CLAUDIA GONZÁLEZ VIGUER

COMPUTER ARCHITECTURE AND ORGANIZATION

CLASS 1:

-HW:

WATCH THE VIDEO: done

-IN CLASS:

Matrix multiply in Python write a summary how they can improve the speed of execution:

Phyton will take 5 minutes to run if the matrix is 960x960. But if the matrix is 4096x4096 then the processing time increases to about 6 hours.

There are multiple methods that can increase the speed at which the pyton matrix multiply application is executed.

First of all, the pyton version will run 200 times quicker if it is covered to C. By adopting this method, the speed-up of the standard Python, which is 1, will increase to roughly 175. Then, if we employ data-level parallelism, it will reach 1365 almost 8 times faster. Combining instruction level parallelism will boost execution performance by an additional factor of roughly 2, making the speedup to be about 2,457.

Additionally, applying memory hierarchy optimization will boost performance by around 1.5 times, resulting in a speedup of 3,686.

Using thread level parallelism in addition to the other ways will boost performance by approximately 12 to 17 times and accelerate things by about 44,226.

CLASS 2:

-HW:

3.3 GHz is the base clock speed and 80 watts is the TDP of the server-grade Intel Xeon

E3-1225 v5 processor. It receives an 8,843 on CPU benchmark.

2.3 GHz is the base clock speed and 28 watts is the TDP of the Intel Core i5-8259U notebook processor. It received a score of 5,964 on the CPU benchmark.

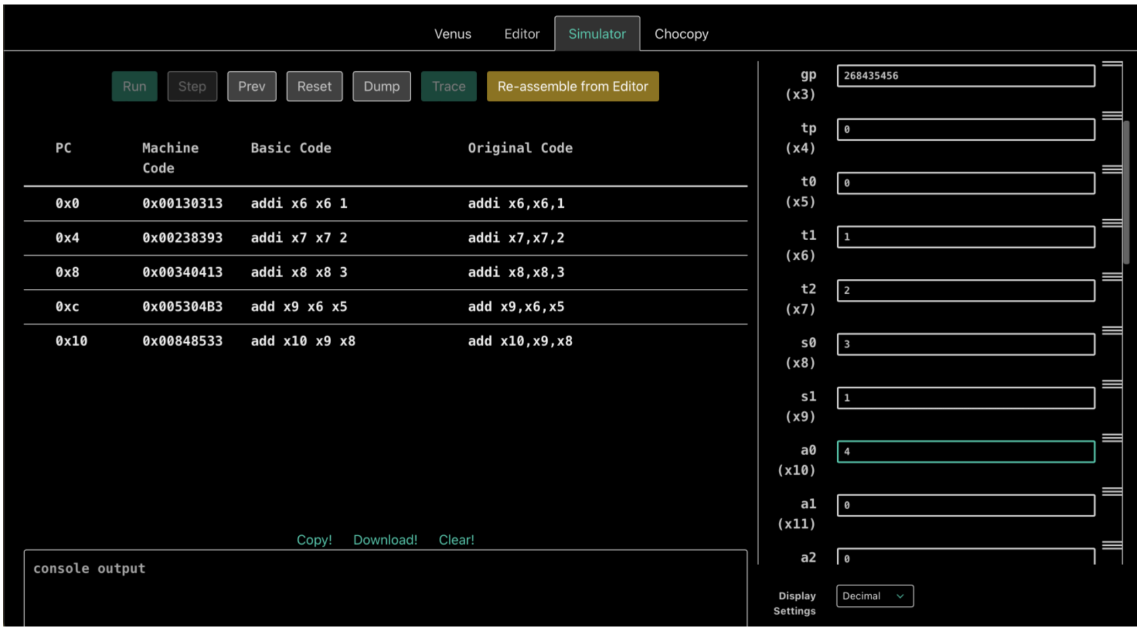
Having a basic clock speed of 2.6 GHz and a TDP of 65 watts, the Intel Core i5-11400 is a desktop processor. It received a 7,837 rating on CPU Benchmark.

According to the benchmark results, of the three CPUs, the Intel Xeon E3-1225 v5 performs the best, followed by the Intel Core i5-11400, and then the Intel The Intel Xeon E3-1225 v5, Intel Core i5-11400, and Intel Core 15-8259U are the three CPUs with the highest performance according to the benchmark results. The Xeon will, however, use more power than the other two CPUs because it has the highest TDP.

I'd probably select the Intel Core i5-11400 if I had to pick one of these for my computer.

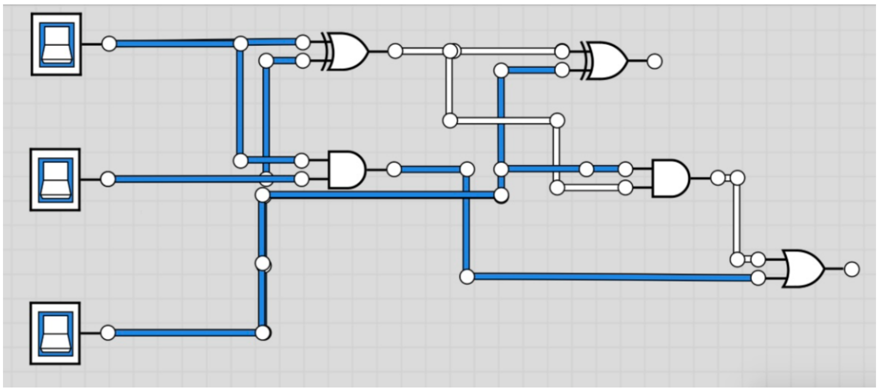
Even while it is the second-best performer out of the three, it has a more moderate TDP, making it a more energy-efficient choice. Furthermore, it is a desktop CPU, making it more suitable for usage in a computer other than a laptop.

-IN CLASS:

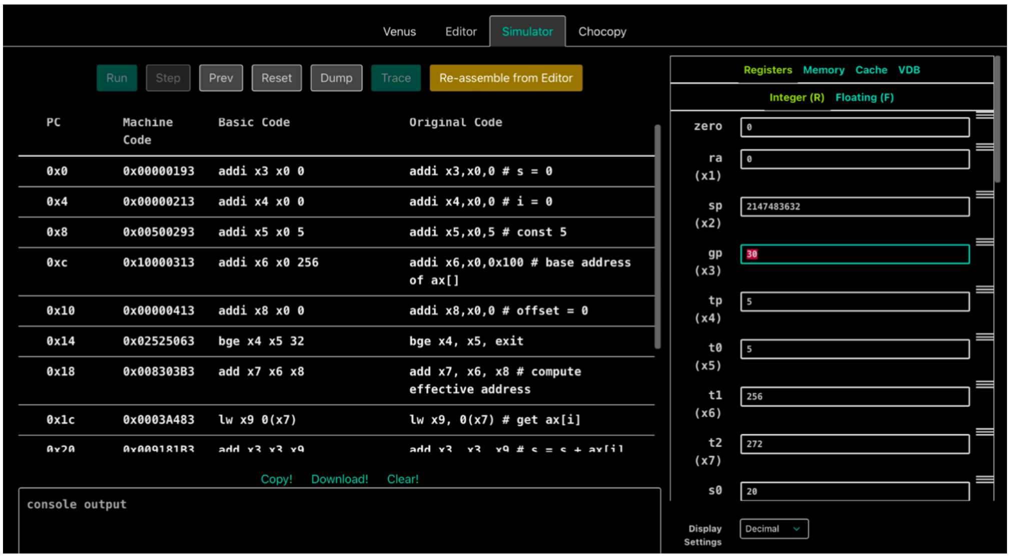


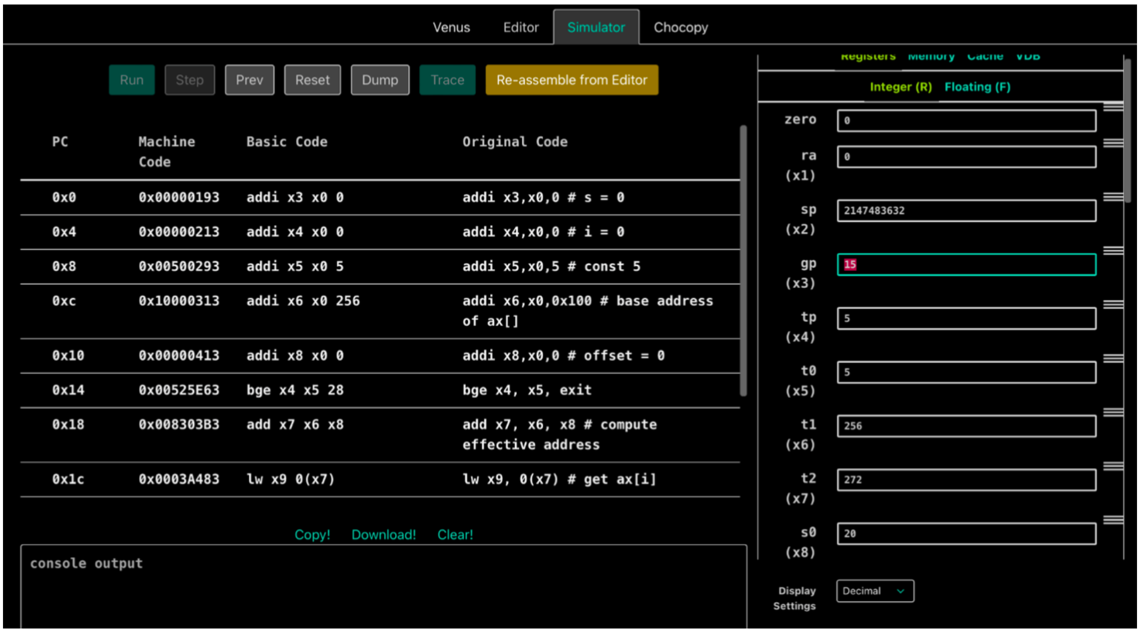
CLASS 3:

-IN CLASS:



-HW:




Venus
Editor
Simulator
Chocopy
Run
Step
Prev
Reset
Dump
Trace
Re-assemble from Editor
PC
Machine Code
Basic Code
Original Code
0x0 0x00000193 addi x3 x0 0 addi x3,x0,0 # s = 0
0x4 0x00000213 addi x4 x0 0 addi x4,x0,0 # i = 0
0x8 0x00500293 addi x5 x0 5 addi x5,x0,5 # const 5
0xc 0x10000313 addi x6 x0 256 addi x6,x0,0x100 # base address of ax[]
0x10 0x00000413 addi x8 x0 0 addi x8,x0,0 # offset = 0
0x14 0x00525E63 bge x4 x5 28 bge x4, x5, exit
0x18 0x008303B3 add x7 x6 x8 add x7, x6, x8 # compute effective address
0x1c 0x0003A483 lw x9 0(x7) lw x9, 0(x7) # get ax[i]
Copy!
Download!
Clear!
console output
Integer (R)
Floating (F)
zero 0
ra (x1) 0
sp (x2) 2147483632
gp (x3) 15
tp (x4) 5
t0 (x5) 5
t1 (x6) 256
t2 (x7) 272
s0 (x8) 20
Display Settings
Decimal