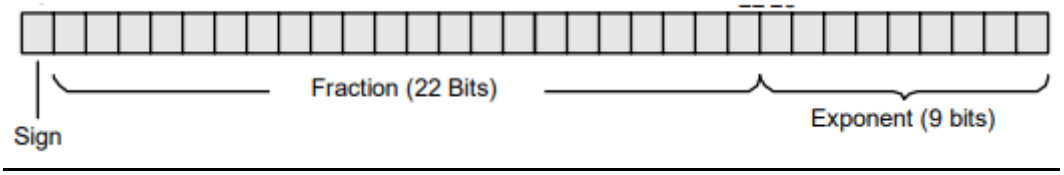
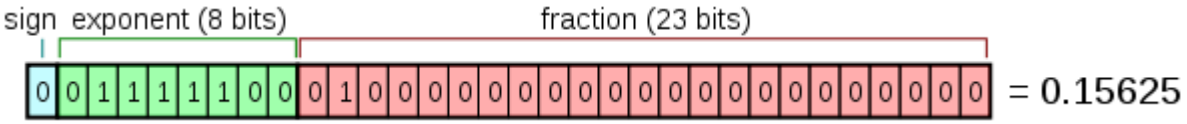
Homework 04 - Due on October 11th 2019

(Points included for early submission see point distribution)

Tandem Non-Stop Series (TNS) are super reliable and widely used supercomputers, which are used as servers in banks, financial institutions, military, etc. A single precision floating-point number is as 1 sign bit ,next 22 bits for fraction and last 9 bits for exponent. The bias is 256 .



And IEEE standard 754 single presented as 1 sign bit ,next 8 bit for exponent and last 23 bits for fraction. The bias is 127.



1. Define some real number (for example, 2.75_{10}) in TNS single precision floating-point format. Define the same number in IEEE 754 single FP format. Declare the both number in your program using DCD declaration directive. (5 points)
   Example
   IEEE DCD 0x41640000; IEEE Representation of 14.25(Decimal),41640000(Hex)
   TNS DCD 0x64000103; TNS Representation of 14.25(Decimal),64000103(Hex)

2. Write and debug an assembly subroutine, which converts TNS format in IEEE 754 single floating-point format. Write and debug an assembly subroutine, which converts IEEE 754 single floating-point format to TNS format. (10 points each for each conversion = 20 points)

3. Defining masking numbers and using correct logic operation. (5 points)
   Hint: Use Masking of numbers using AND,BIC,ORR etc .
   Example for sign bit mask can be
   SMASK DCD 0x80000000 ; Sign bit mask

4. Write a main subroutine, which calls the conversion subroutine and compares the source numbers with the results (equal or not?). (10 points).

5. **Well documented code a) Name, date and time spent on program. b) Commenting statements for each line of code. (5 points)**

6. **If submitted in first 10 days. (5 points)**

You will turn in the following:

1. Assembly file "**FPConvert.s"** with source code.

Submit the file in Moodle before the due date.