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Revisions			
Rev	Description	Date	Approved
X1	Initial Release	02 Aug 11	M.H
X2	1. L9 replaced with DNF 0 ohm resistor. 2.Note updated for R172 & R173 Placement 3.C77, C78, R91, R92 & R93 removed 4.Jumper added on Y1 power 5.PTB4 to PTB7 used for Analog inputs on Primary elevator 6.IRQ signals removed from Secondary Elevator	03 Aug 11	M.H
X3	1. Jumper added between potentiometer and ADC1_DM1 2. I2S signals added on the elevator connector (A58-A61) 3.accelerometer part chnaged to MMA8451QT 4.0 ohms added to PTC16 to isolate Nand Flash & R118 5.UART connections swapped on Elevator	08 Aug 11	M.H
X4	Net names changed for PTDD & PTD1 on OSBDM circuit	16 Aug 11	M.H
A	Proto Release	22 Aug 11	M.H
A1	Re-run ECO for A085 to correct BOM import.	16 Sept 11	E.T
AX1	1. PTE8 , PTE9 used instead of PTC16 & PTC17 on Primary elevator UART connections 2. Similarly RTS & CTS connections changed to PTE10 & PTE11 3. I2S signals extracted from PTA series through Jumpers 4. Board ID pull down resistor changed to 1.3K	14 Nov 11	M.H
AX2	1. I2S0 Header connections sourced from either PTC or PTA through Jumper 2. 0 ohm resistor added for Trace clock out (PTA6) 3. 0 ohm resistor added between elevator and MCU for Ethernet signals on PTA pins 4. IRQ signals added to secondary elevator 5. 0 ohms resistor added between Nand Flash and MCU on PTC signals which is shared with I2S0	15 Nov 11	M.H
B	Prototype Release	17 Nov 11	M.H
BX1	CLK OSC Circuitry for FCC: Removed J18 3 Pin Jumper Added 2 Pin Jumper to ON / OFF OSC	10 Feb 12	Peter, Kevin
C	Production Release	14 Feb 12	Peter, Kevin

		Microcontroller Solutions Group	
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ICAP Classification:		FCP:	FIUC: X PUBI:
Designer: io:DSN	Drawing Title: TWR-K60F120M		
Drawn by: io:DSN	Page Title: Table of Contents/Revisions		
Approved: Melissa Hunter	Size C	Document Number SCH-27167 PDF: SPF-27167	Rev C
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otherwise Specified:

Resistors are in ohms
Capacitors are in uF

Power supplies 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.

Power & Ground Nets

NET	VOLTAGE	DESCRIPTION
P5V_USB	5V	Primary input power. Filtered from USB connector. Input to USB power switch.
P5V_SW	5V	Output of USB power switch controlled by the 5V_EN signal from the JM60 MCU. Used by OSBDM voltage translation circuits.
P5V_TRG_USB	5V	Output of USB power switch controlled by the VTRG_EN signal from the JM60 MCU. Provides input to regulator.
P3V3	3.3V	Output of regulator using USB power input (P5V_TRG_USB).
P3V3_MCU	3.3V	MCU digital power. Filtered from P3V3.
VDDA	3.3V	VDDA power for MCU and analog circuits. Filtered from P3V3_MCU.
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.

ICAP Classification:		FCP:	FIUC: X PUBI:
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ELEVATOR CONNECTORS

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Sheet 5

OSJTAG/USB Bridge Circuit
 USB Mini B Connector
 MC9S08JM60
 Voltage Translation
 OSJTAG/JTAG Header
 SCI Source Selectors
 Power Supply Circuits

Sheet 4

K60NF1M MCU
 50 MHz XTAL
 12 MHz XTAL
 32.768 KHz XTAL
 VSSA/VDDA filter
 VREFH/VREFL filter
 VREF_OUT
 VREGIN, VOUT33
 VBAT

Sheet 6

INFRARED PORT

Sheet 6

PUSH BUTTONS

Sheet 6

SD CARD SOCKET

Sheet 7

ANALOG INPUTS
 MMA7660 ACCELEROMETER
 POTENTIOMETER

Sheet 8

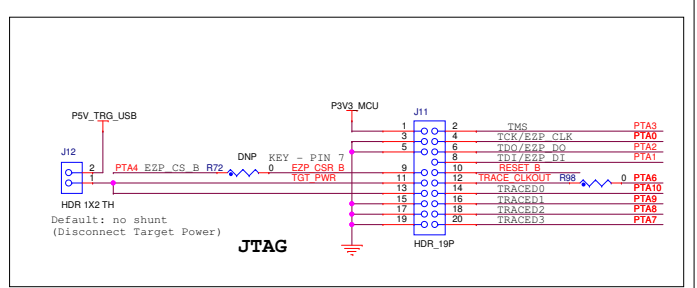
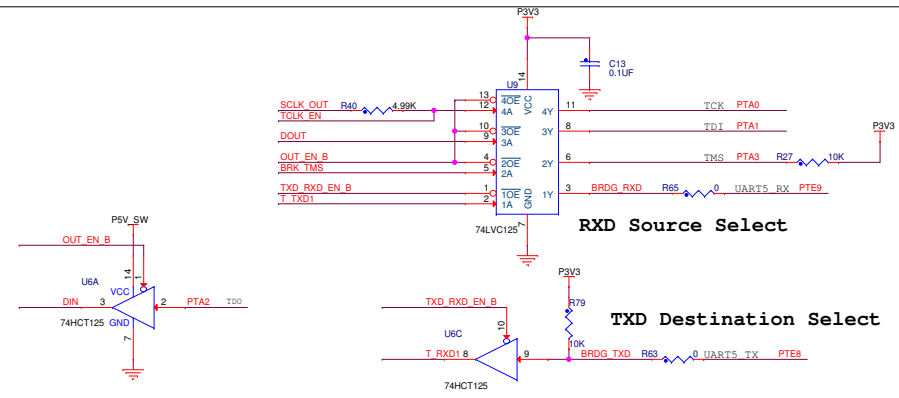
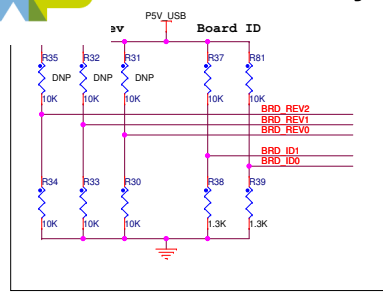
NAND Flash

Sheet 7

TOWER PLUG-IN (TWRPI)
 SENSOR HEADERS

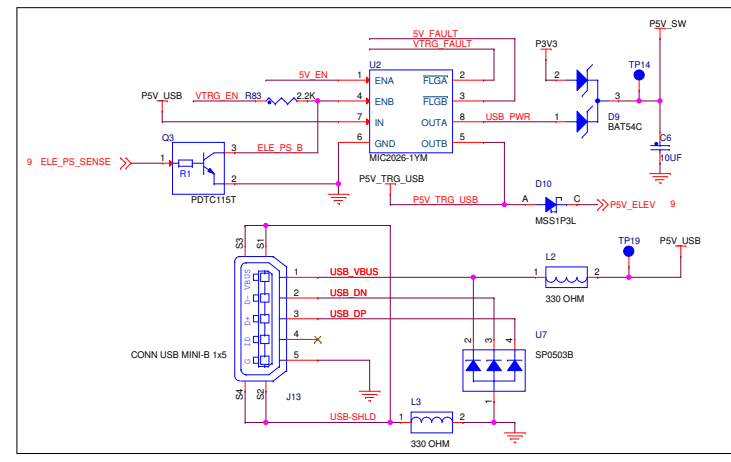
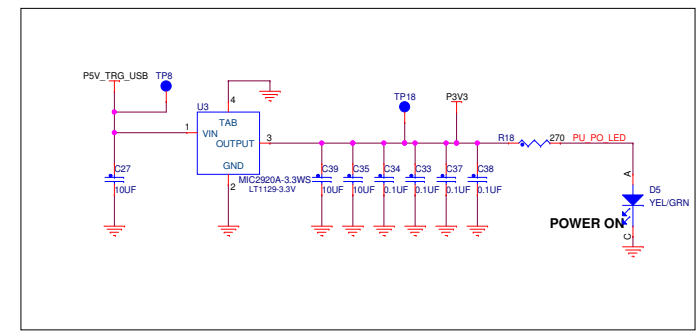
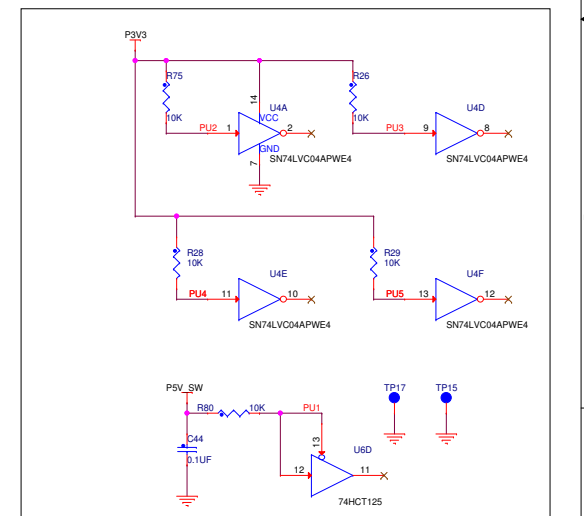
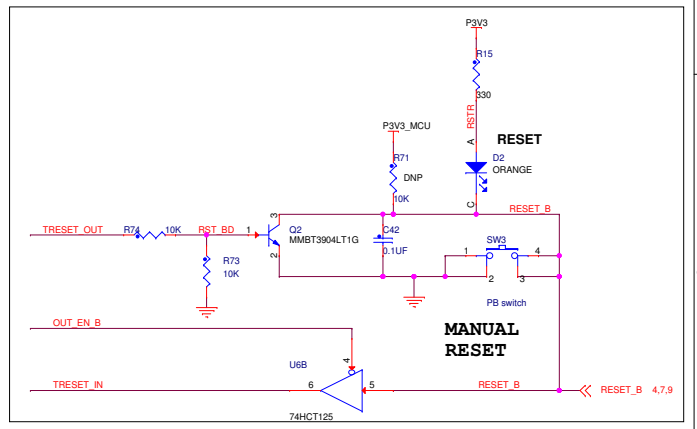
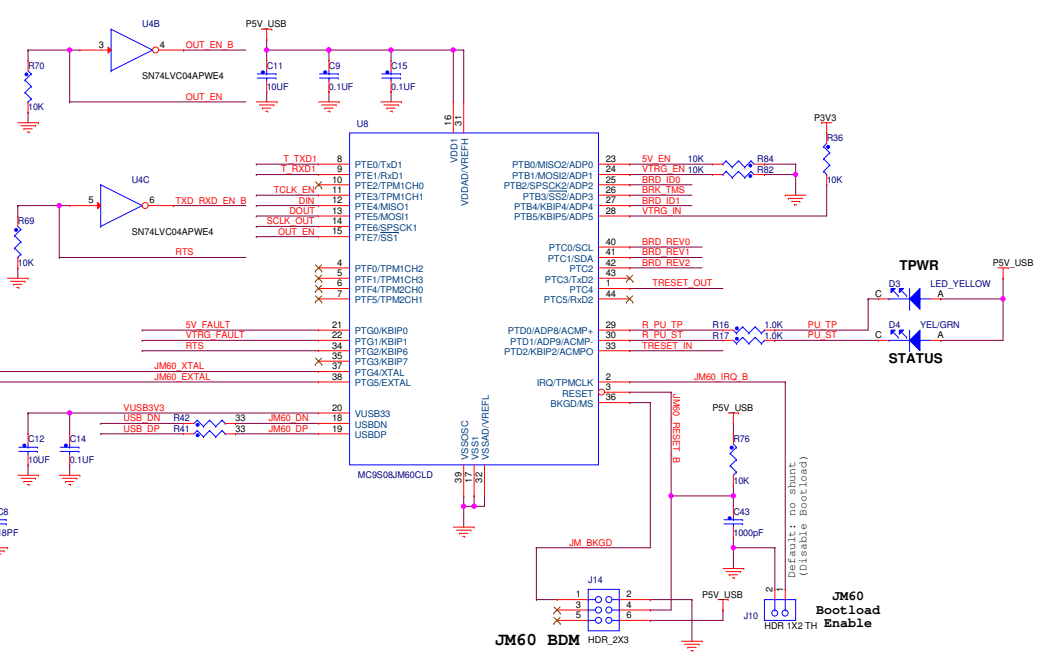
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TOWER PLUG-IN (TWRPI)
 TOUCH HEADER

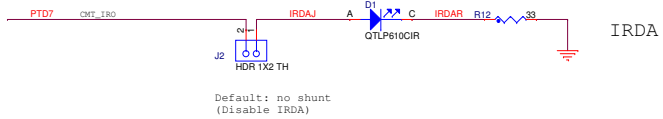
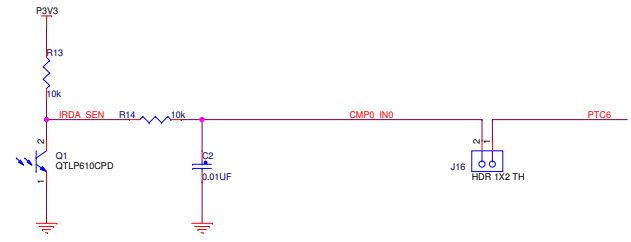
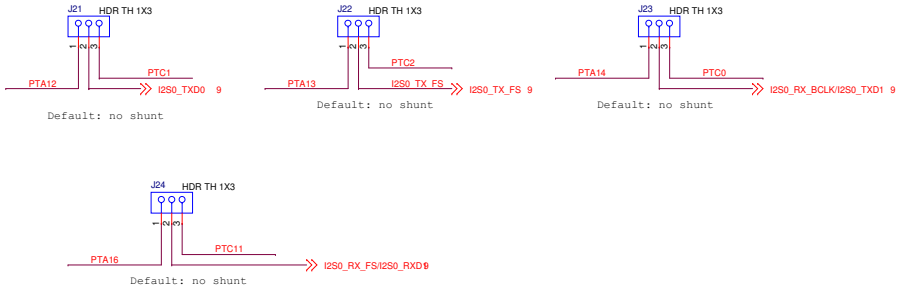
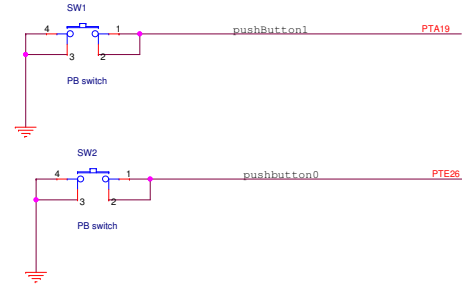
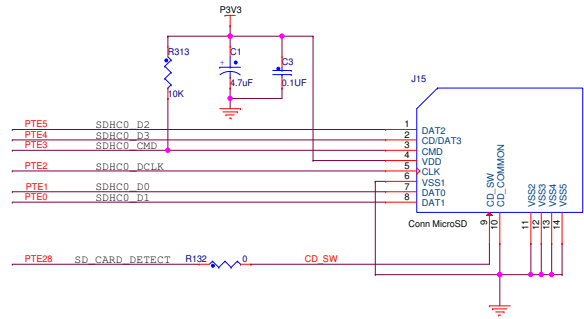


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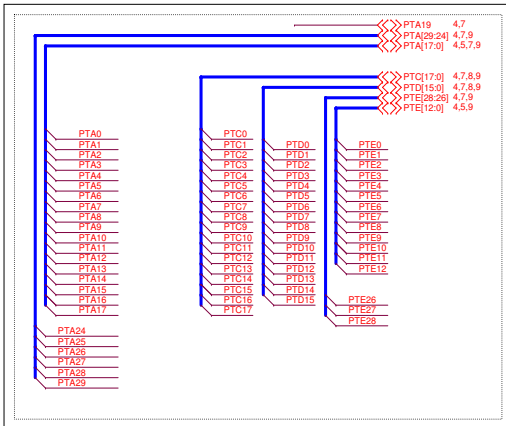
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PTA11	PTA12	4.6,9
PTA13	PTA14	4.6,7,9
PTA15	PTA16	4.6,7,9
PTA17	PTD0	4.6,7,9
PTD1	PTD2	4.6,7,9
PTD3	PTD4	4.6,7,9
PTD5	PTD6	4.6,7,9
PTD7	PTD8	4.6,7,9
PTD9	PTD10	4.6,7,9
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PTD13	PTD14	4.6,7,9
PTD15	PTD16	4.6,7,9



MICRO SD INTERFACE



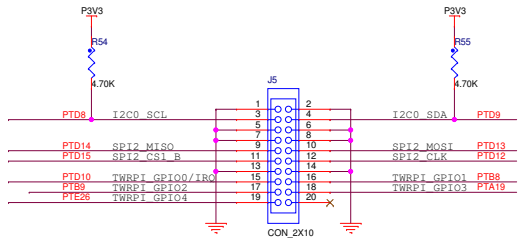
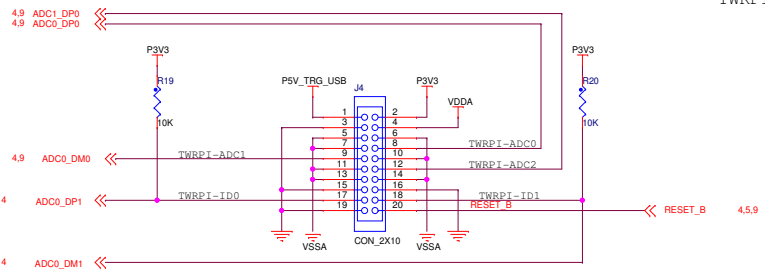
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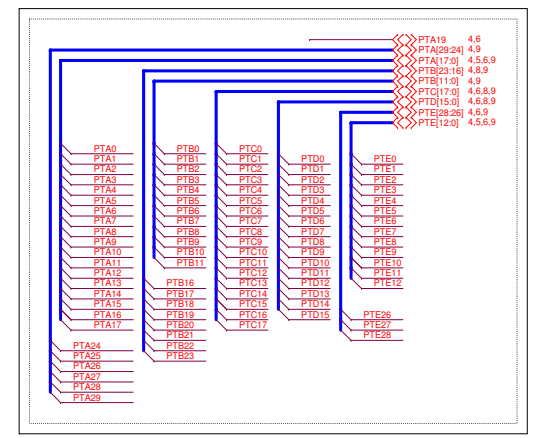
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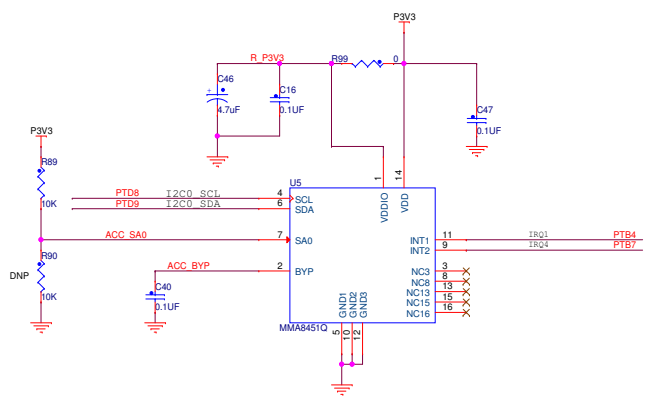
GENERAL PURPOSE
TWRPI



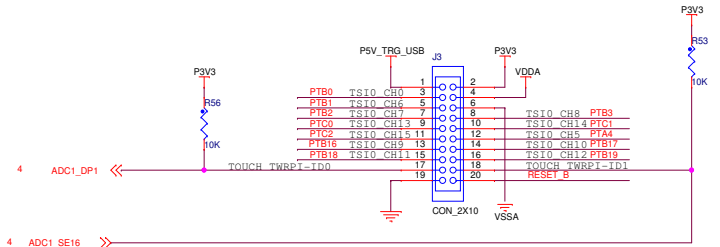
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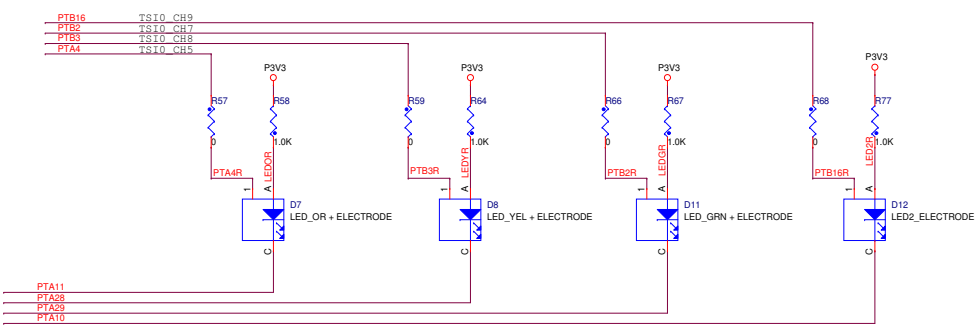
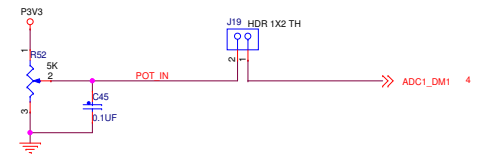
Accelerometer



TOUCH PAD
TWRPI



POTENTIOMETER



freescale
semiconductor

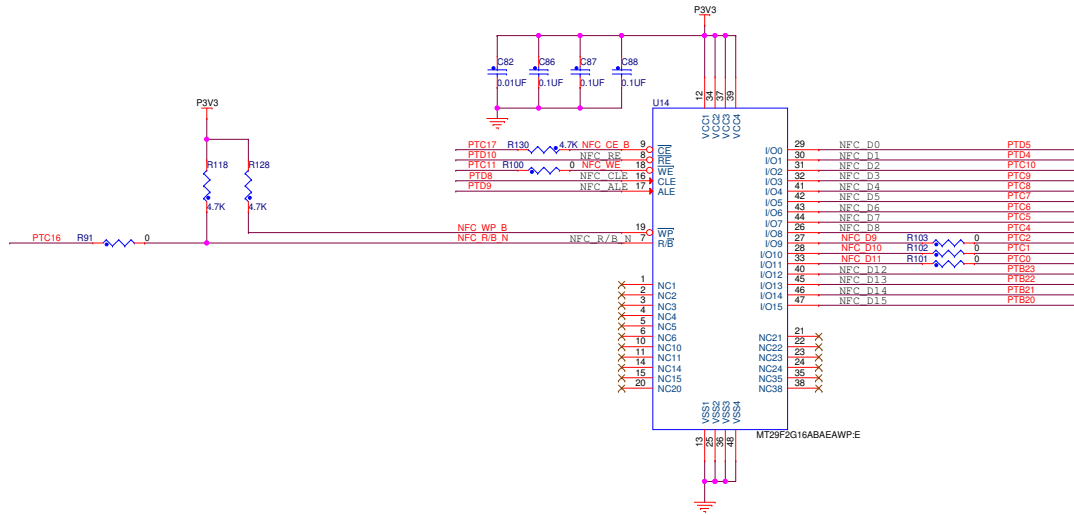
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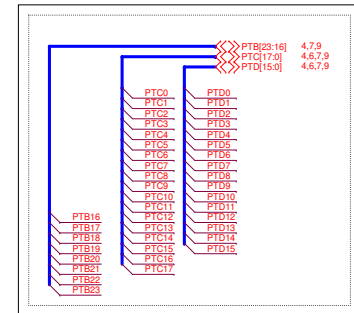
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NAND FLASH



Intersheet References



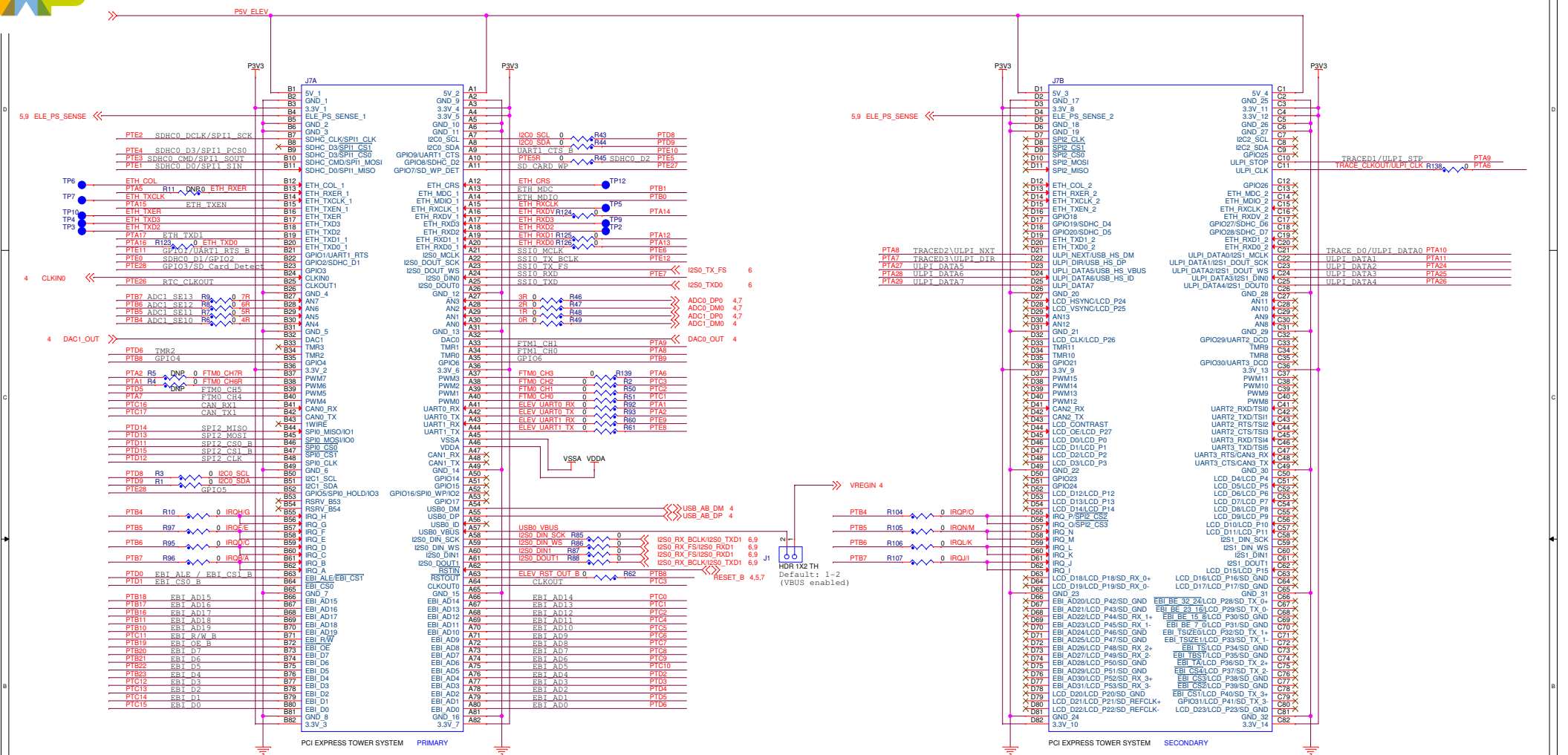
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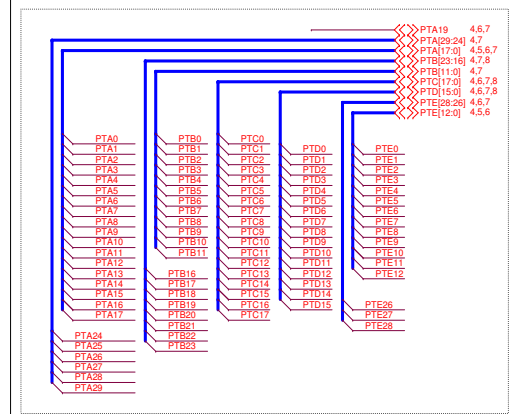
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Intersheet References



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