Revision History

Rev 1.0

Based on IST-A21 Lighting Demo Board Reference Design

Rev 2.0

Debug Header, Simplicity Header, and Mini-Simplicity Header location modified.

Debug header "Target Vdd" pin connected to 3v3

Rev 3.0

Added Giant Gecko Debugger for interface between USB and EFR.

Mini-Simplicity Header location modified to avoid Rubber Feet

USB connector made through hole

I2C lines pulled up

Silk screen modified to add more information

All test points except PWM ones made Surface Mount

6 PWM capability, with 5 going to LEDs and 1 being used for network status LED

Switch used for turning On/Off network status LEDs

Removed bottom power connectors for Wooden Demo Board

Added PCB slot for LED diffuser

Rev 4.0

Added serial connections to Giant Gecko

Power nets connected differently to account for which devices need to be always powered.

Rev 5.0

EEPROM address set to 000.

GPIO (F13) test point moved further away from the switch.

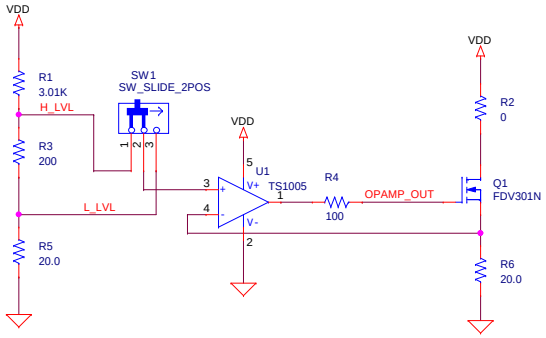
Removed Giant Gecko debugger and associated components from BOM

SILICON LABS
IST-A0050 REV 5.0

SILICON LABS
400 W Cesar Chavez
Austin, TX 78701

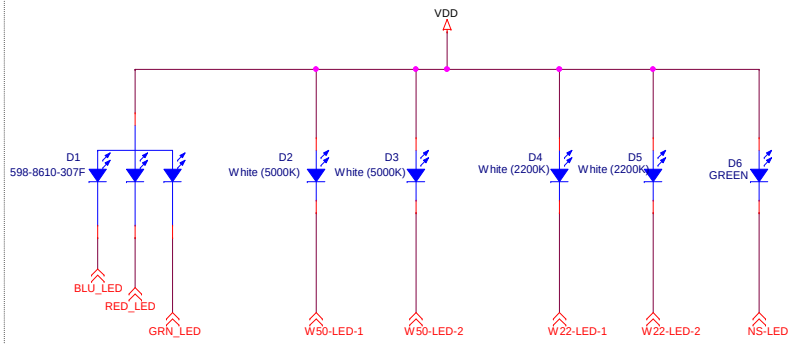
Size	Title		
B	Revision History		
Part Number	Document Number		Rev
	IST-A0050		5.0
Date: Monday, September 19, 2016	Sheet 1 of 6		

LED Brightness Selection



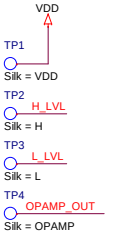
OPAMP_OUT signal is input to transistors in series with LEDs, to control current through LEDs

Lighting Demo LEDs

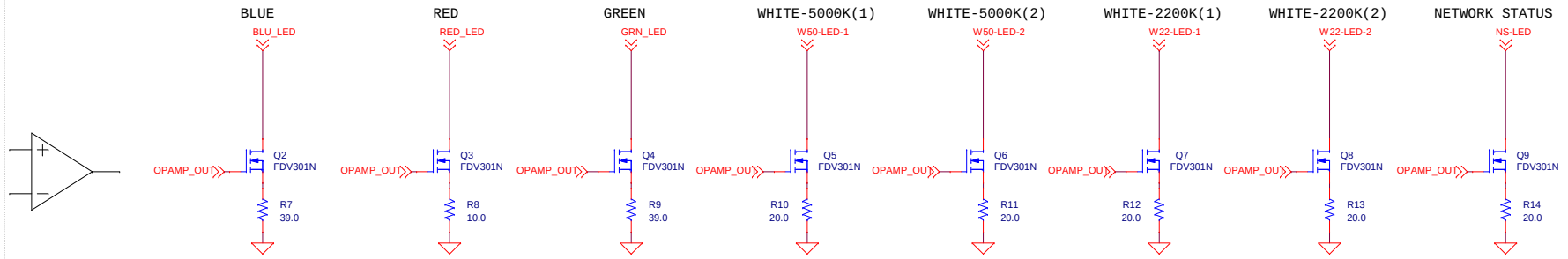


Each LED consumes either 1mA or 10mA of current, depending on the brightness selection.

Page Test Points



LED Brightness Control using Current Mirroring



SILICON LABS
400 W Cesar Chavez
Austin, TX 78701

Size	Title		
B	RGB LED/EEPROM		
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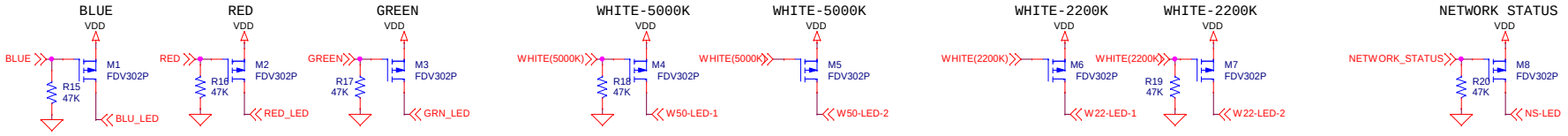
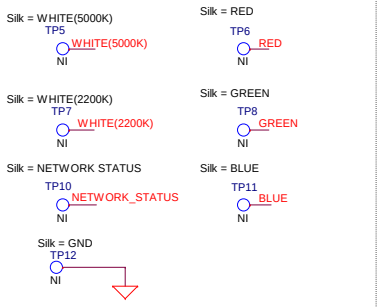
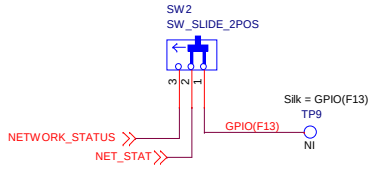
Lighting Demo LEDs - PWM Controls



Page Test Points



Network Status LED Power/Mode



SILICON LABS	400 W Cesar Chavez Austin, TX 78701		
Size: B	Title: Temperature LED		
Part Number:	Document Number: IST-A0050		Rev: 5.0
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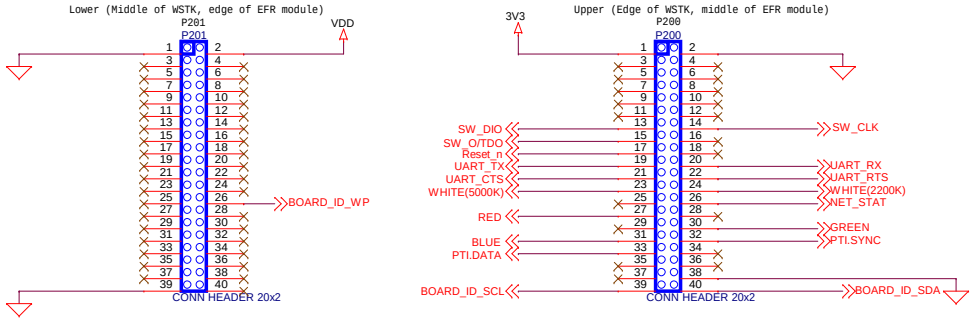
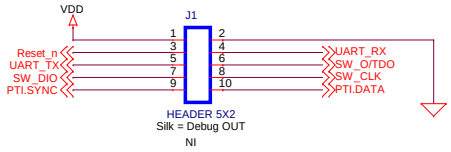
Output Connectors

Module to LDB (Header)



Mini-Simplicity Output Header
Placed between two 40-pin headers



backside bumpons

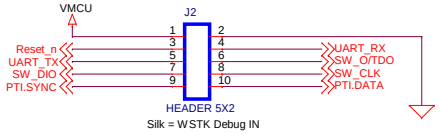
SF1 SF2

SF3 SF4

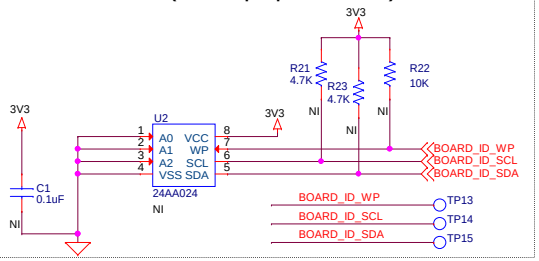
Diffuser and Plastic

Input Connectors

Mini-Simplicity Input Header



BOARD ID EEPROM
(not populated)



SILICON LABS

400 W Cesar Chavez
Austin, TX 78701

Size	Title	
B	Battery Management, Bypassing	
Part Number	Document Number	Rev
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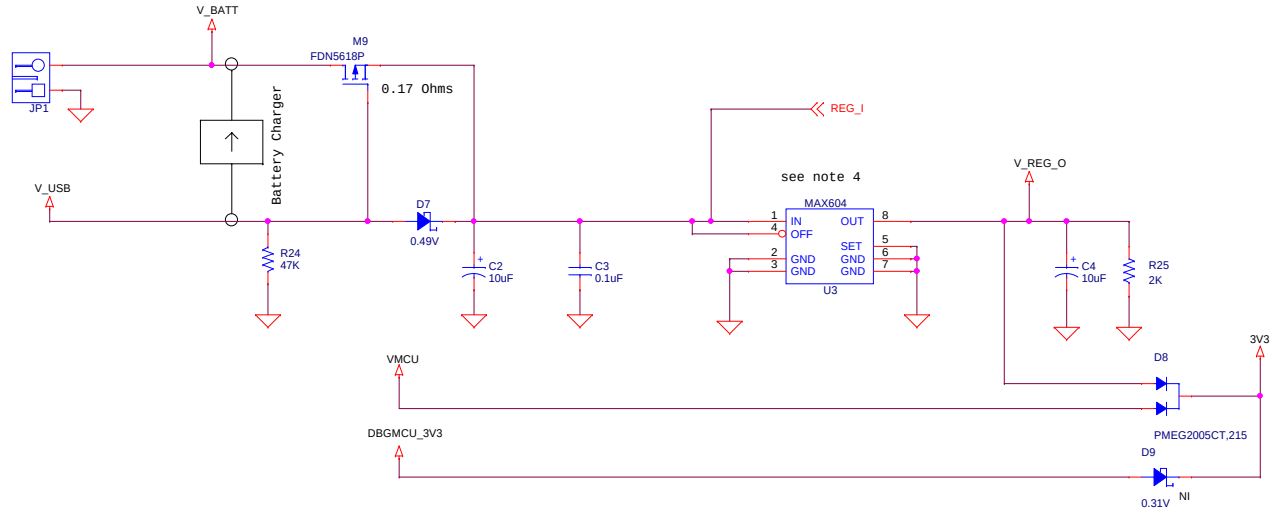
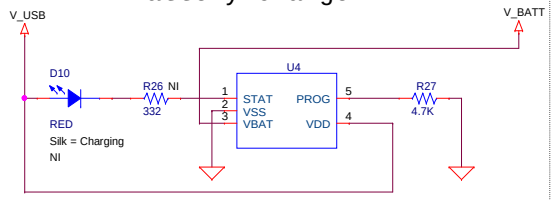
Lighting Board Input Power Options

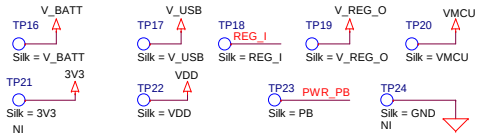


3.3V Supply to All Other Components

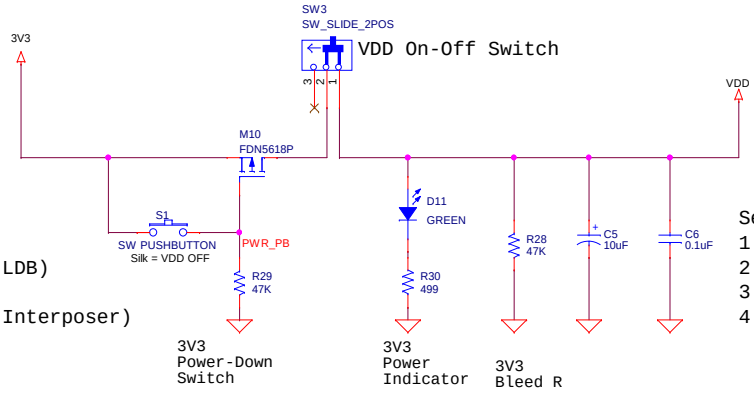
Battery Charger



Page Test Points



Lighting Board Power Selection



Always Powered:
1. Giant Gecko MCU
2. Board ID EEPROM (LDB)
3. SPI Flash
4. Board ID EEPROM (Interposer)

3V3 Power-Down Switch

3V3 Power Indicator

3V3 Bleed R

Selected by Switch:
1. MCU Module
2. All LEDs
3. 10-pin MSC Output
4. Op-Amp

SILICON LABS
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Size	Title		
B	Power Selection		
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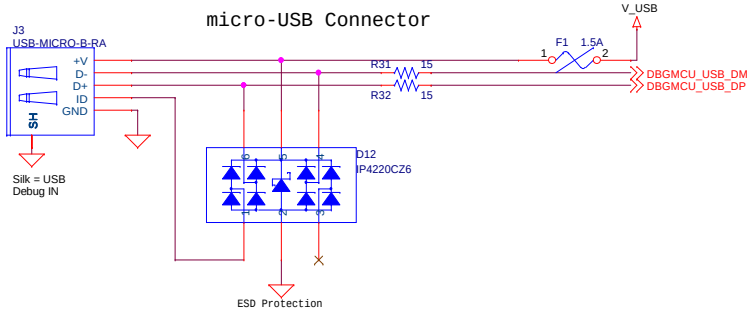
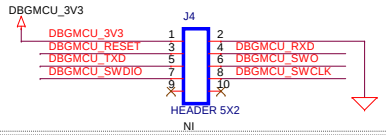
External Connectors

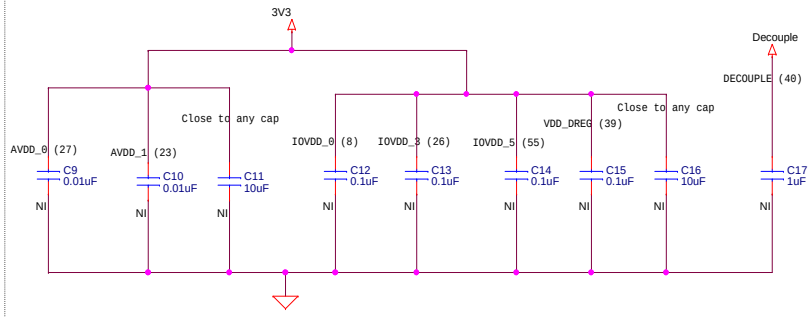
micro-USB Connector



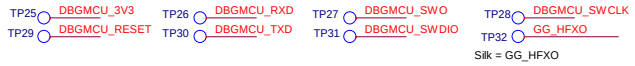
Giant Gecko Debug Header (not populated)



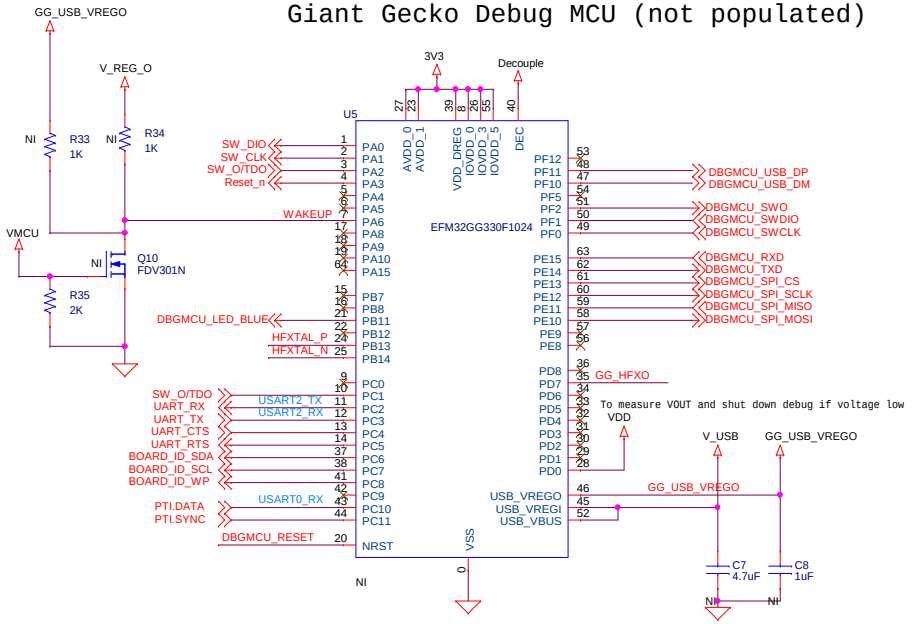
Bypass capacitors for Giant Gecko MCU



Page Test Points

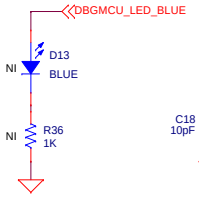


Giant Gecko Debug MCU (not populated)

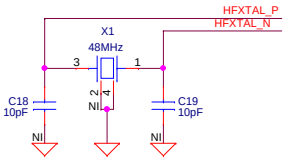


MCU External Components (not populated)

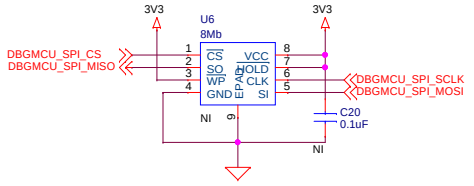
Debug LED



HFXO



SPI FLASH



SILICON LABS	400 W Cesar Chavez Austin, TX 78701	
Size: B	Title: USB + Giant Gecko	
Part Number	Document Number: IST-A0050	Rev: 5.0
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