NXP Internet Radio Audio Streaming Solution - User's Manual

Internet Radio Audio Streaming Solution

The LPC4357 combines industry leading performance and advanced peripheral functionality to deliver superior integration for the most challenging embedded applications. The LPC4357 architecture contains multiple cores - a sophisticated Cortex-M4 processor with a floating-point unit (FPU) plus a Cortex-M0 co-processor core. This multi-core approach allows easy partitioning of designs for maximum efficiency as the powerful Cortex-M4 core crunches numbers while the Cortex-M0 coprocessor mangages the data movement and I/O handling.

Getting Started

With the Internet Radio or MP3 Player Solution you will need the following:
KEIL MCB4357 development board

- Licensed version of KEIL µVision 4.70 (or newer) for re-compilations and modifications (www.keil.com)

- Demo version of KEIL µVision 4.70 (or newer) for binary download (www.keil.com)

- Alternative serial download of the binary with Flash Magic

- MicroSD card with WAV and/or MP3 files in the root directory

- Internet connection without proxy

Step 1 - Internet Radio Package Download

Download the Internet Radio Package Zip File which contains the Quick Start Guide and Binary Files
DOWNLOAD HERE

Step 2 - Extraction

Extract all the files from zip file, which contains the following information:

1. **Internet Radio v1.0 PDF (Quick Start Guide)** - This document contains all the instructions for downloading the necessary free software and instructions on how to implement the demo. The document also includes instructions on how to download the emWin graphics library and MP3 decoder. Both require separate licensing which is explained in the document.

** PLEASE READ THE ENTIRE INTERNET RADIO PDF BEFORE STARTING! **

2. **IRD_Bin_v1.0**: This folder contains the "binary release". This is the software version without MP3 decoder. It can play WAV files from the microSD card. There are batch files provided for programming all required executables to the LPC4357 using:

- µVision 4.7x and ULINK2/ME

- µVision 4.7x and ULINK Pro

- Flash Magic

In these batch files and in the configuration files for Flash Magic you need to do some individual settings, like the system path to the µVision executable or the COM port configuration.

3. **IRD_Src_v1.0**: This folder contains the complete project, but without MP3 decoder and emWin libraries.

- Follow the installation instructions in the document "Internet Radio Demo v1.0.pdf" for adding the emWin and MP3 decoder files.

- The Keil µVision project file can be found in
  .\applications\lpc18xx_43xx\examples\dualcore_43xx\lan_radio

About this Solution

This Solution is not a reference design, but the existing functionality could be a good basis for further development of these types of application. The current issues and restrictions are listed in the document "Internet Radio Demo v1.0.pdf", but you also find some ideas for implementation of new features and improvements of the existing components. Both ARM cores still have a lot of bandwidth available for additional tasks so other ideas/features could be implemented in the future.

Some ideas:

- Implement USB host functionality in order to play MP3 files from a USB memory stick
- Play list control
- Larger display with a more sophisticated graphical user interface
- Audio enhancements like equalizer or DOLBY 5.1

How to Reach Us

Contributor/Author
Name
Title