Profile Laboratory Notes
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Version 0

Inital UM Emulator after project 6

- Midmark.um
  - # Instructions: 101,046,726,745
  - User time: 18.69s
- Sandmark.um
  - User time: 745.60s (~12min)

Version 1

This step did not significantly improve the performance. Compiler optimization switched to level 2

- Midmark.um
  - # Instructions: 101,046,726,745
  - User time: 18.69s
  - User time/initial user time: 1
  - User time/previous user time: 1
- Sandmark.um
  - User time: 710.96s (~12min)
  - User time/initial user time: 0.9535
  - User time/previous user time: 0.9535

Version 2

Bottleneck was the lookup of Atoms as IDs in Hanson tables and the indirection of pointers in the Hanson sequences. We corrected this by replacing tables and sequences with arrays.

- Midmark.um
  - # Instructions: 18,240,484,439
  - User time: 1.71s
  - User time/initial user time: 0.0915
  - User time/previous user time: 0.0915
- Sandmark.um
  - User time: 37.92s
  - User time/initial user time: 0.0508
  - User time/previous user time: 0.0533

Version 3

Bottleneck was the speed of accessing functions from other modules. We corrected this by putting all of the functions from all modules in one file.

- Midmark.um
  # Instructions: 5,348,912,432
  User time: 1.61s
  User time/initial user time: 0.0861
  User time/previous user time: 0.9415
- Sandmark.um
  User time: 34.17s
  User time/initial user time: 0.0458
  User time/previous user time: 0.9011

Version 4

Bottleneck was the bitpack functions from the included bitpack module. We corrected this by moving some whole bitpack functions into our file and using some code from other bitpack functions that did bit shifting.

- Midmark.um
  # Instructions: 5,337,276,241
  User time: 0.64
  User time/initial user time: 0.0342
  User time/previous user time: 0.3975
- Sandmark.um
  User time: 9.95s
  User time/initial user time: 0.0133
  User time/previous user time: 0.2911