MAX97236 Evaluation Kit
Evaluates: MAX97236

General Description

The MAX97236 evaluation kit (EV kit) is a fully assembled and tested surface-mount PCB that evaluates the MAX97236 IC, which is an audio amplifier with automatic jack detection and configuration, volume control, and microphone preamplifier. To facilitate evaluation, the EV kit includes input RCA jack connectors (J2, J3), a 5-pin stereo headphone jack connector (J1), and an external clock input BNC jack connector (J4).

The device's I²C control bus is interfaced to the on-board MAXQ2000 microcontroller, allowing for evaluation with the EV kit software, which can be downloaded from **www.maxim-ic.com/evkitsoftware**.

Features

♦ **USB Powered**

♦ **I²C Interface**

♦ **RCA Input Connectors**

♦ **3.5mm Output Connector**

♦ **Windows XP®-, Windows Vista®-, and Windows® 7-Compatible Software**

♦ **Surface-Mount Components**

♦ **Proven PCB Layout**

♦ **Fully Assembled and Tested**

Ordering Information appears at end of data sheet.

Component List

DESIGNATION	QTY	DESCRIPTION
C1, C28	2	10µF ±10%, 6.3V X5R ceramic capacitors (0603) Murata GRM188R0J106M
C2, C26, C27, C29–C32, C33, C37	9	0.1µF ±10%, 6.3V X5R ceramic capacitors (0402) Murata GRM155R60J104K
C3, C5, C6, C11, C14, C18, C20, C21, C23	9	1µF ±10%, 10V X5R ceramic capacitors (0402) Murata GRM155R61A105K
C4, C7, C8, C9	4	1µF ±10%, 16V X7R ceramic capacitors (0603) Murata GRM188R71C105K
C12, C13, C39, C40	0	Not installed, ceramic capacitors (0402)
C15, C16	2	2.2µF ±20%, 6.3V X5R ceramic capacitors (0603) Murata GRM188R60J225M
C17, C19, C22, C38	4	0.01µF ±10%, 25V X7R ceramic capacitors (0402) Murata GRM155R71E103K

DESIGNATION	QTY	DESCRIPTION
C24, C25	2	8pF ±0.5pF, 50V C0G ceramic capacitors (0402) Murata GRM1555C1H8R0D Taiyo Yuden UMK105CH080DV
C34	1	33000pF ±10%, 16V X7R ceramic capacitor (0603) Murata GRM188R71C333K
C35, C36	2	18pF ±5%, 50V C0G ceramic capacitors (0603) Murata GRM1885C1H180J TDK C1608C0G1H180J
D1	1	Yellow LED (0603)
D2	1	Red LED (0603)
FB1, FB2, FB4, FB5	4	0Ω resistors (0402)
FB3	1	0Ω resistor (0603)
J1	1	3.5mm stereo headphone jack connector
J2	1	Phono jack connector, white (side-entry PCB mount)

Windows, Windows XP, and Windows Vista are registered trademarks of Microsoft Corp.

For pricing, delivery, and ordering information, please contact Maxim Direct at 1-888-629-4642, or visit Maxim's website at www.maxim-ic.com.

Component List (continued)

DESIGNATION	QTY	DESCRIPTION
J3	1	Phono jack connector, red (side-entry PCB mount)
J4	1	50Ω BNC female jack connector (top mount)
JU1–JU7	7	2-pin headers, 0.1in centers
P1	1	Mini-USB type-B connector
R1	1	0Ω resistor (0402)
R2	0	Not installed, resistor (0603)
R3, R4, R10	3	1.5kΩ ±5% resistors (0402)
R5	1	10kΩ ±5% resistor (0402)
R6	1	2.2kΩ ±5% resistor (0402)
R7	1	470Ω ±5% resistor (0603)
R8, R9	2	27Ω ±5% resistors (0603)
R11, R12	2	220Ω ±5% resistors (0603)
R13, R14	0	Not installed, resistors (0603)
R15	1	10kΩ ±5% resistor (0603)
RING1, RING2, SLEEVE, TIP	4	Multipurpose test points
U1	1	DirectDrive® headphone amplifier (25 WLP) Maxim MAX97236EWA+
U2	1	1.8V, 300mA LDO linear regulator (5 SOT23) Maxim MAX8887EZK18+

DESIGNATION	QTY	DESCRIPTION
U3	1	3.3V ultra-low-noise LDO linear regulator (5 SC70) Maxim MAX8510EXK33+
U4	1	2.5V ultra-low-noise LDO linear regulator (5 SC70) Maxim MAX8510EXK25+
U5	1	Low-power LCD microcontroller (56 TQFN) Maxim MAXQ2000-RBX+
U6	1	EEPROM (8 SO) Atmel AT93C46EN-SH-B
U7	1	USB-to-UART connector (32 QFN) FTDI FT232BQ
Y1	1	6MHz crystal
Y2	1	16MHz crystal oscillator (3.2mm x 2.5mm)
Y3	1	19.2MHz, 3.3V CMOS oscillator (3.2mm x 2.5mm)
—	7	Shunts (JU1–JU7)
—	1	PCB: MAX97236 EVALUATION KIT

Component Suppliers

SUPPLIER	PHONE	WEBSITE
Murata Electronics North America, Inc.	770-436-1300	www.murata-northamerica.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 MAX97236 when contacting these component suppliers.*

MAX97236 EV Kit Files

FILE	DESCRIPTION
INSTALL.EXE	Installs the EV kit files on your computer
MAX97236.EXE	Application program
CDM20600.EXE	Installs the USB device driver
UNINSTALL.EXE	Uninstalls the EV kit software
USB_Driver_Help_200.PDF	USB driver installation help file

DirectDrive is a registered trademark of Maxim Integrated Products, Inc.

Quick Start

Required Equipment

- MAX97236 EV kit (USB cable included)
- Audio source with RCA output
- Stereo headphones
- User-supplied Windows XP, Windows Vista, or Windows 7 PC with 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.maxim-ic.com/evkitsoftware** to download the latest version of the EV kit software, 97236Rxx. 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 jumpers JU1–JU7 are configured with shunts installed.

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 Windows **Start | Programs** menu. The EV kit software main window appears, as shown in Figure 1.

6) Press the **Connect** button on the EV kit software and verify that the status bar at the bottom of the window displays **EV kit: Connected**, **Device Address: 0x80**, and **Vendor ID: 0x09**.

7) Select the **Controls** tab and then the **Jack Detect** subtab.

8) Select the **Auto mode enabled (set SHDN low)** radio box from the **Automatic Configuration Control** group box.

9) Enable the device by pressing the **Power** button.

10) Connect the headphones to the 3.5mm headphone jack connector (J1).

11) Press the **Read All** button and verify that the image in the **Jack Configuration** group box displays the correct text and image.

12) Connect the audio source to the J2 (IN_L) and J3 (IN_R) RCA connectors.

13) Enable the audio source.

14) Select the **Audio** tab and uncheck the **Mute** checkbox in the **Audio Control** group box.

15) Drag the slider to midlevel (approximately -30dB).

16) Verify that the input audio can be heard through the connected headphones.

17) The EV kit is now ready for further evaluation.

Detailed Description of Software

The MAX97236 EV kit software is divided into two tabs: **Controls** and **Registers**. The **Controls** tab provides several subtabs that provide controls for configuring the device. The **Registers** tab provides a map of the device registers, as well as configuration control of each register bit.

The software also includes a **Status** panel (see the *Status Panel* section), six command buttons, a menu bar, and a status bar. The status bar is used to report EV kit connectivity, the device's address (e.g., 0x80 for the MAX97236A), the device's ID, and communication activity. The functionality of the command buttons is provided in Table 1 and the menu bar items are shown in Table 2.

The controls for the device registers are discussed in subsequent sections. When evaluating the EV kit hardware and software, both the MAX97236 IC data sheet and EV kit data sheet should be referenced.

Menu Bar

The software's menu bar provides four drop-down menus: **File**, **Options**, **Tools**, and **Help**. Their associated menu items are listed and detailed in Table 2.

Status Panel

The **Status** panel reports the state of each active bit in the three status registers. More details for each bit are provided on the **Controls | Status/Masks** subtab. The jack detection results, as reported by the status registers, are also reported on the **Controls | Jack Detect** subtab by an image that represents the type of jack connected to the 3.5mm stereo headphone jack connector (J1).

Table 1. Command Buttons

BUTTON	FUNCTIONALITY
Read All	Reads all device registers and updates all tabs to reflect the state of the device registers.
Write All	Writes all the hex values (0x??) shown on the **Registers** tab to the associated register of the IC.
Device Reset	Resets the device to its power-on-reset (POR) state.
Connect	Attempts to establish a connection to the EV kit by first establishing a connection with the EV kit's on-board microcontroller (MAXQ2000) and then with the device.
Jack Reset	Toggles the RESET bit of register 0x1D (Enable1). Press RESET twice to reset jack detection.
Power	Toggles the $\overline{\text{SHDN}}$ bit of register 0x1D (Enable1). When enabled, the button's image turns blue.

Table 2. Menu Items

MENU ITEMS	DESCRIPTION
File	
| Save Configuration	Saves/loads a .97236 configuration file (see the *Save/Load Settings* section).
| Load Configuration	
| Exit	Closes the software.
Options	
| Auto Connect	Enables continuous device detection.
Tools	
| Interface (Advanced User)	Opens the **Advanced User Interface** window (see the *Advanced User Interface* section).
| IRQ Auto Read Enable	Enables continuous reading of the $\overline{\text{IRQ}}$ pin.
| Continuous Read Enable (Status1)	Enables continuous reading of the Status1 register (0x00).
| Continuous Read Enable (All Registers)	Enables continuous reading of all registers.
| Read Interval	Sets the read interval when continuous reading is enabled.
Help	
| Help File F1	Instructions on where to find the latest EV kit data sheet.
| About	Software information.

Controls Tab

The **Controls** tab sheet (Figure 1) includes four subtabs: **Status/Masks**, **Audio**, **Keyscan**, and **Jack Detect**. These subtabs include controls for writing to and reading from the active device registers (0x00 to 0x23).

Status/Masks Subtab

The **Status/Masks** subtab sheet (Figure 1) provides details about the state of the status registers (Status1, Status2, and Status3). The **Status 1 (0x00)**, **Status 2 (0x01)**, and **Status 3 (0x02)** group boxes display text descriptions that correspond to the state of each status bit. Adjacent to the **Status 1 (0x00)** and **Status 2 (0x01)** group boxes are the **IRQ Mask 1 (0x04)** and **IRQ Mask 2 (0x05)** group boxes, which list the interrupt enables for each of the bits in these two registers.

The hardware interrupts are enabled/disabled by checking/unchecking the associated checkbox in the **IRQ Mask_** group boxes. For a status register flag to be reported on the device's open-drain $\overline{\text{IRQ}}$ pin, the corresponding interrupt enable bit must be set; otherwise, the flag is only reported as a software interrupt in the **Status** group boxes and on the **Status** panel.

The **IRQ Monitoring** group box provides controls for monitoring the device's $\overline{\text{IRQ}}$ pin. The **Delay** edit box specifies the amount of time between $\overline{\text{IRQ}}$ reads and the **Auto Read Enable** checkbox enables/disables continuous reading of the $\overline{\text{IRQ}}$ pin. When an interrupt occurs, and if the **Save to file** checkbox is checked, the software saves the contents of the device registers to a file. This provides some insight into the device's state during the last hardware interrupt.

Audio Subtab

The **Audio** subtab sheet (Figure 2) provides controls for the audio and microphone settings. The **Audio Control** group box is used to control the left and right audio channels. A description of each control is provided in Table 3. The microphone settings are controlled from the **Microphone** group box.

MAX97236 Evaluation Kit

File Options Tools Help

Status 1 Flags | Status 2 Flags | Status 3 Flags

Read All | Write All | Device Reset | Jack Reset | Connect | Power

	B7	B6	B5	B4	B3	B2	B1	B0	
0x00 Status1	JKIN	DDONE	VOL	---	MIC_IN	JACKSW	MCSw	MBH	0x00
0x01 Status2	LINE_L	LINE_R	HP_L	HP_R	JACKSWINC	KEY	---	---	0x00
0x02 Status3	---	---	---	---	---	---	GND[1]	GND[0]	0x00

Controls | Registers

Status/Masks | Audio | Keyscan | Jack Detect

Status 1 (0x00)

Bit Description	Bit	
Jack Detected	JKIN	No load at LOUT
Jack Detect Done	DDONE	Jack detect algorithm is not complete
Volume Slew Complete	VOL	No volume slewing sequences have completed
Microphone Connection	MIC_IN	Microphone is removed
PIN5 Status	PIN5	Mechanical jack switch removed
Microphone Switch Status	MCSw	No change in mic bias, no switch press
Active Multi-Button Headset Status	MBH	Active keypress detected

Status 2 (0x01)

Bit Description	Bit	
LOUT AC Coupled Audio	LINE_L	AC coupled load on LOUT not detected
ROUT/PIN2 AC Coupled Audio	LINE_R	AC coupled load on PIN2_ROUT not detected
LOUT DC Coupled Audio	HP_L	DC coupled load on LOUT not detected
ROUT/PIN2 DC Coupled Audio	HP_R	DC coupled load on PIN2_ROUT not detected
PIN5 Incorrect	PIN5INC	PIN5 correct
Passive Multi-Button Key Status	KEY	No button pressed

IRQ Mask 1 (0x04)
Interrupt Enables
☐ JKIN
☐ DDONE
☐ IVOL
☐ IMIC
☐ IPIN5
☐ IMCSw
☐ IMBH

IRQ Mask 2 (0x05)
Interrupt Enables
☐ ILINE_L
☐ ILINE_R
☐ IHP_L
☐ IHP_R
☐ IPIN5INC
☐ IKEY

Status 3 (0x02)
Jack Common Location
No common connection

IRQ Monitoring
Delay 0 msec
☐ Save to file
☐ Auto Read Enable

EV kit: Connected | Device Address: 0x80 | Vendor ID: 0x0D | Communication: Successful

Figure 1. Status/Masks Subtab

Figure 2. Audio Subtab

The **Keyscan** subtab sheet (Figure 3) provides controls for configuring the clock dividers, keyscan debounce, keyscan delay, and reading the passive headset data. Details for each configurable control and status label are provided in Table 4.

Jack Detect Subtab

The **Jack Detect** subtab sheet (Figure 4) is used to configure **Ramp Slew Rate**, **Pulse Control**, **Load State Forcing**, and **Automatic Configuration Control** modes. This tab also displays an image in the **Jack Configuration** group box that represents the type of jack detected at connector J1. Refer to the MAX97236 IC data sheet for additional load state forcing and jack detection/configuration details.

The **Automatic Configuration Control** group box configures the method in which the device's functional blocks are enabled. When one of the **Auto mode_** radio buttons is selected, the device's functional blocks are automatically enabled based on the type of load connected to the 3.5mm stereo headphone jack connector (J1). When auto mode is disabled, the functional blocks must be enabled by configuring registers 0x1D and 0x1E. Whether enabled or disabled, the jack detection algorithm must be completed before the functional blocks can be enabled. Refer to the MAX97236 IC data sheet for additional details.

Table 3. Audio Controls

CONTROL	DESCRIPTION
Left/Right Channel edit boxes/sliders	Adjusts the left/right output-volume level from -60dB to 6dB (refer to the MAX97236 IC data sheet for step sizes).
Mute checkbox	Mutes the left/right channel.
Tracking Enable (Left = Right) checkbox	Disables the right-channel controls. The right-channel volume tracks the left-channel volume.
Left/Right Headphone Amp checkboxes	Enables the left- and right-channel output.
Volume Slewing checkbox	Enables volume slewing.
Zero-Crossing Detection checkbox	Enables zero-crossing detection.
Class H Threshold Select drop-down list	Sets the switching threshold of the Class H amplifier.

Table 4. Keyscan Controls

CONTROL	DESCRIPTION
Clock Divider edit boxes	Input one of the three settings and the software calculates the other two values.
(EXTCLK) edit box	EXTCLK = 1MHz to 26MHz.
(16-bit) edit box	N = EXTCLK/2kHz.
(8-bit) edit box	N = EXTCLK/200kHz.
Configure button	Press to write the 16-bit and 8-bit values to their respective registers.
Keyscan Debounce edit boxes	Sets the debounce time from 1ms (0x00) to 256ms (0xFF) in 1ms increments.
Keyscan Delay edit boxes	Sets the delay time from 4ms (0x00) to 1024ms (0xFF) in 4ms increments.
Passive Multi-Button Headset	
Read button	Reads the Keyscan Data register (0x17) and displays the result in the **Data Word Received** edit box.
KEY STATUS label	Turns red when bit 2 (KEY) of the Status2 register is set. Turns black when bit 2 (KEY) of the Status2 register is cleared.
Keyscan ADC enable checkbox	Enables/disables keyscan ADC.
KEY EVENT label	'PRESS' is displayed below this label when bit 7 (PRESS) of register 0x17 is set. 'RELEASE' is displayed below this label when bit 7 (PRESS) of register 0x17 is cleared.

Registers Tab

The **Registers** tab sheet (Figure 5) contains a register map of the device. The tab is organized from left to right with the register names, bit names, and edit boxes. The bit names are used to display the current state of each bit (bold 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 current state and are updated after a read all, bit click, or configuration change is made on the **Controls** tab. The edit boxes can also be used to configure the device registers. This is accomplished by entering the desired 8-bit hex value (0x??) into the edit box and then pressing the Enter key.

Save/Load Settings

Register configurations can be saved/loaded by selecting the **Save Settings** or **Load Settings** menu item from the **File** menu. The save operation saves the state of the device registers to a configuration file. The load operation configures the device registers based on the data contained in the configuration file.

Advanced User Interface

The **Advanced User Interface** window (Figure 6) can also be used to communicate with the device. Use the **Tools | Interface (Advanced Users) F1** menu item to open the interface window, which can be used for I2C communication and to monitor the MAXQ2000 general-purpose input/output (GPIO) that the EV kit utilizes. This window consists of three main tabs: **Connection**, **Bit Set/Clear**, and **2-wire interface**. The interface utility only accepts and outputs hexadecimal number format.

Connection Tab

The **Connection** tab sheet is used to establish a connection with the MAXQ2000 interface included on the EV kit.

Bit Set/Clear Tab

The **Bit Set/Clear** tab sheet provides control of the MAXQ2000's available GPIO pins. The only GPIO pin utilized by the EV kit is listed in Table 5.

2-Wire Interface

The **2-wire interface | General Commands** subtab sheet (Figure 7) allows general-purpose 2-wire commands to be sent using the **Command** drop-down list and the **Execute** button. The read/write commands to use with the device are **SMBusWriteByte** and **SMBusReadByte**. The **SMBusWriteByte** transmits the device address, command, and one byte of data. The **SMBusReadByte** transmits the device address, a command, and then retransmits the device address and reads one byte of data.

The device address used by the commands is the value displayed in the **Target Device Address** drop-down list, generated by pressing the **Hunt for active listeners** button. This button scans the entire 2-wire address space, reporting each address that is acknowledged. For both a read and write operation, the **Command Byte** is the register address. The data to write to the target device should be entered in the **Data Out** edit box, with the data read reported in the **Data In** field.

The SCL frequency can also be configured by selecting the **Low Level commands** subtab and using the speed buttons and/or edit fields to set the operating frequency.

Table 5. GPIO Functionality

MAXQ2000 GPIO	NET NAME	I/O	FUNCTIONALITY
K1	IRQ	Input	Used to monitor the device's IRQ pin.

MAX97236 Evaluation Kit
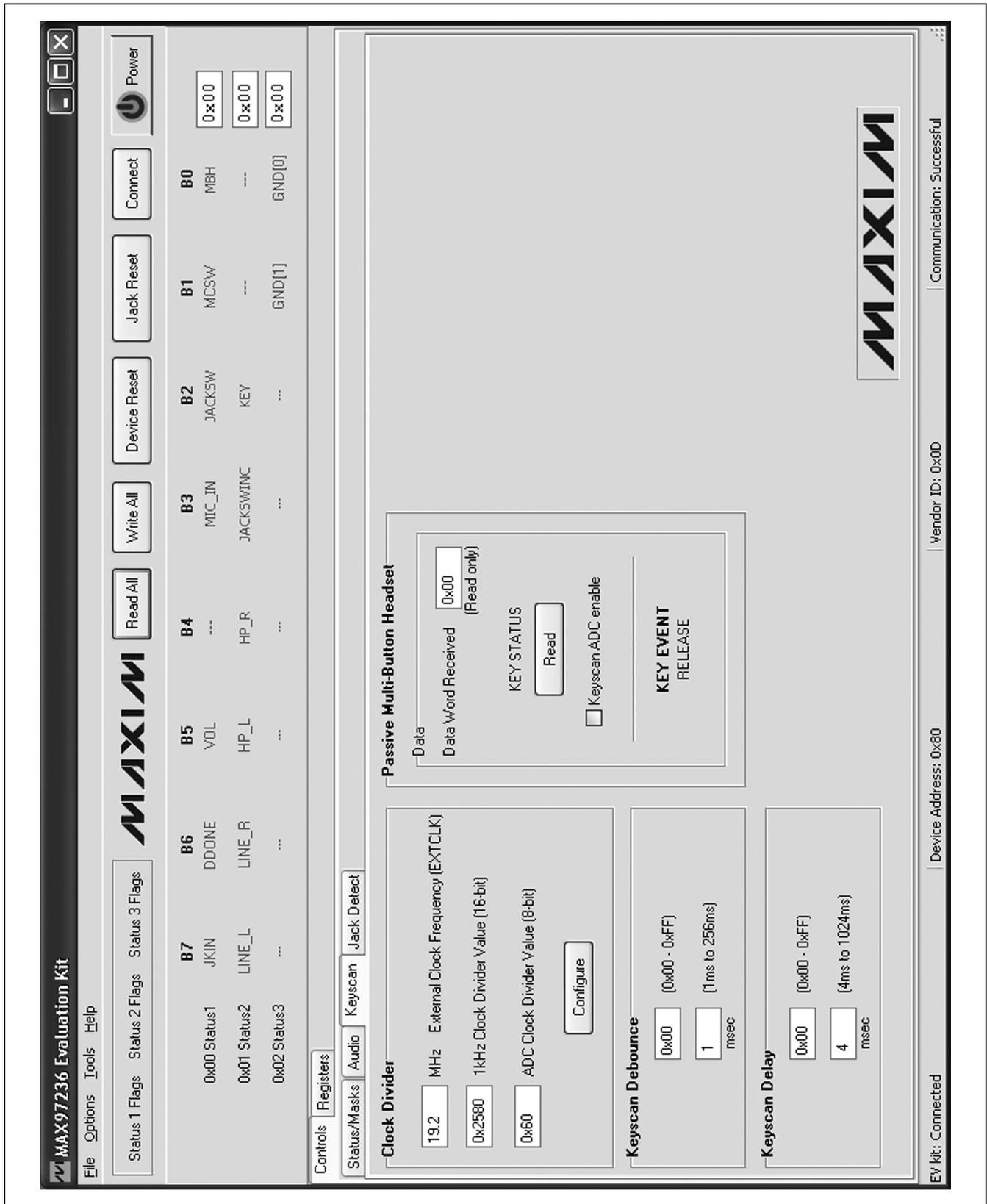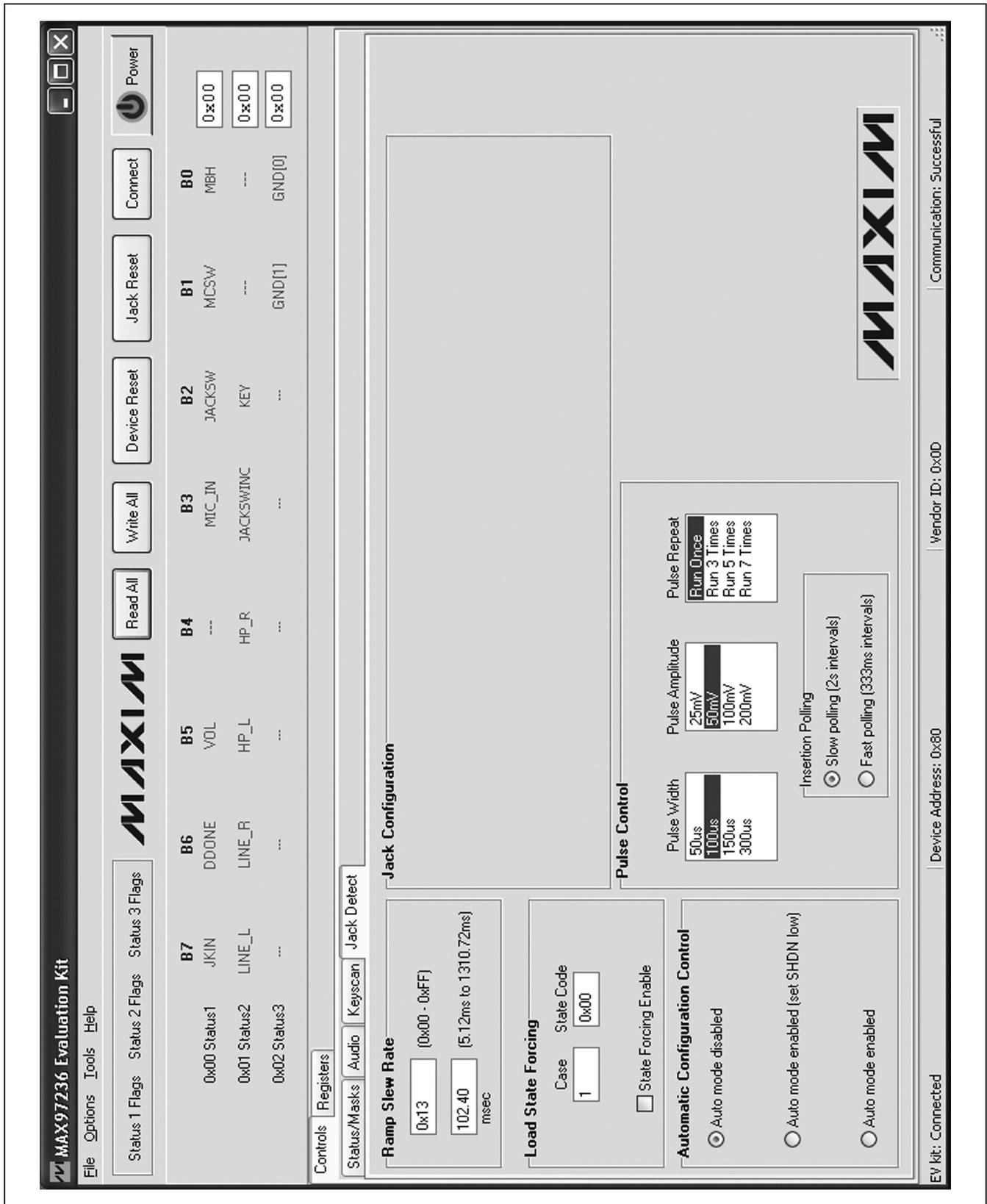
File Options Tools Help

Status 1 Flags Status 2 Flags Status 3 Flags

Read All Write All Device Reset Jack Reset Connect Power

	B7	B6	B5	B4	B3	B2	B1	B0
0x00 Status1	JKIN	DDONE	VOL	---	MIC_IN	JACKSW	MCSW	MBH
0x01 Status2	LINE_L	LINE_R	HP_L	HP_R	JACKSWINC	KEY	---	---
0x02 Status3	---	---	---	---	---	---	GND[1]	GND[0]

0x00
0x00
0x00

Controls Registers

Status/Masks Audio Keyscan Jack Detect

Clock Divider

19.2 MHz External Clock Frequency (EXTCLK)

0x2580 1kHz Clock Divider Value (16-bit)

0x60 ADC Clock Divider Value (8-bit)

Configure

Passive Multi-Button Headset

Data

Data Word Received 0x00 (Read only)

KEY STATUS

Read

□ Keyscan ADC enable

KEY EVENT
RELEASE

Keyscan Debounce

0x00 (0x00 - 0xFF)

1 (1ms to 256ms)
msec

Keyscan Delay

0x00 (0x00 - 0xFF)

4 (4ms to 1024ms)
msec

EV kit: Connected   Device Address: 0x80   Vendor ID: 0x0D   Communication: Successful

Figure 3. Keyscan Subtab

Figure 4. Jack Detect Subtab

Figure 5. Registers Tab

Figure 6. Advanced User Interface (Bit Set/Clear Tab)
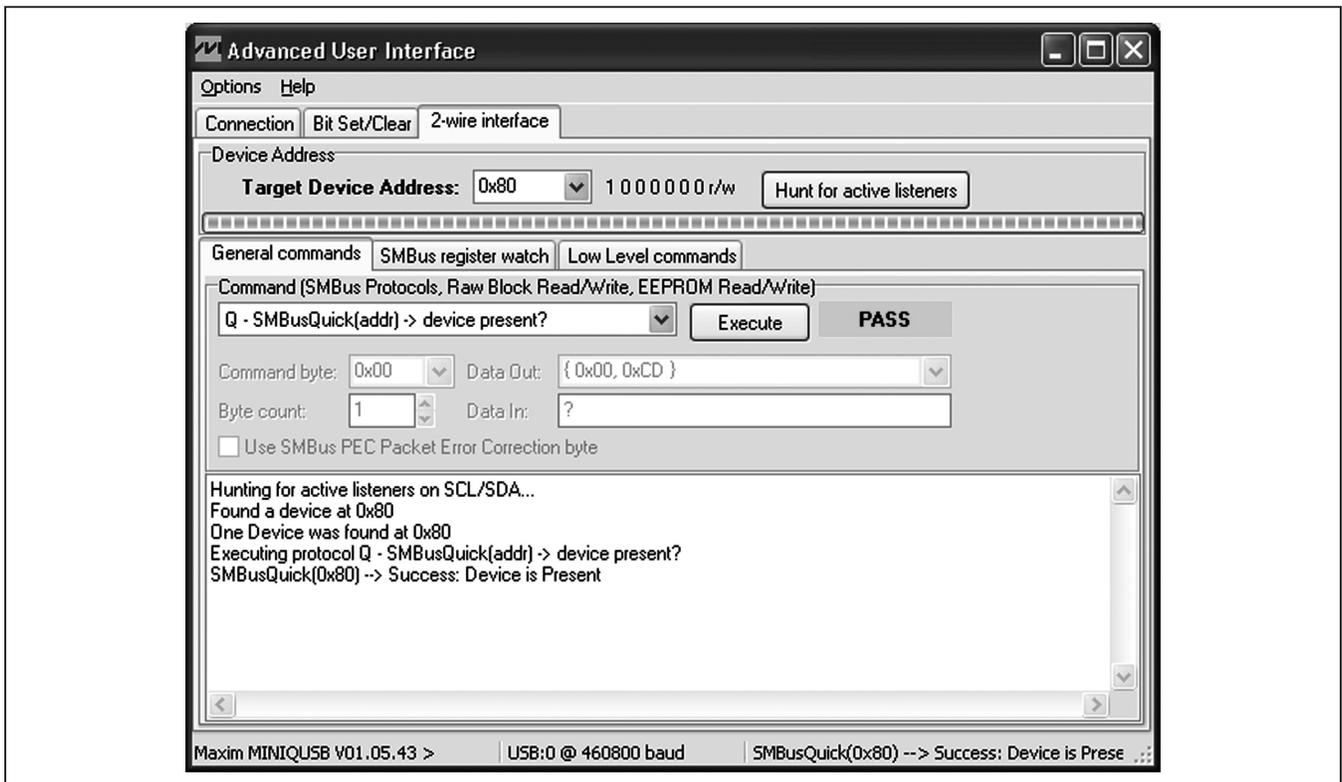
Figure 7. Advanced User Interface (2-Wire Interface I General Commands Subtab)

Detailed Description of Hardware

The MAX97236 EV kit evaluates the MAX97236 IC, which is an audio amplifier with automatic jack detection and configuration, volume control, and microphone pre-amplifier. The EV kit includes input RCA jack connectors (J2, J3), a 5-pin stereo headphone jack connector (J1), and an external clock input BNC jack connector (J4). The EV kit also includes USB powered low-dropout (LDO) linear regulators (U2, U3, U4) that allow the EV kit to be evaluated without any external supplies. These LDO linear regulators provide the +1.8V and +3.3V voltages required by the device and support circuitry.

The EV kit also includes a MAXQ2000 microcontroller (U5) that interfaces with the device's I2C control bus and allows the EV kit to be evaluated with the EV kit software. See the *Detailed Description of Software* section.

On-Board LDO Linear Regulators

The EV kit includes on-board LDO linear regulators (U2, U3), allowing the EV kit to operate without external power supplies. These LDO linear regulators provide power to the device's power-supply pins (VDD and MICVDD) and to the on-board 19.2MHz oscillator (Y3). The LDO linear regulator outputs can be isolated from the power-supply pins through jumpers JU1 and JU2, respectively.

A third LDO linear regulator (U4) provides power to the MAXQ2000 circuit. All the LDO linear regulators are powered by the USB bus voltage (+5V) from the P1 mini-USB connector.

Serial-Interface Clock Input (EXTCLK)

The EV kit provides two serial-interface clock input (EXTCLK) options. The clock input can be driven by the on-board 19.2MHz oscillator (Y3) or by an external clock applied to the J4 BNC jack connector (see Table 7). The EXTCLK clock input is used to generate the 1kHz keyscan clock as well as the keyscan's ADC clock. The 1kHz keyscan clock is generated by dividing the EXTCLK clock frequency by the 16-bit value contained in the KEY_DIV_HIGH (0x12) and KEY_DIV_LOW (0x13) registers. The keyscan's ADC clock is generated by dividing the EXTCLK clock by the 8-bit value contained in the KEY_DIV_ADC (0x14) register. Refer to the MAX97236 IC data sheet for additional details.

The Y3 oscillator is connected to the device's MICVDD rail through jumper JU7. To power the oscillator, install a shunt on jumper JU7 and apply power to the MICVDD rail. See the *On-Board LDO Linear Regulators* section.

Audio Input/Output

The device's audio input is routed from the RCA jack connectors (J2, J3) or the associated PCB pads (IN_L, IN_R). The audio outputs are routed to the J1 jack. Table 8 lists the audio input connections and Table 9 lists the audio output connections. Refer to the MAX97236 IC data sheet for additional details.

JACKSW of the device is connected to the mechanical switch on the J1 jack. This pin (JACKSW) is used for jack detection and not for audio output.

Hardware Interrupt ($\overline{\text{IRQ}}$)

The device's $\overline{\text{IRQ}}$ pin is connected to a MAXQ2000 GPIO input through jumper JU5. This allows the device's software to monitor and react to interrupts on the $\overline{\text{IRQ}}$ pin. See the *Status/Masks Subtab* section for the $\overline{\text{IRQ}}$ monitoring options.

I2C Interface

The EV kit includes an on-board MAXQ2000 microcontroller (U5), which provides the interface between the device and the EV kit software. The EV kit can also be evaluated with an external I2C interface by removing the shunts from jumpers JU3 and JU4 and connecting the logic-rail and I2C signals from the external interface to the provided PCB pads (VI2C, SCL, SDA, and GND).

Table 6. Jumper Function (JU1 and JU2)

SHUNT POSITION	VDD (JU1)	MICVDD (JU2)
Installed*	1.8V	3.3V
Not installed	Connect an external supply across the respective PCB pad and GND.	

Default position.

Table 7. Jumper Function (JU6 and JU7)

SHUNT POSITION		DEVICE'S EXTCLK INPUT
JU6	JU7	
Installed	Installed	19.2MHz*
Installed	Not installed	Connect an external clock (1MHz to 26MHz) to the J4 BNC jack connector.
Not installed	X	

Default position.

X = Don't care.

Table 8. Audio Input (J2, J3)

AUDIO INPUT	DEVICE PIN	DESCRIPTION
J2	INL	Single-ended left-line input (IN_L)
J3	INR	Single-ended right-line input (IN_R)

Table 9. Audio Output (J1)

AUDIO OUTPUT	DEVICE PINS	DESCRIPTION
J1	RING1, RING2, SLEEVE, TIP	Single-ended headphone output

Figure 8a. MAX97236 EV Kit Schematic (Sheet 1 of 2)
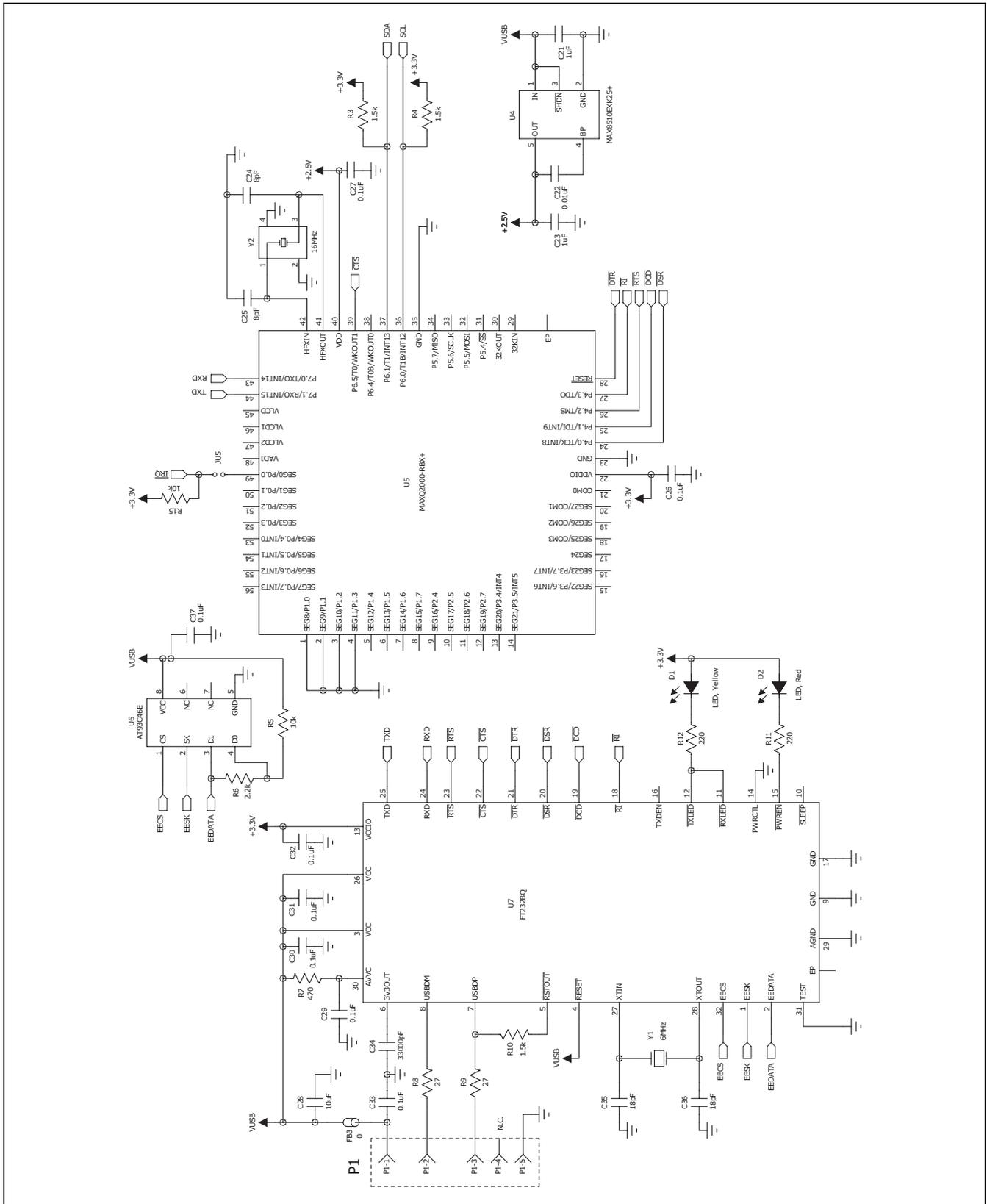
Figure 8b. MAX97236 EV Kit Schematic (Sheet 2 of 2)
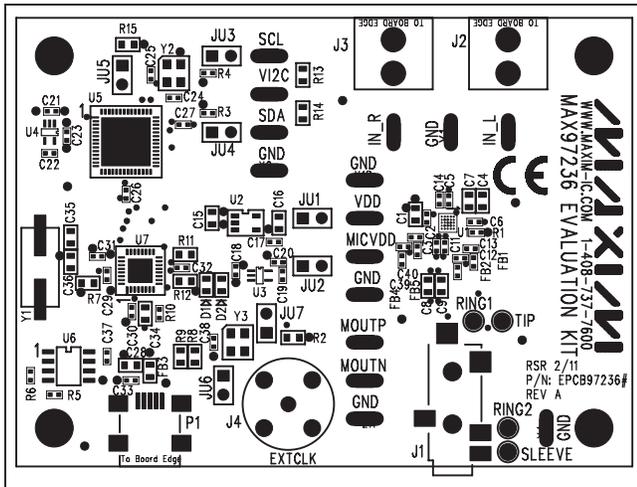
Figure 9. MAX97236 EV Kit Component Placement Guide—
Component Side
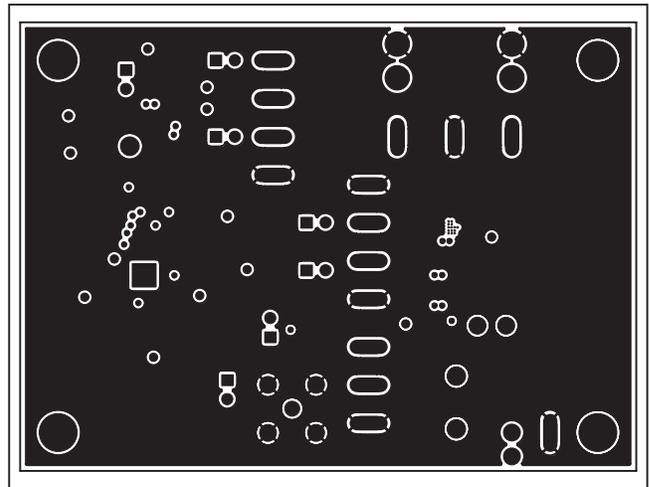
Figure 11. MAX97236 EV Kit PCB Layout—Layer 2
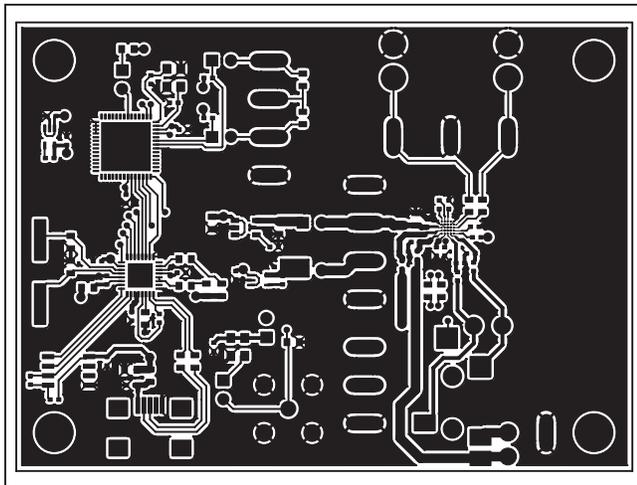
Figure 10. MAX97236 EV Kit PCB Layout—Component Side
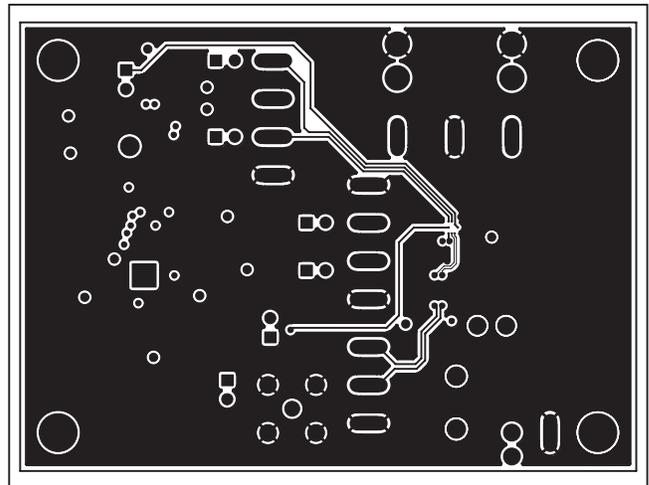
Figure 12. MAX97236 EV Kit PCB Layout—Layer 3
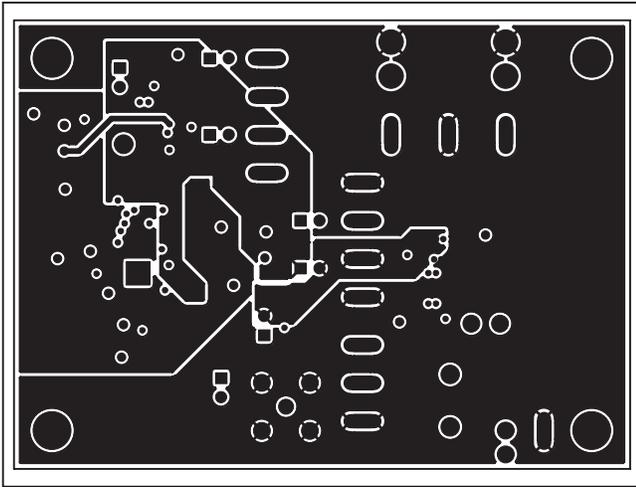
Figure 13. MAX97236 EV Kit PCB Layout—Layer 4
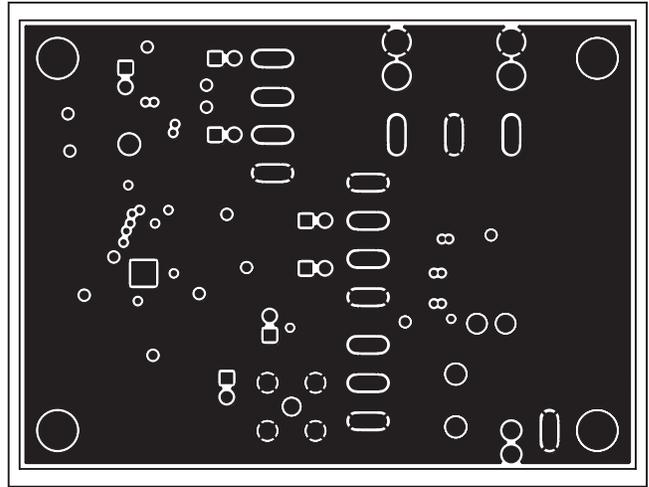
Figure 14. MAX97236 EV Kit PCB Layout—Layer 5
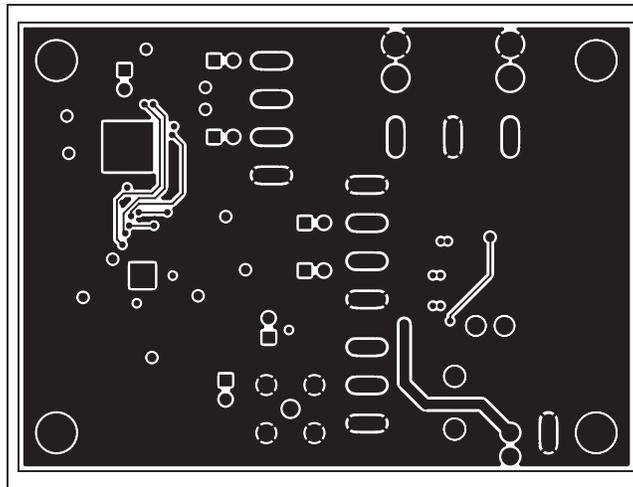
Figure 15. MAX97236 EV Kit PCB Layout—Solder Side

Ordering Information

PART	TYPE
MAX97236EVKIT#	EV Kit

#Denotes RoHS compliant.

Revision History

REVISION NUMBER	REVISION DATE	DESCRIPTION	PAGES CHANGED
0	3/11	Initial release	—