

MCIMX6SLEVK board

Table of Content

Page 1	Title and Rev History
Page 2	Block Diagram
Page 3	SYS Power
Page 4	PMIC
Page 5	iMX6SL Power
Page 6	iMX6SL SoC
Page 7	LPDDR2
Page 8	EMMC, SD and SPI NOR
Page 9	USB
Page 10	Audio
Page 11	LDC + EPDC Connectors
Page 12	Wireless
Page 13	MISC
Page 14	UART & JTAG
Page 15	ENET
Page 16	IOMUX
Page 17	
Page 18	
Page 19	

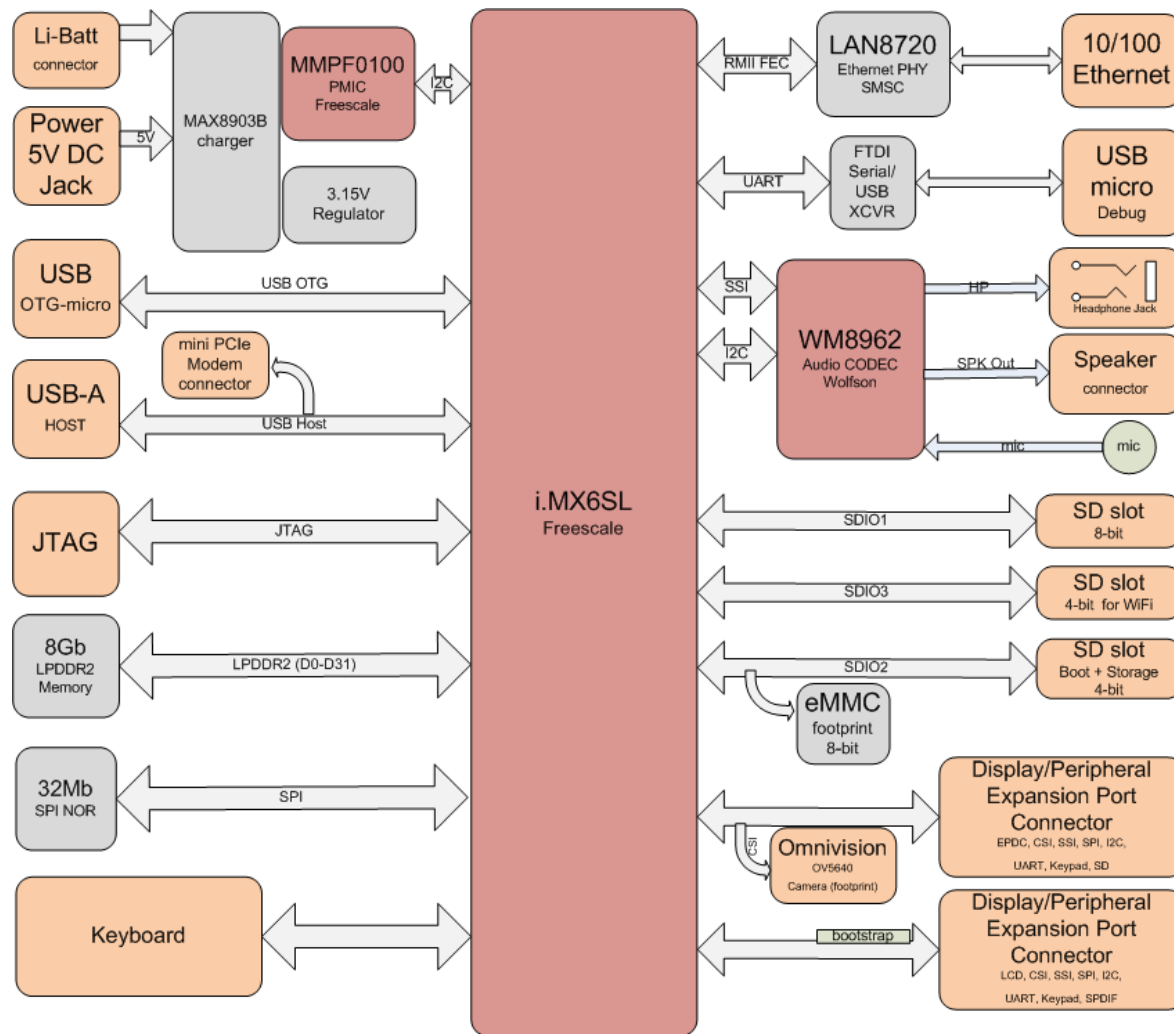
Revision History

Rev. Code	Date	Description
A	2012/05/11	Rev A
B	2012/09/27	<p>ENGR00225877. Replaced D24 with BAT54C-7-F ENGR00225876. DNP standoffs H1, H2, H3 and H4 ENGR00225878. Replaced R11, R129 and R130 with SH14, SH15 and SH16 respectively ENGR00225879.</p> <ol style="list-style-type: none"> 1. Replaced U3 - MMPF0100NPEP with MMPF0100F1EP 2. Replaced C23 (0.1uF, 0402) with 0.22uF, 0201 3. Added C410, C412 per PMIC datasheet 4. Replaced C40 (0.1uF, 0402) with 0.22uF, 0201 5. Replaced C27, C28 and C32 (0.1uF) with 0.22uF 6. Replaced C70 (22uF, 0603, 6.3V) with 47uF, 0805, 10V <p>ENGR00226044. Replaced P4 - WM-64PNT with WM-64PCT ENGR00226043. Replaced U2 - K4P6G304EB-AGC1 with MF42L256M32D2LG-25WT ENGR00225800.</p> <ol style="list-style-type: none"> 1. Replaced C146 (10uF) with 47uF 2. Replaced C159 and C160 (0402, 6.3V) with 0603, 10V <p>ENGR00225881.</p> <ol style="list-style-type: none"> 1. Move PMIC SW1AB feedback to the load side of SH2 to compensate for SH2 voltage drops during current measurement. 2. Move PMIC SW1C feedback to the load side of SH3 to compensate for SH3 voltage drops during current measurement. 3. Move PMIC SW2 feedback to the load side of SH1 to compensate for SH1 voltage drops during current measurement. 4. Move PMIC SW3 feedback to the load side of SH5 to compensate for SH5 voltage drops during current measurement. <p>ENGR00225088. Connected J12.117 to POR_B ENGR00226215. Renamed PFUSE_VIN net to PF0100_VIN ENGR00227037. Replaced all capacitors in PF0100_VIN net whose voltage rating is less than 10V with 10V capacitors: C46, C47, C66, C41, C48, C63, C58. ENGR00227038. Flipped the capacitors whose polarity was inverted: C4, C2, C11, C21, C36, C46, C47, C58, C66, C156, C166, C178, C218, C200. ENGR00223967:</p> <ol style="list-style-type: none"> 1. Added test points TP42, 43, 44 and 45 2. The following pins were changed to NC in J8: CLKREQ#, UIM_C8, UIM_C4W, SMB_CLK, SMB_DATA, LED_WLAN#, LED_WPAN#, Reserved1-8, Reserved10 3. DNP C140, C191, C192 and C210 <p>ENGR00229277: Y1 (CC7V-T1A) 9pF is selected as default/preferred part. However, 12pF version may be used for production board. ENGR229701:</p> <ol style="list-style-type: none"> 1. Removed R195. 2. Replaced C152 (150uF) with 2.2uF
B1	2013/01/08	ENGR00240019: DNP R51 and R53. Populate R52 and R54



ICAP Classification: FCP: FUC: X PUB:	
Drawing Title: MCIMX6SLEVK board	
Page Title: Title and Rev History	
Size C	Document Number SCH-27452 PDF: SPF-27452
Date: Monday, January 14, 2013	Sheet 1 of 16
	Rev B1

MCIMX6SLEVK board Diagram

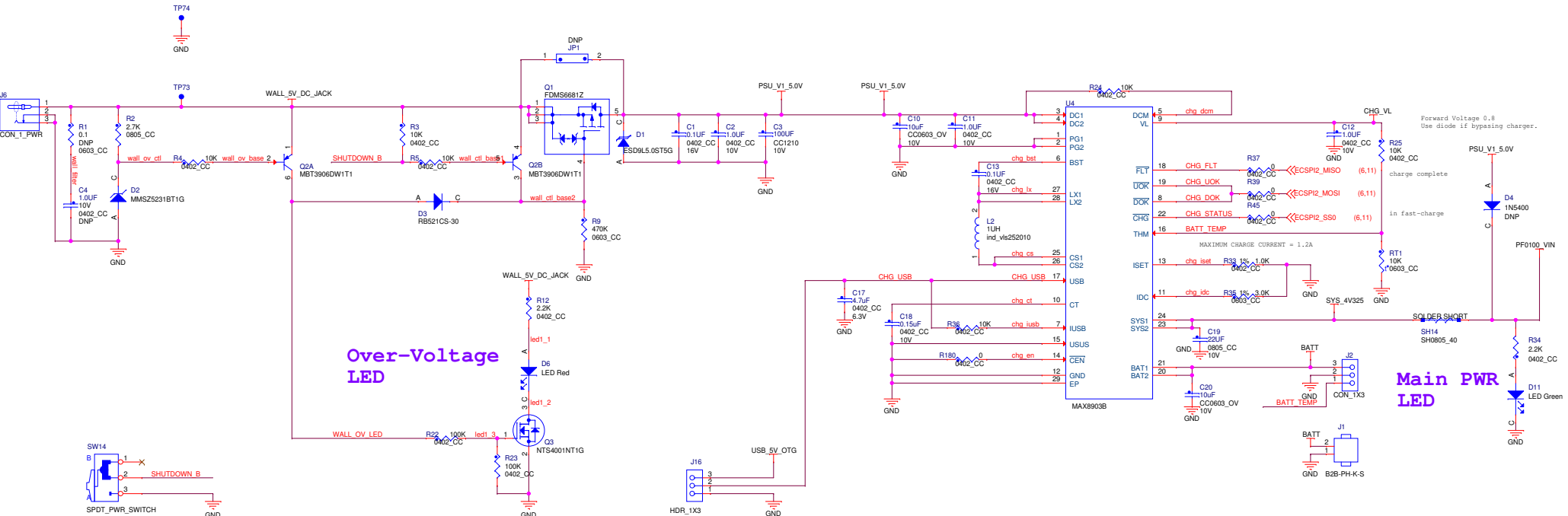


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Drawing Title: MCIMX6SLEVK board	
Page Title: Block Diagram	
Size B	Document Number SCH-27452 PDF: SPF-27452
Date: Tuesday, January 08, 2013	Rev B1

DC JACK 5V

Over Voltage Protection

Lithium Charger



PWR Cut Switch For SW Development

Secondary Charge Source USB or Wireless Charger

Lithium single cell battery connectors

Note:
Shunt 2-3 to experiment with USB charging.
Use cable to pins 1 and 2 to experiment with wireless charging

NEED TO FIGURE OUT THIS BETTER
PWRCTRL3 is the capacitive touch interrupt.
MISO and SSO might be OK.
must permanently decide to eliminate ability to use
Also should use pullups inside the processor

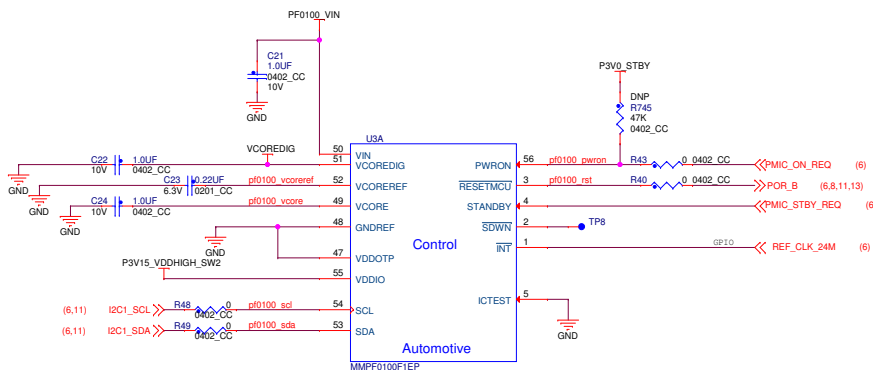
freescale

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 Drawing Title: **MCIMX6SLEVK board**
 Page Title: **SYS Power**
 Size: _____ Document Number: SCH-27452 PDF: SPF-27452 Rev: B1
 Date: Tuesday, January 08, 2013 Sheet 3 of 16

Freescale MMPF0100NPEP PMIC

Note: MMPF0100 erratum ER19 can affect some of the systems, depending on the system characteristics. Please check this erratum and its workaround to see if applies.

Note: This device is factory configurable for voltage and timings. This reference design is configured to run from factory pre-programmed parts. Ordering selections with common i.MX6SL voltages/timings are available. Please check the device datasheet for latest ordering info.

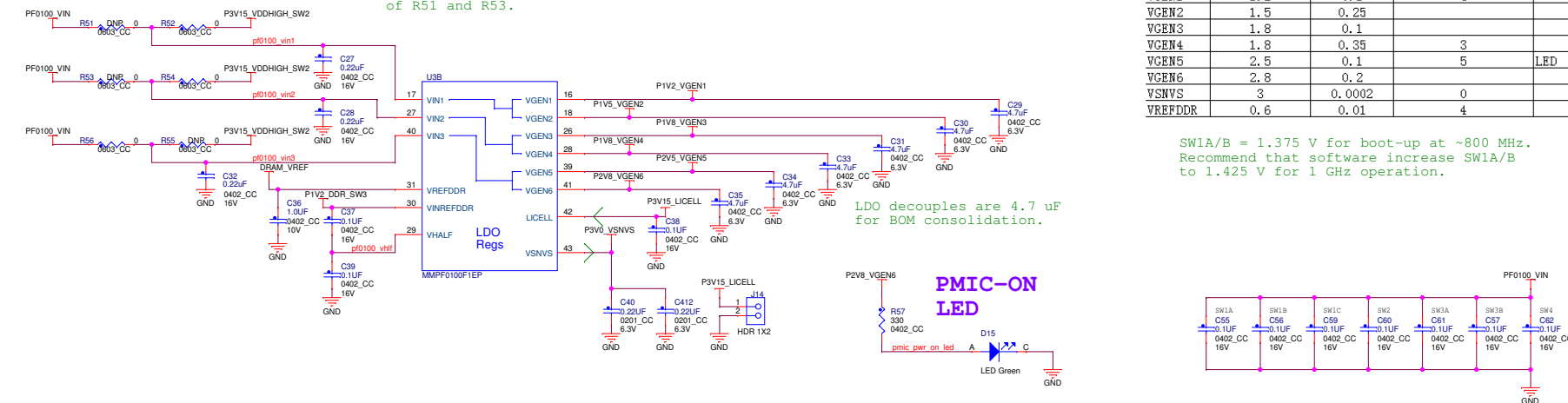


With low-inductive paths between VIN the voltage sources, either 0.22 uF or 0.47 uF may be used.

MMPF0100 no longer supports 4.5V for regulation voltage. Make sure to populate R52 and R54 instead of R51 and R53.

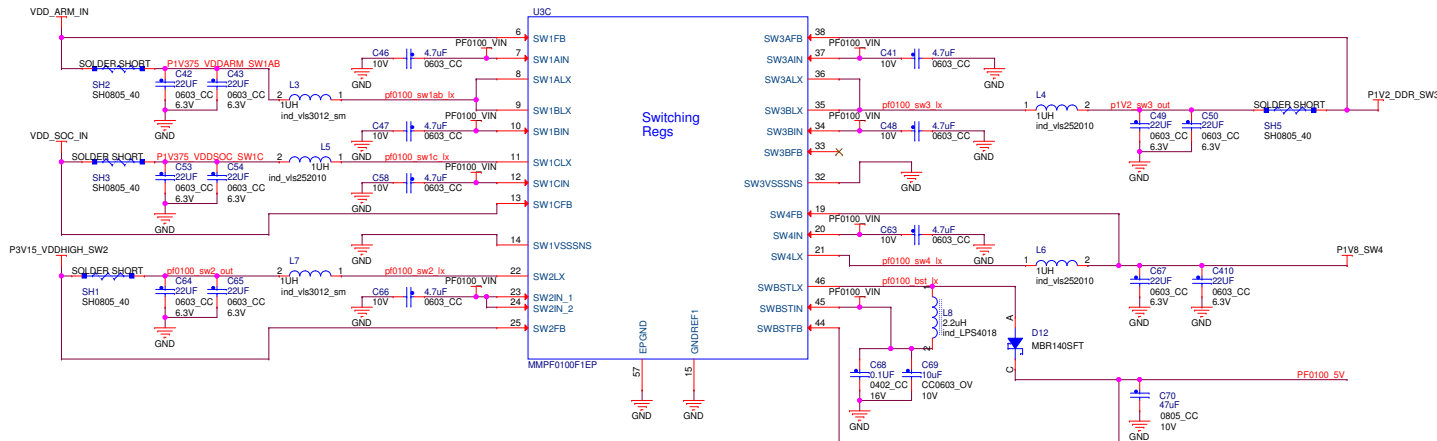
PMIC output rails				
PF0100	Voltage(V)	Current(A)	Power up sequence	Note
SW1A/B	1.375	2.5	1	
SW1C	1.375	1.7	1	
SW2	3.15	2	2	
SW3A/B	1.2	2.5	4	
SW4	1.8	1	3	
SWBST	5	0.6		
VGEN1	1.2	0.1	4	
VGEN2	1.5	0.25		
VGEN3	1.8	0.1		
VGEN4	1.8	0.35	3	
VGEN5	2.5	0.1	5	LED
VGEN6	2.8	0.2		
VSNSVS	3	0.0002	0	
VREFDDR	0.6	0.01	4	

SW1A/B = 1.375 V for boot-up at ~800 MHz. Recommend that software increase SW1A/B to 1.425 V for 1 GHz operation.



LDO decouples are 4.7 uF for BOM consolidation.

PMIC-ON LED



Note: Switcher currents and optimum inductor sizes vary depending on application. Please refer to the latest part datasheet for inductor recommendations.

Note: J17 Shunt 1-2 for SYS_5V from PMIC: 600mA limited Shunt 2-3 for SYS_5V from wall adapter

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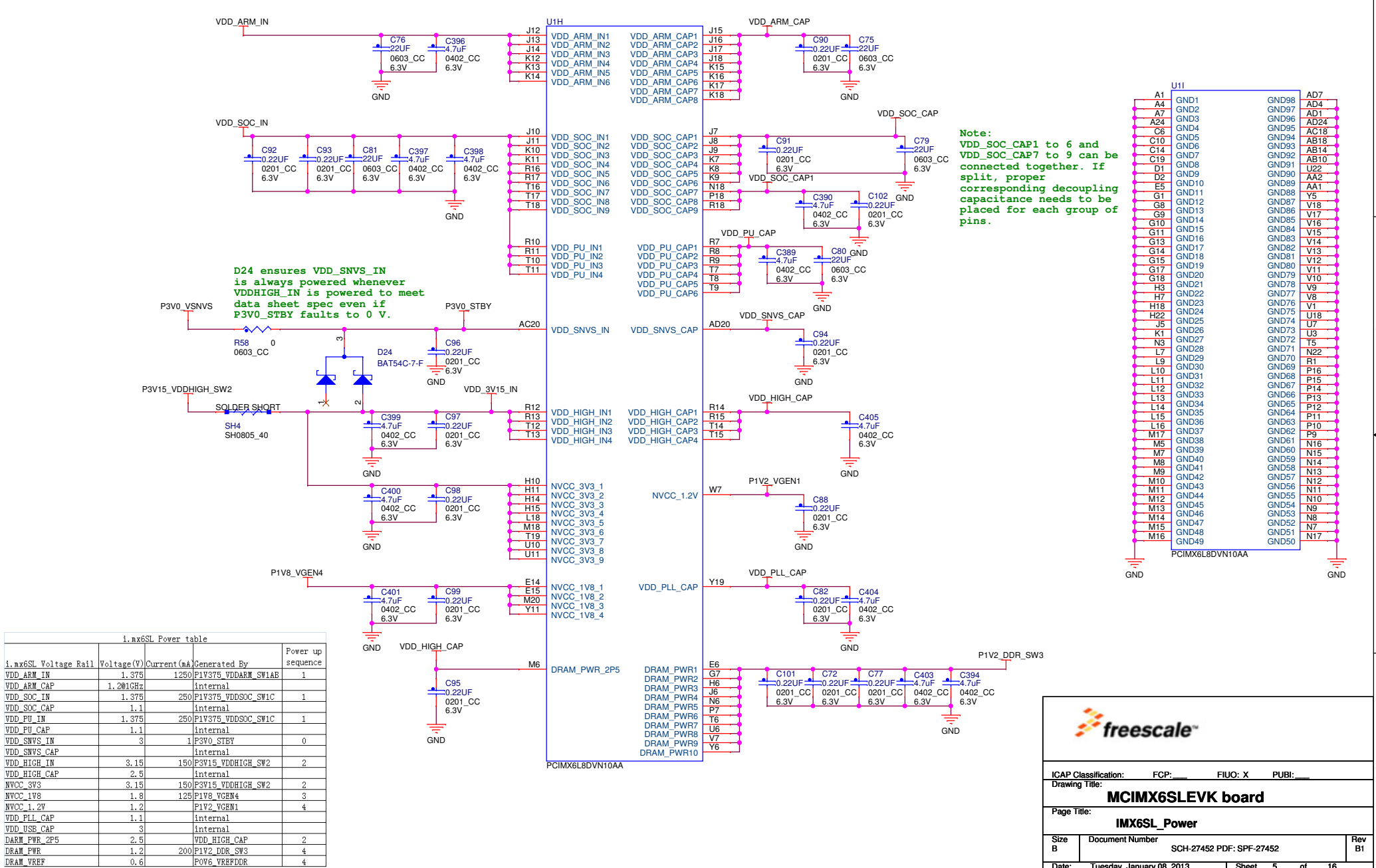
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Drawing Title: **MC1MX6SLEVK board**

Page Title: **PMIC**

Size C	Document Number	Rev B1
	SCH-27452 PDF: SPF-27452	

Date: Tuesday, January 08, 2013 Sheet 4 of 16



i.mx6SL Power table				
i.mx6SL Voltage Rail	Voltage(V)	Current(mA)	Generated By	Power up sequence
VDD_ARM_IN	1.375	1250	P1V375_VDDARM_SW1A	1
VDD_ARM_CAP	1.201CHz		internal	
VDD_SOC_IN	1.375	250	P1V375_VDDSOC_SW1C	1
VDD_SOC_CAP	1.1		internal	
VDD_PU_IN	1.375	250	P1V375_VDDSOC_SW1C	1
VDD_PU_CAP	1.1		internal	
VDD_SNV_IN	3	1	P3V0_STBY	0
VDD_SNV_CAP			internal	
VDD_HIGH_IN	3.15	150	P3V15_VDDHIGH_SW2	2
VDD_HIGH_CAP	2.5		internal	
NVCC_3V3	3.15	150	P3V15_VDDHIGH_SW2	2
NVCC_1V8	1.8	125	P1V8_VGEN4	3
NVCC_1.2V	1.2		P1V2_VGEN1	4
VDD_PLL_CAP	1.1		internal	
VDD_USB_CAP	3		internal	
DRAM_PWR_2P5	2.5		VDD_HIGH_CAP	2
DRAM_PWR	1.2	200	P1V2_DDR_SW3	4
DRAM_VREF	0.6		POV6_VREFDDR	4

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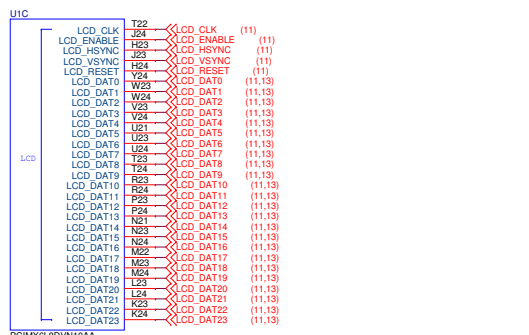
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Page Title: **IMX6SL_Power**

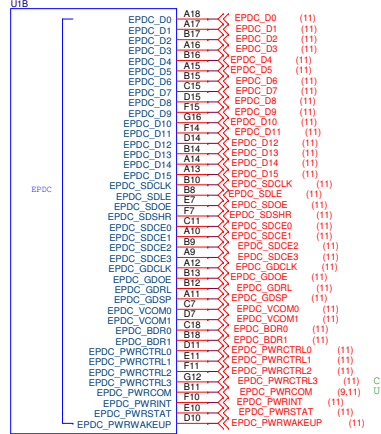
Size B	Document Number	SCH-27452 PDF: SPF-27452	Rev B1
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Date: Tuesday, January 08, 2013 Sheet 5 of 16

i.MX6SL LCD

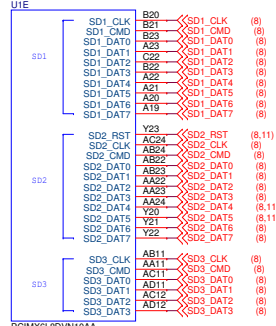


EPDC

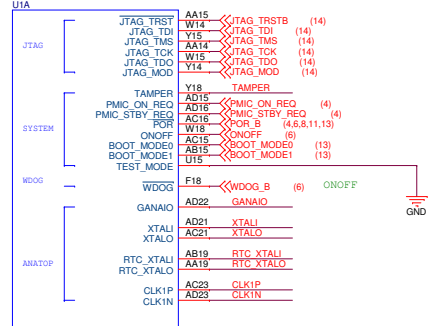


Capacitive Touch Interrupt
USB_OTG1_ID

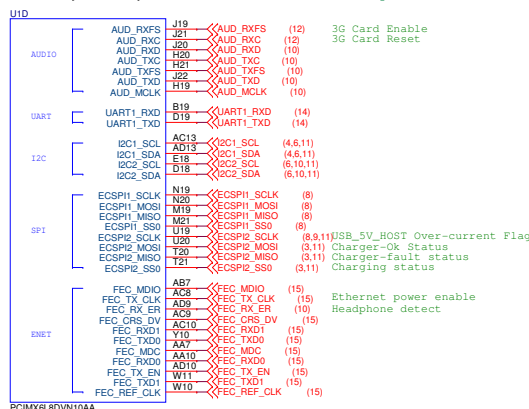
SD



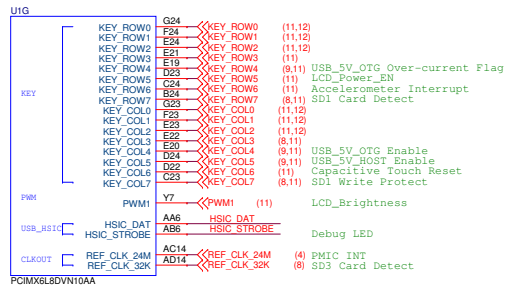
Control



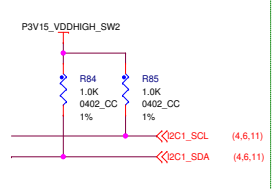
Audio,UART,FEC



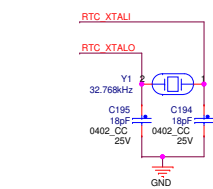
Keypad,HSIC,PWM



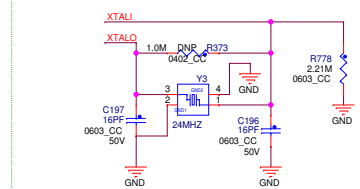
I2C pullups



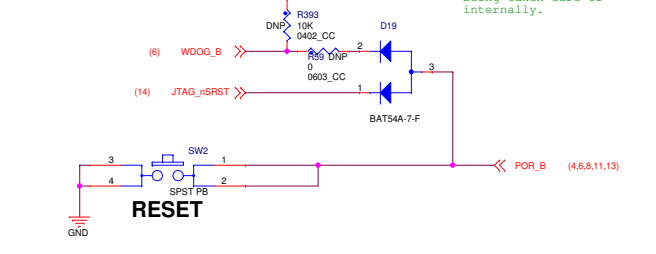
32.768kHz



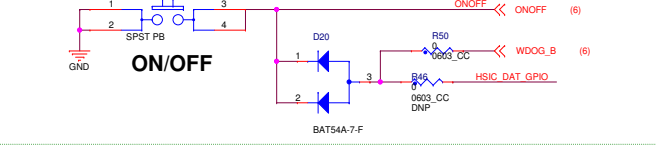
24MHz



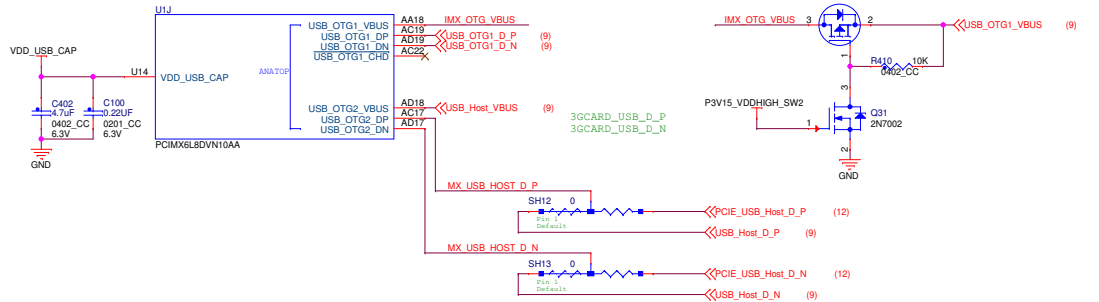
POR Reset



On/Off



USB



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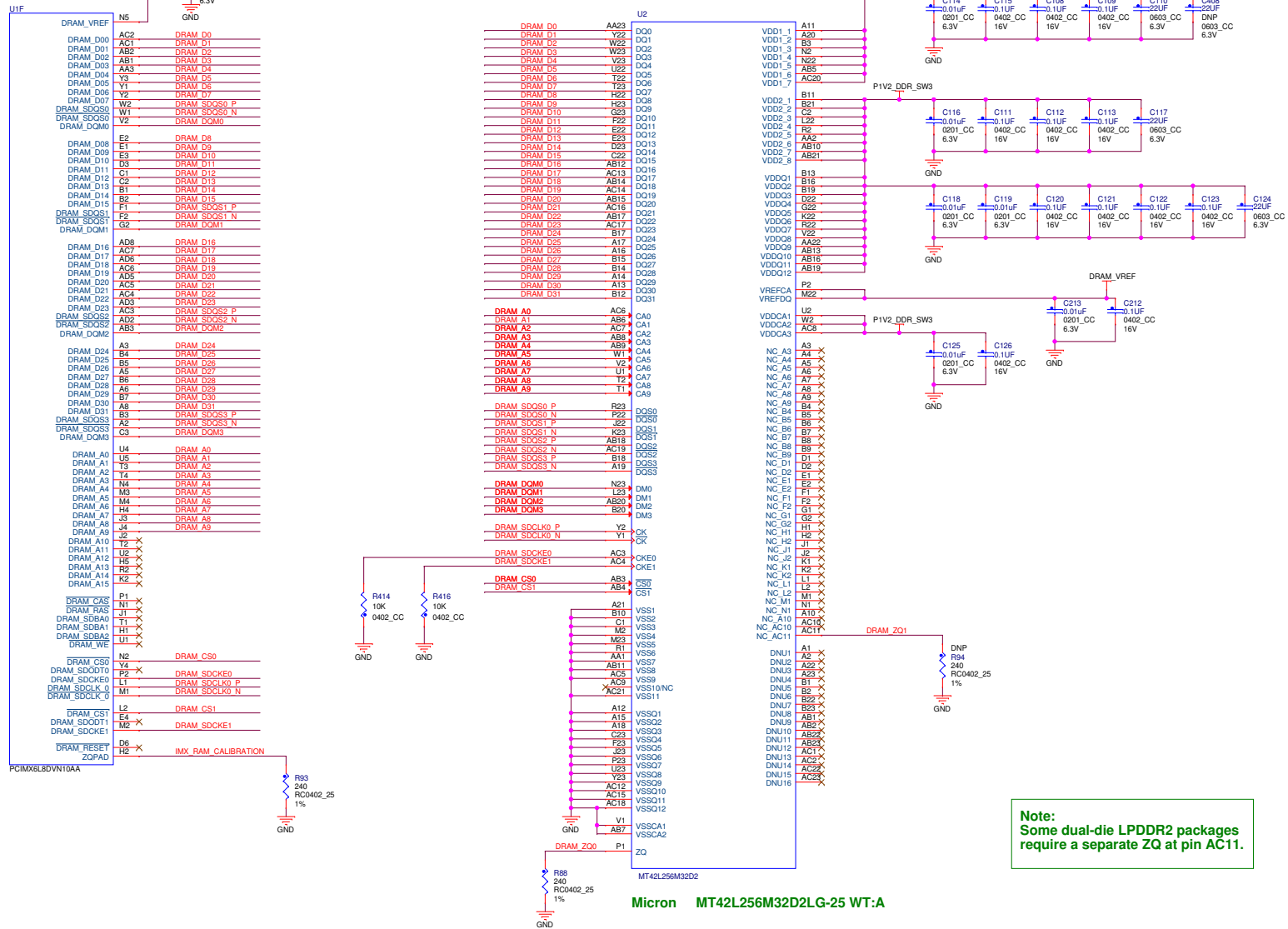
Page Title: **IMX6SL SoC**

Size C	Document Number SCH-27452 PDF: SPF-27452	Rev B1
Date: Tuesday, January 08, 2013	Sheet 6 of 16	

i.MX6SL
DDR

LPDDR2

8Gb 400MHz clock



Note:
Some dual-die LPDDR2 packages
require a separate ZQ at pin AC11.

Micron MT42L256M32D2

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MCIMX6SLEVK board

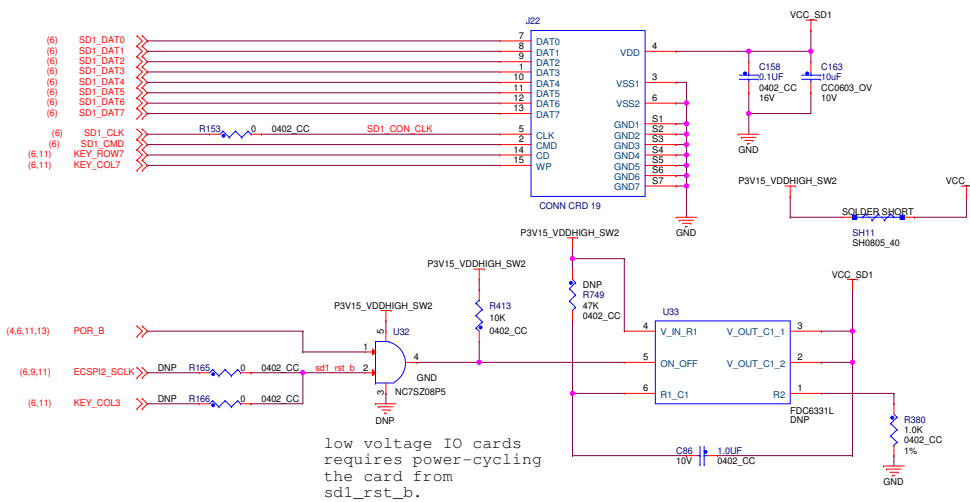
LPDDR2

Size C Document Number SCH-27452 PDF: SPF-27452 Rev B1

Date: Tuesday, January 08, 2013 Sheet 7 of 16

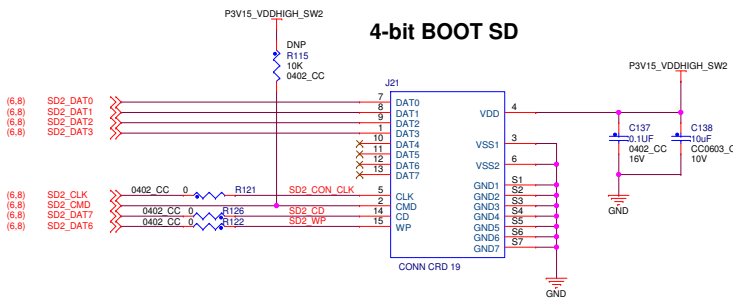
SD1 - For Primary External Card Slot

8-bit SD



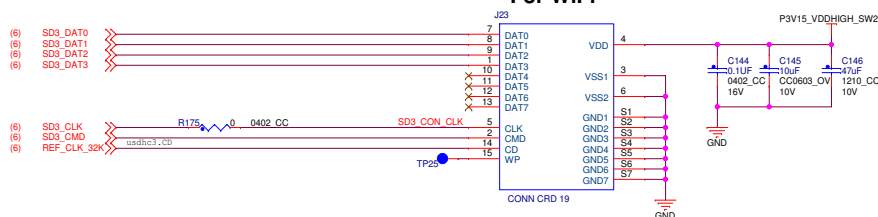
SD2 - For Boot Code

4-bit BOOT SD



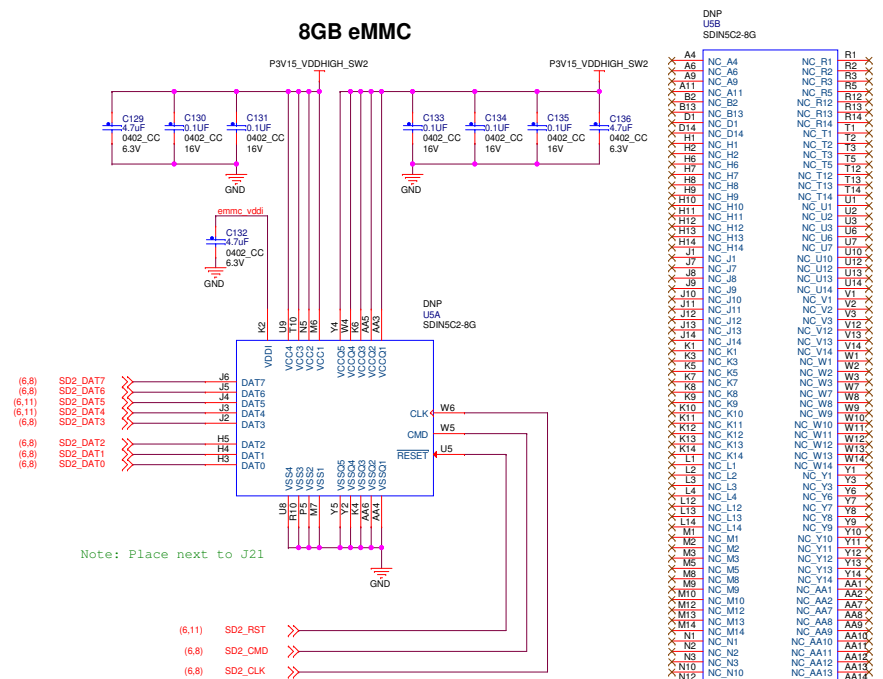
SD3 - for WiFi and SD Accessories

For WiFi

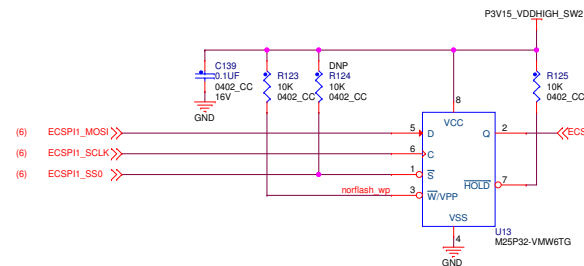


eMMC Footprint

8GB eMMC



4MB SPI NOR FLASH



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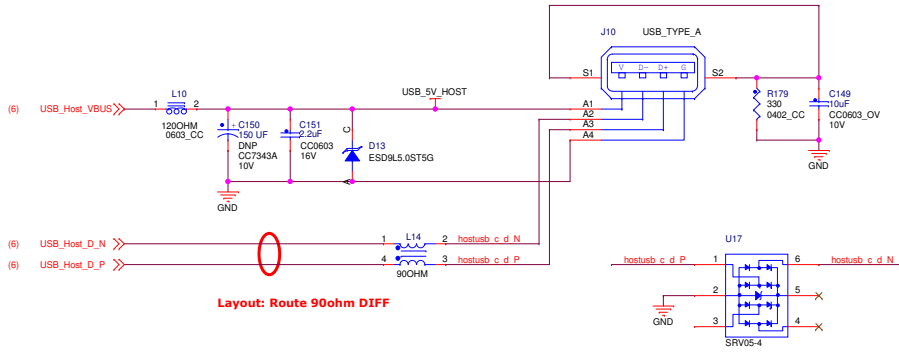
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Page Title: **EMMC, SD and SPI NOR**

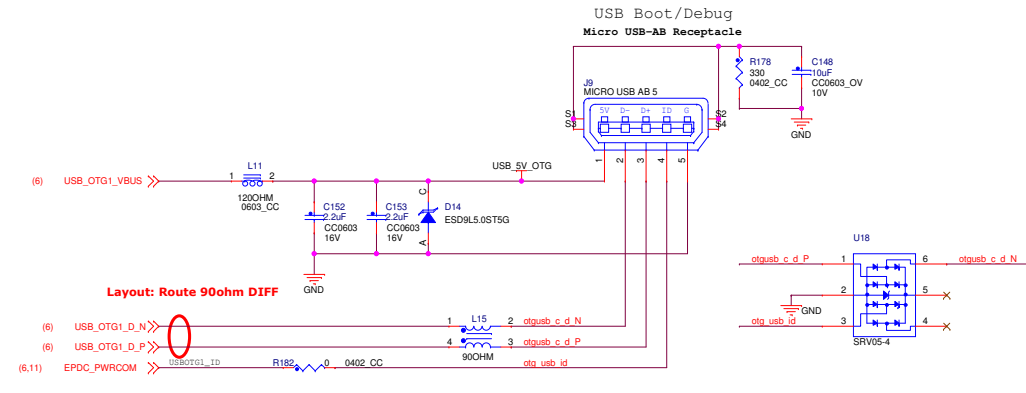
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Date: Tuesday, January 08, 2013 Sheet 8 of 16

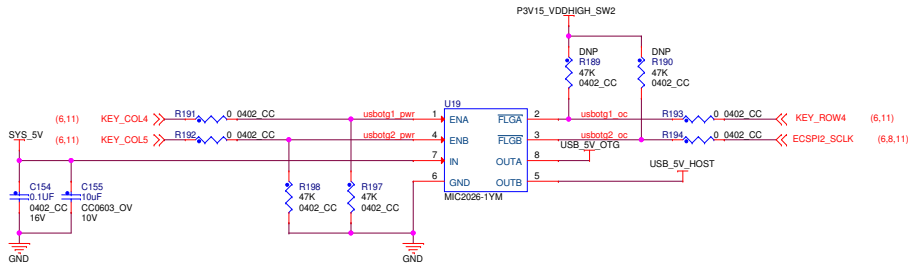
USB Host Port



USB Boot/Host/Device Port



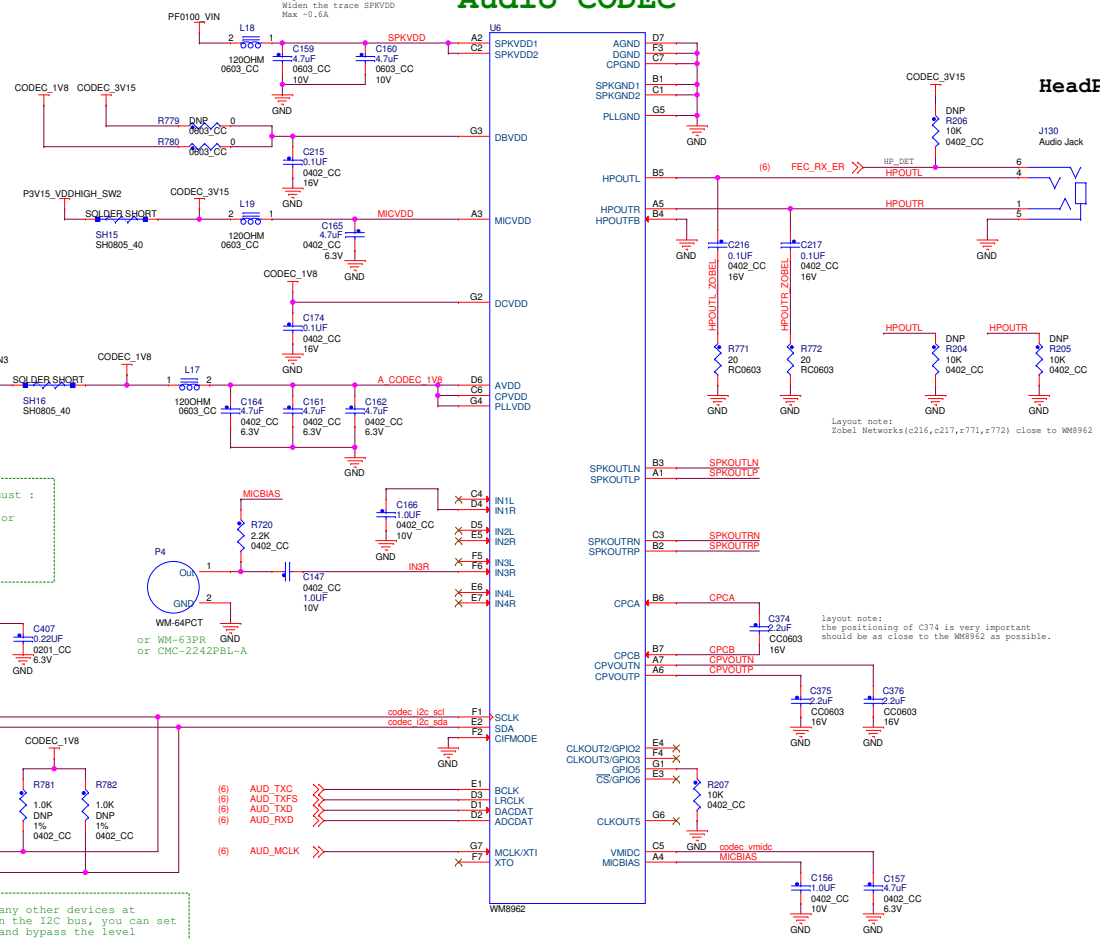
USB 5V Control



ICAP Classification: FCP: FIUC: X PUBI:			
Drawing Title: MCIMX6SLEVK board			
Page Title: USB			
Size C	Document Number SCH-27452 PDF: SPF-27452	Rev B1	
Date: Tuesday, January 08, 2013	Sheet 9	of 16	

Audio CODEC

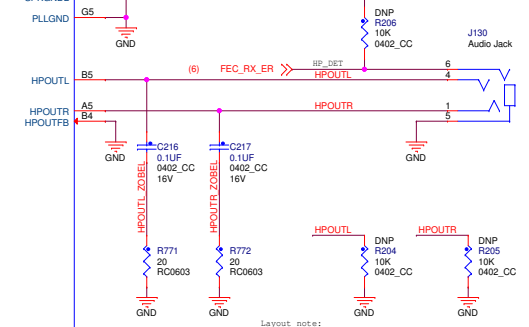
Layout note:
Hide the trace SPKVDD
Max = 0.6A



When bypassing the I2C level shifter you must :
 - change the DBVDD supply voltage to 3V15
 - change the MX68R10 pin supply voltage for all the codec digital pins
 - I2C2_SCL, & SDA
 - AUD_TXC, TXFS, TXD, RDX, & MCLK

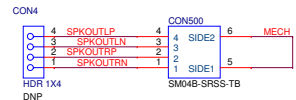
If you do not have any other devices at greater than 1.8V on the I2C bus, you can set the powers to 1.8V and bypass the level shifter. You will need to remove the 3V15 pull-ups on sheet 6 (R86 and R87).

HeadPhone



Layout note:
Zobel Networks (c216,c217,r771,r772) close to WM8962

Speaker Out

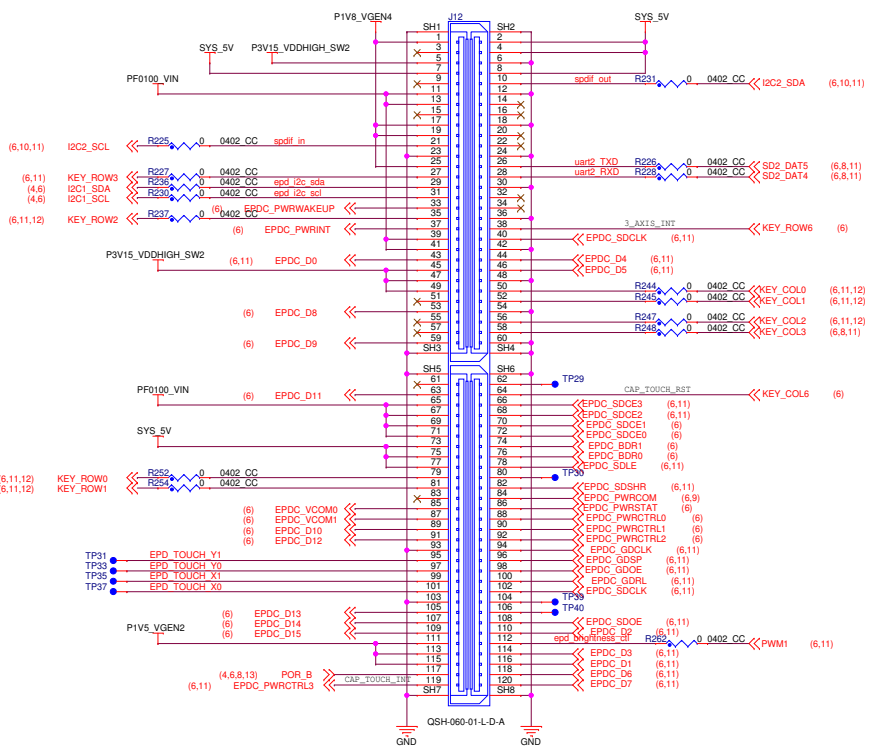


layout note:
the positioning of C374 is very important should be as close to the WM8962 as possible.

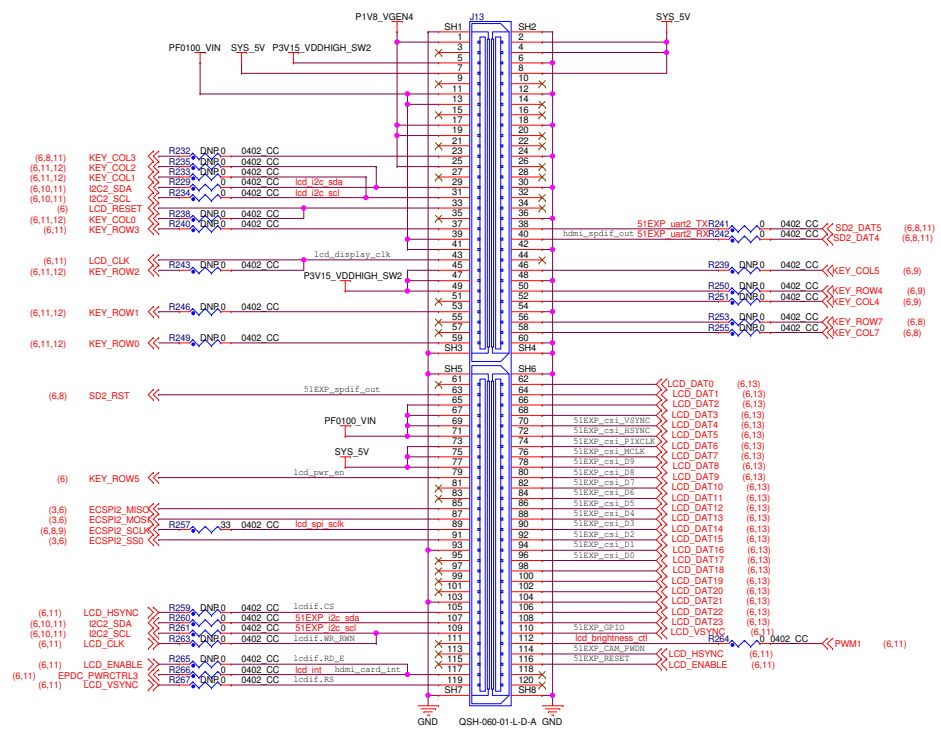


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Drawing Title: MCIMX6SLEVK board			
Page Title: Audio			
Size C	Document Number SCH-27452 PDF: SPF-27452	Rev B1	
Date:	Tuesday, January 08, 2013	Sheet 10	of 16

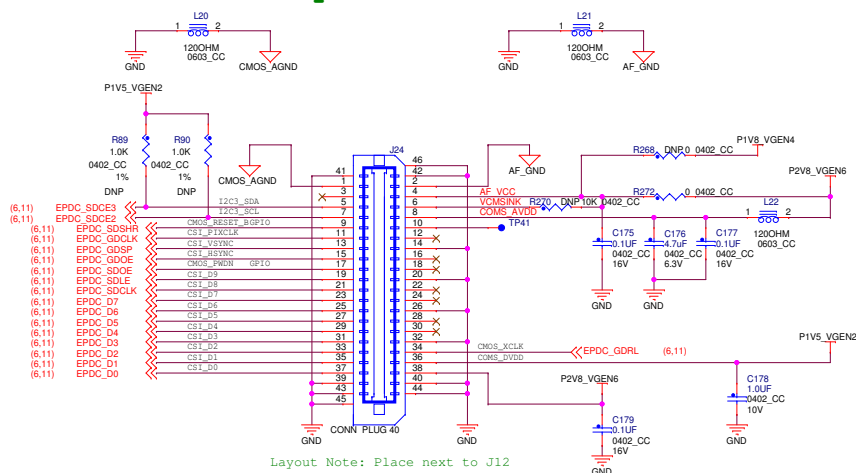
EPDC Expansion Port



LCD Expansion Port



Camera Expansion Connector



Layout Note: Place next to J12

Use Omnivision OV5642 5M Pixel Sensor with this connector (not included)

Important Note:

The camera connector (J24) and the EPDC connector (J12) share the same signals and CANNOT be used at the same time.

One of these two peripherals MUST BE REMOVED when a developer wishes to use the other.



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Drawing Title:

MCIMX6SLEVK board

Page Title:

Video

Size Document Number

SCM-27452 PDF: SPP-27452

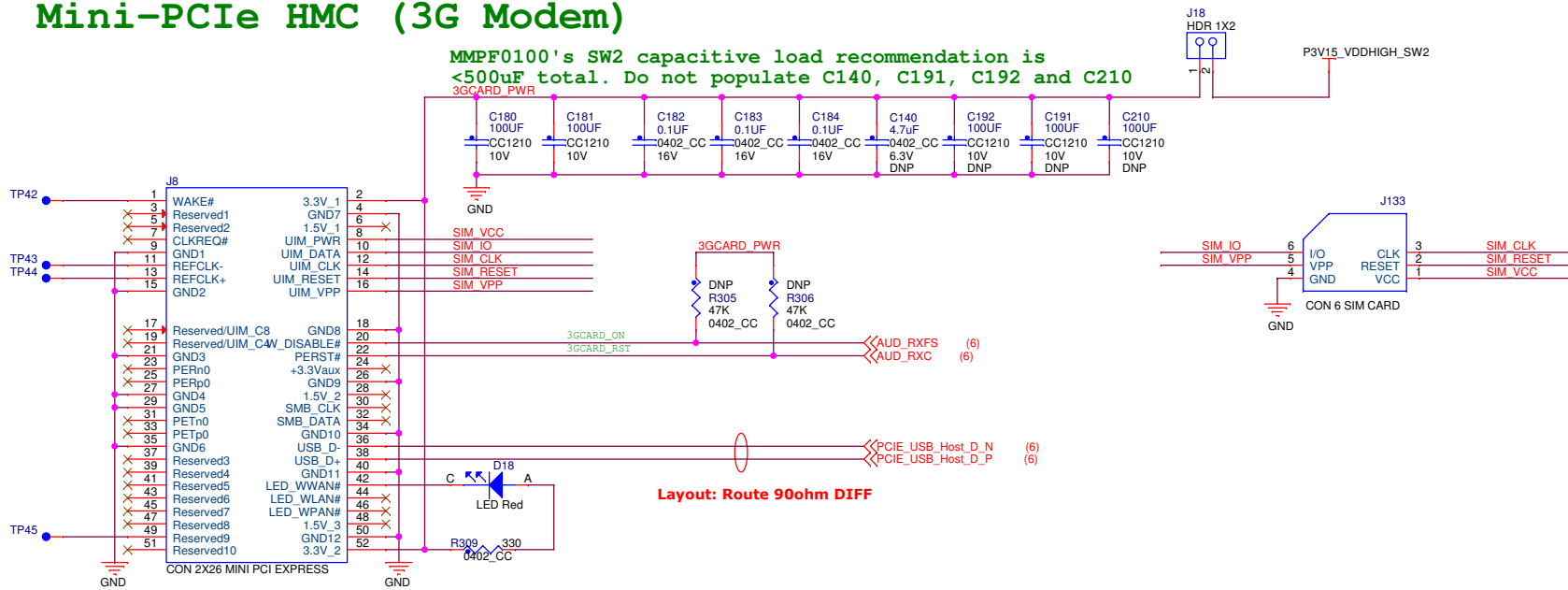
Date: Tuesday, January 08, 2013

Sheet 11 of 16

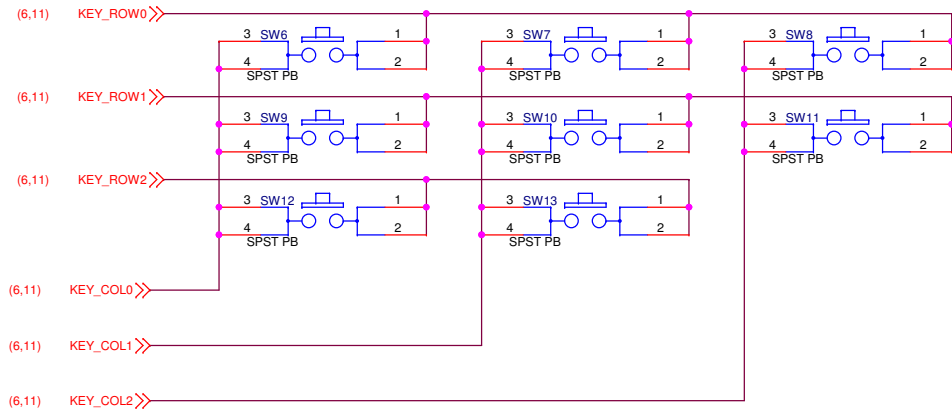
Rev B1

Mini-PCIE HMC (3G Modem)

MMPF0100's SW2 capacitive load recommendation is <500uF total. Do not populate C140, C191, C192 and C210

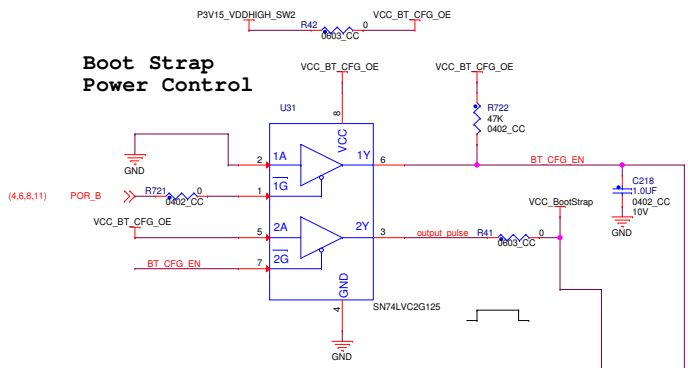


Button Matrix



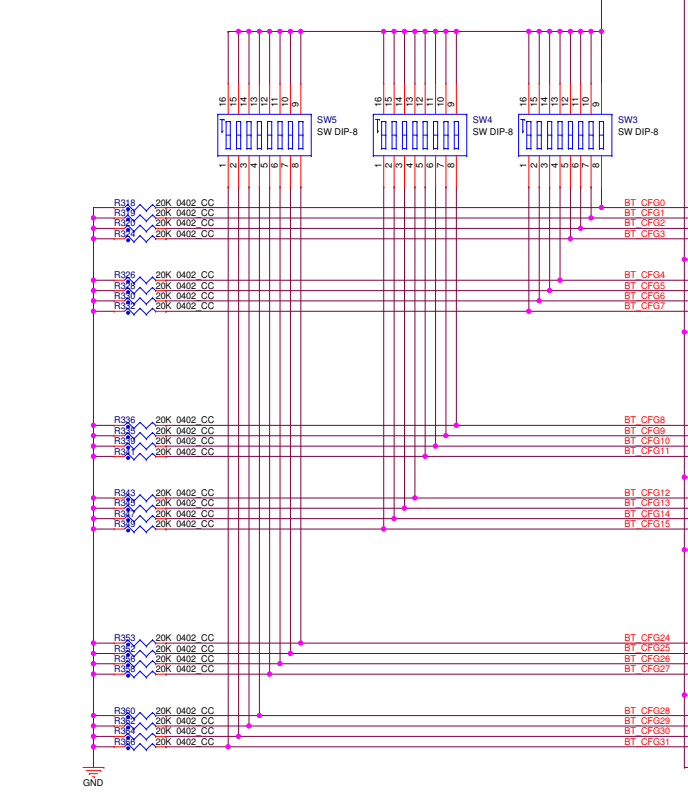
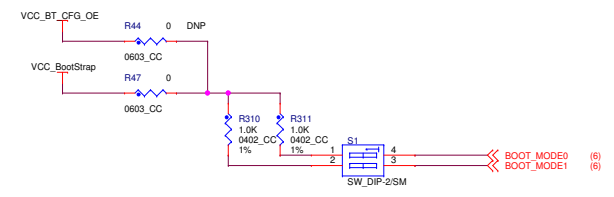
ICAP Classification: FCP: _____ FIUC: X PUBI: _____		
Drawing Title: MCIMX6SLEVK board		
Page Title: Wireless		
Size B	Document Number SCH-27452 PDF: SPF-27452	Rev B1
Date: Tuesday, January 08, 2013	Sheet 12 of 16	

Boot Strap

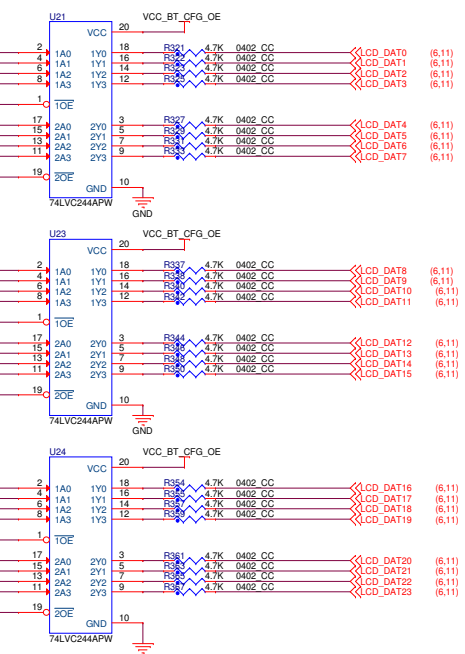


Note:
i.MX6SL reads values approximately 300uS to 1mS after reset released. Buffers are active while unit is in reset and 1ms-10ms after reset is released.

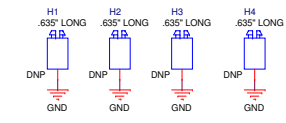
Boot Strap Primary Switches



Bus isolation

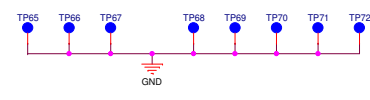


Board Mounting Holes for 4-40 Screws



IMPORTANT NOTE :
Use non metallic or non conducting standoff to avoid board damage due to GND potential difference with chassis.

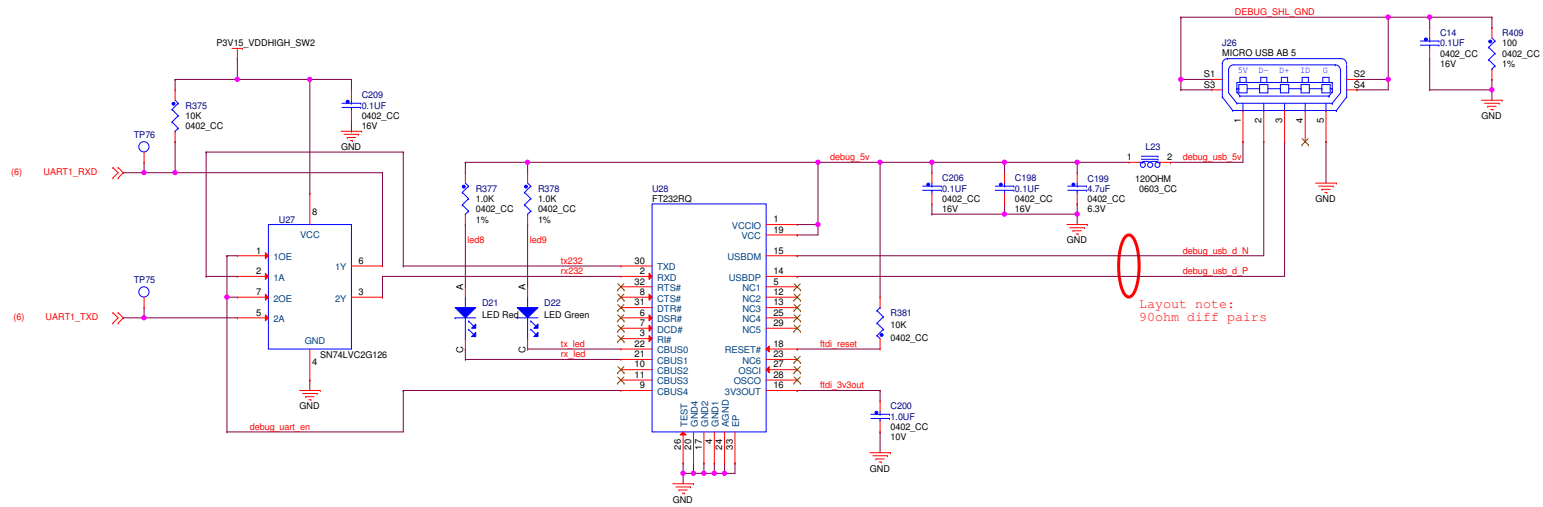
GND TEST POINTS



ICAP Classification: FCP: FIUC: X PUBL:	
Drawing Title: MCIMX6SLEVK board	
Page Title: MISC	
Size C	Document Number SCH-27452 PDF: SPF-27452
Date: Tuesday, January 08, 2013	Sheet 13 of 16

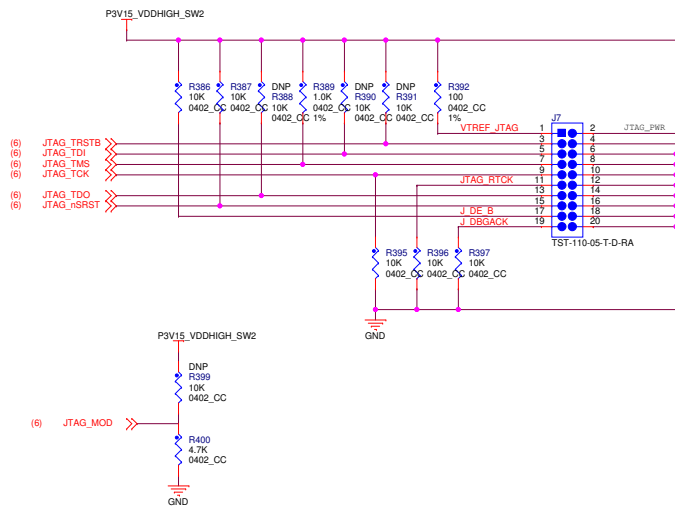
Rev B1

Debug UART2USB Converter

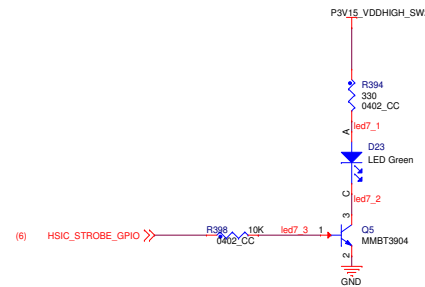


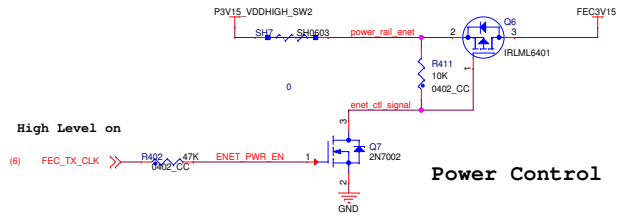
For driver installation, please refer to <http://www.ftdichip.com/Documents/InstallGuides.htm>

JTAG

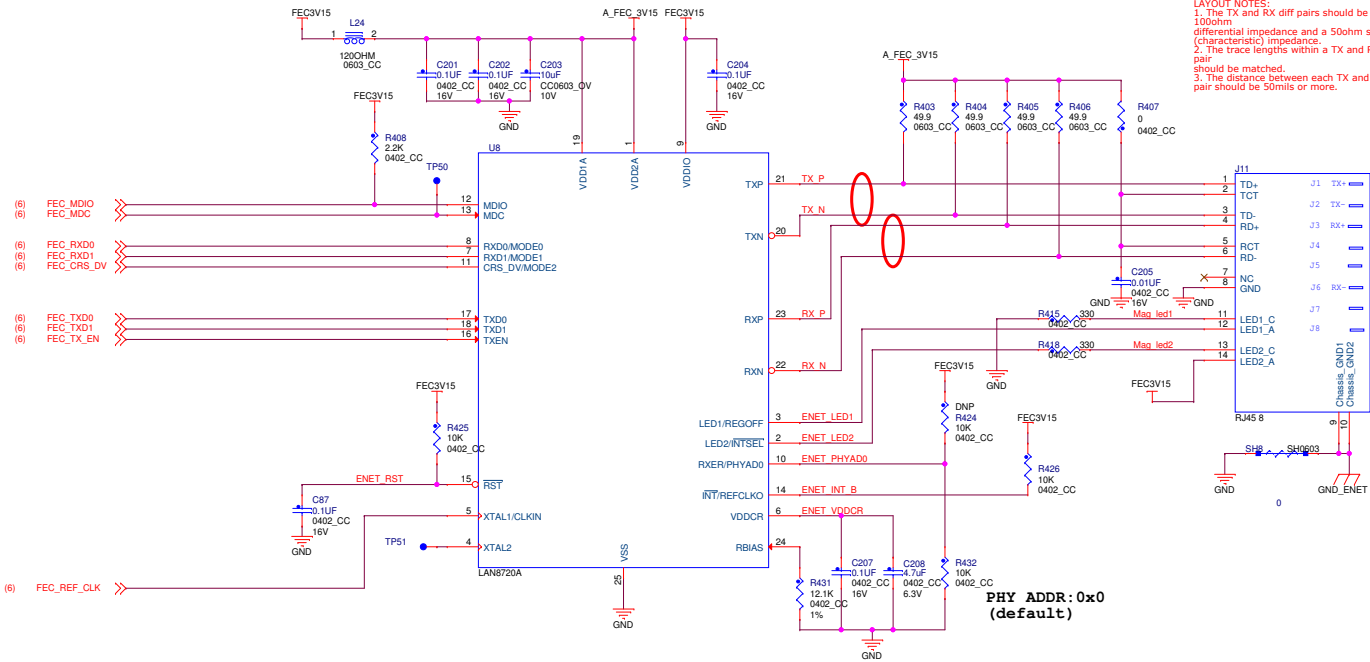


Debug LED





Ethernet



- LAYOUT NOTES:**
1. The TX and RX diff pairs should be routed with a 100ohm differential impedance and a 50ohm single ended (characteristic) impedance.
 2. The trace lengths within a TX and RX differential pair should be matched.
 3. The distance between each TX and RX differential pair should be 50mils or more.

GND_ENET is a small isolated GND plane which should extend under RJ45 connector



ICAP Classification: FCP:		FIUC: X	PUBL:
Drawing Title: MCIMX6SLEVK board			
Page Title: ENET			
Size C	Document Number SCH-27452 PDF: SPF-27452	Rev B1	
Date: Tuesday, January 08, 2013	Sheet 15	of 16	

