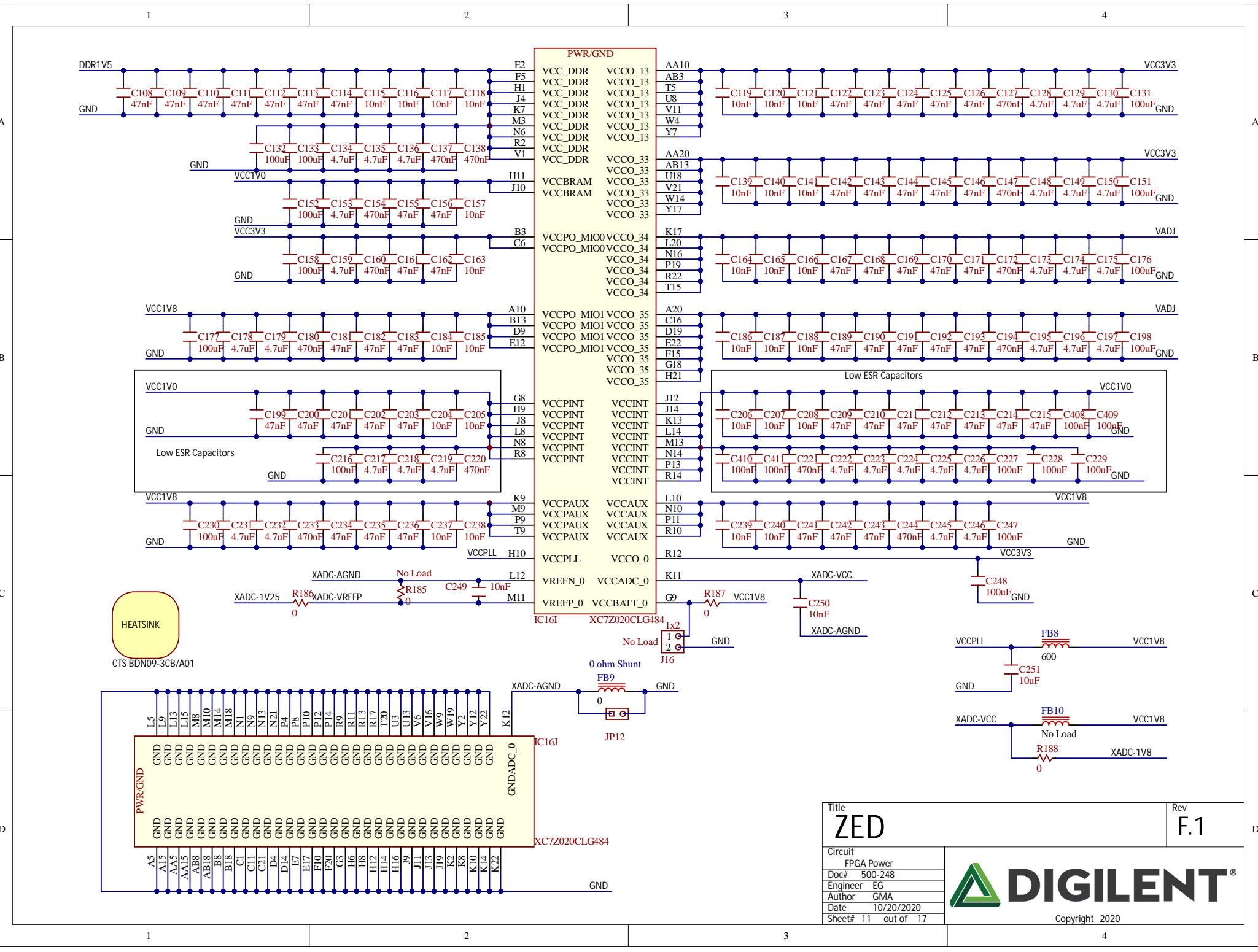
VCC3V3



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Circuit DDR and MIO Banks		
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Engineer EG		
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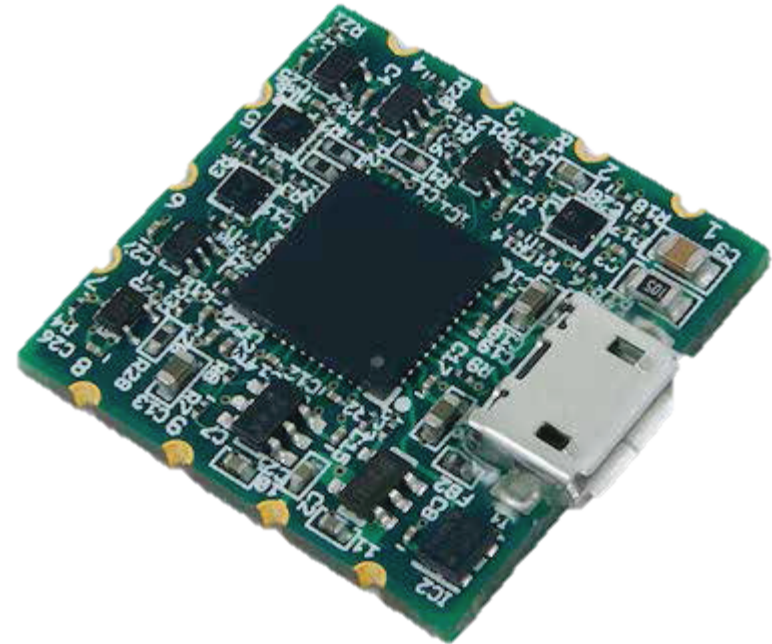
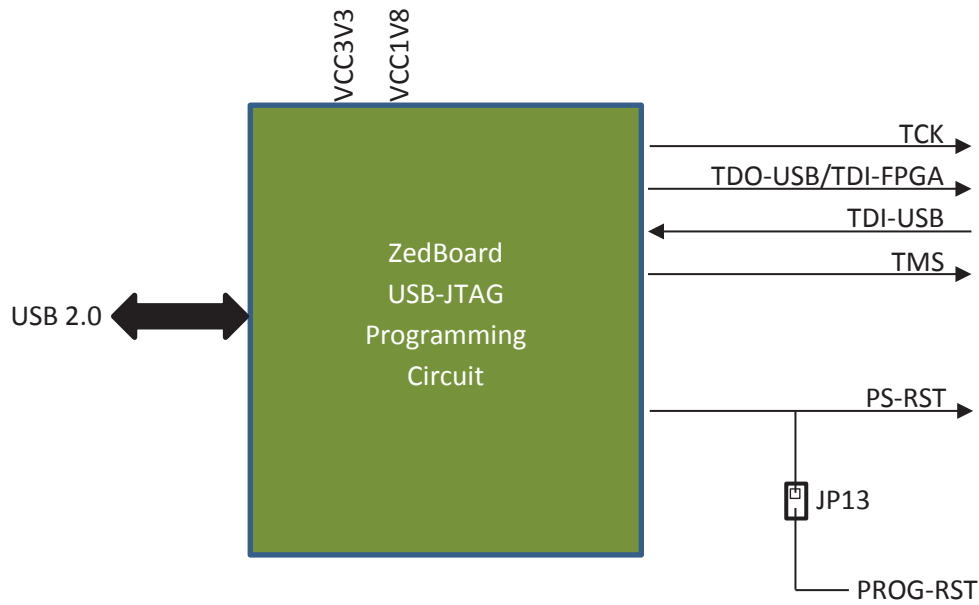


**PWR/GND**

VCC_DDR	VCCO_13	AA10	VCC3V3
VCC_DDR	VCCO_13	AB3	VCC3V3
VCC_DDR	VCCO_13	T5	VCC3V3
VCC_DDR	VCCO_13	U8	VCC3V3
VCC_DDR	VCCO_13	V11	VCC3V3
VCC_DDR	VCCO_13	W4	VCC3V3
VCC_DDR	VCCO_13	Y7	VCC3V3
VCC_DDR	VCCO_33	AA20	VCC3V3
VCC_DDR	VCCO_33	AB13	VCC3V3
VCC_BRAM	VCCO_33	U18	VCC3V3
VCC_BRAM	VCCO_33	V21	VCC3V3
VCCO_33	VCCO_33	W14	VCC3V3
VCCO_33	VCCO_33	Y17	VCC3V3
VCCPO_MIO0	VCCO_34	K17	VADJ
VCCPO_MIO0	VCCO_34	L20	VADJ
VCCO_34	VCCO_34	N16	VADJ
VCCO_34	VCCO_34	P19	VADJ
VCCO_34	VCCO_34	R22	VADJ
VCCO_34	VCCO_34	T15	VADJ
VCCPO_MIO1	VCCO_35	A20	VADJ
VCCPO_MIO1	VCCO_35	C16	VADJ
VCCPO_MIO1	VCCO_35	D19	VADJ
VCCPO_MIO1	VCCO_35	E22	VADJ
VCCO_35	VCCO_35	F15	VADJ
VCCO_35	VCCO_35	G18	VADJ
VCCO_35	VCCO_35	H21	VADJ
VCCPINT	VCCINT	J12	VCC1V0
VCCPINT	VCCINT	J14	VCC1V0
VCCPINT	VCCINT	K13	VCC1V0
VCCPINT	VCCINT	L14	VCC1V0
VCCPINT	VCCINT	M13	VCC1V0
VCCPINT	VCCINT	N14	VCC1V0
VCCPINT	VCCINT	P13	VCC1V0
VCCPINT	VCCINT	R14	VCC1V0
VCCPAUX	VCCAUX	L10	VCC1V8
VCCPAUX	VCCAUX	N10	VCC1V8
VCCPAUX	VCCAUX	P11	VCC1V8
VCCPAUX	VCCAUX	R10	VCC1V8
VCCPLL	VCCO_0	R12	VCC3V3
VREFN_0	VCCADC_0	K11	XADC-VCC
VREFP_0	VCCBATT_0	G9	VCC1V8

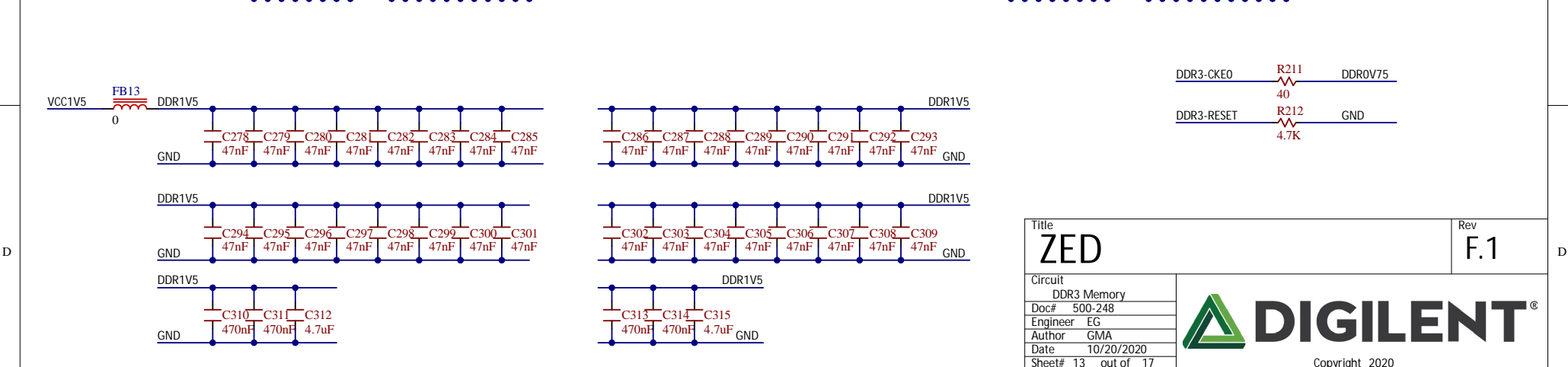
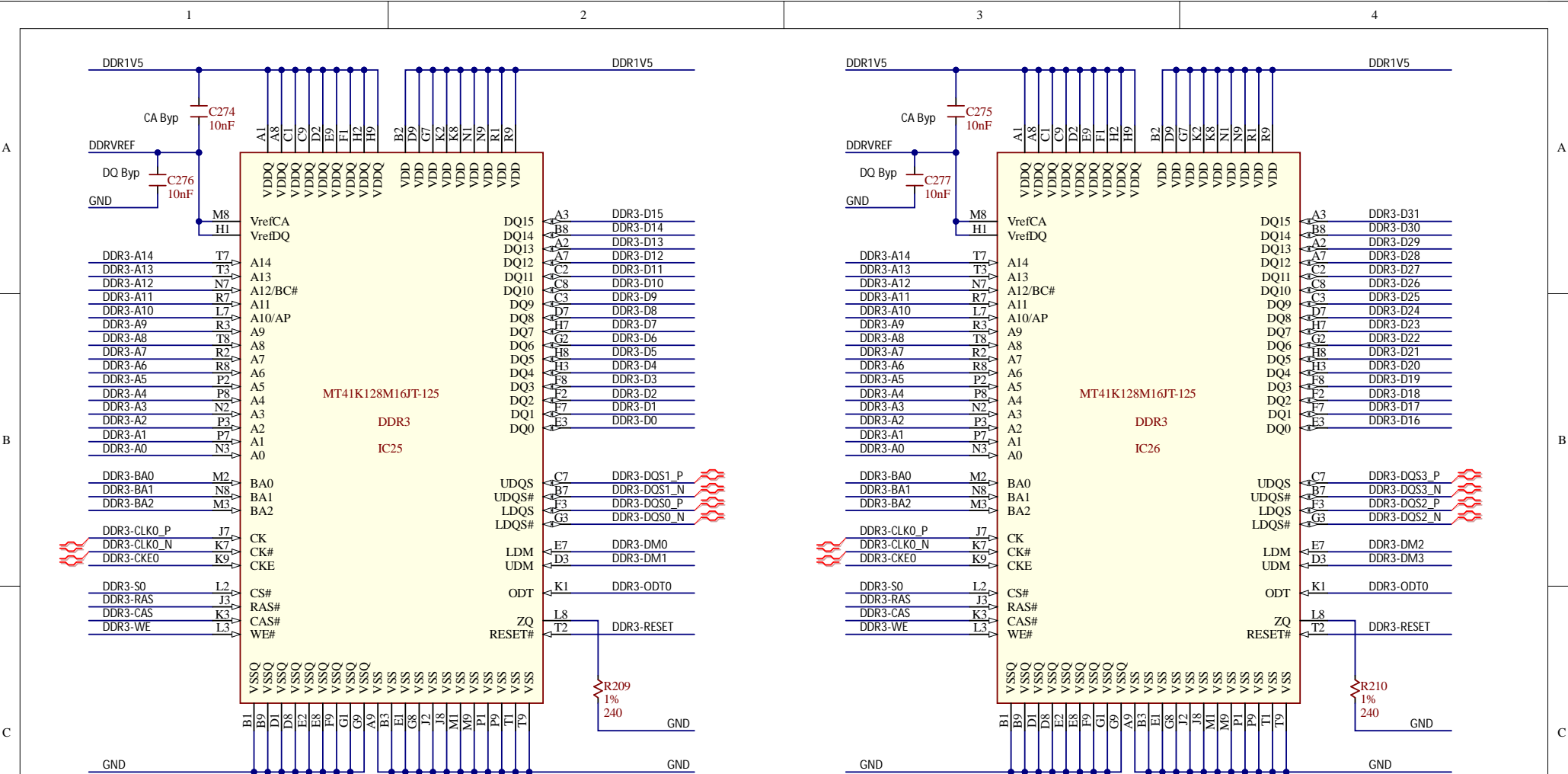
IC161 XC7Z020CLG484

Title	ZED	Rev	F.1
Circuit	FPGA Power		
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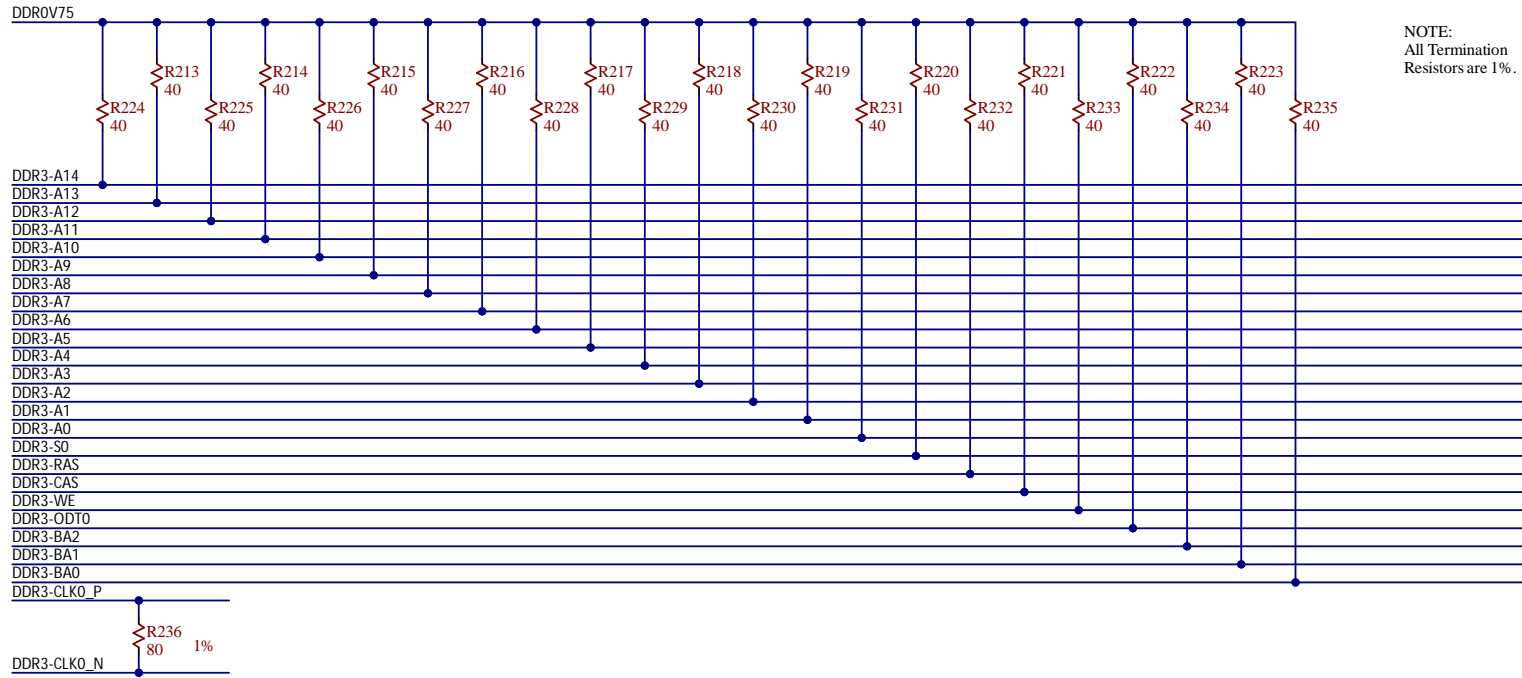
The ZedBoard contains a proprietary USB-JTAG circuit which is obscured on this sheet. This circuit contains IC19, IC20, IC21, IC22, IC23, IC24, JP13, and J17, along with a number of resistors and capacitors. The firmware for this circuit is not publicly available. However, the firmware does come pre-programmed in the SMT2 USB-JTAG module available from Digilent and Avnet.

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Circuit USB Programming		
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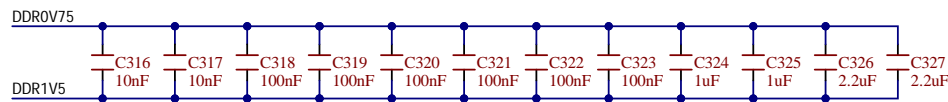


Title <b>ZED</b>		Rev <b>F.1</b>
Circuit DDR3 Memory		
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### DDR3 TERMINATION



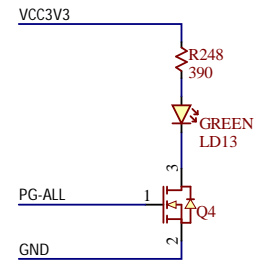
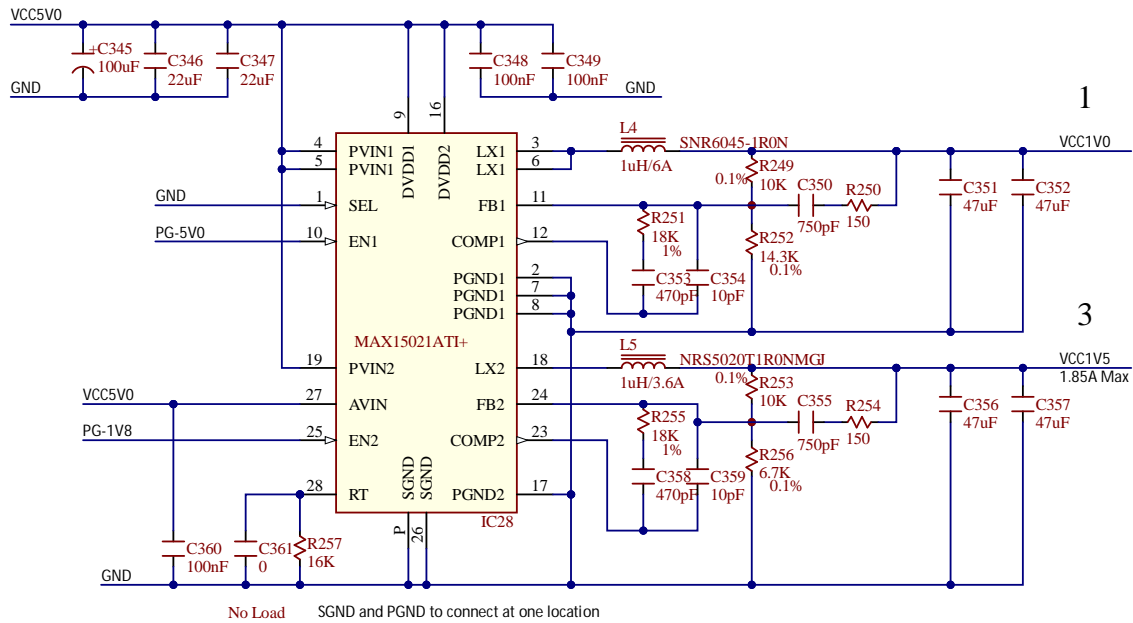
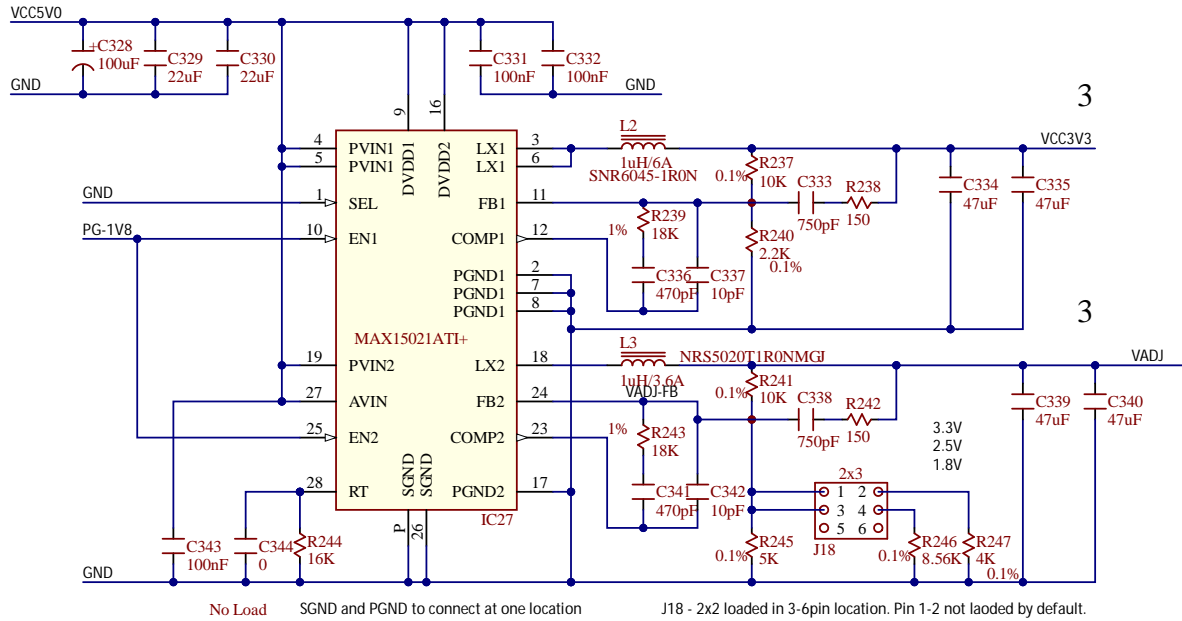
NOTE:  
All Termination  
Resistors are 1%.



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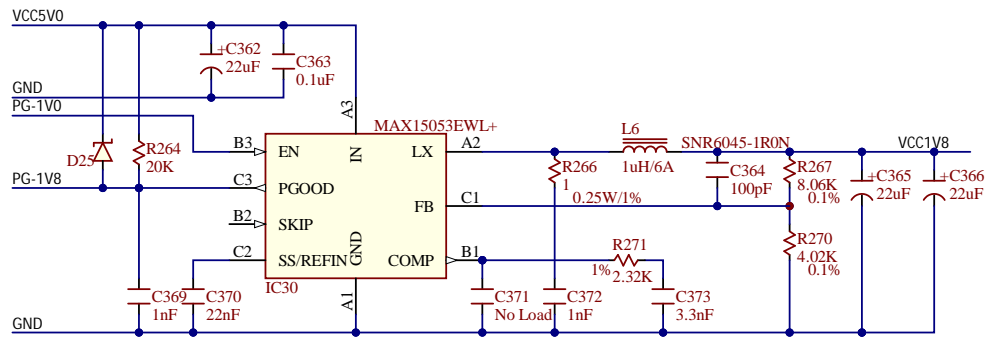
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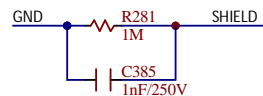
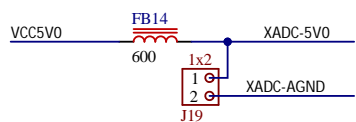
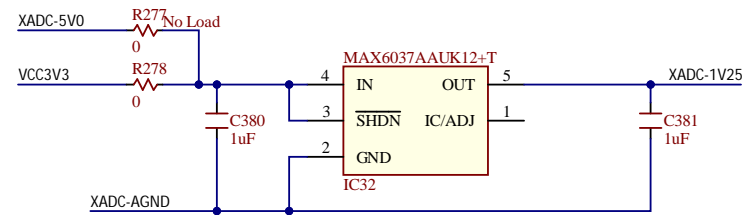
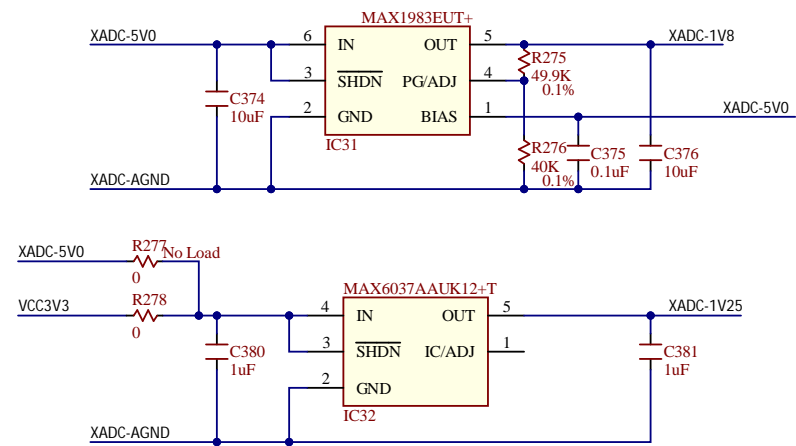
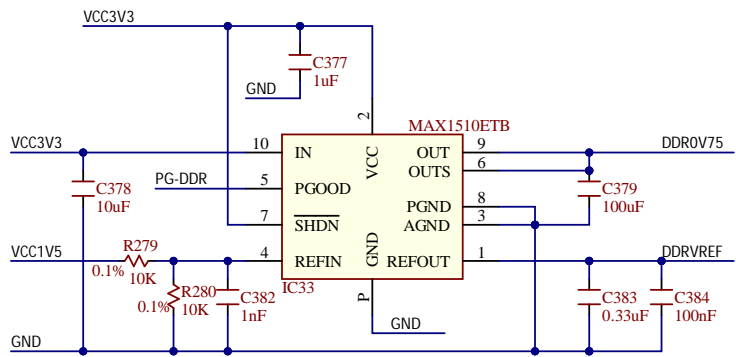
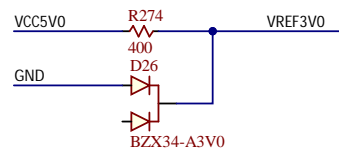
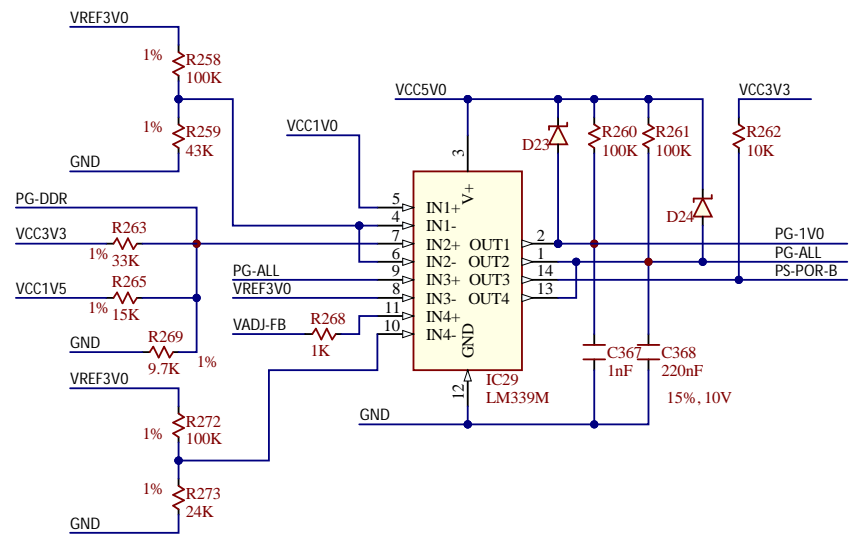
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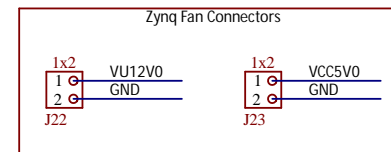
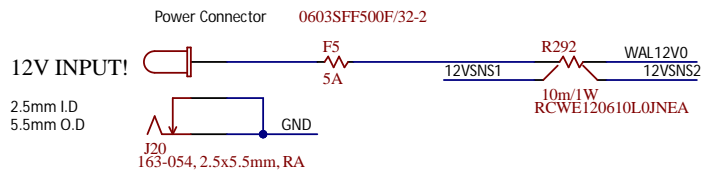
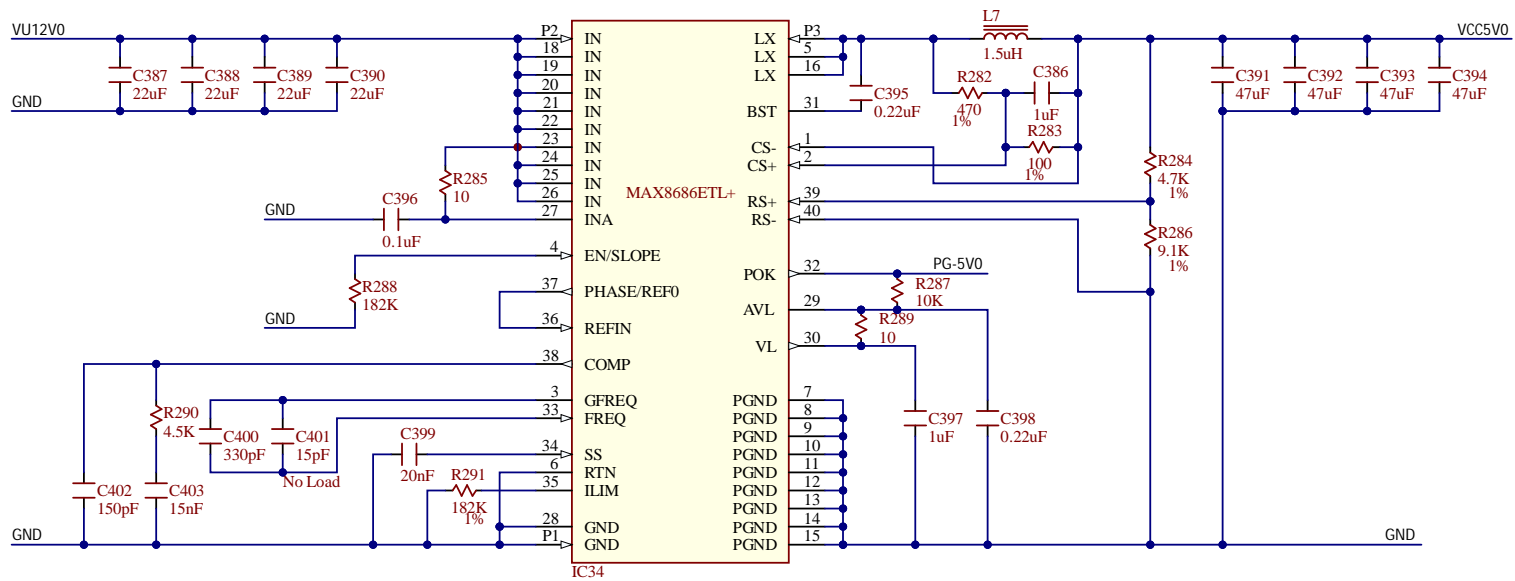


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