User Guide on i.MX21 HAB ToolKits v2.0

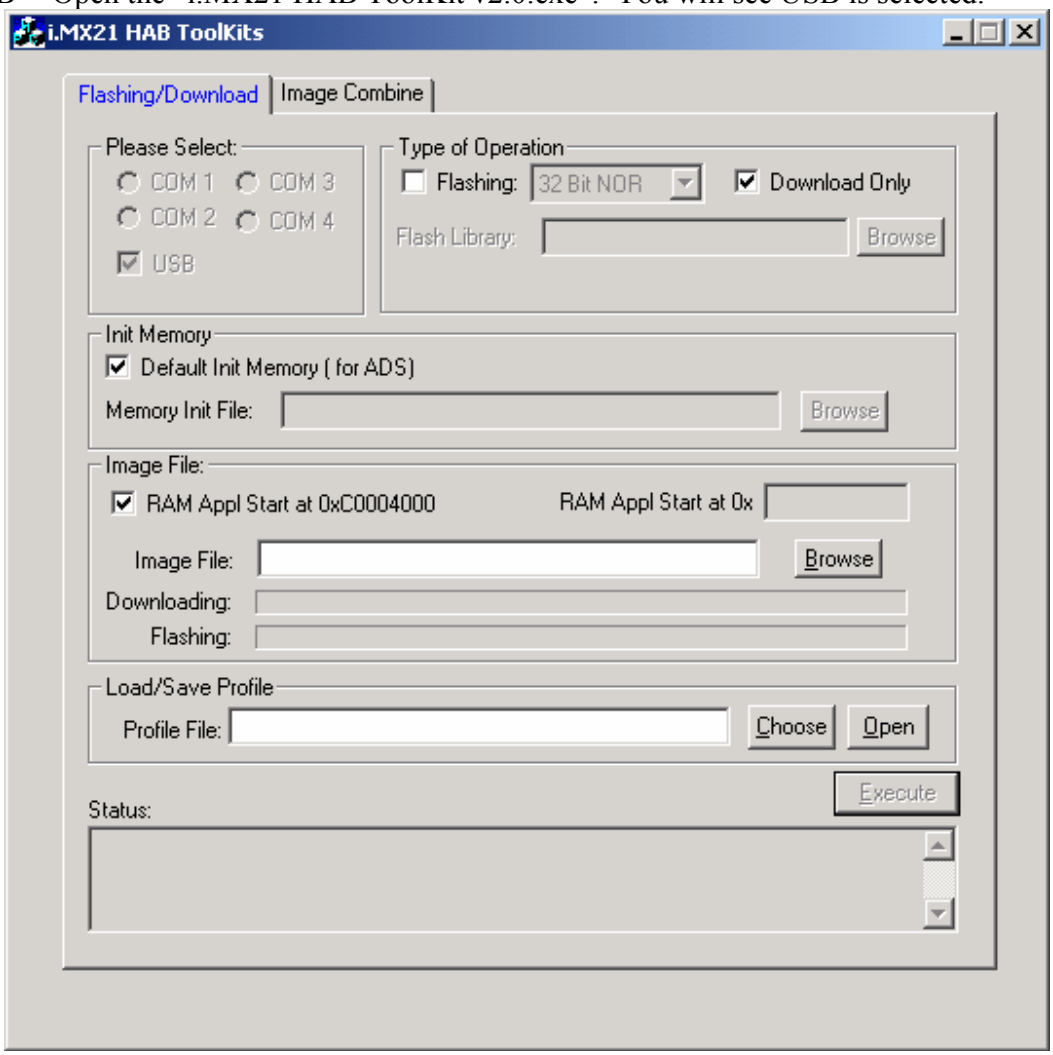
After the installation, User can use either Serial com port or USB to download the code to the SDRAM of the ADS board or Flashing the 32-Bit NOR Flash with their code.

I. Flashing/Download

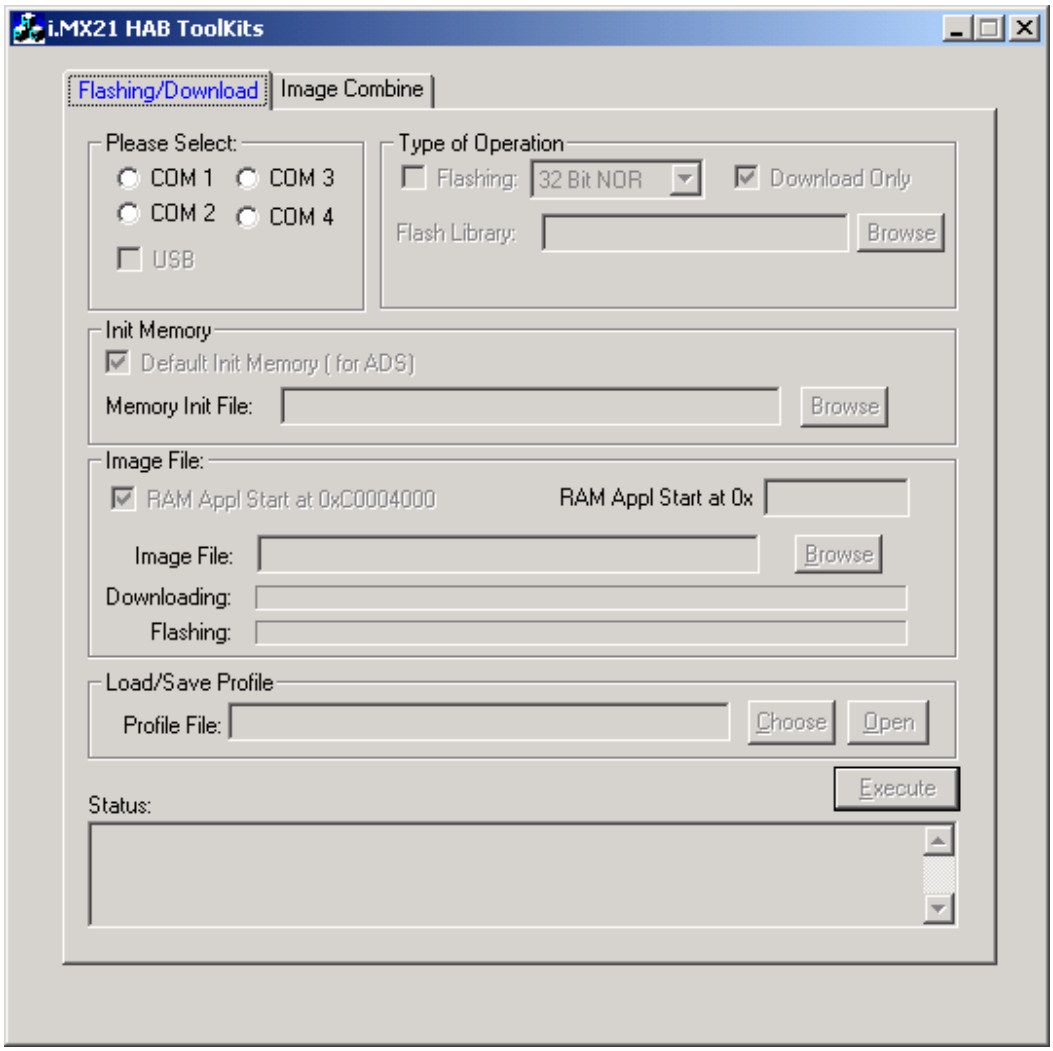
Using USB / Serial COM port

1. Using Bootstrap mode: i.e. Boot0, Boot1, Boot2, Boot3 of S2 are ON-ON-ON-ON.

2. Connect the USB cable between the PC and the ADS board and Power on the ADS board. USB -- Open the "i.MX21 HAB ToolKit v2.0.exe". You will see USB is selected.



If no USB is connected, Serial COM port: the following window will show, please select the COM port that the PC was connected



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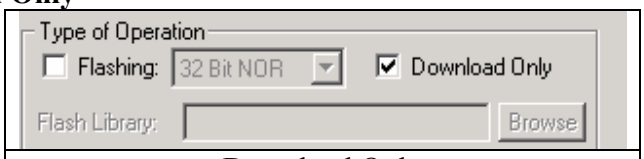
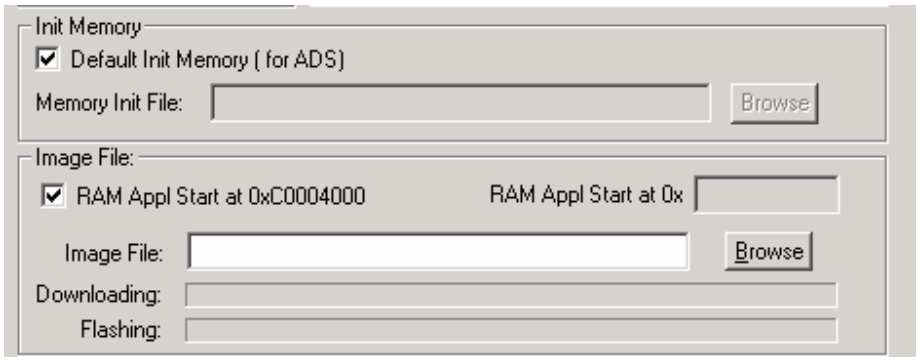
3. "Type of Operation"—
   a. **Download Only**



Download Only

For Download, the code will be downloaded to the SDRAM and execute.
Then please select the Memory Init. By default, if Default Init Memory (for ADS) was selected, it will automatically init the SDRAM.



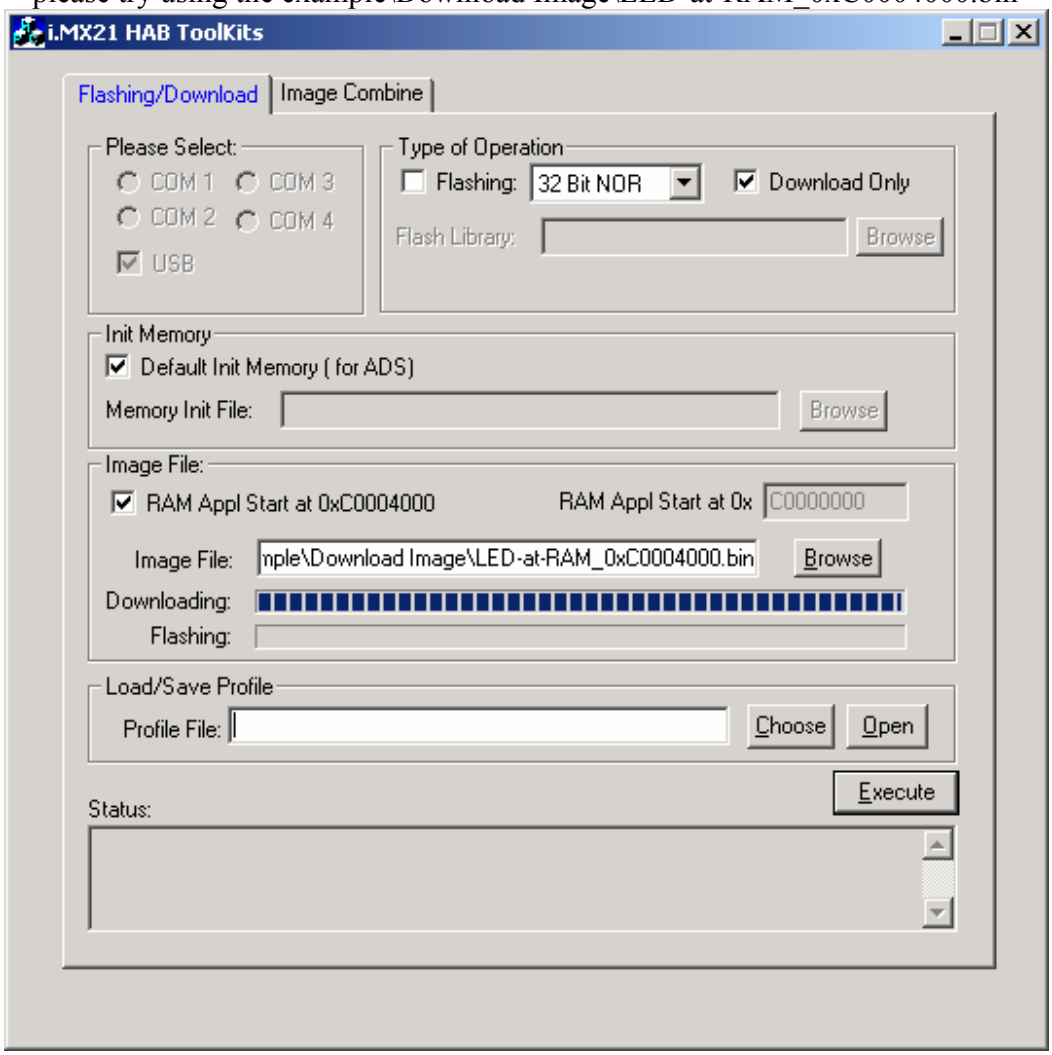
If user would like to init the memory by different setting, please unclick the Checkbox and input the init script. The format of the init script is
"setmem 0x10000000 0x00040304 32" – to write register 0x10000000 with value 0x00040304 in 32 bit format. Please refer to example\ imx21_meminit.txt.

Then please input the image file, if the file is compiled and start at 0xC0004000, just leave the checkbox clicked, if it's at other address, please unclick the checkbox and enter the RAM Application Start Address. Then please click the "Execute" button, it will then download to that address and execute from that address.

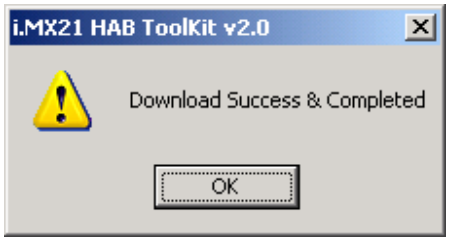
Example on Download

i. Using Default RAM Start Address (0xC0004000)

-- please try using the example\Download Image\LED-at-RAM_0xC0004000.bin



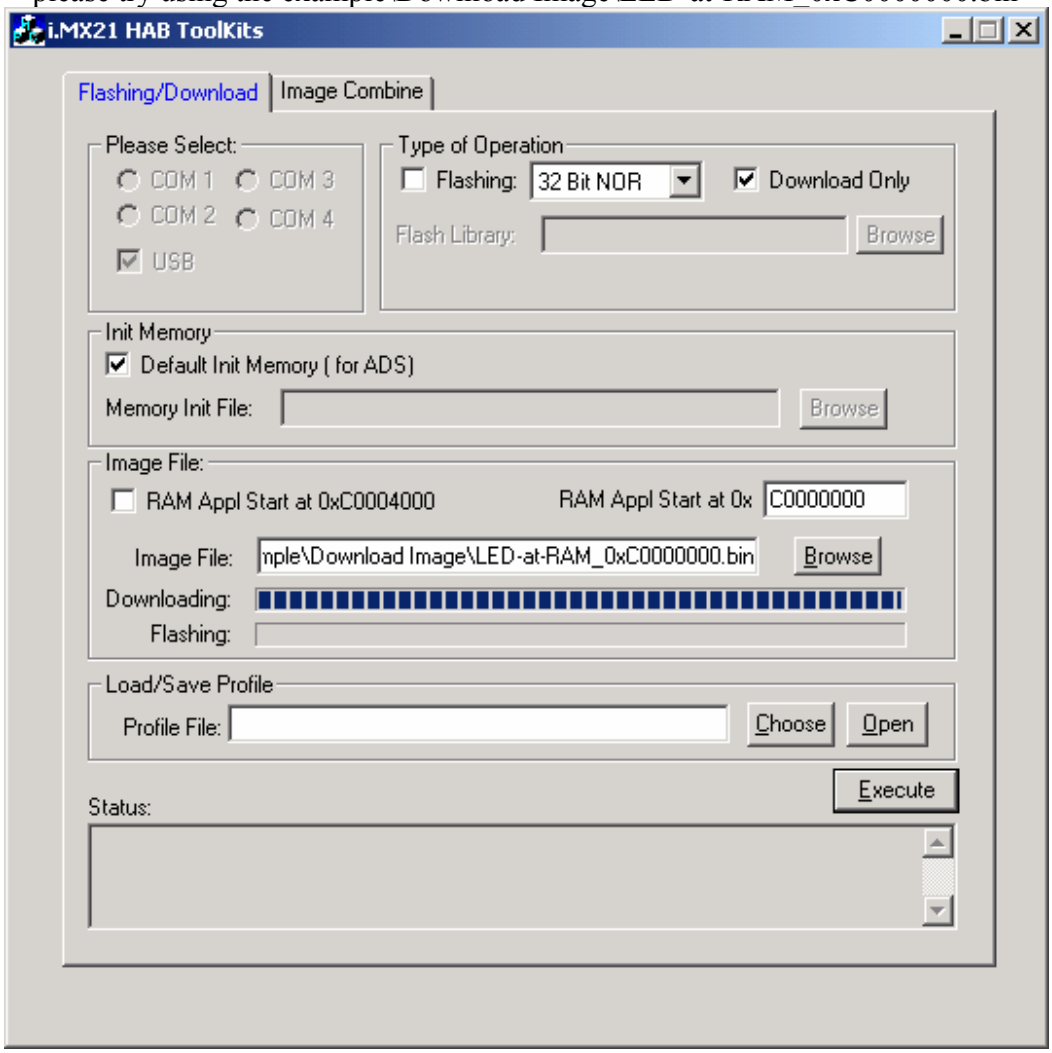
After clicking Execute:



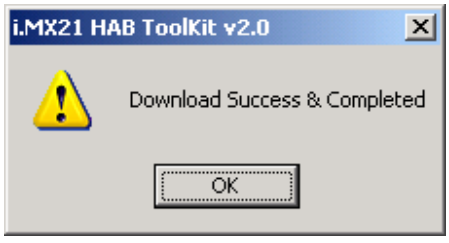
Then LED3 & LED4 keep lighting alternately.

ii Using Default RAM Start Address (0xC0000000)

-- please try using the example\Download Image\LED-at-RAM_0xC0000000.bin



After clicking Execute:



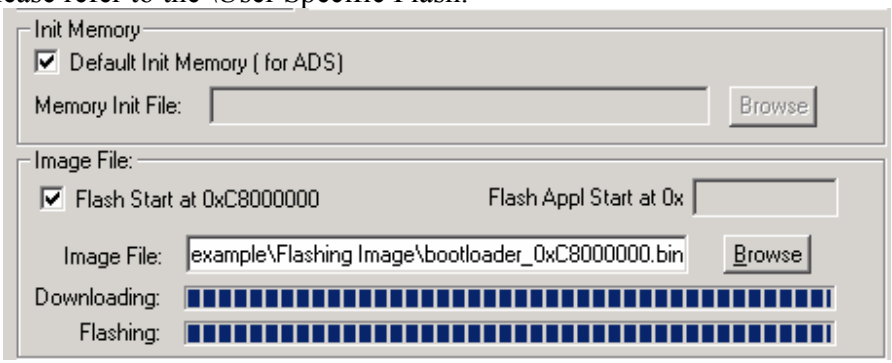
Then LED3 & LED4 keep lighting alternately.

b. Flashing

Flashing

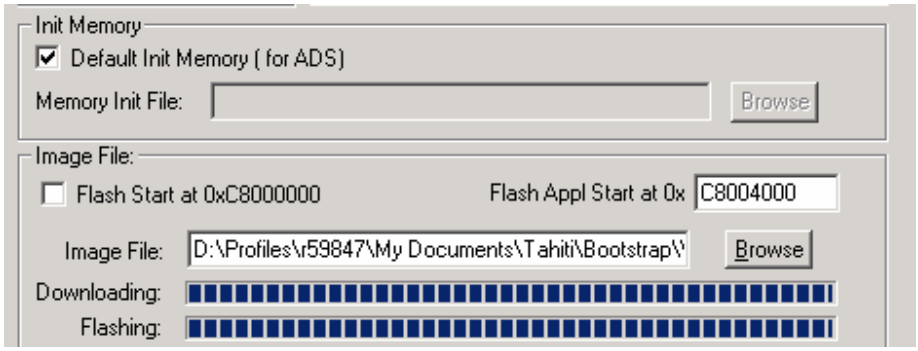
For Flashing, the code will be downloaded to SDRAM together with the Flash loader, the Flash loader will be executed to flash the image to the selected flash.

By Default, if Flashing is clicked, it will select the 32-Bit NOR Flash Loader. If user would like to load the Flash Loader by Clicking the User Specify, then please browse the Flash Library and the Flash Base Address. There are some requirements for the the Flash Loader, please refer to the \User Specific Flash.



If user would like to init the memory by different setting, please unclick the Checkbox and input the init script. The format of the init script is "setmem 0x10000000 0x00040304 32" – to write register 0x10000000 with value 0x00040304 in 32 bit format. Please refer to example\ imx21_meminit.txt.

Then please input the image file, user can select where the image is downloaded to the flash. If the image is flashed to 0xC8000000, so please leave the "Flash Start at 0xC8000000", the image will then be flash to 0xC8000000.

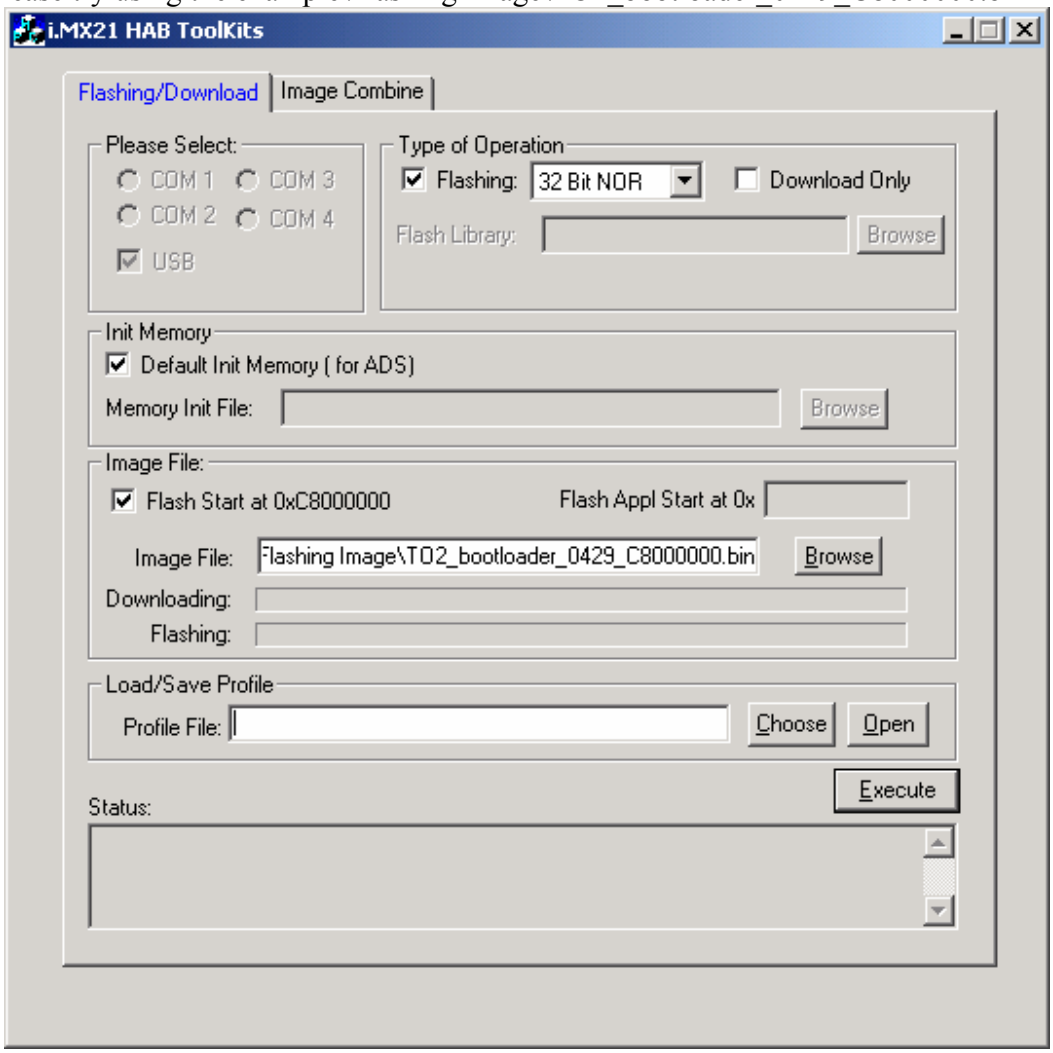


If user would like to flash the image to other flash location, please unclick the "Flash Start at 0xC8000000" and input the Targeted Flash address at "Flash Appl Start at 0x".

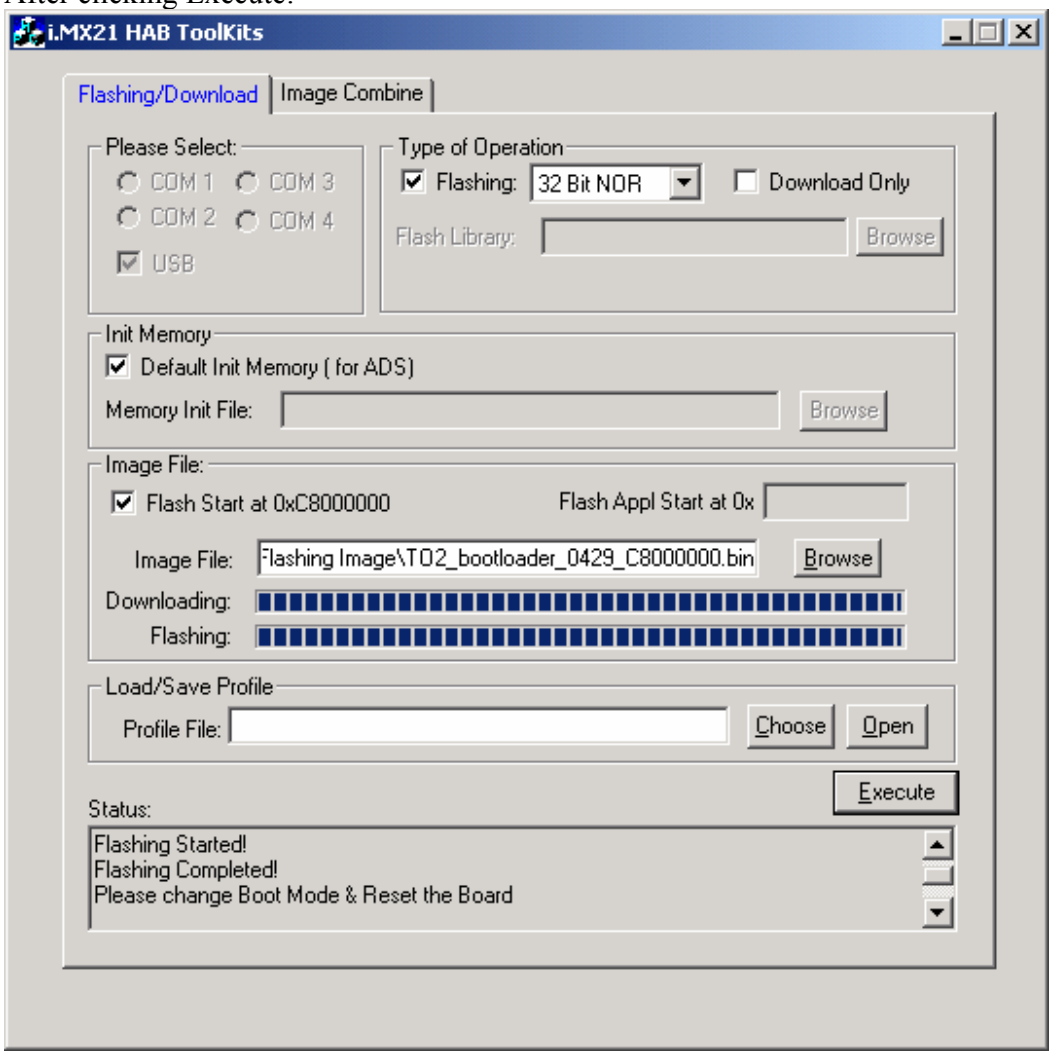
Example on Flashing

i. Using Default Flash Start Address (0xC8000000)

-- please try using the example\Flashing Image\TO2_bootloader_0429_C8000000.bin

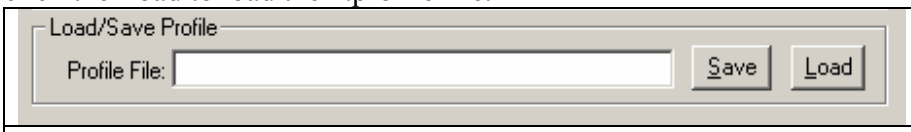


After clicking Execute:



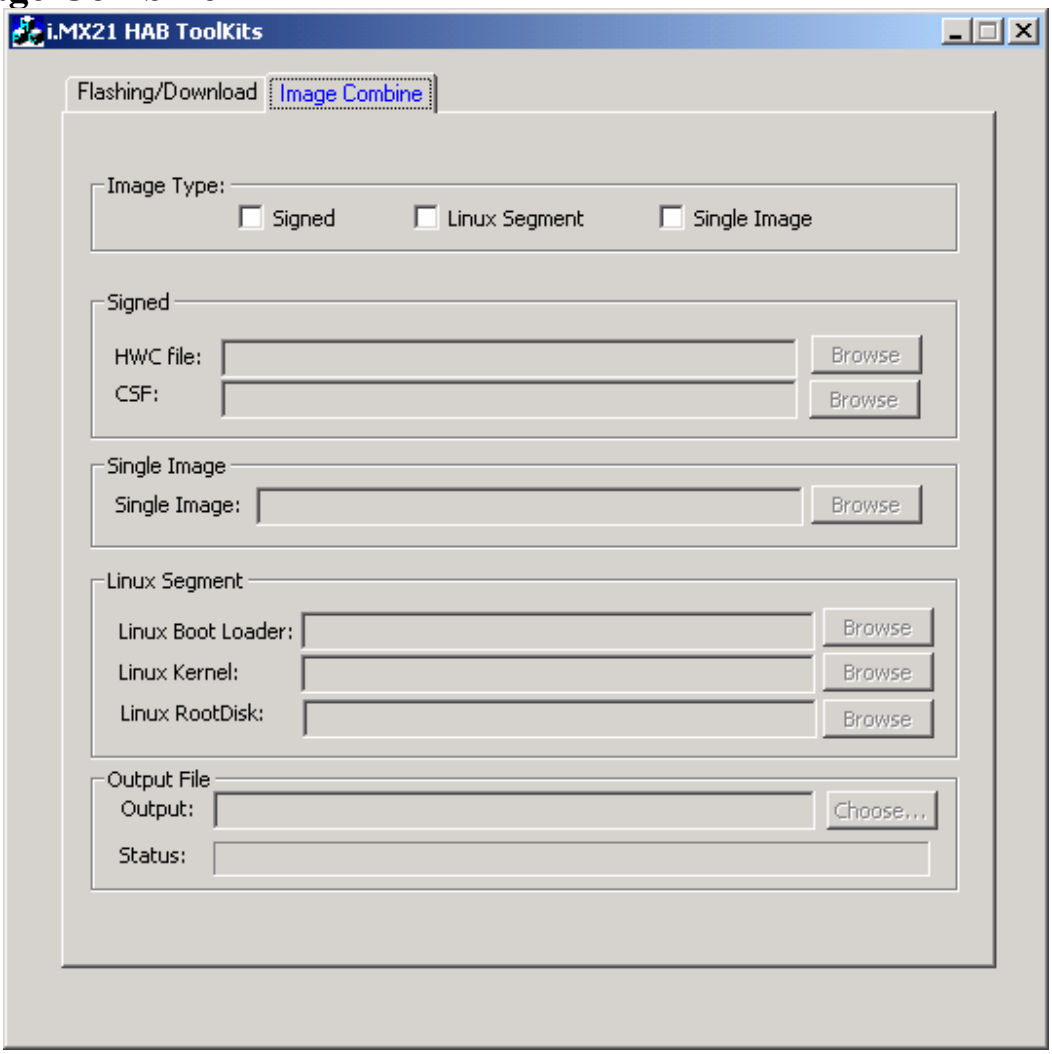
So please change the Boot Mode to ON-OFF-OFF-ON and connect the hyperterminal with baud rate 115200 8-N-1 with no flow control. Then you will see the Linux Boot Loader.

"Load/Save Profile" –
You can save your setting to a *.profile file by clicking the Save. Thus Next time you can click the Load to load the *.profile file.



You can save the setting to a profile file for next time download

II. Image Combine



The Image Combine is used to combine the binary files to a single image such as Linux bootloader + kernel + rootdisk. This also helps to combine the HWC and CSF together with the image to form a single image so that it can use the Download/Flashing to download the image by one click.

1. Image Type:
   Please select whether the Image is signed and it's a Linux Segment image or single image.

   If it's signed, please input the CSF and the HWC file. The CSF will be inserted to offset 0x1200 and the HWC file will be inserted to offset 0x1010, and the three pointers will be inserted to offset 0x1000.

   If it's a Linux Segment file, please enter the linux bootloader, kernel image and the rootdisk, they will be combined together to form the whole linux image. The bootloader

will be put to 0x0. Kernel image will be put to offset 0x100000 and Rootdisk will be put to offset 0x300000.

2. Then after select the input files, please click Choose and select the path where the final image to be saved.