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CS350

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Lab 3

Step 3: Input = 8273.2018

|  |  |  |
| --- | --- | --- |
| **Register** | **Single precision** | **Double precision** |
| $f0 | 460144cf | 40c02899d495182b |
| $f2 | 0 | 0 |
| $f4 | 0 | 0 |
| $f6 | 0 | 0 |
| $f8 | 0 | 0 |
| $f10 | 0 | 0 |
| $f12 | 460144cf | 40c02899d495182b |
| $f16 | 0 | 0 |
| $f18 | 0 | 0 |
| $f20 | 0 | 0 |
| $f22 | 0 | 0 |
| $f24 | 0 | 0 |
| $f28 | 0 | 0 |
| $f30 | 0 | 0 |

Step 4:

The single precision is a 32-bit or 4 byte floating point. The double precision is a 64-bit or 8 byte floating point (also called a “double”). The reason that the single precision has twice as much registers as the double precision is because the double precision uses twice as much space as the single precision. Each register holds 32bit or a word of data so it makes sense to use two single precision register(regular MIPS register) to make one double precision register.

Step 5:

|  |  |  |  |
| --- | --- | --- | --- |
| **input** | **Single precision** | **Double precision** | **Integer** |
| 0 | 0 | 0 | 0 |
| 1 | 3f800000 | 3ff0000000000000 | 1 |
| 2 | 40000000 | 4000000000000000 | 2 |
| 3 | 40400000 | 4008000000000000 | 3 |
| 4 | 40800000 | 4010000000000000 | 4 |
| 92 | 42b80000 | 4057000000000000 | 5c |
| 1.2 | 3f99999a | 3ff3333333333333 | 1 |
| 0.128 | 3e03126f | 3fc0624dd2f1a9fc | 0 |
| 150.23456 | 43163c0c | 4062c78183f91e64 | 96 |