

Comparing Performance

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1 Administrivia

Announcements

Assignment

Read 3.1–4.

Homework due Feb. 9: 2.13, 2.29–2.32.

From Last Time

Measuring performance.

Outline

1. More definitions and terms.
2. Practice.

Coming Up

Instructions and operands.

2 More Definitions and Terms

1. How should we summarize several benchmarks?
 - (a) Should we summarize?
 - (b) Use sum of execution times.
 - (c) Arithmetic mean is proportional.
 - (d) See text for interesting discussion of use of geometric means.

Example:

	Machine A	Machine B
Program 1 (seconds)	1	10
Program 2	1000	100
Total time	1001	110

- (a) Which machine is faster on Program 1? Program 2? Combined?
 - (b) Would your answer vary depending on execution frequency? How could we account for this? (Weighted average.)
2. *Native* MIPS:
$$\text{MIPS} = \frac{\text{Instruction Count}}{\text{Execution time} \times 10^6}$$
As opposed to peak MIPS or relative MIPS.
Native MIPS can vary inversely with CPU time!
 3. Useful design principle: Make the common case fast.

3 Practice

Problems 2.18–2.24.