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**Revisions**

Rev	Description	Date	Approved
X1	Initial	25-Sept-13	
A	Release	12-Nov-13	Wang Hao
B	Release	23-Apr-14	Wang Hao
C	Release	12-Dec-14	Wang Hao
D	Release	16-Mar-15	Wang Hao

# TWR-K65F180M

1. Unless Otherwise Specified:

- All resistors are in ohms
- All capacitors are in uF
- All voltages are DC
- All polarized capacitors are aluminum electrolytic

2. Interrupted lines coded with the same letter or letter combinations are electrically connected.

3. Device type number is for reference only. The number varies with the manufacturer.


4. Special signal usage:

- \_B Denotes - Active-Low Signal
- <> or [] Denotes - Vectored Signals

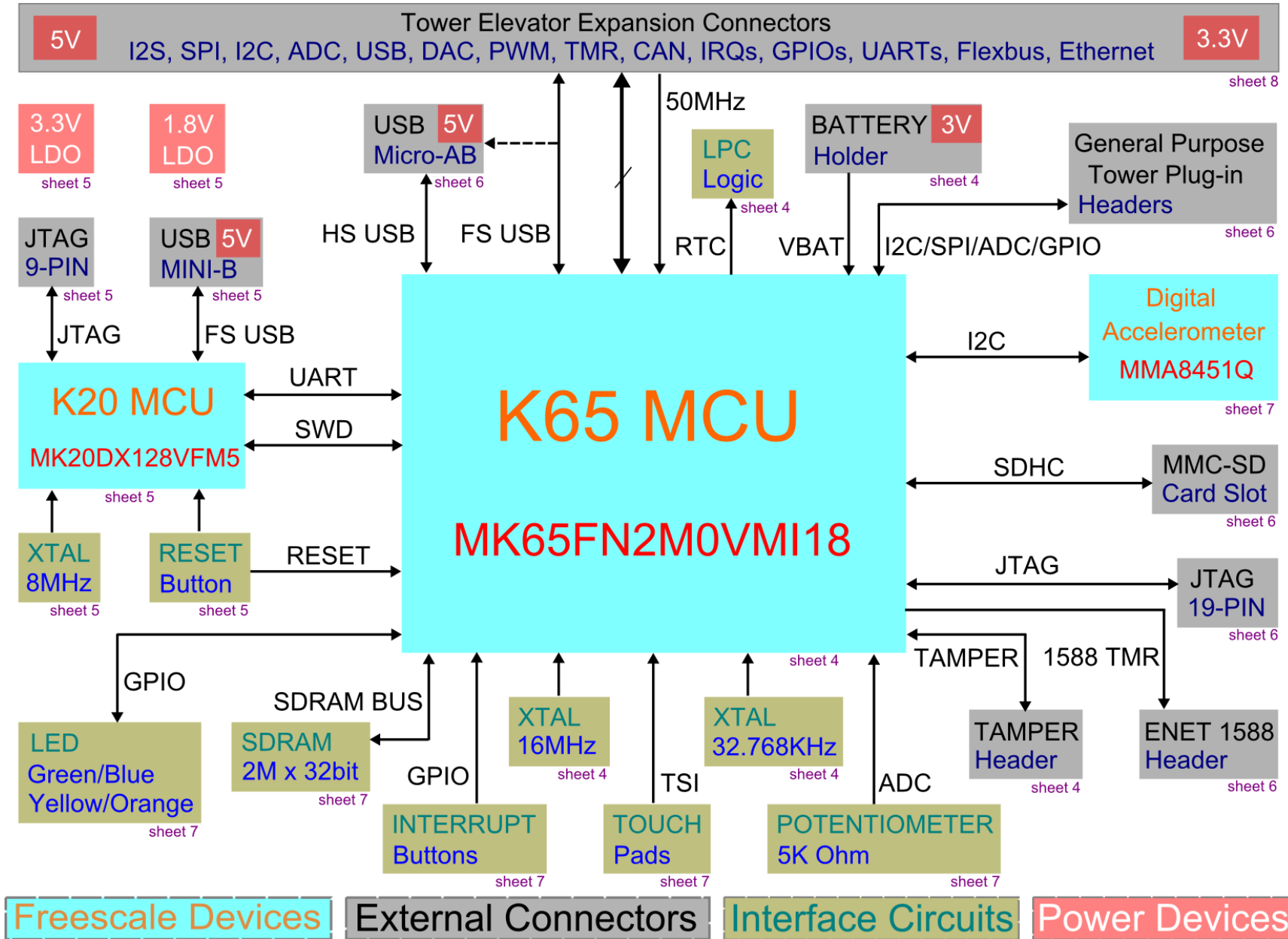
5. Interpret diagram in accordance with American National Standards Institute specifications, current revision, with the exception of logic block symbology.

6. Net function indications:

Some nets have functions indicated in addition to the net names. The net names are shown in red and the MCU functions associated with the net are shown in blue. If a net has no blue function shown the net name indicates the associated function.

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Designer: Wang Hao/Qiao Jun	Drawing Title: <b>X-TWR-K65F180M</b>	ICAP Classification:	FQP:	FLUQ: X	PUBI:
Drawn by: Qiao Jun	Page Title: <b>Table of Contents/Revisions/Notes</b>				
Approved: Wang Hao	Size C	Document Number SCH-28036 PDF: SPF-28036	Rev D		
Date: Monday, March 16, 2015		Sheet 1 of 8			

# BLOCK DIAGRAM



Freescale Devices
External Connectors
Interface Circuits
Power Devices

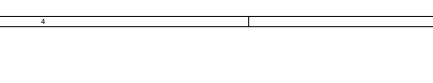
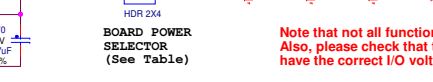
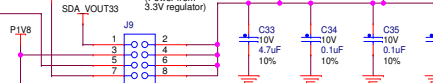
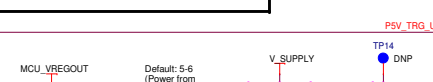
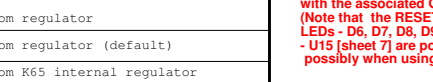
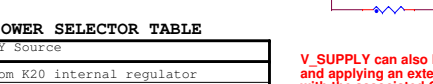
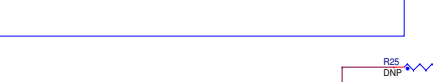
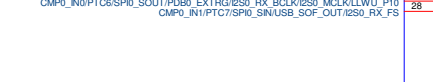
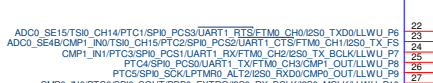
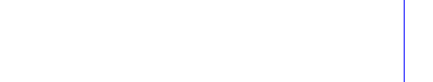
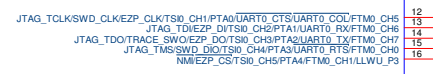
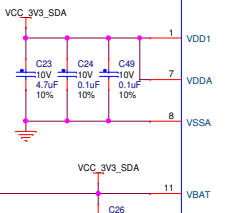
ICAP Classification:		FCP:	FIUC: X PUBL:
Drawing Title:			
<b>X-TWR-K65F180M</b>			
Page Title:			
<b>Block Diagram</b>			
Size	Document Number	SCH-28036 PDF: SPF-28036	Rev D
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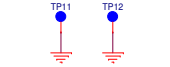


# Serial Interface

**OPEN SDA POWER OUTPUTS**  
 Note: You can power openSDA with your own power supplies by replacing this rail (SDA\_VOUT33) with your 3.3V power supply rail.



## GND TESTPOINT



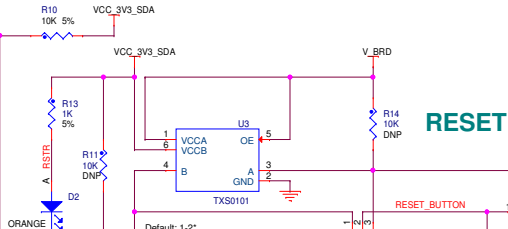
**BOARD POWER SELECTOR TABLE**

Shunt	V_SUPPLY Source
1-2	3.3V from K20 internal regulator
3-4	1.8V from regulator
5-6	3.3V from regulator (default)
7-8	3.3V from K65 internal regulator

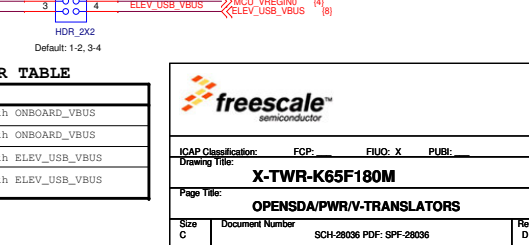
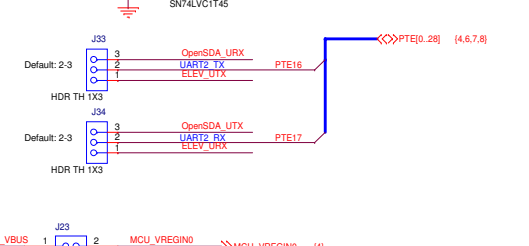
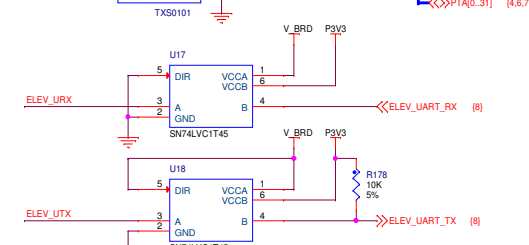
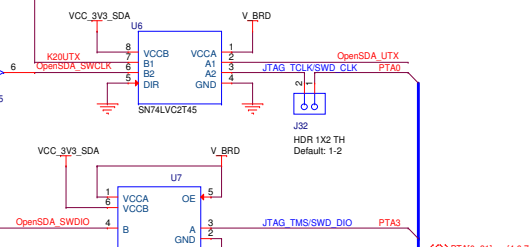
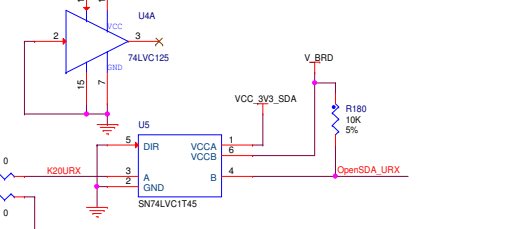
**V\_SUPPLY** can also be sourced by removing all shunts and applying an external supply voltage to J9 pin 2 with the associated GND connected to TP11 or TP12. (Note that the RESET LED - D2 [sheet 5], the four user LEDs - D6, D7, D8, D9 [sheet 7], and the accelerometer - U15 [sheet 7] are powered by P3V3 and will not work possibly when using only an external source.)

Note that not all functions of the board will operate at 1.8V. Also, please check that tower boards used with this board have the correct I/O voltages when this board is set to 1.8V.

## RESET



## MANUAL RESET



## K65 VREG IN SELECTOR TABLE

Shunt	R65 VREG IN Source
1-2	VREG_IN0 connected with ONBOARD_VBUS
1-3	VREG_IN1 connected with ONBOARD_VBUS
2-4	VREG_IN0 connected with ELEV_USB_VBUS
3-4	VREG_IN1 connected with ELEV_USB_VBUS

**freescale** semiconductor

ICAP Classification: FCP: FIUC: X PUBL:

Drawing Title: **X-TWR-K65F180M**

Page Title: **OPENSDA/PWR/V-TRANSLOCATORS**

Size C Document Number SCH-28036 PDF: SPF-28036 Rev D

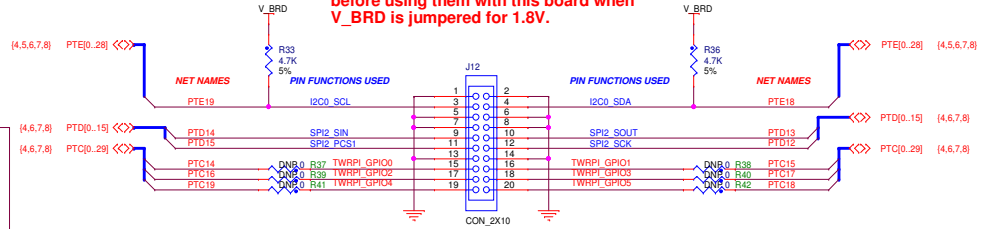
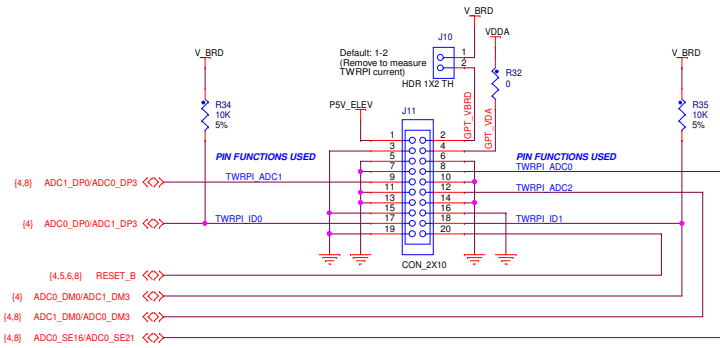
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## GENERAL PURPOSE TWRP1

Note: The TWRP1 connectors are powered by V\_BRD which may be 1.8V or 3.3V.

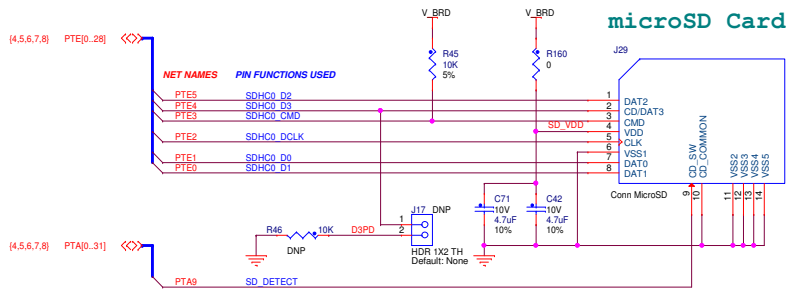
Not all TWRP1 boards will work at 1.8V.

Check that TWRP1 boards will work at 1.8V before using them with this board when V\_BRD is jumpered for 1.8V.

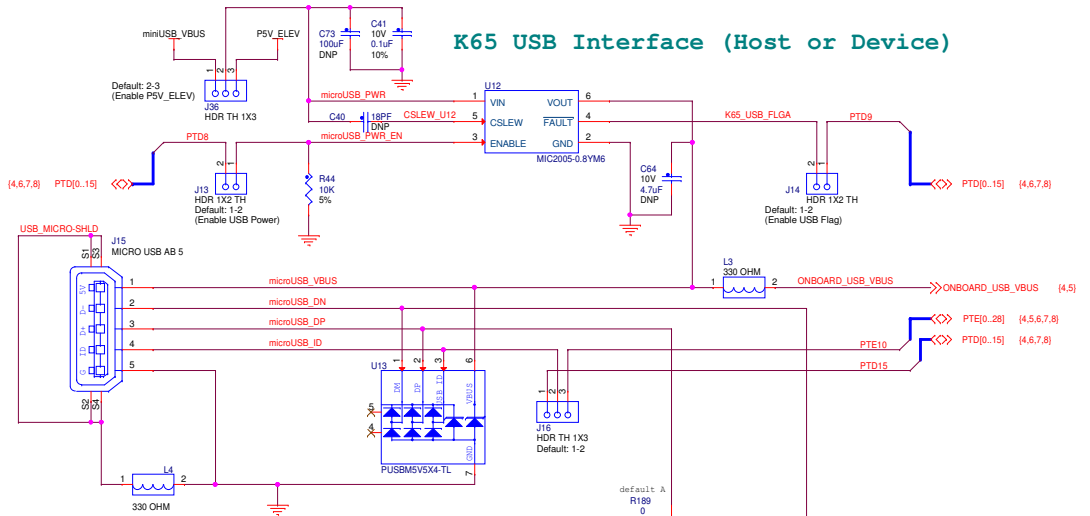


Place the 0402 0ohm resistor close to the key trace in order to shorten the stubs

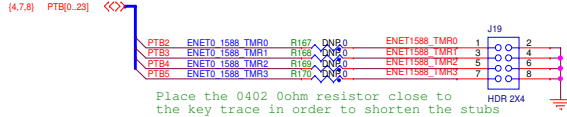
Note: this SDHC socket is powered by V\_BRD which may be 1.8V or 3.3V. No provision is made for dynamic switching between the two voltages. Therefore, this interface may not work properly when the MCU is running from 1.8V.



## K65 USB Interface (Host or Device)

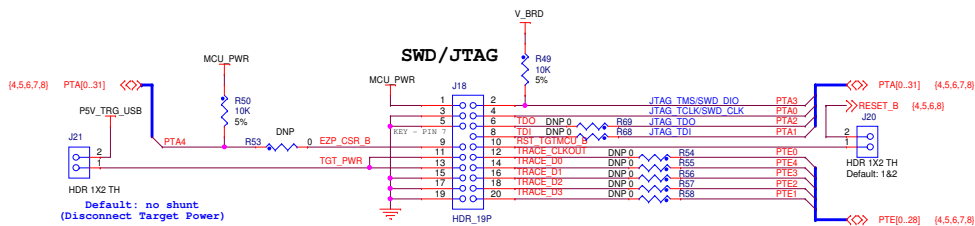


## ENET0\_1588\_TMR HEADER

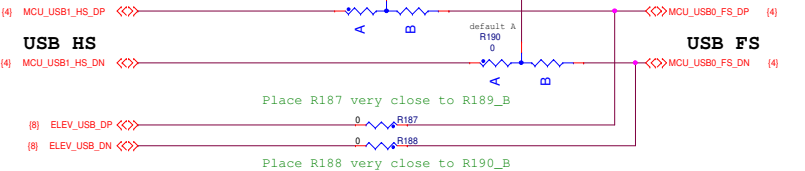


Place the 0402 0ohm resistor close to the key trace in order to shorten the stubs

## K65-CORTEX JTAG SECTION



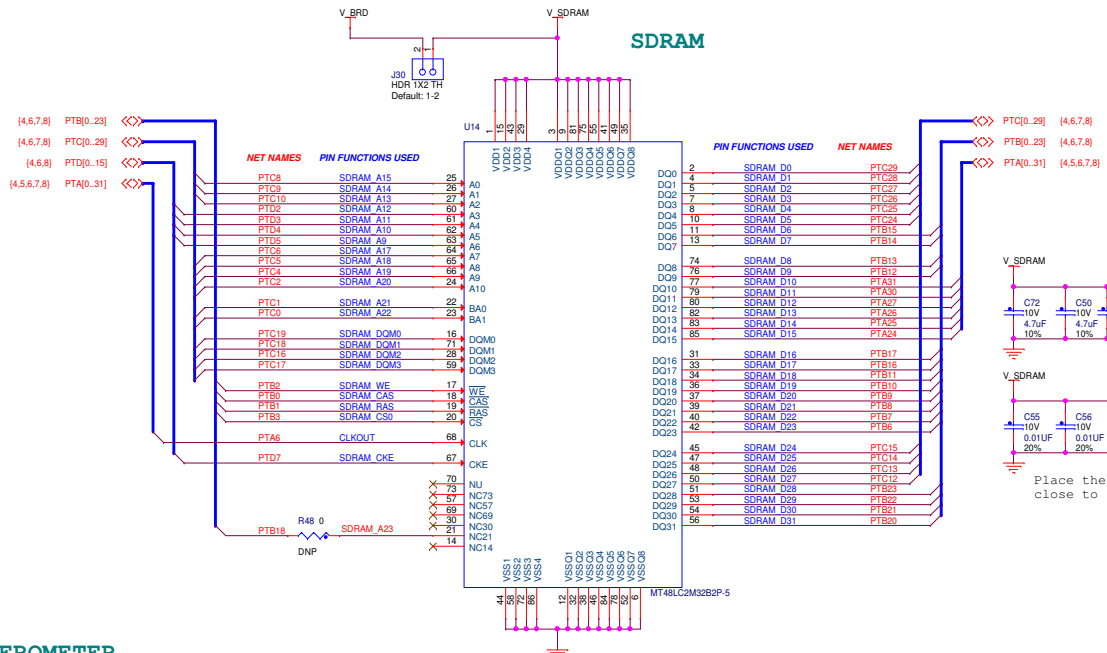
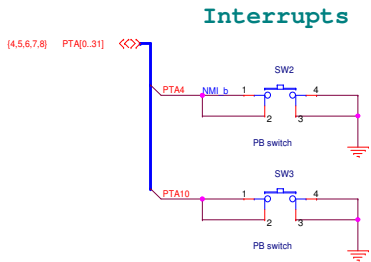
Place J21 a little far away from J18 to make sure that J-LINK connector can be populated normally



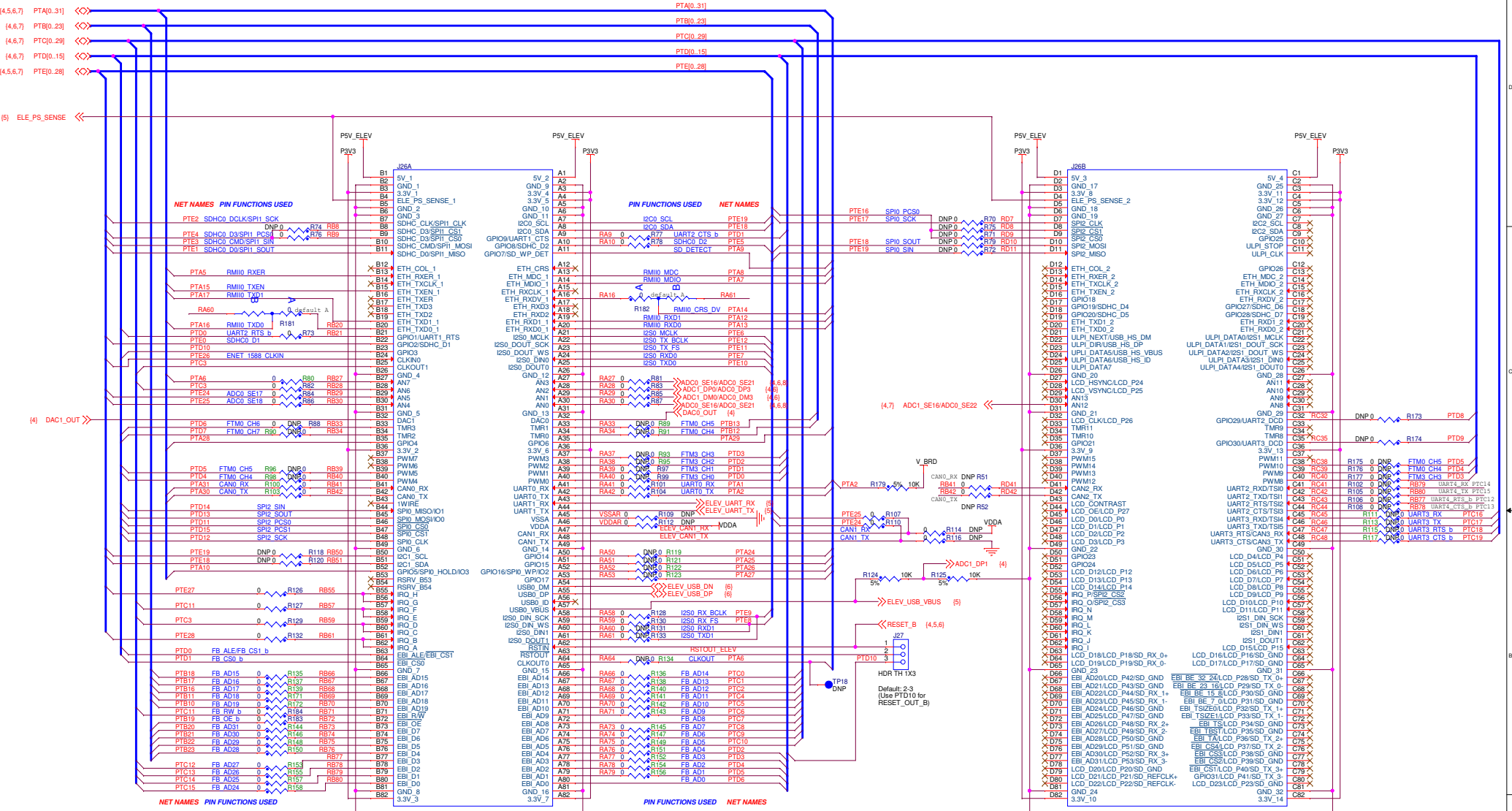
Note that there is never a combination that allows sending the USB1 (HS) to the elevator.



ICAP Classification: FCP:		FIUC: X		PUBI:	
Drawing Title: X-TWR-K65F180M					
Page Title: Peripherals					
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Place the 0402 0ohm resistor close to the key trace in order to shorten the stubs

Place the 0402 0ohm resistor close to the key trace in order to shorten the stubs

Note that signals coming from the elevator are usually 3.3V. They should not be used when the board is configured for 1.8V operation.

