

ABSTRACT

This manual describes the operations of the TAS6422EQ1EVM. The TAS6422EQ1EVM is a stand-alone EVM. The PurePath™ Control Console 3 GUI (PPC3) is used to initialize and operate the EVM. The main topics of this document are:

- Hardware implementation and descriptions
- Software implementation and descriptions
- TAS6422E EVM operations (hardware and software)

Required equipment and accessories:

1. TAS6422E EVM
2. USB A male to micro B male cable
3. 1-2 resistive loads or speaker loads
4. 2-4 pair of wires stripped both ends
5. 2-mm slotted screwdriver
6. Optical audio source (optional)
7. Optical SPDIF cable (optional)
8. Desktop or laptop PC with Microsoft® Windows® 7 operating system

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1 Trademarks

PurePath™ are trademarks of Texas Instruments.

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2 Hardware Overview

2.1 TAS6422E Evaluation Module Description

The TAS6422E-Q1 EVM is a stand-alone EVM. It has single power supply input, USB control via PurePath Control Console 3 (PPC3) and two digital (I2S) audio input options. See the EVM block diagram in [Figure 2-1](#).

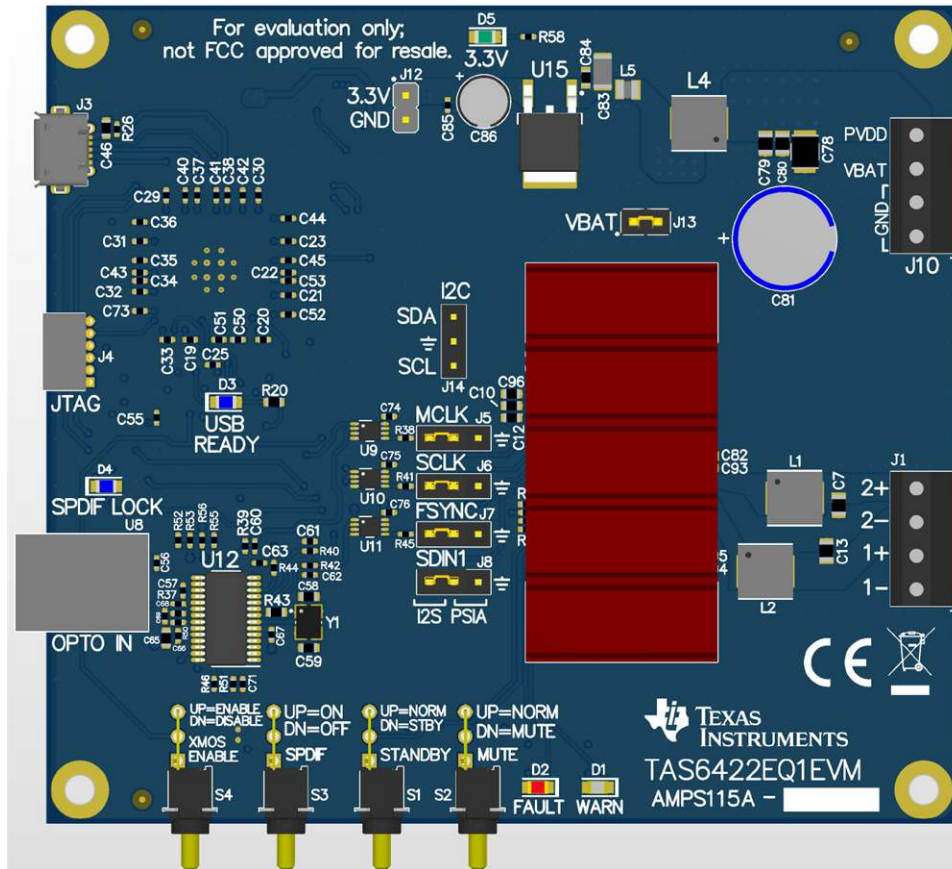


Figure 2-1. TAS6422E-Q1 EVM

The block diagram shows the TAS6422E EVM signal flow.

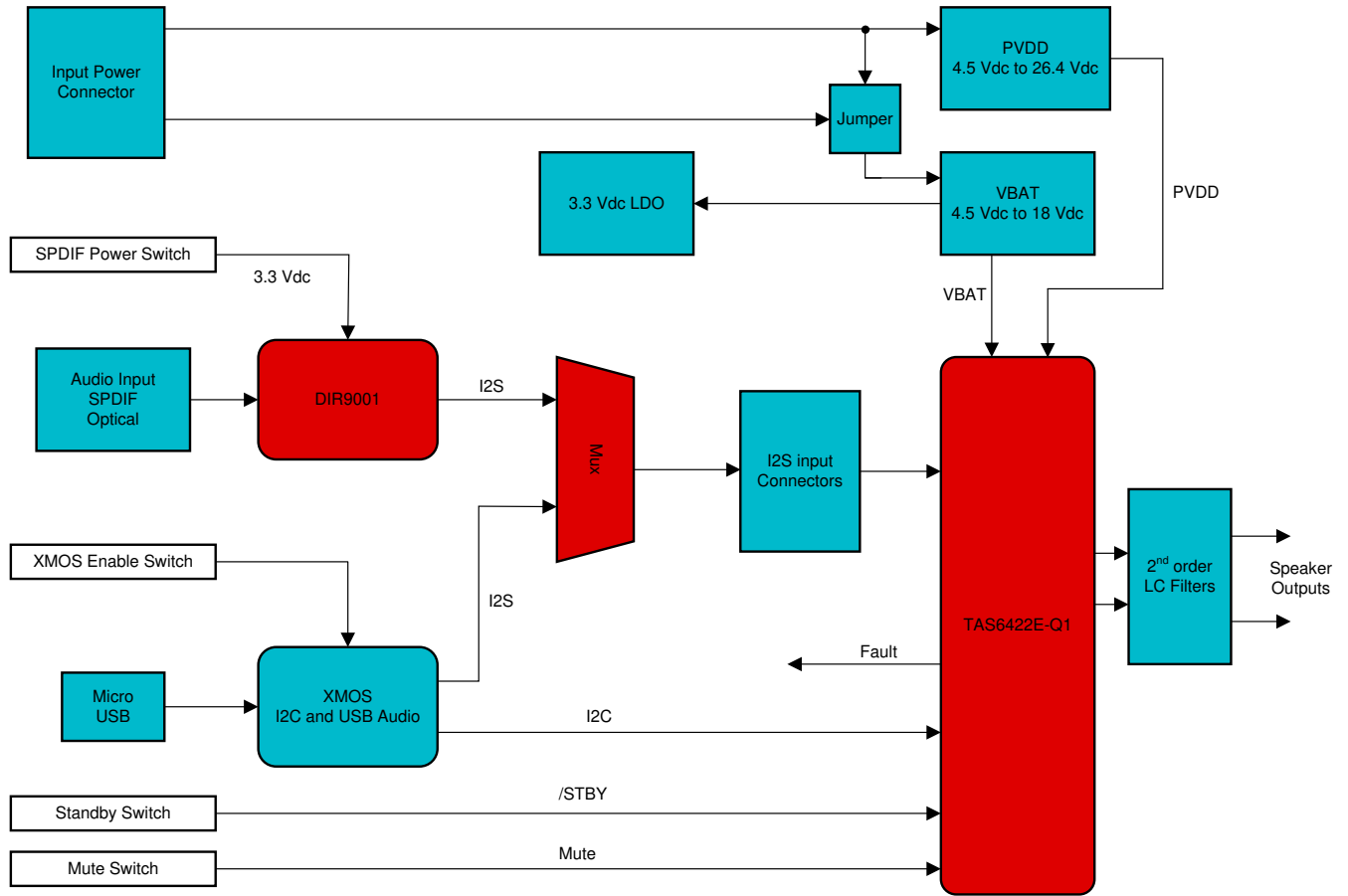


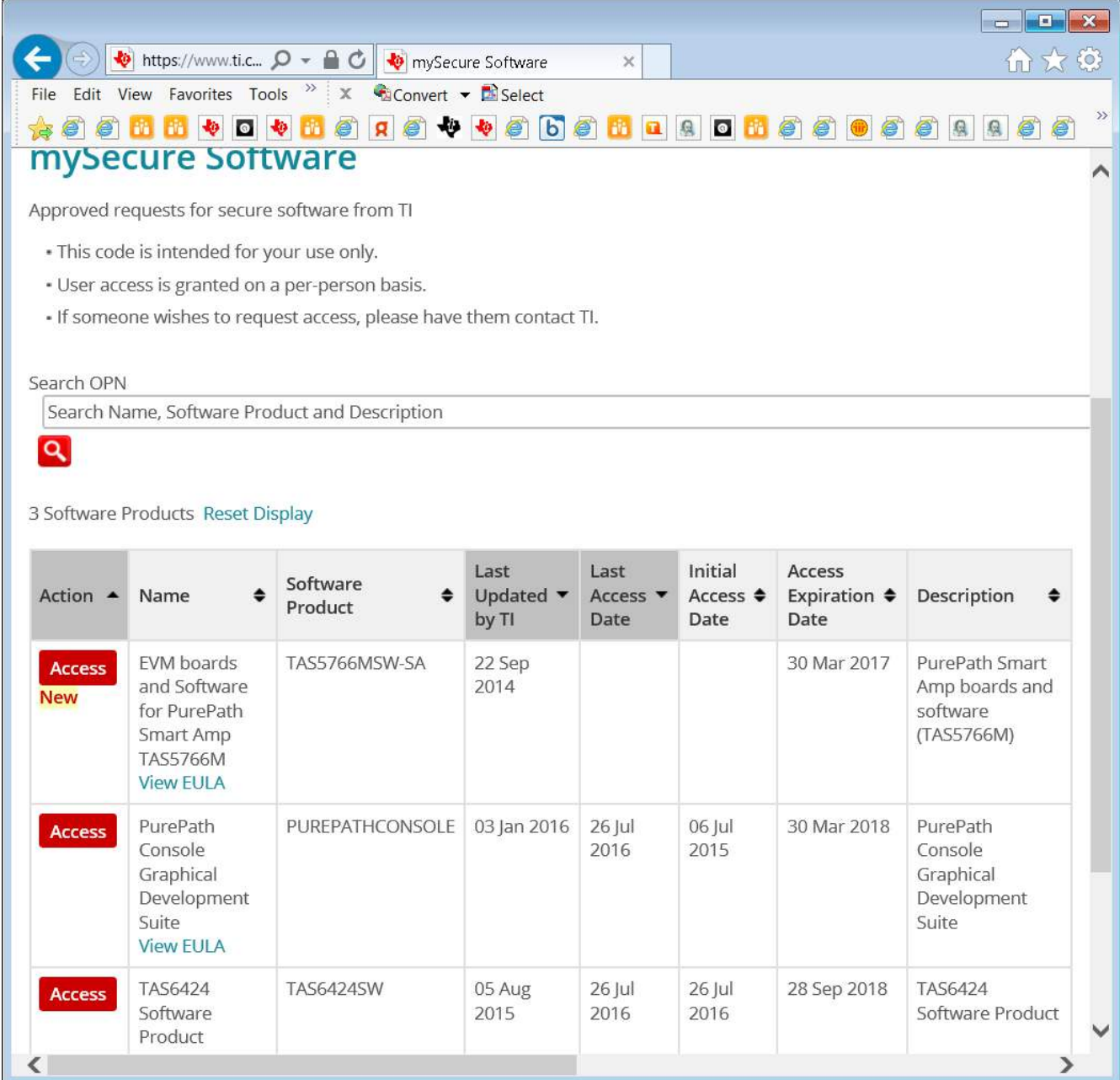
Figure 2-2. EVM Block Diagram

3 Software Overview

3.1 PurePath™ Console 3 (PPC3) Access and Description

The PPC3 is a server-based tool. Access can be requested on <http://www.ti.com/tool/PUREPATHCONSOLE>.

Once approval is given, go to www.ti.com/mysecuresoftware to download the software. After login, the user will see this web page with a similar list of software products available for download.



The screenshot shows a web browser window with the URL <https://www.ti.com/mySecure Software>. The page title is "mySecure Software". Below the title, there is a section titled "Approved requests for secure software from TI" with a bulleted list of terms and conditions. A search bar labeled "Search OPN" is present with the placeholder text "Search Name, Software Product and Description". Below the search bar, there is a section titled "3 Software Products" with a "Reset Display" link. A table lists three software products with columns for Action, Name, Software Product, Last Updated by TI, Last Access Date, Initial Access Date, Access Expiration Date, and Description.

Action	Name	Software Product	Last Updated by TI	Last Access Date	Initial Access Date	Access Expiration Date	Description
Access New	EVM boards and Software for PurePath Smart Amp TAS5766M View EULA	TAS5766MSW-SA	22 Sep 2014			30 Mar 2017	PurePath Smart Amp boards and software (TAS5766M)
Access	PurePath Console Graphical Development Suite View EULA	PUREPATHCONSOLE	03 Jan 2016	26 Jul 2016	06 Jul 2015	30 Mar 2018	PurePath Console Graphical Development Suite
Access	TAS6424 Software Product	TAS6424SW	05 Aug 2015	26 Jul 2016	26 Jul 2016	28 Sep 2018	TAS6424 Software Product

Figure 3-1. PPC3 Download Window

Run the installation program. Also download the PPC3 User Manual ([SLOU408](#)) for further instructions. The following window is displayed when first running PPC3.



Figure 3-2. PPC3 Window

When the window in [Figure 3-2](#) is displayed, click on “sign in” to see TAS6422E EVM application. All of the apps shown below may not be displayed for the user.

Click on TAS6422E App box to download TAS6422E application. Installation window will pop up, then click “Install”.

TAS6422E EVM box will appear in “Installed EVM Apps” section, see [Figure 3-3](#). Click on TAS6422E box to launch TAS6422E App.

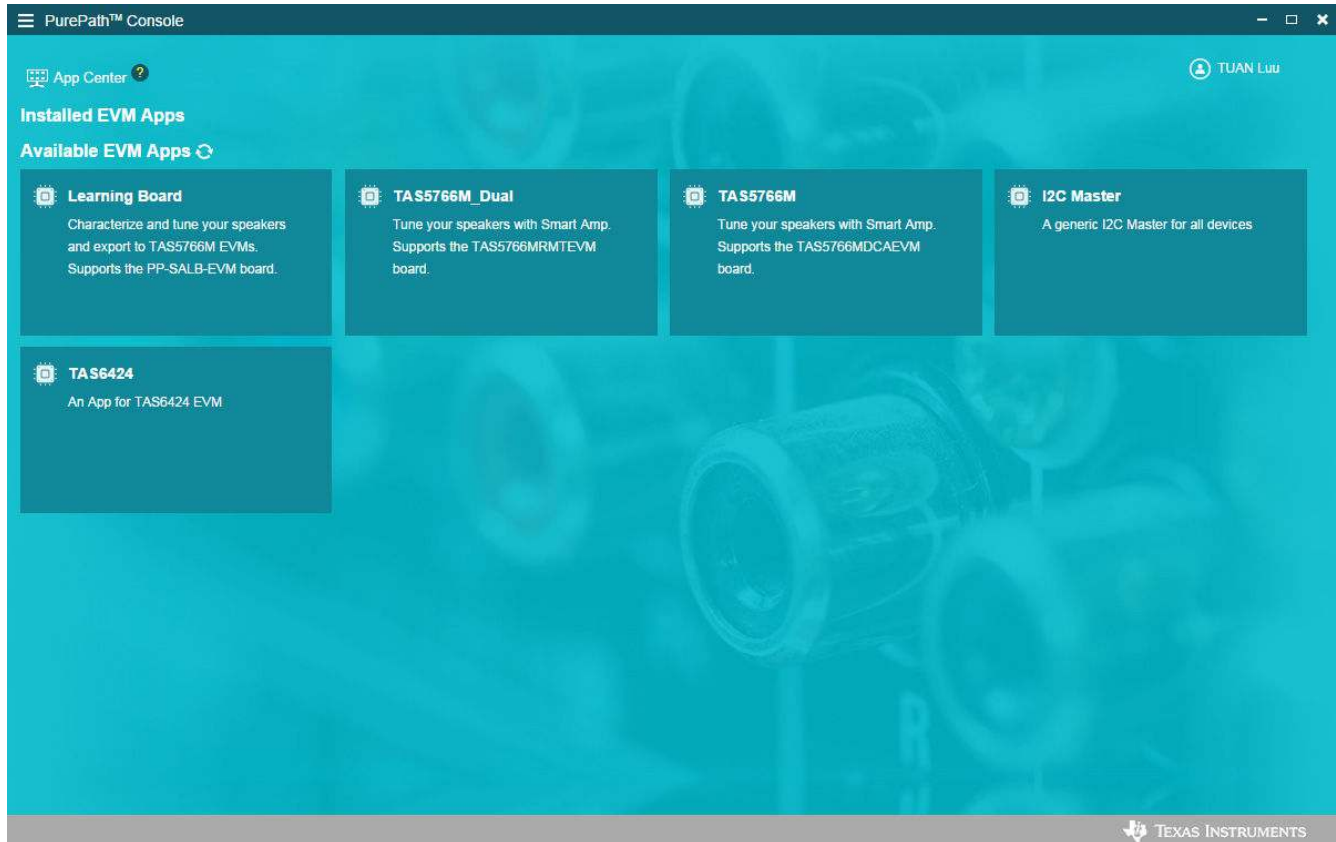


Figure 3-3. Available Apps Window

3.2 PurePath™ Console 3 – TAS6422E EVM Home Window

When the TAS6422E EVM PPC3 is launched, the Home Window is shown. If the EVM is powered on and the USB is connected to the PC, the Home Window will display “Connect” box in the bottom right hand corner. If the EVM is not powered on or the USB is not connected, only “TAS6422E EVM – Offline” is displayed.

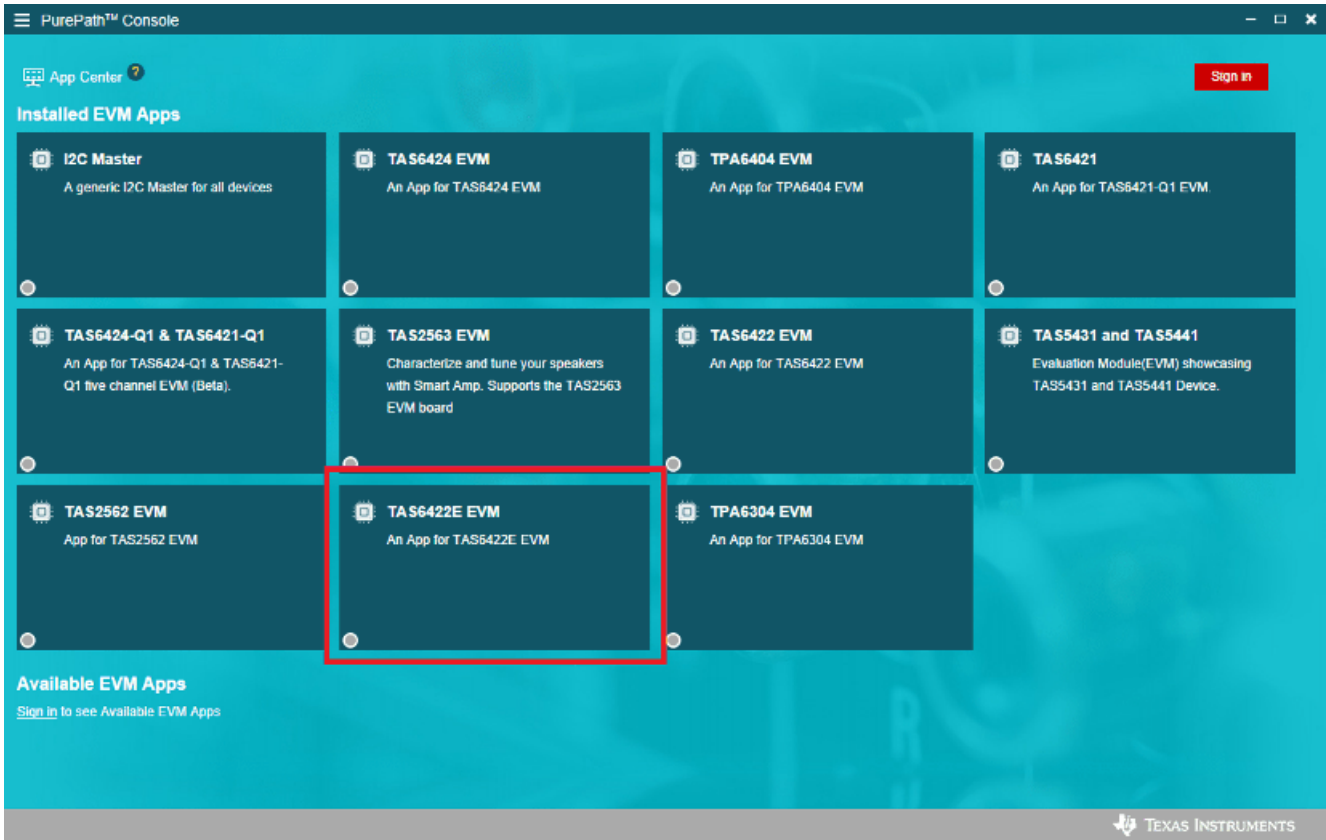


Figure 3-4. PPC3 Window

There are three windows available with the TAS6422E EVM PPC3: Home Window, Register Map Window and Device Monitor and Control Window.

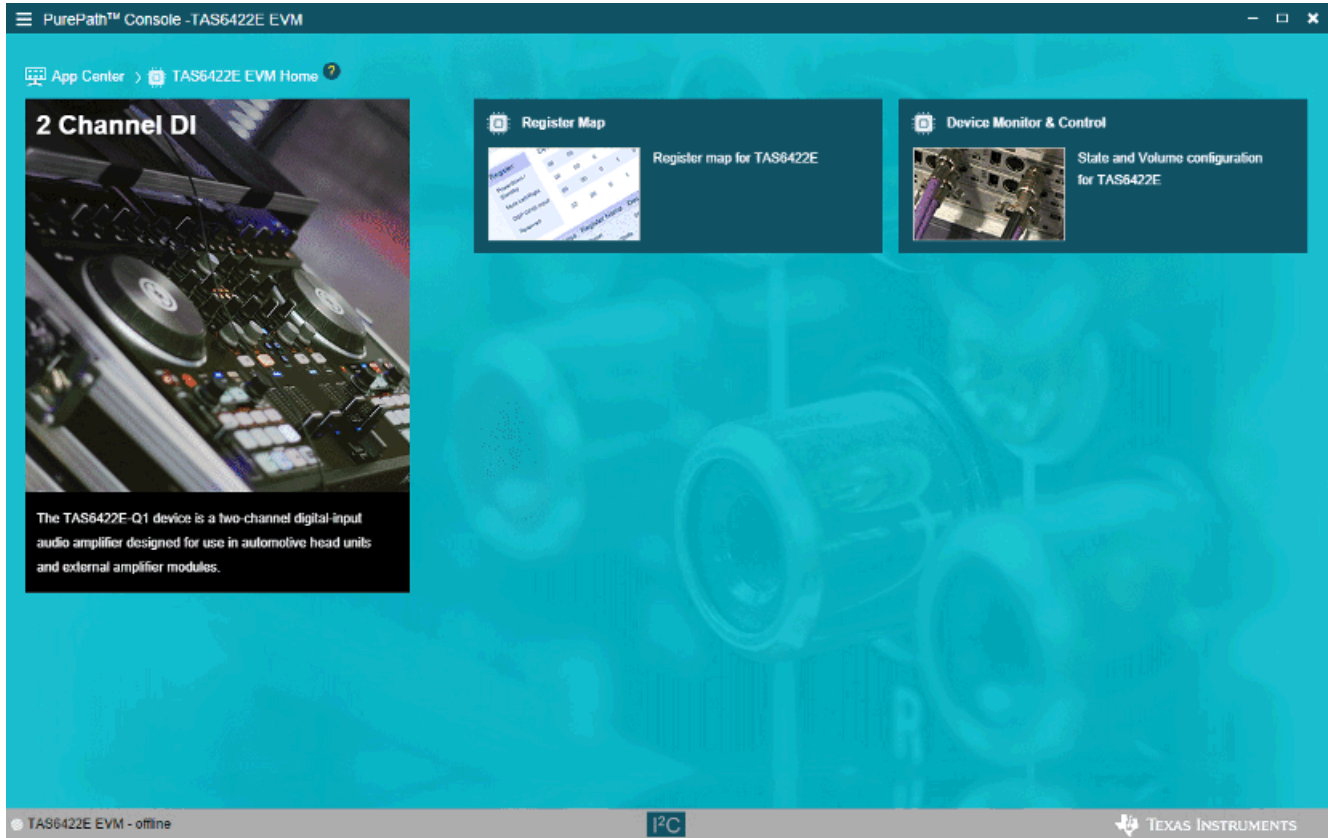


Figure 3-5. TAS6422E EVM Home Window

3.3 PurePath™ Console 3 – TAS6422E EVM Register Map Window

When click on Register Map Box on the Home Window, the Register Map Window is displayed. The Register Map indicates the current setting of all the registers in TAS6422E.

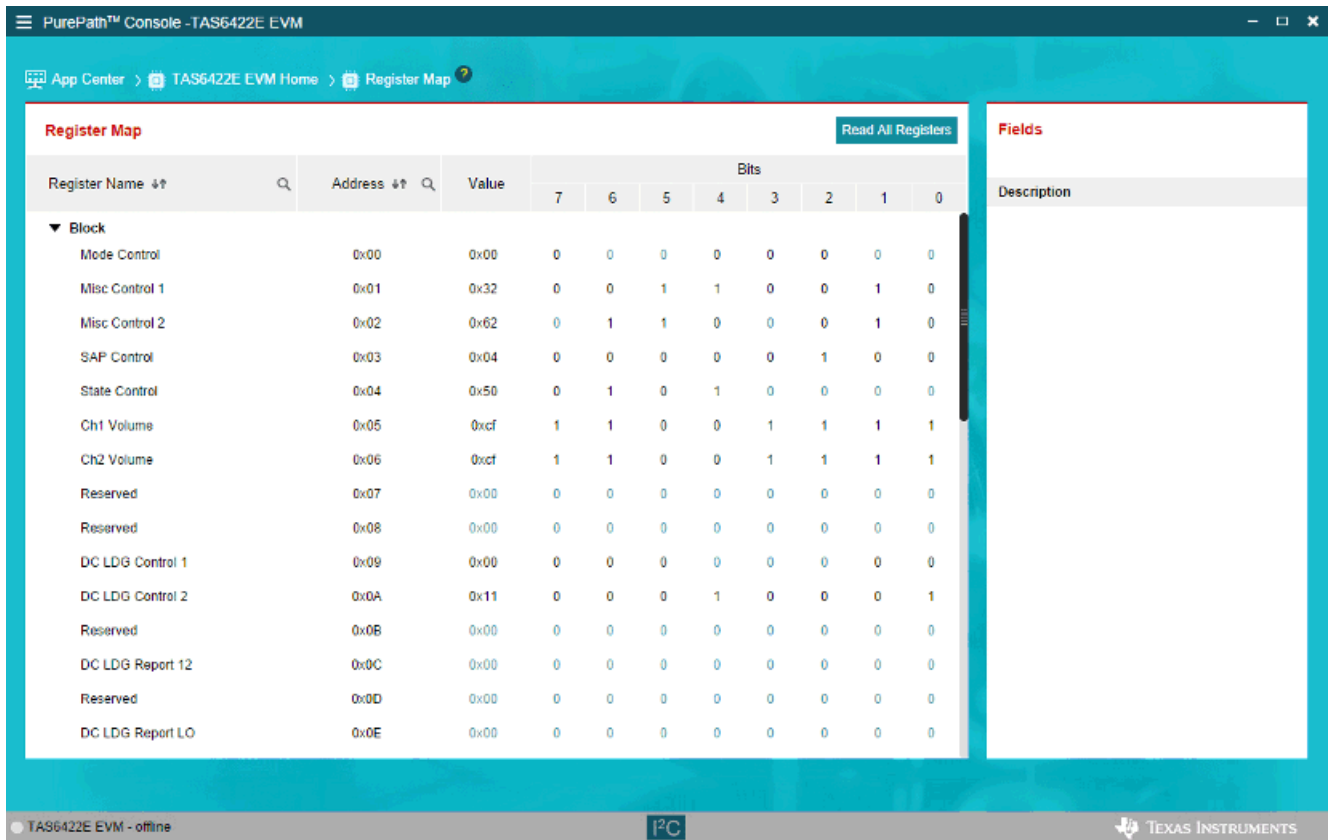


Figure 3-6. TAS6422E EVM Register Map Window

3.4 PurePath™ Console 3 – TAS6422E EVM Monitor and Control Window

When click on Device Monitor and Control Box on the Home Window, the Device Monitor and Control Window is displayed.

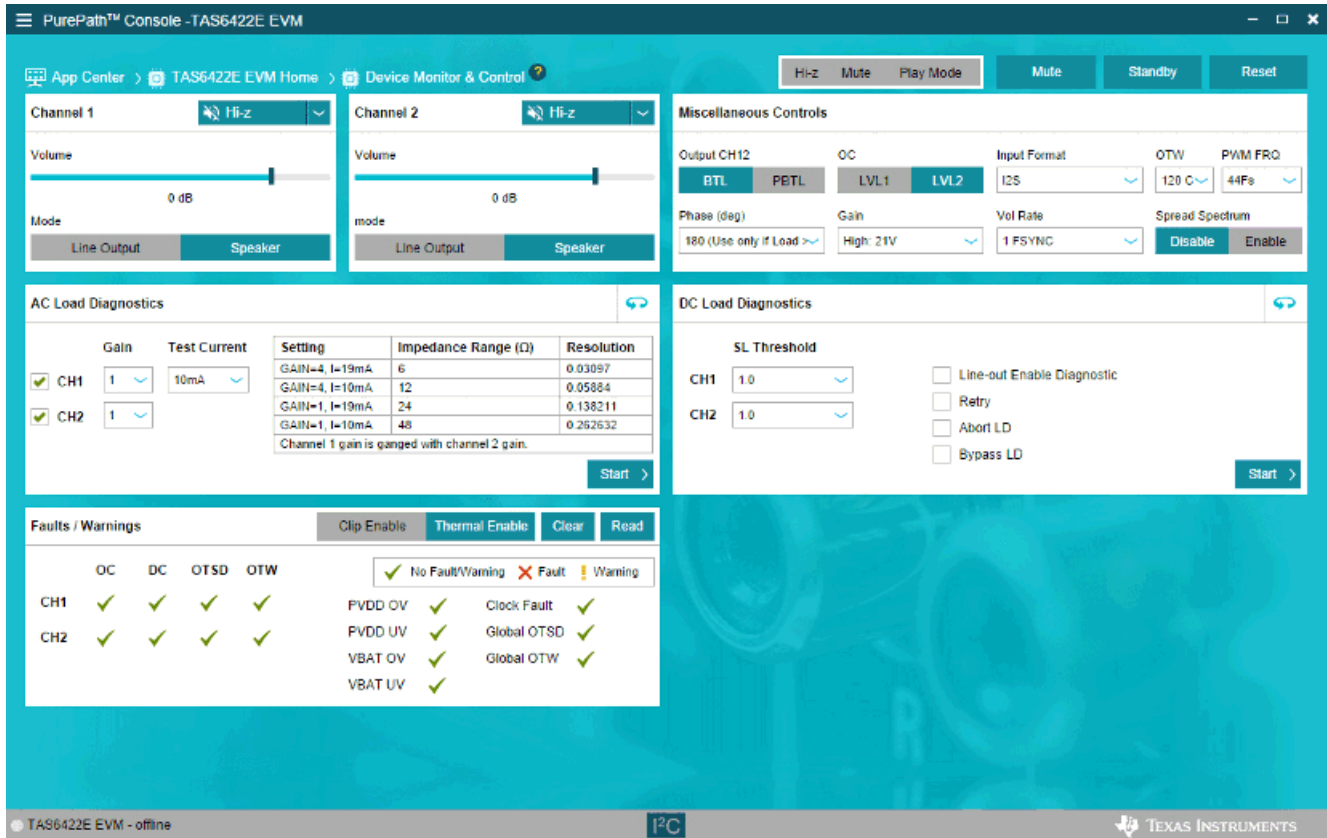


Figure 3-7. TAS6422E EVM Device Monitor and Control Window

3.5 TAS6422E EVM Start Up

This section describes the TAS6422E start-up procedure. Have the equipment and accessories listed on the first page of this document available.

3.5.1 TAS6422E EVM Setup

Hardware and software connections:

- Desk top or laptop PC running Windows 7. Open PPC3 GUI.
- Connect 14.4 VDC PSU to TAS6422E EVM
- Connect speakers or resistive loads to TAS6422E EVM
- Connect USB micro cable from PC to the EVM
- Set the switches (SPDIF, STANDBY, MUTE) to up positions
- Turn on the PSU
- Audio source: This can be a DVD player with optical SPDIF cable or Windows Media Player from PC
- At this point, 3.3 V LED, USB-LOCK LED and SPDIF-LOCK LED (if optical SPDIF is used) are on.
- If the SPDIF LED is not on, the default I2S input is the USB audio source.
- On the PPC3 window, launch TAS6422E EVM application
- The audio can be streamed now to the speakers. Go to the GUI and click on “Device Monitor & Control” box. Click on play button located on the top right of the window.
- The following sections describe in detail the register settings of TAS6422E.

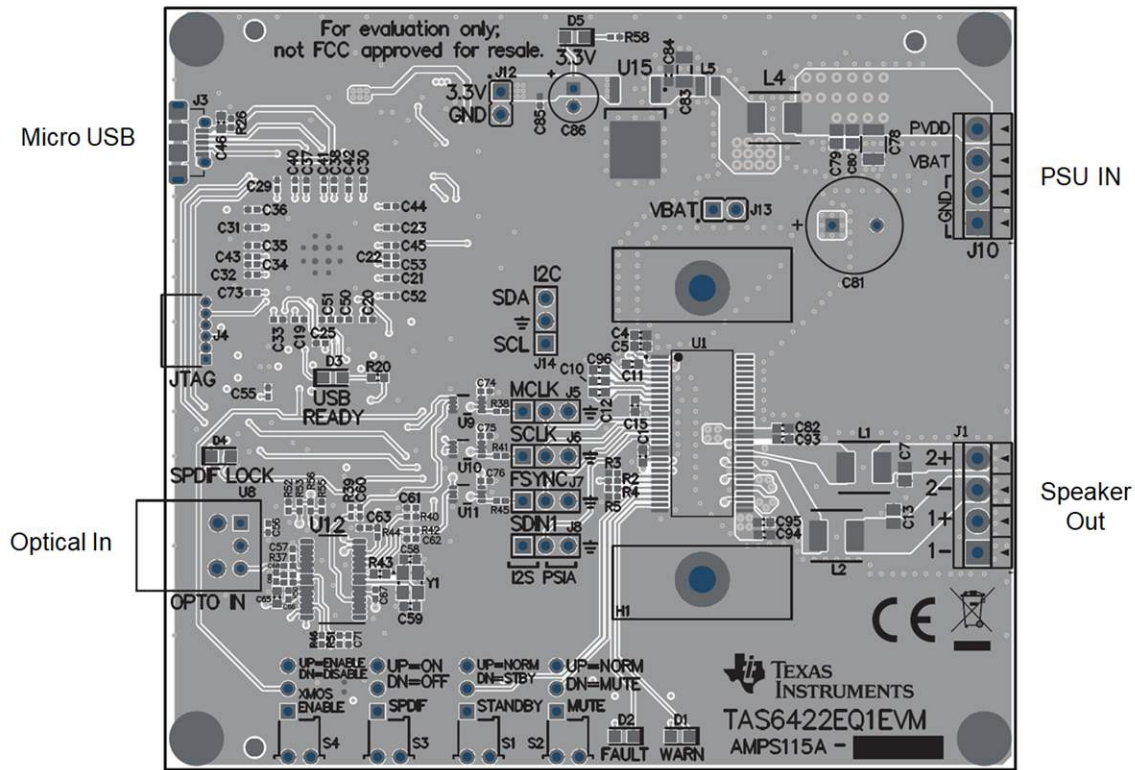


Figure 3-8. TAS6422E EVM Connection

3.5.2 TAS6422E Settings on Device Monitor and Control Window

The TAS6422E Register Map window is for reference. Most of the register settings are done on the Device Monitor and Control window

Click on “CONNECT” button on the bottom left corner of the TAS6422E EVM application window, see Figure 3-9. The LED next to the TAS6422E EVM changes from gray to green and the “CONNECT” button changes to “DISCONNECT” button.

Click on the TAS6422E Device Monitor and Control box. The following window is displayed.

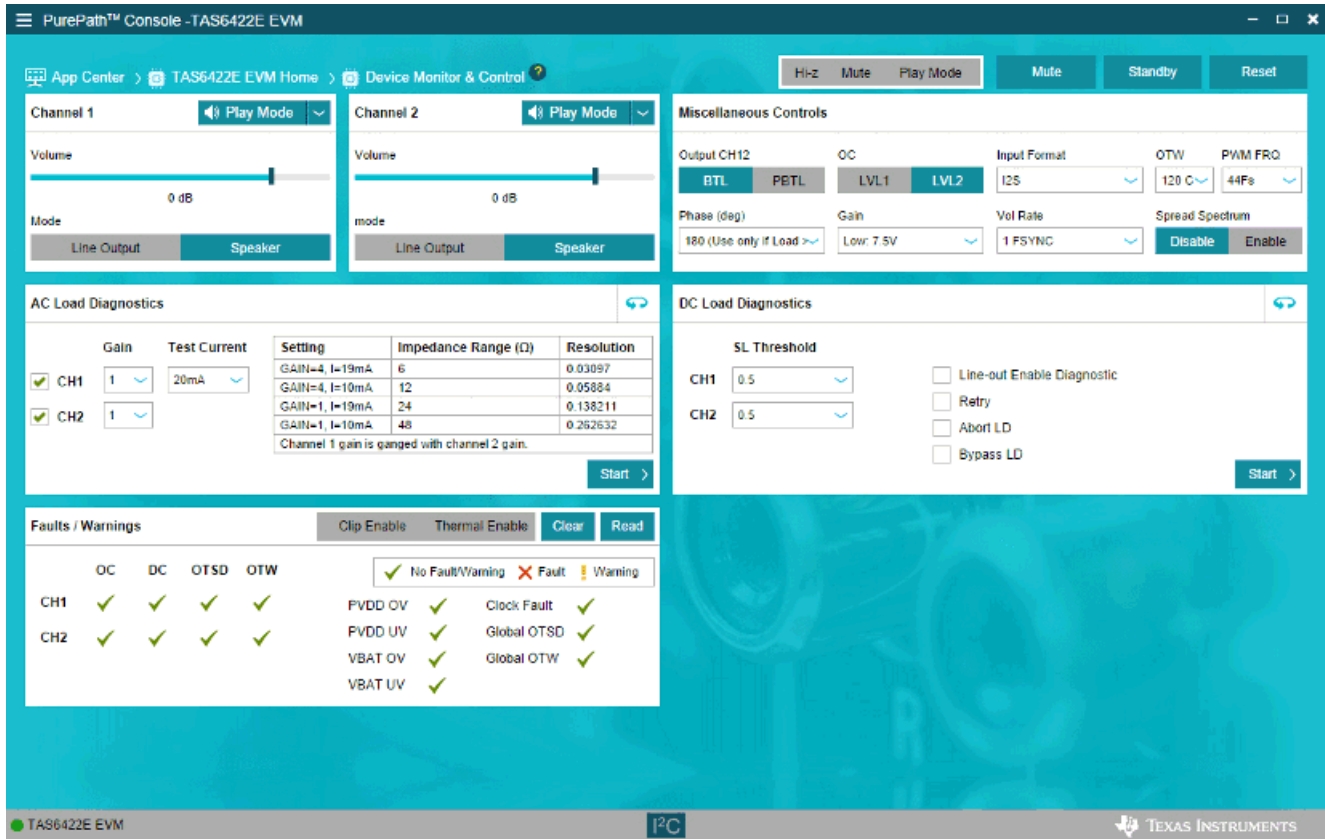


Figure 3-9. Device Monitor and Control Window

This window has 6 major sections: Global Control Section, Channel Control Section, Miscellaneous Control Section, Faults and Warnings Section, AC Load Diagnostics Section and DC Load Diagnostics Section.

3.5.2.1 Global Control Section

The Hi-Z, Mute and Unmute buttons with the gray background controls all 2 channels at the same time. When Hi-Z is selected, all 2 channels are put in Hi-Z. The display for each channel in the channel control section will reflect these buttons selections.

The Mute Pin button is the GPIO pin controlling the mute function of the device.

The Standby button is the GPIO pin controlling the standby function of the device.

The Reset button is software reset. This will put the device back in default settings.

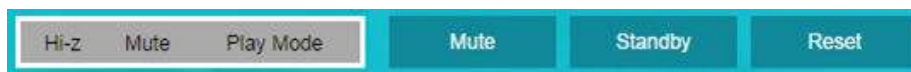


Figure 3-10. Global Control Section

3.5.2.2 Channel Control Section

Each channel has the same setting selections: Hi-Z, Mute, Play, Volume, Line-out mode and Speaker mode.

The drop down menu allows user to select either Hi-Z, Mute or Play state of each channel.

The volume slide controls the digital gain of each channel.

The default setting for each channel is speaker mode. If line-out is used, select Line Output button.

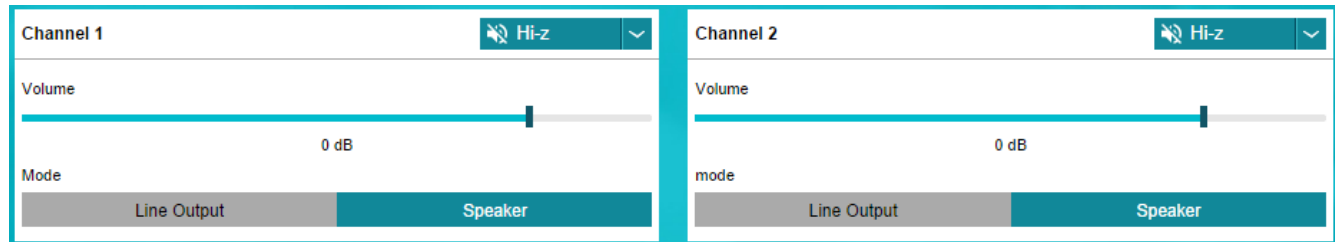


Figure 3-11. Channel Control Section

3.5.2.3 Miscellaneous Control Section

There are miscellaneous settings that are available on the GUI for easy access.

OSR is oversampling bit. For lower idle noise 64X OSR is set as default. For wider bandwidth, 128X OSR can be used. 64X OSR is recommended.

TAS6422E supports parallel Bridge-Tied Load. Before setting a set of channels to PBTL mode, connect the (+) terminals as PBTL channel (+) and the (-) terminals as PBTL channel (-). Then connect the speaker (+) to the PBTL channel (+) and connect the speaker (-) to the PBTL channel (-).

The over-current has two levels. The lower level is 1. The default is level 2. When running at lower output current, OC level can be set to level1.

I2S and TDM are automatically detected. Use the pull down menu from "Input Format" box to manually select the audio format. If sampling frequency is greater than 48 kHz, select 96 kHz from the "Input FS" pull down.

Over-temperature warning can be programmable, use the pull down menu to choose the OTW temperature. The default setting is 120°C.

The output switching frequency (FSW) or Pulse Width Modulation frequency (PWM) is set at 2.1 MHz. The pull-down menu on the PWM FRQ box is used to choose a different FSW. LC value should be adjusted when FSW is changed.

The offset phase for each channel is set at 45 degrees. This helps lower the ripple current on the power supply as not all the channels switch at the same time. To choose a different phase offset, use the pull-down menu on the "Phase" box.

There are four gain settings in TAS6422E: low, normal, high and maximum. The default setting is high. However, the recommended setting is normal for lower noise performance for driving speakers at 14.4 VDC. The gain setting is selectable via the drop down menu in the "Gain" box.

The volume slew rate is measured with sampling frequency. The default setting is 1 period of sampling frequency (FSYNC or FS). This rate is selectable from 1 to 8 sampling periods with the drop down menu under "Vol Rate" box.

The spread spectrum modulation can be selected to be enabled or disabled.

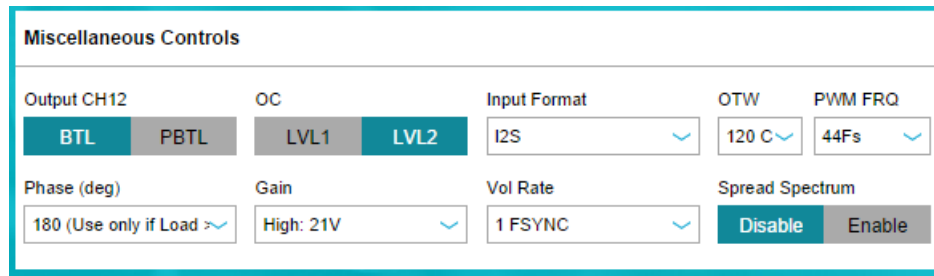


Figure 3-12. Miscellaneous Control Section

3.5.2.4 Faults and Warnings Section

The top right buttons on this box serve as controlling and monitoring faults.

Clip enable route the clip detection bit to the warning pin. This is displayed as yellow LED on the EVM.

Thermal enable route the over-temperature warning bit to the warning pin. This is displayed as the same yellow LED on the EVM.

Clear button clears all the faults and warnings.

Read button manually read the faults and warnings.

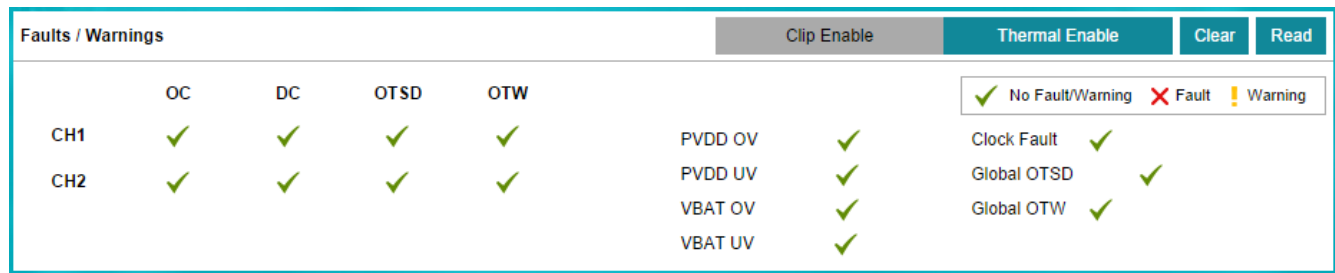


Figure 3-13. Faults and Warnings Section

3.5.2.5 AC Load Diagnostics Section

AC load diagnostics report speaker impedance and phase. The diagnostics can be performed with one or all four channels.

Select the correct output impedance and click start. Follow the pop up instructions to complete the load diagnostics run.

Note

Make sure to set the digital input to 0 dBFS (100% full-scale). If the sine wave is provided from the USB audio, turn the audio media volume and PC sound card volume to maximum.

Click on the “flip” icon located on the top right of the AC load diagnostics box to see the results.

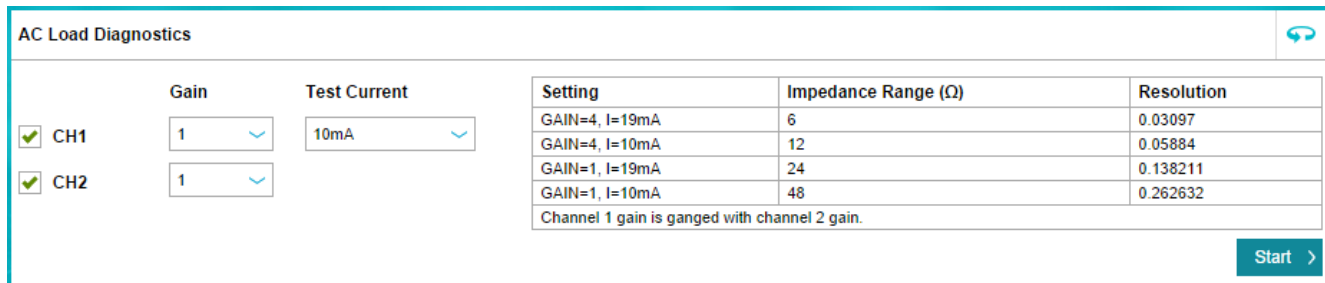


Figure 3-14. AC Load Diagnostics Section

3.5.2.6 DC Load Diagnostics Section

The DC load diagnostics report if a channel is short to power, short to ground, short to load or open.

Select the impedance of the load from 0.5 to 5 Ω. Click start and then click the “flip” on the top right of the box to view results.

If a channel is selected as a line-out, click on “LO ENA LD” to enable line-out load diagnostics.

“Retry” box is used when DC load diagnostics are run more than one time.

DC load diagnostics can be aborted by click on the “Abort LD” box.

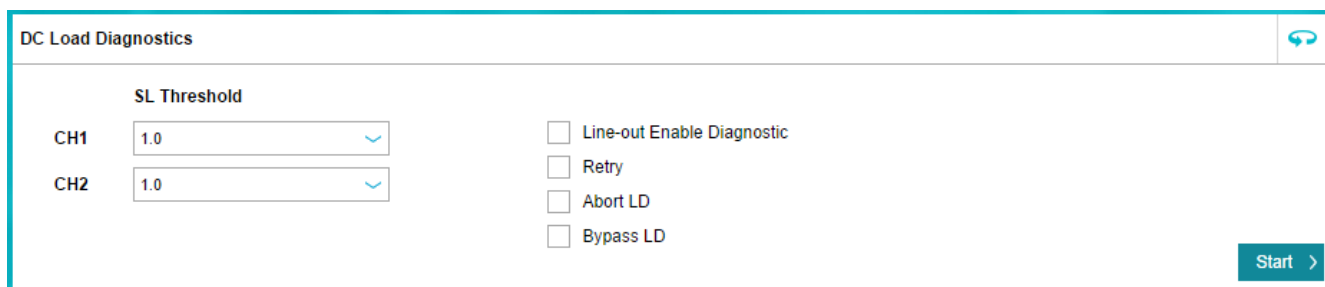
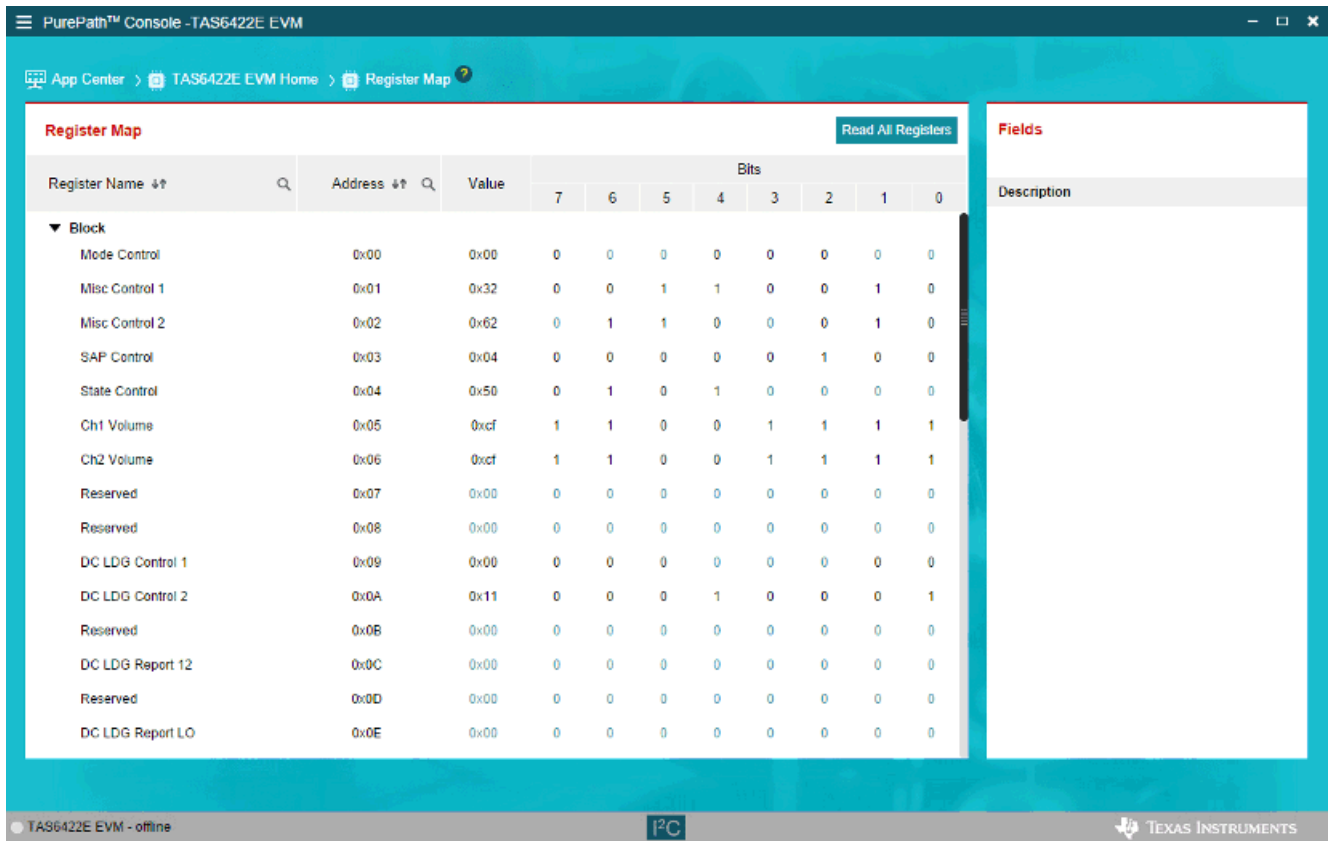


Figure 3-15. DC Load Diagnostics Section

3.5.3 TAS6422E Settings on Register Map Window

The register map can be sorted either alphabetically or numerically (register number).



Register Map Read All Registers

Register Name	Address	Value	Bits								
			7	6	5	4	3	2	1	0	
▼ Block											
Mode Control	0x00	0x00	0	0	0	0	0	0	0	0	0
Misc Control 1	0x01	0x32	0	0	1	1	0	0	1	0	
Misc Control 2	0x02	0x62	0	1	1	0	0	0	1	0	
SAP Control	0x03	0x04	0	0	0	0	0	1	0	0	
State Control	0x04	0x50	0	1	0	1	0	0	0	0	
Ch1 Volume	0x05	0xcf	1	1	0	0	1	1	1	1	
Ch2 Volume	0x06	0xcf	1	1	0	0	1	1	1	1	
Reserved	0x07	0x00	0	0	0	0	0	0	0	0	
Reserved	0x08	0x00	0	0	0	0	0	0	0	0	
DC LDG Control 1	0x09	0x00	0	0	0	0	0	0	0	0	
DC LDG Control 2	0x0A	0x11	0	0	0	1	0	0	0	1	
Reserved	0x0B	0x00	0	0	0	0	0	0	0	0	
DC LDG Report 12	0x0C	0x00	0	0	0	0	0	0	0	0	
Reserved	0x0D	0x00	0	0	0	0	0	0	0	0	
DC LDG Report LO	0x0E	0x00	0	0	0	0	0	0	0	0	

Fields

Description

Figure 3-16. Register Map Window

When a register is selected, the hex value along with the individual bit value is displayed. The name and description for each bit are shown to the right in the "Fields" box.

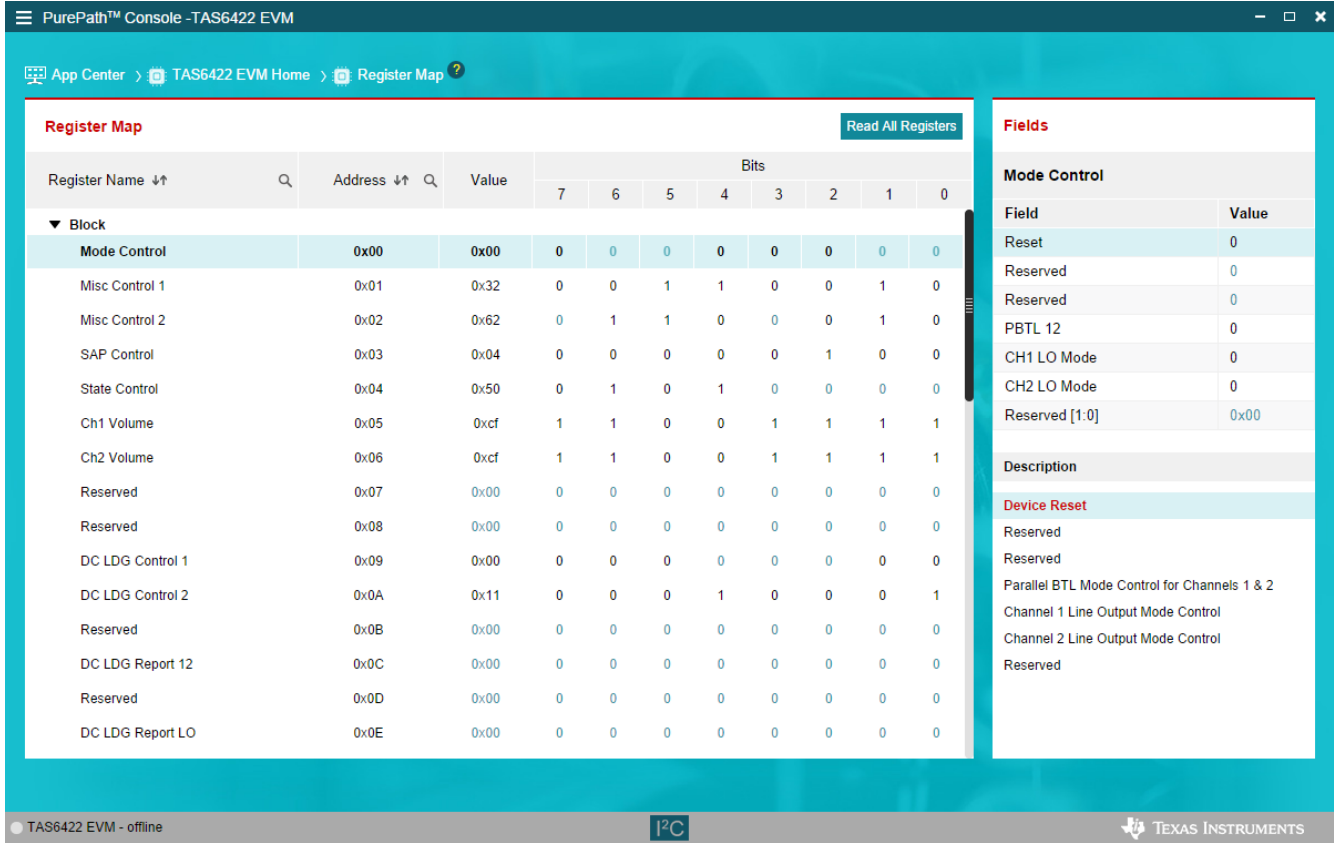


Figure 3-17. Register Map Window - Expanding

Double click on any bit, the bit will change state. This state is executed at the end of the click.

3.5.4 I2C Window

The PPC3 has an I2C monitor and also configuration program options.

When this window is first open, the round button is green. To record I2C commands, click on this button and it will turn red. The recording can be saved for later used by clicking the save icon.

The I2C commands can also be copied to clip board by clicking the icon next to trash bin icon.

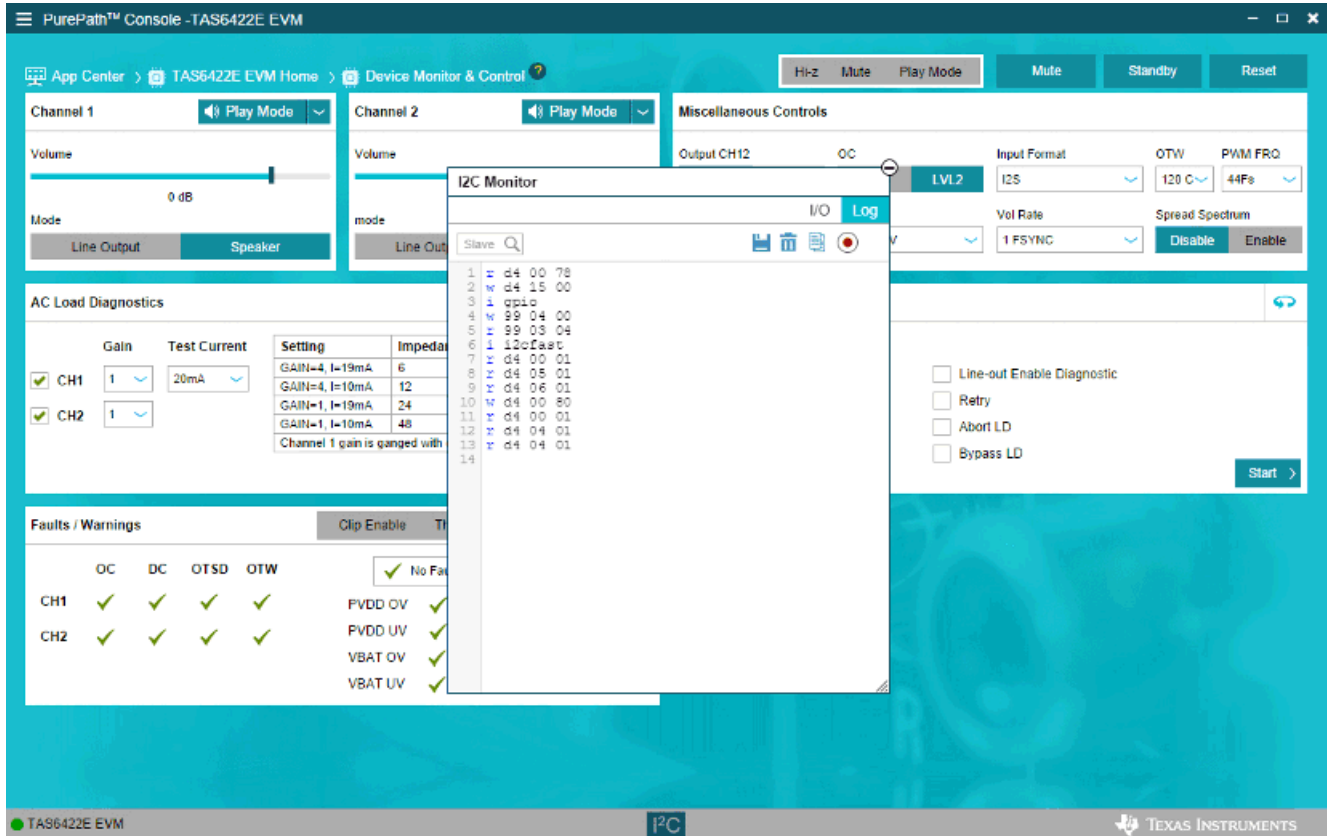


Figure 3-18. I2C Window – I2C Logging

A set of I2C commands can be loaded and executed from this window. On the top right corner, click on “I/O” button to display the above window. Write I2C commands here or open an existing *.cfg file then click “Execute” button on the bottom left corner. The I2C commands are sent to the device when the “Execute” button is pressed.

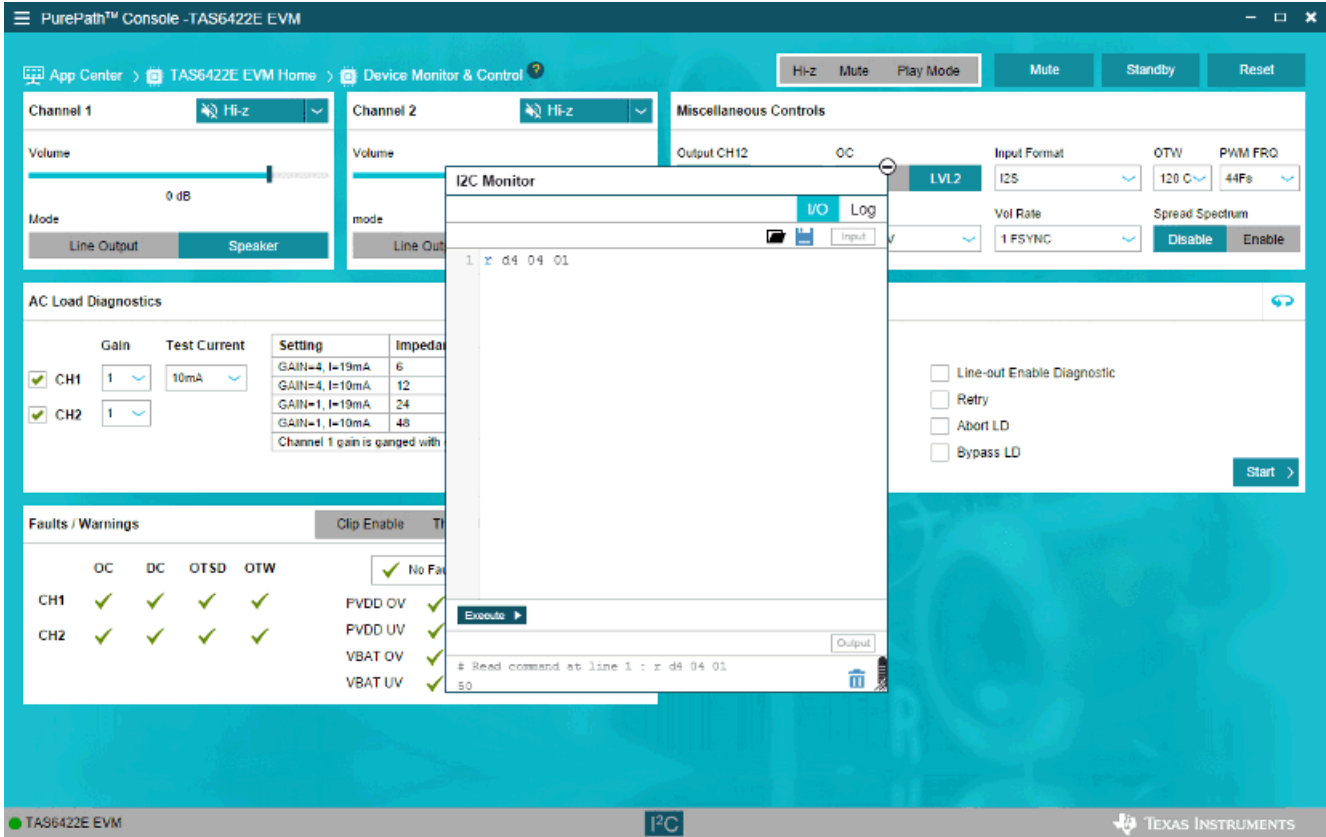


Figure 3-19. I2C Window – Sending I2C Commands

4 Board Layouts, Bill of Materials, and Schematic

4.1 TAS6422E EVM Layouts

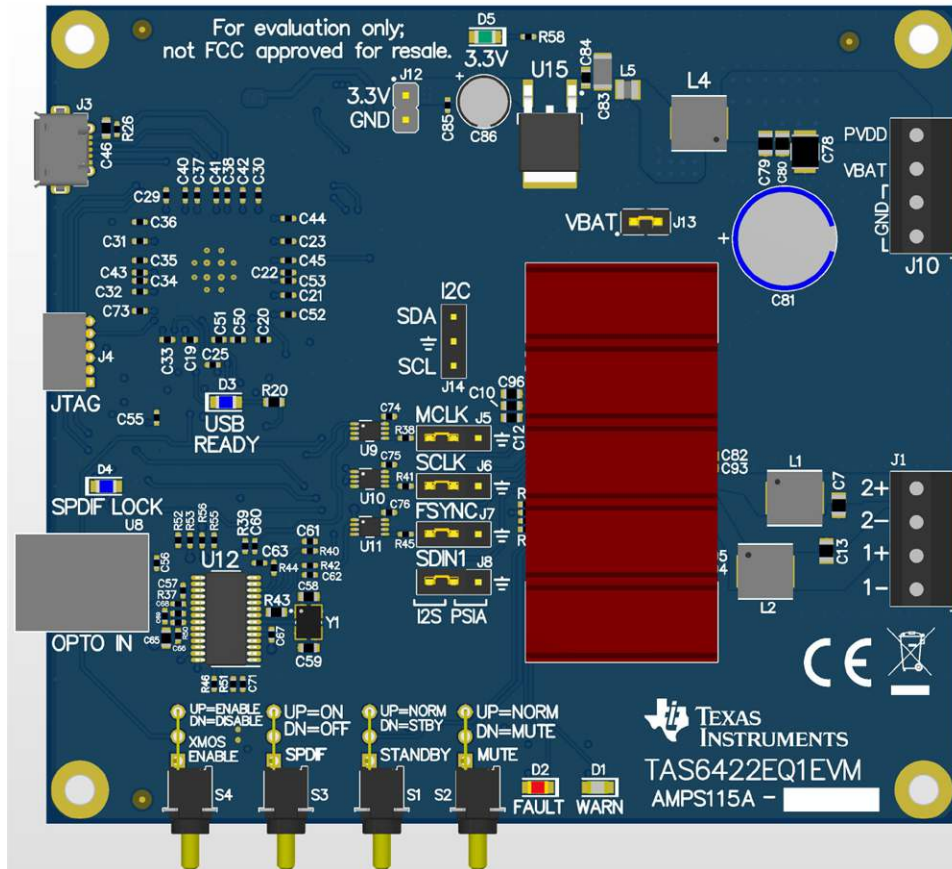


Figure 4-1. TAS6422E EVM Top

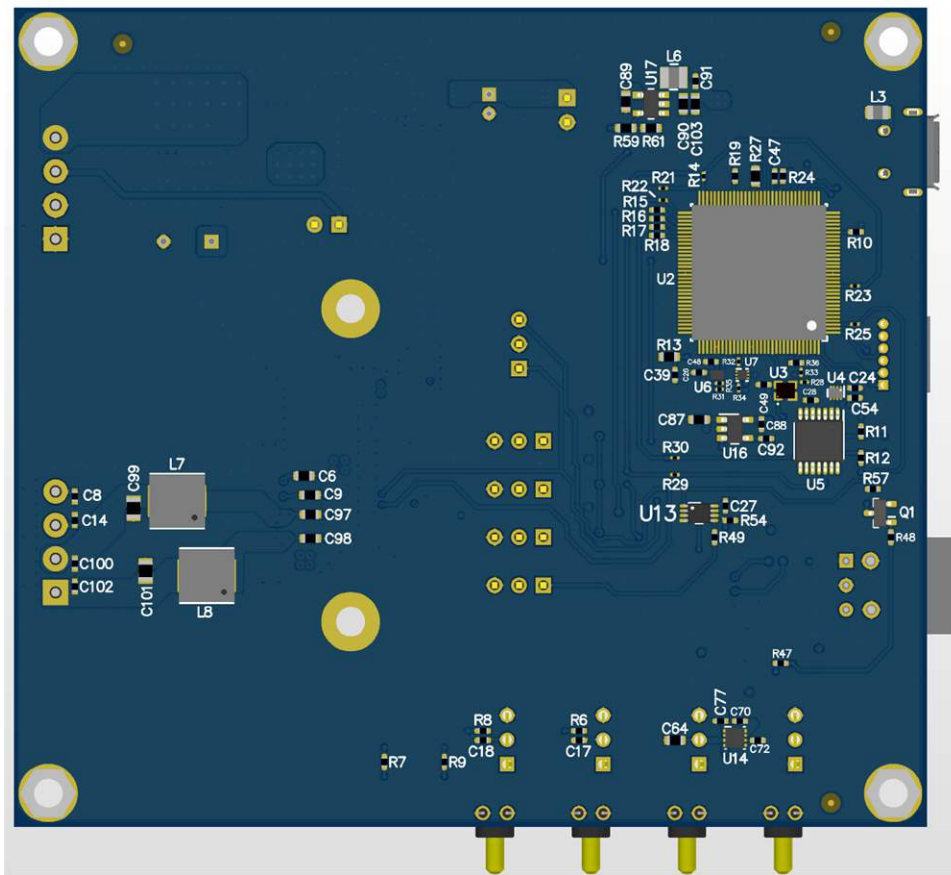


Figure 4-2. TAS6422E EVM Bottom

4.2 TAS6422E EVM Schematic

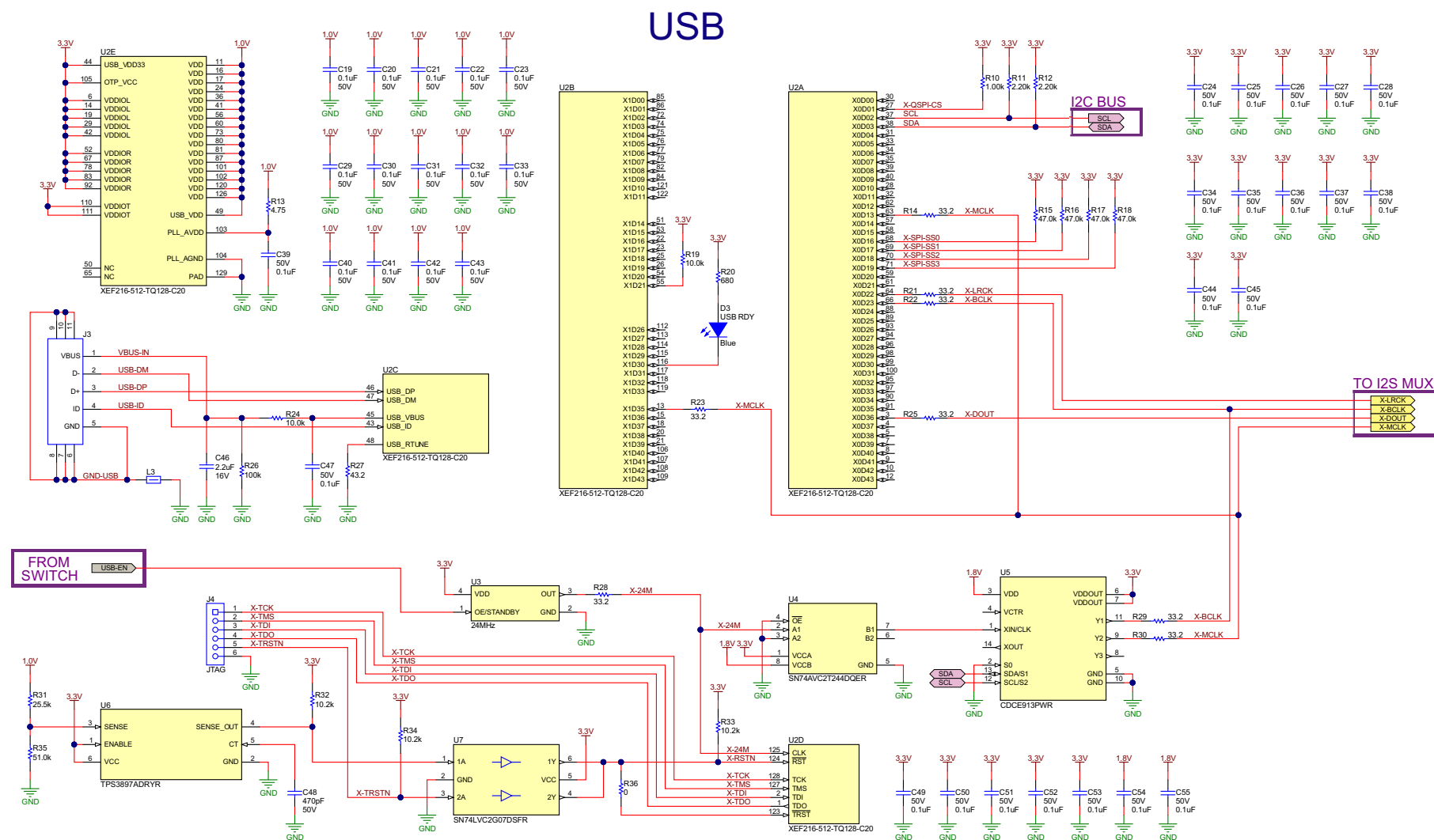


Figure 4-3. Schematic (Page 1)

SPDIF

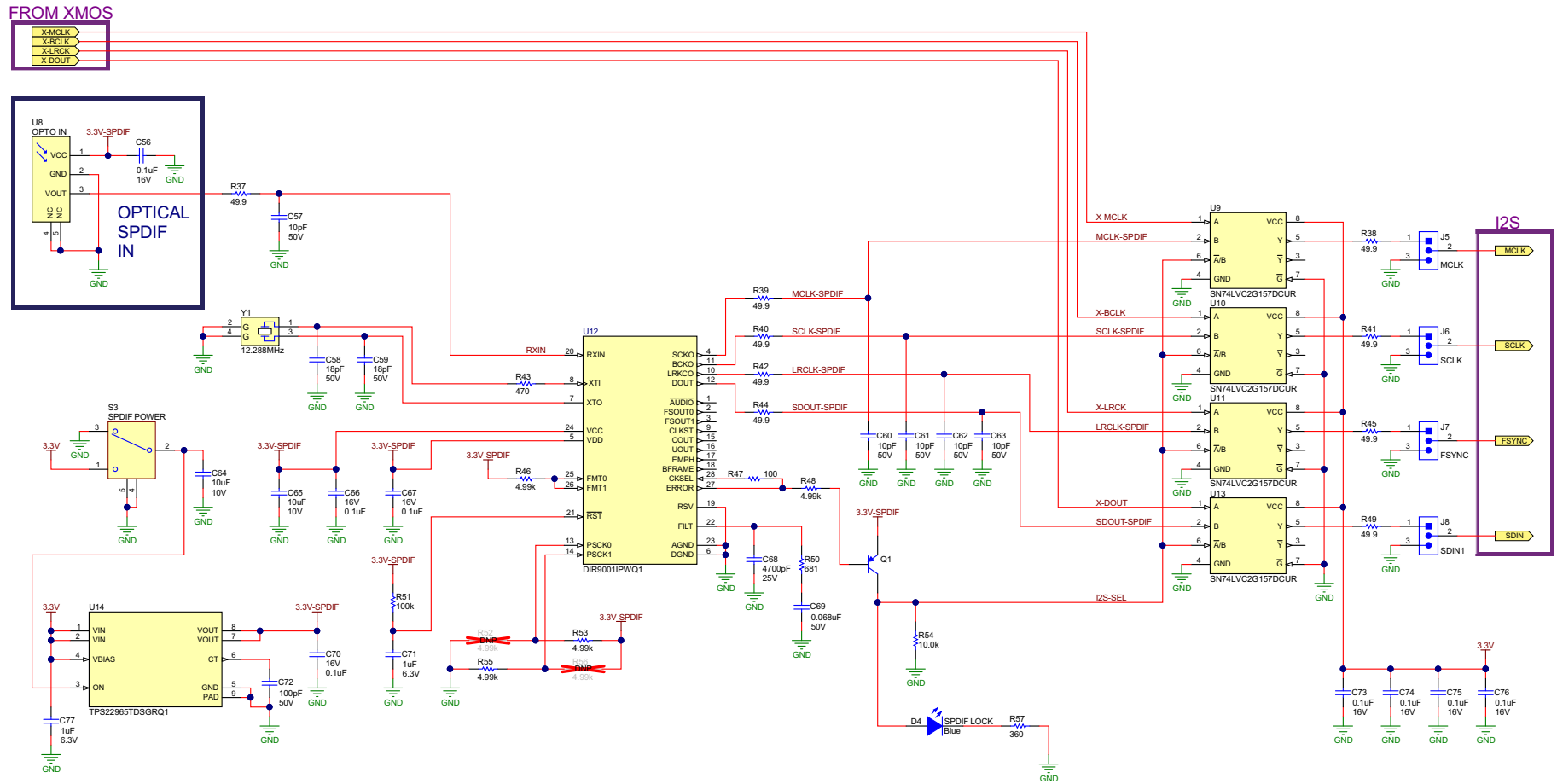


Figure 4-4. Schematic (Page 2)

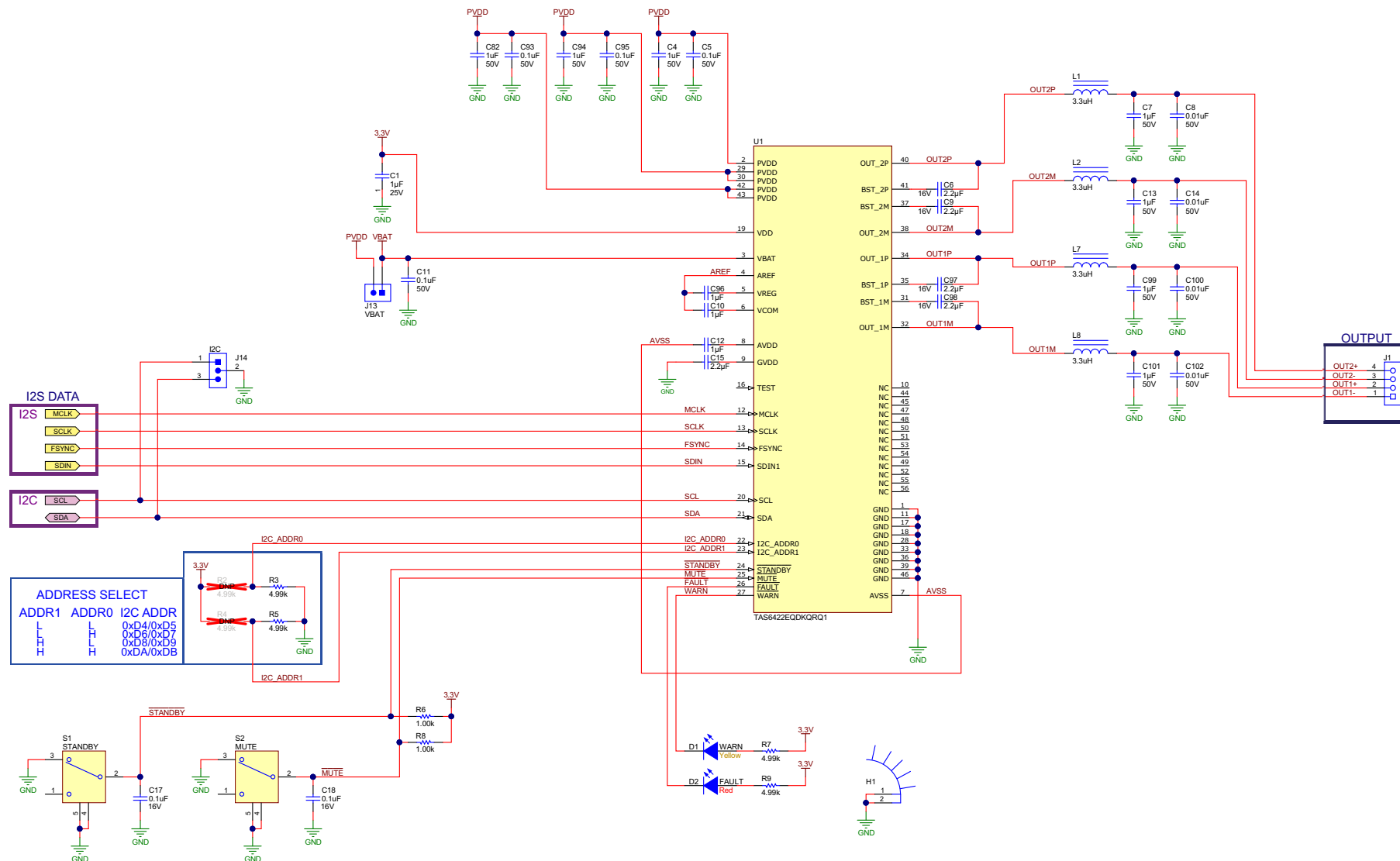
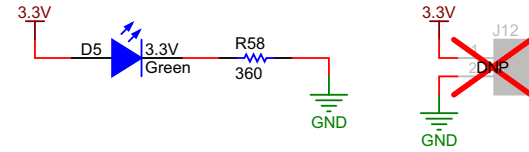
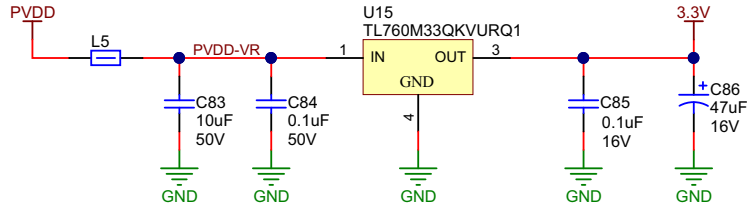
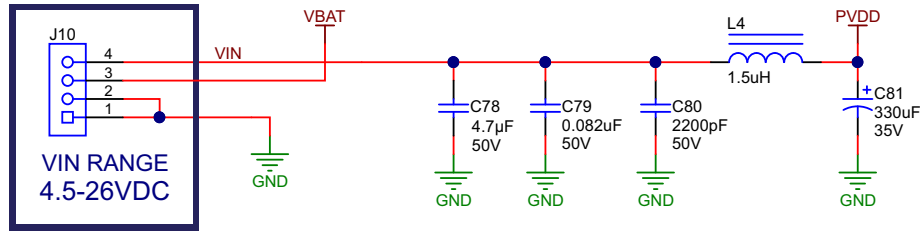


Figure 4-5. Schematic (Page 3)

Power Supplies



3.3V to 1.8V LDO OUTPUT = 1.8V@400mA

3.3V to 1V BUCK LDO for XMOS OUTPUT = 1.0V@1A

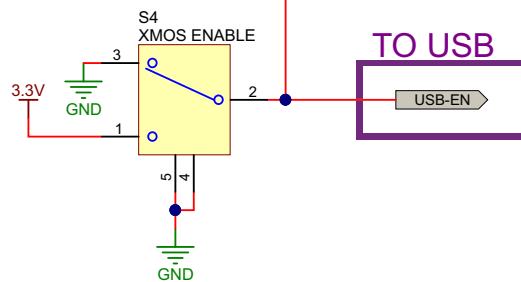
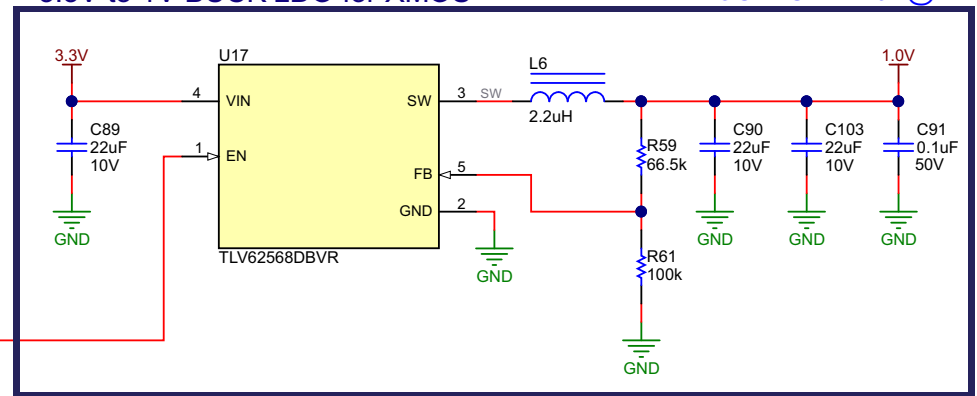
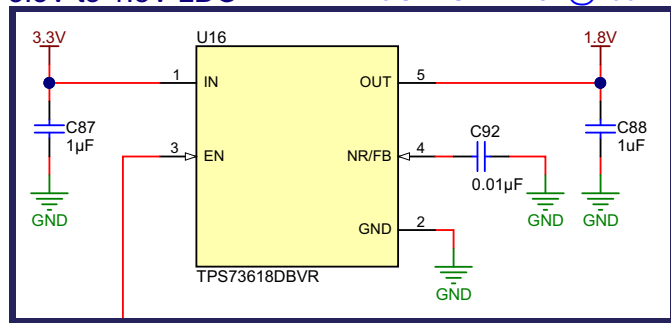


Figure 4-6. Schematic (Page 4)

4.3 Bill of Materials

Table 4-1 lists the TAS6422EQ1EVM bill of materials.

Table 4-1. TAS6422EQ1EVM Bill of Materials

Designator	Qty	Value	Description	Package Reference	Part Number	Manufacturer	Alternate Part Number
IPCB1	1		Printed Circuit Board		AMPS115	Any	
C1, C10, C12, C96	4	1uF	CAP, CERM, 1 uF, 25 V, +/- 10%, X7R, 0603	0603	C0603C105K3RACTU	Kemet	
C4, C82, C94	3	1uF	CAP, CERM, 1 uF, 50 V, +/- 10%, X7R, 0603	0603	UMK107AB7105KA-T	Taiyo Yuden	
C5, C11, C93, C95	4	0.1uF	CAP, CERM, 0.1 uF, 50 V, +/- 10%, X7R, 0603	0603	C0603C104K5RACTU	Kemet	
C6, C9, C15, C97, C98	5	2.2uF	CAP, CERM, 2.2 uF, 16 V, +/- 10%, X7R, 0603	0603	EMK107BB7225KA-T	Taiyo Yuden	
C7, C13, C99, C101	4	1uF	CAP, CERM, 1 uF, 50 V, +/- 10%, X7R, 0805	0805	C0805C105K5RACTU	Kemet	
C8, C14, C100, C102	4	0.01uF	CAP, CERM, 0.01 uF, 50 V, +/- 10%, C0G/NP0, 0402	0402	GCM155R71H103KA55D	MuRata	
C17, C18, C56, C66, C67, C70, C73, C74, C75, C76, C85	11	0.1uF	CAP, CERM, 0.1 uF, 16 V, +/- 10%, X7R, AEC-Q200 Grade 1, 0402	0402	C0402C104K4RACAUTO	Kemet	
C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C29, C30, C31, C32, C33, C34, C35, C36, C37, C38, C39, C40, C41, C42, C43, C44, C45, C47, C49, C50, C51, C52, C53, C54, C55, C91	36	0.1uF	CAP, CERM, 0.1 uF, 50 V, +/- 10%, X7R, 0402	0402	C1005X7R1H104K050BB	TDK	
C46	1	2.2uF	CAP, CERM, 2.2 uF, 16 V, +/- 10%, X7R, 0603	0603	EMK107BB7225MA-T	Taiyo Yuden	
C48	1	470pF	CAP, CERM, 470 pF, 50 V, +/- 5%, C0G, AEC-Q200 Grade 1, 0402	0402	GRT1555C1H471JA02D	MuRata	
C57, C60, C61, C62, C63	5	10pF	CAP, CERM, 10 pF, 50 V, +/- 5%, C0G/NP0, 0402	0402	885012005055	Würth Elektronik	
C58, C59	2	18pF	CAP, CERM, 18 pF, 50 V, +/- 5%, C0G/NP0, 0603	0603	GRM1885C1H180JA01D	MuRata	
C64, C65	2	10uF	CAP, CERM, 10 uF, 10 V, +/- 20%, X5R, 0603	0603	C1608X5R1A106M080AC	TDK	
C68	1	4700pF	CAP, CERM, 4700 pF, 25 V, +/- 10%, X7R, 0402	0402	CC0402KRX7R8BB472	Yageo	
C69	1	0.068uF	CAP, CERM, 0.068 uF, 50 V, +/- 10%, X7R, AEC-Q200 Grade 1, 0402	0402	CGA2B3X7R1H683K050BB	TDK	
C71, C77, C88	3	1uF	CAP, CERM, 1 uF, 6.3 V, +/- 20%, X5R, 0402	0402	GRM152R60J105ME15D	MuRata	
C72	1	100pF	CAP, CERM, 100 pF, 50 V, +/- 5%, C0G/NP0, AEC-Q200 Grade 1, 0402	0402	CGA2B2C0G1H101J050BA	TDK	
C78	1	4.7uF	CAP, CERM, 4.7 uF, 50 V, +/- 10%, X7R, AEC-Q200 Grade 1, 1210	1210	C1210C475K5RACAUTO	Kemet	
C79	1	0.082uF	CAP, CERM, 0.082 uF, 50 V, +/- 10%, X7R, 0805	0805	08055C823KAT2A	AVX	
C80	1	2200pF	CAP, CERM, 2200 pF, 50 V, +/- 5%, C0G/NP0, 0805	0805	GRM2165C1H222JA01D	MuRata	
C81	1	330uF	CAP, AL, 330 uF, 35 V, +/- 20%, AEC-Q200 Grade 1, TH	D10xL20mm	UBT1V331MPD1TD	Nichicon	
C83	1	10uF	CAP, CERM, 10 uF, 50 V, +/- 10%, X5R, 1206	1206	GRM31CR61H106KA12L	MuRata	
C84	1	0.1uF	CAP, CERM, 0.1 uF, 50 V, +/- 10%, X7R, 0603	0603	GCM188R71H104KA57D	MuRata	
C86	1	47uF	CAP, AL, 47 uF, 16 V, +/- 20%, 0.8 ohm, AEC-Q200 Grade 2, TH	D5xL11mm	EEU-FC1C470	Panasonic	
C87	1	1uF	CAP, CERM, 1 uF, 16 V, +/- 20%, X7R, 0603	0603	CL10B105M08NNWC	Samsung	
C89, C90, C103	3	22uF	CAP, CERM, 22 uF, 10 V, +/- 20%, X5R, 0603	0603	C1608X5R1A226M080AC	TDK	
C92	1	0.01uF	CAP, CERM, 0.01 uF, 6.3 V, +/- 10%, X7R, 0402	0402	0402B103K6R3CT	Walsin	
D1	1	Yellow	LED, Yellow, SMD	0805 LED	LTST-C170KSKT	Lite-On	

Table 4-1. TAS6422EQ1EVM Bill of Materials (continued)

Designator	Qty	Value	Description	Package Reference	Part Number	Manufacturer	Alternate Part Number
D2	1	Red	LED, Red, SMD	Red 0805 LED	LTST-C170KRKT	Lite-On	
D3, D4	2	Blue	LED, Blue, SMD	LED_0805	LTST-C170TBKT	Lite-On	
D5	1	Green	LED, Green, SMD	LED_0805	LTST-C170KGKT	Lite-On	
H1	1		Heat Sink for DKQ Packages, 41.4x20 mm	Heat Sink for DKQ Packages, 41.4x20 mm	HS-DKQ56_20X41.4X32.77	Any	
H2, H3, H4, H5	4		MACHINE SCREW PAN PHILLIPS M3	M3 Screw	RM3X8MM 2701	APM HEXSEAL	
H6, H7, H8, H9	4		Standoff, Hex, 12mm, M3, Aluminum	Aluminum M3 12mm Hex Standoff	24434	Keystone	
H10	1		Arctic Silver 5 Thermal Paste		ARCTIC SILVER 5	ARTIC SILVER, INC.	
J1, J10	2		Terminal Block, 3.5mm Pitch, 4x1, TH	14x8.2x6.5mm	ED555/4DS	On-Shore Technology	
J3	1		Connector, Receptacle, Micro-USB Type AB, R/A, Bottom Mount SMT	5.6x2.5x8.2mm	475890001	Molex	
J4	1		Receptacle, 50mil, 6x1, Gold, R/A, TH	6x1 Receptacle	LPPB061NGCN-RC	Sullins Connector Solutions	
J5, J6, J7, J8, J14	5		Header, 100mil, 3x1, Gold, TH	PBC03SAAN	PBC03SAAN	Sullins Connector Solutions	
J13	1		Header, 100mil, 2x1, Gold, TH	Sullins 100mil, 1x2, 230 mil above insulator	PBC02SAAN	Sullins Connector Solutions	
L1, L2, L7, L8	4	3.3uH	Inductor, 3.3 uH, 4.5 A, 0.038 ohm, AEC-Q200 Grade 0, SMD	5.45x5.25x3.0mm	VCMT053T-3R3MN5	Cyntec	
L3	1	30 ohm	Ferrite Bead, 30 ohm @ 100 MHz, 6 A, 0805	0805	MPZ2012S300AT000	TDK	
L4	1	1.5uH	Inductor, 1.5 uH, 5.5 A, 0.017 ohm, AEC-Q200 Grade 0, SMD	5.45x5.25x3.0mm	VCMT053T-1R5MN5	Cyntec	
L5	1	180 ohm	Ferrite Bead, 180 ohm @ 100 MHz, 3.4 A, 0806	0806	NFZ2MSM181SN10L	MuRata	
L6	1	2.2uH	Inductor, Multilayer, Ferrite, 2.2 uH, 1.3 A, 0.08 ohm, SMD	SMD, Body 2.5x2mm, Height 1.2mm	LQM2HPN2R2MG0L	MuRata	
Q1	1	40 V	Transistor, PNP, 40 V, 0.2 A, SOT-23	SOT-23	MMBT3906-7-F	Diodes Inc.	
R3, R5, R7, R9, R46, R48, R53, R55	8	4.99k	RES, 4.99 k, 1%, 0.063 W, AEC-Q200 Grade 0, 0402	0402	CRCW04024K99FKED	Vishay-Dale	
R6, R8	2	1.00k	RES, 1.00 k, 1%, 0.063 W, AEC-Q200 Grade 0, 0402	0402	CRCW04021K00FKED	Vishay-Dale	
R10	1	1.00k	RES, 1.00 k, 1%, 0.1 W, 0402	0402	ERJ-2RKF1001X	Panasonic	
R11, R12	2	2.20k	RES, 2.20 k, 1%, 0.1 W, 0402	0402	ERJ-2RKF2201X	Panasonic	
R13	1	4.75	RES, 4.75, 1%, 0.1 W, 0603	0603	RC0603FR-074R75L	Yageo	
R14, R21, R22, R23, R25, R28, R29, R30	8	33.2	RES, 33.2, 1%, 0.05 W, 0201	0201	RC0201FR-0733R2L	Yageo America	
R15, R16, R17, R18	4	47.0k	RES, 47.0 k, 1%, 0.0625 W, 0402	0402	RC0402FR-0747KL	Yageo America	
R19, R24	2	10.0k	RES, 10.0 k, 1%, 0.063 W, 0402	0402	RC0402FR-0710KL	Yageo America	
R20	1	680	RES, 680, 1%, 0.1 W, 0603	0603	RC0603FR-07680RL	Yageo	
R26	1	100k	RES, 100 k, 1%, 0.1 W, 0402	0402	ERJ-2RKF1003X	Panasonic	
R27	1	43.2	RES, 43.2, 1%, 0.1 W, 0603	0603	RC0603FR-0743R2L	Yageo	
R31	1	25.5k	RES, 25.5 k, 1%, 0.05 W, 0201	0201	RC0201FR-0725K5L	Yageo America	
R32, R33, R34	3	10.2k	RES, 10.2 k, 1%, 0.05 W, 0201	0201	RC0201FR-0710K2L	Yageo America	
R35	1	51.0k	RES, 51.0 k, 1%, 0.05 W, 0201	0201	RC0201FR-0751KL	Yageo America	
R36	1	0	RES, 0, 5%, 0.1 W, AEC-Q200 Grade 0, 0402	0402	ERJ-2GE0R00X	Panasonic	
R37, R38, R39, R40, R41, R42, R44, R45, R49	9	49.9	RES, 49.9, 1%, 0.063 W, AEC-Q200 Grade 0, 0402	0402	CRCW040249R9FKED	Vishay-Dale	
R43	1	470	RES, 470, 1%, 0.1 W, 0603	0603	RC0603FR-07470RL	Yageo	

Table 4-1. TAS6422EQ1EVM Bill of Materials (continued)

Designator	Qty	Value	Description	Package Reference	Part Number	Manufacturer	Alternate Part Number
R47	1	100	RES, 100, 1%, 0.1 W, 0402	0402	ERJ-2RKF1000X	Panasonic	
R50	1	681	RES, 681, 1%, 0.063 W, AEC-Q200 Grade 0, 0402	0402	CRCW0402681RFKED	Vishay-Dale	
R51	1	100k	RES, 100 k, 1%, 0.063 W, AEC-Q200 Grade 0, 0402	0402	CRCW0402100KFKED	Vishay-Dale	
R54	1	10.0k	RES, 10.0 k, 1%, 0.063 W, AEC-Q200 Grade 0, 0402	0402	CRCW040210K0FKED	Vishay-Dale	
R57, R58	2	360	RES, 360, 5%, 0.063 W, AEC-Q200 Grade 0, 0402	0402	CRCW0402360RJNED	Vishay-Dale	
R59	1	66.5k	RES, 66.5 k, 1%, 0.1 W, 0603	0603	RC0603FR-0766K5L	Yageo	
R61	1	100k	RES, 100 k, 1%, 0.1 W, 0603	0603	RC0603FR-07100KL	Yageo	
S1, S2, S3, S4	4		Switch, SPDT, On-On, 1 Pos, 0.4A, 28 VDC, TH	5.6x5.4mm	FT1D-4M-Z	Copal Electronics	
SH1, SH2, SH3, SH4, SH5	5	1x2	Shunt, 100mil, Gold plated, Black	Shunt	SNT-100-BK-G	Samtec	969102-0000-DA
U1	1		45-W, 2-MHz Digital Input 2-Channel Automotive Class-D Audio Amplifier with Load Dump Protection and I2C Diagnostics	HSSOP56	TAS6422EQDKQRQ1	Texas Instruments	
U2	1		IC MCU 512KB RAM, 128TQFP	TQFP-128	XEF216-512-TQ128-C20	XMOS semiconductor	
U3	1		OSC, 24 MHz, 2.25 - 3.63 V, SMD	2x1.6mm	ASTMLPA-24.000MHZ-EJ-E-T	Abracon Corporation	
U4	1		Dual-Bit Dual-Supply Bus Transceiver, DQE0008A, LARGE T&R	DQE0008A	SN74AVC2T244DQER	Texas Instruments	
U5	1		Programmable 1-PLL VCXO Clock Synthesizer with 2.5-V or 3.3-V LVCMOS Outputs, PW0014A (TSSOP-14)	PW0014A	CDCE913PWR	Texas Instruments	CDCE913PW
U6	1		Single-Channel Ultra-Small Adjustable Supervisory Circuit With Active-High Open-Drain Output, DRY0006A (USON-6)	DRY0006A	TPS3897ADRYR	Texas Instruments	
U7	1		Enhanced Product Dual Buffer/Driver with Open-Drain Output, DCK0006A (SOT-SC70-6)	DSF0006A	SN74LVC2G07DSFR	Texas Instruments	
U8	1		Photolink- Fiber Optic Receiver, TH	13.5x10x9.7mm	PLR135/T10	Everlight	
U9, U10, U11, U13	4		Single 2-Line to 1-Line Data Selector/Multiplexer, DCU0008A, LARGE T&R	DCU0008A	SN74LVC2G157DCUR	Texas Instruments	SN74LVC2G157DCUT
U12	1		Automotive Catalog 96-kHz 24-Bit Digital Audio Interface Receiver, 50 ps Jitter, 3.3V, -40 to 85 degC, 28-Pin TSSOP (PW), Green (RoHS & no Sb/Br)	PW0028A	DIR9001IPWQ1	Texas Instruments	
U14	1		5.5V, 4A, 16mΩ Automotive Load Switch With Adjustable Rise Time and Optional Quick Output Discharge, DSG0008B (WSON-8)	DSG0008B	TPS22965TDSGRQ1	Texas Instruments	TPS22965TDSGTQ1
U15	1		Single Output Automotive LDO, 500 mA, Fixed 3.3 V Output, 3.8 to 26 V Input, 3-pin PFM (KVU), -40 to 125 degC, Green (RoHS & no Sb/Br)	KVU0003A	TL760M33QKVURQ1	Texas Instruments	
U16	1		Single Output LDO, 400mA, Adj.(1.2 to 5.5V), Cap free, Low Noise, Reverse Current Protection, DBV0005A (SOT-23-5)	DBV0005A	TPS73618DBVR	Texas Instruments	
U17	1		1-A High Efficiency Step-Down Converter in SOT23-5 Package, DBV005A, DBV0005A (SOT-5)	DBV0005A	TLV62568DBVR	Texas Instruments	TLV62568DBVT
Y1	1		Crystal, 12.288 MHz, 18pF, SMD	Crystal, 2.5x1x3.2mm	ABM8G-12.288MHZ-18-D2Y-T	Abracon Corporation	
FID1, FID2, FID3, FID4, FID5, FID6	0		Fiducial mark. There is nothing to buy or mount.	N/A	N/A	N/A	
J12	0		Header, 100mil, 2x1, Gold, TH	Sullins 100mil, 1x2, 230 mil above insulator	PBC02SAAN	Sullins Connector Solutions	
R2, R4, R52, R56	0	4.99k	RES, 4.99 k, 1%, 0.063 W, AEC-Q200 Grade 0, 0402	0402	CRCW04024K99FKED	Vishay-Dale	

5 Revision History

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