## SPEC® CFP2006 Result

**Hewlett-Packard Company**

ProLiant DL380e Gen8  
(1.90 GHz, Intel Xeon E5-2440 v2)

**SPECfp®_rate2006 = 403**  
**SPECfp_rate_base2006 = 393**

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

**Test date:** Jan-2014  
**Hardware Availability:** Jan-2014  
**Software Availability:** Sep-2013

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<th>Test Date</th>
<th>Hardware</th>
<th>Software</th>
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**SPECfp_rate_base2006 = 393**

**Hardware**

- **CPU Name:** Intel Xeon E5-2440 v2  
- **CPU Characteristics:** Intel Turbo Boost Technology up to 2.40 GHz  
- **CPU MHz:** 1900  
- **FPU:** Integrated  
- **CPU(s) enabled:** 16 cores, 2 chips, 8 cores/chip, 2 threads/core  
- **CPU(s) orderable:** 1,2 chip  
- **Primary Cache:** 32 KB I + 32 KB D on chip per core  
- **Secondary Cache:** 256 KB I+D on chip per core

**Software**

- **Operating System:** Red Hat Enterprise Linux Server release 6.4  
  Kernel: 2.6.32.358.el6.x86_64  
- **Compiler:** C/C++: Version 14.0.0.080 of Intel C++ Studio XE for Linux;  
  Fortran: Version 14.0.0.080 of Intel Fortran Studio XE for Linux  
- **Auto Parallel:** No  
- **File System:** ext4  
- **System State:** Run level 3 (multi-user)
SPEC CFP2006 Result

Hewlett-Packard Company
ProLiant DL380e Gen8
(1.90 GHz, Intel Xeon E5-2440 v2)

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SPECfp_rate_base2006 = 393

Hewlett-Packard Company

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

L3 Cache: 20 MB I+D on chip per chip
Other Cache: None
Memory: 96 GB (12 x 8 GB 2Rx4 PC3-12800R-11, ECC)
Disk Subsystem: 1 x 300 GB 15 K SAS, RAID 0
Other Hardware: None

Base Pointers: 32/64-bit
Peak Pointers: 32/64-bit
Other Software: None

Results Table

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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 numactl mechanism was used to bind copies to processors. The config file option 'submit' was used to generate numactl commands to bind each copy to a specific processor. For details, please see the config file.

Operating System Notes

Stack size set to unlimited using "ulimit -s unlimited"
Transparent Huge Pages enabled with:
    echo always > /sys/kernel/mm/redhat_transparent_hugepage/enabled
Filesystem page cache cleared with:
    echo 1 > /proc/sys/vm/drop_caches
runspec command invoked through numactl i.e.:
    numactl --interleave=all runspec <etc>
Used "stop-services" script before the run
# SPEC CFP2006 Result

## Hewlett-Packard Company

ProLiant DL380e Gen8  
(1.90 GHz, Intel Xeon E5-2440 v2)  

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**CPU2006 license:** 3  
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**Software Availability:** Sep-2013

## Platform Notes

**BIOS Configuration:**  
- HP Power Profile set to Maximum Performance  
- Memory Power Savings Mode set to Maximum Performance  
- Thermal Configuration set to Maximum Cooling  
- Collaborative Power Control set to Disabled  
- Dynamic Power Capping Functionality set to Disabled  
- Processor Power and Utilization Monitoring set to Disabled  
- Memory Refresh Rate set to 1x

**Sysinfo program** /cpu2006/config/sysinfo.rev6818  
$Rev: 6818$ $Date:: 2012-07-17 #$ e86d102572650a6e4d596a3cee98f191  
running on DL380e-Gen8-RF0 Sat Jan 25 02:53:00 2014

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: Intel(R) Xeon(R) CPU E5-2440 v2 @ 1.90GHz  
- 2 "physical id"s (chips)  
- 32 "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: 8  
  - siblings: 16  
  - physical 0: cores 0 1 2 3 4 5 6 7  
  - physical 1: cores 0 1 2 3 4 5 6 7  
- cache size: 20480 KB

**From /proc/meminfo**  
- MemTotal: 99025684 kB  
- HugePages_Total: 0  
- Hugepagesize: 2048 kB

**/usr/bin/lsb_release -d**  
- Red Hat Enterprise Linux Server release 6.4 (Santiago)

**From /etc/*release* /etc/*version***  
- redhat-release: Red Hat Enterprise Linux Server release 6.4 (Santiago)  
- system-release: Red Hat Enterprise Linux Server release 6.4 (Santiago)  

**uname -a:**  
- Linux DL380e-Gen8-RF0 2.6.32-358.el6.x86_64 #1 SMP Tue Jan 29 11:47:41 EST 2013 x86_64 x86_64 x86_64 GNU/Linux

**run-level 3 Jan 24 11:50**

**SPEC is set to:** /cpu2006  
**Filesysten** / Size Used Avail Use% Mounted on  
| /dev/sda3 | ext4 | 273G | 26G | 234G | 10% | / |

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Platform Notes (Continued)

Additional information from dmidecode:
BIOS HP P73 11/12/2013
Memory:
12x HP 689911-071 8 GB 1600 MHz 2 rank

(End of data from sysinfo program)

General Notes

Environment variables set by runspec before the start of the run:
LD_LIBRARY_PATH = '/cpu2006/libs/32:/cpu2006/libs/64:/cpu2006/sh'

Binaries compiled on a system with 1x Core i7-860 CPU + 8GB memory using RedHat EL 6.4

Base Compiler Invocation

C benchmarks:
icc   -m64

C++ benchmarks:
icpc  -m64

Fortran benchmarks:
ifort -m64

Benchmarks using both Fortran and C:
icc   -m64 ifort -m64

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 -nofor_main
436.cactusADM: -DSPEC_CPU_LP64 -nofor_main
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 -nofor_main
459.GemsFDTD: -DSPEC_CPU_LP64
465.tonto: -DSPEC_CPU_LP64

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Base Portability Flags (Continued)

470.lbm: -DSPEC_CPU_LP64
481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX
482.sphinx3: -DSPEC_CPU_LP64

Base Optimization Flags

C benchmarks:
-xAVX -ipo -O3 -no-prec-div -opt-prefetch -auto-p32 -ansi-alias
-opt-mem-layout-trans=3

C++ benchmarks:
-xAVX -ipo -O3 -no-prec-div -opt-prefetch -auto-p32 -ansi-alias
-opt-mem-layout-trans=3

Fortran benchmarks:
-xAVX -ipo -O3 -no-prec-div -opt-prefetch

Benchmarks using both Fortran and C:
-xAVX -ipo -O3 -no-prec-div -opt-prefetch -auto-p32 -ansi-alias
-opt-mem-layout-trans=3

Peak Compiler Invocation

C benchmarks:
icc -m64

C++ benchmarks (except as noted below):
icpc -m64

450.soplex: icpc -m32

Fortran benchmarks:
ifort -m64

Benchmarks using both Fortran and C:
icc -m64 ifort -m64

Peak Portability Flags

410.bwaves: -DSPEC_CPU_LP64
416.gamess: -DSPEC_CPU_LP64
433.milc: -DSPEC_CPU_LP64
434.zeusmp: -DSPEC_CPU_LP64

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### Peak Portability Flags (Continued)

- 435.gromacs: `-DSPEC_CPU_LP64 -nofor_main`
- 436.cactusADM: `-DSPEC_CPU_LP64 -nofor_main`
- 437.leslie3d: `-DSPEC_CPU_LP64`
- 444.namd: `-DSPEC_CPU_LP64 -nofor_main`
- 447.dealII: `-DSPEC_CPU_LP64`
- 453.povray: `-DSPEC_CPU_LP64 -nofor_main`
- 454.calculix: `-DSPEC_CPU_LP64 -nofor_main`
- 459.GemsFDTD: `-DSPEC_CPU_LP64`
- 465.tonto: `-DSPEC_CPU_LP64`
- 470.lbm: `-DSPEC_CPU_LP64`
- 481.wrf: `-DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX`
- 482.sphinx3: `-DSPEC_CPU_LP64`

### Peak Optimization Flags

**C benchmarks:**

- 433.milc: `-xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -opt-mem-layout-trans=3(pass 2) -prof-use(pass 2) -auto-ilp32`
- 470.lbm: `basepeak = yes`
- 482.sphinx3: `basepeak = yes`

**C++ benchmarks:**

- 444.namd: `-xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -opt-mem-layout-trans=3(pass 2) -prof-use(pass 2) -fno-alias -auto-ilp32`
- 447.dealII: `basepeak = yes`
- 450.soplex: `-xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -opt-mem-layout-trans=3(pass 2) -prof-use(pass 2) -opt-malloc-options=3`
- 453.povray: `-xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -opt-mem-layout-trans=3(pass 2) -prof-use(pass 2) -unroll4 -ansi-alias`

**Fortran benchmarks:**

- 410.bwaves: `basepeak = yes`
- 416.gamess: `-xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -unroll2 -inline-level=0 -scalar-rep-`
Hewlett-Packard Company
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CPU2006 license: 3
Test sponsor: Hewlett-Packard Company
Tested by: Hewlett-Packard Company

Peak Optimization Flags (Continued)

434.zeusmp: basepeak = yes
437.leslie3d: -xAVX -ipo -O3 -no-prec-div -opt-prefetch
459.GemsFDTD: basepeak = yes
465.tonto: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)

-Benchmarks using both Fortran and C:
435.gromacs: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)

-461.calculix: basepeak = yes
481.wrf: -xAVX -ipo -O3 -no-prec-div -auto-ilp32

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64.20140128.html
http://www.spec.org/cpu2006/flags/HP-Platform-Flags-Intel-V1.2-revB.20131009.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64.20140128.xml
http://www.spec.org/cpu2006/flags/HP-Platform-Flags-Intel-V1.2-revB.20131009.xml

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For other inquiries, please contact webmaster@spec.org.

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