comp arch exercise 21 Jan 2020

I made an interpreter of a language, Som. The "virtual machine" is implemented. Your job is to calculate the speedup to compare between several virtual machines. Here is the link to the main story of Som development.

https://www.cp.eng.chula.ac.th/~prabhas//project/som/birthday/birthday2008.htm

Question

Compare the performance between v2, v3, v4 on run-time speedup.

The first measurement is the number of instruction executed. The second measurement is the actual "wall clock" time. Show the speedup of these two measurements of those three virtual machines.

Here is the benchmark programs

bubble sorts 20 items 20..1 to 1..20

matmul 8x8 using "mul" instruction

queen solves all soln of 8-queen (92)

queen2 use macro and to speed thing up

quick sorts 100 items 100..1 to 1..100

Here is the raw data.

Number of instruction

|  |  |  |  |
| --- | --- | --- | --- |
|  |  |  |  |
| noi | v2 | v3 | v4 |
| bubble | 10072 | 6594 | 6172 |
| matmul | 16055 | 9345 | 10982 |
| queen | 618570 | 371190 | 418401 |
| quick | 44013 | 32167 | 26471 |
|  |  |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| running time ms | |  |  |
|  | v2 | v3 | v4 |
| bubble x1000 | 230 | 251 | 110 |
| matmul x1000 | 370 | 358 | 221 |
| queen x100 | 1712 | 861 | 871 |
| quick x1000 | 821 | 763 | 411 |