

## General Description

The MAX11166 evaluation system (EV system) includes a mother board and daughter board to evaluate the MAX11166 16-bit ADC. The EV system includes a simple graphical user interface (GUI) for exercising the features of the IC. This GUI is compatible with Windows XP®, Windows Vista®, and Windows® 7. The EV system GUI allows different sample sizes, adjustable sampling rates, internal or external reference options, and graphing software that includes the following representations of the sampled signals: time domain, frequency domain, histogram, and single conversion.

The EV system is made up of the MAXPRECADCMB mother board with an on-board Altera FPGA and the daughter board for evaluating the IC. The mother board plugs into the PC through a high-speed USB link to send SPI commands through the GUI. The mother board accepts a 5V supply. The daughter board accepts  $\pm 15V$  supplies.

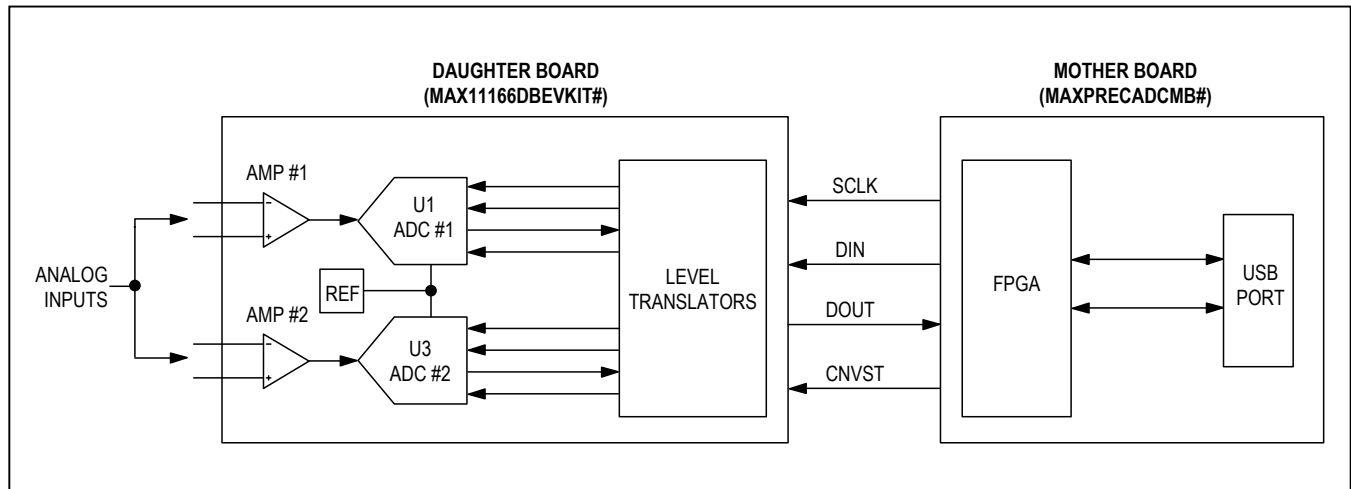
The daughter board comes installed with a MAX11166ETC+ in a 12-pin TDFN-EP package.

## Features

- Windows XP-, Windows Vista-, and Windows 7-Compatible Software
- High-Speed USB Interface
- Various Sample Sizes and Sample Rates
- Time Domain, Frequency Domain, and Histogram Plotting
- Collects Up to 1 Mega Samples
- Frequency, RMS, MIN, MAX, and Average DC Calculations
- On-Board Voltage Reference
- 40MHz SPI Interface
- RoHS Compliant
- Proven PCB Layout
- Fully Assembled and Tested

*Ordering Information appears at end of data sheet.*

## MAX11166 EV System Block Diagram



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**MAX11166 EV System Files**

| FILE                    | DESCRIPTION                                   |
|-------------------------|---|
| INSTALL.EXE             | Installs the EV system files on your computer |
| MAX11166.EXE            | Application program                           |
| SLSUSB.DLL              | Software library file                         |
| SLSUSB.INF              | USB device driver file                        |
| SLSUSB.SYS              | USB device driver file                        |
| USB_Driver_Help_200.PDF | USB driver installation file                  |

**Quick Start**

**Required Equipment**

- MAX11166 daughter board (included with the EV system)
- MAXPRECADCMB (included with EV system)
- ±15V DC power supply
- +5V DC power supply
- Function generator
- Digital voltmeters (DVMs)
- 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 system software. Text in **bold and underlined** refers to items from the Windows operating system.

**Procedure**

The EV system is fully assembled and tested. Follow the steps below to verify board operation. **Caution: Do not turn on the power supply until all connections are completed.**

- 1) Uncompress the 11166Rxx.ZIP file in a temporary folder.
- 2) Install the EV system software on your computer by running the **INSTALL.EXE** program inside the temporary folder. The program files are copied and icons are created in the Windows **Start | Programs** menu.
- 3) Carefully connect the MAXPRECADCMB (mother board) with the daughter board by aligning the mother board's J1 connector with the daughter board's J1 connector. Gently press them together.
- 4) Verify that all jumpers are in their default positions, as shown in Table 1 and Table 2.
- 5) Connect the USB cable from the PC to the mother board.
- 6) Connect the positive terminal of the +5V power supply to the VIN connector on the mother board. Connect the negative terminal of the same power supply to the DGND connector on the board. Connect the +15V to the EXT\_VCC connector on the daughter board, and connect the -15V to the EXT\_VEE connector on the daughter board. Connect the ground of the same power supply to the GND connector on the daughter board.
- 7) Set the signal source to generate a 1kHz, 1V<sub>p-p</sub> sinusoidal wave with 0V offset.
- 8) Connect the positive terminal of the signal generator to the AIN+ connector on the daughter board. Connect the negative terminal of the signal generator to the GND connector.
- 9) Turn on the power supplies.
- 10) Connect the USB cable from the PC to the mother board. A **New Hardware Found** window pops up when installing the USB driver for the first time. If you do not see a window similar to the one described above after 30s, remove the USB cable from the board and reconnect it. Administrator privileges are required to install the USB device driver on Windows.
- 11) Follow the directions of the **Add New Hardware Wizard** to install the USB device driver. Choose the **Search for the best driver for your device** option. Specify the location of the device driver to be **C:\Program Files\MAX11166** (default installation directory) using the **Browse** button. During device driver installation, Windows may show a warning message indicating that the device driver does not contain a digital signature. This is not an error condition and it is safe to proceed with installation.

- 12) Turn on the function generator.
- 13) Start the EV system software by opening its icon in the **Start | Programs** menu. The EV system software device selection window appears, as shown in Figure 1.
- 14) The main windows should indicate **Hardware Connected** at the bottom-left corner.
- 15) Press the **Start Conversion** button.
- 16) Verify **Frequency** of approximately 1000Hz.

### Detailed Description of Software

The main window of the evaluation software (shown in Figure 1) configures the ADCs and displays the data using the four tab sheets: **Time Domain**, **Frequency Domain**, **Histogram**, and **Single Conversion**. In addition, the sampled data can be saved to a file.

ADC #1 is designated as U1 and ADC #2 is designated as U3 in the schematic.

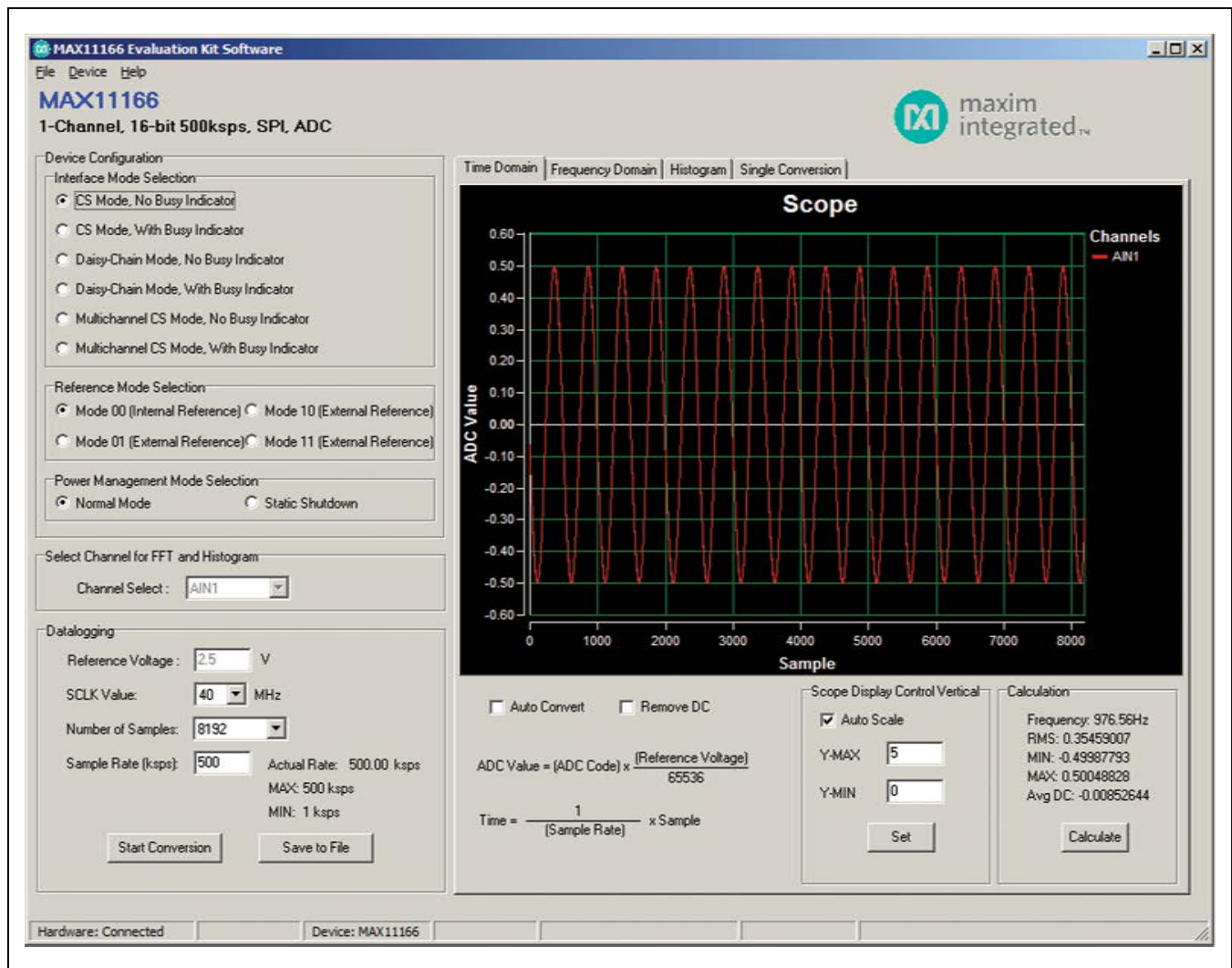


Figure 1. MAX11166 Evaluation System Software Main Window

### CS Mode (Single Channel)

The factory-default jumper settings have the ADCs on the daughter board configured for CS mode, using the MAX11166 (U1) only. In this configuration, the JU3 shunt is in position 1-3, JU12 is in position 1-2, and JU13 is in position 1-2. The mother board SPI MOSI drives U1 DIN through JU3, then U1 DOUT drives the mother board SPI MISO through JU5. U3 is not used. In the software, the **Device Configuration** group **Interface Mode Selection** must be set to **CS Mode**.

### Daisy-Chain Mode

To use the ADCs on the daughter board in daisy-chain mode, move the shunts of JU3, JU12, and JU13 to the 1-2 position. The mother board SPI MOSI drives U3 DIN, and U3 DOUT drives U1 DIN through JU3. Then, U1 DOUT drives the mother board SPI MISO through JU5. In the software, the **Device Configuration** group **Interface Mode Selection** must be set to **Daisy-Chain Mode**.

### Multichannel Mode

To use the ADCs on the daughter board in multichannel mode, move the shunts of JU3 to the 1-3 position, and move the shunts of JU12 and JU13 to the 2-3 position. The mother board SPI MOSI drives U1 DIN through JU3, then U1 DOUT drives the mother board SPI MISO through JU5. The mother board SPI MOSI drives U3 DIN directly, and U3 DOUT drives the mother board SPI MISO through JU12. U1 and U3 have different CONVST signals in this mode, with U1 CONVST driven through JU6 from CONVST1, and U3 CONVST driven through JU13 from CONVST2. In the software, the **Device Configuration** group **Interface Mode Selection** must be set to **Multichannel CS Mode**.

## Detailed Description of Hardware

The MAX11166 daughter board provides a proven layout for the device. An external reference, level translators, and SPI-interface pads are included on the daughter board.

### Reference

Measure REFOUT at pin 2 of JU5 for all internal reference parts. Enter the value of the internal reference voltage into the **Set Vref** edit box in the software GUI.

For external reference parts, connect a reference voltage to pin 2 of JU5. Measure and enter the value of the external reference voltage into the **Set Vref** edit box of the software GUI.

### User-Supplied SPI Interface

To use the daughter board with a user-supplied SPI interface, first move the shunts of JU1–JU4 to the 2-3 position. Next, apply your own 4.75V to 5.25V power supply at the VDD PCB pad. Lastly, connect your  $\overline{CS}$ , SCLK, and DIN signals to the corresponding  $\overline{CS}$ , SCLK, and DIN PCB pads on the daughter board.

### User-Supplied Power Supply

The daughter board is powered completely from the USB port by default. Move the shunt of JU1 to the 2-3 position to apply your own 4.75V to 5.25V power supply at the VDD PCB pad.

**Table 1. MAXPRECADCMB Mother Board Jumper Settings**

| JUMPER | SHUNT POSITION | DESCRIPTION   |
|--------|----------------|---|
| JU35   | 1-2            | Connects the USB power to the input of the on-board LDO (U10).  |
|        | 2-3*           | Connects the external power supply to the input of the on-board LDO (U10).  |
| JU36   | 1-2            | Connects the USB power to the input of the on-board LDO (U11).  |
|        | 2-3*           | Connects the external power supply to the input of the on-board LDO (U11).  |
| JU37   | 1-2            | Connects the USB power to the input of the on-board LDO (U12).  |
|        | 2-3*           | Connects the external power supply to the input of the on-board LDO (U12).  |
| JU38   | 1-2            | Connects the USB power to the input of the on-board LDO (U13).  |
|        | 2-3*           | Connects the external power supply to the input of the on-board LDO (U13).  |
| JU39   | 1-2            | Connects the USB power to the input of the on-board LDO (U3).   |
|        | 2-3*           | Connects the external power supply to the input of the on-board LDO (U3).   |
| JU40   | Installed*     | The on-board LDO (U10) provides a 3.3V output.  |
|        | Not installed  | Disconnects the output of the on-board LDO (U10).   |
| JU41   | Installed*     | The on-board LDO (U11) provides a 1.8V output.  |
|        | Not installed  | Disconnects the output of the on-board LDO (U11).   |
| JU42   | Installed*     | The on-board LDO (U12) provides a 2.5V output.  |
|        | Not installed  | Disconnects the output of the on-board LDO (U12).   |
| JU43   | Installed*     | The on-board LDO (U13) provides a 1.2V output.  |
|        | Not installed  | Disconnects the output of the on-board LDO (U13).   |
| JU44   | 1-2            | Connects the IOVDD supply to the on-board 2.5V supply.  |
|        | 1-3*           | Connects the IOVDD supply to the on-board 3.3V supply from on-board U3.   |
|        | 1-4            | Connects the IOVDD supply to the on-board 2.5V supply.  |
|        | Not installed  | IOVDD can be externally powered by the daughter board. IOVDD can be externally supplied by placing the IOVDD voltage on the IOVDD test point. The Altera FPGA cannot handle voltages greater than 3.3V. |
| JU45   | 1-2            | Connects external (daughter board) SPI flash to the FGPA.   |
|        | 2-3*           | Connects on-board (mother board) SPI flash to the FGPA.   |

\*Default position.

Table 2. MAX11166 Daughter Board Jumper Descriptions (JU1–JU16)

| JUMPER | SIGNAL    | SHUNT POSITION | DESCRIPTION  |
|--------|-----------|----------------|--|
| JU1    | U1.OVDD   | 1-2*           | Connects the OVDD input of the IC to the output of the on-board 5V LDO.  |
|        |           | 2-3            | Connect the external OVDD power supply to the OVDD connector.  |
| JU2    | U1.VDD    | 1-2*           | Connects the VDD input of the IC to the output of the on-board 5V LDO.   |
|        |           | 2-3            | Connect the external VDD power supply to the VDD connector.  |
| JU3    | U1.DIN    | 1-2            | <b>(Interface Mode Selection = Daisy-Chain Mode)</b><br>Connects the DIN input of the first MAX11166 (U1) to the DOUT output of the second MAX11166 (U3) when JU12 is in the 1-2 position.   |
|        |           | 1-3*           | <b>(Interface Mode Selection = CS Mode)</b><br><b>(Interface Mode Selection = Multichannel CS Mode)</b><br>Connects the DIN input of U1 to the FPGA.   |
|        |           | 1-4            | Connects the DIN input of the MAX11166 (U1) to the EXT_DIN connector.  |
| JU4    | U1.SCLK   | 1-2*           | Connects the SCLK input of the IC to the FPGA.   |
|        |           | 2-3            | Connects the SCLK input of the IC to the EXT_SCLK connector.   |
| JU5    | U1.DOUT   | 1-2*           | Connects the DOUT signal of the MAX11166 (U1) to the first DOUT pin (DOUT) of the FPGA.  |
|        |           | 2-3            | Connects the DOUT signal of the MAX11166 (U1) to the EXT_DOUT connector.   |
| JU6    | U1.CONVST | 1-2*           | Connects the CONVST signal of the MAX11166 (U1) to the FPGA.   |
|        |           | 2-3            | Connects the CONVST signal of the MAX11166 (U1) to the EXT_CONVST connector.   |
| JU7    | U1.REFIO  | 1-2*           | Connects the REFIO of the MAX11166 to the on-board 4.096V reference.   |
|        |           | 2-3            | Connects the REFIO to the EXT_REF connector.   |
| JU8    | U1.AIN-   | 1-2*           | Connects the AIN- input of the MAX11166 (U1) to ground.  |
|        |           | 2-3            | Connects the AIN1- connector to the AIN- input of the MAX11166 (U1).   |
| JU9    | U1.AIN+   | 1-2*           | Connects the AIN1+ connector to the AIN+ input of the MAX11166 (U1).   |
|        |           | 2-3            | The output of the on-board buffer (U2) connects to the AIN+ input of the MAX11166 (U1).  |
| JU10   | U3.AIN+   | 1-2*           | Connects the AIN2+ connector to the AIN+ input of the MAX11166 (U3).   |
|        |           | 2-3            | The output of the on-board buffer (U4) connects to the AIN+ input of the MAX11166 (U3).  |
| JU11   | U3.AIN-   | 1-2*           | Connects the AIN- input of the MAX11166 (U3) to ground.  |
|        |           | 2-3            | Connects the AIN2- connector to the AIN- input of the MAX11166 (U3).   |
| JU12   | U3.DOUT   | 1-2*           | <b>(Interface Mode Selection = CS Mode)</b><br><b>(Interface Mode Selection = Daisy-Chain Mode)</b><br>Connects the DOUT signal of the second MAX11166 (U3) to the DIN pin of the first MAX11166 (U1) when JU3 is in the 1-2 position. |
|        |           | 2-3            | <b>(Interface Mode Selection = Multichannel CS Mode)</b><br>Connects the DOUT signal of the MAX11166 (U3) to the DOUT pin of the FPGA.   |

**Table 2. MAX11166 Daughter Board Jumper Descriptions (JU1–JU16) (continued)**

| JUMPER | SIGNAL     | SHUNT POSITION | DESCRIPTION   |
|--------|------------|----------------|---|
| JU13   | U3.CONVST  | 1-2*           | <b>(Interface Mode Selection = CS Mode)</b><br><b>(Interface Mode Selection = Daisy-Chain Mode)</b><br>Connects the CONVST input of the MAX11166 (U3) to the first CONVST signal (CONVST1) of the FPGA. |
|        |            | 2-3            | <b>(Interface Mode Selection = Multichannel CS Mode)</b><br>Connects the CONVST input of the MAX11166 (U3) to the second CONVST signal (CONVST2) of the FPGA.   |
| JU14   | U1.DOUT.R8 | 1-2*           | (For interface modes with busy indicator.)<br>Connects the pullup resistor to the DOUT output of the MAX11166 (U1).   |
|        |            | No shunt       | Disconnects the pullup resistor from the MAX11166 (U1).   |
| JU15   | U8.5VL     | 1-2*           | Connects the output of the LDO (U8) to the OVDD input of the IC when JU1 is in the 1-2 position.  |
|        |            | No shunt       | Disconnects the output of the on-board LDO (U8).  |
| JU16   | U10.5V     | 1-2*           | Connects the output of the LDO (U10) to the VDD input of the IC when JU2 is in the 1-2 position.  |
|        |            | No shunt       | Disconnects the output of the on-board LDO (U10).   |

\*Default position.

### Component Lists

#### MAX11166 EV System

| PART             | QTY | DESCRIPTION                   |
|------------------|-----|-------------------------------|
| MAX11166DBEVKIT# | 1   | MAX11166 daughter board       |
| MAXPRECADCMB#    | 1   | Serial interface mother board |

#### MAX11166 Daughter Board

| DESIGNATION                                  | QTY | DESCRIPTION  |
|--|-----|--|
| AIN1(+), AIN1(-), AIN2(+), AIN2(-)           | 4   | Yellow multipurpose test points  |
| C1, C2, C5, C11, C13–C19, C21 C23, C28, C111 | 15  | 0.1µF ±10%, 25V X7R ceramic capacitors (0603)<br>Murata GRM188R71E104K |
| C3, C4, C8, C9, C25, C32, C33                | 7   | 1µF ±10%, 16V X7R ceramic capacitors (0603)<br>Murata GRM188R71C105K   |
| C6, C12                                      | 2   | 10µF ±10%, 25V X7R ceramic capacitors (1210)<br>Murata GRM32DR71E106K  |

| DESIGNATION       | QTY | DESCRIPTION  |
|-------------------|-----|--|
| C7, C10, C30, C31 | 4   | 4700pF ±5%, 50V C0G ceramic capacitors (0603)<br>Murata GRM188R71H472K |
| C20, C29          | 2   | 2.2µF ±10%, 10V X7R ceramic capacitors (0603)<br>Murata GRM188R71A225K |
| C22               | 1   | 10µF ±10%, 6.3V X5R ceramic capacitor (0603)<br>Murata GRM188R60J106K  |
| C24               | 1   | 4.7µF ±10%, 6.3V X5R ceramic capacitor (0603)<br>Murata GRM188R60J475K |

## Component Lists (continued)

## MAX11166 Daughter Board (continued)

| DESIGNATION  | QTY | DESCRIPTION  |
|--|-----|--|
| C26  | 1   | 1000pF ±10%, 50V X7R ceramic capacitor (0603)<br>Murata GRM188R71H102K |
| C27  | 1   | 4.7µF ±10%, 16V X5R ceramic capacitor (0805)<br>Murata GRM21BR61C475K  |
| D1   | 1   | Red LED (0603)   |
| EXT_VCC,<br>EXT_VEE,<br>OVDD, VDD  | 4   | Red multipurpose test points   |
| EXT_CONVST,<br>EXT_DIN,<br>EXT_DOUT,<br>EXT_RDC,<br>EXT_REF,<br>EXT_SCLK | 6   | White multipurpose test points   |
| GND-POS  | 6   | Black multipurpose test points   |
| J1   | 1   | Shrouded 2mm right-angle header (2 x 20)<br>Samtec LS2-120-01-S-D-RA2  |
| JU1, JU2,<br>JU4–JU13  | 12  | 3-pin headers  |
| JU3  | 1   | 4-pin header   |
| JU14–JU16  | 3   | 2-pin headers  |
| R1, R2,<br>R12, R13  | 4   | 10Ω ±5% resistors (0603)   |
| R3   | 1   | 470Ω ±5% resistor (0603)   |
| R4–R7,<br>R14, R15   | 6   | 49.9Ω ±1% resistors (0603)   |

| DESIGNATION | QTY | DESCRIPTION   |
|-------------|-----|---|
| R8          | 1   | 15kΩ ±5% resistor (0603)  |
| R10         | 1   | 357kΩ ±1% resistor (0603)   |
| R11         | 1   | 51.1kΩ ±1% resistor (0603)  |
| U1, U3      | 2   | 16-bit, 500ksps/250ksps, ±5V SAR ADCs with internal reference (12 TDFN-EP*)<br>Maxim MAX11166ETC+ |
| U2, U4      | 2   | Precision low-noise amplifiers (8 SO)<br>Maxim MAX9632ASA+  |
| U5          | 1   | 4.096V voltage reference (8 SO)<br>Maxim MAX6126AASA41+   |
| U6          | 1   | Digital isolator, 4 up/0 down<br>Analog Devices<br>ADUM3400CRWZ                                   |
| U7          | 1   | Digital isolator, 2 up/2 down<br>Analog Devices<br>ADUM3402CRWZ                                   |
| U8, U10     | 2   | 5V LDO regulators (8 SO)<br>Maxim MAX883CSA+  |
| U9          | 1   | 10V LDO regulator (8 SO-EP*)<br>Maxim MAX16910CASA9/V+  |
| U11         | 1   | SPI serial flash<br>Micron M25P16-VMW6TG  |
| —           | 16  | Shunts  |
| —           | 1   | PCB: MAX11166DB<br>EVALUATION KIT   |

\*EP = Exposed pad.



## Component Lists (continued)

## MAXPRECADCMB Mother Board

| DESIGNATION  | QTY | DESCRIPTION  |
|--|-----|--|
| 10MHZCLK   | 1   | 50Ω SMA female jack<br>Emerson 142-0701-201                                |
| BUTTON,<br>CPU_RESET,<br>RECONFIGURE                               | 3   | Momentary pushbutton switches<br>(6mm)                                     |
| C1, C3   | 2   | 1000pF ±5%, 50V C0G ceramic<br>capacitors (0603)<br>Murata GRM1885C1H102J  |
| C2, C4, C31,<br>C43, C47,<br>C55–C72,<br>C78–C80, C82,<br>C84, C86 | 29  | 0.1μF ±10%, 25V X7R ceramic<br>capacitors (0603)<br>Murata GRM188R71E104K  |
| C5–C29   | 25  | 0.1μF ±10%, 16V X7R ceramic<br>capacitors (0402)<br>Murata GRM155R71C104K  |
| C30, C38–C41,<br>CB1–CB3   | 8   | 1μF ±10%, 16V X7R ceramic<br>capacitors (0603)<br>Murata GRM188R71C105K    |
| C32  | 1   | 0.01μF ±10%, 16V X7R ceramic<br>capacitor (0603)<br>Murata GRM188R71C103K  |
| C44, C45, C130,<br>CP2, CP3  | 5   | 10μF ±20%, 6.3V X5R ceramic<br>capacitors (0603)<br>Murata GRM188R60J106M  |
| C73, C129  | 2   | 4.7μF ±10%, 6.3V X5R ceramic<br>capacitors (0603)<br>Murata GRM188R60J475K |
| C74  | 0   | Not installed, capacitor (0603)  |
| C75, C76   | 2   | 18pF ±5%, 50V C0G ceramic<br>capacitors (0603)<br>Murata GRM1885C1H180J    |
| C77, C81   | 2   | 10μF ±20%, 10V tantalum<br>capacitors (3528-21)<br>KEMET T491B106M010AT    |
| C83, C85   | 2   | 4.7μF ±20%, 25V tantalum<br>capacitors (1210)<br>AVX TAJB475M025R          |

| DESIGNATION                            | QTY | DESCRIPTION   |
|--|-----|---|
| CC1–CC4                                | 4   | 10pF ±5%, 50V C0G ceramic<br>capacitors (0603)<br>Murata GRM1885C1H100J         |
| CP1                                    | 1   | 100μF ±20%, 6.3V X5R ceramic<br>capacitor (1210)<br>Murata GRM32ER60J107M       |
| GND                                    | 3   | Black multipurpose test points<br>Keystone 5011                                 |
| H2                                     | 0   | Not installed, 16-pin (2 x 8)<br>dual-row header                                |
| IOVDD, VIN                             | 2   | Red multipurpose test points<br>Keystone 5010                                   |
| J1                                     | 1   | Shrouded 2mm right-angle<br>40-pin (2 x 20) header<br>SAMTEC LS2-120-01-S-D-RA1 |
| J2                                     | 1   | USB type-B right-angle female<br>receptacle                                     |
| JTAG1, JTAG2                           | 2   | 10-pin (2 x 5) dual-row headers   |
| JUC1–JUC7                              | 0   | Not installed, 3-pin headers  |
| JU35–JU39,<br>JU45                     | 6   | 3-pin headers   |
| JU40–JU43                              | 4   | 2-pin headers   |
| JU44                                   | 1   | 4-pin header  |
| L1                                     | 1   | 300Ω ±25%, 500mA ferrite bead<br>(0603)<br>TDK MMZ1608R301A                     |
| LED1–LED4                              | 4   | Red LEDs (0603)   |
| R1, R2,<br>R5–R7, R95                  | 6   | 100kΩ ±5% resistors (0603)  |
| R36                                    | 1   | 0Ω ±1% resistor (0603)  |
| R10, R33                               | 2   | 22Ω ±5% resistors (0603)  |
| R11–R21                                | 11  | 5.1kΩ ±5% resistors (0603)  |
| R22–R25, R28,<br>R34, R35,<br>R41, R97 | 9   | 10.0kΩ ±1% resistors (0603)   |
| R26, R96                               | 2   | 16.5kΩ ±1% resistors (0603)   |
| R27                                    | 1   | 4.42kΩ ±1% resistor (0603)  |
| R29                                    | 1   | 20.0kΩ ±1% resistor (0603)  |

**Component Lists (continued)**

**MAXPRECADCMB Mother Board (continued)**

| DESIGNATION       | QTY | DESCRIPTION   |
|-------------------|-----|---|
| R30, RC1–RC7      | 8   | 10kΩ ±5% resistors (0603)   |
| R31               | 0   | Not installed, resistor (0603)  |
| R32               | 1   | 12.1kΩ ±1% resistor (0603)  |
| RC8–RC10          | 3   | 1.0kΩ ±5% resistors (0603)  |
| RL1–RL4           | 4   | 120Ω ±5% resistors (0603)   |
| RN14–RN21         | 8   | 22Ω ±5%, 1/16W resistor networks (8 pins)<br>Panasonic EXB-2HV220JV   |
| RN22              | 1   | 5.1kΩ resistor network<br>Yageo TC164-JR-075K1L   |
| RN25              | 1   | 10kΩ resistor network<br>Panasonic EXB-38V103JV   |
| S1                | 1   | 4-position SMT, half-pitch DIP switch<br>CTS 218-4LPST  |
| TP2, TP3, TPUSB5V | 0   | Not installed, multipurpose test points   |
| U2                | 1   | Altera Cyclone III FPGA<br>Altera EP3C25F324C8N   |
| U3, U10–U12       | 4   | LDOs (16 TSSOP-EP*)<br>Maxim MAX1793EUE50+<br>Maxim MAX1793EUE33+<br>Maxim MAX1793EUE25+<br>Maxim MAX1793EUE18+ |

\*EP = Exposed pad.

| DESIGNATION | QTY | DESCRIPTION  |
|-------------|-----|--|
| U5          | 1   | SSRAM 256K x 36 (100 TQFP)<br>ISSI IS61LPS25636A-200TQLI                   |
| U6          | 0   | Not installed, flash 32M x 16 (64 EBGA)<br>Numonyx/Intel<br>PC28F256P30BFA |
| U7          | 1   | SPI flash memory EPCS16 (8 SO)<br>Altera EPCS16SI8N                        |
| U13         | 1   | LDO (6 SOT23)<br>Maxim MAX1983EUT+   |
| U14         | 1   | SRAM (48 TSOP)<br>Cypress CY62167DV30LL-55ZXI                              |
| U15         | 1   | USB PHY (SOT617-1)<br>ST Ericsson ISP1504ABS                               |
| Y1          | 1   | 3.3V, 50MHz oscillator (7mm x 5mm)<br>ECS-3953M-500-BN                     |
| Y2          | 1   | 19.2MHz, 18pF SMD crystal<br>Citizen CS325 19.200MABJ-UT                   |
| —           | 1   | USB high-speed A-to-B cable, 6ft   |
| —           | 11  | Shunts   |
| —           | 1   | PCB: MAXPRECADCMB EVKIT  |

**Component Suppliers**

| SUPPLIER              | PHONE        | WEBSITE                 |
|-----------------------|--------------|-------------------------|
| Hong Kong X'tals Ltd. | 852-35112388 | www.hongkongcrystal.com |
| Murata Americas       | 770-436-1300 | www.murataamericas.com  |
| TDK Corp.             | 847-803-6100 | www.component.tdk.com   |

**Note:** Indicate that you are using the MAX11166 when contacting these manufacturers.

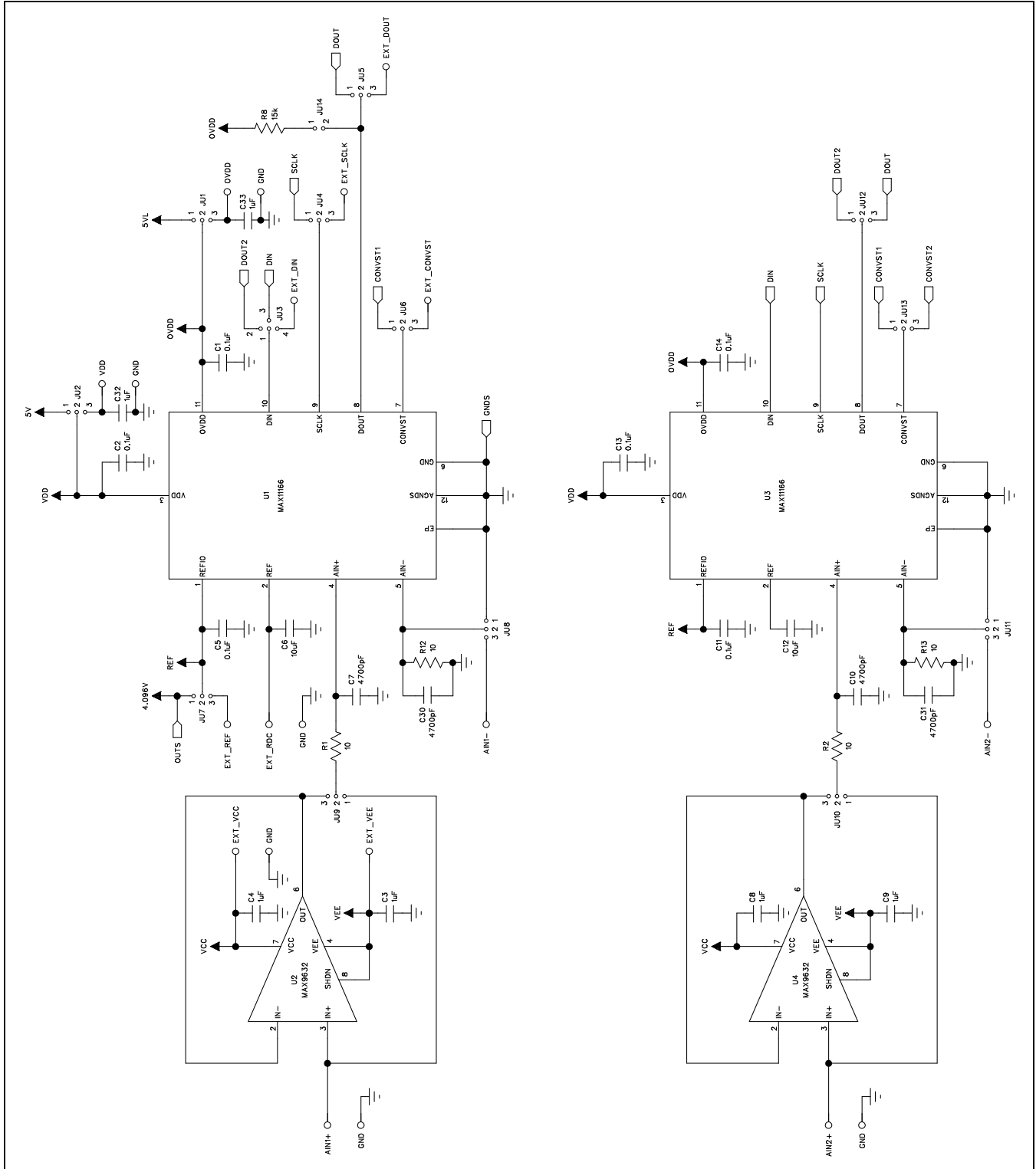


Figure 2a. MAX11166 Daughter Board Schematic (Sheet 1 of 2)

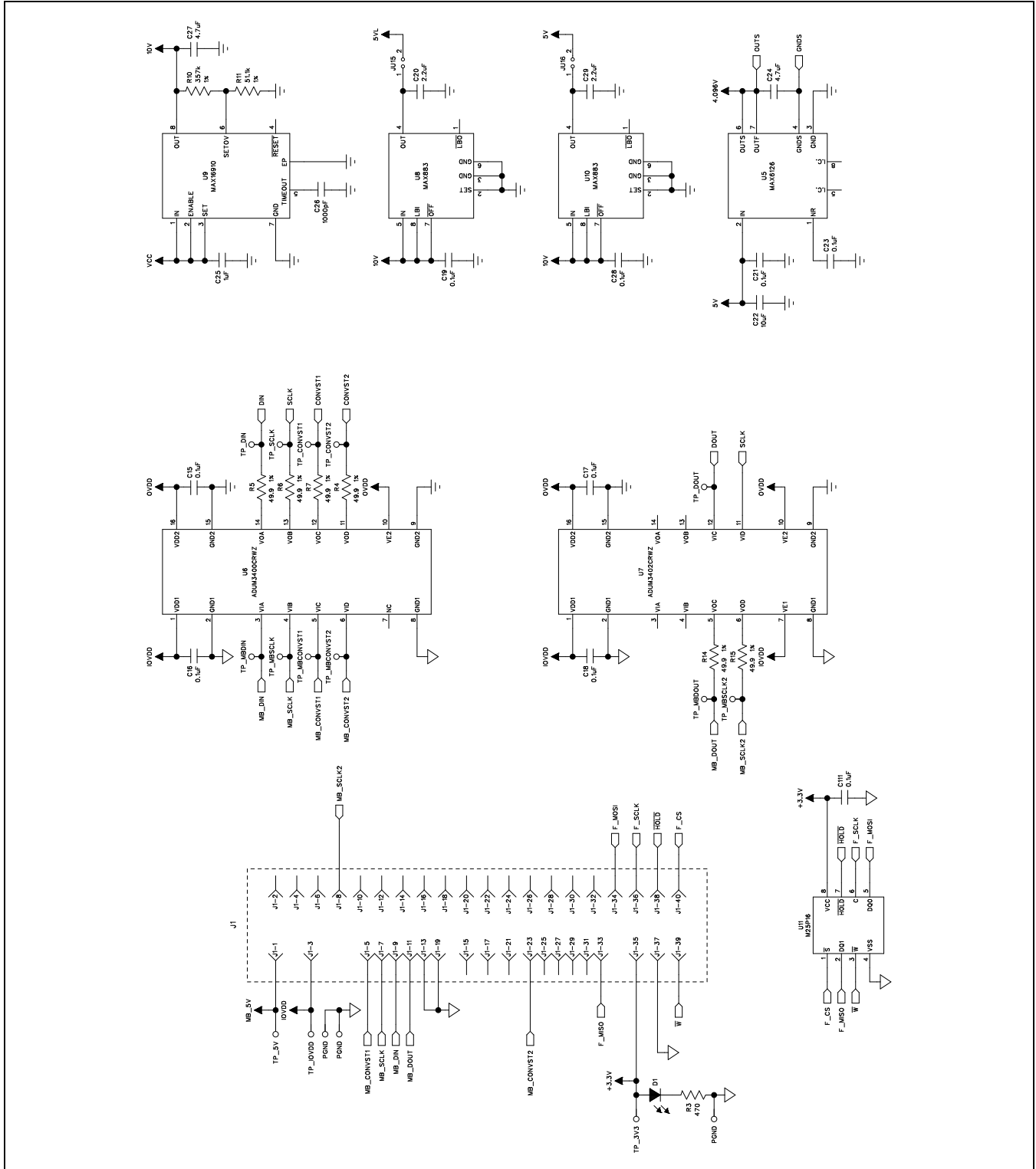


Figure 2b. MAX11166 Daughter Board Schematic (Sheet 2 of 2)

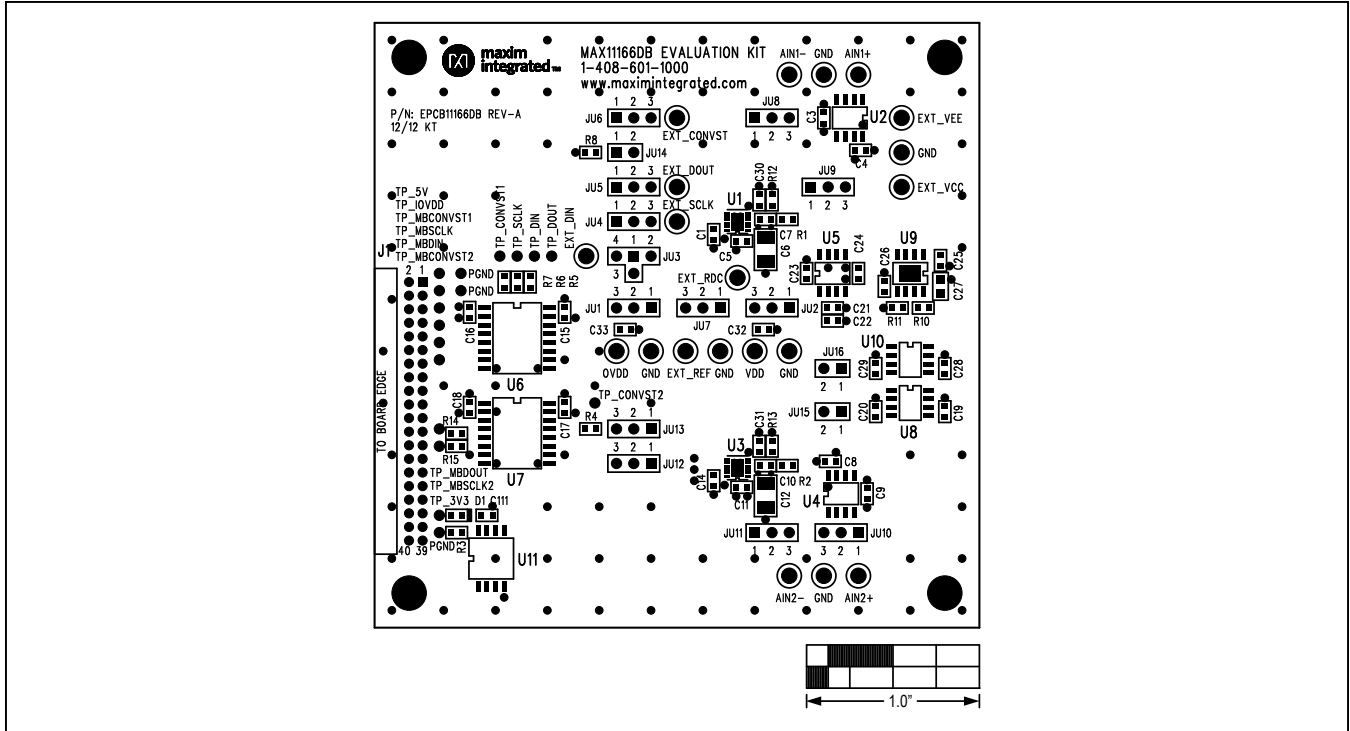


Figure 3. MAX11166 Daughter Board Component Placement Guide—Component Side

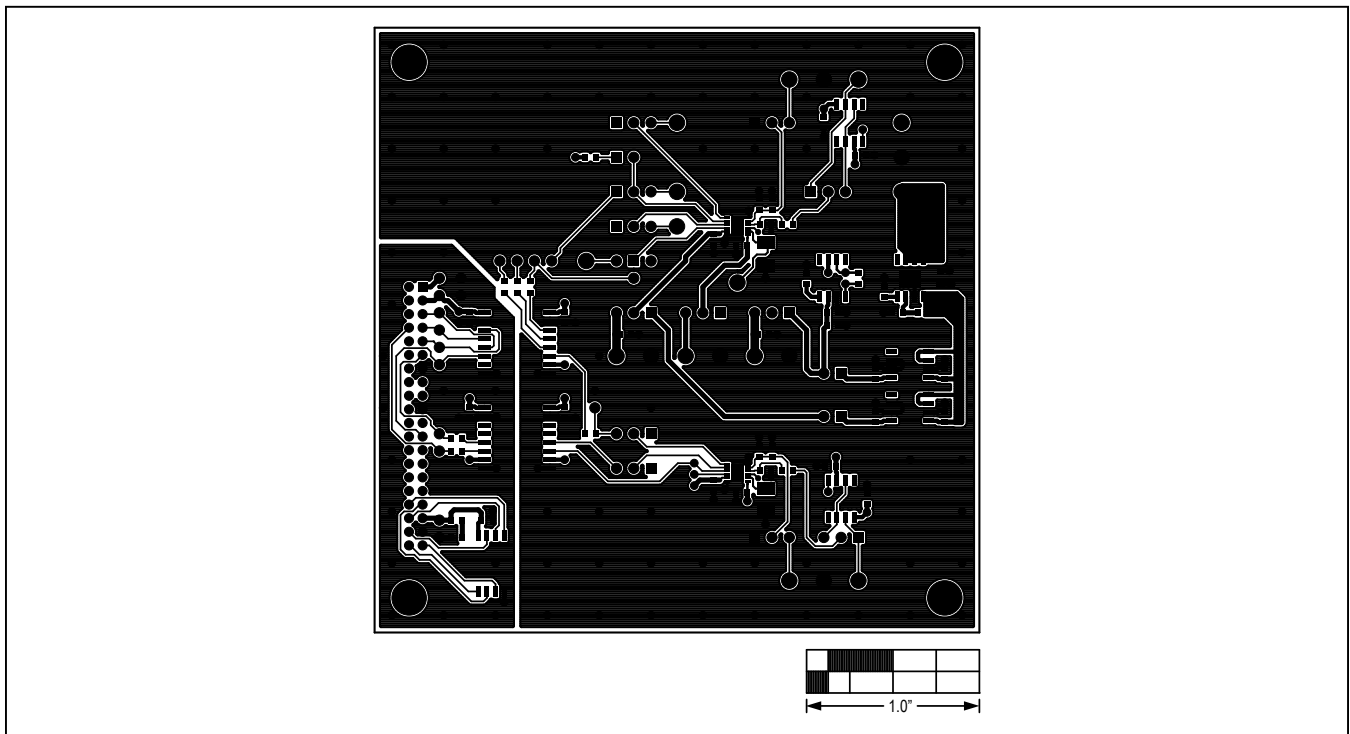


Figure 4. MAX11166 Daughter Board PCB Layout—Component Side

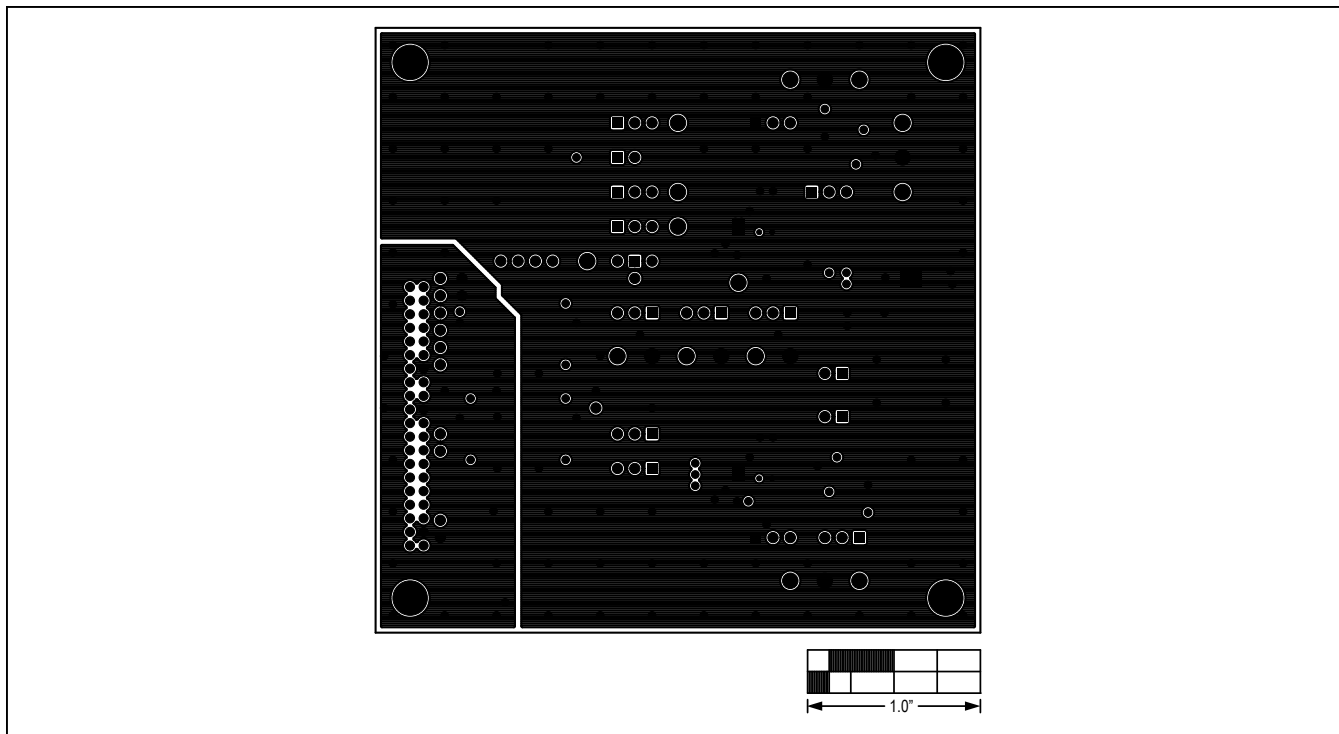


Figure 5. MAX11166 Daughter Board PCB Layout—Ground Layer 2

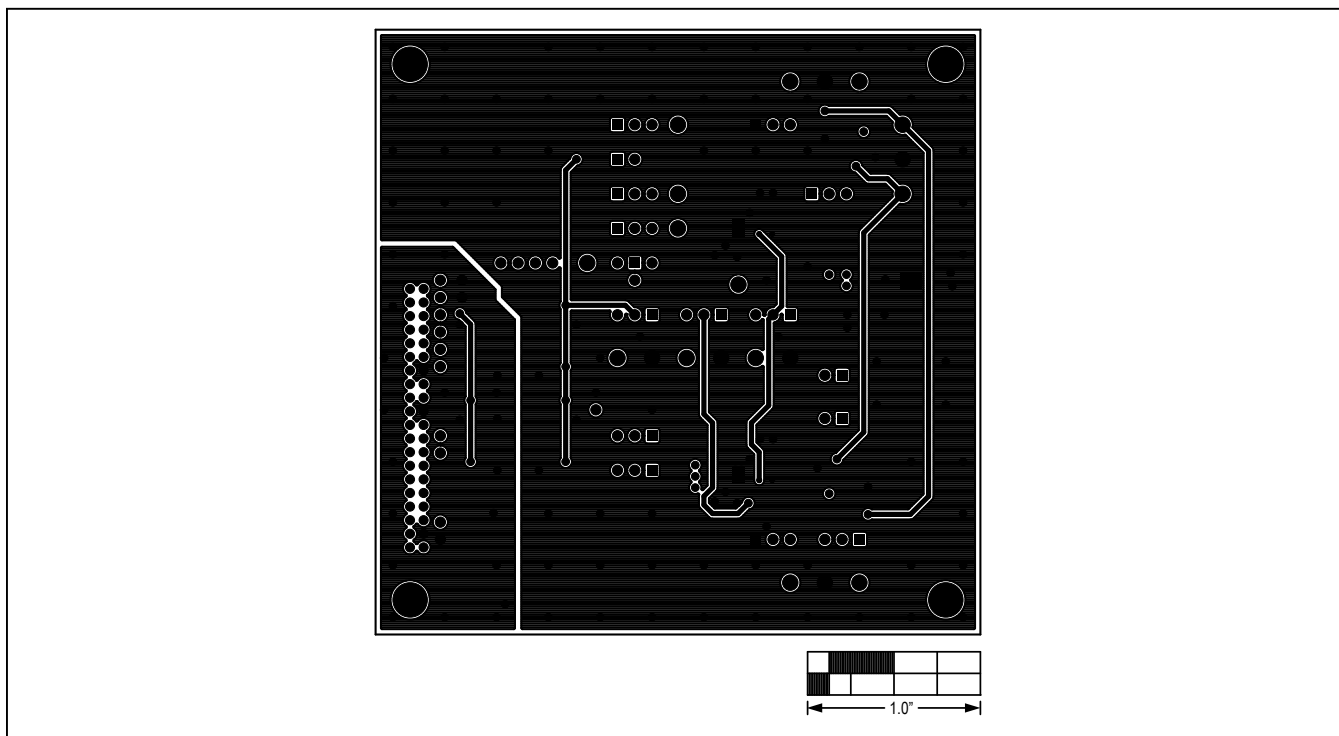


Figure 6. MAX11166 Daughter Board PCB Layout—Power Layer 3

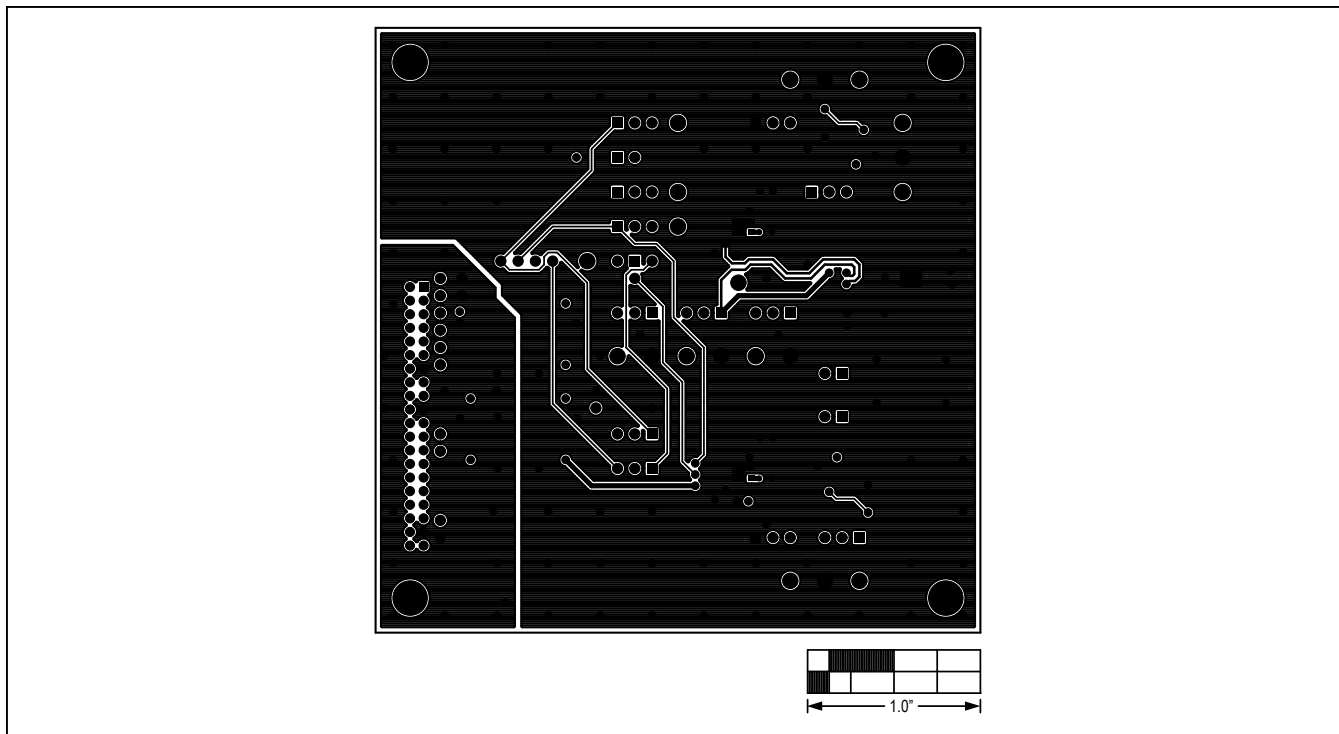


Figure 7. MAX11166 Daughter Board PCB Layout—Solder Side

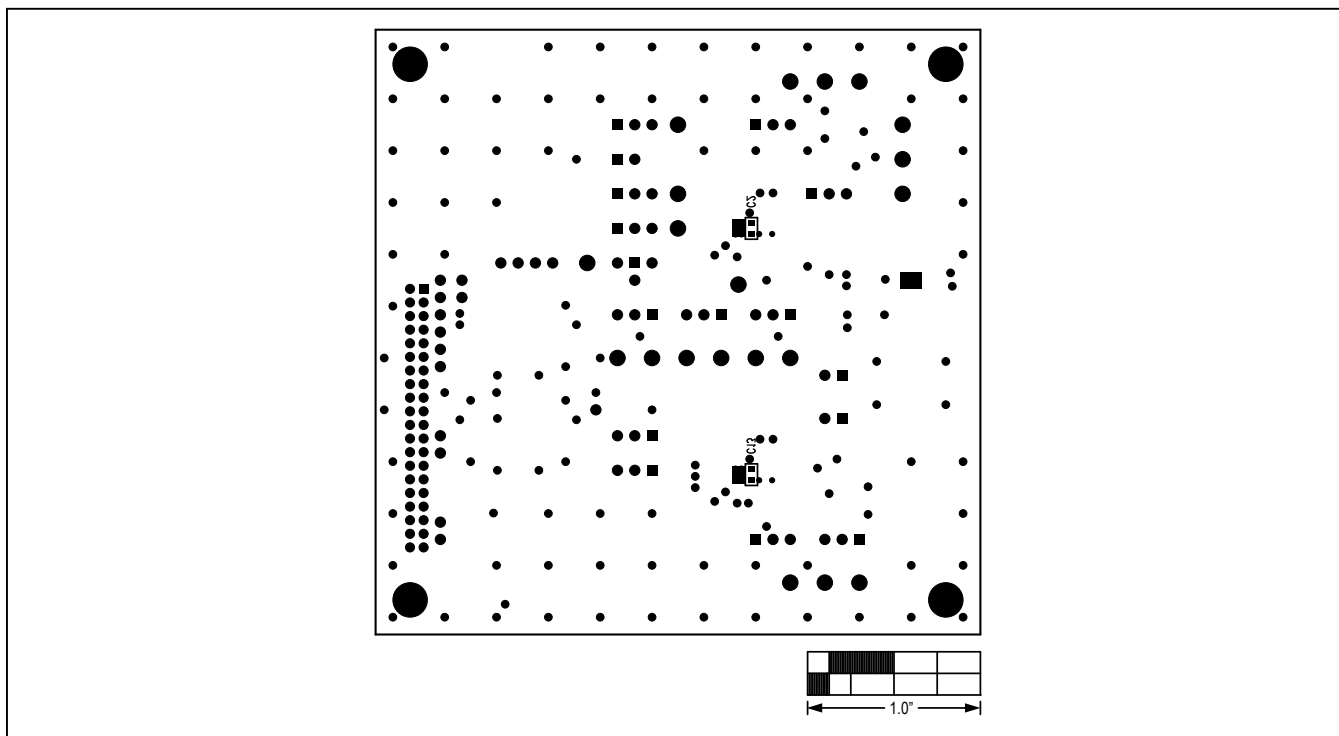


Figure 8. MAX11166 Daughter Board Component Placement Guide—Solder Side

### Ordering Information

| PART           | TYPE      |
|----------------|-----------|
| MAX11166EVSYS# | EV System |

*#Denotes RoHS compliant.*



## Revision History

| REVISION NUMBER | REVISION DATE | DESCRIPTION     | PAGES CHANGED |
|-----------------|---------------|-----------------|---------------|
| 0               | 6/13          | Initial release | —             |

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](http://www.maximintegrated.com).

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- Оперативные сроки поставки под заказ (от 5 рабочих дней);
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- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
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- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



#### Как с нами связаться

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**Электронная почта:** [org@eplast1.ru](mailto:org@eplast1.ru)

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