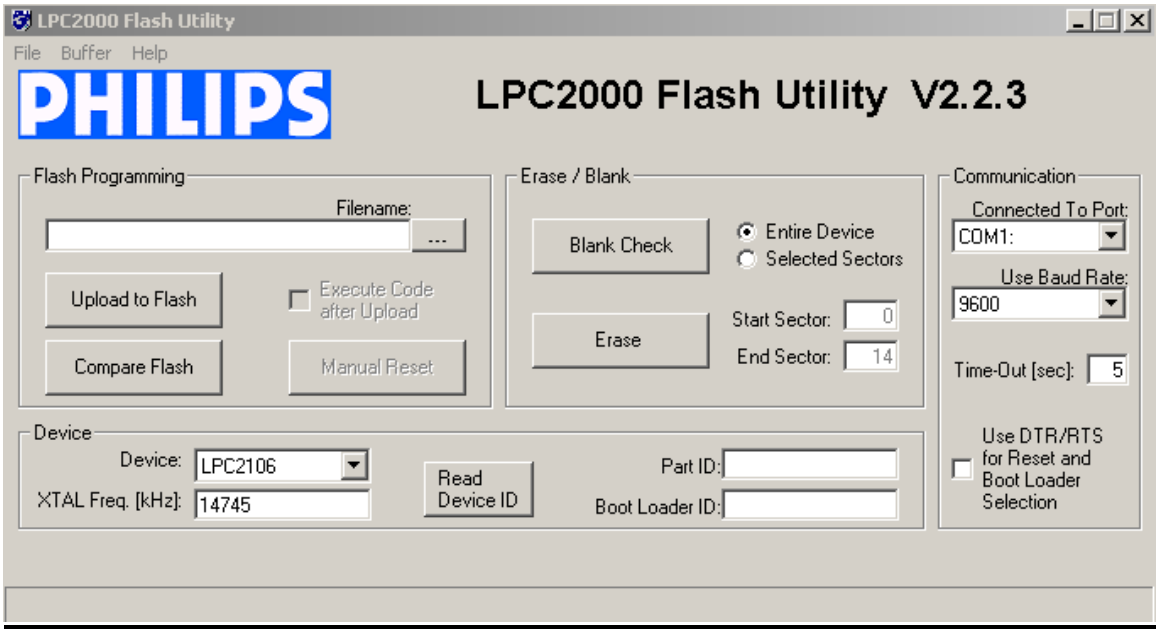
Hints on Using the LPC2000 Flash Utility

This document can be considered as a supplement to the already existing Application note AN10302 “Using the Philips LPC2000 Flash Utility”, which is provided in the same zip file. The Application note covers the following topics:

1. LPC2000 ISP Overview
2. ISP Mode Entry- Manual and RTS/DTR control circuit
3. Flash and RAM buffer operations
4. Keil MCB2100 board and IAR/Philips 210x KickStart board.

Topics discussed in this guide are as follows:

1. Using the “Compare Flash” ISP command.
2. Flashless devices- LPC2220, LPC2210, LPC2290



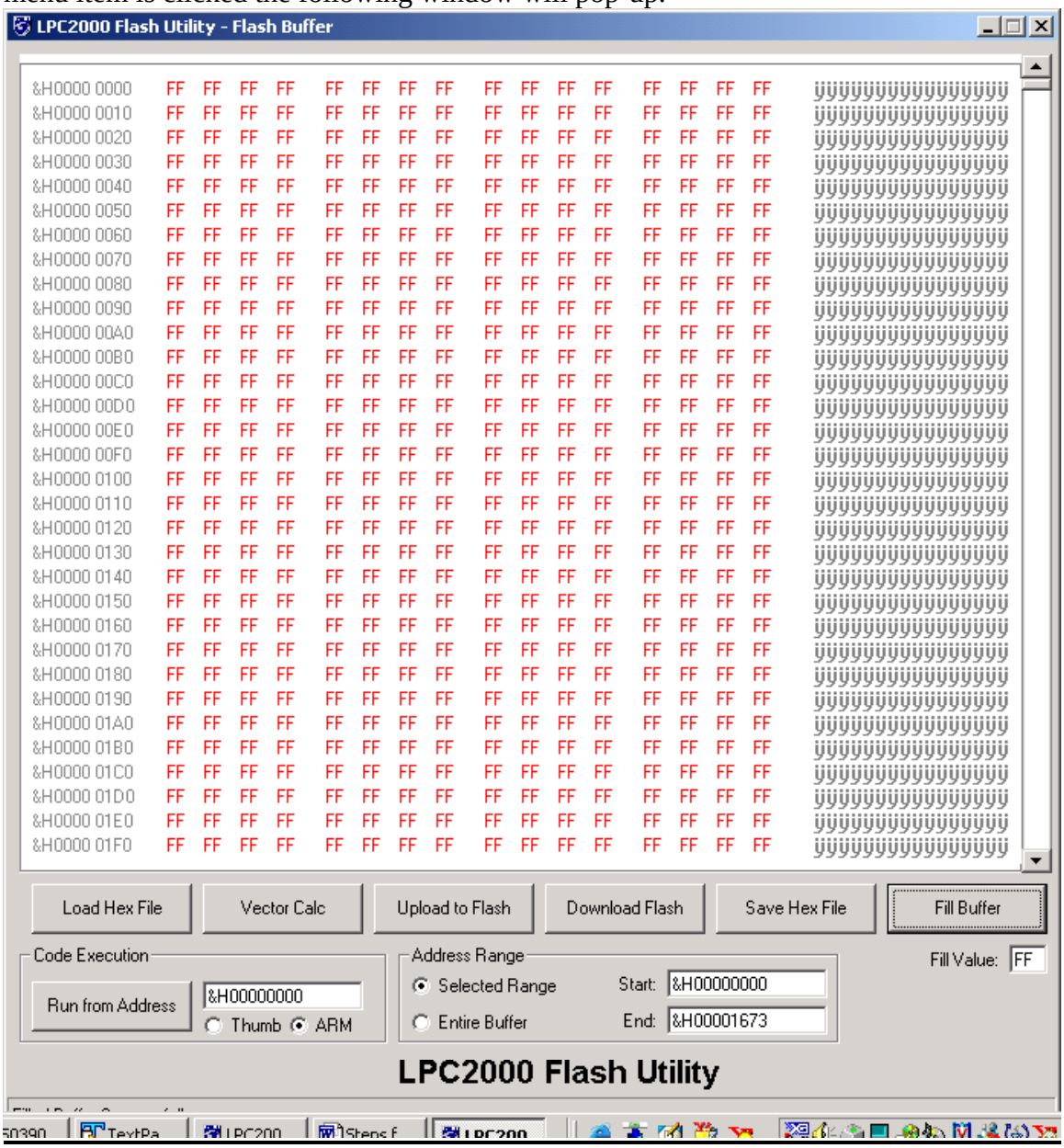
Using the Compare Flash:

The below steps need not be carried out if the checksum is part of the code before it is compiled. This would mean that checksum would be part of the hex file been created. For more detailed information on the checksum calculation please refer to the “Flash Memory System and Programming” chapter in the respective device User Manual.

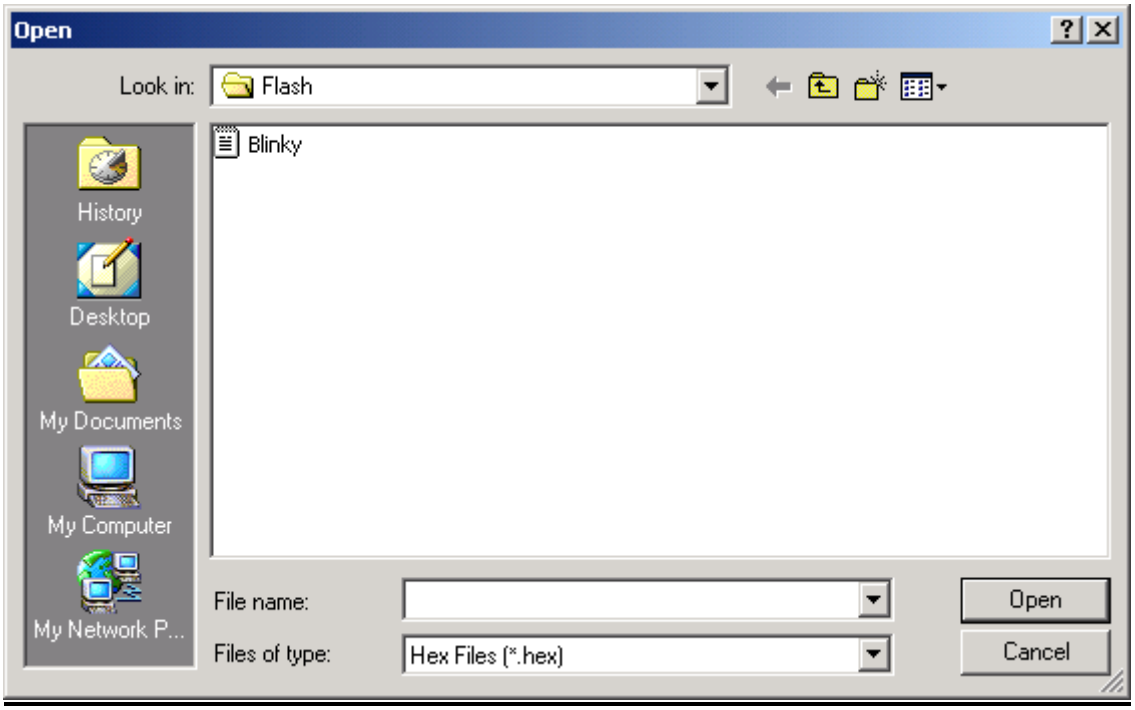
In this case, the hex file can be directly loaded using the “Upload to Flash” button and then the “ Compare Flash” button can be used to compare the Flash contents with the hex file. This direct operation is possible since the signature (or checksum) is part of the hex file already.

The below steps need to be carried out if the checksum calculation is not part of the code been compiled. In this case, the checksum calculation has to be done by the utility.

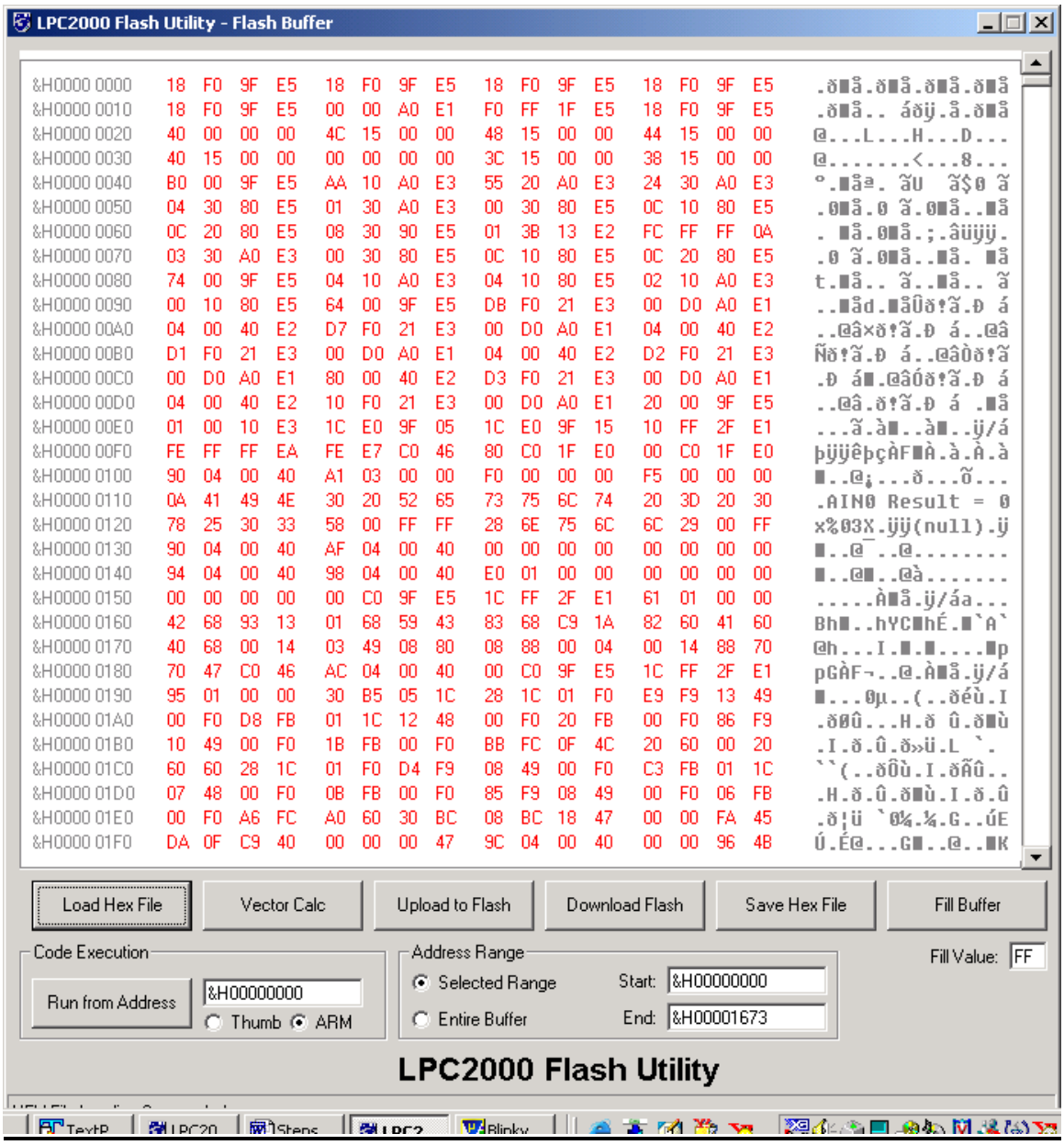
Step1: Open the “Buffer” menu and browse to “Flash Buffer operations”. When this menu item is clicked the following window will pop-up.



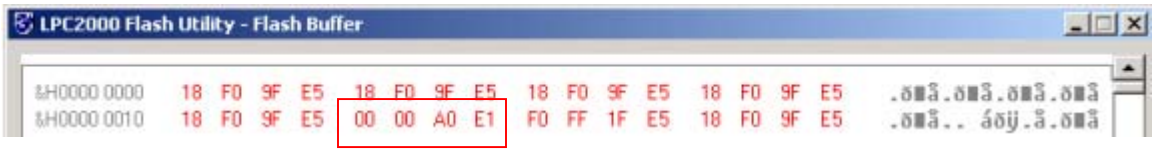
Step2: Now click on the “Load Hex file” button. Please browse to the hex file, which needs to be downloaded into Flash. In this case, Blinky.hex would be loaded.



Step3: Select the hex file and press “Open”. This would load the hex file into the buffer window as shown below.

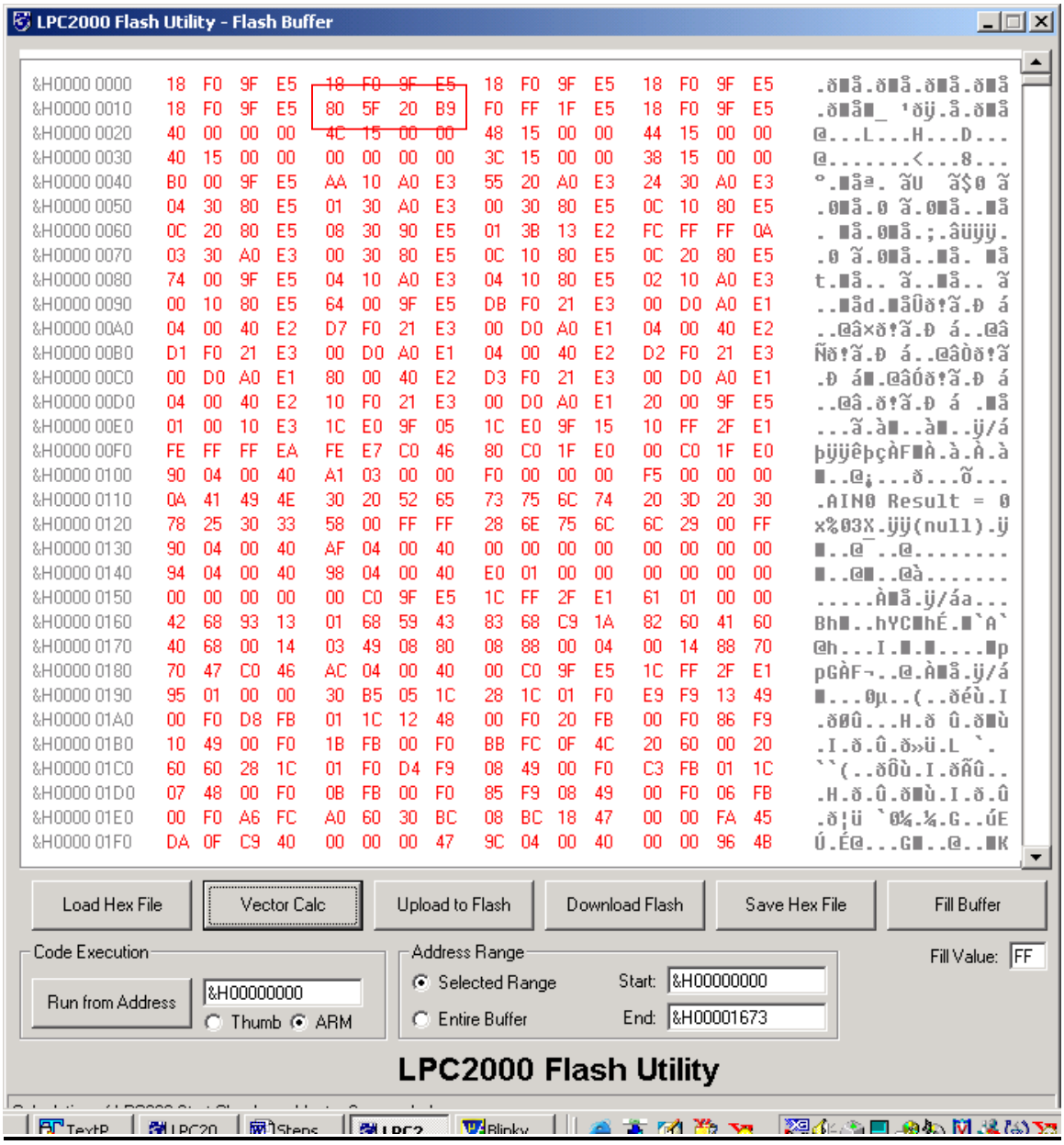


Please take a note of location 0x14. In this case, the checksum is not computed before the code is compiled.



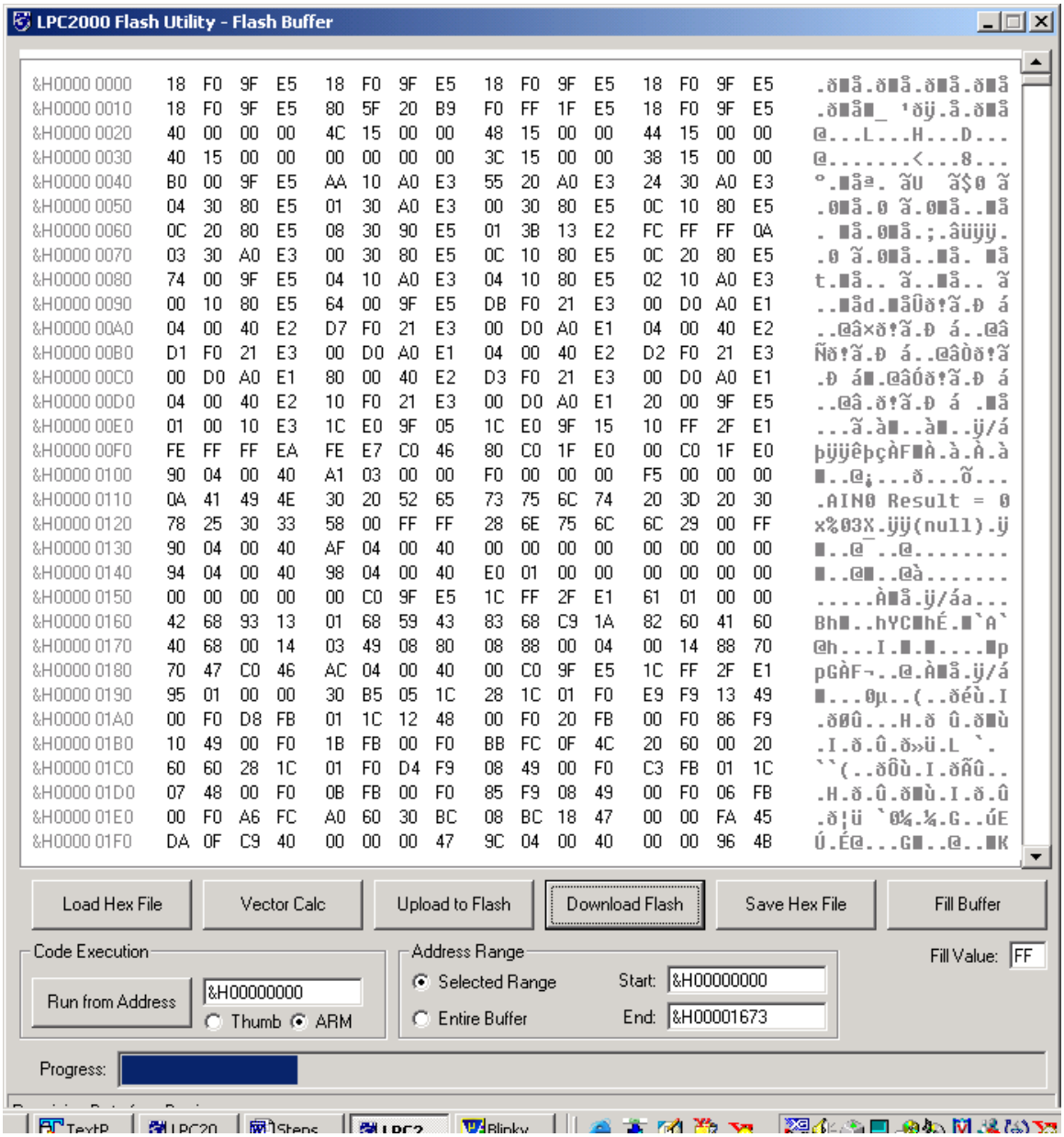
Step4: Now click on the “Vector Calc” button, which would calculate the checksum and load it at the reserved memory location, 0x14. As shown below this location gets updated.

The updated value at 0x14 is as shown below

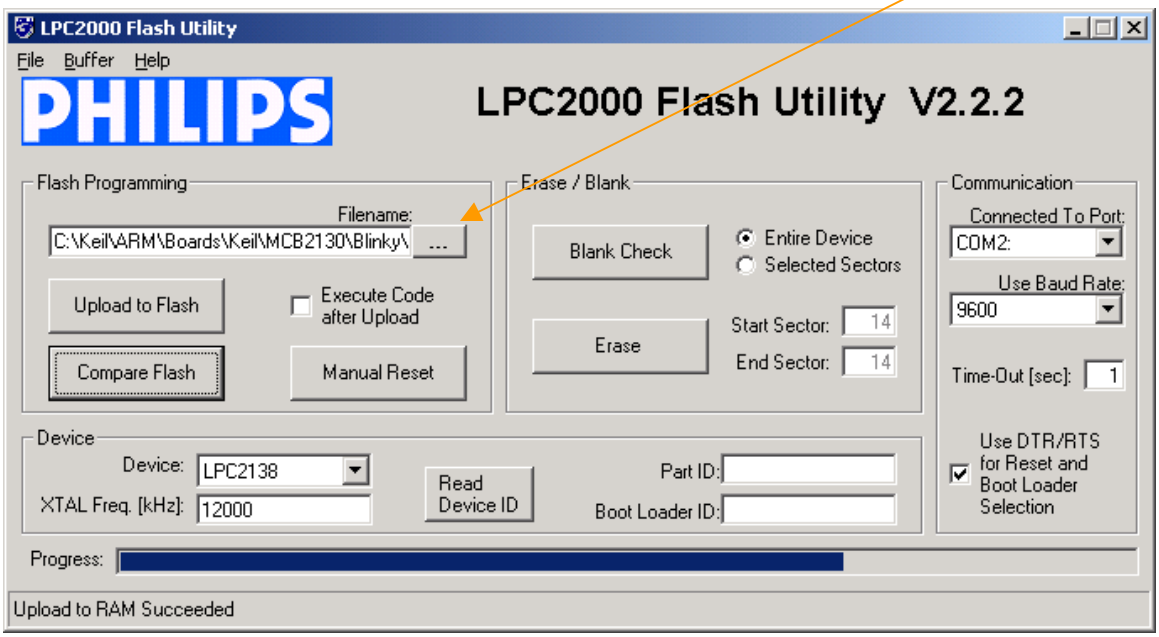


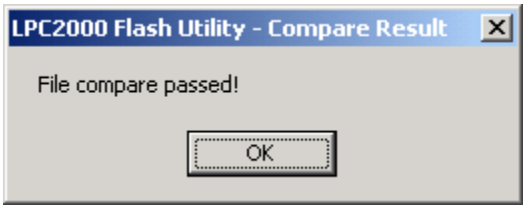
Step5: Since this hex file is modified with the checksum, it needs to be saved back into the same location from where it was loaded. Clicking on the “Save Hex File” button would complete this step. When this is done, a message as shown below should appear. Click “Yes”.

Step6: Download the hex file into Flash by clicking on the "Download Flash" button. The progress window should show the progress of the Flash download.



Step7: The Flash Buffer Operations window can now be closed. Now, please click here and browse to “Blinky.hex” again. Now click the “Compare Flash” button and it should be a success.





Flashless devices- LPC2220, LP2210, LPC2290:

Since the LPC2220/2210/2290 does not have on-chip Flash, the ISP utility does not have these devices in its listing of supported Flash devices. However, the utility can still be used to issue ISP commands that would access the on-chip SRAM (using RAM Buffer Operations Window) and bootloader specific ISP commands like Read Device ID.

For instance, when the above button is clicked, the ISP utility would complain saying that the “Type is not supported” which basically means that this device is not present in the listing of Flash devices. This error message can be ignored.

After “OK” is pressed in the above message, the ISP commands will still be executed and the Part ID and the Boot loader ID will be displayed.