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

CPU2006 license: 3
Test sponsor: Hewlett-Packard Company
Tested by: Hewlett-Packard Company

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 I + 64 KB D on chip per core
Secondary Cache: 512 KB I+D on chip per core

Operating System: SUSE Linux Enterprise Server 11 (x86_64) SP1
Kernel 2.6.32.12-0.7-default
Compiler: C/C++/Fortran: 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: 64-bit
Peak Pointers: Not Applicable

SPECfp®_rate2006 = Not Run
SPECfp_rate_base2006 = 291
**SPEC CFP2006 Result**

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- **L3 Cache:** 12 MB I+D on chip per chip, 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
- **Other Software:** None

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<th>Ratio</th>
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</table>

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
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Test date: Jan-2012
Tested by: Hewlett-Packard Company
Hardware Availability: Feb-2011
Software Availability: Jul-2011

Platform Notes

BIOS Configuration:
- Power Efficiency Mode set to Performance
Sysinfo program /cpu2006/Docs/sysinfo
$Rev: 6775 $ $Date:: 2011-08-16 #$ 8787f7622badcf24e01c368b1db4377c

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)
- 24 "processors"
- cores, siblings (Caution: counting these is hw and system dependent. The following excerpts from /proc/cpuinfo might not be reliable. Use with caution.)
  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: 132169300 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-node1 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 15:05 last=S

SPEC is set to: /cpu2006
- Filesystem Type Size Used Avail Use% Mounted on
  /dev/sda3 ext3 84G 19G 65G 24% /

(End of data from sysinfo program)
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General Notes

Environment variables set by runspec before the start of the run:
HUGETLB_LIMIT = "450"
OMP_NUM_THREADS = "6" was set, but it is believed that it did not have an effect.
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

C++ benchmarks:
openCC

Fortran benchmarks:
openf95

Benchmarks using both Fortran and C:
opencc openf95

Base Portability Flags

410.bwaves: -DSPEC_CPU_LP64
416.gamess: -DSPEC_CPU_LP64
333.milc: -DSPEC_CPU_LP64
434.zeusmp: -DSPEC_CPU_LP64
435.gromacs: -DSPEC_CPU_LP64
436.cactusADM: -DSPEC_CPU_LP64 -fno-second-underscore
37.leslie3d: -DSPEC_CPU_LP64
444.namd: -DSPEC_CPU_LP64
447.dealII: -DSPEC_CPU_LP64
450.soplex: -DSPEC_CPU_LP64
453.povray: -DSPEC_CPU_LP64
454.calculix: -DSPEC_CPU_LP64
459.GemsFDTD: -DSPEC_CPU_LP64
465.tonto: -DSPEC_CPU_LP64
470.lbm: -DSPEC_CPU_LP64
481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX -DSPEC_CPU_CASE_FLAG -fno-second-underscore
482.sphinx3: -DSPEC_CPU_LP64
# SPEC CFP2006 Result

## Hewlett-Packard Company

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### Base Optimization Flags

- **C benchmarks:**
  ```
  -march=barcelona -ms -Ofast -OPT:malloc_alg=1 -HP:bdt=2m
  ```

- **C++ benchmarks:**
  ```
  -march=barcelona -ms -Ofast -static -INLINE:aggressive=on
  -OPT:malloc_alg=1 -HP:bdt=2m
  ```

- **Fortran benchmarks:**
  ```
  -march=barcelona -ms -Ofast -HP
  ```

- **Benchmarks using both Fortran and C:**
  ```
  -march=barcelona -ms -Ofast -OPT:malloc_alg=1 -HP:bdt=2m -HP
  ```

The flags files that were used to format this result can be browsed at:


You can also download the XML flags sources by saving the following links:


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For questions about this result, please contact the tester.  
For other inquiries, please contact webmaster@spec.org.

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