



SPEC[®] CFP2006 Result

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Hewlett-Packard Company

SPECfp[®]2006 = 10.3

ProLiant DL580 G4
(2.6 GHz, Intel Xeon processor 7110M)

SPECfp_base2006 = 9.99

CPU2006 license: 3

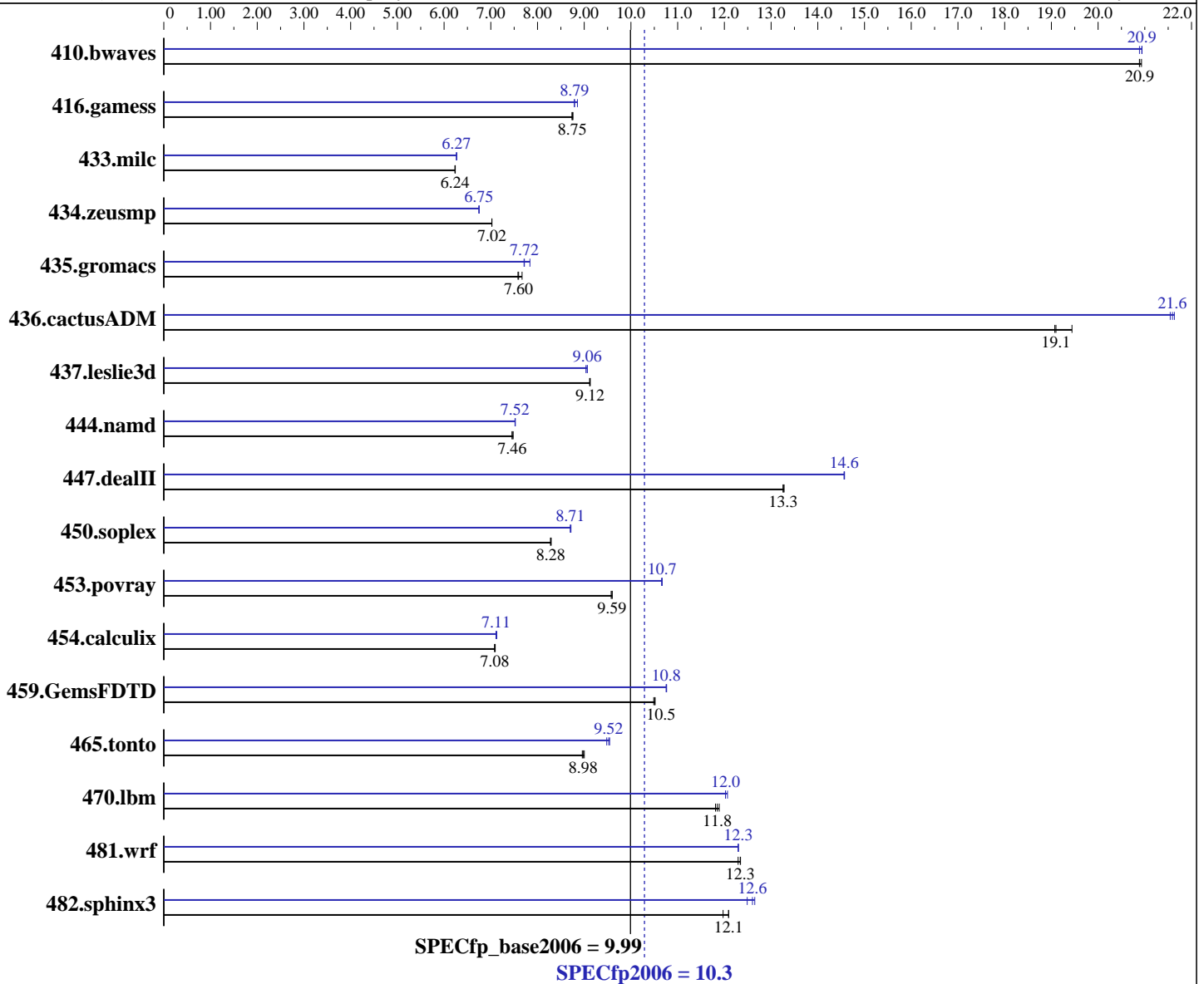
Test date: Aug-2007

Test sponsor: Hewlett-Packard Company

Hardware Availability: Aug-2006

Tested by: Hewlett-Packard Company

Software Availability: May-2007



Hardware

CPU Name: Intel Xeon 7110M
 CPU Characteristics: 2.6 GHz, 800 MHz system bus
 CPU MHz: 2600
 FPU: Integrated
 CPU(s) enabled: 2 cores, 1 chip, 2 cores/chip
 CPU(s) orderable: 1,2,4 chips
 Primary Cache: 12 K micro-ops I + 16 KB D on chip per core
 Secondary Cache: 1 MB I+D on chip per core

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Software

Operating System: SuSE LinuxEnterprise Server 10 (x86_64)
 kernel 2.6.16.21-0.8-smp
 Compiler: Intel C++ Compiler for IA32/EM64T applications, Version 10.0
 Build 20070426 Package ID: l_cc_p_10.0.023
 Intel Fortran Compiler for applications running on Intel 64, Version 10.0
 Build 20070426 Package ID: l_fc_p_10.0.023
 Auto Parallel: Yes

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L3 Cache: 4 MB I+D on chip per chip
Other Cache: None
Memory: 32 GB (16x2 GB PC2-3200R)
Disk Subsystem: 1x72 GB 15 K SAS
Other Hardware: None

File System: ext2
System State: Multi-user run level 3
Base Pointers: 64-bit
Peak Pointers: 32/64-bit
Other Software: None

Results Table

| Benchmark | Base | | | | | | Peak | | | | | |
|---------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 410.bwaves | 650 | 20.9 | 651 | 20.9 | 649 | 20.9 | 649 | 20.9 | 651 | 20.9 | 649 | 20.9 |
| 416.gamess | 2239 | 8.75 | 2235 | 8.76 | 2241 | 8.74 | 2211 | 8.85 | 2227 | 8.79 | 2228 | 8.79 |
| 433.milc | 1472 | 6.24 | 1473 | 6.23 | 1471 | 6.24 | 1465 | 6.27 | 1466 | 6.26 | 1464 | 6.27 |
| 434.zeusmp | 1296 | 7.02 | 1295 | 7.02 | 1296 | 7.02 | 1348 | 6.75 | 1349 | 6.75 | 1349 | 6.75 |
| 435.gromacs | 942 | 7.58 | 940 | 7.60 | 931 | 7.67 | 911 | 7.84 | 925 | 7.72 | 926 | 7.71 |
| 436.cactusADM | 627 | 19.1 | 615 | 19.4 | 626 | 19.1 | 553 | 21.6 | 552 | 21.6 | 555 | 21.5 |
| 437.leslie3d | 1031 | 9.11 | 1030 | 9.13 | 1030 | 9.12 | 1037 | 9.07 | 1037 | 9.06 | 1040 | 9.04 |
| 444.namd | 1075 | 7.46 | 1076 | 7.46 | 1072 | 7.48 | 1067 | 7.52 | 1066 | 7.52 | 1066 | 7.53 |
| 447.dealII | 863 | 13.3 | 862 | 13.3 | 863 | 13.3 | 785 | 14.6 | 785 | 14.6 | 786 | 14.6 |
| 450.soplex | 1007 | 8.28 | 1006 | 8.29 | 1007 | 8.28 | 958 | 8.71 | 957 | 8.72 | 958 | 8.70 |
| 453.povray | 556 | 9.58 | 554 | 9.60 | 555 | 9.59 | 499 | 10.7 | 499 | 10.7 | 499 | 10.7 |
| 454.calculix | 1163 | 7.09 | 1164 | 7.08 | 1165 | 7.08 | 1157 | 7.13 | 1160 | 7.11 | 1160 | 7.11 |
| 459.GemsFDTD | 1009 | 10.5 | 1012 | 10.5 | 1010 | 10.5 | 986 | 10.8 | 987 | 10.8 | 986 | 10.8 |
| 465.tonto | 1093 | 9.00 | 1096 | 8.98 | 1098 | 8.96 | 1031 | 9.54 | 1033 | 9.52 | 1038 | 9.48 |
| 470.lbm | 1163 | 11.8 | 1160 | 11.8 | 1156 | 11.9 | 1143 | 12.0 | 1143 | 12.0 | 1139 | 12.1 |
| 481.wrf | 905 | 12.3 | 905 | 12.3 | 909 | 12.3 | 908 | 12.3 | 908 | 12.3 | 909 | 12.3 |
| 482.sphinx3 | 1612 | 12.1 | 1612 | 12.1 | 1628 | 12.0 | 1541 | 12.7 | 1561 | 12.5 | 1547 | 12.6 |

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

Operating System Notes

'ulimit -s unlimited' was used to set the stacksize to unlimited prior to run
OMP_NUM_THREADS set to number of cores

Platform Notes

BIOS configuration:
Power Regulator Disabled
Adjacent Sector Prefetch Enabled
Hardware Prefetcher Enabled
Hyper-Threading Technology Disabled



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Base Compiler Invocation

C benchmarks:

icc

C++ benchmarks:

icpc

Fortran benchmarks:

ifort

Benchmarks using both Fortran and C:

icc ifort

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:

-xP -ipo -O3 -static -no-prec-div

C++ benchmarks:

-xP -ipo -O3 -static -no-prec-div

Fortran benchmarks:

-xP -ipo -O3 -static -no-prec-div -parallel

Benchmarks using both Fortran and C:

-xP -ipo -O3 -static -no-prec-div -parallel



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Peak Compiler Invocation

C benchmarks (except as noted below):

```
/opt/intel/cc/10.0.023/bin/icc -L/opt/intel/cc/10.0.023/lib
-I/opt/intel/cc/10.0.023/include
```

433.milc: icc

C++ benchmarks (except as noted below):

icpc

```
450.soplex: /opt/intel/cc/10.0.023/bin/icpc -L/opt/intel/cc/10.0.023/lib
-I/opt/intel/cc/10.0.023/include
```

Fortran benchmarks (except as noted below):

ifort

```
437.leslie3d: /opt/intel/fc/10.0.023/bin/ifort -L/opt/intel/fc/10.0.023/lib
-I/opt/intel/fc/10.0.023/include
```

Benchmarks using both Fortran and C:

icc ifort

Peak Portability Flags

Same as Base Portability Flags

Peak Optimization Flags

C benchmarks:

```
433.milc: -prof-gen(pass 1) -prof-use(pass 2) -xP -ipo -O3 -static
-no-prec-div -fno-alias
```

```
470.lbm: -prof-gen(pass 1) -prof-use(pass 2) -xP -ipo -O3 -static
-no-prec-div -unroll2 -no-scalar-rep -prefetch
```

```
482.sphinx3: -xP -ipo -O3 -static -no-prec-div -unroll2
```

C++ benchmarks:

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

```
447.dealII: -prof-gen(pass 1) -prof-use(pass 2) -xP -ipo -O3 -static
-no-prec-div -unroll2 -ansi-alias -no-scalar-rep
```

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Peak Optimization Flags (Continued)

450.soplex: -prof-gen(pass 1) -prof-use(pass 2) -xP -ipo -O3 -static
-no-prec-div

453.povray: -prof-gen(pass 1) -prof-use(pass 2) -xP -ipo -O3 -static
-no-prec-div -unroll4 -ansi-alias

Fortran benchmarks:

410.bwaves: -xP -ipo -O3 -static -no-prec-div -parallel

416.gamess: -prof-gen(pass 1) -prof-use(pass 2) -xP -ipo -O3 -static
-no-prec-div -unroll2 -Ob0 -ansi-alias -no-scalar-rep

434.zeusmp: -prof-gen(pass 1) -prof-use(pass 2) -xP -ipo -O3 -static
-no-prec-div

437.leslie3d: -prof-gen(pass 1) -prof-use(pass 2) -xP -ipo -O3 -static
-no-prec-div -parallel

459.GemsFDTD: -prof-gen(pass 1) -prof-use(pass 2) -xP -ipo -O3 -static
-no-prec-div -unroll2 -Ob0 -parallel

465.tonto: -prof-gen(pass 1) -prof-use(pass 2) -xP -ipo -O3 -static
-no-prec-div -unroll4

Benchmarks using both Fortran and C:

435.gromacs: -prof-gen(pass 1) -prof-use(pass 2) -xP -ipo -O3 -static
-no-prec-div -fno-alias

436.cactusADM: -prof-gen(pass 1) -prof-use(pass 2) -xP -ipo -O3 -static
-no-prec-div -unroll2 -auto-ilp32 -parallel

454.calculix: -xP -ipo -O3 -static -no-prec-div -auto-ilp32

481.wrf: -xP -ipo -O3 -static -no-prec-div -auto-ilp32 -parallel

The flags file that was used to format this result can be browsed at
<http://www.spec.org/cpu2006/flags/hp-ic10-flags.20090714.00.html>

You can also download the XML flags source by saving the following link:
<http://www.spec.org/cpu2006/flags/hp-ic10-flags.20090714.00.xml>



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