Backup

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libquantum is a library for the simulation of a quantum computer.

The benchmark program expects the number to be factorized as a command-line parameter.

The program gives a brief explanation on what it is doing and the factors of the input number if the factorization was successful.

lbm: This program implements the so-called "Lattice Boltzmann Method" (LBM) to simulate incompressible fluids in 3D

mcf is a benchmark which is derived from MCF, a program used for single-depot vehicle scheduling in public mass transportation. The program is written in C. The benchmark version uses almost exclusively integer arithmetic.

sjeng is based on Sjeng 11.2, which is a program that plays chess and several chess variants, such as drop-chess (similar to Shogi), and 'losing' chess.

omnetpp: The benchmark performs discrete event simulation of a large Ethernet network. The simulation is based on the OMNeT++ discrete event simulation system (www.omnetpp.org), a generic and open simulation framework.

sphinx3 is a widely known speech recognition system from Carnegie Mellon University.

xalancbmk: processor for transforming XML documents into HTML, text, or other XML document types

bzip2 is based on Julian Seward's bzip2 version 1.0.3. The only difference between bzip2 1.0.3 and 401.bzip2 is that SPEC's version of bzip2 performs no file I/O other than reading the input. All compression and decompression happens entirely in memory. This is to help isolate the work done to only the CPU and memory subsystem.

leslie3d is derived from LESlie3d (Large-Eddy Simulations with Linear-Eddy Model in 3D), a research-level Computational Fluid Dynamics (CFD) code. It is the primary solver used to investigate a wide array of turbulence phenomena such as mixing, combustion, acoustics and general fluid mechanics.

gromacs is derived from GROMACS, a versatile package that performs molecular dynamics, i.e. simulation of the Newtonian equations of motion for systems with hundreds to millions of particles.

astar is derived from a portable 2D path-finding library that is used in game's AI.

gobmk: The program plays Go and executes a set of commands to analyze Go positions.

soplex is based on SoPlex Version 1.2.1. SoPlex solves a linear program using the Simplex algorithm.

gcc is based on gcc Version 3.2. It generates code for an AMD Opteron processor. The benchmark runs as a compiler with many of its optimization flags enabled.

hmmer: Profile Hidden Markov Models (profile HMMs) are statistical models of multiple sequence alignments, which are used in computational biology to search for patterns in DNA sequences.

wrf is based on the Weather Research and Forecasting (WRF) Model, which is a next-generation mesocale numerical weather prediction system designed to serve both operational forecasting and atmospheric research needs.

h264ref is a reference implementation of H.264/AVC (Advanced Video Coding), the latest state-of-the-art video compression standard.

zeusmp is based on zeus-mp, a computational fluid dynamics code developed at the laboratory for computational astrophysics (ncsa, university of illinois at urbana-champaign) for the simulation of astrophysical phenomena. zeus-mp solves problems in three spatial dimensions with a wide variety of boundary conditions.

cactusADM is a combination of Cactus, an open source problem solving environment, and BenchADM, a computational kernel representative of many applications in numerical relativity (ADM stands for ADM formalism developed by Arnowitt, Deser and Misner). CactusADM solves the Einstein evolution equations, which describe how spacetime curves as response to its matter content, and are a set of ten coupled nonlinear partial differential equations, in their standard ADM 3+1 formulation.

GemsFDTD solves the Maxwell equations in 3D in the time domain using the finite-difference time-domain (FDTD) method. The radar cross section (RCS) of a perfectly conducting (PEC) object is computed. GemsFDTD is a subset of the code GemsTD developed in the General ElectroMagnetic Solvers (GEMS) project. The code consists of three steps, initialization, timestepping and post-processing. More than 99% of the time is spent in the timestepping.