SPEC® CFP2006 Result
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Hewlett-Packard Company

ProLiant DL580 G7
(2.66 GHz, Intel Xeon E7-8837)

$SPECfp^{®}2006 = $ 56.8
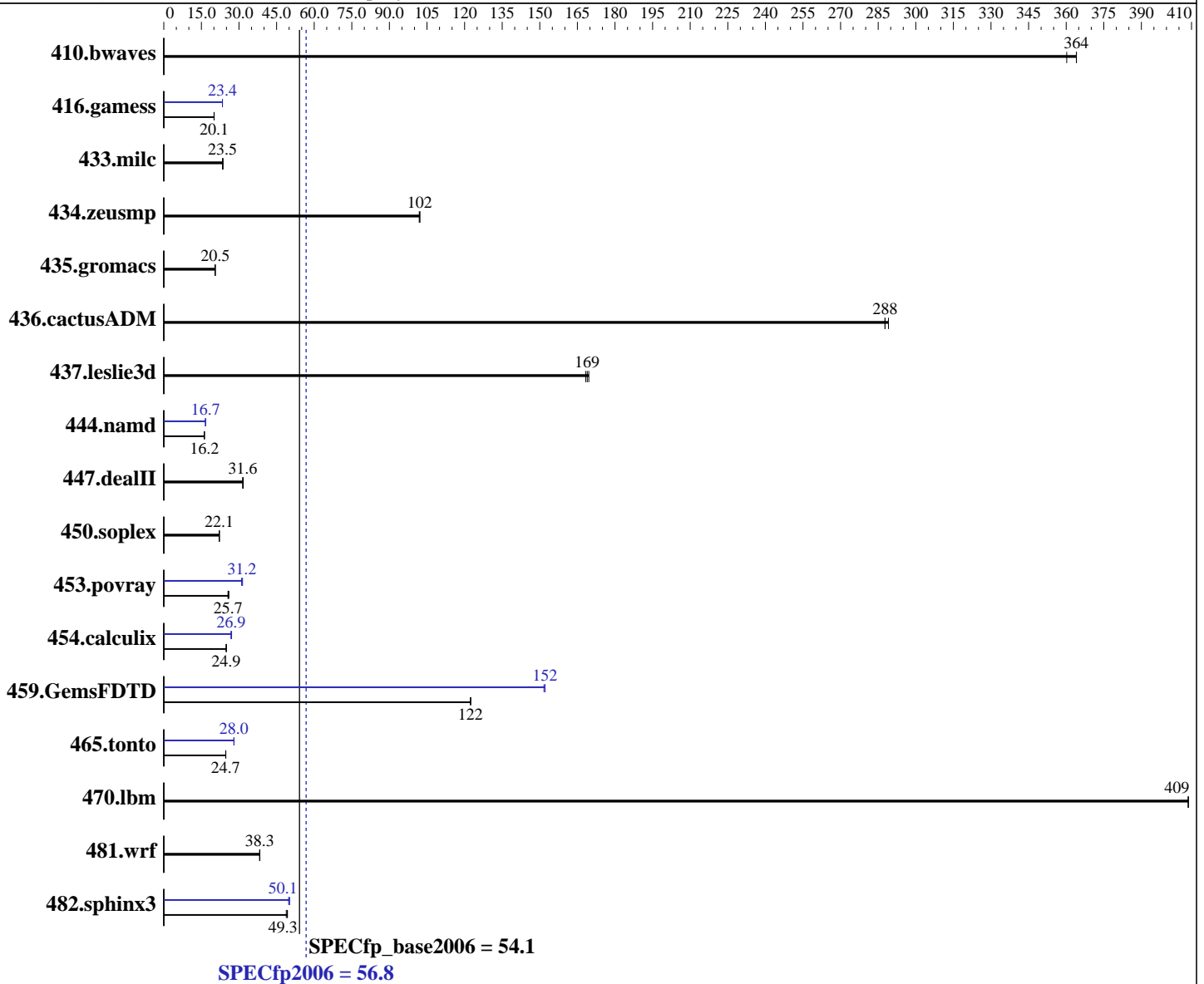
$SPECfp_base2006 = $ 54.1

CPU2006 license: 3 **Test date:** Aug-2012
Test sponsor: Hewlett-Packard Company **Hardware Availability:** Dec-2011
Tested by: Hewlett-Packard Company **Software Availability:** Oct-2011

Benchmark	Base	Peak
410.bwaves	364	
416.gamess	20.1	23.4
433.milc	23.5	
434.zeusmp	102	
435.gromacs	20.5	
436.cactusADM	288	
437.leslie3d	169	
444.namd	16.2	16.7
447.dealII	31.6	
450.soplex	22.1	
453.povray	25.7	31.2
454.calculix	24.9	26.9
459.GemsFDTD	122	152
465.tonto	24.7	28.0
470.lbm	409	
481.wrf	38.3	
482.sphinx3	49.3	50.1

SPECfp_base2006 = 54.1
SPECfp2006 = 56.8

Hardware

CPU Name: Intel Xeon E7-8837
CPU Characteristics: Intel Turbo Boost Technology up to 2.80 GHz
CPU MHz: 2667
FPU: Integrated
CPU(s) enabled: 32 cores, 4 chips, 8 cores/chip
CPU(s) orderable: 2,4 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 SP1 (x86_64) 2.6.32.12-0.7-default
Compiler: C/C++: Version 12.1.0.225 of Intel C++ Studio XE for Linux;
Fortran: Version 12.1.0.225 of Intel Fortran Studio XE for Linux
Auto Parallel: Yes
File System: ext3
System State: Run level 3 (multi-user)

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L3 Cache:	24 MB I+D on chip per chip	Base Pointers:	64-bit
Other Cache:	None	Peak Pointers:	32/64-bit
Memory:	1 TB (64 x 16 GB 2Rx4 PC3-10600R-9, ECC)	Other Software:	None
Disk Subsystem:	5 x 900 GB 6G SAS 10K, RAID 5		
Other Hardware:	None		

Results Table

Benchmark	Base						Peak					
	Seconds	**Ratio**	**Seconds**	**Ratio**	**Seconds**	**Ratio**	**Seconds**	**Ratio**	**Seconds**	**Ratio**	**Seconds**	**Ratio**
410.bwaves	**37.3**	**364**	37.3	364	37.7	360	**37.3**	**364**	37.3	364	37.7	360
416.gamess	**975**	**20.1**	975	20.1	977	20.0	836	23.4	**837**	**23.4**	837	23.4
433.milc	392	23.4	388	23.6	**391**	**23.5**	392	23.4	388	23.6	**391**	**23.5**
434.zeusmp	89.1	102	89.3	102	**89.1**	**102**	89.1	102	89.3	102	**89.1**	**102**
435.gromacs	350	20.4	347	20.6	**348**	**20.5**	350	20.4	347	20.6	**348**	**20.5**
436.cactusADM	41.3	289	41.5	288	**41.5**	**288**	41.3	289	41.5	288	**41.5**	**288**
437.leslie3d	**55.6**	**169**	55.8	168	55.4	170	**55.6**	**169**	55.8	168	55.4	170
444.namd	497	16.1	**495**	**16.2**	495	16.2	483	16.6	**482**	**16.7**	481	16.7
447.dealII	**362**	**31.6**	361	31.7	364	31.5	**362**	**31.6**	361	31.7	364	31.5
450.soplex	378	22.1	**377**	**22.1**	376	22.2	378	22.1	**377**	**22.1**	376	22.2
453.povray	**207**	**25.7**	205	26.0	207	25.6	169	31.4	171	31.0	**171**	**31.2**
454.calculix	**331**	**24.9**	332	24.9	331	24.9	308	26.8	**307**	**26.9**	305	27.1
459.GemsFDTD	86.7	122	**86.7**	**122**	86.7	122	70.0	152	69.8	152	**69.8**	**152**
465.tonto	398	24.8	398	24.7	**398**	**24.7**	352	28.0	**351**	**28.0**	351	28.0
470.lbm	**33.6**	**409**	33.6	409	33.6	409	**33.6**	**409**	33.6	409	33.6	409
481.wrf	292	38.2	**292**	**38.3**	291	38.3	292	38.2	**292**	**38.3**	291	38.3
482.sphinx3	**396**	**49.3**	395	49.3	399	48.9	391	49.8	**389**	**50.1**	388	50.2

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

Operating System Notes

```
Stack size set to unlimited using "ulimit -s unlimited"
runspec command invoked through numactl i.e.:
numactl --interleave=all runspec <etc>
```

Platform Notes

```
BIOS Configuration:
  HP Power Profile set to Maximum Performance
  Thermal Configuration set to Increased Cooling
  Collaborative Power Control set to Disabled
Sysinfo program /cpu2006/config/sysinfo.rev6800
$Rev: 6800 $ $Date:: 2011-10-11 #$ 6f2ebdff5032aaa42e583f96b07f99d3
running on dl580g7-r88 Sat Aug 11 16:18:28 2012
```

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Test date: Aug-2012
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Platform Notes (Continued)

```
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 E7- 8837 @ 2.67GHz
      4 "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  : 8
      physical 0: cores 0 1 2 9 16 18 24 25
      physical 1: cores 0 1 2 8 17 18 24 25
      physical 2: cores 0 1 2 8 17 18 24 25
      physical 3: cores 0 1 8 9 16 17 24 25
   cache size : 24576 KB

From /proc/meminfo
   MemTotal:      1058831952 kB
   HugePages_Total:        0
   Hugepagesize:        2048 kB

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

uname -a:
   Linux dl580g7-r88 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 Aug 10 13:58 last=S

SPEC is set to: /cpu2006
   Filesystem      Type     Size  Used Avail Use% Mounted on
   /dev/cciss/c0d0p2
                   ext3     3.3T   76G  3.0T   3% /

Additional information from dmidecode:
  BIOS HP P65 12/01/2011

(End of data from sysinfo program)
```

General Notes

```
Environment variables set by runspec before the start of the run:
KMP_AFFINITY = "granularity=fine,scatter"
LD_LIBRARY_PATH = "/cpu2006/libs/32:/cpu2006/libs/64"
```

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General Notes (Continued)

```
OMP_NUM_THREADS = "16"
```

```
 Binaries compiled on a system with 1x Core i7-860 CPU + 8GB
 memory using RHEL5.5
```

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 -parallel -opt-prefetch
    -ansi-alias
```

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Base Optimization Flags (Continued)

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

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

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

Peak Compiler Invocation

C benchmarks:
```
icc   -m64
```

C++ benchmarks:
```
icpc  -m64
```

Fortran benchmarks:
```
ifort -m64
```

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

Peak Portability Flags

```
Same as Base Portability Flags
```

Peak Optimization Flags

C benchmarks:

      433.milc: `basepeak = yes`

      470.lbm: `basepeak = yes`

   482.sphinx3: `-xSSE4.2 -ipo -O3 -no-prec-div -unroll2 -ansi-alias`
              `-parallel`

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`

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Peak Optimization Flags (Continued)

447.dealII: basepeak = yes

450.soplex: basepeak = yes

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

Fortran benchmarks:

410.bwaves: basepeak = yes

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: basepeak = yes

459.GemsFDTD: -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 -opt-prefetch -parallel

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) -inline-calloc
-opt-malloc-options=3 -auto -unroll4

Benchmarks using both Fortran and C:

435.gromacs: basepeak = yes

436.cactusADM: basepeak = yes

454.calculix: -xSSE4.2 -ipo -O3 -no-prec-div -auto-ilp32 -ansi-alias

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-ic12.1-official-linux64.20120425.html
http://www.spec.org/cpu2006/flags/HP-Platform-Flags-Intel-V1.2-A.20120829.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20120425.xml
http://www.spec.org/cpu2006/flags/HP-Platform-Flags-Intel-V1.2-A.20120829.xml

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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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