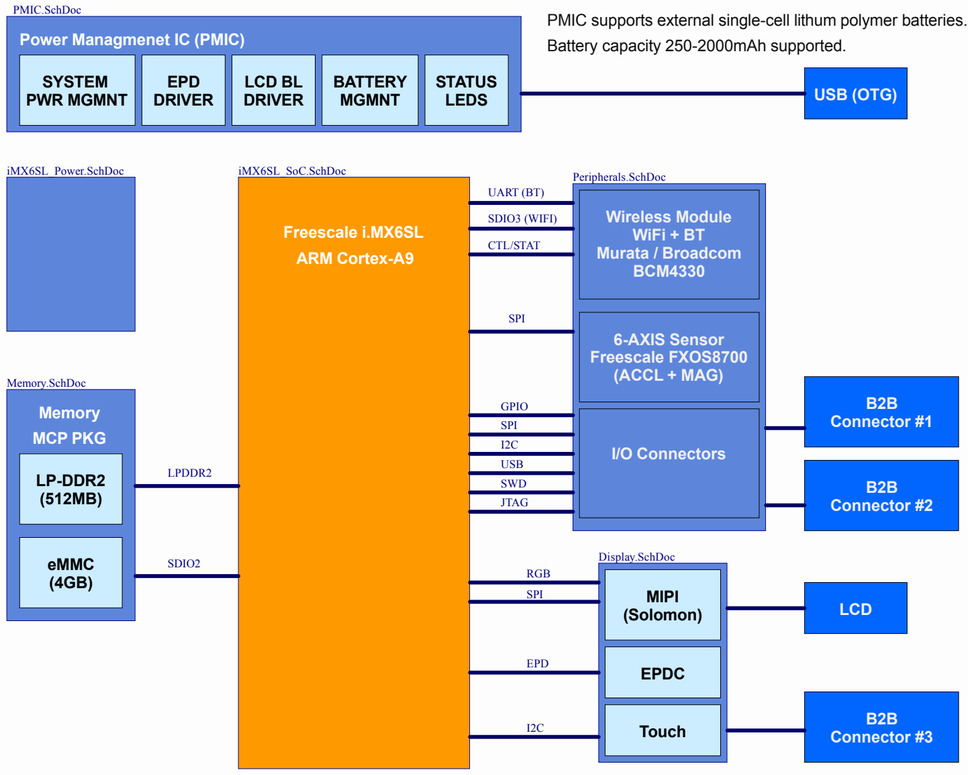
WaRP Mainboard Schematics

The Wearable Reference Platform (WaRP) has been developed in conjunction with Freescale, Kynetics, and Revotics. The hardware is designed by Revotics and is maintained and licensed under a Creative Commons Attribution-ShareAlike 4.0 International License. For the latest information, please visit our website at: http://revotics.com/warp

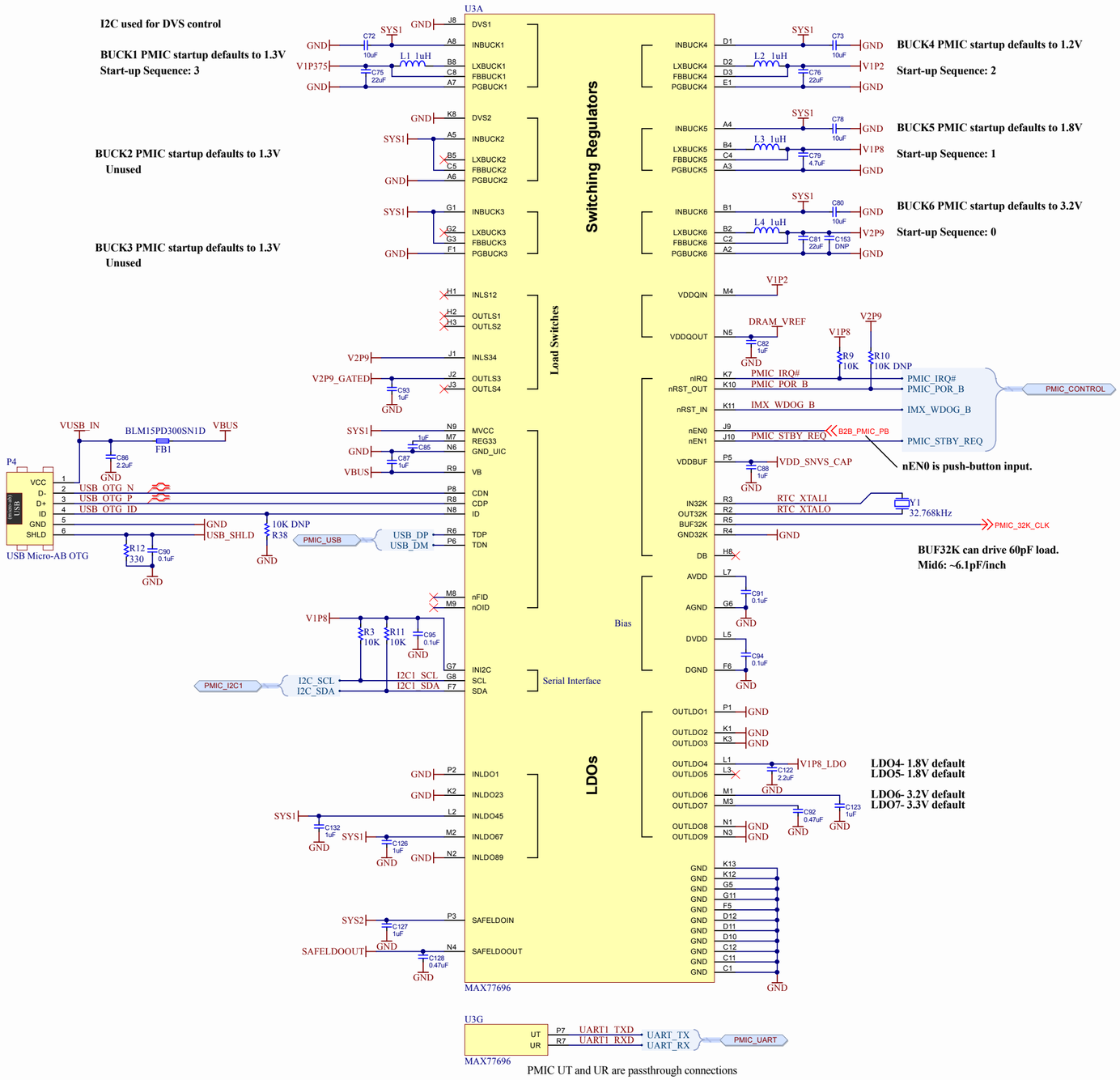
Schematic Overview



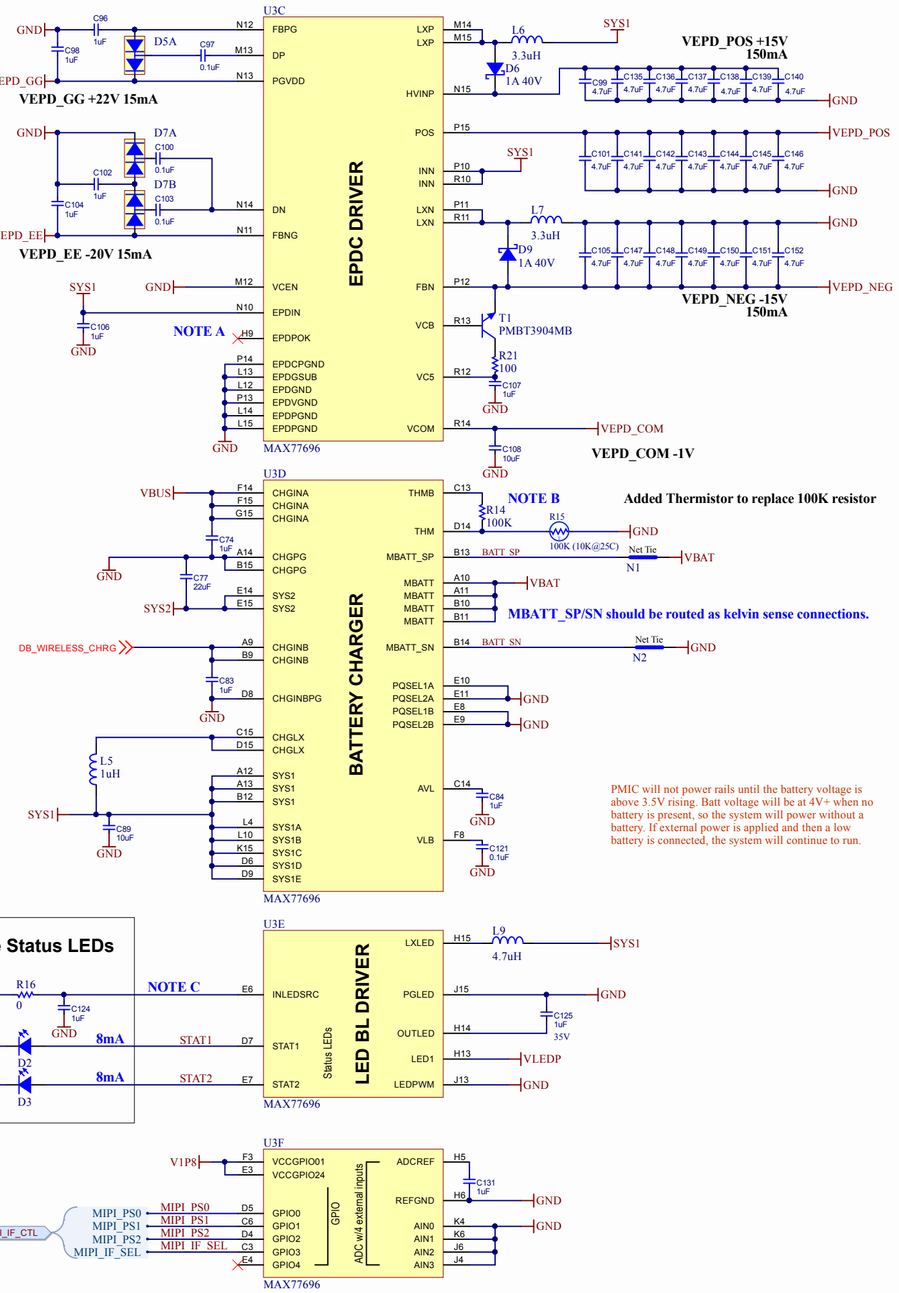
Document History

Date	Comment	Revision
01/15/2015	Initial Public Release	v1.11

Project Name: WaRP Mainboard			REVO
Title: Overview		Revision: v1.11	Author: Revolution Robotics, Inc. revotics.com
Filename: SystemLevelBlocks.SchDoc			Please visit our site for support and additional info.
Date: 1/14/2015	Sheet Number: 1 of 7		



PMIC UT and UR are passthrough connections



PMIC Output Connections

V1P375V - 1400mA

VDD_ARM	1100mA	iMX6SL
VDD_SOC	650mA	iMX6SL
VDD_PU	150mA	iMX6SL

V1P2V - 610mA

NVCC_DRAM	400mA	iMX6SL
VDD2 + VDDCA	???	LPDDR2

V1P8V - 800mA

NVCC_18IO	400mA	iMX6SL
VDDIO	3mA	FXOS8700
VDD1	???	LPDDR2

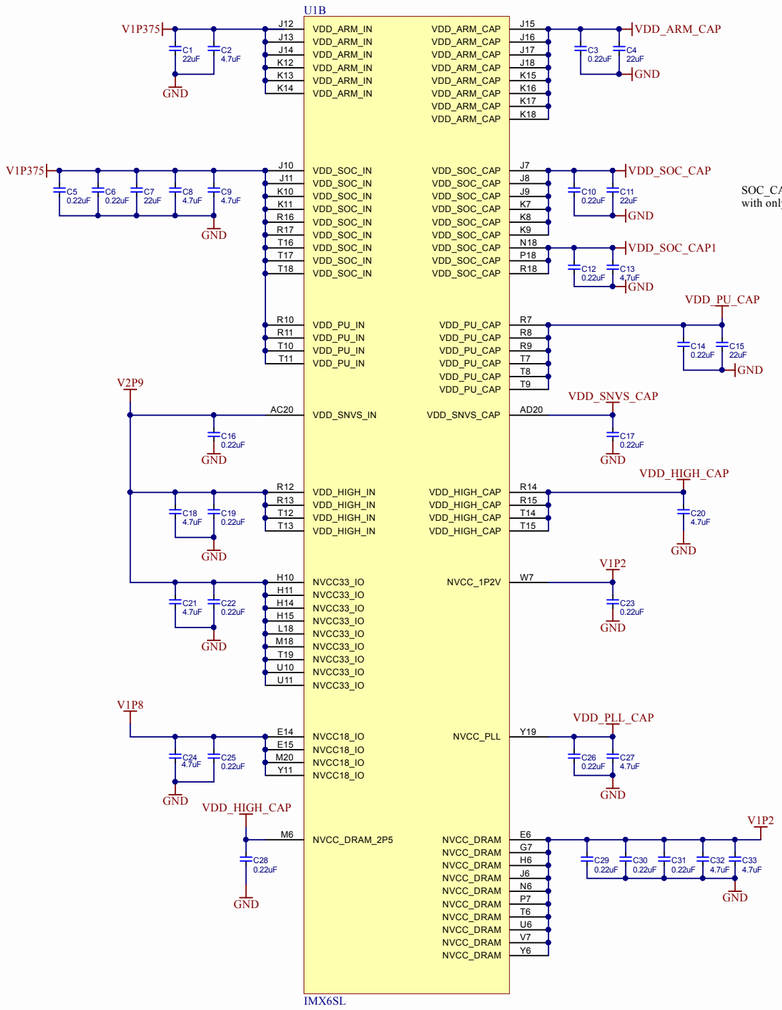
VBB_2P9V - 415mA

NVCC_33IO	30mA	iMX6SL
VNVS	30uA	iMX6SL
VDD	3mA	FXOS8700
VCCQ + VCC	???	eMMC

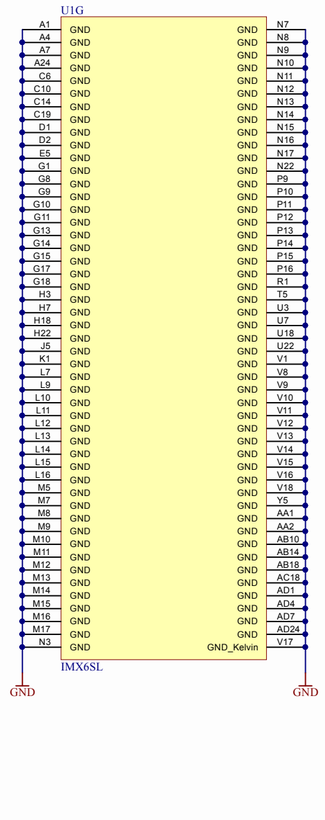
LDO89 will leak 250uA if enabled via software.
Total effective capacitance on BUCK5 outputs should be <18.8uF (see worksheet).
SYS2/CHNGINA provide reverse boost functionality for 5V/accessory power.
NOTE A. VCEN is internally OR'd with I2C register. Tie to GND and read EPDPOK status from I2C.
NOTE B. Terminate THM 100k to GND and 100k to THMB to bias temp reading to safe level in fuel gauge algorithm. Set the JEITA bit to 0 to not use THM in the charging algorithm.
NOTE C. Status LEDS on dev board only. For Final board, connect INLEDSRC to GND. For Dev board, C124 can be used as resistor pad to GND input if R16 is depopulated.

For more information and/or to get the latest, please visit: http://revotics.com/warp

Project Name: WaRP Mainboard			REVO
Title: PMIC	Revision: v1.11	Author: Revolution Robotics, Inc. revotics.com	
Filename: PMIC.SchDoc			
Date: 1/14/2015	Sheet Number: 2 of 7	Please visit our site for support and additional info.	



SOC_CAP and SOC_CAP1 can be connected with only one set of caps if routing allows.



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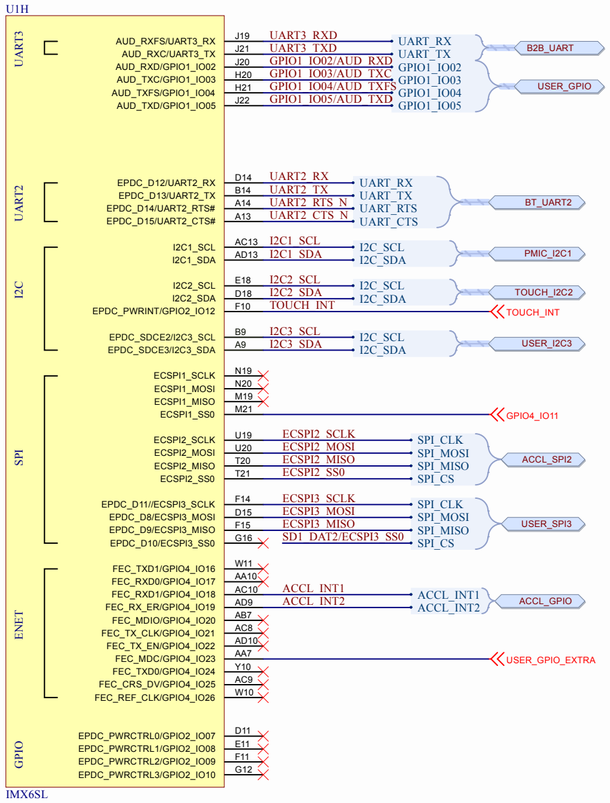
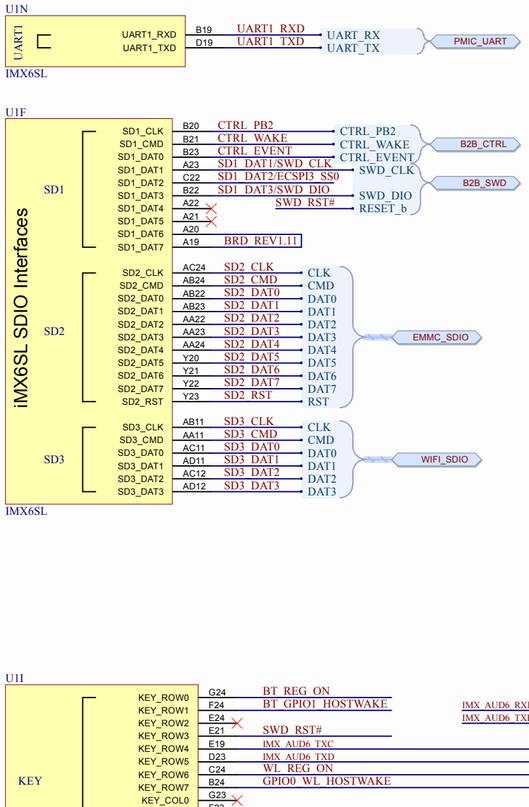
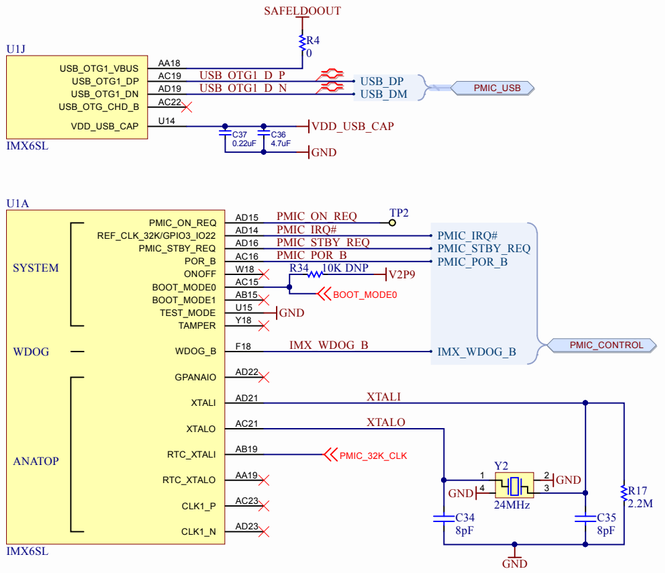
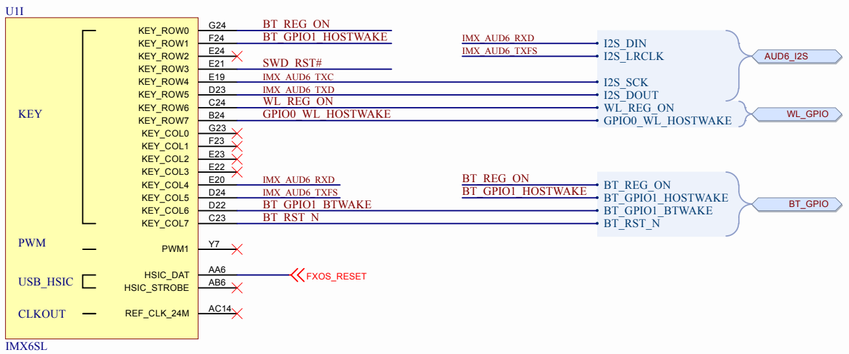
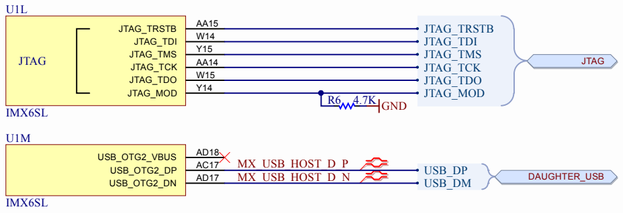
Project Name: WaRP Mainboard			REVO
Title: i.MX6SL Power		Revision: v1.11	Author: Revolution Robotics, Inc. revotics.com
Filename: iMX6SL_Power.SchDoc			Please visit our site for support and additional info.
Date: 1/14/2015	Sheet Number: 3 of 7		





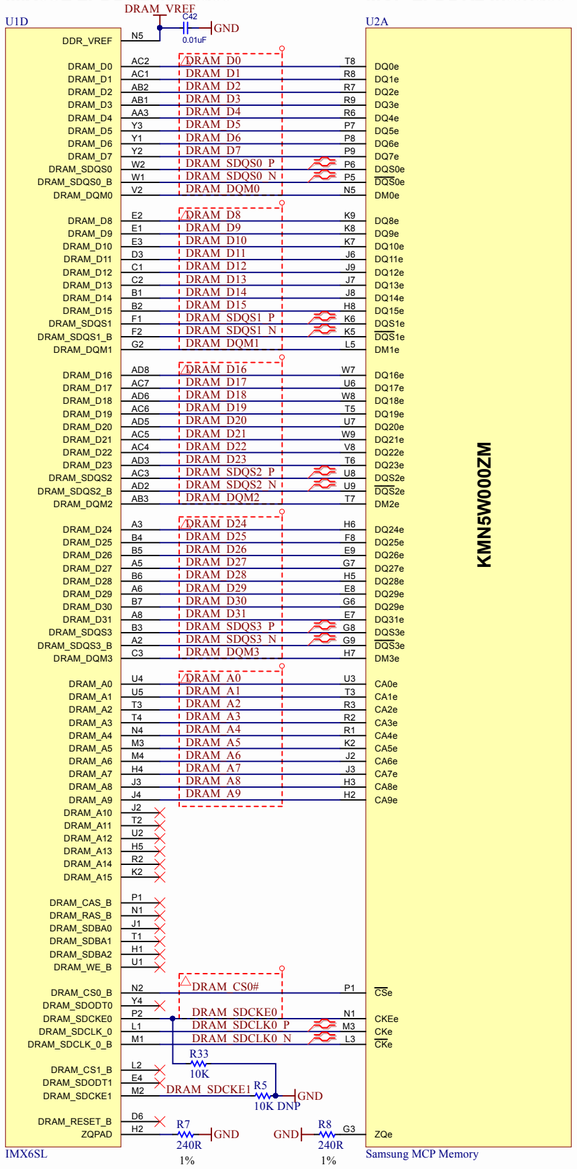






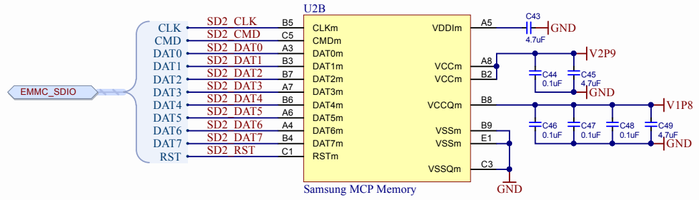
Project Name: WaRP Mainboard			REVO
Title: i.MX6SL SoC	Revision: v1.11	Author: Revolution Robotics, Inc. revotics.com	
Filename: iMX6SL_SoC.SchDoc			
Date: 1/14/2015	Sheet Number: 4 of 7	Please visit our site for support and additional info.	

iMX6SL LPDDR2 Interface

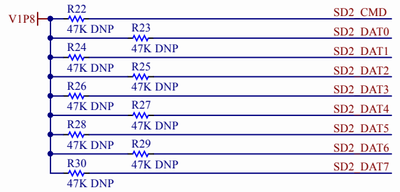


MCP LPDDR2 Interface

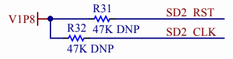
MCP eMMC Interface



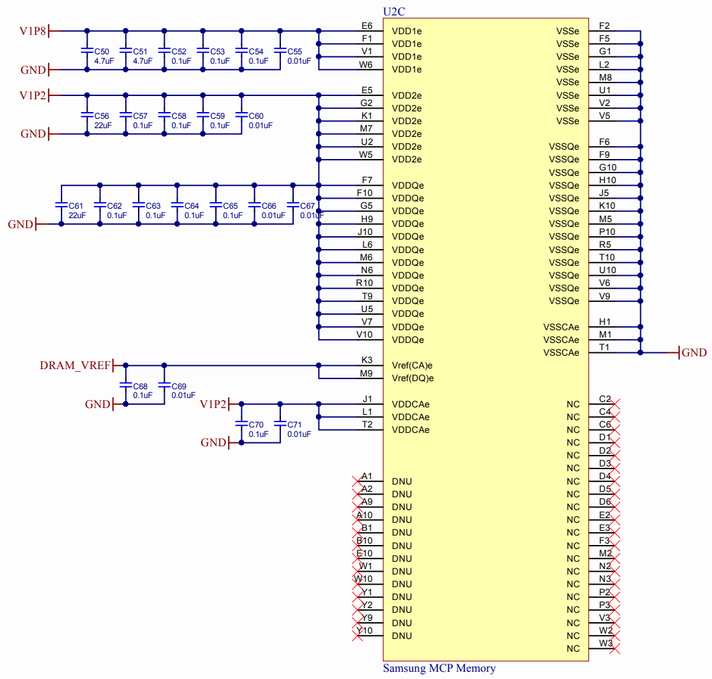
Can likely use only the i.MX6SL on-chip pull-ups



50K max pull-up recommended for 1.8V emmc interface.



MCP LPDDR2 PWR/GND



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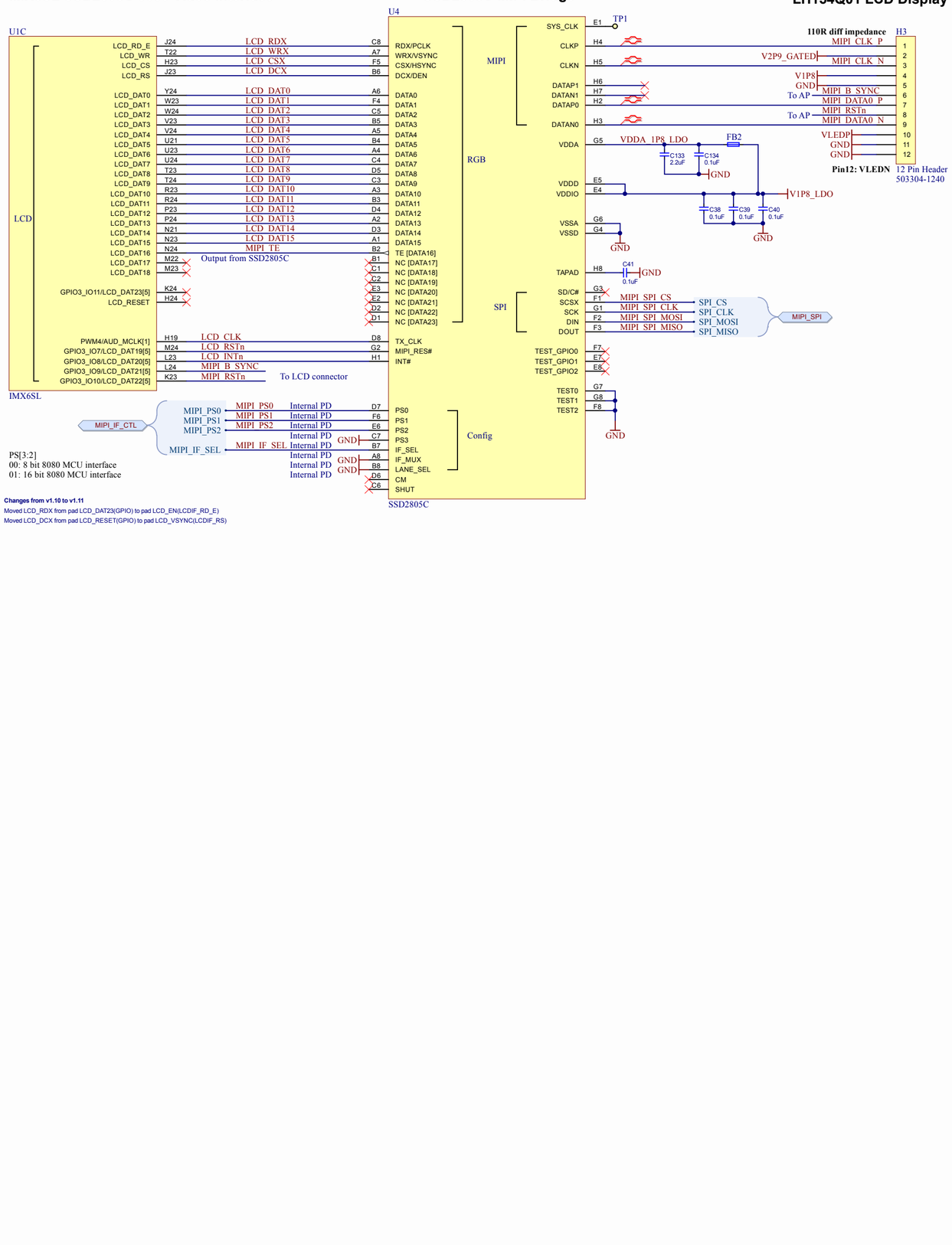
Project Name: WaRP Mainboard		REVO
Title: Memory	Revision: v1.11	Author: Revolution Robotics, Inc. revotics.com
Filename: Memory.SchDoc		Please visit our site for support and additional info.
Date: 1/14/2015	Sheet Number: 5 of 7	

iMX6SL SSD2805C 8080 Video Interface

SSD2805C MIPI Bridge

LH154Q01 LCD Display



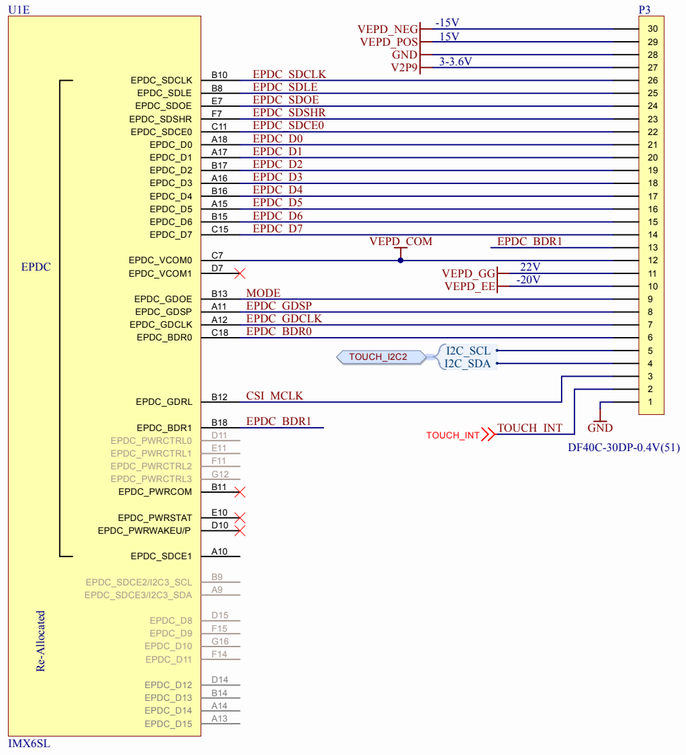
Changes from v1.10 to v1.11

Moved LCD_RDX from pad LCD_DAT23(GPIO) to pad LCD_EN(LCDIF_RD_E)

Moved LCD_DCX from pad LCD_RESET(GPIO) to pad LCD_VSYNC(LCDIF_RS)

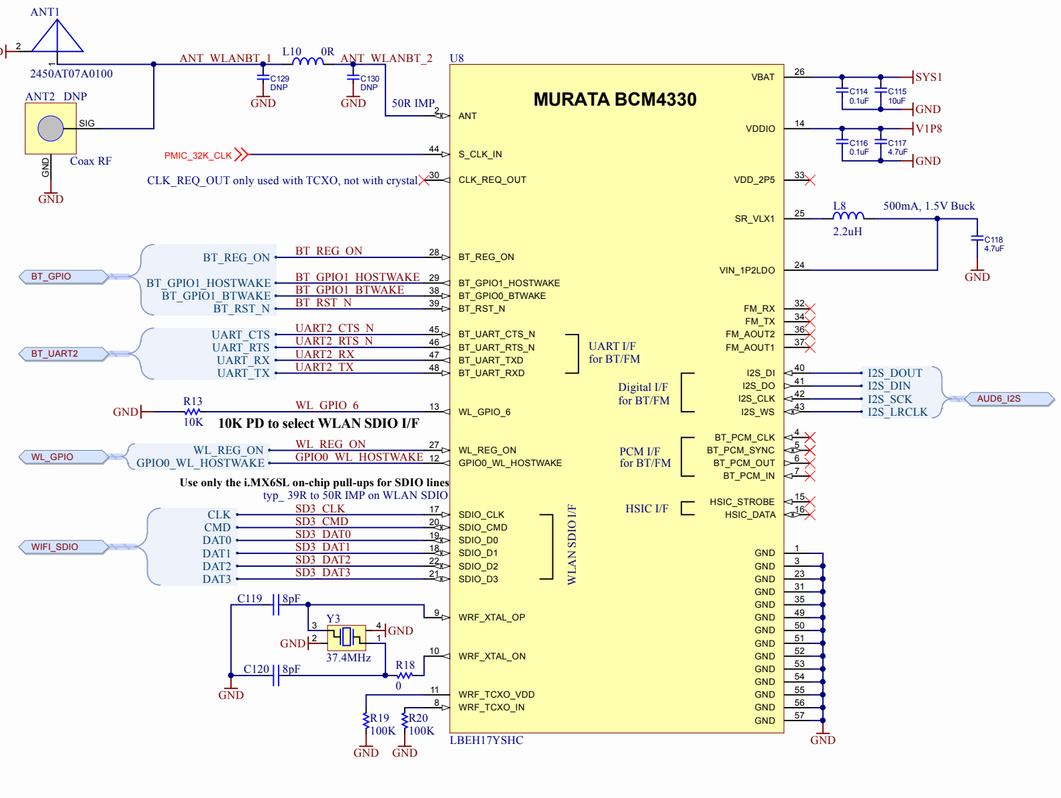
iMX6SL EPDC Interface

LH154Q01 LCD Touch Connector
ET017QC1 EPDC



Project Name: WaRP Mainboard			REVO
Title: Display (MIPI + EPD)	Revision: v1.11	Author: Revolution Robotics, Inc. revotics.com	
Filename: Display.SchDoc		Please visit our site for support and additional info.	
Date: 1/14/2015	Sheet Number: 6 of 7		

Wireless



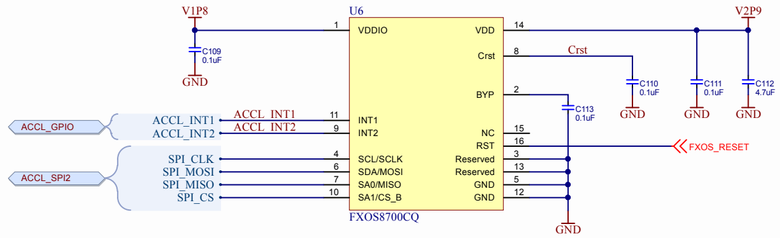
R18 Typical value listed as 0-330 dependent upon crystal.
Value may need optimization.

WLAN GPIO strapping options for WLAN I/F selection

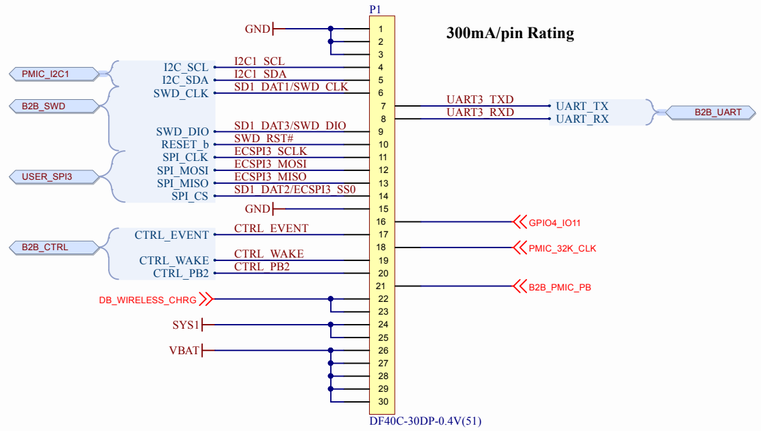
Pin			Interface
WL_GPIO_6	SDIO_D2	SDIO_D1	
PullDN	----	----	SDIO
PullUP	PullDN	----	SPI
PullUP	PullUP	PullDN	Normal HSIC
PullUP	PullUP	PullUP	Bootloader-less HSIC

Resistor size is 10kOhm or less for each setting.

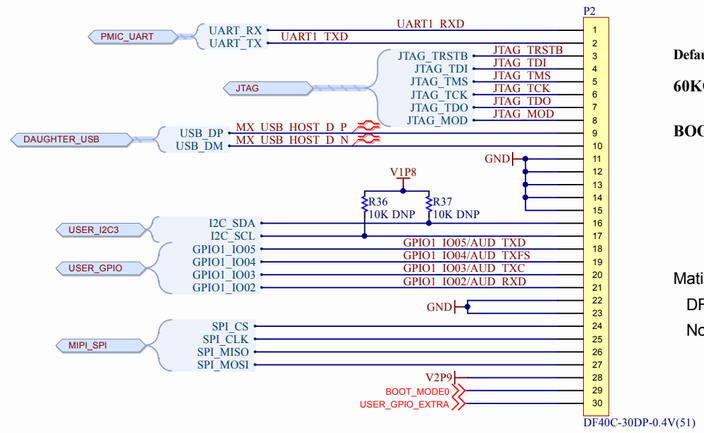
FXOS8700 Accelerometer



Daughterboard Connector (Port 1)



Mechanical/Debug Connector (Port 2)



Default BOOT MODE jumpers should be added to mainboard

60KO-140KO Internal PD on iMX6SL

BOOT_MODE[1:0]
00 - Boot from fuses
01 - Serial Downloader
10 - Internal Boot (Development)

Mating connector to use on Daughterboard:
DF40HC(3.0)-30DS-0.4V(51)
Note: Work with all height variants (dependent only on DB)

See the Displays schematic page for the 3rd I/O connector (Port 3)

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Project Name: WaRP Mainboard			REVO
Title: Peripherals	Revision: v1.11	Author: Revolution Robotics, Inc. revotics.com	
Filename: Peripherals.SchDoc			
Date: 1/14/2015	Sheet Number: 7 of 7	Please visit our site for support and additional info.	