# **DSO Nano Firmware Generation**

**Intro**: You could modify code and generate binary file via IAR embedded Workbench IDE. Then the binary file (\*.hex) needs conversion to DFU (Device firmware upgrade) image (\*.DFU),



## Tools needed:

A. IAR Workbench evaluation for ARM. (32KB code limit)

http://code.google.com/p/dsonano/downloads/detail?name=Embedded%20Workbench%204.0%20Evaluation.rar&can= 2&q=

B. Latest APP firmware as reference

http://code.google.com/p/dsonano/downloads/list

C. Dfuse

http://www.st.com/stonline/products/support/micro/files/um0412.zip

- D. A PC running windows with version greater than windows 98.
- E. A mini USB cable to connect PC and DSO nano.

#### Environment

In following sample, we assume the project is located at d:/lab, with project name DS0201\_APP

#### Steps:

- 1. Extract firmware to a d:/Lab/
- 2. Double click d:/Lab/DS0201\_APP\project\EWARM\DSO201.eww to open project.

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3. After modification, we "rebuild all" to start generate new image.

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4. By default setting, you will get d:/Lab/DS0201\_APP\project\EWARM\DS0201.hex

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DS0201.hex	2009/11/23 22:48	HEX 文件	101 KB
DS0201.sim	2009/11/23 22:48	SIM 文件	36 KB

5. Use DFU file manager to generate DFU file from DSO201.hex.



6. Select "Generate"



7. Select binary file from "S19 or Hex..." button.

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8. Remember to choose file type as .hex file, open the one you just created.

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10. You will get a .dfu file in the same directory of .hex.

# **DSO** Nano Firmware upgrade

It's easy to upgrade firmware with USB bootloader.

- Download "DfuSe USB Device Firmware Upgrade" from <u>http://www.st.com/stonline/products/support/micro/files/um0412.zip</u> and install. Instruction available at http://www.st.com/mcu/familiesdocs-110.html#Application%20Note.
- 2. Connect Oscilloscope with PC, press and hold **v**, switch on power, until oscilloscope displays:

#### "Please Connect to USB Host!"

# "DS0201 Device Firmware Upgrade Ver 1.0"

When PC connection is detected,

## "Firmware Upgrading..."

"Please Wait"

## "DS0201 Device Firmware Upgrade Ver 1.0"

Run "Dfuse Demo" on PC, check (1), select firmware to be uploaded (e,g."DS0201\_FW\_V2.00.DFU") at (2)

NOTE: In latest versions, you might need to program 1) XXX\_LIB.dfu first and then XXX\_APP file

Firmware structure:

APP – Application firmware. Basic usage and reference for user modification, kept as simple as possible.

LIB – Library firmware. contains libraries for hardware operation, upgrade periodically.

Bootloader – contains basic hardware parameter and serial number. Pre-programmed during manufacturing to enable DFU mode upgrading via USB port.

Please note that both APP firmware and LIB firmware (.dfu) files needs to be programmed while upgrading.

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4. In the next screen, press (1) "Upgrade", when upgrade finishes successfully, status bar will notify (2)

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5. Shut down and reactivate power to use new firmware.