



Click [here](#) to ask an associate for production status of specific part numbers.

**Evaluates: MAX96716A,
MAX96716F, MAX96792A**

MAX96716/MAX96792 DPHY Evaluation Kit

General Description

The MAX96716 and MAX96792 evaluation kits (EV kits) provide a reliable platform for evaluating Maxim's devices MAX96716A, MAX96716F, and MAX96792A through the use of standard FAKRA coaxial cables or HMTD cable. These deserializer devices support high-bandwidth, gigabit, multimedia (GMSL) serial links and offer spread spectrum and full-duplex control channel features. The EV kit includes a simple-to-use Windows 7®/Windows 10-compatible graphical user interface (GUI) for exercising device features.

In the following sections, the term deserializer refers to the MAX96716 and MAX96792A and any of the devices listed above. The term serializer refers to any GMSL2 serializer device, particularly the MAX96717. If using the MAX96792A in GMSL3 mode, the companion Serializer is MAX96793.

For complete GMSL2 or GMSL3 evaluation using a standard FAKRA coax cable or HMTD cable, order the MAX96716/MAX96792 COAX/STP EV kit along with a companion serializer board (MAX96717/MAX96793 COAX/STP EV kit is referenced in this document). For a detailed look at all GMSL2 features, including information on how to use the parts, refer to the *GMSL2/GMSL3 User's Guide* (GMSL2/GMSL3_Users_Guide_vXX, found in Maxim's GMSL customer portal folder).

Note: Although coax cable is referenced throughout this document, the information applies equally to both coax and HMTD evaluation kits.

Features

- Deserializer Accepts GMSL2 or GMSL3 (depending on variant) Data Through Coaxial FAKRA or Differential HMTD Connectors and Converts to MIPI DPHY V1.2 Output.
- Windows 7/Windows 10-Compatible Software Support
- Powerful, Simple-to-Use GUI for Comprehensive Device Feature Evaluation
- USB-Controlled Interface (Cable Included)
- Board Powered by USB, 12V Wall Adapter, or External Power Supply
- Proven PCB Layout
- Fully Assembled and Tested

Note: EV kits are configured to use PoC and FAKRA connectors. For HMTD connector, contact factory for configuration.

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

MAX96716/MAX96792 EV Kit Files

FILE	DESCRIPTION
MAXSerDesEV-GMSL_VX_X_XX_Install.exe	Installs the EV kit software (GUI) onto a Windows 7/Windows 10 computer. Includes GUI user's guide, microcontroller firmware, documentation
MAXSerDesEV-GMSL.exe	GMSL Graphical User Interface (GUI) program

Windows is a registered trademark and registered service mark of Microsoft Corporation.

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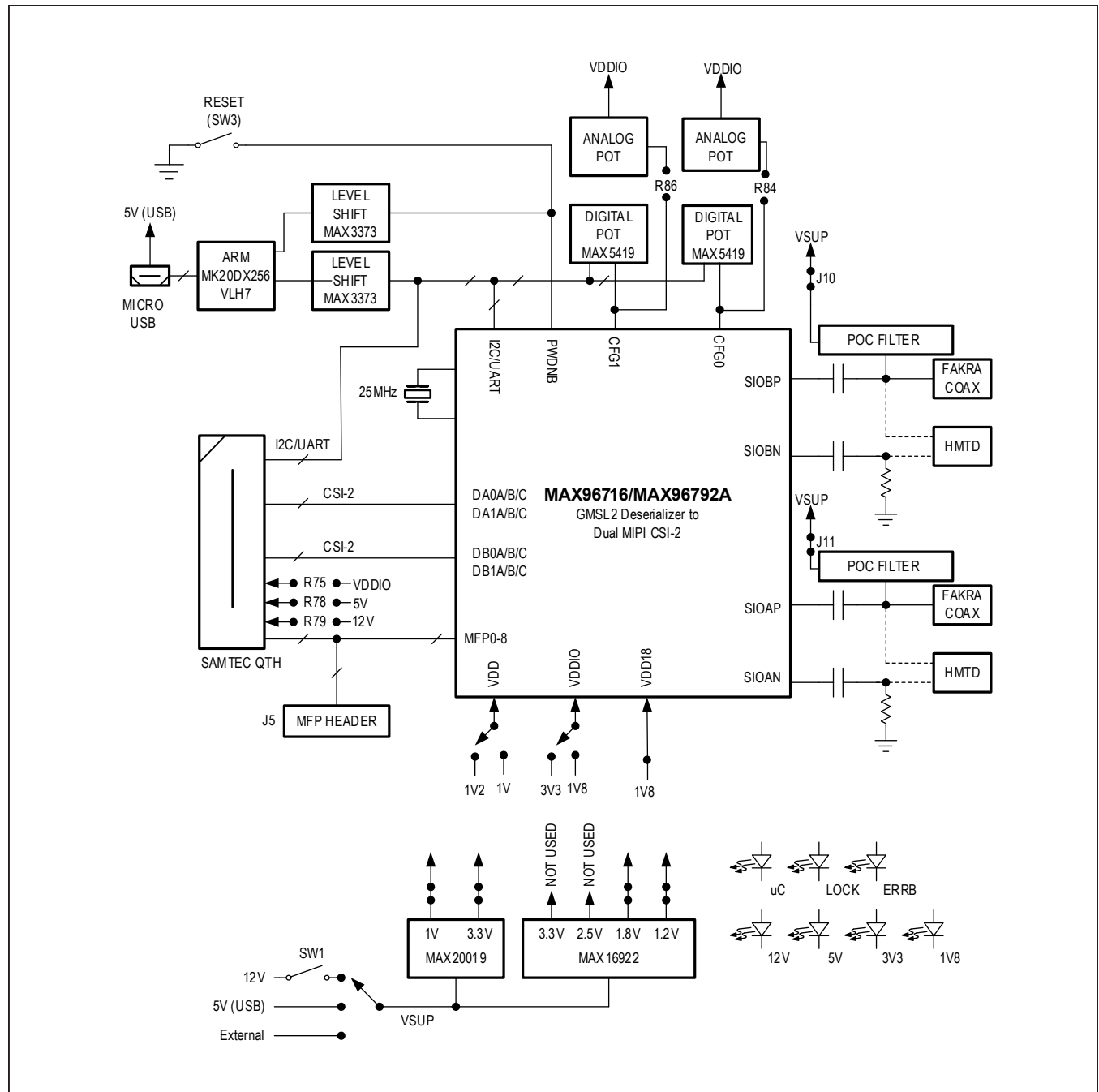


Figure 1. MAX96716/MAX96792 EV Kit Typical Block Diagram

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Quick Start

This procedure applies to COAX evaluation kits. [Figure 3](#) shows a typical application using the CSI serializer MAX96717/MAX96793 and CSI deserializer MAX96716/MAX96792.

Required Equipment

The following equipment is required to successfully use the MAX96716/MAX96792 EV kit in a serial link coax cable configuration.

- MAX96716/MAX96792 EV kit
- MAX96717/MAX96793 EV kit
- FAKRA coax cable assembly
- PC with Windows 7/Windows 10 and GMSL-2 software installed
- Power supply source (500mA USB port, 5V/1A DC supply, or 12V barrel jack DC supply)
- Micro USB cable

Procedure

The MAX96716/MAX96792 EV kit is shipped with the PCB fully assembled and tested. Use the following steps to verify board operation:

- 1) Download and install the latest GMSL2/GMSL3 GUI software from the Maxim Integrated Sharefile onto a Windows 7/Windows 10 PC. Prior to using the GUI, the PC must be connected to the MAX96716/MAX96792 EV kit PCB through the board's micro-USB port (J6). Contact the factory for additional information on accessing the software. Refer to the *GMSL GUI User's Guide* for detailed instruction on using the software.
- 2) Check to assure that the MAX96716/MAX96792 EV kit PCB's red power switch (SW1) is in the OFF position.
- 3) Assure that all jumper positions on the PCB are properly set to meet the requirements of the user's application. [Figure 2](#) and [Table 2](#) show the possible jumper positions for various configurations. The default jumper settings put the Device Under Test (DUT) into I2C mode, select 1.8V as the VDDIO voltage, select 1V as the VDD voltage, and cause the board to be powered by 12V DC barrel jack.
- 4) Connect a power supply to the MAX96716/MAX96792 EV kit PCB. The board provides three power supply options:

- 12V DC barrel jack supply connected to connector J1
 - 5V external power supply connected to the external power terminal block (J3)
 - 5V supply drawn from the micro-USB port (J6) connected to the PC.
- 5) Power up the board by moving the red power switch (SW1) to the ON position. The power LEDs DS1 and DS2 light to indicate the appropriate power settings. The Teensy® LED (DS6) flashes to indicate that the board firmware is functional. (If the Teensy LED is not flashing, see the [Troubleshooting](#) section.).
 - 6) Define the application-specific power-up configuration for the DUT, using the GMSL2/GMSL3 GUI to set the device's CFG pins into the required modes. (See the [Configuration \(CFG\) Pin Settings](#) section below). The MAX96716/MAX96792 must be configured to have same link data rate (6Gbps/3Gbps for GMSL2 or 12Gbps for GMSL3) and output mode (coax or STP) as the companion serializer board. The DUT must be power cycled if any changes are made to the CFG pins (use the SW3 reset button on the board to power-cycle the DUT.)
 - 7) Connect the serializer-deserializer EV kit system as shown in [Figure 5](#). Connect the FAKRA cable from the OUTA or OUTB connectors on the serializer board to the FAKRA INA+ or INB+ connectors on the deserializer board.
 - 8) Connect a power supply to the serializer PCB, using either the 12V DC barrel jack supply, a 5V external power supply, or the 5V micro-USB port supply.
 - 9) Power on the serializer board by moving the red power switch to the ON position.
 - 10) When both boards have been connected properly and powered on, the LOCK LED on the MAX96716/MAX96792 EV kit PCB illuminates, indicating that the link is locked, and communication is functional. If the LOCK LED does not illuminate, see the [Troubleshooting](#) section below.

Basic board initialization is now complete. At this point, the link is established, and the system is ready to be used. Use the GMSL2/GMSL3 GUI to access internal registers locally or remotely. Ensure that both serializer and deserializer are identified correctly in the GUI. Refer to the below sections and available documentation for additional information on using GMSL2/GMSL3 hardware and software.

TEENSY is a registered trademark of PJRC.COM LLC.

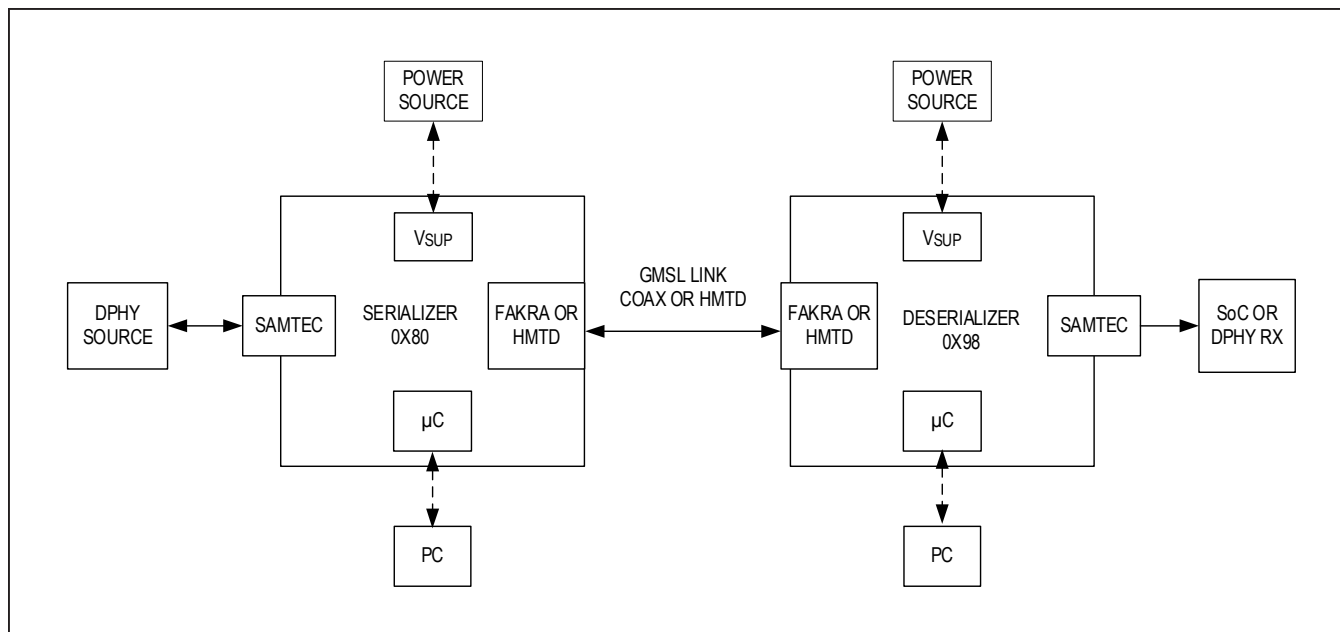


Figure 3. Typical Application Block Diagram Using the MAX96716/MAX96792

Configuration (CFG) Pin Settings

The deserializer CFG pins use the pin voltage latched at power-up to configure the device. On-board analog potentiometers and I2C-configurable digital potentiometers set the configuration (CFG) pin voltage levels. By default, the board is wired to use the digital potentiometers.

The CFG states can be configured using the GMSL-2 GUI. To do so, access the GUI tabs **Tools** → **Set CFG Pin Levels**.

To switch between using the analog or digital potentiometer to set CFG states, use 0 Ω resistors to connect the CFG0/1 nets. By default, the digital potentiometers are connected via R150 and R151. To use the analog potentiometers, depopulate R150/R151, and populate R84/R86. The analog potentiometers can be set with a small screwdriver and the voltage on the CFG pins can be monitored on the test points TP_CFG0 and TP_CFG1.

If the serializer is not identified in the GUI, it is still possible to write to the CFG pins. For more information, see the [Troubleshooting](#) section.

The voltage levels scale with IOVDD. [Table 1](#) indicates the voltage levels necessary to configure the serializer for different modes of operation.

Configuration-0 (CFG0) pin voltage sets the device address and I2C vs. UART mode. For example, to set device address 0x54 with I2C communication, apply 20.2% of VDDIO (CFG State 1) to pin CFG0.

Configuration-1 (CFG1) pin voltage sets coax vs. twisted pair mode (CTXP), data rate 3Gbps or 6Gbps and tunneling mode or pixel mode. For example, to set the DUT into Coax mode, 6Gbps and tunneling mode, apply 67.9% of VDDIO (CFG State 5) to pin CFG1.

After changing any CFG pin settings, power cycle the GMSL device to latch the new configuration settings.

By default, the EV kit is in CFG0 = 2, CFG1 = 7, mode for coax boards. For STP boards, the default modes are CFG0 = 2, CFG1 = 3.

Deserializer Jumper/Connector/Switch/ Test Point Descriptions

[Table 2](#) below contains detail of all connectors, jumpers, switches, and test point onboard the EV kit.

MAX96716/MAX96792 EV kit Package Contents

The MAX96716/MAX96792 Evaluation Kit package contains the items listed in [Table 3](#).

Table 1. MAX96716A CFG Pin Settings

LEVEL	VOLTAGE	CFG0		CFG1		
#	TYPICAL % VDDIO	I2CSEL	DEVICE ADDRESS	CTXP	DATA RATE [GBPS]	TUNNEL/ PIXEL MODE
0	0	I2C	0x50	STP	3	Tunnel
1	20.2	I2C	0x54	STP	6	Tunnel
2	32.1	I2C	0x98	STP	3	Pixel
3	44.0	I2C	0xD4	STP	6	Pixel
4	56.0	UART	0xD4	COAX	3	Tunnel
5	67.9	UART	0x98	COAX	6	Tunnel
6	79.8	UART	0x54	COAX	3	Pixel
7	100	UART	0x50	COAX	6	Pixel

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CFG0 Input Map

CFG0 INPUT VOLTAGE SPECIFICATION (Notes a, b) (% of V_{DDIO})			SUGGESTED RESISTOR VALUES (1% TOLERANCE) (Note c)		MAPPED CONFIGURATION (Note d, e)	
MIN	TYP	MAX	R1 (Ω)	R2 (Ω)	I2CSEL	DEVICE ADDRESS
0.0%	0.0%	11.7%	OPEN	10k	I2C	0x50
16.9%	20.2%	23.6%	80.6k	20.5k		0x54
28.8%	31.2%	35.5%	68.1k	32.4k		0x98
40.7%	44.0%	47.4%	56.2k	44.2k		0xD4
52.6%	56.0%	59.3%	44.2k	56.2k	UART	0xD4
64.5%	67.9%	71.2%	32.4k	68.1k		0x98
76.4%	79.8%	83.1%	20.5k	80.6k		0x54
88.3%	100%	100%	10k	OPEN		0x50

CFG1 Input Map

SPECIFICATION (Notes a, b) (% of V_{DDIO})			SUGGESTED RESISTOR VALUES (1% TOLERANCE) (Note c)		MAPPED CONFIGURATION			
MIN	TYP	MAX	R1 (Ω)	R2 (Ω)	COAX OR TWISTED PAIR	DATA RATE [Gbps]	FORWARD CHANNEL MODULATION	TUNNEL/PIXEL MODE
0.0%	0.0%	11.7%	OPEN	10k	STP	6	NRZ	Tunnel
16.9%	20.2%	23.6%	80.6k	20.5k		12	PAM4	
28.8%	32.1%	35.5%	68.1k	32.4k		3	NRZ	Pixel
40.7%	44.0%	47.4%	56.2k	44.2k		6		
52.6%	56.0%	59.3%	44.2k	56.2k	COAX	6	PAM4	Tunnel
64.5%	67.95%	71.2%	32.4k	68.1k		12		
76.4%	79.8%	83.1%	20.5k	80.6k		3	NRZ	Pixel
88.3%	100%	100%	10k	OPEN		6		

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Table 2. Deserializer Jumper/Connector/Switch/Test Point Description

JUMPER	SIGNAL	DEFAULT POSITION	FUNCTION
POWER	+12V, EXT PWR, 5V USB	+12V	Power to supply voltage VSUP
J3	External supply input	Open	Pin header for GND connection and optional external voltage
J4	SAMTEC connector	Open	Connector for MIPI signals and MFP (SPI, I ² C, GPIOs) signals
J5	MFP signals	Open	Connection for MFP signals
J6	USB Connection	Open	Connection from PC to TEENSY and +5V USB connection
J7, J8	HMTD SIOA/B (±)	Open	HMTD connector for SIOA and SIOB GMSL signals
J10, J11	VSUP, VPOC, SIOA/B(±)	Open	Connection between VSUP/VPOC and coax (FAKRA) connectors
J14	VSUP	Open	Connection between VSUP and MAX20089
VDDIO	VDDIO, 1.8V, 3.3V	1.8V	Connection between VDDIO, 1.8V and 3.3V
VDD	VDD, 1V, 1.2V	1V	Connection between VDD, 1V and 1.2V
VDD_REF	VDD_REF	3.3V	Connection between VDD_REF and 3.3V for I ² C/UART lines
RX_SDA	UART TX, I2C SDA	TNZ_SDA	Selection of I ² C or UART connection to TEENSY
TX_SCL	UART RX, I2C SCL	TNZ_SCL	Selection of I ² C or UART connection to TEENSY
EXP	SDA_RX, SCL_TX	Open	External I ² C or UART connections
EXT_UC	SDA, SCL, GND, VDD_REF	Open	External I ² C or UART connections through the levels translator
JAP	COAX SIOA+	Open	GMSL and PoC connection for COAX
SW1	V _{SUP} /POWER	OFF	ON/OFF switch for board power
SW3	PWDNB	OFF	Push button for DUT power off by pulling PWDNB = LOW
SW4	(Flash µC)	OFF	Push button to program the Teensy microcontroller
TP_12V	+12V	N/A	Test point for 12V input
TP_3V3	3V3	N/A	Test point for 3.3V rail
TP_2V5	2V5	N/A	Test point for 2.5V rail
TP_1V8	1V8	N/A	Test point for 1.8V rail
TP_1V2	1V2	N/A	Test point for 1.2V rail
TP_1V	1V0	N/A	Test point for 1.0V rail
EXT	EXT	N/A	Wire loop for external power supply

Table 3. Items Included in the Evaluation Kit Package

ITEM DESCRIPTION	QTY
MAX96792/MAX96716 variant of the EV kit	1
Micro-USB cable	1
+12V wall supply	1
COAX cable	1

Troubleshooting

If the MAX96716/MAX96792 EV kit PCB fails to power-up or does not function properly, try the appropriate remedial actions below.

- 1) Make sure the board's red power switch (SW1) is set to the ON position.
- 2) Verify that the device is powered properly. Check to assure that the voltages at all device pins are within their operating ranges. The power rail LEDs (DS1, DS2) are a good indication that the critical rails (1.8V, 3.3V) are working.
- 3) Check that all jumpers are correctly set. Refer to the default jumper settings table in the serializer and deserializer EV kit data sheets. Also assure that all jumpers are firmly attached. Replace loose or damaged jumpers if necessary.
- 4) Check that the USB cable is properly seated in the USB port.
- 5) Check that the coax/STP cable connection between serializer and deserializer is good.
- 6) Check to see if the DUT has been inadvertently put into Teensy reset mode. The board's TEENSY_RST SW4 button should only be pressed when firmware is being flashed to the DUT. If the button is pressed during normal operation, the device goes into Teensy reset mode. Power cycle the board to resume normal operation with the current firmware.
- 7) Validate that the correct CFG pin voltages are being used to configure the serializer and deserializer. Check the method of biasing the CFG voltage at powerup. Measure the voltages at the pins. For details, see the [Configuration \(CFG\) Pin Settings](#) section.
- 8) If the CFG pin settings are incorrect, but the device is not identified in the GUI, proceed to the CFG pin page and set the desired CFG state values anyway. Reset the part and see if the GUI automatically identifies the device or if the device can be located using the **Identify Devices** drop-down from the **Options** tab. The low-level commands tab can be monitored to see if I²C writes to the CFG pots are successful.
- 9) Check that the I²C/UART jumpers match the DUT communication mode (SCL/SDA for I²C, TX/RX for UART).
- 10) Check that the AC coupling capacitors are populated correctly and routing the serial link to the correct connector for COAX or STP mode. For coax boards, capacitors C64 and C49 (PHY B) and capacitors C63 and C47 (PHY A) should be populated. For STP boards, capacitors C58 and C59 (PHY B) and capacitors C56 and C57 (PHY A) should be populated. (MAX96716/MAX96792 EV kit boards are shipped with the correct capacitors installed.)
- 11) Check if the LOCK LED is ON in the absence of a connection to the serializer. If so, one of the following conditions apply:
 - The DUT is not powered correctly
 - The DUT is damaged
 - The DUT is in incorrect mode
- 12) Check that the microcontroller firmware is active by observing the blinking red Teensy LED (DS6) at power-up. If the LED is not blinking, refer to the available software documentation to reprogram the microcontroller.
- 13) Check that the PC is detecting the COM port when the micro-USB cable is connected. Use the Windows Device Manager to check COM port status.
- 14) Power-cycle the board and reopen the GUI.
- 15) Try a new or different serializer or deserializer board.

Detailed Description of Hardware

The power configuration of the EV kit hardware may be re-configured to allow external supply connections. [Figure 4](#) shows the power connection options.

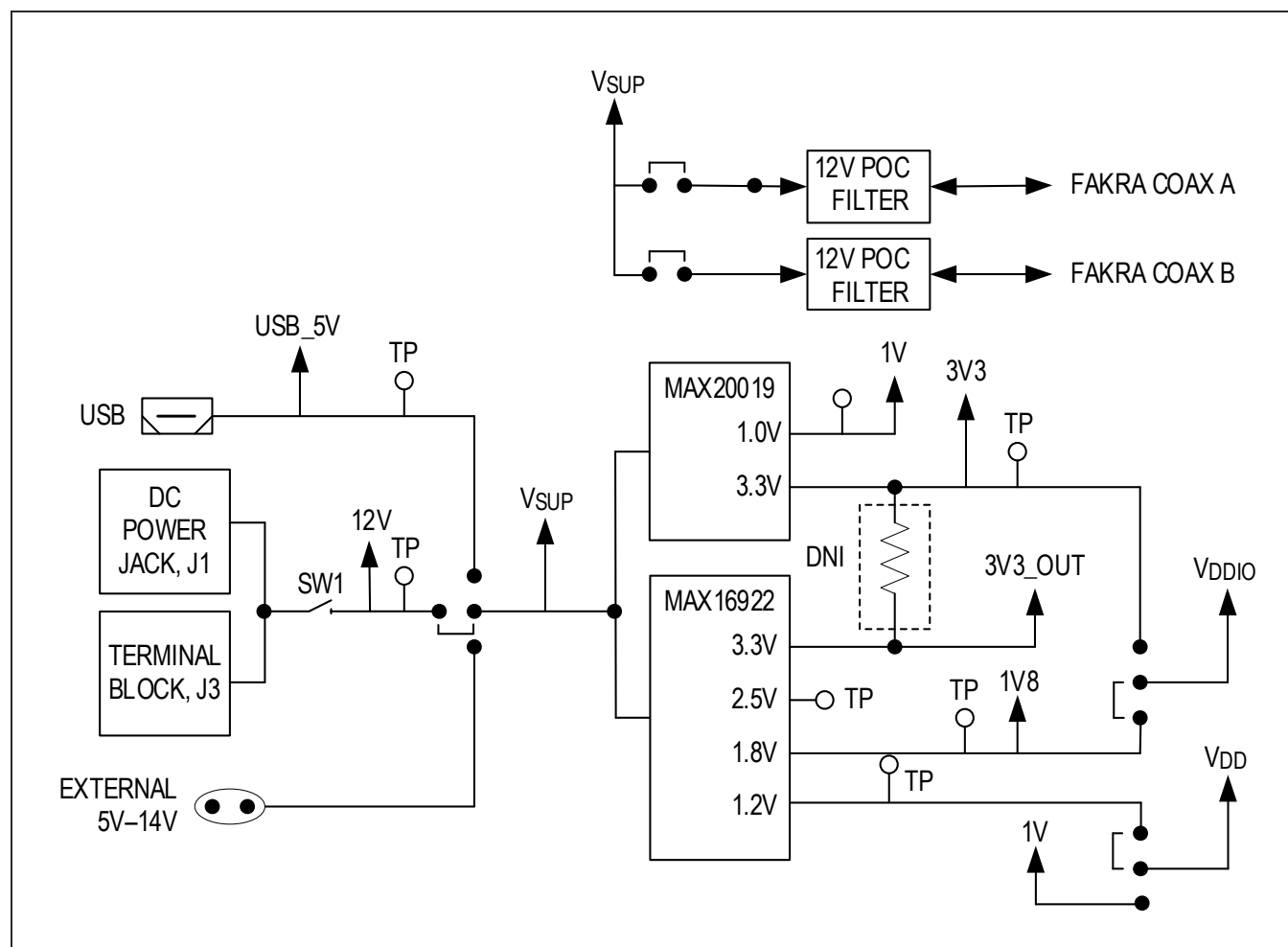


Figure 4. MAX96716/MAX96792 Deserializer Evaluation Board Power Connection Diagram

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Component Suppliers

SUPPLIER	PHONE	WEBSITE
ECS, Inc.	913-782-7787	www.ecsxtal.com
KYOCERA	N/A	https://global.kyocera.com/
Murata Electronics North America, Inc.	770-436-1300	www.murata-northamerica.com
Rosenberger Hochfrequenztechnik GmbH	011-49-86 84-18-0	www.rosenberger.de
TDK Corp.	847-803-6100	product.tdk.com/info/en/catalog/index.html
Diodes Incorporated	972-987-3900	www.diodes.com
ROHM	N/A	www.rohm.com
Sullins Electronics Corp	760-744-0125	www.sullinscorp.com
Panasonic North America	N/A	na.panasonic.com/us/
Coilcraft	847-639-6400	www.coilcraft.com

Ordering Information

PART	TYPE
MAX96716A-BCK-EVK#	Dual GMSL2 to CSI-2 Deserializer, 3/6Gbps, DPHY w/HMTD
MAX96716A-BAK-EVK#	Dual GMSL2 to CSI-2 Deserializer, 3/6Gbps, DPHY w/COAX
MAX96716F-BCK-EVK#	Dual GMSL2 to CSI-2 Deserializer, 3Gbps, DPHY w/HMTD
MAX96716F-BAK-EVK#	Dual GMSL2 to CSI-2 Deserializer, 3Gbps, DPHY w/COAX
MAX96792A-BCK-EVK#	Dual GMSL3 to CSI-2 Deserializer, 3/6/12Gbps, DPHY w/HMTD
MAX96792A-BAK-EVK#	Dual GMSL3 to CSI-2 Deserializer, 3/6/12Gbps, DPHY w/Coax

#Denotes RoHs compliance.

Note: The MAX96716 EV kits are normally ordered with a companion serializer board.

- MAX96717 EV kit.

MAX96716/MAX96792 DPHY Evaluation Kit

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MAX96716/MAX96792 EV Kit Bill of Materials (Coax)

ITEM	REF DES	DNI/DNP	QTY	MFG PART #	MANUFACTURER	VALUE	DESCRIPTION	COMMENTS
1	C1, C4, C5, C10, C11, C17, C18, C26, C29-C32, C34-C37, C39, C40, C46, C50-C53, C71, C74, C75, C80, C81, C119, C120	-	30	C1005X7R1C104K050BC; ATC530L104KT16; 0402YC104KAT2A; C0402X7R160-104KNE; CL05B104K05NNNC; GRM155R71C104KA88; C1005X7R1C104K; CC0402KRX7R7BB104; EMK105B7104KV; CL05B104K05	TDK; AMERICAN TECHNICAL CERAMICS; AVK; VENKEL LTD.; SAMSUNG ELECTRONICS; MURATA;TDK;YAGEO PHICOMP; TAIYO YUDEN;SAMSUNG ELECTRONICS	0.1UF	CAPACITOR; SMT (0402); CERAMIC CHIP; 0.1UF; 16V; TOL=10%; TG=-55 DEGC TO +125 DEGC; TC=X7R	
2	C2	-	1	C1005C0G1H220G050	TDK	22PF	CAPACITOR; SMT (0402); CERAMIC CHIP; 22PF; 50V; TOL=2%; TG=-55 DEGC TO +125 DEGC; TC=COG	
3	C3	-	1	C0402C0G500270JNP; GRM1555C1H270JA01	VENKEL LTD.;MURATA	27PF	CAPACITOR; SMT; 0402; CERAMIC; 27pF; 50V; 5%; COG; -55degC to + 125degC; 0 +/-30PPM/degC	
4	C6, C7	-	2	TAJC476K020RNJ	AVX	47UF	CAPACITOR; SMT (06032); TANTALUM CHIP; 47UF; 20V; TOL=10%; MODEL=TAJ SERIES; TG=-55 DEGC TO +125 DEGC	
5	C8, C9, C12-C14, C19-C25, C38, C43-C45, C48, C77	-	18	GRT188R61C106KE13	MURATA	10UF	CAPACITOR; SMT (0603); CERAMIC CHIP; 10UF; 16V; TOL=10%; TG=-55 DEGC TO +85 DEGC; TC=X5R; AUTO	
6	C15	-	1	C1608X7R1V105K080AC; CGA3E1X7R1V105K080AC	TDK;TDK	1UF	CAPACITOR; SMT (0603); CERAMIC CHIP; 1UF; 35V; TOL=10%; TG=-55 DEGC TO +125 DEGC; TC=X7R	
7	C16, C28, C33	-	3	GRM188Z71C225KE43	MURATA	2.2UF	CAPACITOR; SMT (0603); CERAMIC CHIP; 2.2UF; 16V; TOL=10%; TG=-55 DEGC TO +125 DEGC; TC=X7R	
8	C27	-	1	T491X107K025A	KEMET	100UF	CAPACITOR; SMT (7343-43); TANTALUM CHIP; 100UF; 25V; TOL=10%	
9	C41, C42	-	2	C1608X5R0J475M080AB; GRM188R60J475ME19; JMK107BJ475MA	TDK;MURATA;TAIYO YUDEN	4.7UF	CAPACITOR; SMT (0603); CERAMIC; 4.7UF; 6.3V; TOL=20%; MODEL=C SERIES; TG=-55 DEGC TO +85 DEGC; TC=X5R	
10	C47, C49, C63, C64	-	4	UMK105BJ224KV	TAIYO YUDEN	0.22UF	CAPACITOR; SMT (0402); CERAMIC CHIP; 0.22UF; 50V; TOL=10%; TG=-55 DEGC TO +85 DEGC; TC=X5R	
11	C54, C55	-	2	GRM155R71H103JA88	MURATA	0.01UF	CAPACITOR; SMT (0402); CERAMIC CHIP; 0.01UF; 50V; TOL=5%; TG=-55 DEGC TO +125 DEGC; TC=X7R	
12	C72, C73, C76, C78, C79	-	5	C0402C103K5RAC; GRM155R71H103KA88; C1005X7R1H103K050BE; CL05B103KB5NNN; UMK105B7103KV	KEMET;MURATA;TDK; SAMSUNG ELECTRONIC; TAIYO YUDEN	0.01UF	CAPACITOR; SMT (0402); CERAMIC CHIP; 0.01UF; 50V; TOL=10%; TG=-55 DEGC TO +125 DEGC; TC=X7R	
13	D1, D2	-	2	ES1D	FAIRCHILD SEMICONDUCTOR	ES1D	DIODE; RECT; SMA (DO-214AC); PIV=200V; IF=1A	
14	D3	-	1	DFLS140L	DIODES INCORPORATED	DFLS140L	DIODE; SCH; SMT (POWERDI-123); PIV=40V; IF=1A	
15	D4	-	1	B360B-13-F	DIODES INCORPORATED	B360B-13-F	DIODE; SCH; SCHOTTKY BARRIER DIODE; SMB; PIV=60V; Io=3A; -55 DEGC TO +125 DEGC	
16	DS1, DS2, DS5, DS7	-	4	SML-P11MTT86	ROHM	SML-P11MTT86	DIODE; LED; SMT; PIV=5V; IF=0.02A	
17	DS4, DS6	-	2	SML-P11UTT86	ROHM	SML-P11UTT86	DIODE; LED; SMT; PIV=1.8V; IF=0.02A	
18	EXP, J14, VDD_REF	-	3	PBC025AAN	SULLINS ELECTRONICS CORP.	PBC025AAN	CONNECTOR; MALE; THROUGH HOLE; BREAKAWAY; STRAIGHT; 2PINS	
19	EXT, GND	-	2	9020 BUSS	WEICO WIRE	MAXIMPAD	EVK KIT PARTS; MAXIM PAD; WIRE; NATURAL; SOLID; WEICO WIRE; SOFT DRAWN BUS TYPE-S; 20AWG	
20	EXT_UC	-	1	PBC045AAN	SULLINS ELECTRONICS CORP.	PBC045AAN	CONNECTOR; MALE; THROUGH HOLE; BREAKAWAY; STRAIGHT; 4PINS; -65 DEGC TO +125 DEGC	
21	J1	-	1	PJ-002AH	CUI INC.	PJ-002AH	CONNECTOR; MALE; THROUGH HOLE; DC POWER JACK; RIGHT ANGLE; 3PINS	
22	J3	-	1	393570002	MOLEX	393570002	CONNECTOR; FEMALE; THROUGH HOLE; 0.3MM PITCH BEAU EUROSTYLE FIXED MOUNT PCB TERMINAL BLOCK; RIGHT ANGLE; 2PINS	
23	J4	-	1	QSH-030-01-L-D-A	SAMTEC	QSH-030-01-L-D-A	CONNECTOR; MALE; SMT; HI-SPEED GROUND PLANE SOCKETS; STRAIGHT THROUGH; 60PINS; -55 DEGC TO +125DEGC	
24	J5	-	1	PBC125AAN	SULLINS ELECTRONICS CORP.	PBC125AAN	CONNECTOR; MALE; THROUGH HOLE; BREAKAWAY; STRAIGHT; 12PINS; -65 DEGC TO +125 DEGC	
25	J6	-	1	1981568-1	TE CONNECTIVITY	1981568-1	CONNECTOR; FEMALE; SMT; MICRO USB STANDARD TYPE B ASSY; RIGHT ANGLE; 5PINS	
26	J10, J11, RX_SDA, TX_SCL, VDD, VDDIO	-	6	PBC035AAN	SULLINS	PBC035AAN	CONNECTOR; MALE; THROUGH HOLE; BREAKAWAY; STRAIGHT; 3PINS; -65 DEGC TO +125 DEGC	
27	JAB, JAP	-	2	59S2AQ-40MT5-Z_1	ROSENBERGER	59S2AQ-40MT5-Z_1	CONNECTOR; MALE; THROUGH HOLE; FAKRA-HF RIGHT ANGLE PLUG PCB WITH HOUSING; RIGHT ANGLE; 5PINS	
28	L1, L3, L6, L19	-	4	PFL1609-471ME	COILCRAFT	0.47UH	INDUCTOR; SMT; SHIELDED; 0.47UH; 20%; 1.3A	
29	L2, L4	-	2	MSS6132T-223ML	COILCRAFT	22UH	INDUCTOR; SMT; SHIELDED; 22UH; 20%; 1.9A	
30	L5, L18	-	2	1210POC-682MR	COILCRAFT	6.8UH	EVKIT PART-INDUCTOR; SMT; FERRITE; CHOKE; TOL=+/-20%; 1A	

MAX96716/MAX96792 DPHY Evaluation Kit

Evaluates: MAX96716A,
MAX96716F, MAX96792A

MAX96716/MAX96792 EV Kit Bill of Materials (Coax) (continued)

ITEM	REF DES	DNI/DNP	QTY	MFG PART #	MANUFACTURER	VALUE	DESCRIPTION	COMMENTS
31	L7-L11	-	5	BLM18KG6015N1	MURATA	600	INDUCTOR; SMT (0603); FERRITE-BEAD; 600; TOL=+/-25%; 1.3A	
32	L12, L15	-	2	DFE252012P-4R7M=P2	MURATA	4.7UH	INDUCTOR; SMT (2520); FERRITE CORE; 4.7UH; TOL=+/-20%; 1.7A	
33	L13, L14	-	2	TFM201610ALMA2R2MTAA	TDK	2.2UH	INDUCTOR; SMT (2016); THIN FILM; 2.2UH; TOL=+/-20%; 2.1A	
34	L16	-	1	BLM18SG121TN1	MURATA	120	INDUCTOR; SMT (0603); FERRITE-BEAD; 120; TOL=+/-25%; 3A	
35	L17	-	1	RFCMF1220100M3	WALSIN TECHNOLOGY CORPORATION	RFCMF1220100M3	INDUCTOR; SMT; CERAMIC CHIP; CHOKE; 0.3A	
36	POWER	-	1	PEC04SAAN	SULLINS ELECTRONICS CORP.	PEC04SAAN	CONNECTOR; MALE; THROUGH HOLE; BREAKAWAY; STRAIGHT; 4PINS	
37	R1-R3, R13, R20, R21, R23, R24, R26, R34, R40, R41, R47	-	13	ERJ-2GEJ103	PANASONIC	10K	RESISTOR; 0402; 10K OHM; 5%; 200PPM; 0.10W; THICK FILM	
38	R4, R5	-	2	ERJ-2GEJ203	PANASONIC	20K	RESISTOR; 0402; 20K OHM; 5%; 200PPM; 0.10W; THICK FILM	
39	R6-R9, R11	-	5	CRCW06030000ZS; MCR03EZPJ000; ERI-3GEYOR00	VISHAY DALE; ROHM; PANASONIC	0	RESISTOR; 0603; 0 OHM; 0%; JUMPER; 0.10W; THICK FILM	
40	R12, R31-R33	-	4	ERJ-2RKF1001	PANASONIC	1K	RESISTOR; 0402; 1K OHM; 1%; 100PPM; 0.10W; THICK FILM	
41	R14, R22, R37-R39, R43-R46, R53, R54, R72-R74, R80, R150, R151	-	17	ERJ-2GEOR00	PANASONIC	0	RESISTOR; 0402; 0 OHM; 0%; JUMPER; 0.10W; THICK FILM	
42	R15, R27	-	2	CRCW040233R0FK	VISHAY DALE	33	RESISTOR; 0402, 33 OHM, 1%, 100PPM, 0.0625W, THICK FILM	
43	R16, R48, R203, R204	-	4	ERJ-3EF5101	PANASONIC	5.1K	RESISTOR; 0603; 5.1K OHM; 1%; 100PPM; 0.10W; THICK FILM	
44	R19, R83	-	2	3214W-1-204	BOURNS	200K	RESISTOR; SMT-J LEAD; 3214 SERIES; 200K OHM; 10%; 100PPM; 0.25W	
45	R28	-	1	ERJ-2RKF4700	PANASONIC	470	RESISTOR; 0402; 470 OHM; 1%; 100PPM; 0.1W; THICK FILM	
46	R29, R30	-	2	CRCW060349R9FK	VISHAY DALE	49.9	RESISTOR; 0603; 49.9 OHM; 1%; 100PPM; 0.10W; THICK FILM	
47	R35	-	1	CRCW0603402RFK	VISHAY DALE	402	RESISTOR; 0603; 402 OHM; 1%; 100PPM; 0.10W; THICK FILM	
48	R49	-	1	ERJ-2GEJ104	PANASONIC	100K	RESISTOR; 0402; 100K OHM; 5%; 200PPM; 0.10W; THICK FILM	
49	R55	-	1	CRCW04022K20FK; RC0402FR-072K2L	VISHAY DALE; YAGEO PHICOMP	2.2K	RESISTOR; 0402, 2.2K OHM, 1%, 100PPM, 0.0625W, THICK FILM	
50	R81, R82, R85, R87, R121, R128-R130	-	8	ERJ-2RKF4991	PANASONIC	4.99K	RESISTOR; 0402; 4.99K OHM; 1%; 100PPM; 0.10W; THICK FILM	
51	SW1	-	1	1101-M2-S3-A-Q-E-2	C&K COMPONENTS	1101-M2-S3-A-Q-E-2	SWITCH; SPDT; THROUGH HOLE; RIGHT ANGLE; 120V; 6A; 1000 SERIES; RCOIL=0.1 OHM; RINSULATION=100G OHM	
52	SW3, SW4	-	2	KMR421G LFS	C&K COMPONENTS	KMR421G LFS	SWITCH; SPST; SMT; STRAIGHT; 32V; 0.05A; MICROMINIATURE SMT TOP ACTUATED; RCOIL=0.1 OHM OHM; RINSULATION=1G OHM OHM	
53	TP_CFG0, TP_CFG1	-	2	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:	
54	U1	-	1	MAX96716AGTM/VY+; MAX96716FGTM/VY+; MAX96716KGTM/VY+; MAX96792AGTM/VY+	MAXIM	MAX96716AGTM/VY+	EVKIT PART - IC; MAX96792AGTM/VY+; MAX96716AGTM/VY+; MAX96716FGTM/VY+; MAX96716KGTM/VY+; MAX96718AGTM/VY+; MAX96718FGTM/VY+; DUAL GMSL2 TO CSI-2 DESERIALIZER; PACKAGE OUTLINE: 21-100045; LAND PATTERN: 90-100016; PACKAGE CODE: T4877Y+11	
55	U2	-	1	MAX20019ATB1/V+	MAXIM	MAX20019ATB1/V+	EVKIT PART-IC; VCON; 3.2MHZ; 500MILLIAMPERE DUAL STEP-DOWN CONVERTER FOR AUTOMOTIVE CAMERA; PACKAGE OUTLINE: 21- 100125; LAND PATTERN DRAWING NO: 90-100079; PACKAGE CODE: T1032+2C; TDFN10-EP	
56	U3	-	1	MK20DX256VLH7	FREESCALE	MK20DX256VLH7	IC; UCON; KINETIS K2X MCU FAMILY; LQFP64	
57	U4	-	1	IC_MKL02232_QFN16	PIRC	IC_MKL02232_QFN16	IC; UCON; KINETIS KL02 32 KB FLASH; 48 MHZ CORTEX-M0+ BASED MICROCONTROLLER; MKL02 CHIP WITH PRE-PROGRAMMED TEENSY LC AND 3.2 BOOTLOADER; QFN16-EP	
58	U5, U6	-	2	MAX3373EEKA+	MAXIM	MAX3373EEKA+	IC; TRANS; +/-15KV ESD-PROTECTED; 16MPBS; DUAL LOW-VOLTAGE LEVEL TRANSLATOR; SOT23-8	
59	U7, U8	-	2	74LVC1G86GV	NXP	74LVC1G86GV	IC; XOR: 2-INPUT EXCLUSIVE-OR GATE; SOT753	

MAX96716/MAX96792 DPHY Evaluation Kit

Evaluates: MAX96716A,
MAX96716F, MAX96792A

MAX96716/MAX96792 EV Kit Bill of Materials (Coax) (continued)

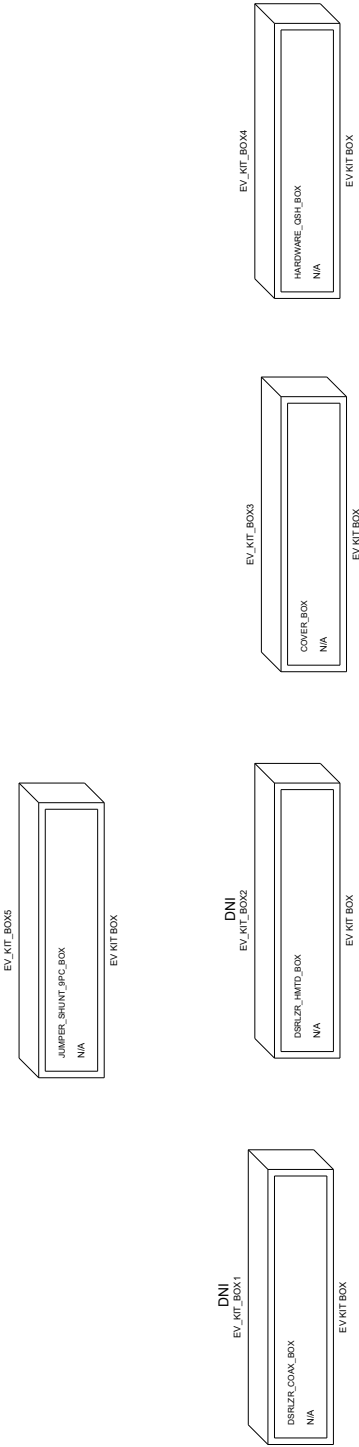
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60	U9	-	1	MAX16922ATPH/V+	MAXIM	MAX16922ATPH/V+	IC; CONV; 2.2MHZ; DUAL; STEP-DOWN DC-DC CONVERTER; DUAL LDOS AND RESET; TQFN20-EP	
61	U10	-	1	MAX20089ATPA/VY+	MAXIM	MAX20089ATPA/VY+	IC; PROT; DUAL CAMERA POWER PROTECTORS; TQFN20-EP; PACKAGE OUTLINE DRAWING: 21-100172; PACKAGE CODE: T2044+4C; PACKAGE LAND PATTERN: 90-0409	
62	U11	-	1	MAX5419LETA+	MAXIM	MAX5419LETA+	IC; DPOT; 200K OHM; 256-TAP NONVOLATILE I2C-INTERFACE DIGITAL POTENTIOMETER; TDFN8-EP	
63	U12	-	1	MAX5419META+	MAXIM	MAX5419META+	IC; DPOT; 200K OHM; 256-TAP NONVOLATILE I2C-INTERFACE DIGITAL POTENTIOMETER; TDFN8-EP	
64	Y1	-	1	ECS-250-18-33Q-DS	ECS INC	25MHZ	CRYSTAL; SMT 3.2X2.5; 18PF; 25MHZ; +/-30PPM; +/-100PPM	
65	Y2	-	1	CX2016DB16000DOWZRC1	KYOCERA	16MHZ	CRYSTAL; SMT 2.0 MM X 1.6 MM; 8PF; 16MHZ; +/-25PPM; +/-40PPM	
66	PCB	-	1	MAX96716DPHY	MAXIM	PCB	PCB:MAX96716DPHY	-
67	EV_KIT_BOX3	-	1	GKFYACRYL-001	GEEKIFY	N/A	EVKIT PART-ACCESSORY; PLASTIC COVER; TOP PLASTIC COVER WITH MAXIM LOGO	
68	EV_KIT_BOX3	-	1	GKFYACRYL-002	GEEKIFY	N/A	EVKIT PART-ACCESSORY; PLASTIC COVER; BOTTOM PLASTIC COVER WITHOUT MAXIM LOGO	
69	EV_KIT_BOX3	-	4	BS34CL06X25AP	BUMPER SPECIALTIES INC.	N/A	BUMPER; CLEAR-CYLINDRICAL SHAPE; 0.375D/0.125H; POLYURETHANE	
70	EV_KIT_BOX3	-	4	4802	KEystone	N/A	STANDOFF; MALE_FEMALE-THREADED; HEX; 4-40IN; 0.50IN; NYLON	
71	EV_KIT_BOX3	-	4	1902D	KEystone	N/A	STANDOFF; FEMALE-THREADED; HEX; 4-40IN; 3/4IN; NYLON	
72	EV_KIT_BOX3	-	8	NY PMS 440 0025 PH	B&F FASTENER SUPPLY	N/A	MACHINE SCREW; PHILLIPS; PAN; 4-40; 1/4IN; NYLON	
73	EV_KIT_BOX4	-	2	24480	KEystone	N/A	STANDOFF; FEMALE-THREADED; HEX; M3; 5MM; STEEL	
74	EV_KIT_BOX4	-	4	RM3X4MM 2701	APM HEXSEAL	N/A	MACHINE SCREW; PHILLIPS; PAN; M3; 4MM; STAINLESS STEEL	
75	EV_KIT_BOX5	-	9	NPC02SXON-RC	SULLINS ELECTRONICS CORP.	N/A	CONNECTOR; FEMALE; MINI SHUNT; 0.100IN CC; OPEN TOP; JUMPER; STRAIGHT; 2PINS	
76	PACKOUT_BOX	DNI	1	AK67421-0.5	ASSMANN	N/A	CONNECTOR; USB CABLE; MALE-MALE; USB 2.0; 5PINS-4PINS; 500MM	
77	PACKOUT_BOX	DNI	1	WSU120-2000	TRIAD MAGNETICS	N/A	ACCESSORY; WALL ADAPTER; VI-(90-264VAC); VO-(12VDC); 6FT	
78	PACKOUT_BOX	DNI	1	SK-5115	AMPHENOL ADRONICS	N/A	CONNECTOR; COAX CABLE; MALE-FEMALE; WIREMOUNT; 2000MM;	
79	C56-C59	DNP	0	UMK105BJ224KV	TAIYO YUDEN	0.22UF	CAPACITOR; SMT (0402); CERAMIC CHIP; 0.22UF; 50V; TOL=10%; TG=-55 DEGC TO +85 DEGC; TC=X5R	
80	J7, J8	DNP	0	E65201-40MT5-Z	ROSENBERGER	E65201-40MT5-Z	EVKIT PART - CONNECTOR; MALE; THROUGH HOLE; PLUG PCB; RIGHT ANGLE; 2PINS;	
81	R10	DNP	0	CRCW06030000ZS; MCR03EZPJ000; ERJ-3GEYOR00	VISHAY DALE; ROHM; PANASONIC	0	RESISTOR; 0603; 0 OHM; 0%; JUMPER; 0.10W; THICK FILM	
82	R17, R25	DNP	0	ERJ-2RKF4872	PANASONIC	48.7K	RESISTOR; 0402; 48.7K OHM; 1%; 100PPM; 0.1W; THICK FILM	
83	R18	DNP	0	CRCW0402200KFK; RF73H1ELTP2003	VISHAY DALE; KOA SPEER ELECTRONICS	200K	RESISTOR; 0402; 200K; 1%; 100PPM; 0.0625W; THICK FILM	
84	R36, R42, R84, R86, R88, R89	DNP	0	ERJ-2GEOR00	PANASONIC	0	RESISTOR; 0402; 0 OHM; 0%; JUMPER; 0.10W; THICK FILM	
85	R75-R79, R90, R91, R93, R94	DNP	0	ERJ-2GEOR00	PANASONIC	0	RESISTOR; 0402; 0 OHM; 0%; JUMPER; 0.10W; THICK FILM	DNI
TOTAL			242					

MAX96716/MAX96792 EV Kit Schematics

MAX96716 DPHY 2X4 EVKIT
GMSL APPS SUPPORT TEAM

CONTENTS

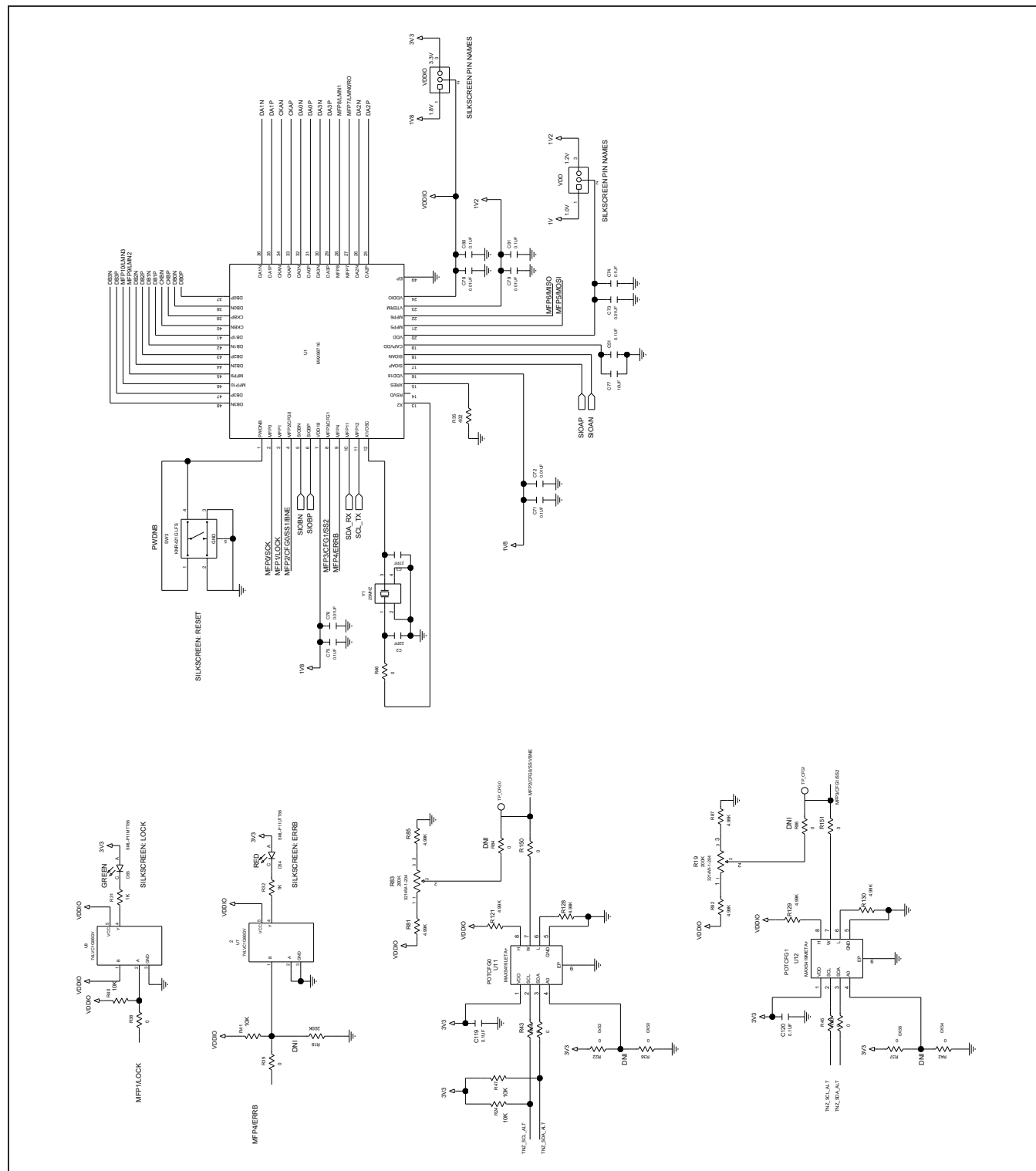
PAGE2 - GMSL- MAIN
PAGE3 - MCU AND PERIPHERALS
PAGE4 - POWER
PAGE5 - COAX AND HMTD
PAGE6 - CONNECTORS



MAX96716/MAX96792 DPHY Evaluation Kit

Evaluates: MAX96716A,
MAX96716F, MAX96792A

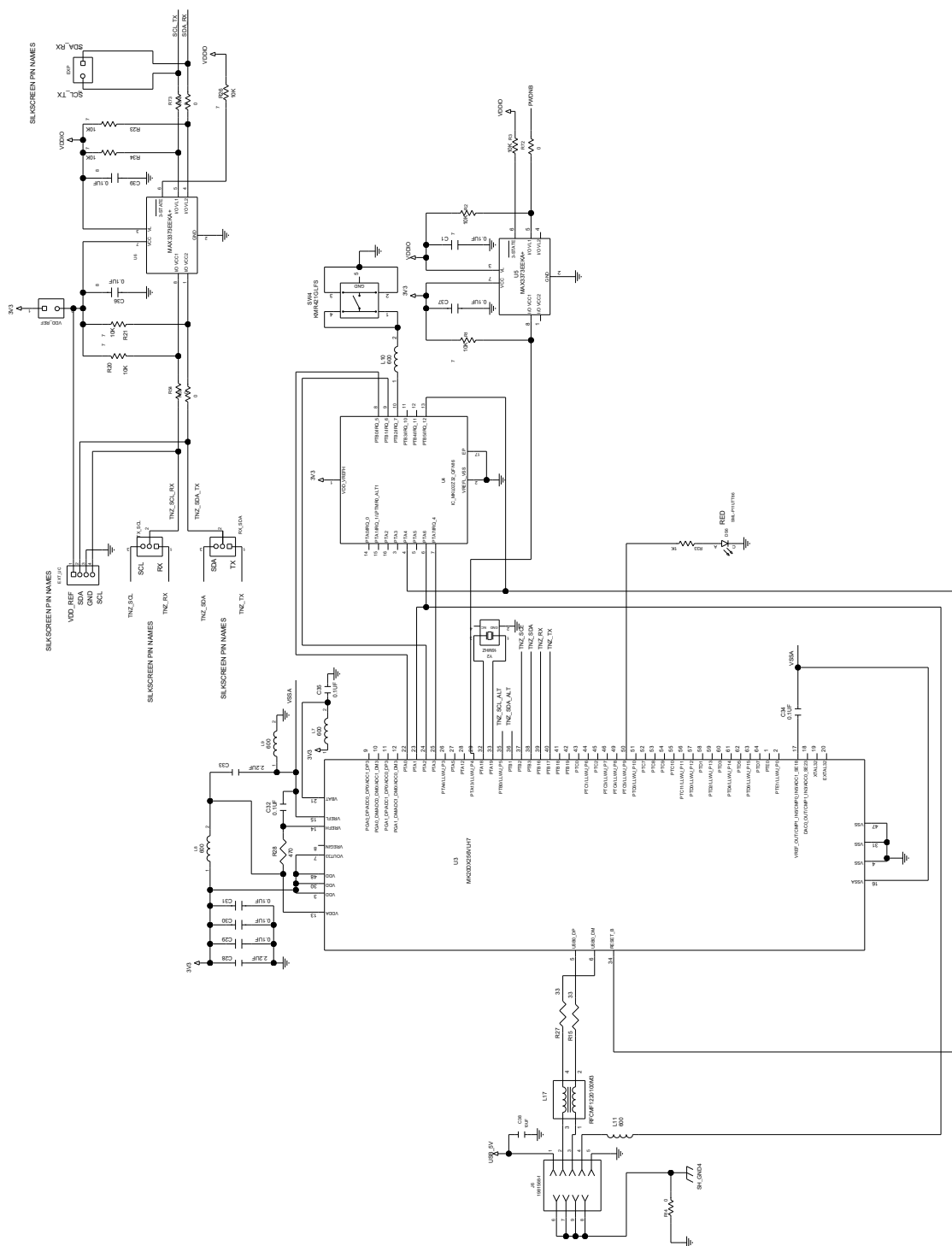
MAX96716/MAX96792 EV Kit Schematics (continued)



MAX96716/MAX96792 DPHY Evaluation Kit

Evaluates: MAX96716A,
MAX96716F, MAX96792A

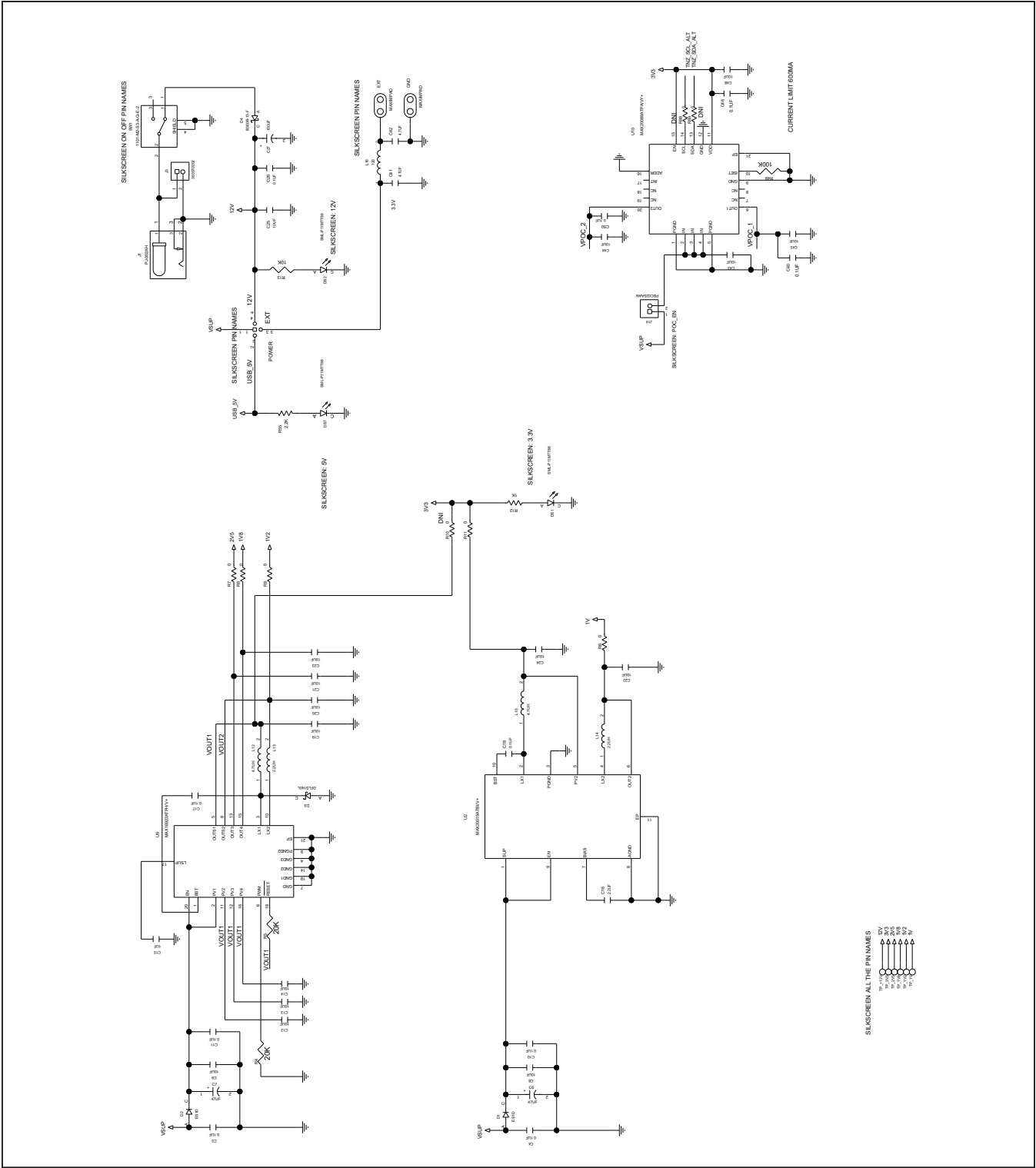
MAX96716/MAX96792 EV Kit Schematics (continued)



MAX96716/MAX96792 **DPHY Evaluation Kit**

Evaluates: MAX96716A,
MAX96716F, MAX96792A

MAX96716/MAX96792 EV Kit Schematics (continued)



MAX96716/MAX96792 EV Kit Schematics (continued)

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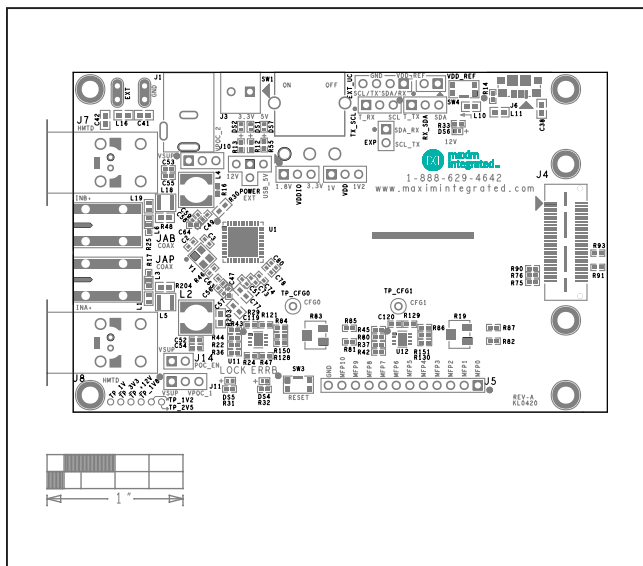
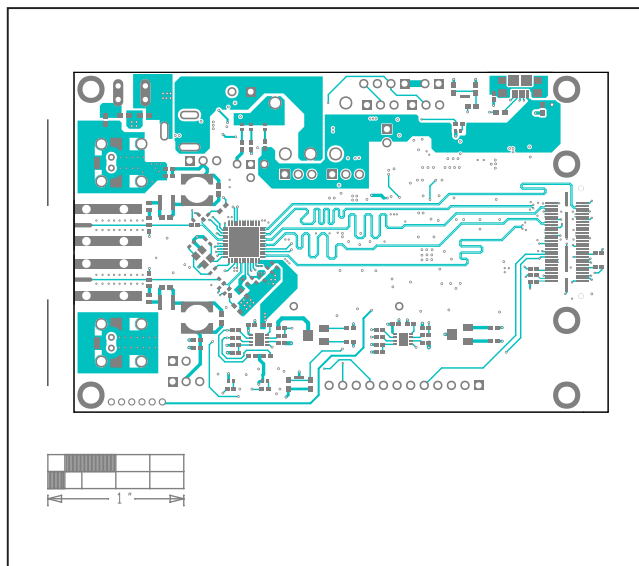
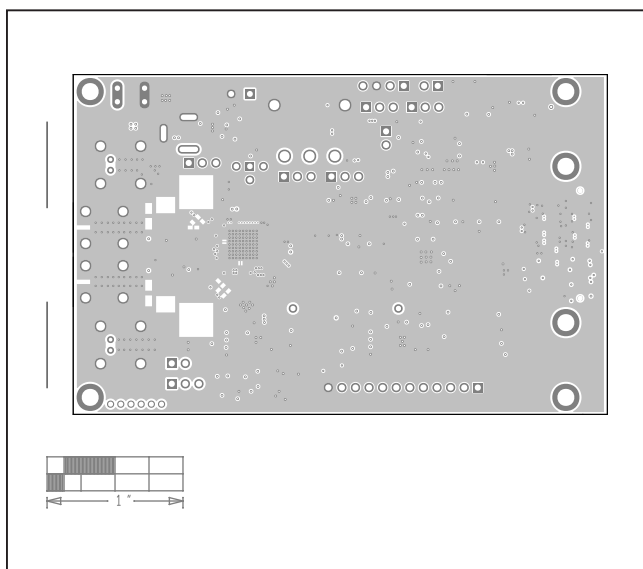
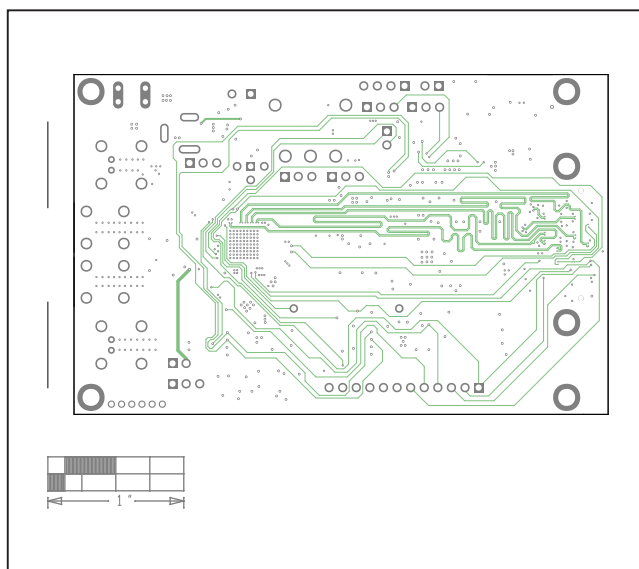
MAX96716/MAX96792 EV Kit Schematics (continued)

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MAX96716/MAX96792 DPHY Evaluation Kit

Evaluates: MAX96716A,
MAX96716F, MAX96792A

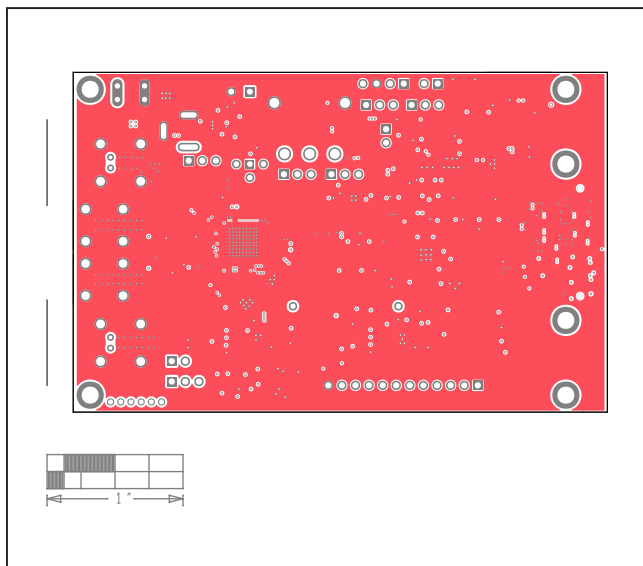
MAX96716/MAX96792 EV Kit PCB Layout Diagrams

MAX96716/MAX96792 EV Kit Component Placement Guide—
Top SilkscreenMAX96716/MAX96792 EV Kit Component Placement Guide—
TopMAX96716/MAX96792 EV Kit Component Placement Guide—
L2_GNDMAX96716/MAX96792 EV Kit Component Placement Guide—
L3_SIG

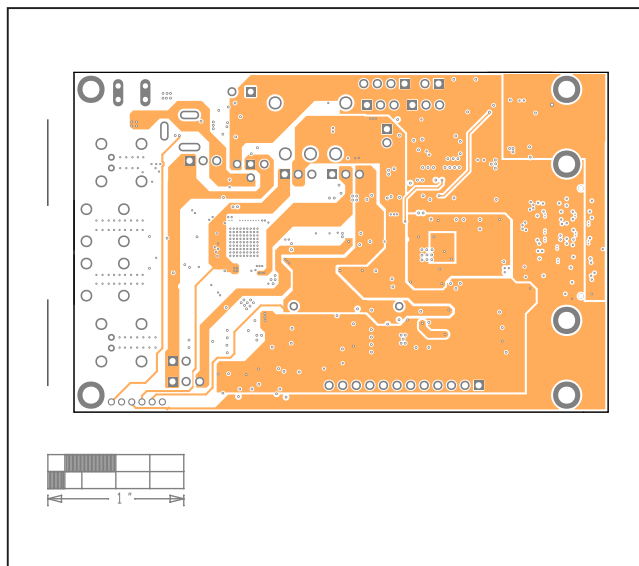
MAX96716/MAX96792 DPHY Evaluation Kit

Evaluates: MAX96716A,
MAX96716F, MAX96792A

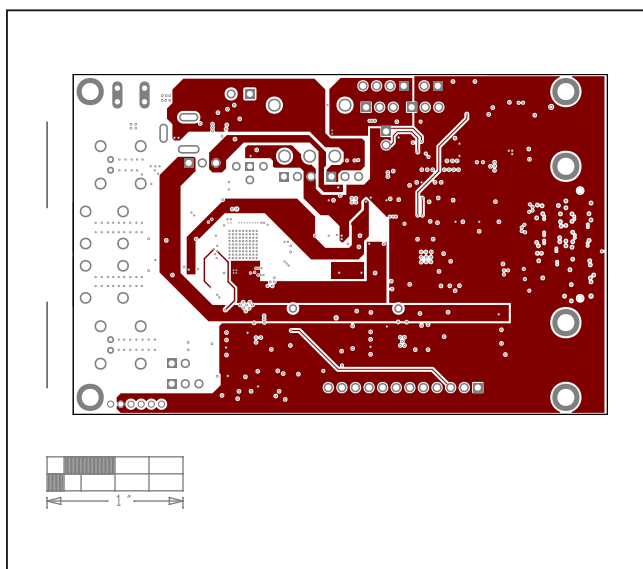
MAX96716/MAX96792 EV Kit PCB Layout Diagrams (continued)



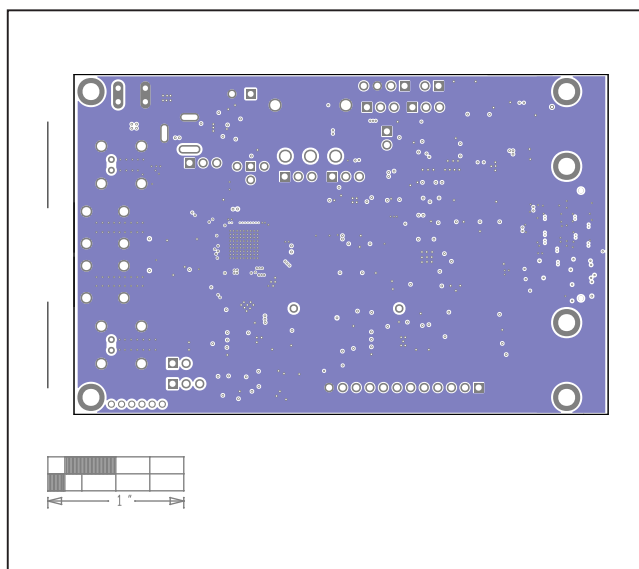
MAX96716/MAX96792 EV Kit Component Placement Guide—
L4_GND



MAX96716/MAX96792 EV Kit Component Placement Guide—
L5_PWR



MAX96716/MAX96792 EV Kit Component Placement Guide—
L6_SIG

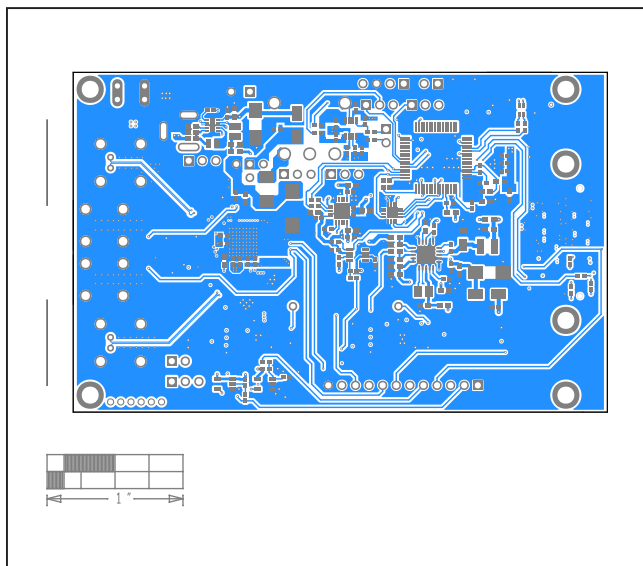


MAX96716/MAX96792 EV Kit Component Placement Guide—
L7_GND

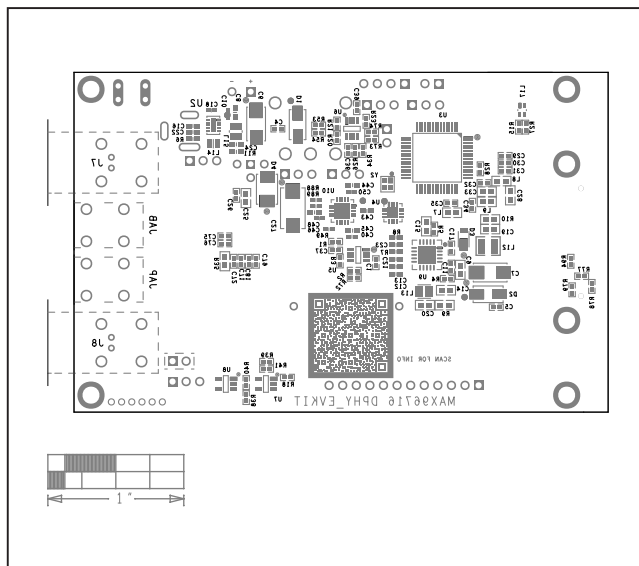
MAX96716/MAX96792 DPHY Evaluation Kit

Evaluates: MAX96716A,
MAX96716F, MAX96792A

MAX96716/MAX96792 EV Kit PCB Layout Diagrams (continued)



MAX96716/MAX96792 EV Kit Component Placement Guide—
Bottom



MAX96716/MAX96792 EV Kit Component Placement Guide—
Bottom Silkscreen

MAX96716/MAX96792 DPHY Evaluation Kit

Evaluates: MAX96716A,
MAX96716F, MAX96792A

Revision History

REVISION NUMBER	REVISION DATE	DESCRIPTION	PAGES CHANGED
0	2/24	Initial release	—
1	4/24	Added MAX96792A to document.	All

