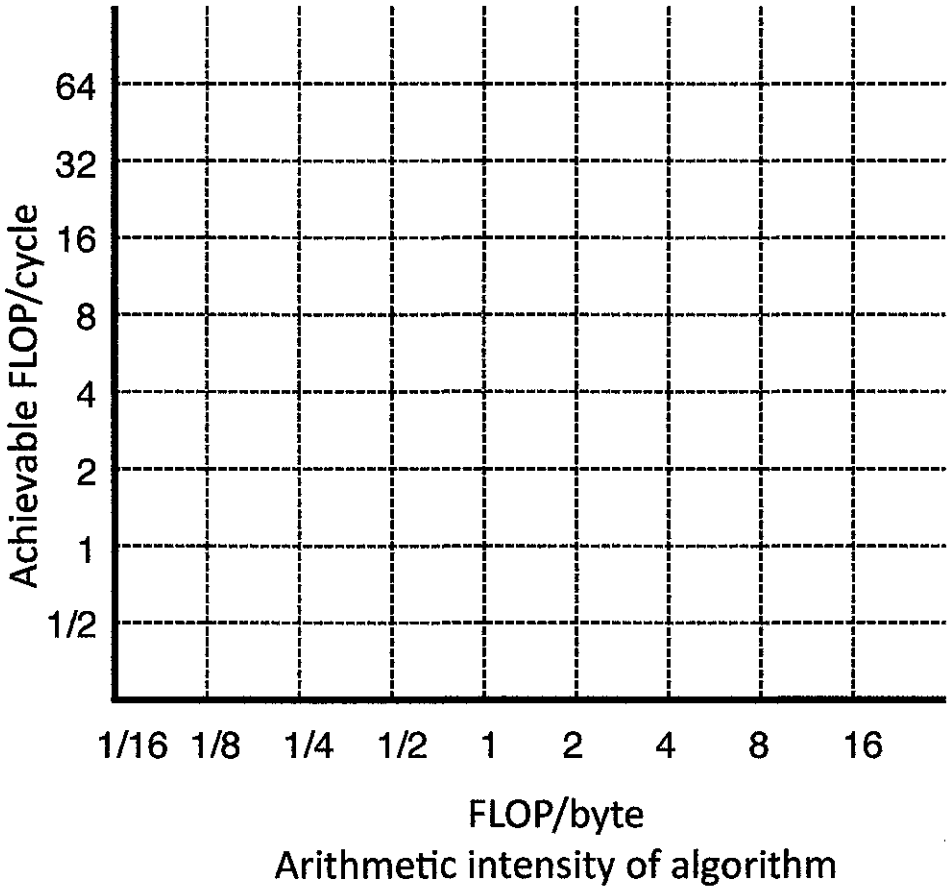
Performance Bounds



Given a processor with:

1. 8 fully pipelined FP units
2. 8 byte/cycle memory BW
3. 4 byte floats

What's the performance bound on the SAXPY loop below?

1. X and Y are in main memory

2. C loop:
```
for (i=0; i < 100,000; i++)
        Y(i) = a*X(i) + Y(i);
```

```
foo:    LF      F2, 0 (R1) // load X(i)
        MULTF   F4, F2, F0 // multiply a*X(i)
        LF      F6, 0 (R2) // load Y(i)
        ADDF    F6, F4, F6 // add a*X(i) + Y(i)
        SF      0 (R2), F6 // store Y(i)
        ADDI    R1, R1, #4 // increment X index
        ADDI    R2, R2, #4 // increment Y index
        SGTI    R3, R1, #100000// test if done
        BEQZ    R3, foo    // loop if not done
```