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:

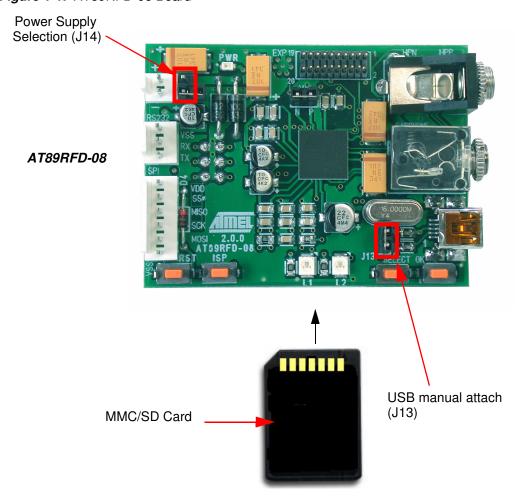
https://www.atmel-nantes.fr/.mp3/at8xc51snd2c/

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



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).



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.





Atmel Corporation

2325 Orchard Parkway San Jose, CA 95131, USA Tel: 1(408) 441-0311

Fax: 1(408) 487-2600

Regional Headquarters

Europe

Atmel Sarl Route des Arsenaux 41 Case Postale 80 CH-1705 Fribourg Switzerland

Tel: (41) 26-426-5555 Fax: (41) 26-426-5500

Asia

Room 1219 Chinachem Golden Plaza 77 Mody Road Tsimshatsui East Kowloon Hong Kong

Tel: (852) 2721-9778 Fax: (852) 2722-1369

Japan

9F, Tonetsu Shinkawa Bldg. 1-24-8 Shinkawa Chuo-ku, Tokyo 104-0033

Japan Tel: (81) 3-3523-3551 Fax: (81) 3-3523-7581

Atmel Operations

Memory

2325 Orchard Parkway San Jose, CA 95131, USA Tel: 1(408) 441-0311 Fax: 1(408) 436-4314

Microcontrollers

2325 Orchard Parkway San Jose, CA 95131, USA Tel: 1(408) 441-0311 Fax: 1(408) 436-4314

La Chantrerie BP 70602 44306 Nantes Cedex 3, France Tel: (33) 2-40-18-18-18

ASIC/ASSP/Smart Cards

Fax: (33) 2-40-18-19-60

Zone Industrielle 13106 Rousset Cedex, France Tel: (33) 4-42-53-60-00 Fax: (33) 4-42-53-60-01

1150 East Cheyenne Mtn. Blvd. Colorado Springs, CO 80906, USA

Tel: 1(719) 576-3300 Fax: 1(719) 540-1759

Scottish Enterprise Technology Park Maxwell Building East Kilbride G75 0QR, Scotland

Tel: (44) 1355-803-000 Fax: (44) 1355-242-743

RF/Automotive

Theresienstrasse 2 Postfach 3535 74025 Heilbronn, Germany Tel: (49) 71-31-67-0 Fax: (49) 71-31-67-2340

1150 East Cheyenne Mtn. Blvd. Colorado Springs, CO 80906, USA

Tel: 1(719) 576-3300 Fax: 1(719) 540-1759

Biometrics/Imaging/Hi-Rel MPU/ High Speed Converters/RF Datacom

Avenue de Rochepleine

BP 123

38521 Saint-Egreve Cedex, France

Tel: (33) 4-76-58-30-00 Fax: (33) 4-76-58-34-80

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