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1. Command line Linux Tools

1.1 Perf

perf is a performance analysis tool that is based on the perf_events interface made available in Linux Kernels Version 2.6 and higher

perf information: man perf, perf-stat(1), perf-top(1), perf-record(1), perf-report(1), perf-list(1)

Compile perf example with “make perf”

Use cases:

- a. Example 1: performance evaluation for different ways of
Files: f1.c and f2.c performance comparison
How to use: “perf stat”, “-e cpu-cycles”, “-e cache-misses”
- b. Example 2: trace back performance evaluation for kernel space and user application.
Source code level performance analysis.
File: test_perf.c
How to use: “perf record”, “-e cpu=cycles”, “perf report”

1.2 Valgrind

Valgrind is a collection of tools for dynamic analysis.

Compile test programs with “make”

Use case Memcheck: detects memory management problems

File: test_valgrind.c

How to use: valgrind --tool=memcheck --leak-check=yes ./test_valgrind

Result interpretation.

1.3 Gdb

Compile test programs with “make”

GDB Use case: investigate segmentation fault example

File test_gdb.c

GDB Commands

- run/Ctrl-C(stop), next, step, nexti, stepi, breakpoint
- backtrace, frame, print, x, dump
- set, call, jump, return

2. Eclipse Linux Tools Project

Install Eclipse Linux Tools Project. Eclipse june or kepler should have Linux Tools already installed.

2.1 perf

Create a new project using source file test_perf.c

Build & Profile As -> Profile with Perf: "Perf Profile View" Window

Profile Configurations, Perf configuration options:

- Perf Options
- Perf Events (view and select different configuration options)

2.2 Valgrind

Create a new project using source file test_valgrind.c

Build & Profile As -> Profile with Valgrind: "Valgrind View" Window

Profile Configurations, Valgrind configuration options:

- Tool selection: Memcheck, Cachegrind, Helgrind, Massif
- Tool specific options

2.3 gdb

Create a new project using source file test_gdb.c

Build & Debug: Run Control options

Debug Configurations, gdb configuration options