Homework 7 - Profiling Labnotes

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Computer: Intel(R) Core (TM) i7-10700T CPU @ 2.00GHz
Benchmarks: Midmark (small), Adventure w/ answers from spec (medium), Sandmark (large)

We are using the student_um that was provided to us.
We are using gcc -O2 in our final Makefile.

Benchmark	Time (user)	Instructions	Rel to start	Rel to prev	Improvement
Midmark Adventure Sandmark	10.27 90.36 257.66	209,194 — —	1.000 1.000 1.000	1.000 1.000 1.000	No improvement (starting point)
Midmark Adventure Sandmark	5.13 42.65 133.23	209,339 — —	0.500 0.472 0.517	0.500 0.472 0.517	Optimized by compiling with -O1 and linked with -lcii40-O1
Midmark Adventure Sandmark	5.01 41.99 130.96	209,549 — —	0.488 0.465 0.508	0.977 0.985 0.983	Optimized by compiling with -O2 and linked with -lcii40-O2
Midmark Adventure Sandmark	4.46 37.34 112.21	209,343 — —	0.434 0.413 0.435	0.890 0.889 0.857	Used bit shifting to extract opcode instead of Bitpack abstraction
Midmark Adventure Sandmark	3.13 25.85 79.51	209,339 — —	0.305 0.286 0.309	0.702 0.692 0.709	Used bit shifting to extract registers a, b, and c (and value for load value) instead of Bitpack abstraction
Midmark Adventure Sandmark	2.60 19.93 66.16	210,268 — —	0.253 0.221 0.257	0.831 0.771 0.832	Replaced register UArray representation with a regular C array
Midmark Adventure Sandmark	2.58 19.74 64.65	197,937 — —	0.251 0.218 0.251	0.992 0.990 0.977	Using local array to temporarily store bytes in construct_word and reducing calls to getc(fp)
Midmark Adventure Sandmark	2.00 15.18 50.43	196,235 — —	0.204 0.168 0.196	0.810 0.769 0.780	Removed most asserts (besides the ones that checked for correct mallocs)