

News Flash RISC-V ISA

- Open source – free
- Free to use, implement, and change
- Simple

Implementation

- Rocket: gnu-gcc tool chain
- ISA simulator: QEMU

Lecture

Paper: “Contributed Auto GUI for GUI testing”

Prev: XNee, MonkeyRunner

Solved problem of interactive benchmark and they can’t manage all of their experiments → simulate as little and get as much as possible

They use PCA and fractional factorial as well as sim points

Benchmarks

Caffeine Mark is old benchmark – followed Java’s release

There are desktop suites with productivity suites

People have benchmarked using games before

Angry Birds had lowest CPI (surprise)

Comment – Interesting how they use QEMU and then GEMS for detailed simulation (QEMU can’t do detailed stuff)

Caffeine Mark – synthetic

RL Bench – various SQL queries, not an application, but not synthetic

It is possible that the benchmark results are the VM in action and not the application since the app is data to the VM

In the VM, all apps are clustered

Comment – why use SPEC benchmarks

Things not done:

- QoS instead of IPC
- In general, somewhat immature
- No accelerators
- Higher order effects
- Comparison against other methods

Paper: “Time for a truce”

Paper in favor of GM

- Gather info at various levels about existing work loads
- Compile a list of programs known to be important
- Frequency of execution
- Fraction of time in environment
- Historical trends
- Long term effort
- Can be done by owners of large computers or many computers

SERPOP – sample estimation of relative performance of programs

A multi-element suite that is a sample of some population of programs

An appropriate model of the population's distribution

Memory indices of dispersion, confidence levels, goodness of fit

ID specific codes, describe their nature

SERPOP analysis admits to uncertainty and preferably quantifies values

LFK, MAS kernels, DR CPU2, SPEC CPU

Probability distributions: normal and log

A distribution is said to have a tail if more away from the mean than in normal