

MAX44008 Evaluation System

Evaluates: MAX44008

General Description

The MAX44008 evaluation system (EV system) includes one MAX44008 evaluation kit (EV kit) and one MAX44008 daughter board. The EV kit is a fully assembled and tested PCB that evaluates the MAX44008 digital RGB color sensor with temp sensor. The EV system also includes Windows XP®, Windows Vista®, and Windows® 7-compatible software that provides a simple graphical user interface (GUI) for exercising the features of the device. The EV kit comes installed with a MAX44008EDT+ in a 6-pin OTDFN package.

The daughter board is an external device-under-test module that also comes with a MAX44008EDT+ installed. The daughter board can be connected to and controlled by the EV kit. The user can also evaluate the device by connecting a user-supplied controller to the daughter board.

Features

- ◆ **USB Powered**
- ◆ **Daughter Board Powered by the EV Kit**
- ◆ **On-Board RGB LED on EV Kit**
- ◆ **Windows XP-, Windows Vista-, and Windows 7-Compatible Software**
- ◆ **Block Sampling**
- ◆ **Signal Plotting in EV System Software**
- ◆ **Proven PCB Layout**
- ◆ **Fully Assembled and Tested**

[Ordering Information](#) appears at end of data sheet.

Component Lists

MAX44008 EV Kit

DESIGNATION	QTY	DESCRIPTION
C1–C17	17	47nF ±10%, 16V X7R ceramic capacitors (0603) Murata GRM188R71C473K
C18–C33	16	1nF ±10%, 50V X7R ceramic capacitors (0603) Murata GRM188R71H102K
C34, C52, C101–C103, C113–C116	9	1µF ±10%, 16V X5R ceramic capacitors (0603) Murata GRM188R61C105K
C35, C44, C46, C50, C53–C56, C60–C62, C64–C66, C76, C100, C107–C109, C117	20	0.1µF ±10%, 16V X7R ceramic capacitors (0603) TDK C1608X7R1C104K
C36, C39	2	0.01µF ±10%, 50V X7R ceramic capacitors (0603) Murata GRM188R71H103K
C37	1	10pF ±5%, 50V C0G ceramic capacitor (0603) Murata GRM1885C1H100J

DESIGNATION	QTY	DESCRIPTION
C38	1	15pF ±5%, 50V C0G ceramic capacitor (0603) Murata GRM1885C1H150J
C40, C41	2	39pF ±5%, 50V C0G ceramic capacitors (0603) Murata GRM1885C1H390J
C47, C48	2	4.7µF ±10%, 25V X5R ceramic capacitors (1206) Murata GRM31CR71E475M
C49, C63, C67, C68, C118	5	10µF ±10%, 25V X5R ceramic capacitors (1206) Murata GRM31CR61E106K
C57	1	0.033µF ±10%, 16V X5R ceramic capacitor (0603) Taiyo Yuden EMK107BJ333KA
C58, C59	2	22pF ±5%, 50V C0G ceramic capacitors (0603) Murata GRM1885C1H220J
C104, C110–C112	4	2.2µF ±10%, 10V X7R ceramic capacitors (0603) Murata GRM188R71A225K

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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.

19-6599; Rev 0; 2/13

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Component Lists (continued)

MAX44008 EV Kit (continued)

DESIGNATION	QTY	DESCRIPTION
C105, C106	2	4.7 μ F $\pm$ 10%, 6.3V X5R ceramic capacitors (0603) Murata GRM188R60J475K
DGND, GND (x2)	3	Black test points
DVDD, EXT_VDD	2	Red test points
EXT_INTB, EXT_SCL, EXT_SDA	3	White test points
J1	1	6-pin (2 x 3) right angle female header
J2	0	Not installed, 24-pin (2 x 12) dual-row header
J3	1	USB type-B right-angle PC-mount receptacle
J4	1	6-pin (2 x 3) right-angle male header
JSPI	0	Not installed, 6-pin single-row header
JTAG1	1	6-pin header
JTAG2	1	10-pin (2 x 5) dual-row header
JU1–JU4	0	Not installed, 2-pin headers
JU5	0	Not installed, 3-pin header
JU6, JU7, JU8	3	2-pin headers
JU10, JU12–JU16	6	3-pin headers
L1	1	Ferrite bead (0603) TDK MMZ1608R301A
LD1	1	Light dam Maxim EPCB44000LD+
LED1–LED3	3	Red LEDs (0603) Panasonic LNJ208R8ARA
Q100	1	p-channel FET (SOT223)
R1, R3, R4, R19, R21–R24	8	4.7k Ω $\pm$ 5% resistors (0603)
R2, R16–R18	4	100 Ω $\pm$ 5% resistors (0603)
R5	1	390 Ω $\pm$ 5% resistor (0603)
R6–R8, R27, R36, R59–R61	8	10k Ω $\pm$ 5% resistors (0603)
R9–R11	3	200 Ω $\pm$ 5% resistors (0603)
R12, R14, R25, R29	4	10 Ω $\pm$ 5% resistors (0603)
R13	1	150 Ω $\pm$ 5% resistor (0603)

DESIGNATION	QTY	DESCRIPTION
R15	1	56 Ω $\pm$ 5% resistor (0603)
R20, R28	2	680 Ω $\pm$ 5% resistors (0603)
R26, R100	2	1k Ω $\pm$ 5% resistors (0603)
R30	1	18.7k Ω $\pm$ 1% resistor (0603)
R31, R43, R44, R46	4	10k Ω $\pm$ 1% resistors (0603)
R32, R33	2	27 Ω $\pm$ 5% resistors (0603)
R34, R57, R58	3	1.5k Ω $\pm$ 5% resistors (0603)
R35	1	2.2k Ω $\pm$ 5% resistor (0603)
R37–R41	0	Not installed, resistors—short (PC trace) (0603)
R42, R45	2	100k Ω $\pm$ 5% resistors (0603)
R47	1	20k Ω $\pm$ 1% resistor (0603)
R48	1	470 Ω $\pm$ 5% resistor (0603)
R62	1	5.1k Ω 5% resistor (0603)
RGBLED	1	RGB LED
S1	1	4-position, SMT, half-pitch DIP switch
U1	1	RGB ambient IR combo sensor (6 OTDFN) Maxim MAX44008EDT+
U2	1	LED driver (49 WLP) Maxim MAX8930EWJ+
U3	0	Not installed, Xilinx serial PROM (20 TSSOP)
U4	0	Not installed, Atmel SPI flash (8 SO)
U6, U7	2	LDOs (16 TSSOP-EP*) Maxim MAX1793EUE50+
U8	1	USB-to-UART converter (32 TQFP)
U9	1	93C46-type 3-wire EEPROM (8 SO)
U10	1	LDO (6 SOT23) Maxim MAX1983EUT+
U13	1	Spartan 3AN FPGA (144 TQFP) Xilinx XC3S50AN-4TQG144I
U14	1	Microcontroller (68 QFN-EP*) Maxim MAXQ2000-RAX+
U16, U17	2	Level translators (10 μ MAX®) Maxim MAX1840EUB+

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Component Lists (continued)

MAX44008 EV Kit (continued)

DESIGNATION	QTY	DESCRIPTION
U18	1	SRAM (48 TSOP)
Y1	1	50MHz oscillator
Y2	1	6MHz crystal Hong Kong X'tals SSL60000N1HK188F0-0
Y3	0	Not installed, crystal (CMR200T)
Y4	1	20MHz crystal
—	4	0.250in x 0.625in 4-40 round nylon spacers

DESIGNATION	QTY	DESCRIPTION
—	4	4-40 x 0.375in nylon machine screws
—	1	USB high-speed A-to-B cables, 5ft (1.5m)
—	9	Shunts
—	1	PCB: MAX44008 EVALUATION KIT

*EP = Exposed pad.

MAX44008 Daughter Board

DESIGNATION	QTY	DESCRIPTION
C1	1	1 μ F $\pm$ 10%, 10V X7R ceramic capacitor (0603) Murata GRM188R71A105K
J1	1	6-pin (2 x 3) female header
R1	1	0 Ω $\pm$ 5% resistor (0603)
R2	0	Not installed, resistor (0603)

DESIGNATION	QTY	DESCRIPTION
U1	1	RGB ambient IR combo sensor (6 OTDFN) Maxim MAX44008EDT+
—	1	PCB: MAX44008 DAUGHTER BOARD

Component Suppliers

SUPPLIER	PHONE	WEBSITE
Hong Kong X'tals Ltd.	852-35112388	www.hongkongcrystal.com
Murata Electronics North America, Inc.	770-436-1300	www.murata-northamerica.com
Samtec, Inc.	800-726-8329	www.samtec.com
Taiyo Yuden	800-348-2496	www.t-yuden.com
TDK Corp.	847-803-6100	www.component.tdk.com

Note: Indicate that you are using the MAX44008 when contacting these component suppliers.

MAX44008 EV System Files

FILE	DESCRIPTION
INSTALL.EXE	Installs the EV system files on your computer
MAX44008.EXE	Application program
CDM20600.EXE	Installs the USB device driver
UNINSTALL.EXE	Uninstalls the EV kit software
USB_Driver_Help200.PDF	USB driver installation help file

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Quick Start

Required Equipment

- MAX44008 EV kit (USB cable included)
- Windows XP, Windows Vista, or Windows 7 PC with a spare USB port

Note: In the following sections, software-related items are identified by bolding. Text in **bold** refers to items directly from the EV kit software. Text in **bold and underlined** refers to items from the Windows operating system.

Procedure

The EV kit is fully assembled and tested. Follow the steps below to verify board operation:

- 1) Visit www.maximintegrated.com/evkitsoftware to download the latest version of the EV kit software, 44008Rxx.ZIP. Save the EV kit software to a temporary folder and uncompress the ZIP file.
- 2) Install the EV kit software and USB driver on your computer by running the INSTALL.EXE program inside the temporary folder. The program files are copied to your PC and icons are created in the Windows **Start | Programs** menu. During software installation, some versions of Windows may show a warning message

indicating that this software is from an unknown publisher. This is not an error condition and it is safe to proceed with installation. Administrator privileges are required to install the USB device driver on Windows.

- 3) Verify that all jumpers (JU6, JU7, JU8, JU10, and JU12–JU16) are in their default positions, as shown in Table 1.
- 4) Connect the USB cable from the PC to the EV kit board. A Windows message appears when connecting the EV kit board to the PC for the first time. Each version of Windows has a slightly different message. If you see a Windows message stating **ready to use**, then proceed to the next step. Otherwise, open the USB_Driver_Help_200.PDF document in the Windows **Start | Programs** menu to verify that the USB driver was installed successfully.
- 5) Start the EV kit software by opening its icon in the **Start | Programs** menu. The EV kit software main window appears, as shown in Figure 1.
- 6) Select **Clear+RGB+IR** in the **Operating Mode** combo box at the upper-left corner of the software.
- 7) In the **Color Map Display** tab sheet, check the **Auto Convert** checkbox in the **Single Conversion** group box to read the ADC values.

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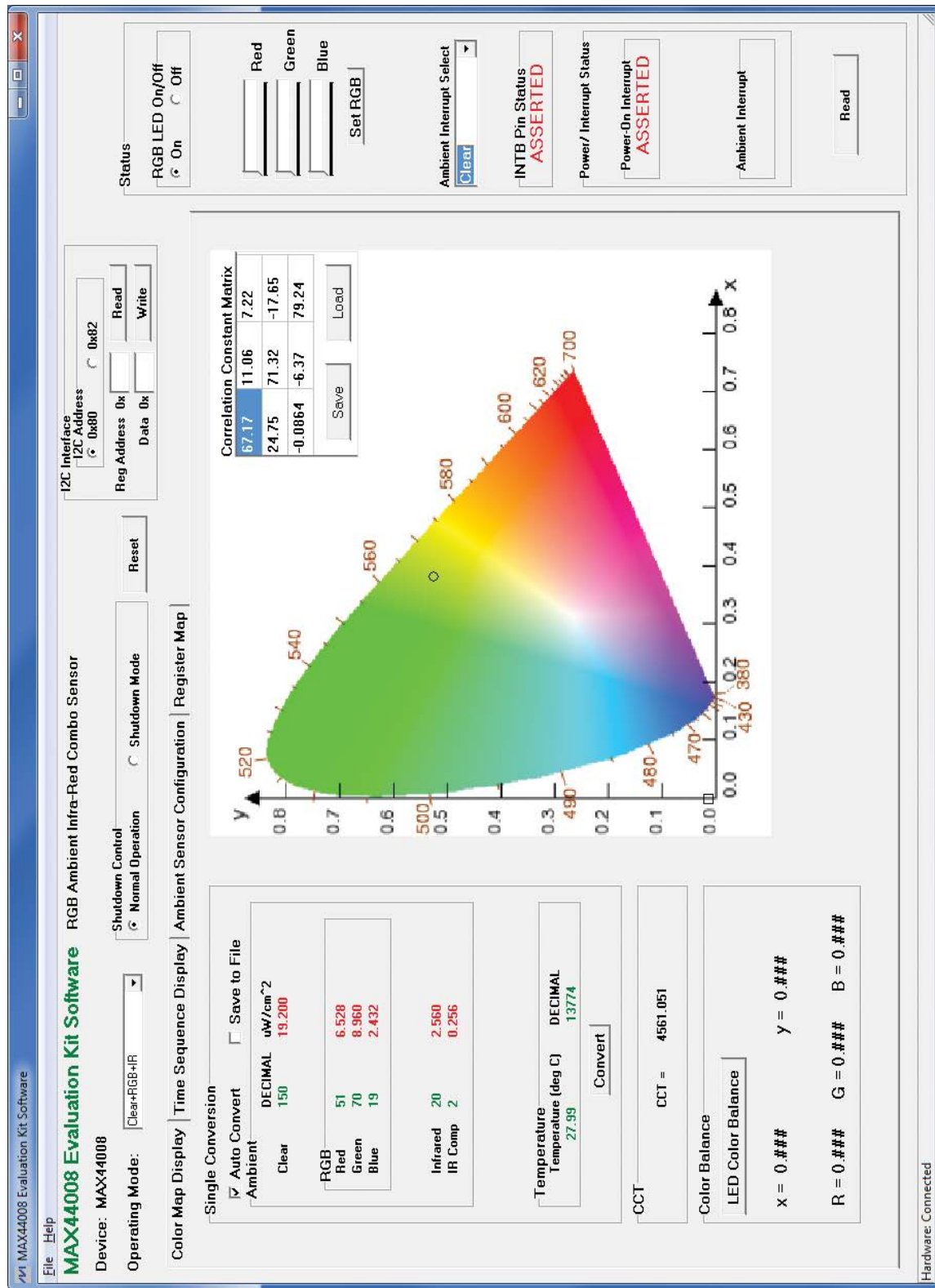


Figure 1. MAX44008 EV Kit Software Main Window (Color Map Display Tab)

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Detailed Description of Software

The MAX44008 EV kit software (Figure 1) contains an **I2C Interface** group box, a **Status** group box, and four tab sheets (**Color Map Display**, **Time Sequence Display**, **Ambient Sensor Configuration**, and **Register Map**) to configure the MAX44008 and display the ADC data received from the device.

I2C Interface

In the **I2C Interface** group box, choose the appropriate I2C slave address in the **I2C Address** group box. Enter the register address in the **Reg Address** edit box and press the **Read** button to read the register. The returned value is shown in the **Data** edit box. To write a data value into a register, enter the register address in the **Reg Address** edit box, enter the data value into the **Data** edit box, and press the **Write** button.

Operating Mode

Use the **Operating Mode** drop-down list to select one of the three operating modes. The operating modes are: **Clear**, **Clear+IR**, and **Clear+RGB+IR**.

Color Map Display Tab

The **Single Conversion** group box on the **Color Map Display** tab sheet (Figure 1) displays the ADC values for a single sample. Press the **Convert** button to update the values in the **Ambient**, **Temperature**, and **CCT** group boxes. The received RGB ADC values are converted to the chromaticity coordinates (x, y) values using the 3-by-3 **Correlation Constant Matrix** located in the upper-right corner of the chromaticity diagram. The calculated x, y value is plotted on the chromaticity diagram in a circle shape. Overwrite the values in the matrix and press the **Save** button to save the matrix settings. Press the **Load** button to restore the previously saved matrix. See the following for the RGB to chromaticity coordinate conversion formulas and CCT calculation formulas:

$$\begin{bmatrix} X \\ Y \\ Z \end{bmatrix} = \begin{bmatrix} 3BY3 \\ CM \\ MATRIX \end{bmatrix} \times \begin{bmatrix} R \\ G \\ B \end{bmatrix}$$

$$x = \frac{X}{X + Y + Z}$$

$$y = \frac{Y}{X + Y + Z}$$

$$CCT = 449n^3 + 3525n^2 + 6823.3n + 5520.33$$

$$\text{where } n = \frac{x - 0.3320}{0.1858 - y}$$

Check the **Auto Convert** checkbox to automatically and repeatedly do the ADC conversion and update the values in the **Ambient**, **Temperature**, and **CCT** group boxes. Check the **Save to File** checkbox to save the received data to a file.

To use the **Color Balance** function, the user must first connect the daughter board to the EV kit. See the *MAX44008 Daughter Board* section for details on how to connect the daughter board. The **Color Balance** feature allows the user to select a color on the chromaticity diagram by clicking on the diagram. The selected color is boxed by a square shape. If the **LED Color Balance** button is pressed, the on-board RGB LED outputs the selected color. The RGB sensor on the device is used to get feedback to determine whether the RGB LED is outputting the right color.

Time Sequence Display Tab

In the **Time Sequence Display** tab sheet (Figure 2), the user can select the desired number of conversions in the **Number of Samples** drop-down list. The rate that the controller reads the ADC data from the MAX44008 is selected from the **Read Rate** drop-down list in the **Continuous Conversion** group box. Press the **Convert Start** button to start sampling from the ADC channel selected from the **Channel Select** drop-down list. After the **Convert Start** button is pressed, the sampled data is plotted on the graph. If the **Save to File** checkbox is checked, the received ADC data is saved to a file after each conversion.

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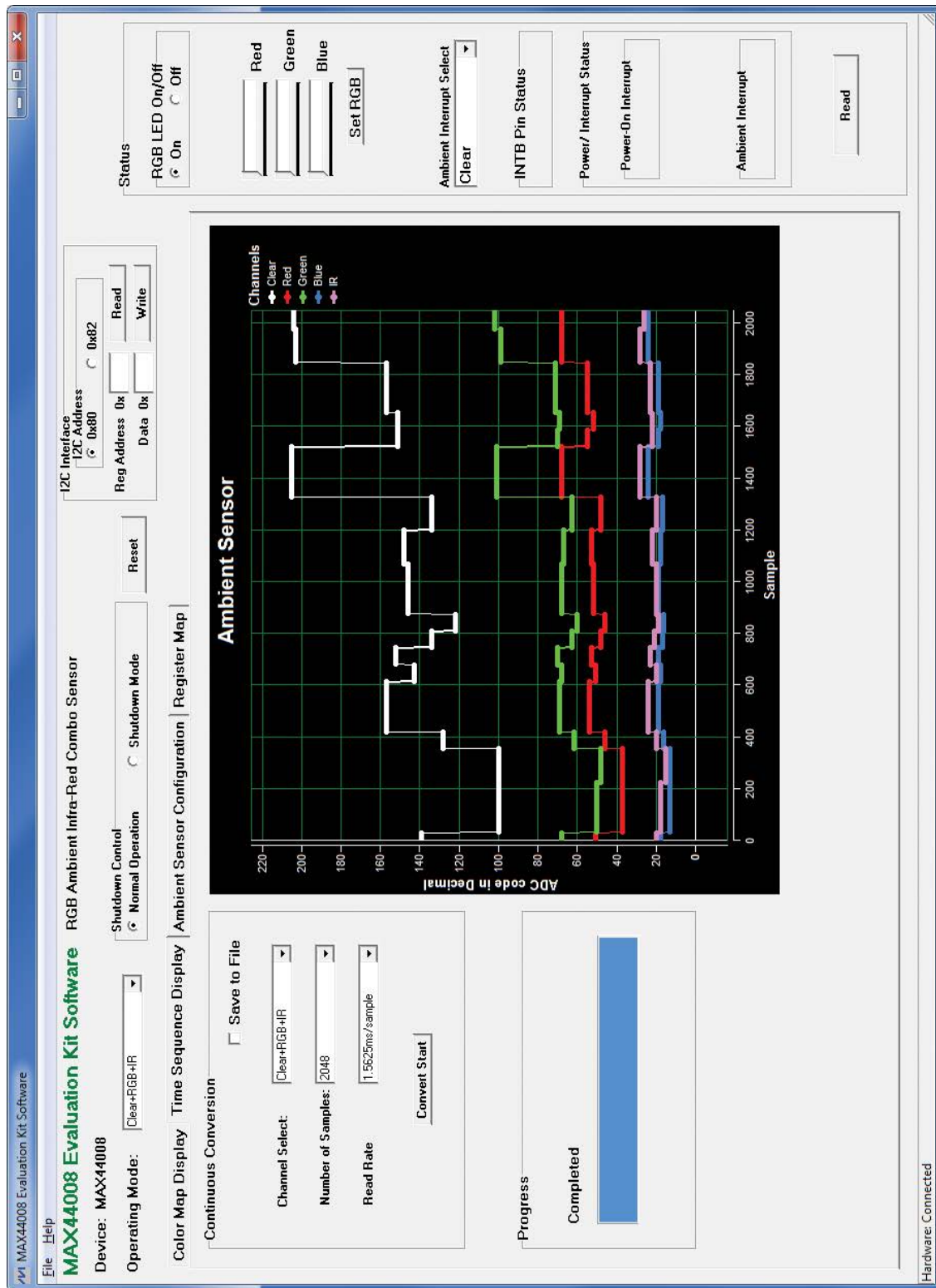


Figure 2. MAX44008 EV Kit Software (Time Sequence Display Tab)

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Ambient Sensor Configuration Tab

The **Ambient Sensor Configuration** tab sheet (Figure 3) has all the functions to configure the ambient sensors of the device.

Check the **Ambient Interrupt Enable** checkbox to enable the detection of ambient interrupt events.

Check the **IR Compensation Enable** checkbox to enable IR compensation.

Check the **Temperature Sensor Enable** checkbox to enable the temperature sensor.

In the **Receive Configuration** group box, use the **AMBTIM[2:0]** drop-down list to set the integration time and resolution for the ambient ADC. The **AMBPGA[1:0]** drop-down list sets the gain of the ambient light sensing measurement.

Use the **Ambient Thresholds** group box to set the upper and lower ambient interrupt thresholds. The ambient measurement of the ADC channel that is being compared to the thresholds is selected from the **Ambient Interrupt Select** drop-down list in the **Status** group box. After the **Ambient Interrupt Enable** checkbox is checked, if the ambient measurement is higher than the upper threshold or lower than the lower threshold, the interrupt event is recorded (provided the persist timer condition is met). The interrupt bit is reset only after reading the interrupt status register.

In the **Upper Threshold** group box, use the **UPTHR[13:0]** track bar to select the desired upper ambient interrupt threshold. Press the adjacent **Set** button to set the UPTHR register. Similarly, use the **LOTHR[13:0]** track bar in the **Lower Threshold** group box to select the desired lower ambient interrupt threshold. Press the adjacent **Set** button to set the LOTHR register.

Use the **AMPST[1:0]** drop-down list in the **Timer Threshold** group box to set the persist value that con-

trols how readily the ambient interrupt logic reacts to a detected event.

In the **Gain Control** group box, check the **TRIM Enable** checkbox to force the part to use the trim value set in the trim gain registers. Use the track bars and the adjacent **Set** buttons to set the trim gain registers for the corresponding ambient ADC channels.

Status

In the **Status** group box, press the **Read** button to read the status of the interrupt pin, INT. If the interrupt signal is asserted, the status register (0x00) is read and displayed in the **Power/Interrupt Status** group box.

The measurement of the ADC channel selected from the **Ambient Interrupt Select** drop-down list is compared to the ambient interrupt thresholds. When the **Ambient Interrupt Enable** checkbox is checked, if the ambient measurement is higher than the upper threshold or lower than the lower threshold, the interrupt event is recorded (provided the persist timer condition is met).

The **Red**, **Green**, and **Blue** track bars and the **Set RGB** buttons are used to manually adjust the brightness of the on-board RGB LED. Use the **RGB LED On/Off** radio group box to turn on/off the RGB LED.

Register Map

The **Register Map** tab sheet (Figure 4) contains a register map of the device. The tab is organized from left to right with register names, bit names, register addresses, edit boxes, and **Read** and **Write** buttons. The bit names are used to display the current state of each bit (visible text = 1). In addition, a register's bits can be individually toggled by single-clicking on the bit's name. The edit boxes are used to display a register's state and are updated after a bit click or **Read** button press. The user can also change the value of the register by entering a value in the edit box and pressing the adjacent **Write** button.

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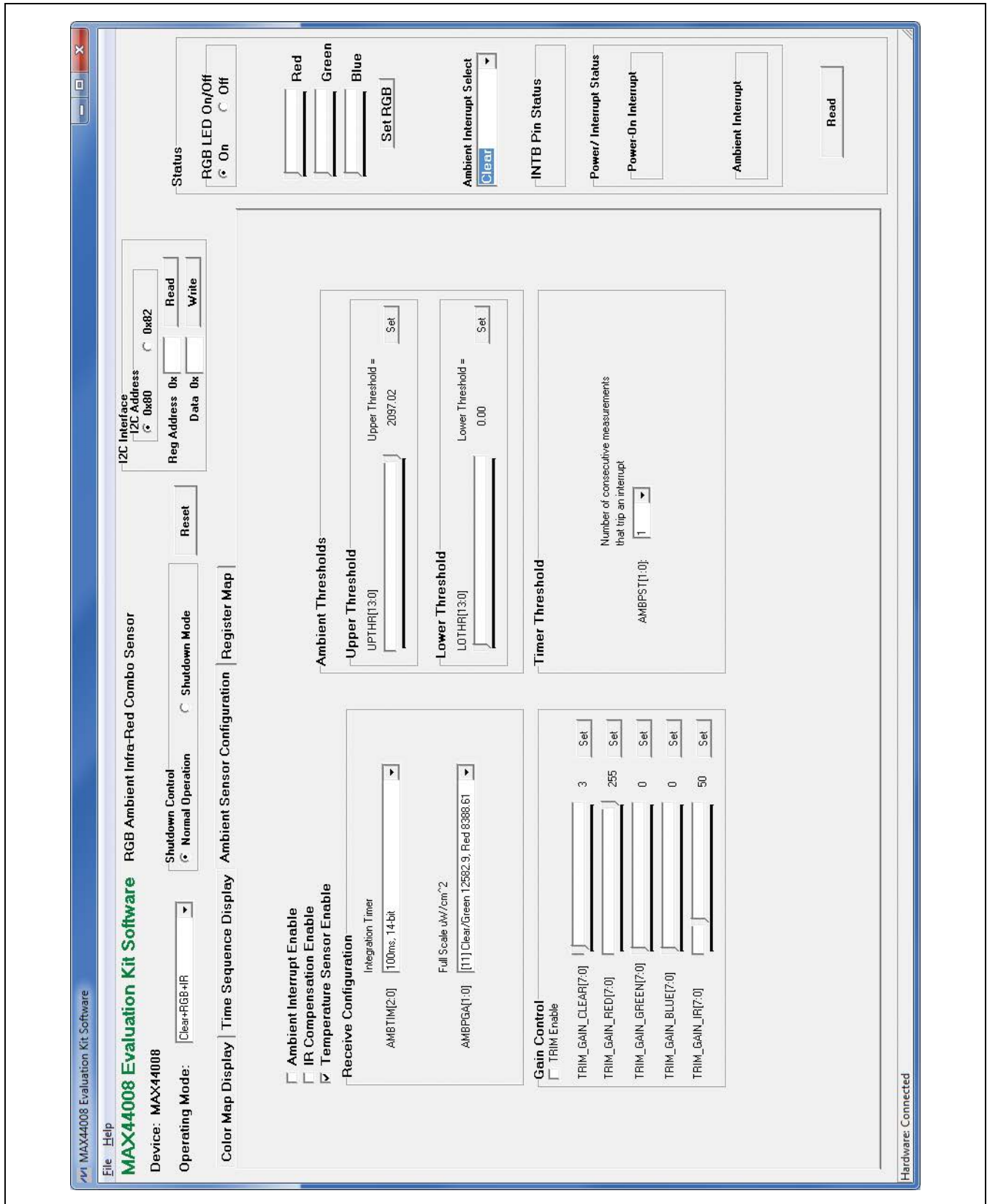


Figure 3. MAX44008 EV Kit Software (Ambient Sensor Configuration Tab)

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MAX44008 Evaluation Kit Software

Device: MAX44008

Operating Mode:

RGB Ambient Infra-Red Combo Sensor

Shutdown Control: ☒ Normal Operation ☐ Shutdown Mode

I2C Interface: I2C Address

Reg Address Data

Status: RGB LED On/Off ☒ On ☐ Off

Red Green Blue

Ambient Interrupt Select:

Power/ Interrupt Status:

Register	B7	B6	B5	B4	B3	B2	B1	B0	Reg Addr	Data	Read All
Interrupt Status	N/A	N/A	N/A	RESET	SHDN	PMRON	N/A	AMBINTS	0x00	0x00	Read
Main Config	N/A	MODE2	MODE1	MODE0	AMBSL1	AMBSL0	N/A	AMBPGE0	0x01	0x01	Read
Amb Config	TRIM	COMPEN	TEMPEN	AMBTIM2	AMBTIM1	AMBTIM0	N/A	AMBPGE1	0x02	0x02	Read
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0x03	0x03	Read
Amb CLEAR HB	N/A	N/A	AMBCLEAR13	AMBCLEAR12	AMBCLEAR11	AMBCLEAR10	AMBCLEAR9	AMBCLEAR8	0x04	0x04	Read
Amb CLEAR LB	AMBCLEAR7	AMBCLEAR6	AMBCLEAR5	AMBCLEAR4	AMBCLEAR3	AMBCLEAR2	AMBCLEAR1	AMBCLEAR0	0x05	0x05	Read
Amb RED HB	N/A	N/A	AMBCLEAR13	AMBCLEAR12	AMBCLEAR11	AMBCLEAR10	AMBCLEAR9	AMBCLEAR8	0x06	0x06	Read
Amb RED LB	AMBCLEAR7	AMBCLEAR6	AMBCLEAR5	AMBCLEAR4	AMBCLEAR3	AMBCLEAR2	AMBCLEAR1	AMBCLEAR0	0x07	0x07	Read
Amb GREEN HB	N/A	N/A	AMBCLEAR13	AMBCLEAR12	AMBCLEAR11	AMBCLEAR10	AMBCLEAR9	AMBCLEAR8	0x08	0x08	Read
Amb GREEN LB	AMBCLEAR7	AMBCLEAR6	AMBCLEAR5	AMBCLEAR4	AMBCLEAR3	AMBCLEAR2	AMBCLEAR1	AMBCLEAR0	0x09	0x09	Read
Amb BLUE HB	N/A	N/A	AMBCLEAR13	AMBCLEAR12	AMBCLEAR11	AMBCLEAR10	AMBCLEAR9	AMBCLEAR8	0x0A	0x0A	Read
Amb BLUE LB	AMBCLEAR7	AMBCLEAR6	AMBCLEAR5	AMBCLEAR4	AMBCLEAR3	AMBCLEAR2	AMBCLEAR1	AMBCLEAR0	0x0B	0x0B	Read
Amb INFRARED HB	N/A	N/A	AMBCLEAR13	AMBCLEAR12	AMBCLEAR11	AMBCLEAR10	AMBCLEAR9	AMBCLEAR8	0x0C	0x0C	Read
Amb INFRARED LB	AMBCLEAR7	AMBCLEAR6	AMBCLEAR5	AMBCLEAR4	AMBCLEAR3	AMBCLEAR2	AMBCLEAR1	AMBCLEAR0	0x0D	0x0D	Read
Amb COMP HB	N/A	N/A	AMBCLEAR13	AMBCLEAR12	AMBCLEAR11	AMBCLEAR10	AMBCLEAR9	AMBCLEAR8	0x0E	0x0E	Read
Amb COMP LB	AMBCLEAR7	AMBCLEAR6	AMBCLEAR5	AMBCLEAR4	AMBCLEAR3	AMBCLEAR2	AMBCLEAR1	AMBCLEAR0	0x0F	0x0F	Read
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0x10	0x10	Read
Temperature HB	N/A	N/A	TEMP13	TEMP12	TEMP11	TEMP10	TEMP9	TEMP8	0x11	0x11	Read
Temperature LB	TEMP7	TEMP6	TEMP5	TEMP4	TEMP3	TEMP2	TEMP1	TEMP0	0x12	0x12	Read
AMB Upper Thres HB	N/A	N/A	UPTHR13	UPTHR12	UPTHR11	UPTHR10	UPTHR9	UPTHR8	0x13	0x13	Read
AMB Upper Thres LB	UPTHR7	UPTHR6	UPTHR5	UPTHR4	UPTHR3	UPTHR2	UPTHR1	UPTHR0	0x14	0x14	Read
AMB Lower Thres HB	N/A	N/A	LOTHR13	LOTHR12	LOTHR11	LOTHR10	LOTHR9	LOTHR8	0x15	0x15	Read
AMB Lower Thres LB	LOTHR7	LOTHR6	LOTHR5	LOTHR4	LOTHR3	LOTHR2	LOTHR1	LOTHR0	0x16	0x16	Read
Threshold Persist Timer	N/A	N/A	N/A	N/A	N/A	N/A	N/A	AMBPST0	0x17	0x17	Read
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0x18	0x18	Read
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0x19	0x19	Read
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0x1A	0x1A	Read
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0x1B	0x1B	Read
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0x1C	0x1C	Read
Gain Trim of Clear Ch	GAINTIM7	GAINTIM6	GAINTIM5	GAINTIM4	GAINTIM3	GAINTIM2	GAINTIM1	GAINTIM0	0x1D	0x1D	Read
Gain Trim of Red Ch	GAINTIM7	GAINTIM6	GAINTIM5	GAINTIM4	GAINTIM3	GAINTIM2	GAINTIM1	GAINTIM0	0x1E	0x1E	Read
Gain Trim of Green Ch	GAINTIM7	GAINTIM6	GAINTIM5	GAINTIM4	GAINTIM3	GAINTIM2	GAINTIM1	GAINTIM0	0x1F	0x1F	Read
Gain Trim of Blue Ch	GAINTIM7	GAINTIM6	GAINTIM5	GAINTIM4	GAINTIM3	GAINTIM2	GAINTIM1	GAINTIM0	0x20	0x20	Read
Gain Trim of Infrared Ch	GAINTIM7	GAINTIM6	GAINTIM5	GAINTIM4	GAINTIM3	GAINTIM2	GAINTIM1	GAINTIM0	0x21	0x21	Read

Hardware: Connected

Figure 4. MAX44008 EV Kit Software (Register Map Tab)

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Detailed Description of Hardware

The MAX44008 EV system includes one MAX44008 EV kit and one MAX44008 daughter board. The EV kit is a fully assembled and tested PCB that evaluates the MAX44008 digital RGB color sensor with temp sensor. The EV kit comes installed with a MAX44008EDT+ in a 6-pin OTDFN package.

The daughter board is an external device-under-test module that also comes with a MAX44008EDT+ installed. The daughter board can be connected to and controlled by the EV kit. The user can also evaluate the device by connecting a user-supplied controller to the daughter board.

Power Supply

By default, the EV kit is USB powered. To use the external power supply, connect a 5V supply to the DVDD and DGND connectors, and place the shunt on jumper JU10 in the 2-3 position. The daughter board is powered by the EV kit board.

User-Supplied I²C Interface

To use the device on the EV kit with the user-supplied I²C interface, install the shunts on jumpers JU12–JU16 in the 2-3 position. Connect the SCL, SDA, $\overline{\text{INT}}$, and VDD signals from the external SPI interface to the EXT_SCL, EXT_SDA, EXT_INTB, and EXT_VDD connectors on the EV kit, respectively.

MAX44008 Daughter Board

To use the daughter board with the EV kit and the EV kit software, remove the shunts on JU14–JU16 to disconnect the device on the EV kit from the on-board controller (see Table 2). Carefully connect the EV kit and the daughter board by aligning pin 1 (see silkscreen) of connector J1 of the daughter board to pin 1 (see silkscreen) of the right-angle header J4 of the EV kit, and press them together. If done correctly, U1 on the daughter board should be facing the RGB LED on the EV kit.

Table 1. Jumper Settings (JU6–JU8, JU10, JU12–JU16)

JUMPER	SHUNT POSITION	DESCRIPTION
JU6	1-2*	On-board LDO (U6) provides 3.6V output to the EV kit.
	Pin 1	Disconnects the output of the on-board LDO (U6).
JU7	1-2*	On-board LDO (U7) provides 2.5V output to the EV kit.
	Pin 1	Disconnects the output of the on-board LDO (U7).
JU8	1-2*	On-board LDO (U10) provides 1.2V output to the EV system.
	Pin 1	Disconnects the output of the on-board LDO (U10).
JU10	1-2*	On-board LDOs powered from the USB port.
	2-3	Connect an external 5V supply to the DVDD connector.
JU12	1-2*	Connects the A0 pin of the U1 device to VDD (I ² C slave address = 0x80).
	2-3	Connects the A0 pin of the on-board U1 device to GND (I ² C slave address = 0x82).
JU13	1-2*	The on-board 1.8V supply connects to the VDD pin of the U1 device.
	2-3	Connect an external supply to the EXT_VDD connector.
JU14	1-2*	SDA signal of the device connected to the on-board microcontroller.
	2-3	Connect user-supplied SDA signal to the on-board EXT_SDA PCB pad.
JU15	1-2*	SCL signal of the device connected to the on-board microcontroller.
	2-3	Connect user-supplied SCL signal to the on-board EXT_SCL PCB pad.
JU16	1-2*	$\overline{\text{INT}}$ signal of the device connected to the on-board microcontroller.
	2-3	Connect user-supplied $\overline{\text{INT}}$ signal to the on-board EXT_INTB PCB pad.

*Default position.

Table 2. Selection Between EV Kit On-Board DUT and Daughter Board DUT

JUMPER	ON-BOARD PART	DAUGHTER BOARD PART
JU14	1-2*	Pin 1
JU15	1-2*	Pin 1
JU16	1-2*	Pin 1

*Default position.

MAX44008 Evaluation System

Evaluates: MAX44008

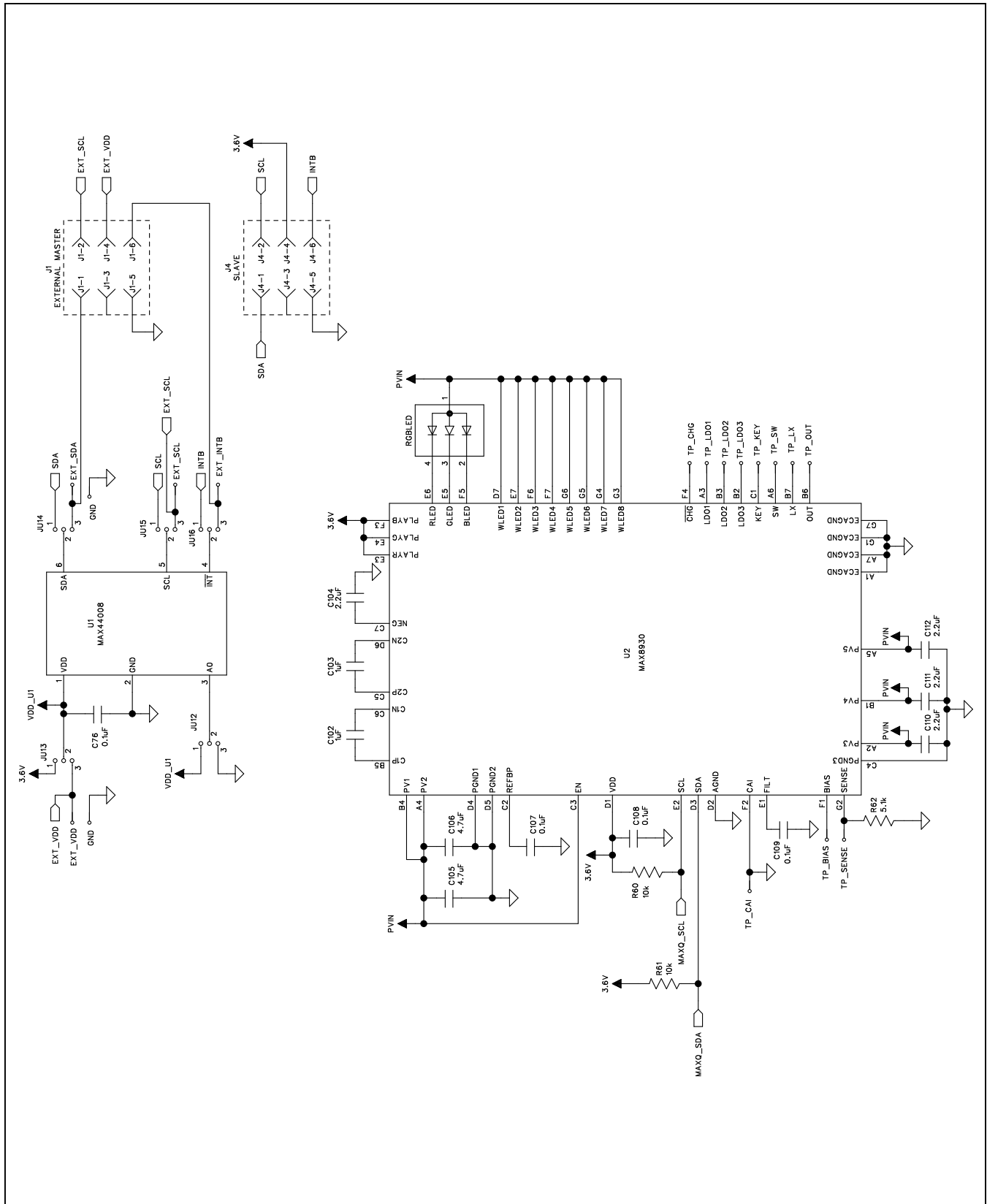


Figure 5a. MAX44008 EV Kit Schematic (Sheet 1 of 4)

MAX44008 Evaluation System

Evaluates: MAX44008

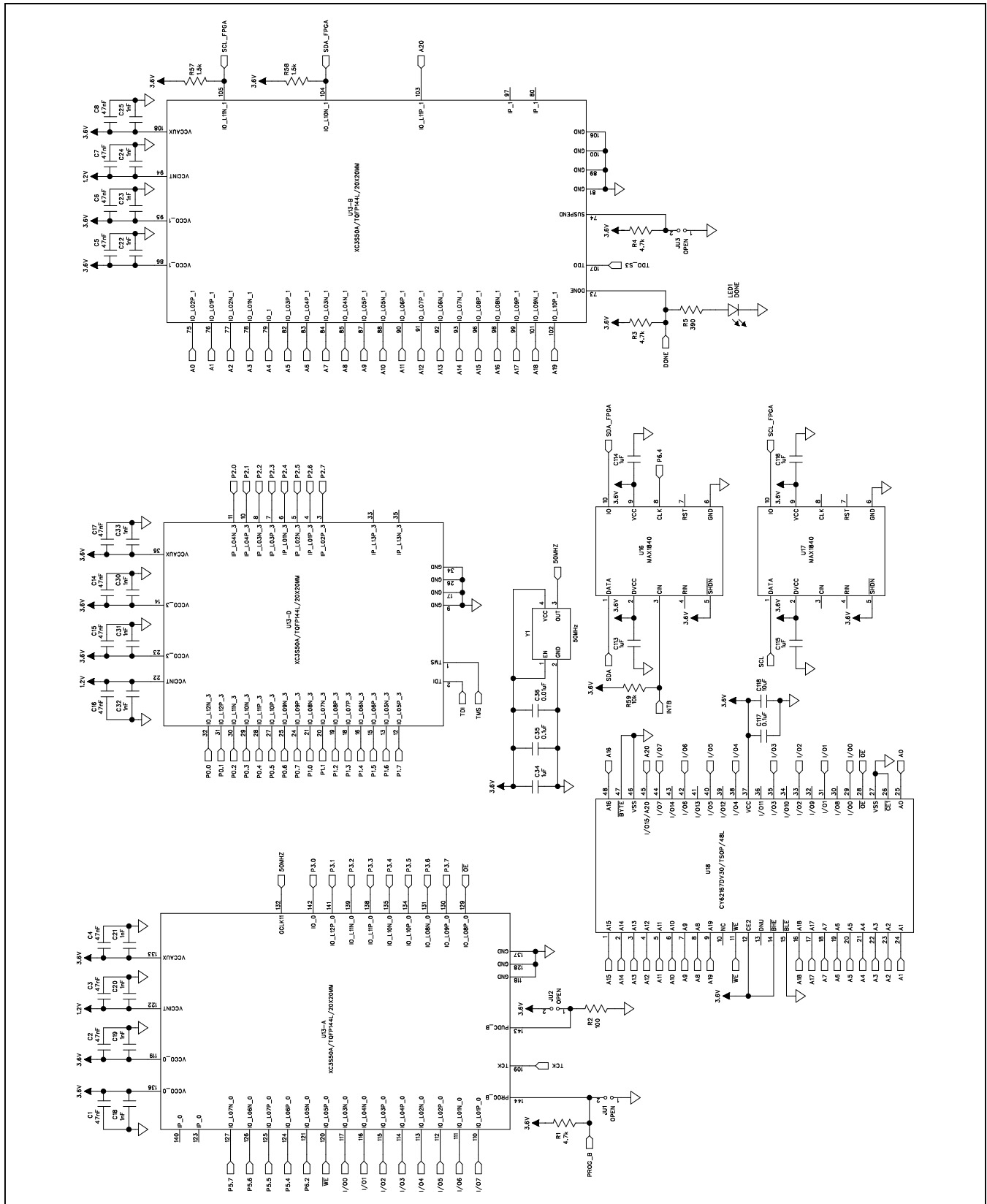


Figure 5b. MAX44008 EV Kit Schematic (Sheet 2 of 5)

MAX44008 Evaluation System

Evaluates: MAX44008

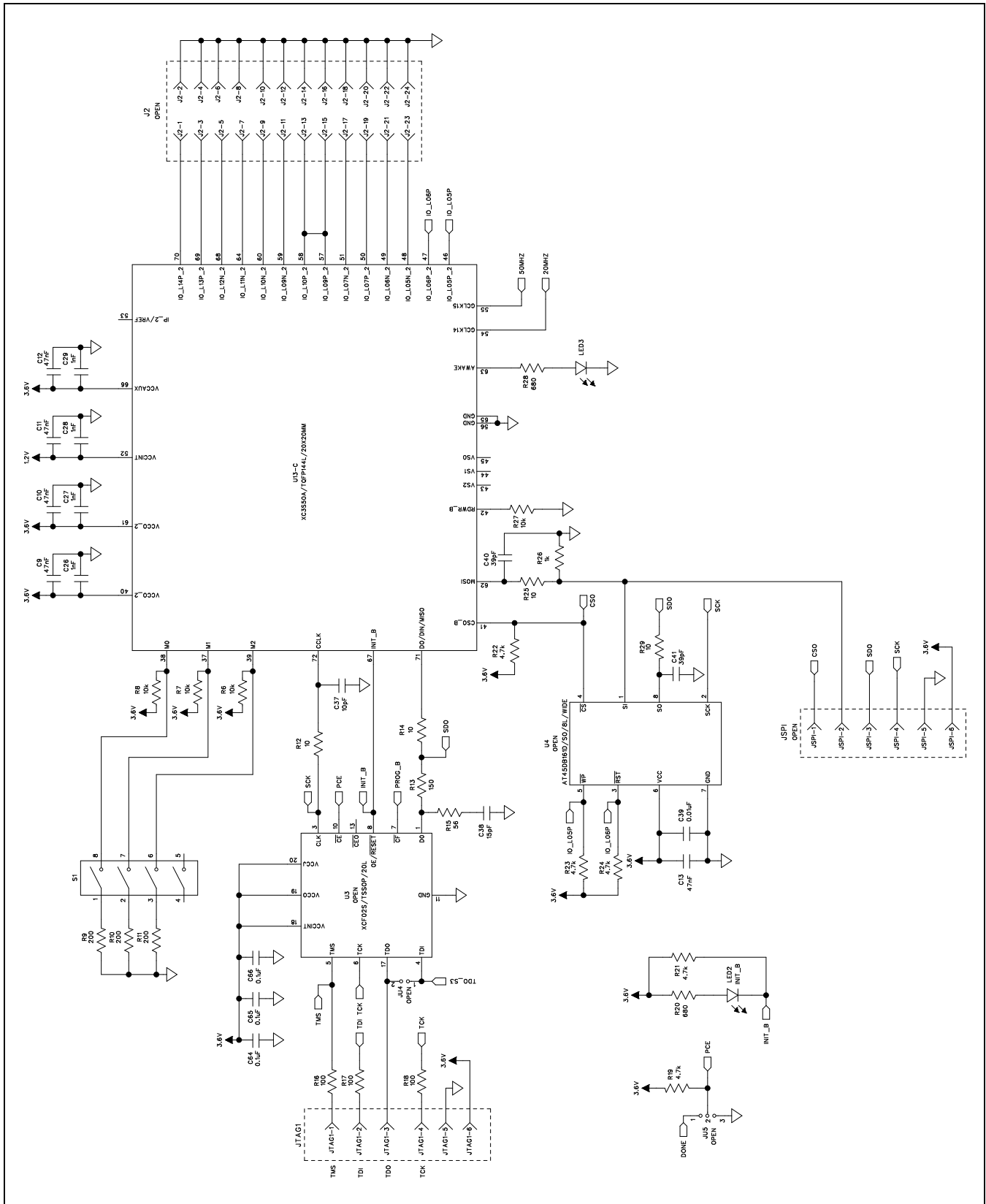


Figure 5c. MAX44008 EV Kit Schematic (Sheet 3 of 5)

MAX44008 Evaluation System

Evaluates: MAX44008

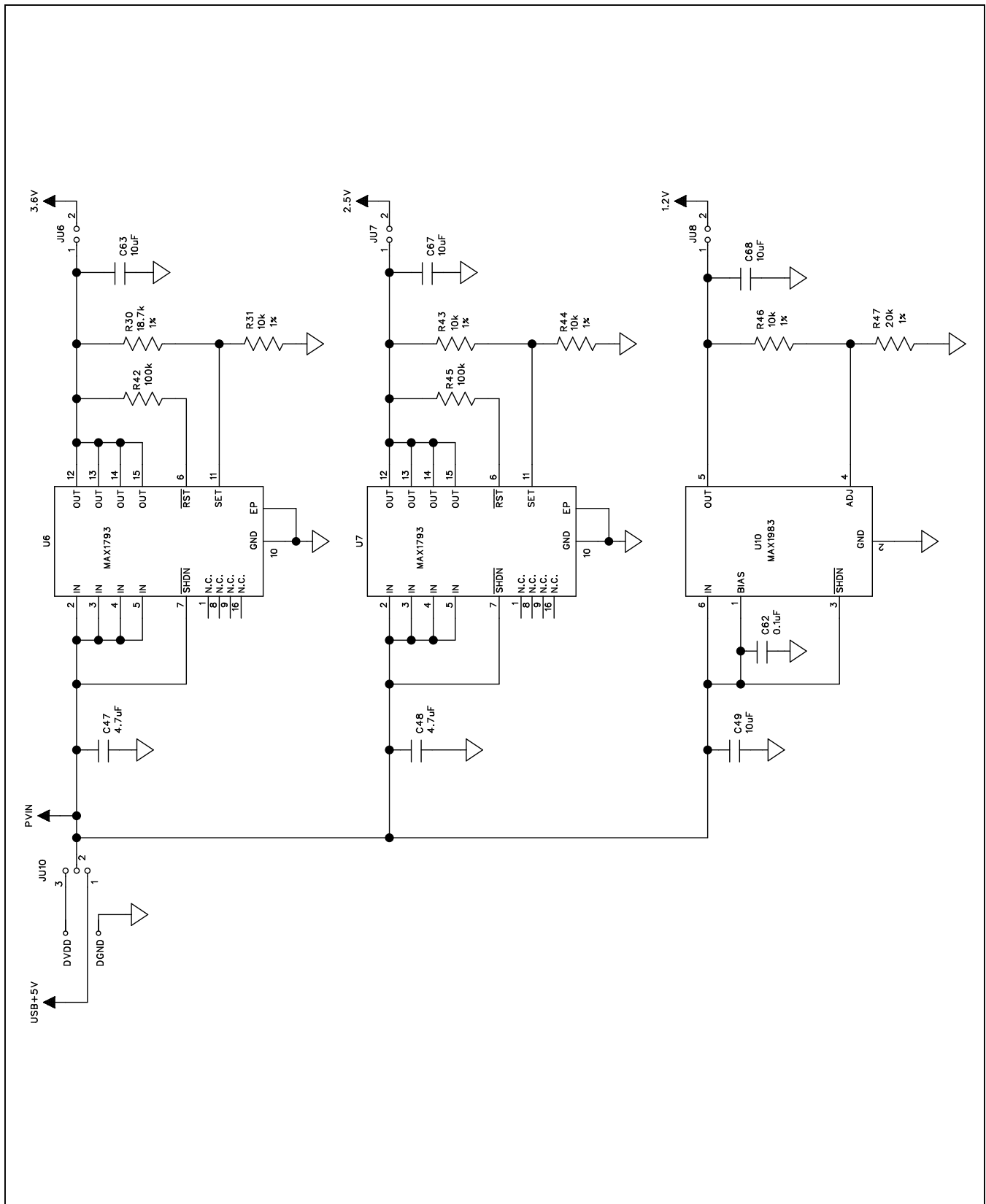


Figure 5d. MAX44008 EV Kit Schematic (Sheet 4 of 5)

MAX44008 Evaluation System

Evaluates: MAX44008

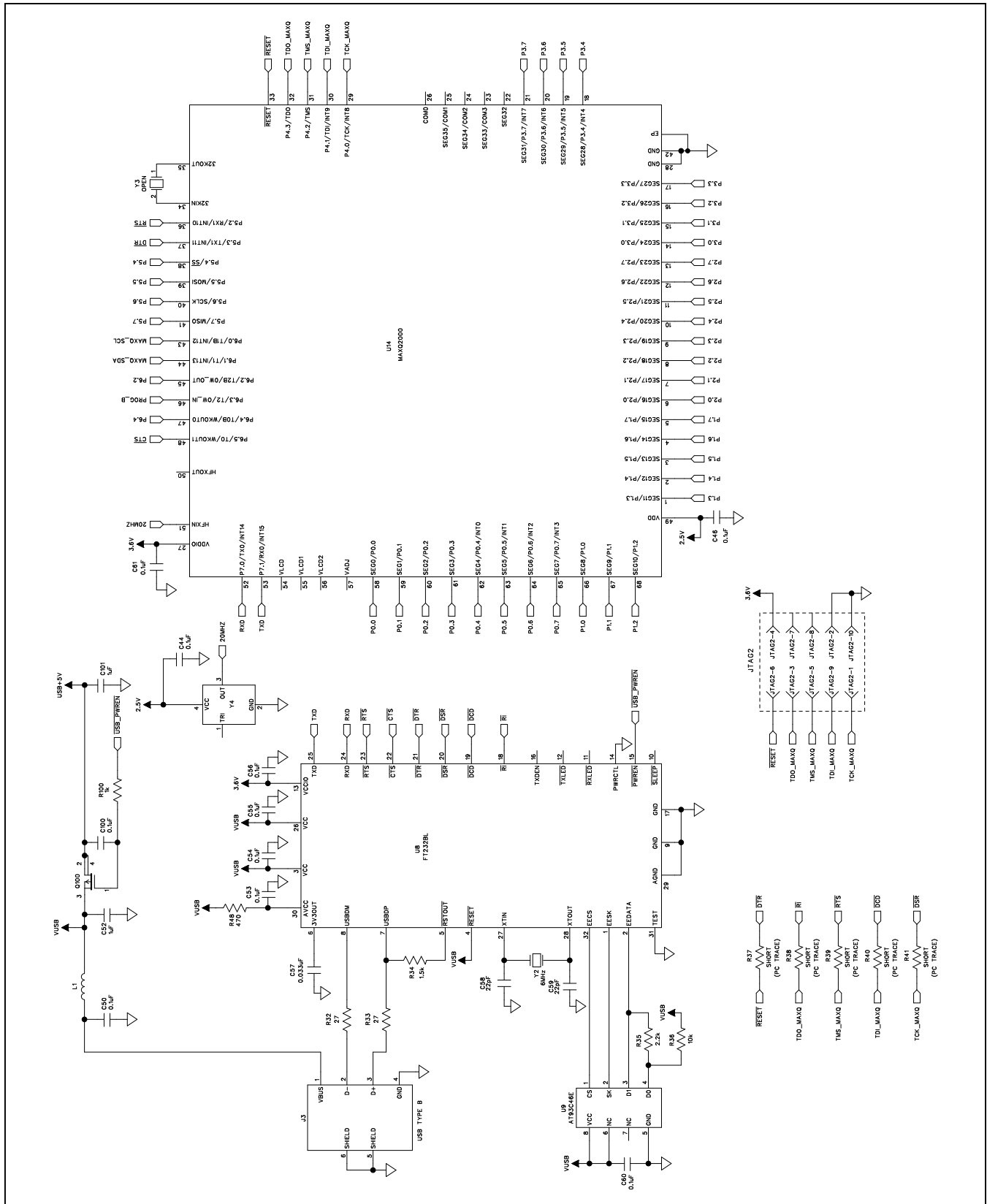


Figure 5e. MAX44008 EV Kit Schematic (Sheet 5 of 5)

MAX44008 Evaluation System

Evaluates: MAX44008

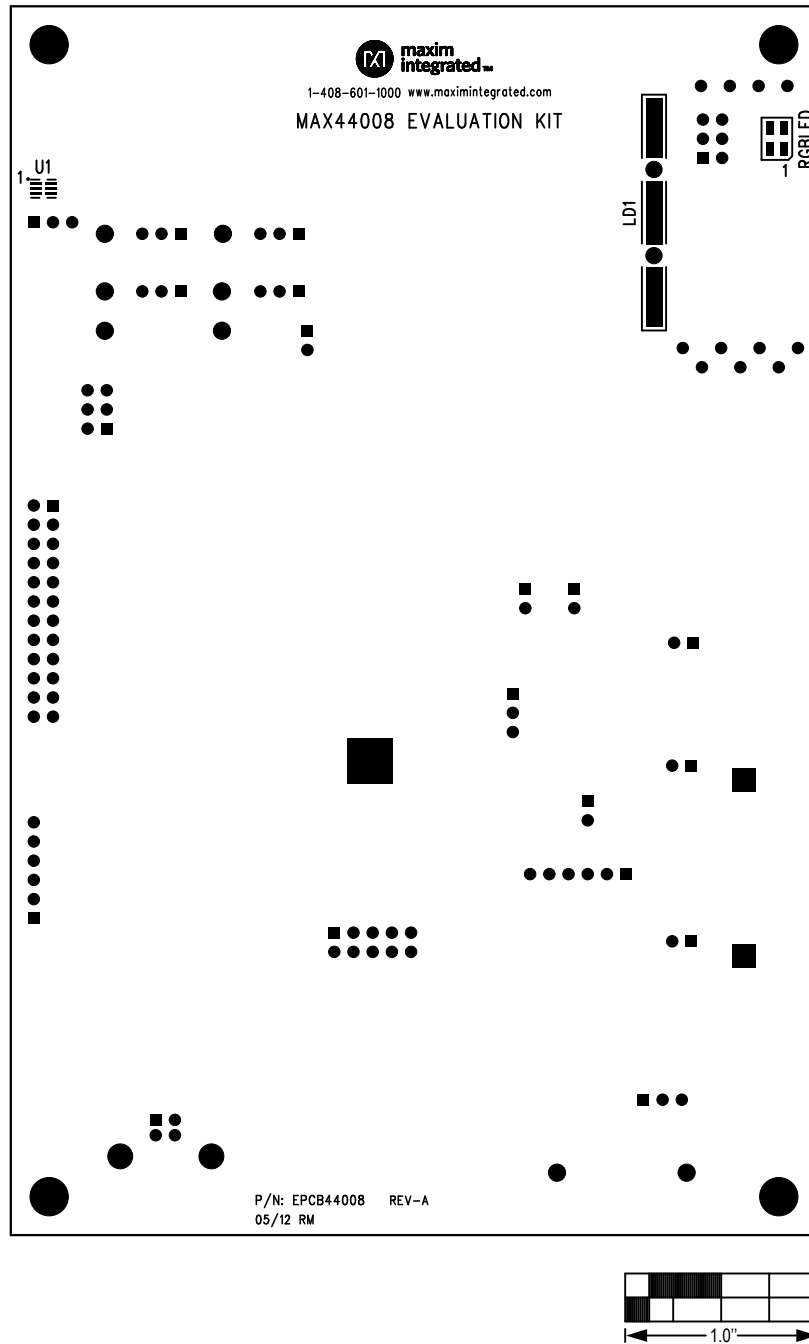


Figure 6. MAX44008 EV Kit Component Placement Guide—Component Side

MAX44008 Evaluation System

Evaluates: MAX44008

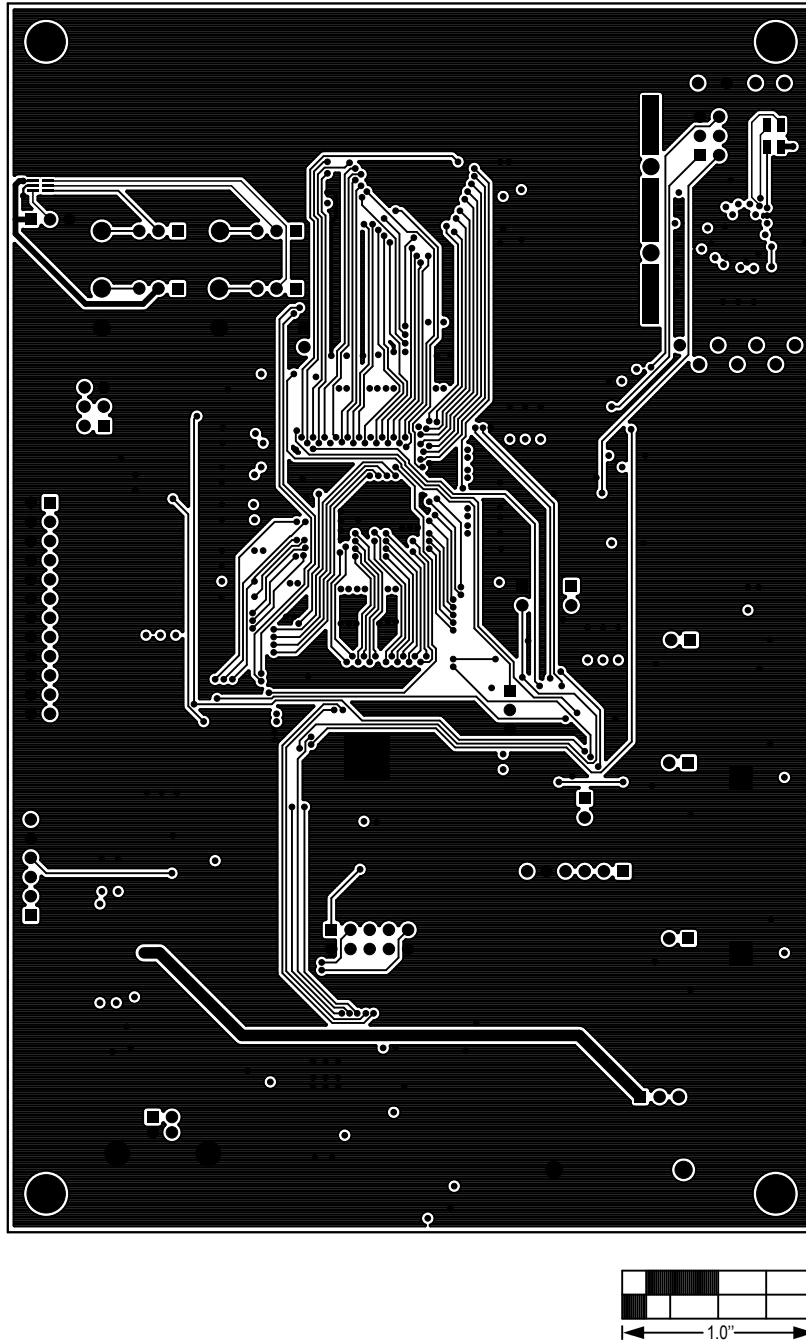


Figure 7. MAX44008 EV Kit PCB Layout—Component Side

MAX44008 Evaluation System

Evaluates: MAX44008

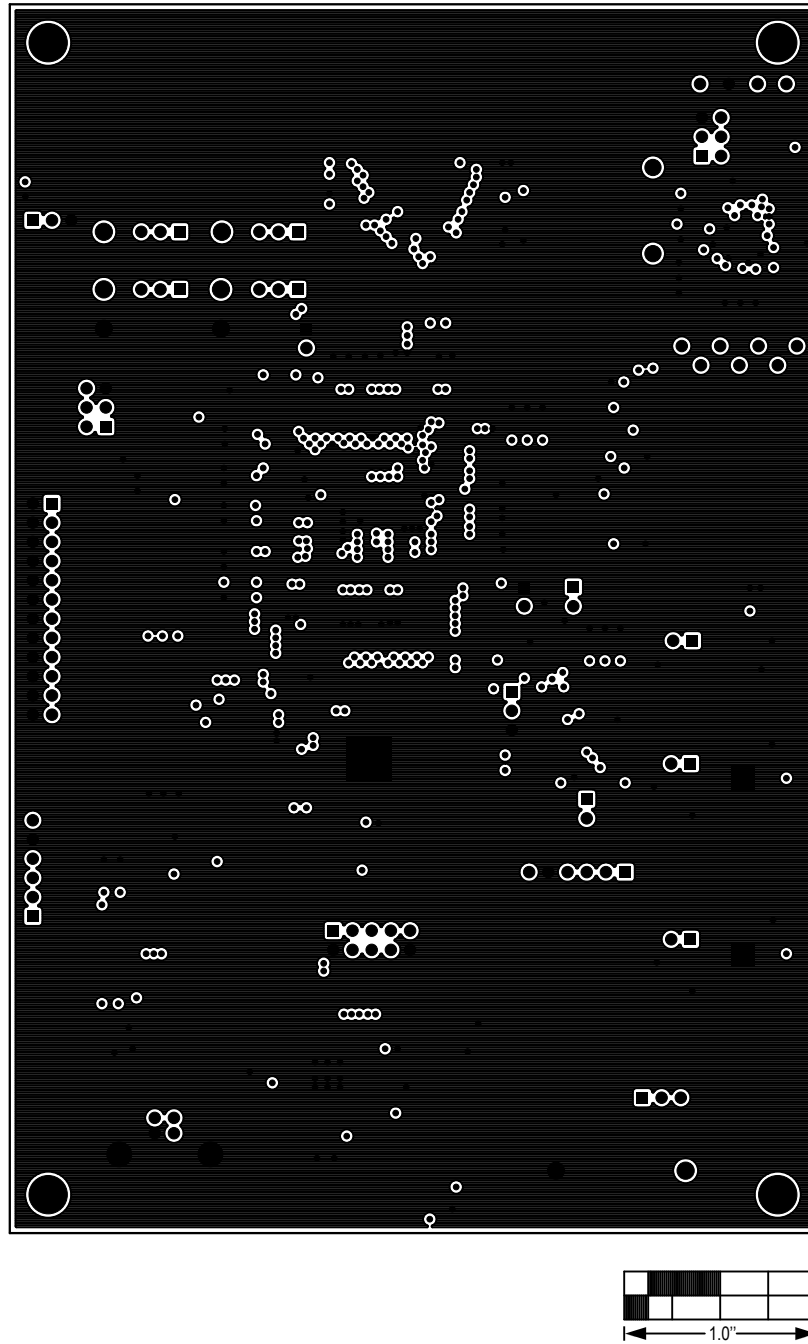


Figure 8. MAX44008 EV Kit PCB Layout—Layer 2

MAX44008 Evaluation System

Evaluates: MAX44008

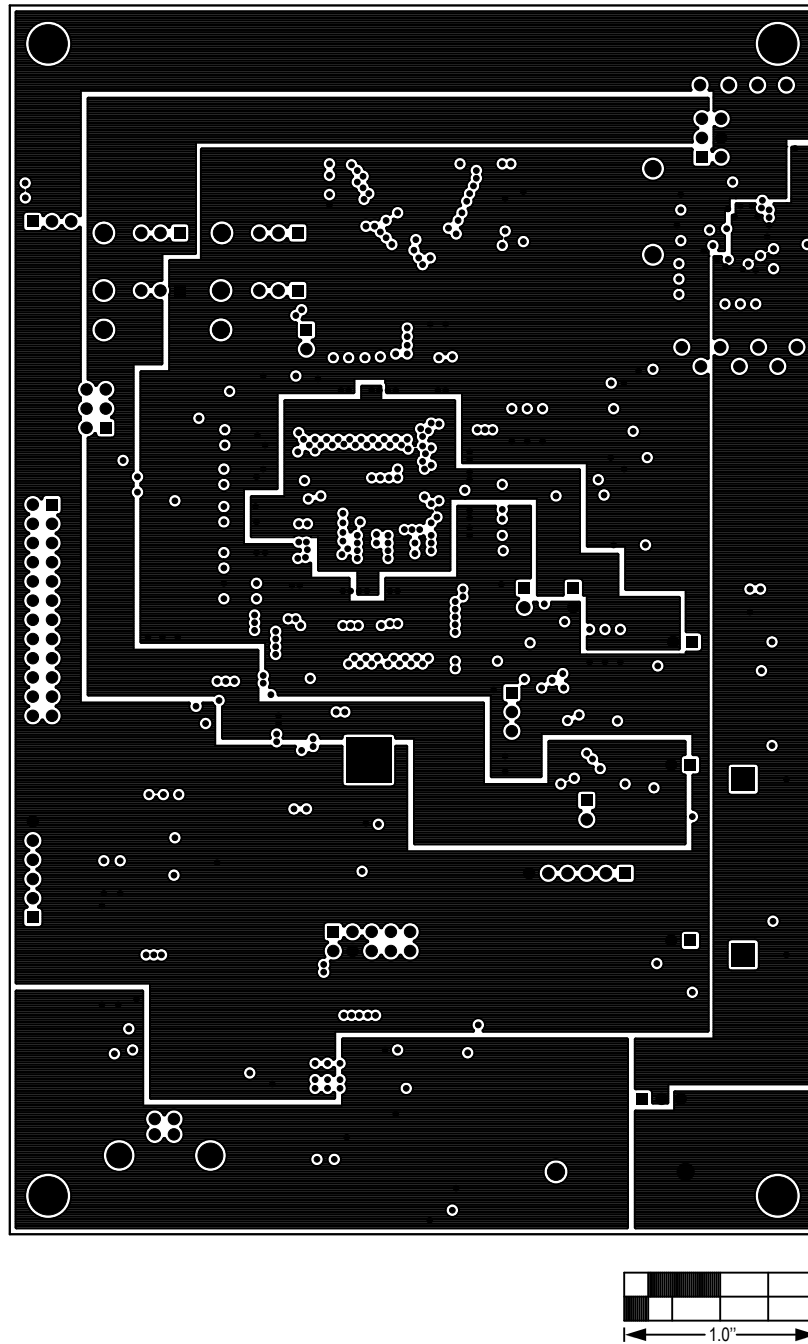


Figure 9. MAX44008 EV Kit PCB Layout—Layer 3

MAX44008 Evaluation System

Evaluates: MAX44008

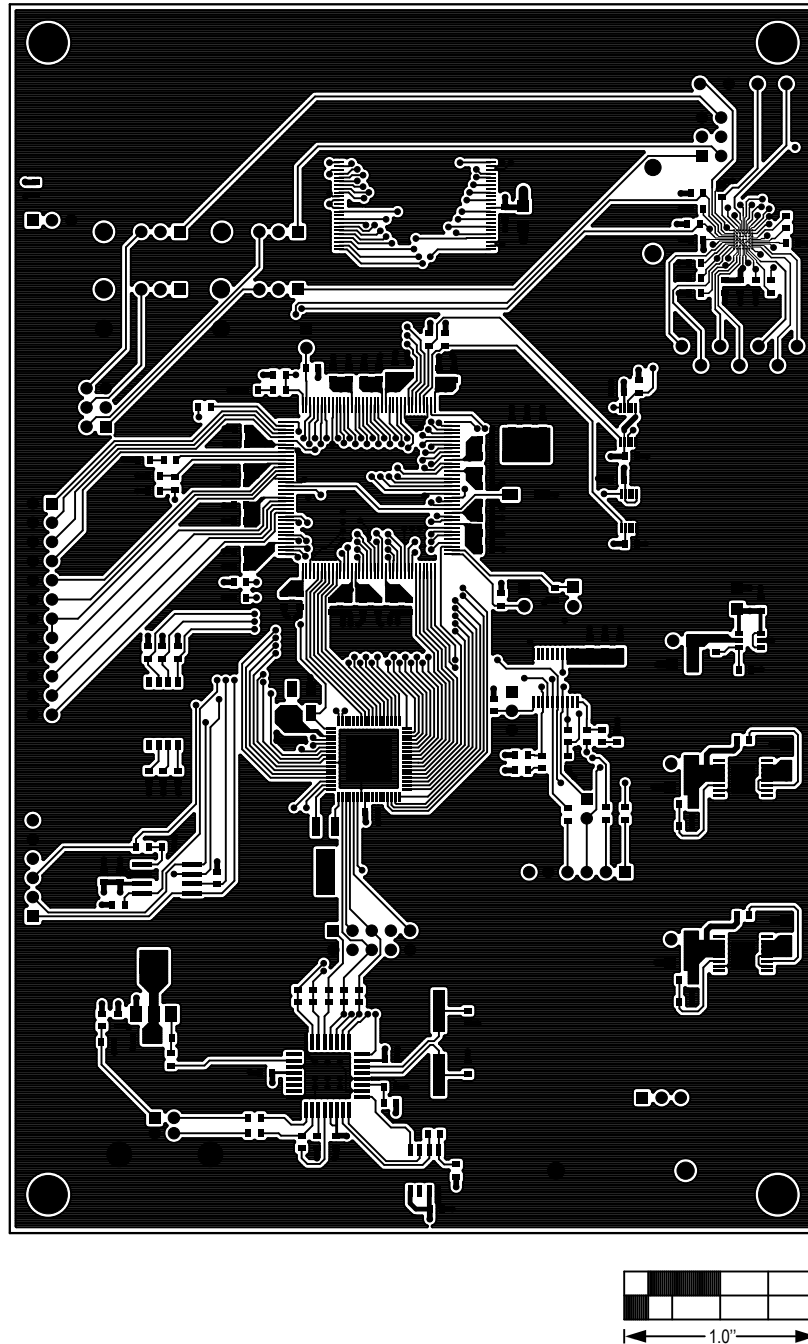


Figure 10. MAX44008 EV Kit PCB Layout—Bottom Side

MAX44008 Evaluation System

Evaluates: MAX44008

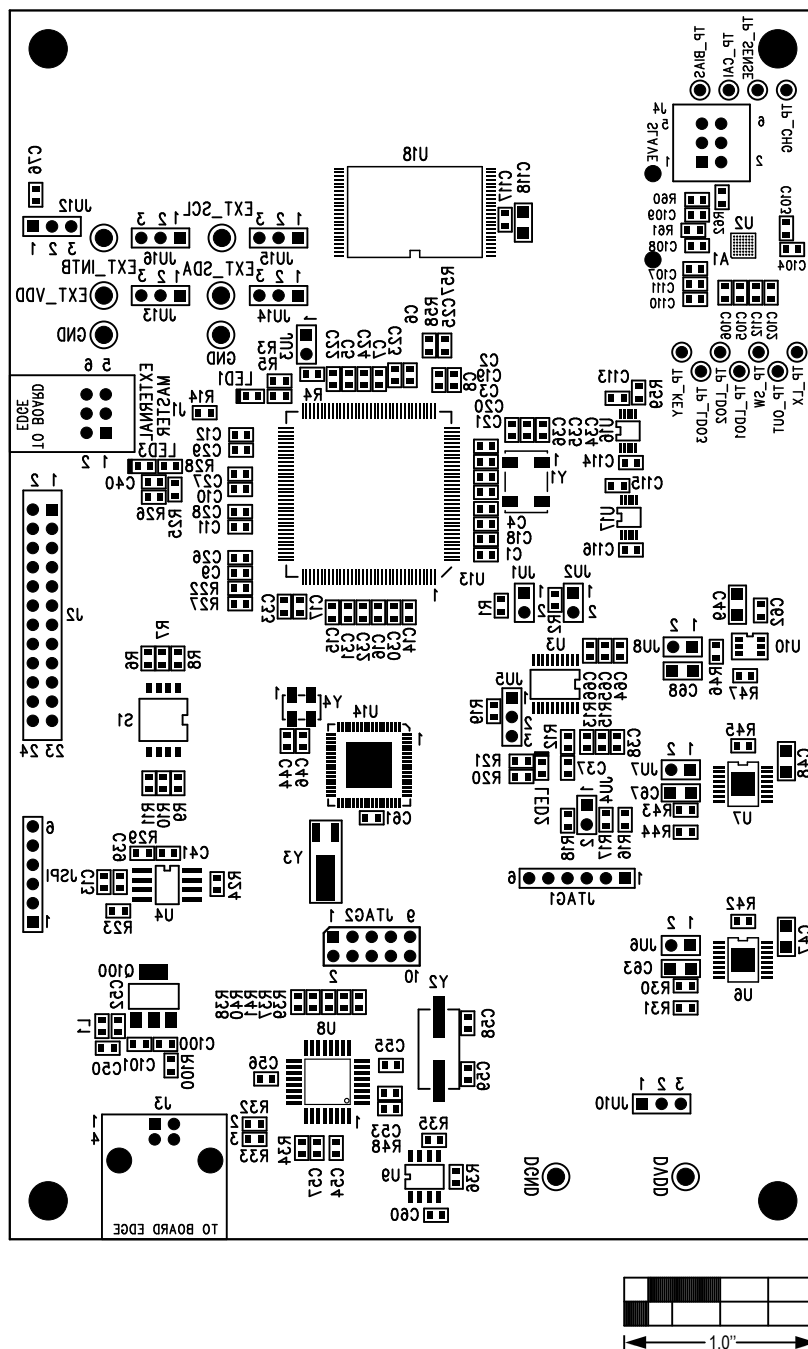


Figure 11. MAX44008 EV Kit Component Placement Guide—Bottom

MAX44008 Evaluation System

Evaluates: MAX44008

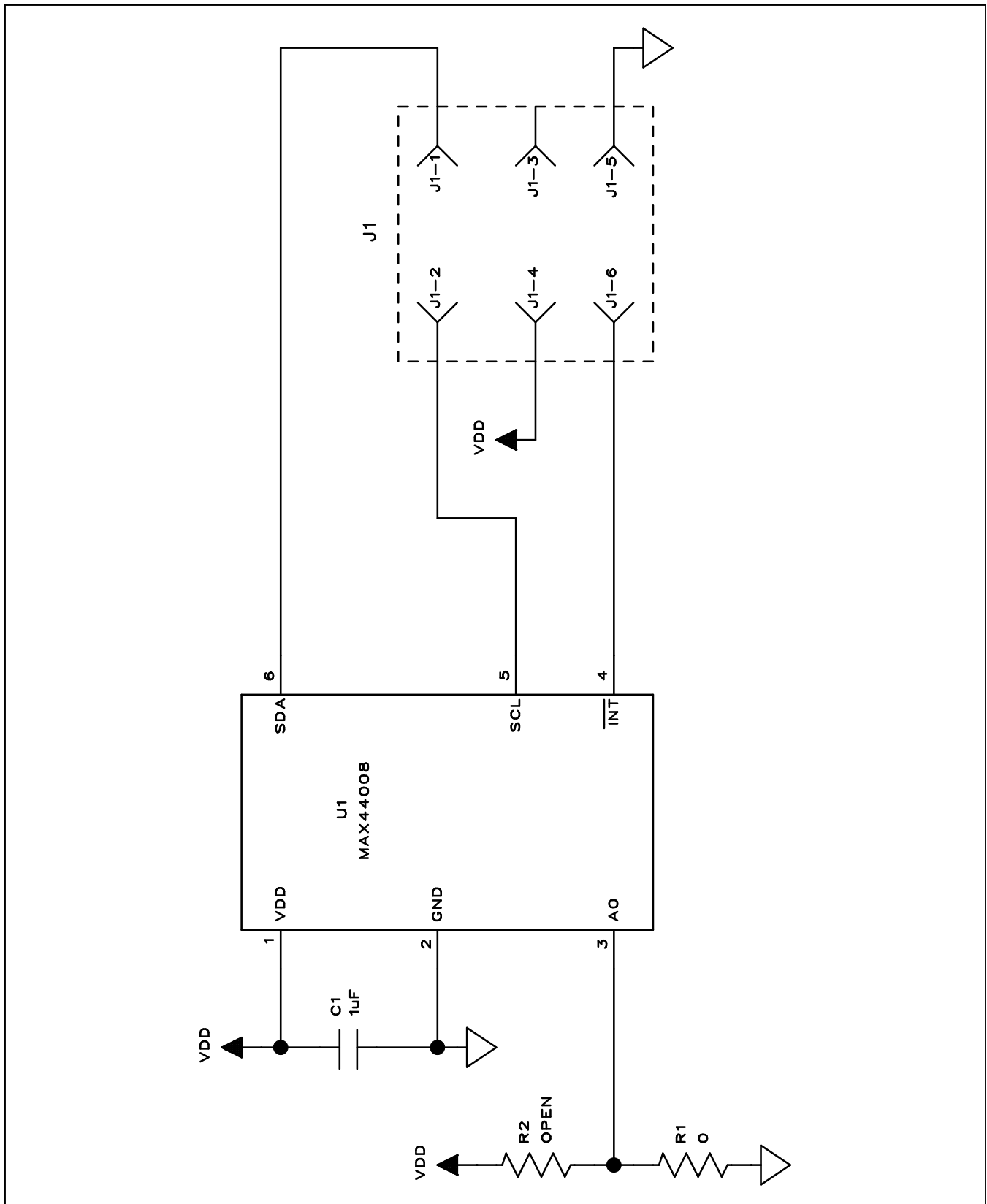


Figure 12. MAX44008 Daughter Board Schematic

MAX44008 Evaluation System

Evaluates: MAX44008

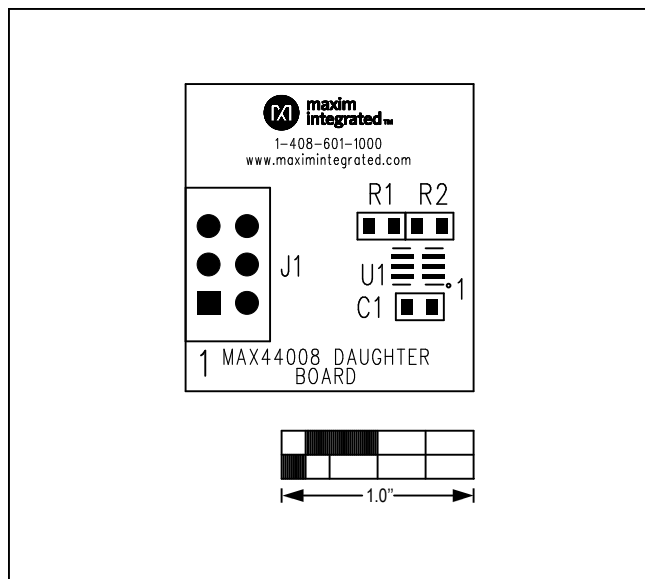


Figure 13. MAX44008 Daughter Board Component Placement Guide—Component Side

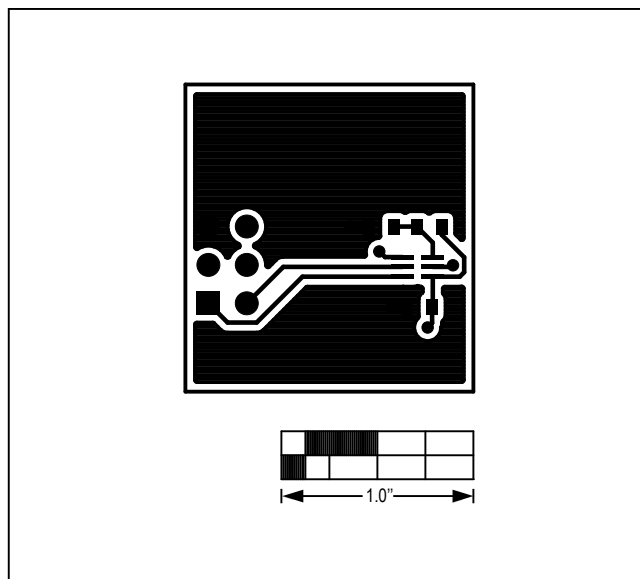


Figure 14. MAX44008 Daughter Board PCB Layout—Top

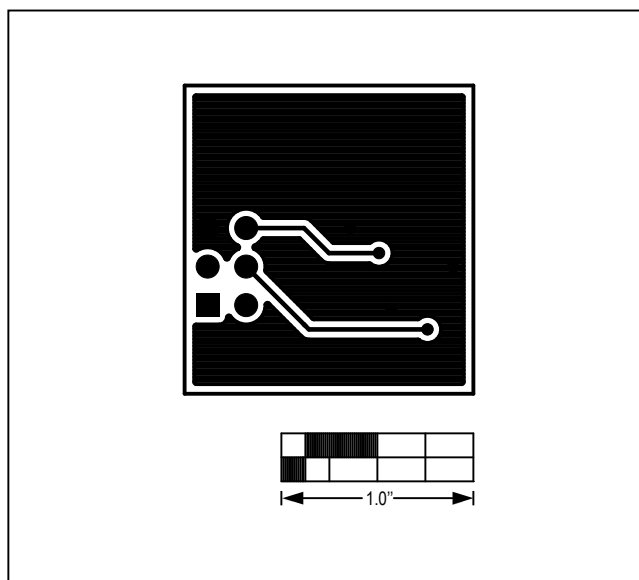


Figure 15. MAX44008 Daughter Board PCB Layout—Bottom

MAX44008 Evaluation System

Evaluates: MAX44008

Ordering Information

PART	TYPE
MAX44008EVSYS#	EV System

#Denotes RoHS compliant.

MAX44008 Evaluation System

Evaluates: MAX44008

Revision History

REVISION NUMBER	REVISION DATE	DESCRIPTION	PAGES CHANGED
0	2/13	Initial release	—



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