

Time Trials for Universal Machine

Benchmark	Time (User-Md)	Instructions	Rel to start	Rel To prev	Improvement
Sm (Midmark)	4.83	36657085569	N/A	N/A	Initial UM
Lg (Sandmark)	118.26	N/A	N/A	N/A	"
Small	3.3	26686310572	0.683	0.683	Added O1
Large	79.3	N/A	0.671	0.671	"
Small	3.2	26686310572	0.663	0.97	Added O2
Large	78.81	N/A	0.667	0.994	"
Small	1.85	11089618291	0.383	0.578	Replaced bitpack usage w inline get_packed_val function
Large	45.98	N/A	0.389	0.583	"
Small	1.14	8197220564	0.236	0.616	Rewrote run_um to not repeatedly call get_word, but call get_program_segment once
Large	29.07	N/A	0.246	0.632	"
Small	1.12	8197220383	0.232	0.982	Removed/incorporated io module
Large	27.89	N/A	0.236	0.96	"
Small	0.63	6700341558	0.13	0.562	Replaced Seq_Ts inside mem_seg segments w homemade d_array Dyn. Arrays
Large	15.89	N/A	0.134	0.57	"
Small	0.58	4802816467	0.12	0.92	Made d_array struct public, removed get/set calls
Large	14.2	N/A	0.12	0.894	"
Small	0.33	3781292459	0.068	0.569	Replaced outer Seq_T of all segs w homemade mem_array Dyn. Arr
Large	7.87	N/A	0.067	0.554	"
Small	0.32	3742673783	0.066	0.97	Moved interpret_instruction into run_um loop, used local ptrs to access program segs faster
Large	7.84	N/A	0.066	0.996	"