

System Program Assignment 1 Report

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1. Float to int: if $\text{exp}=000..00$ int result will be 0. $\text{Exp!}=000..000$, we can convert like $(1 \ll E) + (\text{frac} \gg (23 - e))$.
2. Double to int: It is similar like 1. But you should copy bit sequence not unsigned int but to unsigned long long. Because your input variable is 64bits double. If then, we can convert like $(\text{frac} \gg (52 - E)) + (1 \ll E)$.
3. Int to float: We should need rounding skill named round-to-even. IF needed-rounding part is exactly 0.5, we should make even number. And if not, we should upper, or lower. If rounding is not needed, just move fraction to float.
4. Float to double: We should extend bit 32 \rightarrow 64 and put exp, frac. And Calculate like $\text{src3} = (\text{expd} \ll 52) + (\text{frac} \ll 29)$. Specially, if exp of float is 000....0000, the exp of double is -biasf+1+biasd. And Specially, if exp of float is 111....111, We should fill the exp of double with 111...1111.