AMR Player

Example Code Introduction for 32-bit NuMicro® Family

Information

Application	The example code reads AMR file in MicroSD card, decodes it and plays it to headphone out on NUC505 EVB board
BSP Version	NUC505 Series BSP V3.02.000
Hardware	NuTiny-EVB-NUC505 v1.4 or later

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1 Function Description

1.1 Introduction

The example code is to demonstrate how to play AMR file stored in SD card.

1.2 Principle

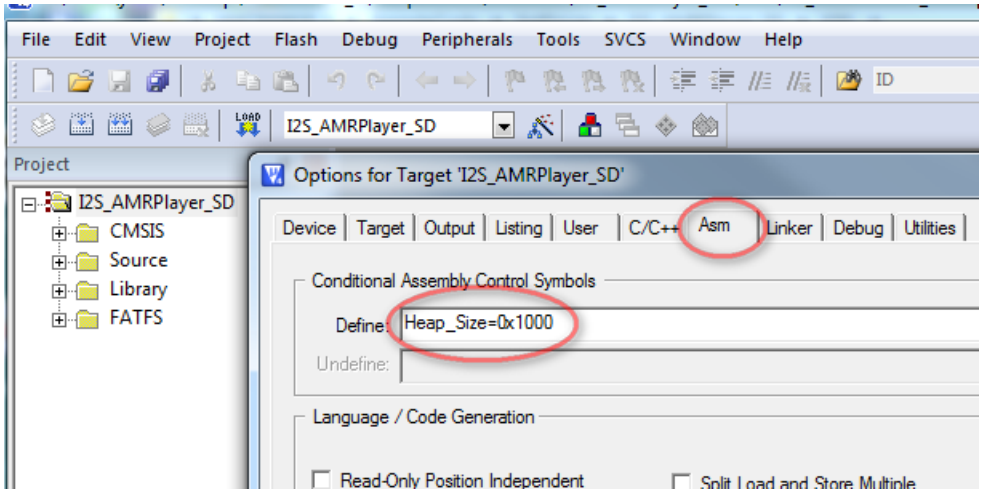
The example uses codes from I^2S and File System example codes. It reads the AMR file stored in MicroSD card, decodes it by AMR codec library, plays it to headphone on NuTiny NUC505 board. The default file name is “test.amr” located at root directory of MicroSD card. You can change it in main.c

1.3 Demo Result

Plug the headset into the headphone socket, and when the code starts to run, it decodes the AMR file stored in MicroSD card, you can hear the sound from headset. If you do not have an AMR file to test, please use AMRRecoder example to record and generate an AMR file.

2 Code Description

Because AMR codec library allocates memory dynamically, it has to reserve more memory for heap. The project file already set 4K bytes for heap. If you create new project, remember to add the following setting to your project.



The steps to initial and active the playing

```
    /* Configure FATFS */
    printf("rc=%d\n", (WORD)disk_initialize(0));
    disk_read(0, Buff, 2, 1);    f_mount(&FatFs[0], "", 0);

    /* Init I2S, IP clock and multi-function I/O */
     I2S_Init();

    AMRPlayer("0:\\test.amr");

     I2S_Close(I2S);
```

3 Software and Hardware Environment

Software Environment

- BSP version
  - NUC505 Series BSP CMSIS V3.02.000
- IDE version
  - Keil uVision 5.18 or later

Hardware Environment

- Circuit components
  - NuTiny-EVB-NUC505
- A microSD card uses for file storage

4 Directory Information

- EC_NUC505_I2S_AMRPlayer_SD_V1.00
  - Library — Sample code header and source files
    - CMSIS — Cortex® Microcontroller Software Interface Standard (CMSIS) by Arm® Corp.
    - Device — CMSIS compliant device header file
    - StdDriver — All peripheral driver header and source files
  - SampleCode
    - ExampleCode — Source file of example code
  - ThirdParty
    - FatFS — A generic FAT file system module for small embedded systems. Its official website is: http://elm-chan.org/fsw/ff/00index_e.html.
    - LibAMR — The AMR codec library supports nano-band of AMR encode and decode.

5 How to Execute Example Code

1. Browsing into sample code folder by Directory Information (section 4) and double click I2S_AMRPlayer_SD.uvproj.
2. Enter Keil compile mode
   a. Build
   b. Download
   c. Start/Stop debug session
3. Enter debug mode
   a. Run

6 Revision History

Date	Revision	Description
Jun. 14, 2019	1.00	Initial issue

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