Realtek AmebaPro2 quick_start

Abstract

本文檔介紹如何快速建立環境，內容包含 EVB 和 SDK

Realtek Semiconductor Corp.
No. 2, Innovation Road II, Hsinchu Science Park, Hsinchu 300, Taiwan
Tel.: +886-3-578-0211. Fax: +886-3-577-6047
www.realtek.com

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USING THIS DOCUMENT

Though every effort has been made to ensure that this document is current and accurate, more information may have become available subsequent to the production of this guide.

Revision History

Revision	Release Date	Summary
0.1	2021/08/16	Initial draft

Table of Contents

1. 文件簡介

1.1 文件簡介

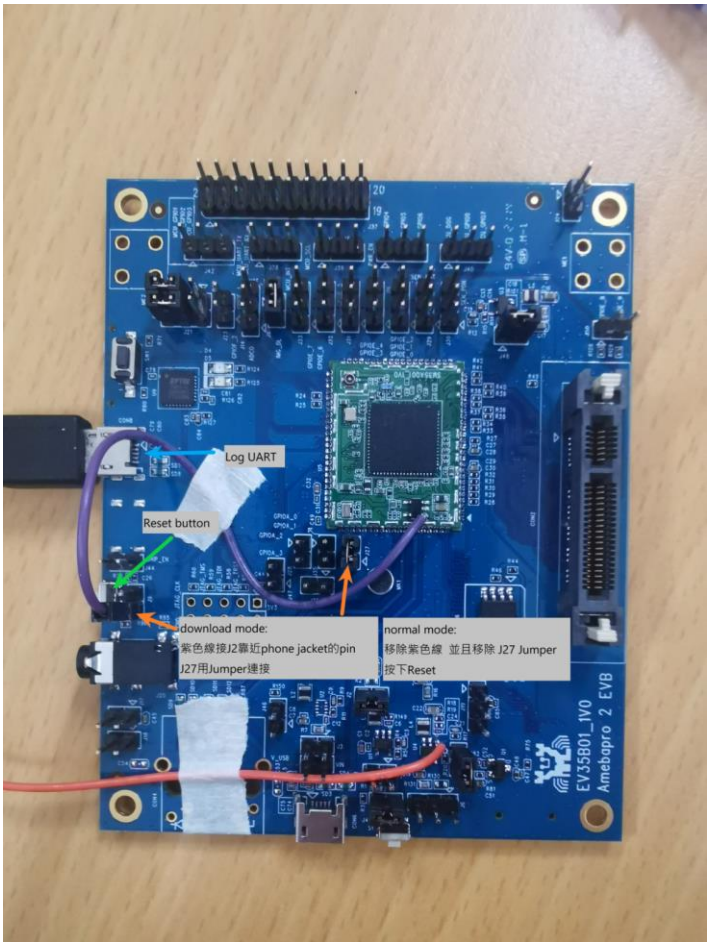
本文件旨在敘述如何快速使用 AmebaPro2 SDK，包含建立專案、固件下載至 log 的打印與觀察。

2. 預先準備項目

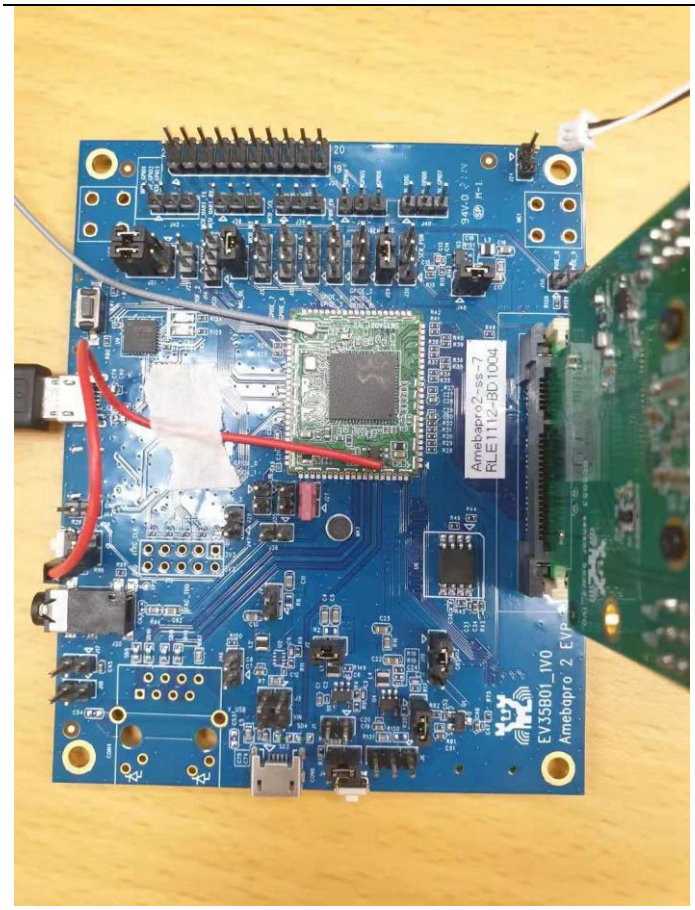
2.1 使用 EVB

2.1.1 硬體需求:

- 硬件: **8735 EVB * 1、GC2053 Sensor board**



- 使用工具 **AmebaZ2 PGTool**
  - **Flash pin index = 0, 使用預設值燒錄即可**
- 依圖片上方法進入 **download mode or normal mode**
- 依下圖檢查 **EVB jumper**



2.1.2 軟體需求:

- **sdk-ameba-v9.0a.7z**

3. 環境配置與專案建置

本章節會針對本系統中各專案的建置環境與建置的過程進行簡易地說明。

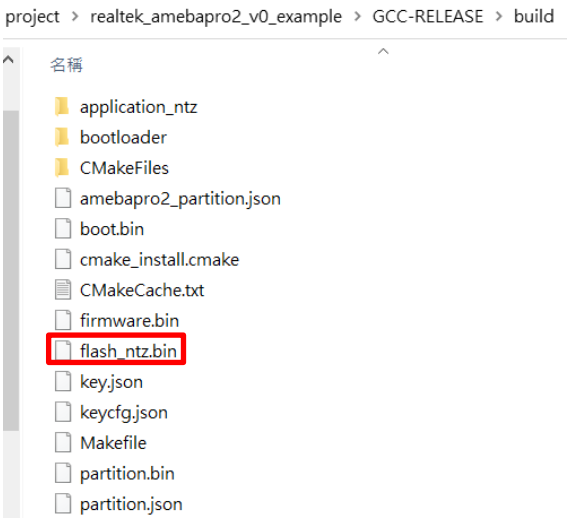
3.1 安裝 mingw with ASDK

- **mingw: 將 tools/msys64-1210.7z 解壓縮至工作目錄**
- **下載並安裝 cmake: https://github.com/Kitware/CMake/releases/download/v3.20.0-rc1/cmake-3.20.0-rc1-windows-x86_64.msi**
- **於 mingw 的 bashrc 中 export cmake**
  - **點擊 msys2_shell.cmd 打開 mingw，修改完.bashrc 後關掉在重新點擊 msys2_shell.cmd 完成 export**
  - **打開 msys64-1210\msys64\home\xxx\.bashrc**
  - **添加 export PATH=/JLink:$PATH:/mingw64/bin:/c/Program\ Files/CMake/bin**

3.2 SDK 編譯

- **開啟 mingw: double click “msys2_shell.cmd”**
- **change directory to project/realtek_amebapro2_v0_example/GCC-RELEASE/**
- **mkdir build**
- **cd build**
- **cmake .. -G"Unix Makefiles" -DCMAKE_TOOLCHAIN_FILE=../toolchain.cmake**
- **cmake --build . --target flash**

3.3 產生 fw image

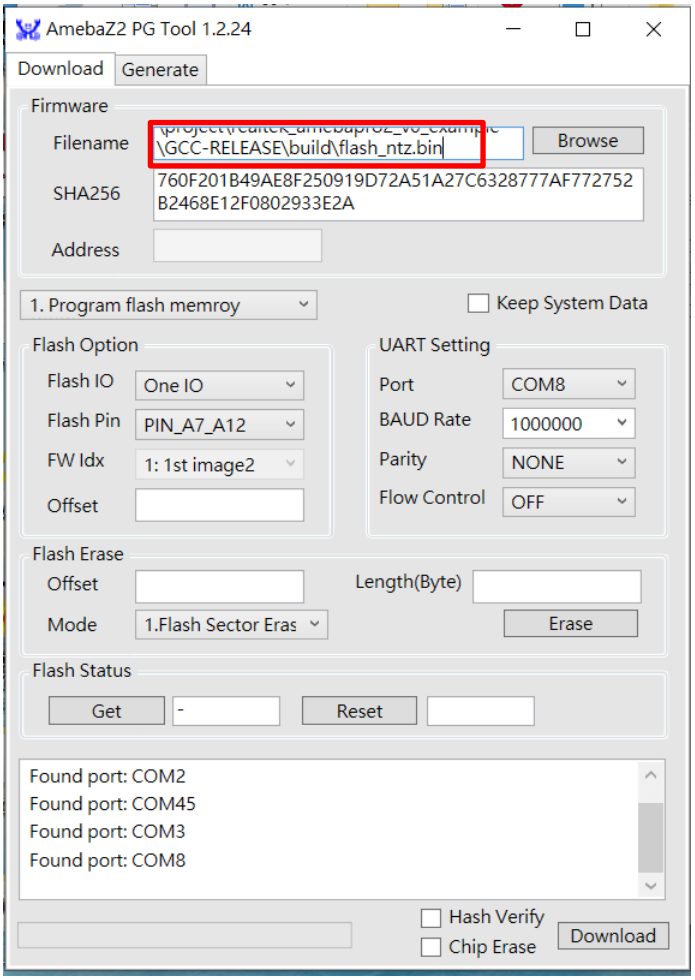


4. 固件下載

本章節會以專案建立完成後的固件下載流程進行介紹。

4.1 使用 AmebaZII_PGTool

- **選取要下載的固件**

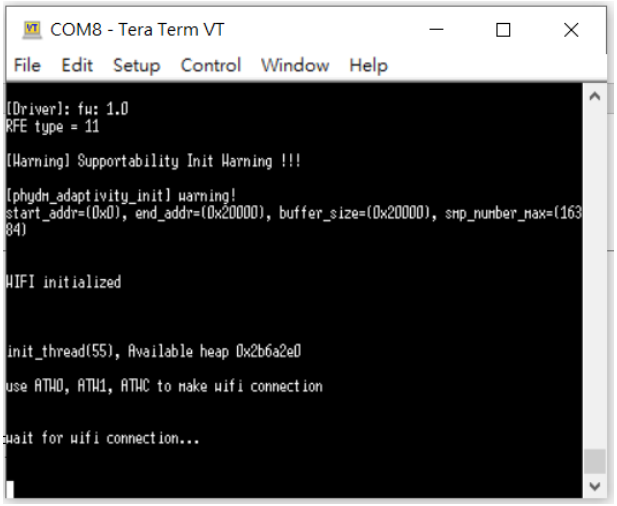


- **選取 EVB 所在的 COM port**
- **確認 EVB 進入 dowload 模式**
- **使用 Download 開始下載**

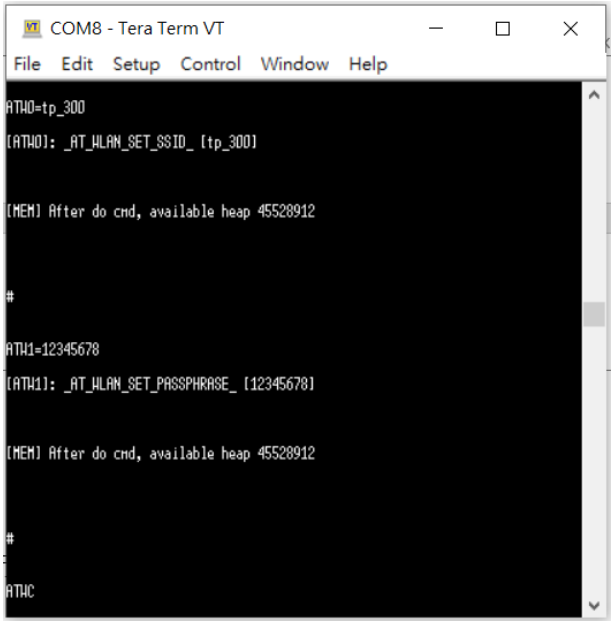
5. log 打印

本章節會介紹關於如何使用 log 打印來監察系統的運行狀況。

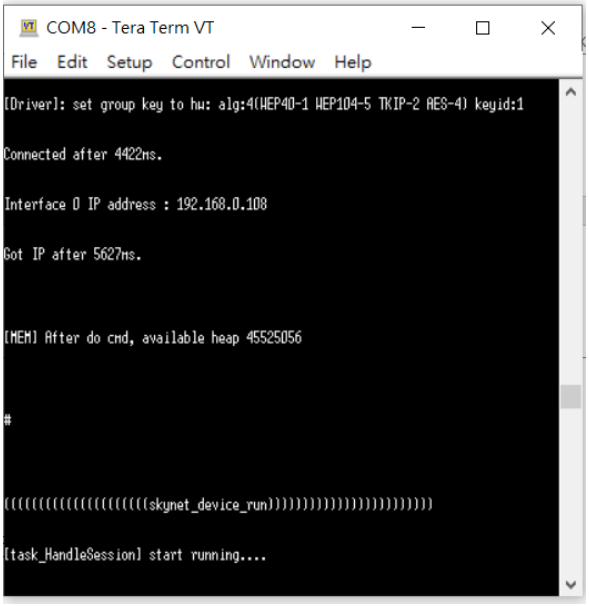
- **開機後進入等待 wifi 連線狀態**



- **透過 AT command 進行 wifi 連線**



- **進入 example 程序**



6. MMF example

6.1 MMF example list

mmfv2_example		說明
√	mmf2_example_2way_audio_init	2WAY audio
√	mmf2_example_a_init	1 Audio (AAC) -> RTSP (A)
√	mmf2_example_audioloop_init	audio -> audio , audio loopback
√	mmf2_example_g711loop_init	audio -> G711E -> G711D -> audio
√	mmf2_example_aacloop_init	audio -> AAC -> AAD -> audio
√	mmf2_example_rtp_aad_init	RTP -> AAD -> audio
√	mmf2_example_pcmu_array_rtsp_init	ARRAY (PCMU) -> RTSP (A)
√	mmf2_example_aac_array_rtsp_init	ARRAY (AAC) -> RTSP (A)
√	mmf2_video_example_v1_init	CH1 Video -> H264/HEVC -> RTSP
√	mmf2_video_example_v2_init	CH2 Video -> H264/HEVC -> RTSP
√	mmf2_video_example_v3_init	CH3 Video -> JPEG -> RTSP
√	mmf2_video_example_v1_shapshot_init	CH1 Video -> H264/HEVC -> RTSP + SNAPSHOT
√	mmf2_video_example_simo_init	1 Video (H264/HEVC) -> 2 RTSP (V1, V2)
√	mmf2_video_example_av_init	1 Video (H264/HEVC) 1 Audio -> RTSP
√	mmf2_video_example_av2_init	2 Video (H264/HEVC) 1 Audio -> 2 RTSP (V1+A, V2+A)
√	mmf2_video_example_av21_init	1 Video (H264/HEVC) 1 Audio -> 2 RTSP (V+A)
√	mmf2_video_example_av_mp4_init	1 Video (H264/HEVC) 1 Audio -> MP4 (SD card)
√	mmf2_video_example_av_rtsp_mp4_init	1V1A RTSP MP4
√	mmf2_video_example_joint_test_init	H264 -> RTSP (with AUDIO) H264 -> RTSP (with AUDIO) AUDIO -> AAC -> RTSP RTP -> AAD -> AUDIO
√	mmf2_video_example_joint_test_rtsp_mp4_init	H264 -> RTSP (V1) H264 -> MP4 (V2) AUDIO -> AAC -> RTSP and mp4 RTP -> AAD -> AUDIO
√	mmf2_video_example_2way_audio_pcmu_doorbell_init	H264 -> RTSP (V1) AUDIO -> G711E -> RTSP RTP -> G711D -> AUDIO ARRAY (PCMU) -> G711D -> AUDIO (doorbell)
√	mmf2_video_example_2way_audio_pcmu_init	H264 -> RTSP (V1) AUDIO -> G711E -> RTSP RTP -> G711D -> AUDIO
√	mmf2_video_example_array_rtsp_init	ARRAY (H264) -> RTSP (V)
√	mmf2_video_example_v1_param_change_init	V1 parameter change

6.2 執行 MMF example

- **Video example**
  - **platform_opts.h 開啟 CONFIG_EXAMPLE_MEDIA_FRAMEWORK 1**

- ✧ **#define CONFIG_EXAMPLE_MEDIA_VIDEO 1**

■ **使用 project\realtek_amebapro2_v0_example\src\mmfv2_video_example\video_example_media_framework.c 切換要執行的 video example**

```
//-----------------------------------------------------------------------------
// video support examples
//-----------------------------------------------------------------------------
static void example_mmf2_video_surport()
{

    // CH1 Video -> H264/HEVC -> RTSP
    //mmf2_video_example_v1_init();

    // CH2 Video -> H264/HEVC -> RTSP
    //mmf2_video_example_v2_init();

    // CH3 Video -> JPEG -> RTSP
    //mmf2_video_example_v3_init();

    // CH1 Video -> H264/HEVC -> RTSP + SNAPSHOT
    //mmf2_video_example_v1_shapshot_init();

    // 1 Video (H264/HEVC) -> 2 RTSP (V1, V2)
    //mmf2_video_example_simo_init();

    // 1 Video (H264/HEVC) 1 Audio -> RTSP
    //mmf2_video_example_av_init();

    // 2 Video (H264/HEVC) 1 Audio -> 2 RTSP (V1+A, V2+A)
    mmf2_video_example_av2_init();

    // 1 Video (H264/HEVC) 1 Audio -> 2 RTSP (V+A)
    //mmf2_video_example_av21_init();

    // 1 Video (H264/HEVC) 1 Audio -> MP4 (SD card)
    //mmf2_video_example_av_mp4_init();

    // 1V1A RTSP MP4
    // H264 -> RTSP and mp4
    // AUDIO -> AAC  -> RTSP and mp4
    //mmf2_video_example_av_rtsp_mp4_init();
```

- **Audio example**

■ **platform_opts.h 開啟 CONFIG_EXAMPLE_MEDIA_FRAMEWORK 1**

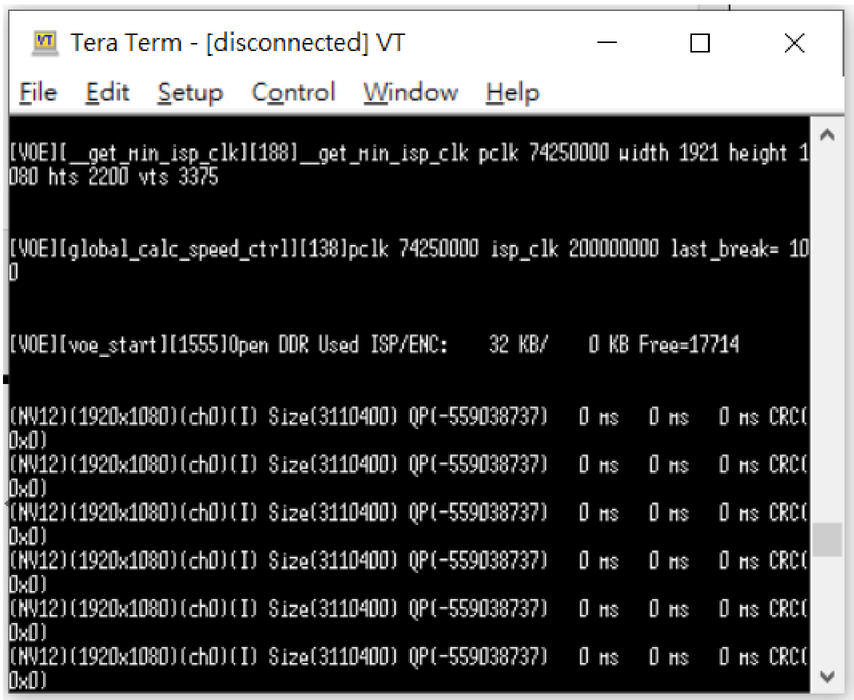
- ✧ **#define CONFIG_EXAMPLE_MEDIA_VIDEO 0**

■ **使用 component\example\media_framework\example_media_framework.c 切換要執行的 audio example**

```
//-----------------------------------------------------------------------------
// audio only examples
//-----------------------------------------------------------------------------
void example_mmf2_audio_only()
{

    // 1 Audio (AAC) -> RTSP (A)
    // mmf2_example_a_init();

    // audio -> audio , audio loopback
    // mmf2_example_audioloop_init();

    // i2s -> audio , audio loopback
    // mmf2_example_i2s_audio_init();

    // audio -> G711E -> G711D -> audio
    // mmf2_example_g711loop_init();

    // audio -> AAC -> AAD -> audio
    // mmf2_example_aacloop_init();

    // RTP -> AAD -> audio
    // mmf2_example_rtp_aad_init();

    // 2WAY audio
    // mmf2_example_2way_audio_init();

    // ARRAY (PCMU) -> RTSP (A)
    // mmf2_example_pcmu_array_rtsp_init();

    // ARRAY (AAC) -> RTSP (A)
    // mmf2_example_aac_array_rtsp_init();

}
```

- **使用 VLC 進行 streaming 測試**
  - **媒體>開啟網路串流>輸入網址**

- **使用 log 觀察 video output**



7. 建立 library

- **Add include(./libskynet.cmake) in project\realtek_amebapro2_v0_example\GCC-RELEASE\application_ntz**

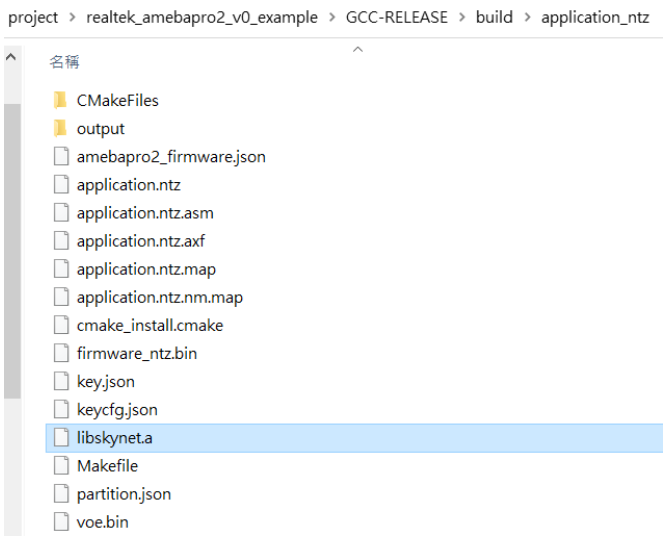
  CMakeLists.txt (移除 include(./libskynet.cmake)及 target_link_libraries skynet 的#)

```
# root of realtek_amebapro2_v0_example
set (prj_root "${CMAKE_CURRENT_SOURCE_DIR}/../..")
# root of SDK
set (sdk_root "${CMAKE_CURRENT_SOURCE_DIR}/../../../..")
set(app_ntz application.ntz)

set(freertos "freertos_v202012.00")

include(../config.cmake)

#include(./libskynet.cmake)
```

```
target_link_libraries(
    ${app_ntz}
    wlan
    wps
    video
    isp
    3a_lib
    osd_lib
    g711
    http
    #aec
    mmf
    skynet_lib
    #skynet
    sdcard
    faac
    haac
    muxer
    usbd
    soc_ntz
#   -Wl,--no-whole-archive
#   soc
#   -Wl,--whole-archive
#   rom
    m
    c
    gcc
    nosys
)
```

- **Open libskynet.cmake and add source path in skynet_sources**

```
include(../includepath.cmake)

set(skynet skynet)

list(
    APPEND skynet_sources

    #${sdk_root}/component/skynet/xxx.c



)
```



- **重新編譯 SDK，可在 project\realtek_amebapro2_v0_example\GCC-RELEASE\build\application_ntz 中產生 libskynet.a**