AMR Recorder

Example Code Introduction for 32-bit NuMicro® Family

Information

Application	The example code records sound from Line-in on NUC505 EVB board, encodes it to AMR format, then stores to MicroSD card.
BSP Version	NUC505 Series BSP V3.02.000
Hardware	NuTiny-EVB-NUC505 v1.4 or later

1 Function Description

1.1 Introduction

The example code is to demonstrate how to record sound to AMR format and store to SD card.

1.2 Principle

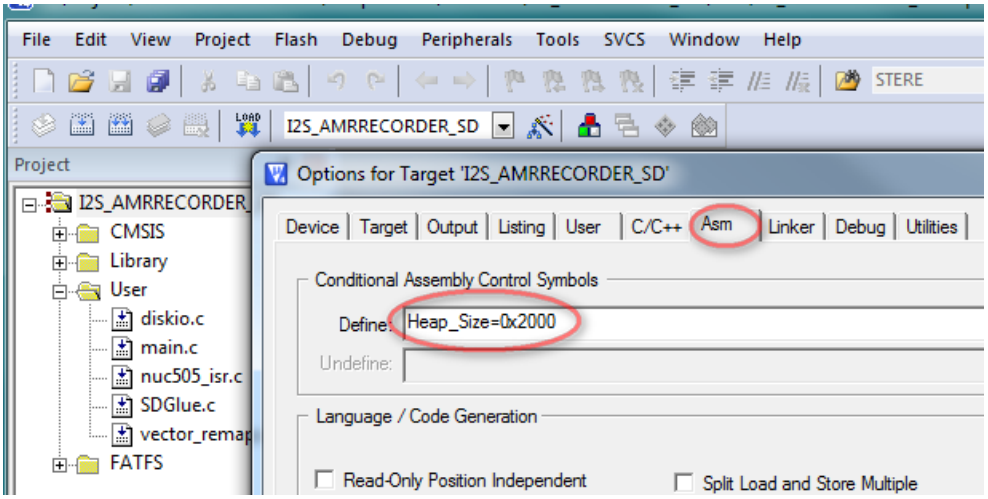
The example uses codes from I^2S and File System example codes. It records sound from Line-in on NuTiny NUC505 board, encodes it by AMR codec library, store the bitstream to MicroSD card. The default file name is “test.amr” located at root directory of MicroSD card. You can modify “AMR_FILE” to change it in main.c

1.3 Demo Result

When the code starts, it records 20 seconds sound from Line-in. To play the recorded file, uses the AMRPlayer example code to play it.

2 Code Description

Because AMR codec library allocates memory dynamically, it has to reserve more memory for heap. The project file already set 8K bytes for heap. If you create new project, remember to add the following setting to your project.



The steps to initialize and activate the recording

```
    /* Init AMR codec */
    amrInitEncode();
    /* Create AMR file */
    amr_recorder_th(AMR_FILE);

    /* Init one of three input source */
    demo_LineIn();
//  demo_MIC0();
//  demo_MIC1();

    /* record 20 seconds then close file */
    amr_recorder_bh(20);
    /* Clean AMR codec */
    amrFinishEncode();
```

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_AMRRecorder_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_AMRRecorder_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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