

General Description

The MAX17271 evaluation kit (EV kit) evaluates the MAX17271. The MAX17271 is a 3-output switching regulator that regulates three outputs using a single, small 2.2μH inductor. The MAX17271 includes an I²C interface to configure the output voltages.

The MAX17271 EV kit features two independent circuits to evaluate two different IC packages of the MAX17271. Both circuits on the EV kit operate over an input range of 2.7V to 5.5V. Each circuit features an I²C interface to set the three output channels to voltages from 0.8V to 5.175V for each output channel. Each circuit output on the EV kit delivers up to 50mA/75mA/80mA of current depending on the input voltage to the output voltage ratio.

The MAX17271 EV kit includes a graphical user interface (GUI) that provides communication over I²C with an on-board IC.

The EV kit comes with the MAX17271ETE+ and the MAX17271ENE+ installed.

Features

- Two Independent Circuits on One Board
 - Evaluates the MAX17271 IC in a 16-pin TQFN
 - Evaluates the MAX17271 IC in a 4 x 4 Bump, 0.4mm Pitch WLP
- Two Independent On-board I²C Interface Circuits
- Windows XP, Windows 7/8/8.1/10-Compatible Software
- 2.7V to 5.5V Input Range
- 0.8V to 5.175V Configurable Output Voltage
- Up to 50mA/75mA/80mA Output Current
- Proven 4-Layer 1oz Copper PCB Layout
- Demonstrates Compact Solution Size
- Fully Assembled and Tested

Ordering Information appears at end of data sheet.

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Quick Start

Required Equipment

- MAX17271 EV kit (includes micro-USB cable)
- 2.7V to 5.5V, 1A DC power supply
- Electronic load capable of 100mA
- Digital voltmeter (DVM)

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 (Testing the TQFN Circuit)

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

Caution: Do not turn on power supply until all connections are completed.

- 1) Visit <http://www.maximintegrated.com/max-17271EVKIT> and navigate to the *Design Resources* tab to download the latest version of the EV kit software, 17271EVKit.ZIP. Save the EV kit software to a temporary folder and unzip the ZIP file.
- 2) Verify that header J1 have shunts in their default positions, as shown in [Table 1](#).
- 3) Connect the 2.7V to 5.5V power supply between the IN1 and nearest PGND1 terminal posts.
- 4) Turn on the power supply and set the power supply output to 3V.
- 5) Connect the USB cable from the PC to the USB1 connector on the MAX17271 EV kit board.
- 6) Open the EV kit GUI, MAX17271EVKit.exe and select **File→Connect**. See [Figure 1](#).
- 7) Click the **Enable Channel 1** checkbox.
- 8) Select **0.5A** in the **Channel Peak Current** drop-down list.
- 9) Enter **1000mV** in the **Channel Target Output Voltage** edit box, and click the Write button.
- 10) Verify that the output voltage at OUT1 and nearest PGND1 terminal posts is 1.0V.
- 11) Connect the electronic load between OUT1 and PGND1. Set the electronic load to 50mA.
- 12) Enable the electronic load and verify that OUT1 is still 1.0V.

MAX17271 EV Kit Files

FILE	DESCRIPTION
MAX17271 EV BOM	EV Kit Bill of Material
MAX17271 EV PCB Layout	EV Kit Layout
MAX17271 EV Schematic	EV Kit Schematic

Procedure (Testing the WLP Circuit)

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

Caution: Do not turn on power supply until all connections are completed.

- 13) Visit <http://www.maximintegrated.com/max-17271EVKIT> and navigate to the *Design Resources* tab to download the latest version of the EV kit software, 17271EVKit.ZIP. Save the EV kit software to a temporary folder and unzip the ZIP file.
- 14) Verify that header J101 have shunts in their default positions, as shown in [Table 2](#).
- 15) Connect the 2.7V to 5.5V power supply between the IN and nearest PGND terminal posts.
- 16) Turn on the power supply and set the power supply output to 3V.
- 17) Connect the USB cable from the PC to the USB connector on the MAX17271 EV kit board.
- 18) Open the EV kit GUI, MAX17271EVKit.exe and select **File**→**Connect**. See [Figure 1](#).
- 19) Click the **Enable Channel 1** checkbox.
- 20) Select **0.5A** in the **Channel Peak Current** drop-down list.
- 21) Enter **1000mV** in the **Channel Target Output Voltage** edit box, and click the Write button.
- 22) Verify that the output voltage at OUT101 and nearest PGND terminal posts is 1.0V.
- 23) Connect the electronic load between OUT101 and PGND. Set the electronic load to 50mA
- 24) Enable the electronic load and verify that OUT101 is still 1.0V.

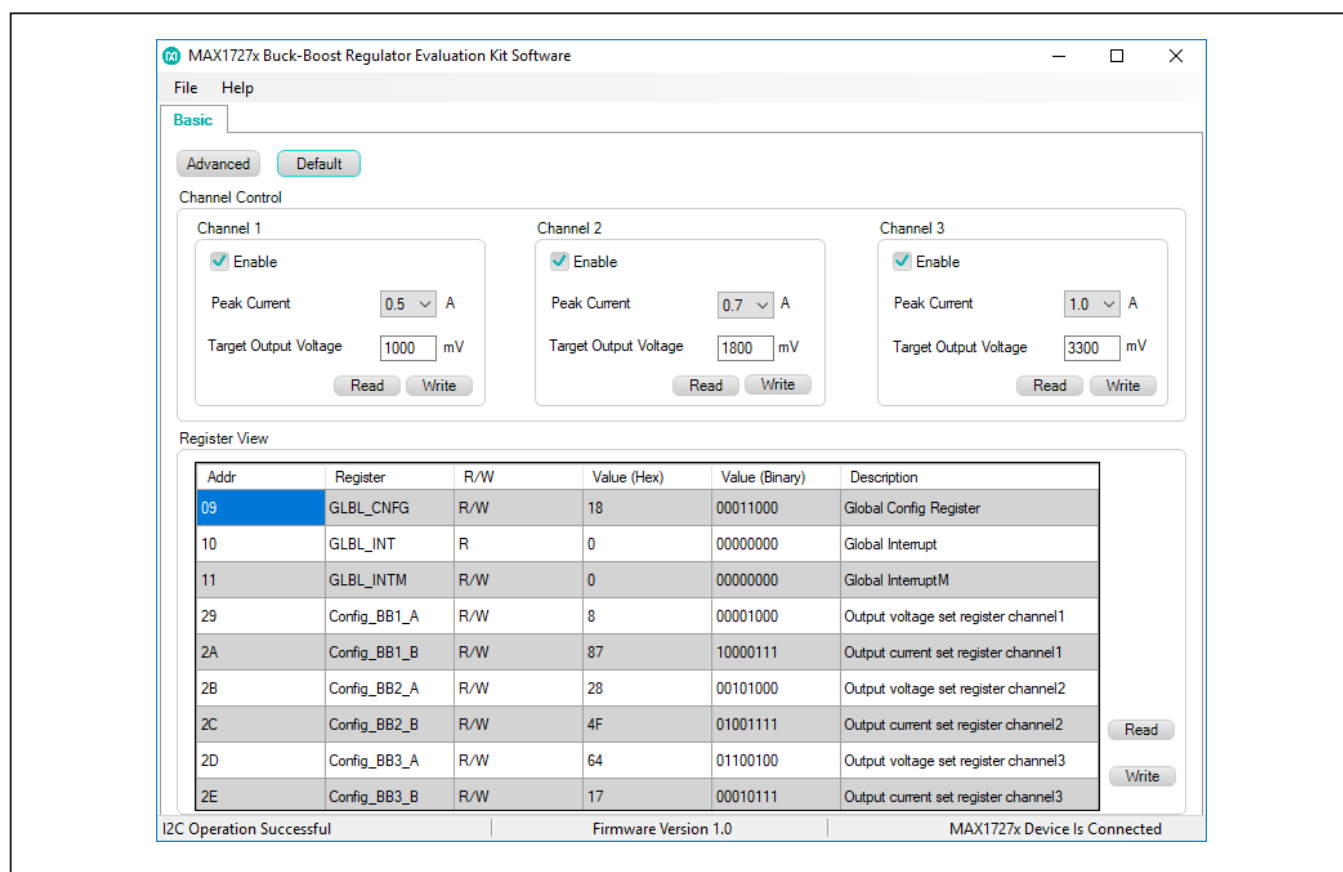


Figure 1. MAX17271 Evaluation Kit Software Default (and Advance) Mode, Basic Panel Window

Detailed Description of Software

The MAX17271 EV kit software GUI shown in [Figure 1](#) provides a convenient means to control the MAX17271. The MAX17271 EV Kit software features two operation modes: Default and Advanced modes. The Default mode provides only one control panel, the Basic panel ([Figure 1](#)). While the Advanced mode provides three control panels, the Basic, the SIMO Buck-Boost, and the Configuration and Interrupts panels ([Figure 2](#) and [Figure 3](#)).

Default Mode

The Default mode provide one control panel, the Basic panel. The Basic panel divides the EV Kit functions into two logical blocks. The Channel Control block and the Register View block. The Channel Control block provides check boxes to enable or disable the output channels, drop-down boxes to select the channel peak currents, and edit boxes to enter the channel target output voltages. The Write buttons are used to enter the input values, while the Read buttons are used to read back the current

values for the Peak Currents and the Output Voltages of the respective channels.

The Register View block displays the contents, read from, and write to the MAX17271 registers. The left bottom status bar indicates the I²C operation status. The center bottom displays the software version. The right bottom status bar indicates the presence or absence of the MAX17271 IC.

Advanced Mode

The Advanced mode provide three control panels, the Basic, the SIMO Buck-Boost, and the Configuration and Interrupts panels. The Basic panel in the Advance mode is identical with that of the Default mode. The SIMO Buck-Boost provide additional check boxes to enable or disable the active discharge feature, and drop-down boxes to select the power-up and power-down delay.

The Configuration and Interrupts panel features three functional blocks: Global Configuration, Fault Mask, and Fault Indication. Refer to the MAX17271 IC data sheet for additional information.

Explanation of “Configuration and Interrupts”

NO.	CONFIGURATION	BIT NAME	EXPLANATION
1	Global Configuration	Software Auto Restart Enable	Enables/Disables Auto-Restart feature
2		Internal Bias Disable	Enables/Disables Internal Bias
3		FBLO Idle Time	Allows selection of maximum idle time between pulses when $V_{OUT} < V_{OV}$
4		SIMO Drive Strength	Allows selection of four different transition time (slowest to faster) for EMI
5	Fault Mask	ON Pin Rising Edge Interrupt Mask Enable	Enables/Disables detection of rising edge interrupt on ON pin
6		VSUP Supply Overvoltage Fault Mask Enable	Enables/Disables detection of VSUP Supply Overvoltage interrupt
7		VSUP Supply Undervoltage Fault Mask Enable	Enables/Disables detection of VSUP Supply Undervoltage interrupt
8		OUT3 Power Regulation Fault Mask Enable	Enables/Disables detection of OUT3 Power Regulation interrupt
9		OUT2 Power Regulation Fault Mask Enable	Enables/Disables detection of OUT2 Power Regulation interrupt
10		OUT1 Power Regulation Fault Mask Enable	Enables/Disables detection of OUT1 Power Regulation interrupt
11		Thermal Fault Mask Enable	Enables/Disables detection of Overtemperature interrupt
12	Fault Indication	ON Pin Rising Edge Interrupt	Determines rising edge interrupt on ON pin
13		VSUP Supply Overvoltage Fault	Determines VSUP Overvoltage fault
14		VSUP Supply Undervoltage Fault	Determines VSUP Undervoltage fault
15		OUT3 Power Regulation fault	Determines OUT3 Regulation fault
16		OUT2 Power Regulation fault	Determines OUT2 Regulation fault
17		OUT1 Power Regulation fault	Determines OUT1 Regulation fault
18		Thermal Interrupt Fault	Determines Thermal interrupt

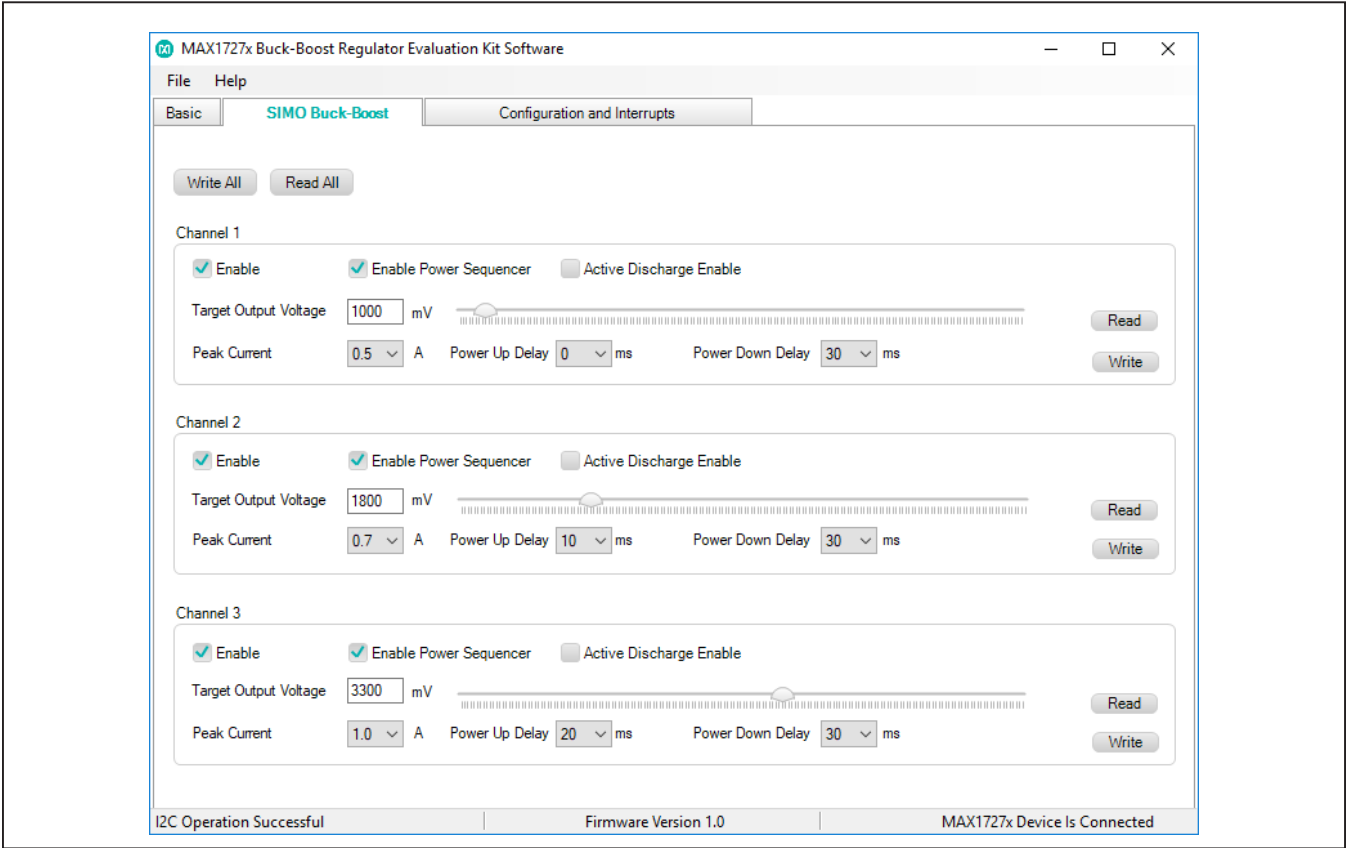


Figure 2. MAX17271 Evaluation Kit Software Advance Mode, SIMO Buck-Boost Panel Window

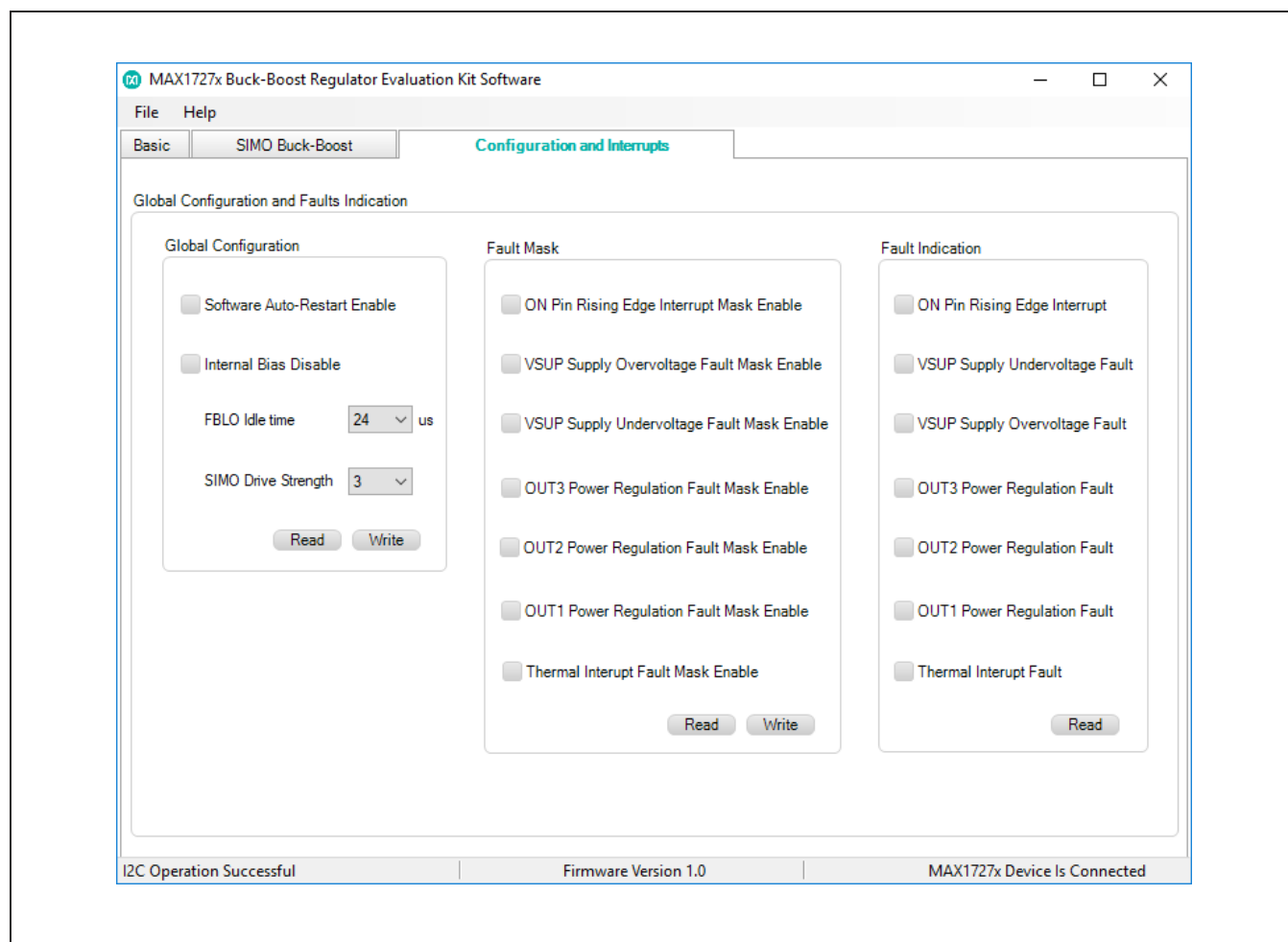


Figure 3. MAX17271 Evaluation Kit Software Advance Mode, Configuration, and Interrupts Panel Window

Detailed Description of Hardware

The MAX17271 evaluation kit (EV kit) evaluates the MAX17271. The MAX17271 is a 3-output switching regulator that regulates three outputs using a single, small 2.2μH inductor. The MAX17271 includes an I²C interface to configure the output voltages.

The MAX17271 EV kit features two independent circuits to evaluate two different IC packages of the MAX17271. Both circuits on the EV kit operate over an input range of 2.7V to 5.5V. Each circuit features an I²C interface to

set the three output channels, to voltages from 0.8V to 5.175V for each output channel. Each circuit output on the EV kit delivers up to 50mA/75mA/80mA of current depending on the input voltage to the output voltage ratio.

The MAX17271 EV kit includes a graphical user interface (GUI) that provides communication over I²C with an on-board IC.

The EV kit comes with the MAX17271ETE+ and the MAX17271ENE+ installed.

On-Board I²C for the MAX17271ETE+ (TQFN) Circuit

The MAX17271 (TQFN) circuit on the EV kit contains an on-board USB interface to communicate with the MAX17271ETE+ using I²C signals. The on-board USB interface is connected to the MAX17271 (TQFN) through header J1. To use the on-board USB interface, install shunts on header J1, as shown in [Table 1](#). To use external I²C, remove all shunts from header J1 and connect the I²C signals on the respective test points.

On-Board I²C for the MAX17271ENE+ (WLP) Circuit

The MAX17271 (WLP) circuit on the EV kit contains an on-board USB interface to communicate with the MAX17271ENE+ using I²C signals. The on-board USB interface is connected to the MAX17271 (WLP) through header J101. To use the on-board USB interface, install shunts on header J101, as shown in [Table 2](#). To use external I²C, remove all shunts from header J101 and connect the I²C signals on the respective test points.

Spare Inductors

The MAX17271 EV kit provides spare inductors on the PCB's bottom side. The spare inductors can be used to reconfigure the EV kit output current ratings.

Table 1. On-Board I²C (J1) on MAX17271 (TQFN) Circuit

J1 SHUNT POSITION	INSTALLED*	NOT INSTALLED
1–2	VIO1 = +3.3V1 = +3.3V_M1 (On-board LDO)	VIO1 = OPEN
3–4	SCL1 = SCL_M1 (On-board I ² C clock)	SCL1 = OPEN
5–6	SDA1 = SDA_M1 (On-board I ² C data)	SDA1 = OPEN
7–8	IRQB1 = IRQB_M1 (On-board I ² C interrupt request)	IRQB1 = OPEN
9–10	DGND1 pins (No shunt required)	DGND1 pins

*Default Position

Table 2. On-Board I²C (J101) on MAX17271 (WLP) Circuit

J101 SHUNT POSITION	INSTALLED*	NOT INSTALLED
1–2	VIO = +3.3V = +3.3V_M (On-Board LDO)	VIO = OPEN
3–4	SCL = SCL_M (On-board I ² C clock)	SCL = OPEN
5–6	SDA = SDA_M (On-board I ² C data)	SDA = OPEN
7–8	IRQB = IRQB_M (On-board I ² C interrupt request)	IRQB = OPEN
9–10	DGND pins (No shunt required)	DGND pins

*Default Position

Component Suppliers

SUPPLIER	WEBSITE
Coilcraft	www.coilcraft.com
Murata/TOKO	www.murata.com
TDK	www.tdk.com
Würth Elektronik	www.we-online.com

Note: Indicate that you are using the MAX17271 when contacting these component suppliers.

Ordering Information

PART	TYPE
MAX17271EVKIT#	EV Kit

#Denotes RoHS compliant.

MAX17271 Evaluation Kit

Evaluates: MAX17271

MAX17271 EV Kit Bill of Materials

ITEM	REF DES	DNI/DNP	QTY	MFG PART #	MANUFACTURER	VALUE	DESCRIPTION	COMMENTS
1	VIO, VBUS, VIO1, VBUS1, +3.3V_M, +3.3V_M1	-	6	5000	KEYSTONE	N/A	TEST POINT; PIN DIA=0.1IN; TOTAL LENGTH=0.3IN; BOARD HOLE=0.04IN; RED; PHOSPHOR BRONZE WIRE SILVER PLATE FINISH;	
2	C1, C101	-	2	CGA2B3X7R1H104K; C1005X7R1H104K050BB; GRM155R71H104KE14	TDK;TDK;MURATA	0.1UF	CAPACITOR; SMT (0402); CERAMIC CHIP; 0.1UF; 50V; TOL=10%; TG=-55 DEGC TO +125 DEGC; TC=X7R	
3	C3, C8, C14-C18, C21, C22, C103, C108, C114-C118, C121, C122	-	18	GRM188R61A105KA61; C1608X5R1A105K	MURATA;TDK	1UF	CAPACITOR; SMT (0603); CERAMIC CHIP; 1UF; 10V; TOL=10%; MODEL=; TG=-55 DEGC TO +85 DEGC; TC=X5R;	
4	C4, C104	-	2	C1608X5R1A106K	TDK	10UF	CAPACITOR; SMT (0603); CERAMIC CHIP; 10UF; 10V; TOL=10%; MODEL=; TG=-55 DEGC TO +85 DEGC; TC=X5R	
5	C5-C7, C105-C107	-	6	C1608X5R1A226M080AC; GRM188R61A226ME15	TDK;MURATA	22UF	CAPACITOR; SMT (0603); CERAMIC CHIP; 22UF; 10V; TOL=20%; TG=-55 DEGC TO +85 DEGC; TC=X5R	
6	C19, C20, C119, C120	-	4	C0603COG500-180JNE; C1608COG1H180J; GRM1885C1H180J	VENKEL LTD.;TDK; MURATA	18PF	CAPACITOR; SMT (0603); CERAMIC CHIP; 18PF; 50V; TOL=5%; MODEL=; TG=-55 DEGC TO +125 DEGC; TC=COG	
7	C23, C123	-	2	GRM155R71E104KE14	MURATA	0.1UF	CAPACITOR; SMT (0402); CERAMIC CHIP; 0.1UF; 25V; TOL=10%; MODEL=GRM SERIES; TG=-55 DEGC TO +125 DEGC; TC=X7R	
8	DGND, DGND1, TP_GND1_U1, TP_GND_U101	-	4	5001	KEYSTONE	N/A	TEST POINT; PIN DIA=0.1IN; TOTAL LENGTH=0.3IN; BOARD HOLE=0.04IN; BLACK; PHOSPHOR BRONZE WIRE SILVER PLATE FINISH;	
9	ON, ON1, SCL, SDA, IRQB, RSTB, SCL1, SDA1, VSUP, GPIO1, IRQB1, RSTB1, VSUP1, GPIO101	-	14	5002	KEYSTONE	N/A	TEST POINT; PIN DIA=0.1IN; TOTAL LENGTH=0.3IN; BOARD HOLE=0.04IN; WHITE; PHOSPHOR BRONZE WIRE SILVER;	
10	IN, IN1, OUT1-OUT3, PGND, PGND1, OUT101-OUT103, PGND1_OUT1-PGND1_OUT3, PGND_OUT101-PGND_OUT103	-	16	1514-2	KEYSTONE	1514-2	TERMINAL; TURRET; PIN DIA=0.090IN; TOTAL LENGTH=0.105IN; BOARD HOLE=0.098IN; BRASS; TIN PLATING;	
11	LXA, LXB, LXA1, LXB1, IN1_JACK, OUT1_JACK-OUT3_JACK, IN101_JACK, OUT101_JACK-OUT103_JACK	-	12	131-4353-00	TEKTRONICS	131-4353-00	CONNECTOR; WIREMOUNT; CIRCUIT BOARD TEST POINT MINIATURE PROBE; STRAIGHT; 4PINS	
12	J1, J2, J101, J102	-	4	PEC05DAAN	SULLINS ELECTRONICS CORP.	PEC05DAAN	CONNECTOR; MALE; THROUGH HOLE; BREAKAWAY; STRAIGHT; 10PINS; -65 DEGC TO +125 DEGC	
13	L1, L101	-	2	XFL4020-222ME	COILCRAFT	2.2UH	INDUCTOR; SMT; METAL COMPOSITE CORE; 2.2UH; TOL=+/-20%; 8A; -40 DEGC TO +125 DEGC	
14	L1A	-	1	MLP1005M1R0DT0S1	TDK	1UH	INDUCTOR; SMT (0402); FERRITE CHIP; 1UH; TOL=+/-20%; 0.5A	
15	L1B	-	1	DFE160808S-1R0M=P2	MURATA	1UH	INDUCTOR; SMT (0603); MAGNETICALLY SHIELDED; 1UH; TOL=+/-20%; 1.9A	
16	L1C	-	1	DFM18PAN2R2MG0L	MURATA	2.2UH	INDUCTOR; SMT (0603); CERAMIC CHIP; 2.2UH; TOL=+/-20%; 1.1A;	
17	L1D	-	1	DFE201612E-1R0M	MURATA	1UH	INDUCTOR; SMT (0806); WIREWOUND CHIP; 1UH; TOL=+/-20%; 2.9A	
18	L1E	-	1	74479299222	WURTH ELECTRONICS INC	2.2UH	INDUCTOR; SMT (1210); MOLDED CHIP; 2.2UH; TOL=+/-20%; 2.1A	
19	L1F	-	1	74438357022	WURTH ELECTRONICS INC	2.2UH	EVKIT PART-INDUCTOR; SMT; SHIELDED; 2.2UH; TOL=+/-20%; 5.2A;	

MAX17271 Evaluation Kit

Evaluates: MAX17271

MAX17271 EV Kit Bill of Materials (continued)

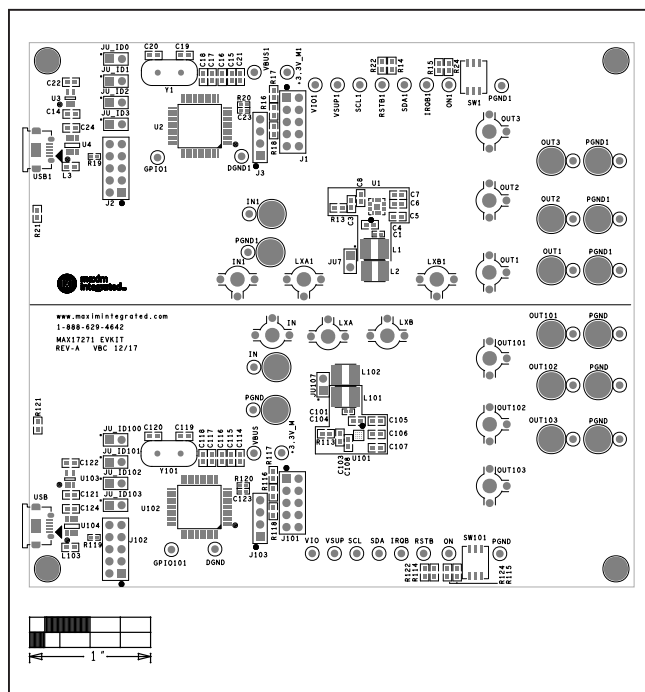
ITEM	REF_DES	DNI/DNP	QTY	MFG PART #	MANUFACTURER	VALUE	DESCRIPTION	COMMENTS
20	L1G	-	1	DFE201612E-2R2M	MURATA	2.2UH	INDUCTOR; SMT (0806); WIREWOUND CHIP; 2.2UH; TOL=+/-20%; 1.8A	
21	L3, L103	-	2	MMZ1608R301AT	TDK	300	INDUCTOR; SMT (0603); FERRITE-BEAD; 300; TOL=+/-25%; 0.5A; -55 DEGC TO +125 DEGC	
22	R13, R113	-	2	CRCW06030000ZS; MCR03EZPJ000; ERJ-3GEYOR00	VISHAY DALE; ROHM; PANASONIC	0	RESISTOR; 0603; 0 OHM; 0%; JUMPER; 0.10W; THICK FILM	
23	R14, R15, R114, R115	-	4	ERJ-3EKF1003	PANASONIC	100K	RESISTOR; 0603; 100K OHM; 1%; 100PPM; 0.1W; THICK FILM	
24	R16-R18, R116-R118	-	6	CRCW06032K20FK	VISHAY DALE	2.2K	RESISTOR, 0603, 2.2K OHM, 1%, 100PPM, 0.10W, THICK FILM	
25	R19, R119	-	2	CRCW0402100RFK; 9C04021A1000FL; RC0402FR-07100RL	VISHAY DALE; PANASONIC; YAGEO PHYCOMP	100	RESISTOR; 0402; 100 OHM; 1%; 100PPM; 0.063W; THICK FILM	
26	R20, R120	-	2	ERJ-2RKF1002	PANASONIC	10K	RESISTOR; 0402; 10K OHM; 1%; 100PPM; 0.10W; THICK FILM	
27	R21, R22, R24, R121, R122, R124	-	6	CRCW06030000Z0	VISHAY DALE	0	RESISTOR; 0603; 0 OHM; 0%; JUMPER; 0.1W; THICK FILM	
28	SU1-SU4, SU101-SU104	-	8	S1100-B; SX1100-B	KYCON; KYCON	SX1100-B	TEST POINT; JUMPER; STR; TOTAL LENGTH=0.24IN; BLACK; INSULATION=PBT; PHOSPHOR BRONZE CONTACT=GOLD PLATED	
29	SW1, SW101	-	2	1.14.002.111/0000	RAFI GMBH & CO. KG	1.14.002.111/0000	SWITCH; SPST; SMT; STRAIGHT; 35V; 0.1A; MICON 5 SERIES; RCOIL=0.1 OHM; RINSULATION=1G OHM	
30	U1	-	1	MAX17271ETE+	MAXIM	MAX17271ETE+	EVKIT PART-IC; NANOPOWER TRIPLE/DUAL-OUTPUT SINGLE INDUCTOR MULTIPLE OUTPUT (SIMO) BUCK-BOOST REGULATOR; TQFN16-EP; PKG. CODE: T1633+5; PKG. OUTLINE DWG. NO.: 21-0136; PKG. LAND PATTERN NUMBER: 90-0032	
31	U2, U102	-	2	MAXQ622G-0000+	MAXIM	MAXQ622G-0000+	IC; CTRL; 16-BIT MICROCONTROLLER WITH INFRARED MODULE AND OPTIONAL USB; LQFP64	
32	U3, U103	-	2	MAX8511EXK33+	MAXIM	MAX8511EXK33	IC; VREG; ULTRA-LOW-NOISE, HIGH PSRR, LOW-DROPOUT, LINEAR REGULATOR; SC70-5; -40 DEGC TO +85 DEGC	
33	U101	-	1	MAX17271ENE+	MAXIM	MAX17271ENE+	EVKIT PART-IC; ULTRA-LOW POWER TRIPLE-OUTPUT SINGLE INDUCTOR MULTIPLE OUTPUT (SIMO) BUCK BOOST REGULATOR; WLP16; 0.40MM PITCH; PKG. CODE: N161A1+1; PKG. OUTLINE DWG. NO.: 21-100190	
34	USB, USB1	-	2	ZX62RD-AB-5P8(30)	HIROSE ELECTRIC CO LTD.	ZX62RD-AB-5P8(30)	CONNECTOR; MALE; THROUGH HOLE; MICRO-USB CONNECTOR MEETING REQUIREMENTS OF USB 2.0 STANDARD; RIGHT ANGLE; 5PINS	
35	Y1, Y101	-	2	ECS-120-18-4VX	ECS INC	12MHZ	CRYSTAL; HC49US; 18PF; 12MHZ; +/-30PPM; +/-50PPM	
36	PCB	-	1	MAX17271	MAXIM	PCB	PCB: MAX17271	-
37	C24, C124	DNP	0	N/A	N/A	OPEN	PACKAGE OUTLINE 0603 NON-POLAR CAPACITOR	
38	J3, J103	DNP	0	PEC04SAAN	SULLINS ELECTRONICS CORP.	PEC04SAAN	CONNECTOR; MALE; THROUGH HOLE; BREAKAWAY; STRAIGHT; 4PINS	
39	JU7, JU107, JU_ID0-JU_ID3, JU_ID100-JU_ID103	DNP	0	PEC02SAAN	SULLINS	PEC02SAAN	CONNECTOR; MALE; THROUGH HOLE; BREAKAWAY; STRAIGHT; 2PINS	
40	L2, L102	DNP	0	XFL4020-222ME	COILCRAFT	2.2UH	INDUCTOR; SMT; METAL COMPOSITE CORE; 2.2UH; TOL=+/-20%; 8A; -40 DEGC TO +125 DEGC	
41	TP_IN, TP_IN1, TP_OUT1-TP_OUT3, TP_PGND, TP_PGND1, TP_OUT101-TP_OUT103, TP_PGND1_OUT1-TP_PGND1_OUT3, TP_PGND_OUT101-TP_PGND_OUT103	DNP	0	5000	KEystone	N/A	TEST POINT; PIN DIA=0.1IN; TOTAL LENGTH=0.3IN; BOARD HOLE=0.04IN; RED; PHOSPHOR BRONZE WIRE SILVER PLATE FINISH;	
42	U4, U104	DNP	0	MAX3207EAUT+	MAXIM	MAX3207EAUT	IC; PROT; DUAL, QUAD, AND HEX HIGH-SPEED DIFFERENTIAL ESD-PROTECTION IC; SOT23-6	
TOTAL			144					

The schematic diagram illustrates the internal wiring of a custom PCB designed for a Raspberry Pi 4. The main components and their connections are as follows:

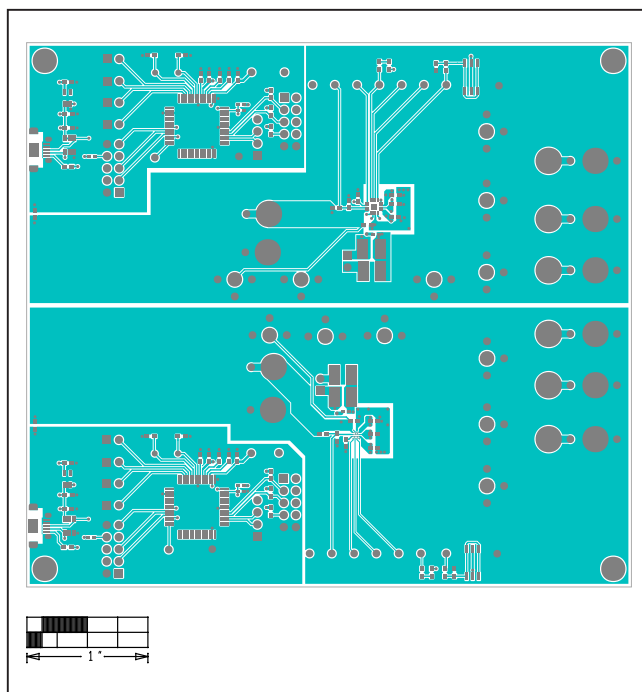
- Raspberry Pi 4 (U1):** The central component, with its pins connected to various external components. Key connections include:
 - Power:** VDD (1.8V), VDD (3.3V), and VDD (5V) pins are connected to the 3.3V_M1, 5V_M1, and 5V_M1 pins respectively.
 - GPIO:** Various GPIO pins (e.g., 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100) are connected to the corresponding pins on the external components.
 - UART:** TXD (14) and RXD (15) pins are connected to the TXD and RXD pins of the USB-to-UART bridge (U2).
 - Serial:** TXD (14) and RXD (15) pins are connected to the TXD and RXD pins of the USB-to-serial converter (U3).
 - Ethernet:** The Ethernet port (RJ45) is connected to the Ethernet port of the USB-to-ethernet adapter (U4).
- USB-to-UART Bridge (U2):** A module that converts USB signals to UART signals. It is connected to the Raspberry Pi 4's TXD and RXD pins.
- USB-to-Serial Converter (U3):** A module that converts USB signals to serial signals. It is connected to the Raspberry Pi 4's TXD and RXD pins.
- USB-to-Ethernet Adapter (U4):** A module that converts USB signals to Ethernet signals. It is connected to the Raspberry Pi 4's Ethernet port.
- Power Supply:** The PCB includes a 3.3V_M1 and 5V_M1 power supply rail, which is connected to the Raspberry Pi 4's power pins.
- Grounding:** The PCB is grounded using a common ground plane, which is connected to the Raspberry Pi 4's ground pins.

The diagram also shows the connection of various external components, such as the USB-to-UART bridge, USB-to-serial converter, and USB-to-ethernet adapter, to the Raspberry Pi 4's pins. The components are labeled with their respective part numbers and pin configurations.

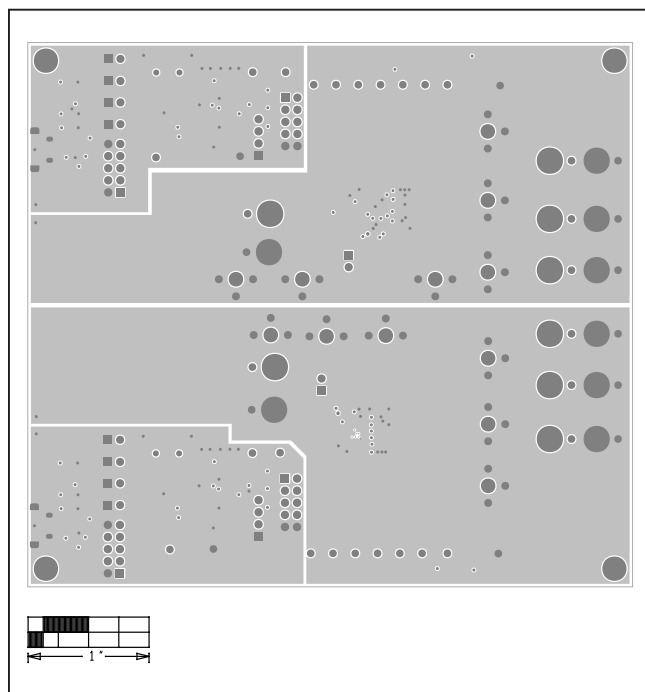
MAX17271 EV PCB Layout Diagrams



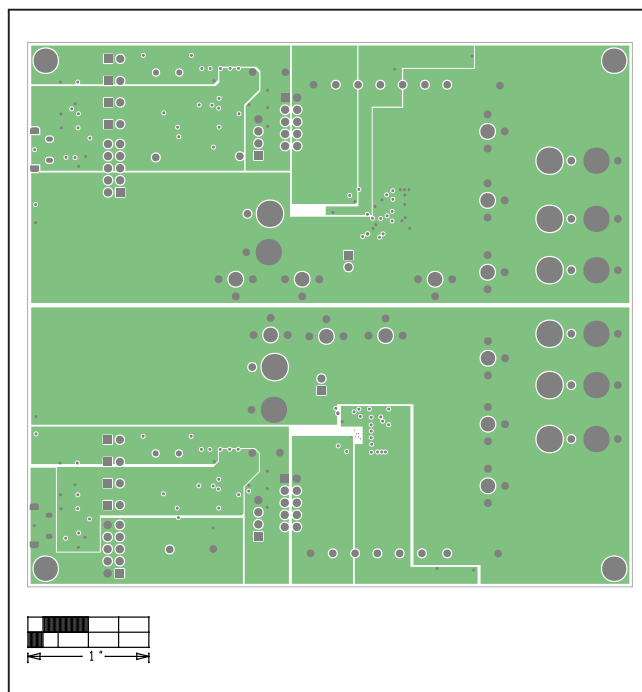
MAX17271 EV Kit—Top Silkscreen



MAX17271 EV Kit—Top

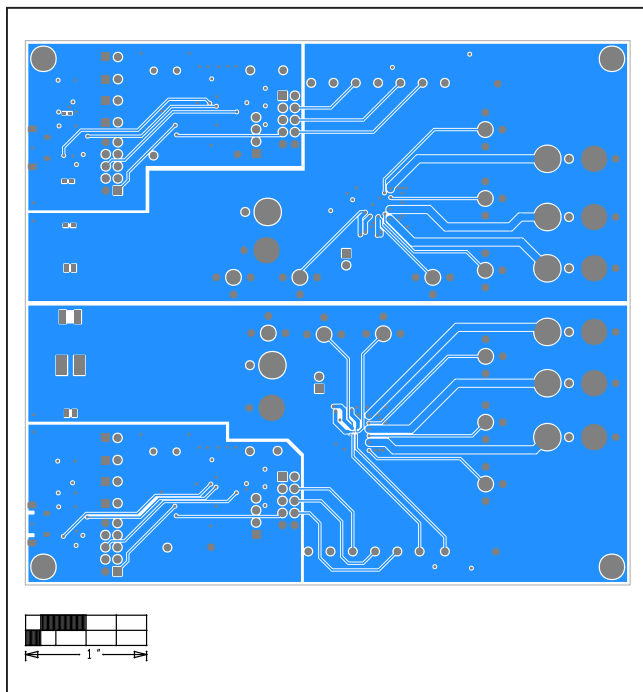


MAX17271 EV Kit—SIG_L3

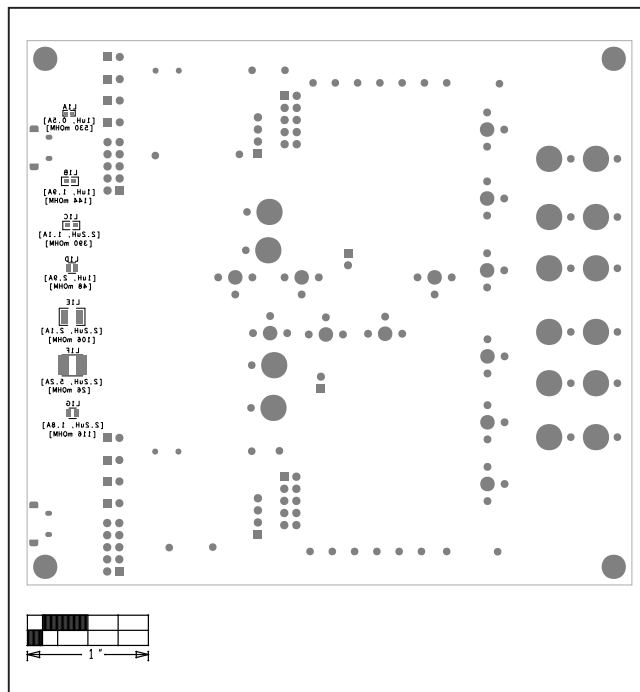


MAX17271 EV Kit—SIG_L5

MAX17271 EV PCB Layout Diagrams (continued)



MAX17271 EV Kit—Bottom



MAX17271 EV Kit—Bottom Silkscreen

Revision History

REVISION NUMBER	REVISION DATE	DESCRIPTION	PAGES CHANGED
0	2/18	Initial release	—
1	7/19	Minor edits and updated hyperlinks	1, 2

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

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