

AT89RFD-08 Reference Design

Getting Started Guide





Section 1

Getting Started

1.1 Introduction

This document is designed to acquaint the user with the AT89RFD-08 Reference Design dedicated to the AT8xC51SND2 microcontroller.

The AT8xC51SND2 easily adds MP3 music playing feature in any applications.

This product is a fully integrated stand-alone:

- Hardwired MPEG I/II-Layer 3 decoder with a C51 microcontroller core handling data flow
- MP3-player control
- Stereo Audio DAC
- Mono Audio Power Amplifier for speaker control

Note: Refer to End User License Agreement in License.txt file.

1.2 Requirements

1.2.1 Web Site download

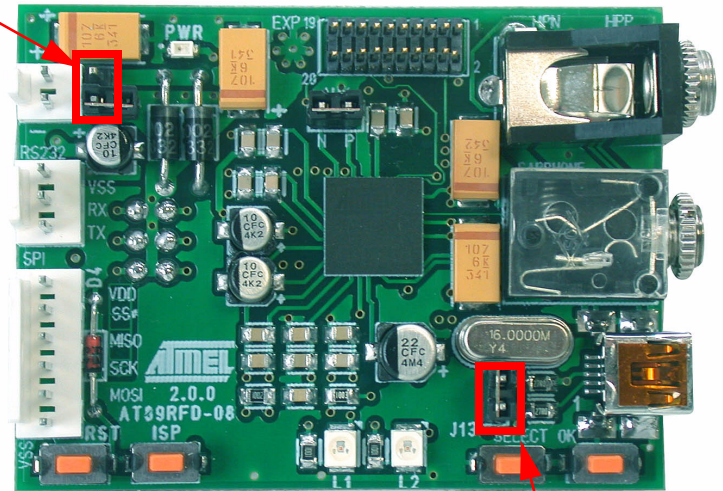
1. Connect to:
<https://www.atmel-nantes.fr/.mp3/at8xc51snd2c/>
 User Name is: **atmelmp3**
 Password is: **snd3pass**
2. Copy the at8xc51snd2c.zip file to your PC.
3. Unzip the package to your local hard drive.

1.2.2 AT89RFD-08 Board

Figure 1-1. AT89RFD-08 Board

Power Supply Selection (J14)

AT89RFD-08



MMC/SD Card



USB manual attach (J13)

1.2.3 Hardware Requirements

The demonstration application requires the following hardware:

- Atmel Reference Design Board AT89RFD-08
- AT8xC51SND2 microcontroller
- A-B USB cable
- PC running Windows® (98, Me, 2000 or XP) or Linux® with a 1.1 or 2.0 USB Host

1.2.4 Software Requirements

For C51 tools, the minimum hardware and software PC requirements are:

- 486 processor (Pentium® is recommended)
- 16 MB RAM
- 15 MB free hard disk space (for FLIP installation)
- Windows® 95/98/2000/ME and Windows NT® 4.0 or higher
- 115200 baud RS-232 port (COM port)

The following software programs are necessary to use the demonstration program. The software programs can be found in the accompanying CD-ROM. Updated FLIP software is available on the Atmel web site.

- Flexible In-System Programming (FLIP) software tool
- snd2c-xxx-yyy-zzz-A_B_C.hex file (A_B_C is the version number of the software package).

Note: See FLIP User documentation for USB Pilot Installation Procedure

1.2.5 Default Hardware Settings for AT89RFD-08 Reference Design

Ensure that the AT8xC51SND2 board is in default hardware configuration (refer to Hardware Guide).

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- 1.3 Quick Start** The AT89RFD-08 Board is shipped with a pre-programmed AT89C51SND2C microcontroller. This default application is a basic demonstration program: a stand alone MMC/SD Player.
- 1.3.1 AT89RFD-08 Hardware Settings**
- 1.3.1.1 Power Supply** An external DC power supply is required. The input circuit is a full bridge rectifier, and the AT89RFD-08 Board automatically handles both positive or negative center of the male JACK outlet. The red **POWER** LED is lit when power is on.
- external 5V to 9V DC: J14 opened
 - external 3V : J14 closed
- 1.3.1.2 USB Attach Configuration** J13 jumper is used to force USB manual attach (pull-up on D+ signal). This jumper has to be left open to run the demonstration program.
- J13 shall be closed for firmware upgrade (ISP) purposes (the bootloader does not manage the USB attach).
- 1.3.2 Demonstration**
- After Power ON and Initialization, the demonstration starts the MMC / SD player.
- 1.3.2.1 MP3 Songs Upload in MMC/SD Card**
- Insert the MMC / SD card in the SD / MMC card connector (J3).
 - Press the *Select* key to select the SD / MMC card in AT8xC51SND2.
 - 1. The demonstration software has selected the card memory slot.
 - 2. File system FAT12-16 is mounted.
 - 3. Demonstration is now able to perform USB mass storage if USB cable is plugged.
 - Plug the USB cable: the MMC/SD card can be now seen as a logical removable drive in PC File Explorer.
 - Select this new logical drive on PC and format it in FAT12 or FAT16 if the card is not FAT12 or FAT16.
 - Load MP3 songs in a MMC / SD card.
 - When the transfer is done, perform a safe USB detach from PC then unplug the USB cable.
- 1.3.2.2 MP3 Music Play**
- Insert the MMC / SD card in the SD / MMC card connector (J3).
 - Press the *Select* key to select the SD / MMC card in AT8xC51SND2.
 - 1. The demonstration software has selected the card memory slot.
 - 2. File system FAT12-16 is mounted.
 - 3. Demonstration is now able to play MP3 files from MMC/SD card.
 - Press the *OK* key to start playing the first MP3 file.
 - Press the *OK* key to play the next MP3 song.



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