

## USB controller with external Amplifier and Recording function

### Features

- Compliant with USB Specification v1.1, and USB 2.0 full speed
- Support I<sup>2</sup>S input and I<sup>2</sup>S output interface of master mode
- Sampling frequencies(Fs) : 48kHz
- Support recording function
- Supports Win Me//2000/XP and MacOS
- True plug-and-play application, no driver is required for basic USB speaker application
- Support volume/mute control with external button
- Built-in 5V to 3.3V regulator for internal device

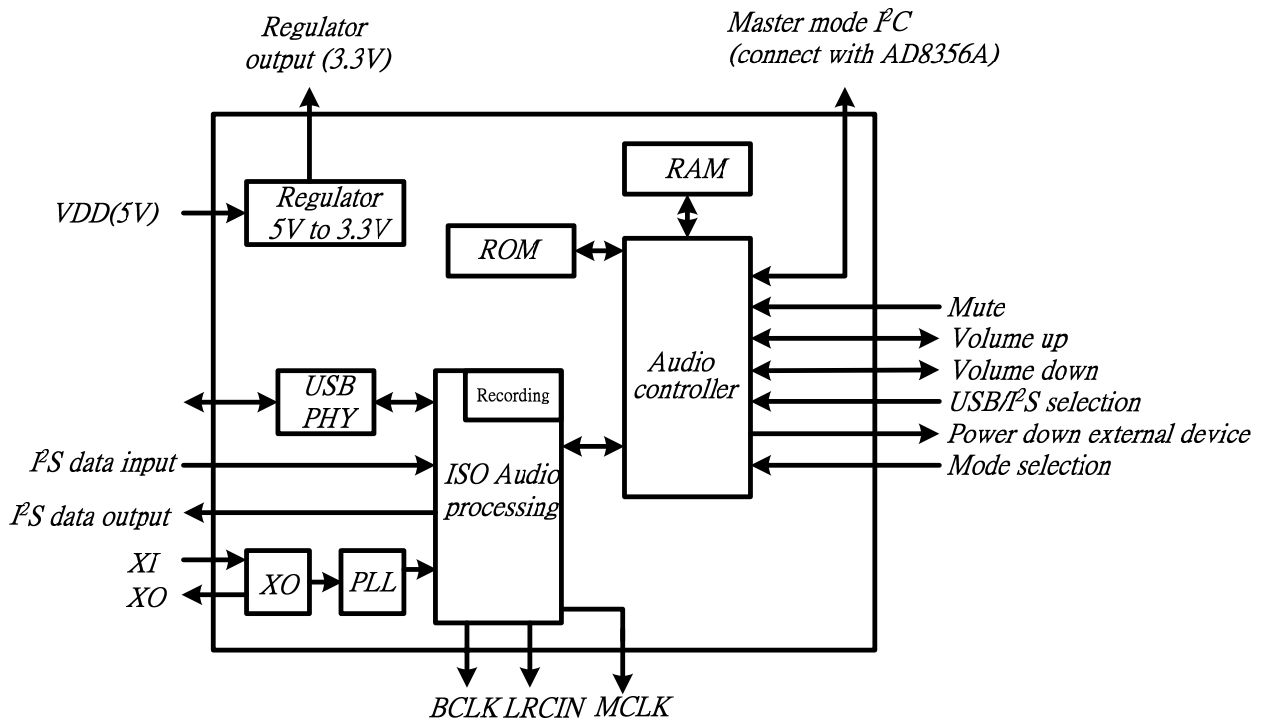
operation

- 12 MHz Crystal Input
- 32-pin LQFP(Pb free)

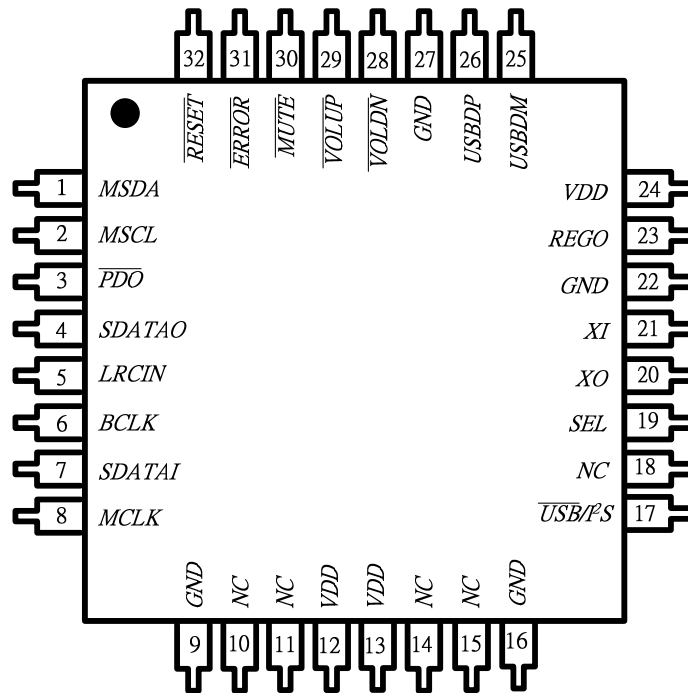
### Description

AD62551A is a USB audio controller with I<sup>2</sup>S interface and supports recording function. The device also has an I<sup>2</sup>S input port and I<sup>2</sup>S output port. The I<sup>2</sup>S output port allows other high performance audio device (i.e. AD8356A/AD8256A) to be controlled by AD62551A.

### Functional Block Diagram



## Pin Assignment



## Pin Description

Pin	Name	Type	Description	Characteristics
1	MSDA	I/O	I <sup>2</sup> C's SDA of Master mode	Schmitt trigger TTL input buffer
2	MSCL	O	I <sup>2</sup> C's SCL of master mode	
3	$\overline{P}DO$	O	Power-down output ( <b>Note1</b> )	
4	SDA TAO	O	Serial audio output ( <b>Note1</b> )	
5	LRCIN	O	L/R clock output(Fs) ( <b>Note1</b> )	
6	BCLK	O	BCLK output(64xFs) ( <b>Note1</b> )	
7	SDATAI	I	Serial audio data input	Schmitt trigger TTL input buffer
8	MCLK	O	Master clock(256xFs)	
9	GND	P	Ground	
10	NC	NC	No connection	
11	NC	NC	No connection	
12	VDD	P	5V supply voltage	

13	VDD	P	5V supply voltage	
14	NC	NC	No connection	
15	NC	NC	No connection	
16	GND	P	Ground	
17	$\overline{\text{USB/I}^2\text{S}}$	I	Low is USB mode, high is I <sup>2</sup> S mode	Schmitt trigger TTL input buffer
18	NC	NC	No connection	
19	SEL	I	Mode selection bit	Schmitt trigger TTL input buffer
20	XO	O	Crystal output	
21	XI	I	Crystal input	
22	GND	P	Ground	
23	REGO	O	3.3V regulator output	
24	VDD	P	5V supply voltage	
25	USBDM	I/O	USB data D-	
26	USBDP	I/O	USB data D+	
27	GND	P	Ground	
28	$\overline{\text{VOLDN}}$	I	Volume down, low active	With internal pull-up resistor
29	$\overline{\text{VOLUP}}$	I	Volume up, low active	With internal pull-up resistor
30	$\overline{\text{MUTE}}$	I	Power-down and mute of Class D	Schmitt trigger TTL input buffer
31	$\overline{\text{ERROR}}$	O	Error output	Open-Drain output
32	$\overline{\text{RESET}}$	I	Reset signal	Schmitt trigger TTL input buffer

**Note1: Must be strapped resistor 1M $\Omega$  to 3.3V(REGO) or GND. BCLK, LRCIN and PDO must be strapped to GND. SDATAO is strapped to GND when AD62551A is button mode, otherwise strapped to 3.3V when AD62551A is I<sup>2</sup>C slave mode.**

## Absolute Maximum Ratings

Symbol	Parameter	Min	Max	Units
VDD	Supply for regulator input	0	5.5	V
V <sub>i</sub>	Input Voltage	-0.3	3.6	V
T <sub>stg</sub>	Storage Temperature	-65	150	°C
T <sub>a</sub>	Ambient Operating Temperature	0	70	°C

## Recommended Operating Conditions

Symbol	Parameter	Typ	Units
VDD	Supply for regulator input	4.5~5.5	V
T <sub>a</sub> Ambient	Operating Temperature	0~70	°C