SPEC® CFP2006 Result

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Hewlett-Packard Company

ProLiant DL380p Gen8
(2.40 GHz, Intel Xeon E5-2630L v2)

$SPECfp®2006 =$ 79.5

$SPECfp\_base2006 =$ 76.5

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

Test date: Oct-2013
Hardware Availability: Sep-2013
Software Availability: Sep-2013

SPECfp_base2006 = 76.5
SPECfp2006 = 79.5

Benchmark	base	peak
410.bwaves	357	
416.gamess	27.0	30.9
433.milc	61.5	62.0
434.zeusmp	138	
435.gromacs	36.1	
436.cactusADM	422	
437.leslie3d	163	
444.namd	19.4	19.9
447.dealII	48.0	
450.soplex	36.9	
453.povray	37.3	45.1
454.calculix	39.4	42.3
459.GemsFDTD	153	165
465.tonto	32.5	38.4
470.lbm	443	
481.wrf	70.0	
482.sphinx3	65.6	65.7

Hardware

CPU Name:	Intel Xeon E5-2630L v2
CPU Characteristics:	Intel Turbo Boost Technology up to 2.80 GHz
CPU MHz:	2400
FPU:	Integrated
CPU(s) enabled:	12 cores, 2 chips, 6 cores/chip
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

Continued on next page

Software

Operating System:	SUSE Linux Enterprise Server 11 (x86_64) SP3 Kernel 3.0.76-0.11-default
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:	Yes
File System:	ext3
System State:	Run level 3 (multi-user)

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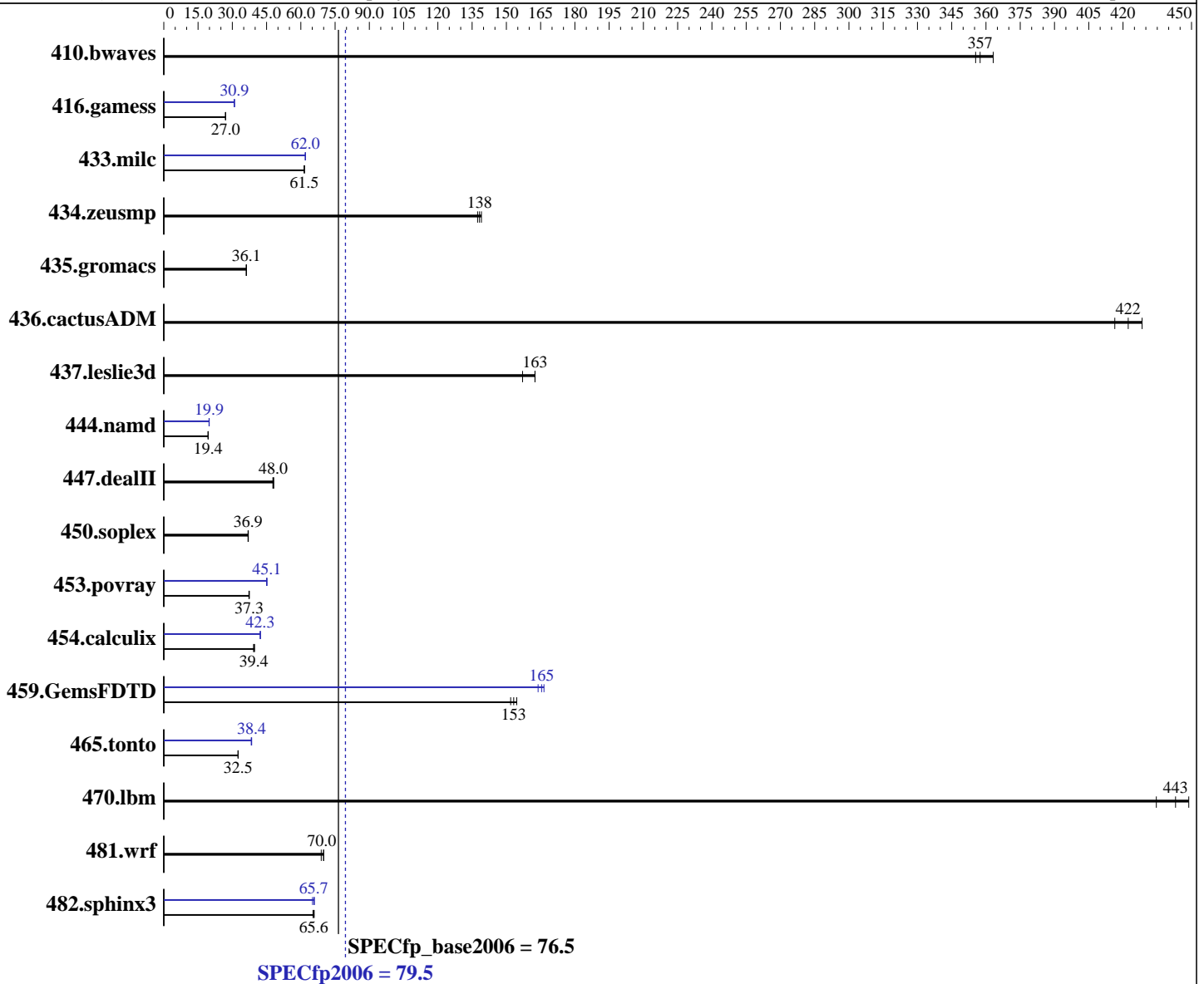|	
CPU2006 license: 3	**Test date:** Oct-2013
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L3 Cache: 15 MB I+D on chip per chip	Base Pointers: 64-bit
Other Cache: None	Peak Pointers: 32/64-bit
Memory: 128 GB (16 x 8 GB 2Rx4 PC3-12800R-11, ECC)	Other Software: None
Disk Subsystem: 1 x 146 GB 15 K SAS, RAID 0	
Other Hardware: None	

Results Table

Benchmark	Base						Peak					
	Seconds	**Ratio**	**Seconds**	**Ratio**	**Seconds**	**Ratio**	**Seconds**	**Ratio**	**Seconds**	**Ratio**	**Seconds**	**Ratio**
410.bwaves	38.2	355	**38.0**	**357**	37.4	363	38.2	355	**38.0**	**357**	37.4	363
416.gamess	723	27.1	725	27.0	**724**	**27.0**	634	30.9	633	30.9	**633**	**30.9**
433.milc	149	61.6	149	61.5	**149**	**61.5**	148	61.9	148	62.0	**148**	**62.0**
434.zeusmp	66.2	137	65.4	139	**65.8**	**138**	66.2	137	65.4	139	**65.8**	**138**
435.gromacs	198	36.1	**198**	**36.1**	197	36.2	198	36.1	**198**	**36.1**	197	36.2
436.cactusADM	**28.3**	**422**	27.9	428	28.7	416	**28.3**	**422**	27.9	428	28.7	416
437.leslie3d	57.8	163	59.8	157	**57.8**	**163**	57.8	163	59.8	157	**57.8**	**163**
444.namd	**413**	**19.4**	413	19.4	413	19.4	405	19.8	**404**	**19.9**	403	19.9
447.dealII	238	48.1	240	47.8	**239**	**48.0**	238	48.1	240	47.8	**239**	**48.0**
450.soplex	225	37.0	**226**	**36.9**	226	36.9	225	37.0	**226**	**36.9**	226	36.9
453.povray	143	37.3	142	37.5	**142**	**37.3**	**118**	**45.1**	118	45.0	118	45.2
454.calculix	208	39.8	**209**	**39.4**	210	39.3	195	42.2	195	42.3	**195**	**42.3**
459.GemsFDTD	69.9	152	**69.3**	**153**	68.7	155	63.7	166	64.7	164	**64.1**	**165**
465.tonto	303	32.5	**303**	**32.5**	302	32.5	**256**	**38.4**	257	38.3	256	38.5
470.lbm	**31.0**	**443**	31.6	435	30.6	449	**31.0**	**443**	31.6	435	30.6	449
481.wrf	162	68.9	**160**	**70.0**	160	70.0	162	68.9	**160**	**70.0**	160	70.0
482.sphinx3	**297**	**65.6**	298	65.3	296	65.9	296	66.0	**297**	**65.7**	299	65.1

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"
Reclaim mode enabled with:
 echo 1 > /proc/sys/vm/zone_reclaim_mode
Transparent Huge Pages enabled with:
 echo always > /sys/kernel/mm/transparent_hugepage/enabled
Filesystem page cache cleared with:
 echo 1 > /proc/sys/vm/drop_caches
Disabled unused Linux services through "stop_services.sh" before running.
```

Platform Notes

```
BIOS Configuration:
 Intel Hyperthreading Options set to Disabled
 HP Power Profile set to Maximum Performance
```

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Platform Notes (Continued)

```
Minimum Processor Idle Power Core State set to C1E
Minimum Processor Idle Power Package State set to C6 (retention)
Energy/Performance Bias is 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 dl380p-gen8-0s9 Mon Oct 14 17:47:05 2013

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 E5-2630L v2 @ 2.40GHz
      2 "physical id"s (chips)
     12 "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 : 6
      siblings  : 6
      physical 0: cores 0 1 2 3 4 5
      physical 1: cores 0 1 2 3 4 5
   cache size : 15360 KB

From /proc/meminfo
   MemTotal:       132130192 kB
   HugePages_Total:        0
   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 = 3

uname -a:
   Linux dl380p-gen8-0s9 3.0.76-0.11-default #1 SMP Fri Jun 14 08:21:43 UTC 2013
   (ccab990) x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Oct 14 17:33 last=S

SPEC is set to: /cpu2006
   Filesystem     Type  Size   Used Avail Use% Mounted on
```

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Platform Notes (Continued)

```
    /dev/sda1      ext3  135G   14G  121G  10% /

  Additional information from dmidecode:
    BIOS HP P70 09/08/2013
    Memory:
    16x HP 689911-071 8 GB 1600 MHz
    8x UNKNOWN NOT AVAILABLE

  (End of data from sysinfo program)
  Regarding the sysinfo display about the memory installed, the correct amount of
  memory is 128 GB and the dmidecode description should read as the following:
    16x HP 689911-071 8 GB 1600 MHz
```

General Notes

```
Environment variables set by runspec before the start of the run:
LD_LIBRARY_PATH = "/cpu2006/libs/32:/cpu2006/libs/64:/cpu2006/sh"
OMP_NUM_THREADS = "12"

  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
```

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Base Portability Flags (Continued)

```
  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:
```
    -xAVX -ipo -O3 -no-prec-div -parallel -opt-prefetch -ansi-alias
```

C++ benchmarks:
```
    -xAVX -ipo -O3 -no-prec-div -opt-prefetch -ansi-alias
```

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

Benchmarks using both Fortran and C:
```
    -xAVX -ipo -O3 -no-prec-div -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
```

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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) `-prof-use`(pass 2) `-auto-ilp32`
> `-ansi-alias`

> 470.lbm: `basepeak = yes`

> 482.sphinx3: `-xAVX -ipo -O3 -no-prec-div -unroll2 -ansi-alias`
> `-parallel`

C++ benchmarks:

> 444.namd: `-xAVX`(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: `basepeak = yes`

> 450.soplex: `basepeak = yes`

> 453.povray: `-xAVX`(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: `-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-`

> 434.zeusmp: `basepeak = yes`

> 437.leslie3d: `basepeak = yes`

> 459.GemsFDTD: `-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 -opt-prefetch -parallel`

> 465.tonto: `-xAVX`(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`

Continued on next page

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Peak Optimization Flags (Continued)

454.calculix: -xAVX -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-ic14.0-official-linux64.20140128.html
http://www.spec.org/cpu2006/flags/HP-Platform-Flags-Intel-V1.2-revB.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.xml

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

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