Benchmark	Time	Instructions	Rel to start	Rel to prev	Improvement
midmark	9.690s	46.24 x 10^9	1.000	1.000	No improvement (starting point)
sandmark	241.679s	–	1.000	1.000	
partial adventure	77.987 s	–	1.000	1.000	
midmark	7.182s	39.30 x 10^9	0.741	0.741	Compiled with optimization turned on and linked against -lcii-O1
sandmark	178.021s	–	0.737	0.737	
partial adventure	57.420 s	–	0.736	0.736	
midmark	6.033s	38.19 x 10^9	0.623	0.840	Compiled with optimization turned on and linked against -lcii-O2
sandmark	147.886s	–	0.612	0.831	
partial adventure	49.141s	–	0.630	0.856	
midmark	4.352s	26.31 x 10^9	0.449	0.721	Removed Bitpack_getu function and wrote code to unpack register values in the program
sandmark	108.245s	–	0.448	0.732	
partial adventure	34.841s	–	0.447	0.709	
midmark	3.678s	22.06 x 10^9	0.380	0.845	Removed the segmented_load_store error function and optimized the error check to reduce the number of calls to segment_at
sandmark	89.832s	–	0.372	0.830	
partial adventure	31.105s	–	0.399	0.893	
midmark	2.859s	14.23 x 10^9	0.295	0.777	Eliminated the value_at and word_at wrapper functions and made them UArray_at calls
sandmark	65.603s	–	0.271	0.730	
partial adventure	21.887s	–	0.281	0.704	
midmark	2.559s	13.30 x 10^9	0.264	0.895	Eliminated segment_at and get_length wrapper functions and made them UArray_length, Seq_at, and Seq_length calls
sandmark	63.473s	–	0.263	0.968	
partial adventure	20.853s	–	0.267	0.953	

midmark	2.487s	13.19 x 10^9	0.257	0.972	Eliminated register and memory management modules and integrated functions from these modules with the operations file
sandmark	62.388s	–	0.258	0.983	
partial adventure	20.883s	–	0.268	1.001	
midmark	2.309s	12.31 x 10^9	0.238	0.928	Eliminated the Um_opcode definition and made opcode an integer. Added the static inline keyword in front of the functions in operations (except for initiate_program)
sandmark	57.704s	–	0.239	0.925	
partial adventure	18.828s	–	0.241	0.902	
midmark	2.301s	12.31 x 10^9	0.237	0.997	Moved all functions to the emulator.c file with the main and made initiate_program a static inline function
sandmark	57.614s	–	0.238	0.998	
partial adventure	18.738s	–	0.240	0.995	
midmark	1.749s	8.14 x 10^9	0.180	0.760	Changed the registers such that it is a malloced uint32_t array instead of Hanson's structure UArray
sandmark	38.579s	–	0.160	0.670	
partial adventure	10.623s	–	0.136	0.567	
midmark	0.919s	4.47 x 10^9	0.095	0.525	Changed the segments in the memory such that they are structs called segment_T with malloced uint32_t array called seg_arr and a length variable instead of of Hanson's structure UArray
sandmark	23.214s	–	0.096	0.602	
partial adventure	6.202s	–	0.080	0.584	