# SPEC® CFP2006 Result



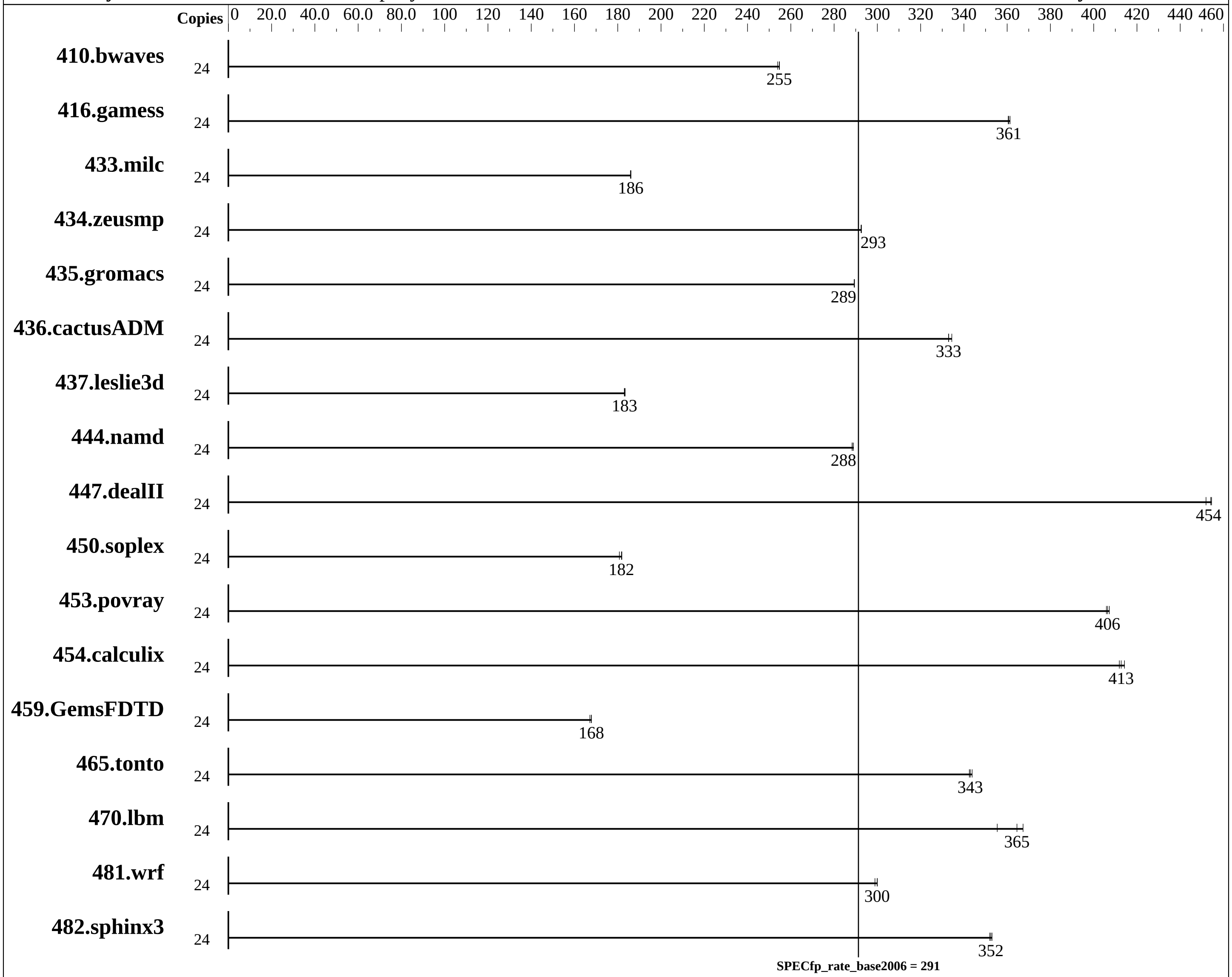
## Hewlett-Packard Company

ProLiant SL165s G7
(2.30 GHz AMD Opteron 6176)

SPECfp®_rate2006 = Not Run

SPECfp_rate_base2006 = 291

| | | | |
|---|---|---|---|
| **CPU2006 license:** | 3 | **Test date:** | Jan-2012 |
| **Test sponsor:** | Hewlett-Packard Company | **Hardware Availability:** | Feb-2011 |
| **Tested by:** | Hewlett-Packard Company | **Software Availability:** | Jul-2011 |




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

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### Software

| | |
|---|---|
| Operating System: | SUSE Linux Enterprise Server 11 (x86_64) SP1<br>Kernel 2.6.32.12-0.7-default |
| Compiler: | C/C++/Fortran: Version 4.2.5.2 of<br>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 |

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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

## Results Table

| Benchmark | Base | | | | | | | Peak | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 410.bwaves | 24 | 1284 | 254 | 1280 | 255 | **1281** | **255** | | | | | | | |
| 416.gamess | 24 | 1304 | 360 | **1303** | **361** | 1300 | 361 | | | | | | | |
| 433.milc | 24 | 1185 | 186 | 1184 | 186 | **1184** | **186** | | | | | | | |
| 434.zeusmp | 24 | 746 | 293 | **747** | **293** | 747 | 292 | | | | | | | |
| 435.gromacs | 24 | 592 | 289 | **592** | **289** | 592 | 289 | | | | | | | |
| 436.cactusADM | 24 | 858 | 334 | 862 | 333 | **861** | **333** | | | | | | | |
| 437.leslie3d | 24 | **1232** | **183** | 1230 | 183 | 1233 | 183 | | | | | | | |
| 444.namd | 24 | 668 | 288 | **667** | **288** | 666 | 289 | | | | | | | |
| 447.dealII | 24 | **605** | **454** | 604 | 454 | 608 | 452 | | | | | | | |
| 450.soplex | 24 | **1102** | **182** | 1100 | 182 | 1107 | 181 | | | | | | | |
| 453.povray | 24 | 314 | 407 | **314** | **406** | 315 | 406 | | | | | | | |
| 454.calculix | 24 | 478 | 414 | **480** | **413** | 481 | 412 | | | | | | | |
| 459.GemsFDTD | 24 | 1517 | 168 | **1518** | **168** | 1524 | 167 | | | | | | | |
| 465.tonto | 24 | 687 | 344 | **689** | **343** | 689 | 343 | | | | | | | |
| 470.lbm | 24 | 898 | 367 | **905** | **365** | 928 | 355 | | | | | | | |
| 481.wrf | 24 | 897 | 299 | **894** | **300** | 894 | 300 | | | | | | | |
| 482.sphinx3 | 24 | **1327** | **352** | 1325 | 353 | 1329 | 352 | | | | | | | |

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/Docs/sysinfo
 $Rev: 6775 $ $Date:: 2011-08-16 #$ 8787f7622badcf24e01c368b1db4377c
 running on SL165G7-Bao-node1 Wed Jan  4 22:47:55 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)
       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   61G  24% /

 (End of data from sysinfo program)
```

## 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
433.milc: -DSPEC_CPU_LP64
434.zeusmp: -DSPEC_CPU_LP64
435.gromacs: -DSPEC_CPU_LP64
436.cactusADM: -DSPEC_CPU_LP64 -fno-second-underscore
437.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

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## Base Optimization Flags

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

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

Fortran benchmarks:
`-march=barcelona -mso -Ofast -HP`

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

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



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

Tested with SPEC CPU2006 v1.2.
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