SPEC® CFP2006 Result

Hewlett-Packard Company

$SPECfp®\_rate2006 = 1150$

ProLiant DL980 G7 (2.27 GHz, Intel Xeon X7560)

$SPECfp\_rate\_base2006 = 1110$
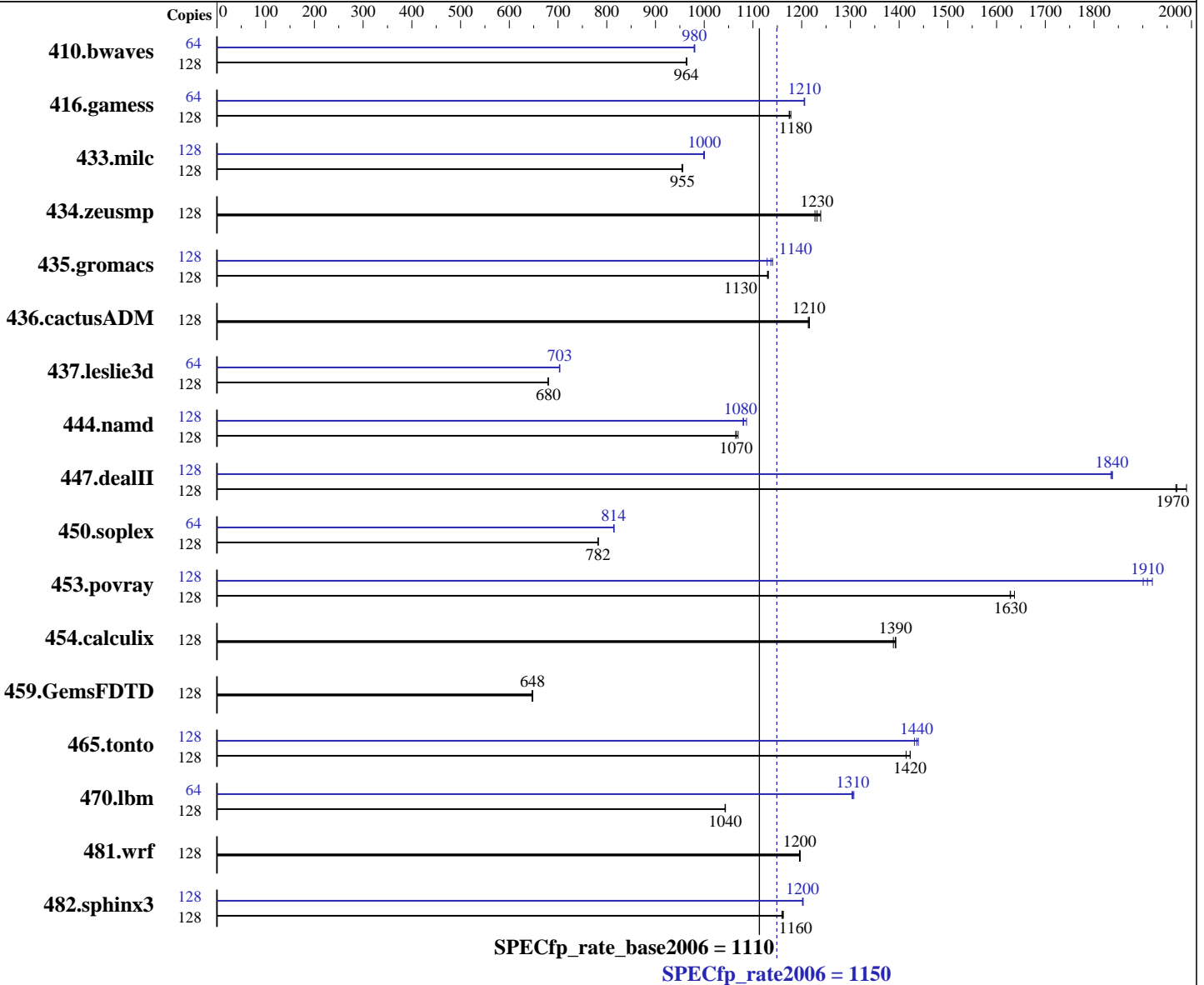
CPU2006 license: 3
Test sponsor: Hewlett-Packard Company
Tested by: Hewlett-Packard Company

Test date: Jan-2011
Hardware Availability: Oct-2010
Software Availability: Nov-2010

	Copies	
410.bwaves	64	980
	128	964
416.gamess	64	1210
	128	1180
433.milc	128	1000
	128	955
434.zeusmp	128	1230
435.gromacs	128	1140
	128	1130
436.cactusADM	128	1210
437.leslie3d	64	703
	128	680
444.namd	128	1080
	128	1070
447.dealII	128	1840
	128	1970
450.soplex	64	814
	128	782
453.povray	128	1910
	128	1630
454.calculix	128	1390
459.GemsFDTD	128	648
465.tonto	128	1440
	128	1420
470.lbm	64	1310
	128	1040
481.wrf	128	1200
482.sphinx3	128	1200
	128	1160

SPECfp_rate_base2006 = 1110

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Hardware

CPU Name: Intel Xeon X7560
CPU Characteristics: Intel Turbo Boost Technology up to 2.67 GHz
CPU MHz: 2266
FPU: Integrated
CPU(s) enabled: 64 cores, 8 chips, 8 cores/chip, 2 threads/core
CPU(s) orderable: 4, 8 chips
Primary Cache: 32 KB I + 32 KB D on chip per core
Secondary Cache: 256 KB I+D on chip per core

Continued on next page

Software

Operating System: SUSE Linux Enterprise Server 11 (x86_64) SP1 Kernel 2.6.32.12-0.7-default
Compiler: Intel C++ and Fortran Composer XE 2011 for IA32 and Intel 64, Version 12.0.1.116 Build 20101116
Auto Parallel: No
File System: ext3
System State: Run level 3 (multi-user)
Base Pointers: 64-bit
Peak Pointers: 32/64-bit

Continued on next page

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L3 Cache:	24 MB I+D on chip per chip
Other Cache:	None
Memory:	1 TB (128 x 8 GB 2Rx4 PC3-10600R-9, ECC, running at 1066 MHz)
Disk Subsystem:	2x 146 GB 15K SAS
Other Hardware:	512 MB FBWC Module for P410i SmartArray

Other Software: None

Results Table

Benchmark	Base Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Peak Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	128	**1805**	**964**	1806	963	1804	964	64	888	979	887	981	**888**	**980**
416.gamess	128	2128	1180	2134	1170	**2133**	**1180**	64	1039	1210	1040	1210	**1039**	**1210**
433.milc	128	1229	956	**1230**	**955**	1232	954	128	**1175**	**1000**	1174	1000	1177	999
434.zeusmp	128	940	1240	**946**	**1230**	949	1230	128	940	1240	**946**	**1230**	949	1230
435.gromacs	128	808	1130	809	1130	**808**	**1130**	128	**804**	**1140**	809	1130	801	1140
436.cactusADM	128	1260	1210	1258	1220	**1259**	**1210**	128	1260	1210	1258	1220	**1259**	**1210**
437.leslie3d	128	1771	679	1769	680	**1769**	**680**	64	855	704	856	703	**855**	**703**
444.namd	128	964	1060	960	1070	**964**	**1070**	128	**950**	**1080**	945	1090	951	1080
447.dealII	128	736	1990	744	1970	**743**	**1970**	128	**797**	**1840**	797	1840	798	1830
450.soplex	128	**1364**	**782**	1364	782	1365	782	64	655	814	**655**	**814**	655	815
453.povray	128	**418**	**1630**	418	1630	416	1640	128	355	1920	358	1900	**357**	**1910**
454.calculix	128	761	1390	758	1390	**758**	**1390**	128	761	1390	758	1390	**758**	**1390**
459.GemsFDTD	128	2101	647	**2096**	**648**	2096	648	128	2101	647	**2096**	**648**	2096	648
465.tonto	128	890	1410	885	1420	**885**	**1420**	128	880	1430	875	1440	**877**	**1440**
470.lbm	128	1687	1040	**1686**	**1040**	1685	1040	64	675	1300	**674**	**1310**	673	1310
481.wrf	128	**1195**	**1200**	1194	1200	1196	1200	128	**1195**	**1200**	1194	1200	1196	1200
482.sphinx3	128	2151	1160	2147	1160	**2147**	**1160**	128	2076	1200	**2075**	**1200**	2074	1200

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

Operating System Notes

    I/O scheduler for the device holding the filesystem set to "noop"
    SPEC files placed in /dev/shm/cpu2006 with /dev/shm
    mounted as tmpfs with mpol=interleave
    'ulimit -s unlimited' was used to set the stacksize to unlimited prior to run
    Hugepages were not configured on the system

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$SPECfp\_rate2006 =$ 1150

$SPECfp\_rate\_base2006 =$ 1110

CPU2006 license:	3	**Test date:**	Jan-2011
Test sponsor:	Hewlett-Packard Company	**Hardware Availability:**	Oct-2010
Tested by:	Hewlett-Packard Company	**Software Availability:**	Nov-2010

Platform Notes

```
Power Regulator set to HP Static High Performance Mode
```

General Notes

```
Binaries were compiled on RHEL5.5 with binutils-2.17.50.0.6-14.el5
```

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
      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:
```
-xSSE4.2 -ipo -O3 -no-prec-div -static -ansi-alias
```

Continued on next page

SPEC CFP2006 Result

Hewlett-Packard Company

$SPECfp_rate2006 = $ 1150

ProLiant DL980 G7 (2.27 GHz, Intel Xeon X7560)

$SPECfp_rate_base2006 = $ 1110

CPU2006 license: 3		**Test date:**	Jan-2011
Test sponsor:	Hewlett-Packard Company	**Hardware Availability:**	Oct-2010
Tested by:	Hewlett-Packard Company	**Software Availability:**	Nov-2010

Base Optimization Flags (Continued)

C++ benchmarks:
```
-xSSE4.2 -ipo -O3 -no-prec-div -static -ansi-alias
```

Fortran benchmarks:
```
-xSSE4.2 -ipo -O3 -no-prec-div -static
```

Benchmarks using both Fortran and C:
```
-xSSE4.2 -ipo -O3 -no-prec-div -static -ansi-alias
```

Peak Compiler Invocation

C benchmarks (except as noted below):
```
icc    -m64
```

```
482.sphinx3: icc -m32
```

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
     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
      453.povray: -DSPEC_CPU_LP64
     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
```

SPEC CFP2006 Result
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ProLiant DL980 G7 (2.27 GHz, Intel Xeon X7560)

SPECfp_rate2006 =   1150

SPECfp_rate_base2006 = 1110

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

Test date: Jan-2011
Hardware Availability: Oct-2010
Software Availability: Nov-2010

Peak Optimization Flags

C benchmarks:

>   433.milc: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
>   -no-prec-div(pass 2) -prof-use(pass 2) -static -auto-ilp32

>   470.lbm: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
>   -no-prec-div(pass 2) -prof-use(pass 2) -opt-malloc-options=3
>   -ansi-alias -opt-prefetch -static -auto-ilp32

>   482.sphinx3: -xSSE4.2 -ipo -O3 -no-prec-div -unroll2

C++ benchmarks:

>   444.namd: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
>   -no-prec-div(pass 2) -prof-use(pass 2) -fno-alias
>   -auto-ilp32

>   447.dealII: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
>   -no-prec-div(pass 2) -prof-use(pass 2) -static -auto-ilp32

>   450.soplex: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
>   -no-prec-div(pass 2) -prof-use(pass 2) -opt-malloc-options=3
>   -B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT

>   453.povray: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
>   -no-prec-div(pass 2) -prof-use(pass 2) -unroll4 -ansi-alias
>   -B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

Fortran benchmarks:

>   410.bwaves: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
>   -no-prec-div(pass 2) -prof-use(pass 2) -static

>   416.gamess: -xSSE4.2(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- -static

>   434.zeusmp: basepeak = yes

>   437.leslie3d: -xSSE4.2 -ipo -O3 -no-prec-div
>   -B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

> 459.GemsFDTD: basepeak = yes

>   465.tonto: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
>   -no-prec-div(pass 2) -prof-use(pass 2) -unroll4 -auto
>   -inline-calloc -opt-malloc-options=3
>   -B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

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Test sponsor: Hewlett-Packard Company	**Hardware Availability:** Oct-2010
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Peak Optimization Flags (Continued)

Benchmarks using both Fortran and C:

```
435.gromacs: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
             -no-prec-div(pass 2) -prof-use(pass 2) -opt-prefetch
             -static -auto-ilp32

436.cactusADM: basepeak = yes

454.calculix: basepeak = yes

    481.wrf: basepeak = yes
```

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Intel-ic12.0-linux64-revA.html
http://www.spec.org/cpu2006/flags/HP-Intel-Linux-Settings-flags.20110216.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic12.0-linux64-revA.xml
http://www.spec.org/cpu2006/flags/HP-Intel-Linux-Settings-flags.20110216.xml

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

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