MAX96707/MAX96709 Evaluation Kit

Evaluates: MAX96707/MAX96709 with Coax or STP Cable

General Description

The MAX96707/MAX96709 coax evaluation kit (EV kit) provides a proven design to evaluate the MAX96707 and MAX96709 high-bandwidth gigabit multimedia serial link (GMSL) serializers with spread spectrum and full-duplex control channel, through the use of a standard FAKRA coax or STP cable. The EV kit also includes Windows Vista®- and Windows® 7-compatible software that provides a simple graphical user interface (GUI) for exercising features of the device. The EV kit comes with either a MAX96707GTG+ or MAX96709GTG+ IC installed.

For complete GMSL evaluation using a standard FAKRA coax cable, order the MAX96707 or MAX96709 EV kit and a companion deserializer board (the MAX96706 EV kit is referenced in this document). For testing with STP cable, also order the MAXCOAX2STP-HSD adapter kit and refer to its data sheet. Only one adapter kit is required per link (connecting the serializer and deserializer boards).

Note: In the following sections, MAX96707/709 and the term "serializer" refer to the MAX96707 or MAX96709 ICs and MAX96706/708 and the term "deserializer" refer to the MAX96706 or MAX96708 ICs.

Note: This document applies to both coax and STP EV kits. This document covers coax cable links, but the information provided applies equally to STP cable links.

Ordering Information ***appears at end of data sheet.***

Features

- Accepts 14-Bit Parallel Input Data and Outputs GMSL Serial Data through FAKRA Connectors
- Power-over-Coax Capable
- Windows Vista- and Windows 7-Compatible Software
- USB-Controlled Interface (Cable Included)
- USB Powered
- Proven PCB Layout
- Fully Assembled and Tested

Items Included in the EV Kit Package

DECRIPTION	QTY
MAX96707 or MAX96709 coax EV kit board	1
USB cable	1

MAX96707/MAX96709 EV Kit Files

FILE	DECRIPTION
MAXSerDesEV-N_Vxxxx_Install.EXE	Installs the EV kit files on your computer
MAXSerDesEV-N.EXE	Graphical user interface (GUI) program
CDM20600.EXE	Installs the USB device driver
USB_Driver_Help_200.PDF	USB driver installation help file

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Quick Start

Required Equipment

- MAX96707 or MAX96709 serializer EV kit
- MAX96706 or MAX96708 deserializer EV kit
- 2m FAKRA cable assembly (included with the deserializer EV kit)
- > 20MHz function generator
- PC with Windows Vista or Windows 7 and a spare USB port (direct 500mA connection required; do not use a bus-powered hub)
- 5V DC, 500mA power supply

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

Procedure

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

1) Visit **www.maximintegrated.com\EVKitsoftware** to download and install the latest version of the EV kit software:
   - Double-click on **GMSL SerDes Evaluation Kit Software-Nuvoton**.
   - Download the MAXSerDesEV-N_Vx_x_x_x_Install.ZIP file (8MB).
   - Extract and install the MAXSerDesEV-N_Vx_x_x_Install.EXE file. The installation application installs the USB driver. If the USB driver installation is not successful, install the appropriate USB driver for your computer by visiting **www.ftdichip.com/Drivers/VCP.htm**.
2) Verify that jumpers on the serializer board are in their default positions, as shown in Figure 15.
3) Verify that jumpers on the deserializer board are in their default positions, as shown in Figure 16.
4) Set up the system, as shown in Figure 1.
5) Connect the FAKRA cable from the OUT+ terminal on the serializer board to the IN0+ terminal on the deserializer board.
6) Connect the USB cable between the PC and USB port on the Nuvoton microcontroller daughter board on the serializer board.
7) Verify that LED_PWR on the deserializer board lights up, indicating that the deserializer board has power.
8) Verify that LED_PWR on the serializer board lights up, indicating that the serializer board has power. Both serializer and deserializer have a power-over-coax (POC) circuit that is active by default.
9) Verify that LOCK_LED on the deserializer board lights up, indicating that the link has been successfully established. If the LOCK_LED is off, or ERR_LED is on, go to the *Troubleshooting* section and fix the problem before continuing. **Note:** If you are working with an earlier version of the deserializer IC, you must write value of 0xA6 to register address 0x9b at slave address 0x90 to enable the control channel. In the current revision of the IC, this step is no longer needed.
10) Start the EV kit software by selecting **Start | Programs | Maxim Integrated | MAXSerDesEV-N | MAXSerDesEV-N**.
11) The **Configuration Settings** window opens (see Figure 2) and the GUI automatically searches for any active listener in both I^2C and UART mode and identifies a valid GMSL product. Once a valid device is identified, the corresponding configuration jumpers are displayed to help users configure the serializer and deserializer.
12) In case an operating evaluation board with a Nuvoton microcontroller is not found, a window appears (Figure 3) warning as such. Press **OK** to continue and start the GUI anyway, or press **Cancel** to terminate the application. See the *Troubleshooting* section at the end of this document and fix the problem before continuing.
13) When an operating Nuvoton microcontroller is found, the GUI checks the firmware version in the microcontroller and prompts the user to update (Figure 4).
14) While the **Configuration Settings** window is open, press the **Identify Devices** button to search for the devices connected.
15) Only **Link Type** and **Device Address** selections on the **Configuration Settings** window affects the EV kit operation. Other items are for user reference only.
16) Press the **Connect** button to open the **Evaluation Kit** window and the devices under test (DUT) register maps (Figure 5). The GUI reads all internal registers of the serializer and deserializer and update the corresponding tabs.

17) Press the **Read All MAX96707** button in the **Serializer** group box to read all the serializer registers.
18) Press the **MAX96707 Des** tab (Figure 6) and then press the **Read All MAX96706** button in the **Deserializer** group box to read all the deserializer registers.
19) Select any of the other tabs to evaluate other serializer/deserializer (SerDes) functions.

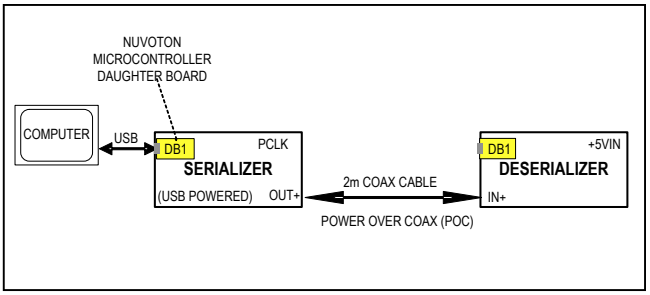

Figure 1. Serializer Test Setup Block Diagram

Table 1. Jumper Description*

JUMPER	SIGNAL	SHUNT POSITION	FUNCTION
J1	+12V	—	+12V AC adapter input
J2	+5VIN	—	+5V power-supply input positive terminal
J3	GND	—	+5V power-supply input negative terminal
J4	OUT+	—	GMSL OUT+ FAKRA connector
J5	OUT-	—	GMSL OUT- FAKRA connector
J6	EXT_UC	—	4-pin header to apply user microcontroller
J7	VIDT	INT**	U4 powered from on board LDO
		EXT	U4 powered from external source applied on J20
J8	BRDVDD	INT**	Peripheral circuit powered from internal source
		EXT	Peripheral circuit powered through EXT-DVDD terminal, J19
J11	U15 ch3	Open**	VLC3 = U15 level shifter, channel 3 low side VLC4 = U15 level shifter, channel 4 low side
J13	U15 ch4	Open**	VHC3 = U15 level shifter, channel 3 high side VHC4 = U15 level shifter, channel 4 high side
J21	SCLPU	Short**	on board SCL pulled up resistor in circuit
		Open	on board SCL pulled up resistor NOT in circuit
J22	SDAPU	Short**	on board SDA pulled up resistor in circuit
		Open	on board SDA pulled up resistor NOT in circuit
		Open	External µC SCL signal must be pulled up externally
J25	U4_SCL	Short**	µC connected to U4 oscillator
		Open	µC not connected to U4 oscillator
J26	IDT_OE	L	U4 oscillator output not enabled
		H**	U4 oscillator output enabled
		Open	U4 oscillator OE pin not connected

Jumper selections in the **Serializer/Deserializer group boxes on the **Configurations Settings** window are for reference only and do not affect software operation.*
***Default position.*

Table 1. Jumper Description* (continued)

JUMPER	SIGNAL	SHUNT POSITION	FUNCTION
J27	FSEL0	L**	U4 oscillator FSEL0 pin pulled low
		H	U4 oscillator FSEL0 pin pulled high
		Open	U4 oscillator FSEL0 pin not connected (internal low)
J28	FSEL1	L**	U4 oscillator FSEL1 pin pulled low
		H	U4 oscillator FSEL1 pin pulled high
		Open	U4 oscillator FSEL1 pin not connected (internal low)
J29	U1_SDA	Short**	U1 SDA connected to µC
		Open	U1 SDA is open
J30	GPIO1	Short	Shorted to IOVDD
		Open**	Shorted to GND
J32	GPIO2	Short	Shorted to IOVDD
		Open**	Shorted to GND
J33	GPO_Low	L	Connected to GND
		H	Connected to IOVDD
		Open**	Not connected
J35	U4_SDA	Short**	U4 oscillator SDA connected to µC
		Open	U4 oscillator SDA open
J38	PCLK_IN	IDT**	U1 PCLKIN connected to U4 output
		SMA	U1 PCLKIN connected to PCLK_SMA connector
		GND	GND terminal for externally applied PCLK to J38.1
		Open	U1 PCLKIN pin not connected
J39	U1_SCL	TX	U1 TX/SCL pin connected to µC RX pin
		Short**	U1 SCL connected to µC
		Open	U1 SCL open
J44	HIM_HI	Short	HIM pin pulled up to IOVDD
		Open**	HIM internally pulled down
J45	GPO_LOW	Short	U1 GPO pin connected to IOVDD
		Open**	U1 GPO open

Jumper selections in the **Serializer/Deserializer group boxes on the **Configurations Settings** window are for reference only and do not affect software operation.*
***Default position.*

Table 1. Jumper Description* (continued)

JUMPER	SIGNAL	SHUNT POSITION	FUNCTION
J51	POC+	POC5VOUT	5V POC is sourced by the serializer
		POC5VIN**	5V POC is expected from the deserializer
		POC12V	12V POC can be applied by either the serializer or deserializer
		Open	POC circuit disconnected
J52	POC-	POC5VOUT	5V POC is sourced by the serializer
		POC5VIN**	5V POC is expected from the deserializer
		POC12V	12V POC can be applied by either the serializer or deserializer
		Open	POC circuit disconnected
J53	VDD_REF	+3.3V**	Reference voltage for external µC signals set to +3.3V
		+5V	Reference voltage for external µC signals set to +5V
		Open	Reference voltage for external µC signals applied to J6.VDD_REF
J54	EXSDAPU	Short**	On-board pullup applied on external µC SDA signal
		Open	External µC SDA signal must be pulled up externally
J55	EXSCLPU	Short**	On-board pullup applied on external µC SCL signal
		Open	External µC SCL signal must be pulled up externally
JU1	Power	USB+5V	Board powered from USB port
		+5VIN	Board powered from 5V external power supply
		POC5V	Board power from deserializer through Coax link
		REG+5V	Board powered from +12V supply, stepped down to 5V
JU3	DVDD	INT**	U1 DVDD supplied from internal source
		EXT	U1 DVDD supplied through EXT-DVDD terminal (J19)
JU4	AVDD	INT**	U1 AVDD supplied from internal source
		EXT	U1 AVDD supplied through EXT-AVDD terminal (J18)

Jumper selections in the **Serializer/Deserializer group boxes on the **Configurations Settings** window are for reference only and do not affect software operation.*
***Default position.*

Detailed Description of Software

To start the serializer evaluation kit GUI, select **Start | All Programs | Maxim Integrated | MAXSerDesEV-N | MAXSerDesEV-N**.

Configuration Settings Window

The **Configuration Settings** window is the first window that opens after successful program launch. It allows the user to specify serializer and deserializer board setup and mode of operation (Figure 2).

Controller Group Box

In the **Controller** group box, select **Coax** or **STP** from the **Link Type** drop-down list, **I2C** or **UART** from the **Bus** drop-down list, and whether the **Serializer** or **Deserializer** should be connected to the USB controller. Upon changing any of these parameters, conflicting jumper settings are highlighted, guiding the user to check and make the corresponding changes to the evaluation boards. Only the **Link Type** and **Device Address** selections on the **Configuration Settings** window affect EV kit operation. Other items, including jumper selection, are for user reference only.

Serializer and Deserializer Jumper Selection Blocks

The **Serializer** and **Deserializer Jumper Selection** blocks list jumpers on the evaluation boards of the selected Device ID and displays the correct shunt positions based on the conditions selected in the **Controller** block.

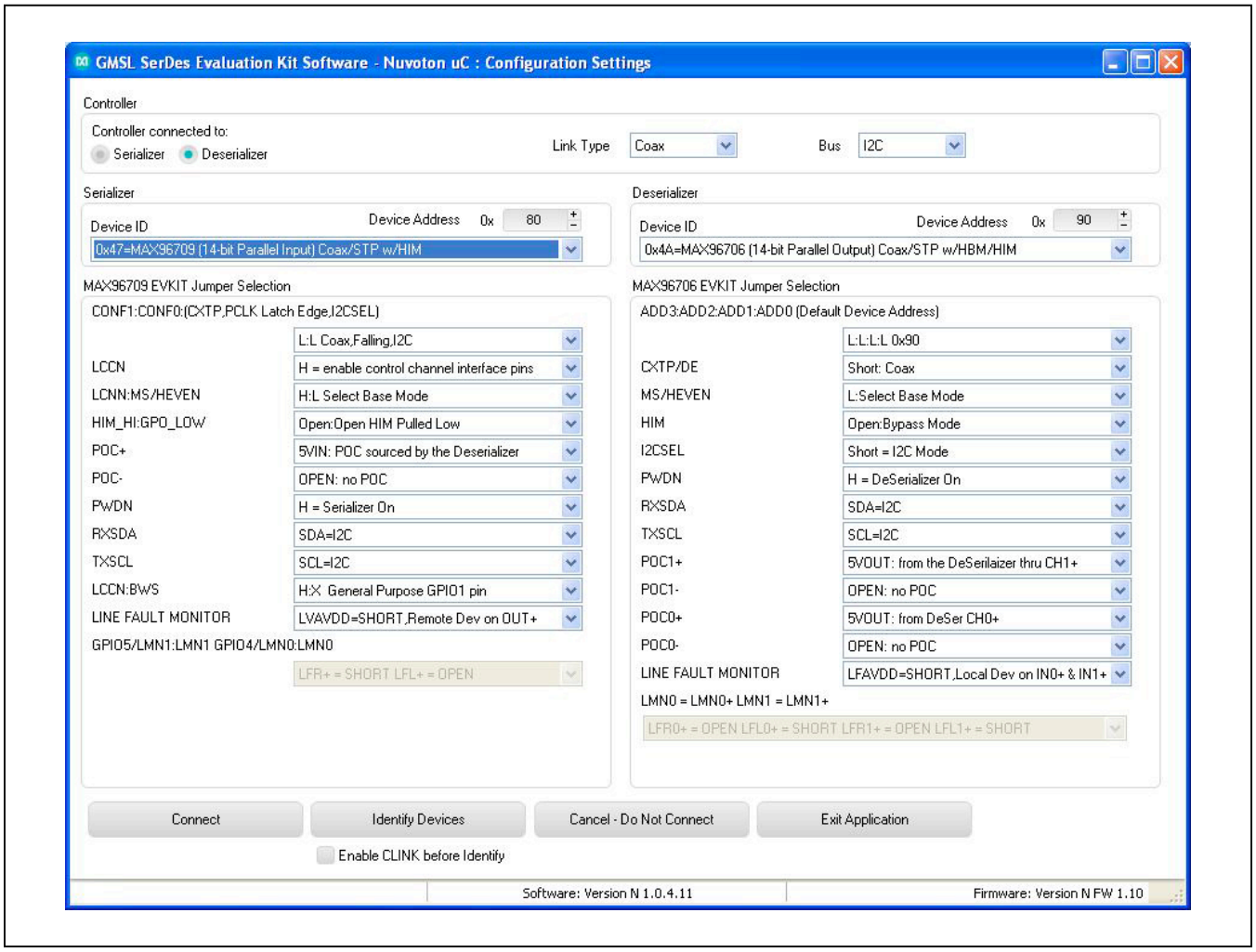

Figure 2. MAXSerDesEV-N EV Kit Software: Configuration Settings Window (Shown with MAX96709 and MAX96706 EV Kits Connected)

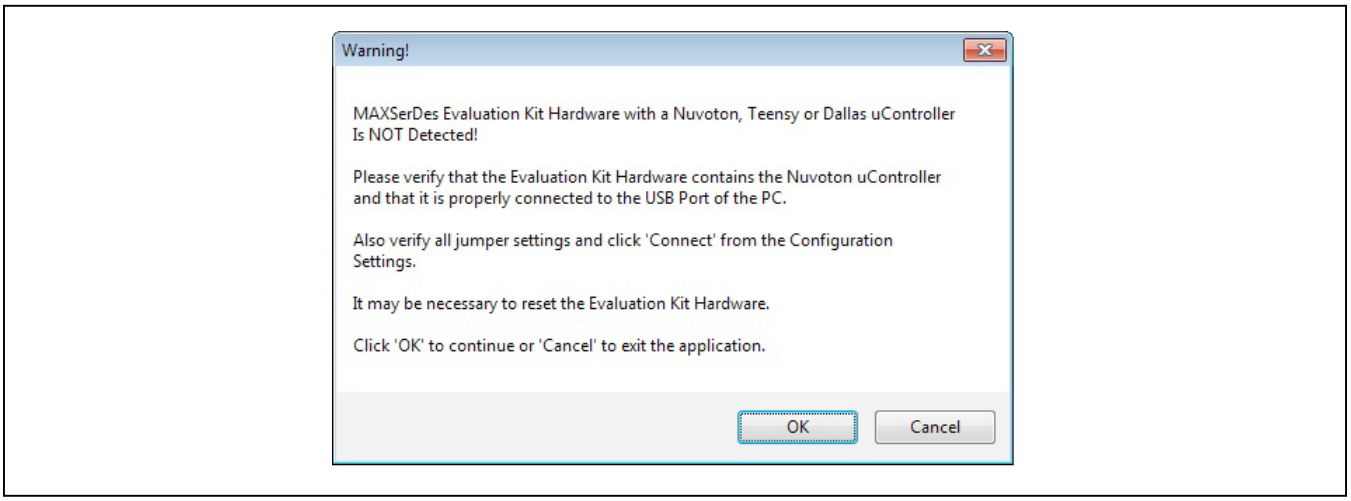

Figure 3. MAXSerDesEV-N EV Kit Software: Warning! (Nuvoton µController is NOT Detected!)

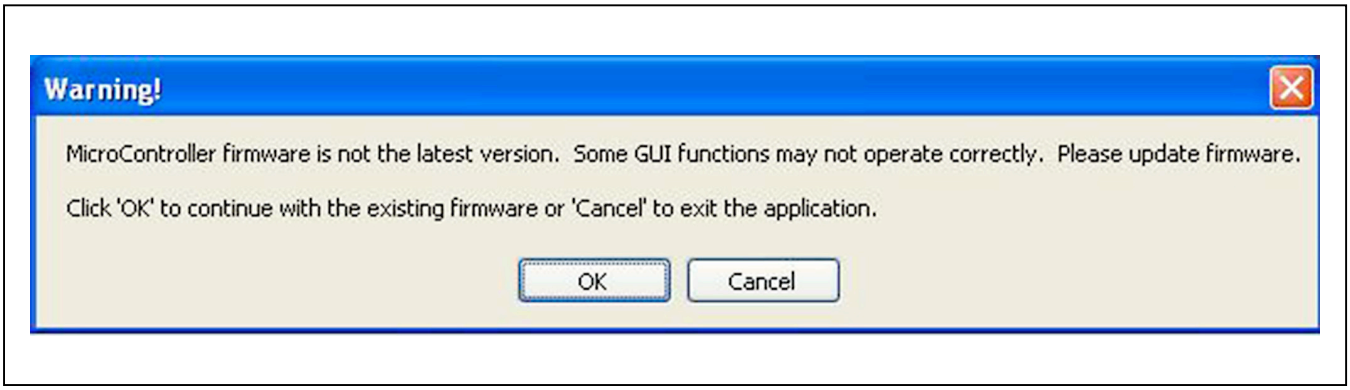

Figure 4. MAXSerDesEV-N EV Kit Software: Warning! (Microcontroller Firmware is Not the Latest Version)

Identify Devices Button

The **Identify Devices** button causes the GUI to scan the system and hunt for slave addresses on the bus. Upon successful communication, it reads the **Device ID** register from the DUTs and displays the corresponding jumper lists on the **Serializer** and **Deserializer Jumper Selection** blocks. It is also possible to select a device from the **Device ID** drop-down list and manually change the slave address in the **Device Address** edit box. It is a good practice to utilize the **Identify Devices** button and verify communication with the DUTs before attempting to **Connect**.

Figure 15 and Figure 16 show jumper settings on the SerDes PCBs for coax cable and I2C communication with a USB cable connected to the serializer board. Refer to the respective SerDes IC data sheets for detailed configuration information. See Table 1 for the serializer jumper descriptions.

Connect Button

The **Connect** button opens the **Evaluation Kit** window. The GUI reads the SerDes registers and updates the register maps for both. Successful register map updates are indicated by green LED indicators. In case of a communication problem, the LED indicators turn red.

Cancel - Do not Connect Button

The **Cancel - Do Not Connect** button opens the **Evaluation Kit** main window without attempting to connect to the microcontroller. Although there is no communication with the microcontroller, all functions and tabs corresponding to the selected **Device ID**s on the **Evaluation Kit** window become active once there.

Evaluation Kit Window

The **Evaluation Kit** window shown in Figure 5 provides access to all internal registers and functions of the DUTs by means of reading and writing registers through different tabs; thus, enabling the user to evaluate various functions of the serializer and deserializer.

The **Read All** button updates the SerDes register maps by reading the DUT's internal registers.

The **Serializer** group box provides pushbuttons to update the serializer's register map from the DUT using the **Read All MAX96707** button. The **Load** button reads and updates from a previously saved file and the **Save** button saves the existing register values into a new file.

The **Deserializer** group box provides pushbuttons to update the deserializer's register map from the DUT using the **Read All MAX96706** button. The **Load** button reads and updates from a previously saved file and the **Save** button saves the existing register values into a new file.

The **Wake Up** button applies the register write sequence described in the IC data sheets to wake the DUTs from sleep mode.

The **Open Configuration** button returns to the **Configuration Settings** window.

MAX96707 Ser Tab

The **MAX96707 Ser** tab (Figure 5) lists the serializer's register bitmaps. The **Read** and **Write** buttons in each register group box allows access to each bit or group of bits that specify a function or condition, as defined in the respective serializer IC data sheet. The color of the small LED indicator next to the **Read/Write** buttons indicates the communication status. Green indicates successful communication and red indicates failed communication.

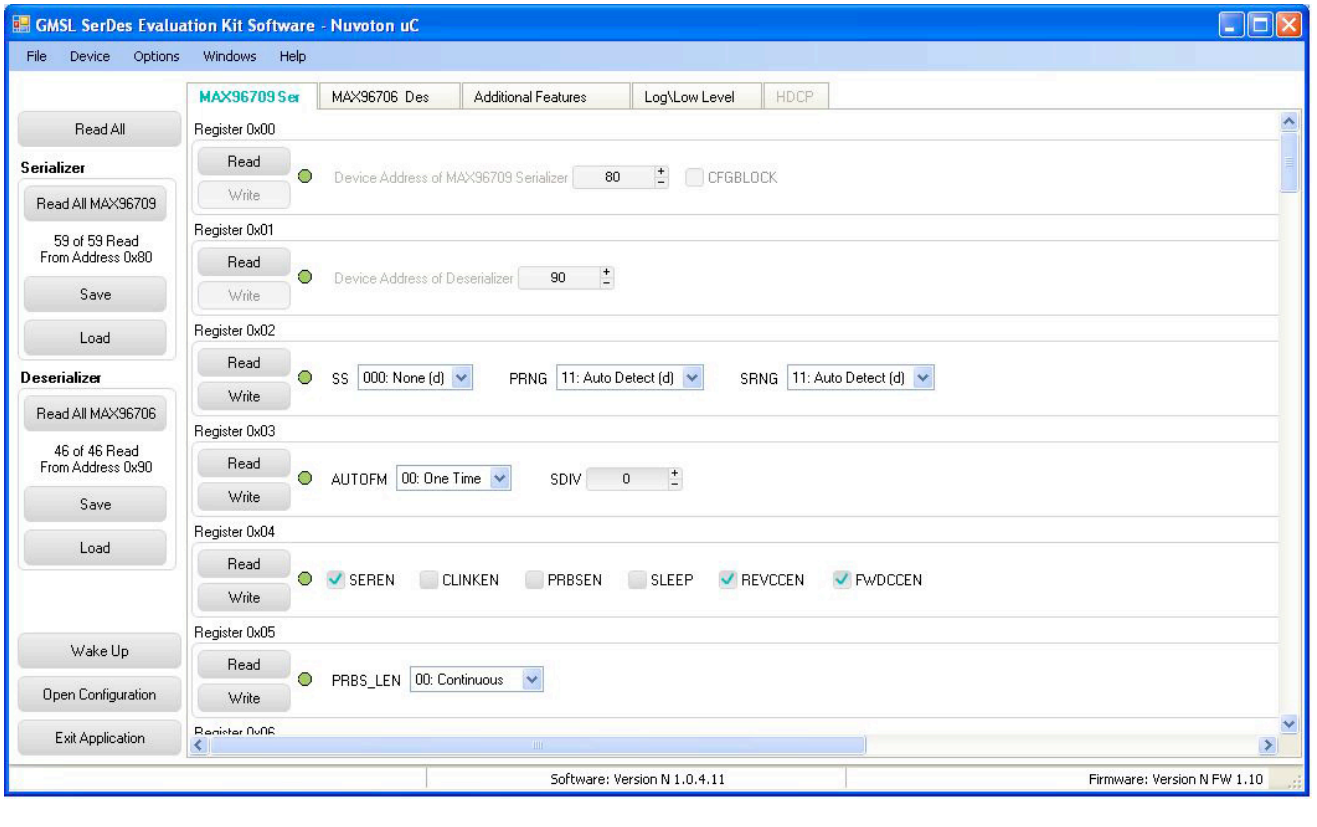

Figure 5. MAXSerDesEV-N EV Kit Software: Evaluation Kit Window (MAX96709 Ser Tab (Serializer))

MAX96706 Des Tab

The **MAX92706 Des tab** (Figure 6) lists the deserializer's register bitmaps. The **Read** and **Write** buttons in each register group box allows access to each bit or group of bits that specify a function or condition, as defined in the respective dserializer data sheet. The color of the small LED indicator next to the **Read**/**Write** buttons indicates the communication status. Green indicates successful communication and red indicates failed communication.

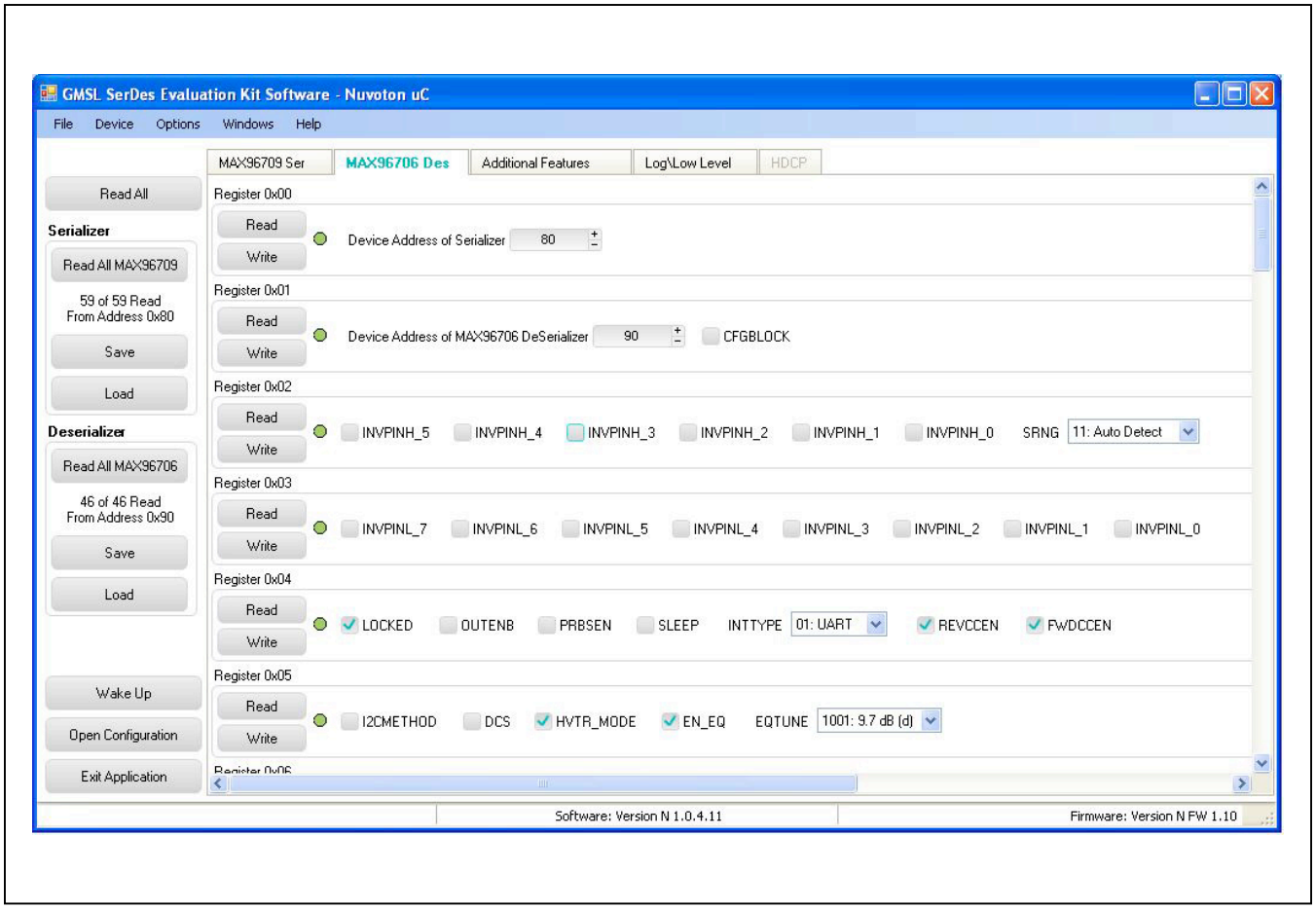

Figure 6. MAXSerDesEV-N EV Kit Software: Evaluation Kit Window (MAX96706 Des Tab (Deserializer))

Additional Features Tab

The **Additional Features** tab (Figure 7) provides pushbuttons for specific functions that connected devices can perform. By pressing a button, a new window pops up, launching the specific function selected. Function buttons not supported by the selected device are grayed out.

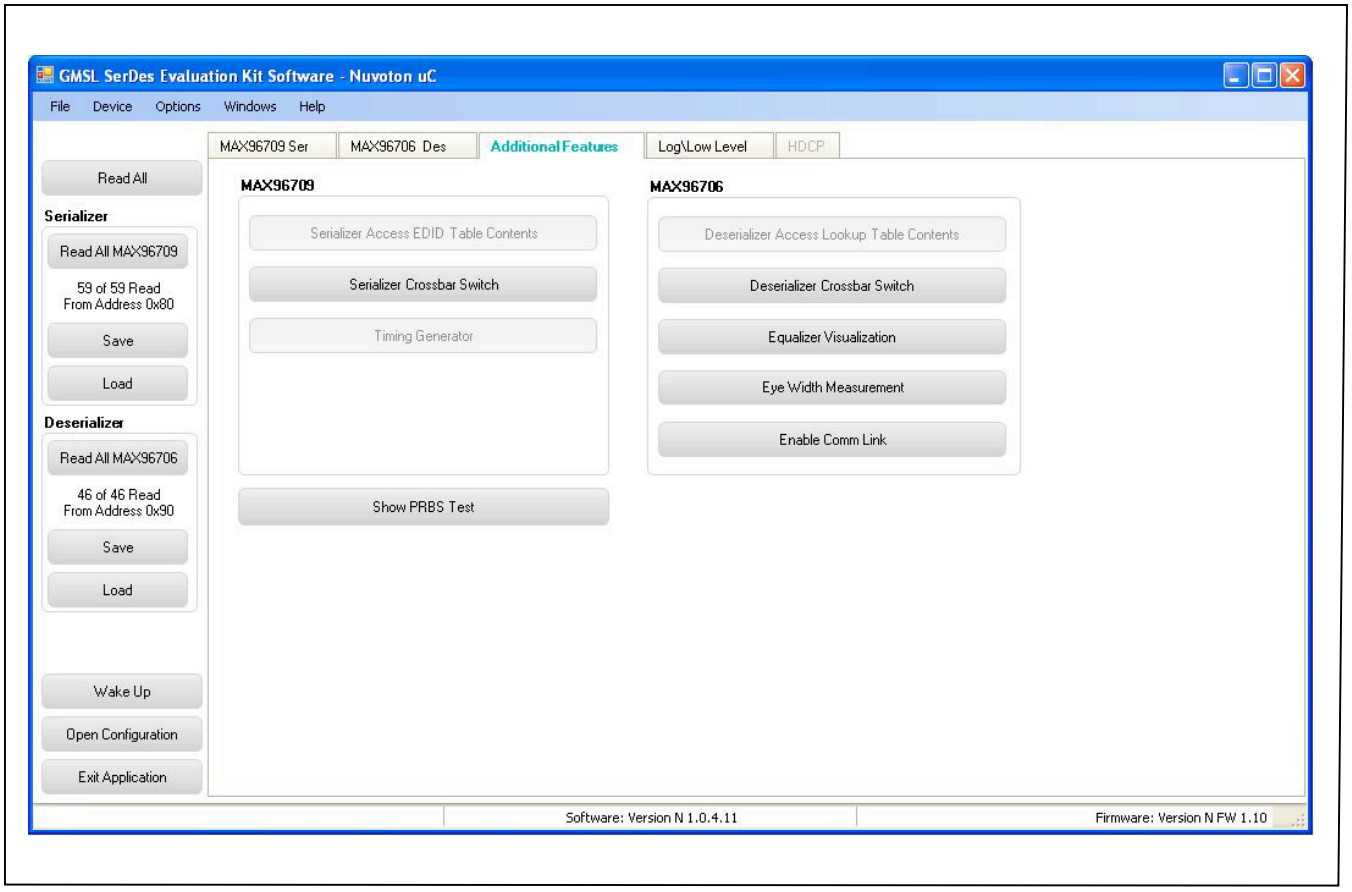

Figure 7. MAXSerDesEV-N EV Kit Software: Evaluation Kit Window (Additional Features Tab)

On the **Additional Features** tab, press the **Serializer Crossbar Switch** button to launch the **Serializer Crossbar Switch Configuration** function (Figure 8). This capability allows the rerouting of data between the parallel input/output by the serializer. Refer to the respective IC data sheet for a detailed description and operation on the embedded crossbar switches.

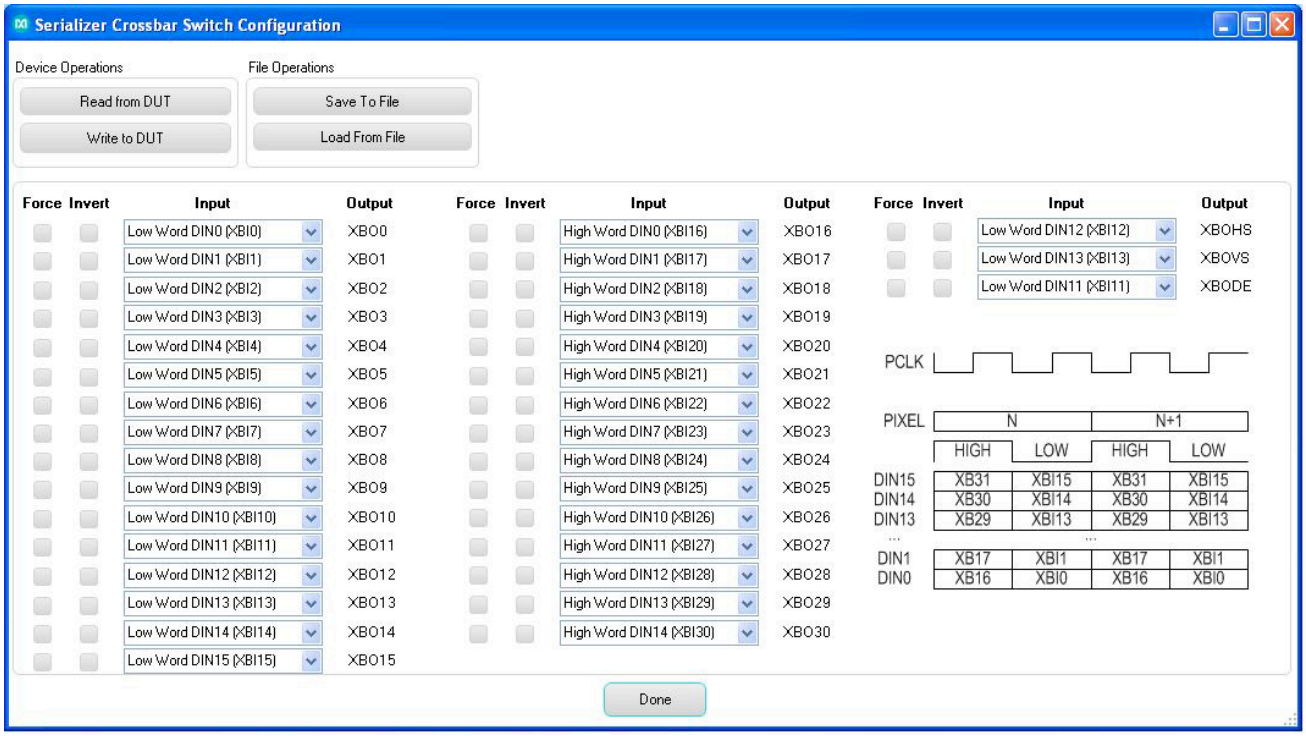

Figure 8. MAXSerDesEV-N EV Kit Software: Evaluation Kit Window (Serializer Crossbar Switch Configuration Window)

On the **Additional Features** tab, press the **Deserializer Crossbar Switch** button to launch the **Deserializer Crossbar Switch Configuration** function for the deserializer (Figure 9). This capability enables rerouting data between the parallel input/output by the deserializer. Refer to the respective IC data sheet for a detailed description and operation on the embedded crossbar switches.

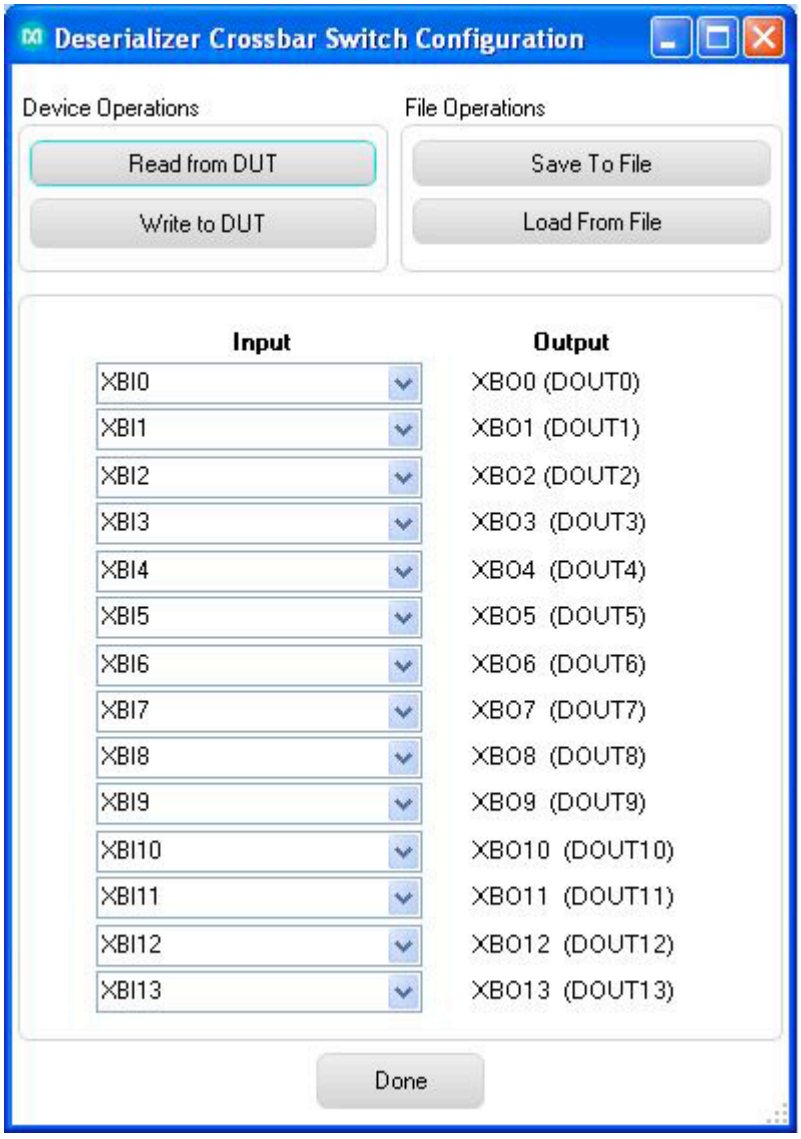

Figure 9. MAXSerDesEV-N EV Kit Software: Evaluation Kit Window (Deserializer Crossbar Switch Configuration Window)

On the **Additional Features** tab, press the **Timing Generator** button to launch this function (Figure 10), which allows the user to utilize the programmable video timing generator to generate/retime the input sync signals. Refer to the respective IC data sheet for a detailed description.

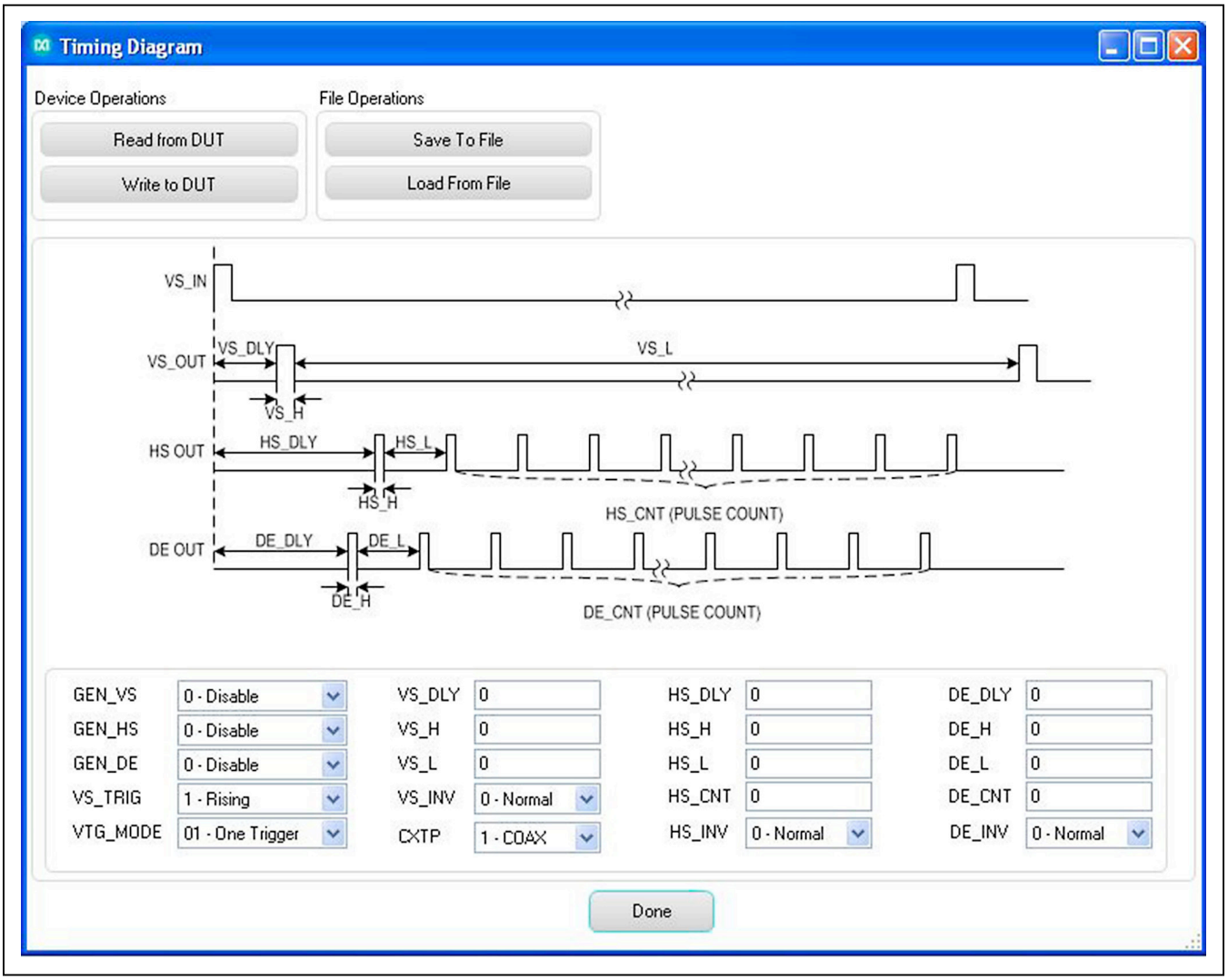

Figure 10. MAXSerDesEV-N EV Kit Software: Evaluation Kit Window (Timing Generator Window)

On the **Additional Features** tab, press the **Equalizer Visualization** button to launch this function (Figure 11), which allows compensating for higher cable attenuation and higher frequencies. Refer to the respective IC data sheet for a detailed description.

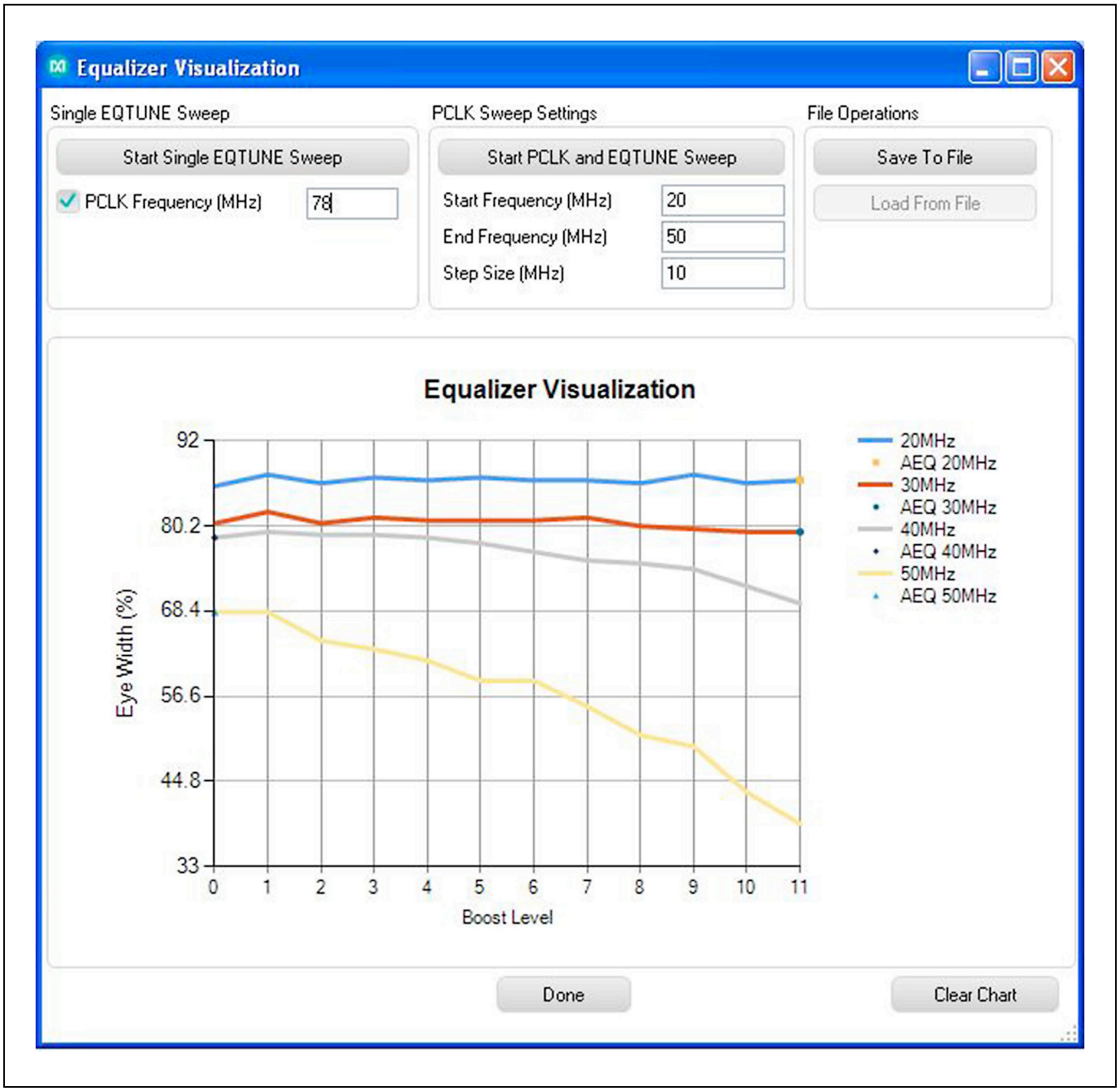

Figure 11. MAXSerDesEV-N EV Kit Software: Evaluation Kit Window (Equalizer Visualization Window)

On the **Additional Features** tab, press the **Eye Width Measurement** button to launch this function (Figure 12) which graphically displays Eye Width/opening of the high-speed data over the link. Refer to the IC data sheet for detailed description. Note that this function is not supported by the MAX96708 deserializer.

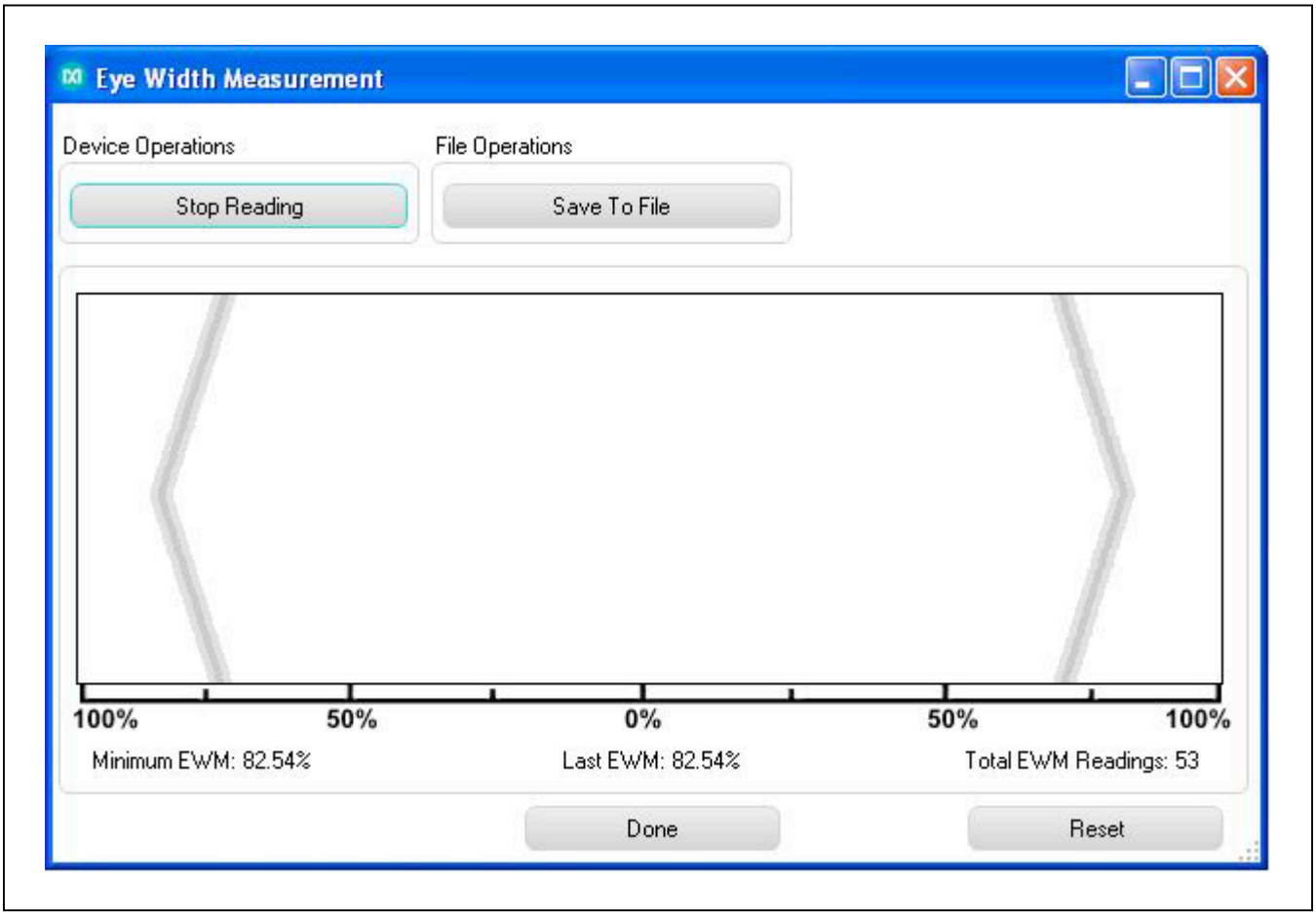

Figure 12. MAXSerDesEV-N EV KIT Software: Evaluation Kit Window (Eye Width Measurement Window)

On the **Additional Features** tab, press the **Show PRBS Test** button to perform a PRBS test (Figure 13). Enter test duration (maximum 32,767s = 9.1hrs) in the **Duration** edit box and press **Start** to start the test. At test completion, the number of bit errors are read from the PRBSERR register, and displayed in the **PRBS Error Counter** box.

Log\Low Level Tab

The **Log\Low Level** tab (Figure 14) logs all activities between the GUI and DUTs.

The **Register Access** group box allows reads or writes of the specified slave and register addresses. Use the **Send String to EVKIT** button to communicate with non-register-based devices (such as the MAX7324). The **SerDes Baud Rate** drop-down list sets the communications baud rate. Note that the baud rate should be changed in small increments/decrements (one step change is forced by the GUI).

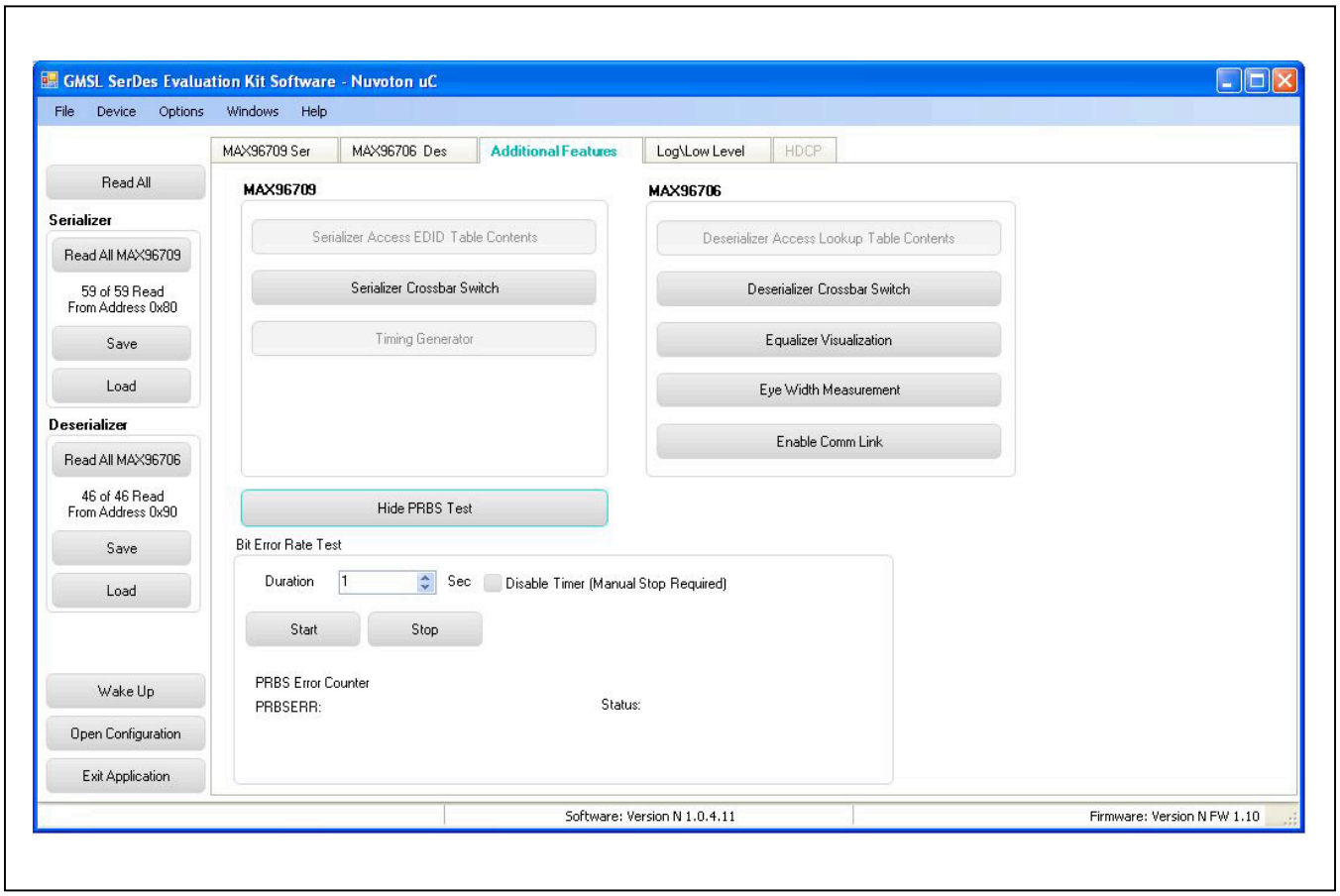

Figure 13. MAXSerDesEV-N EV Kit Software: Evaluation Kit Window (Show PRBS Test Window, Expanded)

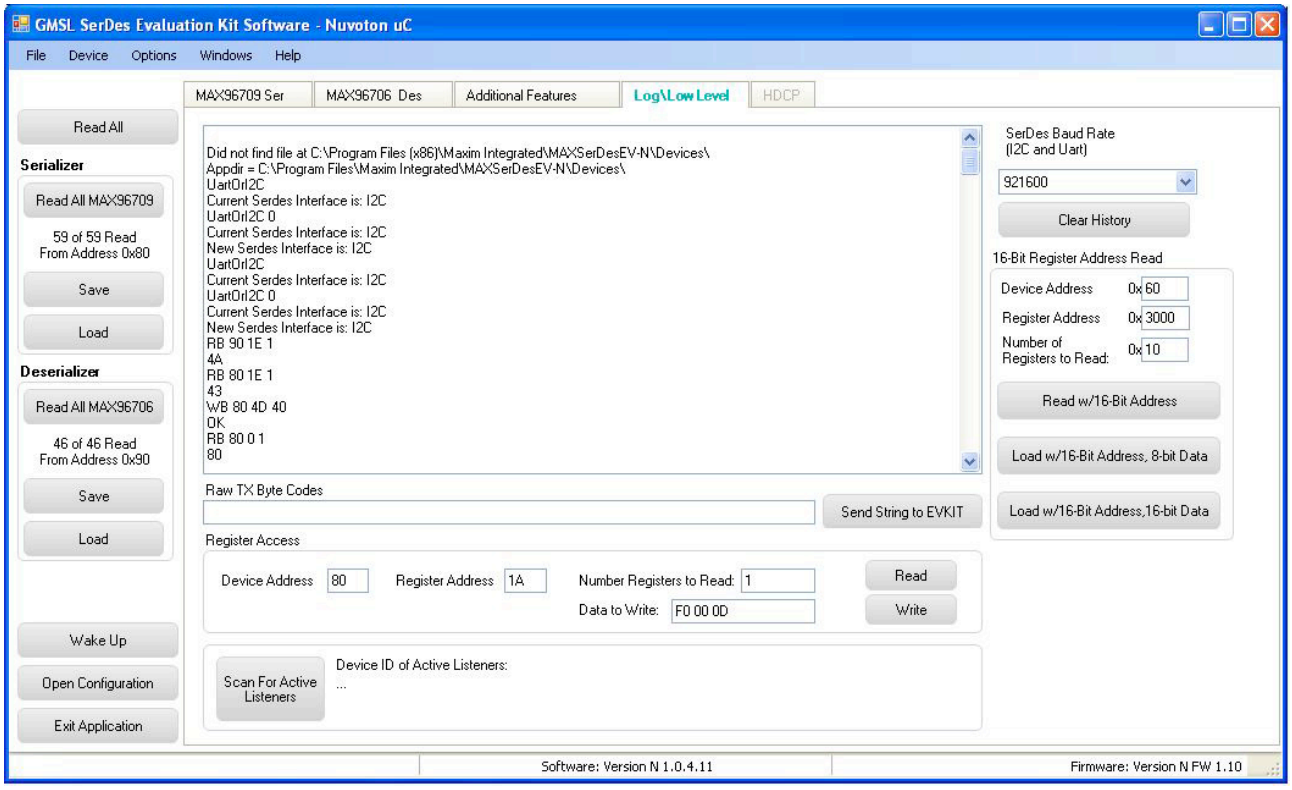

Figure 14. MAXSerDesEV-N EV Kit Software: Evaluation Kit Window (Log\Low Level Tab)

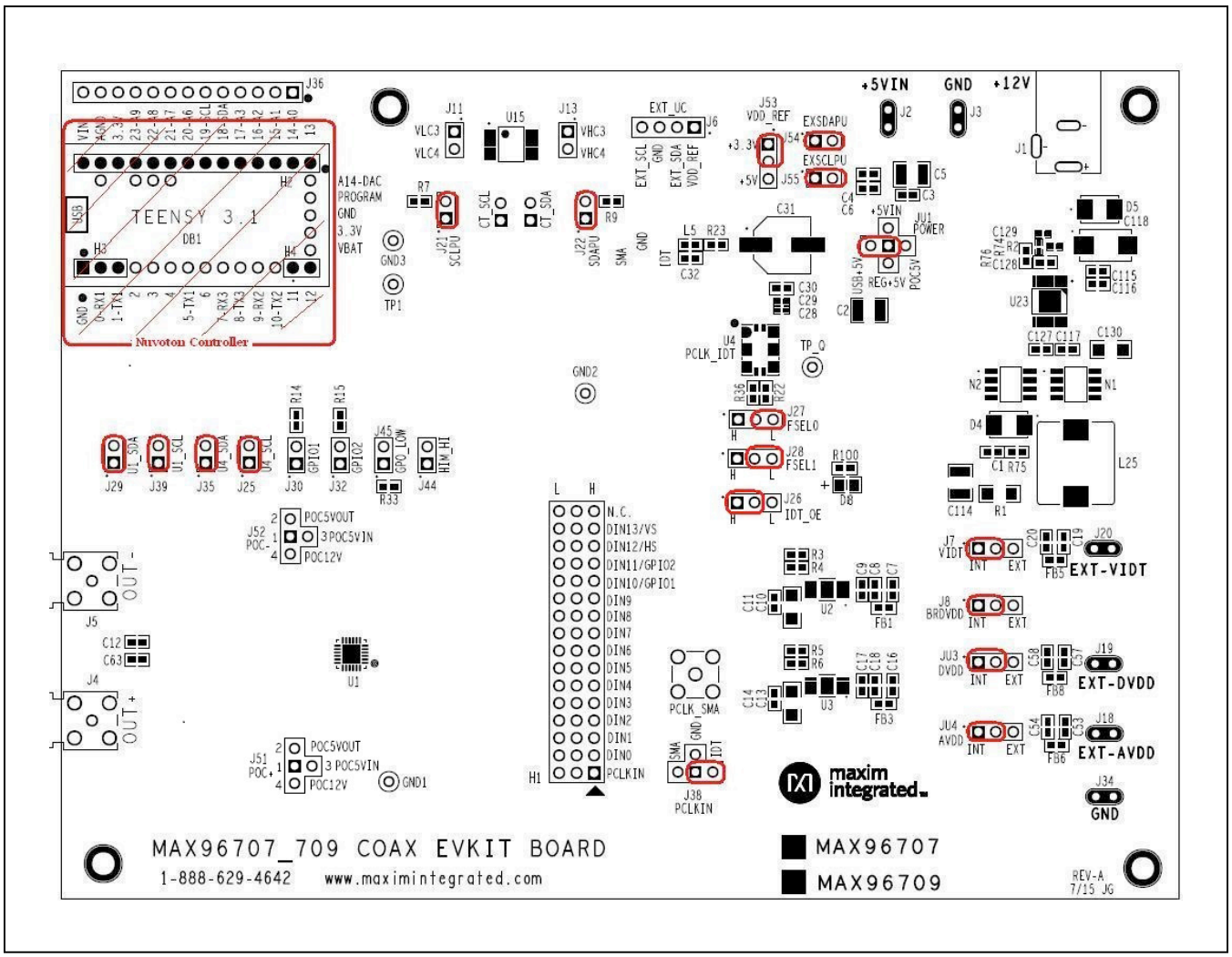

Figure 15. MAX96707/709 Coax EV KIT jumper setting

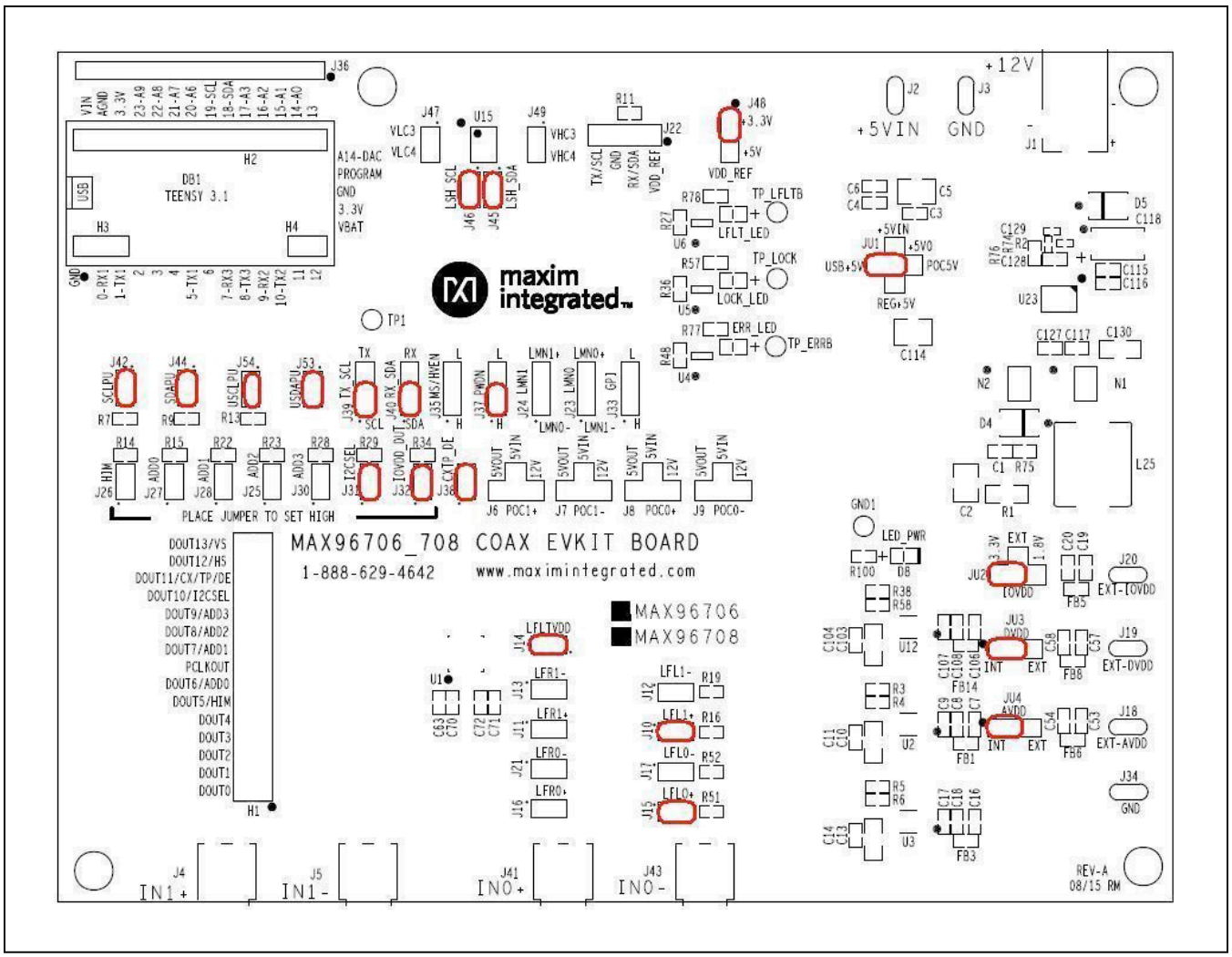

Figure 16. MAX96706/MAX96708 Coax EV Kit Jumper Settings for Coax Link and I²C Communication

Detailed Description of Firmware

The Nuvoton microcontroller on the daughter board runs a custom firmware that ensures reliable communication between the PC and DUTs. The firmware records 9-bit even-parity data received from the USB interface while RTS is set, and plays back the 9-bit data with 1.5 stop bits timing when RTS is cleared. Data received from the DUTs is immediately relayed to the USB port.

How to Update Firmware

To update the Nuvotron microcontroller firmware, follow the instructions in this folder:

"...\Program Files\Maxim Integrated\MAXSerDesEV-N\Firmware Update\Updating MAXSerDesEV-N firmware.pdf".

Detailed Description of Hardware

The MAX96707/MAX96709 coax EV kit provides a proven, easy to use, and flexible design for evaluation of MAX96707 and MAX96709 GMSL serializers with parallel input and FAKRA coaxial cable output. On-board level translators and easy-to-use USB-PC connections are also included on the EV kit.

The MAX96707/MAX96709 coax EV kit board consists of four principal functional blocks:

- Microcontroller daughter board
- MAX96707/MAX96709 application circuit block
- Power-supply block
- Oscillator (PCLK) circuit block

Microcontroller Daughter Board

The Nuvoton-based microcontroller daughter board provides UART and I^2C interfaces that communicate with both serializer and deserializer boards when they are powered on and properly configured. The Nuvoton microcontroller is programmed with the latest firmware at the time of manufacturing.

To use the EV kit with an externally applied controller, remove the Nuvoton microcontroller board from the EV kit board (DB1 position) and apply the RX/SDA, TX/SCL, VDD, and GND signals from the user microcontroller to the corresponding signals on J6 of the serializer board. Use one of the logic levels from the VDD_REF, J53 header, or apply externally.

Application Circuit

The application circuit block includes the serializer and all other components and circuits suggested in the respective IC data sheet, and test points and provisions to provide access to internal functions of the serializer for evaluation of the product.

Power Supplies

On-board LDO regulators U2, U3, and U12 generate various voltage levels required to operate the EV kit board. There are four options to power the board:

- USB port (default)
- 12V AC adapter
- 5V power supply applied power over coax cable
- Power jumper (JU1 selects from the four power sources)

To operate the EV kits with voltage levels different from what are generated by on-board regulators, move desired IOVDD (JU2), DVDD (JU3), and AVDD (JU4) shunt from INT to EXT positions and apply the external voltage to the corresponding wire-loop terminal.

Oscillator (PCLK) Circuit Block

An on-board custom oscillator (U4) to supply PCLK is provided to facilitate the serializer/deserializer evaluation. This is an I^2C-programmable oscillator with four custom preprogrammed and jumper-selectable frequencies. FSEL0 and FSEL1 jumpers positions select one of the preprogrammed frequencies per list below:

FSEL1	FSEL0	PCLK (MHz)
L	L	25.0
L	H	37.0
H	L	78.0
H	H	104.0

Place jumper IDT_EN (J26) in the "L" position to disable the oscillator output. To operate the the oscillator at a frequency other than the four preprogrammed frequencies, refer to the oscillator data sheet available at **www.idt.com/products/clocks-timing/quartz-crystal-oscillator-ics-xo-crystal-clock-oscillators-and-low-power-oscillator-circuits/8n0q001-quad-frequency-programmable-xo-0**, or contact the manufacturer.

Troubleshooting

Possible causes of board test failure:

- Coax cable not properly connected between the serializer OUT+ to the deserializer IN+.
- PCLKIN not applied (e.g., FG output is disabled): Verify signal at the pins on the board.
- PCLKIN and function generator output are not correct: Verify signal at the pins on the board.
- Incorrect jumper setting on the deserializer board: Reverify.
- Incorrect jumper setting on the serializer board: Reverify.
- Bus selection on the GUI is not consistent with jumpers' position on the boards: Check and verify that USB cable is properly connected.
- USB port has locked: Exit application GUI, remove USB cable from the board, reinsert and relaunch the GUI.
- Nuvoton µC is not communicating: Exit application GUI, remove USB cable from the board, reinsert and relaunch the GUI.
- Deserializer board is faulty: Try a different board (if available).
- Serializer board is faulty: Try a different board (if available).

Component Suppliers

SUPPLIER	PHONE	WEBSITE
Amphenol RF	800-627-7100	www.amphenolrf.com
Hong Kong X'tals Ltd.	852-35112388	www.hongkongcrystal.com
Integrated Device Technology (IDT)	908-766-4941	www.idt.com
Murata Americas	770-436-1300	www.murataamericas.com
ON Semiconductor	602-244-6600	www.onsemi.com
Rosenberger Hochfrequenztechnik GmbH	011-49-86 84-18-0	www.rosenberger.de
TDK Corp.	847-803-6100	www.component.tdk.com

Note: *Indicate that you are using the MAX96707 or MAX96709 when contacting these component suppliers.*

Component List

Click on the links below for component information, schematics, and PCB layout diagrams:

- **MAX96707/MAX96709 EV Kit BOM**
- **MAX96707/MAX96709 EV Kit Schematics**
- **MAX96707/MAX96709 EV Kit PCB Layout Diagrams**

Ordering Information

PART	TYPE
MAX96707COAXEVKIT#	EV Kit
MAX96709COAXEVKIT#	EV Kit
MAXCOAX2STP-HSD#	Adapter Kit

#Denotes RoHs compliant.

Note: *The MAX96707 and MAX96709 coax EV kits are normally ordered with a companion board:*

- MAX96706 coax EV kit (MAX96706COAXEVKIT#)
- MAX96708 coax EV kit (MAX96708COAXEVKIT#)*

Revision History

REVISION NUMBER	REVISION DATE	DESCRIPTION	PAGES CHANGED
0	4/16	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.

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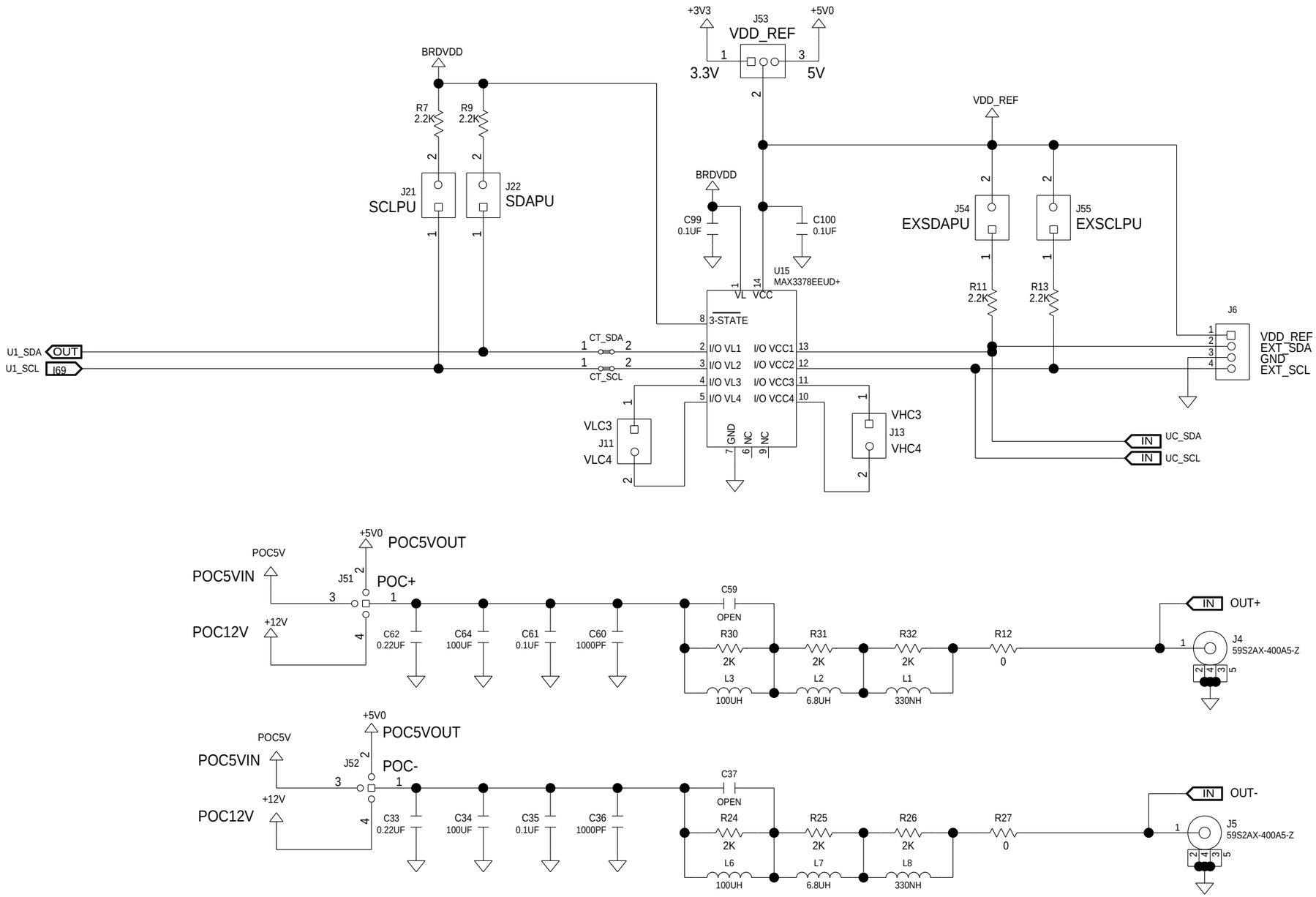
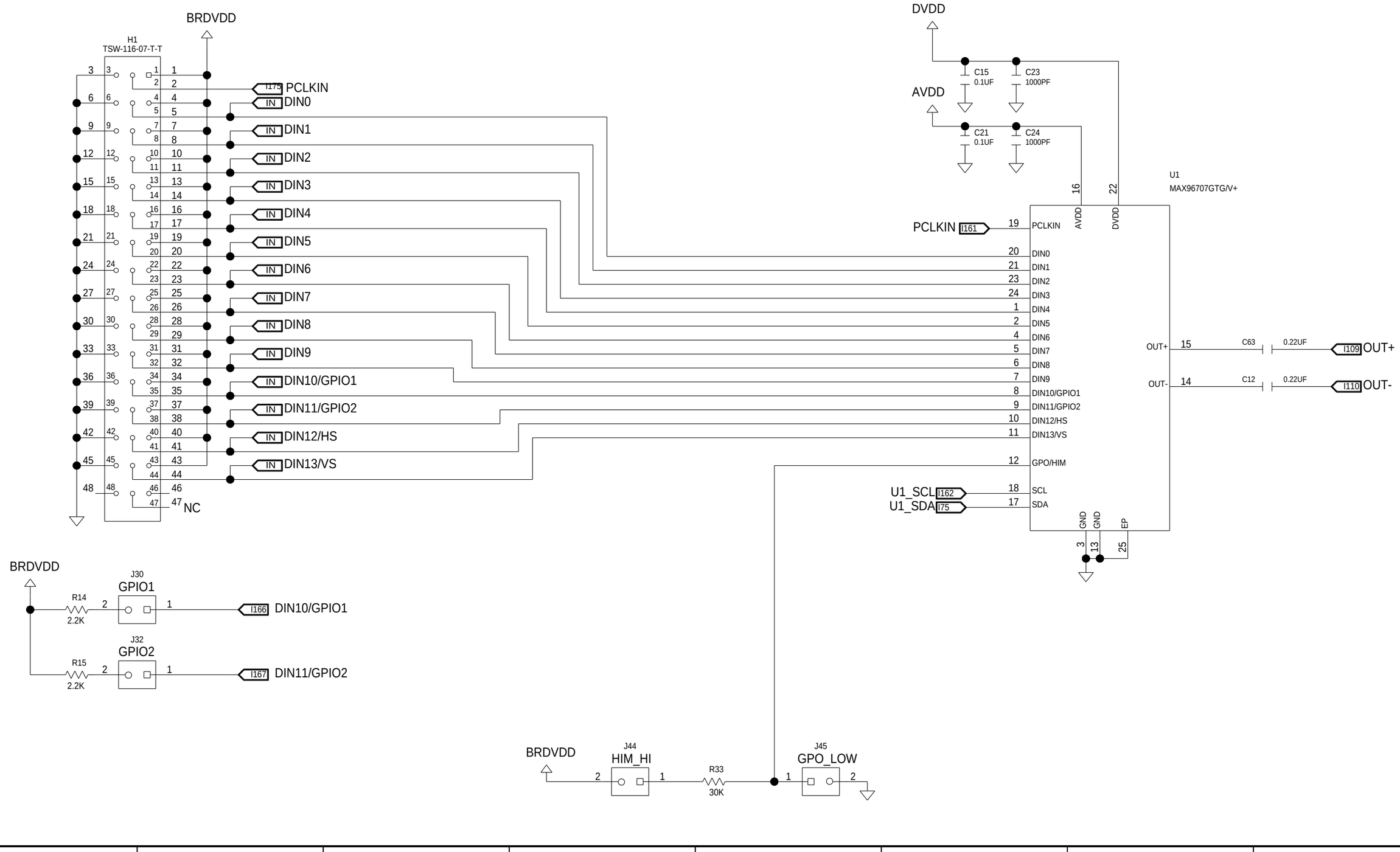
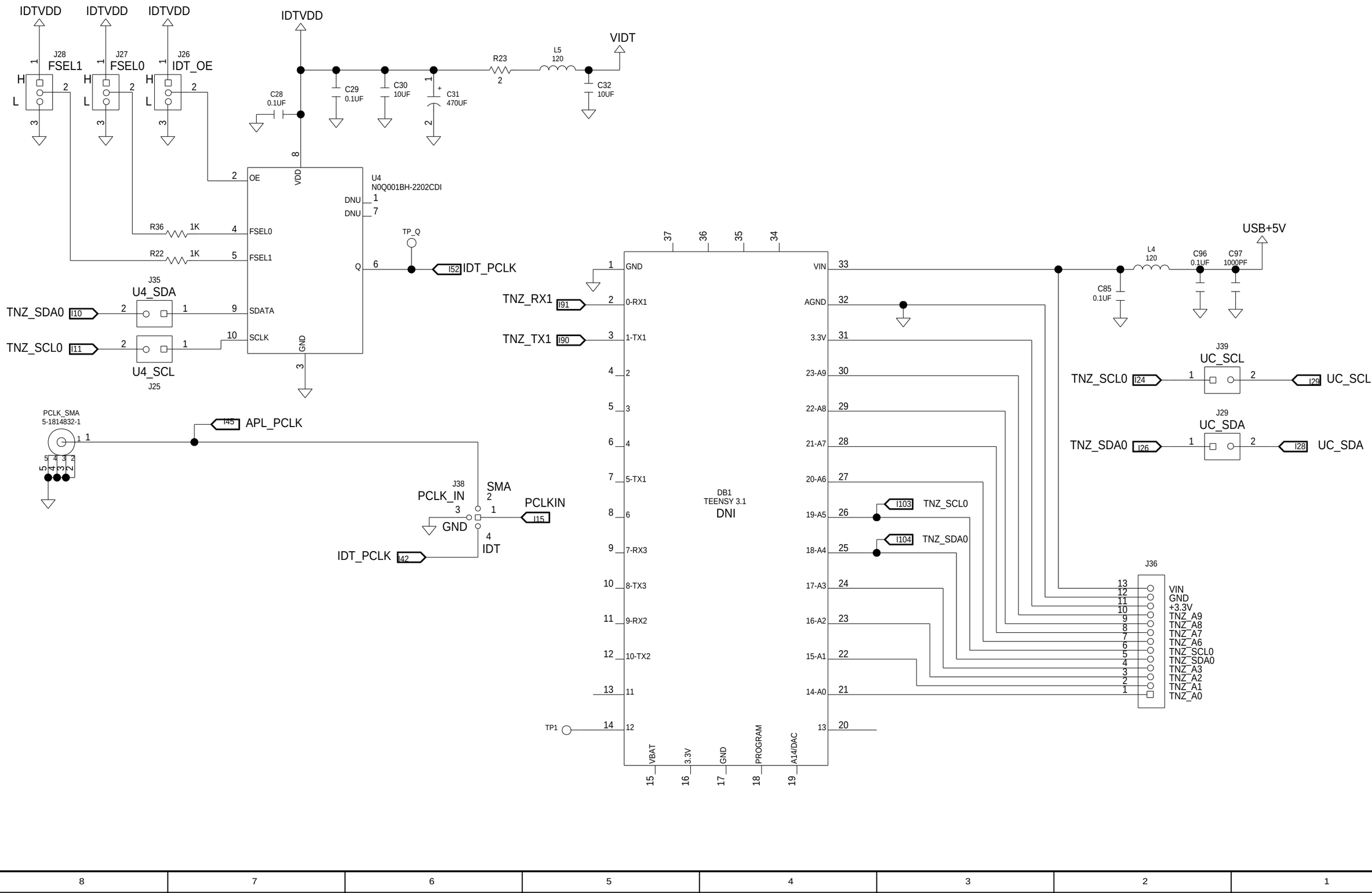
TITLE: Bill of Materials
MAX96707_709; Rev 0; 4/16

ITEM	REF_DES	DNI/DNP	QTY	MFG PART #		MANUFACTURER	VALUE	DESCRIPTION	COMMENTS
1	C1	-	1	C1608X8R1H152K080		TDK	1500PF	CAPACITOR; SMT (0603); CERAMIC CHIP; 1500PF; 50V; TOL=10%; MODEL=C SERIES; HIGH TEMPERATURE; TG=-55 DEGC TO +150 DEGC; TC=X8R	
2	C2	-	1	C1210C106M4RAC; C3225X7R1C106M200AB		KEMET/TDK	10UF	CAPACITOR; SMT (1210); CERAMIC CHIP; 10UF; 16V; TOL=20%; MODEL=; TG=-55 DEGC TO +125 DEGC; TC=X7R	
3	C3, C8, C18, C30, C32, C115, C127	-	7	C1608JB1C106M080AB		TDK	10UF	CAPACITOR; SMT (0603); CERAMIC CHIP; 10UF; 16V; TOL=20%; TG=-25 DEGC TO +85 DEGC; TC=JB	
4	C4, C6, C7, C9, C16, C17, C116, C117	-	8	C1608X7R1E104K080AA		TDK	0.1UF	CAPACITOR; SMT (0603); CERAMIC CHIP; 0.1UF; 25V; TOL=10%; MODEL=C SERIES; TG=-55 DEGC TO +125 DEGC; TC=X7R	
5	C5, C34, C64, C114	-	4	CL32A107MPVNNN		SAMSUNG ELECTRONICS	100UF	CAPACITOR; SMT (1210); CERAMIC CHIP; 100UF; 10V; TOL=20%; MODEL=CL SERIES; TG=-55 DEGC TO +85 DEGC; TC=X5R	
6	C10, C13, C130	-	3	C3216X5R1A106M160		TDK	10UF	CAPACITOR; SMT (1206); CERAMIC CHIP; 10UF; 10V; TOL=20%; MODEL=C SERIES; TG=-55 DEGC TO +85 DEGC; TC=X5R	
7	C11, C14, C19, C20, C53, C54, C57, C58	-	8	C1608X5R0J475M080AB; GRM188R60J475ME19; JMK107BJ475MA-T		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	
8	C12, C33, C62, C63	-	4	C1608X7R1H224K080		TDK	0.22UF	CAPACITOR; SMT (0603); CERAMIC CHIP; 0.22UF; 50V; TOL=10%; MODEL=C SERIES; TG=-55 DEGC TO +125 DEGC; TC=X7R	
9	C15, C21, C28, C35, C61	-	5	C0402X7R160-104KNE; CL05B104KO5NNNC; GRM155R71C104KA88; C1005X7R1C104K; CC0402KRX7R7BB104; EMK105B7104KV		VENKEL LTD./SAMSUNG ELECTRONICS/MURATA/TDK/YAGEO PHICOMP/TAIYO YUDEN	0.1UF	CAPACITOR; SMT (0402); CERAMIC CHIP; 0.1UF; 16V; TOL=10%; TG=-55 DEGC TO +125 DEGC; TC=X7R;	
10	C23, C24, C36, C60, C97	-	5	C1005X7R1H102K050BA		TDK	1000PF	CAPACITOR; SMT (0402); CERAMIC CHIP; 1000PF; 50V; TOL=10%; MODEL=C SERIES; TG=-55 DEGC TO +125 DEGC; TC=X7R	
11	C29, C85, C96, C99, C100	-	5	GRM155R61C104KA88		MURATA	0.1UF	CAPACITOR; SMT (0402); CERAMIC; 0.1UF; 16V; TOL=10%; MODEL=GRM SERIES; TG=-55 DEGC to +85 DEGC; TC=X5R	
12	C31	-	1	PCR1C471MCL6		NICHICON	470UF	CAPACITOR; SMT (CASE_F); ALUMINUM-ELECTROLYTIC; 470UF; 16V; TOL=20%; MODEL=CR SERIES; TG=-55 DEGC TO +105 DEGC	
13	C118	-	1	16TQC100MYF		PANASONIC	100UF	CAPACITOR; SMT (7343); TANTALUM CHIP; 100UF; 16V; TOL=20%; MODEL=TQC SERIES	
14	C129	-	1	C1005X7R1H222K050BA		TDK	2200PF	CAPACITOR; SMT (0402); CERAMIC CHIP; 2200PF; 50V; TOL=10%; MODEL=C SERIES; TG=-55 DEGC TO +125 DEGC; TC=X7R	
15	D4, D5	-	2	B360B-13-F		DIODES INCORPORATED	B360B-13-F	DIODE; SCH; SCHOTTKY BARRIER DIODE; SMB; PIV=60V; Io=3A; -55 DEGC TO +125 DEGC	
16	D8	-	1	SML-210VTT86		ROHM	SML-210VTT86	DIODE; LED; SML-21 SERIES; RED; SMT (0805); PIV=2V; IF=0.02A	
17	DB1	-	1	TEENSY 3.1		PJRC	TEENSY 3.1	EVKIT PART; MODULE; CTRL; TEENSY USB DEVELOPMENT BOARD; TH-37; CUSTOM PART ONLY	
18	L4, L5, FB1, FB3, FB5, FB6, FB8	-	7	BLM18SG121TN1		MURATA	120	INDUCTOR; SMT (0603); FERRITE-BEAD; 120; TOL=+/-25%; 3A	
19	TP1, GND1-GND3	-	4		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;	
20	H1	-	1	TSW-116-07-T-T		SAMTEC	TSW-116-07-T-T	CONNECTOR; MALE; THROUGH HOLE; 0.025IN SQ POST HEADER; STRAIGHT; 48PINS	
21	H2	-	1	PBC14SAAN		SULLINS ELECTRONICS CORP.	PBC14SAAN	CONNECTOR; MALE; THROUGH HOLE; BREAKAWAY; STRAIGHT; 14PINS; -65 DEGC TO +125 DEGC	
22	H3, J7, J26-J28, J53 H4, J11, J13, J21, J22, J25, J29, J30, J32, J35, J39, J44, J45, J54,	-	6	PCC03SAAN		SULLINS	PCC03SAAN	CONNECTOR; MALE; THROUGH HOLE; BREAKAWAY; STRAIGHT THROUGH; 3PINS; -65 DEGC TO +125 DEGC	
23	J55	-	15	PCC02SAAN		SULLINS	PCC02SAAN	CONNECTOR; MALE; THROUGH HOLE; BREAKAWAY; STRAIGHT THROUGH; 2PINS; -65 DEGC TO +125 DEGC	
24	J1	-	1	PJ-202BH		CUI INC.	PJ-202BH	CONNECTOR; MALE; THROUGH HOLE; PJ-202BH; DC POWER JACK; RIGHT ANGLE; RIGHT ANGLE; 3PINS	
25	J2, J3, J18-J20, J34	-	6	9020 BUSS		WEICO WIRE	MAXIMPAD	EVK KIT PARTS; MAXIM PAD; WIRE; NATURAL; SOLID; WEICO WIRE; SOFT DRAWN BUS TYPE-S; 20AWG	
26	J4, J5	-	2	59S2AX-400A5-Z		ROSENBERGER	59S2AX-400A5-Z	CONNECTOR; MALE; THROUGH HOLE; RIGHT ANGLE PLUG FOR PCB; RIGHT ANGLE; 5PINS	
27	J6	-	1	PEC04SAAN		SULLINS ELECTRONICS CORP.	PEC04SAAN	CONNECTOR; MALE; THROUGH HOLE; BREAKAWAY; STRAIGHT; 4PINS	
28	J8, JU3, JU4	-	3	PEC03SAAN		SULLINS	PEC03SAAN	CONNECTOR; MALE; THROUGH HOLE; BREAKAWAY; STRAIGHT; 3PINS	
29	J36	-	1	PBC13SAAN		SULLINS ELECTRONICS CORP.	PBC13SAAN	CONNECTOR; MALE; THROUGH HOLE; BREAKAWAY; STRAIGHT; 13PINS; -65 DEGC TO +125 DEGC	
30	J38, J51, J52	-	3	PEC04SAAN		SULLINS ELECTRONICS CORP.	PEC04SAAN	CONNECTOR; MALE; THROUGH HOLE; BREAKAWAY; STRAIGHT; 4PINS	
31	JU1	-	1	PBC05SAAN		SULLINS ELECTRONICS CORP.	PBC05SAAN	CONNECTOR; MALE; THROUGH HOLE; BREAKAWAY; STRAIGHT; 5PINS; -65 DEGC TO +125 DEGC	
32	L1, L8	-	2	LQW18CNR33J00		MURATA	330NH	INDUCTOR; SMT (0603); FERRITE CORE; 330NH; TOL=+/-5%; 0.63A	
33	L2, L7	-	2	LBC3225T6R8MR		TAIYO YUDEN	6.8UH	INDUCTOR; SMT (1210); WIREWOUND CHIP; 6.8UH; TOL=20%; 0.62A	
34	L3, L6	-	2	LQH6PPN101M43L		MURATA	100UH	INDUCTOR; SMT (2424); WIREWOUND CHIP; 100UH; TOL=20%; 0.92A	
35	L25	-	1		7443330150	WURTH ELECTRONICS INC.	1.5UH	INDUCTOR; SMT; FERRITE-BEAD; 1.5UH; TOL=+/-20%; 27A	
36	MISC2	-	1	MAXEVCNTR-NUV#		MAXIM	MAXEVCNTR-NUV#	EVKIT PART-NUVOTON MICRO CONTROLLER	
37	N1, N2	-	2	FDS8449		FAIRCHILD SEMICONDUCTOR	FDS8449	TRAN; N-CHANNEL POWER TRENCH MOSFET; NCH; NSOIC8 ; PD-(2.5W); I-(7.6A); V-(40V)	
38	PCLK_SMA	-	1	5-1814832-1		TYCO	5-1814832-1	CONNECTOR; FEMALE; THROUGH HOLE; CONN SOCKET SMA STR DIE CAST PCB; STRAIGHT; 5PINS	
39	R1	-	1	ERJ-8BWJR015V		PANASONIC	0.015	RESISTOR; 1206; 0.015 OHM; 5%; 200PPM; 1W; THICK FILM	
40	R2	-	1	CRCW040214K3FK		VISHAY DALE	14.3K	RESISTOR, 0402, 14.3K OHM, 1%, 100PPM, 0.0625W, THICK FILM	
41	R3, R5	-	2	CRCW060324K9FK		VISHAY DALE	24.9K	RESISTOR; 0603; 24.9K OHM; 1%; 100PPM; 0.10W; THICK FILM	
42	R4	-	1	CRCW060341K2FK		VISHAY DALE	41.2K	RESISTOR; 0603; 41.2K OHM; 1%; 100PPM; 0.10W; METAL FILM	
43	R6	-	1	CR0603-FX-1102ELF		BOURNS	11K	RESISTOR; 0603; 11K OHM; 1%; 100PPM; 0.10W; THICK FILM	
44	R7, R9, R11, R13-R15	-	6	CRCW06032K20FK		VISHAY DALE	2.2K	RESISTOR, 0603, 2.2K OHM, 1%, 100PPM, 0.10W, THICK FILM	
45	R12, R27	-	2	CRCW04020000ZS		VISHAY DALE	0	RESISTOR; 0402; 0 OHM; 1%; 100PPM; 0.0625W; THICK FILM	
46	R22, R36	-	2	CRCW06031001FK; ERJ-3EKF1001V		VISHAY DALE; PANASONIC	1K	RESISTOR; 0603; 1K; 1%; 100PPM; 0.10W; THICK FILM	
47	R23	-	1	CRCW06032R00FN		VISHAY DALE	2	RESISTOR, 0603, 2 OHM, 1%, 100PPM, 0.10W, THICK FILM	
48	R24, R25, R30, R31	-	4	CRCW06032K0FK; ERJ-3EKF2001V		VISHAY DALE/PANASONIC	2K	RESISTOR, 0603, 2K OHM, 1%, 100PPM, 0.10W, THICK FILM	
49	R26, R32	-	2	ERJ-1GEF2001C		PANASONIC	2K	RESISTOR; 0201; 2K OHM; 1%; 200PPM; 0.05W; THICK FILM	
50	R33	-	1	CRCW060330K0FK		VISHAY DALE	30K	RESISTOR; 0603; 30K OHM; 1%; 100PPM; 0.10W; THICK FILM	
51	R74	-	1	RC0402FR-0730KL		YAGEO PHICOMP	30K	RESISTOR; 0402; 30K OHM; 1%; 100PPM; 0.063W; THICK FILM	
52	R75, R76	-	2	RC1608J000CS; CR0603-J/-000ELF;RC0603JR-070RL		SAMSUNG ELECTRONICS/BOURNS/YAGEO PH	0	RESISTOR; 0603; 0 OHM; 5%; JUMPER; 0.10W; THICK FILM	
53	R100	-	1	CR0603-FX-1001ELF		BOURNS	1K	RESISTOR; 0603; 1K OHM; 1%; 100PPM; 0.10W; THICK FILM	
54	SU1-SU25	-	25	STC02SYAN		SULLINS ELECTRONICS CORP.	STC02SYAN	TEST POINT; JUMPER; STR; TOTAL LENGTH=0.256IN; BLACK; INSULATION=PBT CONTACT=PHOSPHOR BRONZE; COPPER PLATED TIN OVERALL	
55	TP_Q	-	1		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;	
56	U1	-*	1	MAX96707GTG+		MAXIM	MAX96707GTG+	EVKIT PART-IC; HS81 PRELIMINARY; PACKAGE OUTLINE 24 TQFN; 0.50MM PITCH; 21-0139/T2444-4	
57	U2,U3	-	2	MAX1792EUA33		MAXIM	MAX1792EUA33	IC; VREG; LOW-DROPOUT LINEAR REGULATOR; UMAX8	
58	U4	-	1	N0Q001BH-2202CDI		N/A	N0Q001BH-2202CDI	EVKIT PART; IC; N0Q001BH-2202CDI; CD10 PACKAGE OUTLINE 7X5 BODY; 2.54MM PITCH; CUSTOM PART ONLY	CUSTOM PART# N0Q001BH-2202CDI
59	U15	-	1	MAX3378EEUD+		MAXIM	MAX3378EEUD+	IC; TRANS; +/-15KV ESD-PROTECTED, 1UA, 16MBPS, QUAD LOW-VOLTAGE LEVEL TRANSLATOR; TSSOP14	
60	U23	-	1	MAX16952AUE/V+		MAXIM	MAX16952AUE/V+	IC; CTRL; STEP-DOWN CONTROLLER WITH LOW OPERATING CURRENT; TSSOP16-EP	
61	MISC1	DNI	1	AK67421-1-R		ASSMANN	AK67421-1-R	CONNECTOR; MALE; USB; USB2.0 MICRO CONNECTION CABLE; USB B MICRO MALE TO USB A MALE; STRAIGHT; 5PINS-4PINS	
62	C37, C59, C128	DNP	3	N/A		N/A	OPEN	PACKAGE OUTLINE 0603 NON-POLAR CAPACITOR	
TOTAL			185						

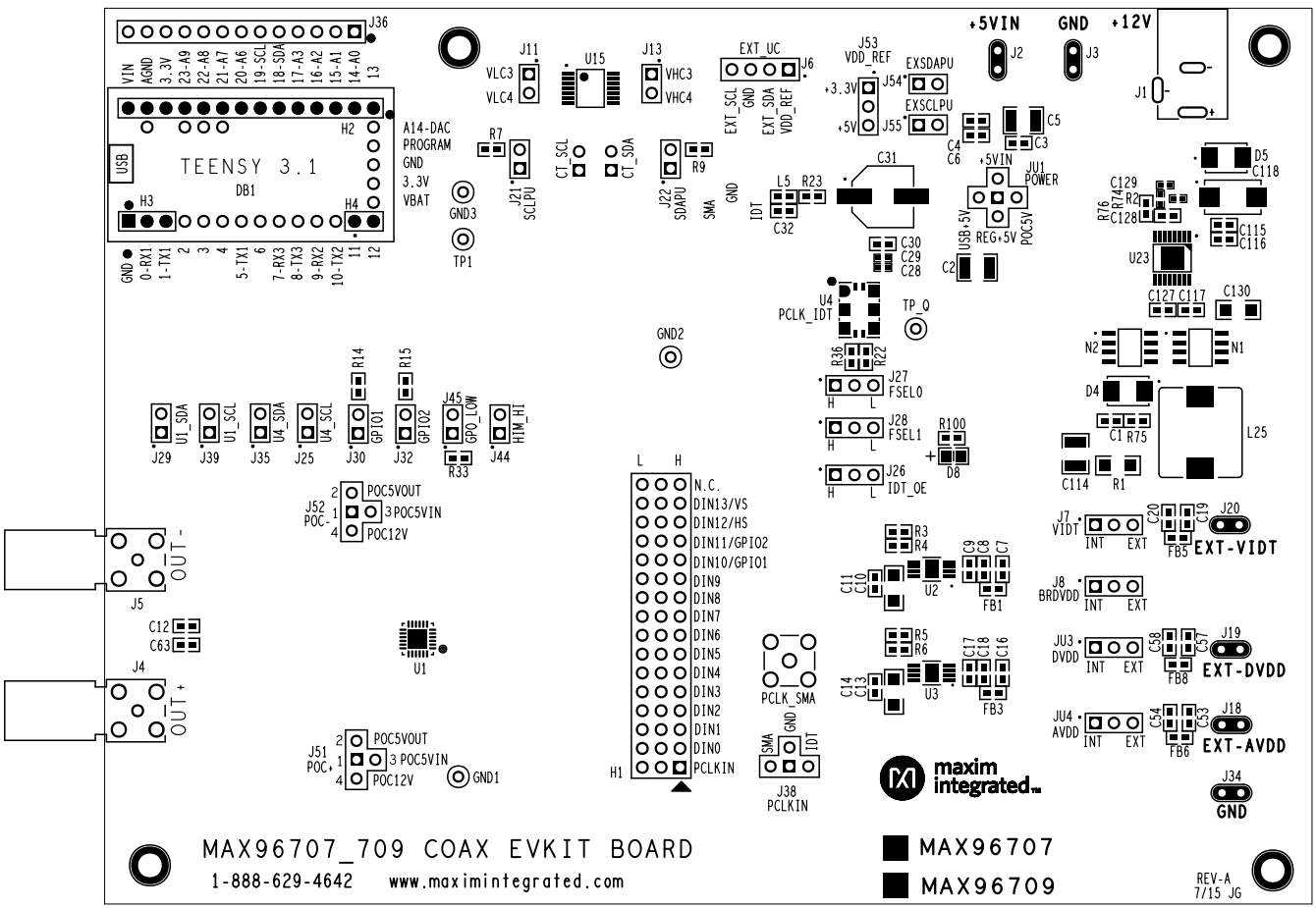
J1
PJ-202BH
D5
B360B-13-F
C118
100UF
C116
0.1UF
+12V
C115
10UF
C130
10UF
N1
FDS8449
C127
10UF
SUP
BIAS
DL
DH
PGOOD
COMP
OUT
EN
FB
FSYNC
FOSC
BST
LX
CS
R76
0
R2
14.3K
C117
0.1UF
R74
30K
C129
2200PF
C128
OPEN
U23
MAX16952AUE/V+
EP
PGND
SGND
D4
B360B-13-F
N2
FDS8449
C1
1500PF
R75
0
L25
1.5UH
R1
0.015
C2
10UF
C114
100UF
+5V0
POC5V
REG+5V
JU1
USB+5V
+5VIN
C3
10UF
C4
0.1UF
C5
100UF
C6
0.1UF
J2
+5VIN
J3
GND
R100
1K
D8
SML-210VTT86
LED_PWR
FB1
120
C7
0.1UF
C8
10UF
C9
0.1UF
U2
MAX1792EUA33
IN
SHDN
SET
OUT
RST
GND
EP
+3V3
C10
10UF
C11
4.7UF
R4
41.2K
R3
24.9K
VIDT
J7
EXT
INT
FB5
120
C20
4.7UF
C19
4.7UF
J20
EXT-VIDT
J34
GND
BRDVDD
J8
FB3
120
C16
0.1UF
C18
10UF
C17
0.1UF
U3
MAX1792EUA33
C13
10UF
C14
4.7UF
R6
11K
R5
24.9K
DVDD
JU3
FB8
120
C58
4.7UF
C57
4.7UF
J19
EXT-DVDD
AVDD
JU4
FB6
120
C54
4.7UF
C53
4.7UF
J18
EXT-AVDD
GND1
GND2
GND3


+3V3
J53
VDD_REF
+5V0
3.3V
5V
BRDVDD
R7
2.2K
R9
2.2K
J21
SCLPU
J22
SDAPU
C99
0.1UF
C100
0.1UF
U15
MAX3378EEUD+
VL
VCC
3-STATE
VDD_REF
J54
EXSDAPU
J55
EXSCLPU
R11
2.2K
R13
2.2K
J6
VDD_REF
EXT_SDA
GND
EXT_SCL
U1_SDA
OUT
U1_SCL
I69
CT_SDA
CT_SCL
I/O VL1
I/O VL2
I/O VL3
I/O VL4
I/O VCC1
I/O VCC2
I/O VCC3
I/O VCC4
GND
NC
NC
VLC3
J11
VLC4
VHC3
J13
VHC4
IN
UC_SDA
IN
UC_SCL
+5V0
POC5VOUT
POC5V
POC5VIN
J51
POC+
+12V
POC12V
C62
0.22UF
C64
100UF
C61
0.1UF
C60
1000PF
C59
OPEN
R30
2K
R31
2K
R32
2K
R12
0
L3
100UH
L2
6.8UH
L1
330NH
IN
OUT+
J4
59S2AX-400A5-Z
+5V0
POC5VOUT
POC5V
POC5VIN
J52
POC-
+12V
POC12V
C33
0.22UF
C34
100UF
C35
0.1UF
C36
1000PF
C37
OPEN
R24
2K
R25
2K
R26
2K
R27
0
L6
100UH
L7
6.8UH
L8
330NH
IN
OUT-
J5
59S2AX-400A5-Z


BRDVDD
H1
TSW-116-07-T-T
PCLKIN
DIN0
DIN1
DIN2
DIN3
DIN4
DIN5
DIN6
DIN7
DIN8
DIN9
DIN10/GPIO1
DIN11/GPIO2
DIN12/HS
DIN13/VS
NC
DVDD
AVDD
C15 0.1UF
C23 1000PF
C21 0.1UF
C24 1000PF
U1
MAX96707GTG/V+
PCLKIN
DIN0
DIN1
DIN2
DIN3
DIN4
DIN5
DIN6
DIN7
DIN8
DIN9
DIN10/GPIO1
DIN11/GPIO2
DIN12/HS
DIN13/VS
GPO/HIM
SCL
SDA
AVDD
DVDD
GND
GND
EP
OUT+
OUT-
C63 0.22UF
C12 0.22UF
U1_SCL
U1_SDA
BRDVDD
J30
GPIO1
R14 2.2K
J32
GPIO2
R15 2.2K
BRDVDD
J44
HIM_HI
R33 30K
J45
GPO_LOW


IDTVDD
IDTVDD
IDTVDD
IDTVDD
VIDT
J28
FSEL1
J27
FSEL0
J26
IDT_OE
H
L
C28
0.1UF
C29
0.1UF
C30
10UF
C31
470UF
R23
2
L5
120
C32
10UF
U4
N0Q001BH-2202CDI
OE
VDD
DNU
DNU
FSEL0
FSEL1
Q
GND
TP_Q
I52
IDT_PCLK
R36
1K
R22
1K
J35
U4_SDA
TNZ_SDA0
I10
SDATA
TNZ_SCL0
I11
SCLK
U4_SCL
J25
PCLK_SMA
5-1814832-1
I45
APL_PCLK
J38
PCLK_IN
SMA
PCLKIN
I15
GND
IDT
IDT_PCLK
I42
DB1
TEENSY 3.1
DNI
GND
0-RX1
1-TX1
5-TX1
7-RX3
8-TX3
9-RX2
10-TX2
VBAT
3.3V
GND
PROGRAM
A14/DAC
TP1
TNZ_RX1
I91
TNZ_TX1
I90
VIN
AGND
3.3V
23-A9
22-A8
21-A7
20-A6
19-A5
18-A4
17-A3
16-A2
15-A1
14-A0
I103
TNZ_SCL0
I104
TNZ_SDA0
USB+5V
L4
120
C85
0.1UF
C96
0.1UF
C97
1000PF
J39
UC_SCL
TNZ_SCL0
I24
I29
UC_SCL
J29
UC_SDA
TNZ_SDA0
I26
I28
UC_SDA
J36
VIN
GND
+3.3V
TNZ_A9
TNZ_A8
TNZ_A7
TNZ_A6
TNZ_SCL0
TNZ_SDA0
TNZ_A3
TNZ_A2
TNZ_A1
TNZ_A0

SILK_TOP


+5VIN
GND
+12V
J1
J2
J3
J36
VIN
AGND
3.3V
23-A9
22-A8
21-A7
20-A6
19-SCL
18-SDA
17-A3
16-A2
15-A1
14-A0
13
H2
TEENSY 3.1
DB1
USB
H3
H4
GND
0-RX1
1-TX1
2
3
4
5-TX1
6
7-RX3
8-TX3
9-RX2
10-TX2
11
12
A14-DAC
PROGRAM
GND
3.3V
VBAT
GND3
TP1
J11
VLC3
VLC4
U15
J13
VHC3
VHC4
EXT_UC
J6
EXT_SCL
GND
EXT_SDA
VDD_REF
J53
VDD_REF
EXSDAPU
J54
+3.3V
EXSCLPU
J55
+5V
C4
C6
C5
C3
R7
J21
SCLPU
CT_SCL
CT_SDA
J22
SDAPU
R9
SMA
GND
IDT
L5
R23
C32
C31
C30
C29
C28
C2
+5VIN
JU1
POWER
USB+5V
REG+5V
POC5V
D5
C118
C129
R74
R2
C128
R76
C115
C116
U23
C127
C117
C130
U4
PCLK_IDT
TP_O
GND2
N2
N1
D4
C1
R75
C114
R1
L25
R36
R22
J27
FSEL0
J28
FSEL1
R100
D8
J26
IDT_OE
R14
R15
J45
J29
U1_SDA
J39
U1_SCL
J35
U4_SDA
J25
U4_SCL
J30
GPIO1
J32
GPIO2
GPO_LOW
R33
HIM_HI
J44
J52
POC-
POC5VOUT
POC5VIN
POC12V
L
H
N.C.
DIN13/VS
DIN12/HS
DIN11/GPIO2
DIN10/GPIO1
DIN9
DIN8
DIN7
DIN6
DIN5
DIN4
DIN3
DIN2
DIN1
DIN0
PCLKIN
H1
J5
OUT-
J4
OUT+
C12
C63
U1
J51
POC+
POC5VOUT
POC5VIN
POC12V
GND1
PCLK_SMA
SMA
GND
IDT
J38
PCLKIN
R3
R4
C9
C8
C7
C11
C10
U2
FB1
J7
VIDT
INT
EXT
C20
C19
J20
FB5
EXT-VIDT
J8
BRDVDD
INT
EXT
R5
R6
C17
C18
C16
C14
C13
U3
FB3
JU3
DVDD
INT
EXT
C58
C57
J19
FB8
EXT-DVDD
JU4
AVDD
INT
EXT
C54
C53
J18
FB6
EXT-AVDD
J34
GND
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REV-A
7/15 JG

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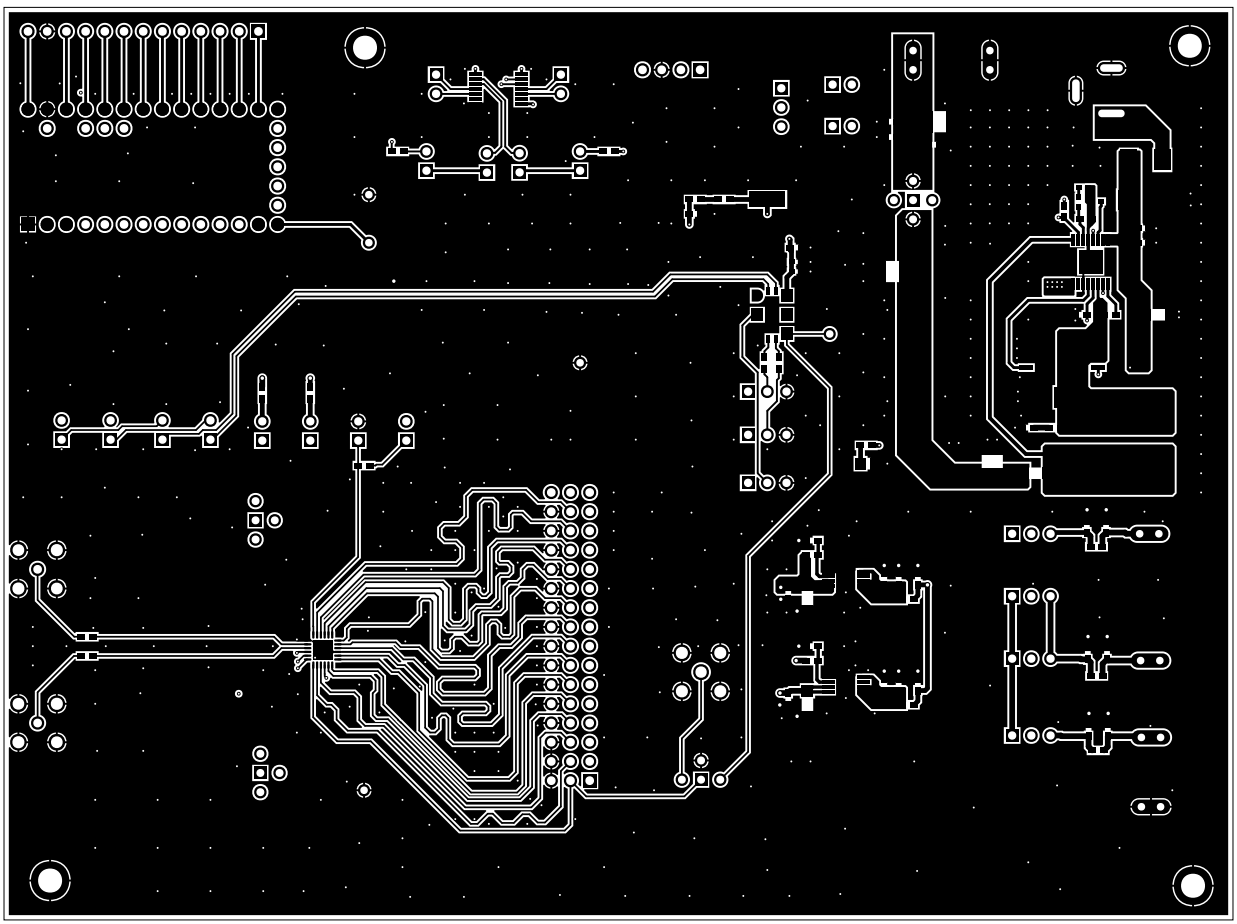
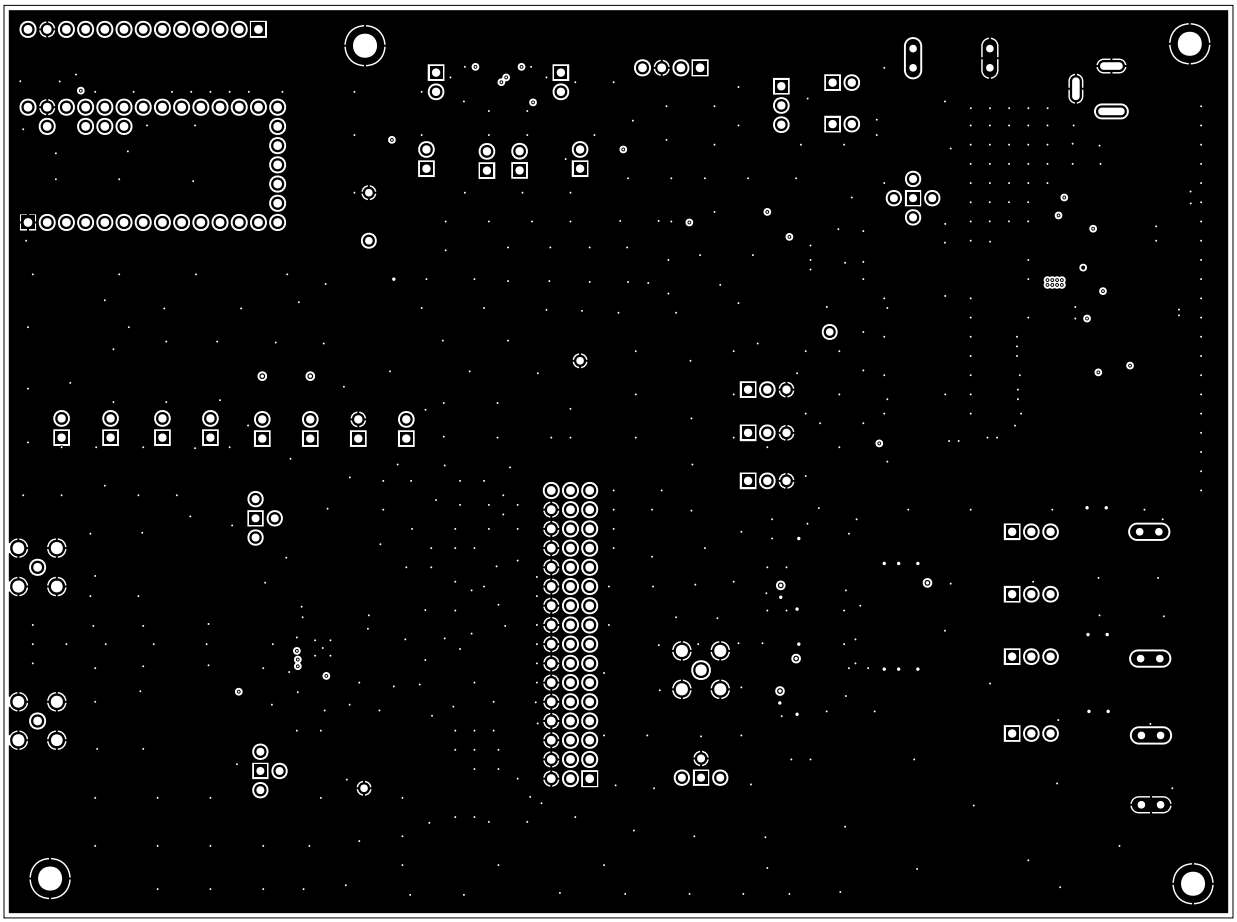
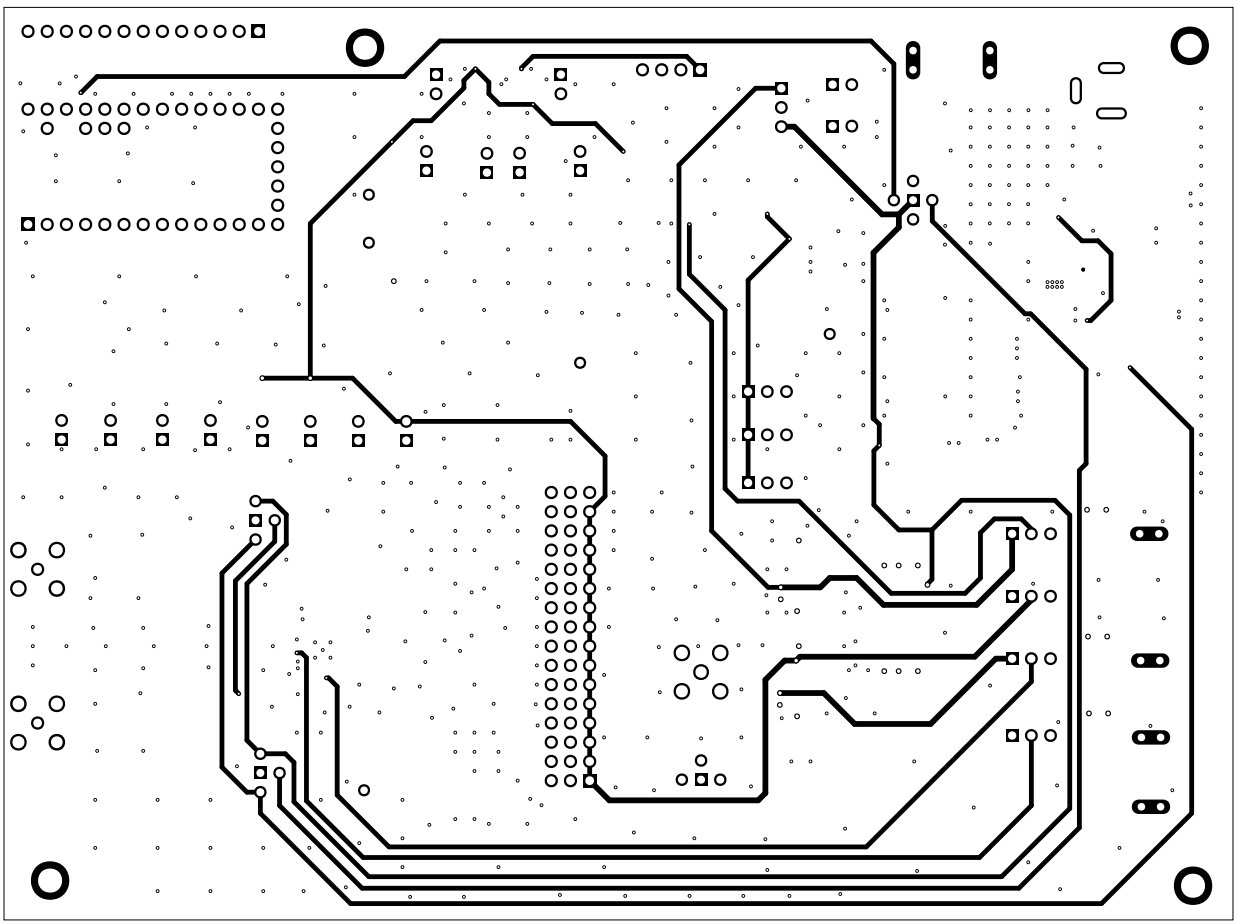


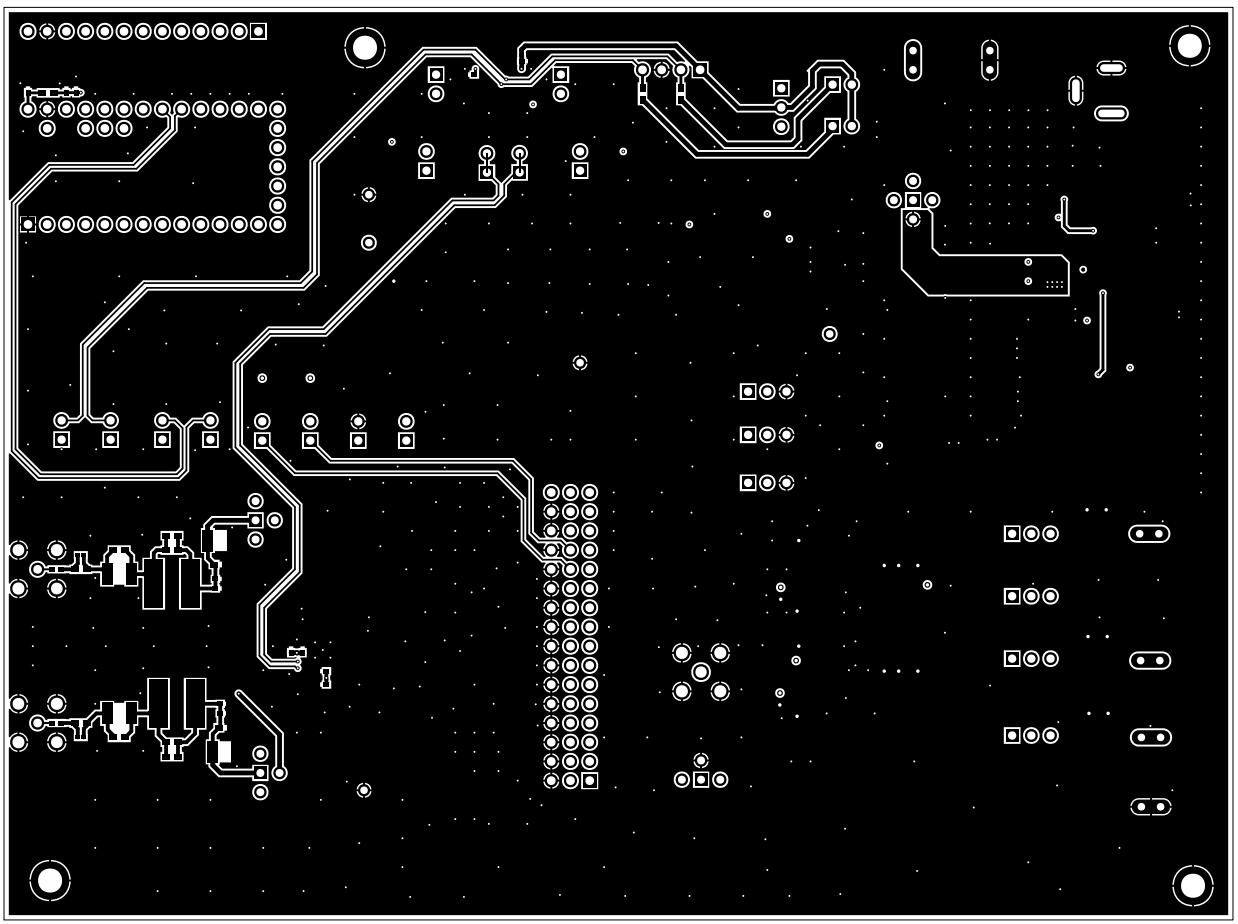
INNER_LAYER2



INNER_LAYER3



BOTTOM



SILK_BOTTOM