Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of "Quality Parts,Customers Priority,Honest Operation,and Considerate Service",our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!

Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832
Email & Skype: info@chipsmall.com Web: www.chipsmall.com
Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China

KITUSBSPIDGLEVME USB-to-SPI Interface Board

Featuring the MC68HC908JW32 with Dongle

Figure 1. KITUSBSPIDGLEVME Board

Table of Contents

1 Kit Contents/Packing List

- Assembled and tested interface board/module in anti-static bag.
- Six-foot USB 2.0 A-M to B-M cable
- Six-inch 16-pin ribbon cable assy, 0.100" pitch
- Warranty card

2 Jump Start

Go to www.freescale.com/analogtools and select your kit.

<div style="border:1px solid red">

Jump Start Your Design
Go to **www.freescale.com/analogtools**, select your product and download installation software and documentation.

</div>

3   Important Notice

Freescale provides the enclosed product(s) under the following conditions:

This evaluation kit is intended for use of ENGINEERING DEVELOPMENT OR EVALUATION PURPOSES ONLY. It is provided as a sample IC pre-soldered to a printed circuit board to make it easier to access inputs, outputs, and supply terminals. This EVB may be used with any development system or other source of I/O signals by simply connecting it to the host MCU or computer board via off-the-shelf cables. This EVB is not a Reference Design and is not intended to represent a final design recommendation for any particular application. Final device in an application will be heavily dependent on proper printed circuit board layout and heat sinking design as well as attention to supply filtering, transient suppression, and I/O signal quality.

The goods provided may not be complete in terms of required design, marketing, and or manufacturing related protective considerations, including product safety measures typically found in the end product incorporating the goods. Due to the open construction of the product, it is the user's responsibility to take any and all appropriate precautions with regard to electrostatic discharge. In order to minimize risks associated with the customers applications, adequate design and operating safeguards must be provided by the customer to minimize inherent or procedural hazards. For any safety concerns, contact Freescale sales and technical support services.

Should this evaluation kit not meet the specifications indicated in the kit, it may be returned within 30 days from the date of delivery and will be replaced by a new kit.

Freescale reserves the right to make changes without further notice to any products herein. Freescale makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does Freescale assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation consequential or incidental damages. "Typical" parameters can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typical", must be validated for each customer application by customer's technical experts.

Freescale does not convey any license under its patent rights nor the rights of others. Freescale products are not designed, intended, or authorized for use as components in systems intended for surgical implant into the body, or other applications intended to support or sustain life, or for any other application in which the failure of the Freescale product could create a situation where personal injury or death may occur.

Should the Buyer purchase or use Freescale products for any such unintended or unauthorized application, the Buyer shall indemnify and hold Freescale and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that Freescale was negligent regarding the design or manufacture of the part.Freescale™ and the Freescale logo are trademarks of Freescale Semiconductor, Inc. All other product or service names are the property of their respective owners.

© Freescale Semiconductor, Inc., 2013. All rights reserved.

4   Introduction

The KITUSBSPIDGLEVME interface board (shown below) provides a USB-to-SPI interface that features the MC68HC908JW32 with Dongle. It is a working hardware/software example that allows a user to become familiar with the MC68HC908JW32 microcontroller by means of an actual useful application, a USB-to-SPI and USB-to-parallel converter. The main function provided by this kit is to allow a PC, that may not have a parallel port, to communicate with other Freescale Evaluation Kits, via a USB port. The USB port is a standard feature on almost every new PC. This kit makes use of the MC68HC908JW32's built-in USB, SPI and parallel ports.

Freescale analog ICs are manufactured using the SMARTMOS process, a combinational BiCMOS manufacturing flow that integrates precision analog, power functions and dense CMOS logic together on a single cost-effective die.
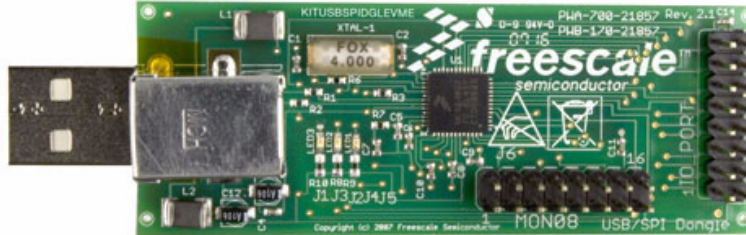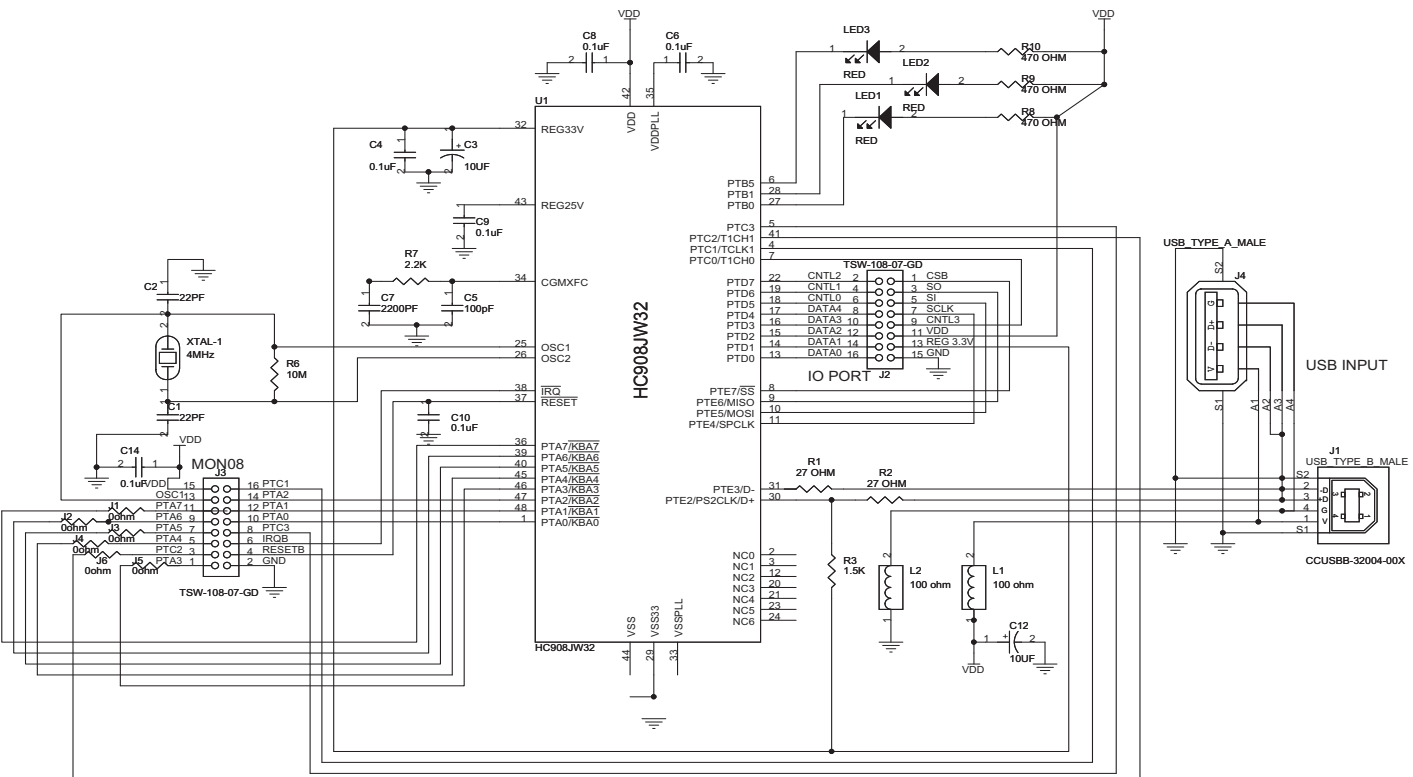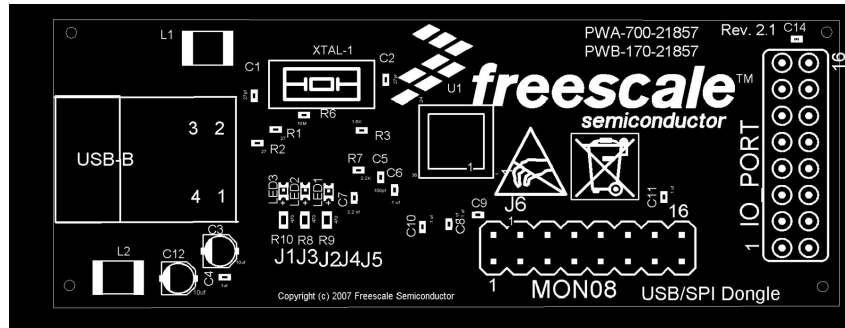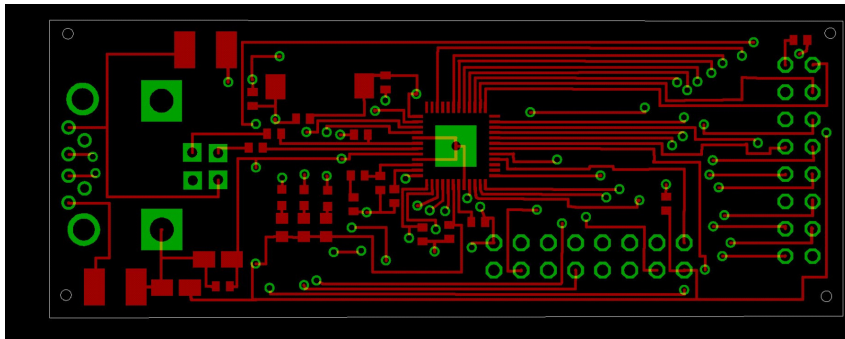

Figure 2. KITUSBSPIDGLEVME Interface Kit
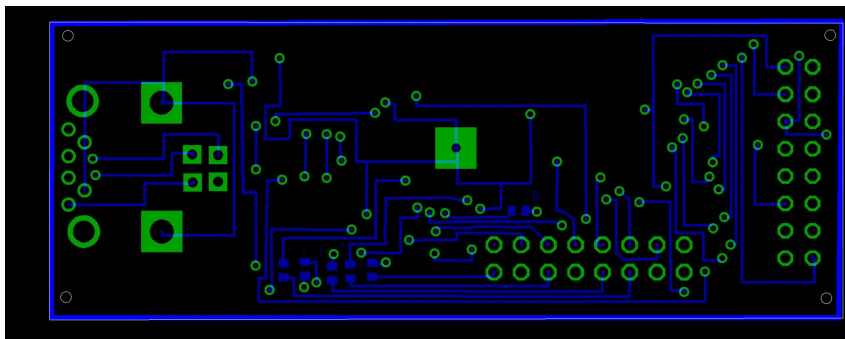
6 Board Layout

6.1 Assembly Layer Top

6.2 Top Layer Routing

6.3 Bottom Layer Routing

7   Bill of Material

Schematic Label	Device/ Signal Name	Value/Description	Manufacturer	Part Number
Capacitors				
C1	OSC2	CAP CER 22PF 50V 5% C0G CC0402		
C2	OSC1	CAP CER 22PF 50V 5% C0G CC0402		
C3	REG3.3V	CAP TANT 10UF 10V 10%		
C4	REG3.3V	CAP CER 0.1UF 10V 20% Y5V 0402		
C5	CGMXFC	CAP CERAMIC 100PF 50V NP0 0402		
C6	VDD PLL	CAP CER 0.1UF 10V 20% Y5V 0402		
C7	CGMXFC	CAP CERM .022UF 10% 16V X7R 0402		
C8	VDD	CAP CER 0.1UF 10V 20% Y5V 0402		
C9	REG2.5V	CAP CER 0.1UF 10V 20% Y5V 0402		
C10	RESET	CAP CER 0.1UF 10V 20% Y5V 0402		
C11	VDD	CAP CER 0.1UF 10V 20% Y5V 0402		
C12	VDD	CAP TANT 10UF 10V 10%		
C14	VDD	CAP CER 0.1UF 10V 20% Y5V 0402		
Resistors				
R1	D+	RES 27 OHM 1/16W 5% 0402 SMD		
R2	D-	RES 27 OHM 1/16W 5% 0402 SMD		
R3	D+	RES TF 1.5K 1/16W 1% RC0402 ROHS		
R6	OSC1 OSC2	RESISTOR 10M OHM 1/16W 5% 0402		
R7	CGMXFC	RES 2.2K OHM 1/16W 5% 0402 SMD		
R8	LED1	RES 470 OHM 1/10W 5% 0603 SMD		
R9	LED2	RES 470 OHM 1/10W 5% 0603 SMD		
R10	LED3	RES 470 OHM 1/10W 5% 0603 SMD		
Inductors				
L1	+5V	FERRITE 8A 125 OHMS 1812 SMD		
L2	GND	FERRITE 8A 125 OHMS 1812 SMD		
LEDs				
LED1	LED1	LED 660NM RED DIFF 0603 SMD	AVAGO TECHNOLOGIES US INC.	HSMH-C190
LED2	LED2	LED 660NM RED DIFF 0603 SMD	AVAGO TECHNOLOGIES US INC.	HSMH-C190
LED3	LED3	LED 660NM RED DIFF 0603 SMD	AVAGO TECHNOLOGIES US INC.	HSMH-C190
Integrated Circuits				
U1	MICRO	MC68HC908JW32 8-bit USB/SPI microcontroller ROHS COMPLIANT	FREESCALE SEMICONDUCTOR	MC68HC908JW32
Crystal Oscillators				
XTAL-1	OSC1 OSC2	CRYSTAL 4.0 MHZ 20PF SMD	FOX ELECTRONICS	FQ1045A-4

Schematic Label	Device/ Signal Name	Value/Description	Manufacturer	Part Number
Connectors and Jumpers				
J1	PTA7	JUMPER TO CONNECT PTA7 to Pin 11 of MON08 connector		
J2	PTA6	JUMPER TO CONNECT PTA6 to Pin 9 of MON08 connector		
J3	PTA5	JUMPER TO CONNECT PTA5 to Pin 7 of MON08 connector		
J4	PTA4	JUMPER TO CONNECT PTA4 to Pin 5 of MON08 connector		
J5	PTA3	JUMPER TO CONNECT PTA3 to Pin 1 of MON08 connector		
J6	PTC2	JUMPER TO CONNECT PTC2 to Pin 3 of MON08 connector		
IO PORT	MA08-2	CONN HEADER .100 DUAL STR 16POS		
MON08	MA08-2	CONN HEADER .100 DUAL STR 16POS		
USB-A	USB-A Input	USB-A Male PC Board mount		
USB-B	USB-B Input	CONN USB RT ANG RECPT TYPE B BLK		

Note: Freescale does not assume liability, endorse, or warrant components from external manufacturers that are referenced in circuit drawings or tables. While Freescale offers component recommendations in this configuration, it is the customer's responsibility to validate their application.

8   References

Following are URLs where you can obtain information on other Freescale products and application solutions:

Freescale.com Support Pages	URL
KITUSBSPIDGLEVME Tool Summary Page	http://www.freescale.com/webapp/sps/site/prod_summary.jsp?code=KITUSBSPIDGLEVME
SPIGen Tool Summary Page	http://www.freescale.com/files/soft_dev_tools/software/device_drivers/SPIGen.html
Analog Home Page	http://www.freescale.com/analog
Automotive Home Page	http://www.freescale.com/automotive

8.1   Support

Visit www.freescale.com/support for a list of phone numbers within your region.

8.2   Warranty

Visit www.freescale.com/warranty for a list of phone numbers within your region.

9   Revision History

Revision	Date	Description of Changes
1.0	8/2010	Initial Release
2.0	4/2013	•Add Jump Start link for downloading software and/or documents •Add Introduction including board photo