Hewlett-Packard Company
ProLiant SL165s G7
(2.30 GHz AMD Opteron 6176)

SPECint\textsuperscript{\textregistered} _rate\textsubscript{2006} = Not Run
SPECint\textsubscript{rate\_base2006} = 353

CPU\textsuperscript{2006} license: 3
Test sponsor: Hewlett-Packard Company
Tested by: Hewlett-Packard Company
Test date: Jan-2012
Hardware Availability: Feb-2011
Software Availability: Jul-2011

<table>
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</table>

**Hardware**

- **CPU Name:** AMD Opteron 6176
- **CPU Characteristics:**
  - CPU MHz: 2300
  - FPU: Integrated
  - CPU(s) enabled: 24 cores, 2 chips, 12 cores/chip
  - CPU(s) orderable: 1.2 chips
  - Primary Cache: 64 KB L1 + 64 KB D on chip per core
  - Secondary Cache: 512 KB L1+D on chip per core
  - L3 Cache: 12 MB L1+D on chip per core, 6 MB shared / 6 cores
  - Other Cache: None
  - Memory: 128 GB (16 x 8 GB 2Rx4 PC3-10600R-9, ECC)
  - Disk Subsystem: 1 x 500 GB 7.2 K SATA
  - Other Hardware: None

**Software**

- **Operating System:** SUSE Linux Enterprise Server 11 (x86_64) SP1 Kernel 2.6.32.12-0.7-default
- **Compiler:** C/C++: Version 4.2.5.2 of x86 Open64 Compiler Suite (from AMD)
- **Auto Parallel:** No
- **File System:** ext3
- **System State:** Run level 3 (multi-user)
- **Base Pointers:** 32/64-bit
- **Peak Pointers:** Not Applicable
- **Other Software:** SmartHeap 8.1 32-bit Library for Linux
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Results Table

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Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

Submit Notes

The config file option 'submit' was used. 'numactl' was used to bind copies to the cores. See the configuration file for details.

Operating System Notes

'ulimit -s unlimited' was used to set environment stack size
'ulimit -l 2097152' was used to set environment locked pages in memory limit

Set vm.nr_hugepages=10800 in /etc/sysctl.conf
mount -t hugetlbfs nodev /mnt/hugepages

Platform Notes

BIOS Configuration:
Power Efficiency Mode set to Performance
Sysinfo program /cpu2006_1.2/Docs/sysinfo
$Rev: 6775 $ $Date:: 2011-08-16 #$ 8787f7622badcf24e01c368b1db4377c
running on SL165g7-bao Wed Jan 4 16:42:11 2012

This section contains SUT (System Under Test) info as seen by some common utilities. To remove or add to this section, see:
http://www.spec.org/cpu2006/Docs/config.html#sysinfo

From /proc/cpuinfo
model name : AMD Opteron(tm) Processor 6176
  2 "physical id"s (chips)
SPEC CINT2006 Result

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Platform Notes (Continued)

24 "processors"
cores, siblings (Caution: counting these is hw and system dependent. The
following excerpts from /proc/cpuinfo might not be reliable. Use with
cautions.)
  cpu cores : 12
  siblings : 12
  physical 0: cores 0 1 2 3 4 5
  physical 1: cores 0 1 2 3 4 5
  cache size : 512 KB

From /proc/meminfo
  MemTotal: 132167380 kB
  HugePages_Total: 10800
  Hugepagesize: 2048 kB

/usr/bin/lsb_release -d
  SUSE Linux Enterprise Server 11 (x86_64)

From /etc/*release* /etc/*version*
  SuSE-release:
    SUSE Linux Enterprise Server 11 (x86_64)
    VERSION = 11
    PATCHLEVEL = 1

uname -a:
  Linux SL165g7-bao 2.6.32.12-0.7-default #1 SMP 2010-05-20 11:14:20 +0200
  x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Jan 4 16:40 last=S

SPEC is set to: /cpu2006_1.2

Filesystem    Type    Size  Used Avail Use% Mounted on
/dev/sda3     ext3    451G   80G  348G  19% /

(End of data from sysinfo program)

General Notes

Environment variables set by runspec before the start of the run:
  HUGETLB_LIMIT = "450"
  LD_LIBRARY_PATH = "/opt/x86_open64-4.2.5.2/open64-gcc-4.2.0/lib:/opt/x86_open64-4.2.5.2/open64-gcc-4.2.0/lib64/lib"

The x86 Open64 Compiler Suite is only available from (and supported by) AMD at
http://developer.amd.com/cpu/open64

Base Compiler Invocation

C benchmarks:
  opencc

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SPEC CINT2006 Result
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Base Compiler Invocation (Continued)

C++ benchmarks:
openCC

Base Portability Flags

400.perlbench: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64
401.bzip2: -DSPEC_CPU_LP64
403.gcc: -DSPEC_CPU_LP64
429.mcf: -DSPEC_CPU_LP64
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458.sjeng: -DSPEC_CPU_LP64
462.libquantum: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX
464.h264ref: -DSPEC_CPU_LP64
483.xalancbmk: -DSPEC_CPU_LINUX

Base Optimization Flags

C benchmarks:
-march=barcelona -ms -O -Ofast -CG:local_sched_alg=1
-INLINE:aggressive=on -IPA:plimit=8000 -IPA:small_pu=100
-HP:bdt=2m:heap=2m

C++ benchmarks:
-march=barcelona -ms -O -Ofast -m32 -INLINE:aggressive=on
-CG:cmp_peep=on -L/cpu2006/SmartHeap_8.1/lib -lsmartheap

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/HP-Platform-Flags-AMD-V1.2-A.html
http://www.spec.org/cpu2006/flags/x86-open64-425-flags-rate-revB.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/HP-Platform-Flags-AMD-V1.2-A.xml
http://www.spec.org/cpu2006/flags/x86-open64-425-flags-rate-revB.xml
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For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

Tested with SPEC CPU2006 v1.2.
Originally published on 1 February 2012.