SD Card Playback Module

USER MANUAL

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INTRODUCTION

SD card playback module is a great addon to the embedded systems having requirement of playback of sounds which can be controlled through UART or input/output pins. The SD playback module can be operated using Arduino, AVR, PIC (virtually all UART/Serial devices). It supports FAT32 SDHC card for storing the files required for the playback. The great advantage is that it can directly play WAV files created using SD card converter software. The module outputs stereo outputs with Sample rate upto 196KHz!.


Features

- 5 Volt operation
- UART and address selection support
- Supports all SDHC cards
- Maximum usable memory of 4GB
- Supports WAV file format - Uncompressed, 8-bit
- Supports both Stereo and mono sounds
- Free MP3 to WAV file converter for SD card playback module
- Compatible with PIC, ARM, AVR, 8051 ICs and supports Arduino platform.

Pinout and Description

- VCC: Power supply input pins for the controller. 5V DC supply is to be given
- GND: This is the ground (0V reference)supply pin.
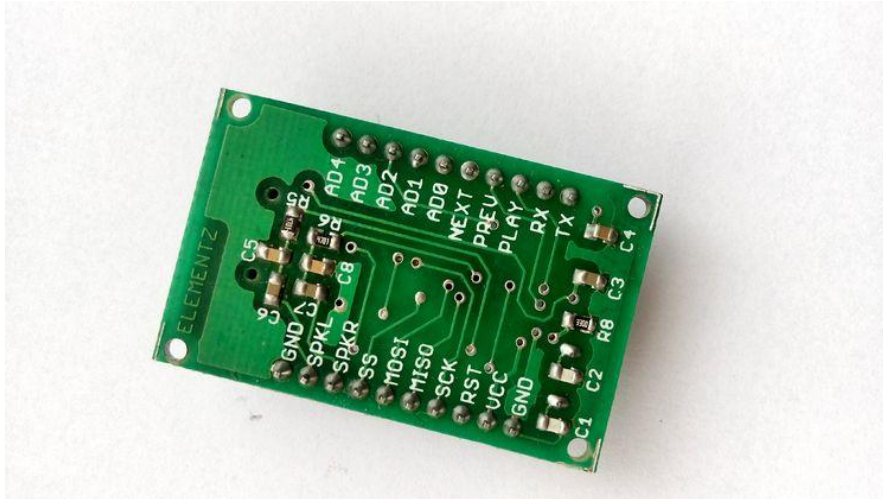
- RX: Serial receive pin(TTL level – 5V/3.3V compatible)
- TX: Serial transmit pin(TTL level – 5V/3.3V compatible)
- NEXT,PREV – Next and Previous file playback
- PLAY – Play/Stop control
- AD0-AD4 – Address selection pin for playback
- SPKL/SPKR – Speaker left and right for connecting Headset/Speaker

Note: The current driven from the SPKL/SPKR is not sufficient to drive an external speaker. An amplifier should be used between the module and speaker to achieve this.

Using SD Converter software

A Windows utility is provided for the easy conversion of MP3 files to the compatible WAV file. The utility can be downloaded from the below link.

ELEMENTZ SD Playback Converter Software

Refer the below instructions for using the SD card Playback module software for generating the wav files compatible with the module.
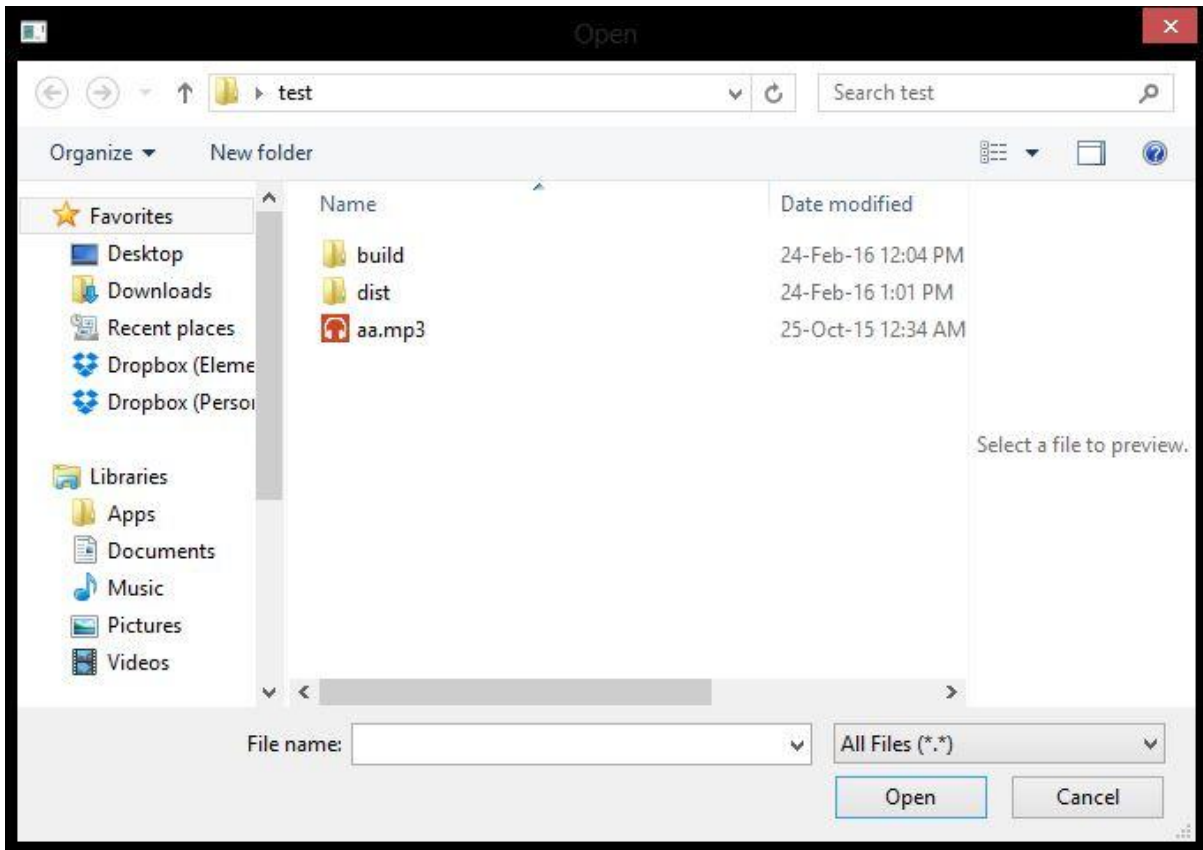
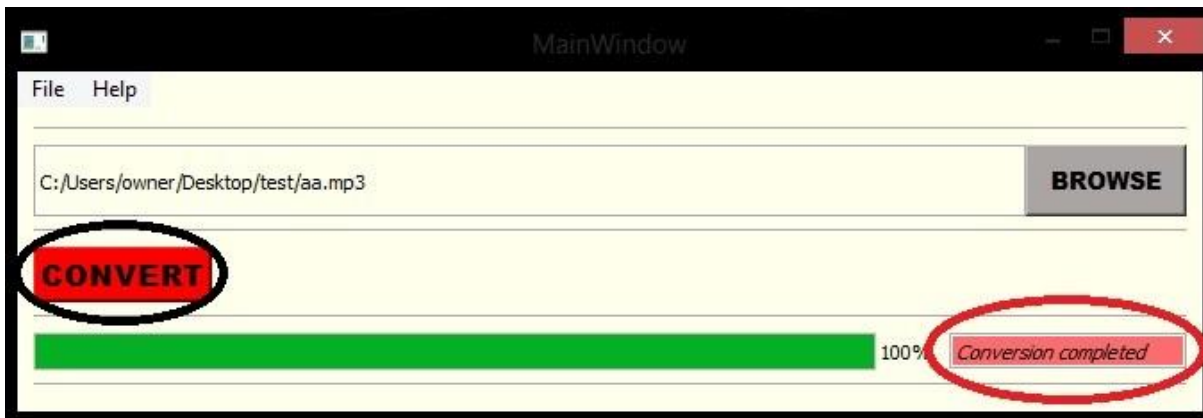- Download and navigate to **dist** folder and double click SDConverter.exe.

- Open the Playback converter utility, browse for the MP3 file. Make sure the MP3 file name doesn't contain any spaces or special character.
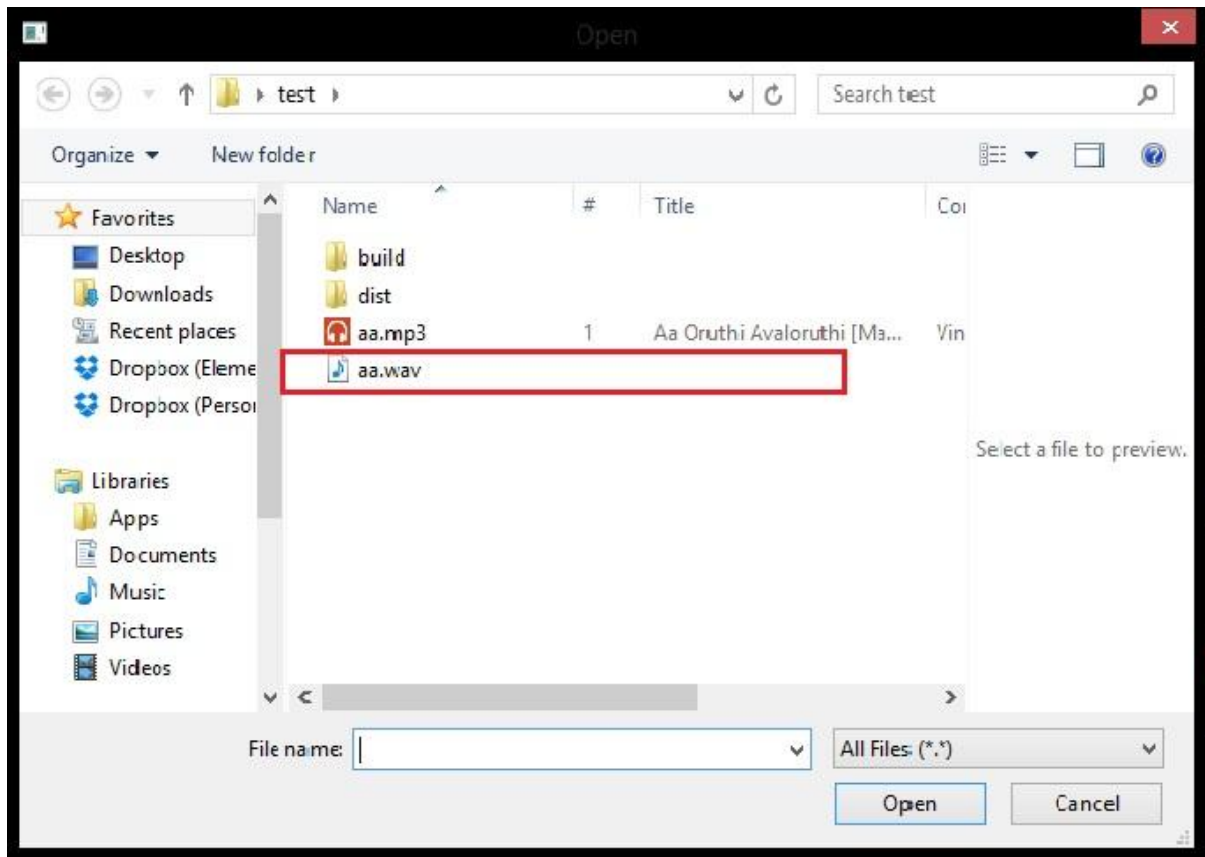

- After browsing press the Convert button and wait for the conversion to finish.

- If the conversion is successful, a screen like the below is obtained.

- The resultant WAV file is stored in the same name and location as that of the MP3 file used for the conversion.

AT Command Set

<cr> - represents Carriage Return('\r', 0x0D in hexadecimal, 13 in decimal)

filename<cr>
If the communication is correct, and the file exists the board replies with BitRate.

AT+MODE – Switch between the address control and ipad controls	
Test command AT+MODE=<mode><cr>	Response **Multimedia mode** or **External trigger mode**

	<mode>
	
	    0 – Multimedia mode
	
	    1 – External trigger mode

AT+NEXT – Plays next WAV file	
Test command AT+NEXT<cr>	Response **OK**

AT+ PREVIOUS – Plays previous WAV file	
Test command AT+ PREVIOUS<cr>	Response **OK**

AT+ PLAYALL – Plays WAV files back to back	
Test command **AT+ PLAYALL\<cr>**	Response **OK**

AT+ PLAY – Play the file selected by the address pin	
Test command **AT+ PLAY\<cr>**	Response **OK**

AT+ PAUSE – Pause the file selected by the address pin	
Test command **AT+ PAUSE \<cr>**	Response **OK**

AT+ FILELIST – change from pause to play	
Test command **AT+ FILELIST\<cr>**	Response \<file list in FAT32 SD card> **OK**

Address pin and file mapping

Address Pin Mapping	
00000	File name: 1.wav
00001	File name: 1.wav
00010	File name: 2.wav
00011	File name: 3.wav
….	………..
11111	File name: 31.wav