

PA5750
Evaluation Software User Manual
Rev. 2.0


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INSTALL PA5750 Evaluation Software

The latest version of PA5750 Evaluation software is 2.0.

Double Click  , the installation GUI will be displayed. Click “next” button to install this software step by step following the onscreen instructions.

GETTING STARTED

The PA5750 Evaluation Board must be connected to PC with 9 pin RS232 cable, and powered up before the evaluation software start.

After connecting appropriate cables, the evaluation software can be started. The main GUI of this software is shown below.

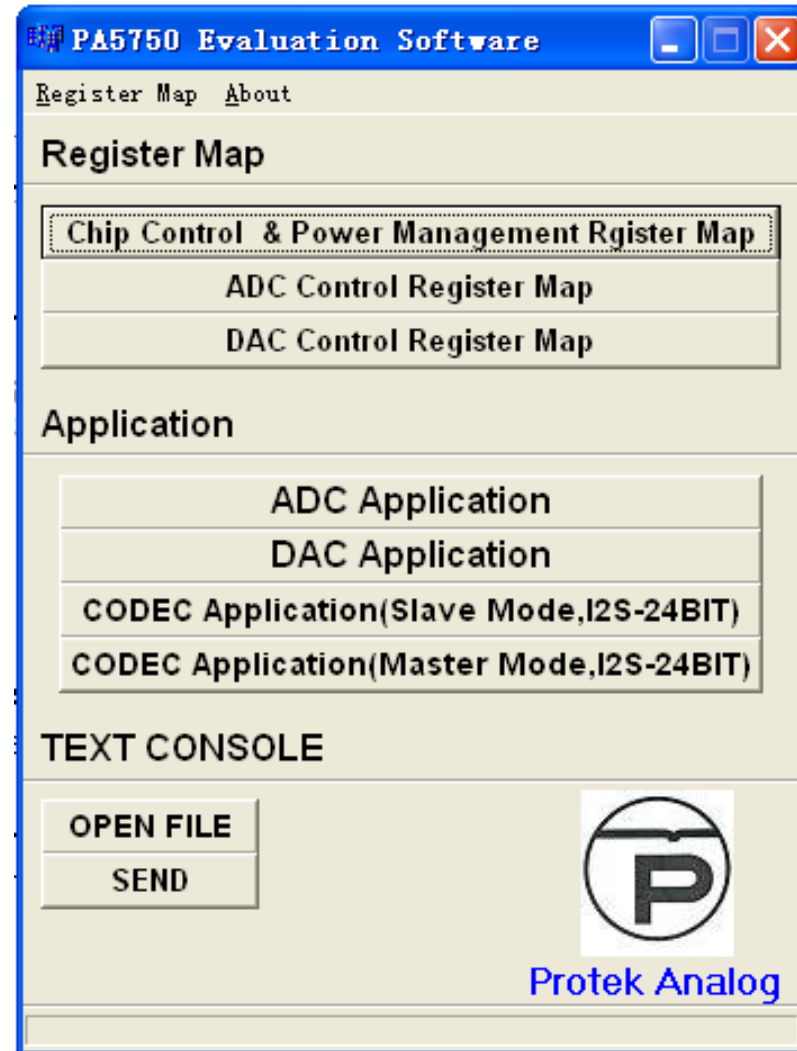
There are three items in main GUI which are

- Register Map,
- Application,
- TEXT CONSOLE.

In “Register Map” item, there are three buttons which be used to read or write registers in each register map. There are four buttons in “Application” item which be used to demonstrate the performance of the PA5750 chip. In “TEXT CONSOLE” item, there are two buttons which be used to open or send one text console file to evaluation board to config the registers of PA5750.

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ProTek Logo is showed in right bottom corner of main GUI. All registers of PA5750 will be read out when the ProTek Logo is clicked and the progress will be showed on the progress bar.

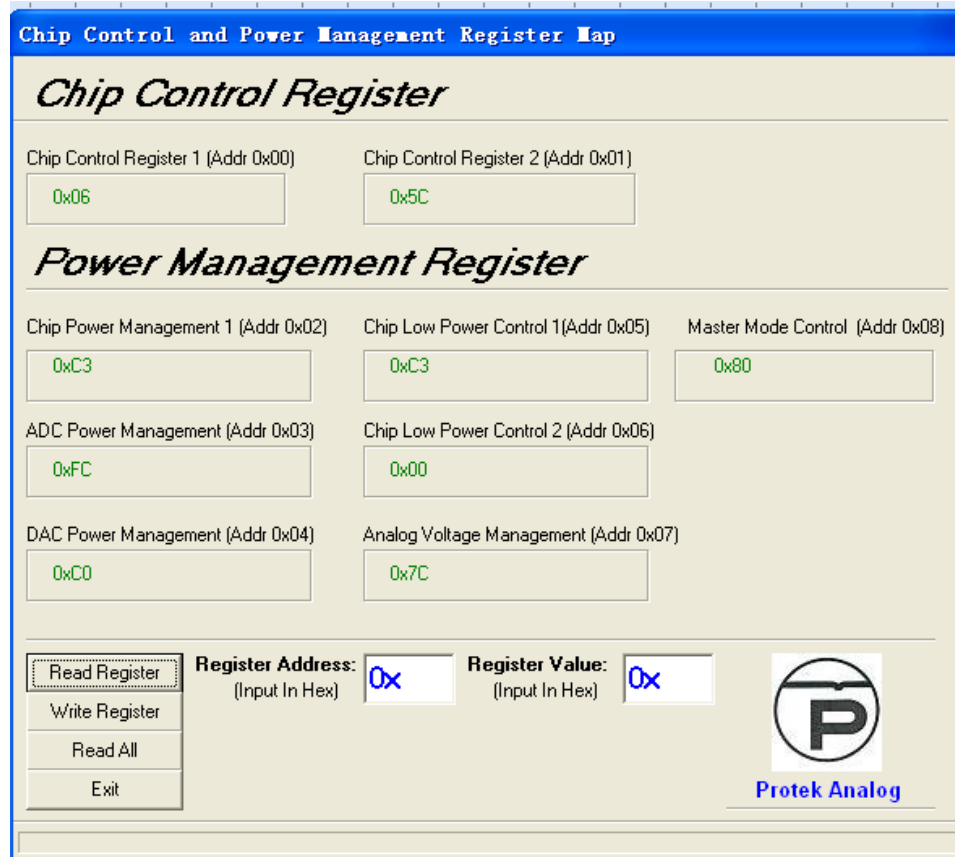


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Chip Control and Register Map

The Chip control & Power management register map GUI is displayed when the "Chip control & power management register map" button in main GUI is clicked.

In this GUI, the registers which address ranges from 0x00 to 0x08 can be read or written.



- Read register**
 The "Register Address" map will be filled in Hex which ranges from 0x00 to 0x08. The corresponding register value will be displayed in "Register Value" map in Hex when the "Read Register" button is clicked. The register display will be updated. If the "Register Address" isn't filled and the "Read Register" button is clicked, 9 registers which address range from 0x00 to 0x08 will be read and all register display will be updated.
- Read ALL**
 If the "Read ALL" button is clicked, the 9 registers will be read and all register displays will be updated. If the "Register Address" map is filled in Hex within 0x00 to 0x08, the corresponding register value will be displayed in "Register Value" map in Hex.
- Write Register**
 The "Register Address" map will be filled in Hex within 0x00 to 0x08 and the corresponding register value will be filled in "Register Value" map. The register of PA5750 will be written with the set register value when "Write Register" button is clicked.
- Exit**
 Click "Exit", this GUI will be closed and return to main GUI.

ADC Control register Map

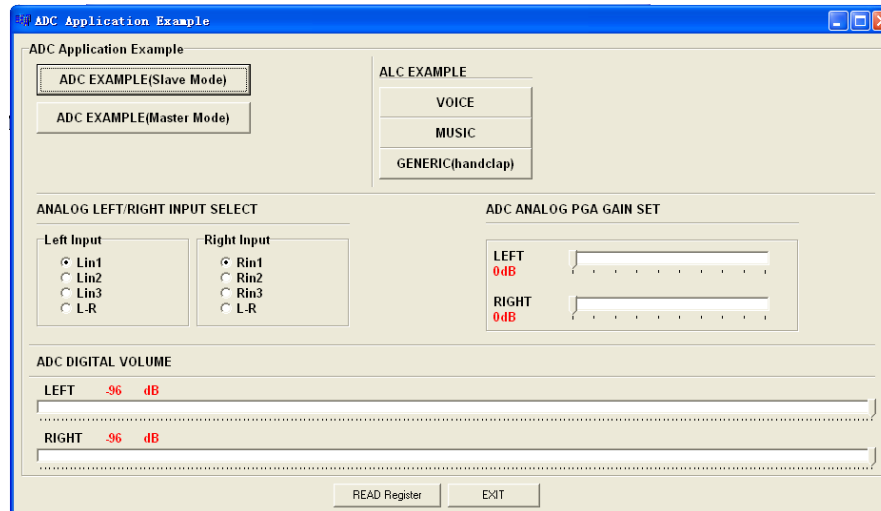
The ADC Control Register map GUI will show if the "ADC Control Register map" button of main GUI is clicked.
The operation of ADC Control Register map GUI is same as Chip control & Power management register map GUI

DAC Control register Map

The DAC Control Register map GUI will show if the "DAC Control Register map" button of main GUI is clicked.
The operation of DAC Control Register map GUI is same as Chip control & Power management register map GUI

ADC Application

The ADC Application GUI will be displayed when the "ADC Application" button in main GUI is clicked.



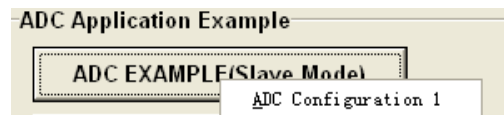
- **ADC EXAMPLE (Master mode) or ADC EXAMPLE (SLAVE Mode)**

In ADC application, there are two examples which configure the ADC of PA5750 to master mode or slave mode.

PA5750's ADC is configured to slave mode if "ADC EXAMPLE (Slave Mode)" button is clicked.

PA5750's ADC is configured to master mode if "ADC EXAMPLE (Master Mode)" button is clicked.

The ADC's configuration is showed when left click on "ADC EXAMPLE (Slave Mode)" or "ADC EXAMPLE (Master Mode)". For example, if you "left click" the "ADC EXAMPLE (Slave Mode)" button, the "ADC Configuration 1" pop-menu will display as below.



Then, the ADC Configuration GUI will display as below if you 'right-click' the "ADC Configuration 1" label.



The same operation for "ADC EXAMPLE (Master Mode)" button.

- **ALC EXAMPLE**

Three ALC examples are listed in ADC Application GUI. These ALC examples are commonly used.

“VOICE” button is used to record voice.

“MUSIC” button is used to record music.

“GENERIC” button is used to record generic.

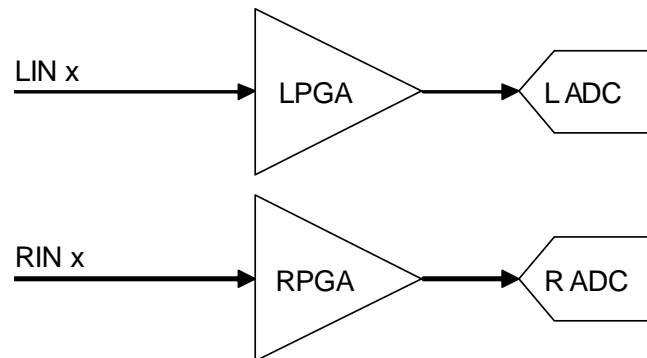
If you need some special ALC function, please contact Tech Support. support@protekanalog.com

- **ANALOG LEFT / RIGHT INPUT SELECT**

In this region, user can set the input of ADC.

- **ADC ANALOG PGA GAIN SET**

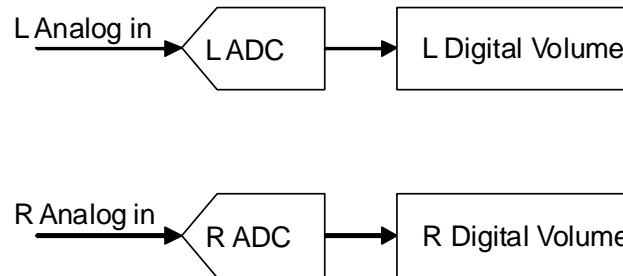
The topology of ADC's input is shown below.



In this region, user can set the Left or Right PGA Gain which is used to amplify the input single.

- **ADC DIGITAL VOLUME**

The topology of ADC's volume is shown below

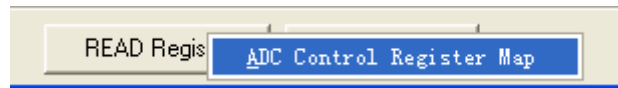


In this region, user can set the Left or Right ADC digital volume which is used to attenuate the ADC's digital output.

- **Read Register Button**

Right click the "Read Register" button, all registers of PA5750 will be read out and the ADC Application GUI will be updated.

Left click the "Read Register" button, the "ADC Control Register Map" pop-menu display as below. If user clicks the "ADC Control Register Map" label, the ADC Control register Map GUI will display.

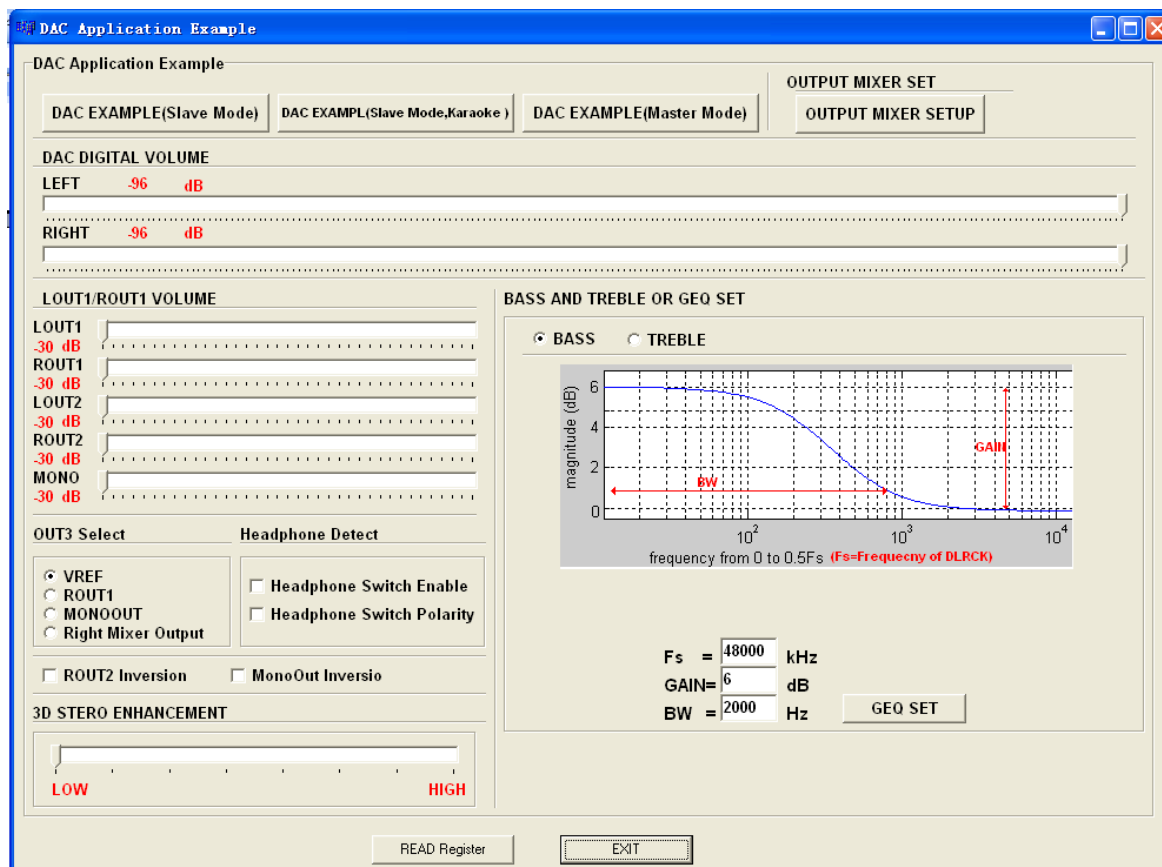


- **Exit Button**

Click "Exit", this GUI will be closed and return to main GUI.

DAC Application

The DAC Application GUI will show if the "DAC Application" button in main GUI is clicked.



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- **DAC EXAMPLE (Master mode) / DAC EXAMPLE (Slave mode)/DAC EXAMPLE (SLAVE Mode, Karaoke)**

In DAC application, there are 3 examples which configure the DAC of PA5750 to master mode or slave mode.

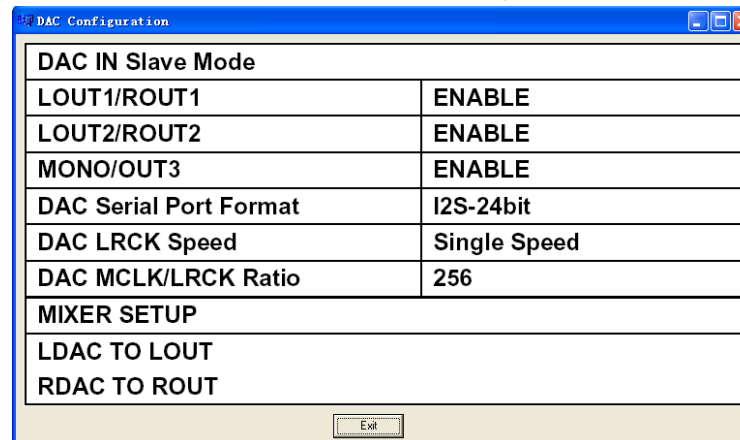
PA5750's DAC is configured to slave mode if "DAC EXAMPLE (Slave Mode)" or "DAC EXAMPLE (Slave Mode, Karaoke)" button is clicked.

PA5750's DAC is configured to master mode if "DAC EXAMPLE (Master Mode)" button is clicked.

The DAC configuration is showed when left click on "DAC EXAMPLE(Slave Mode)", "DAC EXAMPLE(Slave Mode, Karaoke)", "DAC EXAMPLE(Master Mode)". For example, if you left click the "DAC EXAMPLE(Slave Mode)" button, the "DAC Configuration" pop-menu will display as below.



Then, the DAC Configuration GUI will display as below if you right click the "DAC Configuration" label.

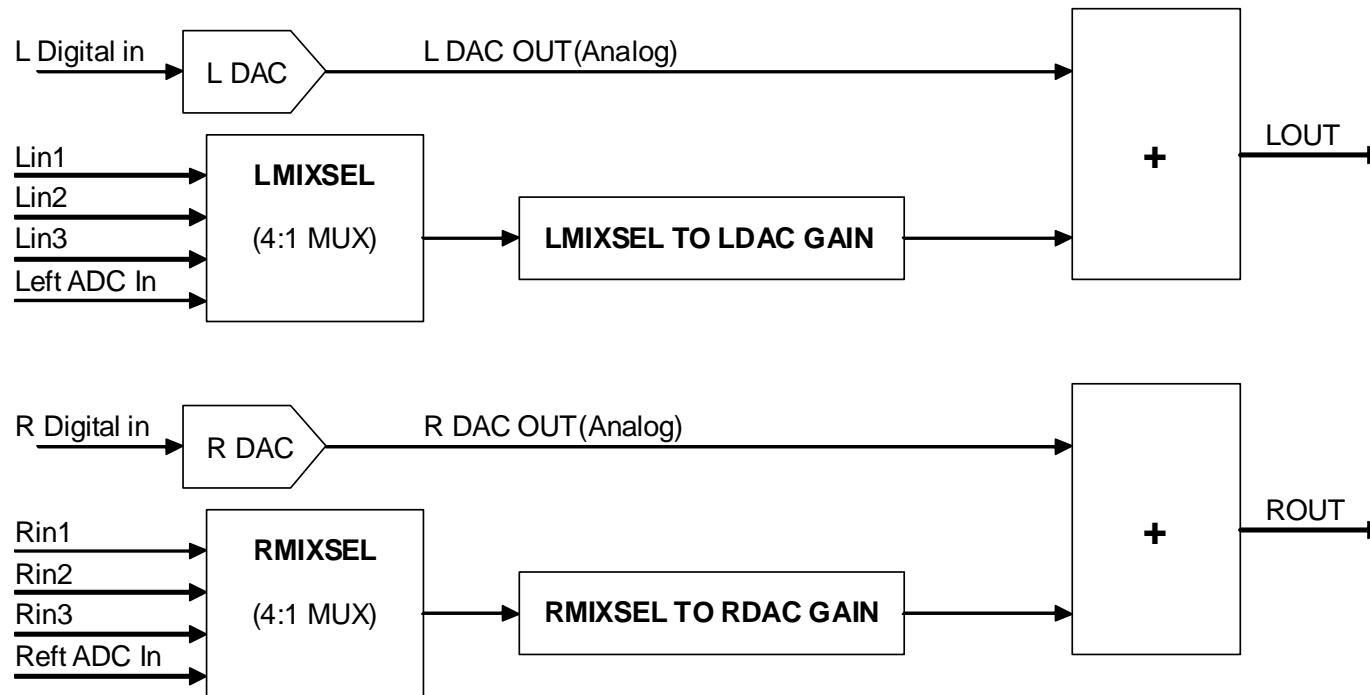


DAC IN Slave Mode	
LOUT1/ROUT1	ENABLE
LOUT2/ROUT2	ENABLE
MONO/OUT3	ENABLE
DAC Serial Port Format	I2S-24bit
DAC LRCK Speed	Single Speed
DAC MCLK/LRCK Ratio	256
MIXER SETUP	
LDAC TO LOUT	
RDAC TO ROUT	

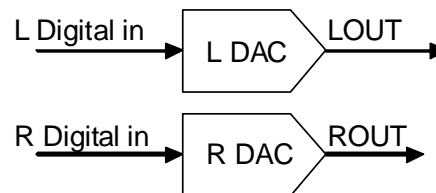
The same operation for "DAC EXAMPLE (Master Mode)" and "DAC EXAMPLE (Slave Mode, Karaoke)" button is relevant.

NOTES:

The "DAC EXAMPLE (Slave Mode, Karaoke)" button is used to configure the DAC to "DAC + OUTPUT MIXER" mode. In this mode, the output topology is shown below.

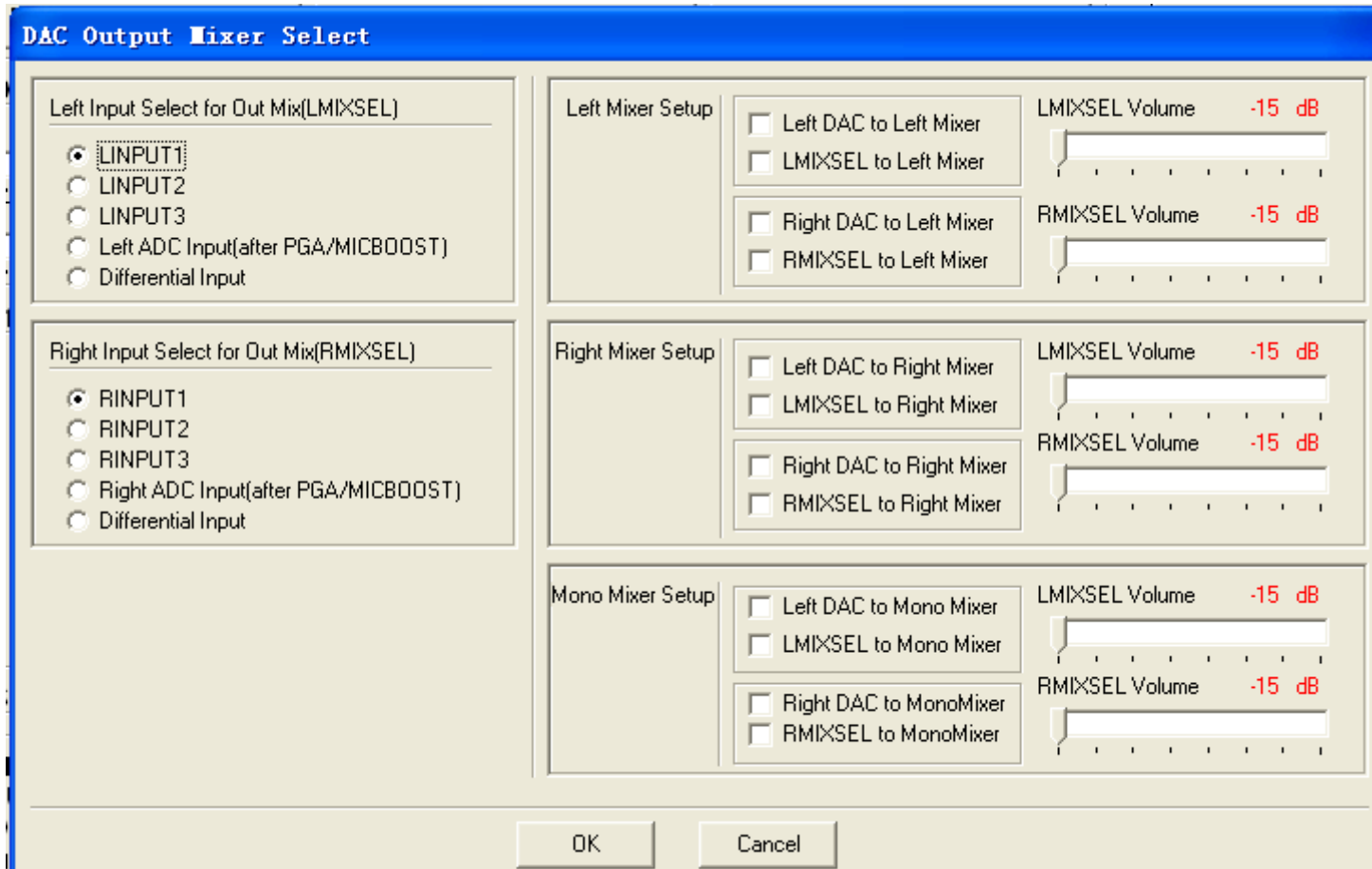


The "DAC EXAMPLE (Slave Mode)" button is used to configure the DAC to "DAC" mode. In this mode, the output topology is shown below.

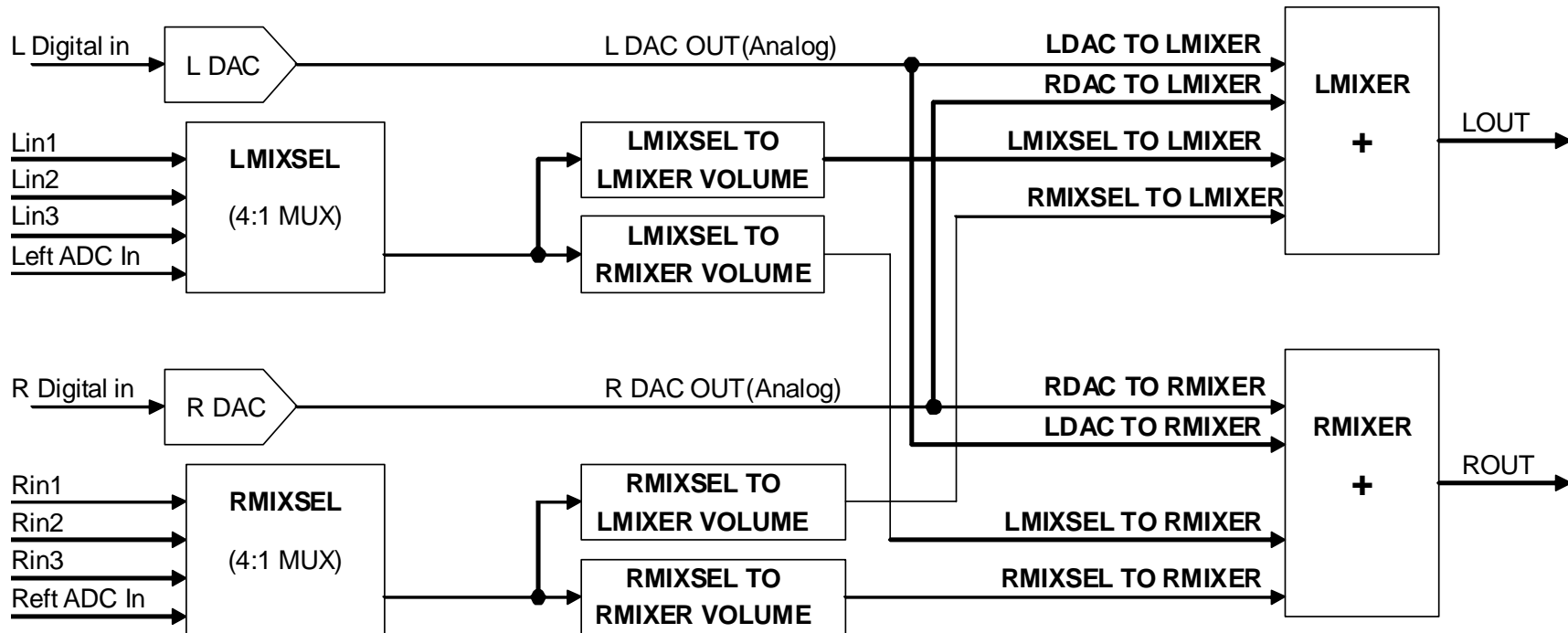


- **OUTPUT MIXER SET**

Click the "OUTPUT MIXER SETUP" button, the Output mixer setup GUI is shown below.



The topology of output mixer is shown below.

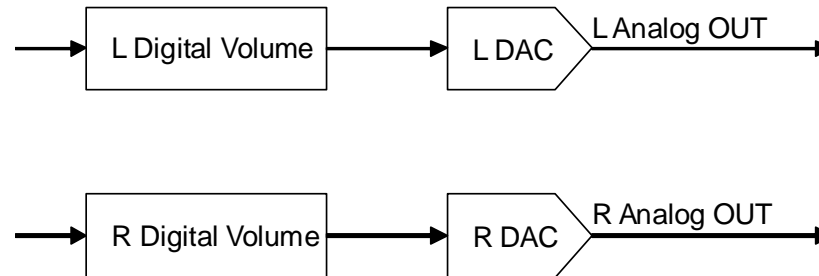


The same topology for mono mixer

Output mixer will be configured if the "OK" button in Output Mixer GUI is clicked.

- **DAC DIGITAL VOLUME**

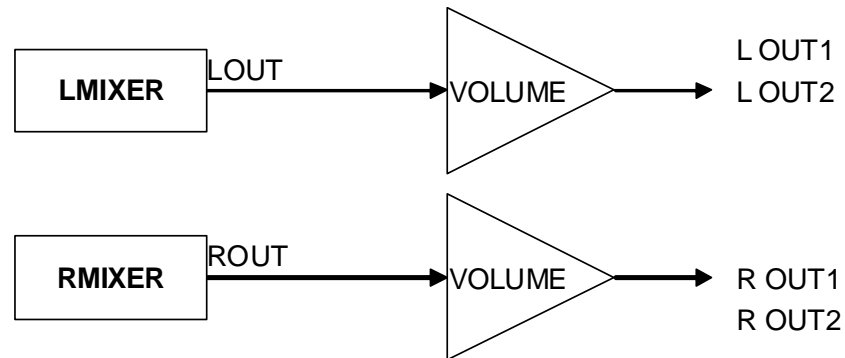
The topology of DAC's volume is shown below



In this region, user can set the Left or Right DAC digital volume which is used to attenuate the DAC's digital input.

- **LOUT/ROUT VOLUME SET**

The topology of DAC's output is shown below.

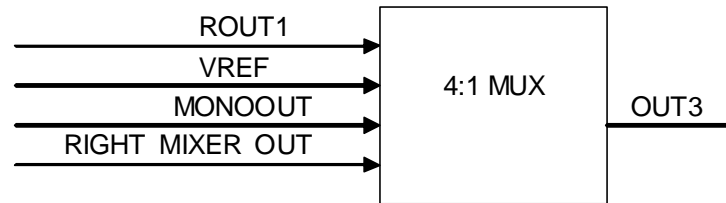


The same topology for mono out volume

In this region, user can set the LOUT/ROUT/MONOOOUT volume which is used to amplify the output of mixer.

- **OUT3 Select**

The topology of OUT3 is shown below.



In this region, user can select the source of out3.

- **Headphone Detect**

User can select Headphone detect feature of PA5750 and select the polarity of detect condition.

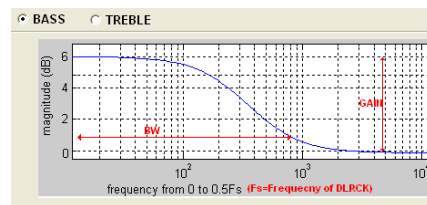
- **3D Stereo Enhancement**

User can set the 3D effect of DAC output. If the bar is set to “high” position, PA5750 have the strongest 3D effect. Otherwise, if the bar is set to “low” position, PA5750 don’t have 3D effect.

- **BASS and TREBLE or GEQ SET**

PA5750 have a bass enhancement or treble enhancement feature.

For bass enhancement feature, please select “bass” option. The demonstration picture is shown below.



For treble enhancement feature, please select “treble” option. The demonstration picture is shown below.



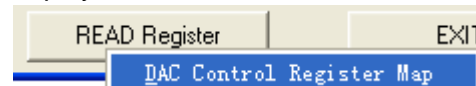
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Please enter the frequency of DAC's LRCK, bandwidth and gain, and then click the "GEQ set" button. The PA5750 is configured to BASS or TREBLE enhancement mode as per the user selection.

- **Read Register Button**

Right click the "Read Register" button, all registers of PA5750 will be read out and the DAC Application GUI will be updated.

Left click the "Read Register" button, the "DAC Control Register Map" pop-menu display as below. If user click the "DAC Control Register Map" label, the DAC Control register Map GUI will display.



- **Exit Button**

Click "Exit", this GUI will be closed and return to main GUI.

CODEC Application (SLAVE MODE, I2S-24BIT)

PA5750 is configured to slave CODEC mode which digital audio serial port format is I2S-24bit, if this button is right clicked.

The CODEC configuration is showed when left click on this button.

CODEC Application (Master MODE, I2S-24BIT)

PA5750 is configured to master CODEC mode which digital audio serial port format is I2S-24bit if this button is right clicked.

The CODEC configuration is showed when left click on this button.

TEXT Console

A TXT file can be used to configure PA5750 .The format of text file is shown below.

- **Write Register**

:wRRDD@

Notes: The “w” is lowercase. The “RR” is the Hex address of Register. The “DD” is the Hex data of Register data.

- **RESET CLOCK Generator**

:D0E00@

Notes: The “D” is uppercase

- **UN-RESET CLOCK Generator**

:D0F00@

Notes: The “D” is uppercase The RESET command and UN-RESET command must be used in pairs.

Console text example

PA5750 can be configured as CODEC if the text file listed below is used.

:D0E00@ —————> be used in pairs with :D0F00@
:w0800@
:w0005@
:w0140@
:w02FF@
:w0300@
:w043F@
:w0900@
:w0A00@
:w0B02@
:w0C00@
:w0D02@
:w1000@
:w1100@
:w1700@
:w1802@
:w1A00@
:w1B00@
:w2600@
:w27B8@
:w2838@
:w2938@
:w2A38@
:w2B38@

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:w2CB8@
:w2D90@
:w2E1E@
:w2F1E@
:w301E@
:w311E@
:w321E@
:w0200@
:D0F00@

- **“OPEN File” button**

Click “OPEN FILE” button, the text file should load into buffer of Evaluation software.

- **“SEND” button**

Click “SEND” button, the content of the text file will be sent to PA5750EVB if PA5750EVB is connected to PC via RS-232 cable. Then the MCU assembled on PA5750EVB will write the register of PA5750 or reset/un-reset clock generator.