General Description

The MAXQ615 evaluation kit (EV kit) provides a proven platform for conveniently evaluating the capabilities of the MAXQ615 low-power, 16-bit, RISC microcontroller targeted for battery-powered applications. The EV kit includes a MAXQ615 EV kit board, example software, USB-to-JTAG interface board, 10-pin JTAG interface cable, and a standard A-to-mini-B USB cable for connecting to a personal computer. The EV kit board, which provides pin headers providing access to the processor's I/O port pins, a 5V power-supply input, pushbutton switches for user input, and an on-board SPI ADC and I^2C temperature sensor for demonstration purposes. The EV kit provides a complete, functional system ideal for developing and debugging applications as well as evaluating the overall capabilities of the MAXQ615 RISC processor.
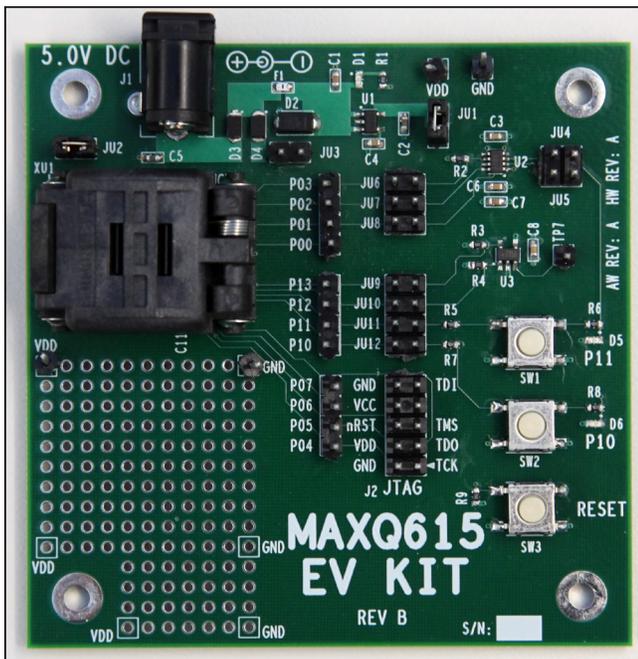

Figure 1. MAXQ615 Evaluation Kit Board

Ordering Information *appears at end of data sheet.*

Features

♦ **Easily Loads and Debugs Code Using Supplied JTAG Board**

♦ **JTAG Interface Provides In-Application Debugging Features**
  ◇ **Step-by-Step Execution Tracing**
  ◇ **Breakpointing by Code Address, Data Memory Address, or Register Access**
  ◇ **Data Memory or Register Content View and Edit**

♦ **On-Board 3.3V Voltage Regulator**

♦ **On-Board DS1775 I^2C Temperature Sensor**

♦ **On-Board MAX1118 SPI ADC**

♦ **Two User-Input Pushbutton Switches with Paired Indicator LEDs (Connected to GPIO)**

♦ **Prototyping Area**

♦ **(Optional) +5V Regulated, Minimum 250mA Capacity, Center Post Positive Power Supply with 2.5mm Jack. Models that have been used in the past include CUI Inc. model DPR050030-P6P-SZ and V Infinity model EPS050100-P6P. If the EV kit is powered through the USB-to-JTAG adapter (through the 5V supply provided on the JTAG cable), then this power supply is not needed.**

EV Kit Contents

♦ **MAXQ615 EV Kit Board with Either Socketed MAXQ615 (XU1) or Soldered MAXQ615 (U4)**

♦ **USB-to-JTAG Adapter Board**

♦ **2 x 5-Pin Connector Ribbon Cable (0.1in spacing) for JTAG Programming**

♦ **Standard A-to-Mini-B USB interface Cable**

♦ **MAXQ615 EV Kit CD (includes the MAXQ615 IC data sheet and user's guide; MAXQ615 EV kit quick start guide, data sheet, and schematics; application notes; utilities and configuration files; and example programs including source code). Go to www.maximintegrated.com/evkitsoftware to download the latest version of the EV kit CD.**

For pricing, delivery, and ordering information, please contact Maxim Direct at 1-888-629-4642, or visit Maxim Integrated's website at www.maximintegrated.com.
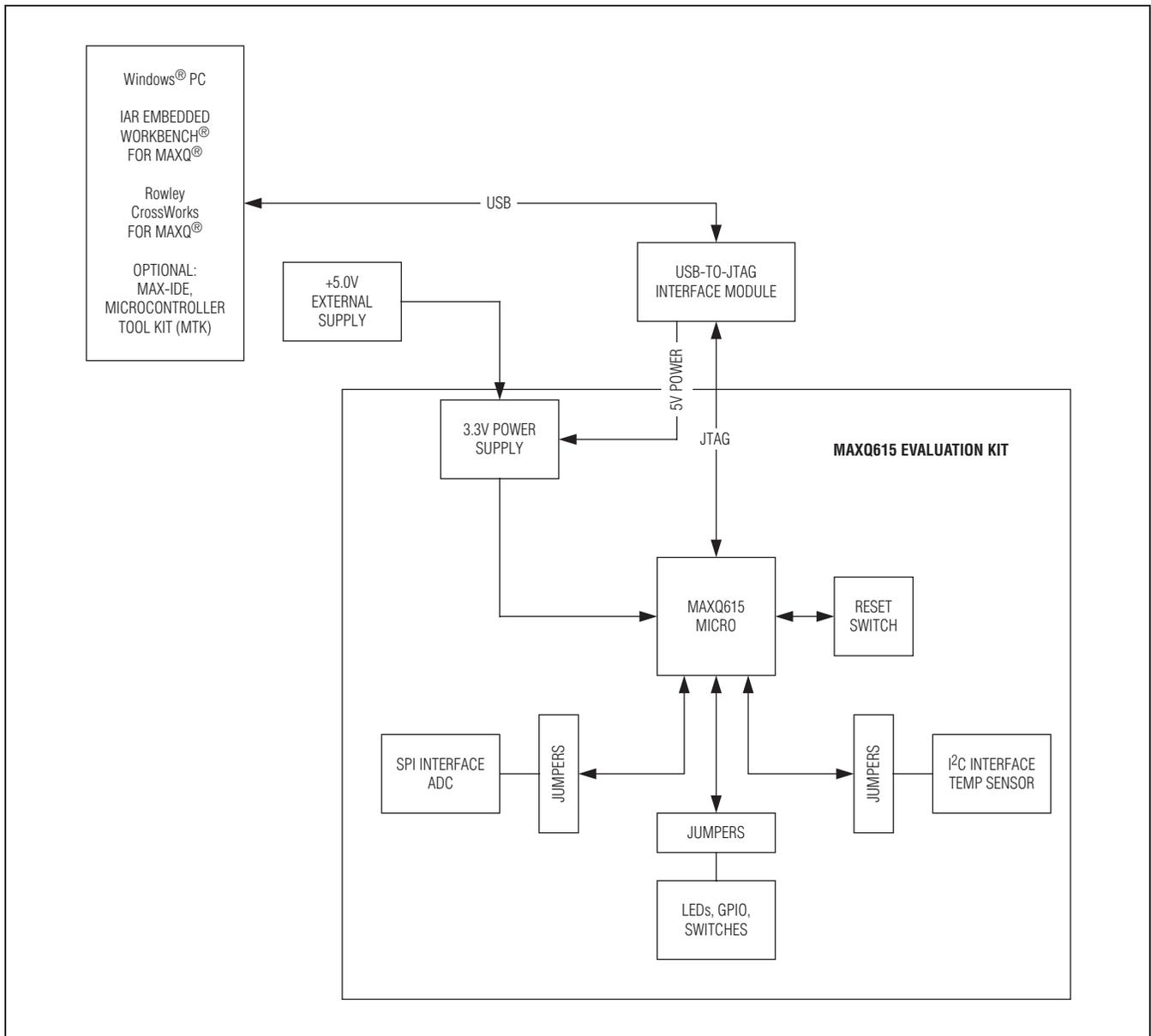
Figure 2. MAXQ615 EV Kit System Block Diagram

Windows is a registered trademark of Microsoft Corp.
IAR Embedded Workbench is a registered trademark of IAR Systems AB.
MAXQ is a registered trademark of Maxim Integrated Products, Inc.

Component List

DESIGNATION	QTY	DESCRIPTION
C1, C7, C10–C12, C14	6	1µF, 16V ceramic capacitors (0603)
C2	1	2.2µF, 6.3V ceramic capacitor (0603)
C3, C6, C8, C9, C13	5	100nF, 16V ceramic capacitors (0603)
C4	1	10nF, 25V ceramic capacitor (0603)
C5	1	4.7µF, 10V ceramic capacitor (0603)
D1, D5, D6	3	Surface-mount, 570nm green LEDs (0603) LG L29K-G2J1-24-Z
D2	1	SMAJ5.0A (DO-214AC, SMA)
D3, D4	2	CGRM4001-G (SOD-123F)
F1	1	Fuse 200mA resettable (0603) MF-FSMF020X-2
J1	1	2.5mm power jack, through-hole mount, center post positive
J2	1	2 x 5 header pins, 0.1in spacing
JU1–JU12	12	2 x 2 header pins, 0.1in spacing
MH1–MH4	4	Mounting holes
R1	1	845Ω ±1%, 1/10W SMD resistor (0603)
R2, R9	2	10kΩ ±1%, 1/10W SMD resistors (0603)

DESIGNATION	QTY	DESCRIPTION
R3, R4	2	1.8kΩ ±1%, 1/10W SMD resistors (0603)
R5, R7	2	110Ω ±1%, 1/10W SMD resistors (0603)
R6, R8	2	402Ω ±1%, 1/10W SMD resistors (0603)
SW1–SW3	2	SPST normally open pushbutton switches, 6mm, B3S-1002
TP1–TP21	21	Test points
U1	1	150mA linear regulator (5 SOT23) Maxim MAX8877EUK33+
U2	1	Serial 2-channel ADC (8 SOT23) Maxim MAX1118
U3	1	I^2C temperature sensor (5 SOT23) Maxim DS1775
U4	1	Microcontroller (16 TQFN-EP) Maxim MAXQ615-F00+
XU1	1	Microcontroller socket Maxim MAXQ615-F00+
—	0	PCB: MAXQ615 EV KIT

Detailed Description

This EV kit should be used with the following documents:

- MAXQ615 IC data sheet
- MAXQ615 user's guide
- MAXQ615 EV kit data sheet

These documents are included on the MAXQ615 EV kit CD, along with additional documentation and application notes. For the latest versions of the documents listed above, go to **www.maximintegrated.com/MAXQ615**.

This document includes full schematics for the EV kit. Descriptions of the major sections and functions of the board follows.

Power Supply

The MAXQ615 EV kit can be powered in several ways. The board can be powered from the USB-to-JTAG adapter. The adapter provides a +5V DC supply. From this, an on-board linear regulator (U1) regulates the +3.3V V_{DD} power rail that is used by the MAXQ615.

If the MAXQ615 kit is "free-running," that is, if you are running an application that has been previously loaded into the MAXQ615, and you do not need to use the loader or debugger, the board may be powered by a 5V DC wall supply connected to plug J1. The supply must be center post positive, DC 5V regulated, with a 250mA minimum capacity.

By removing jumper JU1 and connecting a power supply in its place, it is also possible to power the MAXQ615 from a DC bench supply or other regulated power source. In this case, any power-supply voltage compatible with the device(s) that will be powered may be used; refer to the MAXQ615 IC data sheet for more details on the allowable range for the power supply.

Reset Pushbutton

Pushbutton SW3 can be used to manually reset the MAXQ615.

Table 1. Jumper Functions (continued)

| JUMPER	SETTING	EFFECT OF SETTING
JU7	Open	No effect
	Closed	The DOUT pin on the MAX1118 is connected to the SPI 0 interface MISO pin (P0.1) on the MAXQ615.
JU8	Open	No effect
	Closed	The SCLK pin on the MAX1118 is connected to the SPI 0 interface pin SCLK (P0.2) on the MAXQ615.
JU9	Open	No effect
	Closed	Connects the SDA pin on the I2C temperature sensor (DS1775, U3) to the I2C SDA pin (P1.3) on the MAXQ615. Also connects the I2C bus pullup resistor (R3) to the SDA pin on the MAXQ615.
JU10	Open	No effect
	Closed	Connects the SCL pin on the I2C temperature sensor (DS1775, U3) to the I2C SCL pin (P1.2) on the MAXQ615. Also connects the I2C bus pullup resistor (R4) to the SCL pin on the MAXQ615.
JU11	Open	No effect
	Closed	Allows the green LED D5 to be controlled using the port pin P1.1 (driving the port pin low lights the LED). Also, pressing SW1 will both drive P1.1 low and cause the LED to light.
JU12	Open	No effect
	Closed	Allows the green LED D6 to be controlled using the port pin P1.0 (driving the port pin low lights the LED). Also, pressing SW2 will both drive P1.0 low and cause the LED to light.
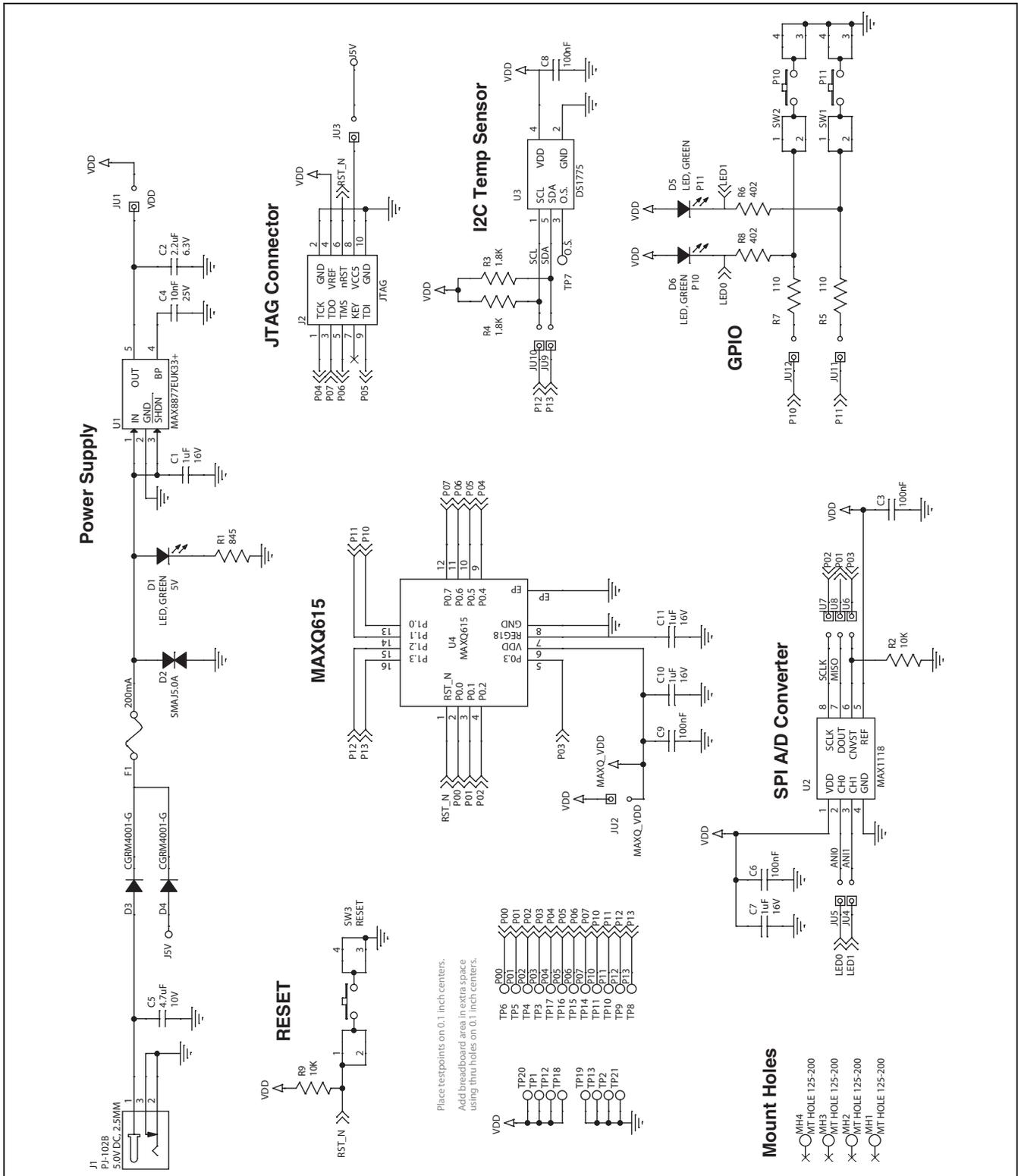
Figure 3. MAXQ615 EV Kit Schematics (Sheet 1 of 2)

MAXQ615 Socket
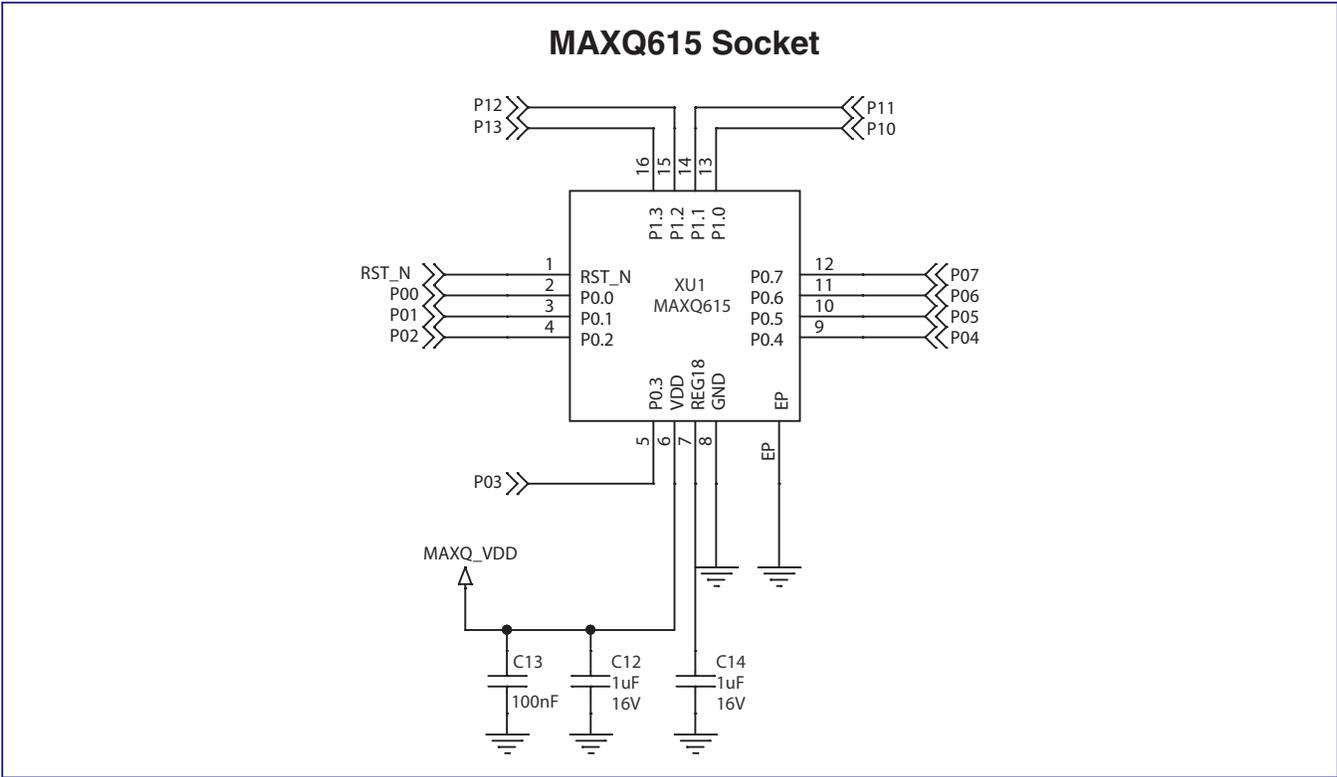
Figure 4. MAXQ615 EV Kit Schematics (Sheet 2 of 2)

Ordering Information

PART	TYPE
MAXQ615-KIT#	EV Kit

#Denotes a RoHS-compliant device that may include lead(Pb) that is exempt under the RoHS requirements.

Revision History

REVISION NUMBER	REVISION DATE	DESCRIPTION	PAGES CHANGED
0	7/12	Initial release	—

maxim integrated™

Maxim Integrated 160 Rio Robles, San Jose, CA 95134 USA 1-408-601-1000