TLV320AIC3262EVM-U Evaluation Module

This user's guide describes the operation, use, features, and characteristics of the TLV320AIC3262EVM-U. This small form factor evaluation module (EVM) is a programmable USB audio device that features the TLV320AIC3262 Audio Codec with miniDSP.

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1 EVM Overview

1.1 Features

- Full-featured, small form-factor EVM for the TLV320AIC3262 Audio Codec
- USB connection to the PC provides power, control, and streaming audio for quick and easy evaluation.
- Easy-to-use AIC3262 Control Software (CS) provides a graphical user interface to configure and control the TLV320AIC3262.

The TLV320AIC3262EVM-U is compatible with Windows™ XP-based personal computers.

1.2 Introduction

The TLV320AIC3262EVM-U is a USB audio device with programmable inputs and outputs, effects, and extensive routing capabilities. It is a simple platform to evaluate the TLV320AIC3262 miniDSP Audio Codec.

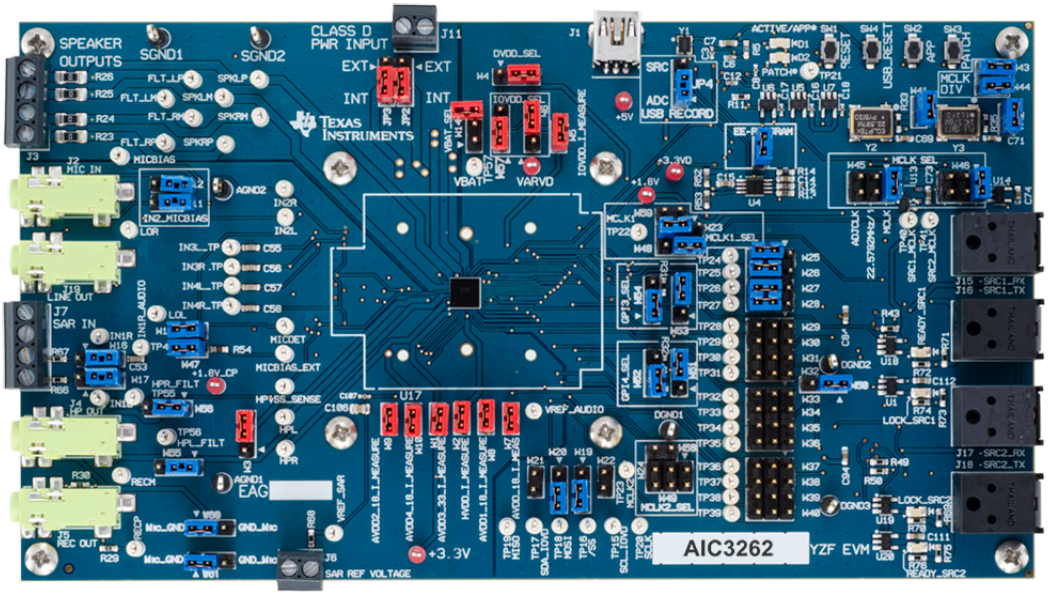

Figure 1. Top view of TLV320AIC3262EVM-U board

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2 EVM Description and Getting Started

2.1 TLV320AIC3262EVM-U Hardware Description

Table 1 summarizes the audio jacks available to connect analog inputs and outputs to the TLV320AIC3262 and the switches.

Table 1. Audio Jacks Available to Connect Analog Inputs and Outputs

Designator	Label	Associated pin	Description
J1	N/A	N/A	USB Mini-B jack
J2	MIC IN	IN2L/IN2R	Line input or electret-condenser microphone input. For Line output, W11 and W12 jumpers should be removed. To use electret-condenser microphones, install jumpers on W11 and W12; this connects 2.2kΩ pullup resistors to MICBIAS at both the tip and the ring.
J3	SPEAKER OUTPUTS	SPKLP/SPKLM/ SPKRP/SPKRM	Stereo Class-D Speaker Outputs
J4	HP OUT	HPL/HPR	Headphone Output
J5	REC OUT	RECP/RECM	Receiver Output
J6	SAR REF VOLTAGE	VREF_SAR	External voltage supply for SAR
J7	SAR IN	IN1L/IN1R	SAR ADC Inputs
J11	CLASS D PWR INPUT	SLVDD/SRVDD/ SPK_V	Connector for External Speaker Supply. To use external supply, set JP3 to 1-2 ("EXT") and JP2 to 1-2 ("EXT").
J19	LINE OUT	LOL/LOR	Line output. Connect only high-impedance loads to this output (e.g., external Class-D amplifier).
SW1	RESET	N/A	RESET switch
SW2	APP	N/A	Cycles through the applications loaded in the onboard EEPROM.
SW3	PATCH	N/A	Cycles through the patches loaded in the onboard EEPROM.
SW4	USB_RESET	N/A	USB_RESET

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2.2 Getting Started

Evaluation can start right out of the box:

1. Install jumpers for TLV320AIC3262EVM-U (see Section 7 for default jumper settings)
2. Download and install the TLV320AIC3262EVM-U Control Software from the EVM product folder. The password for installation is "CC".
3. Connect the TLV320AIC3262EVM to an available USB port. LED lights D1 and D2 should illuminate once the EVM is detected by PC. Also in the Windows device manager, the EVM should be recognized as “USB Composite Device”.

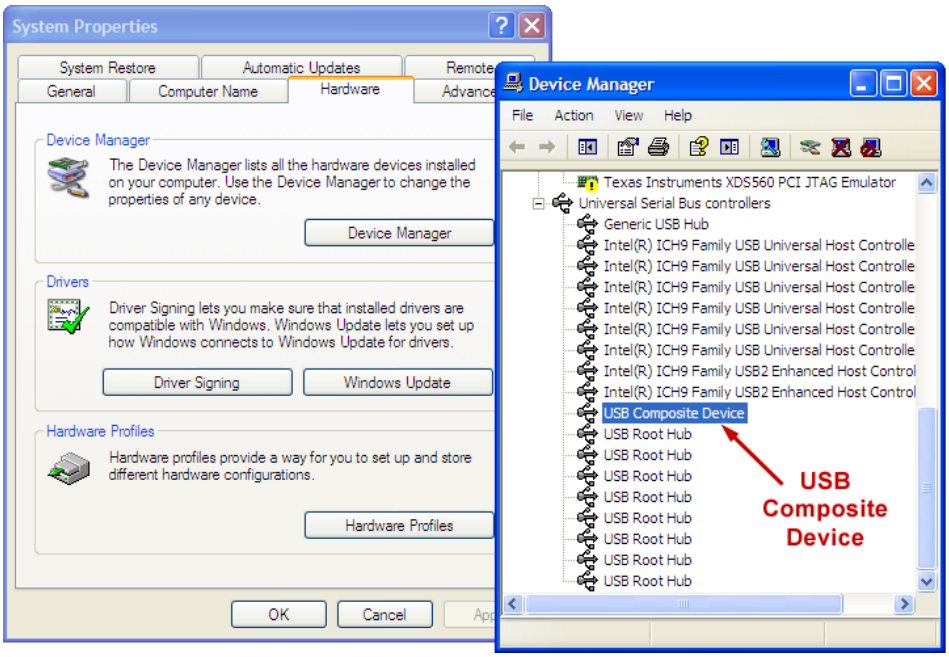

Figure 2. USB Connection

4. Connect stereo headphones at the headphone output (J4)

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5. Open AIC3262 Control Software and select a typical headphone playback script, as shown in Figure 3.

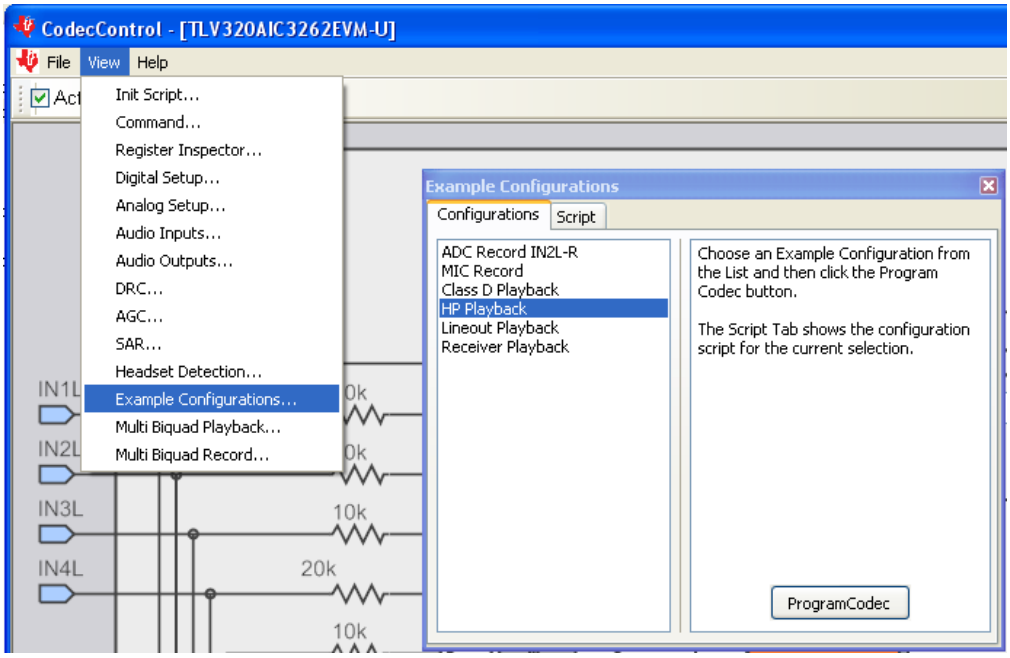

Figure 3. Using Example Configurations in Control Software

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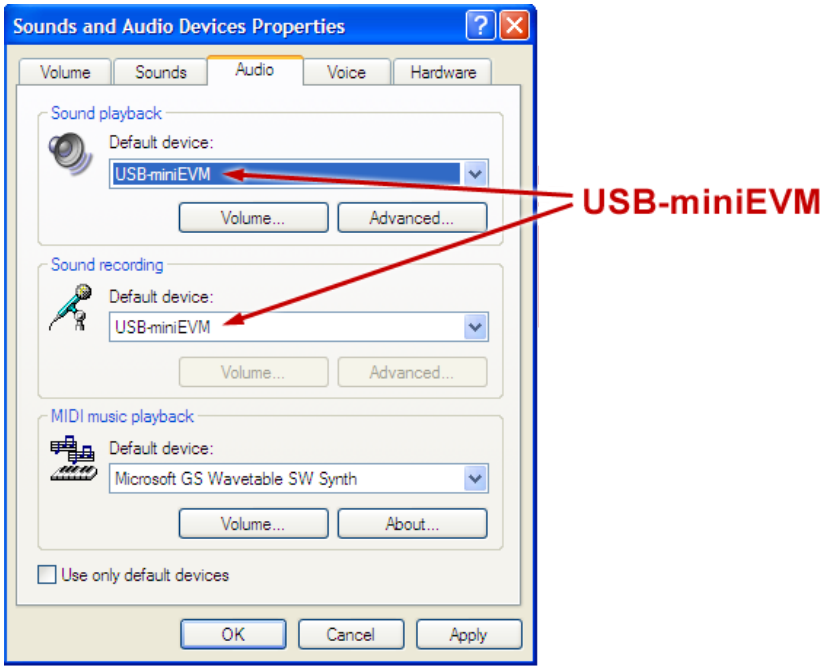
6. Play audio through any media playback tool on your PC. Make sure the playback setup on the PC is through '"USB-miniEVM".



To adjust playback volume, open "Sounds and Audio Devices Properties" in the control panel, and click the Volume button of the Sound playback section of the Audio tab. Ensure that "USB-miniEVM" is selected as the default playback and recording devices.

The following section explains the software installation procedure which allows programming of the audio device.

3 AIC3262 Control Software

The following sections describe the operation and installation of the AIC3262 control software.

3.1 AIC3262EVM CS Setup

To install the TLV320AIC3262 EVM-U software:

1. Download the latest version of the AIC3262EVM-U Control Software (CS) located in the *TLV320AIC3262 Product Folder*.
2. Open the self-extracting installation file, and extract to a known folder.
3. In that folder, install the Software by double-clicking the "CC.exe" and follow the directions. The installation password is "CC".
4. Connect TLV320AIC3262EVM-U to PC through USB cable and open up TLV320AIC3262 Control Software. The software will then pop up a window called select EVM to prompt the user to choose the correct EVM name

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3.2 Using the AIC3262EVM-U CS

The following sections describe the AIC3262EVM-U CS usage.

3.2.1 Main Panel Window

The Main Panel window, shown in Figure 4, provides easy access to all the features of the AIC3262 CS.

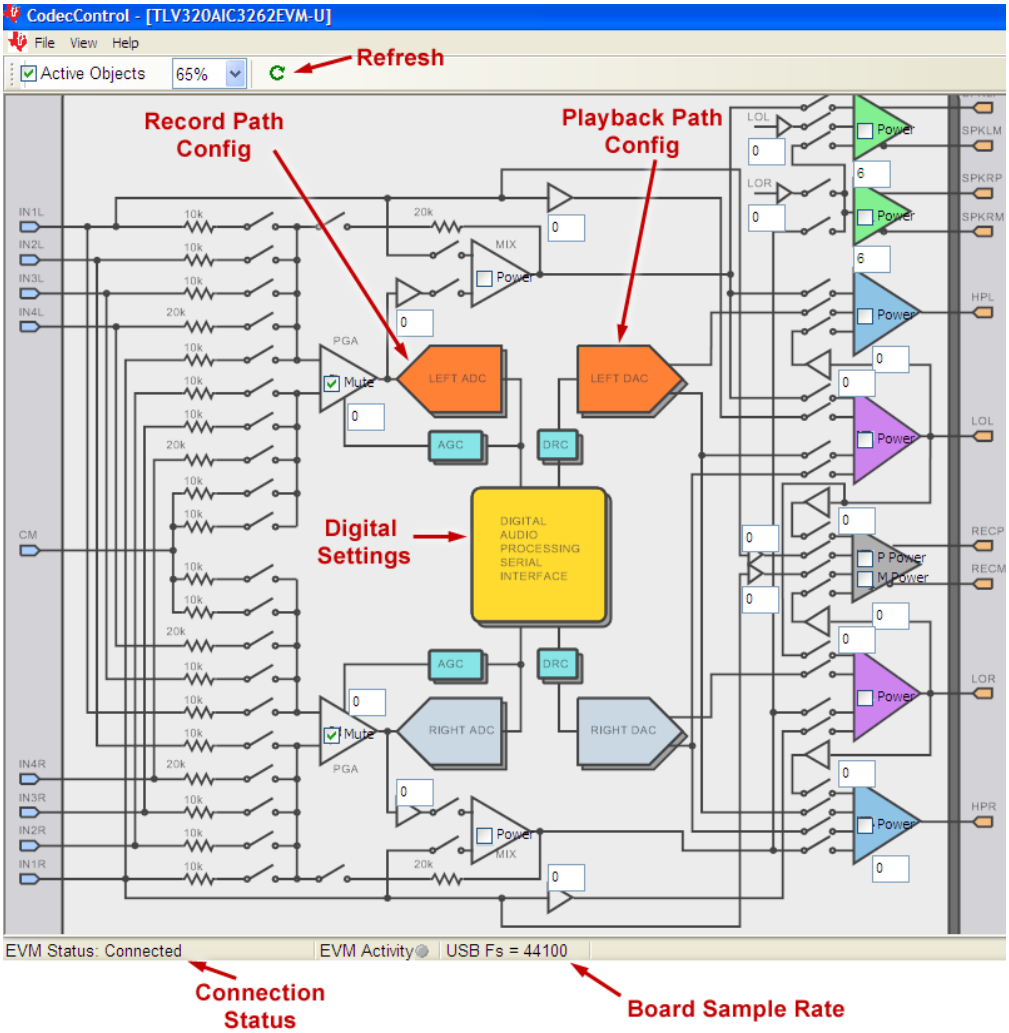

Figure 4. Main Panel Window

The main panel provides a high-level block diagram of the AIC3262. On the main panel, shown in Figure 4, users can configure the analog input and output routings by simply clicking on the switches. The analog setup, digital setup, audio inputs, audio outputs, DRC, AGC, SAR and headset detection provide additional control of many other features of the AIC3262. These categories are intended for advanced users and can be accessed by clicking “View” on the main panel. One can also click on the colored blocks on the main panel to gain access to these categories. Left ADC and Right ADC blocks provide detailed settings for recording path. Left DAC and Right DAC blocks provide detailed settings for playback path. Yellow block in the middle provides settings for digital interface, which includes Audio Serial Interface configuration, clock settings, etc.

Clicking “Refresh” button on the top will read back the current state of the AIC3262 register settings and reflect it to the user interface. “EVM status” on the bottom part of the main panel reflects the hardware connection of the EVM. “USB Fs” indicates the current sample rate of the EVM board.

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3.2.2 Typical Configuration

AIC3262 Control Software provides example scripts to typical playback and record application. These typical record and playback configurations can be accessed by choosing “Example Configuration…” under View. Once the typical configuration is selected, click “ProgramCodec” to download the script into EVM.

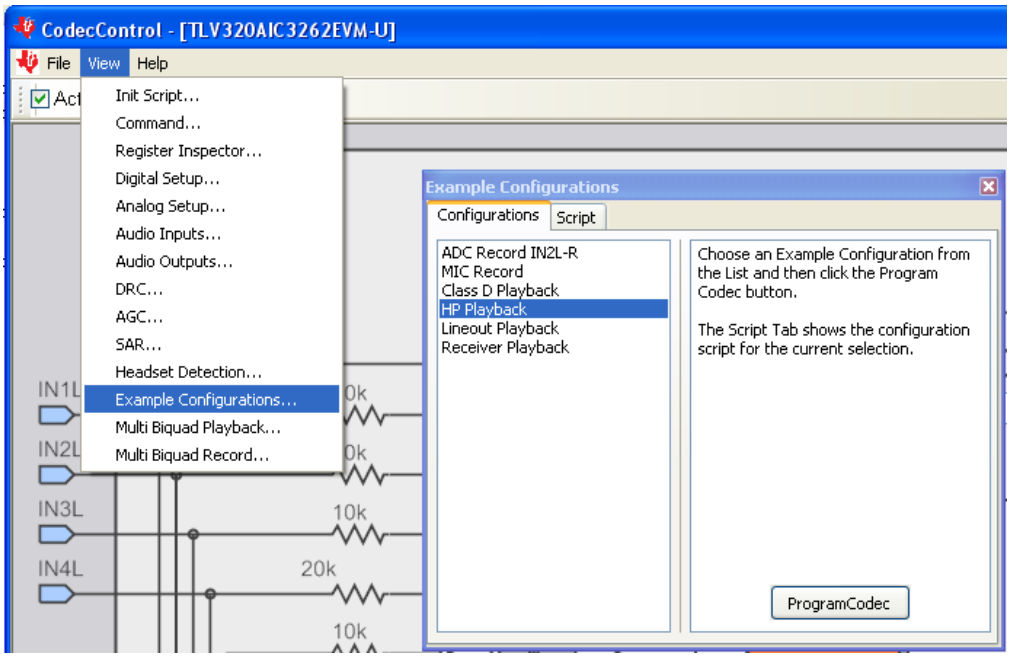

Figure 5. Example Configurations Window

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3.2.3 Command-Line Interface Panel

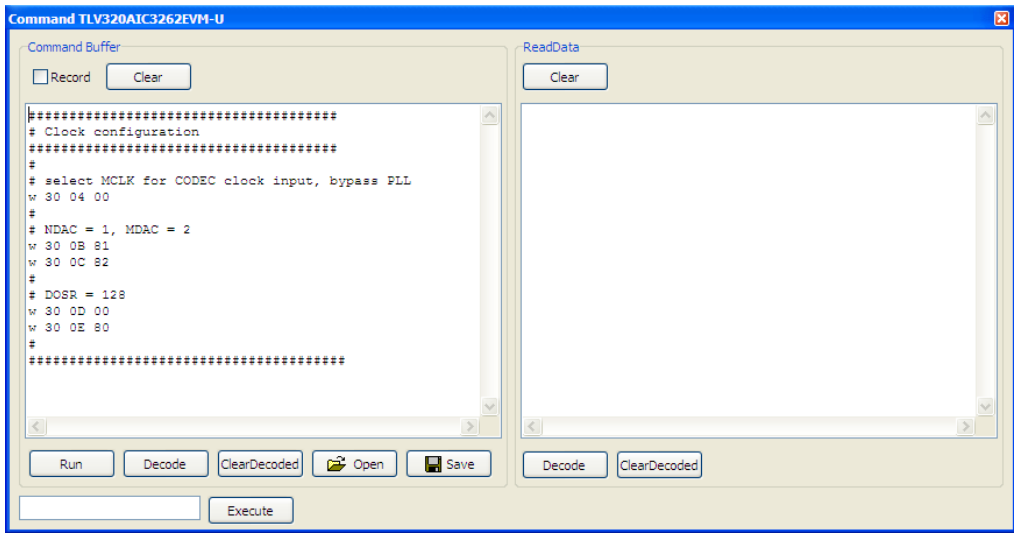

Figure 6. TLV320AIC3262 Control Software Command-Line Window

The command-line interface provides a means to communicate with the TLV320AIC3262 using a simple scripting language (described in the Section 8). The TAS1020B USB controller handles all communication between the PC and the codec. A script is loaded into the command buffer, either by loading a script file using the “open” button or by pasting text from the clipboard. Click “Run” to execute the command buffer.

All controls update their status with respect to the register contents in the following conditions:

- A panel is open
- The “Run” button in the command-line interface is pressed
- The “Refresh” button on the main panel window is pressed

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One feature in the command-line interface is the “Decode” function of the script. Clicking the “Decode” button on the command-line interface will decode the script line by line. This decode feature provides an easy means to understand the meaning of the script without referring to the register map. The decode content can be cleared by clicking “ClearDecode”.

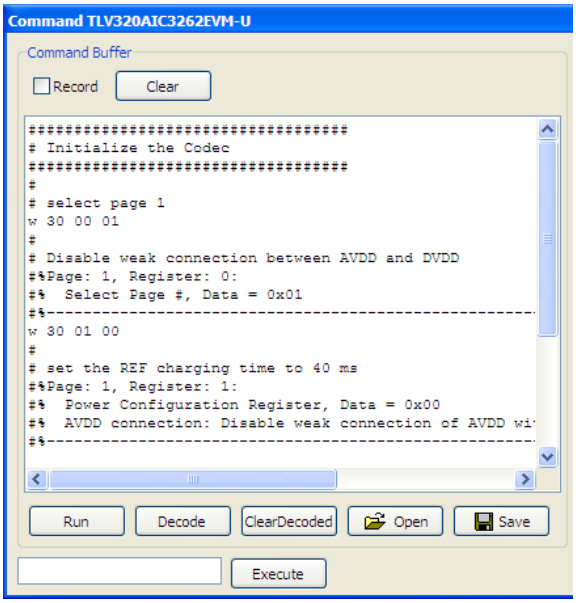

Figure 7. Decode Window

Another feature in the command-line interface is the “Record” function. By checking the “Record” box, one can record the current value of the register that is being modified. The recorded register values along with their page numbers are displayed in the command buffer. The recorded register values can also be decoded by clicking the “Decode” tab on the command-line interface window. The content of the command buffer can be cleared by clicking “Clear” button.

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3.2.4 Register Inspector Table

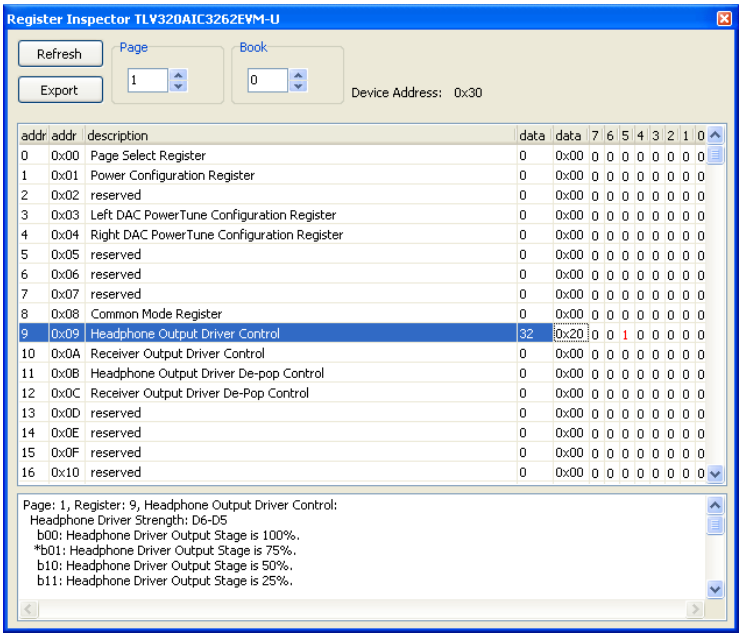

Figure 8. Register Inspector Window

The contents of TLV320AIC3262 register map can be accessed through the Register inspector table. The “Page” number control selects the page to be displayed in the register table. The register table contains information such as register name, current register value and the bit field of the current register value. While using the register inspect table, user should first specify the page number. Once the page is specified, user can inspect or change the register value by either entering the hex value of the register or changing the corresponding bits for that register.

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4 PC Board Drawings

The working dimensions of the PCB as shown below are 165mm × 91.4mm (6.5 × 3.6 inches).

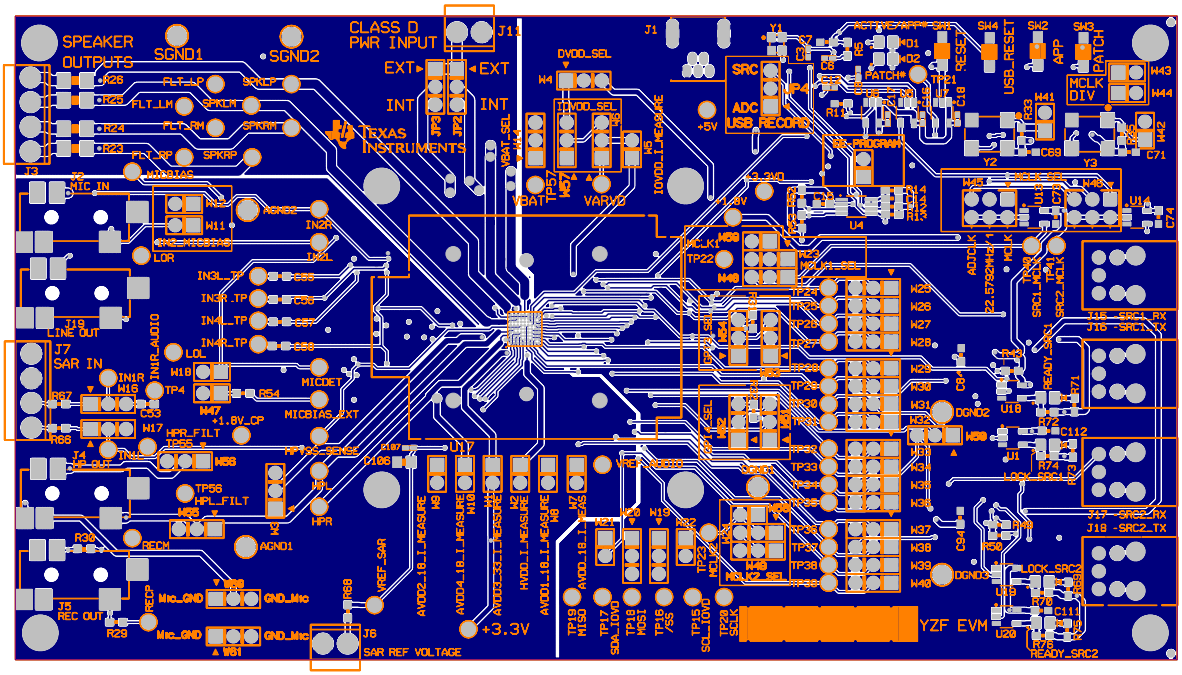

Figure 9. TLV320AIC3262EVM PCB Top

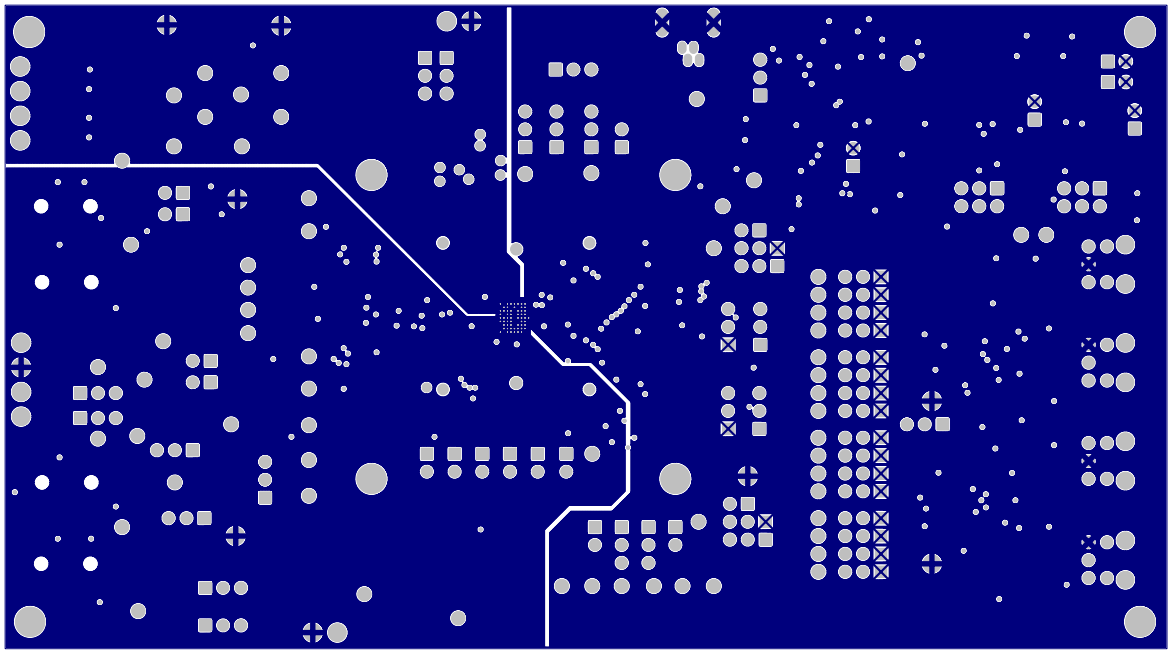

Figure 10. TLV320AIC3262EVM PCB Layer 2

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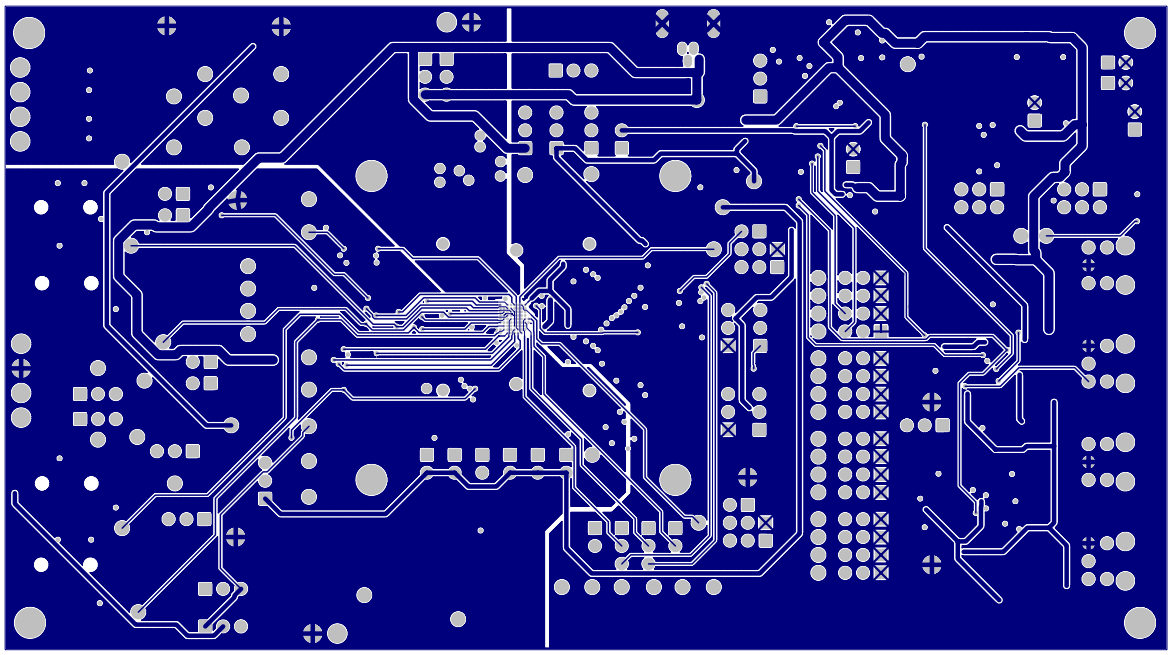

Figure 11. TLV320AIC3262EVM PCB Layer 3

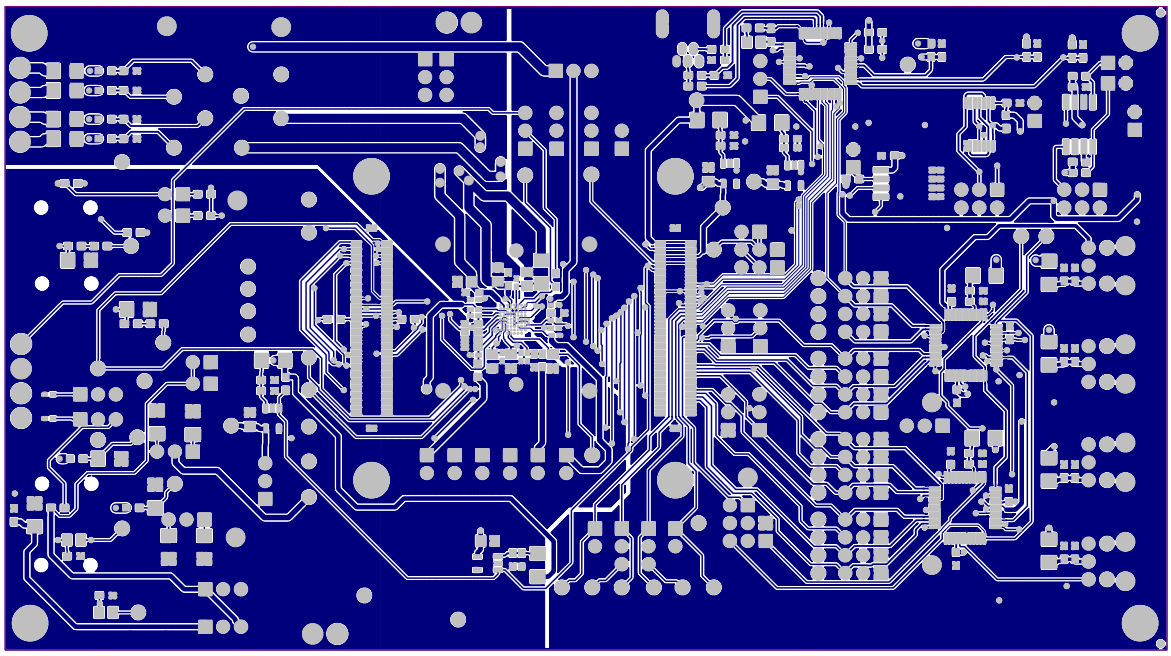

Figure 12. TLV320AIC3262EVM PCB Bottom Copper, Reversed

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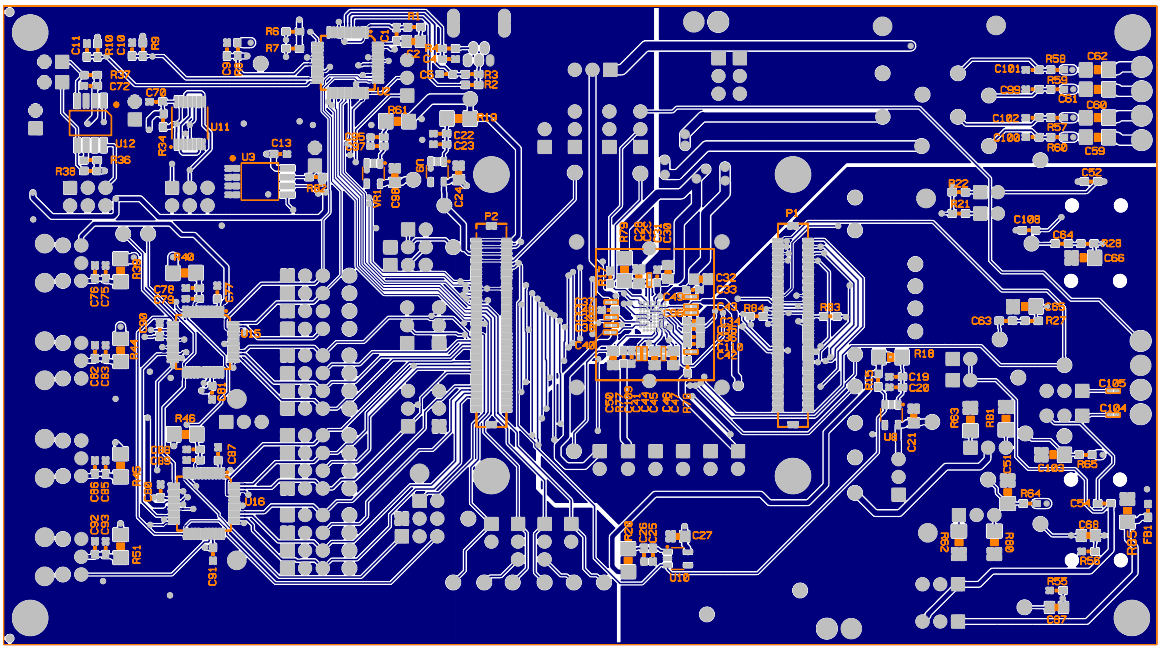

Figure 13. TLV320AIC3262EVM PCB Bottom

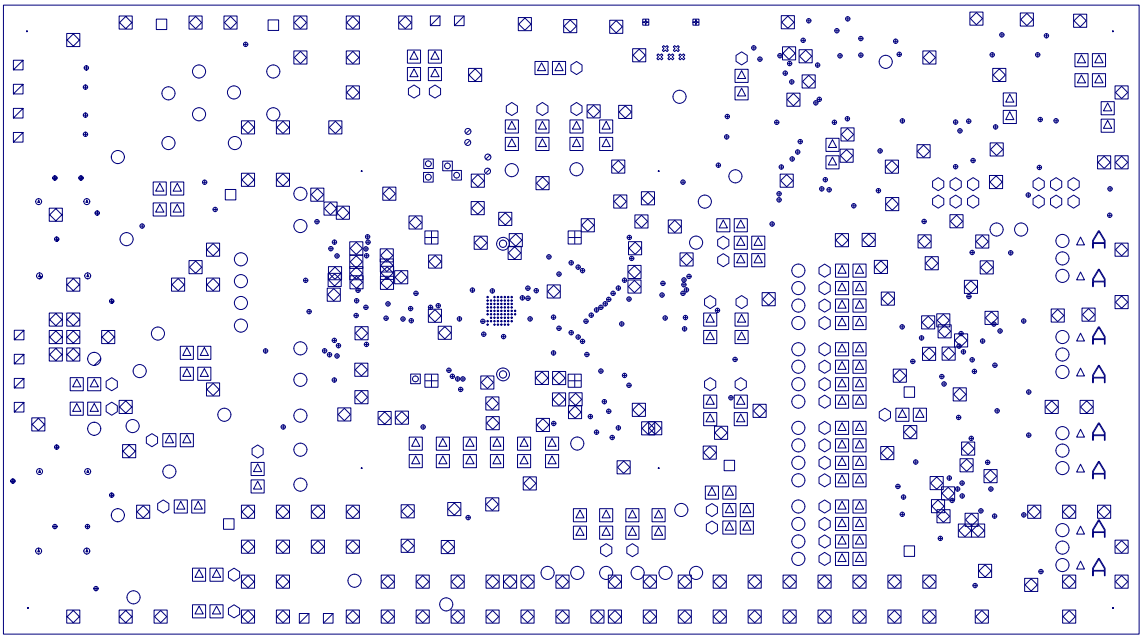

Figure 14. TLV320AIC3262EVM PCB Drill Pattern

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5 TLV320AIC3262EVM-U Schematic

The schematic diagram and the top-assembly drawing for the TLV320AIC3262EVM-U is provided as a reference.

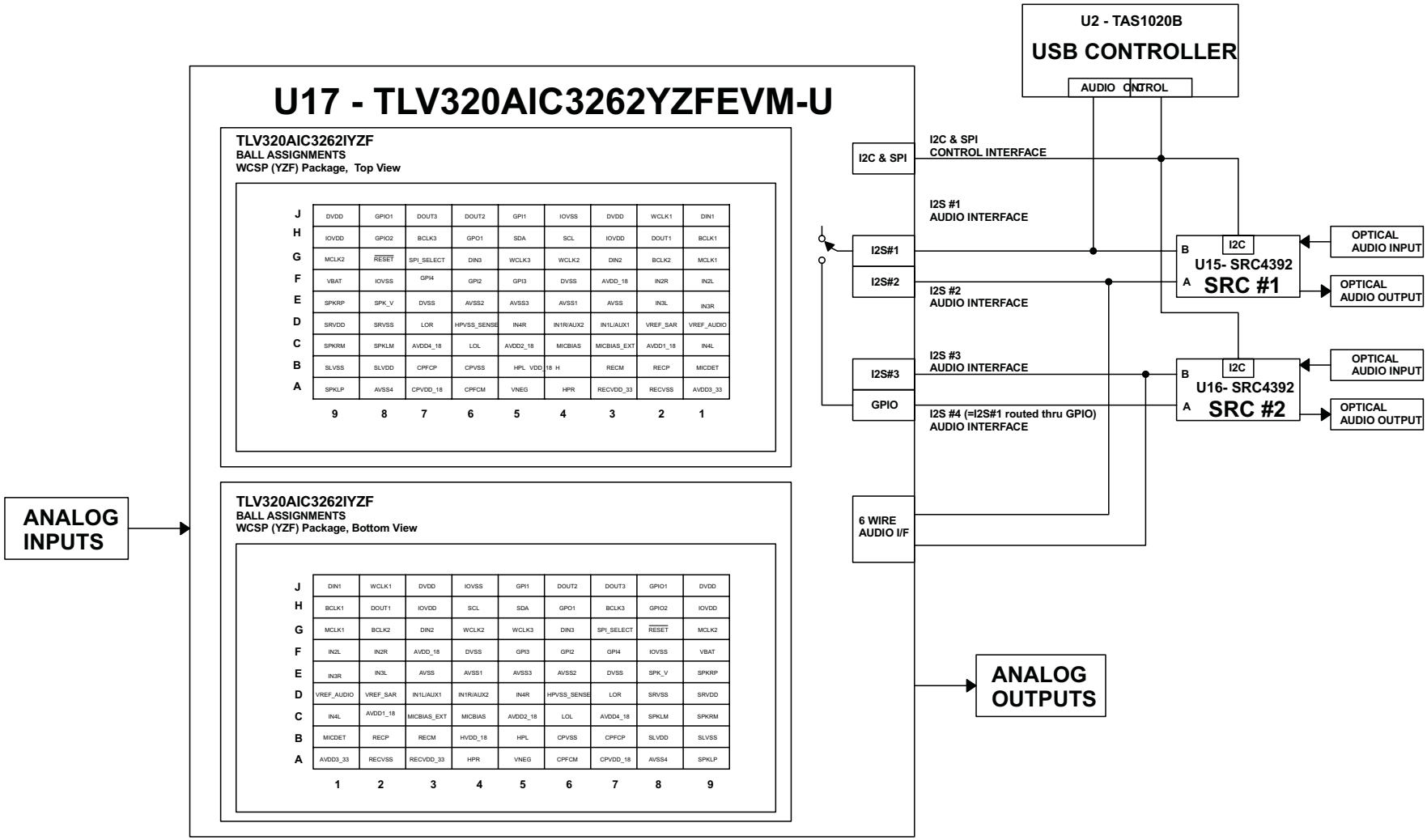

Figure 15. Schematic, Sheet 1 of 8

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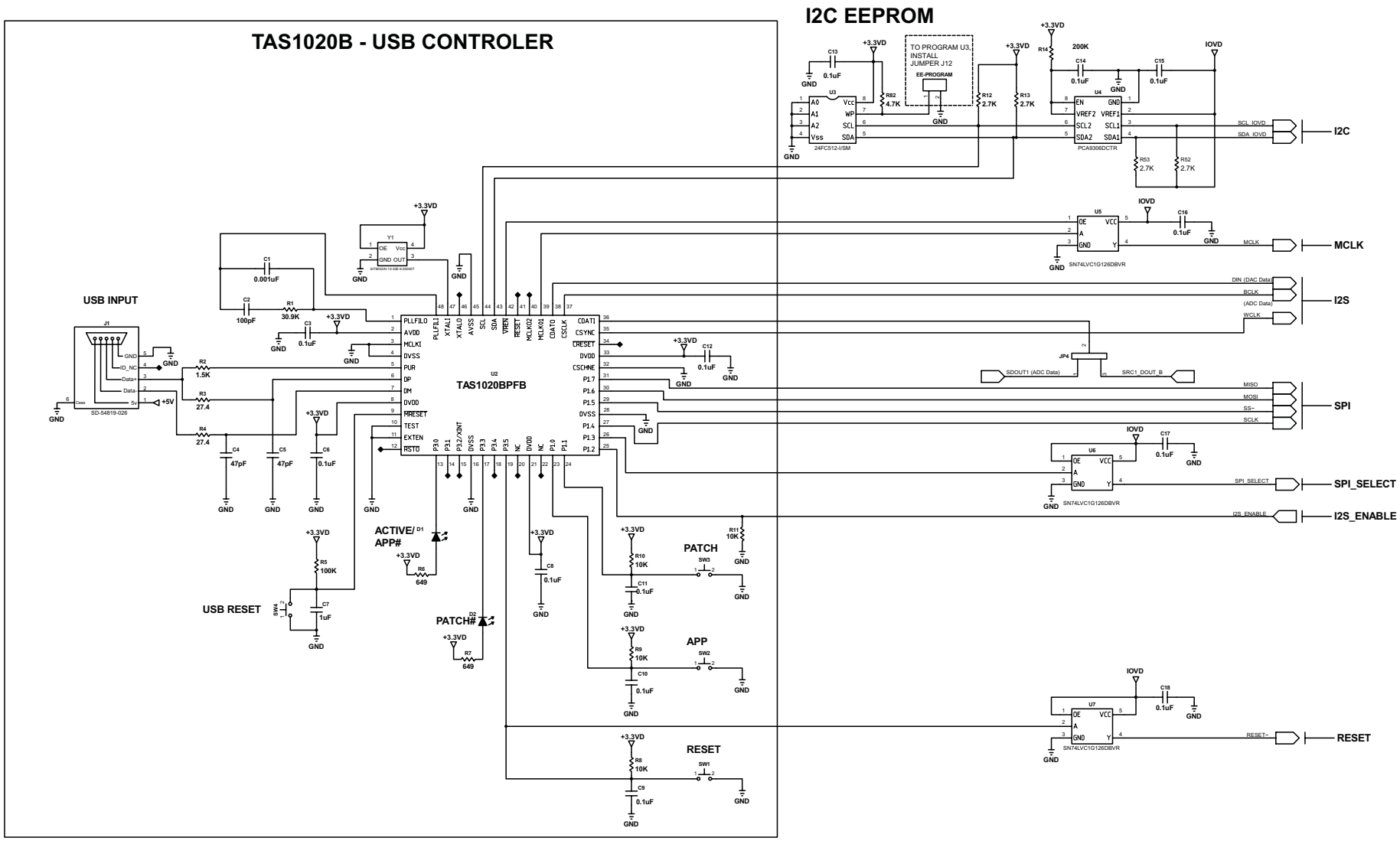

Figure 16. Schematic, Sheet 2 of 8

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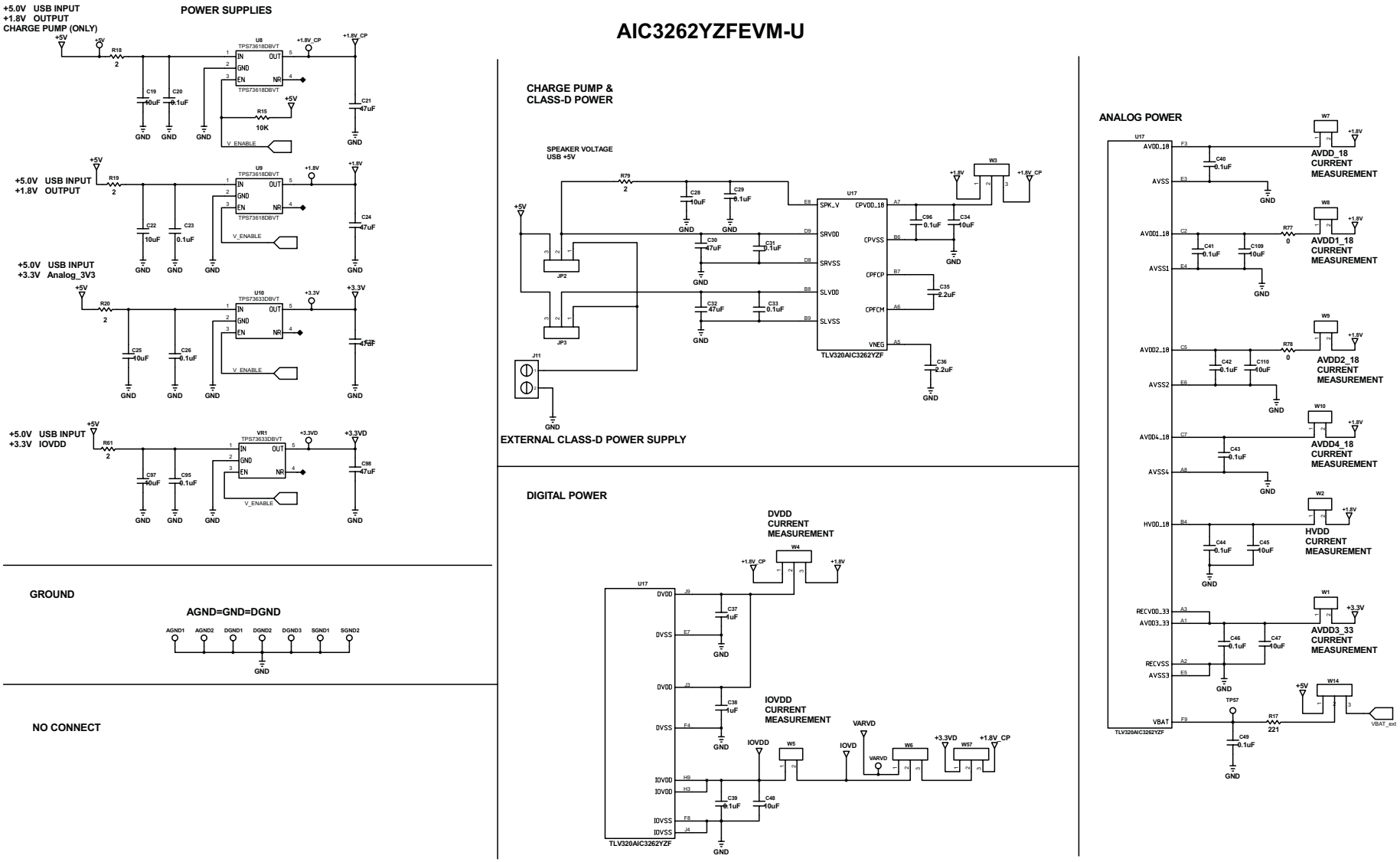

Figure 17. Schematic, Sheet 3 of 8

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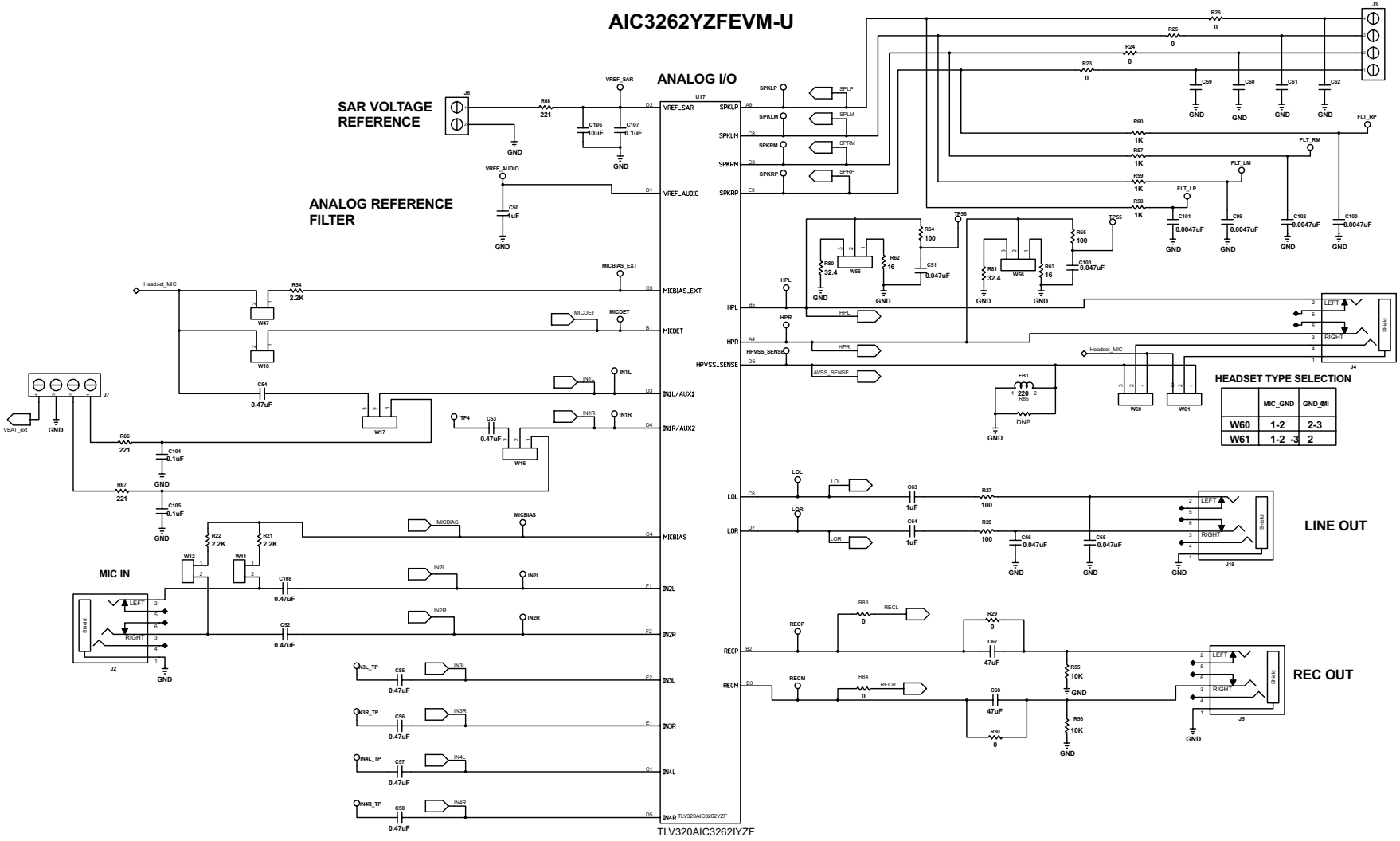

Figure 18. Schematic, Sheet 4 of 8

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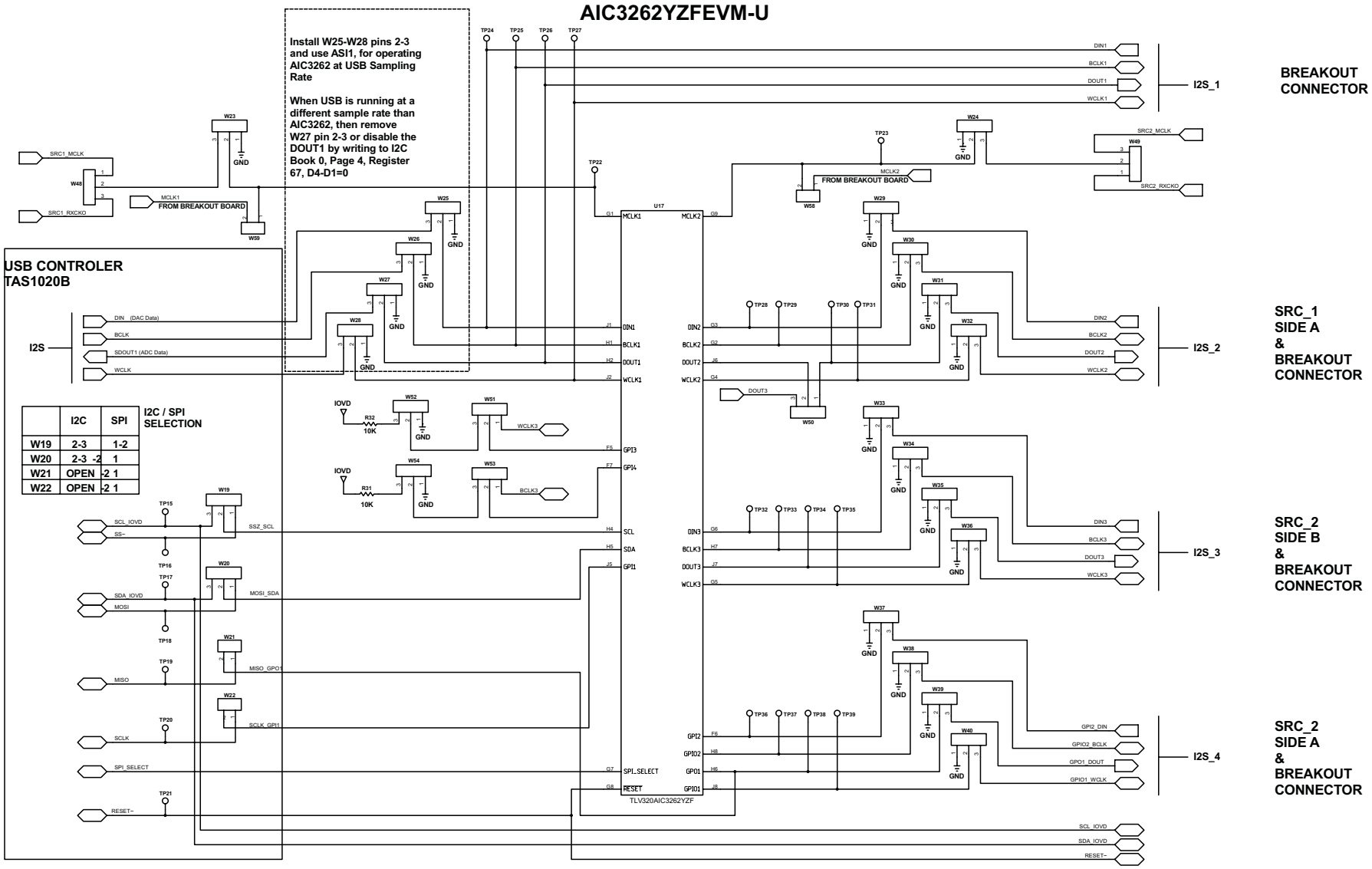

Figure 19. Schematic, Sheet 5 of 8

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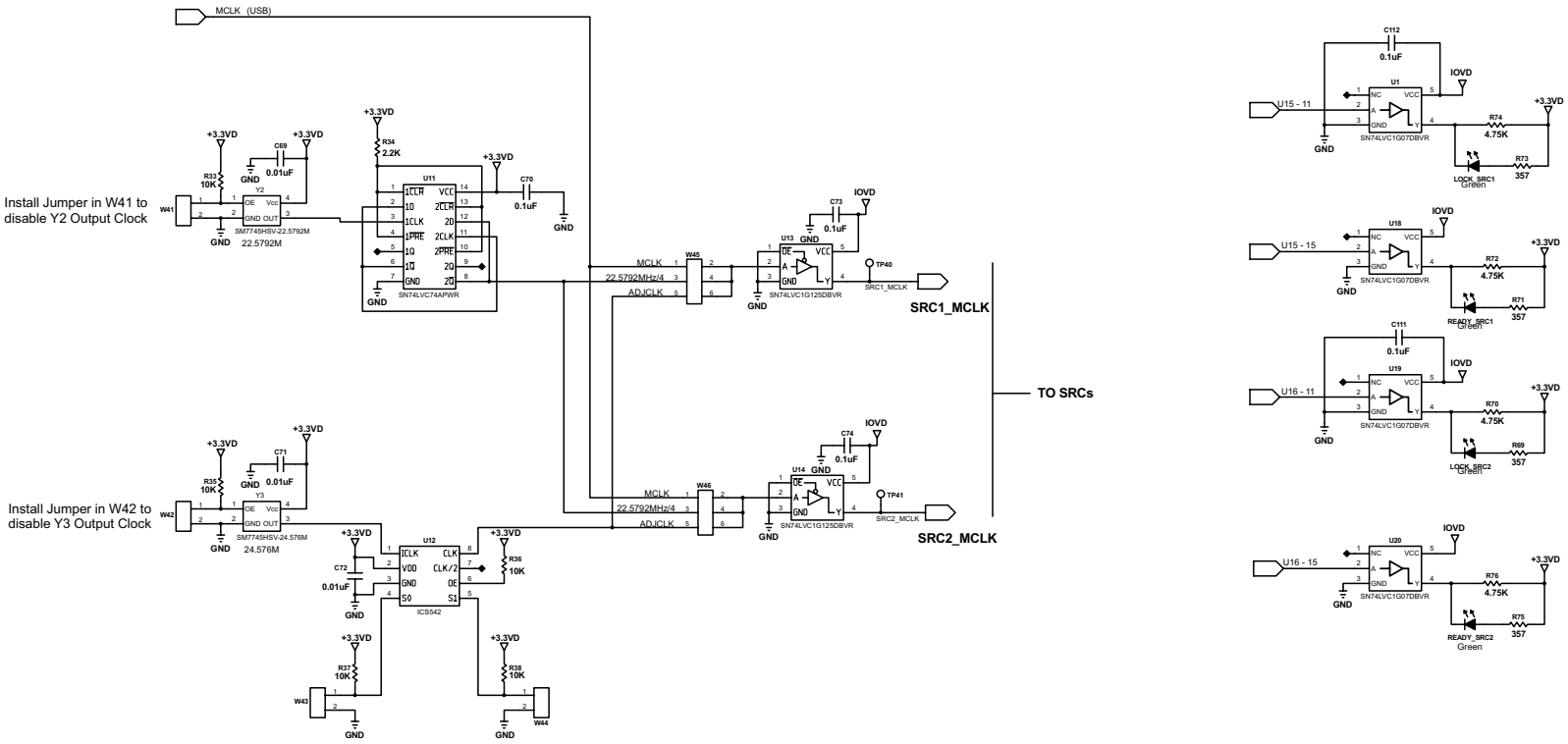

W44	W43	CLK	CLK/2
Installed	Installed	Power Down ALL	
Installed	Removed	Input/6	Input/12
Removed	Installed	Input/8	Input/16
Removed	Removed	Input/2	Input/4

Figure 20. Schematic, Sheet 6 of 8

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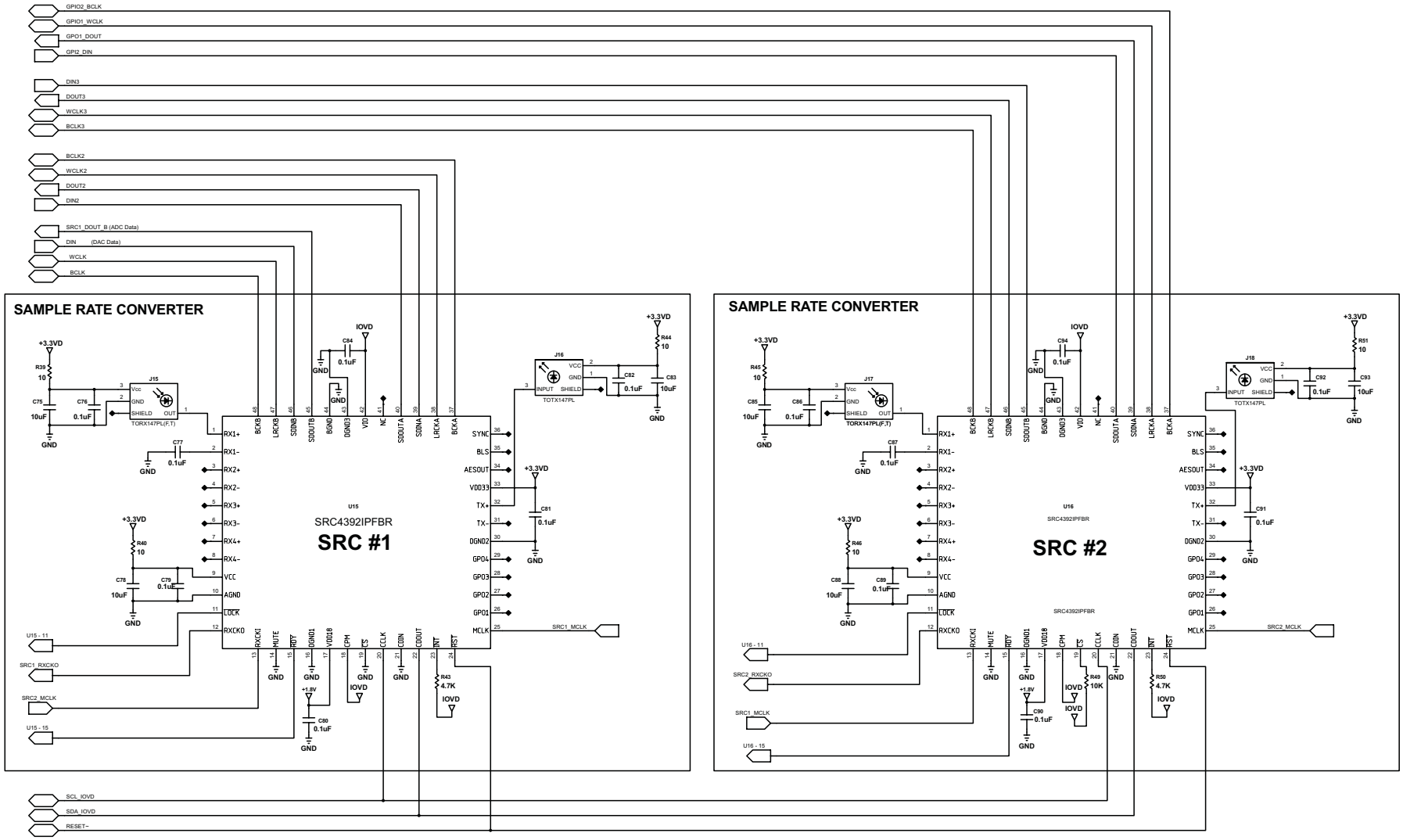

Figure 21. Schematic, Sheet 7 of 8

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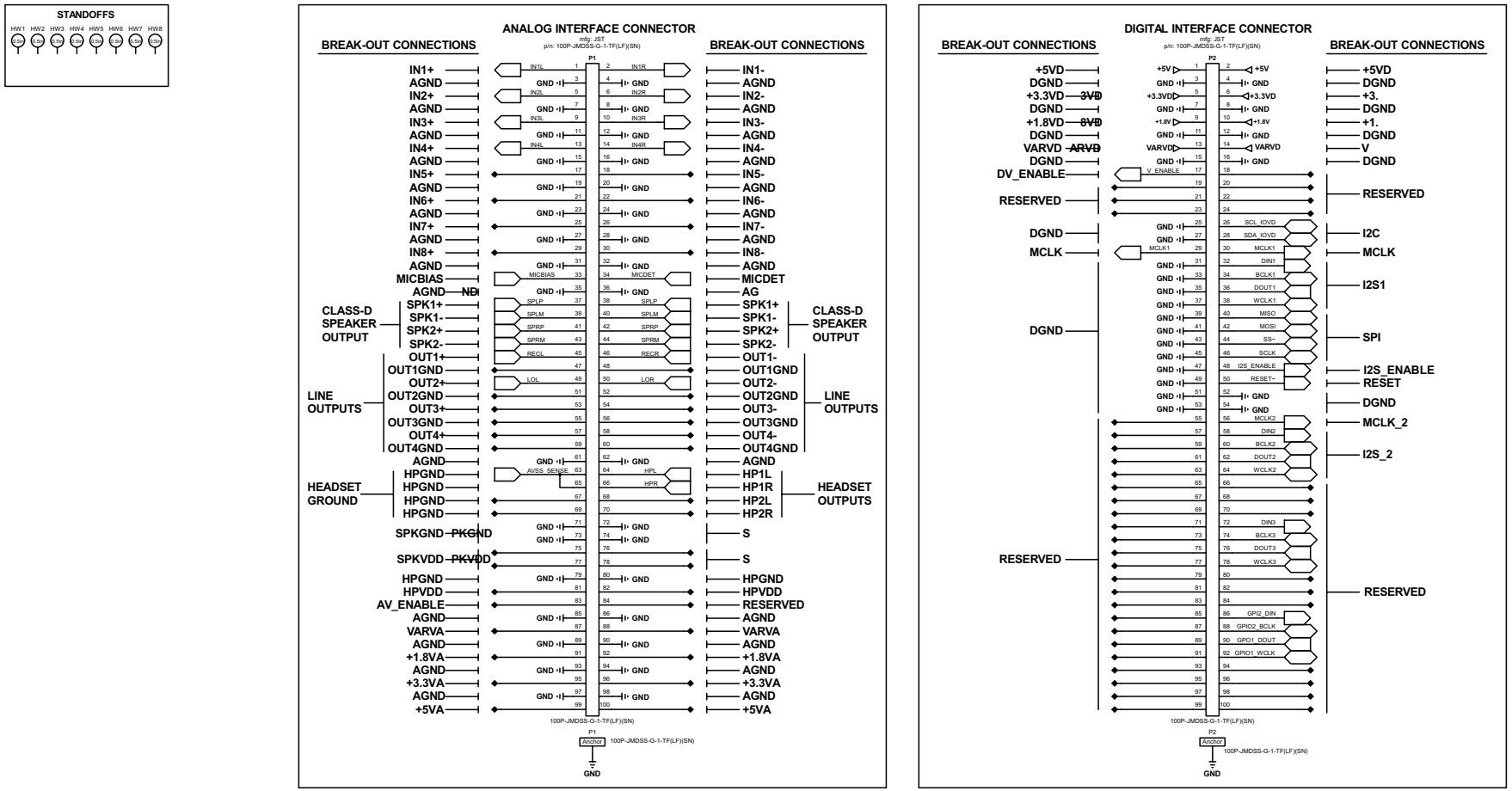

Figure 22. Schematic, Sheet 8 of 8

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6 TLV320AIC3262EVM-U Bill of Materials

Table 2. Bill of Materials for TLV320AIC3262_YZF_USB_EVM_REV2

TI-SEMICONDUCTORS							
Item	**QTY**	**REF DES**	**Description**	**Vendor**	**Vendor Part NO.**	**MANU**	**MANU Part NO.**
1	1	U17	POWER TUNED CODEC WCSP81-YZF ROHS	TEXAS INSTRUMENTS	TLV320AIC3262 YZF	TEXAS INSTRUMENTS	TLV320AIC3262YZF
2	1	U2	USB STREAMING CONTROLLER TQFP48-PFB ROHS	DIGI-KEY	296-13041-5	TEXAS INSTRUMENTS	TAS1020BPFB
3	3	U5, U6, U7	SINGLE BUS BUFFER GATE WITH 3-STATE OUTPUT SOT23-DBV5 ROHS	DIGI-KEY	296-11605-1	TEXAS INSTRUMENTS	SN74LVC1G126DBVR
4	2	U8, U9	VOLT REG 1.8V 400MA LDO CAP FREE NMOS SOT23-DBV5 ROHS	DIGI-KEY	296-15816-1	TEXAS INSTRUMENTS	TPS73618DBVT
5	2	U10, VR1	VOLT REG 3.3V 400MA LDO CAP FREE NMOS SOT23-DBV5 ROHS	DIGI-KEY	296-15819-1	TEXAS INSTRUMENTS	TPS73633DBVT
6	2	U15, U16	2 CHAN,ASYNC,SAMPLE RATE CONV W/DIG AUDIO REC/XMTR ROHS	DIGI-KEY	296-19740-1	BURR-BROWN	SRC4392IPFBR
7	2	U13, U14	SINGLE BUS BUFFER GATE WITH 3-STATE OUTPUT SOT23-DBV5 ROHS	DIGI-KEY	296-11603-1	TEXAS INSTRUMENTS	SN74LVC1G125DBVR
8	1	U4	DUAL BIDIR I2C BUS AND SMBUS VOLT LEVEL TRANS SSOP8-DCT ROHS	DIGI-KEY	296-18509-1	TEXAS INSTRUMENTS	PCA9306DCTR
9	1	U11	DUAL POS-EDGE-TRIG D-TYPE FLIP-FLOP W/CLR+PRE TSSOP8-PW ROHS	DIGI-KEY	296-1241-1-ND	TEXAS INSTRUMENTS	SN74LVC74APWR
10	4	U1, U18, U19, U20	SINGLE BUFFER/DRIVER GATE OPEN DRAIN OUTS SOT23-DBV5 ROHS	DIGI-KEY	296-8485-1	TEXAS INSTRUMENTS	SN74LVC1G07DBVR
SEMICONDUCTORS							
Item	**QTY**	**REF DES**	**Description**	**Vendor**	**Vendor Part NO.**	**MANU**	**MANU Part NO.**
11	1	U3	512K I2C SERIAL EEPROM SOIC8-SM ROHS	DIGI-KEY	24FC512-I/SM	MICROCHIP	24FC512-I/SM
12	2	J15, J17	TOSLINK RECEIVER 3.3V 15MB SHUTTER ROHS	DIGI-KEY	TORX147PLFT	TOSHIBA	TORX147PL(F,T)
13	2	J16, J18	TOSLINK TRANSMITTER 3.3V 15MB SHUTTER ROHS	NEWARK	05M1615	TOSHIBA	TOTX147PL
14	1	U12	CLOCK DIVIDER,SOP8-D,ROHS	DIGI-KEY	800-1803-1	IDT	ICS542
15	2	D1, D2	LED, YELLOW 2.0V SMD0805 ROHS	DIGI-KEY	67-1554-1	LUMEX OPTO	SML-LXT0805YW-TR
16	4	LOCK_SRC1, LOCK_SRC2, READY_SRC1, READY_SRC2	LED, GREEN 2.0V SMD0805 ROHS	DIGI-KEY	67-1553-1	LUMEX OPTO	SML-LXT0805GW-TR
17	1	Y1	OSCILLATOR SMT 6MHz 3.3V OUT-ENABLE ROHS	MOUSER	788-8002AI133E-6.0T	SITIME	SIT8002AI-13-33E-6.00000T
18	1	Y2	OSCILLATOR SMT 3.3V SM77H SERIES 22.5792MHz ROHS	NU HORIZONS	SM7745HSV-22.5792M	PLETRONICS	SM7745HSV-22.5792M
19	1	Y3	OSCILLATOR SMT 3.3V SM77H SERIES 24.576MHz ROHS	NU HORIZONS	SM7745HSV-24.576M	PLETRONICS	SM7745HSV-24.576M

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Table 2. Bill of Materials for TLV320AIC3262_YZF_USB_EVM_REV2 (continued)

CAPACITORS							
Item	**QTY**	**REF DES**	**Description**	**Vendor**	**Vendor Part NO.**	**MANU**	**MANU Part NO.**
20	1	C1	CAP SMD0603 CERM 1000PFD 50V 5% COG ROHS	DIGI-KEY	445-1293-1	TDK CORP.	C1608C0G1H102J
21	3	C7, C63, C64	CAP SMD0603 CERM 1.0UFD 16V 10% X7R ROHS	DIGI-KEY	445-1604-1	TDK	C1608X7R1C105K
22	1	C2	CAP SMD0805 CERM 100PFD 50V 5% C0G ROHS	DIGI-KEY	490-1615-1	MURATA	GRM2165C1H101JA01D
23	29	C9, C10, C11, C13, C14, C15, C20, C23, C26, C70, C73, C74, C76, C77, C79, C80, C81, C82, C84, C86, C87, C89, C90, C91, C92, C94, C95, C111, C112	CAP SMD0603 CERM 0.1UFD 50V 10% X7R ROHS	DIGI-KEY	445-1314-1	TDK	C1608X7R1H104K
24	8	C21, C24, C27, C30, C32, C67, C68, C98	CAP SMD0805 CERM 47UFD 6.3V 20% X5R ROHS	DIGI-KEY	587-1779-1	TAIYO YUDEN	JMK212BJ476MG-T
25	20	C3, C6, C8, C12, C16, C17, C18, C29, C39, C40, C41, C42, C43, C44, C46, C49, C96, C104, C105, C107	CAP SMD0402 CERM 0.1UFD 16V X7R 10% ROHS	DIGI-KEY	490-3261-1-ND	MURATA	GRM155R71C104KA88D
26	4	C28, C45, C47, C106	CAP SMD0805 CERM 10UFD 10V10% X7R ROHS	DIGI-KEY	490-3905-1	MURATA	GRM21BR71A106KE51L
27	4	C19, C22, C25, C97	CAP SMD0603 CERM 10UFD 10V 20% X5R ROHS	DIGI-KEY	PCC2479CT	PANASONIC	ECJ-1VB1A106M
28	2	C35, C36	CAP SMD0603 CERM 2.2UFD 10V 10% X7R ROHS	DIGI-KEY	490-4520-1	MURATA	GRM188R71A225KE15D
29	10	C34, C48, C75, C78, C83, C85, C88, C93, C109, C110	CAP SMD0603 CERM 10UFD 6.3V 20% X5R ROHS	DIGI-KEY	PCC2395CT	PANASONIC	ECJ-1VB0J106M
30	3	C69, C71, C72	CAP SMD0603 CERM 0.01UFD 25V 5% X7R ROHS	DIGI-KEY	478-3700-1	AVX	06031C103JAT2A
31	2	C37, C38	CAP SMD0402 CERM 1.0UFD 6.3V X5R 10% ROHS	DIGI-KEY	490-1320-1	MURATA	GRM155R60J105KE19D
32	2	C31, C33	CAP SMD0603 CERM 0.1UFD 50V 10% X7R ROHS	DIGI-KEY	490-1519-1	MURATA	GRM188R71H104KA93D
33	1	C50	CAP SMD0805 CERM 1.0UFD 16V 10% X7R ROHS	DIGI-KEY	445-1358-1	TDK	C2012X7R1C105K
34	8	C52, C53, C54, C55, C56, C57, C58, C108	CAP SMD0603 CERM 0.47UFD 16V 10% X5R ROHS	DIGI-KEY	478-1248-1	AVX	0603YD474KAT2A
35	4	C99, C100, C101, C102	CAP SMD0603 CERM 4700PFD 25V 5% COG ROHS	DIGI-KEY	445-2712-1-ND	TDK CORP.	C1608C0G1E472J
36	4	C51, C65, C66, C103	CAP SMD1206 CERM 0.047ufd 50V COG 5% ROHS	DIGI-KEY	490-1764-1-ND	MURATA	GRM31M5C1H473JA01L
37	2	C4, C5	CAP SMD0603 CERM 47PFD 50V 5% COG ROHS	DIGI-KEY	490-1419-1	MURATA	GRM1885C1H470JA01D

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Table 2. Bill of Materials for TLV320AIC3262_YZF_USB_EVM_REV2 (continued)

RESISTORS							
Item	**QTY**	**REF DES**	**Description**	**Vendor**	**Vendor Part NO.**	**MANU**	**MANU Part NO.**
38	1	R2	RESISTOR SMD0603 1.50K OHM 1% THICK FILM 1/10W ROHS	DIGI-KEY	P1.50KHCT	PANASONIC	ERJ-3EKF1501V
39	1	R5	RESISTOR SMD0603 100K OHM 1% THICK FILM 1/10W ROHS	DIGI-KEY	P100KHCT	PANASONIC	ERJ-3EKF1003V
40	13	R8, R9, R10, R11, R15, R31, R32, R33, R35, R36, R37, R38, R49	RESISTOR SMD0603 10K 5% 1/10W ROHS	DIGI-KEY	P10KGCT	PANASONIC	ERJ-3GEYJ103V
41	2	R6, R7	RESISTOR SMD0603 THICK FILM 649 OHMS 1% 1/10W ROHS	DIGI-KEY	311-649HRCT	YAGEO	RC0603FR-07649RL
42	1	R1	RESISTOR SMD0603 30.9K OHMS 1% 1/10W ROHS	DIGI-KEY	541-30.9KHCT	VISHAY	CRCW060330K9FKEA
43	2	R3, R4	RESISTOR SMD0603 27.4 OHMS 1% 1/10W ROHS	DIGI-KEY	P27.4HCT	PANASONIC	ERJ-3EKF27R4V
44	4	R12, R13, R52, R53	RESISTOR SMD0603 2.7K OHMS 5% 1/10W ROHS	DIGI-KEY	P2.7KGCT	PANASONIC	ERJ-3GEYJ272V
45	4	R21, R22, R34, R54	RESISTOR SMD0603 2.20K OHMS 1% THICK FILM 1/10W ROHS	DIGI-KEY	P2.20KHCT	PANASONIC	ERJ-3EKF2201V
46	4	R23, R24, R25, R26	RESISTOR SMD1206 0.0 OHM 5% 1/4W ROHS	DIGI-KEY	P0.0ECT	PANASONIC	ERJ-8GEY0R00V
47	4	R27, R28, R64, R65	RESISTOR SMD0603 100 OHM 1/10W 1% ROHS	DIGI-KEY	541-100HCT	VISHAY	CRCW0603100RFKEA
48	3	R43, R50, R82	RESISTOR SMD0603 4.7K OHMS 5% 1/10W ROHS	DIGI-KEY	P4.7KGCT	PANASONIC	ERJ-3GEYJ472V
49	6	R39, R40, R44, R45, R46, R51	RESISTOR SMT1206 10.0 OHM 1% 1/4W ROHS	DIGI-KEY	P10.0FCT	PANASONIC	ERJ-8ENF10R0
50	1	R14	RESISTOR SMD0603 200K OHMS 5% 1/10W ROHS	DIGI-KEY	P200KGCT	PANASONIC	ERJ-3GEYJ204V
51	4	R29, R30, R77, R78	RESISTOR SMD0603 0.0 OHM 5% THICK FILM 1/10W ROHS	DIGI-KEY	P0.0GCT	PANASONIC	ERJ-3GEY0R00V
52	2	R55, R56	RESISTOR SMD0603 10.0K OHMS 0.1% 25 PPM 1/10W ROHS	DIGI-KEY	P10KYCT	PANASONIC	ERA-3YEB103V
53	4	R57, R58, R59, R60	RESISTOR SMD0603 THICK FILM 1.00K OHM 1% 1/10W ROHS	DIGI-KEY	311-1.00KHRCT	YAGEO	RC0603FR-071KL
54	2	R62, R63	RESISTOR,SMT,1206,16.0 OHM,5%,1/4W,ROHS	DIGI-KEY	541-16ECT	VISHAY	CRCW120616R0JNEA
55	4	R17, R66, R67, R68	RESISTOR SMD0603 221 OHMS 1% 1/10W ROHS	DIGI-KEY	541-221HCT	VISHAY	CRCW0603221RFKEA
56	5	R18, R19, R20, R61, R79	RESISTOR,SMT,1206,2.0 OHM,5%,1/4W,ROHS	DIGI-KEY	541-2.0ECT-ND	VISHAY	CRCW12062R00JNEA
57	2	R80, R81	RESISTOR SMD1206 32.4 OHMS 1% 1/4W ROHS	DIGI-KEY	311-32.4FRCT-ND	YAGEO	RC1206FR-0732R4L
58	4	R70, R72, R74, R76	RESISTOR SMD0603 4.75K OHMS 1% 1/10W ROHS	DIGI-KEY	541-4.75KHCT	VISHAY	CRCW06034K75FKEA
59	4	R69, R71, R73, R75	RESISTOR SMD0603 357 OHM 1% THICK FILM 1/10W ROHS	DIGI-KEY	P357HCT	PANASONIC	ERJ-3EKF3570V
60	2	R83, R84	RESISTOR,SMT,0603,0603,1/10W,0 OHM,ZERO OHM	DIGI-KEY	RMCF0603ZT0R00CT-ND	STACKPOLE ELECTRONICS	CRCW0603000Z
FERRITES, INDUCTORS, CHOKES, COILS AND TRANSFORMERS							
Item	**QTY**	**REF DES**	**Description**	**Vendor**	**Vendor Part NO.**	**MANU**	**MANU Part NO.**
61	1	FB1	FERRITE CHIP, 220 OHMS 2A 100MHZ SMD 0603 ROHS	DIGI-KEY	445-1565-1	TDK	MPZ1608S221A

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Table 2. Bill of Materials for TLV320AIC3262_YZF_USB_EVM_REV2 (continued)

HEADERS AND JACKS							
Item	**QTY**	**REF DES**	**Description**	**Vendor**	**Vendor Part NO.**	**MANU**	**MANU Part NO.**
62	41	W3, W4, W6, W14, W16, W17, W19, W20, W23, W24, W25, W26, W27, W28, W29, W30, W31, W32, W33, W34, W35, W36, W37, W38, W39, W40, W48, W49, W50, W51, W52, W53, W54, W55, W56, W57, W60, W61, JP2, JP3, JP4	HEADER THRU MALE 3 PIN 100LS GOLD ROHS	DIGI-KEY	S1011E-03-ND	SULLINS	PBC03SAAN
63	20	W1, W2, W5, W7, W8, W9, W10, W11, W12, W18, W21, W22, W41, W42, W43, W44, W47, W58, W59, EE-PROGRAM	HEADER THRU MALE 2 PIN 100LS GOLD ROHS	DIGI-KEY	S1011E-02	SULLINS	PBC02SAAN
64	2	W45, W46	HEADER THRU MALE 2X3 PIN 100LS GOLD ROHS	DIGI-KEY	S2011E-03	SULLINS	PBC03DAAN
65	2	P1, P2	PLUG SMD 2x50 FEMALE JMDSERIES 0.5MM LS GOLD ROHS	DIGI-KEY	455-1880-1	JST	100P-JMDSS-G-1-TF(LF)(SN)
66	4	J2, J4, J5, J19	JACK AUDIO-STEREO MINI(3.5MM ,4-COND SMT-RA ROHS	DIGI-KEY	CP-43516SJCT	CUI STACK	SJ-43516-SMT
67	1	J1	JACK USB MINIB RA 5PIN ROHS	DIGI-KEY	WM2072	MOLEX	SD-54819-026
SOCKETS, SOCKET PINS AND TERMINAL BLOCKS							
Item	**QTY**	**REF DES**	**Description**	**Vendor**	**Vendor Part NO.**	**MANU**	**MANU Part NO.**
68	2	J3, J7	TERMINAL BLOCK 4PIN 6A/125V GRAY 3.5mm PITCH 16-28AWG ROHS	DIGI-KEY	ED1516	ON SHORE TECHNOLOGY	ED555/4DS
69	2	J6, J11	TERMINAL BLOCK 2PIN 6A/125V GRAY 3.5mm PITCH 16-28AWG ROHS	DIGI-KEY	ED1514	ON SHORE TECHNOLOGY	ED555/2DS

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Table 2. Bill of Materials for TLV320AIC3262_YZF_USB_EVM_REV2 (continued)

TESTPOINTS AND SWITCHES							
ITEM	**QTY**	**REF DESIGNATORS**	**DESCRIPTION**	**VENDOR**	**VENDOR PART NUM**	**MANU**	**MANU PART NUM**
70	59	HPL, HPR, LOL, LOR, TP4, IN1L, IN1R, IN2L, IN2R, RECM, RECP, TP15, TP16, TP17, TP18, TP19, TP20, TP21, TP22, TP23, TP24, TP25, TP26, TP27, TP28, TP29, TP30, TP31, TP32, TP33, TP34, TP35, TP36, TP37, TP38, TP39, TP40, TP41, TP55, TP56, TP57, SPKLM, SPKLP, SPKRM, SPKRP, FLT_LM, FLT_LP, FLT_RM, FLT_RP, MICDET, IN3L_TP, IN3R_TP, IN4L_TP, IN4R_TP, MICBIAS, VREF_SAR, VREF_AUDIO, HPVSS_SENSE, MICBIAS_EXT VREF_SAR	PC TESTPOINT, WHITE, ROHS	DIGI-KEY	5002K	KEYSTONE ELECTRONICS	5002
71	7	AGND1, AGND2, DGND1, DGND2, DGND3, SGND1, SGND2	PC TESTPOINT BLACK 063 HOLE ROHS	DIGI-KEY	5011K	KEYSTONE ELECTRONICS	5011
72	6	+1.8V, +1.8V_CP, +3.3V, +3.3VD, +5V, VARVD	PC TESTPOINT, RED, ROHS	DIGI-KEY	5000K	KEYSTONE ELECTRONICS	5000
73	4	SW1, SW2, SW3, SW4	SWITCH, MOM, 160G SMT 4X3MM ROHS	DIGI-KEY	EG4344CT	E-SWITCH	TL1015AF160QG
STANDOFFS AND HARDWARE							
Item	**QTY**	**REF DES**	**Description**	**Vendor**	**Vendor Part NO.**	**MANU**	**MANU Part NO.**
74	8	HW1, HW2, HW3, HW4, HW5, HW6, HW7, HW8	STANDOFF,4-40,0.5INx3/16IN,ALUM RND F-F	KEYSTONE ELECTRONICS	2027K	KEYSTONE ELECTRONICS	2027
COMPONENTS NOT ASSEMBLED							
Item	**QTY**	**REF DES**	**Description**	**Vendor**	**Vendor Part NO.**	**MANU**	**MANU Part NO.**
75	4	C59, C60, C61, C62	C1206_DNP	N/A	N/A	N/A	C1206_DNP
76	1	R85	R1206_DNP	N/A	N/A	N/A	R1206_DNP
SHUNTS							
Item	**QTY**	**REF DES**	**Description**	**Vendor**	**Vendor Part NO.**	**MANU**	**MANU Part NO.**
1001		AS NEEDED	SHUNT STANDARD 2POS .200 TIN	DIGI-KEY	A31698-ND	TE CONNECTIVITY	531230-4

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7 Default Jumper Positions

Table 3. TLV320AIC3262EVM-U Default Jumper Positions

Reference Designator	Default Position	Description
JP2	2-3	Supply for SRVDD
JP3	2-3	Supply for SLVDD
JP4	1-2	Selection between Record to USB and SRC Record
W1	Installed	AVDD3_33 Current Measurement
W2	Installed	HVDD Current Measurement
W3	2-3	Supply Selection for CPVDD_18
W4	2-3	Supply Selection for DVDD
W5	Installed	IOVDD Current Measurement
W6	2-3	Supply Selection for IOVDD
W7	Installed	AVDD_18 Current Measurement
W8	Installed	AVDD1_18 Current Measurement
W9	Installed	AVDD2_18 Current Measurement
W10	Installed	AVDD4_18 Current Measurement
W11	Installed	Internal MICBIAS
W12	Installed	Internal MICBIAS
W14	Open	Supply Selection for VBAT
W16	2-3	Input Configuration for IN1R
W17	2-3	Input Configuration for IN1L
W18	Installed	Jumper for MICDET
W19	2-3	I2C/SPI - Selection between SCL and /SS lines
W20	2-3	I2C/SPI - Selection between SDA and MOSI lines
W21	Open	I2C/SPI - Connection of MISO to GPO1 pin
W22	Open	I2C/SPI - Coneection of SCLK to GPI1 pin
W23	2-3	Selection for External MCLK1
W24	1-2	Selection for External MCLK2
W25	2-3	Configuration for Audio Serial Interface #1 DIN1
W26	2-3	Configuration for Audio Serial Interface #1 BCLK1
W27	2-3	Configuration for Audio Serial Interface #1 DOUT1
W28	2-3	Configuration for Audio Serial Interface #1 WCLK1
W29	2-3	Configuration for Audio Serial Interface #2 DIN2
W30	2-3	Configuration for Audio Serial Interface #2 BCLK2
W31	2-3	Configuration for Audio Serial Interface #2 DOUT2
W32	2-3	Configuration for Audio Serial Interface #2 WCLK2
W33	2-3	Configuration for Audio Serial Interface #3 DIN3
W34	2-3	Configuration for Audio Serial Interface #3 BCLK3
W35	2-3	Configuration for Audio Serial Interface #3 DOUT3
W36	2-3	Configuration for Audio Serial Interface #3 WCLK3
W37	2-3	Configuration for Audio Serial Interface #4 DIN3
W38	2-3	Configuration for Audio Serial Interface #4 BCLK3
W39	2-3	Configuration for Audio Serial Interface #4 DOUT3
W40	2-3	Configuration for Audio Serial Interface #4 WCLK3
W41	Installed	Jumper to enable/disable Y2 Output Clock
W42	Installed	Jumper to enable/disable Y3 Output Clock
W43	Installed	Jumper to configure divider ratio of U12
W44	Installed	Jumper to configure divider ratio of U12

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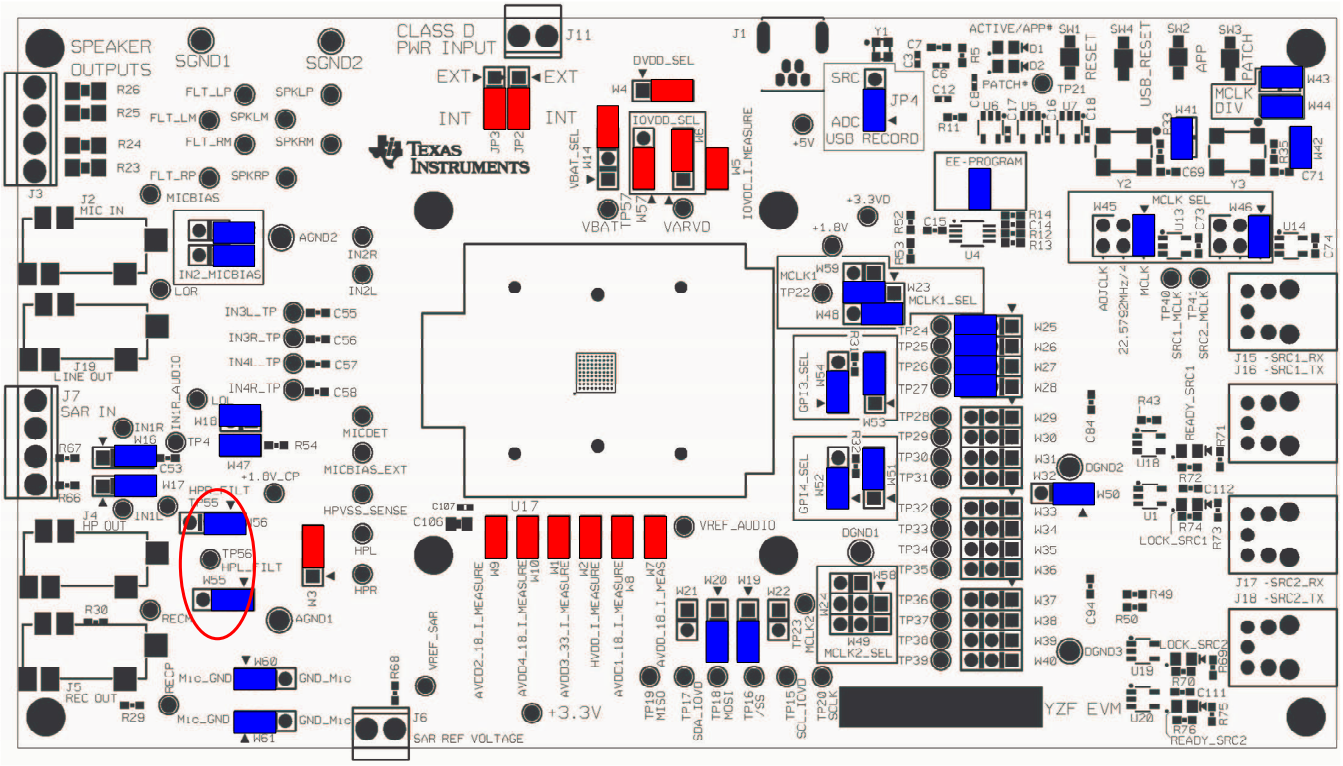
Table 3. TLV320AIC3262EVM-U Default Jumper Positions (continued)

Reference Designator	Default Position	Description
W45	1-2	Clock selection for SRC1_MCLK
W46	1-2	Clock selection for SRC2_MCLK
W47	Installed	Jumper for MICBIAS_EXT
W48	1-2	Selection for MCLK1
W49	Open	Selection for MCLK2
W51	2-3	6 wire I^2S enable on GPI3
W52	1-2	Pull-up or Pull-down Selection for GPI3
W53	2-3	6 wire I2S enable on GPI4
W54	1-2	Pull-up or Pull-down Selection for GPI4
W55	1-2	Load Selection for Headphone HPL Output
W56	1-2	Load Selection for Headphone HPR Output
W57	1-2	Supply Selection for IOVDD
W60	Open	Headset Type Selection 1
W61	Open	Headset Type Selection 2



For 16-Ohm Load measurement, Set W55=1-2 and W56=1-2 (as shown above)

For 32-Ohm Load measurement, Set W55=2-3 and W56=2-3

Figure 23. Default Jumper Settings Layout

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8 Writing Scripts

A script is simply a text file that contains data to send to the serial control buses.

Each line in a script file is one command. No provision is made for extending lines beyond one line, except for the > command. A line is terminated by a carriage return.

The first character of a line is the command. Commands are:

- **l** Set interface bus to use
- **r** Read from the serial control bus
- **w** Write to the serial control bus
- **>** Extend repeated write commands to lines below a **w**
- **#** Comment
- **b** Break
- **d** Delay
- **f** Wait for Flag

The first command, **l**, sets the interface to use for the commands to follow. This command must be followed by one of the following parameters:

i2cstd	Standard mode I^2C bus
i2cfast	Fast mode I^2C bus
spi8	SPI bus with 8-bit register addressing
spi16	SPI bus with 16-bit register addressing

For example, if a fast mode I^2C bus is to be used, the script begins with:

l i2cfast

A double-quoted string of characters following the **b** command can be added to provide information to the user about each breakpoint. When the script is executed, the software's command handler halts as soon as a breakpoint is detected and displays the string of characters within the double quotes.

The Wait for Flag command, **f**, reads a specified register and verifies if the bitmap provided with the command matches the data being read. If the data does not match, the command handler retries for up to 200 times. This feature is useful when switching buffers in parts that support the adaptive filtering mode. The command f syntax follows:

```
f [i2c address] [register] [D7][D6][D5][D4][D3][D2][D1][D0]
```

```
where 'i2c address' and 'register' are in hexadecimal format
and 'D7' through 'D0' are in binary format with values of 0,
1 or X for don't care.8
```

Anything following a comment command # is ignored by the parser, provided that it is on the same line.

The delay command **d** allows the user to specify a time, in milliseconds, that the script pauses before proceeding. Note: The delay time is entered in decimal format.

A series of byte values follows either a read or write command. Each byte value is expressed in hexadecimal, and each byte must be separated by a space. Commands are interpreted and sent to the TAS1020B by the program.

The first byte following an **r** (read) or **w** (write) command is the I^2C slave address of the device (if I^2C is used) or the first data byte to write. (If SPI is used, note that SPI interfaces are not standardized on protocols, so the meaning of this byte varies with the device being addressed on the SPI bus.) The second byte is the starting register address that data will be written to (again, with I^2C; SPI varies. Following these two bytes are data, if writing; if reading, the third byte value is the number of bytes to read, (expressed in hexadecimal).

For example, to write the values 0xAA 0x55 to an I^2C device with a slave address of 0x30, starting at a register address of 0x03, the user writes:

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```
#example script
I i2cfast
w 30 03 AA 55
r 30 03 02e
```

This script begins with a comment, specifies that a fast I^2C bus is used, then writes *0xAA 0x55* to the I^2C slave device at address 0x30, writing the values into registers 0x03 and 0x04. The script then reads back two bytes from the same device starting at register address 0x03. Note that the slave device value does not change. It is unnecessary to set the R/$\overline{W}$ bit for I^2C devices in the script; the read or write commands does that.

If extensive repeated write commands are sent and commenting is desired for a group of bytes, the **>** command can be used to extend the bytes to other lines that follow. A usage example for the **>** command follows:

```
#example script for '>' command
I i2cfast
# Write AA and BB to registers 3 and 4, respectively
w 30 03 AA BB
# Write CC, DD, EE and FF to registers 5, 6, 7 and 8, respectively
> CC DD EE FF
# Place a commented breakpoint
b "AA BB CC DD EE FF was written, starting at register 3"
# Read back all six registers, starting at register 3
r 30 03 06b
```

The following example demonstrates usage of the Wait for Flag command, **f**:

```
#example script for 'wait for flag' command
I i2cfast
# Switch to Page 44
w 30 00 2C
# Switch buffer
w 30 01 05
# Wait for bit D0 to clear. 'x' denotes a don't care.
f 30 01 xxxxxxx0
```

Any text editor can be used to write these scripts; jEdit is an editor that is highly recommended for general usage. For more information, go to: www.jedit.org.

Once the script is written, it can be used in the command window by running the program, and then selecting *Open Script File*... from the File menu. Locate the script and open it. The script then is displayed in the command buffer. The user also can edit the script once it is in the buffer and save it by selecting *Save Script File*... from the File menu.

Once the script is in the command buffer, it can be executed by pressing the *Execute Command Buffer* button. If breakpoints are in the script, the script executes to that point, and the user is presented with a dialog box with a button to press to continue executing the script. When ready to proceed, the user pushes that button and the script continues.

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9 Example Scripts

9.1 Headphone playback script

```
###########################################
# Headphone playback
# AVdd = 1.8V, DVdd = 1.8V, MCLK = 12.288MHz
# PLL Disabled, DOSR = 128, PRB_P1
# Primary I2S interface used with WCLK & BCLK as inputs to the device (slave)
###########################################

#####################################
# Software Reset
#####################################
#
w 30 00 00
w 30 7F 00
w 30 01 01
#
#####################################

#####################################
# Clock configuration
#####################################
#
# select MCLK for CODEC clock input, bypass PLL
w 30 04 00
#
# NDAC = 1, MDAC = 2
w 30 0B 81
w 30 0C 82
#
# DOSR = 128
w 30 0D 00
w 30 0E 80
#
#####################################

#################################
# Initialize the Codec
#################################
#
# select page 1
w 30 00 01
#
# Disable weak connection between AVDD and DVDD
w 30 01 00
#
# set the REF charging time to 40 ms
w 30 7A 01
#
#################################

#####################################
# ASI #1 configuration
#####################################
#
# select page 4
w 30 00 04
#
# set ASI#1 16 bits, I2S mode
w 30 01 00
w 30 0A 00
#
#####################################
```


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```
########################################
# Signal processing
########################################
#
# select page 0
w 30 00 00
#
# set DAC PRB mode to PRB_P1
w 30 3C 01
#
################################

#########################################################
# DAC configuration
#########################################################
#
# select page 1
w 30 00 01
#
# Set DAC PTM mode to PTM_P3
w 30 03 00
w 30 04 00
#
# Headphone in Ground-centered Mode, HPL gain = 0 dB
w 30 1F 80
#
# HPR to have independent gain, set to 0 dB
w 30 20 00
#
# Charge pump runs of Oscillator clock with divider = 4
w 30 21 28
#
# Charge pump to power up on the headphone power up in Ground-centered Mode
w 30 23 10
#
# Enable DAC to HPL/HPR and power up HPL/HPR
w 30 1B 33
#
# select page 0
w 30 00 00
#
# power up DAC_L and DAC_R
w 30 3F C0
#
# Unmute the DAC digital volume control
w 30 40 00
#
################################################
```

9.2 Microphone recording script

```
############################################
#  Microphone Record through IN2L & IN2R
#  Make sure to insert jumper W11 and W12 for Mic-bias
#  AVdd = 1.8V, DVdd = 1.8V, MCLK = 12.288MHz
#  PLL Disabled, AOSR = 128, PRB_R1
#  Primary I2S interface used with WCLK & BCLK as inputs to the device
################################################


############################################
# Software Reset
```


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```
###########################################
#
w 30 00 00
w 30 7F 00
w 30 01 01
#
###########################################

###########################################
# Clock Configuration, ADC side
###########################################
#
# Set MCLK as ADC_CLKIN
w 30 04 00
#
# Power up NADC, MADC and set NADC = 1, MADC = 2
w 30 12 81
w 30 13 82
#
# Set AOSR = 128
w 30 14 80
#
###########################################

###############################################
# Initialize the Codec
###############################################
#
# select page 1
w 30 00 01
#
# Disable the weak connection beween AVDD and DVDD
w 30 01 00
#
# set the REF charging time to 40 ms
w 30 7A 01
#
# Set the quick charge of input coupling cap for analog inputs
w 30 79 33
#
###############################################

###############################################
# ASI#1 configuration
###############################################
#
# select page 4
w 30 00 04
#
# set ASI#1 16 bits, I2S mode
w 30 01 00
w 30 0A 00
#
###############################################

###########################################
# Signal processing
###########################################
#
# Select Page 0
w 30 00 00
#
# Set the ADC PRB Mode to PRB_R1
w 30 3D 01
#
###########################################
```


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```
################################################
# ADC configuration
################################################
#
# Select Page 1
w 30 00 01
#
# Mic Bias enabled, Source = Avdd, 1.62V
w 30 33 40
#
# Route IN2L and CM1 to LEFT ADCPGA with 20K input impedance
w 30 34 20
w 30 36 80
#
# Route IN2R and CM1 to RIGHT ADCPGA with 20K input impedance
w 30 37 20
w 30 39 80
#
# Left Channel Analog ADC PGA = 30 dB
w 30 3B 3C
#
# Right Channel Analog ADC PGA = 30 dB
w 30 3C 3C
#
# ADC Analog programmed for PTM_R4
w 30 3D 00
#
#
# select page 0
w 30 00 00
#
# Power-up ADC Channel
w 30 51 C0
#
# Unmute ADC channel and Fine Gain = 0dB
w 30 52 00
#
################################################
```

10 Related Documentation

1. TLV320AIC3262EVM-U Software

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