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Revisions			
Rev	Description	Date	Approved
X1	Initial Release	18/09/2013	Rastislav Pavlanin
X2	Review Comments updated.	24/09/2013	Rastislav Pavlanin
X3	Elevator Connections updated. A070 Release.	27/09/2013	Rastislav Pavlanin
X4	U510-MCU+Subassembly. U511-344-01992 MCU Part Added as DNP.	04/10/2013	Rastislav Pavlanin
A	211-78997 USB MINI-B (J8) changed to 211-78722 USB_MICRO_AB A085 Release.	18/10/2013	Rastislav Pavlanin
AX1	Z10-75439(J38)1x2 Header added near to VREFH-U16.14 & U15.14 PTE29/KL43_USB_ID-connected R562 (470-75626) 4.7K resistor to GND	23/01/2014	Rastislav Pavlanin
B	A085 Release.	27/01/2014	Rastislav Pavlanin
C	U16(750-77479)MCUSubassembly removed. A085 Release.	07/04/2014	Rastislav Pavlanin

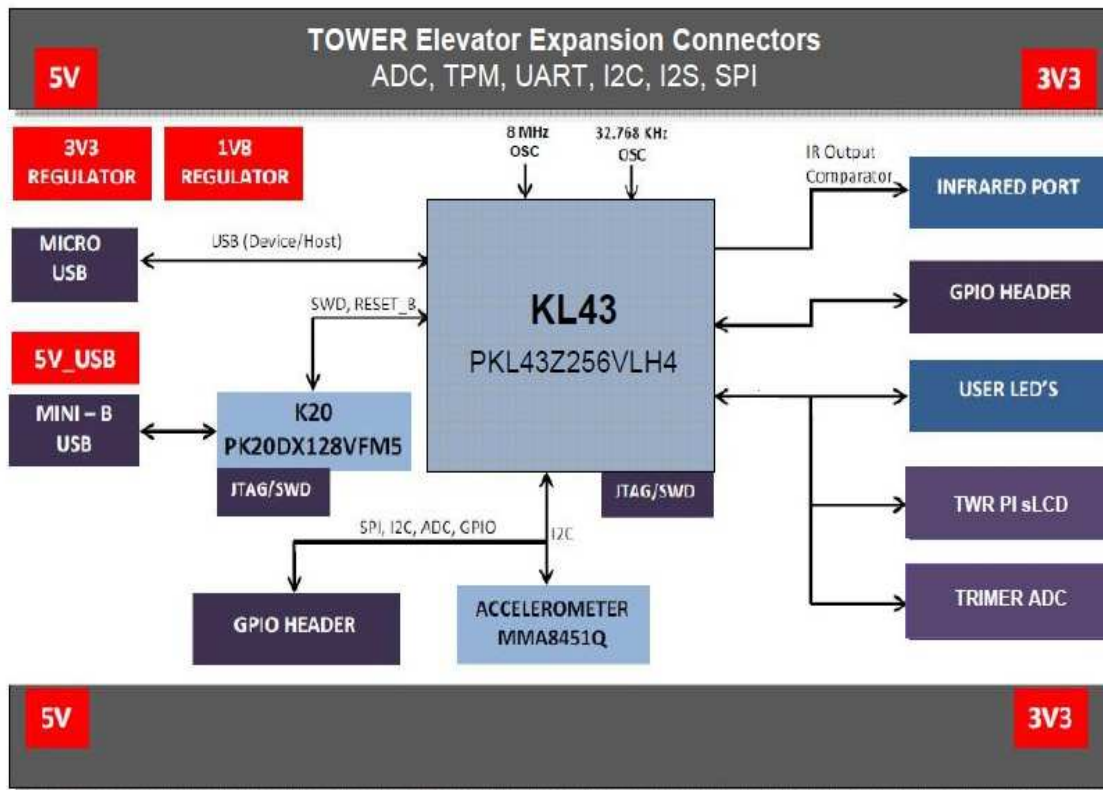
TWR-KL43Z48M

		Microcontroller Product Group 6501 William Cannon Drive West Austin, TX 78735-8598	
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<small>ICAP Classification: FCP: _____ FBO: X PUB: _____</small>			
Designer: Senthil Kumar(LNT)	Drawing Title: TWR-KL43Z48M		
Drawn by: Senthil Kumar(LNT)	Page Title: Table of Contents/Revisions		
Approved: Rastislav Pavlanin	Size C	Document Number SCH-28104 PDF: SPF-28104	Rev C
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CAUTION: It is not recommended to used TWRPI analog, TWRPI1, SEGMENT LCD connector, GPIO HDR and ELEV functionality simultaneously. This is required to avoid shortcuts, malfunction, or even in some cases damage elements on or out of the board.

Power & Ground Nets

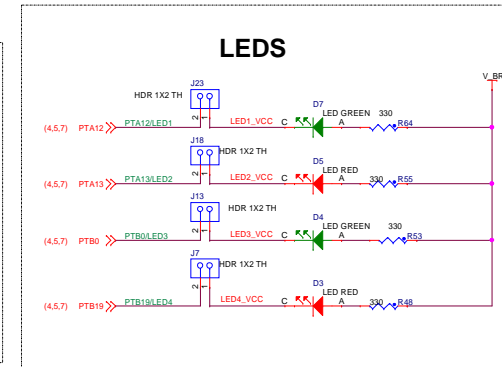
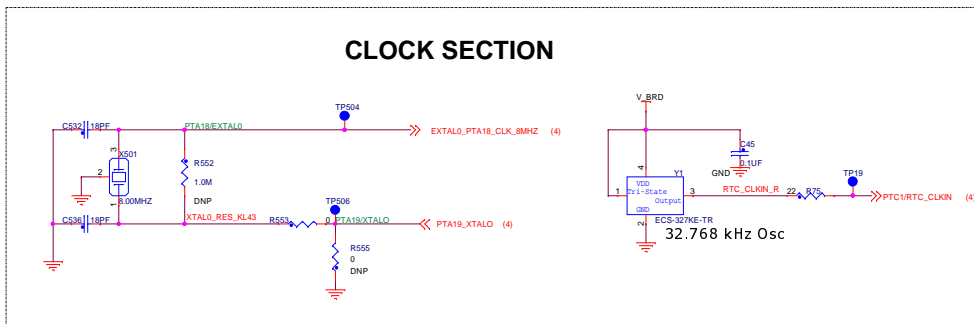
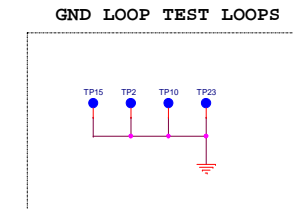
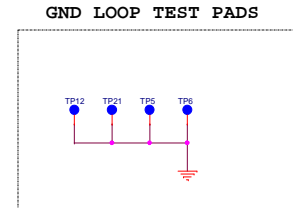
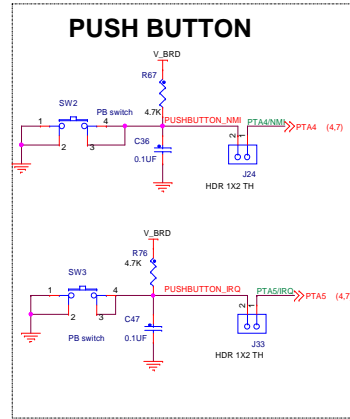
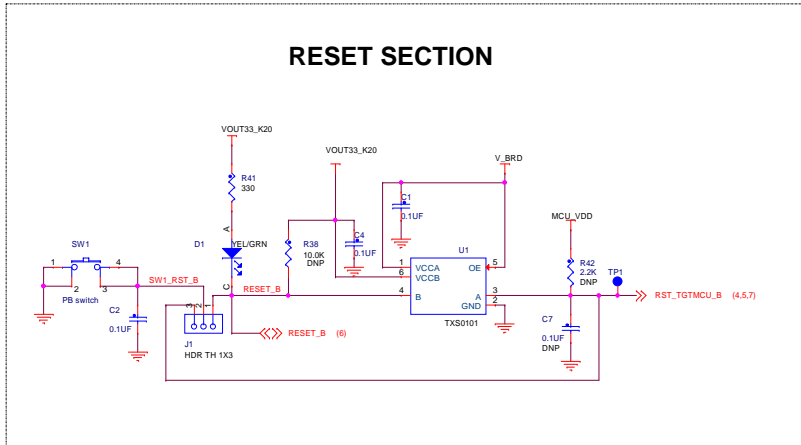
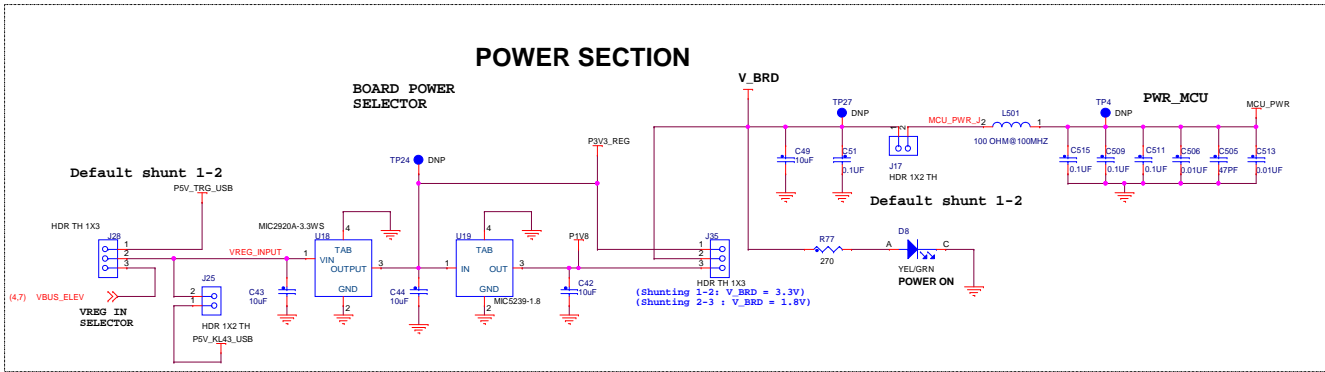
NET	VOLTAGE	DESCRIPTION
P5V_USB	5V	Primary input power. Filtered from USB connector. Input to USB power switch.
P5V_TRG_USB	5V	Output of USB power switch controlled by the VTRG_EN signal from the JM60 MCU. Provides input to regulator.
P3V3_REG	3.3V	Output of regulator U18 or from the Elevator connector
P1V8	1.8V	Output of regulator U19
V_BRD	3.3V or 1.8V	MCU & Interface circuit input power
VDDA	3.3V	VDDA power for MCU and analog circuits. Filtered from MCU_PWR.
VREFH	3.3V	Upper reference voltage for ADC on the MCU. Filtered from VDDA.
VREFL	0V	Lower reference voltage for ADC on the MCU. Filtered from VSSA.
VSSA	0V	VSSA power for MCU and analog circuits. Filtered from GND.
GND	0V	Digital Ground.



Legend: ■ Freescale Device, ■ External Connector, ■ Interface Circuits, ■ Power

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 Drawing Title: **TWR-KL43Z48M**
 Page Title: **NOTES & BLOCK DIAGRAM**
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ICAP Classification:	FCP: _____	FIG: X PURL: _____
Drawing Title:	TWR-KL43Z48M	
Page Title:	POWER, RESET & CLOCK SECTION	
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KL43 - 64 LQFP

U15-MCU PKL43Z256VLH4 (64LQFP)

(4.6)	SWD_CLK_TGTMCU	SWD_CLK_TGTMCU	22
(5.7)	PTA1	PTA1/EV_UART0_RX/HEADER_GPD03	23
(5.7)	PTA2	PTA2/EV_UART0_TX/HEADER_GPD02	24
(4.5.6)	SWD_DIO_TGTMCU	SWD_DIO_TGTMCU	25
(3.7)	PTA4	PTA4/EV_I2C0_RX/HEADER_GPD01	26
(3.7)	PTA5	PTA5/EV_I2C0_TX/HEADER_GPD01	27
(3.7)	PTA6	PTA6/EV_I2C1_RX/HEADER_GPD15	28
(3.7)	PTA7	PTA7/EV_I2C1_TX/HEADER_GPD15	29
(3.7)	PTA8	PTA8/EV_I2C2_RX/HEADER_GPD15	30
(3.7)	PTA9	PTA9/EV_I2C2_TX/HEADER_GPD15	31
(3.4.5.7)	RST_TGTMCU	RST_TGTMCU_B	34

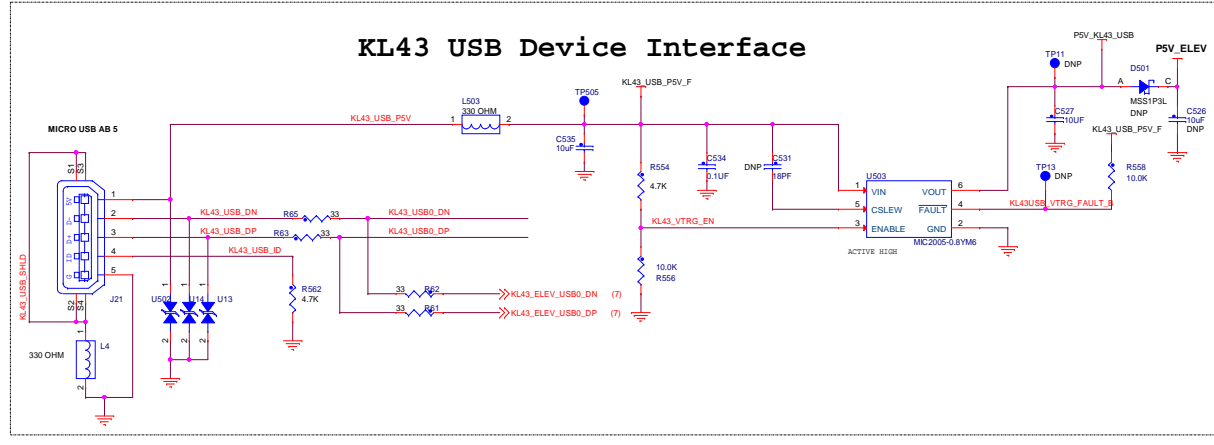
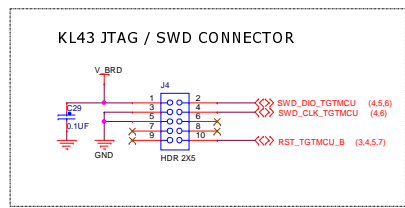
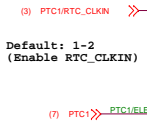
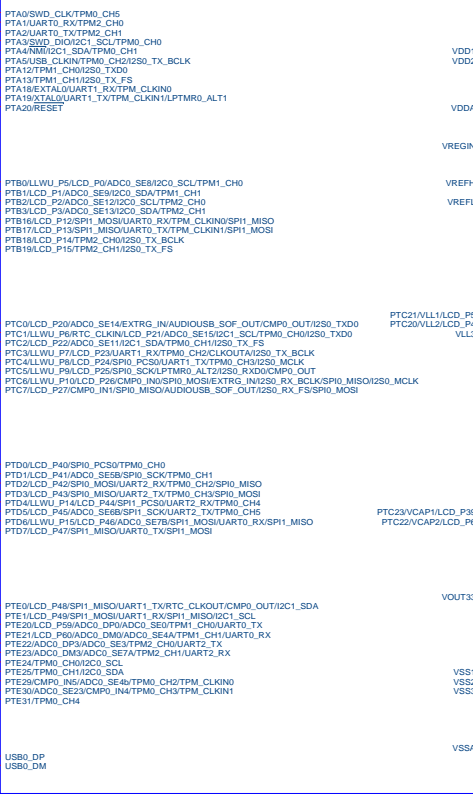
(3.5.7)	PTB0	PTB0/EV_ANA/EV_GPD14/CD_P1	35
(5.7)	PTB1	PTB1/EV_ANA/EV_GPD14/CD_P2	36
(5.7)	PTB2	PTB2/EV_ANA/EV_GPD14/CD_P3	37
(5.7)	PTB3	PTB3/EV_ANA/EV_GPD14/CD_P4	38
(5.7)	PTB4	PTB4/EV_ANA/EV_GPD14/CD_P5	39
(5.7)	PTB5	PTB5/EV_ANA/EV_GPD14/CD_P6	40
(5.7)	PTB6	PTB6/EV_ANA/EV_GPD14/CD_P7	41
(5.7)	PTB7	PTB7/EV_ANA/EV_GPD14/CD_P8	42
(5.7)	PTB8	PTB8/EV_ANA/EV_GPD14/CD_P9	43
(5.7)	PTB9	PTB9/EV_ANA/EV_GPD14/CD_P10	44

(3)	PTC1/RTC_CLKIN	PTC1/EV_I2C0_RX/HEADER_GPD14/CD_P1	45
(5.7)	PTC0	PTC0/EV_I2C0_TX/HEADER_GPD14/CD_P2	46
(5.7)	PTC1	PTC1/EV_I2C1_RX/HEADER_GPD14/CD_P3	47
(5.7)	PTC2	PTC2/EV_I2C1_TX/HEADER_GPD14/CD_P4	48
(5.7)	PTC3	PTC3/EV_I2C2_RX/HEADER_GPD14/CD_P5	49
(5.7)	PTC4	PTC4/EV_I2C2_TX/HEADER_GPD14/CD_P6	50
(5.7)	PTC5	PTC5/EV_I2C3_RX/HEADER_GPD14/CD_P7	51
(5.7)	PTC6	PTC6/EV_I2C3_TX/HEADER_GPD14/CD_P8	52
(5.7)	PTC7	PTC7/EV_I2C4_RX/HEADER_GPD14/CD_P9	53
(5.7)	PTC8	PTC8/EV_I2C4_TX/HEADER_GPD14/CD_P10	54

(5.7)	PTD0	PTD0/EV_I2C0_RX/HEADER_GPD14/CD_P1	55
(5.7)	PTD1	PTD1/EV_I2C0_TX/HEADER_GPD14/CD_P2	56
(5.7)	PTD2	PTD2/EV_I2C1_RX/HEADER_GPD14/CD_P3	57
(5.7)	PTD3	PTD3/EV_I2C1_TX/HEADER_GPD14/CD_P4	58
(5.7)	PTD4	PTD4/EV_I2C2_RX/HEADER_GPD14/CD_P5	59
(5.7)	PTD5	PTD5/EV_I2C2_TX/HEADER_GPD14/CD_P6	60
(5.7)	PTD6	PTD6/EV_I2C3_RX/HEADER_GPD14/CD_P7	61
(5.7)	PTD7	PTD7/EV_I2C3_TX/HEADER_GPD14/CD_P8	62
(5.7)	PTD8	PTD8/EV_I2C4_RX/HEADER_GPD14/CD_P9	63
(5.7)	PTD9	PTD9/EV_I2C4_TX/HEADER_GPD14/CD_P10	64

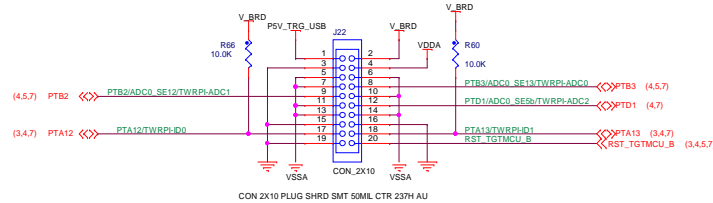
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(5.7)	PTE1	PTE1/EV_I2C0_TX/HEADER_GPD14/CD_P2	66
(5.7)	PTE2	PTE2/EV_I2C1_RX/HEADER_GPD14/CD_P3	67
(5.7)	PTE3	PTE3/EV_I2C1_TX/HEADER_GPD14/CD_P4	68
(5.7)	PTE4	PTE4/EV_I2C2_RX/HEADER_GPD14/CD_P5	69
(5.7)	PTE5	PTE5/EV_I2C2_TX/HEADER_GPD14/CD_P6	70
(5.7)	PTE6	PTE6/EV_I2C3_RX/HEADER_GPD14/CD_P7	71
(5.7)	PTE7	PTE7/EV_I2C3_TX/HEADER_GPD14/CD_P8	72
(5.7)	PTE8	PTE8/EV_I2C4_RX/HEADER_GPD14/CD_P9	73
(5.7)	PTE9	PTE9/EV_I2C4_TX/HEADER_GPD14/CD_P10	74

(5.7)	PTF0	PTF0/EV_I2C0_RX/HEADER_GPD14/CD_P1	75
(5.7)	PTF1	PTF1/EV_I2C0_TX/HEADER_GPD14/CD_P2	76
(5.7)	PTF2	PTF2/EV_I2C1_RX/HEADER_GPD14/CD_P3	77
(5.7)	PTF3	PTF3/EV_I2C1_TX/HEADER_GPD14/CD_P4	78
(5.7)	PTF4	PTF4/EV_I2C2_RX/HEADER_GPD14/CD_P5	79
(5.7)	PTF5	PTF5/EV_I2C2_TX/HEADER_GPD14/CD_P6	80
(5.7)	PTF6	PTF6/EV_I2C3_RX/HEADER_GPD14/CD_P7	81
(5.7)	PTF7	PTF7/EV_I2C3_TX/HEADER_GPD14/CD_P8	82
(5.7)	PTF8	PTF8/EV_I2C4_RX/HEADER_GPD14/CD_P9	83
(5.7)	PTF9	PTF9/EV_I2C4_TX/HEADER_GPD14/CD_P10	84



CAUTION: It is not recommended to use TWRPI analog, TWRPI1, SEGMENT LCD connector, GPIO HDR and ELEVE functionality simultaneously. This is required to avoid shortcuts, malfunction, or even in some cases damage elements on or out of the board.

TWRPI Analog Connector



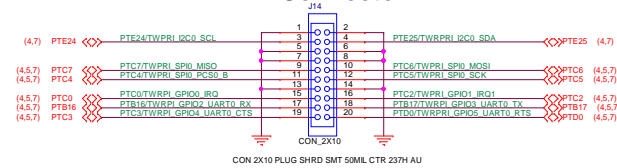
GENERAL PURPOSE TWRPI 1

Note: The TWRPI connectors are powered by V_BRD which may be 1.8V or 3.3V.

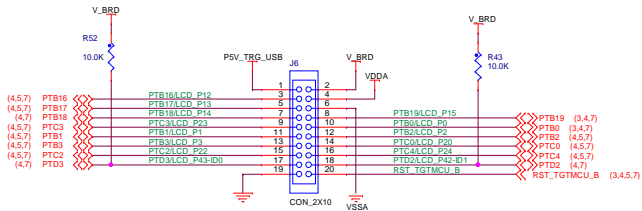
Not all TWRPI boards will work at 1.8V.

Check that the TWRPI board will work at 1.8V before using it when this board is set for 1.8V.

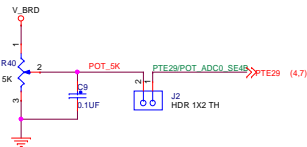
TWRPI1 Connector



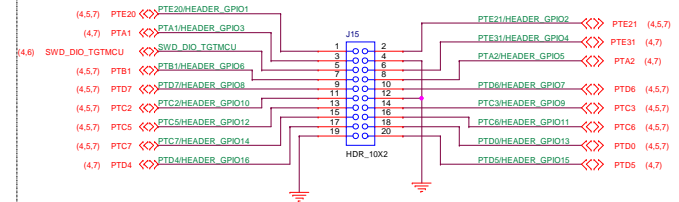
SEGMENT LCD Connector



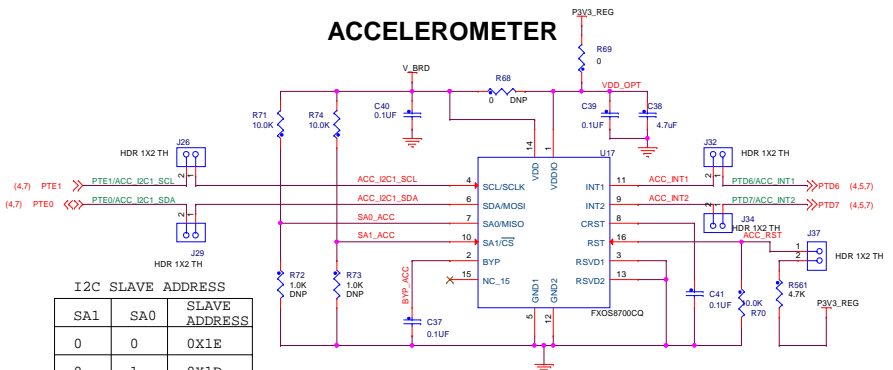
POTENTIOMETER



GPIO HDR



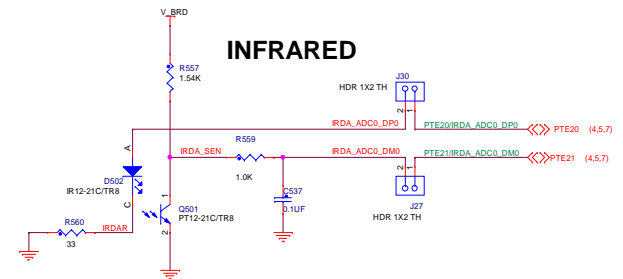
ACCELEROMETER



I2C SLAVE ADDRESS

SA1	SA0	SLAVE ADDRESS
0	0	0X1E
0	1	0X1D
1	0	0X1C
1	1	0X1F

INFRARED



Intensity will be different between V_BRD = 1.8V and 3.3V.

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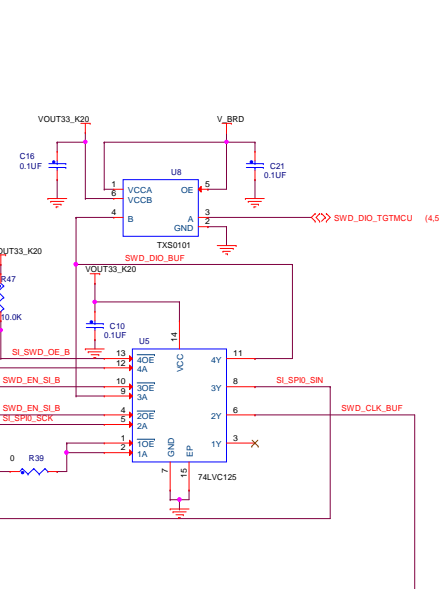
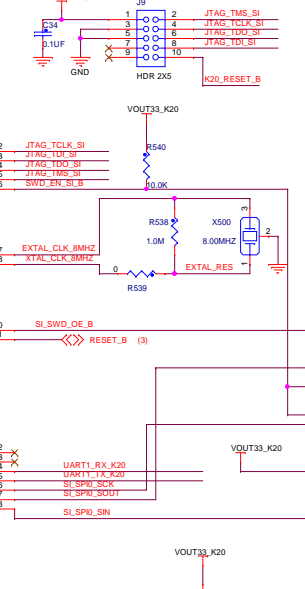
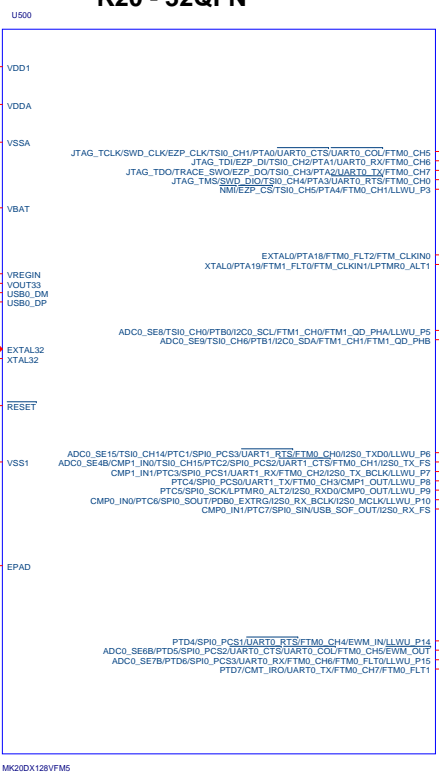
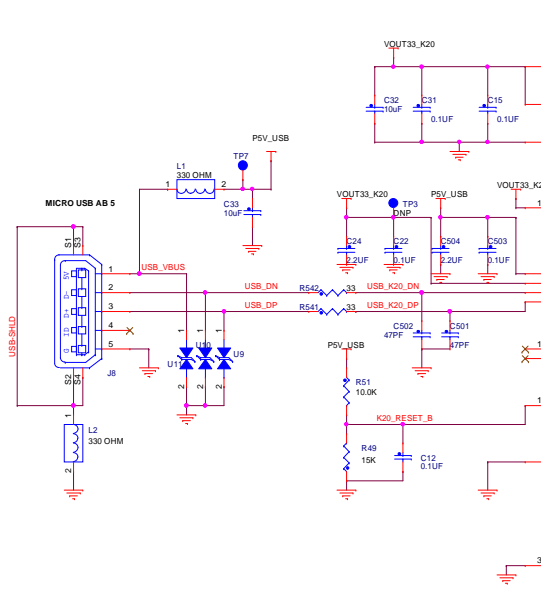
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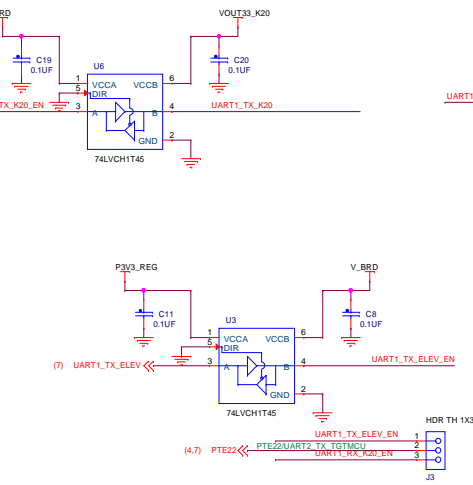
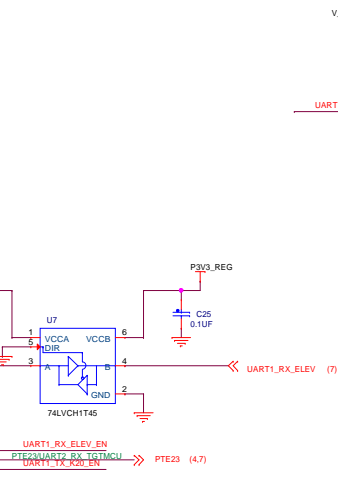
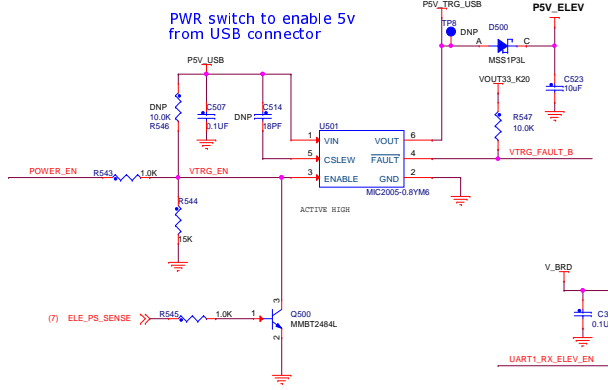
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K20 - 32QFN

K20 USB-SERIAL INTERFACE JTAG CONNECTOR

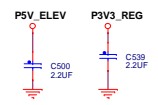
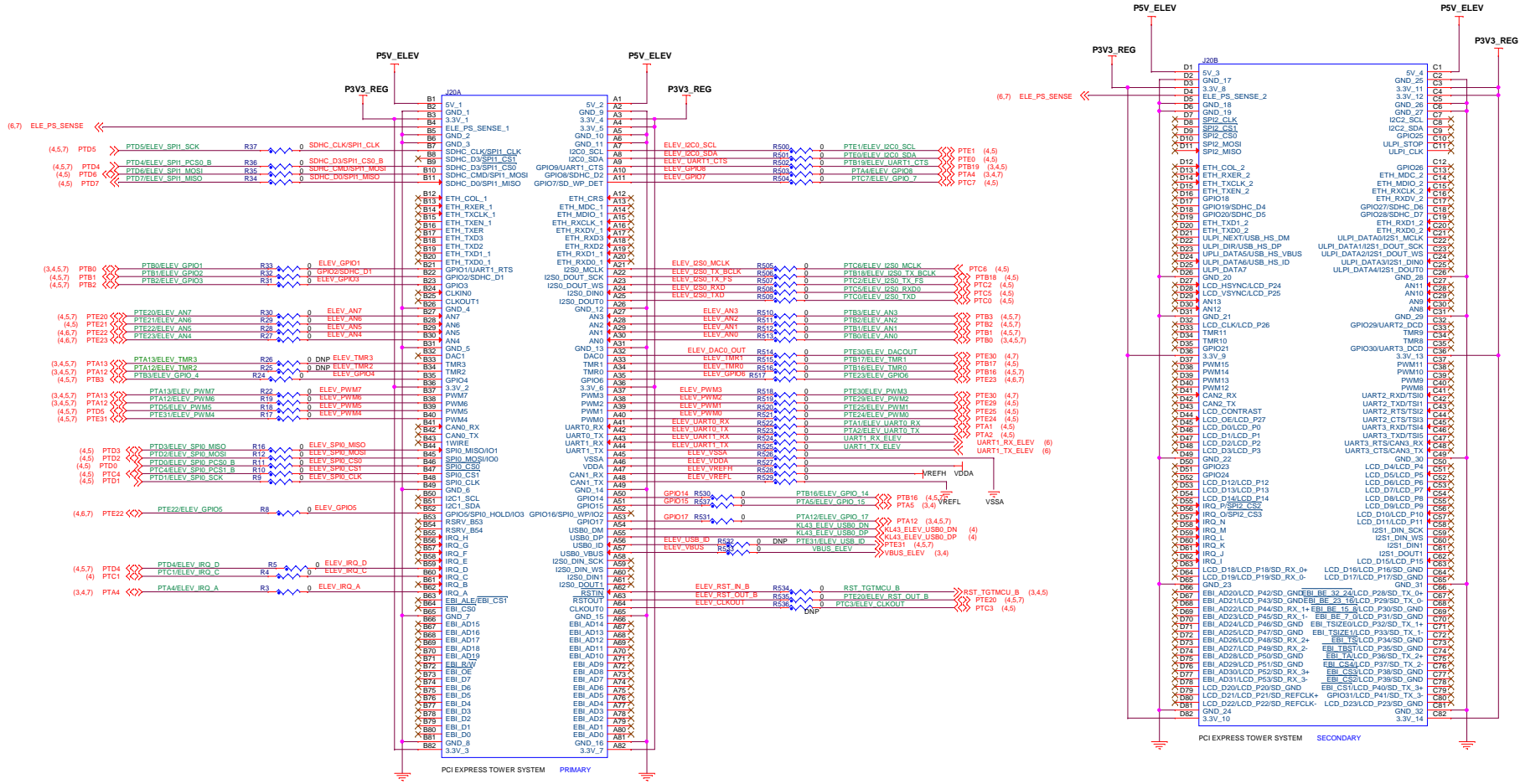


PWR switch to enable 5v from USB connector



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ELEVATOR CONNECTOR



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ELEVATOR CONNECTOR			
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